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AND

AGRICULTURAL GAZETTE

FOR

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GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE,

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

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COUNTY OF GLOUCESTER AND CHELTENHAM ROYAL HORTICULTURAL SOCIETY.—The days fixed for the Exhibitions of the above Society for 1855 are WEDNESDAY, May 9; WEDNESDAY and THURSDAY, June 6 and 7; and WEDNESDAY, September 5.—Schedules may be obtained on application to HENRY J. COCHRANE, Secretary.
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☞ A quantity of fine Transplanted White Thorns.

FOREST AND ORNAMENTAL TREES AND SHRUBS.
DAVID REID AND SON, NURSERYMEN AND FLORISTS, Leith Walk, Edinburgh, beg to intimate their CATALOGUES as above are ready, and to be had free on application.

EXOTIC NURSERY, CHELSEA.
JAMES VEITCH, JUN., will be happy to forward his new Retail VEGETABLE, AGRICULTURAL, AND FLOWER SEED LISTS on application, and desires to assure those who may kindly favour him with their orders, that he has spared no pains in procuring his supplies from the first growers on the Continent as well as in this country, and that he will use his best endeavours to give his customers entire satisfaction.

SEED GROWERS' SOCIETY.—The Members of the above Society are now prepared to send LISTS of AGRICULTURAL, GARDEN, and FLOWER SEEDS to those who are desirous of having them genuine and direct from the Growers.—Applications addressed to the Secretary, JOHN MOSS, Jun., Feering, Kelvedon, Essex, will meet with prompt attention.

ROBERT KENNEDY, Agent for Messrs. Platz and Son, Seed Growers, Erfurt, has much pleasure in announcing he has received their Catalogue of Flower and Vegetable Seeds for the trade for 1855, which abounds with new articles of great interest, and will be forwarded, per post, on application to R. KENNEDY, Bedford Conservatory, Covent Garden, London.
P.S. Also, R. Kennedy's General Catalogue of British and Foreign Ferns forwarded on receipt of six postage stamps.

GERMAN FLOWER SEEDS.
MOSCHKOWITZ AND SIEGLING, Erfurt, beg to inform the trade that their new Wholesale Catalogue of Choice German and other Flower Seeds, is now ready, and may be had on application to their Agent, Mr. H. HENKEL, 70, Fenchurch Street, London.

AMERICAN PLANTS.
JOHN WATERER begs to announce that he has published a new Catalogue of his Rhododendrons, &c., as exhibited by him in the Gardens of the Royal Botanic Society, Regent's Park, London. It describes the colours of all the Rhododendrons considered worthy of cultivation, with a Treatise on their successful management, and may be had by enclosing two postage stamps.
The American Nursery, Bagshot, Surrey, near Farnborough Station, South-Western Railway.

AMERICAN PLANTS.—A Descriptive Priced CATALOGUE of HARDY AMERICAN PLANTS for the coming season is just published, and may be had by enclosing two stamps for postage. As everything in the way of American Plants is grown to an unequalled extent at this Nursery, intending purchasers would do well to provide themselves with this Catalogue.
WATERER AND GODFREY, Nephews and Successors to the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey.

AMERICAN NURSERY.
GEORGE BAKER'S DESCRIPTIVE CATALOGUE OF AMERICAN PLANTS, &c., as exhibited by him in the Royal Botanic Gardens, Regent's Park, may be had by inclosing two postage stamps.
G. B. begs to call attention to his fine stock of Weeping Hollies, Coniferous Plants, Ornamental Shrubs, &c.—American Nursery, Windlesham, near Bagshot, Surrey, near Staines Station, South-Western Railway, where conveyances may be obtained.

NEW WHITE PHLOX.
PLANTS EARLY IN MARCH.
J. DOBSON AND SON beg to announce that they are in possession of the entire stock of a new WHITE PHLOX, named Omniflora compacta from its profusion of bloom and exceedingly dwarf habit. It was exhibited at the National Floricultural Society, Sept. 7, 1854, when it received a Certificate of Merit. As a bedding plant it will be a great acquisition from the scarcity of white flowers of this class; planted in beds with Scarlet Geraniums it has a very pleasing effect. The following report is given of it in the "National Almanac" for this year:—"A white, of dwarf habit, very compact; the flowers rather small, of good shape and substance; strongly recommended."
Extra strong plants in March, at 3*s*. 6*d*. each.
Woodlands Nursery, Isleworth.

TWO NEW CUCUMBERS.

SIR COLIN CAMPBELL AND GENERAL CANROBERT.

THE ABOVE are two of the Finest and most Superb New Hybrid Cucumbers ever yet sent out for Exhibition, Winter Cultivation, and every other purpose for which a Cucumber is required.

SIR COLIN CAMPBELL CUCUMBER.

The above Cut is an exact representation of one of the fruit grown this summer, which measured exactly ten of its diameter long, being 25 inches, with not more than half an inch handle. It is a splendid Black Spine, of a dark green colour, and free from ribs or shrivels; grows very quick, sets free, and carries its bloom well. As a Cucumber for Exhibition nothing can surpass it, and is very prolific, often throwing out four or five fruit from every joint, and the vines are short jointed. The fruit is solid, and eats very crisp, and for market it keeps its bloom well for many days, not turning colour at the stem or point as most varieties do Fruit was cut from the above in January last, and the same plants continued to produce fine fruit until the end of October.

GENERAL CANROBERT CUCUMBER.

This is also a most superb variety for winter cultivation, for which it is best adapted, being a hybrid from Lord Kenyon's Favourite and Phenomena. It has a great advantage over Kenyon's in length, growing to about 18 inches in the same time in which Kenyon's will grow 12 inches; it is equally as hardy and productive. Of a dark green appearance, Black Spine, and a free setter; fruits freely during the whole of the winter, and always grows a very even size from stem to point. It will swell off two or three fruit at a time on a plant, during the depth of winter, and carry them out well, which it does with less heat than any other: this has been proved when several varieties have been grown together, this having the coldest part of the house. The object of the raiser of the above superb varieties has been to obtain perfection and hardiness, in which he has succeeded, by continually hybridising different varieties.

Sold in Packets of Five Seeds, 3*s.* 6*d.* each, or 1 Packet of Sir Colin Campbell and General Canrobert for 6*s.*

The following fine varieties of Cucumbers and Melons, which have been thoroughly proved and have given the greatest satisfaction to all Purchasers, can be supplied.

CUCUMBERS.

Captivation	2*s.* 6*d.*	Hunter's Prolific ...	1*s.* 0*d.*
Phenomena	2 6	Mills' Jewess	1 0
Lord Kenyon's	2 6	Cheltenham Surprise ...	1 0
Essex Hero	2 0	Manchester Prize ...	1 0
Victory of Bath	1 0	Sion House True ...	1 0
Gordon's White Spine ...	1 0	Cuthill's Black Spine ...	1 0
Sunderland Wick ...	1 0	Conqueror of the West...	1 0

MELONS.

The Queen	1*s.* 0*d.*	Beechwood	1*s.* 0*d.*
Bromham Hall	1 0	Windsor Prize	1 0
Incomparable	1 0	Emperor...	1 0
Golden Ball	1 0	Fleming's Hybd. Persian	1 0
Bowood	1 0	Blackall's Green Flesh	1 0
Victory of Bath... ...	1 0	Bailey's "	1 0
Camerton Court ...	1 0	Snow's Hybrid	1 0

A Packet of either of the Melons will be given to all Purchasers of the two new Cucumbers advertised above.

A Remittance must accompany every Order by Cash or Penny Postage Stamps, and the whole, or any part (as the case may be), will be immediately forwarded.

EDWARD TILEY, NURSERYMAN, SEEDSMAN, and FLORIST,
14, Abbey Church Yard, Bath, Somersetshire.

The New Chinese Potato, Dioscorea (Japonica) Batatas.

MR. JOHN HENDERSON,

Formerly of the Firm of JOHN A. HENDERSON & Co., Pine Apple Place, London,

HAS the pleasure of informing the Public that he has just completed the Purchase from M. PAILLET, of Paris, of his entire Saleable STOCK of the above introduction from China, the nutritive properties of which are said so far to surpass the ordinary Potato that it is likely, not only to act as an auxiliary, but entirely to SUPERSEDE that valuable but uncertain esculent.

The most satisfactory results have followed from personal experiments, and proved that when cooked in the ordinary manner, from the large amount of FARINACEOUS properties it contains, it can NEVER become waxy, as is too generally the case with the Potato. Its FLAVOUR resembles in delicacy an early ASH-LEAVED KIDNEY; but, independent of the above excellent qualities, there is every probability of its taking a still more important position in the ECONOMY of this country, for, when dried and reduced to powder, it is equal to the best ARROW-ROOT; or mixed in the proportion of one-third with two-thirds of wheaten flour, it makes an extremely light and wholesome BREAD, as well as very superior PASTRY.

Messrs. VILMORIN & Co., speaking of it, observe:—"Of all the esculent roots proposed as substitutes for the diseased Potato, the DIOSCOREA JAPONICA is certainly the only important one. It is easily propagated. The tubers are large and long, the flesh very mealy and devoid of any peculiar or disagreeable flavour. The DIOSCOREA JAPONICA is, in our opinion, a PRECIOUS ACQUISITION."

M. PELÉ, Horticulturist, Paris, in his Supplementary Catalogue of this autumn says:—"A new alimentary root, introduced into France by M. MONTIGNY, French Consul in China. Serious experiments have shown that this tuber will be much more advantageous to cultivate than the Potato, both in regard to its QUALITY as well as PRODUCE."

M. PAILLET, to whom the Imperial Society of Agriculture and Commerce of France has awarded the sum of 3000 francs as encouragement for having brought it into cultivation, also notices that "this tuber attains at least 1 to 2 lbs. weight. In its growth it is less delicate than the Potato, which unfortunately has of late years much degenerated. It does not require particular care, and its abundant produce amply repays cultivation. Its taste is pleasant, and being a root which contains a large amount of FARINA, will be a great addition to the FOOD OF THE PEOPLE as soon as it becomes generally known. It is so HARDY that it has passed the winters of 1853–4 in the open ground, without having in the least suffered from frost. It is also found that the STEMS and LEAVES, which are very numerous, form an EXCELLENT FOOD FOR CATTLE."

Tubers, with description of the Chinese Mode of Culture, to be obtained of MR. JOHN HENDERSON, KINGSKERSWELL, SOUTH DEVON, at the following prices, for cash only:—

4 Tubers ... ... £0 10 0 | 10 do. ... ... £1 2 6 | 50 do. ... ... £5 5 0 | 100 do. £10 0 0

Post-office orders are requested to be made payable at Newton Abbot, South Devon. The usual discount allowed to the trade when not less than 50 are taken.—P.S. All orders unaccompanied by a remittance will be considered as not received.

To Farmers, Potato Growers, and Others.

JACKSON'S PATENT PREPARATION

FOR

PRESERVING POTATOES, WHEAT, AND OTHER SEEDS

From DISEASE, the RAVAGES of the SLUG, GRUB, and WIREWORM, in addition to which the CROPS are brought forward in HEALTH AND VIGOUR, and the yield is greatly increased, in proof of which the following extracts are given from numerous letters received by Mr. JACKSON.

EXTRACTS:—

"One of the fields of this farm, the property of MRS. STANBURY, was planted with Regent's Potatoes in April last, some of which were prepared by you. The result now is, that the whole of the crop from the unprepared sets is thoroughly diseased, and hardly worth the trouble of taking up; while those raised by the side of them from the prepared sets, are not only in a beautiful state of preservation from the disease, but the produce is much greater,—the Potatoes are more numerous than the others; indeed, if there were no such thing as the disease to be feared, it would be worth the trouble and expense of preparing the sets by your process, even for the sake of the improved crops. I shall certainly, for the future, prepare all my Potatoes for seed by your process; and I intend to adopt it for preserving my Wheat from the Smut.

"G. B. BAXTER.

"Belmont Farm, Eltham, Kent, August 28, 1854."

"Admiral Sir J. A. GORDON, K.C.B., Marlee House, Blairgowrie.

"SIR,—I have received your note of the 16th. The Potatoes that came here from England, prepared by Mr. JACKSON, were planted in a piece of new ground, and according to the directions sent by him along with them as to distance between the plants, &c. They came up well, with strong healthy stems; I have now taken the whole crop up, and there is not the slightest appearance of any disease amongst them. They are of large equal size and very prolific. There were long black unprepared Kidneys planted in the same patch, and a great deal of them are not fit for use, at least a third part are diseased. I hope Mr. JACKSON's process may be widely known, as it is a great boon.—I am, &c.,

JOHN SHANKS,
"Forester, Kildrummy Castle.

"Kildrummy Castle, Aberdeenshire, November 17, 1854."

"I am very much pleased with the result of the experiments I have made with your Prepared Potatoes; for I planted them, without any manure, in ground where for several years I have hardly had a sound Potato, and I now find the crop perfectly free from disease, and in a very fine condition; while those of the same sort, unprepared, which were planted at the same time, and next to them, are diseased and eaten by worms.

"The Potatoes from the Prepared Seed were so remarkably good that I was induced to weigh them, and I found, to my great astonishment, that they were as 200 to 150 of the others, or about 25 per cent. in favour of your preparation.

"T. AUSTEN, Nurseryman and Seedsman.

"Blackheath, Kent, 24th August, 1854."

Sold by Messrs. CHARLWOOD & CUMMINS, Seedsmen, Covent Garden; and JOHN KERNAN, Seedsman, 4, Great Russell Street, Covent Garden; all Seedsmen and Chemists; and at the Patentee's, 18, Cannon Street, London Bridge, in Packets of One, Two, Three or Four Pounds, or in Bulk for the use of Farmers and Potato Growers.

BASS AND BROWN'S NEW AUTUMN CATALOGUE, supplied free for three Penny Stamps. They have this season a very fine and vigorous stock of the finest Roses, among which are a number of very superb new Continental varieties, consisting chiefly of the perpetual class. The following selections will be highly approved,

ROSES.

100 Standards in 100 very superior varieties	£7 10
100 " 50 " "	6 10
50 " 50 varieties ditto, all selected from perpetuals	4 0
100 dwarfs and half standards, or all dwarfs, in 100 very superior varieties	4 0
100 ditto in 50 varieties, ditto	3 0
50 ditto in 50 varieties, ditto, all from perpetuals ...	2 10
Fine mixed dwarfs, per 100...	1 10

Hardy Herbaceous Plants, Hollyhocks, prize-named Gooseberries, Strawberries, Standard Dwarf and Trained Fruit Trees, Flower Roots, and a variety of desirable articles offered in selection for present planting, for which see *Gardeners' Chronicle*, Oct. 14, page 659, and Oct. 28th, page 690.—Goods, carriage free (not under 20*s.*), to all the London termini, and all Stations on the London and Norwich Colchester Line. Plants added gratis with orders of 40*s.* and upwards.

Seed and Horticultural Establishment, Sudbury, Suffolk.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, &c., which they will forward to any part of the United Kingdom or the Continent:—

Andromeda floribunda, fine, per dozen	12*s.* to 18
25 Azaleas, new hardy Belgian varieties, one of a sort on their own roots	20
25 Azaleas, American varieties, do. do.	16
Hardy Heaths, Ledums, and Kalmias, per dozen ...	6
25 Hardy American Plants, one of a sort	10
12 Rhododendrons, including Scarlet, White and Rose hardy varieties	12
Fine hardy Scarlet Rhododendrons, 2 feet, per dozen	12
New hardy Yellow Rhododendrons, each ...	3*s.* 6*d.* to 5
6 Fine hardy Magnolias, one of a sort	10
50 Dwarf Roses, two of a sort, on their own roots ...	16
Standard and half standard Roses, per dozen ...	12*s.* to 15
Fine climbing Roses, of sorts, per dozen	6
Greenhouse Azaleas, choice varieties, per dozen ...	18
12 Camellias, well set with buds, fine sorts	30
Orchidea Plants, fine species, per dozen	40
24 Choice Ericas, one of a sort	16
6 Bulbs Lilium Lancifolium, one of a sort	12

FRUIT TREES.

Fine standard and dwarf-trained Peaches, Nectarines, Apricots, Plums, Pears, and Cherries. The best and most approved sorts of these respective kinds, to name, each, 3*s.*, or, per dozen	30
Untrained or maiden do., 1*s.* 6*d.* each, or, per dozen	15
Apples, dwarfs and standards of best sorts, per dozen,	10*s.* to 15
Fine Gooseberries, Currants, and Raspberries, per dozen	3
Figs, Medlars, Quinces, Walnuts, and Mulberries, each ...	2
Filberts, new thin shelled and red skinned, per dozen ...	3
Strong Vines, from eyes and layers, in pots, per dozen ...	18

Large stock of Transplanted fine Scotch Larch and Spruce Firs, cheap.

New Gardens and Greenhouses furnished on moderate terms.

Priced Seed List for 1855 *by post.*

Albion Nursery, Stoke Newington, London.—Jan. 6.

HOLCUS SACCHARATUS, OR CHINESE SUGAR CANE.

(See GARDENERS' CHRONICLE, Dec. 30th, 1854.)

MR. JOHN HENDERSON, formerly of the firm of JOHN A. HENDERSON & Co., Pine Apple Place, London, has the honour to announce that he is prepared to supply Gentlemen, Amateurs, and Professionals, with seed of this most valuable and estimable plant.

As the Dioscorea Batatas seems well adapted to make good the deficiency arising from failure in the Potato crops, so this appears admirably calculated to meet many wants of the present day. That it may be used for the purposes of distillation, and may thereby preserve the grain of the country, is not less certain than that the leaf and stem (after the saccharine matter has been extracted) contain a large amount of fibre, of such a nature as can be employed in the manufacture of every kind of paper. In both these points, as well as in many others, this plant demands the attention of every Gardener and Amateur throughout the country, the more so as from the necessity that at present exists for the production of fibres that may be used in paper manufacture a good remuneration may be fairly expected by growers, even after the plant has, so to speak, paid itself by the saccharine matter extracted from it.

Mr. HENDERSON hopes, in a few days, to have ready for the press a more lengthened account of this plant, as well as a complete statement of the latest experiments in connection with the Dioscorea Batatas. As there are many varieties of the Holcus, W. J. H. can only be responsible for seed forwarded by himself, which he is prepared to do in sealed packets, at 1*s.*, 2*s.* 6*d.*, 5*s.* and 10*s.*, according to quantity.

Orders to be accompanied with a remittance to Mr. JOHN HENDERSON, Kingskerswell, Newton Abbot, South Devon.

P.S. Price to the Trade can be had on application.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY respectfully invite attention to their stock of the following very desirable HARDY PLANTS.

Araucaria imbricata, from 2 to 7 feet high; as handsome as plants can be.
Cedrus Deodara, in any quantity, from 1 to 3 feet high
Do. do., 4, 5, 6, 7, 8, and 10 feet high; splendid plants
Cedars of Lebanon, 3, 4, 6, and 10 feet high
Pinus Douglasi, 3 to 10 feet
" insignis, 2 to 7 feet
" Menziesi, 3 to 7 feet
" pinsapo, fine plants, 3 to 6 feet
" Nordmanniana, 1½ to 3 ft., all from seed and remarkably handsome
" nobilis, 1½ to 2 feet; a few larger, 5 and 6 feet high, on their own roots, and with perfect leaders
" Montezumæ, 2 to 4 feet
Pinus canadensis, 3 to 8 feet
Cupressus macrocarpa or Lambertiana, 4 to 7 feet
" thyoides variegata, 3 to 4 feet (the variegated white Cedar)
Juniperus, Upright Irish, perfect columns, 3 to 7 feet
" chinensis, 2 to 8 feet
Yew, common English, 3 to 8 feet
" Irish, 4 to 10 feet
" gold-striped, 1½ to 3 feet
" do., tall standards, 4 to 7 feet
" Dovaston, or Weeping, worked on tall straight stems
Thuja aurea, the finest plants in the country
Libocedrus chilensis, the finest plants in the country
Large variegated Hollies
" Standard Bays

Also an immense stock of large Evergreens, Standard Ornamental Trees, &c.

All the plants here offered may be seen, growing in our Nursery; they are removed every year, and will travel any distance with perfect safety. Of some, such as Araucaria, Deodaras, Golden Yews, Thuja aurea, Pinus nobilis, Nordmanniana, we have any quantity; and the plants, for root and branch, are not to be surpassed. Priced Catalogues will be forwarded on application, enclosing two postage stamps, to WATERER and GODFREY, nephews and successors of the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey, near the Woking Station, South-Western Railway, where all trains stop, and where capital conveyances can be obtained.

The 2*d.* stamp will also include a descriptive Catalogue of the American Plants, Roses, and Nursery Stock in general.

SUTTON'S SHORT SEED LIST.—ON THE LAST PAGE *of the present Number of this Paper will be seen a concise List of the leading kinds of Seeds, which it is hoped will be found convenient to Gentlemen writing out their Seed orders.*

Early commands will have the preference of scarce sorts.

SUTTON & SONS, Seed Growers, Reading.

SUTTON'S COMPLETE COLLECTIONS, CARRIAGE FREE.

PARTICULARS of the SORTS and QUANTITIES contained in SUTTON'S Collections of Seeds will be sent post free on receipt of a stamped envelope with address.

By the perusal of this List, it will be seen that the very best kinds of Vegetable Seeds may be obtained in full quantities, and proper proportions for one year's supply of a large garden for the sum of 3l., and other complete Collections of equally choice sorts for smaller Gardens at 2l., 1l. 5s., and 15s. The economy of cost is by no means the only advantage gained by ordering one of these Collections.

Address, JOHN SUTTON & SONS, Seed Growers, Reading.

RENDLE'S COMPLETE COLLECTIONS OF KITCHEN GARDEN SEEDS *are now ready. They can be had to suit various sized Gardens at the following prices:—*

No. 1 COLLECTION	... ...	£3 0 0
„ 2 „	... ...	2 0 0
„ 3 „	... ...	1 5 0
„ 4 „	... ...	0 15 0

The quantities are fully detailed in their "Price Current and Garden Directory," a new edition of which is just published.

WILLIAM E. RENDLE & Co., Seed Growers, Plymouth.
ESTABLISHED 68 YEARS.

CHARLWOOD AND CUMMINS have to offer SEEDS of the LILIUM GIGANTEUM in packets of 100 Seeds, at 20s., free by post. Also Acorns of the following varieties of American Oaks:—

Quercus alba	per quart	2s. 6d.
„ Banisteri		
„ obtusiloba		
„ nigra		

One-year's Seedling Plants of each ... per 100 ... 3s. 0d.
Abies pinsapo ... ... per 100 seeds 8s. 0d.

They will also have in time for this Season's sowing Seed of the Osage Orange, at 4s. per lb., for which early orders are solicited. Their Catalogue of Agricultural, Garden, and Flower Seeds are ready, and will be sent free on application.

14, Tavistock Row, Covent Garden.

COLE'S CRYSTAL WHITE, & COLE'S DWARF RED CELERY.

J. THORNELEY, COLE, & Co., NURSERYMEN, SEEDSMEN, and FLORISTS, Withington, near Manchester, beg to announce that they are now prepared to supply these two well-known varieties, raised by Mr. W. Cole (late of Dartford).

CRYSTAL WHITE, ½ oz. packets, free by post, for 12 stamps.
SUPERB DWARF RED, ½ oz. pkts., free by post for 9 stamps.
Price per lb. to the Trade on application.

The Gardeners' Chronicle.

SATURDAY, JANUARY 6, 1855.

FOR some time past it has been known that the Council of the HORTICULTURAL SOCIETY had it in their contemplation to introduce very considerable changes into the meetings both in Regent Street and at Chiswick. We have not, however, felt at liberty to introduce the subject until the plans had been finally settled. The Society having at length announced its intentions, we are now able to say with certainty what they are.

It appears that the number of meetings in Regent Street is to be six only: the months of November, February, March, April, May, and June being selected, and that upon each occasion the subjects of exhibition are to be collected upon a scale approaching that of the Garden Meetings, as far as the space to be found in a London house may permit. In connection with this plan, it is proposed that the objects of exhibition shall be open to inspection for four clear hours in the months of February, March, and November, and for five clear hours on other occasions. A schedule of objects, the production of which the Council are ready to reward, is provided for each day of meeting, so as to enable gardeners entering into competition to be prepared beforehand, and also to render each meeting a horticultural illustration of the advancing season. In making the arrangements for these as well as for the Garden Meetings, the Council have received the active assistance of Mr. INGRAM, of the Royal Gardens, Frogmore, of Mr. FLEMING, of Trentham, of Mr. SPENCER, of Bowood, and of Mr. DAVIDSON, of Shrubland Park, under whose advice the classes have been settled and the amount of prizes determined. The co-operation of gentlemen of such acknowledged horticultural eminence cannot fail to be regarded as a guarantee that the best interests of the Society and the public have been consulted.

But so far as the meetings in Regent Street are concerned the objects of exhibition are by no means limited to those enumerated in the schedules. On the contrary, we are informed that the Council invite the exhibition of every valuable article connected with gardens, which may be either remarkable for novelty or intrinsic excellence, and that the merits of such objects will be recognised as far as the funds of the Society will allow. Among the unenumerated articles which are more particularly pointed out are Ornamental Plants, and Useful Fruits or Esculents of all kinds, Models of Improvements in Horticultural Buildings, Improved Garden Implements, and whatever contributes to Garden Decoration. The Council will also be glad to encourage the production of examples illustrating the operations of Arboriculture, whenever they are calculated to throw light upon either the theory or practice of that important branch of rural economy, or upon the quality of British-grown timber. To this are added, Raw Materials from the Vegetable Kingdom useful in Arts, Manufactures, or as Food (Agricultural produce excepted), whether of home or colonial growth. Even Honey in the Comb is not excluded, as it has hitherto been.

It must be owned that this is a very extensive scheme, but we think not more so than may be expected from a corporation chartered "for the improvement of Horticulture in all its branches, ornamental, as well as useful." These words, which are taken from the charter of incorporation, plainly show that in the minds of the advisers of the Crown, when the charter was granted, purposes of utility were to be placed before those of ornament; by now including them on equal ground, the Society is working out the main objects for which it was instituted. Its career opened with an almost exclusive attention to subjects of utility; at a subsequent period ornamental gardening received the greatest encouragement; of late years both have been combined, but we have never before seen objects of utility placed by the Society in so prominent a position. Arboriculture and the Raw Materials of Manufactures! how extensive a field of inquiry do these two subjects occupy, and of what great importance to mankind.

The greatest uncertainty exists as to the real value of even our own wild Oaks, to say nothing of the effect produced upon the commercial value of timber by different modes of cultivation; little or nothing is known of the real quality of the timber produced by the numerous coniferous and other trees introduced to cultivation during the present century; and even as regards some of the timber trees wild in Europe, there is scarcely any satisfactory evidence concerning the influence produced upon the quality of many of them by climate, soil, or situation.

So with regard to textile materials, or substances of a similar nature. The consumption of such articles has become so enormous that the gravest social questions are connected with an abundant or deficient supply of materials, to which, a few years since, small importance was attached. The supplies, for instance, of Hemp have become so insufficient for the wants of manufacturers, even in periods of political tranquillity, that recourse is already had to the importation of many other substances, and there is no doubt that the existing demand will hereafter be greatly increased. It is, therefore, a question of the highest public importance, whether more skilful cultivation may not be applied to the crops of textile plants already cultivated among ourselves, so as to augment produce without deteriorating, if not improving quality; whether new kinds of plants are not at least as suitable to our climate as those already grown among us; and, most especially, what of the innumerable species inhabiting our foreign possessions, of which at present little is known to science and nothing to commerce, can be the most profitably introduced to notice, whether by cultivation in the climates that are natural to them, or by mere collection in the wild state.

Cotton offers a still more striking instance of the pressing necessity of this investigation, and of further attempts being seriously made, not only to improve its quality in those British colonies which already produce it, but to introduce it to others which have not been hitherto thought suitable to such a crop. Of course we do not overlook the extensive experiments that have been made by the East India Company—experiments worthy of so great a body; but it is greatly to be wished that such attempts should not only be continued in India, but imitated wherever circumstances are favourable to the operation.

Another class of plants consists of those which can be employed in the manufacture of paper. Raw material for this purpose is already becoming so scarce that even straw is largely employed in the absence of a more suitable substance. Nevertheless, we are perhaps surrounded by plants whose fibre may be advantageously converted, although we are at present ignorant of their possessing the properties required by the paper-maker. It is possible that such plants might be profitably cultivated; it is still more possible that the refuse of certain branches of cultivation may have a market value now unsuspected; and it is at least certain that our tropical colonies abound in the requisite substances, now wild and unrecognised, but susceptible of ready collection or cultivation.

Upon these grounds we feel persuaded that the proposals now made by the Council of the Horticultural Society will meet with support, and that they will eventually enable us to know with certainty what our home or colonial capabilities really are, either in the state of unaided nature or under the direction of intelligent cultivators. The public exhibition of results, and a recognition of merit by the distribution of medals and rewards, appear to offer the most ready means of effecting this very desirable object.

If from the consideration of the plan for extending the importance of the meetings in Regent Street, we turn to those great assemblages now called Garden Meetings, we find that material changes are there also made, although upon different grounds. In the first place they are to be held on Wednesdays instead of Saturdays. We are, moreover, informed that "the coldness of our spring weather, and the backward state of vegetation, have of late years rendered the Society's Garden so little attractive is the early part of May, that the Council have been anxious to find some place near London in which the first meeting can be held instead of Chiswick; and they announce officially that Her Majesty's Commissioners for the Exhibition of 1851 have most obligingly placed the grounds of Gore House at the disposal of the Society, in consequence of which the great meeting on Wednesday, May 16, will be held in that garden instead of Chiswick." This will, we imagine, be found a very satisfactory arrangement. The grounds belonging to the Royal Commissioners at Kensington Gore are very conveniently situated, and well adapted to the proposed purpose; and it must be owned that to drive five miles from Hyde Park Corner to see an exhibition in a garden when the trees are not in leaf, and all that renders such a place most attractive is necessarily absent, does seriously task the zeal of the admirers of Garden Meetings and Chiswick flower shows. In June and July the exhibitions will be held in the Garden of the Society as heretofore.

We observe with pleasure that the Council have contradicted as follows an unfounded report, to which we adverted some months since:—"It has been confidently asserted within the last two years that the Society is about to abandon its Garden. Such a statement is wholly without foundation. The Garden is held of His Grace the Duke of Devonshire upon a lease, which does not expire till Michaelmas, 1881. It seems almost unnecessary to add that if it had been the intention of the Council to surrender the Garden, the Fellows of the Society would have been immediately acquainted with the fact, and not left to derive their information from common rumour."

Such is the substance of the announcement that has just been made. To borrow once more the words of the Council:—"The Society has now existed as a corporate body for forty-five years, during which period it has constantly promoted the interests of Horticulture to the utmost extent of the means at its disposal. A very large proportion of the finest exotic plants and fruits now common in our Gardens has been introduced by its collectors. A distinguished naturalist (M. Botteri) is at this time engaged in exploring the rich vegetation of Orizaba, and his contributions, which have already begun to arrive in England, will speedily be in course of distribution." We therefore trust that, even amidst the din of arms, this great national institution will be so supported that it may continue to remain what it has hitherto been, the most distinguished association of its class.

THERE is a letter in our pages to-day, signed T. R., on the cost of digging at Lois-Weedon; and we have inserted it,—not because we regard the writer's objection as sound or his practice either good, or like that of Lois-Weedon, but simply as a vehicle for a few words of explanation on a point which is generally useful to the cultivator of the soil.

The writer states his practice to be to dig his clay land two spits deep. He does not state the depth of his staple; but, taking it at the outset to be 6 inches, and each spit to be 10 inches, he digs 20 inches deep at once, bringing up 14 inches of the raw clay subsoil, which will take years and years to become pulverised and mellow, and fully productive; and for this comparatively unproductive operation he has to pay the heavy penalty of 8*l.* per acre.

Let him mark the difference of the practice at Lois-Weedon, and he will no longer wonder at the difference in the cost. The rule laid down in the "Word in Season to the Farmer" is "to bring up only 4 or 5 or 6 inches of the subsoil, according to its nature, whether tenacious or loamy or light. To bring up more at the outset would be *a wasteful and injurious expense*" (p. 53, 13th ed.). And the reason for that rule, with reference to heavy land especially, is that it may have time during the year's fallow to become mellow and productive for the succeeding crop; that its mineral elements of fertility may become gradually soluble; and that its

texture may be changed from cohesive clay into friable mould.

To follow this rule, then, in the case of a ploughed staple of 6 inches, only 4 inches of heavy subsoil are to be raised at the outset, and the depth altogether, either at two shallow spits of 5 inches each, or at one full spit, will then be 10 inches. The cost, then, at the outset, of digging this one spit will be about 60*s*. the whole acre, or about 30*s*. the half acre—a price which, of course, will vary a few shillings under special circumstances in the condition of the soil, and according to the employer's knowledge of the value of labour.

At the next digging another inch of subsoil is to be raised, and as the first 10 inches will now be pulverised by constant stirring and exposure, this second easier digging can be accomplished without raising the price; and so on, year after year, till a well pulverised depth of two full spits be attained, "beyond which it is neither needful nor convenient to go."

There are other objections to Mr. Smith's scheme of cultivation, resulting in failure; and we really think we cannot do better than lay before our readers what Mr. Smith himself says, in the preface to the new edition of his pamphlet, in a few words to those who have tried the plan and succeeded:—

"I have still a word for those who have tried the plan, *and not succeeded;* and in repeating what I have said in the former edition, I again bespeak the indulgence of those whom it may concern, wherever they may be. I reiterate, then, my declaration, which I make with great deference but with the utmost sincerity, that *I never knew an unsuccessful case where I have known the plan to have been strictly carried out.* Is it not possible then, that the obscure directions have been misunderstood, in some cases, in others unknowingly overlooked? Let me be forgiven if I presume to think it possible, and with that impression reproduce them in another form, and place them in a stronger light, clear, distinct, and tangible,—the form of question and answer; and let the unsuccessful experimenter look each question boldly in the face, and reply to it himself. Any annoyance, any distasteful recurrence to catechism, rather than stumble on in error.

"To begin with the material on which you work, put it to yourself:—

"1. 'Is it Wheat land I am cultivating,—clay or loam? If not, have I manured it? Before commencing, did I drain, clean, and level?

"2. 'In sowing, did I drop or drill my well-selected seed, *early;* and give it a solid bed.

"3. 'In digging the intervals, did I bring up only so much of the subsoil as could be thoroughly pulverised and mellowed for the succeeding crop; of clay only a few inches, of any subsoil just so much as would lose its rawness during the twelve-months' fallow?

"4. 'In cleaning the rows of Wheat and the spaces between them, did I hand-pick and hand-hoe the weeds, and keep the surface open.

"5. 'In scarifying the intervals, did I, besides cutting up and removing the hungry weeds, so time the operations of cleaning and stirring, that I fed the Wheat plant as it required it?'

"In the latter question is a high refinement in farming which has been left in the directions to the judgment of the operator. The intelligent farmer is fully aware that early in spring a well-timed application of guano or nitrate of soda is of infinite service to the poverty-stricken plant. Now, a judicious stirring of the intervals, under similar circumstances, is equal in its good effects to a top-dressing of either; just as an ill-timed and injudicious application of the horse-hoe is equal in its ill effects to a top-dressing of guano or the nitrate given without discretion; and the result of that is now well known, in late tillering, over-luxuriance, and mildew.

"There are many other questions to be responded to, but these may be considered the leading ones. One and all must be satisfied in order to full and entire success; most of them being indispensable to any success at all. And if, as judge, accuser, and defendant in one, a man confess himself unable to reply to them affirmatively, he stands convicted out of his own mouth, and I leave him to the sentence of his own honest judgment."

New Plants.

108. Catasetum incurvum, *Klotzsch in Allg. Gartenzeitung, June* 17, 1854.

The singular plant now figured was obligingly sent us last summer by the Lord Bishop of Winchester, who had purchased it at one of Warczewitz's sales, under the name of *C. secundum.* The flowers are represented by our artist of the natural size, so that they are probably the largest yet discovered among the race of Orchids. Of a dull green, streaked and stained with purple, the great blossoms resembled nothing so much as some portentous Arachnid seizing upon the shaggy ear of an unhappy animal, and turning it inside out in the struggle to grasp it, till a pair of horns with which the Arachnid seemed furnished could be plunged into the ear, in order to hold it fast. It is most like *C. saccatum,* and, we presume, is what has been called *C. incurvum* by Dr. Klotzsch. Whether it is a monster, as it well may be, or merely a gigantic form of *C. saccatum* itself, we are unable to say. No one, indeed, in the present state of knowledge can pretend to form a positive opinion as to what are

natural, what monstrous, what permanent, what accidental states of the genus Catasetum. The best service that can in the meanwhile be rendered to science is to publish figures of the flowers of as many forms, larvæ, species, or whatever else they may prove to be as appear to be different from each other. Eventually we shall no doubt learn how to interpret them. As regards the name of *C. secundum,* the drawing and dried specimens to which that name was provisionally given, although similar in form, were so very different in many respects, especially in size, that we can scarcely believe this plant to be what was intended. In fact, the name was suggested by the numerous flowers growing in a long secund or one-sided raceme.

VEGETABLE PATHOLOGY.—No. LIII.

236. Classification of Disease.—*a,* Internal or Constitutional.—*Functional.* It is probable that no constitutional disorder of the system can exist without concurrent organic change. This change may be only temporary. New circumstances or proper remedial measures may correct the existent evil, and the affected organism may return to its normal state of health and perfection. It is, therefore, strictly speaking, improper to distinguish functional from organic disease. Our powers of investigation may not be sufficient to detect the organic change in what is called functional disease, which may notwithstanding be more or less serious. It is to be understood, then, that in speaking of functional disease, it is not asserted that no organic change has taken place, but only such a degree of disarrangement as is not perceptible to ordinary powers of observation.

237. Functional disease is seldom so formidable as organic. From the very nature of the case, if death takes place, there must be some organic lesion, and the disease then ceases to be functional. Functional disease may, however, so depress the vital powers as to render the organism which is subject to it more exposed to the baneful influence of any accident, or as to induce serious organic disease, in consequence of defective elaboration of the sap, inactive generation of cells, insufficient deposit of nutriment, premature thickening of the cell walls, or by exposing the various matters which enter into their composition, or into that of the solid and fluid substances which they inclose, to the ordinary rules of chemical decomposition, and consequently to ultimate deorganisation of the constituent parts of the plant. The functional malady has in fact induced organic change.

238. However true it may be that vital force is only a name for a certain set of phenomena, so long as the cause of those phenomena is unknown, there is no serious objection to the term, provided we retain a proper consciousness of our ignorance. In functional disease this vital force may either be excited to such an extent as to produce unnatural development of different parts, to exhaust the powers by over excitement, or by the production of insubstantial cellular tissue which is not at all adapted for the maintenance of its proper functions, or to resist external influences which under other conditions might be harmless; it may, on the contrary, be depressed so as to prevent the completion of certain processes, as the formation of the floral envelopes or the proper impregnation of the ovules when formed; or, again, it may be so deranged as to induce abnormal conditions of the contained fluids, or the walls by which they are inclosed. These various conditions again may be so combined or modified as to afford the cultivator many useful objects of cultivation, often in consequence of their inducing organic change, insomuch that the promotion or sustenance of the peculiar functional derangement is the point to which his skill is principally directed. While on the one hand, for instance, sterility is the most injurious functional derangement which can occur, as in those trees which are cultivated simply on account of their fruit, there are others where the grand object is to encourage it as much as possible, or to defer the formation of fruit to the most remote period. A variety of Turnip or Cabbage, for instance, which has a tendency to run to seed, is perfectly useless for the objects of the cultivator, as fertility can only take place at the expense of the unnatural development of the cellular tissue of the root. The functional peculiarity, whatever it may be, which in the particular variety induces an organic hypertrophy, may at the same time induce a second functional derangement by which the formation of the organs of reproduction is retarded; and other cases might be induced where it is either altogether prevented or where the formation of perfect seed is a comparatively rare occurrence.

239. The true bearing of the terms functional and organic being thus explained, and their intimate connection with each other, I shall proceed to the consideration of specific diseases, keeping the distinctions above stated as strictly in view as it is possible, where they are so apt to elude the nicest appreciation. *M. J. B.*

PEAR GROWING.

The observations of "H. S. H." in the *Chronicle,* pp. 806, 807, 1854, prove that their author is an attentive cultivator. He has the rare good fortune to possess Pear trees which have attained the age of three-quarters of a century. He wishes to leave his trees as they are, and he is perfectly right. I would never induce any one to fell, or to mutilate large fruit trees, even if they only yielded fruits fit for kitchen use. It requires too much time and trouble to rear them. Pear trees of that advanced age must have retained all the vigour of youth, and by proper treatment may be preserved a long time in this state, and yield every year full crops. The care which this description of tree requires is not expensive, and in an ordinary year will not exceed the one-fifteenth or one-twentieth of the produce.

It is only necessary to bring the trees under a good system of pruning, to remove carefully all insects, to supply manure every year in order to repair the exhaustion resulting from very heavy crops. Let us suppose that the trees have been grown from their youth without pruning, that the main stem divides at a certain height above the ground, and that the upper branches have taken the directions natural to the varieties cultivated by "H. S. H." It is even possible that among them there may be some which have preserved an up-

right stem. The pruning applicable to these consists in removing, every year, the over-luxuriant shoots which spring up in the interior of the tree, and also the branches which cross and make confusion. The secondary and lateral branches should be kept in a horizontal direction, or made to form a wide angle with the vertical stem, or with the larger branches.

If the pruner observe branches that are too near each other he must thin them out, in order that the air may circulate freely, and that the solar rays may have access to produce their beneficial influence on the organs of fructification. If he see that these organs are too numerous, he must cut off part, especially spurs that are clustered, weak, and exhausted from long and abundant bearing. Judicious pruning will invigorate these large trees, and retard the period of their decrepitude. It ought to be borne in mind that the finest and best flavoured fruits are borne on young spurs from vigorous branches, or on the upper part of the vertical stem. In cutting off weak and bad placed branches, the cut is not made level with the bark of the stem or branch left, but only to the basement of the branch cut off [to those projecting rings which may be observed at the bases of lateral branches]. These wounds heal much better if they are immediately covered over with a mixture of clay and cow-dung. Bruised and cankered portions and excrescences should be cut to the quick, and then covered with the above composition. These operations should be performed according to the nature of the soil and the vigour of the tree—before the winter solstice in a dry soil; and, after the severe frosts are over, in February, where the soil is strong and rather moist.

Immediately after the trees are pruned they should be cleaned from those insects with which they are usually infested, and more especially old trees. Indeed, the older the tree the greater is the number of insects by which it is attacked. The withered leaves, rolled or stuck on the branches, twigs, or spurs, harbour myriads of insects. The wrinkles between the fruit-buds or in the axils of the ramifications, the small grey rings which surround the fruit-buds, and the larger ones of a bright brown colour which surround the last year's shoots, the nests of every kind which may be observed in the crevices of the old bark of aged trees, contain legions of insects known to the entomologist. All these receptacles ought to be carefully removed. The old bark should be scraped off smooth from the trunk, and the latter done over, from top to bottom, with a composition of clay, cow-dung, and about one-third of wood ashes. A first cleaning, carefully performed, will preserve the tree, and the labour in following years will be of less importance.

If, on the contrary, the cleaning is omitted, all sorts of insects will be hatched at the first flow of sap: some perforate the corolla and devour the ovary of the young fruit; others attack the fruit already set, and destroy it; others cut the shoots, and devour the leaves, destroying the verdure of the tree, the vegetation of which thus receives a mortal stroke in the midst of its spring or early summer development. When we see the fruit drop successively in May, though scarcely set, we must not attribute it solely to the severity of the climate. There are other causes. Has the tree sufficient nourishment in the situation in which it is placed? Have there not been left upon it too many fruit spurs, producing a superabundance of flowers, tending to weaken the productive powers? In this weak state, is it not possible that insects, if not previously removed, will complete their work of destruction? Induce good vigour in the tree by pruning and thinning the branches; keep it clear from insects, and give it as sufficient nourishment as we would to other productions of the soil: in these things consists the great secret of the culture of full-grown Pear trees.

What is the kind of manure that a full-grown Pear tree requires as nourishment and as a stimulant?

I shall confine myself to the practical consideration of this question. The Pear tree, when planted in a kitchen garden, finds, by means of its fibrils, the nutritive substances which it requires. For strong soils, the preference is given to horse-dung mixed with rotten straw. For light soils, on the contrary, cow-dung is given. By the use of horse-dung in strong moist soils the ground is rendered warmer and more porous. On the other hand, the excessive heat of light soils is moderated by cow-dung. It is in these decomposed manures that the spongioles of the roots find the nourishment indispensable for the production of fruit. Nightsoil, cow-dung, or other manures in a liquid state likewise produce stimulating effects upon the vegetation of the tree and its products. It is also to be remarked that the Pear tree planted in a kitchen garden always yields fruit, and continues to be tolerably vigorous, provided that the spade in the hands of an ignorant workman does not destroy the upper roots of the trees, and thus neutralise the benefits that otherwise would result from the manure. If the trees are in an orchard where domestic animals are allowed to graze, the same nourishment as in the case of the kitchen garden must be given, otherwise the trees will become barren; or if they, by chance, bear some fruit, it will be small and without flavour. The turf should be removed round the tree to the distance of 2 feet, in order that the air and the sun's rays may produce their beneficial effects upon the roots near the surface. Throughout the winter these should be covered with leaf-mould and various manures suitable to the nature of the soil. At the end of autumn the turf of an orchard should have a top dressing of ashes, lime, rotten horse dung, cow dung, or sheep's dung, according to the nature of the soil. This general manuring should be repeated every two years, and in such quantity as the soil may require. An orchard kept for fruit trees only requires stimulating manure every year, to the amount of 2½ to 3 bushels for every 50 square feet. Stimulating manure in a liquid state, given in the first fortnight in March, will contribute greatly towards starting the trees into a good state of vegetation, and will promote the setting of the fruit, especially if the trees have been well thinned and cleaned from insects.

It is needless to add that the varieties of Pears planted in an orchard ought to be of a hardy vigorous nature, if we wish to obtain satisfactory results. They ought to be selected from amongst those varieties that are adapted for orchard culture. This important point deserves to be treated of in a special article. *J. de Jonghe, Brussels, Dec.* 20, 1854.

PODOLOBIUMS.

These, when well-managed, are very handsome plants, and well worth a place in even select collections. In procuring young plants of any of them from the nursery beginners should be very careful to obtain such as are stocky, healthy, and not under or over-potted; for any of the Podolobiums will be found to be somewhat difficult subjects if they are ever allowed to get into a bad state of health, and of course they should not be purchased in that state. If they are obtained at the present season they will merely require a careful supply of water and a rather airy situation in the greenhouse during winter. Early in March place the young plants in the closest part of the house near the glass, and have soil &c. in readiness to give a shift as soon as it may be necessary; but defer this until the pots are moderately filled with healthy active roots. After potting water cautiously, keeping the atmosphere rather close and moist, and sprinkling the plants lightly over-head on the afternoons of fine days, in order to encourage the roots to strike into the fresh soil. When fairly established after shifting, a more liberal supply of water will be necessary, but this must still be administered with care, and air should be freely admitted on fine days, but avoid cold drying currents. Plants that have several shoots should have these tied out directly after potting, keeping them thin and the points rather low, in order to induce the back buds to push forward, and those that are at all inclined to be straggling should be stopped as soon as the roots are supposed to have got hold of the fresh soil.

As the weather becomes warmer in spring give air more freely, and do not through impatience subject the plants to an artificially warm temperature; for few of our greenhouse hard-wooded plants bear anything like forcing, and the Podolobiums are perhaps more impatient of such treatment than most others. About the beginning of May the young plants may be removed to a cold frame, which will be the best possible situation for them during summer. If cold stormy weather occurs after the plants are removed hither, cover the glass at night, and regulate the admission of air during the day so as to prevent their sustaining any check. In fine weather too much air can hardly be given, and a thin shade should be thrown over the glass on the forenoons of bright days; also keep the atmosphere moist by frequently sprinkling the floor of the pit, and the plants should be lightly syringed every fine afternoon, shutting them up before the sun is quite off the glass, so as to give them a good steaming for the evening, but air should be given before night. Healthy vigorous plants will probably want a second shift by Midsummer, and it will be safer for beginners to give two small shifts in the course of the season than to give a large shift in spring; the second shift should be given as soon as it may be wanted, in order that the plants may get moderately well rooted into it before winter. Attend to the stopping of any over-luxuriant shoot and to keeping the shoots nicely tied out, and aim at securing well-placed, useful growth, and not such as will require to be largely cut away next spring. Discontinue shading and sprinkling over head as soon as the weather becomes cool in autumn, and give the plants the benefit of the night dews, placing the lights when the weather is at all doubtful so that they will throw off heavy rains. Remove the plants to a light airy situation in the greenhouse before there is any danger of their suffering from damp or cold; and during winter give them a careful supply of water at the root, and turn them partly round at least every fortnight. Also examine the under side of the foliage occasionally for red spider; and if there are any indications of the presence of this enemy, lay the affected plant on its side on a clean mat, giving the foliage a good washing with the syringe, and let this be repeated as often as may be necessary to thoroughly eradicate this pest. In spring the plants should be removed to the warmest part of the house, and moistened with the syringe on fine afternoons, to encourage them to start into growth. See to stopping or cutting back the shoots as may be wanted, removing the flowers as they make their appearance, and treat them during the summer as recommended for last season. After a second season's growth, if all goes on well, they should be nice-sized little specimens; and if they are considered large enough to be worth attention for flowering, let them occupy a cool part of the greenhouse until after flowering, when the shoots should receive whatever pruning or training may be necessary, keeping the plants rather moist until they start into growth, when they should be repotted, treating them during the remainder of the growing season as nearly as on former years as circumstances will admit, placing them in a cool moist part of the greenhouse when they become too large for a cold frame. If well managed good large specimens will soon be obtained, which, with careful treatment, will last for several seasons; but be prepared for the occasional loss of a specimen by having young plants to succeed it. Be careful to keep them perfectly free from red spider, and to keep the soil in proper state as to moisture, giving water only when it is absolutely necessary, and then giving a good soaking.

The best soil for Podolobiums is rich turfy peat broken small and liberally mixed with clean sharp silver sand, some small clean potsherds or lumpy bits of charcoal. In potting use plenty of draining materials, and be careful to have the soil in a nice healthy state as to moisture, making it rather firm about the old ball, to prevent the water passing off through it, and never shift a plant until it actually requires more pot room, nor when the roots are not in a healthy active state. *Alpha.*

LIST OF ANNUALS.

Of different kinds of Annuals we have now a great many in cultivation, and yet their number is yearly augmented, many of them ranking amongst the most showy plants which adorn our flower gardens, whilst others are invaluable for the decoration of our greenhouses, &c. My object in furnishing the following selection is not merely to give a list of those which are so well known, such as Nemophila insignis. Clarkia pulchella, and the common Candy-tuft, but to make a few common-place remarks on some of the more rare kinds, or, if not rare, such as are seldom seen in cultivation so much as they deserve to be; while at the same time any seedsman may supply nearly the whole of them for a very trifling sum.

Bartonia aurea.—A showy Californian plant, with rather a straggling habit, and remarkable for its large bright yellow flowers, and numerous long stamens; it grows from 18 inches to 2 feet in height, and is well adapted for patches on borders.

Bahia latifolia.—This is a strong-growing Californian plant, which branches very much, and rises about 2 ft. in height. Its flowers are star-shaped, of a pale yellow, and are produced in abundance. It is well adapted for patches.

Cacalia sonchifolia.—This is a very beautiful East Indian plant, of erect habit; it grows about a foot in height, and bears flowers of a golden yellow colour. It is a most desirable plant for patches or beds, and requires to be sown thickly.

Calandrinia umbellata is a very dwarf plant, which throws up numerous scapes of blossoms, about 6 inches in height. Its flowers are of a rich glossy red colour. It is a charming little plant, either for rockwork, patches, small beds, or pots; it requires to be sown in pots early in spring, as it does not bear transplanting well. It is a native of Chili.

Calandrinia discolor.—This is also a dwarf Chilian plant, with thick fleshy leaves. It throws up its racemes of flowers about 12 inches in height, the flowers being of a rich rose colour. It is well adapted either for patches or beds, and requires the same treatment as C. umbellata.

Calceolaria chelidonioides.—This can be had in flower in any season of the year; it grows about 18 inches in height, and produces abundance of pale yellow blossoms, which are, however, of short duration. It is a desirable plant for filling up vacant spaces, as it comes into flower so soon. It was introduced through I. Anderson, Esq., of Edinburgh.

Campanula (Specularia) vincæflora is a pretty plant when grown in masses; it rises about 12 inches in height. The flowers, though rather small, are of a deep blue colour, with a white throat, and are produced abundantly. It is a native of New Holland, and is altogether a good thing.

Campanula (Specularia) pentagonia.—This much resembles the former in habit, but has larger flowers, of rather a paler colour. It is a native of the Levant. There is a variety with white flowers called C. pentagona alba.

Cenia turbinata.—This is a Camomile-like Cape plant, which flowers most profusely. The flowers are of a white colour, and rise about 6 or 8 inches in height. It is well adapted for borders or beds, or it would even make nice edgings. C. turbinata formosa is a variety with yellow flowers.

Clintonia pulchella is a delightful little annual, which is not so much cultivated as it should be. It is well adapted for pots, patches, or beds, and is best sown where a gentle heat can be afforded it. It is a native of N. W. America.

Coreopsis coronata.—This is a showy plant, with large star-shaped pale yellow flowers, with a purple centre. It grows from 18 inches to 2 feet high, with thin wiry stems, and is of a straggling habit, but makes a most beautiful bed, or it may be sown in patches. It is a native of Mexico.

Dianthus Gardneri is a neat Pink, which throws up its flowers about a foot high. The latter are of a deep red colour, with a fringed edge. It is well worth growing in pots, and forms a beautiful bed through the summer. It comes from the south of Europe.

Eucharidium grandiflorum.—This is a pretty plant, which grows about a foot in height, and has flowers much resembling those of Clarkia pulchella, though darker; it is a most profuse bloomer, and is well adapted for beds, patches, or long lines on borders. It is a native of North America.

Eucnide Bartonioides is a very showy South American plant, with large flowers of a bright yellow colour. It grows about a foot high, and is of rather a straggling habit. It is a tender plant, and only suitable for pots.

Eutoca viscida.—This is one of the best of annuals. Its flowers are of a deep blue, and are produced in great abundance; it grows about a foot high. It makes a pretty bed, or good specimens of it may be grown in pots. It is a native of California.

Gaillardia picta.—This is a splendid thing, with star-shaped flowers of a purple colour, with a yellow edge; it grows about a foot in height, with slender stems. A good plant either for beds or patches. It is a native of Louisiana.

Gilia achilleæfolia is a neat Californian plant, of erect habit, and when sown thickly makes a most beautiful bed. Its foliage is of a dark grass-green, and its flowers of a dark purple and blue colour; it grows about 15 inches high. It is a stronger growing plant than G. tricolor.

Gnaphalium (*Helichrysum*) *bracteatum.*—The old Everlasting. This, although a very old New Holland plant, is not seen in cultivation so much as it deserves to be. Its large yellow flowers render it a very conspicuous object. It grows about 3 ft. hign. There are also white varieties of it. It is best grown in patches on borders.

Godetia Schami.—Of all the Godetias this one is the best. It grows about 15 inches in height, and produces an abundance of large pale rose-coloured flowers, stained with a bright red blotch in the centre of each petal. It is altogether a very desirable plant, well adapted for beds. It is a native of California.

Heliophila trifida is an interesting little plant, either for green-house decoration in spring, or open borders in summer. It grows about 9 inches high, and produces abundance of small blue and white flowers. It is a native of the Cape of Good Hope.

Hibiscus africanus.—This is a profuse blooming plant, which well deserves cultivation. Its flowers are dull white, stained with purple; it grows about 18 inches high. It makes a pretty bed, and is also a good thing for borders, keeping in bloom throughout the summer. It is a native of Africa.

Ipomœa Burridgi.—This plant resembles the common Convolvulus major, of which it is a variety. It is a profuse blomer, with rosy-pink flowers, melting into white in the centre. It is well adapted for covering trellis-work. *J. H. Beckman.*

(*To be concluded next week.*)

Home Correspondence.

The Lois-Weedon Cultivation.—I have always been interested in the perusal of Mr. Smith's pamphlet, but one stubborn fact has invariably met me, viz., the cost of the double digging, and I may also add that of the single or common digging or forking. I am a nurseryman, and have many acres of land with a stiff clay as subsoil under cultivation with the spade; this is a fine Wheat soil, and has often given from 5 to 7 quarters per acre of Wheat when under the plough. Now this land when first broken up, and indeed, always, costs 1*s.* per rod to double dig, *i.e.*, to dig two spits deep, and bring the bottom spit to the top; this of course is 8*l.* per acre. Now if I understand it correctly, I read in your columns last week that the double digging of the spaces between the crop on an acre amounting to half an acre of land, costs only 1*l.* 10*s.*, or 4½*d.* per rod. Again, the single digging of the same quantity of land, costs 10*s.*, or 1½*d.* per rod. Every year I have many acres of land double dug; the stiff clayey land costs invariably 1*s.* per rod, or 4*l.* the half acre, and when the subsoil is broken up for the first time, often 1*s.* 2*d.* or 1*s.* 3*d.* per rod, and a tender loamy clay without stones that has been nearly a century under spade cultivation costs 10*d.* per rod; this is the lowest price I have ever given, and the labourers require being looked after very sharply to make them do it thoroughly and well. I have lately employed Parkes's forks, which have made the work less laborious, but have not decreased the expense, as their wear and tear is most rapid when employed for double digging. For single digging or forking my price is, for stiff badly working soils 3*d.* per rod, or 1*l.* the half acre; for friable free-working soils, 2½*d.* per rod. Now this great difference in the cost of labour in counties so near to each other as Hertfordshire and Northamptonshire is of vast importance to the carrying out the Lois-Weedon system. I am inclined to think that there must be some error in the Lois-Weedon prices. Perhaps some Northamptonshire friend can throw a little light on the subject. *T. R., Herts.*

Pears on Quince Stocks in Mississippi.—The following extracts from the proceedings of the American Pomological Society just published, are of interest as showing the effects of a warm climate and rich soil on Pears. The soil near Natchez, in which the trees alluded to below grow, is a rich black vegetable mould 18 inches in depth, resting upon a stratum of hard clay, underlaying which is a yellow loam filled with fresh-water shells. Climate: winters generally mild and open; snow seldom falls; the thermometer has been known to fall to 14°, but this is very unusual; the temperature during the months of May, June, July, August, and September is almost torrid, the thermometer rarely falling under 80°, and often rising to 90° and 95°. The latest kinds of Pears ripen early in the autumn. Williams' Bon Chretien, on the Quince, fruit large, many weighing fully 1 lb.; in eating during all July and August; requires gathering before ripe and ripened in fruit cellar. Duchesse d'Angoulême: trees on Quince stocks, six years old from the bud; 20 feet and more in height; stems 6 to 8 inches in diameter; fruit large, many 1½ lb.; flesh buttery, and very juicy; in eating all July and August. Beurré Diel: on Quince stocks; trees seven years old, large and vigorous, bearing heavy crops; after thinning this season, 150 specimens were left on each tree, weighing from 1 to 1½ lb. each; they ripened finely in the cellar; in eating all July and August; quality first-rate. Winter Nelis: on Quince; fruit large; flesh buttery and very melting, abounding in rich aromatic juice; in eating October and November; quality quite first-rate. Chaumontel: fruit very large, weighing 1 lb., ripe in October and November; flesh buttery, sugary, and melting, with a slight perfume. Glou Morceau: on Quince; trees ten years old, large, and growing very vigorously; fruit large; flesh buttery and exceedingly sugary; ripe in October. Marie Louise: fruit large; flesh very sugary, having also a high vinous flavour; ripe in August. *T. R.*

Zephyranthes.—Am I correct in supposing that what they now call Z. candida is that which we used to call Tubispatha? I should also be glad to know whether the other species (such as Rosea, Atamasco, Carinata, and Grandiflora,) are as hardy as that one which flowers in my border without being near any flue. *A. H.*—[The learned author of Amaryllidaceæ considered Z. candida to be separable from tubispatha, almost as a genus, which he called Argyropsis. The other species are always regarded as greenhouse plants, unless in very mild climates.]

The Golden Gourd in its present coat of rich green and gold makes a pretty substitute for flowers in hanging pots in verandahs and other dry places, where they last a long time, and become a rich orange colour. *Somerset.*

Gynerium argenteum.—I have been rather appealed to in reference to this plant; but I can add little to what has been already said about it. Its head-quarters are undoubtedly in La Plata; it is found abundant near Corrientes, on the Parana, as stated by "A. W.," of Liverpool; it is also abundant at Conception, and on the river Salado, and may extend to Buenos Ayres, but I did not see it at the latter place. "A. W." has confounded G. argenteum with G. saccharoides when he states that it is found at Sanguexuga and San Paulo, in Brazil; the latter is found there very abundantly, and I think is far the more ornamental of the two—the panicles being longer and thicker, the stems stronger, and the leaves nearly twice the width. My friend D. Moore, Esq., of Glasnevin, states that the two plants which he raised were both females, and that there cannot be any male plants in the country. I have enclosed you a spikelet from the St. Vulcen's plant, and one which I received yesterday from Kew; the latter is evidently a male, the anthers being very distinct; I am not aware where the Kew plant came from. You will perceive a great difference in the colours of the spikelets, but this may be owing to the weather. *K. S., Woodlands, near Dublin.* [The plant from Kew is no doubt a male, that from St. Vulcen's is a female, as is the plant in the garden of the Horticultural Society. The differences you remark are sexual. It was too late to use the male Kew plant when it was ascertained that it was a male.]

Rain and Temperature during 1854, *at Castle Hill, Devon:*—

	Quantity of Rain.	Greatest quantity during 24 hours.		Highest temperature during the month.		Lowest temperature during the month.	
		Date.		Date.		Date.	
January	3.86	29	0.48	20	50	6	17
February	2.37	5	0.39	21	52	10	20
March	0.99	10	0.21	31	65	1	19
April	0.29	29	0.10	8	75	25	20
May	3.52	3	0.34	17	74	4	29
June	3.21	12	0.72	25	80	7	34
July	3.74	31	0.76	25	85	20	40
August	1.69	14	0.61	28	90	18	42
September	1.82	14	0.62	4	85	22	[illegible]
October	5.87	9	1.04	1	75	27	[illegible]
November	3.38	29	0.74	1	57	27	13
December	5.70	18	0.72	14	50	11	19
Quantity during the year	36.44						

A. Saul.

Grafted Rhododendrons.—My remarks on grafted Rhododendrons (see p. 821, 1854) assumed considerable length, because I was called upon to explain the principles on which my objection to them was founded; and this led me away from the practical part of the subject. I would now offer a few further remarks on the practical objection to such plants, which holds good alike in small and in large gardens, and is altogether independent of the question whether the finer varieties are dwarfed by grafting or not. These remarks apply equally, if not with greater force, to Azaleas, which it is now also the fashion to graft, as to Rhododendrons proper. I do not of course speak of greenhouse Azaleas, to which grafting is in many cases specially applicable, but of the common shrubby species. All these plants, both Rhododendrons and Azaleas, are thorough shrubs, continually throwing up sucker-like shoots from the root stock wherever light has access to it; and the character and beauty of the plant consists in this its natural growth. Now a grafted plant is precluded from exhibiting this habit; nor is this all, the stock possesses and retains it, and the utmost vigilance will scarcely prevent such shoots pushing up from the stock and starving the graft. Their shoots may be destroyed in the nurseries, where the plants are constantly looked over, but when once the plants are transferred to beds and masses in private gardens, these shoots are sure to be overlooked. I have never yet looked through a collection of grafted Rhododendrons without detecting such shoots which had escaped the gardener's eye, and often formed nearly half the apparent plant. In the case of Azaleas, the evil is still greater. Azalea pontica, which is employed as the stock, is a very strong growing kind, with a peculiar tendency to throw up sucker-like shoots; and these will in a single season out-top the rarer variety grafted upon it. The Azalea has in fact a very great tendency to renew even its natural growth in this manner—the older branches growing feeble, and the plant being renewed by strong shoots from below; and this is especially the case if its growth be checked by removal. As far as my experience goes something of the same kind takes place with all grafted Azaleas. They look more like branches broken off and stuck in than real thriving shrubs, and they are surrounded with a forest of suckers. I consider that a grafted Rhododendron is quite as objectionable as a grafted Fir tree, though from a different cause, and much more inexcusable. It is difficult, or at least tedious and troublesome, to strike the genus Pinus from cuttings, and they do not make good plants; so that, if you wish to propagate a rare species, of which no seed has yet ripened in England or can now be procured from abroad, you are almost reduced to the expedient of grafting. In the case of Rhododendrons there is no such excuse. They strike from cuttings with little difficulty, and are propagated so easily by layers that natural layers may be found around most old plants; they are, moreover, raised with the greatest ease from seed, and the individuals of a batch of seedlings differ so little from one another, that out of the many hundreds of alta-clerense which were raised from the same batch of seed, and dispersed throughout the country, every individual may be recognised at once as belonging to the same species, though some slight individual differences may be detected between them if compared. In conclusion, I believe that whenever a collection is formed of grafted Rhododendrons, before many years have elapsed the bed will be found to consist principally of Rhododendron ponticum, the grafts having perished and the stocks assumed their place. *J. R.*

Cuthill's Black Prince Strawberry.—I potted a quantity of this variety in the latter end of July last, and by the end of October I found that they were throwing up blooms; I therefore placed them in a Vinery whose temperature ranged from 50° to 55°, where they still continue to bloom and set fruit. I gathered a few ripe berries on the 18th of December, and on Christmas Day I had a beautiful dish of ripe fruit. To-day, again (1st of January, 1855), I have gathered another dish equally good, and I have still a quantity of fruit set and blooms appearing in succession so as to promise a supply for the next two months. I think that by bringing back the early forced plants of other varieties into the houses and introducing this variety early in autumn, Strawberries may be gathered every month in the year, as I have only been out of them 6 weeks since February last. *George James, Pontypool Park.*

Societies.

POMOLOGICAL, *Jan.* 1*st.*—Mr. John Lee in the chair. Specimens of a Seedling Apple, exhibited by W. Marshall, Esq, of Ely, were found to possess a brisk flavour and considerable juiciness, with the aroma of the Oslin. A collection of 8 varieties of apples, from orchards in Gloucestershire, were sent by G. S. Wintle, Esq., of Gloucester; among them were fine examples of Golden Harvey, grown on a clay soil; also of Ashmead's Kernel, from a light loam on a sandy subsoil. The others were chiefly Cider Apples of the neighbourhood. Mr. Cranston, of Hereford, exhibited specimens of 10 varieties of Pears and 11 of Apples: the former embracing many of the seedling varieties raised by the late Mr. Knight. Four new members were elected.

Notices of Books.

The Flora of Yorkshire; with a Supplement. By H. Baines. 8vo. Longmans.

THIS is a reissue of the author's original work combined with a new supplement of about equal dimensions. The latter has been prepared by Mr. J. G. Baker and Mr. John Nowell, and when we say that it forms a worthy companion to Mr. Baines' very useful work, we place it where it should be, alongside the best of our local Floras. The Supplement may be described as a critical inquiry into the districts really occupied by undoubted Yorkshire plants, and the claims which the doubtful inhabitants have upon the Flora, together with the relation that exists between the distribution of the vegetation and the geological formations of the county. In these considerations the new editors are evidently at home; they are well acquainted personally with the greater part of the facts on which they rely. they have had excellent assistance from judicious and

experienced correspondents, and they have evinced great good sense in separating the alien species now overrunning the country from the true original denizens of the land. The book will be read with interest, not only by the inhabitants of Yorkshire and the neighbouring counties, but by all who take an interest in the distribution of plants.

Garden Memoranda.

The Crystal Palace, Sydenham.—Many have been of opinion that plants would not succeed inside the palace, and some have even gone so far as to say that the difficulties which beset the attempt would be found to be altogether insurmountable. Such, however, we are happy to report, has not proved to be the fact; indeed, experience as yet is wholly in favour of the project; for the plants of all kinds with which the building has been furnished could not, we think, all things considered, possibly be in better condition than they are at the present time. It is true that some of the Palms and very tender stove plants have suffered a little for want of warmth; but this has been remedied by partitioning off the part appropriated to their growth by a canvas screen, and now all is going on satisfactorily.

As regards Conifers, the building may be said to be rich in Norfolk Island Pines (Araucaria excelsa), two magnificent specimens of which, presented by his Grace the Duke of Devonshire, are planted in the centre transept. These are even now too large for any ordinary conservatory; but here, we need scarcely say, they have room enough for ample development. In the south transept on the west side are two other specimens of this Pine, one presented by the Messrs. Veitch, from their nursery at Exeter, and the other by the Horticultural Society, from its large conservatory at Chiswick. The latter has been but recently planted, and has its trunk and branches covered with damp moss, in order in some measure to prevent exhaustion till the roots have taken hold of the soil. Two more examples of this noble tree from Windsor, presented by her Majesty, deserve remark: they stand near the north-west end of the building, and look as if they had already "taken" to their new situation. In front of the tombs have been very appropriately placed a few plants of the funereal Cypress.

The noble Orange trees from the Chateau de Neuilly, which line the sides of the transept, appear to be in perfect health, with the exception, perhaps, of a few specimens which have been lately imported, and which suffered from salt-water and other accidents consequent on removal. Most of these trees are of immense size, with broad heads and clean stems, and serve in no ordinary degree to embellish the noble edifice. They are associated in places with standard Bays, and huge specimens of variegated and common American Aloes. A fine plant of the latter, in the "Geographical distribution of plants," is stated to have borne without the least injury 14° of frost, showing that these plants are rather more hardy than many have supposed them to be, and that they might possibly be even employed, if protected a little in winter, for out-door decoration.

The rocks in the European and Chinese departments are becoming tolerably well covered with plants, and the Hypnum-like Saxifrage, which has been introduced pretty plentifully here, appears to be a good plant for clothing the soil about them with verdure. In the north African and Australian departments a few Ferns are growing in great luxuriance, and in the last-named division we noticed a good plant of the Casuarina torulosa or Australian Beef Tree.

The plants in beds have been mostly re-arranged, and apparently replanted as skilfully as it is possible with regard to effect. The Camellias, which at present form the bulk of flowering shrubs of any size in the building, are well set with buds, and therefore a grand display of this glorious flower may soon be expected. White Chinese Azaleas, too, of which there are some huge specimens, promise to blossom well; these are planted in peat, among masses of roots, which form as it were a sort of pot for them. Scattered throughout the beds are such plants as Dracæna indivisa, Yuccas, New Zealand Flax, Hedychiums, and even Palms, all of which serve to give an exotic appearance to this the cool part of the house. Of Hakea Victoriæ there is a fine plant, as well as of Acacia grandis and decurrens; indeed the latter are, perhaps, the largest specimens of the kind in the country. Aralia crassifolia stood 14° of frost here, as did also Stadmannia australis. Berberis nepalensis grows uncommonly well here, as do also Ficuses of all kinds, whose ample foliage is very ornamental. The two great Epacrises, bought at Mrs. Lawrence's sale, have been planted out and promise to do well. Intermixed with the above are smaller specimens of many interesting plants, among which we remarked the Camphor tree, Olives, various Eucalypti, Gardenia Rothmanni, Franciscea confertiflora, and other plants which are usually kept in stoves, all apparently in a healthy condition.

Among the Palms which bid fair to succeed in the temperate part of the building, where the thermometer has been down as low as 36°, are Areca sapida, Corypha australis, Latania borbonica, the Wax Palm, Chamædorea elegans, Cocos plumosa, Chamærops Martiana, Sabal Blackburniana, Seaforthia elegans, and one or two others. Caryota urens has been tried, but it is evidently suffering from cold. Near the above are some immense specimens of Elephant's Foot, imported from South Africa, and associated with them is Rhipidodendron plicatile, an Aloe-like plant, also of great size. Such specimens as these, and especially the Palms, we need not say, serve in an eminent degree to vary the appearance of the place, and increase its interest. In the borders in front of the shrubs Hyacinths and other spring bulbs have been planted, with a view to keep up a little gaiety in the early part of the year.

The baskets of plants suspended from the roof still look green, and some of the climbers trained up the supports are growing freely. A Wistaria brought from Messrs. Loddiges has been replanted with safety, and has now nearly reached the top of the transept roof.

Preparations are being made for planting the Victoria Regia and other choice aquatics in the water in the west end of the house. The soil is put in, the hot-water pipes are laid, and in due time the basin will be filled with water. At the other end of the house the water is already stocked with Water Lilies, among which the blue one is still in flower.

In the tropical end of the building, some few of the tender Palms and very tender stove plants have, as we have stated, been injured a little for want of warmth. This has, however, been remedied, as we have already stated, by enclosing this part with a canvas screen, which completely cuts it off from the rest of the house. Since this has been done, any amount of heat can be maintained which is necessary. As regards the condition of the Palms here little can be said at present; they appear to have got well over the effects of removal, and to be in good condition to commence growth as soon as spring shall have set in. Among them are some noble specimens which, however, look small in this great glass-house, compared with what they did in the Palm-house at Mr. Loddiges'. The Palmetto, especially, is a very fine example of this fine Palm. It stands conspicuously at the end of the transept, and is planted in a cement-covered brick basin, 16 feet in diameter. The Musas, with their broad leaves, are very effective; but at present this part of the house is rather bare of foliage.

Out of doors the grounds are fast approaching completion. All may be said to be finished down to the water temples, which are nearly up; the cascades below them have been formed, and the ground about them put into shape. What still remains to be executed, is the part about the islands where the extinct animals are placed. Water has now been let into all the lakes except the large ones below the cascades.

FLORICULTURE.

Carnations.—Your correspondent's remarks (see p. 839, 1854) respecting the colours running or sporting of his Carnations, will doubtless be read with interest. I for one am sorry to say that I have had half a dozen of my best flowers sport this season, and I am at a loss to what to attribute it. I certainly cannot say that high manuring is the cause of the evil, for in my case, having nothing but green manure by me, I had them potted without any manure at all; high manuring cannot, therefore, be the sole cause of flowers sporting, although no doubt more flowers run from that cause than any other, for they are not so liable to sport in the open borders in common mould as in rich soil. I have generally noticed that in hot dry summers the flowers are very apt to sport; and I have no doubt that the season, as well as the soil, has a great deal to do with the evil: we generally find that Scarlet Bizarres, Purple Bizarres, and Scarlet Flakes are the classes that are most liable to run, being very rich and high in colour. I am of your correspondent's opinion that manure water should not be applied until the pods begin to burst; but it is a good plan to water them with a little clean soot water, in order to keep the foliage of a good dark colour. The following compost has been recommended by an eminent grower for flowers apt to sport, or we may say for the more delicate kinds, which are the most likely to sport:—3 barrows full of good loam; 1 ditto old rotten cow-dung; 2 ditto ditto horse-dung; ½ ditto sand; ½ ditto lime rubbish, or old plaster, to be mixed well together 12 months previous to its being used. *E. B.*

The Chinese Primrose.—What more useful flower have we than this? My greenhouse at the present time is as gay as it well can be with well-grown plants of all the best varieties of it. Some of my sorts, all of which I raise from seeds every year, have flowers which measure upwards of an inch and a half across, and in colour are of a deep glowing crimson. The beauty of a fine head of such blossoms may therefore be better imagined than described. Fine blooming plants of the Chinese Primrose, that will continue in flower through the whole of the winter months, may be produced as follows:—In order to obtain strong plants, the seed should be sown not later than the first of May in a well-drained store pan, in a light sandy soil, and put into a cool frame, as near the glass as possible. When large enough to be pricked off into store pans the young seedlings should be allowed a square inch between each plant; when that space has been filled, let them be potted singly into 3-inch pots, and as the pots become filled with roots, shift into a size larger pot, giving them their final shift into 6-inch pots in the early part of September. The compost in which I have found these plants to thrive best has been equal parts turfy loam and leaf-mould, and a little sharp sand. While growing, a cool pit or frame suits them best; give plenty of air, and be careful not to overwater them. Treated in this way the plants will be in flower by the middle of November, and will continue in blossom through the whole of winter, and to be seen to advantage they should be moved to a greenhouse or conservatory. *R. M.*

Fumigating Soft-wooded Plants.—It may be useful to know that soft-wooded florist flowers and other tender leaved plants of all kinds will withstand without injury as much tobacco smoke as any person can afford to give them, provided their leaves are perfectly dry. I have had Cinerarias, Calceolarias, Fuchsias, and the like, much injured after smoking through the leaves being damp. Let the plants be next to flagging before you smoke them; and to convince you of the truth of my assertion, let one plant be gently syringed before smoking, and it will soon be apparent what is the cause of plants suffering from fumigation. *C. C.*

Chinese Primula: *D W C.* Your variety with leaves slightly variegated is of no value. There are much prettier variegated kinds already in cultivation.—*W M.* All very handsome sorts, more especially No. 1, which measures 1½ inch across, and which is prettily fringed and of a brilliant crimson colour.

Miscellaneous.

The Big Tree (*Wellingtonia gigantea, Lindl.*).—Dr. C. F. Winslow, in the "California Farmer," a weekly journal published at San Francisco, has given an account of his excursion from "Murphy's Camp," (2400 feet elevation), to the site of the "Big Tree," on the very stump of which he writes his letter (Aug. 8, 1854), the spot itself being designated, at least by him, "Washington Mammoth Grove." If this account is to be depended upon (and it must be confessed the learned Doctor's style is both flowery and hyperbolical), we learn some new and interesting particulars respecting this gigantic tree:—1, That the accounts brought home by our sober English traveller, Mr. William Lobb, do not give us the full height to which this Pine attains, by one-fourth; 2, that the locality seems to be circumscribed to an area of a few acres; and 3, what concerns us more, now that Messrs. Veitch and Sons have enabled us to possess living plants, that the soil and atmosphere at the place of growth are singularly humid; and in this we think the Doctor is likely to be correct. Omitting then, the mention of "the sublime thoughts, such as have rarely before impressed his soul,"—"of such a nature that he often involuntarily surrendered himself to the idea that he was approaching the visible and actual presence of the Great One who revealed himself to Moses on the heights of Sinai," &c.—we shall confine ourselves to the following extracts:—"The road (from Murphy's Camp) gradually ascending for several miles over a varied landscape, becomes afterwards more level, or rather it undulates and winds for a long stretch among hills and valleys thickly wooded, and fit for farms and deer parks. During the last three miles the ascent is steady and through a virgin wilderness of Pines, Firs, Spruce, Arbor-Vitæ, and other cone-bearing trees, whose magnitude perceptibly increases with the altitude of the locality. The whole surface of the hill-sides is covered with herbage or plants, more or less verdant, and in spots there is a freshness to the verdure which reminds one of spring, and which contrasts strongly with the arid and dusty plains and hills of the lower sections of country. The wild Raspberry, Strawberry, Pea, and Hazelnut mingle their humble or more prominent foliage with the diversified undergrowths of the forests; and here and there new and attractive flowers struck my eye so pleasingly, that I was compelled at times to stop, gather, examine, and admire them. The charm of these regions to the botanist would be in the freshness and luxuriance with which Nature elaborates her vegetable forms. The vital principle, stimulated by the condensing vapours of the cool fresh air of night, and nourished by a suitable pabulum in the decomposing soil, acts with a steady energy, and thousands of stately trees stud the hills in all directions, so lofty as to amaze the observer, and to compel him when near them to strain his eyes to catch a view of their topmost off-shoots. But the most amazing of all these vegetable productions are here; and Nature, by peculiar geognostic arrangements, seems to have isolated them to startle and arrest the attention of mankind, and to strengthen scientific truth touching the special distribution of organic races. So far as known, the vegetable growth to which the name of 'Big Tree' has been attached, grows in no other region of the Sierra Nevada, nor on any other mountain-range of the earth. It exists here only, and all the individuals of its kind, so far as I can learn, are localised to this vicinity. They are embraced within a range of 200 acres, and are enclosed in a basin of coarse silicious material, surrounded by a sloping ridge of sienitic rock, which in some places projects above the soil. The basin is reeking with moisture, and in the lowest places the water is standing, and some of the largest trees dip their roots into the pools or water-runs. The trees of very large dimensions number considerably more than one hundred. Mr. Blake measured one 94 feet in circumference at the root; the side of which had been partly burnt by contact with another tree, the head of which had fallen against it. The latter can be measured 450 feet from its head to its root (!) A large portion of this fallen monster is still to be seen and examined; and by the measurement of Mr. Lapham, the proprietor of the place, it is said to be 10 feet in diameter at 350 feet from its uptorn root (!) In falling it had prostrated another large tree in its course, and pressed out the earth beneath itself so as to be imbedded a number of feet into the ground. Its diameter across its root is 40 feet. A man is nothing in comparison of dimensions, while walking on it or standing near its side. This to

me was the greatest wonder of the forest. The tree which it prostrated in falling has been burnt hollow, and is so large, a gentleman who accompanied us from Murphy's informed us, that when he first visited the place two years ago, he rode through it on horseback for 200 feet without stopping but at one spot as he entered at the root. We all walked many scores of feet through it, but a large piece of its side has fallen in near the head. But there are many standing whose magnitude absolutely oppresses the mind with awe. In one place three of these gigantic objects grow side by side, as if planted with special reference to their present appearance. Another, so monstrous as to absolutely compel you to walk around it, and even linger, is divided at from 50 to 100 feet from the ground into three of these straight mammoth trunks, towering over 300 feet into the sky. There are others whose proportions are as delicate, symmetrical, clean and straight as small Spruces, that rise 350 feet from the ground. In one spot a huge knot of some ancient prostrate giant is visible above the soil, where it fell ages ago, and the earth has accumulated so as nearly to obliterate all traces of its former existence. The wood of this tree, I am told by Mr. Lapham, is remarkable for its slow decay. When first cut down its fibre is white, but it soon becomes reddish, and long exposure makes it as dark as mahogany; it is soft, and resembles in some respects Pine and Cedar. Its bark, however, is much unlike these trees; nearest the ground it is prodigiously thick, fibrous, and when pressed on has a peculiar feeling of elasticity. In some places it is 18 inches thick, and resembles a mass of Cocoa-nut husks, thickly matted and pressed together, only the fibrous material is exceedingly fine, and altogether unlike the husk of the Cocoa-nut. This bark is fissured irregularly with numerous indentations, which give it the appearance of great inequality and roughness. At 150 feet from the ground it is only about 2 inches thick on the living tree, which is now being stripped of its bark for transportation from the country. An hotel is built near the 'Big Tree,' whose bark was stripped last year and exhibited in San Francisco; and an appendage of the house is built over it, so as to constitute a hall for cotillion parties. At the root it measures 96 feet in circumference, and a portion of its prostrate trunk is used for a bowling alley. To overthrow it, holes were bored through with a large auger, and after the trunk was mostly separated, attempts were made to wedge and upset it. But its immense size and weight prevented the success of this undertaking, and on the fourth day it fell by the force of a strong wind. In falling, it convulsed the earth, and by its weight forced the soil from beneath it, so that it lies in a great trench, and mud and stones were driven near a hundred feet high, where they have left their marks on neighbouring trees." The following paragraph bears very hard upon Dr. Lindley. [It is too rich to be omitted.] "The name that has been applied to this tree by Professor Lindley, an English botanist, is Wellingtonia gigantea. By him it is declared to be so much unlike other Coniferæ, as not only to be a new species, but to require description as a new genus. Other botanists of eminence think differently. To this, however, he has seen fit to apply the name of an English hero, a step indicating as much personal arrogance or weakness as scientific indelicacy; for it must have been a prominent idea in the mind of that person that American naturalists would regard with surprise and reluctance the application of a British name, however meritoriously honoured, when a name so worthy of immortal honour and renown as that of Washington would strike the mind of the world as far more suitable to the most gigantic and remarkable vegetable wonder indigenous to a country where his name is the most distinguished ornament. As he and his generation declared themselves independent of all English rule and political dictation, so American naturalists must in this case express their respectful dissent from all British scientific 'stamp acts.' If the 'Big Tree' be a Taxodium, let it be called now and for ever Taxodium Washingtonium. If it should be properly ranked as a new genus, then let it be called to the end of time Washingtonia Californica. The generic name indicates unparalleled greatness and grandeur; its specific name, the only locality in the world where it is found. No names can be more appropriate; and if it be in accordance with the views of American botanists, I trust the scientific honour of our country may be vindicated from foreign indelicacy by boldly discarding the name now applied to it, and by affixing to it that of the immortal man whose memory we all love and honour, and teach our children to adore. Under any and all circumstances, however, whether of perpetuity or extinction, the name of Wellington should be discarded, and that of Washington attached to it, and transmitted to the schools of future ages."—*Hooker's Journal of Botany.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—In mixed conservatories, that is houses containing the principal display of bloom, and a miscellaneous collection of greenhouse plants, the use of fire-heat should be avoided as much as possible, for although artificial warmth is useful to most plants in bloom, it is injurious to many hard-wooded things which flower late in spring, and should be sparingly used where these have to be wintered in the conservatory. It is almost impossible, however, to give precise directions as to the temperature which should be maintained, for very much depends upon the kind of plants which the house may contain, and also upon the character of the house itself, that only general directions can be given, and these must be accommodated to the particular circumstances of each case. Where Camellias, Epacrises, Heaths, and other greenhouse things form the principal floral display, 40° at night by fire-heat will be quite sufficient, but where the hardier stove plants or forced things are used for the decoration of this house, 45° will be the proper mean night temperature.

FORCING DEPARTMENT.

PINERY.—A night temperature of about 60° should be maintained in the fruiting pits, allowing it to rise to 70° during the day, or 75° with sunshine, and where the fruit is approaching maturity 5° higher may be maintained if this can be done without injury to the general stock. Also aim at keeping up a steady bottom-heat of about 80°, which for the present will be high enough. —The Vines in houses about to be started should receive a dressing with the ordinary composition a few days before closing the house, rubbing it well into the crevices of the bark; also get the outside border covered if not already done; this, however, should always be effected before this season, so as to retain a portion of the warmth infused by the summer's sun, and throw off heavy rains. Where very early Melons are required, seed of some established favourite should be got in at once. Cucumbers being very generally grown for early use, it is scarcely necessary to refer to these farther here than to say that, if not already done, seed should be sown at once. These and Melons require plenty of light and moisture, and every care should be used to keep them clear of insects, and this renders it adviseable to have them in a light by themselves. A small quantity of Strawberry plants may now be placed in a pit or frame where a temperature of about 45° can be maintained, keeping them close to the glass, and giving abundance of air whenever the weather will permit.

FLOWER GARDEN AND SHRUBBERIES.

Where any of the beds or borders require a dressing of fresh soil this should be provided, in order to have it in readiness to wheel on when favourable weather for such work may occur. Fresh soil is, in most cases, preferable as a dressing for flower beds to manure, which is apt to cause too luxuriant a growth for a first-rate display of flowers. On soils that are naturally poor, however, and where neither fresh soil nor decayed leaves can be had, a moderate dressing of well rotted farm-yard manure will be useful; but this should be well mixed with the soil to the full depth of the bed, and not carelessly turned in and left in lumps near the surface; for in this case a gross habit of growth would be promoted early in the season, and as the principal part of the roots would be near the surface in the manure, the plants would soon feel the effects of dry weather, whereas if the manure were well incorporated with the soil, to the depth of about 18 inches, no ordinary amount of dry weather would injure the plants after they once got fairly established. Shrubberies may be thinned where this involves only the cutting out of overgrown plants or loping deciduous trees or the hardier kinds of evergreens; but where evergreens generally require pruning, the work had better be deferred until March, except in favourable localities; for although when the winter proves mild such work may safely be performed at any time, it is never safe to depend upon this. Avoid getting upon, or working the ground when it is in a sodden state, and if the hands cannot be profitably employed at out-door work, get a good stock of pegs, Dahlia stakes, tallies, brooms, &c., prepared and stored away in an orderly manner, so as to be ready for use when wanted.

HARDY FRUIT AND KITCHEN GARDEN.

If any transplanting of fruit trees has yet to be done this season, it should be seen to while the weather is favourable for such work; also see to getting ground intended to be planted with young trees prepared, and spare no pains or expense to have this properly done, remembering that future success will very largely depend upon how this is effected. Make sure of thorough drainage, and where the subsoil is unkind this should be removed, replacing it with some good fresh loam. When a large breadth has to be planted in one season this expensive kind of preparation cannot always be afforded, but it is better to do such work only in such quantities as will allow of every precaution being used to ensure success, and it is useless to hope for this on some soils without making expensive preparations before planting. Get pruning and nailing forwarded as fast as circumstances will permit. Attend to keeping up a supply of Seakale, Rhubarb, and Asparagus, according to the demand and convenience, by introducing quantities of the roots into heat at intervals of about a fortnight. Where there is room to spare in the Mushroom-house, the two former will be found to do exceedingly well there, and a supply will be obtained with very little trouble. A quantity of roots should be got up and laid in where they can be covered in case of severe frost, so as to avoid the chance of having to take them up when the ground is frozen hard. Also see to providing a supply of French Beans. These are frequently grown in the early Vineries or in plant houses, but their liability to the attacks of red spider renders them dangerous inmates of such structures, and where it can possibly be done they should be grown in a pit devoted to such purposes.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Jan. 4, 1855, as observed at the Horticultural Gardens.

Dec. and Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind
Friday 29	9	30.443	30.396	42	34	37.5	41	43	S.W.
Satur. 30	10	30.444	30.354	47	39	43.0	40	43	S.W.
Sunday 31	11	30.328	30.101	47	35	41.0	41	43	N.W.
Mon.. 1	12	29.951	29.919	53	46	49.5	43	44	W.
Tues. 2	13	30.069	30.028	51	44	47.5	44	44½	N.W.
Wed. 3	○	30.170	30.139	52	39	45.5	45	45	N.W.
Thurs. 4	15	30.218	30.164	47	38	42.5	45	45	S.W.
Average.		30.374	30.157	48.3	39.3	43.8	42.7	43.9	

Dec. 29—Closely overcast throughout.
— 30—Overcast; cloudy; fine;
— 31—Overcast; cloudy; overcast; boisterous at night.
Jan. 1—Cloudy and boisterous; overcast; slight rain.
— 2—Densely clouded; slight rain; overcast and mild.
— 3—Fine; very fine throughout.
— 4—Uniformly overcast; cloudy and fine.
Mean temperature of the week 6½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Jan. 13, 1855.

Jan.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 7	41.3	29.2	35.3	11	0.34 in.	2	3	4	3	3	6	5	1
Mon. 8	39.5	30.5	35.0	7	0.26	3	3	7	4	—	10	1	1
Tues. 9	39.6	31.[illegible]	35.5	10	0.20	1	6	7	3	3	7	4	1
Wed. 10	41.4	[illegible].4	35.9	14	0.40	2	6	3	4	5	4	3	[illegible]
Thurs. 11	41.1	31.6	36.3	16	0.83	4	4	3	1	5	8	[illegible]	[illegible]
Friday 12	41.7	30.9	36.3	15	0.76	4	5	2	3	5	9	2	1
Satur. 13	42.[illegible]	33.3	38.0	16	0.29	4	3	4	2	6	6	3	1

The highest temperature during the above period occurred on the 7th, 1845, and 12th, 1852—therm. 54 deg.; and the lowest on the 7th and 8th, 1841—therm. 6 deg.

MONTHLY DEPTH OF RAIN, in inches and hundredth parts of an inch, which fell at Chiswick in the years 1841 to 1854 inclusive.

	1841. Ins.	1842. Ins.	1843. Ins.	1844. Ins.	1845. Ins.	1846. Ins.	1847. Ins.	1848. Ins.	1849. Ins.	1850. Ins.	1851. Ins.	1852. Ins.	1853. Ins.	1854. Ins.
January ...	2.60	1.06	1.33	2.25	2.97	2.85	1.81	1.16	1.73	1.43	3.07	2.72	2.14	1.92
February ...	0.76	1.32	2.35	2.27	0.93	1.47	1.34	3.12	2.52	0.85	0.90	1.06	0.59	0.78
March ...	1.32	1.81	0.47	2.44	1.25	1.02	0.41	3.05	0.85	0.13	3.57	0.25	1.48	0.42
April	1.58	0.15	1.62	0.33	0.95	3.93	0.92	3.06	2.21	1.79	1.65	0.52	2.58	0.30
May	2.16	1.73	5.26	0.25	2.89	1.35	1.59	0.28	3.53	1.84	0.74	1.74	1.60	4.08
June	2.45	1.58	1.62	0.97	1.36	0.80	1.31	3.20	0.31	1.40	1.33	4.69	2.54	1.53
July	3.56	1.52	1.67	2.10	2.31	1.78	0.79	2.21	2.82	2.68	3.90	2.27	4.17	2.40
August ...	2.69	2.81	3.28	1.84	2.79	4.50	1.50	4.70	1.60	0.97	2.03	3.71	1.87	1.77
September...	3.71	3.39	0.98	1.31	1.77	1.76	1.66	2.20	2.49	2.36	0.42	3.64	2.41	0.58
October ...	4.61	1.71	4.19	4.13	1.39	5.54	1.75	2.83	2.18	1.55	2.01	3.87	3.78	2.61
November ...	3.41	4.43	2.13	3.06	2.11	1.43	2.26	0.90	1.32	2.03	0.55	6.20	0.91	1.31
December ...	2.12	0.76	0.58	0.39	2.61	1.21	1.81	2.03	1.28	1.15	0.62	1.97	0.30	1.27
Annual amount	30.97	22.27	25.48	21.34	23.33	27.71	16.65	28.84	22.84	18.28	20.79	32.64	24.37	18.92

The amount of Rain in 1854 is about 5 inches below the average.

Notices to Correspondents.

BOX EDGINGS: *P E.* In answer to your inquiry as to whether, in relaying Box-edgings, the surplus Box belongs to the landlord or tenant, we have to say that it is a legal question which can only be answered upon a full knowledge of the circumstances.

IMPATIENS HOOKERI: *O B.* A plant of this Balsam is now in full bloom in the Horticultural Society's Garden, and a very beautiful thing it is.

INSECTS: *W C, Edgeware.* The insects sent by you as injurious to Cabbages and French Beans are of two distinct kinds, belonging to distinct orders; the small ones therefore are not the young of the larger. The former are a small species of spring-tailed insects (Podura fimetaria) common in gardens, especially among semi-decayed vegetable matter; the larger one is a small species of Julus or snake millepede. This attacks the roots of living vegetables, and can only be got rid of by a careful cleansing of the soil. *W.*

NAMES OF FRUITS: *R T R.* 2, Winter Nelis, and 3 is Ne Plus Meuris; you have therefore not got Knight's Monarch. The Apple No. 1 is Sturmer Pippin; 2, Mannington's Pearmain. The other specimen of Winter Nelis is larger than usual. Beurré Diel which you state to have grown 18 ounces, Easter Beurré 14½, and Chaumontel 14 ounces, are above the usual size of these varieties.—*R Robertson.* 1, Althorp Crassane; 3, Bezi de la Motte; 4, Vicar of Winkfield; 5, Duchesse d'Angoulême; 6, Too far gone—probably Sucré Vert; 7, Forelle.—*Aberdeenshire.* 1, Reinette du Canada; 2, Blenheim Pippin; 3, Beurré Diel, a very good specimen; 4, Easter Beurré; 5, probably Marie Louise from a late blossom.—*E Pike.* The Pear is Glou Morceau; the Apple is not known, appears to be only fit for Cider. ‖

NAMES OF PLANTS: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*F A P.* Yes; see answers to correspondents in last week's Paper. *S.*

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
WM. INGLIS CARNE 10, Mark Lane, London.

THE LONDON MANURE COMPANY beg to call the attention of Agriculturists to their WHEAT and CLOVER MANURES for present use. The London Manure Company also offer Genuine Peruvian Guano, Nitrate of Soda, Concentrated Urate, Superphosphate of Lime, Fishery and other Salts, and all Artificial Manures of value. The London Manure Company guarantee Peruvian Guano and every Manure they supply to be strictly genuine. EDWARD PURSER, Sec.
Bridge Street, Blackfriars.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*
Office, 69, King William Street, City, London.
N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch.
Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

CORN CRUSHERS AND CHAFF CUTTERS.—A large display of the best Farm Implements shown in operation. Price Lists sent free on application.
BURGESS AND KEY,
103, Newgate Street, and 52, Little Britain, London.

PUMPS AND HOSE PIPES FOR GARDENS AND LIQUID MANURE.—BURGESS & KEY'S Pumps were highly commended by the Royal Agricultural Society of England at Lincoln. Price Lists sent free.
103, Newgate Street, and 52, Little Britain, London.

CHURNS.—ANTHONY'S PATENT AMERICAN CHURN.—Since 1849 this Churn has obtained all the Prizes awarded by the Royal Agricultural Society of England. At the trial before the Judges it made in 10 minutes 4 lbs. 6 oz. of Butter from 4 quarts of Cream, being 8 oz. more than any of the other Churns from the same quantity and quality of Cream.
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CLAYTON, SHUTTLEWORTH, AND CO.'S PRIZE PORTABLE STEAM-ENGINES, AND COMBINED THRASHING, STRAW SHAKING, RIDDLING, AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as thrashed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.
C. S. and Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading agricultural shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

HOSE PIPING.—GREAT REDUCTION IN PRICE.
PATENT FLAX TUBING (1 inch to 3 inches diameter) is woven without seam, to stand immense pressure, and much more than leather, vulcanised rubber, or any other hose, and it is prepared so as to be anti-rot. The difficulty of producing this HOSE at a moderate rate has hitherto been its only drawback; but, owing to recent important patented inventions, the cost of manufacturing it is now reduced at least 60 per cent., which advantage is offered to the public.
BURGESS AND KEY, 103, Newgate Street, and 52, Little Britain, who on application will forward wholesale and retail prices.

WEEDS ON WALKS.
MR. FLEMING'S WEEDING OR SALTING MACHINE FOR GRAVEL WALKS, COURT YARDS, &c., manufactured and sold by ALEXANDER SHANKS & SON, Arbroath, Forfarshire, from whom particulars with prices may be had.

WATERPROOF PATHS.—BARN AND CATTLE SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

PRIZE MEDAL—1851.
AT A VERY ECONOMICAL RATE.
SAMUEL CUNDY, MASON and BUILDER, PIMLICO MARBLE and STONE WORKS, Belgrave Wharf, Lower Belgrave Place, Pimlico, London.
Marble Chimney-pieces manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price. A good Marble Chimney-piece for 40*s.* Marble Work in all its branches at a remarkably cheap rate for Halls, Dairies, Larders, &c. Circulars sent on application.
N.B. The "Royal Blue" Omnibuses pass the Works every ten minutes from the Bank.

STEPHENSON AND PEILL, 61, Gracechurch Street, London, and 17, New Park Street, Southwark, Manufacturers of Copper Cylindrical and Improved Conical Iron BOILERS, and Conservatory and Hothouse Builders, either in Wood or Iron, respectfully call the attention of the Nobility, Gentry, and Nurserymen to their simple but efficacious method of warming Horticultural and other Buildings by Hot Water.
From the extensive works they have executed, references of the highest respectability can be given, and full particulars furnished on application.

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MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. The Royal Agricultural Society has three times awarded their prize. Price Lists sent on application, and Illustrated Catalogues of the best Farm Implements, on receipt of eight postage stamps.
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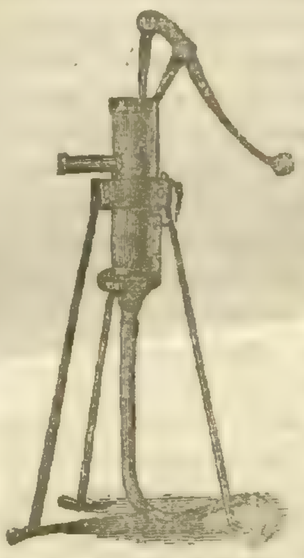
WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ „	long 3 „ 3 „		1	15	0
3 „	ditto 3 „ 6 „		2	12	0
3½ „	ditto 3 „ 6 „		2	18	0
4 „	ditto 3 „ 6 „		3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto ditto	ditto	2	15	0

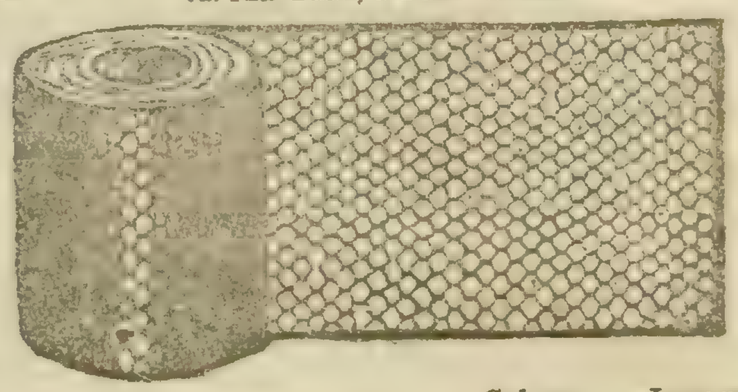
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.
1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.
May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

GALVANISED WIRE GAME NETTING.—7*d.* PER YARD, 2 FEET WIDE.



		Galvanised.	Japanned iron.
2-inch mesh,	light, 24 inches wide	... 7*d.* per yd.	5*d.* per yd.
2-inch „	strong „	... 9 „	6½ „
2-inch „	extra strong „	... 12 „	9 „
1⅝-inch „	light „	... 8 „	6 „
1⅝-inch „	strong „	... 10 „	8 „
1⅝-inch „	extra strong „	... 14 „	11 „

All the above can be made any width at proportionate prices. If the upper half is a coarse mesh, it will reduce the prices one-fourth. Galvanised Sparrow-proof Netting for Pheasantries, 3*d.* per square foot. Patterns forwarded post free.
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A LECTURE will be delivered on the above subject by Mr. WILKINS, Patentee, at the City of London Tavern, Bishopsgate Street (City), on THURSDAY next, January 11th, at 8 o'clock in the evening precisely. The Hemp, Flax Roots, &c., &c., will be exhibited.
Terms of admission moderate, which will be announced in the *Times*, *Daily News*, and other papers on Wednesday or Thursday next.
After payment of lecture expenses, surplus to the Patriotic Fund. Botany and Portable Garden, which will move with the Sun, to be referred to. Tickets may be had on Wednesday and Thursday next, at the place of lecture, City,
Patentee's Motto—"Do good and communicate."
Walworth, Surrey, Jan. 6.

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The Agricultural Gazette.

SATURDAY, JANUARY 6, 1855.

MEETINGS FOR THE ENSUING WEEK.
THURSDAY, Jan. 11—Agricultural Imp. Society of Ireland.

To the general reader of periodical literature there is not a more curious study presented during the year than the various introductory essays which are called forth by its commencement. Cast your eyes where you will, be it Magazine or Review, Newspaper weekly or daily; be the subject what it may, science, literature, politics, or gossip,—from the 'leading article' down to the advertisements, in one shape or another, with view prospective or retrospective, in tone promise-full or regretful—everywhere you knock your head against 'the New Year,' saluted after many fashions and in many strains,—sentimental or prosaic, moralising, or puffing. There are moments when one is half tempted to vote the good old custom more honoured in the breach than the observance, occasions again when the happy phrase or well-pointed reflection revokes at once the undutiful thought, reminding us that we can never be too often reminded of the preciousness not less of Change and Season than of Time itself; but above all of that season which, standing at the margin of the new page of time, commends a moment for reflection even to the busiest wayfarer of life. All experience and observation, all that lies without man, or within him, exemplify the need at certain intervals of a fresh start: the feelings of our minds, as well as the labours of our hands suggest it, and outward nature confirms it.

But if any one more than another may be sensible of this, it should be the Farmer. Constant and never ending as is the round of his labours, yet the changes which Nature undergoes are to him the actual machinery by which he works, as Nature herself is his workshop. Yet it may be feared, and that, too, without departing very far from natural history, that here paradox is triumphant, and the very opposite of what one should expect is the fact. The deep-felt inward resolve to turn over, in the best sense, the new leaf that life presents to us, is apt to be least felt where the routine dependent upon change, has effaced the impression of the change itself. Flatter ourselves as we may with the here-and-there sound or sign of progress, a faith one would rather exaggerate than diminish, it is yet impossible to contemplate the amount of wealth employed, the number of individuals engaged, the breadth of the social state represented by agriculture in this country, and not feel that its importance in each and all of these respects is, beyond all due proportion with other pursuits, in advance of its intellectual condition. Pampered, as some supposed, but more truly speaking, drugged and stupefied by false patronage based on false politics for nearly half a century's legislation, till it verily believed the

tale that it was not in its own power to stand upon its own legs, it has awakened but recently to find what all things and persons long cramped and enervated by artificial aids and stimulants must find, that self-reliance long suspended has not only sacrificed strength, but lost time and stunted *growth*, leaving the individual behindhand, and with much ground to make up, in the race of social progress.

Look at the question of Agricultural Statistics; look at the question of farming tenures; take the subject of farm-buildings, the feeding of stock, the adulteration of manures, the collection, and the application of town-sewage; last not least, look at that Augean Stable of accumulated rubbish that blocks up and stifles the sale and purchase of land: will anybody acquainted with the state of opinion in the agricultural world upon these subjects, say that they are in a condition, we will not say of fair progress, but of respectable debate? All these are questions in different degrees vital to agriculture, questions that, perhaps with one exception, might have been discussed fifty years ago as well and usefully as now. Look at them, as you would into a horse's mouth, and say how many years' *discussion* do they show? Compare them now, after forty years of peace, with the cotemporaneous progress made in the other industrial arts. While the sea was girt by steamvessels, the land by railroads, and both by the electric telegraphs, what has been done for the soil? While even lawyers have been reforming and simplifying their procedure in other respects, what have the owners, or the occupiers of the soil obtained from them, or attempted for themselves towards the emancipation of *their article* from a thraldom which in proportion as makes it unfitted for the market, reduces by so much its market value.

Nothing but the magnitude of the scale, or to use a phrase of more common coinage, 'the importance of the interest' blinds or dulls the public eye to the anomalies that oppress the Commerce of the Soil. Let any man of business expert in the transfer of any other description of 'stock' that the world contains—that man acquires employs or improves to the behoof or service of his brother man, by the application of labour capital, or both,—examine the incidents attendant on the sale, or the hiring, of a hundred acres of land; let him study the title, and the costs, of the 'purchaser' in the one case, or the tenure taken by the 'tenant' in the other; let him simply draw for himself the conclusion which would occur to one regarding the transactions from a purely mercantile point of view: let him then look at the distribution of land in *ownership* in this country, on the one hand, and the *average condition* of land *rented* on the other: and in aid of his conclusion let us suppose him, in addition to his mercantile experience possessed of the skill of the lawyer without his habituated tolerance of fiction, the practical knowledge of the farmer without his devotion to routine. We believe the conclusion he would be driven to would be that the subject of the economy of the soil lingers in a state of semi-feudal infancy; that the marks remain upon it of some latent cause long operating to check the progress of material civilisation, in this regard, and to give an exceptional character to the dealings between man and man in all that relates to The Soil.

Let us, however, look at this question by the light of a comparison recently instituted by a great historian of our day between the agricultural systems in Great Britain and in Russia. After alluding to the annual stream of emigration of nearly 350,000 a year from the British Islands, and asserting that "such prodigious drains springing out of the *passions and necessities* of civilisation cannot go on for any length of time without seriously weakening the strength and lessening the population," (as if an overflowing and a declining population could be a permanently co-existing condition); he proceeds as follows:—

"To this it must be added that the introduction of the free-trade system into Great Britain has already given a very great impulse to agricultural industry in Russia, where it is advancing as rapidly *as it is declining in the British Islands*. As this change has arisen from the necessary effect of the wealth, civilisation, and *advanced years* of the British Empire, so there is no chance of its undergoing any alteration, and it must come every day to evince a more powerful influence on the relative strength and fortunes of the two empires. Even before the free-trade system had been two years established in Great Britain, it had, despite the rude system of agriculture there prevalent, nearly doubled the exportation of grain from the harbours of Russia, and tripled its value, while it has caused the production of cereal crops in the British Islands to decline 4,000,000 quarters. The effect of such a continued and increasing augmentation on the one side, and decline on the other, cannot fail ere long to exercise a powerful influence on the fortunes and relative strength of the two empires; and when it is recollected that the increase is given to a young and rising, and *the drain* taken from an old and stationary state, it may easily be foreseen how important in a short time the difference must become." *Alison's Hist. of Europe;* vol. ii., p. 165 [1815—52].

By which we are given to understand, 1st, that an overflowing and enterprising population is a sort of senile dysentery, a 'drain' incident to states that are grown old, and so strangely tortured by the complicated maladies of age, as to be overflowing, declining, and *stationary*, all at once: 2ndly, that all the corn "shipped from the harbours of Russia" is Russian corn; it being but too well known that jealousy of the enormous increase (more than doubling, year upon year,) of the corn of Moldavia and Wallachia shipped at the principal Russian port of Odessa, with a corresponding *decline* of Russian trade, was not the least among the collateral motives which led to a certain 'material guarantee'—the invasion and occupation of *those provinces* by the troops of the Czar,—the infamous first act of the disastrous war in which we are involved. 3rdly, we are to believe, upon the instance of two or three wretched harvests in succession, in England, and the wholesome cessation of a forced and unnatural export from Ireland of a grain-crop unadapted to her soil and climate, (with rarity presenting the specimen of a perfect ear of *Wheat*,)—that "the production of cereal crops in the British Islands has *declined four million quarters!*"

But, if it had? If, that is to say, one *thirty-seventh* of the land, in England alone (to leave out Scotland and Ireland), once under Wheat, were now under some other crop—what then? If the writer could only have proceeded to show that one single acre was consigned to idleness, returned to normal rabbit-warren, gorse-bed, thicket, or morass,—that it was not in fact better employed—yes *better*—in virtue of this very importation of 'Russian' corn, the argument would have been followed out and had meaning. The answer to it, had it really any truth in fact, were this, that what everybody saw and remarked of every ill-managed farm he passed, what each owner felt and each tenant as well as agent knew upon each individual estate and farm, was equally true, of course, of the aggregate—viz., that the very thing wanted for the perfectionising of British agriculture was less grain-crop and *more green-crop*,—less corn and more meat, less hand-to-mouth farming and more stock: and the two or three years of cotemporaneous low price and low produce (traceable to the most obvious temporary causes), while doubtless a season of great agricultural depression, had the 'jewel' of adversity 'in its head,' and went no small way to effect what 'agricultural societies,' and 'farmers' clubs,' and 'improving owners,' and 'active agents,' and 'example farms,' and all the other recognised organs of 'agricultural improvement,' had laboured at with but modest results for many years, namely to get more beef and mutton out of the land trodden by the most beef-and-mutton-eating people in the world, and to employ British men, British horses, and British implements upon that branch of farming business which the nature of the climate especially favoured, and the habits of the people especially required.

BURKE was wont to say that the unhappy conflict between England and her once American Colonies was begotten by a metaphor—that of the '*parent* state and the *offspring*.' Something of the same conviction occurs to one on contemplating the figure of Russian agriculture glori ed as that of "a young and rising state" by contrast with the "*advanced years* of the British empire." Defend us all from murder, manslaughter, and metaphor! If Moldavia and Wallachia are Russian provinces, and the corn grown there, Russian corn; if serf-labour is better than that of free men; if farming that takes "six cultivators to feed themselves and *one* other member of society" be in a fair way to overtake that of a country where "the labour of *one man* raises food for seven," [see ALISON'S "History of Europe," II., 127.]—then indeed is "agriculture advancing in Russia as rapidly as it is declining in the British Islands:" and if, on the other hand, a branch of British industry only just out of leading-strings, and suffered to walk without the fostering care of Parliament and the preventive arms of the Custom-house, and still employed upon a 'raw material' unemancipated from some of the costliest relics of 'feudal tenure,' be citable as an arm of British enterprise and skill past the meridian of national strength and progress and verging on decline, then indeed may the most unfavourable picture be true that the prejudice even of party-feeling can draw for Great Britain by the side of Russia, in a comparison of "the relative strength and future fortunes" of the two empires.

IN our next page will be found the measurements and weights of most of the cattle shown at Baker Street and Birmingham last month. We have specified in detail the girth and length of only those animals whose carcase weights we have since been able to obtain; but the averages given under each class are those of the whole of the animals shown in each,—so that these averages may serve as a record of the actual measurements of all the fat stock exhibited at these two shows. They will serve as records with which to compare the shows of future years. And while single instances of extraordinary weight are interesting as proofs of the early maturity to which, under the most favourable circumstances, cattle have attained, these general results will indicate with greater certainty the progress which is being generally made.

The table is interesting, too, as indicating the degree of certainty with which measurement furnishes the means of estimating weight. In an ordinary cattle guage (CAREY'S for instance), having set it to the ascertained girth and weight of the animal before you, the weight is read off at but one place; and though the *same* measurements might in different animals result in different weights of beef, according to the breed and age and sex and degree of fatness of the stock, nothing whatever is left to the judgment of the valuer in using such an instrument as this—his instrument gives but one weight for all these various cases.

In EWART'S cattle gauge,* however, the indications of the instrument are various, according to the estimate which the valuer makes of the influence of these several circumstances. He reads it differently according to the breed and fatness of the animal before him; and with a lot of animals of even quality and one breed, a very great degree of certainty is attainable. Excepting a few exceptional cases—by which an asterisk is placed in the table—the actual weight of the animals measured is very near indeed to the estimated weight; and we have given in three columns the weights read off, as "fat," and "very fat," and "extra fat" respectively; and it will be seen that, on the whole, the cattle were a "very fat" lot—those at Smithfield exceeding those at Birmingham in this respect. The general results given at the foot of the table prove, we think, that for estimating the value of *a number* of fat cattle, a little skill in measuring, and the very slight skill needed to determine the degree of fatness which the animals possess, will, with the use of this instrument, lead to as safe a judgment of their weight, and therefore of their value, as the longest and most matured market experience; the only difference—though we admit its great importance—being that the valuer in this way is not likely to have so much confidence in his own judgment. The rule for measuring is to take the girth immediately behind the shoulder, where it is least; and to take the length as the distance between two vertical lines, one of which lies on the general outline of the hind quarters, and the other cuts the shoulder blade just in front of its highest point.

As instances of extraordinarily early maturity among the cattle shown at Baker Street we may refer to Nos. 36 and 38 among the Hereford oxen, 2 years and 11 months old, and weighing 91½ and 100 stones respectively; and to 56, 60, 62, and 64 among the short-horn cattle, the same age as the Herefords, and varying in weight from 90 to 103 stones each—the latter being the weight of the Duke of RUTLAND'S prize ox, purchased by Mr. FERRIS, of Bath.

Among the sheep we note the following instances which have been furnished to us:—Lord WALSINGHAM'S pen of 32-month South Down wethers, bought by Mr. BANNISTER, of Threadneedle Street, weighed 483 lbs., besides 60 lbs. of loose fat. The pen shown by the Duke of RICHMOND, No. 195—three 20-month South Down wethers bred by his Grace—purchased by Mr. KING, of Paddington Street, weighed 390 lbs., which for animals so purely bred is astonishing. Indeed the South Down breed are rapidly becoming in actual weight what relatively to bulk they have long been, *i.e.*, the first of English breeds of sheep.

We may also refer to Mr. DAUGE'S pen of 21-month cross-bred wethers, weighing 40 lbs. a quarter, as another instance of very early maturity. The 20-month South Down and Leicester cross-bred wethers shown by Mr. OVERMAN, of Rayham, Norfolk, weighed 484 lbs., besides 50 lbs. of loose fat; and for extraordinary weight Mr. CLARKE'S 4 years and 8 months long-woolled ewe may be instanced, weighing 54 lbs. a quarter.

We add as an isolated fact that the only instance in which we have been provided with the live as well as carcase weight is in the case of the ox, No. 128, at Baker Street, purchased by Mr. TAYLOR, of Malton, which weighed 1104 lbs. alive, while its carcase weighed 771 lbs., or rather more than two-thirds of its living weight.

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* Made by Mr. Tree, of Charlotte Street, Blackfriars Road

MEASUREMENT AND WEIGHTS* OF CATTLE AT BAKER STREET AND BIRMINGHAM, 1854.

No. in Catalogue.	Names of Purchasers.	Shown at Baker Street. Age.	Length.	Girth.	Estimated Weight. "Fat."	"Very."	"Extra."	Actual Weight. Carcase.	Loose Fat.	And at Birmingham. No. in Catalogue.	Age.	Length.	Girth.	Estimated Weight. "Fat."	"Very."	"Extra."	Actual Weight. Carcase.	Loose Fat.
	DEVON STEERS.	yrs. mo.	ft. in.	ft. in.	stones	stones	stones	st. lbs.	st. lbs.		yrs. mo.	ft. in.	ft. in.	stones	stones	stones	st. lbs.	st. lbs.
1	Mr. Membray, Mile End New Road, London	2 1	4 6	7 1	57	59	61	64 0	9 6	74	P 3 0	5 1	7 0	62	65	68	66 4	7 12
2	— Jeffrey, Foubert's Place, Regent St. P	2 10	4 8	6 11	56	58	60	58 6	...	75	2 8	4 9	7 0	58	61	64	55 0	7 2
5	— Jeffrey, Foubert's Place...	2 7	5 1	7 9	76	80	83	75 2	...	74	was bought by Mr. Hall, Paradise Street, Birmingham.							
6	— T. Slater, Kensington ... ... p	2 11	4 9	7 8	70	73	76	74 6	11 10	75	by Mr. Ballard, Snow Hill, Birmingham.							
8	— Jeffrey, Foubert's Place...	2 10½	5 0	7 4	67	70	74	68 10	...									
	Average of previous Class (9), at Baker Street, 2 yrs. 8½ mo., 4 ft. 9 in., 7 ft. 4 in.; at Birmingham, (3), 2 yrs. 10 mo., 4 ft. 10 in., 7 ft.																	
	DEVON OXEN.																	
10	Mr. Petherbridge, 17, Hastings Street, Burton Crescent...	*3 6	5 0	7 5	69	72	76	*84 8	12 0	68	P 3 7	5 4	7 6	75	78	82	79 8	12 4
11	— C. Game, Cannon Street, City... ...	4 0½	5 6	8 2	92	96	100	96 2	...	70	3 6	5 5	7 7	78	82	86	85 5	12 2
12	— Petherbridge	3 9	4 9	7 8	70	73	76	*82 4	10 4	71	3 5	5 0	7 9	75	78	82	72 10	10 12
13	— W. Smith, 85, Southernhay, Exeter ...	4 4	5 0	8 2	83	87	91	91 0	10 0	68 & 70	by Mr. Ballard, Snow Hill.							
16	— W. Smith, Exeter ... ... p	4 11	5 2	8 5	93	96	100	98 0	11 1									
19	— Jeffrey, Foubert's Place... ... P	4 0	5 2	8 2	86	90	94	88 0	...	71	by Mr. Allday, Cheapside, Birmingham.							
	Average of previous Class (10), at Baker Street, 4 yrs. 4 mo., 5 ft. 1 in., 8 ft. 1 in.; at Birmingham, (4), 3 yrs. 9 mo., 5 ft 3 in., 7 ft. 7½ in.																	
	DEVON HEIFERS.																	
22	Mr. Hurn & Son, Hope Chapel-st, Clifton p	3 8	5 1	7 6	72	76	79	80 8	10 9	77	P 3 8	5 1	7 6	72	76	79	80 8	10 9
23	— Elphick, East Moulsey, Surrey ..	2 10	4 10	7 5	67	70	73	68 8	6 12	78	3 8	4 9	7 0	58	60	63	55 10	8 10
25	— Jeffrey, Foubert's Place ... P	3 9	4 10	7 3	63	66	70	68 6	...	79	P 2 10	4 9	7 4	64	67	70	68 8	7 2
	Average of previous Class (5), at Baker Street, 3 yrs. 7 mo., 4 ft., 10 in., 7 ft. 5 in.; at Birmingham, (3), 3 yrs. 4 mo., 4 ft. 10 in., 7 ft. 3 in.																	
	DEVON COWS.																	
27	Mr. Henry Gorringe, Lewes ... p	5 2	5 1	7 11	80	83	88	81 10	8 8	78	was bought by Mr. Ballard, of Snow hill, Birmingham.							
28	— White, Shadwell...	9 6	5 1	7 3	67	70	73	69 10	11 2									
29	— Mr. Henry Haydon, Carshalton P	5 0	4 9	7 0	59	61	64	60 0	11 10	79	by Mr. Harrison, Edgbaston, Birmingham.							
30	— Smith, Exeter —	7 4	5 2	7 10	78	83	87	83 6	10 6	...	...	...	...	...	...	...	...	...
32	— Anderston, New Cross, Surrey ...	6 11	5 0	7 3	64	69	72	71 8	14 11	...	...	...	...	...	...	...	...	...
33	— Mr. Stockley, 20, Montpelier Street, Brompton	7 9	5 0	7 5	69	72	76	72 10	12 0	...	...	...	...	...	...	...	...	...
	Average of previous Class (7), at Baker Street, 7 yrs., 5 ft., 7 ft. 5 in.; at Birmingham, (1), 7 yrs. 7 mo., 4 ft. 10 in., 7 ft. 5 in.																	
	HEREFORD STEERS.																	
36	Mr. Churmwood, Windsor ... ... p	2 11	5 3	8 3	90	94	98	91 6	14 4	13	P 2 11	5 3	8 3	90	94	98	91 6	14 4
38	— ..M. Smith, Westbury, Wilts P	2 11	5 1	8 2	85	89	93	*100 6	...		Same as 36, Baker Street.							
	Average of previous Class (5), at Baker Street, 2 yrs. 11 mo., 5 ft. 3 in., 8 ft, 2 in.; at Birmingham, (4), 2 yrs. 10 mo., 8 ft. 2 in., 7 ft. 10 in.																	
	HEREFORD OXEN.																	
41	Mr. Smith, Exeter	4 11	5 7	8 10	109	114	119	111 0	11 6	3	5 9	5 10	9 0	117	123	130	129 0	16 6
42	— Chamberlain, 245, High St., Exeter P	3 11½	5 9	8 10	112	117	123	126 12	14 8									
43	— Smith, Kent Road	3 3	5 3	8 2	88	92	96*	82 12	8 0	No. 3 was bought by Mr. Burge, Bristol.								
44	— Joseph Stevens, Oxford...	3 9	5 6	8 2	92	96	100	101 2	...									
45	— D. Bull, 9, Great Chapel St., Westminster	3 7	5 4	8 1	88	91	96	92 8	12 8	No. 24 by Mr. R. Kirke, Chesterfield.								
46	— Bannister, Threadneedle Street ...	3 3	5 9	8 9	110	115	120	110 10	10 4									
47	— Stevens, Oxford	4 6	6 3	8 1	86	90	94	86 4	...									
48	— Hook, Old Kent Road	3 0	5 0	8 0	80	83	88	88 4	10 4									
49	— C. Frampton, Wimborne, Dorset p	3 11	5 6	9 7	126	132	138	127 8	13 0									
	Average of previous Class (10), at Baker Street, 3 yrs. 10 mo., 5 ft. 5 in., 8 ft. 5 in.; at Birmingham, (8), 4 yrs. 4 mo., 5 ft. 5 in., 8 ft. 7 in.																	
	HEREFORD HEIFERS.																	
51	Mr. Stockley, Brompton ... ... P	3 10	5 4	7 10	82	85	90	81 2	10 4	24	4 8	5 9	8 3	98	103	107	102 0	15 5
	Average of previous Class (2), at Baker Street, 2 yrs. 11 mo., 5 ft. 3 in., 7 ft. 7 in.; at Birmingham, (4), 4 yrs. 4 mo., 5 ft. 6 in., 8 ft. 2 in.																	
	HEREFORD COWS.																	
53	Mr. Martin, 35, Duke St., Manchester Sq.	6 0	5 2	8 0	83	86	90	80 12	10 0	19 p	13 8	5 8	7 8	83	88	93	80 4	13 0
54	— Stevens, Oxford ... ... p	5 10	5 0	7 8	73	77	80	79 0	...	Bought by Mr. Bygrove, Banbury.								
	Average of previous Class (3), at Baker Street, 6 yrs. 7 mo., 5 ft. 3 in., 8 ft.; at Birmingham, (4), 9 yrs. 7 mo., 5 ft. 4 in., 8 ft. 1 in.																	
	SHORT-HORN STEERS.																	
56	Mr. W. Palmer, Cambridge...	2 11	5 3	8 3	90	94	98	91 10	10 7	40	2 9	5 1	7 7	73	77	80	80 0	10 0
57	— J. Snape, 18, Great College Street, Westminster	2 8	5 2	8 2	86	90	95	95 10	15 3	42 P	3 1	5 6	8 0	88	92	96	90 0	11 0
60	— Ferris, Bath ... ... P	2 11	5 0	8 6	90	94	99	103 0	11 6									
62	— Varney, Chapter Street, Westminster	2 11	5 2	8 2	86	90	95	92 0	15 0	No. 40 was bought by Mr. Tylor, Birmingham.								
64	— T. Pannell, 169, Aldersgate Street ...	2 11	5 1	7 7	73	77	80*	90 2	11 11	No. 42 by Mr. Ogden, Wirksworth, Derby.								
	Average of previous Class (8), at Baker Street, 2 yrs. 10 mo., 5 ft. 2 in., 8 ft.; at Birmingham, (4), 3 yrs., 5 ft. 3 in., 7 ft. 10 in.																	
	SHORT-HORN OXEN.																	
65	Mr. Palmer, Cambridge	3 10	5 5	8 10	106	110	116	113 10	12 7	30	3 8	5 10	8 7	107	112	117	113 4	15 6
67	— Stone, Watford, Herts ... ... p	3 10	5 5	9 7	126	130	136	*117 0	13 8	32	3 9	5 8	8 8	105	111	117	103 0	17 0
69	— Ford, 5, Fenton Street, Russell Sq. P	4 4	5 2	9 5	115	119	125	125 10	11 6	35	3 8	8 7	8 5	99	104	109	102 12	11 10
70	— Watling, Marchmouth Street	3 10	5 2	8 9	99	103	109	105 8	13 2	No. 30 bought by Mr. S. Hopkins, Leighton, Beds.								
73	— Botrell, 41, Rochester Row, Westminster	3 8	5 5	8 9	104	108	114	104 10	11 4	No. 32 and 63 by Mr. Raynor, Mansfield; 35 by Messrs. Lucas & Morton, Rugby.								
75	— Crag, Mount Street	4 9	5 10	8 1	95	100	105	106 4	16 0									
76	— Smith & Son, Salisbury	4 8	5 6	8 10	107	112	118	110 0	11 6	No. 67 by Mr. Enniss, 56, Great Hampton Street, Birmingham.								
77	— Woodley, Aldgate, High Street ...	4 2	5 6	8 9	105	110	115	103 0	12 8									
80	— Mason, Queen Street, Chelsea ...	4 6	5 3	9 0	106	111	117	110 4	14 6									
	Average of previous Class (14), at Baker Street, 4 yrs. 1 mo., 5 ft. 5 in., 8 ft. 10 in.; at Birmingham, (9), 3 yrs. 11 mo., 5 ft. 7 in., 8 ft. 6 in.																	
	SHORT-HORN HEIFERS.																	
82	Mr. G. R. Banks, St. Neots, Herts p	3 10	5 7	8 7	103	108	113	*99 0	13 7	63	3 11	5 8	8 0	90	95	100	95 0	14 0
84	— Lipscombe, High Wycombe, Bucks ...	3 10	5 6	8 0	88	92	96	91 0	16 4	67	3 9	5 4	7 9	80	84	88	80 7	9 4
85	— R. Lawrence, Twickenham	3 9	5 2	7 8	76	81	87	80 12	11 0	—	—	—	—	—	—	—	—	—
	Average of previous Class (6), at Baker Street, 3 yrs. 9 mo., 5 ft. 4 in., 8 ft. 2 in.; at Birmingham, (10), 4 yrs. 1 mo., 5 ft. 5 in., 8 ft. 1 in.																	
	SHORT-HORN COWS.																	
92	Mr. Woodley, Aldgate, High Street ...	5 6	5 4	7 11	83	88	91	84 8	11 8	48	5 0	5 5	8 8	102	107	112*	92 4	11 7
94	— Worsell, Folkstone, Kent	5 9	5 2	8 0	82	86	90	91 0	16 4	51	6 0	5 0	7 8	74	77	80	74 4	14 9
95	— Brooks, 14, Hampstead Road	4 7	5 8	8 8	107	111	116	110 4	15 0		No. 48 by Mr. Thompson, Bakewell.							
96	— C. Castle, Hounslow	8 8	5 5	8 4	94	97	102	*83 0	12 0		No. 51 by Mr. Albutt, Aston Road, Birmingham.							
	Average of previous Class (11), at Baker Street, 6 yrs. 2 mo., 5 ft. 4 in., 8 ft. 3 in.; at Birmingham, (10), 6 yrs. 1 mo., 5 ft. 5 in., 8 ft. 3 in.																	
	SCOTCH STEERS.																	
99	Mr. Mann, Croydon ... ... P	4 5	5 0	8 7	103	108	112	115 0	14 0	105	4 6	5 4	7 6	72	75	78	79 4	12 0
100	— Symonds, Woodford, Essex ... p	3 8	5 1	7 6	68	72	75	76 4	12 8	108	4 10	5 9	8 10	107	112	117	115 4	14 6
	No. 105, at Birmingham, by Mr. Slater, Kensington.									109	3 8	5 4	7 9	80	84	88	80 0	9 4
	No. 108, by Mr. Harrison, Caroline Street, Birmingham.									113	5 6	5 6	8 0	84	88	92	83 0	18 10
	Average of previous Class (3), at Baker Street, 4 yrs. 7 mo., 5 ft. 7 in., 8 ft.; at Birmingham, (9), 4 yrs. 9 mo., 5 ft. 4 in., 7 ft. 9 in.																	
	SCOTCH COWS.																	
103	Mr. H. Edwards, Tonbridge Wells P	4 0	5 1	7 8	71	75	78	78 12	11 6	109	by Mr. Edwards, Smallbook Street, Birmingham.							
											No. 113 by Mr. Kinnersley, Newcastle-under-Lyne.							
	WELSH STEERS.																	
104	Mr. T. Johnson, Bermondsey ... P	4 0	5 1	7 4	65	68	71	72 12	11 6	Average of this Class (3), at Baker Street, 3 yrs. 10 mo., 5 ft. 3 in., 7 ft. 3 in.								
106	— Ditto ditto.	3 10	5 5	7 6	73	76	79	72 4	8 0									
	WELSH COWS.																	
	Average of this Class (2), at Baker Street, 4 yrs., 5 ft. to 7 ft.; At Birmingham (3), 3 yrs. 7 mo., 5 ft. 1 in., 7 ft.									116	3 2	5 6	7 6	74	77	81	76 2	8 0
										by Mr. Hall, Paradise Street, Birmingham.								
	OXEN OF ANY OTHER BREED.																	
	Mr. Greenwood, Monument Lane, Brighton	...	...	...	...	...	...	...	...	88	3 7	5 10	8 8	110	115	120	108 0	13 2
	— Maries, Wellston Square, Warwick ...	...	...	...	...	...	...	...	...	89	4 8	5 8	8 6	102	107	112	111 0	14 10
	— T. Proitt, High Street, Walsall ...	...	...	...	...	...	...	...	...	90	3 9	5 7	8 7	93	97	100	92 10	12 0
	— Do. Do. Do. ...	...	...	...	...	...	...	...	...	91	4 7	5 6	8 1	90	94	98	90 3	12 12
	— Crockford, Balsall Heath, Birmingham	...	...	...	...	...	...	...	...	92	4 7	5 3	7 6	74	78	81	85 2	12 7
	Average of previous Class (2), at Baker Street, 4 yrs. 5 mo., 5 ft. 5 in., 8 ft. 1 in.; at Birmingham, (8), 4 yrs. 4 mo., 5 ft. 6 in., 8 ft. 2 in.																	
	COWS OF ANY OTHER BREED.																	
111	Mr. H. Speed, 76, Queen's Road, West, Chelsea	...	...	...	...	...	...	...	...	98	3 65	5 3	7 9	79	83	87	81 0	13 0
		2 3	4 7	7 7	63	66	69	*79 2	12 4	100	3 7	5 8	7 10	87	91	94	102 6	14 0
	Average of previous Class (2), at Baker Street, 3 yrs. 4 mo., 5 ft. 1 in., 8 ft.; at Birmingham, (2), 5 yrs., 5 ft. 3 in., 7 ft. 9 in.																	

* Imperial weights are used.

(*Continued on next page.*)

MEASUREMENT AND WEIGHTS* OF CATTLE AT BAKER STREET AND BIRMINGHAM, 1854—*continued.*

No. in Catalogue.	Names of Purchasers.	Shown at Baker Street. Age.	Length.	Girth.	Estimated Weight. "Fat."	"Very."	"Extra."	Actual Weight. Carcase.	Loose Fat.
	CROSS-BRED OXEN.	yrs. mo.	ft. in.	ft. in.	stones	stones	stones	st. lbs.	st. lbs.
113	Mr. W. Lambert, 3, Stockbridge Terrace, Pimlico ... ... P	2 5	4 11	7 6	69	72	76	68 8	8 0
116	— Mr. Edwards, Tonbridge Wells P	4 8	5 9	8 9	110	115	120	119 0	11 6
	CROSS-BRED HEIFERS.								
119	Mr. T. B. Garner, West Brompton ...	2 8	4 10	6 4	59	61	63	55 10	8 8
121	— T. Spencer, Southampton ... P	3 8	5 8	8 6	102	107	112	103 8	9 0
122	— J. Worsel, Folkstone, Kent	3 8	5 4	7 7	77	80	84	71 4	...

Average of previous Class (6), 3 yrs. 2 mo., 5 ft. 3 in., 7 ft. 8 in.

No. in Catalogue.	Names of Purchasers.	Shown at Baker Street. Age.	Length.	Girth.	Estimated Weight. "Fat."	"Very."	"Extra."	Actual Weight. Carcase.	Loose Fat.
	EXTRA STOCK.								
125	Mr. T. M. Stedwell, Twickenham	3 8	4 11	6 11	59	61	63	57 4	8 0
127	— W. S. Jones, Featherstone Street, City Road	3 7	5 4	8 7	99	103	108	94 2	12 8
128	— Taylor, Malton	5 4	5 5	8 1	88	92	97	96 3	15 1
129	— Anstee, Barnet	8 4	5 5	8 1	88	92	97	95 0	15 0
132	— Bannister, Threadneedle Street ...	3 4	5 6	8 11	110	114	120	*95 2	15 2
133	— Wells, Southgate Road, Belvoir Town	4 0	5 0	7 7	72	75	78	68 6	10 8

Average of previous Class (11), 4 yrs. 7 mo., 5 ft. 3 in., 7 ft. 11 in.

TOTAL WEIGHT	...	...	...	...	...	...	...	6149	6341	6717	6425	0	...	...	...	...	...	...	2878	3019	3154	0	2962	11

No. in Catalogue.	Names of Purchasers.	And at Birmingham. Age.	Length.	Girth.	Estimated Weight. "Fat."	"Very."	"Extra."	Actual Weight. Carcase.	Loose Fat.
		yrs. mo.	ft. in.	ft. in.	stones	stones	stones	st. lbs.	st. lbs.
	Average of this Class (4), at Baker Street, 3 yrs. 4 mo., 5 ft. 6 in., 8 ft. 5 in.								
	LONG-HORNED COWS.								
81 P		6 9	5 3	7 6	74	78	81	78 0	8 8
82 p		6 8	5 5	7 7	78	81	85	77 2	11 12

No. 98 by Mr. Slater, Kensington.
— 100 by Mr. A. Todd, Coleshill, Birmingham.
— 81 by Mr. Roberts, Kenilworth.
— 82 by Mr. Bond, Stafford Street, Birmingham.

* Imperial weights are used.

Home Correspondence.

Spade Husbandry.—I trust you will be good enough to give a place to the following remarks on spade husbandry, which I am surprised to find so strangely neglected in England in the face of our much and justly boasted agricultural progress. I believe the advantages of this mode of cultivation are fully admitted, the only objection being what is erroneously termed the expense. In this, as in all other cases, ignorance and prejudice are the greatest obstacles to advancement, for the spade or fork is held to be costly only because men *will* not try it. The Farmer's Almanac avers the expense of spade and plough to be much more nearly balanced than is generally imagined. Scientific men may astonish the world by producing implements, but there is no real digging machine but the able-bodied, expert, and industrious labourer. If you were to keep public attention fixed on this movement, we should soon have enterprising agriculturists in many districts, fairly testing the merits of the fork. Patience, perseverance, and impartiality are all the requisites. The increased comforts of our admirable agricultural population, the diminution of poor-rates, the vast superiority of the average yield of the land, the permanent improvement of the soil, and the economising of human food, will be found amongst the most powerful reasons in its favour. I wish myself in an humble way to give proof of my sincerity by practising what I preach; and I am seeking a small "garden farm," for I hold that agricultural returns depend more on the amount of capital judiciously invested, than on the actual extent of your farm; so I am of opinion that 50 acres worked to the highest degree will do much more than 150 acres in a slovenly way without capital, skill, or energy. I may add, in conclusion, that stock, the source of all profit, must be kept to the largest number the land can carry, for animal manure, liquid and solid, must follow the fork. *J. Hamilton.*

Deep and Shallow Draining.—A few weeks since, you stated that probably the generality of agriculturists, as well as Mr. Walton, were in favour of shallow draining. I am no theorist; I have drained rather extensively in several counties for the last 40 years, sometimes 30 inches, 3 feet, 4 feet, and not unfrequently 6 and 10 feet, according to localities and circumstances. In some places 30 inches, or 3 feet, prove more effectual than 4 feet; but the subsoil being, as Mr. Walton says, fine and good, I prefer the depth of 4 feet—partly because at 3 feet, in a dry season, both green and cereal crops will send their roots for moisture into the drains. The most durable and efficient drains, and in effect the most extraordinary, are those from 6 to 10 feet, driven up to the head of the spring, and often draining a great extent of valley land. It is the height of gullibility to believe that any distant practitioner can, without inspection, dictate the proper space apart and depth of drain for every locality. One fact of very remarkable importance relative to 4 feet draining has not been noticed, as far as I have learned, by any essayist in favour of that depth. It is now well known that under ordinary circumstances and weather, during a bright day, the rays of heat will penetrate the earth to the depth of 4 feet, and that during a following bright night the heat will be returned from the same depth; but if obstruction by a non-conducting body prevent the daily radiation, whether it be at 20 inches or 3 feet, the heat will be returned proportionately before the night be passed, and the surface, being consequently colder before day, will be covered with hoar frost long after it may have disappeared on the adjoining land. Every observing farmer in his early walks may have remarked this. In a soil such as Mr. Walton approves I have proved the capillary attraction of the water upwards in a drain to be from 6 to 9 inches, according to the nature of the subsoil. Suppose this constant moisture above a drain of 20 inches, with or without the sea below, and contrast it with a dry space of 4 feet daily penetrated by the sun's genial rays, and take your choice. *Thomas Landor, Burton.*

Green Vitriol.—I have been using green vitriol on my liquid manure tanks, and also on my long manure made principally in my cow sheds, believing that it was a cheap and valuable agent to fix the ammonia, and also speedily to decompose and make ready for use the long and green dung heap. Your able papers on Coveney's manure lead me to the conclusion that green vitriol is almost worthless as an agent; it certainly makes the dung-heap ready for use earlier than it otherwise would be—an object to me; but I suppose there is no means I could employ to render the phosphoric acid in it soluble. Shall I use up my remaining stock on the dung-heap or in the liquid manure tank, or what do you recommend me to do with it? Can you also recommend me a cheap and efficient deodoriser for the tanks, the stench from which is almost insufferable, and must be injurious to the man who pumps their contents into the liquid tumbler cart, one of Stratton's. *G. P., Bristol, Jan. 2.* [You had better sell what green vitriol you have remaining, and use charcoal dust or sulphuric acid to fix the ammonia of your tanks.]

Thin Seeding.—Messrs. Hardy, of Maldon, state the result of their garden experiments as follows:—

Time of Sowing and Transplanting.	Space allotted for each plant.	Number of Ears produced from each Grain.	Number of Grains in each Ear.	How many fold.	Quantity of Seed per Acre.	Quality of Produce.	Equal to the acreable yield.
	sq. ins.				pints.		bsh.
Sown 1st September for transplanting in Autumn	1296	80	80	6400	½	finest.	50
	144	20	60	1200	4½	finer.	84
	72	10	50	500	9	fine.	70
Sown in Autumn from October to December	7	1	50	50	64	fair.	50
	3½	½	25	25	128	thin.	25
	2	⅓	5	5	192	lean.	15

Grasses.—"Constant" will find the following mixture good for permanent Grass, upon strong damp soil, viz.:

	lbs.		lbs.
Alopecurus pratensis ...	3	Poa nemoralis sempervirens	3
Festuca duriuscula	3	Poa trivialis	3
Dactylis glomerata	6	Medicago lupulina	1½
Festuca pratensis	3	Trifolium pratense	1½
Lolium italicum...	6	" perenne	4½
" perenne...	12	" repens	6½
Phleum pratense	3		

I have sown the above mixture along with Wheat, Oats, and Barley, and likewise by itself. The seed will always succeed the best by itself, but not to a degree to compensate for the loss of a thin crop of Barley or Oats, which is always worth harvesting. The ground should be well prepared before the seed is sown; worked down into a fine state, to allow the roller to pass over, without the soil attaching to it. The seeds should be sown about the last week in April. If the seeds are sown by themselves, you will have a good crop of Grass for autumn use, to cut for green food or to eat down with cattle. In cutting the first year, it will be best only to take one crop from it, and eat the second crop down with stock upon dry days; by so doing it gives the finer kind of Grasses a better chance of establishing themselves, than by allowing the Clover to grow for a second crop. *J. Daniels, Woodside House.*

A good road is a great saving in horse-flesh, carts, and harness. If agriculturists would make a calculation of the difference of draught on a turnpike, or through a muddy lane or field, it would astonish them. In many instances one horse in three would not compensate for the increased friction and strain on a bad road. Taking these matters into consideration, it becomes a question whether the expense of keeping the ways about a farm in hard working order would not be repaid in a twelve-month by saving the damage and wear and tear, both to animals, waggons, and vehicles of every description. The exertion required to drag a load through deep ruts is most distressing to a team, and particularly injurious to young horses, who are often lamed incurably by the unnatural motion consequent upon the unequal draught. The jerk to extricate the wheels from the slough of despair is enough to rupture every sinew and spring every joint;—premature old age, or rather crippled youth, follows rough usage and over-work both in man and beast. Farmers must acknowledge 1854 to have been a remunerative year, with a bountiful harvest, more than an average, taking one crop with another; in thankfulness for such a blessing, farmers should open their purse strings, give liberal wages, and employ labour in improvements, though it may not produce direct profit—indirectly it will, if expended in repairing roads, dressing hedges, opening ditches, collecting and stifle-burning rubbish, and other odd jobs—fit occupations when frost, snow, or the wet state of the land make it injurious or impossible to till it. At these times how many poor industrious men are turned adrift because ploughing and harrowing cannot be followed, instead of which their valuable services should be turned to account in different ways, giving them an interest in what belong to their masters. There are unusual drains now thinning the population of the able-bodied, war, pestilence, and emigration. It would be wise to prevent the last of the three as much as possible, by finding plenty of work for the labouring classes at home. It is natural for men to wish to improve their condition, and they well know the facilities which exist for so doing out of England, and are, therefore, only too glad to leave the land of their birth, where it is so difficult to provide the necessaries of life for their families. At the same time, many who emigrate would rejoice to remain at home if the slightest encouragement was given them; a prospect of employment all the year round, with fair wages, would induce many an honest fellow to struggle on, rather than settle in a new country. Often is the following remark made—"The land wants plenty of hands and would pay for the labour; it is, therefore, hard upon us to be starving when we ought to be earning a livelihood, and putting money into our own pockets as well as our masters." This is true enough. The want of either energy, money, or charity, operates to continue the mistake of allowing the best men to go away, rather than use their sinews in improving property, because the return is not immediately visible, but indirect. There will be no use "in shutting the stable door when the horse is stolen." *Falcon.*

Payne's Defiance Revitt Wheat.—Although I have grown on one field a fine crop of this Wheat, our millers declined buying it, except at a reduction of 10*s.* per quarter, as compared with other red Wheat, and I hear the same complaint from others. The weight was good, about 62 lbs per bushel. Can you or your correspondents enlighten me as to whether this objection is well founded? I think the Rev. S. Smith, of Lois-Weedon, grows this kind of Wheat. *J. J. Mechi, Dec. 28th.* [All the cone Wheats, and excepting perhaps the April Wheat, all the bearded Wheats are of a coarser sort than the common whites and reds.]

Subterranean Application of Liquid Manure.—Amongst the curiosities of agriculture may be mentioned a new system of growing agricultural produce by applying liquid or sewage manure to the subsoil under the roots, about 16 to 18 inches deep. The plan has, I am told, been patented by Mr. Wilkins, at whose invitation myself and some other gentlemen investigated the operation, and estimated the results. On one side a number of plots or beds of soil were planted on the patent principle with Mangold Wurzel, Beet Root, Hemp, Potatoes, Cabbage, Lucerne, Italian Rye-grass, and Celery, each plot having opposite to it a similar bed

with similar soil *not* on the patent principle. The plants in both were sown the same day from the same parcel of seed, supplied by Messrs. Sutton, of Reading. I ought here to mention that the ground so occupied is close to the railway station, Reading, and occupies about one-sixth of an acre. The contrast in every crop, on every bed, was very striking, the produce of the patent beds showing an increase in quantity of from 400 to 600 per cent. The plan is simply this: a floor is paved with brick or concrete at a depth of 16 inches from the surface, with a rim or brick on edge 4½ ins. deep, like a tray; half round pipes are placed on the floor in a line under the intended row of plants. These pipes are at the end connected with a vertical pipe reaching to the surface, down which the liquid-manure is poured, and thus conducted to the half round pipes below. Of course the earth is filled in to the level of the surrounding soil, and the seeds sown over the line of the subterranean pipes. Liquid-manure had been applied weekly through the pipes on the patent beds, but none on the others, except on one where the manure each time had been applied on the surface to Mangold Wurzel, which were very inferior to those on the patented bed. Several questions arise on this experiment, first, whether the return will repay the cost, and, if so, whether the sewage of towns could not be largely and usefully applied as a manure. There was a remarkable appearance of quality and luxuriance about all the crops so treated, an absence of fangs, a delicacy of root compared with the ordinary process, and evidence of very rapid growth. One Potato planted in June had bines 5 feet long and numerous Potatoes, one of which weighed 2 lbs., although the parent one was small and of a small stock. The corresponding one on the opposite bed was very inferior in product. The former had sent down a strong root to the neighbourhood of the subterranean pipes, and had there multiplied its fibres most abundantly. The Carrot had gone directly down to the liquid as straight as an arrow, whilst its competitor in the opposite bed was short and fanged. The most extraordinary result was its effect on Turnip seed sown in September on the surface. The seeds all vegetated, and the plants were vigorous on the patent side; on the other a total failure, except one or two stunted and crippled plants. The same principle is applied to flowers in pots and vases, and an ingenious arrangement is proposed, by which all the plants in a mansion may be simultaneously supplied with liquid from a single pipe, thus converting the sewage of the house to an elegant result. The flowers which I saw growing on this principle were luxuriant. The whole question is worthy of a serious investigation. I remember that my neighbour, Sir John Tyrrell, in Essex, grew some luxuriant Celery by applying manure in a somewhat similar manner. Plants can do everything but speak—they will hunt for what suits them. By introducing a single fibre into a drain of running water, they will multiply it ten thousand fold to absorb all the moisture for their circulation; we do not give vegetation credit enough for sagacity, although its vitality and pulsation are as obvious (through a microscope) as our own. I have known an Apple tree in my garden convert leather into Apples, and could adduce surprising anecdotes of vegetative intelligence. I think Mr. Raynbird testified to some interesting results of Mr. Wilkins' process at Woking last year. If the cost of paving, &c., were even 100*l.* per acre, it becomes a question whether the rapid growth and increase might not afford an ample interest and profit. I should add that means are provided during winter to remove superfluous water. From a close examination of this system I deduce the conclusion that "fanginess" in roots is produced or avoided by the quality of soil and position and condition of manure. The soil in which this operation was effected was sandy. In clays it might or might not answer as well. *J. J. Mechi, Tiptree, Dec. 29.*

Farmers' Clubs.

EAST OF BERWICKSHIRE.—*Reaping Machines.*—At the late half-yearly meeting of this Society the secretary read the queries respecting the working of reaping machines, which had been addressed to those farmers in the district who had worked the machines during the last harvest: we will give a few of the replies.

From Capt. Logan Home, Broomhouse.—Bell's improved by Crosskill cut on an average about 7 acres of Oats per diem, the crop standing upright. Four horses were used each day, viz., two in the forenoon and two in the afternoon, and were kept in harness about five hours each time. One man was employed steering the machine and one driving the horses, and nine persons were employed in taking up the corn, binding and stooking. I calculate the expense to be about 6*s.* an acre, viz., 1*s.* an acre for cutting and 5*s.* an acre for taking up, binding, and stooking. In this calculation I charge nothing for the horses.

From Mr. Dagleish, West Blanerne.—M'Cormack's reaper cut 37 acres in 40¾ hours, 20 acres of which was a very strong crop of Wheat grown upon a steep bank, and 10 acres Black Oats, also a very heavy crop and partially laid. Bell's reaper cut 62 acres in 91 hours—Oats, Barley, and Wheat; none of them so heavy as what was cut with M'Cormack's. The horses were generally changed every four hours, although they have gone a whole day in M'Cormack's, but I found four hours quite enough for Bell's. Two men went with each reaper. M'Cormack's requires eight people taking up and four to bind and stook 10 to 12 acres a day; they easily managed 12 acres of Wheat. With Bell's eight takers up and four binders and stookers will do 7 to 8 acres a day. I may add in conclusion that both myself and the whole of my people are decidedly in favour of M'Cormack's reaper, it not being liable to go out of repair, while it is so easy work for the horses.

From Mr. Turnbull, Kelloemains.—Bell's Crosskill's cut where no stoppages occurred was about an imperial acre per hour, requiring the horse to walk about the rate of three miles an hour. Four horses will work the machine 12 hours a day—3 hours per yoking. The expense of cutting and binding per acre will be about 6*s.*; the rate of wages being for women 16*s.*, and for the men 17*s.* per week, but no charge is made for the horses.

From Mr. Dove, Eccles Newton.—Bell's original machine cut about 70 acres Wheat and Oats, and 20 acres Beans, and at the rate of about 5 acres per day. I used two different pair of horses. When the machine was working well I changed them every three hours, but when there were many stoppages from derangement of the machinery, as was very often the case, they went on for half a day. I found that a pair of horses could cut 3 acres at a time without being much distressed. I employed two men, a driver and a steerer. I did not lift the corn after the machine. The weather was so fine this season that I let it lie in the swathe till it was ready for leading, and the lifters were seldom in the same field as the machine. I calculate the expense of cutting with my machine this season at 8*s.* per acre, viz., interest on price of machine and tear and wear, and repairs on do., 2*s.* per acre; men attending do., and feeding horses, 2*s.* per acre; lifting and binding, 4*s.* per acre. This season the corn was in such fine condition after lying a week in the swathe that it did not require to be stooked, so I just sent the carts after the binders had led it home. Had it required stooking it would have cost about 1*s.* per acre additional. I have not allowed anything for the horses except the corn they ate; had they not been working in the machine they would be idle and out at Grass.

Mr. Wilson, Edington Mains, used two of these machines—one of them Bell's original machine, with the clipping parts; the other Bell's as made by Crosskill. He found the latter much better than the former, and less liable to derangement. Indeed, the result of his experience with Bell's clipping machine is that it requires an experienced workman to have at least a year's practice with it before he can work it properly, and even then it will not do its work well. He was in no case able to reap an entire field with this machine. With the two machines, as nearly as he could estimate, he reaped 150 acres. The two machines reaped 32 acres, fully, of Oats, in two consecutive days, and that notwithstanding great interruptions. The machine-cut corn he found to get into condition for the stacks sooner than the hand cut, because it got less knocked about. He used two pair of horses, and seldom worked them more than three hours at a time. The horses were able to go on day after day with the work he spoke of. He was unable to give an exact account of the cost of work. He was harassed with several unfortunate stoppages, most of them were pure accidents, for which the machine was not responsible; but some of them, he thought, were easy of remedy by the maker. He had no hesitation in saying that his harvest labour this year had been very much lightened by the machine.—Mr. D. M. Home read the report of a discussion at the Haddington Club, and the speakers there give the expense at about 5*s.* per acre. Mr. Hope, Fentonbarns, who cut nearly 80 acres with Crosskill's machine, says that the expense was about 5*s.* 6*d.* per acre; whereas for cutting with the hand it would have cost him 11*s.* per acre, and the machine made much better work. Mr. Anderson, Blackdykes, cut 50 acres. Mr. Hunter, of Thurston, cut 260 acres at an estimated expense of 8*s.* 6*d.*, a charge being made for two pair of horses per day. Mr. John Hope, of Elphingston, during last harvest cut 79 acres with the sickle, 85 with the scythe, and 35 with the reaper. The three scythes cut 18 acres in four days at 9*s.* 9*d.* per acre. Bell's reaper cut 15 acres in two days at a cost of 4*l.* 1*s.*, or 5*s.* 5*d.* per acre. Twelve acres of Oats cut with the sickle cost 10*l.* 2*s.*, or 16*s.* 10*d.* per acre. They might hope that when their farm servants get more accustomed to the machine it will do more work than it now does; and that when their farms are improved—made more level, and the stones removed—it will cut still more. *Abridged from the Berwick Warder.*

OXFORD: *Subterranean Application of Liquid Manure.*—At the late monthly meeting of this Club Mr. Wilkins stated that he had taken a spot of ground near the Great Western Railway Station, which he called his experimental garden. He had selected a piece of ground 100 feet square, which he had prepared on his patent principle, and by the side of it he had 100 feet square of the same kind of soil, which was treated on the old system. Both pieces were sown and planted alike, and he had advertised the day when the roots on both would be taken up, and invited the public to come and see the results, and judge for themselves. Those results were—that on the prepared piece the Mangold Wurzel grown was at the rate of 69 tons, 2 qrs., and 22 lbs. to the acre; the Indian corn grown on it ripened and came to perfection, but not on the unprepared piece; the Potatoes were taken up in 11 weeks, and when weighed in the presence of several gentlemen were found to be more than double the weight of those grown on the unprepared piece; the Winter Broccoli was taken up and eaten before winter came; and one of the Cabbages weighed 16 lbs., although its stem remained in the ground, and had now upon it 15 young Cabbages. In the prepared bed he had planted a Potato which he had picked up at Wokingham; it was about the size of a Walnut when he put it in, and it was taken up in the presence of Mr. Mechi and others, when the haulm was found to be 5 feet long; the produce was 17 Potatoes, weighing 8½ lbs., one of them weighing above 2 lbs. [This latter Mr. Wilkins produced, and handed round the room.] They were 13 weeks growing, and were planted in the early part of June. Mr. Wilkins then exhibited some Lucerne, which, he said, was the third cut, and contrasted it with the first cut of some grown on the old system. There was a very marked difference in favour of the Lucerne grown on the new principle, and the same might be said of the Italian Rye-grass, the fifth cut of some on the new system being contrasted with some of the old. The Mangold Wurzel exhibited also showed the superiority of the new system, where the roots varied from 12 to 18 lbs., while on the unprepared piece they did not exceed 6 lbs. The lecturer then exhibited some remarkably fine specimens of Hemp and Flax grown at Wokingham, adjoining some land belonging to Mr. Walter, of the *Times*, where nothing would grow. He showed some of the first crop of Hemp, which was 7 feet long, and the second was 5 feet; he stated that he had grown two crops of Hemp and Flax in the year on the land at Wokingham, which was the poorest he had ever seen. The Flax was grown in 12 weeks. The lecturer then explained that the principle of his system was to apply the liquid manure to the roots of the plant instead of above, because the tip of the root was the mouth of the plant, and the means by which it sucked up moisture and sustenance. He then exhibited a model of his process, a small box, with a waterproof bottom and sides, 4 inches deep. At one corner was a pipe for conveying the liquid manure to the bottom, which was distributed by means of a half-drain pipe laid along the bottom; in another corner was a pipe to enable any one to see if there was the necessary quantity of liquid manure, 4 inches; and in the opposite corner was a plug, by lifting up of which the liquid manure could be reduced, or pass off altogether into the soil below. The depth of earth necessary would be from 12 to 18 inches. At present he was constructing these waterproof beds of tile, the cost of which would be about 100*l.* per acre, but he believed that a much cheaper mode might be adopted by making the waterproof bottom of gas-tar and sand, in which case it would not exceed 50*l.* per acre. Even at 100*l.* per acre, and if it were done by the landlord, who should have 10*l.* per cent. for his outlay, he was prepared to prove that, after paying that 10*l.* per cent., the tenant should clear 30*l.* per annum on every acre, however bad the land might be [!!]

Notices of Books.

Hints on Agriculture, adapted to a Midland County. Hamilton, Adams and Co.

THIS is a little tract written by a lady who succeeds, as many of her sex have done, in uniting an acquaintance with the field work of the farm with a knowledge of household duties, and a sympathy with all that is kind and elegant in social life—all which is proved in the contents of these few pages, in the dedication by which they are prefaced, and the poetry by which they are garnished. The thing is necessarily as slight as it can be, and we do not quite agree in some of its advice. You cannot pull a Thistle "too soon," (p. 15,) whatever old sayings may exist to the contrary. And we do not need to go so far as page 15 for what appear to us mistakes. The opening page, speaking of levelling land after draining, describes a very imperfect mode of conducting the operation. The tract nevertheless contains, in very small compass, a good deal of useful information.

Flax and Hemp, and their Culture and Manipulation. By E. S. Delamer, author of "Pigeons and Rabbits.' E. Routledge & Co.

A shilling volume containing in full detail all the information that is needed for the cultivation of these crops. It is strictly manipulation that is described. The machinery for removing the seed, for rippling, and for breaking and scutching the Flax is altogether ignored. And a good deal of extract matter from the writings of Mr. Warnes and others leads us to suppose that the writer may not himself be practically acquainted with the management and handling of the crop as cultivated and prepared for market, at least in this country.

Calendar of Operations.

JANUARY.

WEST SUSSEX, *Jan.* 2.—We have got to the time of the year when everything looks the most cheerless; but the weather is now such as would be suitable for March or April. It is dry and mild, and there has been but little frost, which soon disappeared. As a matter of course the mildness of the season has shown its effect upon the Wheat, which now looks very forward, the earliest sown rather too much so; it begins to assume rather a grassy appearance, but we shall, no doubt, have a little frost to check it yet. With anything like a fine season we may look for a good crop, for it was never put in in better order; the land was just in the state in which it works best—neither too wet nor too dry. The price still rules high, and we do not think that it is likely to fall, for there has been a large quantity threshed; since it was harvested it has been fit for the market, and prices being tempting all have sent it in. There is rather more than an average sown, and there will yet be a good deal put in after Turnips, the land being in such good order for it. Barley has turned out well both as to quantity and quality, but has not maintained its price so well; at one time it got up to 40*s.* or over, but lately it has given way a little. Oats turn out well and are heavier than usual; the price from 28*s.* to 30*s.* Peas have this year done far better than they generally get credit for; we never saw the quality better, if so good; but Beans have been all but a failure. Cattle are now confined to the yards or tied up in stalls for fatting, but this is not very encouraging; the Swedes, which we thought right in quality if not in bulk, do not seem to possess much fatting property in them. We rather think that they do harm if given in full allowance as we generally give them. [How much?] We find the cattle do better on half allowance, with 2 lbs. extra cake instead of the other half. And this arrangement, owing to the smallness of the crop, suits us better so far. Cake is dear, but as that is the case with everything we must not take notice of it, for it certainly will not do to shorten our allowance. Turnips, on which our ewes depend mostly, have turned out very bad, though they looked at one time well—the dry season beat them—and there are now patches of them rotted entirely off; we fear those left are more or less diseased and will be anything but healthy. This is no doubt partly the case with the Swedes—hence their little value, but Mangold, progressing more naturally, we may expect to be more sound. We have now begun to mix them with Swedes for the fatting beasts. The ewes have commenced to lamb, and appear very healthy; there is no lameness among them, as was the case last year, which may of course be accounted for by wetness of the one season and dryness of the other. We do not let them have Turnips until they lamb, but they have the

run on their pasture and what hay they choose to eat, care being taken not to let them out of their fold in the morning before the frost is off, if there is any, as we have seen great mischief done by causing slipping lambs from this cause. The weather having been so open we have not heard of that scarcity of hay that we expected; but still the price is high—from 90*s.* to 100*s.* for good meadow hay, and good Clover 10*s.* to 15*s.* higher. The young Clovers that looked so very bad after the corn was cut have now pretty generally made their appearance, and we may expect that they will turn out as usual. All artificial spring food, such as Rye and Tares, look well, so that the want of roots will not be so much felt. All work is now well advanced; there is little to do in the fields; the chief labour is threshing, driving dung, and chalk for the heavier lands, and repairing roads. *G. S.*

Miscellaneous.

Poultry Keeping.—On my way to Birmingham on Tuesday last, I fell in with some amateurs who were going to the Poultry Show for the first time. In the course of conversation the oft-repeated question was put to me, "What fowls should I keep?" As I had had experience of what are considered the most useful sorts, I answered as follows:—

1. Game Fowls.—Elegant and compact in appearance, hardy in constitution, excellent caterers for themselves, good layers of delicious eggs, excellent mothers and rearers of children, chickens unsurpassed in flavour when dressed. The sole drawback to this prince of breeds is their disposition to fight; but I cannot say that this amounts to much, as during the time I kept them I lost but four or five chickens from this cause.

2. Spanish.—Noble birds, abundant layers of very large eggs, may be kept in confined spaces more readily than other breeds, no mothers, but the chickens hardy, only wanting extra attention at about a month to six weeks old when feathering, good table-bird—should be well kept.

3. Dorking.—Genuine old English fowl, somewhat delicate in constitution, and seems to thrive most on warm and dry soils, eggs large and well-flavoured but not abundant, fair mothers, chickens not so easy to rear as other breeds, splendid table-fowl where a large plump bird is preferred, wants liberal keep and warm housing.

4. Gold and Silver Pencilled Hamburgs.—Extremely elegant in appearance, forage well for their living, but require more feeding than the Game Fowl, lay abundantly, but small eggs, never incubate, or but very rarely; chickens somewhat difficult to rear, unless in very favoured spots; nice birds for eating, but small; must have a good range to keep them in health.

5. Spangled Hamburgs.—Very handsome, abundant layers, chickens tolerably hardy, and a very good bird for the table, their incubating qualities are seldom manifested, require a good run.

6. Polish.—Good layers, very elegant in form, rare incubators, chickens very delicate at first, warm housing indispensable.

7. Cochin.—Varied plumage, hardy, excellent eggs, and more abundant than any other breed, good mothers, chickens strong, and grow rapidly under good feeding, good for table at four months old but not after, require very liberal feeding, feathers valuable.

This was my answer to the question above stated. If you think it can be of any use to those about to commence a yard, pray print it. *Thomas Prater, in the Poultry Chronicle.*

Notices to Correspondents.

ACRE: *T P.* The following are its several dimensions:—

	Square yds.		Square yds.
Statute acre	4840	Cuningham	6250
Leicestershire... ...	2808¾	Westmoreland... ...	6760
Herefordshire	3226⅜	Irish	7840
Wiltshire	3630	W. Derby...	9000
Devonshire	4000	Cheshire	10,240
North Wales (customary)	3240	Scotch standard acre	6104·1281
Ditto ditto (erw)	4320	Dumbarton	6084·4/9
Cornish	5760	Inverness...	6150·4

The common statement is, that a Scotch acre is ⅝ of an imperial acre.

CHICKENS' DUNG: *Sub.* If you have several tons you had better make a compost of it with earth, and use it either in the garden or as a top dressing on the meadow, at the rate of a ton or so per acre. Do not mix lime with it.

FOOD FOR LAMBS: *R cum N.* will feel obliged to any of our correspondents for information whether the large field Cabbage is good food for lambs in August, September, and October. Lambs in the autumn are very liable to the scour from improper food; they require good keep, but not of too stimulating a nature—hence the inquiry.

GORSE: *A Constant Reader.* [See Blackie's Cyclopædia of Agriculture.] "The best sort to cultivate is Ulex strictus, so called, which is, however, thought to be merely a variety of the common whin. It is more herbaceous than the U. Europæus, though of smaller and slower growth—but it cannot be grown from seed. If it be selected, cuttings must be struck or layers obtained, and these must be transplanted into the field on which it is to be grown. The more common plan, however, is to sow the seed of U. Europæus. About 10 lbs. of seed may be sown per acre, in shallow rows, of any light soil, in the month of March; the rows may be 10 inches apart, and the best plan is to sow it just as Wheat is sown in some districts:—The men opening a shallow drill with a broad light hoe, sowing the seed along it, and then covering it with the earth taken in opening the next drill. It can thus be sown for about 6*s.* an acre; and if 8 or 10 lbs. of seed, at 1*s.* a lb., be used, the first cost of the crop is not very great. Some people, however, recommend a larger quantity, and sow it broadcast; this is not a good plan, for the only difficulty which the crop has to withstand arises from the obstruction of its early growth by means of weeds, and these can, of course, be much more easily extirpated under a drill husbandry of the crop. In the second autumn after sowing, having been cleaned at intervals during both the summers, the crop will have attained a growth rendering it worth cutting; but it is well to cut only every alternate row this time, leaving every other to attain a two and a half years' growth against the following autumn; and, by pursuing this method, the half of the field is each year harvested when two years old, having had the advantage of ample room for development, during the second year of its growth, by the removal of the alternate rows. It is cut with a short and heavy hook, within a few inches of the ground, and tied up in bundles. This is paid for at the rate of about 5*d.* per score of bundles, each weighing about 20 lbs. 2000 faggots may be the average produce of 1 acre. This, on being brought home in daily or weekly portions, is cut up somewhat by hand, the stems and very woody portions being thrown away, and the remainder crushed for use. A mallet and block is the simplest apparatus for the purpose. The Gorse being laid on the block, is first cut to bits with the one end of the mallet, armed with crossed knife edges, and then smashed with the other end, before being given to cows or horses. But many more efficient and less laborious methods exist, in which this manual operation is replaced by a mechanical contrivance.

LAND DRAINAGE COMPANY: *Correspondent.* See advertisement.

SAINFOIN: *T P.* We have grown it on sandy soils, but not with great success. It prefers a limestone or chalky subsoil.

SUPERB LATE WHITE BROCCOLI—"EMPEROR."

E. P. DIXON having purchased the entire stock of the above Broccoli of Messrs. Elletsons, Market Gardeners, Thorngumbald, near Hull, begs to announce that he is prepared to send it out in sealed packets at 2*s.* 6*d.* each. This Broccoli has been raised by the Messrs. Elletsons, the raisers of the Mammoth, sent out some time ago, who state that the EMPEROR, if sown at the same time, will come into use before it. Is of very dwarf growth, perfectly hardy, with heads from 15 lbs. to 20 lbs. weight; keeps its colour, and stands firm three weeks after it is ready to cut. A noble flower, and commands the best price of any other in the Hull market, where it is well known, and will be a great acquisition to the market gardeners around London, as well as those who wish for a first-rate Broccoli.

PURE MAMMOTH BROCCOLI.—Numerous applications having been made to Messrs. Elletsons last season for Seed of the Pure Mammoth Broccoli, they determined to allow a flat to stand for Seed, carefully selected from the original stock, producing heads from 18 lbs. to 25 lbs. each. E. P. D. having purchased the stock of this celebrated Broccoli, is prepared to send it out in packets at 2*s.* 6*d.* each.

Each may be had of Messrs. NOBLE, COOPER, & BOLTON, 152, Fleet Street; and Messrs. HURST & M'MULLEN, 6, Leadenhall Street, London. Also of the Advertiser, 57, Queen Street, Hull.

NEW PEA.

W. J. EPPS, SEED MERCHANT and GROWER, Maidstone, has much pleasure in offering the following Pea, feeling assured it will give the highest satisfaction.

LORD RAGLAN, OR IMPROVED MAMMOTH.

This Pea was selected from Hair's dwarf Mammoth two years since, and is unquestionably the best and finest in cultivation, and will prove to be the standard Pea of the day. It is a dwarf green wrinkled marrow of very large size, and an immense cropper. Habit dwarf, branching 3 to 4 feet high, producing immense clusters of large bright green pods from the base of the haulm to the top, and similar in shape to the Scimitar, but of greater size, well filled with seven to ten Peas, which are larger than the British Queen, and equal, if not superior in its flavour.

Price, 5*s.* per Quart. Wholesale Prices to be had on application.

Agent: Messrs. HURST and M'MULLEN, Seed Merchants, Leadenhall Street, London.

NEW CUCUMBER.

BURNETT'S PERFECTION.—At the express wish of many cultivators, W. B. is induced to offer the above Cucumber to the public. The following Prizes were awarded to it during the past season:—First Prize at the great Horticultural and Agricultural Exhibition held at Ripon; First and Second at York; also at Scarborough and Driffield there was not a Cucumber shown that could compete with the above. It has been pronounced by several gardeners to be the most perfect Cucumber ever raised. Some of the fruit exhibited as above were cut 10 or 12 days previous to the day of exhibition.

W. B. also recommends TULLY'S GOLDEN QUEEN MELON, as the highest flavoured Melon known. A Medal was awarded to it at Chiswick. W. B. having grown no other variety for the last three years, can supply it true. The Cucumber, in packets, four seeds, 2*s.* 6*d.*, or two seeds, 1*s.* 6*d.*; the Melon, 12 seeds, 1*s.*, in penny postage stamps.

WILLIAM BURNETT, Monk Gate, York.

SPECIMEN IRISH YEWS.

THOMAS JACKSON AND SON, having a large Stock of fine specimens of this very ornamental tree, beg to offer them at the undernamed low prices.

8 to 9 feet high,	and 8 feet in circumference...	63*s.*	0*d.*	each.
8 "	and 4 to 5 feet " ...	21	0	"
7 to 8 "	and 4 feet " ...	15	0	"
6 to 7 "	and 3 to 4 feet " ...	10	6	"
6 "	and 3 feet " ...	7	6	"

Handsome smaller specimens at proportionately lower prices.
Kingston, Surrey.

BECK'S NEW AND BEAUTIFUL SEEDLING PELARGONIUMS.

J. DOBSON AND SON'S CATALOGUE OF PELARGONIUMS, containing full descriptions of the following unequalled varieties, may be had on application:—

*Conqueror	42*s.* 0*d.*	Silenus	31*s.* 6*d.*
*Lydia	21 0	Dido	21 0
*Laura	31 6	Gem of the West ...	31 6
Fidelia...	31 6	Commander in Chief ...	21 0

Those marked * were figured in the "Florist" for September last. Coloured plates may be had in exchange for 14 postage stamps.

Fine show varieties, all the best out, from 12*s.* per dozen. Fancies, from 12*s.* per dozen.

J. D. & SON beg to state that they are enabled to send out extra strong plants of the above, as they are under their own immediate management, and particular attention is paid to this class of plants.

J. DOBSON'S Practical Observations on the Cultivation of the Pelargonium may be had in exchange for 8 postage stamps.

Woodlands Nursery, Isleworth.

GODFREY'S BLACK SPINE.

SPLENDID AND PROLIFIC FRAME CUCUMBER.

WOOD AND INGRAM beg to offer seeds of the above beautiful variety. Colour, magnificent dark green, with a very fine bloom; average length, 18 to 21 inches, and produces in great abundance through an entire season. Packets, containing 12 seeds, 2*s.* 6*d.*; 6 ditto, 1*s.* 6*d.*

W. & I. will be happy to refer any persons wishing further information respecting the variety to three or four Noblemen and Gentlemens' Gardeners who have grown it, and prefer it to any other.

London Agents: Messrs. HURST & M'MULLEN, 6, Leadenhall Street.

W. & I. have also the following esteemed varieties to offer, in packets, 1*s.* each, containing 12 seeds:—

Sion House	Sagg's Royal Exhibition
Barnes's Fearnought	Conqueror of the West
Walker's Prolific	Improved Sion House
Constantine's Incomparable.	Manchester Hero.

Huntingdon Nurseries, January 6.

R. PARKER begs to offer the following CHOICE SEEDS, all of which are warranted new and true to name:

GODFREY'S (BLACK SPINE) CUCUMBER, the finest variety in cultivation, packets containing 12 seeds 1*s.* 6*d.*

Also the following esteemed varieties of CUCUMBERS and MELONS, in packets containing 12 seeds, at 1*s.* each:—

CUCUMBERS.	MELONS.
Henderson's Black Spine.	Victory of Bath.
Improved Patrick.	Beechwood.
Walker's Long Rambler.	Bromham Hall.
Manchester Prize.	Canteloupe.
Hunter's Prolific.	Duke of Bedford.
Superlative Improved.	Golden Perfection (extra fine).
Cuthill's Black Spine.	Scarlet Flesh (Anderson's).

Ohio Squasha Custard Gourd, 6*d.* ... ... per packet.
Antirrhinum, from named flowers, 6*d.* ... "
Calceolaria, from fine varieties, 1*s.* 6*d* and 2*s.* 6*d.* "
Hollyhock, from fine named varieties, 1*s.* 6*d.* and 2*s.* 6*d.* "
Lilium giganteum, the most distinct and noble species of the genus, packets containing 20 seeds, 2*s.* 6*d.*

*** A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Islington.

SUPERB HOLLYHOCKS, ROCKETS, SEEDS, ETC.

WILLIAM CHATER'S descriptive list of his superb HOLLYHOCKS, containing hints on their culture and observations on exhibiting, &c., may be had on application by enclosing a postage stamp. Packets of seed, consisting of 20 varieties, selected from the best show flowers, 5*s.*; 12 varieties, 2*s* 6*d.*; and from good double sorts, 1*s.*

Very superior Quilled German Asters, 12 distinct varieties, separate, 2*s.*, mixed 1*s.* per packet. Also Choice French Asters, 12 varieties, separate, 3*s.*, mixed, 1*s.* 6*d.* Fine Quilled African Marigolds, lemon and orange, 6*d.* per packet.

New Double Crimson ROCKET, excellent bedding plant for spring flowering, 6*s.* per dozen, or 2*l.* per 100. Double French White, 4*s.* per dozen, or 30*s.* per 100.

Saffron Walden Nursery, January 6.

GARAWAY, MAYES, AND CO., having a large Stock of LILIUM GIGANTEUM Seed, can supply fine picked seed at 10*s.* 6*d.* per 100.

G. M. and Co. can supply DIOSCOREA BATATAS at the advertised prices. Early application is requested, as the stock is limited.

Catalogues of Kitchen Garden, Flowers, and Agricultural Seeds may be had on application. Prices if desired. For prices of Cucumber and Melon Seeds see Advertisement of Dec. 30, 1854.

Durdham Down Nurseries, Bristol, Jan. 6.

R. PARKER begs to offer the following:—CINERARIAS (Seedlings), from all the finest varieties, carefully selected, including the new varieties sent out last autumn. Strong established plants, in 4-inch pots, at 4*s.* per dozen. A choice collection of named Cinerarias in strong established plants, purchaser's selection, at 9*s.* per dozen.

ROSES, consisting of the best varieties of Hybrid Perpetuals, Teas, Bourbons, &c., well established in pots. Purchaser's selection, at 12*s.* per dozen. List of names forwarded upon application.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Islington.

PYRAMIDAL PEAR TREES ON QUINCE STOCKS.

J. AND J. FRASER have to offer a very fine collection of the best varieties of PEARS grafted on the Quince; descriptive Catalogues of which may be had on application.

In offering these Pears, grafted on the Quince stock, we would wish particularly to call attention to their many excellent qualities. They are very compact in growth, and most prolific in bearing, fruiting profusely while the trees are small; thus forming a great acquisition for a small garden. Planted by the side of walks, in addition to their utility, they add much to the neatness and beauty of a kitchen garden. Indeed too much can scarcely be said in favour of these miniature Pear trees; as a proof of their merit the demand for them is yearly increasing.

Strong Trees, showing Fruit Buds, 2*s.* 6*d.* to 3*s.* 6*d.* each.

Lea Bridge Road, Essex, January 6.

CARTER'S PROLIFIC RASPBERRY.—In consequence of J. CARTER seeing his Raspberry quoted in a Nurseryman's Catalogue, who J. C. has reasons for knowing does not possess the true variety, and wishing to prevent imposition, begs to announce that the undermentioned are the only Nurserymen who have been supplied by J. C., or his agents, Messrs. Hurst & M'Mullen. Should other Nurserymen favour with their orders their names will be added to the list; the stock is very limited. Price may be had on application to Messrs. VEITCH & SON, Exeter; RENDLE & Co., Plymouth; WOOD & SON, Maresfield; LOW & Co., Clapton; RIVERS, Sawbridgeworth; PALMER, Annan; TURNER, Slough; APPLEBY, York; DOWLING, Southampton; A. SMITH, Sydnope; FISHER & HOLMES, Sheffield; GEORGE GLENNY, Fulham; URQUHART & SON, Dundee; T. BUNYARD, Maidstone; HURST & M'MULLEN, London; or

JOHN CARTER, JUN., NURSERYMAN, Keighley.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

BLOSSOM OF FRUIT TREES. — WORSTED NET to effectually protect the blossom of wall fruit trees from frost and blight, and the ripe fruit afterwards from wasps and flies, 7*d.* per square yard, in various widths. All kinds of garden, fishing, and sheep nets, made by machinery, and at very low prices.—R. RICHARDSON, 21, Tonbridge Place, New Road, King's Cross, London.

SEASONABLE PRESENTS.—The most appropriate offerings for this season of festivity are those which tend to the promotion of health and personal attraction: none can be more acceptable than ROWLANDS' MACASSAR OIL, for imparting a transcendent lustre to the hair, and sustaining it in decorative charm. ROWLANDS' KALYDOR imparts a radiant bloom to the cheek, and a delicacy and softness to the hands, arms, and neck; and ROWLANDS' ODONTO, OR PEARL DENTIFRICE, bestows on the teeth a pearl-like whiteness, and renders the breath sweet and pure. The patronage of royalty throughout Europe, their general use by rank and fashion, and the universally-known efficacy of these articles give them a celebrity unparalleled.—Sold by A. ROWLAND & SONS, 20, Hatton Garden, London, and by Chemists and Perfumers.—Beware of spurious imitations.

WANTED to Rent, from Lady Day, a SMALL FARM near London, from 40 to 80 Acres, chiefly Pasture, with a good House upon it and the requisite Outbuildings; and not more than 16 miles from town.—Apply, by letter, to the Editor of the *Agricultural Gazette*, 5, Upper Wellington Street, Strand, London.

SPADE HUSBANDRY.

WANTED, from 30 to 60 acres of good sound LAND, for cultivation as a Garden Farm, with ample convenience for House-feeding Stock; also a VILLA or comfortable Farmhouse. References as to position, eligibility, &c. — Address Mr. H., Post-office, Farnham, Surrey.

WHITE PERUVIAN MUSK DUCKS. — A few surplus Birds on hand of last year's broods, from the Advertiser's imported stock, of this very beautiful and valuable kind. Price 10*s.* each; very large exhibition birds, 1 guinea each.

The Peruvian Ducks lay very large eggs during nine months of the year—are excellent for the table—grow to a large size, and both for ornament and profit are a desirable variety.—For particulars address C. W. D., Post-office, Crediton, Devon.

COCHIN CHINA FOWLS.

MR. J. C. STEVENS begs to notify that he has received instructions from Thomas Sturgeon, Esq., of Grays, to announce for Sale by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 23d January, at 12 o'clock precisely, a selection of COCHIN CHINA FOWLS consisting entirely of first-class birds. *** This is the only old and known strain of Buffs now in the hands of the original breeder. Mr. Sturgeon has bred them with rare care and judgment for many years, no second-rate bird has been bred from, and they are unrivalled in their combination of form, size, and colour. Up to 1852 they were the winners of all the best prizes at Birmingham, Cheltenham, Winchester, &c., and were never beaten until within the last few weeks; they have since been shown and taken the Silver Vase and 1st Prize at Manchester.—Catalogues by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

GREEN AND HOT-HOUSES made by machinery, at J. LEWIS'S HORTICULTURAL WORKS, Stamford Hill, Middlesex. Sent to all parts of the United Kingdom. These buildings are warranted of the best materials, and put together in a superior manner. Being manufactured by steam-power, they are considered the cheapest and best made in England. The Trade and Merchants supplied at wholesale prices. List of Prices by enclosing two postage stamps.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.		Inches.		Per foot.		Per 100 feet.
	Under	6 by 4	at	1½d.	is	£0 12 6
From 6 by 4	"	7 " 5	"	2d.	"	0 16 8
7 " 5	"	8 " 6	"	2¼d.	"	0 18 9
8 " 6	"	10 " 8	"	2½d.	"	1 0 10
10 " 8	"	12 " 9	"	2¾d.	"	1 2 11

Larger sizes, not exceeding 40 inches long.
16 oz. from 3d. to 3½d. per square foot, according to size.
21 oz. " 3½d. to 5d. " " "
26 oz. " 3½d. to 7½d. " " "

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to JAMES HETLEY & Co., 35, Soho Square, London.

STOUT SHEET GLASS, suitable for Skylights and Horticultural purposes, in cases of 300 feet, at 2d. per foot; squares in boxes, from 8 in. by 6 in., to 6 in. by 4 in., 1d. per foot, taking 10 boxes, one of each size; Crown Glass, in crates, 18 tables, 30s. per crate: Patent Plate, extra sizes: Hartley's Rough Plate, Enamelled and Perforated, supplied wholesale and retail by JOSEPH POULSON, Lead and Glass Merchant, 164, Edgeware Road, London.

HARTLEY'S PATENT ROUGH PLATE GLASS, 1-8th thick, or 2 lbs. to the foot; 3-16ths, or 3 lbs.; and 1-4th, or 4 lbs. to the foot, for Ridge and Furrow Roofs, Greenhouses, Railway Stations, Engine Sheds, Mills, Market Halls, and Public Buildings generally.

Packed in Boxes of 50 feet each.

6 by 4 and 6½ by 4½	...	...	...	10s. 6d. per box.
7 " 5 " 7½ " 5½	...	...	...	12 0 "
8 " 6 " 8½ " 6½	...	...	...	13 6 "
9 " 7 " 9½ " 7½ and 10 by 8			...	15 0 "

For larger sizes a full List of Prices will be sent on application. Boxes are charged 2s. each extra, full price allowed if returned free of expense.—For further information apply to

JAMES PHILLIPS & Co.,
116, BISHOPSGATE STREET WITHOUT.

"Rough Plate Glass never been, and never can be, prejudicial to the colouring of Grapes; though we can easily believe that it has been charged with such a fault by persons who have not skill enough to manage Grapes under glass."—*Gardeners' Chronicle.*

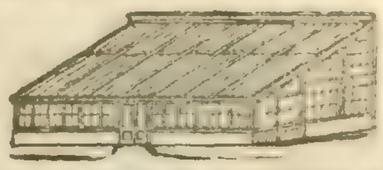
"There *can be no question now* that Rough Plate Glass is the most beautiful as well as the most useful kind of glass that can be employed in horticulture. It is free from all the faults of transparent glass, and has many advantages peculiar to itself, *without a single disadvantage as a set off.*"—*Gardeners' Chronicle.*

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

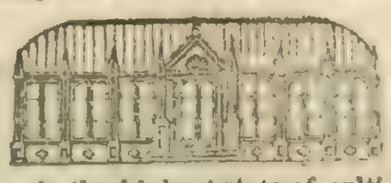
HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



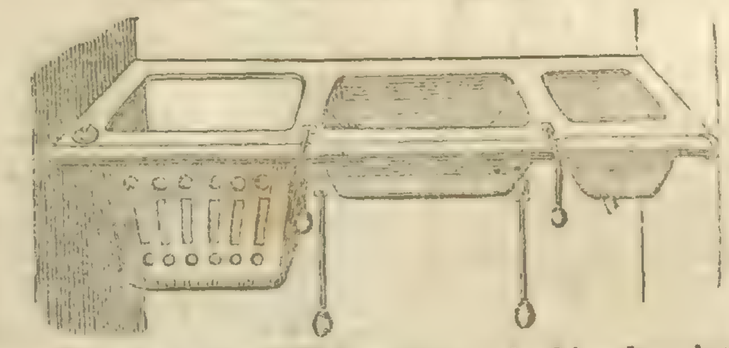
The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3s. 8d. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THE only Patented invention of this description constructed so as to prevent considerable waste of Hay and Corn, together with all the newest improvements.

NEWLY IMPROVED ECONOMIC STABLE FITTINGS, FORTY SHILLINGS PER SET, to fill up the whole width of Stalls, and can be had enamelled or galvanised. Every description of Mangers, Racks, and Stable Furniture in stock; Iron Hurdles, Gates, Fencing, &c.

Manufacturer of Kite's Patent Noiseless Cast-Iron Smoke-Curing Chimney Caps (200 on Buckingham Palace), price 25s. each. Price Lists and Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, IRON FOUNDER, &c., 370, Oxford Street, a few doors east of the Pantheon.

DEANE, DRAY, AND CO., have a very large and superior stock of FRENCH MODERATOR LAMPS now on sale.—(Opening to the Monument), London Bridge. ESTABLISHED A.D. 1700.

FURNISH YOUR HOUSE WITH THE BEST ARTICLES AT DEANE'S IRONMONGERY AND FURNISHING WAREHOUSES. Established A.D. 1700. A Priced Furnishing List, free by post.—DEANE, DRAY & Co. (Opening to the Monument,) London Bridge.

FORD'S EUREKA COLOURED SHIRTING is now ready, in 200 different patterns. Specimens in varied colours sent post free on receipt of six stamps.

FORD'S COLOURED EUREKA SHIRTS, Six for 27s.

FORD'S WHITE EUREKAS, best quality, Six for 40s.; second quality, Six for 31s.; if washed ready for use, 2s. extra.

CAUTION.—Ford's Eureka Shirts are stamped, "38, POULTRY, LONDON," without which none are genuine.

*** Catalogues with particulars post free.

RICHARD FORD, 38, Poultry, London.

NEW WINTER SOAP.

METCALFE, BINGLEY, AND CO.'S OATMEAL and CAMPHOR SOAP, in tablets (registered Nov. 3, 1854). Price 6d. each. This soap will be found the purest and most perfect winter soap ever introduced to the public. It preserves the hands from chapping, and renders the skin soft and agreeable.—Sold wholesale and retail by the inventors and sole manufacturers, METCALFE, BINGLEY, & Co., Brushmakers and Perfumers to H R H. Prince Albert, 130B and 131, Oxford Street.

CAUTION.—To prevent fraud, each tablet bears the registered mark and the names and address of the inventors, as above.

METCALFE'S ALKALINE TOOTH POWDER, 2s. per box.—The above may be obtained of most respectable Chemists, Perfumers, &c.

WINTER GREEN.—This exquisite Perfume is distilled from Winter Green (Trientalis), cultivated in the Valley of Skardsheidi, in Iceland.—Imported only by H. BREIDENBACH, Wholesale Perfumer, 157B, New Bond Street, London.

THE COMFORT OF A FIXED WATER-CLOSET FOR 1l.—Places in gardens converted into comfortable water-closets by the PATENT HERMETICALLY SEALED PAN, with its self-acting valve, entirely preventing the return of cold air or effluvia. Any carpenter can fix it in two hours. Price 1l. Hermetically-sealed Inodorous Chamber Commodes, 1l., 2l. 4s., and 3l.; also Improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus, with engravings, forwarded by enclosing two postage stamps.—At FYFE & Co.'s Sanatorium, 46, Leicester Square, London.

HOT-AIR, GAS, VESTA, JOYCE'S STOVES.—STOVES for the economical and safe heating of halls, shops, warehouses, passages, basements, and the like, being at this season demanded, WILLIAM S. BURTON invites attention to his unrivalled assortment, adapted (one or the other) to every conceivable requirement, at prices from 10s. to 30 guineas. His variety of register and other stoves is the largest in existence.

THE PERFECT SUBSTITUTE for SILVER.—The real NICKEL SILVER, introduced 20 years ago by WILLIAM S. BURTON, when Plated by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle Pattern.	Thread or Brunswick Pattern.	King's Pattern.
Tea Spoons, per dozen	18s.	26s.	32s.
Dessert Forks "	30s.	40s.	46s.
Dessert Spoons "	30s.	42s.	48s.
Table Forks "	40s.	56s.	64s.
Table Spoons "	40s.	58s.	66s.

Tea and Coffee Sets, Waiters, Candlesticks, &c., at proportionate prices. All kinds of replating done by the patent process.

CHEMICALLY PURE NICKEL, NOT PLATED.

	Fiddle.	Thread.	King's
Table Spoons and Forks, full size, per doz.	12s.	28s.	30s.
Dessert ditto and ditto	10s.	21s.	25s.
Tea ditto	5s.	11s.	12s.

CUTLERY WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on Sale at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales; 3½-inch ivory-handled table knives, with high shoulders, 11s. per dozen; desserts to match, 10s.; if to balance, 1s. per dozen extra; carvers, 4s. per pair; larger sizes, from 14s. 6d. to 26s. per dozen; extra fine, ivory, 32s.; if with silver ferrules, 37s. to 50s.; white bone table knives, 7s. 6d. per dozen; desserts, 5s. 6d.; carvers, 2s. 3d. per pair; black horn table knives, 7s. 4d. per dozen; desserts, 6s.; carvers, 2s. 6d.; black wood-handled table knives and forks, 6s. per dozen; table steels, from 1s. each. The largest stock in existence of plated dessert knives and forks, in cases and otherwise, and of the new plated fish carvers. Also a large assortment of Razors, Penknives, Scissors, &c., of the best quality.

WILLIAM S. BURTON has TEN LARGE SHOW ROOMS devoted to the show of GENERAL FURNISHING IRONMONGERY (including Cutlery, Nickel Silver, Plated and Japanned Wares, Iron and Brass Bedsteads and Bedding), so arranged and classified that purchasers may easily and at once make their selections.

Catalogues, with engravings, sent (per post) free. The money returned for every article not approved of.

No. 39, Oxford Street (corner of Newman Street); Nos. 1, 2, and 3, Newman Street; and 4 & 5, Perry's Place.

GLASS.

THOMAS MILLINGTON, Importer of Foreign Sheet Glass, requests attention to the present Prices of Glass and Stock sizes, which are cheaper and better than those of English manufacture:—

PACKED IN ONE HUNDRED FEET BOXES, THIRDS QUALITY, BOXES INCLUDED.

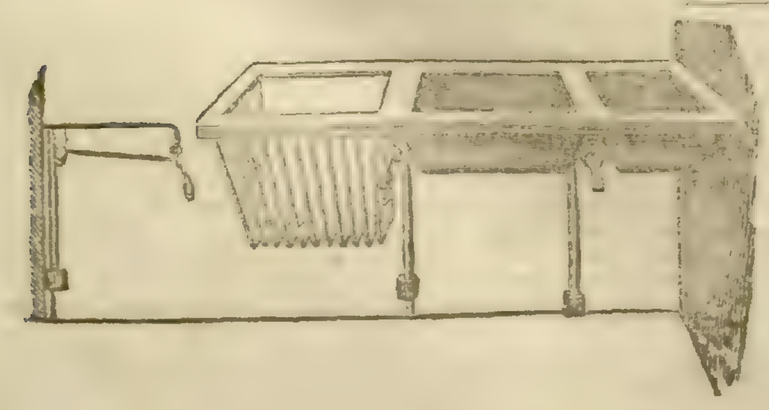
Inches.	Per 100 ft.	Inches.	Per 100 ft.	Inches.	Per 100 ft.	Inches.	Per 100 ft.	Inches.	Per 100 ft.	Inches.	Per 100 ft.
6 by 4	12s.	12 by 10	20s.	14 by 11	20s.	16½ by 12½	20s.	18 by 13	20s.	18 by 14	20s.
6½ " 4½		12½ " 10½		14½ " 11½		17 " 12		18½ " 13½		18½ " 14½	
7 " 5	14s. 6d.	13 " 10		15 " 11		17½ " 12½		19 " 13		19 " 14	
7½ " 5½		13½ " 10½		15½ " 11½		18 " 12		19½ " 13½		19½ " 14½	
8 " 6		14 " 10		16 " 11		18½ " 12½		20 " 13		20 " 14	
8½ " 6½		14½ " 10½		16½ " 11½		19 " 12		20½ " 13½		20½ " 14½	
9 " 7	17s. 3d.	15 " 10		17 " 11		19½ " 12½		21 " 13		21 " 14	
9½ " 7½		15½ " 10½		17½ " 11½		20 " 12		21½ " 13½		21½ " 14½	
10 " 8		16 " 10		14 " 12		20½ " 12½		22 " 13		22 " 14	
10½ " 8½		16½ " 10½		14½ " 12½		16 " 13		16 " 14		22½ " 14½	
11 " 9		17 " 10		15 " 12		16½ " 13½		16½ " 14½		23 " 14	
11½ " 9½		17½ " 10½		15½ " 12½		17 " 13		17 " 14		23½ " 14½	
12 " 9		13 " 11		16 " 12		17½ " 13½		17½ " 14½		24 " 14	
12½ " 9½		13½ " 11½									

IMPROVED PATENT ROUGH PLATE, PLAIN, FLUTED, AND IN QUARRY PATTERNS.

British Plate, Patent Plate, Sheet, Crown, and Coloured Window Glass. Pure White Shades for Ornaments. Pumps, Water Closets, and Plumbers' Brass Work. Genuine White Lead, Paint, Colours, Varnishes, Brushes, &c. Tariffs of the above on application to

T. MILLINGTON, 87, Bishopsgate Street Without, London.

COTTAM'S NEW PATENT FOR STABLE REQUISITES.



COTTAM AND HALLEN, the original projectors of the above arrangement of MANGER, RACK, and WATER-TROUGH, as one Fixture, which obtained the Great Exhibition Prize Medal, and universally approved of, have added all the latest improvements to their invention (secured by patent), which includes an entirely new method of attaching the halter, ball, and rein, giving to the horse greater freedom, and being noiseless in their operation, add much to its comfort whilst feeding and convenience when at rest.

COTTAM'S ENAMELLED MANGERS

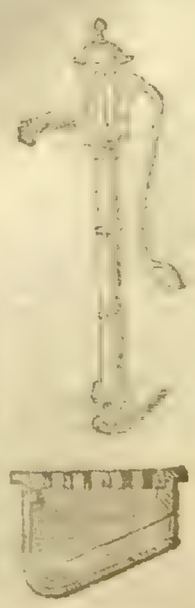
are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable and impervious to infection; manufactured PLAIN, GALVANISED, or ENAMELLED.

IMPROVED PUMPS,

OF THE BEST WORKMANSHIP AND WARRANTED.

The VALVES and SUCKERS of these Pumps are constructed upon an entirely new and SIMPLE principle: they are not likely to get out of order; should they do so, can easily be repaired, as the Pump is so contrived that the valves can readily be got at.

An Improved CAST IRON TRAP, strongly recommended by the Sanitary Commissioners, and suitable for Sugar Bakers, Slaughter Houses, &c. &c. It is so formed that the Trap-plate will pass any matter the top grating will let through, and therefore is not liable to stoppages; and well adapted to Stables and Stable-yards, for saving the best part of Liquid Manure.



Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show.

A STALL fitted up, complete, exhibited at the Crystal Palace, Sydenham, Stand No. 19, Agricultural Department; and at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—Descriptive Catalogues and Estimates on application.

GREAT WESTERN, GREAT NORTHERN, SOUTH-WESTERN, AND SOUTH-EASTERN RAILWAY

SEED ESTABLISHMENT, READING, BERKS,

FOR SUPPLYING

SUTTON'S HOME-GROWN SEEDS TO ALL PARTS OF THE UNITED KINGDOM,

CARRIAGE FREE (AS SEE BELOW).

SUTTON'S SELECT SEED LIST FOR 1855.

This List being very concise, including only the most approved kinds, will be found very convenient to Amateurs and others ordering seeds.

PEAS (FOR EARLIEST CROPS).

per quart.—	s. d.
Sutton's Early Champion, one of the forwardest sorts known, good flavoured and prolific. This Pea is worth a much higher price, but having grown a large crop we are enabled to offer it very moderate	1 0
Early Emperor	1 0
Prince Albert	0 9
Sangster's No. 1	1 6
Waite's Daniel O'Rourke, considered by some to be the forwardest Pea yet out. It should be tried against our Early Champion	2 0
Fairhead's Early Conqueror	1 0
Early Warwick	0 9
Paul's Early Dwarf, prolific, forming a complete mass of blossoms & pods	2 0
Bishop's New Long-podded, should be sown thinly...	1 0
Hamilton's November Prolific, excellent for all seasons	1 6
Beck's Early Gem, new, prolific, early, only 1½ ft.	1 6

PEAS (FOR MEDIUM CROPS).

Blue Prussian, useful old sort	0 8
Prizetaker, new, fine long green pods, which hang so closely as to cover the haulm from top to bottom. Numerous prizes were awarded to the "Prizetaker" last summer	2 6
Fairbeard's Champion of England	1 0
Fairbeard's Nonpareil, very sweet, juicy, nine or ten Peas in every pod; pods numerous	2 0
Scimetar	0 9
Hairs' Defiance, like Knight's tall, but earlier and not so tall	1 6
Beck's Eclipse, like the Scimetar, but much earlier	1 6

PEAS (FOR LATEST CROPS).

Ne Plus Ultra, green wrinkled, quite distinct in flavour and appearance	1 6
British Queen, similar to Knight's tall, but much larger	1 6
Waite's King of Marrows, fine green pods	2 0
Woodford's Green Marrow	0 10
Thurston's Reliance, large, prolific, fine flavoured...	1 0
Knight's Tall and Dwarf	1 4

BEANS.

Early Longpod	0 8
Johnson's Wonderful ...	0 9
Royal Dwarf Cluster ...	0 9
Broad Windsor	0 9
Early Monarch, new, large	1 0

FRENCH BEANS.

per pint.	
Early Six Weeks, or Mohawk	1 6
Newington Wonder ...	1 6
Long-podded Negro ...	1 3

FRENCH BEANS.

per pint.—	s. d.
York and Lancaster Runners, more productive than Scarlet Runners, and highly ornamental	1 3
Scarlet Runners	1 0

BEET. per oz.

Sutton's Dark Red, the darkest of all the red Beets, and boils very tender	0 9
Whyte's Black...	0 6

BORECOLE.

Tall Green Curled	0 8
Jerusalem, fine purple ...	1 0

BROCCOLI.

	p. pckt.
First Division, for cutting in Jan. and Feb.	
Sutton's Superb Early White, one of the earliest and best...	0 6
Winter Imperial (Snow's)	1 0
Second Division, for cutting in March and April.	
Mitchinson's Early White	0 6
Early Malta	0 6
Dilcock's Bride (new) ...	0 6
Third Division, for cutting in May and June.	
Elletson's Gigantic ...	1 0
Wilcove white, large ...	0 6
The Reading Giant, the largest Broccoli known	1 0
Ward's Superb Late white, the latest of all, introduced by Mr. Ward, the raiser of the Omer Pacha Strawberry	1 0
Fourth Division, for cutting in Sept. and Oct.	
Walcheren, dwarf white...	1 0
Improved Purple Cape ...	0 6
White Cape	1 0
Grange's White	0 6
Dancer's Pink Cape ...	0 6
Brussels Sprouts, fresh imported, true ... per ounce	1 0

CAULIFLOWER.

per packet.	
Early London White ...	0 6
Asiatic, fine large... ...	0 6
Late German	0 6
Walcheren, true kind ...	1 0
Mitchell's hardy, new ...	1 0
Waite's Alma, new	1 0

CABBAGE. per oz.

Early Nonpareil	0 6
London Market...	0 8
Sutton's Imperial, the finest and earliest for spring...	0 9

From the Rev. Lundy Foot, Long Bredy Rectory, June 24, 1854.

"Your Sutton's Imperial Cabbage proved the greatest comfort to all the poor people who planted it here last year."

Couve Tronchuda	1 0
King of the Cabbages ...	0 9
Sutton's Dwarf Combe, the best for summer, autumn, and winter use	0 9

SAVOY CABBAGE. p. oz.

Dwarf Green, curled, extra fine, dark green, best for the main crop	0 6
Early Ulm, new sort, very early, small, may be planted much closer than other kinds	1 9

CELERY.

per packet.—	s. d.
Sutton's Solid White ...	0 6
" Superb Pink ...	0 6
Cole's Dwarf Red, very hardy	0 6
" Crystal White ...	0 6

CARROT. per oz.

Early Short Horn, fine ...	0 6
Selected Altringham ...	0 6
Long Surrey	0 4
James' Orange, early ...	0 4

CUCUMBER. per packet.

Lord Kenyon's	1 0
Cuthill's Black Spine ...	0 6
Hunter's Prolific	1 6
Conqueror of the West ...	1 0

CRESS. per oz.

Plain, per pint, 1s.	0 2
Curled " 1s. 6d. ...	0 3

MUSTARD.

White, per pint, 0s. 9d. ...	0 2
Brown " 1s. 0d. ...	0 3

ENDIVE.

Green curled, extra	0 9
Batavian, smooth broad-leaved green	0 9
Double yellow curled ...	1 4

LEEK.

Large Flag, London	0 9

LETTUCE. per packet.

Sutton's Superb White Cos, large, crisp, and sweet, requires no tying	1 0
Sutton's Green Cos, requires no tying	1 0
Berkshire Brown Cos, requires no tying	1 0
Drumhead	0 6
Black-seeded Bath Cos ...	0 6
Mixed, finest sorts for succession throughout the summer	0 6

MELON.

Many sorts	1 0
Vegetable Marrow, several fine sorts	0 6

ONION. per oz.

Reading, fine, large, and mild flavour	0 6
White Spanish	0 6
Brown "	0 4
Strasburgh	0 4
New White Globe	0 8
Deptford	0 4
New Giant	1 0

PARSNIP.

per ounce.—	s. d.
Large Guernsey	0 4
Improved Jersey Marrow	0 6
Hollow Crown	0 4

PARSLEY.

Mitchell's Matchless ...	0 6
Myatt's Garnishing... ...	0 6
Dwarf French	0 6

RADISH.

Beck's Superb Short Top	0 4
Turnip, Red and White...	0 3
Scarlet Olive-shaped ...	0 4
SCORZONERA	0 9
SALSAFY	0 9
SEAKALE	0 6
CORN SALAD	0 9

SPINACH.

Round and Prickly	0 3

TURNIP.

Orange Jelly	0 3
Polly's Nonsuch	0 4
Six weeks' Stone	0 3
Green top't Six weeks ...	0 3
White Dutch	0 3
Snowball	0 3

HERB SEEDS, ETC.,

In packets at 6d. or 3d. each.

Basil, sweet.	Chicory.
Capsicum of sorts.	Tomato.
Fennel.	Majoram, sweet
Chervil.	Thyme.
Cardoons.	Savory, winter
Red Orache.	do., summer.
	Tobacco.

SEEDS of suitable kinds for Exportation to Australia, India, and other Foreign parts, properly packed, price 2l., 1l. 10s., and 1l. for choice and useful collections.

SAYNOR'S KNIVES.

TOBACCO PAPER, FOR FUMIGATING.

CUBA BAST, FOR TYING.

POTATOES. per peck.

Fluke Kidney	2 6
Early Walnut-leaf Kidney	3 0
True Ash-leaf "	2 6
New Red Ash-leaf "	4 0
Soden's Early Oxford ...	3 6
Fortyfold, excellent ...	2 6
Fittyfold Kidney ...	3 0
York Regents	2 0

And many others.

ASPARAGUS PLANTS. per 100

The True Reading Giant, one year	2 6
" " two years, strong	3 6
" " three years, do.	5 0

SEAKALE PLANTS.

Strong one year old plants	7 0
" two year old "	10 6
" " " per dozen...	1 6
" " " extra strong selected, do. ...	2 6

RHUBARB ROOTS. per doz.

Mitchell's Royal Albert	10 6
Myatt's Linnæus	10 6
" Victoria	9 0
Early Tobolsk, each	1 0
Randall's Prolific, each	2 6
Sangster's Prince of Wales, each	2 6
Good mixed sorts, per doz.	5 0

Post Office orders should be made payable to JOHN SUTTON and SONS, and the cost of the order may be deducted from the account.

FLOWER SEEDS.

Our Stock of Flower Seeds consists of several thousands of species and varieties, including all the newest sorts, too numerous to insert here. (For "SUTTON'S Collections," see below.)

CHOICE PLANTS.

For spring 1855, all of which can be safely packed for travelling, and will be sent any reasonable distance CARRIAGE FREE. Separate Lists of Geraniums, Cinerarias, Carnations, Picotees, Verbenas, Fuchsias, Hollyhocks, Chrysanthemums, Pansies, Dahlias, Petunias, &c., &c., will be forwarded if desired.

HOME-GROWN AGRICULTURAL SEEDS.

Prices of Agricultural Seeds may advance as the crops are short, but the annexed will be the prices during the present month.

MANGOLD WURZEL.

(FROM SELECTED ROOTS.)

	s. d.
Yellow Globe per pound	1 0
Red Globe	1 0
Long Red	1 0
Long Yellow	1 0
Sutton's Elvetham Long Red, very large	2 6
New Large Green-topped White	2 6

CARROTS.

Large White Belgian ...	2 6
Red Altringham	3 0
Yellow Belgian	2 6
Short Orange	3 0

PARSNIP.

Large Guernsey	1 9

TURNIPS.

(SEED SAVED CAREFULLY FROM SELECTED BULBS.)

Hardy White Swede ...	1 0
Fettercairne Swede	2 0
Skirving's Liverpool Swede	2 0
Purple Topped Yellow Swede (Sutton's fine) ...	2 0
Rivers's Stubble Swede ...	2 3
Laing's Improved Purple Topped Swede	2 0
Ashcroft Swede (very large) being an improved variety of the Liverpool Swede	2 3
Green Topped Yellow Swede	1 9
Sutton's Purple Topped Yellow Hybrid Turnip. (This is the best substitute for Swedes. It attains to a large size, even when sown late, and keeps well till spring)...	1

TURNIPS.

	s. d.
Sutton's Green Topped Hybrid, similar to the above in nutritive properties, and will thrive well on poor soil and cold climate	1 6
Sutton's Early Six Weeks	1 2
Green Barrel	1 2
Dale's Hybrid	1 2
Yellow Tankard	2 0
Yellow Aberdeen	1 2
Yellow Bullock	1 0
White Globe	1 0
Green Globe	1 2
Red Round	1 0
Green Round	1 0
Tankard (Red, Green, and White)	1
SUTTON'S LINCOLNSHIRE NEW RED GLOBE (*a very superior Turnip presented to us by P. Pusey, Esq.*)	1 2
Orange Jelly	1 2

CLOVERS, GRASSES, ETC.

(PRICES FLUCTUATING.)

Red (or Broad) Clover.
White (or Dutch) "
Trefoil (or Hop Clover).
Alsike Hybrid Clover.
Lucerne (fresh imported).
French Furze.
Poas, Fescues, &c.
True Italian Rye-grass.
Dickenson's Improved do.
Sutton's Improved do.
Perennial Rye-grass.
Common Rye-grass.
Buckwheat.
Giant Sainfoin.
Linseed or Flax.
Drumhead Cabbage.
Kohl Rabi (of sorts).
Dwarf Rape.
White Mustard.
Bishop's Last and Best Pea.

And many other agricultural Seeds.

NATURAL GRASS SEEDS FOR PERMANENT PASTURES.

SEPARATE OR MIXED EXPRESSLY TO SUIT THE SOIL.

Messrs. SUTTON & SONS having for many years paid especial attention to the examination of Natural Pastures, and the collecting of the Grasses which thrive in the various soils of Great Britain and Ireland, for the purpose of introducing an improved system of laying down land to Permanent Pasture, are thereby enabled to supply the sorts and quantities of Seeds, varied to suit the soil for which they are intended. The cost will vary from 24s. to 30s. per acre, according to the sorts and quantities the soil requires.

FINE LAWN GRASS SEEDS,

FOR MAKING NEW OR IMPROVING OLD LAWNS.

Price 1s. per pound, 2s. 6d. per gallon, or 20s. per bushel. For forming new Lawns 2½ bushels, or 50 lbs., is the quantity required per acre.

FINE GRASS AND CLOVER SEEDS FOR IMPROVING OLD PASTURES.

Quantity required per Acre, 8 lbs. to 12 lbs., price 9d. per lb.

SUTTON'S COLLECTIONS OF KITCHEN GARDEN SEEDS *are composed principally of the foregoing choice kinds, those in fact which have been proved to be most worthy of cultivation. Those who are not acquainted with the best sorts of Garden Seeds, and the proportions of each suitable for a Garden, are confidently recommended to order one of the undermentioned* COMPLETE COLLECTIONS FOR ONE YEAR'S SUPPLY, *with instructions on cultivation.*

SUTTON'S COLLECTIONS OF KITCHEN GARDEN SEEDS.

No. 1.—A COMPLETE COLLECTION OF GARDEN SEEDS, FOR ONE YEAR'S SUPPLY OF A LARGE GARDEN (WITH INSTRUCTIONS)	£3 0 0
No. 2.—A COMPLETE COLLECTION, QUANTITIES REDUCED (SIMILAR SORTS)	2 0 0
No. 3.—A COMPLETE COLLECTION, EQUALLY CHOICE SORTS	1 5 0
No. 4.—A VERY CHOICE ASSORTMENT FOR A SMALL GARDEN	0 15 0

If some kinds of Seeds are already possessed, purchasers are requested to name them, that increased quantities of others may be sent in lieu of them.—A List of the sorts and quantities in these Collections may be had in return for one penny stamp.

SUTTON'S COLLECTIONS OF FLOWER SEEDS.

These may be had in collections of "*Hardy sorts only*," or assorted in "Hardy," "Half-hardy," and "Tender," as preferred.

No. 5.—THE MOST SHOWY 100 SORTS KNOWN, WITH INSTRUCTIONS ON CULTIVATION (Post Free)	£1 1 0
No. 6.—THE MOST SHOWY 50 ditto ditto	0 10 6
No. 7.—THE MOST SHOWY 36 ditto ditto	0 7 6
No. 8.—THE MOST SHOWY 24 ditto ditto	0 5 0

Should the purchaser have any preference for certain kinds, they should be named in giving the order, that we may include them, or should any sorts be already possessed, they should be named that we may omit them.——Also, Natural Grasses for Lawns and Meadows, fine Mangold Wurzel, Turnip, and other Agricultural Seeds.

All packages of the value of 10s. and upwards are delivered free to any Station on the Great Western, and Berks, and Hants Railways, or of not less than 20s. value, the parcel will be sent free to any Station on the following Railways:—South-Western, South-Eastern, Great Western, Oxford, Worcester, and Wolverhampton, Eastern Counties, Oxford and Birmingham, Bristol and Exeter and South Wales; and packages of 40s. value and upwards are delivered free not only by the above named Railways, but also to Edinburgh, Glasgow, Liverpool, and all Stations of the North Western, Great Northern, and Midland Railways.

JOHN SUTTON & SONS, Seed Growers, Reading, Berks, Fellows of the Horticultural Society of London; Members of the Royal Agricultural Society of England, and the Bath and West of England Agricultural Society.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. 27, Victoria Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, January 6, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 2.—1855.] SATURDAY, JANUARY 13. [PRICE 6*d*.

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COUNTY OF GLOUCESTER AND CHELTENHAM ROYAL HORTICULTURAL SOCIETY.—NOTICE.—The May Show of the above Society will take place on WEDNESDAY, May 2nd, instead of May 9th, as previously advertised. HENRY J. COCHRANE, Secretary.
11, Colonnade, Cheltenham.—Jan. 13.

GARDENERS' BENEVOLENT INSTITUTION. SEVENTH APPLICATION.
HENRY SCHNEIDER, of Ford, Colerne, Chippenham, through his Advertisement, again appeals to the sympathy and kind support of the Subscribers of this Institution, being now 90 years of age, and in very destitute circumstances. His testimonials remain unimpaired, and he is encouraged to make another application to his kind friends who have hitherto favoured him with their votes, and other subscribers who will charitably lend him their aid at the forthcoming election in January next.
The following gentlemen will be gratified in receiving proxies in his favour:—Mr. Gregory, Cirencester, Gloucestershire; Mr. Burbank, Grittleton, Chippenham, Wilts; Mr. Spencer, Bowood, Calne, Wilts; Messrs. Garraway, Mayes, & Co., Bristol; Mr. Trotter, Badminton, Chippenham, Wilts; Messrs. Arthur Henderson & Co., Pine Apple Place, and John Arthur Henderson, Esq., 64, Hamilton Terrace, London.

EVERGREENS.
WANTED, a few Thousand of strong, healthy, bushy LAURELS, from 3 to 4 feet. State lowest cash price delivered free at the Harrow Station, on the North-Western Railway, to Mr. RICHARD FIELD, Surveyor, 34, Coleman Street, City, London.

WANTED, 10,000 or 15,000 transplanted ENGLISH OAKS, well grown stiff plants, well rooted. Also three or four dozen good 2-years dwarf-trained MOOR PARK APRICOTS.—Apply, stating price, &c., to F. & A. DICKSON & SONS, Upton Nurseries, near Chester.

WANTED TO PURCHASE, 2000 or 3000 SEEDLING CRAB STOCKS.—Particulars as to age, price, &c., to be addressed to Warren's Gardens, Isleworth, Middlesex.

LIQUID AMBER.
WANTED TO PURCHASE, 300 of the above.—Send cash price to Mr. JEYES, Nurseryman, Northampton.

TO BE SOLD, very reasonable, 10,000 or more GOOSEBERRY AND CURRANT TREES, strong plants; also a great variety of ORNAMENTAL FOREST TREES, from 8 to 12 feet high; LAURELS, Bushy LAURESTINES, &c.—Apply to Mr. C. CLARK, 179, Windmill Street, Gravesend, Kent.

TO BE SOLD, CHERRIES FOR FORCING; choice from 100 Half Standard and Dwarf May Duke Cherries, from 7 to 12 years old, and ranging from 5 to 10 feet in height; showing abundance of fruit, and acknowledged to be as handsome a lot of trees as were ever offered for sale. Price moderate. To be seen at Mr. MITTON's, Lampton, one mile from either the Isleworth or Hounslow stations of the South Western Railway.

MANGOLD WURZEL SEED.
TO BE SOLD, LONG RED and YELLOW GLOBE, growth of 1854, from superior stock.—Apply to R. S. HEWS, Kelvedon, Essex.

TO THE TRADE.
J. ROY, Jun., SEEDSMAN, Aberdeen, has got to hand a consignment of 35 bales of very superior CUBA BAST. The bales weigh about 1½ cwt. each. Price forwarded on application.

SEED WHEAT.—Samples and Prices of RED HYBRID, NURSERY, and other kinds of Wheat from the CHALK, sent on application to Mr. H. RAYNBIRD, Basingstoke. The Red Hybrid and Nursery are well suited for late sowing after Turnips.

FRUIT TREES, FOREST TREES, EVERGREEN SHRUBS, &c. Catalogues of the above may be had on application to WILLIAM BARRATT, Wakefield.
☞ A quantity of fine Transplanted White Thorns.

SEEDLING FOREST TREES AND SHRUBS.
DAVID REID AND SON, NURSERYMEN and FLORISTS, Leith Walk, Edinburgh, beg to direct the attention of the trade to their Stock of Seedlings as above.
Catalogues free on application.

CHOICE CALCEOLARIAS.
J. COLE begs to offer a few dozen of his unblooned Seedling HERBACEOUS CALCEOLARIAS from his choice stock; they were the admiration of all who saw them last summer. They are not potted off, though strong enough for large 60-sized pots. The Seed was saved from selected stock, carefully impregnated. J. C. offers them at 4*s*. per dozen, or 25*s*. per hundred. A remittance solicited from unknown correspondents.—Keyfield Nursery, St. Alban's, Herts.

SUTTON'S SHORT SEED LIST.—ON THE LAST PAGE *of* LAST WEEK'S "CHRONICLE" *will be seen a concise List of the leading kinds of Seeds, which it is hoped will be found convenient to Gentlemen writing out their Seed orders.*
Early commands will have the preference of scarce sorts.
SUTTON & SONS, Seed Growers, Reading.

HOLCUS SACCHARATUS, OR CHINESE SUGAR CANE.
SUTTON AND SONS *can supply this Seed genuine as imported in sealed packets at* 1*s*. *or* 2*s*. 6*d*. *each. Post Free.*
For description and uses, see *Gardeners' Chronicle*, Dec. 30th, 1854, p. 835.—SUTTON & SONS, Seed Growers, Reading.

TO THE SEED TRADE.
WILLIAM E. RENDLE, SEED MERCHANTS, Plymouth, *have to offer some very Choice Stocks of* SEEDS *to the Trade. Wholesale Catalogues can be had on application to*
WILLIAM E. RENDLE & Co., Union Road, Plymouth.

WHITE BELGIAN CARROT, MANGOLD WURZEL, &c.—*Several Tons to be disposed of at the lowest market prices.—Apply to*
WILLIAM E. RENDLE & CO., SEED MERCHANTS, Plymouth.

NEW SEEDS JUST HARVESTED *can now be obtained of the most genuine description, from*
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

DIOSCOREA BATATAS—THE NEW CHINESE POTATO.—This new esculent was fully described by Professor Lindley in the *Chronicle* of December 23, 1854.
The Subscribers are now importing a choice lot of Roots, and can supply them on the following terms:—

Four Tubers	£0 10 0	Fifty Tubers	£5 5 0
Ten „	1 2 6	Hundred „	10 0 0

First Orders will have the best Roots.—Apply to
WILLIAM E. RENDLE & CO., Seed Merchants, Plymouth.

DIOSCOREA (JAPONICA) BATATAS.
SUTTON AND SONS respectfully intimate that they have sold out of their first importation of Dioscorea Tubers. They are daily expecting the arrival of a further supply, but a considerable portion of these being already bespoke, orders can now only be received conditionally.
SUTTON & SONS, Seed Growers, Reading.

SEED POTATOES.
THE IMPORTANCE OF CULTIVATING THOSE SORTS OF POTATOES which, from their vigorous habit of growth and early maturity, are least subject to disease, has induced us for several years (ever since the first general development of the disease), to make many experiments as to the sorts most desirable, and the cultivation most suitable. Our New Seed List contains the names and prices of the principal kinds.—Address, JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

CHARLES SHARPE AND CO.'S Wholesale Catalogue of Seeds is now ready, and may be had on application.
DIOSCOREA (JAPONICA) BATATAS, NEW CHINESE POTATO.—A choice lot of imported roots of the above. Price to the trade on application.
Nursery and Seed Establishment, Sleaford.

CHARLES SHARPE AND CO. beg to draw the attention of the nobility, gentry, and clergy to their superior collection of Seed Potatoes, which they can recommend as decidedly the best in cultivation. Price per bushel, of 4 stones:—

Early Ash-leaved Kidney	9*s*.	Early Emperor	9*s*.
„ do. do. Jackson's	9*s*.	„ Cockney	9*s*.
„ Round Frame ...	9*s*.	„ Oxford	9*s*.
„ Martin's Globe ...	9*s*.	„ White Rough ...	8*s*.
„ King's	8*s*.	„ Foxe's Seedling ...	9*s*.
„ Hen's Nest... ...	10*s*.	„ American Native ...	8*s*.

FOR LATE PLANTING:—
Yorkshire Regent, 7*s*. | Prince Regent, 7*s*. | Fluke Kidney, 8*s*.

DIOSCOREA (JAPONICA) BATATAS, NEW CHINESE POTATO.—This was described in the *Gardeners' Chronicle* of December 23, which see for mode of cultivation, &c. Price, per root, 2*s*. 6*d*.; per dozen, 24*s*.
Nursery and Seed Establishment, Sleaford.

"EXTRAORDINARY POTATOES.—A variety of Potatoes, singled out from some grown three or four years ago, has this year produced on the land of the Thingoe Union house about 31 sacks, of which only 3 pecks are bad or small, and 60 Potatoes measure a bushel, weighing 60 lbs. Two have been brought to us, weighing together 3 lbs. 2 oz.; it is an excellent mealy Potato, and an abundant bearer."—*Bury Post*, October 11, 1854.
The above Mammoth variety have been christened the "Lord Raglan," and there are a few sacks of the medium size to dispose of, price 2*l*. 2*s*. per sack; also Jackson's Improved Early Ashleaf. price 9*s*. per bushel; the Short-top Ashleaf, 7*s*. 6*d*.; British Queen, 7*s*. 6*d*.; and Nonpareil Kidneys, 6*s*. 6*d*. Free to London, and no charge for sacks; all orders must be accompanied with a remittance.—JOSEPH WILSON, Seedsman, Ipswich.

REGENT POTATOES, of the finest size and flavour, direct from the grower to the consumer's door, free within three miles of King's Cross, at 14*s*. 6*d*. the imperial sack of 224 lbs., for cash, from C. FLITTON, factor, 21, York Road, King's Cross.

THE FLUKE KIDNEY POTATO.—This excellent variety is now planted here as the principal crop, being more free from disease and more prolific than any other in cultivation. It was raised in Middleton, and may be had genuine in any quantity at 5*s*. per bushel of 56 lbs.—Apply to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

THE FLUKE POTATO.—A new second early variety, surpassing every other in its capability of resisting the Potato disease, and without exception the finest and most prolific Potato in cultivation. Price per cwt., 15*s*., bags included.
To be had genuine of THORNHILL & DICKSON, Lawrence Hill Nurseries; and No. 1, Wine Street, Bristol.

GREAT NOVELTIES FOR THE ENSUING SEASON,
FUCHSIAS WITH WHITE COROLLAS.
LUCOMBE, PINCE AND CO. beg leave to announce that they shall be prepared to send out two splendid and entirely novel Seedling Fuchsias, early in May next, viz.:—
FLORENCE NIGHTINGALE.
Pure white corolla, with brilliant scarlet sepals, finely reflexed; an extremely lovely and novel variety.
CALANTHIFLORA-PLENA
(The DOUBLE Snowdrop Corolla'd Fuchsia.)
Pure double white corolla, resembling a fine large double snowdrop, with rich scarlet sepals; altogether distinct from anything of the kind ever yet produced. Price 10*s*. 6*d*. each.
The usual discount to the Trade when three or more are taken.
Exeter Nursery, Exeter.—ESTABLISHED 1720.

EARLY DANIEL O'ROURKE PEAS.
J. G. WAITE begs to inform the Trade that he is now ready to execute orders for this valuable early Pea. Price can be had on application.
Seed Establishment, 181, High Holborn, London.

FAIRHEAD'S EARLY CONQUEROR PEAS, the earliest variety known, 1*s*. per quart. Price per bushel or quarter, on application to CLARKE & Co., Seedsmen, Borough.

EARLY WHITE FIELD PEA.—NEW EARLY RACEHORSE—comes off early in July in time for Turnips and is a good cropper, price 12*s*. per bushel.
SUTTON & SONS, Seed Growers, Reading.

NEW CAULIFLOWER.
WAITE'S "ALMA," far superior to Walcheren, very large and firm heads. Price to the trade 24*s*. per lb.; smaller quantities 2*s*. 6*d*. per oz. No orders attended to for less quantities than one ounce.—Seed Establishment, 181, High Holborn, London.

COLE'S CRYSTAL WHITE, & COLE'S DWARF RED CELERY.
J. THORNELEY, COLE, & Co., NURSERYMEN, SEEDSMEN, and FLORISTS, Withington, near Manchester, beg to announce that they are now prepared to supply these two well-known varieties, raised by Mr. W. Cole (late of Dartford).
CRYSTAL WHITE, ½ oz. packets, free by post, for 12 stamps.
SUPERB DWARF RED, ½ oz. pkts., free by post, for 9 stamps.
Price per lb. to the Trade on application.

RHUBARB ROOTS for FORCING or PLANTING.—Strong one-year planted roots of MYATT'S VICTORIA and LINNÆUS, MITCHELL'S ROYAL ALBERT, at 6*s*. per doz.; HOWARD'S PRINCE ALBERT, 12*s*. per dozen. This is a larger variety than the Victoria, and is extensively cultivated about Manchester. Price to the trade of the above, per 100 or 1000, on application to MESSRS. J. MYATT AND SONS.
Manor Farm, Deptford. Jan. 13.

CHOICE FLOWER SEEDS FOR PRESENT SOWING.

	per packet.
PANSY, saved from 100 of the best varieties, by name ...	2*s*. 6*d*.
POLYANTHUS, do. 50 ditto ditto ...	2*s*. 6*d*.
VERBENA, do. 50. ditto ditto ...	2*s*. 6*d*.
HOLLYHOCKS, do. 60 of the most superb kinds, do. ...	2*s*. 6*d*.
CALCEOLARIA, do. 24 ditto, spotted varieties ...	2*s*. 6*d*.
DAISY, do. 50 of the new Belgian do. do. ...	1*s*. 6*d*.
ANTIRRHINUM, do. 20 best named varieties	1*s*. 0*d*.
ANEMONE, from the most showy and brilliant kinds...	1*s*. 0*d*.

30 packets of Choice Flower Seeds per post free for 5*s*.
The above, per post, free—Postage Stamps received in payment.
YOUELL AND CO., Royal Nursery, Great Yarmouth.

VEGETABLE AND FLOWER SEEDS.
PETER LAWSON AND SON beg leave to intimate to their English customers and the public that they are prepared to supply from their London establishment assortments of GARDEN and FLOWER SEEDS of superior quality, comprising all the esteemed standard sorts and those recently introduced. They will be happy to send Catalogues on application.
P. L. & SON have also to intimate that they will shortly issue their LIST of AGRICULTURAL SEEDS, all of which have been carefully saved from the most select stocks.
Liberal arrangements will be made for the carriage of their seeds to all quarters.
PETER LAWSON AND SON,
Queen's Seedsmen, Wood Foresters, &c., for Scotland, and to the Highland and Agricultural Society, 27, Great George Street, Westminster, London.

PRICED NURSERY CATALOGUES.
A. PAUL AND SON will be happy to forward the following priced Nursery CATALOGUES in return for one postage stamp each:—A, ROSES; B, ORNAMENTAL TREES AND CONIFERS; C, FRUIT TREES; D, HERBACEOUS PLANTS; F, GREENHOUSE PLANTS, &c.; G, SEEDS; H, HOLLYHOCKS; I, BULBS.—Nurseries, Cheshunt, Herts.

ARTHUR HENDERSON AND CO. beg leave to inform their patrons and friends that their Stock of VEGETABLE and FLOWER SEEDS (containing many choice and new kinds) is now ready for sending out.
Their Seeds may be fully relied on as being in every respect of first-rate quality, and true to their sorts. Catalogues may be had on application.—Pine Apple Place, Edgware Road, London.

GERMAN FLOWER SEEDS.
MOSCHKOWITZ AND SIEGLING, Erfurt, beg to inform the trade that their new Wholesale Catalogue of Choice German and other Flower Seeds, is now ready, and may be had on application to their Agent, Mr. H. HENKEL, 70, Fenchurch Street, London.

W. DRUMMOND AND SONS' NEW DESCRIPTIVE CATALOGUE, containing select varieties only, of VEGETABLE and FLOWER SEEDS is now ready, and may be had post free on receipt of one postage stamp. This Catalogue will, at a glance, furnish the Gardener with all the necessary material for drawing out his Seed List correctly and without trouble. In reference to it the *Gardeners' Chronicle* remarks:—
"It is simple, short, and one of the best we have seen. They are pursuing the sensible course we have so often insisted upon for the sake of both buyer and seller;" and this opinion has been cordially responded to by all our old and many new customers.
W. DRUMMOND & SONS' Seed and Implement Warehouse, Stirling.

TWO NEW CUCUMBERS.

SIR COLIN CAMPBELL AND GENERAL CANROBERT.

THE ABOVE are two of the Finest and most Superb New Hybrid Cucumbers ever yet sent out for Exhibition, Winter Cultivation, and every other purpose for which a Cucumber is required.

SIR COLIN CAMPBELL CUCUMBER.

The above Cut is an exact representation of one of the fruit grown this summer, which measured exactly ten of its diameter long, being 25 inches, with not more than half an inch handle. It is a splendid Black spine, of a dark green colour, and free from ribs or shoulders; grows very quick, sets free, and carries its bloom well. As a Cucumber for Exhibition nothing can surpass it, and is very prolific, often throwing out four or five fruit from every joint, and the vines are short jointed. The fruit is solid, and eats very crisp, and for market it keeps its bloom well for many days, not turning colour at the stem or point as most varieties do. Fruit was cut from the above in January last, and the same plants continued to produce fine fruit until the end of October.

GENERAL CANROBERT CUCUMBER.

This is also a most superb variety for winter cultivation, for which it is best adapted, being a hybrid from Lord Kenyon's Favourite and Phenomena. It has a great advantage over Kenyon's in length, growing to about 18 inches in the same time in which Kenyon's will grow 12 inches; it is equally as hardy and productive. Of a dark green appearance, Black Spine, and a free setter; fruits freely during the whole of the winter, and always grows a very even size from stem to point. It will swell off two or three fruit at a time on a plant, during the depth of winter, and carry them out well, which it does with less heat than any other: this has been proved when several varieties have been grown together, this having the coldest part of the house. The object of the raiser of the above superb varieties has been to obtain perfection and hardiness, in which he has succeeded, by continually hybridising different varieties.

Sold in Packets of Five Seeds, 3s. 6d. each, or 1 Packet of Sir Colin Campbell and General Canrobert for 6s.

The following fine varieties of Cucumbers and Melons, which have been thoroughly proved and have given the greatest satisfaction to all Purchasers, can be supplied.

CUCUMBERS.				MELONS.			
Captivation ...	... 2s. 6d.	Hunter's Prolific	... 1s. 0d.	The Queen ...	... 1s. 0d.	Beechwood ...	... 1s. 0d.
Phenomena ...	... 2 6	Mills' Jewess ...	... 1 0	Bromham Hall ...	... 1 0	Windsor Prize ...	... 1 0
Lord Kenyon's ...	... 2 6	Cheltenham Surprise	... 1 0	Incomparable ...	... 1 0	Emperor	... 1 0
Essex Hero ...	... 2 0	Manchester Prize	... 1 0	Golden Ball ...	... 1 0	Fleming's Hybd. Persian	1 0
Victory of Bath ...	... 1 0	Mon House True	... 1 0	Bowood	... 1 0	Blackall's Green Flesh	1 0
Gordon's White Spine	... 1 0	Cuthill's Black Spine	... 1 0	Victory of Bath...	... 1 0	Bailey's "	1 0
Sunderland Wick	... 1 0	Conqueror of the West	... 1 0	Camerton Court	... 1 0	Snow's Hybrid ...	... 1 0

A Packet of either of the Melons will be given to all Purchasers of the two new Cucumbers advertised above.

A Remittance must accompany every Order by Cash or Penny Postage Stamps, and the whole, or any part (as the case may be), will be immediately forwarded.

EDWARD TILEY, NURSERYMAN, SEEDSMAN, and FLORIST,
14, Abbey Church Yard, Bath, Somersetshire.

The New Chinese Potato, Dioscorea (Japonica) Batatas.

MR. JOHN HENDERSON,

Formerly of the Firm of JOHN A. HENDERSON & Co., Pine Apple Place, London,

HAS the pleasure of informing the Public that he has just completed the Purchase from M. PAILLET, of Paris, of his entire Saleable STOCK of the above introduction from China, the nutritive properties of which are said so far to surpass the ordinary Potato that it is likely, not only to act as an auxiliary, but entirely to SUPERSEDE that valuable but uncertain esculent.

The most satisfactory results have followed from personal experiments, and proved that when cooked in the ordinary manner, from the large amount of FARINACEOUS properties it contains, it can NEVER become waxy, as is too generally the case with the Potato. Its FLAVOUR resembles in delicacy an early ASH-LEAVED KIDNEY; but, independent of the above excellent qualities, there is every probability of its taking a still more important position in the ECONOMY of this country, for, when dried and reduced to powder, it is equal to the best ARROW-ROOT; or mixed in the proportion of one-third with two-thirds of wheaten flour, it makes an extremely light and wholesome BREAD, as well as very superior PASTRY.

Messrs. VILMORIN & Co., speaking of it, observe: "Of all the esculent roots proposed as substitutes for the diseased Potato, the DIOSCOREA JAPONICA is certainly the only important one. It is easily propagated. The tubers are large and long, the flesh very mealy and devoid of any peculiar or disagreeable flavour. The DIOSCOREA JAPONICA is, in our opinion, a PRECIOUS ACQUISITION."

M. PELÉ, Horticulturist, Paris, in his Supplementary Catalogue of this autumn says:—"A new alimentary root, introduced into France by M. MONTIGNY, French Consul in China. Various experiments have shown that this tuber will be much more advantageous to cultivate than the Potato, both in regard to its QUALITY as well as PRODUCE."

M. PAILLET, to whom the Imperial Society of Agriculture and Commerce of France has awarded the sum of 3000 francs as encouragement for having brought it into cultivation, also notices that "this tuber attains at least 1 to 2 lbs. weight. In its growth it is less delicate than the Potato, which unfortunately has of late years much degenerated. It does not require particular care, and its abundant produce amply repays cultivation. Its taste is pleasant, and being a root which contains a large amount of FARINA, will be a great addition to the FOOD OF THE PEOPLE as soon as it becomes generally known. It is so HARDY that it has passed the winters of 1853–4 in the open ground, without having in the least suffered from frost. It is also found that the STEMS and LEAVES, which are very numerous, form an EXCELLENT FOOD FOR CATTLE."

Tubers, with description of the Chinese Mode of Culture, to be obtained of MR. JOHN HENDERSON, KINGSKERSWELL, SOUTH DEVON, at the following prices, for cash only:—

4 Tubers ... ... £0 10 0 | 10 do. ... ... £1 2 6 | 50 do. ... ... £5 5 0 | 100 do. £10 0 0

Post-office orders are requested to be made payable at Newton Abbot, South Devon. The usual discount allowed to the trade when not less than 50 are taken.—P.S. All orders unaccompanied by a remittance will be considered as not received.

To Farmers, Potato Growers, and Others.

JACKSON'S PATENT PREPARATION

FOR

PRESERVING POTATOES, WHEAT, AND OTHER SEEDS

From DISEASE, the RAVAGES of the SLUG, GRUB, and WIREWORM, in addition to which the CROPS are brought forward in HEALTH AND VIGOUR, and the yield is greatly increased, in proof of which the following extracts are given from numerous letters received by Mr. JACKSON.

EXTRACTS:—

"One of the fields of this farm, the property of MRS. STANBURY, was planted with Regents Potatoes in April last, some of which were prepared by you. The result now is, that the whole of the crop from the unprepared sets is thoroughly diseased, and hardly worth the trouble of taking up; while those raised by the side of them from the prepared sets, are not only in a beautiful state of preservation from the disease, but the produce is much greater,—the Potatoes are more numerous than the others; indeed, if there were no such thing as the disease to be feared, it would be worth the trouble and expense of preparing the sets by your process, even for the sake of the improved crops. I shall certainly, for the future, prepare all my Potatoes for seed by your process; and I intend to adopt it for preserving my Wheat from the Smut.

"G. B. BAXTER.

"Belmont Farm, Eltham, Kent, August 23, 1854."

"Admiral Sir J. A. GORDON, K.C.B., Marlee House, Blairgowrie.

"SIR,—I have received your note of the 16th. The Potatoes that came here from England, prepared by Mr. JACKSON, were planted in a piece of new ground, and according to the directions sent by him along with them as to distance between the plants, &c. They came up well, with strong healthy stems; I have now taken the whole crop up, and there is not the slightest appearance of any disease amongst them. They are of large equal size and very prolific. There were long black unprepared Kidneys planted in the same patch, and a great deal of them are not fit for use, at least a third part are diseased. I hope Mr. JACKSON's process may be widely known, as it is a great boon.—I am, &c.,

JOHN SHANKS,
"Forester, Kildrummy Castle.

"Kildrummy Castle, Aberdeenshire, November 17, 1854."

"I am very much pleased with the result of the experiments I have made with your Prepared Potatoes; for I planted them, without any manure, in ground where for several years I have hardly had a sound Potato, and I now find the crop perfectly free from disease, and in a very fine condition; while those of the same sort, unprepared, which were planted at the same time, and next to them, are diseased and eaten by worms.

"The Potatoes from the Prepared Seed were so remarkably good that I was induced to weigh them, and I found, to my great astonishment, that they were as 200 to 150 of the others, or about 25 per cent. in favour of your preparation.

"T. AUSTEN, Nurseryman and Seedsman.

"Blackheath, Kent, 24th August, 1854."

Sold by Messrs. CHARLWOOD & CUMMINS, Seedsmen, Covent Garden; and JOHN KERNAN, Seedsman, 4, Great Russell Street, Covent Garden; all Seedsmen and Chemists; and at the Patentee's, 18, Cannon Street, London Bridge, in Packets of One, Two, Three or Four Pounds, or in Bulk for the use of Farmers and Potato Growers.

NEW SORTS OF PEAS.

CARRIAGE FREE, EXCEPT PARCELS UNDER 10s. VALUE.

SUTTON AND SONS *have much confidence in recommending the undermentioned* PEAS, *as being not only new and distinct from others, but also as possessing superior properties.*

Prices per peck or bushel may be had on application.

	s.	d.
PRIZETAKER.—New, fine long green pods, which hang so closely as almost to cover the haulm from top to bottom. Numerous prizes were awarded to the Prizetaker last summer. This is the first season we have offered it for sale. Height 5 feet	2	6
BECK'S EARLY GEM.—New, prolific, and fine flavour; particularly adapted for narrow borders and for small gardens. Height 1½ foot	1	6
BECK'S ECLIPSE.—Similar to Scimetar, but earlier and more dwarf. Height 2 feet	1	6
SUTTON'S EARLY CHAMPION.—One of the forwardest sorts known, good flavoured, and prolific. This Pea is worth a much higher price, but having grown a large crop, we are enabled to offer it very moderate; 3 feet	1	0
WAITE'S DANIEL O'ROURKE.—A very popular variety, considered by some to be the forwardest Pea yet out. It should be tried against our Early Champion; 3 ft. high	2	0
FAIRHEAD'S EARLY CONQUEROR.—Height 3 feet	1	0
PAUL'S EARLY DWARF.—One of the most prolific early Peas, forming a complete mass of blossoms and pods. Height 2 feet	2	0
FAIRBEARD'S NONPAREIL.—New wrinkled marrowfat, very sweet, juicy, and prolific; 9 or 10 will be found in every pod, and the pods extremely numerous; 4 ft. high	2	0
WAITE'S KING OF MARROWS.—As large as British Queen, with fine green pods, very long and full; 6 ft. high	2	6
HAIR'S DEFIANCE.—Like Knight's tall, but earlier and not so tall; 5 feet high	1	6
HAMILTON'S NOVEMBER PROLIFIC.—Excellent for all seasons; 3 feet high	1	6
NE PLUS ULTRA.—One of the finest green wrinkled; 6 ft.	1	6

SUTTON & SONS have a large stock of good old kinds at low prices, as see their Priced List, just published, price 6d., or gratis to purchasers.

SUTTON & SONS, Seed Growers, Reading.

R. PARKER begs to offer the following CHOICE SEEDS, all of which are warranted new and true to name:

GODFREY'S (BLACK SPINE) CUCUMBER, the finest variety in cultivation, packets containing 12 seeds 1s. 6d.

Also the following esteemed varieties of CUCUMBERS and MELONS, in packets containing 12 seeds, at 1s. each:—

CUCUMBERS.	MELONS.
Henderson's Black Spine.	Victory of Bath.
Improved Patrick.	Beechwood.
Walker's Long Rambler.	Bromham Hall.
Manchester Prize.	Canteloupe.
Hunter's Prolific.	Duke of Bedford.
Superlative Improved.	Golden Perfection (extra fine).
Cuthill's Black Spine.	Scarlet Flesh (Anderson's).

Ohio Squasha Custard Gourd, 6d. ... ... per packet.
Antirrhinum, from named flowers, 6d. ... "
Calceolaria, from fine varieties, 1s. 6d. and 2s. 6d. "
Hollyhock, from fine named varieties, 1s. 6d. and 2s. 6d. "
Lilium giganteum, the most distinct and noble species of the genus, packets containing 20 seeds, 2s. 6d.

*** A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Islington.

MESSRS. E. G. HENDERSON AND SON, of the Wellington Nursery, St. John's Wood, London, will commence sending out in April next their new Seedling FUCHSIAS with White Corollas, both double and single, some striped or variegated Corolla'd Fuchsias, and a Fuchsia with a Purple Corolla. The latter Fuchsia (Prince Albert) was purchased of E. Banks, Esq., after having proved the flower as possessing unquestionable merits. All the other varieties were purchased of W. Story, Esq., of Newton, in the county of Devon, who succeeded in introducing a Scarlet Fuchsia with White Corolla, which new feature in this tribe gives one of the greatest novelties that they have had the pleasure of seeing for many years. Mr. Story, being the raiser of this new Class, offered them to Messrs. Henderson for 100 guineas, which offer they accepted. A faithful drawing of three of the varieties here offered has been taken by Mr. James Andrews, the well-known floricultural and horticultural artist; sketches from which have appeared in Van Houtte's "Flore des Serres," Verschaffelt's "Illustration Horticole," and will also appear in Turner's "Florist," for February. The dwarf, compact, and free flowering habits of the plants will be sure to please every grower of this tribe.

QUEEN VICTORIA (Story's).—Splendid wide sepals, beautifully reflexed, of a bright scarlet crimson, and a lovely clear white corolla. Price 10s. 6d.

PRINCE ALBERT (Banks's).—Scarlet crimson sepals reflexed, and rich violet corolla. This flower we consider unequalled by any, its reflexing properties being such that either more or less would be a fault; indeed the flower is perfection itself. 10s. 6d.

MRS. STORY (Story's).—Fine large scarlet tube, long wide sepals reflexed; corolla fine substance, and clear white. 10s. 6d.

RANUNCULÆFLORA (Story's).—Scarlet sepals and tube, with double white corolla, a flower not having that confused appearance as many of the double varieties are known to possess. This was considered the best of the only two double white varieties flowered by Mr. Story. 21s. The other double variety we do not appear to have received.

PERUGINO (Story's).—Fine large scarlet sepals and tube, with a conspicuous striped corolla of rose and purple flakes, handsomely reflexed and free flowering. 10s 6d.

EMPRESS EUGENIE (Story's).—Wide reflexed petals of a rosy crimson, the inside of petals having a violet shading; corolla fine white. 10s. 6d.

RAFFAELLE (Story's).—A beautiful variegated corolla with crimson sepals well reflexed, and of good substance; the colour of the corolla is a rich chocolate flaked with rose, free flowering 10s. 6d.

LADY OF THE LAKE (Story's).—Fine deep crimson, with a blush white corolla, very pretty. 10s. 6d.

WATER NYMPH (Story's).—Bright scarlet crimson globe stout wide petal, corolla fine clear white; an elegant flower. 10s. 6d.

Or if the set of nine be taken, the price, 4l. 4s.

January, 1855.

MESSRS. E. G. HENDERSON AND SON were surprised to see an advertisement a few weeks back in the *Gardeners' Chronicle*, from Messrs. Lucombe, Pince, and Co., of Exeter, offering two new Fuchsias, similar in character to those described above, and after a written communication with Mr. Story, it was thought necessary for one of the Firm to make further inquiries about them, and in consequence Mr. ANDREW HENDERSON went to Exeter and Newton, where he was informed by a jobbing gardener at Newton that he had received SEVEN POUNDS for them after (as the said jobbing gardener stated) he had been offered 20l. for them by a Nurseryman in London, but whose name or address he did not know.

Messrs. E. G. H. & Son think the above explanations necessary, in consequence of a great number of their customers having ordered them at higher prices than are quoted above. This reduction is made in consequence of information which they have received, that leaves no doubt on their minds but that those to be sent out by Messrs. Lucombe, Pince, & Co., are similar in character to the above.—Wellington Nursery, St. John's Wood.

ESTABLISHED ABOUT HALF A CENTURY.

BASS AND BROWN'S NEW SEED LIST

IS NOW READY,

AND CONTAINS EVERYTHING WHICH CAN BE DESIRED OF THE CHOICEST, NEW, AND OTHER VEGETABLES.

Considerable attention is paid to grow only the finest sorts for sale, and our Collection is very select.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

The following, of the very best in cultivation, cannot fail to give the most complete satisfaction.

No. 1, Collection for a large garden, containing quantities sufficient for one year's supply ... ... £3 0s. 0d.
No. 2, Collection in smaller proportion 2 0 0
No. 3, Collection in smaller proportion... ... ... £1 5s. 0d.
Collection of good kinds for a small garden 0 15 0

A FEW CHOICE NEW VARIETIES OF PEAS.

EPPS'S LORD RAGLAN, or Improved Mammoth, producing 8 to 10 Peas in a pod, and allowed to be the finest in cultivation... ... ... per quart 5s. 0d.
EPPS'S MONARCH, new tall marrow, and the largest sized Pea cultivated ... ... per quart 5 0
FAIRBEARD'S NEW NONPAREIL, a delicious new wrinkled marrow, of great produce and fine pods, a very rapid grower, coming in before the Champion of England 2 6
MEIN'S PARADISE, a most valuable early very large marrow Pea, pods large, long, and well filled, and fine flavour. This Pea, though very large, comes in immediately after the Warwick ... ... per quart 1s. 6d.
HAIR'S DEFIANCE, wrinkled marrow, fine do. 1 9
*** Sangster's No. 1, Daniel O'Rourke, Hair's Dwarf Mammoth, Early Emperor, or Fairbeard's Conqueror, Burbidge's Eclipse, Champion of England, and other best sorts.

The List of FLOWER SEEDS will also be found, as usual, very select. Goods Carriage free (not under 20s.) to all the London Termini, and all Stations on the London and Norwich Colchester Line.

SEED & HORTICULTURAL ESTABLISHMENT, SUDBURY, SUFFOLK.

FRUIT TREES.—SURPLUS STOCK.

WILLIAM JACKSON AND CO., Bedale, Yorkshire, having a portion of their Nursery Ground to clear, beg to offer the following FRUIT TREES of the most useful and approved sorts, strong and well grown, in a bearing state, at annexed cheap rates:—

	Per dozen.—s.	d.
Apples and Pears, good strong Standards	8	0
Do. do. do., Dwarfs	6	0
Do. do. do., Dwarfs, trained	18s. to 24	0
Cherries, good strong Standards	10s. to 12	0
Do. do. do., Dwarfs, trained	24s. to 30	0
Plums, good strong Standards	... 9s. to 10	0
Do. do. do., Dwarfs trained	24s. to 30	0
Apricots, Peaches, and Nectarines, trained	42s. to 48	0

A reference or remittance is respectfully solicited from unknown correspondents.—Jan. 13.

HOLLYHOCKS.

JOHN CHATER AND SON offer the following New and Choice HOLLYHOCKS in Pots at 18s. per dozen, hamper included:—Pourpre de Tyre, Yellow Model, Saffranot, Duke of Rutland (new), Penelope, Swansdown, Gem, Lady Braybrooke, Spectabilis, White Perfection, Black Prince (new), King of Roses, Raphael, Napoleon, Magnum Bonum, &c.

Also the following strong ground Roots, 7s. 6d. per dozen:—Queen, Bella Donna, Elegans, Brilliant, Marmion, Mrs. Russell, Venosa rubra, Obscura, Aurantia, Purpurea elegans, Flower of the Day, Marchioness of Breadalbane, Queen of England, and Model of Perfection.

New Crimson Rockets, 6s. per dozen; Double White do., 3s. per dozen, 20s. per 100.

Hollyhock Seed, in packets containing 200 seeds, 1s. 6d.; 400, 2s. 6d.; warranted from best flowers. Choice Pansy, 1s. per packet. Sweet William, 6d.

Descriptive Catalogues may be had on application to J. CHATER & SON Haverhill, Suffolk.—Post Office Orders payable at Haverhill.

FASTOLFF RASPBERRY.

YOUELL AND CO. are now sending out extra strong canes of the above most excellent RASPBERRY, unequalled by any other variety for the size of its fruit and richness of flavour, at 15s. per 100; Large White Raspberry, 24s. per 100; New Monthly Fruiting ditto, 24s. per 100.

CHOICE FRUITS (WARRANTED TRUE TO NAME.)

APPLES, Standard, in best selection, good heads,			9s.	0d.	per doz.
" Dwarf	ditto	ditto	6	0	"
" Trained	ditto	ditto	30	0	"
PEARS, Standard	ditto	ditto	12	0	"
" Dwarf	ditto	ditto	8	0	"
" Trained	ditto	ditto	30	0	"
PLUMS, Dwarf	ditto	ditto	9	0	"
" Trained	ditto	ditto	36	0	"
PEACHES, Df. trained, in fine strong plants,			36s. to 60	0	"
NECTARINES, Dwarf trained	ditto		36s. to 60	0	"
APRICOTS	ditto	ditto	36s. to 60	0	"
CHERRIES, Standard, in fine variety,	ditto	...	12	0	"
" Dwarf	ditto	ditto ...	9	0	"
" Trained	ditto	ditto	36s. to 42	0	"

GOOSEBERRIES, 25 of the finest varieties (good bushes), selected for size and flavour, 30s. per 100, or 4s. per dozen.

CURRANTS.—Improved large White Dutch, Black Naples, Raby Castle (red), and large Red Grape, 4s. per dozen. These are the most desirable kinds in cultivation, and are highly recommended.

RHUBARB.—Royal Albert, 9s. per doz.; Linnæus, 9s. per doz. Tolosk. 6s. per doz. (strong).

SEAKALE.—Extra strong, 2 years, 6s. per 100; 3 years, 8s. per do.

ASPARAGUS.—Extra strong for forcing, 5s. per 100; 3 years old, 3s 6d.; 2 years old, 2s. 6d.

LILY OF THE VALLEY.—Strong for forcing, 5s. per 100.

All orders of 2l. and upwards are delivered carriage free to London, Hull, and Newcastle-on-Tyne, as well as to any railway station within 150 miles of the Nursery. Communications by steamer and railway to all parts of England, Ireland, and Scotland, as well as the Continent. Post Office orders to be made payable to YOUELL & CO.

YOUELL & CO., Royal Nursery, Great Yarmouth.

NEW SEEDLING POTATO—THE CHAMPION KIDNEY.

This Potato bears a great resemblance to that fine old Potato, the Ashleaf Kidney; it possesses the following good qualities over the Ashleaf. If planted at the same time it will be ten days earlier, all the sets always vegetate well, and do not die off in the ground as the Ashleaf does; 2 pecks of seed will produce a greater weight of Potatoes than 3 pecks of the Ashleaf. It is quite equal to that in flavour, and is eatable during the whole winter. Sets that have had the shoots broken off five or six times during the spring will vegetate again as if it had been the first shoot. About twenty Gentlemen and Gardeners who had seed to plant last season have assured me that they never before grew any Potato to equal it, and should continue to grow it as a first early Potato. Numerous orders have been already received from persons who saw it growing during the last summer. It has been grown and thoroughly proved for the last four years, and found to be less liable to disease than any other Potato that has been grown. Out of 25 sacks grown this season there was not a single diseased Potato among them.

Sold in quantities of not less than 1 peck; they will be sent Hamper and Package free, at 5s. 6d. per peck, or 4 pecks for 1l., hamper free. A remittance in cash must accompany all orders, or small amounts in penny postage stamps. Purchasers would do well to name the nearest railway station to their residence.

EDWARD TILEY, NURSERYMAN, SEEDSMAN, & FLORIST, 14, Abbey Church Yard, Bath, Somerset.

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY for 1855 *is now published, price* 6d. *To be had of all Booksellers, and from*

WILLIAM E. RENDLE & Co., *Seed Merchants, Plymouth.*

SEEDS FOR THE FARM.

SUTTON'S PRICED LIST will be seen on the last page of last week's *Chronicle*, page 16.

N.B.—*In the List above referred to, two typographical errors occurred, viz., in the prices of* "SUTTON'S *Purple-topped Hybrid Turnip," and "Hardy White Swede." Both of these useful kinds are* 1s. 6d. *per pound.*

Early orders are requested and recommended.

The Gardeners' Chronicle.

SATURDAY, JANUARY 13, 1855.

Since the account of the CHINESE YAM (*Dioscorea Batatas*) which we gave a few weeks since (1854, p. 820), a further report by M. DECAISNE upon the result of last year's experience in France has reached us. It appears from this statement that the root has excited the greatest interest in that country, that it is already regarded as a sufficient recompense for the disasters which attended the Potato disease, and that the public establishments are overwhelmed with applications for it from all parts of the country. The substance of M. DECAISNE's statement is as follows:—

About the middle of April, when he considered the danger from frost to be over, he planted out in the garden of the Museum of Natural History some pieces of the roots. Some were taken from the upper and smaller part of the tubers, others from the thicker part. The first were scarcely as thick as the little finger, and averaged 2¾ inches in length; the others were much larger, and formed slices or cross sections of a cylinder, each 1¼ to 1½ inch thick on the edge. Three tubers weighing from 10½ to 14 ounces were planted whole, in order to compare their produce with that of the cut sets. The plantation was made in an open border on the level, and not on ridges, as ought to have been done, a circumstance, however, which in no way affected the growth of the tubers; it only rendered the taking up difficult. The distance between the plants was 19½ inches every way; this was another mistake, for, according to the judicious observations of M. L. VILMORIN, they should have been much wider apart. The short time which has elapsed since the introduction of the Chinese Yam prevents M. DECAISNE's determining what may be called a good or a bad year for it; the future alone will show under what conditions of climate it best succeeds. All that can at present be said is, that in 1854 the growth of the plants was uniform, that their long twining stems grew vigorously, and were thickly covered with leaves, that abundance of flowers were produced (they were all males) about the beginning of August, and finally that vegetation ceased and the leaves began to acquire a yellowish tint after the middle of September, thus indicating that the tubers had nearly come to maturity.

With the exception of some specimens kept apart for other experiments, all the plants were separated into three distinct lots. Two of these lots were staked—one with strong stakes 10 feet or more in height, the other with stakes 6 or 7 feet high. The stems twined round the stakes very regularly, in the same way as Running Kidney Beans, and soon grew beyond them. In the third lot the plants were left unsupported, and their stems spread over the ground without taking root, twining amongst each other; these did not nearly attain the length of those which were staked. In no case were the plants either earthed up or hoed, operations which did not appear to be required. The tubers were taken up on the 6th of November. The following return shows the results of the different modes of planting and cultivation which were adopted.

A. *Tubers planted entire, weighing on the average* 10½ *oz. each.*—Three tubers produced very vigorous plants, each of which formed one fresh tuber; two of these were enormous and quite out of the common run, one weighing, when taken up, about 3 lbs., the other 2 lbs. 9 oz. The third was attacked by the grub of the cockchaffer, and only yielded pieces; its stems, moreover, withered in August. The tubers which had been planted were shrivelled without being much decayed or changed. Notwithstanding the size of the two new tubers obtained, this mode of planting is considered to be very objectionable.

B. *Plantation made with pieces of the tubers varying in length and thickness.*

* PLANTS WITH STAKES TEN FEET LONG.

This lot consisted of 16 plants, of which one produced two middle-sized tubers, weighing together fully 11½ oz., and which ought to be considered as only forming one. Weighed carefully three days after the tubers were taken up, and when dry and clean the following was the result:

No.	Grammes.	No.	Grammes.
1	095	9	175
2	140	10	350
3	390	11	185
4	540	12	105
5	260	13	95
6	330	14	100
7	390	15	100
8	420	16	30

[Total, 3 kil. 705 grammes, about 8 lbs 2½ oz., or a mean per tuber of 8 oz. $\frac{168}{1000}$.]

** PLANTS WITH STAKES 6 TO 7 FEET HIGH.

The plants, of which there were 28, also produced only one tuber each, of the following weights:—

No.	Grammes.	No.	Grammes.
1	40	15	550
2	50	16	270
3	55	17	380
4	195	18	370
5	690	19	270
6	550	20	265
7	520	21	220
8	790	22	230
9	540	23	225
10	420	24	355
11	420	25	55
12	440	26	165
13	450	27	210
14	765	28	175

[Total, 9 kil. 655 grammes, = 21 lbs. 4½ oz.; or, on the average, 12 oz. $\frac{175}{1000}$ per tuber.]

*** PLANTS NOT STAKED, THEIR STEMS STRAGGLING ON THE GROUND.

The number of plants was 13, and they gave the following results:—

No.	Grammes.	No.	Grammes.
1	488	8	245
2	475	9	150
3	460	10	140
4	488	11	120
5	400	12	110
6	495	13	55
7	290		

[Total, 3 kil. 916 grammes, = 8 lbs. 6½ oz., giving an average of 10 oz. $\frac{625}{1000}$ per tuber.]

The sum total of the produce of the three lots planted with pieces of tubers gives 17 kil. 286 grammes, or 38 lbs. 1¾ oz., as the produce of 57 plants, which is at the rate of rather more than 10½ oz. for the average weight of each tuber.

In this calculation the quantity of space on which the plants grew is not taken into account, nor would it have led to any useful inference, because, as has been already stated, the plants were too far apart. But when he takes into consideration the perfectly tap-rooted nature of this plant; the shortness of the slender lateral roots, which are not more than from 3 to 3½ inches long; and moreover the large development of the stem and leaves, which clearly indicates that the plant lives principally on elements dissolved in the atmosphere, M. DECAISNE infers that at the distance of 10, or even 8 inches every way, the plant would have sufficient space for its proper growth. There would thus be from 16 to 25 plants in a square mètre. Taking the 20 plants to produce on an average each 10½ oz. of tubers, we have about 13¼ lbs. per square mètre, or a total of about 23 tons 17 cwt. of tubers per acre. This is double the average weight of Potatoes produced in France on the same space of ground.

So large a produce M. DECAISNE admits to be entirely hypothetical, and calculated for the best conditions

of soil and temperature, in the climate of Paris; it is also made upon the supposition that the whole of the ground is occupied. But although the computation may be too high, and notwithstanding that the Chinese Yam costs more to plant than the Potato, M. DECAISNE has nevertheless arrived at the conclusion that the produce of the *Dioscorea Batatas* will exceed that of the Potato, and that the greater difficulty in taking up will be compensated by the greater amount of nourishment which the tubers contain. It is in order to diminish the labour of taking up that he recommends the Yam to be planted on ridges, following as much as possible the Chinese method described in our former article. The reasons upon which this opinion is formed are the following.

The tubers of the Chinese Yam were in general from 13¾ to 19¼ inches long; seldom more. The upper third is small, perhaps as thick as the little finger; this is in his opinion the only part that should be kept for planting, and, in most cases, three or four slices, large enough to form vigorous plants, may be obtained; the rest of the tuber may be used for food.

It is important that the entire tuber should be taken up, especially since its lower extremity is always the largest part, and that which is richest in starch. By laying out the ground in ridges or narrow beds 10 or 12 inches high, the gardener has only to dig a spade's depth in the side of the ridge or bed, in order to reach the lower end of the root; and by turning over the ridges, so as to level the ground at the same time, the crop may be taken up without difficulty. It is evident, indeed, from what has been stated, that if the sets are planted sufficiently close, the labour in taking up will not be greater than that required for the same weight of Potatoes. M. DECAISNE hesitates to settle positively the breadth of the beds, or the distance from ridge to ridge; but he suggests that a space 20 inches broad planted with three rows of Yams would answer very well. The furrow or space between the beds should not be more than a foot wide—just enough for a man to work in. He adds that the plants should not be staked, because their stems if allowed to spread over the ground preserve its moisture; and also because they may be made to root by a sort of layering similar to that practised by the Chinese, who by that means obtain a considerable increase of produce. This mode of layering is described in our former articles.

It should be understood that M. DECAISNE only speaks of light free soils, and not of those which are compact and harden much with the action of the sun. The former are, in fact, those in which the Yam succeeds best. In China it is exclusively grown in sandy soils where few other green crops thrive.

M. DECAISNE regards the Chinese Yam as superior in quality to the Potato. Although no comparative analysis of the two has been made, he believes that the Chinese Yam is much the richer in point of nutritive principles. Its roots are white as snow in the interior; they neither contain visible fibres nor tough woody matter, and when boiled they become so soft that a slight pressure converts them into a paste, which he can only compare to that of the finest Wheaten flour. Cooked by steam or roasted, they look and taste like the best Potatoes. They have one advantage, which every one will appreciate, namely, the short space of time required for cooking. Two pieces of tubers, of the size of a hen's egg, one the Chinese Yam, the other the *Batate blanche*, were both put into boiling water at the same time with a Dutch Potato of the same size; the first and second were done in ten minutes, the third in 20 minutes. And we must recollect that the facility with which the Potato may be cooked is one of the causes which have greatly contributed to the popularity of the Potato in a culinary point of view, as it requires but little fuel.

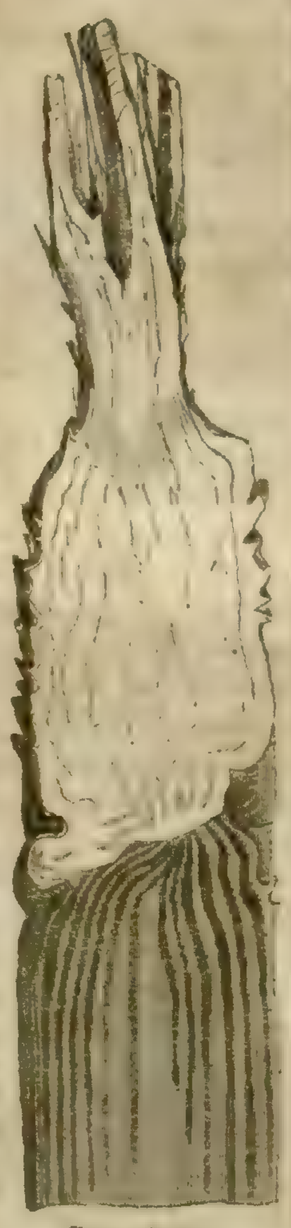
Another point of great importance to cultivators is, that it may be kept easily for a year, and perhaps longer. We all know that the Potato is certain to sprout in spring. The Chinese Yam is wholly free from this disadvantage; it is neither affected by cold nor heat, and perhaps not even by moisture. Left in the ground, it remains alive through the winter without injury, as has been proved by a root which passed there the last severe winter, and pushed freely in spring; so that it is a hardy plant in the widest acceptation of the term.

SOME discussion respecting the effect of GRAFTING RHODODENDRONS has lately found its way into our columns, and it is desirable that at the approaching grafting season those interested, either practically or theoretically, in that operation should consider well the real nature of the process. So large a number of facts has now been collected by the united observations and intelligence of modern cultivators, that it has become perfectly safe to speak dogmatically upon what was formerly a subject of constant debate, not only among those actually engaged in the operation, but also among the theoretical investigators of science.

So long as it was believed that absolute wood was formed corporeally from above downwards, it was inferred that the lower parts of a plant must be gradually encased in solid matter derived from branches; and that consequently, of necessity, the stock of a plant must be enveloped in layer above layer of the wood of the scion. It is needless to repeat the arguments employed in support of this view; they were cogent, and for a long time held to be irrefragable. The application of the theory to grafting led, among other things, to the conclusion, that if a scion would take it would speedily form a sheath of wood over the stock, and thus secure itself for ever. Once to form a good union was, therefore, looked upon as sufficient security for the permanent life of the grafted plant. It is true that cases, apparently at variance with the theory, occurred every now and then, but plausible explanations of such instances were readily found.

It is, however, now certain that although wood is formed by a descending process, yet that its descent is not in an organised state. Fluid matter, out of which it is produced, passes, indeed, from above downwards, but the formation itself is wholly local and superficial, and consequently there is no such thing as an encasement of the lower part of a tree by wood descending from above. That important fact having been once established the union of a scion and its stock evidently became a case of mere adhesion, extremely powerful in some cases, feeble and readily destroyed in others. There are therefore two essentially different results obtained by grafting—the one permanent, the other transitory. The practical application of that truth we reserve for another occasion. For the present we confine ourselves to a new demonstration that the nature of the union between a scion and its stock is no other than that now described.

About the beginning of September, 1853, Dr. ALLAN MACLEAN, of Colchester, an ingenious experimentalist and good physiologist, grafted a young plant of the White Silesian Beet upon a root of Red Beet, and *vice versâ*. At the time of the experiment the plants were each about as thick as a straw. A complete junction was effected; and when, in 1854, the plant of White Beet grafted on red was taken out of the ground, its longitudinal section exhibited the appearance represented in the annexed figure. There was a slight contraction at the line of junction, much like that formed by "choking" a rocket case; above the line of contraction the plant was absolutely white, below it it was absolutely red. Not a trace of blending the two colours could be discovered. By similar experiments on other vegetables and plants Dr. MACLEAN had so far assured himself of the perfect independence of scion and stock as to acquire the belief that neither the colouring nor any of the specific characters of the one or the other would or could be altered by their union. The result of the trial wholly confirmed that view, and demonstrated that the White Beet adhered to the Red Beet by mere junction of cellular matter; that of the scion and stock holding together in the first instance, and each afterwards producing its own colouring matter in its own new cells as they formed superficially, the red cells adhering to the white cells while in the nascent state, but retaining each the peculiarity belonging to it, without any interchange of contents through the sides of the cells in contact.



Ground line.

This is entirely consistent with all that has been discovered by the modern physiologists who have applied themselves to a study of the nature of the individual cells of which plants consist. They have clearly shown that each cell has its own special inherent power of secretion; as indeed may be seen by any one who examines thin sections of variegated leaves or other parts. It will then be seen that some cells are filled with a red colouring matter, others with yellow, others with green. In other words one cell has the power of secreting red matter, another yellow, and so on. The colours do not run together, but are contained each within the cell that produces it. Why this is so no one knows: all that we are acquainted with is the fact. In the cells of the Red Beet resides a power of forming red matter, and in those of the White Silesian Beet that of forming yellow; and this peculiarity is not affected by the one growing to the other. Red-forming cells produce their like and yellow-forming theirs. Thus the limit between the scion and its stock is unmistakeably traceable, and notwithstanding the combination of the two sorts in one each perseveringly retains that which is natural to it.

What is true of Beets is true of all other plants, and we shall endeavour on an early day to apply to the practice of grafting the unquestionable facts above explained.

New Plants.

109. CŒLOGYNE PLANTAGINEA.

C. (FLACCIDÆ) pseudobulbis elongatis teretibus, foliis 2 oblongo-lanceolatis 5-costatis undulatis petiolatis patentibus, racemo pendulo glabro multifloro, bracteis "parvis fuscis acutissimis" deciduis, petalis lineari-lanceolatis, sepalis paulo latioribus carinatis, labello ovato-oblongo trilobo acuminato lamellis hypochilii 3 epichilii 4 fimbriatis.

For this fine species we are indebted to the Lord Bishop of Winchester who purchased it, it is believed, at one of Stevens's sales two or three years ago under the above name, which it probably received in India, and although apparently unpublished, is too applicable to be rejected. The plant forms a tapering pseudobulb about 6 inches long, sheathed at the base by acuminate scorched scales, and bearing a pair of firm broad leaves, about a foot long, with five principal ribs, and strong channelled stalks. The flowers appear in a long pendulous raceme not unlike that of *Cymbidium pendulum*; they are greenish yellow with a white lip streaked with brown. The latter has a taper-pointed middle lobe, and is crested with perpendicular fringed plates, of which there are three near the base, and four upon the middle lobe. It is perfectly distinct from all previously known, but approaches *C. flaccida* more nearly than any other. As we have already stated the plant has been for two or three years at Farnham Castle, where, until this year, it resisted all inducements to flower; but eventually his lordship overcame its reluctance by carrying the system of starvation to an extreme extent. The specimen with which we have been favoured was a model of good cultivation; it had been in flower for a month. The bracts had fallen, and we describe them from information communicated by Mr. J. W. Laurence, the Bishop of Winchester's gardener.

VEGETABLE PATHOLOGY.—No. LIV.

239. STERILITY.—It was stated (see p. 231, 1854) that the same effect in vegetable pathology may arise from very different causes, and though the ultimate injury may be identical, the diseases which produce it may in reality be altogether unallied. Such effects may sometimes in point of fact be mere symptoms rather than specific maladies. In a treatise, however, like the present intended for general use, it would not be prudent to draw too nice distinctions, but to treat such subjects as may arise simply and practically. In many instances, therefore, such symptoms will for practical purposes be regarded as disease; and to concentrate attention on each subject, it will be necessary to keep together as much as possible all that bears on one particular point, for unless some such mode were adopted, reference must be made for information to more than one division, and sometimes to every distinct head under which disease may be classified. Where a disease, therefore, arises from constitutional causes and those functional, proper notice will be taken of it under the particular head which treats of such diseases; but if in any case it arise also from other causes, information on such points will be given under the original notice, thus obviating multiplicity of reference, preventing needless repetition, and facilitating comparison of matters similar, though possibly not identical.

240. The disease with which we commence our specific notices, sterility, is a case exactly in point, for though sometimes purely constitutional, and that functionally or organically, it may be equally induced by external causes, and those of various kinds. However induced, it is in most cases a formidable misfortune to the cultivator, and unhappily is at present too often beyond remedy.

241. STERILITY. *Constitutional and functional.*—Both in the animal and vegetable world, wherever copious varieties and races have been produced by long domestication or cultivation, there are marked constitutional differences as regards sterility. In the poultry-yard one race will produce a supply of eggs throughout the year, while another, distinguished perhaps for other good qualities, is notoriously unproductive. The same holds good with the vegetable world; while one variety is extremely prolific, another of better quality perhaps is, under whatever circumstances it may be placed, what is commonly called a shy bearer. If, however, our attention be turned to individuals, we shall find instances of absolute sterility—in the animal kingdom strictly absolute, in the vegetable perhaps only for a season, inasmuch as new organs are formed every year, or at least preparations made, though possibly not complete, for their formation. I am not speaking now of that temporary sterility to which every plant, whether of short or long duration, is subject; for this is no disease, but merely a state of infancy or progress, during which sufficient materials, out of which the exigencies of a fertile condition can be supplied, have not at present been stored up.

Whether this is effected after a few weeks, or only after several years, the matter is just the same, and it is well known that the fertility of young plants may be accelerated by grafting on a ripened stem which can supply what is wanting to the ascending sap. The tendency in the case before us is either to make no progress towards the formation of flowers and their proper organs, or only to proceed through the primary stages of metamorphosis without accomplishing the grand end to which those changes in the leafy appendages tend. It may be absolutely impossible to discover in such cases any organic malformation; but as it is sometimes evidently due to exuberance of growth, it is sometimes equally evident that it is want of tone which produces sterility. If, however, they are really constitutional, and not due at all to external causes, the most judicious treatment may fail, and for the very reason that we cannot discover the precise constitutional conditions to which the effect is due. Means, however, will be taken to repress unnatural luxuriance in the one case, or to give more tone to the system in the other, and such pains will often be rewarded with partial success. It will very rarely happen, however, that inveterate constitutional tendency can be altogether surmounted.

242. One of the most ordinary causes of sterility, whether permanent or temporary, is the hypertrophy of some particular part of the plant, in consequence of which the nutriment which should have been employed in the formation or perfection of the organs of fructification is diverted to some other purpose. Plants, for instance, like Tarragon, which increase much by the root without any abnormal development, seldom produce perfect seed, and trees which send up many suckers or feeders are comparatively unproductive: instances arising from artificial hypertrophy (238), to which multitudes might be added, are mentioned above.

243. The organs of fructification may be apparently perfect, and yet no impregnation may take place, even though the pollen grains may germinate. It is probable that in such cases there is some deficiency of power in the ovules, or the vegetative force by which they are excited, and not in the pollen grains themselves—an inference supported by analogy in the animal kingdom. This force in the pistillary organs is sometimes so great, as in Cœlebogyne, as to supersede the necessity of the anther altogether, a fact analogous to those instances in the animal kingdom where increase takes place by budding, as in several of the Radiatæ. It appears from the mass of facts stored up by Gärtner, Herbert, and others, on hybridisation and muling, that the influence of the male and female parents are not altogether correlative. It does not follow that because the pollen of *a* will produce perfect fruit in *b*, that the pollen of *b* should have the same effect on *a*. It appears, too, that the same male parent does not produce equal fertility in female parents which it is capable of fertilising. The pollen of Dianthus superbus will fructify D. barbatus, Armeria, chinensis, Caryophyllus, caucasicus, and arenarius, but it will not impregnate them in the same degree, and the number of seeds produced will diminish in the order in which the names of the species are written down. External affinity is not always the measure of success. The coats of seeds are sometimes affected even where perfect impregnation does not take place; and as any derangement of the mutual balance of the parts of which an organism consists is more or less fatal to the completion of such delicate processes as the vivification of the contents of the embryo sac, it is conceivable that a thousand circumstances may prove impediments though wholly beyond our powers of research.

244. Strictly speaking, sterility may be absolute, even where there is, according to the gardener's views, a perfect crop of fruit. In some cases, and perhaps in most, succulent fruits will not swell and proceed to perfection without impregnation; but it is certain that in other instances, as in the common Mulberry, the full virtues of the sarcocarp may be perfected without the intervention of any male blossom; and it is notorious that Cucumbers of enormous size, and many other fruit, occur in which it is impossible to find a single perfect ovule. Some of the best varieties of Grapes and Oranges bear no seed, and the same may be said of exotic fruits, as the Banana and Breadfruit. It does not follow, however, that the rudiments of fruit may not exist in the young state, or that the pollen may exert no power. The influence of the pollen is not, however, the only influence which will cause the succulent portion of the organs of fructification to swell. The process of caprification is an instance in point, as also that of touching the orifice of a Fig with oil, or piercing the young walls with an oiled straw. *M. J. B.*

ON RAISING NEW VARIETIES OF PEARS FROM SEED.

What, it may be asked, is the object to be kept in view at the present day, in raising new and improved varieties of Pears from seed? On examining attentively the varieties obtained from seed by our predecessors, and especially those raised from the last sowings of the late Van Mons, it would seem as if the task was accomplished, and that we have only to repose under our laurels. In fact, the vigour of certain varieties cultivated on the Pear stock is evident, their hardiness in our climate is well known, their productiveness is incontestable, and their varied and delicious flavours incline us to think that the conquest is already made, and that the Pear-tree may be almost considered as being acclimatised in our northern latitude, and as having attained perfection. Such being the case, it is a duty incumbent on us to preserve these acquisitions in all their vigour, and without change from disease, by propagating them according to the rational principles laid down in our preceding articles. Thus we may transmit, intact, to posterity the fruit of the labours of our ancestors.

But another much more important duty also devolves on us, and that is not to interrupt the chain of possible improvement. We ought to re-sow successively the seeds of the best hardy kinds of Pears, in order to improve on the results already obtained. The chances of success are not now so problematic as when Van Mons commenced his sowings; for he had to employ either the seeds of varieties of indifferent quality, or those of sorts from more southern regions than ours. By sowing the seeds of these, rearing the seedlings, and sowing their seeds as soon as they bore fruit, and again the first seeds of this third generation, and so on, he obtained six or eight generations in the course of half a century; and by these means, conducted on fixed principles, he has done more for acclimatising and improving the Pear tree in our latitude than chance had during 10 centuries. According to this system, it is no longer necessary to sow the seeds of such old varieties as the Beurré Gris, Chaumontel, St. Germain, or Virgouleuse; and scarcely those of the Passe Colmar, Beurré d'Hardenpont, Beurré Diel, and Beurré Rance. This would be labour in vain; it would be like taking hold of the chain by the wrong end and landing at the bottom, instead of commencing at the lowest link and ascending to the highest. The varieties above mentioned have not, generally, a strong constitution, and they are much exhausted in consequence of a bad system of propagation. The seeds of the following varieties may, however, be successfully employed:—Conseiller de la Cour, Comte de Flandres, Dr. Trousseau, Prince Albert, Duc d'Orleans, Comte de Paris, Rousselet de Janvier, General Dutilleul, Beurré Berkmans, Calebasse Tougard, Nouveau Poiteau, Souvenir d'Esperen, and Triomphe de Jodoigne. In our severe and changeable climate, vigour and hardiness for bearing in the open ground are more especially required. Should the fruit be only second-rate, yet it is better to use the seeds of hardy sorts than those from fruit of first-rate quality produced by trees of a broken-down constitution. The Eyewood, raised by Mr. Knight, must be reared as a pyramid, by means of a support, during the first three years from the bud or graft on the Pear stock; this is a proof of its debility. By careful pruning this variety will form a handsome pyramid in five or six years; but the shoots are too flexible. Its branches have not sufficient substance. Although from its fertility, and the excellent quality of its fruit, it deserves a place in every fruit garden, yet it would not be advisable to sow its seeds with the view of obtaining improved varieties, for the seedlings would most probably retrograde. Marie Louise Nouvelle, of Van Mons, from its greater vigour, and its larger and more delicate fruit, is doubtless several generations in advance of the Eyewood, but appears to have come from the same source. The seeds of this fruit would be preferable to those of the Eyewood; but it would not be advisable to sow either of them. The varieties above recommended make handsome trees, are hardier, and their fruit keeps longer. In obtaining a new variety, which ought to be considered at the present day a real improvement, it ought to possess, as already stated, good vigour, hardiness, and handsome form of growth. In short, the trees ought to bear as orchard standards in our coldest localities. The fruits, in form and flavour, should equal, at least, those which we already possess; and the period of ripening should be later, commencing in December and ending in April.

By following the preceding instructions, astonishing results will be obtained before the end of the century, as regards varieties adapted for orchard culture. In pursuing with perseverance the experiments, a number of varieties will also be found suitable for gardens. It is likewise very probable that some amateurs, knowing the vigour, beauty, and productiveness of a good seedling, will give it the preference, to a certain extent, to propagated trees, which do not always exhibit the most desirable properties. A period will thus be reached when the more intelligent amateurs, in sowing the seeds of a variety, of which the perfection has been carried to the utmost limits, will not plant, trusting to the probability that seedling varieties will spring up and form magnificent long-lived trees, bearing fruit of the highest excellence. This is, moreover, the opinion expressed by Van Mons in various passages of his "Pomonomie." We unreservedly share it as regards our own seedlings, all derived from the last sowings of that skilful pomologist. In fact, out of more than 500 of these seedlings, one could scarcely find 25 which do not exhibit, in their upper parts, all the characters of civilised trees, that is to say, having the appearance of good productive varieties. In the face of such evident facts, it is impossible not to be convinced.

In conclusion, by following a good system of propagation, and improving the condition of trees already existing, the horticulturists of the present day will fulfil their duties in regard to their successors. This, we think, ought to be the aim of every person in all the countries of Western Europe who takes a distinguished part in the cultivation of fruit trees. *J. De Jonghe, Rue des Visitandines, Brussels, Dec. 5, 1854.*

LIST OF ANNUALS.

(*Concluded from p. 6*).

Leptosiphon luteum is a pretty little plant, with needle-shaped leaves. Its flowers are golden yellow, and are produced in abundance. It is well adapted for pots, patches, or beds. One of the very best Californian annuals.

Limnanthes alba.—This is a good thing, either for early or late flowering; it grows about 9 inches high. The flowers, which are produced abundantly, are of a dull white colour; it is best adapted for patches. It is a native of California.

Linaria macoura is a most interesting annual, with flowers like the common Toadflax in shape, and pale lilac in colour. It grows about a foot high. It is a most profuse bloomer, and is well adapted either for beds or borders. It is a native of the south of Europe.

Linum grandiflorum rubrum.—This is a plant of a very delicate and slender habit, much resembling the common Flax. It grows about a foot high, and has large, brilliant red flowers. If it could be induced to flower well, it would be a splendid plant for pot culture. It was introduced from Paris.

Loasa lateritia.—Though much neglected, this is a very pretty plant when treated as a climber and trained on trellis work. Its flowers are pale scarlet, with a dull white patch in the centre. It is rather tender, and requires to be sown in heat. It is a native of Peru.

Lupinus Moritzianus.—This is the very best of the annual Lupines; it grows about 30 inches high, and has an erect habit. It is a most profuse bloomer, with spikes of flowers about 7 inches long. Its blossoms are of a rich blue colour, tipped with white. It is well adapted for borders. It is a native of California.

Malva zebrina.—This, although of a straggling habit, is nevertheless a most beautiful plant, and well worthy of cultivation, growing to the height of 2 feet, with large white bell-shaped flowers, streaked with red. It is well adapted for growing in clusters on borders. It comes from the south of Europe.

Mirabilis Jalapa (Marvel of Peru) is not so much grown as it deserves to be. Its long, trumpet-shaped flowers are highly ornamental. It is a compact bushy plant, which grows about 18 inches in height. There are many varieties differing very much in colour, some being self-coloured, while others are very much streaked. It is best adapted for borders, but ought to be sown in heat, to bring the plants to perfection.

Nolana grandiflora.—This is a creeping Chilian plant, with rather succulent foliage. Its flowers, which are much like those of a Convolvulus, are of a lightish colour, streaked with blue. It is a pretty thing for covering rockwork or small beds.

Oxalis rosea.—This is another of the very prettiest and best of annuals; it grows about 6 inches high. Its flowers are of a pale rose colour, and are produced in abundance. It is a good thing for greenhouse decoration in spring, and open borders in summer. It comes from Chili.

Perilla nankinensis is a pleasing plant, with dark purple foliage, for whose beauty alone the plant is grown. The leaves are much crisped; the flowers are of no value, but on account of the variety it makes it well deserves a place in borders, and requires to be sown in heat. It is a native of China.

Phacelia tripinnatifida.—This is a profuse blooming plant, with dark-blue flowers and a habit like that of a Heliotrope. It is quite hardy, and requires very little attention. It grows about 1 foot high, and is well adapted for beds or patches. It is a native of California.

Platystemon californicum makes a very showy bed, and flowers very early. It grows about 1 foot in height. Its flowers are of a whitish colour, and are produced abundantly. This is also a native of California.

Podolepis rugata is rather a showy plant, and remains a long time in perfection. Its flowers are large, of a pale yellow, much resembling the Old Everlasting; it grows about 18 inches in height. P. chrysantha much resembles it, with flowers of a brighter yellow. It is a native of Australia.

Portulacas.—These much resemble in appearance an ice plant, having succulent stems and cylindrical leaves. They are very showy plants, but require greenhouse treatment, although they may occasionally be turned out in the open border in summer. The best are Thellusoni, which is the strongest growing—it has large blood-red flowers; T. flore plena, with double flowers; splendens, with pale-red flowers; alba striata, with white flowers, streaked with red; and Thorborni lutea, with yellow flowers. They are natives of temperate regions.

Rhodanthe Manglesi.—This is a Swan River Annual, and is a most beautiful thing. Its flowers are large, of a rosy pink colour, and it grows from 9 to 12 inches in height. It remains a long time in perfection. Its best use is for greenhouse decoration in early spring, or it makes a most beautiful bed in summer, but the seedlings require pricking out in small pots to become established previous to transplanting.

Saponaria calabrica is rather a slender spreading plant, with pink and white flowers. It grows about 6 inches high. It is a most beautiful thing, well deserving pot culture, or it is well adapted for beds or borders. It is a native of Calabria.

Silene pendula alba has showy white flowers, somewhat resembling the common Bachelor's Button. It grows a foot in height, and is a most abundant bloomer. It is a splendid thing for greenhouse decoration, and also for beds or borders. It flowers best in peat soil. It is a native of the south of Europe.

Sphenogyne speciosa is a pretty South American plant for blooming through the summer. It bears large orange and black-coloured flowers, which are

produced in abundance. It grows about a foot high. It is well adapted for beds or borders.

Tagetes signata.—This is one of the most interesting and neatest of annuals. It grows about 15 inches high, with finely divided leaves, and its flowers are also very showy; they are yellow, and produced abundantly. It is well adapted for beds or borders. This is also a native of South America.

Venidium eximium.—The flowers of this plant much resemble the pot Marigold, with large coarse leaves. It grows about a foot high, and is a very showy plant for borders.

Whitlavia grandiflora.—This most beautiful new annual was exhibited at one of the Chiswick exhibitions this year for the first time by Messrs. Veitch. It surpasses Eutoca viscida in the beauty of its bell-shaped corolla and long stamens, which exhibit the anthers to so good advantage. It grows a foot high, and flowers profusely. It is a native of California.

Zinnia elegans.—This makes a very pretty bed, and one packet of seed will furnish many varieties. It is a stiff growing plant, about a foot in height. It is a native of Peru. *J. H. Beckman.*

Home Correspondence.

Grafted Rhododendrons (see page 6).—Your correspondent "J. R." must surely be unacquainted with the improved methods of grafting these fine plants now employed by our best propagators, or he would never have written as he has done. I could show him thousands grafted in such a way that nearly all are rooted from the scion, and are on their own roots, whilst it is very rare for them to throw up a sucker. There is much unnecessary declamation against grafted trees, many of which are far better than if they were not grafted. This outcry against them may be attributed to several causes, the principal one being that unthinking persons have sent out trees grafted on stocks on which it was impossible for them to succeed. Thus the evergreen Deodar has been grafted on the Larch. If "J. R." has visited Elvaston, he must have seen hundreds of fine Deodars, all of which are grafted on the Cedars of Lebanon. Who ever saw the English Elm on its own roots throwing up thousands of suckers, equal to the same plant grafted on the Scotch Elm? Would "J. R." plant his walls with Peaches on their own roots? How many of our finest Roses refuse to grow on their own roots but grow vigorously when worked, whilst others are best when not worked. It is only when the stock is unsuitable, or the grafting clumsy, that the effect is bad. How are Camellias to be propagated? The same question may be asked respecting the Purple Beech (surely it is not injured by grafting), the varieties of the Ash, Thorn, and numbers of other things. But to return to the Rhododendron; there are many fine varieties which could not be increased except by grafting, and there are many which grow better and stronger when grafted than on their own roots. No one who has seen the plants, trees I should rather say, shown in London by the Messrs. Waterer, could suppose that they had been injured by grafting. With regard to raising varieties from seed and sending them out (unproved) with names, I know of no practice more dishonest. Although it is true that many seedlings produced by crossing two kinds, as arboreum and catawbiense for instance, may resemble each other, is it right to sell them as altaclerense, when some may prove inferior to that variety, and many in the same bed will doubtless be worthless? Then, again, when one of the parents is a hybrid, perhaps no two of the seedlings will be alike. "J. R." may rest assured that if he ever possesses fine varieties he must have them grafted. *J. R. Pearson.*

Amherstia nobilis.—This fine stove tree is now in flower at Wynyard Park, the seat of the Marchioness Dowager of Londonderry, and I believe that it is the second plant of the kind which has blossomed in this country. The plant under notice was imported in 1852, being then but 9 inches in height, and now it is a fine healthy tree 9 feet high, with five flower spikes on it. The spike now in bloom measures 2 feet long, and has 18 flowers on it, all of which are extremely brilliant in colour. *John Stewart, Wynyard Park, Jan. 9.*

Rain at Melbury House Gardens, Dorsetshire.—1852: November, 13 $\frac{81}{100}$ inches; December, 6 $\frac{79}{100}$ inches. 1853: November, 3 $\frac{44}{100}$ inches; December, 1 $\frac{81}{100}$ inches; 1854: November, 2 $\frac{17}{100}$ inches; December, 0 $\frac{63}{100}$ inch. *S.*

Double Digging.—There must, I apprehend, be some error in terms in Mr. Smith's account of the expenses of labour. Double digging, as understood by gardeners and others, is digging two spits (about 20 inches) deep, and either bringing the bottom spit at once to the surface (usual in market-gardens and nurseries where the soil has been long under spade cultivation) or turning it over and leaving it at the bottom; the latter is my practice in bringing fresh land under spade cultivation, and not, as you assume, bringing at once 10 inches of clay to the surface. It is not till the sixth or eighth year that the bottom spit is gradually brought up, the ground in the meantime having been double dug three or four times. The cost of double digging my land (a tender loam without stones, resting on a subsoil of calcareous clay, at first stiff, but after being stirred very tender) is for the first time 1*s.* 3*d.* per rod, afterwards 1*s.* per rod. Now, this is what is always understood as double digging, and of course when practical men read that this can be done at Lois-Weedon for 4½*d.* per rod they feel that some great difference must exist either in the price of labour or in the method of having it done; it seems to me that the term "double digging" is incorrect if, as you state in p. 4, the depth altogether of the first digging is only 10 inches or one spit. The term "shallow spits" is not, I believe, used by Mr. Smith, and is calculated to mislead; the depth of a spit is understood by all farm labourers as about 10 inches. Mr. Smith says, "The diggings at first are to be as much as two spits deep, but the depth is to be measured year after year until they reach the depth of 20 or 24 inches." The term "two spits deep" has misled many, and I have no doubt has given rise to many failures, owing to the cost of double digging being so much more than the price given in the pamphlet. I know the arable lands of all the eastern counties intimately, and with the exception of the blowing sands of Norfolk and Suffolk, and the loose black soils of the fens, I fully believe that no good corn land can be stirred 20 inches deep under 1*s.* per rod, and no single digging under 3*d.* per rod, and much care is required in having the latter done; the four-pronged (Lyndon or Parkes') fork is the best tool, and this should be thrust into the soil nearly perpendicularly; a "loose hand" will make it form a beautiful slope, and stir a very large surface at a small cost, but to very little purpose, as far as the real interests of his employer go. I give my labourers 3*d.* per rod for single digging between rows of fruit trees 3 feet apart; this seems to approach very nearly to Mr. Smith's practice in digging between his rows of Wheat, requiring about the same care, but then it is double his price. The Lois-Weedon system is so full of interest, and appears so advantageous, that it is of consequence to clear away all obstacles to its being carried out, and the apparent difference in the price of labour can most probably be explained by some one who has tried the system in a stiff soil. *T. R., Herts.*

How to have Good Water in Clay Districts.—The difficulty of procuring good water for domestic and farm purposes, so generally experienced in clay districts where the well water is frequently bad, may, I think, often be overcome by a plan which I have lately adopted with success. The soil is a lias clay; I collect in a cemented tank the rain that falls on an acre and a half of lawn which is thorough drained with pipes 3 ft. 6 in. deep, and adjoins the house. The water is excellent, nearly soft enough to wash with, whereas the well water is not only very saline, but has a nauseous smell and taste. In the first instance the tank was merely lined with dry brickwork, when the water was better than that from the wells, but not so good as it is now. The bad qualities of the well water being attributable to the soluble matters in the clay with which it is in connection, the necessity of a water-tight tank is evident. The small quantity of soluble matter taken up by the rain water in its passage from the surface of the land to the pipe-drains cannot be avoided; but beyond this it may be kept pure, if the tank is effectually separated from the clay. This plan is very inexpensive, and capable of general adoption in country places, where a suitable field to collect the water is almost sure to be found near the house. I think arable land will answer nearly as well as Grass land; and if already drained, the trouble of conveying the water from it to the house, and forming a suitable receptacle there, must be small. In many cases the existing well, if partially filled up so as to exclude the springs, might be lined and bottomed with cement at an expense of only 2*l.* or 3*l.*, and made to answer the purpose. Of course, the size of the tank must be proportioned to the quantity of water required, and there must be a waste pipe from it. *Richard Varden, Seaford Grange, near Pershore.*

Beurré Superfin.—In reply to the queries of M. de Jonghe, I may state in the outset that I have been all my life, now nearly 40 years, accustomed to observe the characters and merits of fruits. I was born in a nursery of fruit trees, I have lived a nurseryman of fruit trees, and I now cultivate for my amusement a collection of upwards of 1300 varieties. I therefore leave M. de Jonghe to judge whether or not I am competent to distinguish the difference between two trees or two fruits. I do not quite agree with M. de Jonghe when he says that the question now, "is *simply* whether the Beurré Superfin has a different form, a different flavour, and period of maturity from that of the Cumberland, figured in the 'Album de Pomologie.'" What M. de Jonghe has to show after what he said in his first communication on this subject is, that the name of Beurré Superfin "was applied in 1846-47, at Angers, to a seedling raised by the late Van Mons, which fruited for the first time in his nurseries in 1827;" and also that the Pomological Society was in ignorance when it did not know "how to distinguish this Pear among a thousand, and restore to it the original name of Cumberland." It is an easily ascertained fact that the original seedling tree of Beurré Superfin is still existing at Angers, and that the original tree of Cumberland is still at Cumberland, in Rhode Island, where it has been since the beginning of this century. Where is the original tree of the Cumberland of Van Mons? *Robert Hogg.* [We think that the public has now had enough of this discussion.]

Coniferæ: Collectors and Cultivators.—The subject which you have permitted to be introduced into your columns (see p. 806, 1854) should not be allowed to remain within the narrow limits in which it has already appeared—I mean the *vexata quæstio* of the difference between two Cypresses. I believe them to be the same, but that is not what I want to write about. The subject to which I refer is that of the history and introduction of many Conifers which are now beginning to show their matured characters, and to prove themselves worthy of distinctive names. That which was of old the *irritamenta malorum* has operated strongly upon nursery gardeners and their lists, wherein many tempting names are found to swell the corresponding list of guineas. Some very good papers have been published in the Horticultural Society's Journal, such as Hartweg's and Dr. Lindley's, Mr. Gordon's, a paper on Himalayan Conifers, and the translation of Endlicher's catalogue, which last, by the bye, has put to confusion many a studiously-labelled Pinetum. But there still remains a hiatus which none but those who live at the fountain-head of horticulture and botany can fill up. Plants are introduced—introducers take their treasures to be presented at court—there they receive their titles, make their bow, and are pushed on by the crowd which follows; they leave their cards and addresses, but sometimes these frail and perishable memorials are lost (as seems to be the case with the ancestors of Cupressus Lambertiana); they slink away into the world of fashion at Chiswick, and there, suffering from the vicissitudes of garden stuff, lose their labels or get misplaced, or, what is worse, are sent out to subscribers, who cut them up for propagation, and when the time comes for their being planted out into the world, their names are obliterated, or replaced from the stores of the gardener's imagination. There are many cultivators and collectors whose object is one of a higher order than that of merely adding names to their collections, or of surpassing some rival in entities of no value. I apprehend that gentlemen who apply their spare moments and spare money to encourage the introduction of rare and beautiful things into this country are in many ways public benefactors; it is unnecessary to enumerate the exotic plants of which the valuable qualities have led to their universal cultivation — plants, I mean, which are now naturalised in our woods and hedge-rows, which were once as rare and curious as the araucaria or taxodium. There are many plants of great promise now in the country of which it is extremely difficult to obtain information. A mere curiosity is a poor treasure. A rusty musket ball would have a value if it were picked up on some hero's grave upon the sad but beautiful banks of the Alma;—so it is with plants. If ever there were a tribe of plants which from its vast variety and combined qualifications of use and beauty surpasses any other, it certainly is that of the Coniferæ: their applicability to valuable uses, their aptitude for purposes of shelter or of beauty is daily more and more apparent. Governments introduce them to replenish or replace old royal forests worn out by centuries of unvarying Oak; artists and gardeners find no contrasts of form or colour without the wholesale introduction of the many-formed many-tinted Conifers; places bare and bleak, cold and ugly, are now filled and furnished; and some day soon, planters who have high and dry light soil unfit for Oak, and ill-placed for Turnips, will begin to substitute the happy family of Pinus Laricio and Deodar for Oak and Ash; and still further draw from the same tribe the means of sheltering the residences, beautifying the neighbourhoods, and filling the pockets of their heirs: but it is upon the collector of the present time that all these good and pleasant results depend. As one of these, I have long wished to see the blanks and omissions of the catalogue published in the Horticultural Society's Journal in 1854 filled up. Many would join with me in cordial thanks to you if you could prevail on the authorities of the horticultural world to open their drawers, or turn back to former pages, and draw out the memoranda which they alone possess, of the introduction of many plants now lying neglected and ignored for want of sponsors. For instance, to name a few, I have tried in vain to discover when and by whom Pinus Bungeana was introduced, certainly the most distinct plant in my collection, and hardy as an Oak; the same too about Pinus osteosperma, a very peculiar species, and the graceful hardy Cupressus Corneyana (miscalled in the Hort. Soc. Journal "the female of the Juniperus sinensis"); Pinus Fordi, very distinct; and the hardy, robust, and rapidly growing Abies Douglasi taxifolia, a strongly marked variety; so too about Pinus Padufiana, and the beautiful Juniperus alba and fragrans, which are species and not varieties; and Cupressus Knighti, which is totally unlike any other which grows; not to omit some concerning which I have lately received inquiring letters, viz., Cupressus Schomburgki and Kæmpferi, Pinus Næsa (Neoza) and P. pallo (palo) blanco, and others, with the names of which I will not swell this already too long letter. I trust your interest and authority will bring forth some of the information which I, in common with many others, greatly desire; and I thank you for the room you have already allowed for intercommunication on this subject. *Pinus Gloucestrensis.*

Societies.

LINNEAN, *Dec.* 19.—Prof. Bell, President, in the chair. J. Newton Loomis, M.D., was elected a Fellow. Mr. Gould exhibited a fine specimen of the Giant Puff-ball (Lycoperdon giganteum), found by him in Muntford Wood, near Somers Leyton, Suffolk. Read: a memoir "on the food of certain gregarious fishes," by Dr. Knox, communicated by W. Yarrell, Esq., V.P. The inquiries, of which the results were given in this paper, were commenced about 1824, and related to the feeding habits of certain fishes of whose history in this particular little or nothing was at that time known. The researches were commenced with the Ven

dace, a fish abounding in some of the Scottish lakes, and whose food was considered both by fishermen and naturalists to be entirely unknown. One forenoon's inquiry destroyed the illusion. Dozens of the fish were opened immediately on being removed from the lake by means of nets, and their stomachs were found to be crammed with thousands of individuals of various kinds of entomostraca, or microscopic shrimps, as they might be called. The solution of the mystery depended simply on placing a portion of the contents of the stomach under a strong lens. The inquiry was next extended to the Char, of which some fine specimens were obtained from Windermere, and the food proved to be the entomostraca with which the lakes abounded. The early spring or Grey Trout, of Loch Leven, were, in like manner, found to have their stomach filled with entomostraca when examined in the early parts of the year, though later they were found to have been feeding on the buccinums, and the common food of trout. The Herring had been the subject of repeated and very extensive investigations. The fish was obtained from the deep sea, and of the hundreds examined, there were only three in whose stomachs were found anything but entomostraca of various species. Of these three, one had been living on sand eels, another on what appeared to be small herrings, and in the stomach of the third were found the shells of about a dozen small buccinums. When near the coast the herring was frequently found not feeding; thus, in the Forth, in the months of January and February, a very large number examined were found quite empty. After spawning, and while close to the shore, they seem to take to other food, as sand-eels and shrimps. In July fine small herrings, which had been feeding on entomostraca, were found to be of good flavour, while others of the same take which had been living on sand eels as well as entomostraca, were insipid and worthless. As to the Salmon, nothing is ever found in the stomachs and intestines of the fresh run salmon but a little reddish substance; this placed under a microscope was found to be composed of the ova of some species of the echinodermata. Of the salmon, while in the sea, this was found to be the constant and sole food. From his researches on this subject the author concludes as an established fact, that many valuable gregarious fishes live, some exclusively, others partly, on the entomostraca. The largest of the gregarious fishes he had as yet observed as living exclusively on the entomostraca was the Early Grey Trout of Loch Leven and the Char; but he had no doubt that on the American continent, there were many admirable fishes of the natural families of Salmonidæ, Corregoni, Clupeidæ, and even others, whose food, when discovered, would be found to be entomostraca of various species.

Entomological, *Jan.* 1.—The President in the chair. The Secretary announced the list of donations to the library received from various societies and authors since the last meeting, and gave notice of the alterations in the council and officers proposed to be made at the ensuing anniversary meeting. The President exhibited a small specimen of a new kind of silk, which he had received from Vienna, spun by the caterpillars of Saturnia spini, and forming a felt impervious to wet, the caterpillars being placed in confined situations and thus compelled to spin their silk in flat layers. He also exhibited a specimen of the species or local variety of Helobia, which he had described many years ago, from Ben Nevis, under the name of H. impressa, and which Mr. Dawson had omitted in his recent work on the ground beetles. Mr. Douglas exhibited the nidus formed of fungoid matter in the centre of a decaying Oak by the larva of Cratonychus castanipes, *Pk.*, a species of Elateridæ not hitherto recorded as a native of this country. Mr. Downie exhibited a model bee-hive on the bar principle, but with certain improvements in the floor both for ventilation and for enabling the refuse to be easily removed. Mr. Samuel Stevens exhibited splendid specimens of Jumnos Ruckeri and Dicranocephalus Wallichii from India. The reading of a series of short notes on the Economy of various insects by Mr. Curtis was continued, amongst which it was recorded that Carabus glabratus and the larva of some species of Staphylinus had been observed to eat earth-worms. Mr. Waterhouse read a paper by himself and Mr. Janson on the synonymy of the British species of the Staphylinideous genus Stenus, consisting of 44 species. Mr. F. Smith read descriptions of a number of new species of ants collected in Brazil by Mr. Bates, and accompanied by very interesting notes on the Economy of some of the species observed by Mr. Bates; amongst which was the notice of the immense swarms of a species of Myrmica which being drowned were found lying in masses on the banks of a river for eight or ten miles. Mr. Edward Brayley suggested that this circumstance was of importance in throwing light upon the occasional accumulation of fossil insect remains of which Mr. Westwood had lately given some curious instances at the Geological Society. Mr. W. W. Saunders also mentioned that on one occasion the shores of Norfolk were observed to be covered with immense numbers of dead specimens of Galeruca Tanaceti, which rendered the coast quite black from the vast accumulation of them.

Notices of Books.

A Month in the Camp before Sebastopol, by a Non-combatant (8vo., Longmans), consists of a series of clever sketchy letters, some of which, we think, we have already seen in the columns of the daily papers. The period of time to which they relate extends from October 6 to November 5, the well-known day of the battle of Inkermann. The author appears to have been a guest of Sir George Brown, and must, therefore, have had good opportunity of seeing what was going forward. He skilfully narrates the stirring incidents which occurred to him, in an agreeable manner, and without dwelling upon the dark side of the picture he has painted.

Tit for Tat (small 8vo., Clarke and Beeton), is an American reply to Mrs. Beecher Stowe and her "Uncle Tom." Those who wish to hear how exaggeration can be met by exaggeration may possibly be gratified by the pages of this book; for ourselves we have no admiration for extravagance and absurdity, to say nothing of bad taste. The authoress may be "a Lady," which we doubt; she certainly is not a gentlewoman.

Australia and its Gold Fields (Ingram), is an account by Mr. Hargreaves of the manner in which he discovered the great gold field of Australia, of its extent, as at present ascertained, and of other matters relating to the subject. To those who are interested in so great a question the statements made by the author will be most valuable, considering that they are incontestably authentic; at the same time his opinions will be received with the respect due to those of a man who, although not pretending to science, has unquestionably a most extensive practical acquaintance with the gold fields of California as well as Australia.

Garden Memoranda.

Mr. Gaines' Nursery, Battersea.—In the show-house here a few plants are now in bloom, such as Daphnes, Epacrises, the Winter Heath (Erica hiemalis), Chinese Primroses, Early Tulips, and Tree Carnations, &c. The last, we need scarcely say, are extremely useful for winter decoration, and for supplying "cut bloom." On the middle of the centre table are Camellias, supported on all sides by large specimen Azaleas. Among Rhododendrons, the young plant of R. javanicum, which was shown in such good condition at a meeting of the Horticultural Society in Regent Street last year, promises again to flower finely this season. Several houses are entirely filled with young Pelargoniums, which are very extensively grown here, not only for "furnishing" but also for the purpose of exhibition. Some of the kinds of Pelargonium used here for forcing are already coming into bloom; they consist of Mrs. Johnstone, Gage, album multiflorum, Phyllis, Surpass Napier, Mars, Gauntlet, and a purple seedling. The various variegated kinds, as Attraction, Mountain of Light, &c., were also plentiful. Of scented Pelargoniums, one of the greatest favourites is Odoratum variegatum, a sort with small leaves, margined with white, and very strongly perfumed. The stage of a lean-to house, 70 feet long, was wholly devoted to the growth of Roses in pots, the varieties employed for that purpose here being Fabvier, Abbé Moiland, Cramoisie superieure, Goubault, and yellow Noisette. These are now coming into bloom, and some Moss and Perpetuals have just been placed under glass to bring them on to succeed them. Cytisus racemosus is cultivated in quantity, large pitfuls of it being here in different stages of growth. Being extremely showy, and remaining a very long time in beauty, it is a plant much prized for all purposes of decoration in which hardy greenhouse plants are employed. For autumn "furnishing," Kalosanths are found to be invaluable, and therefore stagefuls of them are grown here for that purpose. Double white and pink Primulas have been blooming very finely, and keep up a considerable amount of gaiety in several of the houses. Calceolarias, Acacia armata, Fuchsias, Myrtles, and Verbenas are abundant here, more especially the latter, of which there are some thousands. Fuchsias have just been pruned, potted afresh, and put into a little heat to start them into growth. Clove Carnations are already in flower; they consist of some of the most forward layers which had been "potted up" from the open ground and placed under glass, and very useful things they are at this season. Hyacinths, Tulips, Double Jonquils, and Narcissi, have been started into growth, and some of the latter are coming into flower. Of rare plants perhaps the most remarkable was Eugenia Ugni, of which Mr. Gaines has a good stock.

FLORICULTURE.

The Chinese Primrose.—Allow me to correct your correspondent "R. M." in his statement that his conservatory is as gay as it well can be, with all the best varieties of this useful flower. That his plants are good, I do not doubt, but as he says that he raises them all from seed every year, I imagine that his collection would be greatly improved if he would grow a few good plants of the double purple and double white, as I think them superior to the single varieties, either for the conservatory or the bouquet; and as they are as easily cultivated as the latter, I am of opinion that no one should be without them. My method of growing them is as follows. As soon as the plants have done blooming, which is in the latter part of March, or beginning of April, I place them in any cool pit or house for two or three weeks, to renovate them after their exhaustion from blooming. I then examine them, and select what shoots I want to propagate for my next year's stock, but instead of cutting them clean off the plant and striking them singly, as is recommended by some, I layer them in the same way as Carnations, &c., are done, rounding the pot well up with light sandy soil, or pure sand, and watering with a fine-rosed pot until it is well settled. I then place them in any close frame, or propagating house, until they are well rooted, which they will be in a few weeks, and ready to pot off; the largest and best rooted I put into 3-inch pots, and the others in proportion, but always taking care never to over-pot them, as they do better under than over-potted, and never to shift them into larger pots after September. The soil I use is composed of one-half leaf mould, and one quarter each of loam and peat, the whole being well incorporated with small charcoal and sand. *R. F. S.*

Tree Carnations.—Few plants of comparatively recent introduction have proved more useful than these have done. I have a collection of them in flower now, as indeed they have been all through the winter. For supplying cut blooms they are invaluable. They are easily propagated by cuttings, which should be made of half-ripened wood, like the show varieties, cutting them close off below a joint and removing the lower leaves. March or April will be found the best months for putting in a stock for winter blooming, as they will make excellent plants during summer and autumn. Although they strike readily nearly all the year round if placed in a slight bottom-heat, the most healthy of the old plants should be selected and placed in a warm temperature to excite growth prior to the cuttings being taken off. By following this plan they will be found to strike more freely. The pots should be thoroughly drained for their reception, and a portion of rough siftings or moss placed over the crocks. The compost should consist of one-half light sandy soil and one-half leaf-mould and sand run through a fine sieve and well-mixed together. With this the pots should be filled to within about half an inch of the top, the remainder being made up with sharp sand pressed firmly and slightly watered before the cuttings are inserted. If placed in a slight bottom-heat they will not require any bell-glasses to cover them, for if only slightly shaded during sunny days they will very speedily take root. If any of the Grass should decay it should be removed the moment it is perceived, as it creates damp. As soon as they have become sufficiently rooted, pot them into 4-inch pots, still keeping them in a warm moist atmosphere, and stop them, in order to form them into compact bushes. As soon as they have again filled the pots with roots, give them another liberal shift into 7-inch pots, still keeping them in a warm atmosphere, and using the syringe freely until they have got quite established, when they should be gradually hardened off, and finally placed in a cold frame, where they may remain during the summer months. Except potting, stopping the shoots, which should only be done when the wood is in a half ripe state, neatly tying the shoots as they progress, watering when required, frequently overhead, and occasionally stirring the surface-soil, nothing will be needed during the summer and autumn. I have, however, found green-fly troublesome at times, but if the water-pot is frequently used overhead but little need be feared either from them or red spider; if they happen to be attacked by mildew, apply sulphur as soon as it is perceived. When cold damp weather sets in, remove them to the greenhouse or conservatory, where they will come into bloom in succession during the whole of the dull winter months; after they have done flowering, select the most healthy cuttings—the old plants should be cut down for another year or thrown away. The stopping should always be regulated by the time when they are wanted to be in blossom—for instance, for early winter flowering the plants should not be stopped after July, and so on; if the plants are well ripened by autumn, they may, by a little additional heat, be had in flower whenever they are required. The soil best suited for their culture is maiden loam, leaf-mould, rotten cow-dung, and silver-sand, to which may be added a portion of mortar rubbish, in order to keep the soil porous; manure-water, with occasional waterings of soot-water, will be found beneficial during the growing and blooming season. *B.*

Propagating Camellias: *J H.* They are increased by inarching, grafting, and budding on the single red and Middlemas red, cuttings of both of which strike readily. These latter should be taken off in August or September, as soon as the young shoots are ripe. They are prepared by being cut through horizontally at a joint, or better taken off with a "heel," divesting them of a few leaves at the base, and potting them in sand.

Miscellaneous.

Preserved Vegetables for the Crimea.—The appearance of scurvy and dysentery among our forces at the seat of war, and the difficulty of procuring fresh vegetables there, has led to an inquiry at the Army Medical Department as to the best mode of preserving Potatoes, Carrots, Turnips, and other common vegetables. The result has been that a large quantity, preserved by the process of Dr. Verdeil by the house of Morel and Co., of Paris, has been sent to the Crimea. It may be interesting, therefore, to give some account of the process, which is remarkable for its simplicity. It has been long known that vegetables which have been dried with such precaution that they only lose on desiccation the water they contained, return to their natural state on being cooked in water. The unresolved difficulty was to preserve them in the dried state unalterable, for dried plants, like hay, decompose after a time by a slow fermentative process, which gives rise to a peculiar odour. Messrs. Masson and Challet proposed to compress dried vegetables powerfully, and so form them

[illegible], very hard and compressed, in order to diminish as much as possible the surface in contact with the air. But it was soon discovered that this method did not suffice, and that the vegetables so preserved acquired an unpleasant odour and taste. Dr. Verdeil, attributing the cause of the fermentation to the presence of fermentable principles, and to the non-coagulated albumen existing in fresh vegetables, which simple drying leaves untouched, adopted the following process. The fresh vegetable is cooked completely and almost instantaneously by the action of steam pressure. This rapid coction without water does not alter in any way the form or colour of the vegetable, and does not remove either its flavour or its juices; but its vitality is destroyed; its albumen being coagulated can no longer act as a ferment; its fermentable principles are themselves destroyed by this coction at a high temperature. It is then sufficient to dry the vegetable so cooked in a forced current of air. Once dry, it remains unalterable, and may be preserved indefinitely, provided it be protected from water and excessive moisture. We have eaten vegetables preserved by this method, after being boiled in the ordinary manner, and have not been able to detect the slightest difference between them and fresh vegetables. The soup *à la Julienne*, made from a mixture of Carrot, Turnip, Cabbages, and French Beans, is admirable, and will form a most comforting diet for our soldiers. The Potatoes are also excellent. *Medical Times.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Nothing adds to the interest of a collection of plants like cleanliness and neat orderly arrangement; therefore see that the foliage of any of the specimens is not disfigured by insects or filth, and let the pots and everything about the house be kept scrupulously clean. Indeed, the gardener who studies his own interest will give his best attention to these little matters, especially in the show house, for the finest specimens lose half their interest unless they are kept clean and trim. Where necessary, let the foliage of Camellias, Oranges, and such like broad-leaved plants, be carefully washed, and get this done before the blossoms begin to open, as it cannot be done afterwards without injuring them. It is only in very bad cases that it will be necessary to resort to the tedious process of washing the foliage by hand, for a timely application of warm water from the engine or syringe will generally prevent scale, and keep the foliage clean. Cold Pits.—Look over your stock at the earliest convenience, comparing it with your wants, and remove to a growing atmosphere at once such as it may be necessary to propagate extensively. Healthy young wood of Verbenas, Anagallises, and most bedding-out plants root very freely in a mild bottom-heat of about 70°, and soon form nice plants. It is very important, however, that a good stock of cuttings be provided as soon as possible, so as to allow of getting them rooted, and the plants removed to cold frames, thus making room for other things in the propagating house, and securing strong plants, properly inured to the weather by turning-out time.

FORCING DEPARTMENT.

Pineries.—Where leaves and tan are used for affording bottom-heat, a stock proportionate to the demand should be provided the first opportunity, storing the leaves as much out of the way of wet as possible, and the tan in an open shed, allowing it to heat sufficiently to drive off the superfluous moisture it may contain. This prevents its heating excessively when used, and it also lasts much longer, and affords a more regular heat when it can be had rather dry before using. Some of the most forward of the plants for fruiting will probably now be wanted to be showing, and in this case the bottom heat should be increased to about 85°, giving sufficient water to the soil to nicely moisten it, but avoid in this respect the error of many persons, who in their anxiety to get their plants to show at the desired time injure their roots by too much heat. Maintain a sweet moist atmosphere to these and plants swelling their fruit, and take advantage of bright days to dew the plants over with the syringe, and let the temperature rise considerably above the mean. Vineries.—Be careful with houses where the Vines are advancing towards flowering, and maintain a regular temperature, for any check now would be serious. It will not be safe to let the night temperature sink much under 60° after the bunches are perceptible, and 65° should be secured by day, allowing it to rise 10° or 15° with the assistance of the sun. See that the roots are at least properly protected from the vicissitudes of the weather; and if fermenting material is used to warm the border, endeavour to secure a steady heat from it by frequent turnings, and adding fresh materials as may be necessary. Proceed slowly with houses that have just been closed for forcing until the buds are fairly started, maintaining a moist atmosphere either by means of a bed of fermenting materials inside the house or frequent syringings. Let the temperature range from 45° to 50° at night, and from 55° to 65° by day according to the state of the weather. Peaches.—Where the trees are in flower, or the buds beginning to open the syringe should be laid aside, and anything like heavy syringing should not be practised after the buds become prominent. Until the fruit is fairly set, the night temperature should not exceed 50° by means of fire-heat. Take every opportunity of giving fresh air after the buds become prominent, and do this freely on fine days; for there is no chance of getting the blossom strong, or the fruit to set well in a close atmosphere. Strawberries like Peaches require abundance of fresh air and a low temperature until after the fruit is fairly set; for plants being started 45° at night and 50° will be sufficiently high by artificial means, and a little air should be admitted at all times when it can be safely done. If the roots can be afforded a mild bottom-heat without the plants being placed too far from the glass, this will be of great service in inducing a healthy root action. Water with tepid weak manure water. A further portion of the plants to succeed those in heat should be removed to the protection of a cold frame, selecting the strongest plants.

FLOWER GARDEN AND SHRUBBERIES.

Push forward alterations as rapidly as possible while the weather is favourable for such work, and get all planting, &c., finished as quickly as possible. Where it can possibly be done, alterations affecting the removal of large trees and shrubs should be done early in autumn, when transplanting can be done with less risk than at any other season. Also get ground intended for fresh plantations prepared without loss of time, for the longer planting is delayed after this season the more care and expense will be necessary to ensure success. Be careful to secure everything, whether large or small, against the wind, and do not delay this until the plants get blown about and injured after planting. Get plants on walls pruned and nailed, leaving Tea Roses, or anything liable to be injured by the frost to be done in spring after the danger of severe frost is past. See to getting in a stock of briars for next season's budding where this is not already done. Also look to the protection of tender varieties of Roses, or such as have been found not to stand a severe winter uninjured without protection.

HARDY FRUIT AND KITCHEN GARDEN.

Proceed expeditiously with the pruning and nailing of wall trees whenever the weather is favourable for such work, and get the young wood of Peaches and Nectarines unnailed, for if the mild weather continues much longer these will soon be on the move. Pear trees that are infested with scale should be unnailed and painted with a mixture of soft soap and soot, rubbing it well into the crevices of the bark, and if a little clay is added to the mixture it will render it less liable to be washed off by rain. In cases where the scale has been some time established, as much of it should be removed before painting as can be done by means of a very hard brush, or by scraping the bark where this can be done without injuring the buds. Take advantage of frosty mornings to get manure wheeled upon the quarters where it may be wanted, and get all vacant ground dug or trenched as soon as circumstances will admit, throwing it up rough in order to expose the largest possible surface to the action of the weather. Look to Peas that have broken the ground, and protect them from birds, &c. Also get in a farther sowing for succession, or to replace those that are above ground in the event of their getting cut off by the weather, which may happen. Attend carefully to Lettuce, Endive, and Cauliflower plants, &c., under glass, exposing them freely to air on fine dry days, and dust a little fresh lime or soot among them occasionally.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Jan. 11, 1855, as observed at the Horticultural Gardens.

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain.
Friday 5	16	30.132	30.062	51	40	45.5	46	46	S.W.	.00
Satur. 6	17	30.361	30.240	50	41	47.0	46	46	S.W.	.00
Sunday 7	18	30.530	30.428	49	42	45.5	46	46	S.W.	.00
Mon. 8	19	30.464	30.343	49	41	45.5	46	46	S.W.	.00
Tues. 9	20	30.465	30.283	50	28	39.0	45½	46	W.	.02
Wed. 10	21	30.525	30.495	39	27	33.0	45½	46	N.E.	.00
Thurs. 11	[illegible]	30.525	30.457	38	29	33.5	44	45	N.E.	.00
Average.		30.420	30.324	46.4	35.8	41.1	45.6	45.8		.02

Jan. 5—Fine; very fine; overcast.
— 6—Uniformly overcast throughout.
— 7—Overcast; densely clouded; overcast.
— 8—Lightly overcast and fine; densely overcast at night.
— 9—Fine; overcast; slight rain at night; frosty.
— 10—Foggy throughout; dense fog at night.
— 11—Slight frost; foggy; densely overcast.

Mean temperature of the week 5½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Jan. 20, 1855.

Jan.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 14	42.4	31.0	36.7	16	0.90 in.	4	4	4	3	3	6	2	3
Mon. 15	41.5	29.5	35.5	10	0.54	3	4	3	3	3	6	4	3
Tues. 16	41.6	31.8	36.7	16	0.34	—	7	5	1	5	6	3	2
Wed. 17	42.5	31.0	36.7	10	0.48	3	5	2	3	2	8	3	3
Thurs. 18	42.3	31.2	36.7	12	0.55	1	3	1	3	4	10	4	3
Friday 19	42.6	30.7	36.7	12	0.58	4	2	4	1	5	7	5	1
Satur. 20	41.8	30.8	36.3	11	0.65	4	6	4	1	5	6	2	1

The highest temperature during the above period occurred on the 19th, 1828—therm. 60 deg.; and the lowest on the 19th, 1838—therm. 4½ deg. below zero.

Notices to Correspondents.

Australia: *A Sub.* Pack seed intended for this or any other distant colony in coarse canvas bags, and get them conveyed in a cabin where they have plenty of ventilation. You will not get Madras Beans in Europe.

Books: *Diss.* Thanks for the suggestion. Hereafter we will do so, whenever we know, which is not always.

Cucumber Pit: *A G.* We see no objection to the plan, provided the walls, constructed as you describe, can be made to stand. Mills on the Cucumber is a very good book; so is Mearns' little treatise.

Datura ceratocaulon; *A R.* has great difficulty in raising seeds of this plant, and begs for advice.

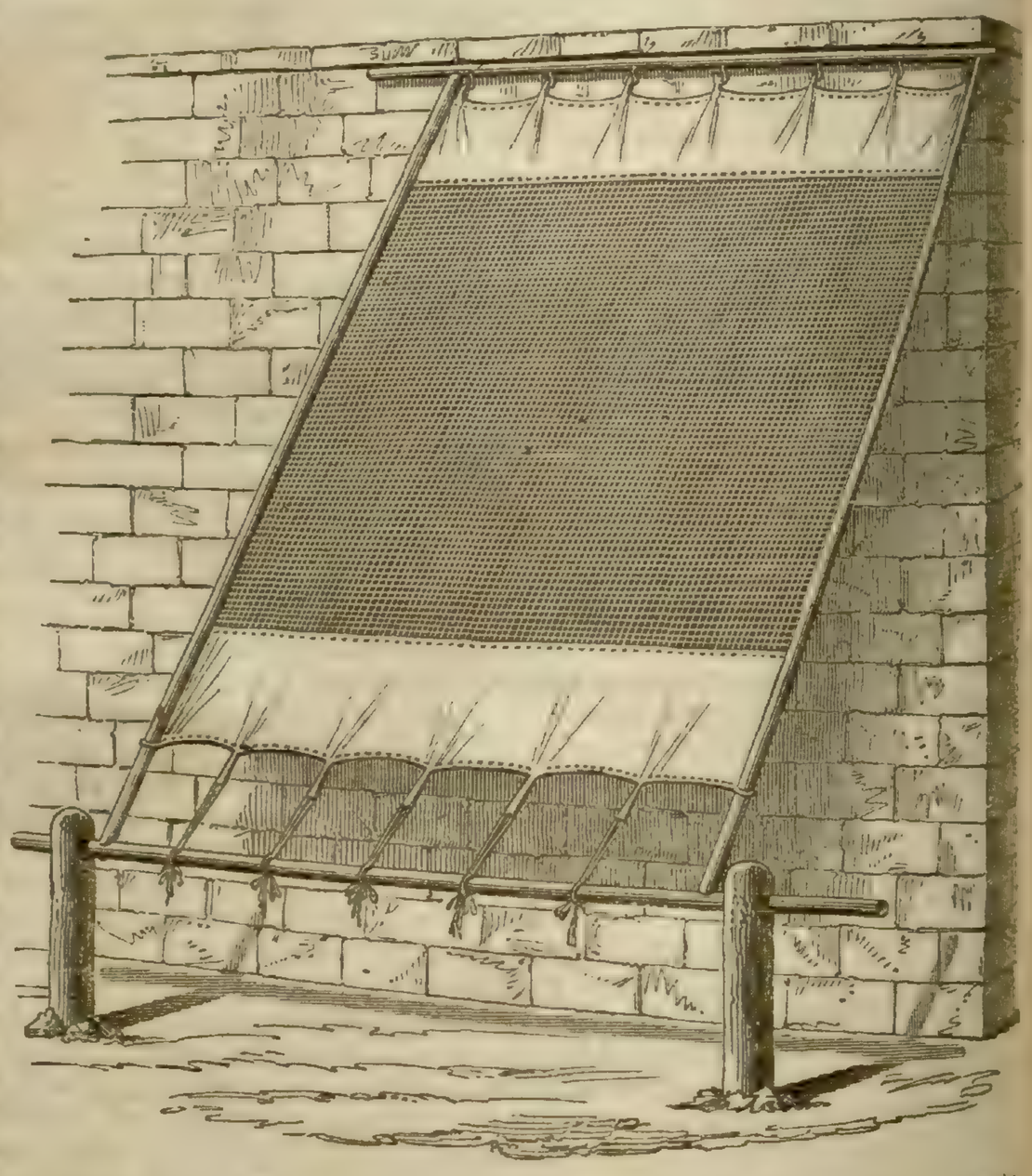
Gooseberry Caterpillars: *G L.* You will find ample information respecting the best means of destroying these given at pp. 453, 469, and 485 of our last year's volume. White Hellebore powder, if *good*, is the most certain.‡

Names of Plants: *E H.* The fragments seem to belong to some Thunbergia—perhaps T. Hawtayneana or coccinea. *J. P.* Eriobotrya japonica; the Pear is the Chaumontel.—*A S.* Lonchocystis sepulta, J. Sm., *aliàs* Polypodium sepultum, Kaulf., native of tropical America. *S.*—*G A.* Adiantum Capillus Veneris. The frond sent exhibits a very curious case of metamorphosis, tending to confirm the view entertained by Dr. Lindley, and given in the "First Principles of Botany," that the sporangia of gyrate Ferns were "modified leaves." In the present case the fringe consists of minute clusters of young plants, which are produced on the apices of the veins or the under margin of the lamina of the frond, and therefore occupying the place where sporangia would be produced under ordinary circumstances; but in this case a metamorphosis has been induced through the plant having been growing under a bell-glass. The specimen was much shrivelled before it reached us—nevertheless some traces of imperfect sporangia were observed; but further investigation is required by the examination of the "fringe" in its most nascent state. *S.*

Peach Walls: *A S.* Hartley's rough plate is the best glass for all horticultural purposes. If you write to Messrs. Hartley, Sunderland, they will tell you of whom in the west of England you can procure it.

Progress of Horticulture in the United States. *S.* Such a letter should have been authenticated by your signature, &c. We do not object to gardeners going to the United States. You quite mistake us. What we do object to is taking upon ourselves the responsibility of recommending them to do so.

Protecting Walls: *Sigismund.* The plan of covering by means of woollen netting is coming into general use—by way of trial. We give once more the woodcut and explanation, for the benefit of yourself and other new subscribers. They are as follows:—A rod is placed horizontally beneath the coping of the wall. Another horizontal rod is fixed upon posts 3 feet from the bottom of the wall, and 18 inches from the ground; the two horizontal rods are connected at intervals by slight



braces or rods, as is shown in the woodcut. A covering is prepared by sowing woollen netting, on its upper and lower edges, to coarse calico, is then attached to the upper rod by loops and to the lower by pieces of tape; when the protection is complete. Mr. Harrison, of Snelstone Hall, near Ashbourne, Derbyshire, who has tried the plan, states that the cost of the worsted net (which is 2 yards wide), is 1*s.* 8*d.* per yard running. The calico 1 yard wide is 2*d.* or 2½*d.* according to quality. The calico when used is slit down the middle, and one half being sewed to the top, and the other to the bottom of the net, the covering becomes 3 yards wide. The tape and making up he finds of small cost, while of poles he has abundance of no value. The whole together in London, where every article has to be purchased, ought to be under 2*s.* 6*d.* a yard running, including making and putting up. The advantages of this netting are very great; it is fixed up and taken down in two or three hours, set up when the blossom cannot longer be kept back, and remains permanently fixed, until taken down about the latter end of May, when all danger from frost is over.

Red Spider: *S B.* The best remedy for this pest is to paint your Peach trees over now with a mixture of sulphur, soft soap, and clay, brushing it well into all the crevices, so that the whole of the wood may be covered.‡

Rhododendrons: *Ten Years.* Cut them down just *before* the buds begin to swell in the spring.

Rhodoleia: *An Old Sub.* We believe this plant has not yet flowered in Europe. It is a glorious thing. Its right mode of culture is not certain: but we apprehend it *must* have artificial warmth—though not stove heat—in winter.

Tanks: *An Old Sub.* They should be constructed of slate. Iron rusts and lead corrodes by the action of the carbonic acid dissolved in water; the purer the water the more it corrodes. But why will cement crack? It ought not, if good and skilfully used—unless the tanks are pierced by metal pipes, or subjected to great variation of temperature.

Woods and Forests: *J P.* We regret to say that the language of your letter makes it quite impossible to print it. Such a letter would probably lose you your place, and prevent your getting another.

Misc.: *T B F.* Four of the numbers required to complete your set are out of print; the others may be had.

THE LONDON MANURE COMPANY beg to call the attention of Agriculturists to their WHEAT and CLOVER MANURES for present use. The London Manure Company also offer Genuine Peruvian Guano, Nitrate of Soda, Concentrated Crate, Superphosphate of Lime, Fishery and other Salts, and all Artificial Manures of value. The London Manure Company guarantee Peruvian Guano and every Manure they supply to be strictly genuine. EDWARD PURSER, Sec.
Bridge Street, Blackfriars.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
WM. INGLIS CARNE, 10, Mark Lane, London.

SEWAGE CHARCOAL MANURE.—This highly fertilising Manure, which is Peat Charcoal completely saturated with London Sewage, will be found most efficient for every species of crop; more especially for Peas, Beans, Turnips, Mangold Wurzel, and other root crops. It will produce a greater return for the outlay than Guano or any other Manure at an equivalent value: it also possesses the property of retaining its fertilising power longer than other Manures now in use. It may be obtained at the SEWAGE MANURE WORKS, Stanley Bridge, Fulham, at 4*l.* per ton, and in quantities less than half a ton, at 5*s.* per cwt., for ready money only; and in quantities not less than a ton, will be delivered at the London Termini of the Railroads free of charge for cartage. No charge for sacks.
It may also be had from Messrs. G. GIBBS & Co., 26, Down Street, Piccadilly, Agricultural Seedsmen, Agents for London; and from all the other Agents of the Company.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*
Office, 69, King William Street, City, London.
N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch.
Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

JOHN MORREN, GENERAL COMMISSION AGENT, Ock Street, Abingdon, is open for Commissions for the sale of Agricultural Implements, Manures, Seeds, &c., and for the purchase of Corn, &c.

PHILLIPS' PATENT.

THE PRIZE PULPING MACHINE of the Royal Agricultural Society's Show, held at Lincoln, July, 1854.
The First and only Prize ever offered by the Royal Agricultural Society for the best Machine for reducing Roots to a Pulp was awarded to the Machine Invented and Exhibited by FREDERICK PHILLIPS, of The Hall Farm, near Brandon, Suffolk.
FREDERICK PHILLIPS begs to inform the trade that he is prepared to grant Licenses for the making of these Machines.

CLAYTON, SHUTTLEWORTH, AND CO.'S PRIZE PORTABLE STEAM-ENGINES, AND COMBINED THRASHING, STRAW SHAKING, RIDDLING, AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as thrashed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.
C. S. and Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading agricultural shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

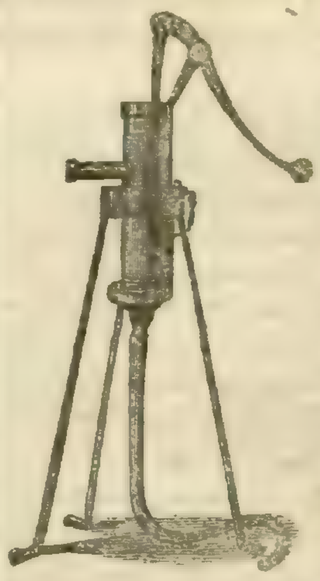
WATERPROOF PATHS.—BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

STEPHENSON AND PEILL, 61, Gracechurch Street, London, and 17, New Park Street, Southwark, Manufacturers of Copper Cylindrical and Improved Conical Iron BOILERS, and Conservatory and Hothouse Builders, either in Wood or Iron, respectfully call the attention of the Nobility, Gentry, and Nurserymen to their simple but efficacious method of warming Horticultural and other Buildings by Hot Water.
From the extensive works they have executed, references of the highest respectability can be given, and full particulars furnished on application.

"FRIGI DOMO."—Patronised by her Majesty the Queen, Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, and Mrs. Lawrence, of Ealing Park.
"FRIGI DOMO," a Canvass made of prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, and from attacks of insects and morning frosts. To be had in any required length, upwards of 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.
1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.
May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2¾ „	long 3 „ 3 „		1	15	0
3 „	ditto 3 „ 6 „		2	12	0
3½ „	ditto 3 „ 6 „		2	18	0
4 „	ditto 3 „ 6 „		3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto ditto	ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

THE LANDS IMPROVEMENT COMPANY, INCORPORATED BY SPECIAL ACT OF PARLIAMENT FOR ENGLAND AND SCOTLAND.—To Landowners, the Clergy, Solicitors, Surveyors, Estate Agents, &c.—Loans may be contracted for the execution by the proprietor or by the Company of every landed improvement, especially Drainage, Building, Clearing, Enclosing, Warping, Irrigation, Embanking, Reclamation, Roads, Planting, Machinery, &c. The plans (of buildings), specifications, and estimates are prepared by the proprietors, and are submitted to the approval of the Enclosure Commissioners. Proprietors may avail themselves of the powers of the Act to recover from the inheritance their own funds to be expended on improvements. They may also apply jointly for the execution of a mutual improvement, such as a common outfall, &c. For forms of application, &c., apply to the Hon. WM. NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

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Empowered to execute, or to assist Landowners in executing with their own Capital and by their own Agents works of Drainage, Irrigation, Road-making, Enclosing, Reclaiming, and the Erection of Farm Buildings upon any Estates, under Settlement, Mortgage, or Disability, and without any investigation of Title, to charge the total amount of the outlay and expenses upon the property improved, to be repaid by annual instalments, varying according to the number of years over which Landowners may determine the repayment shall extend, within the limits of 31 years for Farm Buildings, and 50 years for Drainage, Roads, and other Improvements. WILLIAM CLIFFORD, Secretary.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

The Agricultural Gazette.

SATURDAY, JANUARY 13, 1855.

MEETINGS FOR THE ENSUING WEEK.
THURSDAY, Jan. 18—Agricultural Imp. Society of Ireland.

THE "Markets Improvement Committee" have determined that Friday, the 26th January, shall be the first business day at the NEW MARKET IN COPENHAGEN FIELDS, but we believe it is their intention formally to open it on the previous Wednesday. The time allowed them by the act of Parliament expires on the 1st of February, so that they cannot delay beyond the 26th. The works are in a state of great forwardness, and there will be no difficulty in obtaining the necessary certificate of one of H. M. Secretaries of State as to the fitness of the place, before the day determined on.

Upwards of 30 acres of ground are occupied by the various market places, buildings, lairages, and abattoirs. About 35,000 sheep will find accommodation in the pens; 6600 bullocks can be tied to the railing; 1400 calves, and 900 pigs have standing ground under the shelter of their respective markets. Lairage is provided for 8000 sheep and 6000 bullocks. Slaughter-houses are already partly erected, and more will be built; and a dead meat market is in process of erection. We shall next week give an engraving exhibiting in perspective the general arrangement of the several parts, with descriptive remarks on each, and on the improvements upon Smithfield which they present. Monday, the 22d January, will be the last day of the great Metropolitan Smithfield Market.

A GOOD deal of discussion has been excited by a proposal of Mr. MECHI that the London Farmers' Club should merge into or become the germ of an institution on the model of the great London political or professional clubs; and that the Agriculturist Club should take its place among the United Service, University, Athenæum, and others. It is plain that this would be more than a modification, or even a re-creation, of the existing society; it would be the cessation of the London Farmers' Club, and the commencement of an altogether different institution. The club which Mr. MECHI wishes to see established may be a very desirable thing, and there may be room for it among the other metropolitan institutions of the kind, but there is no reason on that account why the existing discussional society, assembling once a month at York Hotel, Blackfriars, should cease to hold its meetings, or to perform any other of its functions. The two objects are entirely distinct, and are not likely to be united in any institution of the kind which Mr. MECHI indicates.

THE wayfarer in the midland counties must frequently have been struck with the strange and wild appearance presented by hollows and excavations which he often meets with, especially on the east side of the river Severn. These, as they are scooped out of the side of some slight eminence, or occasionally forming a deep pond near some road-side, as at Henwick, Powick, and various places in Worcestershire, at present excite attention by the wild shrubs and flowering plants which fill up the dry hollows or surround the water-filled banks, thus forming spots to which the botanist is often attracted.

The advance of vegetation about most of these excavations attests that it is now some time since they were made, and a moment's thought upon their origin shows that they belong to a forgotten use or a worn out institution. The name of "Marley Hole," which these pits usually bear amongst the cottagers, not only reminds one of the uses to which the contents of these pits were applied, but suggests a few notes upon the use of marl of practical importance.

Fifty years since marl was considered, not only as a manure, but almost as *the* manure, and so much was its use extolled that landlords and farmers made search for marl with as much industry and circumspection as are now employed in seeking for *guano* or *coprolites;* and the possession of a marl pit, without reference to the quality of the marl, was, indeed, a great recommendation in taking a farm or purchasing an estate.

Mr. YOUNG, an agricultural writer of note at this period, says, "All farmers who have marl under their fields, and do not make use of such as a treasure, are to be condemned. In some counties it is the common manure, and almost everywhere to be found when dug for; in such places the farmers have nothing to do but resolve on the undertaking: they all acknowledge the expediency of the work, and seldom dispute the great profit of it, but in other parts the knowledge of marl is very confined."

In the Rural Economy of Norfolk, Mr. MARSHALL, a writer of the same time, says, "Marle has been so long in use in that district that there are few farms without marle pits upon or near them, so that searching for marle is at present seldom requisite, and the art of discovering it not much studied." He adds, "The herb Coltsfoot (*Tussilago farfara*) abounding on the soil is considered as an indication of a jam of marle being situated near the surface."

Now if we consider marl as being an argillaceous deposit, having a tolerably large admixture of lime, we shall not be surprised at another remark by the same author, where he says: "Time and accidents, or intentional researches, have not failed to discover beds of marl in almost every estate, and, in some places, on almost every farm, situated sufficiently near the surface to be worked with advantage." Here, then, the geologist will at once conclude that the marls of different counties may exhibit wide differences, according to the formations whence they are derived. For example, in Worcestershire, the marl pits have been excavated in the Keuper marls, the upper division of the new red sandstone. In Gloucestershire there are now abandoned marl pits in the

lower lias shales, and in Wiltshire the Oxford Clay in the northern parts of the county, and chalk marl in the south, have furnished this ingredient.

Inasmuch, therefore, as marls in different parts of the country vary as to geological position, so we may expect them to differ in chemical constitution; and though as yet analysis of marls which have severally been used for manure is, to a great extent, a desideratum, yet the following analyses, the two first by Professor WAY and the third by Professor VOELCKER, will sufficiently illustrate our present position. These are examples of marls analysed after their value as manure has been long tested in their respective districts; but in the present day we may go further, and determine the value of a marl before the expense of digging, carriage, and trial, has been resorted to.

	PROFESSOR WAY'S ANALYSES.				3. MALM FROM WILTSHIRE.
	1. FOSSILIFEROUS GREEN MARL.		2. GRAY MARL OR MALM.		
	Soluble in dilute Acids.	Insoluble in dilute Acids.	Soluble in dilute Acids.	Insoluble in dilute Acids.	By DR. VOELCKER.
Silicic acid (silica) ...	31.88	22.06	2.16	16.68	...
Carbonic acid	undetermined.	...	29.16	...	...
Sulphuric acid	.45	...	0.21	...	1.546
Phosphoric acid	3.76	...	0.21	...	.242
Chlorine	trace	...	0.08	...	traces
Lime...	5.61	1.52	41.52	1.71	40.757
Magnesia ...	.85	1.09	.30	a trace	.825
Potash	3.21	.45	.26	.32	traces
Soda	1.20	.31	1.64	.07	traces
Protoxide and peroxide of Iron ...	16.91	5.75	2.20	5.57	.780
Alumina	.74		.11		

Note.—No. 1 is from the green sand formation.
2. Chalk marl "extensively applied as a manure."
3. Probably chalk marl, used largely by farmers, who apply it in a powdered state both to pasture as to arable lands.

Now these examples of marls still used show a large percentage of such important matters as phosphates and the alkalies to which their efficiency as manure is mainly due, and consequently where these are absent marls can only act as mechanical ameliorators. Now from their general sterility, where unmitigated by accidental admixture, we know that marls of the Keuper, the lias, and the Oxford clay must be deficient in fertilising properties, which in itself explains the reason for abandoned marl pits and neglect of marling in Worcestershire and Gloucestershire; whilst, on the contrary, the very fact of marling being, even in the present advanced state of agriculture, still followed out in parts of Wiltshire, and with advantage, would lead to the conclusion that the marls in the latter districts contained some important fertiliser, and chemical examination has proved this to be the case.

Some time since, in company with Mr. R. S. MASKELEYNE, the Reader of Mineralogy in the University of Oxford, we examined a large marl pit now being worked at Chisledon, Wilts. The excavation was in the chalk marl of geologists, and towards the bottom of the pit was a thin layer of included nodular masses, from the size of a nut to that of a Walnut, and somewhat of the same shape; these, we found upon examination, yielded equal to 40 per cent. of bone phosphate, and we have no doubt were in reality coprolites. Mr. MASKELEYNE subsequently informed us that he had made frequent examinations of the marl with a view to determine the amount of its phosphatic matter, and that in some specimens he had detected 7 per cent. of phosphate of lime, but he estimated the average at 1½ per cent. of this important fertiliser.

From these few remarks we may safely draw the following practical conclusions:—

1stly. It is not true that every marl, as was formerly supposed, is capable of acting as a manure or fertiliser.

2dly. There are some marls exceedingly rich in fertilising ingredients.

3dly. The value of a marl therefore must depend upon its included chemical substances, which can as easily be determined by the chemist as the position of the marl by the geologist; and

4thly. The present abandoned marl pits of Worcestershire and Gloucestershire are an evidence of the folly of expending money and labour on an extensive scale, without first considering the PRINCIPLE upon which the expected good was likely to result. We may also conclude that, though the Worcestershire marl pits have thus become monuments of farming empiricism, those of the chalk marl of Wilts attest that all marls are not alike valueless.

ONE of the most important among recent contributions to our agricultural literature is a translation from the French. Mons. LÉONCE DE LAVERGNE, one of the Professors in the late National Agricultural Institute of France, has published a volume on the rural economy of this country, which is remarkable for the life-like and accurate pictures it presents of our national agriculture, and even of its local peculiarities.*

It is greatly to the advantage of a description when it depends not merely, nor so much, upon well chosen and well ordered words as upon comparisons or contrasts; and the agriculture of the different divisions of France, well known to M. DE LAVERGNE, is, with great emphasis to the lesson he would teach, being continually cited in this work, and presented to the English reader as the standard of comparison by which the merits and the faults of our agriculturists are exhibited. The work is distinguished by its remarkable accuracy and the skilful manner in which its topics are arranged. We may add, too, that it is written in a vigorous, dashing style—more after the fashion of a review article than of a formal treatise.

We shall shortly call the attention of our readers to it more in detail: at present we confine ourselves to a mere enumeration of its contents. The abundant evidence of agricultural development exhibited in the Crystal Palace in Hyde Park astonished foreigners even more than the proofs of our commercial and manufacturing ascendancy: for the latter they were prepared—the former, nevertheless, told a perfectly true tale. "English agriculture taken as a whole is at this day the first in the world." What are the causes to which it owes this proud position? That is considered, and most ably, in the first 10 or 12 chapters of the work.

The remainder of the volume is devoted to descriptive notices of agriculture in the southern, eastern, western, midland, and northern counties, in Wales, in Scotland, and in Ireland: and the last chapters of this very interesting volume are occupied with a statement of the origin of Ireland's difficulties, and of the means through which she is emerging from them.

M. DE LAVERGNE has written a work which will be as extensively read in its English dress as in its original French. We shall again direct attention to this volume.

CROSS-BRED SHEEP.

YOUR correspondent, W. P. Ayres, calls attention to the successful crossing of Welsh mountain ewes with a Southdown ram, deducing the inference that the practice of putting a large ram to small ewes is both profitable and commendable. "That the breed of small sheep," he tells us, "should be much improved in size by crossing with larger rams, is quite in the nature of things." True to a certain extent, but the practice ought to be regulated by extreme caution. If, for instance, he reason from analogy that because the produce of a Southdown ram and Welsh ewe is good, therefore that that of a Leicester ram and Welsh ewe must be better still, as being a larger male, I have no hesitation in telling him his doctrine is both unsound and dangerous. I speak feelingly on this point, having once suffered from the experiment, both pecuniarily and mentally, more than just now I am either able or willing to divulge. I was many years since persuaded by a neighbour to join him in the purchase of a lot of Scotch mountain ewes, to which we put (more shame for us!) heavy Leicester tups. Of all the pests that ever afflicted man these Scotch ewes were about the worst. They coursed the country like so many greyhounds. No fence could keep them within bounds. They were a constant torment to all concerned, from master to man. We were, however, content to put up with mere trouble; but worse remains behind. At yeaning time we lost, I am afraid to say how many, of both ewes and lambs, from the very circumstance held out by Mr. Ayres as an advantage—the extra size of the lambs, which occasioned a corresponding difficulty in parturition. True, such lambs as did struggle into existence and live, soon beat their mothers out and out as to size and weight; but their numbers were deplorably few, and I never was better pleased than when I washed my hands of the whole concern—a matter I had no little difficulty in accomplishing—for, to say truth, I was thoroughly ashamed of the transaction from beginning to end, and inwardly resolved never to engage in such another speculation, nor let others do so without duly warning them of the probable consequences. I may be thought to attach too much importance to a mere isolated experiment, and to undervalue that related by Mr. Ayres. All I can say in answer is, that if his Welsh ewes brought forth the usual average number of lambs, with only a fair amount of casualties, on both of which points he preserves, perhaps, a judicious silence, he may consider himself in high luck. Still I contend the principle of breeding from large males is bad; and I am fortified in this opinion by the late Henry Cline, Esq., whose able treatise "On the breeding and form of domestic animals," I had not seen when I made my unlucky experiment, or probably I might have been spared that act of folly. Only mark the words of that accurate and scientific observer. "It has been generally supposed that the breed of animals is improved by the largest males. This opinion has done considerable mischief, and would have done more injury, if it had not been counteracted by the desire of selecting animals of the best form and proportions, which are rarely to be met with in those of the largest size. Experience has proved that crossing has only succeeded in an eminent degree in those instances in which the females were larger than in the usual proportion of females to males; and that it has generally failed when the males were disproportionally large." (P. 4). "To obtain the most approved form, two modes of breeding have been practised; one, by the selection of individuals of the same family, called breeding in-and-in; the other, by selecting males and females from different varieties of the same varieties of the species which is called crossing the breed. When a particular variety approaches perfection in form, breeding in-and-in may be the better practice, especially for those who are not well acquainted with the principles on which improvement depends. When the male is much larger than the female, the offspring is generally of an imperfect form. If the female be proportionally larger than the male, the offspring is of an improved form: for instance, if a well-formed ram be put to ewes proportionally smaller, the lambs will not be so well-shaped as their parents; but if a small ram be put to larger ewes, the lambs will be of an improved form. The proper method of improving the form of animals consists in selecting a well-formed female, proportionally larger than the male. The improvement depends on this principle, that the power of the female to supply her offspring with nourishment is in proportion to her size, and to the power of nourishing herself from the excellence of her constitution. The size of the fœtus is generally in proportion to that of the male parent; and therefore, when the female parent is disproportionately small, the quantity of nourishment is deficient, and her offspring has all the disproportions of a starveling. But when the female, from her size and good constitution, is more than adequate to the nourishment of a fœtus of a smaller male than herself, the growth must be proportionately greater. The large female has also a greater quantity of milk, and her offspring is more abundantly supplied with nourishment after birth." (P. 7—9). The following observations are so judicious, and bear with such force on the case mentioned by Mr. Ayres, that I cannot resist transcribing them:—

"It may be proper to improve the form of a native race, but at the same time it may be very injudicious to attempt to enlarge their size. The size of animals is commonly adapted to the soil which they inhabit. Where produce is nutritive and abundant the animals are large, having grown proportionally to the quantity of food which for generations they have been accustomed to obtain. Where the produce is scanty the animals are small, being proportioned to the quantity of food which they were able to procure. Of these contrasts, the sheep of Lincolnshire and of Wales are examples. The sheep of Lincolnshire would starve on the mountains of Wales. Crossing the breed of animals may be attended with bad effects in various ways, and that even, when adopted in the beginning, on a good principle; for instance, suppose some larger ewes than those of the native breed were taken to the mountains of Wales, and put to the rams of that country, if these foreign ewes were fed in proportion to their size their lambs would be of an improved form, and larger in size than the native animals, but the males produced by this cross, though of a good form, would be disproportionate in size to the native ewes, and, therefore, if permitted to mix with them, would be productive of a starveling ill-formed progeny. Thus a cross, which at first was an improvement, would, by giving occasion to a contrary cross, ultimately prejudice the breed. The general mistake in crossing has arisen from an attempt to increase the size of a native race of animals, being a fruitless effort to counteract the laws of nature." (P. 13.)

A few words on the practice of breeding in and in; or, in other words selecting individuals of the same family, in contra-distinction to the system of breeding from males and females of different varieties of the same species, called crossing the breed. Very strong, and apparently plausible objections used to be raised against the in-and-in system, and I am free to confess that I was at one time of the number of the objectors; but I have since had reason to think I was in error, my chief ground of change in opinion being the system pursued by my friends Messrs. J. and T. Brown of Denver, in Norfolk, with which, as a neighbour and pretty constant yearly visitor, I had ample means of making myself acquainted. For more than half a century has their excellent flock of new Leicesters been managed on the in-and-in principle. They let many scores of tups annually, which are justly held in the highest repute by every one who has made use of them; and yet, strange as some people may think it, Messrs. Brown have never on any occasion gone beyond their own flock for the purposes of its improvement and renovation. In fact, it has now arrived at a pitch of perfection as to form and blood, as to render recourse to any other aid completely unnecessary. I have said thus much on the in-and-in system, under judicious management, because, though not perhaps immediately connected with the main subject under discussion—the supposed improvement of mountain sheep—yet it is indirectly so; and, at all events, is a striking and an authentic proof that it may be adopted, not only with impunity, but with decided advantage. *T., Gloucester, Jan. 4.*

* The Rural Economy of England, Scotland, and Ireland, by LÉONCE DE LAVERGNE. Translated from the French, with notes by a Scottish Farmer. BLACKWOOD and SON, Edinburgh.

EQUIVALENCY OF STARCH AND SUGAR IN FOODS.—By J. B. Lawes, Esq., F.R.S., and Dr. J. H. Gilbert, F.C.S.

(British Association, Liverpool, 1854.)

(Section B: *Read* Saturday, September 23rd.)—*Abstract.*—At the meeting of the British Association at Belfast, the authors had given a paper on the Composition of food in relation to respiration and the feeding of Animals, in which they had illustrated by reference to numerous experiments, that, as our current food-stuffs go, it was the amounts they supplied of the assimilable *non*-nitrogenous, rather than those of the nitrogenous constituents, which measured both the amount consumed by a given weight of animal within a given time, and the amount of increase obtained from a given weight of food. The results which formed the subject of the present communication afforded further illustration of some of the points brought forward in the former one; but these new experiments, like the former ones, had been arranged with reference to certain practical questions, as well as to the more scientific bearings of the subject. Thus, those interested in the growth of sugar had long wished to obtain the introduction of the lower qualities of that article, for feeding purposes, duty free. The subject of the remission of the malt tax, for the same object, had also frequently been agitated. According to the results of the experiments—numerous tables of which were exhibited in the room, and in which the animals (pigs) had been made to rely for about one-third of their total food upon the starch or sugar employed—it appeared that all but absolutely identical amounts of the dry substance of the starch and sugar thus tried against each other had both been consumed by a given weight of animal within a given time, and been required to yield a given weight of increase. The practical identity in feeding value which had from the known chemical relation of the two substances been hitherto assumed, was now therefore experimentally illustrated, and it doubtless only varied in point of fact with their slightly varying per centages of carbon. If, then, sugar have no higher feeding capacity than starch, the relative prices, weight for weight, of sugar, duty free, and of the starchy grains generally used for feeding purposes, would afford an easy means of estimating the probable economy of the use of the former. At the price, including duty, of the coarse Penang sugar used in the experiments, it would cost three or four times as much as the starchy grains at the present time; and it should be remembered that these would also supply a considerable amount of the needed nitrogenous constituents of food. The new results, so far as they could be supposed to apply, considering the difference between cane-sugar and the saccharine matter of malt, were also consistent with direct experiments published by the authors some time since, on the comparative feeding values of malted and unmalted grain. It was true that malt and other saccharine matters might serve in some degree to give a relish to the food, and thus induce the animals to consume more; which, in "fattening," is always a consideration; but this incidental benefit could not counterbalance much increased cost. Indeed, the tendency of all the experiments was contrary to the conclusion that an extensive use of malt for feeding purposes would be such a boon as had been supposed. The proved practical equivalency of starch and sugar in food was also of interest in reference to some other of the views illustrated by the authors in their former papers. Thus it had been shown that a fattening animal assimilated much less nitrogen than had usually been estimated, and that, on the other hand, it might store up very considerably more fat than existed ready formed in its food; whilst this produced fat was doubtless in a great measure formed from the starchy and saccharine substances which constitute so large a proportion of the non-nitrogenous constituents of our staple vegetable foods. It was these, too, which in practice served largely to meet the requirements of the respiratory function, which, it had been shown, under ordinary circumstances, measured to such an extent the amount of food demanded by the animal system.

MODIFICATIONS OF LOIS-WEEDON.

Some time ago a writer in the *Gazette* drew attention to the possibility of growing a summer crop in the intervals of the Lois-Weedon corn tillage; from a failure in such an attempt about 10 years back, I was at the time induced to object to this proposition, and this writer received my objection in good part and with a good grace, as I had found that even with an interval of 3½ feet the Lettuces introduced had been drawn up so as to be useless; the rows of Barley were, however, extremely rank (the straw 5½ feet long). As however such an introduction would evidently be so much gain, I this year determined to try the success of it on a small patch of ground (one-tenth of an acre), in which I was growing Wheat on modifications of Mr. Smith's plan; and I conclude on its feasibility with Turnips, Carrots, and Parsnips which I have tried, and think it will also be found to succeed with Mangold Wurzel, Rape, and open Cabbages, and perhaps with spring Beans, but I should think not with close Cabbages or Potatoes, that is with intervals of only 3 feet. The Wheat ought to be of those kinds having the shorter and stiffer straw; the one I grew was the red-chaffed white, sown after the middle of March, and not reaped till September 30th, which was against the experiments. On June 15th one of the intervals was sown with Sutton's Six-week Turnips; at the time of reaping some of these were from 16 inches to 21 inches in circumference; these are now, November 20th, from 20 to 24 inches, and weigh 4½ lbs. each on an average. On June 23rd the proximate interval was sown with Aberdeens; at reaping some of these were from 10 to 12 inches in circumference; they are now 16 inches, and weigh over 2¼ lbs. each on an average. They only received a dusting of weed-ashes, the ground having been manured the year before. Had the Wheat been autumn-sown, from its earlier removal the Turnips would probably have been now much larger; they might also have been sown earlier.

The further view I had in this experimental patch of ground was to ascertain the effects of some modifications in Mr. Smith's distances; I sowed the Wheat in double rows, 1 foot apart, with intervals of 2 feet and of 3 feet; in treble rows and 3-feet intervals, agreeable to Mr. Smith's plan, and again in double rows, 2 feet apart, with intervals of 3 feet. The produce in the various plans appeared to be pretty equal on equal areas of ground, for the Wheat in double rows 1 foot apart and 2 feet intervals, occupying a breadth of 3 feet, gave an average of 48 lbs. in the straw; add to this one-third to bring it to what ought to be the produce on a breadth of 4 feet, and it would be 64 lbs.; and the double rows, with 3-feet intervals, gave an average of 65 lbs. Add another third to it to bring it to what ought to be a similar produce on a breadth of 5 feet, and it would be 80 lbs., and the treble rows, with the 3-feet intervals, gave 84 lbs., and the double rows, 2 feet apart, with the 3-feet intervals, gave 80 lbs.

In the produce of the grain crop it appears then to be very immaterial whether we have, of course under certain limits, the narrower or wider intervals, but that we have in the wider intervals the advantage of an interlined green crops. With treble rows 1 foot apart there is, however, a great disposition to overlap, and as there appears so little difference in the produce between them and the double rows occupying the same distance of 2 feet, the double rows must on this account, as well as the superiority of their fallow, and the practicability of supporting them by earthing on each side, receive the preference; indeed, I do not know that had the Turnips been tried in the intervals of the treble rows they would have succeeded so well as they did in the intervals in which they were grown, those of the double rows at 1 foot apart.

The intervals of 3 feet may be eligible for the smaller hand-worked plots of the amateur or for labourers' allotments, but on a larger scale, as allowing more room for working the ground wider intervals may be required, say from 3 to 5 feet, and then the corn strips might be widened to 3 or 4 feet. And, perhaps, as I have suggested in a former paper, to permit of the carriage on of manure, and off of crops, in narrow draft carts, the strips of grain may be profitably farther widened, and those of the intervals so as to admit of two rows of Turnips, or so many as may be advisable of other green crops, without such an extension as would forfeit the mutual advantages plants of different composition may derive from their proximity.

I would remark that the strips of Wheat, between which were the Turnips, were in no way inferior to the adjacent ones; but some care was required in the reaping to lay the Wheat lengthways of the strips. *J. M. Goodiff.*

FLAX CULTURE IN IRELAND.

The soil best suited for Flax is a nice dry loam, not too light, and yet not of a clayey nature. The land should be drained and free from weeds; much damp injures the crop, and a quantity of noxious plants rising with the Flax will materially check its perfect development.

In Belgium, Flax is usually sown after Oats, but my experience, and that of my neighbours in this climate, is decidedly in favour of sowing after Wheat. The rotation I should recommend, and what I usually practise, is to break up lea ground in Oats, followed next year by Potatoes and Turnips, &c. Fourth year Wheat, the one-half laid down with Clover and Grass-seeds. Fifth year, Flax (¼), Beans (¼), and Clover (½). Under this rotation, on a farm of 100 acres, the crops would stand thus:—

Grazing	20 acres.
Oats	20 "
Potatoes, Turnips, &c.	20 "
Wheat	20 "
Flax (5 or so), Clover-hay (10), and Beans (5 or so)	20 "
	100

Of course this rotation is subject to frequent modifications, such as stealing a crop of Turnips after early Potatoes, and taking vetches of Rape before late Turnips. Some people might wish for more Flax and others for less; this can be varied at discretion, provided it does not come oftener than once in 10 years on the same soil. It is great folly to put in Flax the first year after a Potato crop; the plant grows too rank to thrive, and the farmer besides loses the intermediate very profitable crop of Wheat, without any real benefit to counterbalance the sacrifice. This folly is sometimes committed by ignorant farmers who think Flax an exhausting crop; whereas, a little scientific knowledge explains that if not grown oftener than once in 10 years on the same soil, it is not a severe crop among the usual group and in its proper place, but quite the reverse. In fact, if sown after Wheat, and the ground laid down with Clover and Rye-grass, it is really an extra crop, grown without manure, and in no way interfering with the Oat crop that usually follows hay or grazing.

Too often the profits of the Flax crop have been over-rated, and much disappointment caused thereby, among parties who tried the cultivation with only moderate success. For my own part I have never been able to reach the immense profits I hear of and see in print, though I have certainly realised a fair remuneration on all average crops. I mention this that novices may not be misled into the idea of making fortunes *all at once* by Flax cultivation; what I desire is to see it introduced by every agriculturist in Great Britain as a portion of the regular rotation on his farm; and if one-twentieth part of the good arable land in the kingdom was thus regularly under Flax, we would be quite independent of any foreign supply, and would possess a stock of fibre and Linseed that would in many ways contribute to the benefit of both the manufacturing and agricultural interests.

As I have alluded to the important question of profits, I may as well introduce here some statements of the actual cost of Flax cultivation on my own farm, carefully prepared for me by my land-steward; also the result of similar experience of several gentlemen about Belfast, who took the trouble of keeping accurate accounts:—

No. 1. Flax grown on Mr. Charley's farm, one statute acre, considered an average crop:—

Dr.	£	s.	d.
To ploughing 1st, 10*s.* 6*d.*; 2nd, 7*s.*	0	17	6
" one grubbing and two harrowings	0	10	6
" twice picked of weeds	0	2	6
" harrowing seed and rolling	0	1	9
" weeding	0	4	0
" preparing rushes and ropes	0	2	8
" pulling	0	8	0
" rippling and binding	0	12	6
" saving and storing bolls	0	1	2
" cleaning out water pond	0	1	2
" carting to water	0	4	8
" putting in ditto, and fixing	0	4	1
" lifting out of ditto	0	1	2
" carting to Grass	0	4	8
" spreading	0	4	4
" lifting, binding, stooking	0	2	6
" carting home	0	3	6
" stacking and thatching	0	3	2
" carting to mill	0	4	1
" ditto back	0	2	9
" scutching 29¼ stones	1	14	2
" seed, 1 barrel	1	5	0
" rent and taxes, 40*s.*	2	0	0
Total expenses on one acre ...	£9	15	10

Cr.						
By sales, 29½ stones, at 8*s.*	£11	16	0			
Bolls for feeding 30 bushels, at 8*d.*	1	0	0	=	12	16	0
Profit					£3	0	2

No. 2.—Flax grown on Mr. Hunter's Farm, at Dunmurry, 1852, above an average crop:—

Dr.	£	s.	d.
For rent and taxes, 5½ acres (Irish) at 3*l.* 10*s.*, equal to about 8 9-10ths acres statute measure, at 40*s.* ...	19	5	0
For ploughing and preparing ground	13	0	0
For seed	11	0	0
For weeding, pulling, and steeping work, &c.	15	0	0
For scutching at mill	14	10	0
	£72	15	0

Cr.							
By sales, 32 cwt. 10 lbs.	£ 10	17	9				
By ditto, 342 cwt. 21 lbs.	109	6	0	=	120	3	9
Profit					£47	8	9

being 5*l.* 6*s.* 7*d.* per statute acre.

No. 3.—Flax grown on Mr. Coates's Farm at Malone, 1850, a fair crop:—

Dr.	£	s.	d.
To rent of 8 Irish acres, at 5*l.*, nearly equal to 13 English or statute, at 61*s.* 3*d.*	40	0	0
To taxes on same	2	9	3
" ploughing, preparing ground, and sowing	6	12	8
" cost of sowing	19	2	0
" wages for weeding, pulling, and stacking	15	7	9
" rolling, taking off seed, and re-stacking	8	0	8
" commission on sale of seed	1	0	0
" steeping, spreading, and cartage of Flax, cost ...	7	1	10
" To cash paid for scutching at mill	21	12	10
	£121	7	0

Cr.							
By cash received for seed—							
89½ bushls, at 9*s.* ...	£40	5	6				
22 do. kept ...	7	9	0				
By cash received for inferior seed for cattle per flax fibre—							
379 stones of 16 lbs., at 6*s.*	113	14	0	=	161	8	6
Profit					£40	1	6

equal to 3*l.* 1*s.* 8*d.* per statute acre.

This Malone farm is close to Belfast, and the rent is consequently very high for an agriculturist. The price obtained (6*s.*) is rather below the average, and shows the crop was nothing particular in fineness or quality. Mr. Hunter did not save the seed of his crop of Flax, but treated it in the old-fashioned manner, which he thinks most remunerative. Mr. Coates saved the seed for sowing; while my steward took off the seed for feeding purposes only. Both these parties are gentlemen of high standing and probity, and I am sure furnished perfectly correct accounts of their crops and expenses as far as they knew, but I think Mr. H. under-estimated his working expenses a little. *Communicated by Mr. W. S. Hill, of Belfast, to the Journal of the Society of Arts.*

Home Correspondence.

Acreage consumed by Farm Horses.—With all deference to you, I am firm in my conviction that one farm horse consumes the produce of 6 average acres of arable land. If you admit that the cost of a farm horse for his weekly keep is 10*s.* or 26*l.* per annum, the case is at once proved, for M'Culloch, Porter, and Spackman do not allow more for the average gross produce of 1 acre in England and Wales than I stated, and Mr. Lavergne in his recent able and comprehensive volume on "British Agriculture" (translated by a

Scottish farmer), estimates the gross produce at 200 francs per hectare (2¼ English acres), 3*l.* 12*s.* per English acre. This corresponds very nearly with my own estimate made a few years since in a paper I read before the Society of Arts. A farm horse would thus clear 7 acres instead of 6¼, which was my calculation. I will not go into the question whether 72*s.* per acre gross produce is creditable to British agriculture in the 19th century, although I have a strong opinion about it. In a future paper I will again consider the live stock question. *J. J. Mechi, Dec.* 28. [It is a question, we admit, not of what ought to be but of what *is*, but then if we take acres according to their actual and not according to their possible produce, we must take horses not as they ought to be but as they *are* fed. And we don't suppose that on an average farm horses cost nearly 10*s.* a week apiece for food].

Health Commissioners are being established in all towns for the express purpose of examining drains, and making fresh sewers where required to carry off all things offensive either to the eyes or nose—a very proper precaution to prevent effluvia from impregnating the air, arising from decaying vegetable and animal substances so prejudical to life, where in certain states of putrefaction. The removal of such nuisances from the abodes of the working classes will be a boon to them; but to be permanently useful and decrease the amount of cholera, typhus, bowel complaints, &c., &c., a better description of habitations must be erected for the poor to live in, houses or cottages through which the air of heaven may freely circulate, not however through the roofs, broken windows, or crazy doors—rooms large enough for human beings to sleep in with common decency, not dens into which are crammed men, women, and children, so closely packed they touch each other on the floor, the dead often coming in contact with the living. The poisonous gas which these unfortunate creatures are doomed to breathe, when crowded together, is most disgusting. Not only have the labourers and artisans to inhale such a pestiferous atmosphere after a hard day's work, but they are doomed to feed upon unwholesome food in the shape of diseased meat, liberally supplied from the country to the large towns, where it meets with customers, disguised in highly seasoned pies and sausages. The indulgence in this gross food leaves on the palate a craving for beer and spirits, in themselves anything but pure. In addition to all this there is a scanty supply of water for the daily purposes of cleanliness and cooking. It is evident attention to sewage will not remedy the crying evils, under which thousands of industrious men and women are labouring. It must be followed up by attention to other matters so intimately connected with the comforts and respectability of the working classes. No wonder drunkenness and debauchery are prevalent when the whole man is debilitated in body and mind by the horrors amongst which he is compelled to exist. In many cases he flies to the gin palace and beer shop to drown his cares and harden his better spirit against the misery he endures. Frequently the day chosen for his orgies is that set apart as a day of rest from toil, which should be spent in thankfulness for past mercies, as well as supplication for future protection and in innocent recreation after the labour of the week. Our deserted churches speak volumes for the want of precept and example in parents, and watchfulness in pastors. What might not the clergy accomplish by a never-ceasing house to house visitation, not driving but leading the ignorant, obstinate, and prejudiced, to a due observance of higher things, the only true safeguard against vice and wretchedness. *Falcon.*

Blood as Manure.—Can any of your correspondents state what has been proved to be the best mode of applying blood as fresh from a London slaughter-house as a weekly transit into the country will allow? The slaughter-house owner says it is the "only thing he does not turn to account," and has offered to collect it, barrel it, and cart it to the railway. Will its value bear these charges and 30 miles of railway carriage? The country folk do not doubt its being a good thing, but are terribly afraid of its imparting all sorts of diseases to the live stock and the land itself. To meet this risk, it has been proposed to cart it out directly on arrival, and plough it into heavy clay land, with a fair proportion of lime; and by March next to have the land, so manured, ready for Parsnips, Globe, Mangold Wurzel, and Kohl Rabi, all three of which have been produced upon the same kind of land as large and good as want of manure would permit. Is there a cheaper or better way of applying it? *Simplex.* [Your best way of using it is either in compost with earth, turned a fortnight before use on the land, or, as you propose, by direct application to the soil. Dried blood would be worth as much as woollen rags, perhaps rather more; liquid blood may be worth six or seven times its weight of good farmdung.]

Reviews.

Ireland's Recovery; an Essay. By JOHN LOCKE, A.B. J. H. Parker and Son, 445, West Strand.

THE state of Ireland at present is especially satisfactory, not only as regards its social improvement, manifested by the subsidence of political and agrarian agitations, but also by decided progress in its agricultural condition. Among many unquestionable evidences of this twofold amelioration, we have a third publication from the useful pen of Mr. Locke, an official in the Encumbered Estates Court, which places before us facts indicating the degrees in which crime and pauperism have decreased, loyalty and peace advanced, and agriculture, trade, commerce, and manufactures acquired development and expansion, even within the last twelve months. From an official report of the Inspectors General of Prisons, it appears that the number of gaol prisoners throughout Ireland on the 1st January, 1854, was 5,755; the number on the 1st January, 1850, having been 10,967; and in a gradually diminishing series through the intermediate years—less by nearly two-sevenths than in the past year. Taking Limerick, according to Mr. Locke's expression, as "a type" of Ireland—we would limit the typical illustration to the most socially disorganised portions of the kingdom, for there are many counties which have not exhibited political or agrarian crime—we have this gratifying record of amendment:—

COUNTY OF LIMERICK.	Spring Assizes, 1849.	Summer Assizes, 1853.	Summer Assizes, 1854.
Number of Crown witnesses and prosecutors	900	110	84
Number of criminals for trial ...	520	25	19
Of these for murder	11	4	1
In arms, and attacking houses by night	30	0	0
Cattle stealing	63	0	1
Highway robbery	20	0	1

"Ribbonism and offences arising from the competition for land have almost disappeared from the face of the country they had so long disgraced and rendered insecure; and it is a gratifying fact that throughout the vast extent of land, comprising 2,000,000 acres, which has changed hands under the Encumbered Estates commission, only four instances of agrarian crime have occurred since the institution of that tribunal. Whatever be the reader's previous impressions or knowledge of the subject, he will be astonished and pleased at the extraordinary contrast between these two periods (1849 and 1854); nor can any serious mind feel otherwise than deeply grateful to an all-merciful Providence for preserving Ireland intact from taint of crime and disloyalty at the very season when organised disaffection would be most perilous to society and the state."

The tide of emigration is abating, as the necessary result of the rushing efflux which various impulsive agencies have been forcing onward; and it is also turning its course to British North America, whereas the United States and Australia, in a much lesser ratio, had principally been the localities to which it had previously tended. Yet, though there were between 25,000 and 26,000 Irish emigrants fewer in the year 1853 than in 1852, the sum of money remitted in the former year by the pioneer colonists for their relatives to pay for their passage to the colonies considerably exceeded the sum sent in the latter,—the figures being for three years:—

Years.	Number of Irish Emigrants.	Money sent for Passage.
1851	254,537	£ 990,000
1852	224,997	1,404,000
1853	199,392	1,439,000

That the individuals who have thus been quickly enabled to remit money for the conveyance of their friends and relatives to the new locations have been benefited by their expatriation is obvious; and it is gratifying to reflect that the succeeding emigrants have gone with hopeful assurances of success, which experience we believe has realised. We have, for our own parts, no fears that the labour market will be understocked; though wages have risen, they are yet far too low, and the Irish landowners and land cultivators must learn to value the services of the agricultural labourer much higher than they even now consider them. An official report declares that the rise is "1*s.* per week on the average;" we should be better pleased to learn that existing wages are doubled on the average. When this shall take place, any local want of labourers will be supplied from some source or other. "Emigration will of necessity continue to withdraw its hundreds of thousands annually, until deficiency in the labour market compels all employers to raise wages, and landlords to lease land on such liberal terms of rent and tenure as may induce the working classes from motives of self-interest to remain at home.

Pauperism is of course decreasing rapidly in Ireland. "On comparing the number of workhouse inmates for the year ending 22d April, 1854, with the previous corresponding interval, we find the diminution to be nearly 40,000 in each week throughout the series." The returns for last year give nearly 400,000 indoor and more than 13,000 out-of-door paupers; and these unfortunates were fed at the low average rate of 1*s.* 4*d.* per head weekly. The rates were laid it seems so low as to satisfy any reasonable and Christian man who has to pay his share:—"The average poundage on the current year will probably not exceed 1*s.* 3*d.* on the total Poor-law valuation of the island, which generally rates about one-fifth under the letting value." It is our good fortune to pay this year in an English rural district more than 5*s.* in the pound.

The following information is worthy of deep consideration in England, where the notion of employing the workhouse poor in industrial occupations seems to be strangely disliked by the rural magnates. Of the 163 unions in Ireland, there were only 25 in Sept. 1853 in which agricultural instruction was not given, and 1070 acres are attached to the workhouses for the purpose of model farms. At that period 3703 boys were under agricultural teaching, 3196 learning trades, and 14,273 girls employed in household, useful, and ornamental handwork of various descriptions. It is a subject of congratulation that during last year upwards of 5000 boys and girls under 15 years of age have been taken out of the workhouses and put in a way of supporting themselves by their own industry, so highly has risen in public estimation the moral and industrial training of the youth of the country, even in the very abodes of pauperism. We had occasion not long since to publish, in some notes of a tour by our correspondent Martin Doyle, the very favourable return from the agricultural master of the Enniscarthy workhouse. Mr. Locke has presented one from the Ballymoney workhouse, in the most northern county of Ireland, which shows a large amount of profit to the establishment after deduction of about 35*l.* for rent and rates.

"It is a curious fact that this farm, which has been cultivated to so good purpose, has been tilled principally by the boys before and after school-hours. It appears that they are first-rate dirk-men—not *à la militaire*—and act as expert attendants on the dairy. When sufficiently trained, their services are eagerly sought after by the neighbouring farmers, the natural consequence of the information they are possessed of and the good conduct which they evince while in service. In addition to the general instruction in farming which the larger number receive, there is also a special class of 12 or 14 who are taught the theory as well as the practice of agriculture, five hours being given to the latter and two to the former every day; and lately, with a view to promote greater attention to the study in which they are engaged, a plot of ground and seeds for green crops have been given to each, with a promise that the most successful cultivator shall obtain a prize when the harvest comes round."

We would fain see something of this management in our English unions, in which the youthful male inmates are so frequently idle altogether, and therefore meditating mischief and turbulence, and keeping the master in perpetual irritation or anxiety; while the superintendent of the Ballymoney workhouse is allowed by the guardians—who fully co-operate in his views—to keep every one occupied as he thinks best, and the results are good order and the acquirement of industrious habits.

The agricultural report generally is very cheering, but it is clear that the Irishman of every class clings to his Potato with irrepressible tenacity. Turnips, which were threatening to beat them out of the field, have, we have reason to think, retired a little as the others have shown symptoms of returning vigour. In the year 1853, there were nearly 900,000 acres under Potatoes, and about 600,000 under Turnips (400,000) and all other roots included. And without a just proportion of Turnips for sheep and cattle feeding, Ireland will continue backward in agriculture. Both Flax and Turnips had much increased in 1853 over 1852. There is some falling off in both in the present year, though these two are especially suited to the climate and soil of Ireland. Flax cultivation is stated to have increased 500 per cent. since 1848, and of 956 scutch mills erected, 54 are worked by steam. And Ireland, so anomalous in many things, gives an instance of the national characteristic in the fact, that in the last year she exported about 5000 tons of flax (at 58*l.* per ton), with tow and yarn, and imported nearly 9000 tons, at 65*l.* per ton. The yarn exported was valued at 105*l.* per ton, whereas the imported (less than that exported) was valued at 180*l.* per ton. This would indicate superior skill elsewhere in the spinning of fine yarns, or inferiority in the quality of the native raw material itself for the manufacture of some of the finer linens. It is gratifying to learn, that if spinning by steam has thrown out of employment many thousands of hand-spinners, the occupation of 460,000 females in muslin sewing throughout the kingdom fully compensates for the disuse of hands in the former labour, which also was less remunerative than the present branch of employment. Mr. Locke reiterates his opinion, that peat soils are suitable for continuous green crops, instead of yielding, according to the usual rotation, one green crop in four years; and calculating that there are 110,000 acres of peat soil yielding one green crop in four years, he estimates that by substituting continuous green cropping for the four shift system, there would be an increase of upwards of 5,500,000 tons of green food (16 tons per acre) equivalent to the support of 580,000 black stock, young and old. Sulphates of lime, everywhere obtainable on very cheap terms, and in many districts easily formed on the spot, by combining sulphuric acid with calcareous earths, are, according to communications made to Mr. Locke by an agricultural gentleman who has used this manure, certain fertilisers for the purpose. Mr. Irwin informed the Commissioners of Public Works that "tracts of bog and moor are now (in 1853) considered to yield a larger and more speedy return than any other description of improvement, as it is found that tracts of wet spongy bog, which, while unreclaimed, were of merely nominal value, can now be let for a single crop at a rent exceeding the whole cost of reclamation; and that by a very moderate additional application from time to time of clayey and calcareous material they can be profitably continued in tillage for any length of time, being, as already stated, easily and cheaply cultivated, and being also the only lands in which the portable fertilisers can be permanently substituted for farm-yard manure. An excellent example of this important property of peat-soil may be seen in the demesne of Mr. O'Connor, of Milton, whose green crops, grown on reclaimed bog without any manure, except a moderate application of either guano or superphosphate of lime, now rank among the very best in the whole district; and I am informed that on the estate of Lord de Freyne the use of guano on an inferior description of reclaimed bog has been followed by equally favourable results." Seven thousand

five hundred acres have been thorough drained, at an average cost of 4*l.* 10*s.* per acre, which completes a total of 153,160 acres drained under the provisions of the Land Improvement Act. In the mineralogical department there has been an increased activity within the last three years, though the want of cheap carriage from the mineral districts is an impediment to the development of their treasures.

As may be expected, Mr. Locke puts forward very prominently, and, we think, very fairly, the agency of the Encumbered Estates' Court in producing the present prosperous and hopeful state of the land interests through every link of the agricultural chain. Having invited consideration to the appendix and tables, which are designed to assist capitalists in estimating the various circumstances connected with the acquisition of land in Scotland, he thus expresses himself as to the working of the commission.

"It has been brought before the public again and again. In 1850 and 1851, the counties of Galway and Mayo were the most hopelessly involved, and least civilised districts of Ireland. Now, from the sale under the commission, an interval of five years, 550,000 acres, equal to one-fifth of the whole available superficies of these two counties, have been sold in lots to solvent purchasers for a total amount of about 1,500,000*l.* The number of proprietors over this surface (including sub-sales by private contract made subsequent to the sale under the commission), has been increased five-fold; one-third of the purchasers are English and Scotch, and more than one-half of the entire number have not exceeded 2000*l.* in their respective investments. These last, together with English, Scotch, and Ulster farmers, settled of late years on Clew bay and other districts, forming the nucleus of a middle class in the far west. Thus the wealth and skilled industry of our British neighbours have become indissolubly linked with that part of Ireland farthest removed in geographical position, as well as industrial progress, from the centre of civilisation and imperial rule."

Calendar of Operations.

JANUARY.

FORFARSHIRE GLENS.—When the harvest has been favourably concluded in proper season, the two last months of the year have generally little that is interesting in the retrospect. Those just past have meteorologically been characterised by extreme fickleness. One could almost believe that we denizens of the hills were placed in a debatable territory, alternately in possession of the storm spirits of the north and the gentle zephyrs of the sunny south. One hour we are congratulating each other upon the singular mildness of the day, and the next have to retreat before a borean blast more impetuous and more irresistible than a charge of Russian cavalry. The autumn has, upon the whole, been favourable for agricultural operations; snow has only paid flying visits, and frosts, although sometimes severe, have been of short duration, and less than the usual quantity of rain has fallen. Ploughing has been pushed forward at all seasonable periods, and threshing grain, storing roots, &c., have filled up the intervals. The flocks have been healthy during the autumn, and were never in better condition at Christmas; they are all now divided and sent to winter quarters. Cattle have had plenty of sweet straw and fresh roots, and are progressing satisfactorily, and until Mr. Mechi's "Fourth Paper" appeared were expected "to pay;" but as many here are more accustomed to produce before the public a well-fed ox than a correct balance-sheet, they feel the Tiptree dictum to be rather a stunner. Mr. Mechi is worthy of all admiration for the energy he has displayed as an agriculturist, and much benefit will no doubt be derived from his published experience both as a signal of what must be avoided as well as an example of what may safely be followed. Before publishing his next paper he must learn to reason more correctly, and not jump at once to a general conclusion from a few isolated facts. If he should say that live stock at Tiptree don't pay, nobody would dispute with him; but even in that case, if his language is not misinterpreted, his farm pays better with live stock than it would without them: if they do not pay immediately in a direct return of cash, they would seem to do so indirectly in an increased production of corn, and, therefore, ought not to be denounced as an unprofitable speculation. It is not easy to ascertain exactly what Mr. Mechi means by "live stock." In his own practice he seems to purchase lean stock and dispose of it when fattened, and if his experience goes no further, he is ungenerous in bringing a general charge of unprofitableness against the whole beeve tribes in every stage of their existence, and under every system of management. The London cow-feeders pay him a rattling price for his Mangolds, and it is to be presumed they at the same time make a living by cow-feeding. Many families in Scotland are supported solely by the profits of live stock, which is a sufficient answer to the general question, as far at least as the northern part of the kingdom is concerned. Different varieties of stock require different modes of treatment; the black-faced breed of sheep will produce first-class mutton on pastures where Southdowns or Leicesters would starve, and Angus, Aberdeenshire, and the other Highland breeds of cattle in like manner can be brought to perfection on food that may be unsuitable for fattening the more delicate varieties. A feeder of stock is a manufacturer of butcher meat, and if he regards his success must take care that the raw material used does not exceed the proper proportional value of the manufactured article. What would be thought of a paper-maker who should insist upon using Flax instead of old ropes, rags, &c., as his raw material, and on finding his balance on the wrong side of the sheet should turn round and tell the world that paper-making "don't pay?"——The corn crops are not threshing out liberally; in general the produce is not in proportion to the bulk of straw; but this arises less from a want of corn than from a superabundance of fodder. The continued high price of produce has increased the price of farms as well as the number of would-be farmers. Inexperienced hands will doubtless find themselves in the wrong box when prices return by the down train, as doubtless they will at some period, especially those who allow themselves to be bound to a fixed rotation of cropping during the currency of a lease. A 19 years' lease is a good thing; but a fixed rotation, be it what it may, is a very bad thing, both for landlord and tenant. The object of a fixed rotation is to prevent the tenant from wearing out his farm by overcropping, and so reducing its value, which, if the tenant be a bad one, it generally fails to do. The landlord's interest would be better served by providing by the terms of the lease that the farm should be left in a certain specified state at its expiry, leaving the tenant at full liberty to adopt the most approved systems of culture during its currency, and his success would be the best guarantee that the farm should keep both its character and its price in the market. Confine a man to a stereotyped system, and you soon stereotype his ideas of farming, and place a most effectual barrier to his progress. *S.*

WESTER ROSS, *Jan.* 8.—After a month of uncommonly wet and stormy weather, we have now had a week particularly fine, mild and serene. Wheat, for the last few days, has been making rapid progress; the earlier sown is looking thick and healthy; the later sown, which, from the coldness and dampness of the soil, was long of brairding, is now coming up vigorously. Out-door work, which was much retarded for some time, is now comfortably proceeded with. The lot for green crop has been well nigh turned over; a pretty large proportion of lea has been ploughed for Oats, and manure has been carted for Barley, Potatoes, Turnips, &c. Sheep on Turnips find themselves again with firmer footing and greatly more comfortable, and, should this weather continue, which can scarcely be looked for at this early season, they would soon regain what they have lost. Cattle, where well sheltered, have been improving satisfactorily, but with us in the north are a scarce commodity this year, and will, in all likelihood, be very dear. Fleshers complain that a fat beast, even now, is difficult to be met with. At the close of last season they were not only uncommonly dear, but difficult to be had at any price, and not a few of our farmers found it impossible to lay in their ordinary amount of winter stock, and consequently there must be a smaller number to dispose of at our April market. Sheep are greatly more abundant this year, and will, probably, be cheaper comparatively than cattle. In the end of last season, when cattle were scarce and high priced, there was a more limited demand for sheep, and, consequently, not a few remained wind-bound amongst us, and for this reason there will be no difficulty whatever in having our Turnips consumed on more advantageous terms than usual. Good Turnips are now fetching from 6*l.* to 7*l.* an acre; this, with the manure of the sheep, is counted remunerative. We have long been in the habit of estimating the Turnip crop as a losing affair; but when counting the cost of growing Turnips, or the expense of feeding cattle, it is surely scarcely fair to debit the Turnip crop with the whole expense of cleaning the ground, or the whole outlay for manure, as the other crops in the rotation assist in putting the land into that state in which cleaning becomes indispensable, whether Turnips be grown or not, and as a large proportion of the manure applied to the Turnips would be needed, and would be given too, should there be no Turnips sown. It is, in fact, a recuperative season with the exhausted soil, and it is rather much to charge an assistant in the operation with the whole expense of the needed manures and cleansing.

Miscellaneous.

Agricultural Statistics.—As the present experimental collection of agricultural statistics will probably lead to a more extensive inquiry, the following particulars will be interesting:—The West Riding of Yorkshire is one of the counties selected for the present trial, and it is satisfactory to state that the investigation generally is being met in an intelligent spirit by the tenant-farmers, and in all probability but for the nonconformity of some leading occupiers, the number of dissidents would have been much less than it is. The staff employed by the statistical committee of the Doncaster board of guardians have just completed their labours, and we find out of 1673 schedules delivered to the farmers within the union 1480 have been filled up by occupiers, 183 by the enumerators, and only 10 left blank. The union in question comprises 53 parishes, within a radius of 10 miles round Doncaster, and a population, according to the last census, of 33,655 souls. The extent of the union is 98,982 acres, of which 48,320 are under tillage—viz. (in round numbers), Wheat, 17,029 acres; Barley, 10,061; Oats, 2258; Rye, 512; Beans and Peas, 2742; Vetches, 416; Turnips, 10,162; Mangold, 117; Carrots, 8; Potatoes, 1,048; Flax, 15; other crops, such as cabbages, &c., 333; bare fallow, 3,615. There are 37,917 acres of Grass land, including 12,389 acres of Clover, Lucerne, and other artificial Grasses; and 25,528 acres of permanent pasture. The number of acres occupied by houses, gardens, roads, fences, &c., is 1869; and 383 acres of waste attached to farms. Woods and plantations extend over 6301 acres; commons belonging to parishes, 1159 acres; small holdings of less than two acres, 617 acres; and there are 2415 acres unaccounted for. The numbers of live stock in the union on the 1st of July, 1854, were as follows:—Horses, 3806; colts, 969; milch cows, 2879; calves, 2787; other cattle, including working oxen, 4065; tups, 728; ewes, 20,044; lambs, 23,290; other sheep, 10,756; swine, 6735. It is obvious that an important item is still wanting—namely, the acreage produce of grain, but this is an inquiry too delicate to press at present. The opinion of the farmers of the district in question is, upon the whole, favourable to the project of agricultural statistics, and would be much more so if they were fully assured that their landlords had no means of access to their returns—a security which the temporary machinery employed does not afford, as *ex officio* guardians are generally landlords. *Times, Friday.*

Notices to Correspondents.

HORSE FLESH: *Taffy.* The bones, &c., which you have found will do perfectly to make a superphosphate of with sulphuric acid. They must first be broken, torn, or ground, to a coarse powder. As to your pigeon dung, we would mix it with turf ashes, and drill it in with your Turnips; half a ton per acre will show itself on the crop.

ITALIAN RYE-GRASS: *T P.* Sow 35 to 40 lbs. per acre broadcast on a loamy soil when it is damp, and brush it in with light seed harrows towards the end of April. This will ensure you good food in autumn of the same year, and an abundant crop in the following season. If sown after a green crop as Turnips pulled, it will not need manure. Or it may be sown about two bushels per acre with a crop of Barley, just as other Grass seeds. —*J N N.* Sow it any time in April or May; or again after harvest, provided the land is moist and with a sufficient tilth.

ITALIAN RYE-GRASS AND LIQUID MANURE: *J. Mackenzie, M. D.* Dr. Kirkpatrick's experiments were detailed in the report of Mr. Hamilton's paper, given in one of the November numbers of the *Agricultural Gazette.* We will endeavour to draw up such a statement as you propose of the actual manuring of Mr. Telfer's land.

LINSEED: *Simplex.* "English Linseed," *i.e.*, the Flax crop, is of easy and profitable cultivation. Paper-makers cannot afford to give the price per acre for it that linen manufacturers will—and so while it is perfectly possible to make paper of the Linseed fibre before converting it into linen and then to rags, yet it is not likely to be done.—*Cato.* If you use plenty of hay or straw chaff, we should prefer Linseed to Linseed cake. Boil the meal into a thin mucilage or soup; put plenty of salt, and throw it over the cut chaff.

SMALL FARM: *H G.* The answer to your question taken literally is—"Lay it all down to Grass." But we imagine that you have not fully stated your case. You must tell us how much permanent Grass you have in the 100 acres, and also give an idea, whether by stating the rent or otherwise, of the quality of the land.

TIME FOR APPLYING MANURE: *Young Farmer.* Apply manures of slow solubility in autumn, and of rapid solubility in spring. Thus, we would apply farm-yard manure, whether to Grass land or to arable (if we had it), in autumn, either to pastures or ploughed in with the stubbles. Guano we would put over our Wheat in February and March, and nitrate of soda at intervals in March and April.

WEEDS ON WALKS.

MR. FLEMING'S WEEDING OR SALTING MACHINE FOR GRAVEL WALKS, COURT YARDS, &c., manufactured and sold by ALEXANDER SHANKS & SON, Arbroath, Forfarshire, from whom particulars with prices may be had.

SHEET GLASS (15 oz.) of good quality in 100 feet boxes.

10 in. by 8 in. and under ... ... 15*s.* per box.
11 in. by 9 in. to 22 in. by 14 in. ... ... 17*s.* „
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GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS FOR CONSERVATORIES.

THOMAS MILLINGTON'S present prices for good 16 oz. sheet glass, boxes included.

6 in. by 4 in. to 6 in. by 5½ in. ...	13*s.* 3*d.*	per 100 feet.
7 by 5 to 8 by 6	13 6	
8½ by 6½ to 10 by 8	14 0	
10½ by 8½ to 14½ by 10½	16 0	
17 by 10 to 18 by 12	18 0	

A great variety of sizes. Particulars had on application.

ORCHARD HOUSE SQUARES on Mr. RIVERS's plan, to whom I have sold some thousands of feet.

Large Sheets for cutting up, in cases, at 2½*d.* and 3*d.* per foot.

HARTLEY'S IMPROVED ROUGH PLATE GLASS, Sheet, and Rough Plate, Tiles, Milk Pans, Bee and Propagating Glasses, Wasp Traps, Cucumber Tubes, Preserve Jars, with and without covers; Fern Glasses.

Plate, Sheet, Crown, and Ornamental Window Glass. Crystal Glass Shades for ornaments.

Greenhouses, erected in either wood or iron. Garden Lights and Frames.

87, Bishopsgate Street Without, London—same side as Eastern Counties Railway.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present prices of Glass for Cash:—

	SHEET SQUARES. In Boxes of 100 feet.	CROWN SQUARES In Boxes of 100 feet
Under 6 by 4	£0 12*s.* 6*d.*	... 8*s.* 6*d.*
6 by 4, and 6½ by 4½	0 13 0	... 12 6
7 „ 5, — 7½ „ 5½ / 8 „ 6, — 8½ „ 6½	0 15 0	... 14 0
9 „ 7, —10 „ 8, 12 by 9, 12 by 10, 14 by 10	1 0 0	

Larger Sizes, not exceeding 40 inches long.

16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. „ 4½*d.* to 5*d.* „ „ „
26 oz. „ 6*d.* to 7½*d.* „ „ „

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

Glass Tiles, ¼ of an inch thick, packed in cases, containing 50, at 1*l.* 17*s.* 6*d.* per case. Packages 2*s.* each extra, but allowed for when returned.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

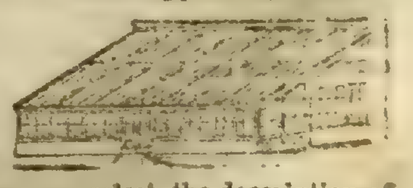
GREEN AND HOT-HOUSES made by machinery, at J. LEWIS'S HORTICULTURAL WORKS, Stamford Hill, Middlesex. Sent to all parts of the United Kingdom. These buildings are warranted of the best materials, and put together in a superior manner. Being manufactured by steam-power, they are considered the cheapest and best made in England. The Trade and Merchants supplied at wholesale prices. List of Prices by enclosing two postage stamps.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

GODFREY'S BLACK SPINE.
SPLENDID AND PROLIFIC FRAME CUCUMBER.

WOOD AND INGRAM beg to offer seeds of the above beautiful variety. Colour, magnificent dark green, with a very fine bloom: average length, 18 to 21 inches, and produces in great abundance through an entire season. Packets, containing 12 seeds, 2s. 6d.; 6 ditto, 1s. 6d.

W. & I. will be happy to refer any persons wishing further information respecting the variety to three or four Noblemen and Gentlemens' Gardeners who have grown it, and prefer it to any other.

London Agents: Messrs. HURST & M'MULLEN, 6, Leadenhall Street.

W. & I. have also the following esteemed varieties to offer, in packets, 1s. each, containing 12 seeds:—

Sion House	Sagg's Royal Exhibition
Barnes's Fearnought	Conqueror of the West
Walker's Prolific	Improved Sion House
Constantine's Incomparable.	Manchester Hero.

Huntingdon Nurseries, January 13.

R. PARKER begs to offer the following:—CINERARIAS (Seedlings), from all the finest varieties, carefully selected, including the new varieties sent out last autumn. Strong established plants, in 4-inch pots, at 4s. per dozen. A choice collection of named Cinerarias in strong established plants, purchaser's selection, at 9s. per dozen.

ROSES, consisting of the best varieties of Hybrid Perpetuals, Teas, Bourbons, &c., well established in pots. Purchaser's selection, at 12s. per dozen. List of names forwarded upon application.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Islington.

SNOW'S SUPERB BROCCOLI.—Every seed new and true. Sealed packet, 1s.; per oz., 3s.; pound bags for the trade on liberal terms.

GLENNY'S IMPROVED BALSAM.—Unequalled for size, doubleness, and colour; 6 classes, 3s.; mixed, 1s.; sealed packets with culture.

DOUBLE HOLLYHOCKS from noble flowers. Sealed packet, 1s.

Stamps or P.O. orders to GEORGE GLENNY, Horticultural agent, Dungannon House, Fulham. Sales, valuations, &c., attended; Ground Laid Out, Rockwork, Ornamental Water, &c., planned and executed.

FLEMING'S HYBRID CASHMERE MELON.—The above new Melon was raised by Mr. Fleming at Trentham, and exhibited by him for the first time at the Great Meeting of the Horticultural Society of London at Chiswick on the 10th June last against a multitude of competitors, when it was awarded the first prize, and pronounced by the judges to be very far superior to all others produced, and decidedly the best Melon known. The entire Stock is in the hands of the undersigned. Packets of Six Seeds, 2s. 6d.; of 15 do., 5s.

R. GLENDINNING, Chiswick Nursery, London.

PYRAMIDAL PEAR TREES ON QUINCE STOCKS.

J. AND J. FRASER have to offer a very fine collection of the best varieties of PEARS grafted on the Quince; descriptive Catalogues of which may be had on application.

In offering these Pears, grafted on the Quince stock, we would wish particularly to call attention to their many excellent qualities. They are very compact in growth, and most prolific in bearing, fruiting profusely while the trees are small; thus forming a great acquisition for a small garden. Planted by the side of walks, in addition to their utility, they add much to the neatness and beauty of a kitchen garden. Indeed too much can scarcely be said in favour of these miniature Pear trees; as a proof of their merit the demand for them is yearly increasing.

Strong Trees, showing Fruit Buds, 2s. 6d. to 3s. 6d. each.

Lea Bridge Road, Essex, January 13.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY respectfully invite attention to their stock of the following very desirable HARDY PLANTS.

- Araucaria imbricata, from 2 to 7 feet high; as handsome as plants can be.
- Cedrus Deodara, in any quantity, from 1 to 3 feet high
- Do. do., 4, 5, 6, 7, 8, and 10 feet high; splendid plants
- Cedars of Lebanon, 3, 4, 6, and 10 feet high
- Pinus Douglasi, 3 to 10 feet
- " insignis, 2 to 7 feet
- " Menziesi, 3 to 7 feet
- " Pinsapo, fine plants, 3 to 6 feet
- " Nordmanniana, 1½ to 3 ft., all from seed and remarkably handsome
- " nobilis, 1½ to 2 feet; a few larger, 5 and 6 feet high, on their own roots, and with perfect leaders
- " Montezumæ, 2 to 4 feet
- Pinus canadensis, 3 to 8 feet
- Cupressus macrocarpa or Lambertiana, 4 to 7 feet
- " thyoides variegata, 3 to 4 feet (the variegated white Cedar)
- Juniperus, Upright Irish, perfect columns, 3 to 7 feet
- " chinensis, 2 to 8 feet
- Yew, common English, 3 to 8 feet
- " Irish, 4 to 10 feet
- " gold-striped, 1½ to 3 feet
- " do., tall standards, 4 to 7 ft.
- " Dovaston, or Weeping, worked on tall straight stems
- Thuja aurea, the finest plants in the country
- Libocedrus chilensis, the finest plants in the country
- Large variegated Hollies
- " Standard Bays

Also an immense stock of large Evergreens, Standard Ornamental Trees, &c.

All the plants here offered may be seen growing in our Nursery; they are removed every year, and will travel any distance with perfect safety. Of some, such as Araucarias, Deodaras, Golden Yews, Thuja aurea, Pinus nobilis, Nordmanniana, we have any quantity; and the plants, for root and branch, are not to be surpassed. Priced Catalogues will be forwarded on application, enclosing two postage stamps, to WATERER and GODFREY, nephews and successors of the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey, near the Woking Station, South-Western Railway, where all trains stop, and where capital conveyances can be obtained.

The 2d. stamp will also include a descriptive Catalogue of their American Plants, Roses, and Nursery Stock in general.

SUTTON'S GRASS SEEDS (CARRIAGE FREE). NATURAL GRASS SEEDS FOR PERMANENT PASTURES, separate or mixed, expressly to suit the soil.—Messrs. SUTTON and SONS having for many years paid especial attention to the examination of Natural Pastures, and the collecting of the Grasses which thrive in the various soils of Great Britain and Ireland, are enabled to supply the sorts and quantities of Seeds, varied to suit the soil for which they are intended. The cost will vary from **24s.** to **30s.** per acre, according to the sorts and quantities the soil requires.

FINE LAWN GRASS SEEDS, for making New or improving Old Lawns, price **1s.** per pound, 2s. 6d. per gallon, or 20s. per bushel. For forming new Lawns, 2½ bushels, or 50 lbs., is the quantity required per acre.

FINE GRASS AND CLOVER SEEDS FOR IMPROVING OLD PASTURES (SUTTON'S Renovating Mixture). Quantity required per acre, 8 lbs. to 12 lbs. **price 9d.** per lb.

N.B. It will be seen above that we have greatly reduced the prices of our Grass Seeds this season, especially the fine Lawn Seeds and "SUTTON'S Renovating Mixture" for improving Meadows and Pastures; and we doubt not that our liberal charges will induce a more general practice of sowing our superior kinds of Grass Seeds.

SUTTON & SONS, Seed Growers, Reading, Berks.

RENDLE'S COMPLETE COLLECTIONS OF KITCHEN GARDEN SEEDS *are now ready. They can be had to suit various sized Gardens at the following prices:—*

No. 1 COLLECTION	... ...	£3 0	0
" 2 "	... ...	2 0	0
" 3 "	... ...	1 5	0
" 4 "	... ...	0 15	0

The quantities are fully detailed in their "Price Current and Garden Directory," a new edition of which is just published.

WILLIAM E. RENDLE & Co., Seed Growers, Plymouth.
ESTABLISHED 68 YEARS.

SUTTON'S COMPLETE COLLECTIONS, CARRIAGE FREE.

PARTICULARS OF THE SORTS AND QUANTITIES CONTAINED IN SUTTON'S COLLECTIONS OF SEEDS will be sent post free on receipt of a stamped envelope with address.

By the perusal of this List, it will be seen that the very best kinds of Vegetable Seeds may be obtained in full quantities, and proper proportions for one year's supply of a large garden for the sum of 3l., and other complete Collections of equally choice sorts for smaller Gardens at 2l., 1l. 5s., and 15s. The economy of cost is by no means the only advantage gained by ordering one of these Collections.

Address, JOHN SUTTON & SONS, Seed Growers, Reading.

GRAPE VINES FROM EYES.

R. GLENDINNING has a large Stock of the undermentioned Vines, extra strong in pots, with well ripened wood, 5 ft. and upwards in the canes. Some of the kinds are new, and which have been proved and found of first-rate quality:—

Black Hamburgh	Cabul
The Pope's Hamburgh	Gromier du Cantal
Wilmot's Hamburgh	Welbeck Tripoli
Mill Hill Hamburgh	Grove End Sweetwater
Victoria Hamburgh	Pitmaston White Cluster
Barnes's Muscat	Chasselas Musqué
Reeves's Muscadine	Black Barbarossa
Raisin de Calabre	Muscat non de jura
White Frontignan	Chasselas de Fontainebleau
Grizzly Frontignan	Royal Muscadine
Black Frontignan	Large White Sweetwater

Chiswick Nursery, London.

SELECT PEAR TREES. The following extract from the "Miniature Fruit Garden" is a list of 24 fine varieties of PEARS that succeed well on the Quince Stock, and form handsome pyramids and bushes, ripening in succession from July till April and May.

Pears for Pyramids, 2s. each.

Doyenné d'Eté	Beurré Sterkman
Colmar d'Eté	Zephirin Gregoire
Baronne de Mello	Winter Nelis
Louise Bonne of Jersey	Bergamotte d'Esperen
Alexandre Lambré	Beurré d'Anjou
Beurré d'Aremberg	Prevost

The above form very handsome pyramids, they have been carefully pinched in, so that they are well furnished with young branches down their stems, most of them have blossom buds, and will bear this season.

Pears for bushes, 2s. each.

Alexandre Bivort	Melon de Namur
Beurré d'Amanlis	Onondaga
" Diel	Nouveau Poiteau
" Langelier	Grosse Calebasse (C. Carafou)
" Wetteren	Doyenné Boussoch
Maréchal de la Cour	Rousselon (Esperen)

The above nearly all bear large fruit, and when grown as bushes are well adapted for gardens exposed to the wind; they bear profusely and require scarcely any care in pruning; the trees offered are mostly full of blossom buds, and will bear this season. A Descriptive Catalogue of Fruits sent for four stamps, the cost of postage. Carriage paid to London.

THOMAS RIVERS, Nurseries, Sawbridgeworth.

SUPERB LATE WHITE BROCCOLI—"EMPEROR."

E. P. DIXON having purchased the entire stock of the above Broccoli of Messrs. Elletsons, Market Gardeners, Thorngumbald, near Hull, begs to announce that he is prepared to send it out in sealed packets at 2s. 6d. each. This Broccoli has been raised by the Messrs. Elletsons, the raisers of the Mammoth, sent out some time ago, who state that the EMPEROR, if sown at the same time, will come into use before it. Is of very dwarf growth, perfectly hardy, with heads from 15 lbs. to 20 lbs. weight; keeps its colour, and stands firm three weeks after it is ready to cut. A noble flower, and commands the best price of any other in the Hull market, where it is well known, and will be a great acquisition to the market gardeners around London, as well as those who wish for a first-rate Broccoli.

PURE MAMMOTH BROCCOLI.—Numerous applications having been made to Messrs. Elletsons last season for Seed of the Pure Mammoth Broccoli, they determined to allow a flat to stand for Seed, carefully selected from the original stock, producing heads from 18 lbs. to 25 lbs. each. E. P. D. having purchased the stock of this celebrated Broccoli, is prepared to send it out in kets at 2s. 6d. each.

Each may be had of Messrs. NOBLE, COOPER, & BOLTON, 152, Fleet Street; and Messrs. HURST & M'MULLEN, 6, Leadenhall Street, London. Also of the Advertiser, 57, Queen Street, Hull.

HOLCUS SACCHARATUS,
OR CHINESE SUGAR CANE.
(See GARDENERS' CHRONICLE, Dec. 30th, 1854.)

MR. JOHN HENDERSON, formerly of the firm of JOHN A. HENDERSON & Co., Pine Apple Place, London, has the honour to announce that he is prepared to supply Gentlemen, Amateurs, and Professionals, with seed of this most valuable and estimable plant.

As the Dioscorea Batatas seems well adapted to make good any deficiency arising from failure in the Potato crops, so this appears admirably calculated to meet many wants of the present day. That it may be used for the purposes of distillation, and may therefore preserve the grain of the country, is not less certain than that the leaf and stem (after the saccharine matter has been extracted) contain a large amount of fibre, of such a nature as can be employed in the manufacture of every kind of paper. In both these points, as well as in many others, this plant demands the attention of every Gardener and Amateur throughout the country; the more so as from the necessity that at present exists for the production of fibres that may be used in paper manufacture a due remuneration may be fairly expected by growers, even after the plant has, so to speak, paid itself by the saccharine matter extracted from it.

Mr. HENDERSON hopes, in a few days, to have ready for the press a more lengthened account of this plant, as well as a complete statement of the latest experiments in connection with the Dioscorea Batatas. As there are many varieties of the Holcus W. J. H. can only be responsible for seed forwarded by himself, which he is prepared to do in sealed packets, at 1s., 2s. 6d., 5s., and 10s., according to quantity.

Orders to be accompanied with a remittance to Mr. JOHN HENDERSON, Kingskerswell, Newton Abbot, South Devon.

P.S. Price to the Trade can be had on application.

CHARLWOOD AND CUMMINS have to offer SEEDS of the LILIUM GIGANTEUM in packets of 100 Seeds, at 20s., free by post. Also Acorns of the following varieties of American Oaks:—

Quercus alba	per quart 2s. 6d.
" Banisteri	
" obtusiloba	
" nigra	
One-year's Seedling Plants of each ...	per 100 ... 3s. 0d.
Abies Pinsapo	per 100 seeds 8s. 0d.

They will also have in time for this Season's sowing Seed of the Osage Orange, at 4s. per lb., for which early orders are solicited. Their Catalogue of Agricultural, Garden, and Flower Seeds are ready, and will be sent free on application.

14, Tavistock Row, Covent Garden.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

LANDSCAPE GARDENER AND GARDEN ARCHITECT.

MR. W. DAVIDSON is about concluding his engagement with Sir Wm. F. F. Middleton, Bart., of Shrubland Park, in consequence of the completion of extensive alterations on which he has been there employed; and respectfully tenders his services in the above capacities to noblemen and gentlemen, and the public generally, in Laying-out or Improving Gardens, Grounds, Parks, Cemeteries, Arboretums, &c.

Mr. D. feels strongly the importance of the opportunities he has had of maturing his taste for natural arrangement and artistic design under Sir William and Lady Middleton, and appeals with confidence to Shrubland for examples of his practical and scientific knowledge as a civil engineer in directing the satisfactory and economical execution of the various works. He begs to mention further that his practical experience enables him to offer advice upon all matters connected with a garden, both structural and cultural.

Mr. D. is kindly permitted to refer to Sir Wm. Middleton, Bart., of Shrubland Park, Ipswich; Sir Charles Barry, Westminster; Dr. Lindley, and many others who are pleased to consider him worthy of their patronage and recommendation.

Shrubland Park, Ipswich.—Jan. 13.

TENTS, MARQUEES, AND RICK CLOTHS.—Now on Sale, several second-hand Rick Cloths, Marquees, and Tents, of various sizes. Some of the Marquees are well adapted for Horticultural Societies. One 50 feet by 30, price 35l.; one 70 feet by 30, 50l.; and one 100 feet by 30, 65l. These are almost new, and quite ready for use. Small tents for the Wars or Emigrants, weighing 12 lbs., price 25s. each, new and waterproof. Small Tents for Gardens, 30l. each.—R. RICHARDSON, 21, Tonbridge Place, New Road, London.

BLOSSOM OF FRUIT TREES.—WORSTED NET to effectually protect the blossom of wall fruit trees from frost and blight, and the ripe fruit afterwards from wasps and flies, 7d. per square yard, in various widths. All kinds of garden, fishing, and sheep nets, made by machinery, and at very low prices.—R. RICHARDSON, 21, Tonbridge Place, New Road, King's Cross, London.

TO PARENTS AND GUARDIANS.—The return of youth to the respective boarding-schools induces a solicitude for their personal comfort and attraction. Now it is that ROWLANDS' MACASSAR OIL, for accelerating the growth and for improving and beautifying the hair, ROWLANDS' KALYDOR, for improving the skin and complexion, and removing cutaneous eruptions, and ROWLANDS' ODONTO, or PEARL DENTRIFICE, for rendering the teeth beautifully white and preserving the gums, are considered indispensable accompaniments for the attainment of those personal advantages so universally sought for and admired. Beware of Spurious Imitations. The only Genuine of each bears the name of ROWLANDS' preceding that of the article on the wrapper or label.—Sold by A. ROWLAND and SONS, 20, Hatton Garden, London, and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.? If so, ELLEN GRAHAM'S NIOUKRENE is unfailing in its efficacy. It reproduces the hair when lost by disease or decay, prevents its falling off, effectually checks greyness, strengthens weak hair, and is guaranteed to produce Whiskers, Moustachios, &c., in three or four weeks. For beautifying the hair, and sustaining its curling powers, it has no equal. Sent post free on receipt of 24 penny post stamps, by Miss GRAHAM, 10, Chichester Place, King's Cross, London. "My whiskers are greatly improved." J. SHORT, Dudley.—"It has produced hair where I was bald." W. MORGAN, Milford.—"My hair has thickened since using it." Miss COWIE, Bridgewater.—"I have a full pair of whiskers." H. ROBB, Hertford.—"It has effectually checked the greyness." Mrs. HOOD, Dorking.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.?—No other compound for the Hair has maintained such an enduring celebrity as EMILY DEAN'S CRINILENE. It is guaranteed to produce Whiskers, Moustachios, Eyebrows, &c., in a few weeks, and restore the Hair in Baldness, from whatever cause, strengthen it when weak, prevent its falling off, and effectually check Greyness in all its stages. For the nursery, Dr. Wilson says it is unrivalled.—Price 2s. per Package (elegantly perfumed); sent post free, on receipt of 24 penny postage stamps, by Miss DEAN, 37 A, Manchester Street, Gray's Inn Road, London. Sold by every Chemist in the Kingdom.—"In one fortnight it produced a beautiful set of moustachios." H. ADAMS.—"It has prevented my hair falling off." J. HICKSON.—"It has quite checked the greyness that was coming on." Mrs. ELDER.

DO YOU WANT BEAUTIFUL HAIR, WHISKERS, &c.?—COUPELLE'S CRINUTRIAR, though extensively imitated, is universally acknowledged as the only preparation to be really depended upon for the unfailing production of Hair and Whiskers in two or three weeks; as also checking Greyness, Baldness, &c., and rendering the Hair beautifully luxuriant, curly and glossy. Mr. WILLIAMS, 8, Lowther Street, Liverpool.—"I can now show as fine a head of hair as any person, solely from using your Crinutriar." Sergeant CRAVEN, Longford Barracks, Ireland.—"Through using your Crinutriar, I have an excellent Moustache, which I had before despaired of." Mrs. CARTER, Pangbourne, Berks.—"My head, which was quite bald, is now covered with new hair." Price 2s. per package, through all Druggists and Perfumers, or sent post free on receipt of 24 penny stamps by ROSALIE COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London.

DO YOU WANT BEAUTIFUL HAIR, WHISKERS, &c.?—If so, use PALMAPILLA, declared by thousands of testimonials to be magical in its effects. In all cases of baldness it is a certain remedy, causing a thick and luxuriant growth, strengthening weak hair, preventing its falling off, and checking greyness in all its stages. For the production of Whiskers and Moustaches in two or three weeks, it has never been known to fail. Price 2s., sent post free (anywhere) on receipt of 24 penny postage stamps by Miss ALICE MELVILLE, 25, Argyle Square, King's Cross, London.—"I was quite bald, but have now a good head of hair." *Wm. Hopton.*—"My whiskers are growing very thick." *R. Mede, Esq.*—"It restored my hair, which I had lost in patches." *W. Sturt.*—"It has quite checked the greyness." *Miss Ellis.*—"My moustache is greatly improved." *Capt. Ross.*

NOTICE.

OVER-COATS, CAPES, &c.—One of the largest stocks in London of every description, first-class garments, at lowest charges; also of Youth's ditto, all made thoroughly impervious to rain, without extra charge, or made to order at a days' notice.—W. BERDOE, 96, New Bond Street, and 69, Cornhill (only).

FORD'S EUREKA COLOURED SHIRTING is now ready, in 200 different patterns. Specimens in varied colours sent post free on receipt of six stamps.

FORD'S COLOURED EUREKA SHIRTS, Six for 27*s*.

FORD'S WHITE EUREKAS, best quality, Six for 40*s*.; second quality, Six for 31*s*.; if washed ready for use, 2*s*. extra.

CAUTION.—Ford's Eureka Shirts are stamped, "38, POULTRY, LONDON," without which none are genuine.

*** Catalogues with particulars post free.

RICHARD FORD, 38, Poultry, London.

FURNISH YOUR HOUSE WITH THE BEST ARTICLES AT DEANE'S IRONMONGERY AND FURNISHING WAREHOUSES. Established A.D. 1700. A Priced Furnishing List, free by post.—DEANE, DRAY & Co. (Opening to the Monument,) London Bridge.

AT MR. MECHI'S ESTABLISHMENT, 4, Leadenhall Street, London, are exhibited the finest specimens of British Manufactures in Dressing Cases, Work-boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury suitable for presentation. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c., as usual. Shipping orders executed for merchants and captains. An extensive assortment of superior Hair and other Brushes for the Toilet.

HOT-AIR, GAS, VESTA, JOYCE'S STOVES.—STOVES for the economical and safe heating of halls, shops, warehouses, passages, basements, and the like, being at this season demanded, WILLIAM S. BURTON invites attention to his unrivalled assortment, adapted (one or the other) to every conceivable requirement, at prices from 10*s*. to 30 guineas. His variety of register and other stoves is the largest in existence.

THE PERFECT SUBSTITUTE for SILVER.—The real NICKEL SILVER, introduced 20 years ago by WILLIAM S. BURTON, when Plated by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle Pattern.	Thread or Brunswick Pattern.	King's Pattern.
Tea Spoons, per dozen ...	18*s*.	26*s*.	32*s*.
Dessert Forks " ...	30*s*.	40*s*.	46*s*.
Dessert Spoons " ...	30*s*.	42*s*.	48*s*.
Table Forks " ...	40*s*.	56*s*.	64*s*.
Table Spoons " ...	40*s*.	58*s*.	66*s*.

Tea and Coffee Sets, Waiters, Candlesticks, &c., at proportionate prices. All kinds of replating done by the patent process.

CHEMICALLY PURE NICKEL, NOT PLATED.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, full size, per doz.	12*s*.	28*s*.	30*s*.
Dessert ditto and ditto ...	10*s*.	21*s*.	25*s*.
Tea ditto ...	5*s*.	11*s*.	12*s*.

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CAUTION.—Beware of the word "from" Metcalfe's, adopted by some houses. Metcalfe's Alkaline Tooth Powder, 2*s*. per box.

THE CONSERVATIVE LAND SOCIETY.—The OLD FORD ESTATE, in the Parish of St. Mary, STRATFORD-LE-BOW, Middlesex, within the Borough of the Tower Hamlets.—This valuable Estate will be ALLOTTED at the Offices, No. 33, Norfolk Street, Strand, London, on WEDNESDAY, the 24th of January. The Old Ford Estate has a frontage on the Old Ford and Bethnal Green Roads, a frontage to a new road on one side, and a footpath called the Old Roman Road on the other. It is within 200 yards of Victoria Park, and not far from Sir George Duckett's Canal. It is about one quarter of a mile from the station of the Eastern Counties Railroad, and three quarters of a mile from Bow Church. Building operations have been going on for some time in the vicinity of the Estate, and as fast as the houses are built they are inhabited. The Chelsea and Bethnal Green omnibuses run 12 times per day as far as the Estate, at 4*d*. fare to the Bank. The allotment of the land is divided into one plot of 1000*l*.; four of 150*l*. each; one of 200*l*.; three of 100*l*. each; three of 90*l*. each; 15 at 75*l* each; and 160 plots of 30*l*. each. For information as to Rights of Choice on the Estate apply to CHARLES LEWIS GRUNEISEN, Secretary.

TO GENTLEMEN GARDENERS.

TO BE LET, with immediate possession, a FLORIST, FRUITERER'S, and GREENGROCER'S BUSINESS, situated by a main road, and in a business neighbourhood, where a good jobbing business might be done, and within five miles of Covent Garden Market.—Apply to S. H., No. 4, Westcroft Place, Hammersmith.

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TO BE LET, THE FARM OF BUDLE, in the Parish of Bamburgh, Northumberland, containing 602 Acres or thereabouts, Tithe free, for such a Term of Years as may be agreed on, with or without an excellent and commodious Mansion House, and good Gardens, and with Budle Harbour from which dues are received, and also Granaries. It is pleasantly situated in the richest part of the County:—the Tillage Land and part of the Old Grass are of superior quality, there is also a portion of useful Sea-side Grass Land. Lime of the best quality may be burned at a small cost on the Farm. To an Independent Gentleman, wishing to farm, the above is highly desirable, the House being pleasantly situated within a short distance of Belford Station and Bamburgh Church; more or less Shooting can also be had.

Offers will be received till January 18th, 1155, by G. A. GREY, Esq., of Milfield Hill, Wooler, from whom further information may be had. A plan will be found with Mr. JOHN BROWN, Gardener, who will show the Farm.—Milfield Hill, Dec. 18, 1854.

TO BE LET, A PLOT OF LAND, with excellent facilities and advantages for converting into Nursery Grounds, enclosed with long brick walls, part well planted with trees. Beautiful water for Horticultural purposes can be had; also Meadow Land with Farm Buildings. and a good residence fronting the high road. Situate near a first-class railway station in Herts—the county of Roses and Orchids.—Apply, if by letter, post paid, to J. HINDMARSH, 7, Jewin Crescent, London.

TO GARDENERS, FLORISTS, NURSERYMEN & OTHERS.

TO BE LET, on Lease or otherwise, and entered upon at Lady-Day next, a PARCEL of LAND, containing about nine acres, adjoining the Railway Station, Atherstone, Warwickshire, situated in the Township of Whittington, in the parish of Grendon, and having thereon a LARGE SPAN ROOF PROPAGATING HOUSE, 104 feet long by 34 feet broad; and also a SPAN ROOF VINERY. planted with well-selected Vines, over five comfortable COTTAGES and OTHER BUILDINGS on the ground floor, being 121 feet long by 21 feet broad. The Land is bounded on the one side by a constantly running brook, into one part of which the sewage of a part of the town of Atherstone discharges itself, and when required is conveyed by pipes to the propagating house. The situation presents a desirable opportunity to a scientific and well informed Gardener, the communication being easy with London, Liverpool, and all the provincial towns. The price of coals moderate, and which are within a very short distance. If desired the buildings will be let with a part only of the Land.—Applications to be made to the Rev. EDWARD POWER, Grammar School, Atherstone, or to Mr. JOHN BAKER, Land Agent, &c., of the same place.—Atherstone, Jan. 1855.

TO BE SOLD, at about half-price, a PATENT CONSERVATORY—a Great Bargain—on account of making alterations; now standing in front of E. Dench's Patent Hothouse Works, King's Road, Chelsea.

MR. JOHN FAIRLIE, Cheveley Park, Newmarket, is prepared to supply EGGS from his various Stocks of Prize Poultry, at 15s. per Dozen, including Box.

DORKINGS.—A few BIRDS from the stock of an Amateur, whose Birds have this year taken prizes at Lincoln, Nelson, Birmingham, Kendal and Manchester.—Also during the season, a few SETTINGS of EGGS from the Prize Birds, at 10*s*. 6*d*. per dozen, including package.—Apply to R. ATKINSON, Singleton Park, Kendal.

TO BE SOLD, BUFF COCHIN CHICKENS, from first class Prize Birds, Brahma Pootra Chickens, from imported American Prize Birds, and Spanish Chickens. Also some very good one-year-old Birds of the above descriptions. Wire, Game, and Poultry Netting, Poultry Hurdles, Hen-houses, Chicken Coops, Flower Stands, and Trainers, Garden Arches, and every kind of Wire Work, useful and ornamental.—T. H. FOX's, City of London Wire Works, 44, Skinner Street, and 6 & 8, Snow Hill. Illustrated Catalogues forwarded post free.

Sales by Auction.

FANCY POULTRY.—PERIODICAL SALE.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 16th January, at 12 o'clock precisely, DORKING FOWLS, of the choicest quality, which have taken prizes at Colchester, Bury, Winchester, Surrey Gardens, &c., &c., from the yards of T. Dutton, Esq., of Streatham, and the Rev. F. Thursby, of Abingdon; Pure Aylesbury Ducks, White Embden Geese, Coloured and White Dorkings and Brahmas, from Mr. W. K. Breavington, of Hounslow; and many capital Cochins, Spangled Hamburghs, Polands, and Bantams, from Mr. Eason, Mrs. Fookes, and others.—Catalogues by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

COCHIN CHINA FOWLS.

MR. J. C. STEVENS begs to notify that he has received instructions from Thomas Sturgeon, Esq., of Grays, to announce for Sale by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 23d January, at 12 o'clock precisely, a selection of COCHIN CHINA FOWLS consisting entirely of first-class birds. *** This is the only old and known strain of Buffs now in the hands of the original breeder. Mr. Sturgeon has bred them with rare care and judgment for many years, no second-rate bird has been bred from, and they are unrivalled in their combination of form, size, and colour. Up to 1852 they were the winners of all the best prizes at Birmingham, Cheltenham, Winchester, &c., and were never beaten, since which they have not been shown till within the last few weeks, when they took the Silver Vase and 1st Prize at Manchester.—May be viewed the morning of sale, Catalogues, by enclosing a stamped directed envelope, to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

CONSIGNMENT FROM GHENT FOR ABSOLUTE SALE.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mons. A. Van Geert, of Ghent, to sell by Auction, at the Mart, Bartholomew Lane, on FRIDAY, January 26th, 1855, at 12 o'clock, about 500 fine Double Camellias, and 500 Indian and Ghent Azaleas, consisting of all the approved kinds, well set with bloom buds; also new Ghent hardy free-blooming Rhododendrons, of the finest colours, from the deepest red to the purest white; about 400 Standard Roses, including all the leading kinds; with four magnificent Sweet Bays, &c.—May be viewed the morning of Sale; Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

BROMPTON PARK NURSERY.

TO GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to an unreserved Sale by Auction, on the premises, the Brompton Park Nursery, Brompton, near the "Hoop and Toy," on MONDAY, January 22d, at 11 o'clock, by order of the Royal Commissioners for the Exhibition of 1851, in consequence of the land being required for the formation of new roads, a portion of the valuable Stock growing on the above celebrated Nursery, consisting of FRUIT TREES and EVERGREENS, comprising Standard and Dwarf trained and untrained Apple, Pear, Plum, Peach, Nectarine, Apricot, Cherry, a quantity of Vines, Clematis, and Ivies in pots, Rhubarb, &c.—May be viewed three days prior to the Sale. Catalogues may be had of the principal Seedsmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

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MR. BAILEY DENTON'S TABLES OF COST &c., price 1*s*. 4*d*. Sold by METCHIM, Parliament Street.

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The proprietors of this well-known Publication have endeavoured, in the present edition, to render it even more complete than the last; and have again obtained the valuable assistance of Mr. Robert Errington, Gardener to Sir P. Egerton, Oulton Park, who is acknowledged to be one of the best practical writers on Horticulture of the day.

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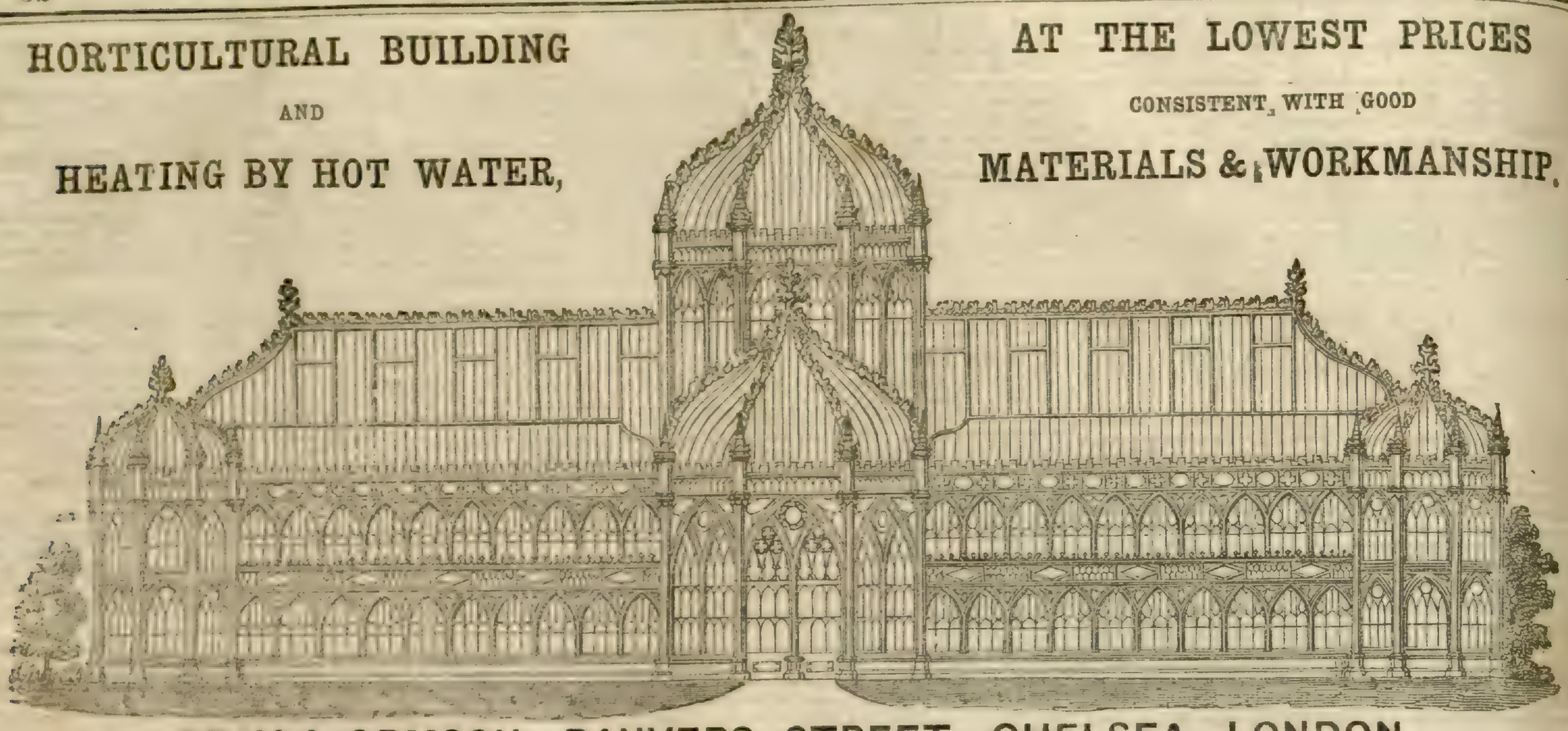

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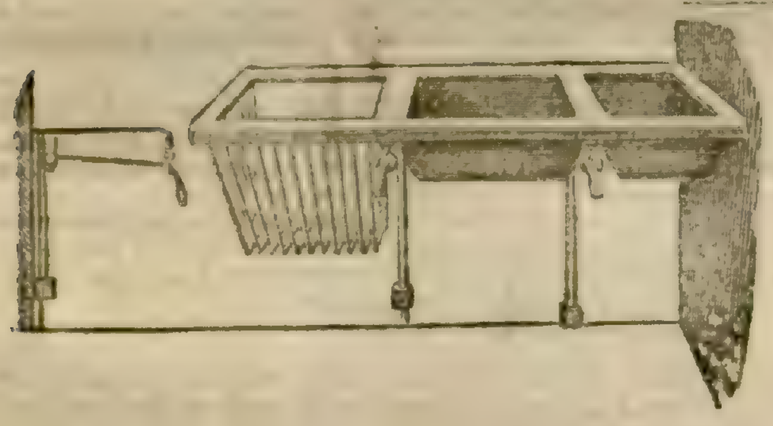

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P.S. Also, R. Kennedy's General Catalogue of British and Foreign Ferns forwarded on receipt of six postage stamps.

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7. Elizabeth, white claret spots
8. Jacksoni, crimson spotted
9. Leopardi, purple dark spots
10. Towardi, bright rose
11. Victoria, Pince's, crimson purple
12. Venus, pale blush

The above are some of the best in cultivation. A descriptive list sent on application.—Chilwell Nurseries, near Nottingham.

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8 to 9 feet high,	and 8 feet in circumference...		63s.	0d.	each.
8	"	and 4 to 5 feet	"	... 21	0	"
7 to 8	"	and 4 feet	"	... 15	0	"
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SUPERB HOLLYHOCKS, ROCKETS, SEEDS, ETC.

WILLIAM CHATER'S descriptive list of his superb HOLLYHOCKS, containing hints on their culture and observations on exhibiting, &c., may be had on application by enclosing a postage stamp. Packets of seed, consisting of 20 varieties, selected from the best show flowers, 5s.; 12 varieties, 2s 6d.; and from good double sorts, 1s.

Very superior Quilled German Asters, 12 distinct varieties, separate, 2s., mixed 1s. per packet. Also Choice French Asters, 12 varieties, separate, 3s., mixed, 1s. 6d. Fine Quilled African Marigolds, lemon and orange, 6d. per packet.

New Double Crimson ROCKET, excellent bedding plant for spring flowering, 6s. per dozen, or 2l. per 100. Double French White, 4s. per dozen, or 30s. per 100.

Saffron Walden Nursery, January 6.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. 27, Victoria Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, January 13, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 3.—1855.] SATURDAY, JANUARY 20. [PRICE 6*d*.

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SCOTTISH ARBORICULTURAL SOCIETY.—The First General Meeting will be held at the Institution Rooms, 6, York Place, Edinburgh, on WEDNESDAY, 31st January, at One o'clock, p.m., for the Election of Office Bearers, the Reading of Papers, and other Business.

Mr. JAMES BROWN, President, in the Chair.

All interested in the advancement of Arboriculture are invited to attend. JAMES ALEXANDER, Secretary.

Edinburgh, 20th January, 1855.

JAMES LAKE, Nurseryman, Seedsman, and Florist, Bridgewater, begs to return thanks for the very liberal support he has for many years received in the above business, and to inform the Public that the Firm LAKE AND DYER is this day dissolved, and that the business will be henceforth continued by him as heretofore on his own account.

Seed Establishment, No. 3, High Street. Dated Jan. 12, 1855.

CONQUEROR OF THE WEST CUCUMBER.—A Packet containing 12 good seeds of this first-rate Frame Cucumber, which for productiveness is second to none, will be sent, post free, on receipt of 12 postage stamps, addressed to JAMES LAKE, Nurseryman, &c., Bridgewater.

TO BE SOLD, at Prices that will be sure to give satisfaction, 10,000 STRONG CURRANTS of the following sorts, viz.:—Red and White Dutch, common Black and Black Naples, Wilmot's Superb Red, Champaign and Raby Castle. Also a quantity of strong dwarf trained Pears and Plums of the best sorts, Falstoff and other Raspberries, strong standard Pears, and a quantity of prime Seed Potatoes well kept of the best sorts. —For further particulars apply to JAMES LAKE, Nurseryman, Bridgewater.

MANGOLD WURZEL SEED.

TO BE SOLD, LONG RED and YELLOW GLOBE, growth of 1854, from superior stock.—Apply to R. S. HEWS, Kelvedon, Essex.

FRUIT TREES, SURPLUS STOCK.

APPLES, PEARS, PLUMS, CHERRIES, GOOSEBERRIES, & CURRANTS.

TO BE SOLD, at any reasonable offer, for the purpose of clearing some ground, several hundred Pear trees, comprising Winter Nelis, Gracilis, Williams' Bon Chrétien, Hazel, Summer, Portugal, Beurré Capiaumonts, and other varieties. 400 Wellington and Quarrinton Apples, 200 Prince of Wales and Magnum Bonum Plums, 50 Duke Circassian and Morello Cherries. All the above of about 10 years' growth, and coming into full bearing. 10,000 Rifleman Gooseberry Plants, from 1 to 4 years old, and 2000 large Red Grape Currants, 2 years old.

To view, apply to Mr. MITTON, Lampton, 1 mile from either the Isleworth or Hounslow Stations of the South Western Railway.

WANTED, DWARF COMMON MOSS ROSES.—Any party having the above to dispose of can address a line, naming lowest price and quantity, to WM. WOOD & SON, Maresfield. The Plants must be strong and well rooted.

WANTED, OLD WALNUT TREES.—Lowest price, cash, with size, by letter only, to E. S., 41, Fellows Street, South Pearson Street, Kingsland Road, London.

YEWS FOR HEDGES.

EDWARD SANG AND SONS, Kirkaldy, have for sale, at a low price, a large quantity of fine healthy YEWS, once, twice, and three times transplanted, in various sizes, from 12 to 30 inches high.

PEARS, STANDARDS AND DWARF TRAINED.

H. BIGLAND AND CO., NURSERYMEN, Whalley Range, Manchester (in consequence of their giving up the business), have a quantity of the above to dispose of at very reduced prices.

PYRAMIDAL PEAR TREES,

GRAFTED ON THE QUINCE STOCKS.

J. AND J. FRASER have still to offer strong trees of the above PEARS; a Descriptive Catalogue of the sorts may be had on application. To prevent disappointment early orders are requested, as the Stock of some of the varieties is getting low.—The Nurseries, Lea Bridge Road, Essex.

TO THE TRADE.

J. ROY, Jun., SEEDSMAN, Aberdeen, has got to hand a consignment of 35 bales of very superior CUBA BAST. The bales weigh about 1½ cwt. each. Price forwarded on application.

RHUBARB ROOTS for FORCING or PLANTING.—Strong one-year planted roots of MYATT'S VICTORIA and LINNÆUS, MITCHELL'S ROYAL ALBERT, at 6*s*. per doz.; HOWARD'S PRINCE ALBERT, 12*s*. per dozen. This is a larger variety than the Victoria, and is extensively cultivated about Manchester. Price to the trade of the above, per 100 or 1000, on application to MESSRS. J. MYATT AND SONS.

Manor Farm, Deptford, Jan. 20.

SUTTON'S SHORT SEED LIST.

SUTTON'S SHORT SEED LIST, *containing only the most desirable sorts, will be sent post free, in return for one penny postage draft or receipt stamp.*

SUTTON & SONS, Seed Growers, Reading, Berks.

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY for 1855 *is now published, price* 6d. *To be had of all Booksellers, and from*

WILLIAM E. RENDLE & Co., *Seed Merchants, Plymouth.*

TO THE SEED TRADE.

WILLIAM E. RENDLE, SEED MERCHANTS, Plymouth, *have to offer some very Choice Stocks of* SEEDS *to the Trade. Wholesale Catalogues can be had on application to*

WILLIAM E. RENDLE & Co., Union Road, Plymouth.

WHITE BELGIAN CARROT, MANGOLD WURZEL, &c.—*Several Tons to be disposed of at the lowest market prices.—Apply to*

WILLIAM E. RENDLE & CO., SEED MERCHANTS, Plymouth.

NEW SEEDS JUST HARVESTED *can now be obtained of the most genuine description, from*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

LYNCH'S STAR OF THE WEST CUCUMBER, *the best frame variety in cultivation. For description, see* RENDLE'S "*Price Current and Garden Directory*" *for* 1854.

Price 1*s*. 6*d*. and 2*s*. 6*d*. per packet.—Apply to WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

EARLY WHITE FIELD PEA.—NEW EARLY RACEHORSE—comes off early in July in time for Turnips and is a good cropper, price 12*s*. per bushel.

SUTTON & SONS, Seed Growers, Reading.

NEW DWARF FIELD PEA.—"BISHOP'S LAST AND BEST," a large grey Pea, only 1 foot in height, very prolific, and comes off very early. Adapted for growing between the rows of Mangold Wurzel and Swedes. To be dibbled in rows 3 feet apart, and the root crop to be subsequently drilled between them. One bushel of Peas sufficient for an acre. Price 16*s*. per bushel.

SUTTON & SONS, Seed Growers, Reading, Berks.

HOLCUS SACCHARATUS, OR CHINESE SUGAR CANE.

SUTTON AND SONS *can supply this Seed genuine as imported in sealed packets at* 1*s*. *or* 2*s*. 6*d*. *each. Post Free.*

For description and uses, see *Gardeners' Chronicle*, Dec. 30th, 1854, p. 835.—SUTTON & SONS, Seed Growers, Reading.

CHOICE CALCEOLARIAS.

J. COLE begs to offer a few dozen of his unbloomed Seedling HERBACEOUS CALCEOLARIAS from his choice stock; they were the admiration of all who saw them last summer. They are not potted off, though strong enough for large 60-sized pots. The Seed was saved from selected stock, carefully impregnated. J. C. offers them at 4*s*. per dozen, or 25*s*. per hundred. A remittance solicited from unknown correspondents.—Keyfield Nursery, St. Alban's, Herts.

GARAWAY, MAYES, AND CO., having a large Stock of LILIUM GIGANTEUM Seed, can supply full picked seed at 10*s*. 6*d*. per 100.

G. M. and Co. can supply DIOSCOREA BATATAS at the advertised prices. Early application is requested, as the stock is limited.

Catalogues of Kitchen Garden, Flowers, and Agricultural Seeds, may be had on application. Prices if desired. For prices of Cucumber and Melon Seeds see Advertisement of Dec. 30, 1854.

Durdham Down Nurseries, Bristol, Jan. 20.

DIOSCOREA BATATAS—THE NEW CHINESE POTATO.—This new esculent was fully described by Professor Lindley in the *Chronicle* of December 23, 1854.

The Subscribers are now importing a choice lot of Roots, and can supply them on the following terms:—

Four Tubers	£0 10 0	Fifty Tubers	£5 5 0
Ten "	1 2 6	Hundred "	10 0 0

First Orders will have the best Roots.—Apply to

WILLIAM E. RENDLE & CO., Seed Merchants, Plymouth.

JOSEPH WILSON, SEEDSMAN, Ipswich, offers the following EARLY SEED POTATOES:—The Early Champion Ashleaf seedlings, 12*s*; Jackson's improved Ashleaf, 9*s*.; the celebrated short top Ashleaf, 7*s*. 6*d*.; Nonpariel Kidneys, 6*s*. 6*d*.; Lapstone do., 6*s*. 6*d*.; and the British Queen, 7*s*. 6*d*. per bushel. The whole of the above varieties have been grown especially for seed; they are quite free from disease, and will be guaranteed true stocks; and for quality and yield they cannot be surpassed. Orders to any extent can be executed, free to London and no charge for sacks; and must be accompanied with a remittance.

THE FLUKE KIDNEY POTATO.—This excellent variety is now planted here as the principal crop, being more free from disease and more prolific than any other in cultivation. It was raised in Middleton, and may be had genuine in any quantity at 5*s*. per bushel of 56 lbs.—Apply to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

Post Office Orders to be made payable at Middleton, Lancashire.

THE FLUKE POTATO.—A new second early variety, surpassing every other in its capability of resisting the Potato disease, and without exception the finest and most prolific Potato in cultivation. Price per cwt., 15*s*., bags included.

To be had genuine of THORNHILL & DICKSON, Lawrence Hill Nurseries; and No. 1, Wine Street, Bristol.

REGENT AND JERSEY BLUE POTATOES, of the finest flavour, direct from the grower. Delivered carriage free within three miles of King's Cross Station, at 14*s*. 6*d*. the imperial sack of 224 lbs., for cash on delivery. Choice Seeds from the best growers. Orders executed by C. FLITTON, Factor, 21, York Road, King's Cross.

NEW CAULIFLOWER.

WAITE'S "ALMA," far superior to Walcheren very large and firm heads. Price to the trade 24*s*. per lb. smaller quantities 2*s*. 6*d*. per oz. No orders attended to for less quantities than one ounce.—Seed Establishment, 181, High Holborn, London.

DILCOCK'S BRIDE BROCCOLI.

SIXPENCE PER PACKET.

BAINBRIDGE AND HEWISON (Proprietors of this far-famed Broccoli), beg to inform their friends and customers that they are prepared to send it out this season from selected stock of their own growth. The trade can have price on application, and early orders are respectfully solicited.

York Nurseries, Jan. 20.

GOLDEN DROP GREEN FLESH MELON,

SIX SEEDS FOR 1*s*. 6*d*.

WILLIAM WOOD AND SON having received a parcel of Seeds of the above splendid Melon from a party on whom they can confidently rely, have much pleasure in offering it for sale. The following Melons are also highly recommended and may be had post free at 1*s*. per packet:—Golden Perfection, Bromham Hall Green Flesh, Austen's Incomparable, Egyptian Green Flesh, Hybrid Scarlet Flesh, Beechwood True.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

COLE'S CRYSTAL WHITE, & COLE'S DWARF RED CELERY.

J. THORNELEY, COLE, & Co., NURSERYMEN, SEEDSMEN, and FLORISTS, Withington, near Manchester, beg to announce that they are now prepared to supply these two well-known varieties, raised by Mr. W. Cole (late of Dartford).

CRYSTAL WHITE, ½ oz. packets, free by post, for 12 stamps
SUPERB DWARF RED, ½ oz. pkts., free by post, for 9 stamps.
Price per lb. to the Trade on application.

JOHN HOLLAND can supply, in strong plants, the heaviest Lancashire Show GOOSEBERRIES (named), of excellent flavour, and large size, at 6*s*. per dozen, on receipt of Post-office order, payable to JOHN HOLLAND, Bradshaw Gardens Middleton, near Manchester.

GODFREY'S BLACK SPINE.

SPLENDID AND PROLIFIC FRAME CUCUMBER.

WOOD AND INGRAM beg to offer seeds of the above beautiful variety. Colour, magnificent dark green, with a very fine bloom; average length, 18 to 21 inches, and produces in great abundance through an entire season. Packets, containing 12 seeds, 2*s*. 6*d*.; 6 ditto, 1*s*. 6*d*.

W. & I. will be happy to refer any persons wishing further information respecting the variety to three or four Noblemen and Gentlemens' Gardeners who have grown it, and prefer it to any other.

London Agents: Messrs. HURST & M'MULLEN, 6, Leadenhall Street.

W. & I. have also the following esteemed varieties to offer, in packets, 1*s*. each, containing 12 seeds:—

Sion House	Sagg's Royal Exhibition
Barnes's Fearnought	Conqueror of the West
Walker's Prolific	Improved Sion House
Constantine's Incomparable.	Manchester Hero.

Huntingdon Nurseries, January 20.

SUPERB HOLLYHOCKS, ROCKETS, SEEDS, ETC.

WILLIAM CHATER'S descriptive list of his superb HOLLYHOCKS, containing hints on their culture and observations on exhibiting, &c., may be had on application by enclosing a postage stamp. Packets of seed, consisting of 20 varieties, selected from the best show flowers, 5*s*.; 12 varieties, 2*s* 6*d*.; and from good double sorts, 1*s*.

Very superior Quilled German Asters, 12 distinct varieties separate, 2*s*., mixed 1*s*. per packet. Also Choice French Asters, 12 varieties, separate, 3*s*., mixed, 1*s*. 6*d*. Fine Quilled African Marigolds, lemon and orange, 6*d*. per packet.

New Double Crimson ROCKET, excellent bedding plant for spring flowering, 6*s*. per dozen, or 2*l*. per 100. Double French White, 4*s*. per dozen, or 30*s*. per 100.

Saffron Walden Nursery, January 20.

SNOW'S SUPERB BROCCOLI.—Every seed new and true. Sealed packet, 1*s*.; per oz., 3*s*.; pound bags for the trade on liberal terms.

GLENNY'S IMPROVED BALSAM.—Unequalled for size, doubleness, and colour; 6 classes, 3*s*.; mixed, 1*s*.; sealed packets with culture.

DOUBLE HOLLYHOCKS from noble flowers. Sealed packet, 1*s*.

Stamps or P.O. orders to GEORGE GLENNY, Horticultural agent, Dungannon House, Fulham. Sales, valuations, &c., attended; Ground Laid Out, Rockwork, Ornamental Water, &c., planned and executed.

R. PARKER begs to offer the following:—CINERARIAS (Seedlings), from all the finest varieties carefully selected, including the new varieties sent out last autumn Strong established plants, in 4-inch pots, at 4*s*. per dozen. A choice collection of named Cinerarias in strong established plants, purchaser's selection, at 9*s*. per dozen.

ROSES, consisting of the best varieties of Hybrid Perpetuals, Teas, Bourbons, &c., well established in pots. Purchaser's selection, at 12*s*. per dozen. List of names forwarded upon application.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Islington.

TWO NEW CUCUMBERS—"SIR COLIN CAMPBELL" AND "GENERAL CANROBERT."—For the full Description of the above two unequalled Cucumbers, and the List of EDWARD TILEY'S Collection of Cucumbers and Melons, which have all been thoroughly proved, see Advertisement and Cut in the *Gardeners' Chronicle* of January 13, 1855.

Sir Colin Campbell	... ...	3*s*. 6*d*. per packet.
General Canrobert	... ...	3 6 "

A packet of either of the Melons mentioned in the former Advertisement will be given to the Purchaser of the above two Cucumbers. A remittance in cash or penny postage stamps must accompany every order, and the whole or any part (as the case may be) will be immediately forwarded.

EDWARD TILEY, Nurseryman, Seedsman, and Florist 14, Abbey Church Yard, Bath, Somersetshire.

CARTER'S PROLIFIC RASPBERRY.—In consequence of J. CARTER seeing his Raspberry quoted in a Nurseryman's Catalogue, who J. C. has reasons for knowing does not possess the true variety, and wishing to prevent imposition, begs to announce that the undermentioned are the only Nurserymen who have been supplied by J. C., or his agents, Messrs. Hurst & M'Mullen. Should other Nurserymen favour with their orders their names will be added to the list; the stock is very limited. Price may be had on application to Messrs. VEITCH & SON, Exeter; RENDLE & Co., Plymouth; WOOD & SON, Marcstield; Low & Co., Clapton; RIVERS, Sawbridgeworth; PALMER, Annan; TURNER, Slough; APPLEBY, York; DOWLING, Southampton; A. SMITH, Sydnope; FISHER & HOLMES, Sheffield; GEORGE GLENNY, Fulham; URQUHART & SON, Dundee; T. BUNYARD, Maidstone; HURST & M'MULLEN, London; or

JOHN CARTER, JUN., NURSERYMAN, Keighley.

BANKS' NEW SEEDLING FUCHSIAS FOR 1855.

W. J. EPPS begs to state that he has purchased the following Seedling Fuchsias, raised by that celebrated grower, E. BANKS, Esq., of Sholden Lodge, Deal; they were the first selection from his splendid batch of Seedlings of 1854, and have been thoroughly proved. They are distinct, rich, and the greatest advance upon any of the kinds known, and cannot fail to give the highest satisfaction.

CLIMAX.—(named by Mr. BANKS).—Tube stout, sepals very broad reflex, with a pretty curve or half circle, the points of the petals touching the seed vessel; colour, rich velvety crimson—the corolla is very large, of a splendid violet blue and great substance: habit, robust, and blooms particularly free. 7*s.* 6*d.*

FAIRY QUEEN.—Very distinct and striking, immense bloomer, beautiful waxy white tube and sepals, tinged with lemon; long well-proportioned flower; corolla large, and of a very rich plum colour puce. 7*s.* 6*d.*

GRAND SULTAN.—A very noble flower, and will be many years before it is equalled; beautiful foliage, and first-rate for exhibiting; flowers large, very stout, sepals reflex, similar to the Turn Cap Lily, and of a very rich crimson colour; corolla large, and very dark velvety purple. 7*s.* 6*d.*

MAID OF KENT.—This Fuchsia is pronounced by the following judges, viz., Mr. Edwards, Secretary to the Floricultural Society; Mr. Barnes, of Camden Nursery; Mr. Todd, of Sutton, to be the prettiest and most distinct Fuchsia yet raised; habit, dense and bushy, producing great clusters of pretty reflexed blooms, of great substance, very clear waxy white, with a rich plum-coloured puce corolla, and exceedingly striking. 10*s.* 6*d.*

BEAUTY OF THE BOWER.—A very rich and perfect formed flower, scarlet tube and sepals, which reflex over the tube, displaying a beautiful dark purple corolla of great substance: habit, perfect. 7*s.* 6*d.*

OMER PACHA.—A large and well-proportioned flower, with dark crimson tube and sepals: corolla, intensely dark velvety purple: habit, excellent and very graceful. 7*s.* 6*d.*

The Set will be sent out in April.—Strong Plants, at 42*s.*

The usual discount to the Trade where three of each are taken.

Agent:—HURST and M'MULLEN, Seed Merchants, Leadenhall Street, London.—Bower Nurseries, Maidstone.

MESSRS. E. G. HENDERSON AND SON, of the Wellington Nursery, St. John's Wood, London, will commence sending out plants in April next of their NEW SEEDLING FUCHSIAS WITH WHITE COROLLAS, BOTH DOUBLE AND SINGLE, also TWO STRIPED OR VARIEGATED COROLLA'D FUCHSIAS, and TWO UNIQUE FUCHSIAS with VIOLET AND BLUE COROLLAS. The last two were purchased of E. Banks, Esq., after having been flowered, the second season, and proved as flowers possessing unquestionable merits, and unequalled by other red varieties previously sent out. All the other varieties were purchased of W. Story, Esq., of Newton, in the county of Devon, who succeeded in introducing a Scarlet Fuchsia with White Corolla, which new feature in this tribe gives one of the greatest novelties that they have had the pleasure of seeing for many years. Mr. Story, being the raiser of this new Class, offered them to Messrs. Henderson for ONE HUNDRED GUINEAS, which offer they accepted. A faithful drawing of three of the varieties here offered has been taken by Mr. James Andrews, the well-known floricultural and horticultural artist; sketches from which have appeared in Van Houtte's "Flore des Serres," Verschaffelt's "Illustration Horticole," and will also appear in Turner's "Florist," for February. The dwarf, compact, and free flowering habits of the plants will be sure to please every grower of this tribe.

QUEEN VICTORIA (Story's).—Splendid wide sepals, beautifully reflexed, of a bright scarlet crimson, and a lovely clear white corolla. Price 10*s.* 6*d.*

PRINCE ALBERT (Banks's).—Scarlet crimson sepals reflexed, and rich violet corolla. This flower we consider unequalled by any, its reflexing properties being such that either more or less would be a fault; indeed the flower is perfection itself. 10*s.* 6*d.*

MRS. STORY (Story's).—Fine large scarlet tube, long wide sepals reflexed; corolla fine substance, and clear white. 10*s.* 6*d.*

RANUNCULÆFLORA (Story's).—Scarlet sepals and tube, with double white corolla, a flower not having that confused appearance as many of the double varieties are known to possess. This was considered the best of the only two double white varieties flowered by Mr. Story. 21*s.* The other double variety we do not appear to have received.

PERUGINO (Story's).—Fine large scarlet sepals and tube, with a conspicuous striped corolla of rose and purple flakes, handsomely reflexed and free flowering. 10*s.* 6*d.*

EMPRESS EUGENIE (Story's).—Wide reflexed petals of a rosy crimson, the inside of petals having a violet shading; corolla fine white. 10*s.* 6*d.*

RAFFAELLE (Story's).—A beautiful variegated corolla with crimson sepals well reflexed, and of good substance; the colour of the corolla is a rich chocolate flaked with rose, free flowering. 10*s.* 6*d.*

LADY OF THE LAKE (Story's).—Fine deep crimson, with a blush white corolla, very pretty. 10*s.* 6*d.*

WATER NYMPH (Story's).—Bright scarlet crimson globe stout wide petal, corolla fine clear white; an elegant flower. 10*s.* 6*d.*

Or if the set of nine be taken, the price, 4*l.* 4*s.*—January 20.

FUCHSIA (Banks Favourite).—Fine handsome scarlet sepals and tube; large and conspicuous flowers, with sepals finely reflexed; and a splendid blue-violet corolla of great substance. The weak plant being small the number of plants will be limited. Price 10*s.* 6*d.*

MESSRS. E. G. HENDERSON AND SON were surprised to see an advertisement a few weeks back in the *Gardeners' Chronicle*, from Messrs. Lucombe, Pince, and Co., of Exeter, offering two new Fuchsias, similar in character to those described above, and after a written communication with Mr. Story, it was thought necessary for one of the Firm to make further inquiries about them, and in consequence Mr. ANDREW HENDERSON went to Exeter and Newton, where he was informed by a jobbing gardener at Newton that he had received SEVEN POUNDS for them after (as the said jobbing gardener stated) he had been offered 20*l.* for them by a Nurseryman in London, but whose name or address he did not know.

Messrs. E. G. H. & Son think the above explanations necessary, in consequence of a great number of their customers having ordered them at higher prices than are quoted above. This reduction is made in consequence of information which they have received, that leaves no doubt on their minds but that those to be sent out by Messrs. Lucombe, Pince, & Co., are similar in character to the above.—Wellington Nursery, St. John's Wood.

SEED GROWERS' SOCIETY.—The Members of this Society, being at all times desirous to meet any alteration in the markets, are prepared to supply GENUINE SEEDS according to the following scale of prices, comprising Mangold Wurzel, per cwt., Long Red, 40*s.*; Yellow Globe, 45*s.*; Long Yellow, 50*s.*; Red Globe, 50*s.* Carrot, per cwt., Altringham, 9*l.* 9*s.*; Early Scarlet Horn, 9*l.*; James' Green Topped, 8*l.* 8*s.*; Long Surrey, 7*l.*; White Belgian, 6*l.* 10*s.*; Yellow Belgian, 6*l.* Swedes, 55*s.* per bushel; other Turnips, 22*s.* to 30*s.* per bushel. Scarlet Runners, 24*s.* per bushel. Mignonette, per lb., 1*s.* 9*d.*; Giant do., 1*s.* 6*d.* Lettuces, per lb., Drumhead, 6*s.*; Bath Cos, 6*s.*; Brown Dutch, 3*s.* 6*d.* Other Lettuces, Cabbages, Broccoli, Parsnips, Beet, Celery, &c., and Flower Seeds, a list of which may be had by applying to the Secretary, Feering, Kelvedon, Essex. By order, JOHN MOSS, Jun., Secretary.

R. PARKER begs to offer the following CHOICE SEEDS, all of which are warranted new and true to name:

GODFREY'S (BLACK SPINE) CUCUMBER, the finest variety in cultivation, packets containing 12 seeds 1*s.* 6*d.*

Also the following esteemed varieties of CUCUMBERS and MELONS, in packets containing 12 seeds, at 1*s.* each:—

CUCUMBERS.	MELONS.
Henderson's Black Spine.	Victory of Bath.
Improved Patrick.	Beechwood.
Walker's Long Rambler.	Bromham Hall.
Manchester Prize.	Canteloupe.
Hunter's Prolific.	Duke of Bedford.
Superlative Improved.	Golden Perfection (extra fine).
Cuthill's Black Spine.	Scarlet Flesh (Anderson's).

Ohio Squasha Custard Gourd, 6*d.* ... ... per packet.
Antirrhinum, from named flowers, 6*d.* ... "
Calceolaria, from fine varieties, 1*s.* 6*d.* and 2*s.* 6*d.* "
Hollyhock, from fine named varieties, 1*s.* 6*d.* and 2*s.* 6*d.* "
Lilium giganteum, the most distinct and noble species of the genus, packets containing 20 seeds, 2*s.* 6*d.*

*** A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Islington.

SELECT PEAR TREES.—The following extract from the "Miniature Fruit Garden" is a list of 24 fine varieties of PEARS that succeed well on the Quince Stock, and form handsome pyramids and bushes, ripening in succession from July till April and May.

Pears for Pyramids, 2*s.* each.

Doyenné d'Eté	Beurré Sterkman
Colmar d'Eté	Zephirin Gregoire
Baronne de Mello	Winter Nelis
Louise Bonne of Jersey	Bergamotte d'Esperen
Alexandre Lambré	Beurré d'Anjou
Beurré d'Aremberg	Prevost

The above form very handsome pyramids, they have been carefully pinched in, so that they are well furnished with young branches down their stems, most of them have blossom buds, and will bear this season.

Pears for bushes, 2*s.* each.

Alexandre Bivort	Melon de Namur
Beurré d'Amanlis	Onondaga
" Diel	Nouveau Poiteau
" Langelier	Grosse Calebasse (C. Carafou)
" Wetteren	Doyenné Boussoch
Maréchal de la Cour	Rousselon (Esperen)

The above nearly all bear large fruit, and when grown as bushes are well adapted for gardens exposed to the wind; they bear profusely and require scarcely any care in pruning; the trees offered are mostly full of blossom buds, and will bear this season. A Descriptive Catalogue of Fruits sent for four stamps, the cost of postage. Carriage paid to London.

THOMAS RIVERS, Nurseries, Sawbridgeworth.

SPECIMEN IRISH YEWS.

THOMAS JACKSON AND SON, having a large Stock of fine specimens of this very ornamental tree, beg to offer them at the undernamed low prices.

8 to 9 feet high,		and 8 feet in circumference...	63*s.*	0*d.*	each.
8	"	and 4 to 5 feet " ...	21	0	"
7 to 8	"	and 4 feet " ...	15	0	"
6 to 7	"	and 3 to 4 feet " ...	10	6	"
6	"	and 3 feet " ...	7	6	"

Handsome smaller specimens at proportionately lower prices.

Kingston, Surrey.

FRUIT TREES.—SURPLUS STOCK.

WILLIAM JACKSON AND CO., Bedale, Yorkshire, having a portion of their Nursery Ground to clear, beg to offer the following FRUIT TREES of the most useful and approved sorts, strong and well grown, in a bearing state, at annexed cheap rates:—

	Per dozen.—*s.*	*d.*
Apples and Pears, good strong Standards	8	0
Do. do. do., Dwarfs	6	0
Do. do. do., Dwarfs, trained	18*s.* to 24	0
Cherries, good strong Standards	10*s.* to 12	0
Do. do. do., Dwarfs, trained	24*s.* to 30	0
Plums, good strong Standards	9*s.* to 10	0
Do. do. do., Dwarfs trained	24*s.* to 30	0
Apricots, Peaches, and Nectarines, trained	42*s.* to 48	0

A reference or remittance is respectfully solicited from unknown correspondents.—Jan. 20.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY respectfully invite attention to their stock of the following very desirable HARDY PLANTS.

Araucaria imbricata, from 2 to 7 feet high; as handsome as plants can be.
Cedrus Deodara, in any quantity, from 1 to 3 feet high
Do. do., 4, 5, 6, 7, 8, and 10 feet high; splendid plants
Cedars of Lebanon, 3, 4, 6, and 10 feet high
Pinus Douglasi, 3 to 10 feet
" insignis, 2 to 7 feet
" Menziesi, 3 to 7 feet
" Pinsapo, fine plants, 3 to 6 feet
" Nordmanniana, 1½ to 3 ft., all from seed and remarkably handsome
" nobilis, 1½ to 2 feet; a few larger, 5 and 6 feet high, on their own roots, and with perfect leaders
" Montezumæ, 2 to 4 feet
Pinus canadensis, 3 to 8 feet
Cupressus macrocarpa or Lambertiana, 4 to 7 feet
" thyoides variegata, 3 to 4 feet (the variegated white Cedar)
Juniperus, Upright Irish, perfect columns, 3 to 7 feet
" chinensis, 2 to 8 feet
Yew, common English, 3 to 8 feet
" Irish, 4 to 10 feet
" gold-striped, 1½ to 3 feet
" do., tall standards, 4 to 7 ft.
" Dovaston, or Weeping, worked on tall straight stems
Thuja aurea, the finest plants in the country
Libocedrus chilensis, the finest plants in the country
Large variegated Hollies
" Standard Bays

Also an immense stock of large Evergreens, Standard Ornamental Trees, &c.

All the plants here offered may be seen growing in our Nursery; they are removed every year, and will travel any distance with perfect safety. Of some, such as Araucarias, Deodaras, Golden Yews, Thuja aurea, Pinus nobilis, Nordmanniana, we have any quantity; and the plants, for root and branch, are not to be surpassed. Priced Catalogues will be forwarded on application, enclosing two postage stamps, to WATERER and GODFREY, nephews and successors of the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey, near the Woking Station, South-Western Railway, where all trains stop, and where capital conveyances can be obtained.

The 2*d.* stamp will also include a descriptive Catalogue of their American Plants, Roses, and Nursery Stock in general.

EARLY DANIEL O'ROURKE PEAS.

J. G. WAITE begs to inform the Trade that he is now ready to execute orders for this valuable early Pea. Price can be had on application.

Seed Establishment, 181, High Holborn, London.

NEW PEA.

W. J. EPPS, SEED MERCHANT and GROWER, Maidstone, has much pleasure in offering the following Pea, feeling assured it will give the highest satisfaction.

LORD RAGLAN, OR IMPROVED MAMMOTH.

This Pea was selected from Hair's dwarf Mammoth two years since, and is unquestionably the best and finest in cultivation, and will prove to be the standard Pea of the day. It is a dwarf green wrinkled marrow of very large size, and an immense cropper. Habit dwarf, branching 3 to 4 feet high, producing immense clusters of large bright green pods from the base of the haulm to the top, and similar in shape to the Scimitar, but of greater size, well filled with seven to ten Peas, which are larger than the British Queen, and equal, if not superior in its flavour.

Price, 5*s.* per Quart. Wholesale Prices to be had on application.

Agent: Messrs. HURST and M'MULLEN, Seed Merchants, Leadenhall Street, London.

NEW SORTS OF PEAS.

CARRIAGE FREE, EXCEPT PARCELS UNDER 20*s.* VALUE.

SUTTON AND SONS *have much confidence in recommending the undermentioned* PEAS, *as being not only new and distinct from others, but also as possessing superior properties.*

Prices per peck or bushel may be had on application.

	s.	*d.*
PRIZETAKER.—New, fine long green pods, which hang so closely as almost to cover the haulm from top to bottom. Numerous prizes were awarded to the Prizetaker last summer. This is the first season we have offered it for sale. Height 5 feet	3	
BECK'S EARLY GEM.—New, prolific, and fine flavour; particularly adapted for narrow borders and for small gardens. Height 1½ foot	1	
FAIRBEARD'S NONPAREIL.—New wrinkled marrow-fat, very sweet, juicy, and prolific; 9 or 10 will be found in every pod, and the pods extremely numerous; 4 ft. high	2	

SUTTON & SONS have a large stock of good old kinds at low prices, as see their Priced List, just published.

SUTTON & SONS, Seed Growers, Reading.

DICKSON'S EARLY FAVOURITE PEA (NEW).

FRANCIS AND ARTHUR DICKSON AND SONS, SEED MERCHANTS, &c., Chester, have much satisfaction in introducing the above new Pea, which they believe they are perfectly justified in saying is the best and most prolific Early Pea in cultivation.

It has been tried side by side with all the best early and second early Peas of the day, and has been pronounced by many eminent gardeners who saw it under the circumstances to be much superior to any variety of its season hitherto introduced.

It comes in about a week later than the "Early Emperor" (sown at the same time), grows about 4 feet high, and produces a wonderful profusion of pods, which contains on an average 9 Peas of excellent quality and flavour. It has been grown the last two seasons in the Gardens of the Horticultural Society, and Mr. Thompson, in reporting upon it, writes as follows:—

"Horticultural Society's Gardens, Dec. 20th, 1853.

"In reply to your inquiry respecting DICKSON'S EARLY FAVOURITE PEA, I beg to state that I consider it a *new* and very *desirable* variety. It is very prolific in pods, and also as regards the number of Peas in the pods, and the quality is excellent. It most resembles the 'Auvergne,' but is earlier than that excellent sort, and the pod is not so much hooked. R. THOMPSON."

"Horticultural Society's Gardens, June 28th, 1854.

"I beg to hand you a copy of the memorandum which I made respecting your EARLY FAVOURITE PEA, amongst others, again this season. About four feet high, very prolific; pods long, roundish, slightly curved, containing on an average nine to ten Peas of excellent quality. Bears some resemblance to the 'Auvergne,' but differs in having straighter pods, and it is much earlier than the 'Auvergne.' *An excellent prolific Early Pea.*

"R. THOMPSON."

In July last a dish was sent to the Horticultural Society's Room, London, and Dr. Lindley reports upon it as follows [see *Gardeners' Chronicle* of July 29th, Notice to Correspondents, "F. & A. D. & Sons."] "Having made the necessary inquiries we are able to state that your 'EARLY FAVOURITE PEA' is a distinct and very useful variety among the class of second early to which it belongs. The pods are unusually full."

Price 3*s.* 6*d.* per Quart; per Pint, 2*s.* Messrs. HURST and M'MULLEN, Seedsmen, &c., 6, Leadenhall Street, wholesale London Agents.—N. B. The Trade supplied on liberal terms.—106, Eastgate Street, Chester; (and 14, Corporation Street, Manchester).

Jan. 20.

THE NEW CHINESE POTATO (DIOSCOREA BATATAS).

MR. JOHN HENDERSON has the pleasure of informing the Nobility, Gentry, and Clergy, that the opinions already expressed by him (in the columns of this journal) respecting the excellent qualities of the above new esculent (which he has had the honour of introducing into this country) are fully borne out by the most eminent Horticulturists and Botanists of the day, among whom he may mention Dr. Lindley, Professor Decaisne, of the Museum of Natural History, Paris; M. Louis Vilmorin, the well-known and scientific horticulturist; and M. Pépin, of the Jardin des Plantes, Paris.

Mr. J. HENDERSON also begs to call attention to the leading article in the *Gardeners' Chronicle* of the 13th inst., giving a full description of experiments made last year in order to test the value of this new vegetable; and which proves that in produce it is greater than the ordinary Potato, of hardier growth, and in its eating, cooking, and keeping qualities far its superior.

Tubers, with description of the Chinese mode of culture, to be obtained of Mr. JOHN HENDERSON, Kingskerswell, South Devon, at the following prices for cash:—

Four tubers, 10*s.*; ten do., 1*l.* 2*s.* 6*d.*; fifty do., 5*l.* 5*s.*

Post-office orders are requested to be made payable at Newton Abbott, South Devon.

NEW SEEDLING POTATO—THE CHAMPION KIDNEY.

This Potato bears a great resemblance to that fine old Potato the Ashleaf Kidney; it possesses the following good qualities over the Ashleaf. If planted at the same time it will be ten days earlier, all the sets always vegetate well, and do not die off in the ground as the Ashleaf does: 2 pecks of seed will produce a greater weight of Potatoes than 3 pecks of the Ashleaf. It is quite equal to that in flavour, and is eatable during the whole winter. Sets that have had the shoots broken off five or six times during the spring will vegetate again as if it had been the first shoot. About twenty Gentlemen and Gardeners who had seed to plant last season have assured me that they never before grew any Potato to equal it, and should continue to grow it as a first early Potato. Numerous orders have been already received from persons who saw it growing during the last summer. It has been grown and thoroughly proved for the last four years and found to be less liable to disease than any other Potato that has been grown. Out of 25 sacks grown this season there was not a single diseased Potato among them.

Sold in quantities of not less than 1 peck; they will be sent Hamper and Package free, at 5*s.* 6*d.* per peck, or 4 pecks for 1*l.* hamper free. A remittance in cash must accompany all orders, or small amounts in penny postage stamps. Purchasers would do well to name the nearest railway station to their residence.

EDWARD TILEY, NURSERYMAN, SEEDSMAN, & FLORIST,
14, Abbey Church Yard, Bath, Somerset.

WHEELER AND SON'S
SHORT SELECT SEED LIST.

OUR PRICED LIST OF SEEDS for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers. *We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year;* and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.

J. C. WHEELER & SON, GLOUCESTER.
SEEDSMEN TO THE GLOUCESTERSHIRE AGRICULTURAL SOCIETY.

To Farmers, Potato Growers, and Others.

JACKSON'S PATENT PREPARATION
FOR
PRESERVING POTATOES, WHEAT, AND OTHER SEEDS

From DISEASE, the RAVAGES of the SLUG, GRUB, and WIREWORM, in addition to which the CROPS are brought forward in HEALTH AND VIGOUR, and the yield is greatly increased, in proof of which the following extracts are given from numerous letters received by Mr. JACKSON.

EXTRACTS:—

"One of the fields of this farm, the property of MRS. STANBURY, was planted with Regents Potatoes in April last, some of which were prepared by you. The result now is, that the whole of the crop from the unprepared sets is thoroughly diseased, and hardly worth the trouble of taking up; while those raised by the side of them from the prepared sets are not only in a beautiful state of preservation from the disease, but the produce is much greater,—the Potatoes are more numerous than the others; indeed, if there were no such thing as the disease to be feared, it would be worth the trouble and expense of preparing the sets by your process, even for the sake of the improved crops. I shall certainly, for the future, prepare all my Potatoes for seed by your process; and I intend to adopt it for preserving my Wheat from the Smut.

"G. B. BAXTER.

"Belmont Farm, Eltham, Kent, August 28, 1854."

"Admiral Sir J. A. GORDON, K.C.B., Marlee House, Blairgowrie.

"SIR,—I have received your note of the 16th. The Potatoes that came here from England, prepared by Mr. JACKSON, were planted in a piece of new ground, and according to the directions sent by him along with them as to distance between the plants, &c. They came up well, with strong healthy stems; I have now taken the whole crop up, and there is not the slightest appearance of any disease amongst them. They are of large equal size and very prolific. There were long black unprepared Kidneys planted in the same patch, and a great deal of them are not fit for use, at least a third part are diseased. I hope Mr. JACKSON's process may be widely known, as it is a great boon.—I am, &c.,

JOHN SHANKS,
"Forester, Kildrummy Castle.

"Kildrummy Castle, Aberdeenshire, November 17, 1854."

"I am very much pleased with the result of the experiments I have made with your Prepared Potatoes; for I planted them, without any manure, in ground where for several years I have hardly had a sound Potato, and I now find the crop perfectly free from disease, and in a very fine condition; while those of the same sort, unprepared, which were planted at the same time, and next to them, are diseased and eaten by worms.

"The Potatoes from the Prepared Seed were so remarkably good that I was induced to weigh them, and I found, to my great astonishment, that they were as 200 to 150 of the others, or about 25 per cent. in favour of your preparation.

"T. AUSTEN, Nurseryman and Seedsman.

"Blackheath, Kent, 24th August, 1854."

Sold by Messrs. CHARLWOOD & CUMMINS, Seedsmen, Covent Garden; and JOHN KERNAN, Seedsman, 4, Great Russell Street, Covent Garden; all Seedsmen and Chemists; and at the Patentee's, 18, Cannon Street, London Bridge, in Packets of One, Two Three or Four Pounds, or in Bulk for the use of Farmers and Potato Growers.

TO THE SEED TRADE AND OTHERS.

THE SUBSCRIBER offers the following SEEDS, which have been grown and selected from the best stocks possible. Prices forwarded on application.

BROCCOLI.
Early White
Miller's Dwarf
Brimstone
Chappell's Cream
Imperial White
Dwarf Danish
Dilcock's Bride

CURLED PARSLEY.

PEAS.
Victoria Marrow
Fairbeard's Nonpareil
British Queen
(Very fine samples.)
Lord Raglan

TURNIP.
Laing's Swede (very true)
Red Tankard
Early Stone
Red American Stone
American Strap or Lettuce-leaved Stone.
White Globe
Green Globe

WURZEL.
Long Red
Yellow Globe

CELERY.
Cole's Crystal White
Cole's Red

EPPS, SEED GROWER and MERCHANT, Maidstone.

HOLCUS SACCHARATUS,
OR CHINESE SUGAR CANE.
(See GARDENERS' CHRONICLE, Dec. 30th, 1854.)

MR. JOHN HENDERSON, formerly of the firm of JOHN A. HENDERSON & Co., Pine Apple Place, London, has the honour to announce that he is prepared to supply Gentlemen, Amateurs, and Professionals, with seed of this most valuable and estimable plant.

As the Dioscorea Batatas seems well adapted to make good any deficiency arising from failure in the Potato crops, so this appears admirably calculated to meet many wants of the present day. That it may be used for the purposes of distillation, and may therefore preserve the grain of the country, is not less certain than that the leaf and stem (after the saccharine matter has been extracted) contain a large amount of fibre, of such a nature as can be employed in the manufacture of every kind of paper. In both these points, as well as in many others, this plant demands the attention of every Gardener and Amateur throughout the country; the more so as from the necessity that at present exists for the production of fibres that may be used in paper manufacture a due remuneration may be fairly expected by growers, even after the plant has, so to speak, paid itself by the saccharine matter extracted from it.

Mr. HENDERSON hopes, in a few days, to have ready for the press a more lengthened account of this plant, as well as a complete statement of the latest experiments in connection with the Dioscorea Batatas. As there are many varieties of the Holcus W. J. H. can only be responsible for seed forwarded by himself, which he is prepared to do in sealed packets, at 1s., 2s. 6d., 5s., and 10s., according to quantity.

Orders to be accompanied with a remittance to Mr. JOHN HENDERSON, Kingskerswell, Newton Abbot, South Devon.

P.S. Price to the Trade can be had on application.

SUTTON'S GRASS SEEDS (CARRIAGE FREE).

NATURAL GRASS SEEDS FOR PERMANENT PASTURES, separate or mixed, expressly to suit the soil.—Messrs. SUTTON and SONS having for many years paid especial attention to the examination of Natural Pastures, and the collecting of the Grasses which thrive in the various soils of Great Britain and Ireland, are enabled to supply the sorts and quantities of Seeds, varied to suit the soil for which they are intended. The cost will vary from **24s.** to **30s.** per acre, according to the sorts and quantities the soil requires.

FINE LAWN GRASS SEEDS, for making New or improving Old Lawns, price **1s.** per pound, 2s. 6d. per gallon, or 20s. per bushel. For forming new Lawns, 2½ bushels, or 50 lbs., is the quantity required per acre.

FINE GRASS AND CLOVER SEEDS FOR IMPROVING OLD PASTURES (SUTTON'S Renovating Mixture). Quantity required per acre, 8 lbs. to 12 lbs. **price 9d.** per lb.

N.B. It will be seen above that we have greatly reduced the prices of our Grass Seeds this season, especially the fine Lawn Seeds and "SUTTON'S Renovating Mixture" for improving Meadows and Pastures; and we doubt not that our liberal charges will induce a more general practice of sowing our superior kinds of Grass Seeds.

SUTTON & SONS, Seed Growers, Reading, Berks.

ARTHUR HENDERSON AND CO. beg leave to inform their patrons and friends that their Stock of VEGETABLE and FLOWER SEEDS (containing many choice and new kinds) is now ready for sending out.

Their Seeds may be fully relied on as being in every respect of first-rate quality, and true to their sorts. Catalogues may be had on application.—Pine Apple Place, Edgeware Road, London.

The Gardeners' Chronicle.

SATURDAY, JANUARY 20, 1855.

AT page 835 of the volume for last year some account was given of a so-called "SUGAR CANE," from the North of CHINA (*Holcus saccharatus*), and of experiments made in France with the view of ascertaining its value for the manufacture of sugar. In that article the exaggerated accounts which had appeared respecting it in foreign journals were corrected on the high authority of M. LOUIS VILMORIN, who has paid much attention to the cultivation and properties of the plant in question. In some of the English newspapers erroneous statements have also appeared, and so recently that they are probably even now in circulation. According to some of these, the plant yields 80 per cent. of sugar; whereas that is only the amount of juice which may be obtained, the greater part of which is water. The nature and proportions of the substances that the plant contains will, however, be best understood from an analysis which has recently been made, the results of which are as follows:—

	Per cent.
Water	63.88
Sugar, crystallisable and not crystallisable ...	18.64
Nitrogenous substances	1.06
Resinous, fatty and colouring matters ...	0.50
Woody fibre	15.41
Salts soluble in water (sulphates and chlorides)	0.27
Insoluble salts (of lime and oxide of iron) ...	0.23
Silica	0.01
	100.00

The above analysis was made from the middle portion of a stem: but, in consequence of the plants having been injured by carriage, it was found impossible to separate the crystallisable part of the sugar from the uncrystallisable. At all events, it appears that the richness of the plant in sugar is very remarkable.

The juice of the Holcus furnishes, M. VILMORIN observes, three important products:—Sugar, alcohol, and a fermented liquor analogous to cider. When the juice is obtained from peeled canes it is almost colourless, and may be said to consist of merely sugar and water. Its density varies from 1.050 to 1.075, and the proportion of its sugar from 10 to 16 per cent. Sometimes, however, as much as a third of the total amount of sugar is not crystallisable, and to this circumstance is attributed the facility with which the juice enters into fermentation, and the large amount of alcohol it affords compared with the quantity of sugar directly indicated by the saccharometer. From this it appears that the saccharine matter of the plant cannot be rendered wholly available in the sugar manufactory; for about one-third of it is lost. On the other hand, the state in which that one-third exists is considered the most favourable for the distiller, and for preparing a fermented liquor resembling cider. It is not expected that the Holcus can compete with Beet as regards marketable sugar produce in the north and middle of France; but in the south of France and Algeria, or indeed in any region between where the Sugar Cane ceases to thrive and the 44th degree of latitude, the Holcus may be profitably cultivated for sugar. Elsewhere M. VILMORIN concludes, from the results of his experiments, that it will be most advantageously cultivated for its alcoholic products. Its value in this respect may be estimated by the result of some experiments which he has made.

He obtained from stems, from which the peel had been stripped, at the rate of from 55 to 60 per cent. of juice. The upper joints and spikes were only cut off; but by cutting off more, and subjecting the stems to a better process of crushing, he thinks that 70 per cent. of juice could be obtained. The quantity of stems employed, large and small together, was 553 lbs., which gave 23 gallons of juice, of the density of 1.052; and as the pressing was done in a common cider press, he estimated that upwards of 3 gallons were lost in moistening the large surfaces of the apparatus. The proportion of sugar which the juice contained, as indicated by the saccharometer, was as follows, from plants grown at Verrières, and taken at different periods:—

SUGAR.

October 23d, 1853	...	10.04	per cent. of juice
Nov. 18th, 1853	...	13.08	" "
2d trial ...	...	14.06	" "
October 13th, 1854	...	10.14	" "
Nov. 14th, 1854	...	16	" " ; of which 11¾ were crystallisable, and 4¼ not crystallisable.

The quantity of pure alcohol was determined by the direct mode of fermentation, and the amounts are given in the order in which they were ascertained.

Juice from plants grown at Verrières:—

Sept 28th, 1854	...	4.1 per cent. of pure alcohol.
Oct. 4th, 1854	...	5.4 ditto ditto.

Juice from plants grown in Algeria:—

FIRST FERMENTATION, OCT. 17TH, 1854.

Second trial ...	7.0	by SALLERON'S apparatus.
	7.4	
	7.0 to 7.2	by distillation.

SECOND FERMENTATION, OCT. 18TH, 1854, 7.952 PER CENT.

Juice from plants grown at Verrières:—

Oct. 20	7.251	by distillation.
Nov. 16	6.326	panicles cut.
Nov. 17	6.467	panicles not cut.

Omitting the results of the trial made on the 28th of September, when the plants were evidently too young, and those with plants grown in Algeria, it appears that the average quantity of alcohol for the climate of Paris is about 6.3 per cent., or at the rate of $6\frac{3}{10}$ gallons of pure alcohol from 100 gallons of juice.

This per centage is considered very satisfactory, especially M. VILMORIN observes, when the excellent quality of the spirit is taken into account. The best idea of the value of the plant will, however, be obtained by calculating from the results of the experiments the produce per acre, according to which the yield is as follows:—

Stems and leaves	68,938 lbs., or upwards of 30 tons.
Stems only ...	43,984 " " 19 "
Juice, at 55 per cent. of weight of stems	2415 gallons.
Sugar calculated at 8 per cent. of juice	1935 lbs.
Pure alcohol, at 63 per cent. of juice	182 gallons.

For comparison with the above, the average produce of Beet-root is per acre:—

Roots	40,147 lbs., or nearly 18 tons.
Juice, at 80 per cent. of weight of roots ...	32,118 lbs., or upwards of 14 tons.
Sugar at 6 per cent. of juice	1927 lbs.
Pure alcohol, at 3 per cent. of Beet	120 gallons.

It will be observed that the quantity of sugar from the Holcus is estimated higher than that from the Beet-root; but the small difference would not compensate for the extra labour required for preparing the canes, and for the greater difficulty in extracting. The quantity of spirit, however, far exceeds that

derived from Beet-root, the difference being upwards of 60 gallons on the produce of an acre.

A liquor resembling cider can also be made from the Holcus, and is said to be very good when properly prepared. The quantity of juice, according to the above figures, would be 1207 gallons from the produce of an acre. For making this liquor, the canes require to be either exposed to the sun for several days, in order to concentrate the juices by evaporation, or to be placed in a slow oven; or the juice after being pressed out must be boiled down to the required density, along with about 7 oz. of fresh Oak chips for every 22 gallons of juice. The juice readily ferments with the addition of a little yeast, or with a bunch of Grapes squeezed into it.

These statements, which are entirely taken from M. LOUIS VILMORIN'S ample reports, appear to show that the Holcus may be profitably grown in this country for distillation, provided the Excise makes no objection. But we learn from Mr. JOHN HENDERSON that the refuse, which has not been at all considered in France, consists to a very great extent of excellent fibre easily extracted and easily bleached. We have ourselves ascertained that such a fibre is worth at least 10*l.* a ton to the paper makers, and probably half as much more. This very important fact seems to remove all doubt as to the value of the Holcus to cultivators.

It may, indeed, be an exhausting plant, like Maize and other white crops; but deep cultivation will meet this difficulty, if it be one, and at all events the value of its sugar and its fibre, taken together, ought to leave a handsome profit, even although an unusual quantity of manure should be necessary to replace what it may take out of the ground, supposing always, that the refuse left after distillation and the extraction of its fibre should not of itself represent as much as the crop has taken off.

For further information upon this interesting subject, the reader is referred to M. LOUIS VILMORIN'S report in the new volume of the *Bon Jardinier*, and to a detailed account of the Holcus cultivation which we understand Mr. HENDERSON is about to publish.

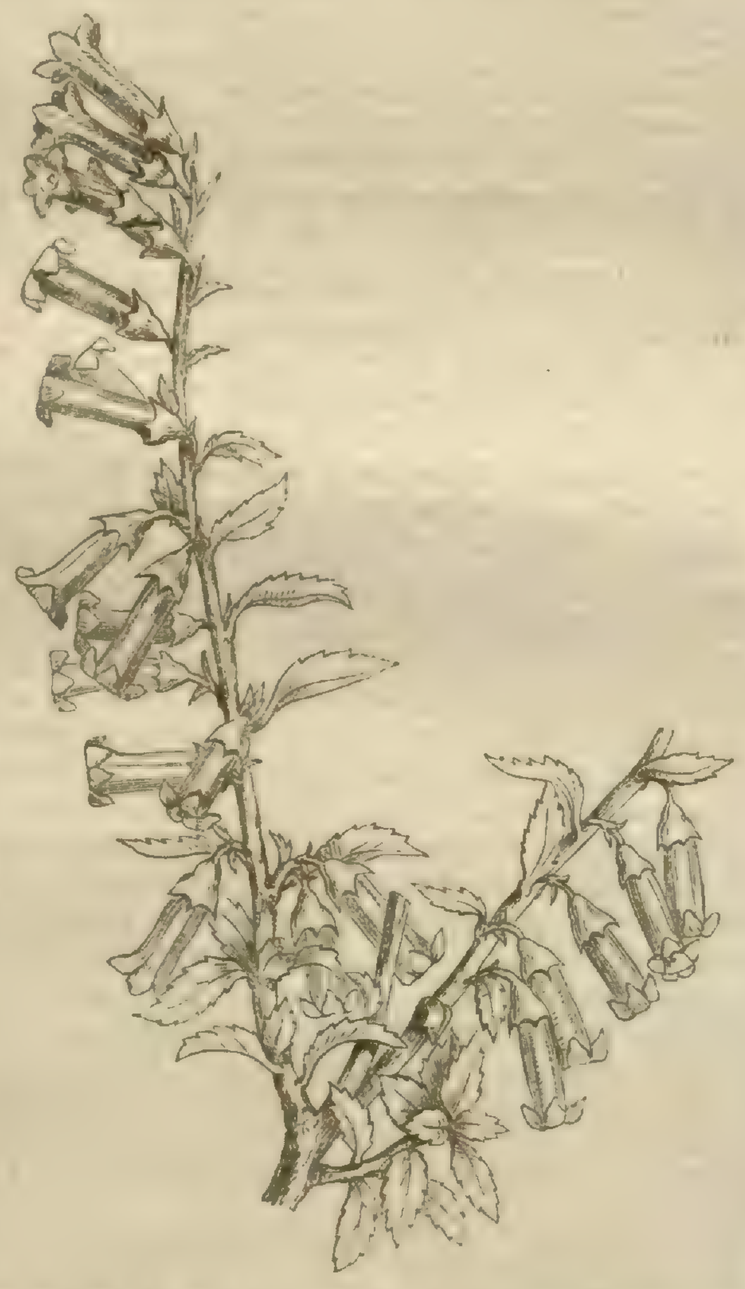
THE *Dorset Reporter* contains the following statement, entirely confirming the opinions we have always expressed concerning the CRIMEAN CLIMATE; as does all the intelligence received in this country from the seat of war up to the present time. The information was furnished by Mr. JAMES SINCLAIR who from 1838 to 1852 resided in the Crimea, as gardener to Prince WORONZOW, and may therefore be relied upon. He says:—"The open-air calendar of gardening for that, the south coast of the Crimea, with the exception of some few sowings in April, would suit to a nicety the whole south coast of England, from Cardigan to Harwich. If you place Eupatoria in Cardigan Bay; contract the Bristol Channel to the dimensions of the inlet before Sebastopol, and put Torquay at the head of the bay, to represent Inkermann; make the Land's End, Cape Khersonese, and the Isle of Wight, Balaklava, and so on down to Harwich, which represents Kaffa; then add our south-coast climate to that of the Crimea, and we are not far short of the mark. The winters are just as variable in the Crimea as they are in London or Edinburgh, but not so long. The summers are much warmer and longer than with us; the spring is earlier and the autumn is later there than here. Occasionally, but at long intervals, the frost is harder there than in England, by a few degrees, but does not last so long: for several winters in succession the snow never lies long on the coast, and the same kinds of plants do not require the same amount of protection in hard winters there as they do on the coast of Devonshire, because they ripen better by the hot summers in this part of the Crimea. The climate, however, is more relaxing than with us, and low bilious fevers creep on more and more on our people, after the first few years; my friend was seven years in the Crimea before he felt the effects of this climate; but at last he was reluctantly obliged to come home to recruit his strength, 'on leave of absence,' with a promise to return after a year or so, with new and improved breeds of plants and animals. He is now safe, and so will our soldiers be, for anything of a winter they may meet with there."

SOME LEAVES OF ARAUCARIA were lately submitted to us (as noticed in our answers to correspondents, Nov. 18, 1854), affected by some malady which causes a spotted appearance, and materially injures the beauty and symmetry of the leaves, on which the ornamental effect of the tree depends. The disease was evidently independent of the growth of parasites, though a minute fungus had been developed after incipient decay. The remarkable tendency exhibited of late in many parts of Germany by Conifers to cast their leaves prematurely, was at first supposed by GÖPPERT to arise from Hysterium Pini. But Dr. STEIN has carefully followed up the phases presented by the leaves, and was convinced, like ourselves in the instance of Araucaria, that the parasite was developed after their fall, in which case, and not before, the mycelium was found penetrating the tissues. There is, however, another disease which has been prevalent on the leaves of Conifers, causing them to assume a yellow tint, which has been prevalent since 1831, and which was examined by WALLROTH three years later, in consequence of its extreme prevalence. Two fungi, as WALLROTH supposed, accompanied the malady, which, according to Dr. STEIN'S observations, are really states of one single species. It germinates on the upper surface of the leaves, into which its mycelium soon penetrates, affecting especially the tissue beneath the stomates, and producing a conversion of the Chlorophyll into starch, which either vanishes entirely, or is multiplied to such a degree as to completely gorge the cells, forming large confluent solid masses of fecula. The cell walls soon assume a yellow tint, which passes into brown, and as a consequence the mycelium itself perishes. The yellow tint appears on the leaves in bands or spots of very different sizes, according to the strength and prevalence of the fungus, which belongs to the Cytisporous tribe, whose species are remarkable for naked hyaline spores discharged in the form of gelatinous masses or tendrils. Dr. STEIN does not state what is the exact genus or species to which it belongs; but the elongated constricted spores show that is not the common Cytispora which occurs so frequently on Pine leaves in England.* *M. J. B.*

New Plants.

110. ESCALLONIA PTEROCLADON, *Hooker, Bot. Mag.*, t. 4827.

A plant of this pretty shrub was exhibited some months ago by Messrs. Veitch as an evergreen which might be expected to prove hardy; but we delayed publishing it till more certain information upon that point should have been gained. We now learn from the "Botanical Magazine," where Sir William Hooker



has named it, that it is "a decidedly hardy shrub, 4 to 5 feet high, an abundant bloomer, and fragrant;" recommendations, he observes, for a bushy plant, with leaves like a small-leaved Myrtle, and very pretty almost Epacris-like flowers, white tinged with red. Our own wild specimens, for which we are indebted to Messrs. Veitch, were found by Mr. W. Lobb on the coast of Patagonia, and fully bear out the expectations thus expressed. We thought, indeed, when the live plant was before us, that in beauty of foliage it was quite equal to a Pernettya. It derives its name from certain wavy wings which stand out from the young wood, and of which traces are for a long time visible on the old branches, although they eventually disappear there.

VEGETABLE PATHOLOGY.—No. LV.

245. STERILITY.—*Constitutional and Organic.*—It was stated above (241), that functional sterility is not so completely uncontrollable in the vegetable as in the animal kingdom, because in the latter there is no renewal of the organs which supply the ovules, or by which they are impregnated, whereas in the vegetable world there is a constant reproduction of those parts from a metamorphosis of which the organs of fructification are produced. If, however, the peculiar tendency of the individual or variety be to produce organic change in those parts, we have no means, comparatively speaking, by which we can control that tendency.

246. Sterility may be induced by organic change of various kinds, both in the general envelopes, and the male and female parts of fructification. In the Wheat ear carnation, for instance, the sepals, though retaining to a great extent their natural appearance, are multiplied to such a degree as to prevent the formation even of petals, much more of the interior organs; and similar conditions exist in varieties of many other plants, as in the Sweet William, Foxglove, Lupine, &c. In a few instances the interior organs are more or less perfected, and impregnation may occasionally take place, or a few seeds be matured, but the general effect is comparative sterility. Where such abnormal tendencies exist, even should the pistil be formed and perfect pollen generated, there is often a concurrent tendency in the ovules or ovaries themselves to sport, in consequence of which they frequently afford most favourable opportunities of studying the morphology of the organs, a branch of botany which has so much weight in the elucidation of natural affinity.*

247. The unnatural multiplication of the petals, or any great hypertrophic change in the structure of the sepals may be equally productive of sterility, as is notorious in the varieties of ornamental plants which are due to the skill of the florist. Experience shows that efforts to overcome this sterility for the production of new varieties are seldom successful, the best results arising from those stray seeds which are produced with difficulty by highly metamorphosed flowers. A plump, well nourished seed, is almost sure to give rise to some form entirely worthless to the florist. In such cases artificial efforts are directed, in the first instance, to produce such changes as are conducive to sterility, and then to keep up as much as possible that abnormal condition, both for the preservation of the variety itself and for the production of new forms possessing valuable qualities.

248. The total suppression of the petals is seldom of much consequence. Varieties occur, as for instance in the Sweet William, where not a trace of petal exists and yet every ovary is impregnated; but the contrary condition is not infrequent. In several species of Violet the early petaliferous flowers are often barren, while those which appear later in the season are productive. In Ajùga Iva,† fertile flowers occur indifferently with or without a corolla. In Ononis minutissima, in contradistinction to the Violets, the earlier flowers are apetalous, and equally fertile with the petaliferous flowers which are produced later in the season, and the same equal fertility belongs to both kinds of flowers in Helianthemum,‡ in which genus, Lespedeza, &c. (as mentioned in a note to the translation of Re's treatise), they are generally simultaneous. In some of these cases the stamens seem very imperfect, and I am inclined to think that seeds are often produced in such flowers, as in Celebogyne, without impregnation; a very limited number, however, of pollen grains may sometimes be found, as we are assured by Brongniart, though the great fertility of such flowers, if entirely dependent on impregnation, could scarcely be insured by such a precarious supply, judging at least by the experience afforded by hybridisation of the quantity of pollen necessary for success.

249. Sterility may arise, again, from some malorganisation of the pistil and its component parts, as where the carpels or ovules are transformed into leaves, or where the ovules put on the guise of carpels. In such cases, however, sterility is not always absolute, though the normal tendencies of the fructifying organs may be frustrated, as for instance where a little bud or bulb is formed at the expense of the true fruit, as in proliferous Grasses. In the genus Crinum and some others the seed is apparently replaced by an enormous mass of cellular tissue. Accurate search, however, will detect a perfect embryo in the midst of the tissue, as originally described in Brown's Prodromus.§

250. Though all the parts of a plant may be perfect, and impregnation may take place, and an embryo be formed, the plant may still be sterile from constant abortion. This is especially the case where the walls of the ovary are highly developed, insomuch that in some of the finer varieties of Pears, &c., perfect seed is of comparatively rare occurrence; while, on the contrary, in Grapes attacked by mildew the seeds are in general multiplied. In such cases, as the properties which make the fruit valuable are altogether independent of

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* We are acquainted with Dr. STEIN'S memoir, which is contained in the "Tharander Jahrbuch," from the notice of it in "Botanische Zeitung," Feb. 17, 1854.

* One or two curious instances have lately been examined, one of which, that of a monstrous Foxglove, has already been reported in this Journal (1854, p. 660), and another of a Sweet William, at present unpublished, which throws much light on the nature of the placentation of the natural order to which it belongs.

† I cultivated this species at Margate two or three years in succession, and never obtained a flower with a corolla, though the seeds were all perfect.

‡ Cistus surrejanus, L., figured in Eng. Bot., t. 2207, is a nearly apetalous form of the common wild Helianthemum.

§ I have been informed by a very accurate botanist and close observer that the seeds of Crinum sometimes appear to germinate indifferently from any point in which they may be placed in contact with the surface of the soil, as if germination in certain cases might take place without the intervention of the embryo or in its absence. The matter is well worth attention. I have no observations of my own to offer on the subject, but I can bear ocular testimony to the fact that it was the habit of the botanist in question to raise seedlings from the large cellular bodies placed merely on the surface of the soil, and not covered with it.

the seed, it is sufficient for the purpose of the cultivator if impregnation have taken place to such an extent as to insure the swelling of the sarcocarp. It is to this abortion that many cases of sterility are due. The process of impregnation is so far successful as to stimulate the contents of the embryo sac, and the fleshy walls of the fruit; but after a time the embryo ceases to grow, and the sarcocarp withers. This is especially the case in stone fruit, as is well known, at least practically, to every cultivator, whose fruit so frequently deceives his hopes just when it is undergoing the process of stoning. Meyen has studied the matter in the case of forced cherries. From a very early stage of growth it could be predicted certainly, in consequence of a change of external form, and sometimes a peculiar intensity of colour, what fruit would ultimately prove abortive. The shrivelling of the embryo takes place, however, previously to the peculiar elongation of the fruit. This happens sometimes before the indication of cotyledons, sometimes at the commencement of their formation, and sometimes when two-thirds of the embryonic sac are occupied by the embryo. The sterility is by no means due to deficient impregnation, but apparently to a greater degree of heat than its growth requires, which stimulates other parts at the expense of the embryo. *M. J. B.*

LOIS-WEEDON CULTIVATION.

I USE the term "double-digging" advisedly, because it is really the only compound word that will suit my case. For what is my practice? At the outset I plough the whole field early in autumn an inch deeper than the staple, harrow, and roll, and harrow again—pulverising and preparing it, in short, as for Barley. I then get in my Wheat, leaving yard-wide fallow intervals between the rows. When the Wheat is up I begin to dig, which is done thus:—At the end of the interval I first throw out on the headland about 3 feet of soil to the entire depth I intend to go the first year, and, supposing the staple to be 6 inches, and the 4 inches of subsoil to be clay, this depth altogether will be 10 inches. The spadesman now, with a shallow spit, casts the 6 inches of staple to the bottom of the trench of this yard length of interval; and then, with another spit still shallower, throws the 4 inches of the subsoil lightly on the top, and so on all over the field. This process is clearly accomplished at two diggings; and so, as I think, may strictly be called "double-digging."

My object in thus keeping the pure subsoil separate and unmingled on the surface, which no single digging to the same depth could do so effectually, is to enable the atmosphere during winter to have its full and unobstructed influence on the clay; and when this effect has been produced, as it will be found to be in spring, these important results will have ensued:—The clay will have crumbled down to dust, a portion of its known mineral constituents will have been rendered soluble, and it will be brought into a condition to receive and retain the organic elements of fertility contained in the atmosphere. It is only after this that the horse-hoe in the summer well mixes the now pulverised clay with a portion of the staple below, and fits the land for the following crop.

In the third and fourth years (the other moiety of the field having gone through a similar process the second year) an inch more of the subsoil is brought to the surface; and so on year after year till a depth be attained by inch degrees, of 20 or 24 inches, "beyond which it is neither needful nor convenient to go." The principle of the practice being that no more of the subsoil be brought to light than can be wholly pulverised before it be mixed with the staple, it is evident that, in the end, after many years of gradual deepening, and repeated stirrings throughout each year, the entire depth of these two full spits will have become friable as garden mould, and therefore easy and inexpensive to dig, the cost of the half acre amounting on an average to the stated sum of 30*s.* or thereabouts.

This explanation, which I very willingly give in reply to your courteous correspondent, is not an after thought, but the same statement runs through the whole of my pamphlet, though in order to avoid prolixity I have not before gone so deeply into detail; and if any one has been misled by the term "double-digging," which I have applied to my own case, it is not owing, I humbly suggest, to any want of warning on my part. For at pp. 10, 24, 29, 49, 53 (last edition), I have spoken on this point with equal decision if not with equal clearness. "In digging the intervals, did I," the operator is to ask himself, "bring up only so much of the subsoil as could be thoroughly pulverised and mellowed for the succeeding crop; of clay only a few inches; of any subsoil, just so much as would lose its rawness during the twelve months' fallow?" (10.) "I have just sent in my spadesmen to trench the fallow intervals two shallow spits deep." (24.) "At the commencement of my trenching a field, I bring up only so much of the subsoil, say 4, 5, or 6 inches, as can be penetrated by the atmosphere and prepared for use by the one year's fallow, increasing the quantity year after year, till the staple has become two good spits deep. And when all has once been loosened in this way and become light, the calculations I have quoted may, I think, be considered correct." (29.) "By means of the deep-stirring up-lifting fork, in lieu of the glazing and level plough, I bring up these mineral treasures, inch by inch, to be disintegrated and decomposed by summer fallow, exposing them gradually, year after year, till I reach the limited depth of 2 feet, beyond which it is neither needful nor convenient to go." (49.) And, finally, in the directions for cultivation, "The plant being now distinctly visible, dig the intervals two spits deep; increasing the depth year after year till they come to 20 or 24 inches. Bring up at first only 4, or 5, or 6 inches, according to the nature of the subsoil, whether tenacious or loamy or light. To bring up more at the outset would be a wasteful and injurious expense." (53.)

In my own case, experience has combined with theory and science in showing the extreme advantage, in productiveness as well as outlay, of this accuracy of cultivation over the ordinary method of double-digging; for, 10 years ago, a portion of my clay field, devoted to root and green crops, was, by oversight, double dug two full spits deep at the outset, and this has been the result: it still remains heavy and impracticable, and does not appear likely to recover for years; the clay clods, mingled with the staple, come only partially under the influence of the frost and wind and rain, and make me mourn over the unintended disregard of my own rule. *S. Smith, Lois-Weedon, Jan.* 16. [It is quite evident that the term "double-digging" is understood by different persons in different senses. We shall have a word to say next week upon this point.]

VEGETATION AND CLIMATES OF FOREIGN COUNTRIES.

UNDER this head it is proposed to collect facts and information which will doubtless be interesting to many of our readers; for most persons who trace the progress of vegetation in our own country are also fond of comparing it with that of other lands. A correspondent, resident at Nice, will supply us with observations from that quarter during the present season, and we shall add from other places such as may offer to us.

NICE, *Jan.* 12*th*, 1855.—The situation of Nice is on the southern coast of Europe, in the front of a large bay of the blue Mediterranean, and surrounded by a triple chain of mountains which afford considerable shelter from the cold winds of winter. The climate is, consequently, very favourable to vegetation, the average temperature being about 10° higher than that of London. Owing to the mildness of its winters a considerable number of English, as well as natives of other countries, resort there. Upwards of 600 families have arrived for this season, including 220 English, 216 French, 20 German, 15 American, and 24 Russian. It is nearly 1000 miles from London, but may be easily reached in five days. The railway from Paris to Marseilles is expected to be opened throughout next month, and will then offer still greater facility.

Very little frost is seen at Nice in ordinary seasons. This year there has been some in the valleys. In exposed places Heliotropes, Tomatoes, and young Potatoes have been cut, but Peas (the pods of which are still sold in the markets) look well, and many are in full flower. Alpine Strawberries are also purchaseable, 5 oz. for 4*d.*, grown in the vicinity. Greenhouses are quite rare, even with nurserymen, and very poor erections they are, hardly excluding the wind, with seldom any provision for artificial warmth. The gardens are certainly not well kept, and their general condition would not be tolerated in England. In fact, Nature seems to have done so much that the cultivators are careless in doing the rest. Cauliflowers are becoming plentiful, those of a very large size are about 6*d.* each; smaller ones, 2*d.* The Oranges, of which there is a good crop, are now getting ripe, their golden colour contrasting well with the deep green shade of the foliage. They are sold at 1*d.* to 2*d.* per dozen, or about 4 francs per 1000. The weather for the last month has been splendidly fine, only a few drops of rain since the 10th of December—like the best of our May weather in England. The sun has great power; the thermometer exposed to its rays often exceeds 120°. Potatoes are rather dearer than in England; and so is bread.

The principal flowers now used in the bouquets (all grown in the open air) are Roses, of various sorts, and very numerous; Ageratum mexicanum; a kind of large Candytuft called aspique; Violets, Acacia, Mignonette, &c.

The wild flowers in bloom are:—Erica multiflora (very abundant and pretty), Coronilla, Mignonette, Valerian, Anemones of various colours, Rosemary, Narcissus, and Mountain Pinks. In the valleys are also various sorts of Cistus, Arbutus, Bay, Box, Phyllirea, Privet, and much Myrtle. The American Aloe flourishes, and several have flower-stalks 20 feet high.

State of the Thermometer in the Shade at Nice.

		7 A.M.	12 P.M.	10½ P.M.
January	1	43	55	41
"	2*	63	66	49
"	3	43	62	44
"	4	41	63	44
"	5	44	57	44
"	6	41	57	43
"	7	40	59	43
"	8	41	58	42
"	9	40	57	42
"	10	42	55	41
"	11	41	56	46

—*E. C.*

CULTURE OF THE PEAR TREE.

ALTHOUGH the subject to which I have directed attention for the last eight months may be interesting to those who are more immediately engaged in the cultivation of Pear trees, yet it may not be so to many of your readers; I, however, feel it necessary to reply to certain objections made to my remarks by my friend Mr. Rivers, not with the view of convincing him of his error or changing his ideas, for I know that to be impossible but to place the question at issue in its right position. Without further apology, I shall therefore come at once to the point.

Is it true or is it not that for many years the crop of Pears, in a great number of gardens in England, has been defective? Is it true, or not, that in general the trees cultivated in the open ground, whether as Pyramids, Quenouilles, or Standards, have been much neglected as regards pruning, thinning, and clearing from insects?

It is impossible to reply to these questions otherwise than in the affirmative, and it has been with a view to remedy the evil that my contributions have appeared in your pages. Devoted to the culture of fruit trees in a climate and situation analogous to those of various localities in England, and having succeeded in their culture by persevering in the application of certain scientific principles, I have ventured to make my experience known in a series of articles in the pages of the *Gardeners' Chronicle*, and your readers will have been the best judges of their utility. In these, however, I certainly have had no intention of forcing my ideas upon any one, but rather of inducing some to take them up and put them into practice, offering, at the same time, to exhibit the good results I have obtained from the system I have pursued.

Instead of resorting to all sorts of strange allegations, to which it is needless to reply in detail, and which can only tend to confirm persons in a bad system of culture, would it not have been better to have made a fair trial of the application of the principles I have laid down, just by way of experiment? A careful trial made for two or three years would have shown which of us (Mr. Rivers or myself) is wrong; or whether want of success is to be exclusively attributed to difference of climate.

The advantages of growing as pyramids certain varieties adapted for standards have, I believe, been stated in a previous article. I doubt, however, whether my opponent knows them sufficiently to be able to judge of their merits. It is not on paper, but in a quarter of 100 of these fruit trees, four or five years from the graft, that, in the months of July and August, the utility of the system can be successfully shown, and yet the winds from the north sea or from the west are not less violent in the neighbourhood of Brussels than in Herefordshire [Hertfordshire?] or in any other county in England.

If I had not resorted to those standard trees for grafting upon them the new sorts sent out, from 1847 to 1851, by the successors of the late Van Mons, I should have had to wait three or four years longer before I could have seen the fruits and have ascertained their qualities. I even doubt whether the young plants sent out during the above-mentioned period, and subjected to artificial cultivation, would have been able to show for fruit last spring in the nurseries of Sawbridgeworth.

I have not hitherto adverted to the advantages and disadvantages of artificial cultivation, but I hope to notice them at the proper time and place, after having treated of that which is more substantial, durable, and of general application.

I hope my opponent, Mr. Rivers, will not be in too great haste to criticise our new pomological acquisitions, which he only knows by name! They are more important than he appears to imagine. Believe me they are the results of efforts which have cost too much time and money to be lightly judged of. I have tasted all these fruits, either from the seedlings on their fruiting for the first or second time, or from my own trees or those of my friends, and I hope next year to be able to submit good specimens of them to the judgment of the pomological committee, and thus be able to convince all as to their merits.

English cultivators will not have to wait so long to appreciate and possess these valuable varieties under their right names as they did in the case of the Beurré d'Hardenpont, Beurré Rance, Marie Louise, and Beurré Diel. It is very probable from their vigour and hardiness that most of these new sorts will succeed perfectly well in the climate and soil of England. It is also very probable that, in point of delicacy and long keeping, a large number of these varieties, of which the mean period of ripening is not yet completely established, will surpass all others at present in cultivation; and that this will be the case as long as they are not subjected to the influence of artificial culture, and as long as in propagating them the preference is given to scions taken at the proper time from trees cultivated on the Pear stock, and which themselves have been propagated from trees continued from Pear stock to Pear stock.

In conclusion, let me mention that the raisers of new varieties of Pears are not responsible for changes which may have been made in the names originally given them. Such changes ought to be attributed either to ignorance or fraud, and a prudent man ought only to deal with persons whom he knows well, and who have a reputation for honesty in business transactions. If then you will purchase in the cheapest market and get deceived, you have only yourself to blame. *J. De Jonghe, Brussels, Jan.* 1.

* With a hot wind from the North.

SWAINSONIA GALEGIFOLIA.

THIS is a plant which is well worthy of a place in every greenhouse, for, under proper treatment, it produces a profusion of pretty blossoms for some two or three months in succession.

It is easily propagated either by means of seeds, which are produced in abundance, or by cuttings of

the half-ripe wood. The shortest jointed firmest bits which can be obtained should be selected, and planted in a light sandy, peaty soil, covered with a glass, and placed in a shady part of a cool house for three weeks or so, and then removed to a slight bottom-heat, where they will soon emit roots. It will be found, however, that the cuttings are impatient of too much damp,—hence water should be applied carefully, leaving the glass off until the foliage gets dry, and removing it occasionally, to wipe out damp. As soon as the cuttings are sufficiently rooted to bear handling, pot them singly in 4-inch pots, and place them in a nice moist growing atmosphere till well established in their pots. Supposing the cuttings to be potted off and established by the end of May, which, if a plant is started early in spring to supply cuttings, may easily be the case, remove them to a cold frame, which can be kept rather close and moist and shaded from the mid-day sun. Attend to watering as may be required, and sprinkle the plants over-head on the afternoons of bright days, shutting up the frame rather early in the afternoon with a moist atmosphere, but give air before night. When the pots are found to be moderately well filled with roots, give a liberal shift, say into 7-inch pots, and water cautiously until the roots get hold of the fresh soil. Tie out the shoots, and stop any over-luxuriant ones, so as to keep the plants dwarf and well furnished, for they are of a somewhat straggling habit, and unless stopping and tying out are persevered in, compact specimens will not be obtained. Expose the plants freely to sunshine and air after the middle of August, in order to get the wood well ripened before winter, and if this cannot be conveniently done in the frame, remove the plants to a sheltered sunny situation out of doors. During winter they will require merely protection from frost, and a very spare supply of water, provided the wood has been well ripened, and they may be placed in any cold frame where they can be guarded from frost. As soon as they show signs of growth in spring remove them to a close part of the greenhouse, and cut back the shoots rather freely, in order to cause them to break close; and when free growth commences shift into 12-inch pots, and maintain as close and moist an atmosphere as can be conveniently done, until the roots lay hold of the fresh soil. When this is the case the plants will grow vigorously and will require attention to train the shoots so as to secure handsome specimens. Persevere in bending down strong shoots, and tie them so as to equalise the flow of the sap, and preserve compact specimens. Expose the plants freely to light and air, giving a liberal supply of water at the root, and syringing over-head on the evenings of fine days. By the middle of July the plants should be nice-sized specimens, and covered with blossoms, and they may now be removed to any light airy part of the greenhouse or conservatory, where they will be objects of considerable beauty till late in the autumn. After their beauty for the season is over, cut the shoots back to the well ripened wood, thinning them out pretty severely, and water very sparingly during winter. In spring, when they show indications of growth, turn them out of their pots and reduce the ball, taking care to injure the roots as little as possible, and repot in the same sized pots. By annual disrooting, and a free use of the knife to keep them dwarf, the specimens will last many years. Manure water in a weak state, given two or three times a week, when the pots are full of roots, will be of service.

Good sandy, turfy loam, and rich, fibry peat, broken up into small pieces, adding a liberal quantity of sharp clean sand, and some small lumpy charcoal or potsherds, will be found the most suitable compost in which to grow Swainsonias. *Alpha.*

COMMON THINGS.

Culture of the Cockscomb.—As a few well grown Cockscombs, stiff and formal though they be, are found to be very useful for decorating our greenhouses in summer, a word or two on their culture may not be uninteresting. About the beginning of next month make up a strong hot-bed for them, the same in every respect as is made up for Cucumbers. The mould in which Cockscombs have been grown to a large size, is half good strong loam and half good rich rotten dung and leaf-mould, but the greatest proportion dung. As soon as the plants are about 2 inches above ground, pot them off into 3-inch pots; and when they have nearly filled the pots with roots, shift them into some a size larger. A sharp heat should be kept up in the bed, and when the plants are wanted to be dwarf they should be kept very near the glass. The atmospheric heat should be 60° at night, and in clear sunshiny weather, with plenty of air, 70° in the day time; but a high temperature, without sun heat or bright light, would cause the plants to "draw," which would not only detract from their fine appearance, but likewise prevent the combs from attaining their proper size. Whenever it is found that the bed is too cold at the bottom of the pots, which should be plunged in sawdust or tan, recourse should be had to a new one, as it will be found that making a new bed will, in the end, be attended with less trouble than the continually applying linings to an old one. Care should also be taken, at the repotting, to have the pots perfectly clean; in fact, the newer the pots are the better. The mould in the pots should never be allowed to get very dry. Pots 8 inches in diameter will be sufficiently large for the last shifting. To sum up in a few words, the success of growing Cockscombs well depends principally upon paying attention to giving them a good mild bottom-heat, plenty of air, plenty of pot room, plenty of water, with as much light as possible, and plenty of room between the plants in the bed. Any one who carries out these directions fully may make certain of being rewarded with plants that will do him credit.

Poinsettia pulcherrima.—As this is universally admired for its gay crimson or rather scarlet bracts, which may frequently be seen enlivening the windows of the flower shops in Covent Garden market, the following hint on its treatment may be useful. The plants are best raised from single eyes (like Vines) taken from the hard ripened wood of last year, and they should be repotted into sandy loam and leaf-mould; keeping them in a Cucumber frame, and then in a low stove, as near the glass as possible. They do pretty well in a greenhouse or pit in July and August, if kept near the glass, and not drawn, and then put into the stove in September, watering them freely when in flower. Old plants which have been cut down never have the floral leaves so large as a young plant raised from eyes or cuttings.

Home Correspondence.

The Marie Louise Pear.—The name of "Nouvelle," recently applied to the name of this favourite variety in your columns (see p. 21), is I think calculated to mislead the public. In the catalogues of some of the Belgian nurserymen may be found the following names—Marie Louise (Duquesne), Marie Louise (Delcourt), Marie Louise (Van Mons), Marie Louise Nouvelle, Marie Louise de Jersey. These all resolve themselves into one, the Marie Louise, now universally cultivated in England, which was introduced about 30 years since, and at that time called by Mr. Braddick, from the free growing and hardy nature of the tree, "Braddick's Field Standard." M. de Jonghe in p. 21 alludes to the Eyewood Pear as a slender growing variety, requiring support while in a young state to form a pyramid. He has most probably not received the true sort, for of all the Pears under cultivation the Eyewood is the most robust in its habit, forming most rapidly a strong thorny tree, with a constitution adapted for all soils. We must not rest till we have a race of Pears raised from seed in this country equally hardy and robust. *T. R.*

Red Spider and French Beans.—I have to thank you for your advice as to the destruction of red spider (see p. 24). In your "Calendar of Operations" of the 6th inst., under the head of "Hardy Fruit and Kitchen Garden," the following passage occurs:—"Also see to providing a supply of French Beans. These are frequently grown in the early vineries or in plant houses, but their liability to the attacks of red spider renders them dangerous inmates of such structures." It so happens that in the house where my Peaches were attacked with this insect last autumn a crop of French Beans was grown; but I am unable to say whether it first appeared on the Beans or on the Peach trees. Since, however, this is the first instance of my ever having been troubled with red spider the circumstance is rather confirmatory of the correctness of your Calendar writer's remark. The practice of growing French Beans in vineries being very prevalent, if this vegetable has so strong a tendency to the production of the nuisance alluded to, many of your readers will doubtless be able more fully to corroborate the necessity of the caution than myself. *S. B., January* 17.

Rain at Carlesgill, Westerkirk, Dumfriesshire, in 1854:—

	In. Cts.	Wet days.		In. Cts.	Wet days.
January ...	5.66	20	August ...	6.60	16
February ...	5.38	16	September	3.10	10
March ...	3.49	13	October ...	7.62	17
April ...	1.35	7	November ...	2.68	18
May	3.33	25	December ...	6.60	19
June	6.18	16			
July	3.45	18		55.44	195

Average for 12 years, 57.79

2d January ...	Therm. 5°	22d October ...	Therm. 22°
3d January ...	... 4	28th December ...	... 15
24th April ...	... 22		

11th June, 2.50 of rain fell in 24 hours; 2d August, 2.25 of rain fell in 18 hours. *J. Little.*

Reviewers' Discoveries.—Good news for you, Mr. Editor. I can communicate to you two facts which are probably as new to yourself as they were to me. Pray do not dispute or question their authenticity, for they may both be found recorded in the September number of the "Quarterly." The first is (p. 300) that Mr. Myatt obtained the British Queen Strawberry by "judiciously grafting the old stock." The second is (p. 302) that lovers of Mangoes can purchase them in "luscious luxuriance" at the frequent auctions held in Monument Yard. When, Mr. Editor, will your jogtrot publication give us such new, true, and interesting matter as we can thus obtain from the leading literary journal of Great Britain? *J. S. B.* [These are curious instances of the little that clever men know of "common things." Our correspondent will, however, we doubt not, agree with us in thinking that the article, notwithstanding the blemishes he points out, and others, is very interesting, and worthy the great periodical in which it appeared.]

Grafted Rhododendrons.—"J. R.'s" explanations of the principles on which he founds his objections to grafted Rhododendrons (see p. 821, 1854) do not, in my opinion, strengthen or establish his theory relative to the employment of layering instead of grafting; he has not given sufficient proof that the stocks generally used are inferior in strength or luxuriance to the finer hybrids, which is necessary before it can be considered expedient to discontinue the practice of grafting. Hybrids between arboreum and catawbiense or maximum (the seed being saved from either of the two last, otherwise the hybrids are not hardy) have the most robust habits of the crimson class, and plants raised from seed always assume a bushy habit, it being an almost invariable rule that hybrids adopt the habit of the female parent, and it is found that seedlings from ponticum or maximum will from the first be far more luxuriant than any of their hybrids; this fact will be apparent on a careful examination of any large or at least varied collection. Your correspondent, moreover, does not do justice to the fact stated in my last communication regarding the scions of grafted plants emitting roots and becoming ultimately independent of the stocks by being planted deep, a circumstance which ought to have removed his doubts, even allowing his premises to be correct. In his remarks at p. 6, 1855, he himself completely upsets his own theory, for he there complains of the over luxuriance of the stocks, which cause annoyance by throwing up suckers. This of course could be easily got over by even common management, and the gardener or amateur who neglects or grudges to pay that attention to this truly splendid family of plants fully deserves to get all his fine hybrids starved. To prune and remove them is part of his routine of business, and as necessary as his annual rose or fruit tree pruning. This evil is certainly not of so great magnitude as to warrant a total cessation of the good and very often expedient practice of grafting. The evil, if at all worth speaking of, is seen most in Azaleas, which during the first two or three years after being grafted, are apt to throw up suckers. These are, however, easily kept down, and as the scion gathers strength they gradually disappear. I could show "J. R." an extensive collection of Ghent varieties in this establishment, many of them grafted 14 years, which grow and thrive and flower every year to the admiration of all who see them, with none of the "broken off branch" appearance described by your correspondent. As regards the striking of Rhododendrons by cuttings, "J. R." will find by experience that though it is possible in some cases, it is as tedious and troublesome as in the case of Firs, if not more so, as it will take a great many years before they are fit to be planted out. *Hugh Fraser, Stanwell Nurseries, Leith.*

Spade or Fork Husbandry.—Since the publication of the "Word in Season," this mode of cultivation has been rapidly spreading. Any well ascertained facts as to the cost may be useful. One of your correspondents, in a recent number of your Journal, seems to question the accuracy of Mr. Smith's statements as to this matter. I have had from 8 to 14 men at work on my farm for the last four or five weeks in double trenching with Parkes's forks, the depth of the soil brought up varying somewhat according to its quality (which also determines the price of the work), being in no case less than 15 inches, and in one full 18 inches. I am just now finishing a field of 5 acres, which from the great dryness of the last year works heavily; the subsoil or under spit, which is placed uppermost in this enclosure, is principally a compact stony loam, but in one part a chalky marl. Probably the work is as difficult as would be found in most mixed soils. The stirred land as left by the men is 16 inches deep. The average of a day's work is between 5 and 6 rods each man, and the price I give for it is 6*d.* per rod. Two years ago, when the price of labour was lower, I had the same work done for 4½*d.*, but in that case the under soil being mild brick earth it worked easier, and to the depth of 18 inches. For some of the men I purchase the forks, they paying me 6*d.* per week for the use of them. Others purchase their own. I use Parkes's four-tined fork, the tines of which are 13 inches long. I have to-day measured several of these forks, which have been daily in use for five weeks, and the wear of the tines is from 3 to 4½ inches. In a less stony soil they would, of course, last much longer; on an average I think the expense of the tool may be put down at 6*d.* per week. The fork thus shortened is probably a better implement for stirring the soil in the summer, as recommended by Mr. Smith, than a new one, or for breaking up some 4 or 5 inches of strong clay where it is not desirable to go deeper. Mr. Parkes also engages to renew the worn-out forks if sent to his agents Messrs. Burgess and Key, of Newgate Street, at a cost of 3*s.* 6*d.* each. Occasionally, if carelessly used, a tine will break off at its junction with the cross bar, and I think they should be cast with more strength at that part, and the manufacturer would lose no credit if he was careful not to send out damaged work, which I have sometimes noticed. It is a costly tool for a labourer. None of my men earn less than 15*s.* per week, and some of them considerably more. I shall confine myself in this note to the cost of labour; hereafter I shall hope to send you the results of this system of cultivation, when the facts are clearly realised. *Henry Dixon, Dorwards Hall, Witham, Essex, Jan.* 13.

Societies.

Botanical, *Dec.* 14.—Prof. Balfour in the chair.—Dr. Balfour exhibited the following donations recently made to the Museum of Economic Botany at the Royal Botanic Gardens: from Wm. Murray, Esq., sample of sugar obtained from the Sugar Pine (Pinus Lambertiana); from Chevalier Claussen, specimens of paper-pulp and papers made from Corchorus olitorius, Tilia, Urtica dioica, Juncus, Pinus, Calluna vulgaris and Vaccinium Myrtillus; and Tannate of Soda extracted from the last mentioned. Dr. Balfour exhibited a peculiar concrete substance, called Pietra fungaia or Mushroom Stone, received from Naples by the Hon.

Lord Murray. Dr. Balfour read an extract from a letter he had received from Dr. W. A. White, Assistant Surgeon, 47th Regiment, dated "Camp before Sebastopol, Nov. 17, 1854," accompanying seeds of a superior Melon he had gathered in the orchards on the banks of the Katscha. "All who visited those orchards were surprised at the extraordinary abundance and variety of the fruit-trees. Very many different varieties of the Apple and Pear, Peaches, Apricots, Nectarines, Quinces, the Plum, the Cherry, the Walnut, the Almond, the Fig, were growing in the greatest profusion within the space of an acre, whilst the surrounding vineyards were laden with the finest Grapes. Vegetables too, were in great abundance, the enormous size of which excited our surprise, considering the little apparent amount of labour expended on their cultivation. The garden implements were rude and simple, a rich soil and a warm southern sun rendering any artificial operations unnecessary. The country after passing the Belbec is thickly wooded with dwarf Oak for the distance of about four miles, when a rapid descent takes place into the valley of Inkermann, at the south-western extremity of which Sebastopol is situated, which is surrounded with bare rocky hills nearly destitute of vegetation." Mr. W. Murray exhibited fresh specimens of the leaves, cones, and timber of numerous Coniferæ, brought by him from California, among which were Pinus Monticola, Jeffreyi, tuberculata, Benthamiana, Lambertiana, Abies grandis, nobilis, Douglasii, with species of Thuja, Taxus, and Cupressus, and Cone of Wellingtonia gigantea. He stated that he had likewise brought large quantities of the seeds of most of them. Among the papers read were:—1. *Sketch of the Life of the late Prof. E. Forbes.* By Prof. Balfour. 2. *On Hypericum anglicum.* By Charles C. Babington, M.A., F.R.S. In this paper the author states that he is disposed to look upon the Hypericum found by Dr. Balfour on the banks of the Glanmire river, Ireland, as identical with H. hircinum. He also mentioned that Mr. Isaac Carrol, of Cork, looked upon the plant as having been introduced in the locality mentioned. Mr. B. is disposed to think that the true H. anglicum of Bertoloni exists in Britain. A specimen agreeing with it in character was found by Mr. T. R. Polwhele above Falmouth harbour, Cornwall, and specimens of the same kind exist in Dr. Balfour's Herbarium, gathered by him on the banks of the Crinan Canal, in Galway, Ireland, and near Culross. H. anglicum is represented in English Botany, t. 1225, under the name of H. Androsæmum. It is distinguished chiefly by its much branched stem, two-winged peduncles, sub-cordate-ovate rather acute leaves, few-flowered cymes, ovate rather acute and unequal sepals, and by the styles exceeding the stamens. The paper will appear in the Annals of Natural History and in the Society's Transactions. 3. *On the Structure of the Anthers of Erica.* By John Lowe, Esq. The author remarked, "I have to bring before the Society's notice this evening a short sketch of two peculiar features occurring in the anthers of the Erica. The anthers of this genus are usually described in botanical works as consisting of two loculi, which open and discharge their pollen by means of lateral pores. So far this is true, for if we examine a fully expanded flower, the anthers will be seen to be free, and to have a pore or rather slit on each side; but if a young unexpanded flower be examined, the anthers instead of being free will be found to be connected together into the form of a circle, and no pores will now be seen. Their future disconnection appears to be caused by the increase of the pollen in the same manner that valves are separated in valvular dehiscence. The first who noticed the peculiarity above mentioned was, I believe, that very accurate observer, Mr. Robert Brown. 4. *Summary of the Flora of the Lake district of England.* By Mr. James B. Davies.

Notices of Books.

The Englishwoman in Russia; Impressions of the Society and Manners of the Russians at Home. By a Lady. 8vo. Murray. (10*s.* 6*d.*)

Russian Life in the Interior, or the Experiences of a Sportsman. By Ivan Tourghenieff, of Moscow. 12mo. Black. (6*s.*)

These two works convey a clear idea of the present state of society in Russia; in the first we have a vivid picture of the habits of the higher orders, in the latter we find a copious illustration of country life and of the condition of the peasantry. Both appear to be the productions of persons intimately acquainted with the nation. The Englishwoman is a lady who resided in the country for 10 years, and only quitted it when the present war broke out; the sportsman professes and seems to be a native country gentleman. The impression which our authors produce is unfavourable to the Russian character, and cannot fail to lower it in the eyes of strangers. Each tells the same story, although in different terms; the Englishwoman with infinite grace and vivacity, the sportsman in a somewhat tedious but sufficiently graphic way. From both we gather the general fact that all classes of society are utterly lost to what in the western world constitutes high feeling—brutality characterises the government; immorality society; misery the peasantry; venality everybody. There are many exceptions to this general charge, and it is right to state that among them is especially included the present Emperor, who is painted like an angel enthroned among fiends. To give a notion of the state of Russian high society as described by the Englishwoman, we take a few of the very striking anecdotes with which her pages are crowded.

A lady had imprudently touched upon some forbidden subject at a masquerade:—

"The next morning she was disagreeably surprised by a visit from an officer of the secret police, who politely requested her to accompany him to Count Orloff's office. Such an invitation was, of course, not to be refused—she went immediately. The gentleman who received her was *aimabilité* itself; he kindly pointed to a seat that stood near, and blandly proceeded to ask her a few questions concerning the previous evening's amusement, to all of which the terrified lady tremblingly replied 'the truth, the whole truth, and nothing but the truth,' for no equivocation would have availed her in that place. When the interrogation was finished, the chair suddenly sank through the floor, and I am ashamed to say that from the hand of some unseen person below she received a correction such as little boys used formerly to be subjected to from the birch of old-fashioned schoolmasters."

"The same misfortune is said to have occurred about four months ago to a certain noble princess from the south, who expressed some sympathy with the cause of the Western Powers. I have often asked Russians, when they were boasting of their great civilisation, if this were a proof of it. Once the reply was that 'a great many of the Russian ladies deserved to be beaten, and that it would do them a great deal of good.' At another time, in speaking of the peasant-women being so treated, a certain Prince A—— replied that 'they were not worthy of the title of women; they were no better than cattle!'"

"When abroad, the Russians invariably deny that such a state of things exists; they will even sometimes attempt to hide it in their own country, which shows that at the least they have the grace to be ashamed of it."

Money is the subject nearest to a Russian's heart:—

"In no country is more avidity displayed in the pursuit of gain; only speak of a piece of silver, and a Russian's eyes sparkle at the sound, and he is ready to do anything in order to obtain it. Copecks and whisky are the two greatest temptations of his heart. M. P——ski, a gentleman of education, assured me, only the morning I left St. Petersburg, that they were in much more danger from the pillage of the lower classes than from any exterior enemy; and he expressed the greatest fears for the consequences of bringing so many thousands of wild savages of soldiers into the town, for, if they rose, it would be *en masse*, and he was fearful that the great temptation offered by the sight of a civilised capital for the first time would shortly prove an irresistible one; if they did have an outbreak, it would sweep the upper classes away like a torrent."

The treatment of serfs makes us shudder as we write:

"One of the trials that took place before my friend's husband was that of a proprietress who had amused herself with shamefully cutting and maiming several children on her estates; when asked what could have induced her to commit acts of such demoniacal cruelty, her reply was, 'C'était pour me distraire!' She was exiled to Siberia."

"During our stay in Jaroslaf a commission was sent from St. Petersburg to inquire into the manner in which the slaves of a neighbouring estate had been treated by their proprietress. Her shameful conduct had driven the unhappy serfs to such desperation that some of them had found the means to escape, and had fled to the capital; they threw themselves at the feet of the Emperor, and implored him, in the name of God their common Father, to be their friend and protector, and to do them justice, as they had none other that would help them. His Majesty (who, if unbiassed by evil counsellors and interested landowners, is always ready to listen to the prayers of his poor peasants) promised that, if he found that they were guiltless, and had spoken truly, he would see that they received justice, and immediately gave orders that the strictest inquiries should be made concerning them. The result was that the estate was taken from the lady who had so ill-treated the peasants; she was allowed a small pension, enough to keep her from actual want, out of the rents, and the property was put under the care of trustees, that she should no longer have the power in her hands which she had so disgracefully abused. Even her daughters were removed from her guardianship, lest her example should have a bad influence on them.

"Many other instances have been mentioned to me in which the Emperor has displayed as much humanity as justice; undoubtedly there would be fewer abuses were it possible that the knowledge of them could reach him; but thousands of vile and unjust actions are committed that are hushed up and escape the punishment they deserve. The Russians stand infinitely more in fear of the Emperor than they do of their Creator. The common saying, 'The Czar is near, but God is far off,' gives a good idea of their feeling on the subject."

After reading such anecdotes as these we suspect that the reader will be tempted to ask with us—what then is the difference between Russian civilisation and Turkish barbarism? It is some consolation to find that so well-informed a person as our very clever and entertaining authoress is of opinion that this present state of things cannot last, but that some tremendous political hurricane is about to sweep over the country and purify the atmosphere; that in fact the Russians have already arrived at the reign of their Louis XV.

Garden Memoranda.

Mr. Loddiges', Hackney.—Immediately after the Crystal Palace Company had removed the last of the Palms and other plants which they had purchased of Mr. Loddiges to Sydenham, the large Palm-house here was sold by auction and cleared away, as well as all other glass, &c., which was not required to be retained, and now the once celebrated nursery grounds which the Messrs. Loddiges have held until within these last few months for nearly a century are laid out in sites for building, and so intersected by proposed new streets, that no trace of the old nursery with its arboretum and numerous plant-houses remains. Mr. Loddiges has, however, still retained his unrivalled collection of Orchids and Ferns, for which accommodation has been found on his own ground—a long parallelogram lying on the south side of the old nursery, and immediately behind his dwelling-house. Here a long lean-to house (the old Heath-house), and two span-roofed houses, together with a small show house, contain the entire collection, or at least all the specimen plants. Among those in bloom in the lean-to house were Odontoglossum Bictoniense, Oncidium divaricatum and other Oncids, several Zygopetalums, an extremely high-coloured variety of Lycaste Skinneri, and, what is not very often found in blossom, Dendrobium speciosum. There was also in this house, though not in flower, a large compact mass of Lælia superbiens, which promises in a year or two more to be a noble specimen. In one of the span-roofed houses Sophronitis grandiflora was in bloom on blocks suspended from the roof, and on a shelf below them were several plants of Broughtonia sanguinea, the bright crimson flowers of which have a cheerful appearance at this season of the year. This plant requires little moisture, but it likes plenty of light and heat, and therefore it is found to do best when grown close to the glass, where it gets well roasted by the sun. The large yellow Oncidium bifolium and one or two Lady's Slippers were also in flower in this stove. The other span-roofed house is glazed with rough plate glass, and is entered through the show-house, which is at present filled with Camellias and a few rare Ferns. Among the latter was a noble plant of the handsome Gleichenia scandens, a New Holland species nearly allied to G. microphylla; also Mertensia flabellata, another New Holland species of great beauty; and here, in a Wardian case, was likewise the New Zealand Todea pellucida in the shape of a little tree with short stem and spreading branches (leaves). This is a Fern which requires a good deal of care to cultivate, and it is very difficult to propagate; its beauty, however, amply repays any extra attention which it may demand. The Orchid-house connected with the show-house just mentioned is glazed with rough plate-glass, and a little strip of zinc about 2 inches wide, bent to a right angle in the middle, is tacked on below each astragal, in order to carry off condensed moisture which would otherwise fall on the plants in the shape of drip. This is found to be a cheap and good way of remedying the evil. Among plants in flower in this house, we remarked Dendrobium anosmum, a handsomer kind than D. macrophyllum, to which it is related, and it has none of that Rhubarb scent about it which belongs to the last-named species. Associated with it were also D. albo-sanguineum and Dalhousieanum, the ivory-white flowered Cymbidium eburneum, the variety of Aerides affine sometimes called Colonel Fielding's Foxbrush, a noble plant of Cœlogyne asperata, otherwise called Lowii, Ansellia africana, and a few other plants, all of which were in very good condition.

FLORICULTURE.

Pansies in Pots.—My cold frames are again becoming gay with these delightful spring flowers. Duke of Norfolk, Sir Philip Sidney, Disraeli, Ophir, Robert Burns, Euphemia, France Cycole, Mrs. Beck, Duke of Perth, Climax, and one or two seedlings which I expect will be first class flowers, already arrest attention. Those who have never tried to cultivate the Pansy in this way have little idea what a profusion of really gay flowers is produced by this plant during the whole of the early months; and with proper attention they will blossom in good character till the latter part of May. As regards cultivation, little need be said; for the Pansy is not difficult to manage. Plants for early flowering should be potted up from the open ground in October. If the weather is open in the last week in January, or the first week in February, begin to repot generally, using soil consisting of good decomposed turfy loam, rotten manure, a little leaf-mould, and coarse sand, the latter in proportion to the nature of the loam. The soil should not be pressed hard with the hand; no water should be given for a day or two after potting. Before, as well as after this operation, the plants must be kept well up to the glass. They should have from two to six shoots, or strong leaders; and to keep them to these chosen shoots, a number of small ones must from time to time be removed. These cuttings answer the double purpose of strengthening the main shoots, and producing a stock of young plants which will supply the place of the old ones when worn out. Keep the frames in which they are placed open whenever the weather is favourable, pulling the lights back or tilting them up; maintain the plants in a growing state by watering them as often as they require it, going over them for this purpose every day. Plants that have several shoots should be tied into shape, placing the centre-branch upright in the middle, and

the remainder at equal distances all round; but the plant must be shaped according to the number of shoots: three leading branches are sufficient if cut blooms only are required. Another advantage is, that the same plants, from the succession of bloom they produce, will answer the double purpose of exhibiting in pots or stands of cut flowers. After the potting, as above recommended, has taken place, take the earliest opportunity at which the ground is in a fit state, to plant out any stock not required to bloom under glass, or plants that have been wintered in stores, &c., which will bloom through May or June, and produce a stock of good healthy cuttings. By following the simple and inexpensive treatment just recommended, I am sure that those who take the little trouble that it entails will not fail to be gratified by a fine display of bloom, which, from its long continuance, will most certainly afford much gratification. *T.*

THE AURICULA.—About the middle of March, if the weather is fine, the trusses will be getting sufficiently forward to select those intended for exhibition. Seven pips are the lowest number allowed by our metropolitan societies; therefore select the most promising, containing that number and upwards. Those with round buds, as nearly of a size as possible, the truss also round and compact, should be particularly selected, and if there are any monster pips among them with large oblong tubes or other deformities, remove them while young. At this stage of their growth, care must be taken in watering that none be allowed to fall into the tubes or pipe, if it happen to be exposed, as is the case with some varieties; for although the buds be so young, the meal of the eye may be formed, and if so the water will run the meal over the ground-colour, and when the blossom is expanded it will be found dull and unfit for exhibition. The mealy-grass varieties require a little extra attention, for their beauty is much increased by preserving the white powder on their foliage. To obtain this object without drawing the plants more than possible, I nail a strip of wood on each side the centre bar of the frame, of sufficient width to shelter them from rain, and place the plants beneath it. By this means they enjoy a free circulation of air and light till in a proper state of forwardness to remove under the hand-glasses, or on the stage. *L.*

POLYANTHUSES IN POTS.—The Polyanthus under pot-culture does best in a western aspect from the present time to the end of its blooming. Give as much air as possible during the day, unless strong cold winds are blowing; then keep the lights on. If the frame is in a western aspect, give air at back, by lifting the lights about three inches; but if in a southern one, lift the lights at the front. Protect them at night: a mat or two thrown over the frame will be advisable. Top-dress as early next month as you can, if the atmosphere is not frosty. Polyanthuses thrive best in a cool soil, rather strong in quality than otherwise. One measure of decomposed cow-manure, two of leaf-mould, and two of strong loam (top spit), are suitable for them; but for top-dressing only, the compost given for the Auricula will answer. Water them moderately, increasing the quantity as the plants increase in growth; and allow them to receive light showers during the month when the weather is open. *B. W.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Where the twiners for covering the roof are grown in boxes, or have but limited root room, as much of the surface soil should be removed annually as can be done without seriously injuring the roots, replacing it with some good rich, fresh material, and this cannot be done at a better season than the present. The conservatory or show-house should very soon be full of floral beauty. Camellias, Luculias, Epacrises, Heaths, Primulas, Mignonette, Tree Violets, Cinerarias, Daphne indica, and many other showy things, may easily be had in bloom about this time; and, with proper convenience, a few Roses and other forced plants, as Oranges, bulbs, &c., should also be coming in, and will greatly assist in maintaining the gaiety so desirable in this house.

FORCING DEPARTMENT.

PINERY.—There is often considerable difficulty experienced in getting the requisite number of plants to show fruit at this season, and where this is the case every advantage should be taken of mild weather to maintain a brisk temperature, which may be kept at from 70° to 75° by night, and 80° to 85° by day. The difficulty of getting plants to show fruit is generally the result of their growth not having been properly matured in time to allow the plants a period of comparative rest before subjecting them to forcing with the view of getting them to show fruit, and where any difficulty of this kind is experienced timely attention should be given to the preparation of the plants for another season, which is the only means of having them at command. All that can be done this season, however, with backward plants will be to take advantage of bright days to maintain a brisk temperature, letting it rise to 80° or 85° with sunshine, and 70° to 75° should be secured at night. Maintain a moist growing atmosphere, but do not syringe plants overhead that are showing fruit. Also see that the roots are in a properly moist state, using tepid water where any is wanted. VINERY.—In houses being started use means to get the buds to break regularly, and where necessary bend the Vines, raising the backward buds to the highest point; maintain a moist atmosphere, and sprinkle the Vines morning and afternoon. When the buds begin to break the night temperature may be increased a few degrees, but it should not exceed 55° until they are all fairly started, and 65° by day should not be exceeded except with sunshine and air. Rub off all superfluous buds, taking care to leave the stronger ones, but in cases where there is any fear about the show of fruit, it will be advisable to leave all promising buds until the bunches can be perceived. It is only in cases, however, where the Vines are in a bad state that there need be any fear about destroying all superfluous buds as soon as this can be done. Admit air on every mild day, using a sufficient amount of fire heat to maintain the proper temperature. Look well to the border, and see that it is protected from wet or sudden changes of weather; and, where fermenting materials are used, turn them as often as necessary, adding a small quantity of fresh leaves and dung, in order to maintain a steady heat.

FLOWER GARDEN AND SHRUBBERIES.

Let the most be made of fine weather when it returns, in the way of pushing forward new work, alterations, and all out-doors operations, for we may expect any time to have unfavourable weather for such work, and the ordinary spring duties will shortly be requiring attention. Where the turf is at all unlevel time should be spared in course of this or next month to repair this, as if lifted later than February it might require some attention to get it to take quickly. Unlevel turf is an eyesore the season round, and it makes the mowing more tedious and difficult, hence it is worth an effort to spare time to make whatever little repairs may be necessary here. Sweep lawns occasionally to clear them of fallen bits of branches, &c., and use the roller here and on gravel frequently to secure a firm smooth surface. Let the stock of plants, except those that may be wanted to furnish cuttings, be freely exposed to air whenever the weather will admit, so as to keep them hard and render them less liable to damp off in the event of their having to be kept covered up for some time Any of the stock from which many cuttings are wanted should be removed to a light warm situation without loss of time, first washing the pots and clearing and adding a little fresh soil to the surface of the ball. Some kinds of Verbenas, &c., are very subject to mildew when placed in heat in the winter season, but this is easily kept in check by means of sulphur, only let the sulphur be applied the moment the pest makes its appearance.

HARDY FRUIT AND KITCHEN GARDEN.

If any planting of fruit trees still remains to be done this should be seen to very soon, and every available despatch used to get it completed. If it is worth while to occupy ground with fruit trees, and incur the expense, &c., of planting them, it certainly is worth consideration whether the ground is in the best possible state of preparation for being planted with fruit trees, and to incur any expense and trouble which may be requisite in order to render the ground as suitable as can be made for the kind of trees with which it is to be planted. To do this is seldom a work involving much direct outlay, for provided the ground is well drained, there is little else required except labour, materials for concreting, and a supply of good loamy soil, all of which can generally be obtained about most places. But it is useless to plant trees without there is a fair prospect of their doing well, and the necessary preparations for securing this can be more conveniently, cheaply, and efficaciously made before planting than afterwards, and the requisite preparations should be made, even if doing this should necessitate putting off planting until another season. Push forward the digging or trenching as the case may be, and get all vacant ground turned over as soon after this as circumstances will admit. In the kitchen garden as in other departments alterations will occasionally be required, such as taking up and relaying Box-edgings that have become imperfect, or those that have grown too strong and bulky, turning or covering walks with fresh gravel, and such jobs should be done if possible before the busy season.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Jan. 18, 1855, as observed at the Horticultural Gardens.

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain.
Friday 12	23	30.543	30.519	41	32	36.5	44	45	N.E.	.00
Satur. 13	24	30.536	30.432	42	26	34.0	43	44½	N.E.	.00
Sunday 14	25	30.468	30.434	41	19	30.0	43	44	N.E.	.00
Mon.. 15	26	30.456	30.223	35	21	28.0	41	43	W.	.00
Tues. 16	27	30.481	30.017	40	22	31.0	40	42	N.	.01
Wed. 17	28	30.077	30.011	32	20	26.0	39	42	N.E.	.00
Thurs. 18	[illegible]	30.118	29.955	34	18	26.0	39	40½	N.E.	.00
Average.		30.325	30.237	37.8	22.6	30.2	41.2	43.0		.01

Jan. 12—Foggy; hazy clouds; overcast.
— 13—Hazy; overcast; frosty at night.
— 14—Fine; cloudy; clear; sharp frost at night.
— 15—Hazy clouds; clear and frosty; slight snow.
— 16—Drizzly; fine; overcast; frosty.
— 17—Snowing slightly; heavy snow-showers; clear and cold; hard frost.
— 18—Frosty; clear and cold; snowing.
Mean temperature of the week 6½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Jan. 27, 1855.

Jan.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 21	42.6	33.0	37.8	13	0.31 in.	—	4	4	1	7	7	4	2
Mon. 22	42.8	33.6	38.2	14	0.44	2	4	1	5	3	10	2	2
Tues. 23	44.5	33.5	39.0	14	0.60	1	3	2	3	5	9	2	4
Wed. 24	42.5	32.5	37.5	10	0.11	3	3	2	1	3	11	5	1
Thurs. 25	41.3	36.5	38.9	11	0.50	1	3	3	1	4	10	4	3
Friday 26	43.0	32.3	38.7	12	0.17	1	4	3	3	1	10	4	3
Satur. 27	42.8	32.7	37.8	10	0.37	2	3	4	—	4	12	4	—

The highest temperature during the above period occurred on the 23d, 1854—therm. 53 deg.; and the lowest on the 25th, 1827—therm. 15 deg.

Notices to Correspondents.

CAMELLIAS: *B.* The blemishes on the petals of your flowers are, doubtless, caused by cold and damp. ‡

CHESNUTS: *X X* will be obliged by some of our correspondents informing him what is the best mode of preserving these from the ravages of mice after they are sown.

GEOLOGICAL ADVERTISEMENT: *Doone.* What would you think of such an advertisement as this?—"Naturalists are hereby requested to satisfactorily deny the following statements:—The sun shines by day. The solid constituents of plants are formed out of water, carbon, nitrogen, and various saline matters. The best reply to the above will be published at the expense of the *Challenger*, provided it be not too long." Would you not think the advertiser a lunatic?

HOLLY HEDGE: *A B.* There is no objection to the plan proposed: but a better way would, perhaps, be in the end of August or beginning of September to take up the whole of the hedge and replant it, trenching the ground as you proceed, and working in young plants where they are wanted. As you plant settle the soil well about the roots with water; but do not trample it, and cover in the whole with a little dry soil to keep in the moisture. If you have plenty of manure, a small quantity of it well rotted may be mixed with the mould, which is put about the roots; but the best way would be to use it in the shape of good mulching on the surface. ‡

ICE: *W B.* Do not use salt. Pick the ice from any *clean* pond or river. Do not pound it, but pack it as closely as possible, and remember that the more solid the pieces are the better it keeps. The thin surface ice with which we are so often obliged to be satisfied in this country keeps badly. If you could freeze the whole contents of your ice house into a solid mass, it would keep better; but how will you get it out when you want it?

INSECTS: *T Y.* The white matter on the shreds of your Plum tree seems to be the secretion of a coccus or scale insect; if so, your trees ought to be scrubbed with a brush and hot water (140°), and all the shreds and dead wood cut away. *W.*

KITCHEN GARDEN REFUSE: *Young Gardener.* Provide a hole well lined with puddled clay; into this put daily all your soft vegetable refuse, waste kitchen stuff, and house slops. Whenever you burn weeds, or sticks, or clay, add the ashes to the heap. Carry to it all the leaves you don't want for leaf mould. After laying five or six summer months, take it out, turn it well over, and begin a new heap. In six months more it will be good manure. You may hasten its decay and improve its quality by adding gas-water from the gas-works if they are near. As to the seeds of weeds, if you are good for *any*thing as a gardener, no weeds will be allowed to seed near you. Do not add old tan, which ruins a "mixen," unless you burn it, when its ashes become as valuable as other wood ashes. If the heap becomes offensive, you must either add peat charcoal, or cover it with earth.

MOSSY APPLE TREES: *Lichen.* Scrape the moss off by all means, and burn it. You need not meddle with the twigs, but confine the operation to the trunk and main branches, which you cannot easily hurt. A trowel is a good instrument, as it is handy to use and takes off all the loose bark as well.

NAMES OF PLANTS: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Leo.* It is Ipomœa Quamoclit, a tender annual. It requires rich warm soil, and a warm corner in the garden, when all night cold is over. Your plants seem to have died from wet, cold, and the want of fresh air. We should not sow it before April. We have seen it flowering beautifully in the warm light soil of Norfolk.

NAMES OF FRUITS: *G F.* From your description and sketch of the Apple grown about Norwich, it is, doubtless, Hubbard's Pearmain.—*B A.* 1, Early Nonpareil; 2, Easter Pippin; 3, Like Golden Reinette; 5, Bedfordshire Foundling; 6, Syke House Russet. The Pear is unknown, probably something wild; you may mark it worthless.‖

OXALIS: *A H.* would be glad of a list of hardy Oxalis, conspicuous enough to be worth one's cultivating. He only knows of Floribunda, and Deppii, and Bowii doubtful.

POMOLOGICAL SOCIETY: *J T.* We do not know what the arrangements are. You should apply to the Secretary, 20, Bedford Street Covent Garden.

POTATO YAM: *Z.* You have received young tubers, not sets. The latter are, we presume, unattainable at present.

SIKKIM RHODODENDRONS: *Old Sub.* The following varieties of these are now set with flower-buds in the Hort. Society's Garden at Chiswick, viz., Edgeworthi, cinnabarinum, glaucum and its dwarf variety, ciliatum and its variety, alpinum, Thearflorum, and niveum.¶

TEMPERATURE: *Strawberry-leaf.* The following was the ground temperature at 1 foot and at 2 feet deep, for the months of November and December, from 1844 to 1854 inclusive:—

Depth.	Months.	1854.	1853.	1852.	1851.	1850.	1849.
1 foot ...	November	46.58	44.28	47.97	41.18	46.28	46.96
	December	42.69	38.19	45.69	41.26	40.54	41.32
2 feet ...	November	47.58	47.30	47.85	41.96	47.75	49.05
	December	44.43	41.56	45.17	41.06	42.30	43.01

Depth.	Months.	1848.	1847.	1846.	1845.	1844.
1 foot ...	November	44.83	47.96	48.03	46.20	46.45
	December	43.59	44.14	38.21	41.48	36.95
2 feet ...	November	46.06	49.71	49.61	47.73	45.85
	December	45.29	45.67	41.06	43.47	39.79

From the above it appears, that in
Nov. { The highest mean temperature occurred in 1846...48.03
The lowest ditto ditto 1851.. 41.18
Dec. { The highest mean temperature occurred in 1852...45.69
The lowest ditto ditto 1844.. 36.95

TRITOMAS: *A H.* solicits information respecting these plants, especially as to Aurea and Burchelli.

VEGETABLES: *A R.* The Persil-Celeri (Neapolitan or Celery-leaved Parsley), is a large sort of Parsley; the leaf-stalks are blanched and eaten like those of Celery. In order to blanch the stalks, they must of course be earthed up. The Navet jaune de Finlande or Yellow Finland Turnip, is an excellent small, regularly-formed Turnip with sugary tender flesh. The top is small, as is also the tap root; the latter proceeds from the centre of an evenly-rounded bottom. As a garden Turnip for winter use it well deserves cultivation.‖

WOODS AND FORESTS: *Quercus.* The last Blue book we have seen is No. 377, ordered to be printed July 17, 1854. We have before us a "report," dated Dec. 7, 1854, by Messrs. Mathews, Murton, and Menzies upon the state of the forests and their management, but we can place no confidence in the statements of persons who could be concerned in such a dark transaction as that which ended in the dismissal of Mr. Brown.

MISC.: *Diss.* It is a rule at all publishing offices not to interfere with the wording of advertisements, or to refuse the insertion of anything unless against good morals.

*** As usual, many communications have been received too late and others are unavoidably detained till the necessary inquiries can be made.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
WM. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7l. per ton; Superphosphate of Lime, 7l.; Sulphuric Acid and Coprolites, 6l.
Office, 69, King William Street, City, London.
N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE LONDON MANURE COMPANY beg to call the attention of Agriculturists to their WHEAT and CLOVER MANURES for present use. The London Manure Company also offer Genuine Peruvian Guano, Nitrate of Soda, Concentrated Urate, Superphosphate of Lime, Fishery and other Salts, and all Artificial Manures of value. The London Manure Company guarantee Peruvian Guano and every Manure they supply to be strictly genuine. EDWARD PURSER, Sec.
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Agricultural Chemist—William White, Esq.
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This Company is formed for the manufacture and supply of the three following valuable preparations, invented and patented by Mr. WILLIAM WHITE:—CYANIC MANURE, CYANIC DEODORISING POWDER, CYANIC PLANT-PRESERVATIVE.
The Cyanic Manure is the successful result of many years' patient investigation into the economy of the vegetable kingdom, and possesses several distinctive features of superiority over ordinary farm-yard manure, and the great majority of those known as artificial. To the Agriculturist it will be found to afford all the elements of fertilisation in their *just proportions:* this assertion is founded on *positive experience.* It is manufactured in the form of a portable *inodorous powder*, and is used at the average rate of *three cwt. to the acre.* Like Guano, it is sown broadcast or drilled in with the seed; and for Wheat and other grain crops is most efficacious. In its application to TURNIPS, SWEDES, MANGOLD WURZEL, and ROOT CROPS GENERALLY, as also to CLOVER and GRASSES, it has proved to be equally successful. To the Gardener it is essentially valuable, as presenting the richest manure in the simplest form, which can at pleasure be used by either being drilled in with the seed, or broadcast over the soil. Price of the Cyanic Manure, 8l. per ton, packages included, and delivered free at all the Railway Stations and Wharfs in London. The above are not submitted to the public until every assertion relative to them has been tested by patient and successful experiments, and witnessed by judges of the first authority.—Orders addressed to the Secretary, at the Offices of the Company, No. 37, Charing Cross, London, or to the several Agents, will receive prompt attention.
Agents.—London: Mr. J. E. SAUNDERS, 7, Lower Thames Street.
Exeter: Messrs. LUCOMBE, PINCE, & Co., Seedsmen.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch.
Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

MANURE TRADE AGENCY.—The Advertisers require AGENTS for the sale of a new and first-class Manure. As they will be supplied with an article equal, if not superior to any artificial manure of the day, it is needless for those who expect a large commission for the sale of a worthless article to apply.—Alpha, care of Mr. Jordan, 8 Gracechurch Street, London.

ROT IN SHEEP.—We, the undersigned Churchwardens and Overseers of Castor, near Peterborough, Northamptonshire, wish to inform the public that we have had Medicine from Mr. FOUNTAIN, VETERINARY SURGEON, &c., Market Deeping, Lincolnshire, for years, for the direful disease, the Rot in Sheep; and we do declare that it has cured every Sheep we and our neighbours in the adjoining parishes have given it to, although in the last stage and in the lambing season; and we highly recommend Mr. FOUNTAIN, and will satisfy every inquiry.
WM. CALLOW, PETER DICKENS,
WM. BERRIDGE, RICHD. MARROTT.

CLAYTON, SHUTTLEWORTH, AND CO.'S PRIZE PORTABLE STEAM-ENGINES, AND COMBINED THRASHING, STRAW SHAKING, RIDDLING, AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as thrashed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.
C. S. and Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading agricultural shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

WATERPROOF PATHS.—BARN AND CATTLE SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

PRIZE MEDAL—1851.
AT A VERY ECONOMICAL RATE.
SAMUEL CUNDY, MASON and BUILDER, PIMLICO MARBLE and STONE WORKS, Belgrave Wharf, Lower Belgrave Place, Pimlico, London.
Marble Chimney-pieces manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price. A good Marble Chimney-piece for 40s. Marble Work in all its branches at a remarkably cheap rate for Halls, Dairies, Larders, &c. Circulars sent on application.
N.B. The "Royal Blue" Omnibuses pass the Works every ten minutes from the Bank.

"FRIGI DOMO."—Patronised by her Majesty the Queen, Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, and Mrs. Lawrence, of Ealing Park.
"FRIGI DOMO," a Canvass made of prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, and from attacks of insects and morning frosts. To be had in any required length, upwards of 2 yards wide, at 1s. 6d. per yard run, of ELISHA THOMAS ARCHER, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey.

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THE LANDS IMPROVEMENT COMPANY, INCORPORATED BY SPECIAL ACT OF PARLIAMENT FOR ENGLAND AND SCOTLAND.—To Landowners, the Clergy, Solicitors, Surveyors, Estate Agents, &c.—Loans may be contracted for the execution by the proprietor or by the Company of every landed improvement, especially Drainage, Building, Clearing, Enclosing, Warping, Irrigation, Embanking, Reclamation, Roads, Planting, Machinery, &c. The plans (of buildings), specifications, and estimates are prepared by the proprietors, and are submitted to the approval of the Enclosure Commissioners. Proprietors may avail themselves of the powers of the Act to recover from the inheritance their own funds to be expended on improvements. They may also apply jointly for the execution of a mutual improvement, such as a common outfall, &c. For forms of application, &c., apply to the Hon. WM. NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
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The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

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The first Session of 1855 will begin in February. The Annual Fees for Boarders vary from 45 to 80 guineas, according to age and other circumstances. The Fee for Out-Students is 40l. per annum. The College Course of Lectures and Practical Instruction is complete in one twelvemonth—though a longer course is recommended. There is a department for general as well as for agricultural purposes. Prospectuses and information can be had on application to the Principal.

BIRMINGHAM CATTLE AND POULTRY SHOW.
TESTIMONIAL TO MR. T. B. WRIGHT.—The Committee appointed to promote the SUBSCRIPTION for the PRESENTATION of a TESTIMONIAL to Mr. T. B. WRIGHT, in acknowledgment of his important services in originating the Birmingham Cattle Show, and for the valuable assistance he has contributed towards its management, respectfully request that the friends of the above gentleman, who are disposed to participate in this well-merited tribute of respect, will do so at their earliest convenience.
HOWARD LUCKCOCK, Chairman of the Committee.
JOHN LOWE, JOHN MORGAN, Jun., } Honorary Secretaries.
38, Bennett's Hill, Birmingham, January 20, 1855.
Subscriptions to the Fund will be received by the Treasurer, Mr. John Shackel, Blenheim House, Small Heath; Mr. John Lowe (of the firm of Mapplebeck & Lowe), Bull Ring, Birmingham; Mr. John Morgan, Jun., Cattle Show Offices, 38, Bennett's Hill; and by the Bankers, Messrs. Attwoods, Spooner, & Marshalls, New Street, Birmingham.—Post-office orders should be made payable to Mr. JOHN MORGAN, Jun.

The Agricultural Gazette.

SATURDAY, JANUARY 20, 1855.

MEETINGS FOR THE ENSUING WEEK.

THURSDAY, Jan. 25—Agricultural Imp. Society of Ireland.

MOST of us have read the amusing account of our LONDON COMMISSARIAT, given in the last number of the "Quarterly Review." The 2,000,000 quadrupeds which, according to it, contribute most of our supplies, are about to change their weekly place of meeting. Monday next will be the last on which our metropolitan market will be held at Smithfield. The drove of oxen 10 abreast described by the reviewer as 70 miles in length, which provides our annual supply of beef, will for the future congregate in Copenhagen Fields, greatly to the advantage of owners, purchasers, and consumers; the droves of sheep 120 miles in length, of calves and pigs some 20 miles in length, which with these cattle form our annual supply of butchers' meat, will be penned hereafter in room and comfort—neither of which could be obtained within the narrow area of the present market.

Our engraving in another page points out the relative positions and extent of the several kinds of accommodation which for the future are to be given to the most important trade (hitherto) *within* the City.—Smithfield market is an irregularly-shaped area, intersected by numerous thoroughfares and streets: Copenhagen Field, it will be seen, forms a quadrangular area intersected only by such roads as adapt it for its market purposes. The former is but 6½ acres in extent, no larger than it was when London held one-fifth its present number of consumers: the latter is five times as extensive—only a portion of its area, however, being required for the market proper. Thirty-five thousand sheep will find standing room within it, in nearly 1800 pens; and there are more than 13,000 feet of rail, to every two of which a bullock may be tied. The pens for sheep and railing for the cattle can be readily identified in the drawing. The engraving represents the place as seen from the west or south-west corner. The two rectangular partly-covered courts on the west side of the sheep-pens, are areas of an acre each for the accommodation of calves and pigs respectively. Shelter while on sale, and convenience for despatch by carts (the floor of the greater part of these two markets being on a level with the cart-bed above the roadway) are thus provided. On the western side, the buildings immediately at the foot of the engraving are only partly built—they are the public slaughter-houses and the meat market. On the same side, west of the calf and pig markets, is the lairage for sheep, providing accommodation for 8000 on an area of 6 acres. This space is divided into yards, a part of each being covered, and each being furnished with hay-racks and with water-troughs. The lairage for 3000 bullocks, on an area of 8 acres—similarly divided into yards, each of which is provided in like manner with shelter and with food—lies to the south and south-east of the ground. Each of these spaces has at short intervals water laid on for use either in cleansing or for consumption. At the eastern end of the area, beside the Great Northern line (which runs under one corner of it), a hide and skin market, not yet erected, is represented as being intended; and on the other side of that line additional slaughter-houses, as required, may be built. The central building with the clock tower will furnish accommodation for the several banking establishments; and public-houses at the corners, with two large hotels on the northern side—the Queen's Arms and the City Arms—will supply refreshments to the salesmen and their customers, who will conduct the enormous trade that is next week to find its new channel here. At the south of the area a cattle station will be erected by the London and North-Western line, and access from the northern, and western, and eastern districts of supply will thus be easily provided—these being the quarters from which much the largest quantity of meat at present reaches us.—We may add to the above that there is abundance of unoccupied space belonging to the market, into which it may extend itself as London grows and its necessities increase.

Business will be conducted here as hitherto; by the same men, under the same regulations, in the same manner, after the same rates, on the same days, and at the same charges. The only differences will be those arising out of change of place; but how great these will be to the comfort of the men employed and of the animals disposed of, and therefore to the interests of the owners and consumers of the stock, any one who has witnessed Smithfield on a crowded day can readily anticipate. The barbarity of goading into "ring droves" imposed upon the salesmen by the limits of the present market will be avoided; this, and the avoidance of the present brutal driving through narrow crowded streets, will together save much in value of the animal up to the time of sale and much in the after quality of the meat.

There will now be room enough and accommodation, too, to enable the 30,000 sheep and 5000 head of cattle, and a thousand head apiece of calves and pigs which may be congregated here on the Monday after next, to find their way and find their place, and leave it for the slaughter-houses, without the need of reckless packing and all the cruelty by which it is effected Ten or twelve banking houses, several hundred

salesmen, and many hundred drovers will transact with ease and comfort the business of many millions annually, which has been conducted hitherto under difficulties as to space and access to it, which have imposed upon our London market the roughest character for recklessness and cruelty. We have given in another column a description of the market as hitherto arranged; we doubt not next week will see the commencement of a very great improvement. This will have been owing to an expenditure of about 300,000*l.* upon the Copenhagen Fields, under the superintendence of Mr. BUNNING, City architect. We learn that the works have been contracted for and constructed by Mr. WILSON, of Southwark, the contractor for the buildings, Messrs. KENNARD, of Thames Street, who provide the ironwork, and Mr. CHADWICK, the contractor for the roadways and the paving.

A rumour has prevailed in the City during the week that the opening of the market was to be delayed; but on inquiry at the architect's office we find that although the existence of the report was known there, they knew of no foundation for it. The market commissioners only await Lord PALMERSTON's authority; and their intention is to open the place for business for the first time on the 26th of January. From the statements made in the Common Council on Thursday, it would seem as if the committee were themselves quite in the dark on this subject; but it appears that if they obtain the authority of the Home Secretary there will be nothing in the condition of the works to hinder the carrying out of the original intention. The act of Parliament from which they derive their power requires that the market be removed within three years and six months of the date of its enactment, a period which expires on the 1st of February.

REFERENCES TO THE ENGRAVING.

1. Cattle market. Length of railing, 13,282 feet.
2. Sheep market—1749 pens.
3. Court of calves' market. Area, 1 acre.
4. Court of pigs' market. Area, 1 acre.
5, 5. Lairage for cattle. Area, 8 acres 0 roods 11 perches.
6. Lairage for sheep. Area, 6 acres 0 roods 8 perches.
7. Slaughter-houses only partly erected.
8. Slaughter-houses intended.
9. Dead-meat market, only partly erected.
10. Hide and skin market, not yet erected—near the Great Northern Railway.
11. Shedding provided behind the City Arms and Queen's Arms Hotels.
12. Banking-houses and clock tower.

DR. VOELCKER has kindly forwarded to us his report upon A POISONOUS "RAPE-CAKE," which proved fatal to some cattle belonging to Mr. SMITH, of Bibury, near Cirencester. The adulteration of Rape-cake with Mustard seed is a matter of very serious consideration to farmers. The use of this article as food is rapidly extending, and its liability to this sort of poisonous adulteration is thus more than ever a matter to which attention should be drawn. We are, therefore, much obliged to Professor VOELCKER for the information he has published. In the letter originally addressed to EDWARD HOLLAND, Esq., of Dumbleton, he says:—

"Allow me to direct your attention to a cake, of which I inclose a small piece. Apparently it is a sweet-smelling and good-looking Rape-cake, from which it cannot indeed be easily distinguished on simple inspection. It is, however, a cake which is sure to kill any animal, if used for feeding purposes, instead of manuring land with it, the only use to which the farmer can apply it in quantities. This cake, I have found on examination, consists entirely of the expressed *seeds of Mustard*. My attention was directed to the subject by Mr. ——, who had two beasts killed in consequence of their having eaten a small quantity of the enclosed cake. Having tested the cake in vain for arsenic, lead, copper, and other kinds of metallic poisons, I found that some of it digested in cold water, in the course of a couple of hours, had become as pungent as *Mustard*, and on distillation I obtained in reality the highly irritating characteristic smelling volatile oil of Mustard. Thus, it was plain that Mr. ——'s beasts were killed by *Mustard powder*, which incautiously had been given to them instead of Rape or Linseed-cake.

"It is a curious fact that Mustard seed *whole* does not contain any *volatile oil*. This is only developed (and very gradually), if the powdered seed is moistened with cold or lukewarm water. Boiling hot water does not produce it, because it coagulates the albuminous substance in Mustard seed, which substance (in a moistened state), transforms a peculiar constituent of Mustard, called by chemists *myronic acid*, into volatile oil of Mustard. This myronic acid has as little smell as the albuminous substance which acts upon myronic acid as a ferment, which is called myrosin. For this reason, Mustard mixed only a few minutes before its use has hardly a pungent taste, and a Mustard cataplasm at first does not cause any inconvenience; but when kept too long in contact with the skin, it produces blisters. In either case, oil of Mustard is gradually formed from myrosin and myronic acid. Hence the inclosed cake you will find does not taste pungent at first; but, if you will coarsely powder it, and make it into a paste with a little water, you will have no difficulty in recognising its origin. This instance affords a new proof—if such were necessary—that farmers might often save many pounds, if they would but spend a few shillings in analysis. I hope you will excuse this lengthy epistle—the importance of the subject must be the apology."

Cases of this kind are now, as we have said, not unfrequent, and we see one has been reported to the *Macclesfield Courier* as occurring near Sutton, in Cheshire, where two beasts out of three to which the adulterated cake had been given died in the course of an hour after eating it. It was evident to the owner of the cattle that the cake must have contained some poisonous or deleterious mixture; and he forwarded a portion to Mr. F. C. CALVERT, Professor of Chemistry, at Manchester, to be analysed; the result proved that the cake contained a large portion of Mustard seed, the action of which, in the stomach of a cow, was reported by Mr. CALVERT to be such as to produce death. Upon this report being made known to Mr. THORLEY, the respectable seed merchant in Hull from whom it had been obtained, he at once returned the cake to a Russian firm, from whom he had purchased it; they declined to receive it, and sued him in the County Court at Hull for the price, and the trial, which excited great interest amongst the merchants there, took place a few days since, when a verdict was given in favour of Mr. THORLEY. Mr. THORLEY very honourably reimbursed the owner of the cattle for his loss and expenses, and he is now proceeding for damages against the parties who sold the cake to him. If similar cases were only followed up and sifted in this way, such frauds would be less frequent.

THE SMITHFIELD MARKET.

SMITHFIELD is an irregularly-shaped area of 6½ acres, intersected by numerous streets. When first appropriated to market purposes, it was situated outside the walls of the city; but the population and houses having increased tenfold, it is now nearly equi-distant from the northern and southern suburbs. One of the great thoroughfares to the Eastern Counties Railway passes through it, dividing it into two departments; in the one of which, 1506 open pens are erected for sheep, calves, and pigs, and in the other, railing to which 2750 beasts may be tied. The rails are placed sufficiently far apart to admit of 1250 more beasts standing in what is technically termed "ring droves"—from 10 to 20 cattle goaded into a circle, their heads forming the centre. During the market hours the intersecting streets are closed.

The market belongs to the corporation, and is held by prescription, charters, and acts of Parliament. The city of London "has been seized in fee of its ancient market, from time whereof the memory of man runneth not to the contrary." There are two weekly market days for live stock—Monday and Friday; and three for hay and straw, Tuesday, Thursday, and Saturday. Cattle sales commence about day-light in winter, and 5 o'clock A.M. in summer, and are generally over by 3 o'clock P.M., when the market closes. On Friday milk cows are sold, after which a horse and donkey fair commences.

The government of the market is under the corporation, whose officers are a collector or clerk, an inspector, and a sergeant and small staff of police. The duty of the clerk is to grant licenses, space in the different departments of the market to salesmen and graziers, and to receive and account to the city chamberlain for all monies arising from tolls, dues, licenses, fines, &c. The duties of the inspector are, to examine the soundness of the stock, and to cause the removal of diseased beasts. And the duty of the police is to see the bye-laws of the market duly attended to by all parties. The principal parties connected with, and attending the market, are seven banking or money-taking houses, 600 salesmen, about 4000 butchers, and 950 licensed drovers. The "money-takers" co-operate with salesmen, discharging their pecuniary duties by receiving from butchers the amount of their purchases, by remitting to the provinces the proceeds of sales, by paying the tolls and dues on stock to the collector, and so forth, for which they charge 6*d.* for every bullock, 4*d.* for every calf, and 1*s.* 4*d.* for every score of sheep, 1*d.* for single heads over the score. Drovers are of two orders—"masters" and "men;" the former get their instructions from salesmen, and receive at the different railway termini, and of country drovers, cattle—take them to lairs, and to the market—and, when sold, deliver them to butchers, for which they have 6*d.* per bullock. The tolls and dues of the market come also out of the commission of salesmen, which is 3*s.* 6*d.* per head of cattle in some provinces, and 4*s.* in others, according to ancient custom—the latter being the most general; sheep from 6*d.* to 3*d.* per head.

The lairage of the market, principally the property of salesmen, and situated in the suburbs, forms part of the same commercial fabric—for here cattle are fed, examined, and sorted for Smithfield: on the ox arriving at these lairs it receives abundance of water, and 14 lbs. of hay for the night, the common allowance being a truss among four beasts, for which the owner is charged 1*s.*—3*d.* for the lair, and 9*d.* for hay, including attendance. Salesmen for the sake of order generally occupy the same standings in the market: and, on the day previous to it, have to apply for them, stating the number of head each requires room for, when orders of admission are received from the clerk. On the ox arriving in the market ground, it is driven up to the rail, when a drover in front throws a lasso, or rope with a running noose, around its neck, pulling it tight and making it fast. In this manner ox after ox is tied up, so long as one can be wedged up between other two; when this is no longer practicable, the goading into "ring droves" commences. When sold, it is driven to the lair of the butcher—sometimes his own property, sometimes not. A large proportion of purchases are handed over to slaughtermen, who charge from 3*s.* to 4*s.* per ox for slaughtering and delivering the carcass to the butcher. In the sheep and pig department, practice is of a kindred character.

The commerce of Smithfield is also inseparable from that of the dead meat markets of Newgate and Leadenhall; for not less than 1200 beasts are weekly bought in Smithfield, with an equal proportion of sheep, calves, and pigs, to supply the demand of the latter.

Newgate and Leadenhall markets are held daily under the government of the Corporation; and the amount of business in both, but especially the former, has greatly overgrown the market buildings. In 1848, the number of salesmen in Newgate was about 200, while forty years previously it was only thirteen. In Leadenhall there are "about twenty meat, and twelve poultry salesmen." Their commission is 1*d.* per stone on beef, and about the same for other descriptions of meat—or from 8*d.* to 9*d.*, and upwards, for each sheep or lamb; calves, 1*s.* 6*d.* to 2*s.* The officers of the markets are a collector and beadle.

In neither market can any account be had of the quantity of meat annually sold, none being kept; but in 1848, independently of the above supply of live stock, the different railway companies "pitched into Newgate about 800 tons weekly on an average." The annual value of the total sales in this market, at this period, was estimated at upwards of 3,837,600*l.*, and since then an increase has taken place.

Mr. Hicks, a carcass salesman, and member of common council, in his evidence before a Committee of the House of Commons, in 1849, gives the following result:—It is obtained from the account of sales of ten salesmen of cattle and sheep, for one week in May, August, and December, for three years; namely, 5579 head of cattle sold at upwards of 21*l.* each, and 8600 sheep at 42*s.* 6*d.* each—and from it he deduces the following as the annual value of stock sold in Smithfield, making as a necessary allowance for inferior quality a reduction of 50*s.* a head on the average value of the cattle, and 4*s.* 6*d.* a head on the average value of the sheep:—

224,000 beasts, at 18*l.* 10*s.*	=	£3,144,000
1,550,000 sheep, at 1*l.* 18*s.*	=	2,945,000
27,000 calves, at 3*l.* 15*s.*	=	102,375
40,000 pigs, at 1*l.* 10*s.*	=	60,000
Annual proceeds of sales ...		£7,251,375

Mr. Giblett, a butcher, gives, per head—beasts, 16*l.*; sheep, 35*s.*; calves, 80*s.*; and pigs, 40*s.* The clerk of the market—beasts, 17*l.* 5*s.*; sheep, 36*s.* 6*d.*; calves, 77*s.* 6*d.*; and pigs, 35*s.* The latter also gives the following sales for 1848:—

Horses	12,867 head
Hay	18,537 loads
Straw	1,751 ,,

In 1847 there appears to have been in the market 7641 milk cows; and, in 1848, 6630, making an average of about 140 weekly—a return exceeding that of 1851. The cow and horse markets, however, afford no index to the general supply and demand of the metropolis, for the principal dairymen get their cows direct from the country, and horses come from the same quarter, *viâ* Tattersall's, &c. The show in Smithfield of this stock is little more than the offscourings of the London dairies and livery stables, &c.

No toll or charge is made on donkeys, and hence no account of numbers is kept; the traffic, however, is by no means unworthy of notice. With the assistance of one of the market police, we numbered one day, within the avenues allotted for them, 120 within the area of the market. By this time several juvenile buyers had left the market, proud of their purchases, while as many more were hurrying to it to get rid of bad bargains—so that from this and other sources, we arrive at the conclusion that cows and donkeys stand upon a footing of equality as to numbers—there being a weekly supply of about 140, and an annual of from 6000 to 7000 each.

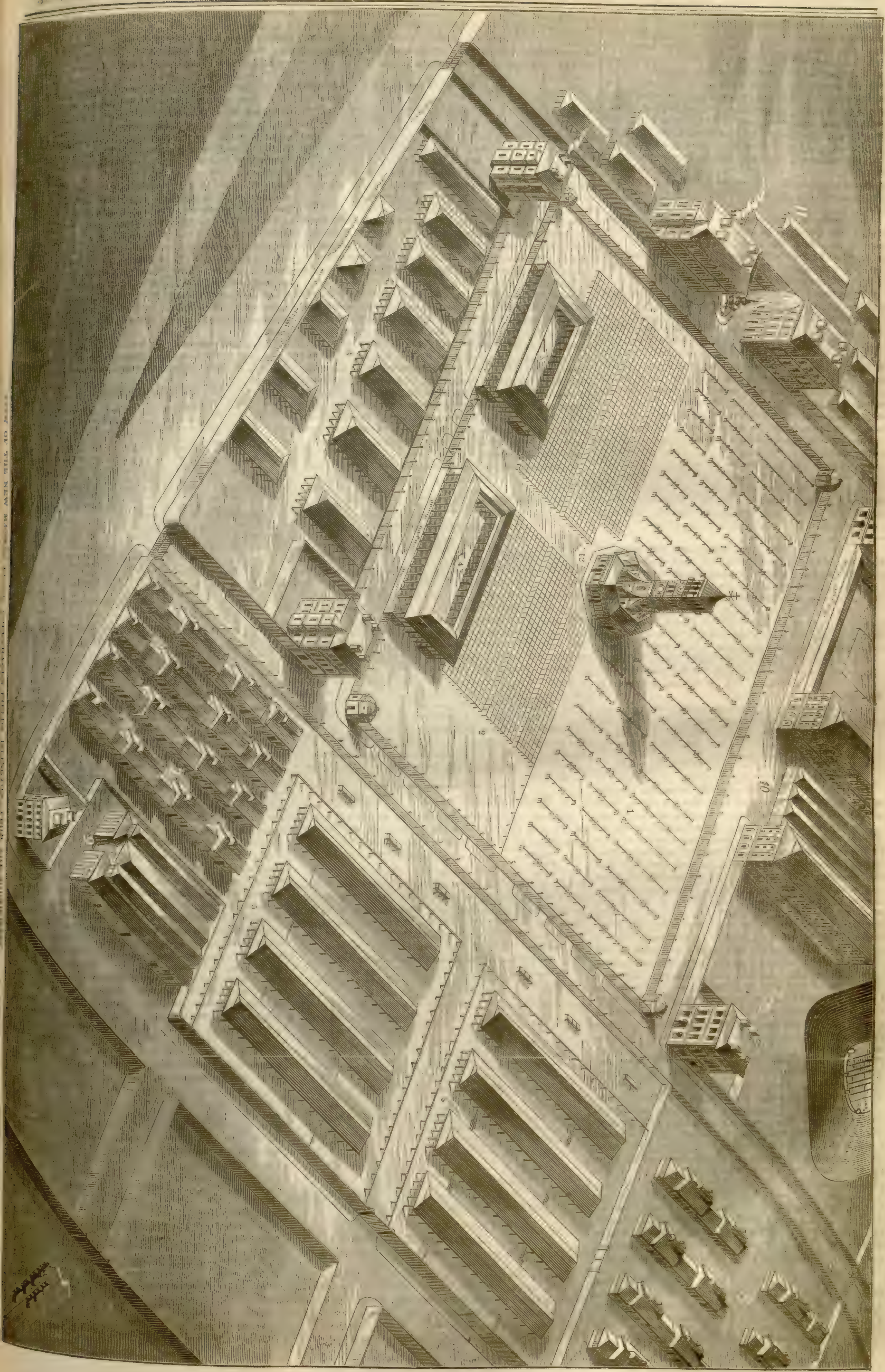
The present tolls and dues in Smithfield are as follows:

TOLLS—Sheep—For every score of sheep sold, 2*d.* per score.
Beasts—For every score of beasts sold, 20*d.* per score.
Horses—For every entry of sale, 4*d.* each.
Pigs—For every score, 4*d.*
DUES—Pens for sheep, calves, or pigs—Permanent pens, 1*s.* each.
Ties for beasts or calves, 1*d.* each—for horses, 2*d.* each.
Hay duty, 6*d.* per load—and for each entry of sale, 1*d.*
Straw duty, 1*d.* per load—and for each entry of sale, 1*d.*
DROVERS pay 5*s.* for a license, and 1*s.* annually for renewal.

In Newgate market the Corporation is entitled to "a toll of 1*d.* for every hamper—2*d.* for every bundle—and 6*d.* for every pack of meat brought into the market—and 1*d.* for every coop of poultry—and the same for every lot of butter and eggs; but these tolls have been commuted for a fixed weekly payment, which is received of those who are tenants in the original market." In Leadenhall the same has taken place; in both, a weekly rent is charged for every stall.—*Agricultural Cyclopædia*, Article MARKETS.

[In 1853 there were sold in Smithfield 294,571 oxen, 1,518,040 sheep, 36,791 calves, and 29,593 pigs.

The total sale of meat, dead and alive, for London consumption, is estimated at 483,388 oxen, 2,141,393 sheep, 132,976 calves, 159,052 pigs.]



ON THE GROWTH OF MANGOLD WURZEL.

By PROFESSOR J. BUCKMAN.

WHEN Mangold Wurzel was first introduced into farm cultivation, its great recommendation seems to have been that while its roots contained a large quantity of succulent and nutritive matter, suitable for all kinds of stock, its leaves were no less valuable for feeding purposes, so that its growth was advocated much upon the supposed grounds of a capability for simultaneously producing two crops. Experience has, however, long since taught us that though the Mangold be a plant yielding a large amount of produce when properly cultivated, yet that, by endeavouring to obtain too much, we in reality get less, and this is confirmed by direct experiment. Hence the author of "Practical Agriculture," fifty years since, made the following remarks:—

"It is probable that, upon the whole, the root has neither been found to be equal in quality, as a cattle food, or to afford the quantity of produce that was supposed on its first introduction."* Now this becomes perfectly intelligible when, as we learn from the 'Annals of Agriculture" for the same period:—

"The plants seem to have afforded a large produce of leaves when gathered every two or three days, from July till late in September, yet the whole produce in leaves and roots is not equal to that of the large Cabbage." Such is the experience of 50 years since, and yet after a lapse of half a century we find Mangold Wurzel extensively cultivated, and its root is demonstrated alike by practical experience and scientific investigation to afford a highly valuable because eminently nutritious crop. The reason, therefore, of this discrepancy of opinion, and its resulting increase of growth in modern times, must be sought for in the fact of an improvement in management, the most important change being that of non-mutilation. We now care not for the leaves, and, as will be shown in the sequel, we therefore obtain not only a larger quantity of the root, but this is improved in its nutritive capabilities. That the root is injured in its growth by depriving the plants of their leaves will be at once gathered from the following experiments, which were instituted on purpose to obtain evidence on this very point.

In May of the past year were sown five sorts of Mangold Wurzel; two rows of each were ridged and cultivated in exactly the same manner as those in the farm, and the ground for the whole prepared alike. When, however, the roots had attained the size of about 1½ inches in diameter, a single row of each sort was closely stripped of all the outward leaves by carefully cutting them away with a sharp knife so as not to produce injury by tearing, a process which was from time to time repeated as often as the outer leaves had again attained to a size to be used as a feeding matter. The result of this treatment was as under, weighed in November, 1854.

Sorts of Mangold Wurzel.	Leaves intact.	Leaves cut.
1. Red Globe	31.0	23.5
2. Yellow Globe	45.0	18.5
3. Long Red	49.0	18.0
4. Long Yellow	35.5	18.0
5. Long White	32.5	19.5
Total for the five sorts ...	193.0	97.5

Here it may be noticed that the resulting produce of the uncut when compared with the cut plants, in an average of five sorts, is within a fraction of two to one, or nearly double, and it will be seen that while the Yellow Globe and the Long Red when uninjured have produced the largest crops yet that they suffered proportionably more from mutilation; in each case less than half the amount of root resulting from the injured, when compared with the uninjured. These experiments, therefore, while they show the effects as far as the roots are concerned of destroying the leaves, fully justify the favour in which the Long Red and Yellow Globe Mangold are held, at the same time making it appear that those kinds which yield the largest return if rightly cultivated, are just the ones that suffer most from an opposite method. Having now shown a diminution of the crop to result from injury to the leaves, I go on to furnish evidence to prove that even this smaller amount is at the same time deteriorated in quality. Upon this head it would be sufficient to notice that the practical farmer was dissatisfied with the cultivation of the Mangold Wurzel while the vicious system prevailed, the reasons for which, however, have been amply proved by experiment and chemical investigation. In a report of "experiments made by Dr. Wolff, Professor of Chemistry in the Royal Agricultural College of Hohenheim, in Wurtemberg," published at Leipsic during the preceding year, we learn that two sorts of Mangold Wurzel were grown, namely, the Globe and Long Red varieties, from which the leaves were taken off for feeding purposes in September and again in October, and the result of twice stripping the plants of their leaves was a diminution in produce amounting to one-fifth; it is therefore no wonder that four or five times stripping off the leaves should diminish the produce of root one-half, as in my own experiment, still less that the gathering of the leaves every two or three days, from July until late in September, should have caused this useful plant to be slightingly spoken of 50 years since.

As in my own experiments those of Dr. Wolff show that the amount of root suffers greatly when the leaves are removed, but this is not all; for chemical analyses of the root where the leaves were intact, when compared with those in which the leaves were taken off, make it evident that not only is there a diminution in quantity, but a deterioration in quality of the latter — facts which will be explained by the following table of the composition of two varieties of Mangold Wurzel in two methods of growth in the fresh state:—

	1. Globe variety.		2. Long variety.	
	Leaves taken off	Leaves intact.	Leaves taken off	Leaves intact.
Woody fibre	0.869	0.843	0.936	1.004
Ash	1.010	1.050	0.943	1.125
Sugar	5.076	6.183	4.594	5.365
Pectin, Gum, &c.	2.605	1.090	3.201	4.024
Protein Compounds ...	.937	1.019	0.772	1.000
Water	89.494	89.815	89.554	87.482
	100.000	100.000	100.000	100.000

Now, in this table we cannot help remarking upon the great increase in those important feeding elements, sugar, and protein or nitrogeous substances, matters, it may be presumed, which would be still farther lessened by a greater denudation of such important plant-organs as the leaves.

However, in estimating the good or injury which finally results from the plan of growth commented upon, it may be a matter for consideration as to whether the leaves in their value counterbalance the injury to the roots, as it is quite evident we cannot get the leaves into the bargain of a good crop of roots; and here I would remark, that I think the value of the leaves as a feeding stuff has been much over-rated, and this is confirmed by Dr. Wolff's experiments, who also adds that the leaves are very apt to produce diarrhœa in cattle. The following table from this author gives the result of experiments to test the qualities of milk as obtained from cows fed with aftermath, as compared with feeding from Mangold leaves.

Composition of milk in these cows:—

	1.	2.	3.
A. Principal Food Aftermath.			
Dry substance	12.47	12.49	11.39
Water	87.53	87.51	88.62
Butter in Milk	3.13	3.39	2.53
B. Principal Food Mangold Leaves.			
Dry substance	11.30	12.08	11.04
Water	88.70	87.42	88.96
Butter in Milk	2.60	2.88	2.20

These results show a large decrease of an important constituent of milk, namely butter, from which we may conclude that the plan of using Mangold Wurzel leaves is by no means satisfactory in dairies, where it has been specially recommended.

Here, then, to sum up our conclusions upon what we may term the economics of Mangold Wurzel growing, and leaving out all reference to the physiology of the question, the case will stand as follows:—1st. The leaves of Mangold Wurzel cannot be systematically taken from the growing plant without lessening the quantity of roots in proportion to the closeness with which the operation is performed. 2d. The decreased quantity of roots does not yield so large a percentage of nutritive matter as are contained in those that are uninjured; and 3d. This injury to the roots is by no means counterbalanced in quantity or quality by any value that we might attach to the leaves.

* Quoted from the "Complete Farmer," 1807.

TITHE COMMUTATION AVERAGES.

As your readers may feel anxious to know the result of the corn averages for the seven years to Christmas last, published in the *London Gazette* of 5th inst., viz.:

Wheat	6s. 0¾d.	per imperial bushel.
Barley	3 7¾	" "
Oats	2 6	" "

I beg to state for their information that each 100*l.* of the Tithe Rent Charge will, for the year 1855, amount to 89*l.* 15*s.* 8¾*d.*, which is a reduction of 1*l.* 3*s.* 8¼*d.* from last year's value. The following statement from my "Annual Tithe Commutation Tables" will show the worth of 100*l.* of tithe rent charges for each year, since the passing of the Tithe Commutation Act, viz.:

For the year 1837	£98	13s.	9¾d.
" 1838	97	7	11
" 1839	95	7	9
" 1840	98	15	9¼
" 1841	102	12	5¼
" 1842	105	8	2¾
" 1843	105	12	2¼
" 1844	104	3	5¼
" 1845	103	17	11¼
" 1846	102	17	8¾
" 1847	99	18	10¼
" 1848	102	1	0
" 1849	100	3	7¾
" 1850	98	16	10
" 1851	96	11	4¾
" 1852	93	16	11¼
" 1853	91	13	5¾
" 1854	90	19	5
" 1855	89	15	8¾
19)	1878	14	6¼
General Average for 19 years ...	£98	17	7¼

Charles M. Willich, Actuary to the University Life Office, 25, Suffolk Street, Pall Mall, 8th January, 1855.

THE SHROPSHIRE SHEEP.

[The following paper is abridged from the columns of the *Midland Counties Herald.*]

DURING the last few years much interest has been excited amongst agriculturists respecting a breed of sheep which had been for some time previously common to the county of Salop, and to some extent to the adjoining counties of Stafford, Worcester, and Warwick, and which is now become well known throughout the United Kingdom. They are called "Shropshire sheep"—a name which appears to be finally settled, as it is adopted by many of the principal breeders—the term "Shropshire Downs" being inappropriate, and only calculated to mislead. The latter designation would indicate a small and delicate variety, while the former is intended to apply to one of a larger and more robust character; precisely what is generally required.

It is not our purpose to enter upon a discussion as to the precise course which has been followed in producing the improved Shropshire sheep, as such an inquiry would now possess but little, if any, practical value. The generally received opinion is no doubt the correct one, namely, that the example of Ellman with the South Downs has been followed by breeders in Salop, who had as a foundation the very excellent breed of sheep which is known to have existed in that county for many centuries, and who have taken judicious means, while preserving the fine quality for which the breed was always distinguished, to obtain a larger frame and increased aptitude to fatten. The questions which purchasers have to consider, and which have no doubt attracted their attention, are these—have the breeders of this stock succeeded in obtaining purity of type? and can its present characteristics be perpetuated? As tests of the estimation in which the breed is held, we append the following list of sales during the past year.

The annual sale of sheep bred by W. O. Foster, Esq., took place at Kinfare Hill Farm, near Stourbridge, on the 30th of July. The following are some of the prices realised:—

SHEARLING RAMS.

	£.	s.	d.		
No. 1	31	10	0	... ...	Lord Wenlock.
2	27	6	0	... ...	Mr. Somner.
3	11	0	6	... ...	Mr. W. M. Bill.
4	16	16	0	... ...	Mr. Edwards.
5	9	10	0	... ...	Mr. W. M. Bill.
6	19	19	0	... ...	Mr. Preece, auctioneer.
7	13	13	0	... ...	Mr. Herbert.
8	12	0	0	... ...	Mr. Clayton.
9	9	10	0	... ...	Mr. Williams.
16	18	18	0	... ...	Mr. Farmer.
17	10	10	0	... ...	Mr. Fletcher.

25 sheep at 10 6 11 each.

FIVE SHEARLING EWES.

No. 1	4	16	0	each ...	Mr. Clarke.
2	4	16	0	" ...	Mr. Moore.
3	4	4	0	" ...	Mr. Fletcher.
4	4	16	0	" ...	Mr. Garlick.
5	3	16	0	" ...	Mr. Smith.
6	4	16	0	" ...	Mr. Clarke.

£136 0 0, or 4*l.* 10*s.* 8*d.* per head.

FIVE STOCK EWES.

No. 1	5	5	0	each ...	Mr. Fletcher.
2	4	0	0	" ...	Mr. Williams.
3	4	16	0	" ...	Mr. Fletcher.
4	3	12	0	" ...	Mr. Clarke.
5	4	0	0	" ...	Mr. Fletcher.
6	3	12	0	" ...	Mr. Clarke.

£126 5 0, or 4*l.* 4*s.* 2*d.* per head.

The seventh annual sale of Shropshire sheep, the property of the Earl of Aylesford, was held at the farm, Meriden Heath, by Messrs. Brown and Clarke, on the 4th of September, when 31 shear-hog, and 9 two and three-shear rams, and 200 store ewes and theaves, were disposed of. A two-shear ram was purchased for Lord Willoughby at 15*l.*; another of the same age realised 12*l.* 10*s.*; and a three-shear ram, 10*l.* Of the shearling rams, the highest price was 11*l.* 10*s.*, the purchaser being Mr. Docker, of Allesley. Of the ewes, four pens were purchased for the Hon. A. H. Vernon, of Sudbury, at 76*s.*, 60*s*, and 50*s.* per head.

Mr. Preece, the auctioneer of Shrewsbury, has supplied the following information:—"At the Shropshire Great Ram Fair, on the 25th July, 20 rams, bred by Thomas Juckes, Esq., averaged 16*l.* each. All were sold, the highest price being 33*l.* 12*s*, and the lowest 11*l.* 11*s.* Twelve rams, bred by the Messrs. Crane, of Shrawardine, averaged nearly 12*l.* each, all being sold; highest price, 19*l.* 19*s.*; lowest ditto, 6*l.* 16*s.* 6*d.* Fifty draft ewes, bred by the Messrs. Crane, realised 290*l.* 10*s.*, an average of 6*l.* each, less 10*s.* The principal part of the ewes were bought to go into Lancashire, Gloucestershire, and Warwickshire. There were at this fair sold by me about 30 other rams, belonging to Messrs. Minton, Farmer, Haughton, Peckstock, and Claridge, at prices ranging from five to fourteen guineas.

At Mr. Masfen's sale, at Norton Caines, near Walsall, 30 rams were sold, on the 1st of August, at an average of 11*l.* 10*s.* each, all being disposed of. Highest price, 20*l.*; lowest ditto, 6*l.*

Mr. Adney's (of Harley) sale took place August 7th, when 27 rams were sold at an average of 13*l.* 10*s.* each; and 100 draft ewes, at an average of 3*l.* 18*s.* each; some pens making 5*l.* 10*s.* each. At the late Shropshire Cattle Show, Mr. Adney's original Shropshire ram won the Champion Sweepstakes for the best ram of any age or breed, beating Mr. Horton's celebrated Shropshire ram, which won the prize at the Gloucester meeting of the Royal Agricultural Society of England, and several others of the distinct South Down, Leicester, and Shropshire breeds.

At Mr. Horton's (of Harnage) the highest-priced ram was 33*l.* 12*s.*, bought by Col. Pennant, of Penrhyn Castle; and the lowest price obtained was 9*l.* The ewes (130 drafts) averaged 3*l.* each, the highest pen making 5*l.* 10*s.* each.

Mr. Bach offered a considerable number of Shropshire sheep (the property of different breeders) for sale by auction, at Ludlow Fair, on the 19th of August. Yearlings were in the greatest request, and those of Messrs. James Hand, Edward Urwick, and R. Bach

averaged over 10*l.* each, few remaining at the close of the sale unsold.

On the 18th of August, Messrs. Nock and Wilson held a sale of Shropshire sheep, at Marlow Lodge, Leintwardine, the property of J. B. Green, Esq. Some of the rams sold at 10, 15, 17, 18, and 20 guineas each; while others were let for the season at 10*l.*, 12*l.*, and 15*l.* each. The ewes realised 48*s.*, 55*s.*, and 56*s.* each.

Messrs. Nock and Wilson also held the annual sale of Shropshire sheep, the property of the Earl of Dartmouth, at Patshull, on the 8th of September, when several pens of 10 ewes were sold at 40*s.*, 47*s.*, 53*s.*, and 66*s.* each.

We understand that in the month of October last, Mr. Thomas Lloyd Roberts, of Langley Farm, Bromfield, Salop, sold 15 yearling Shropshire rams at an average of 19*l.* each, and a number of draft ewes at an average of 5*l.* each. The same gentleman also sold to one breeder 10 ewes and one yearling ram for 150*l.*; the ram for 50*l.*, and the ewes at 10*l.* each.

Higher prices than those mentioned above have been obtained in isolated cases in former years; but these returns will show that the sales last year were more generally successful, although greater numbers were offered for competition than heretofore. We trust that the information we have now supplied will have the effect of directing still further attention to the useful character of this breed of sheep.

Home Correspondence.

The Irish Flax Trade.—In your impression of 13th inst., reviewing Mr. Locke's essay, entitled "Ireland's Recovery," I observe the following passage:—"Ireland, so anomalous in many things, gives an instance of the national characteristic, in the fact that in the last year she exported about 5000 tons of Flax (at 58*l.* per ton), with tow and yarn, and imported nearly 9000 tons, at 65*l.* per ton. The yarn exported was valued at 105*l.* per ton, whereas the imported (less than that exported) was valued at 180*l.* per ton. This would seem to indicate superior skill elsewhere in the spinning of fine yarns, or inferiority in the quality of the native raw material itself for the manufacture of some of the finer linens." This paragraph having been evidently penned by one unacquainted with the circumstances of our staple manufacture, should not remain without some explanation, which, I trust, you will give me space in your columns to make. There may be many anomalies in the Irish national character, but I can safely affirm that the linen manufacture exhibits no feature which will not redound to the credit of the people of Ulster, both as regards their manufacturing skill and their commercial shrewdness and activity. The reason why we export 5000 tons of Flax, at an average value of 58*l.* per ton, and import 9000 tons at an average value of 65*l.* per ton is simply because the home-grown fibre, while the best in the world for the large range of medium qualities of linen, is neither so coarse as the Russian, nor so fine (except in certain districts) as the Belgian. Hence, to make heavy fabrics, we must buy the former, and to make fine lawns and cambrics we must procure the latter. And because Irish Flax is the best material for medium fabrics, the English and Scotch spinners, and, to some extent also, the French and Belgian, purchase it in our markets. As respects Irish yarn exported, and valued at 105*l.* per ton, while Ireland imports yarn valued at 180*l.*, the explanation is again simple. It is well known that of a given number of districts occupied in the same branch of manufacture scarcely two make the same article; each applies itself to one particular description of the fabric and attains much greater perfection in it than if a range of fabrics of different textures were made. Thus, the great bulk of Irish spinners make the medium Nos. of yarn, the Scotch spin the heavy and coarse Nos., and the English the finer Nos. Some of the Irish spinners make yarns equally fine with the latter, and their quality is admitted to be unexcelled. But as they are the exceptions to the general rule of medium spinning, the Irish manufacturers must naturally have recourse to England for the yarns they require for the lighter and finer fabrics, and for the finest cambrics they must procure the delicate hand-spun yarns of Westphalia and French Flanders, which are very costly. The Irish yarns exported represent, of course, the quality generally spun in Ireland, while the imported yarns, consisting almost exclusively of the finer Nos., raise the average value above that of the exported. In whatever way the Irish linen manufacture be examined it will be found to occupy the first place, not only as compared with the foreign linen manufacture, but with that of Great Britain. *Jas. MacAdam, jun., Belfast, Jan.* 16.

Cross-bred Mountain Sheep.—Without entering into any formal reply to the scientific inductions of "T.," p. 26, perhaps it will be sufficient for me to state that my friend had no cause for complaint on the score of the parturition of his ewes, but on the contrary was so well satisfied with his experiment that this year he has considerably increased the number. I cannot admit that it follows as a natural consequence that a large male must necessarily cause a large offspring and difficulty at the time of birth. On the contrary, reasoning from my own experience, I believe the feeding or nursing properties of the mother have more to do with the size of the young prior to birth than the male from which they have proceeded. Of this there are numerous examples, familiar to every one, as the small breeds of Guernsey or Kerry cows with a Durham bull, an ass with a large horse, lap-dogs with a Newfoundland male, all these being instances where though the ultimate result may be a large animal, the difficulties at the time of parturition form the exception rather than the rule;—in fact the male has little to do with the size of the young during the time of gestation; he may impress his size, colour, and constitutional peculiarities upon the animal, but the size which it will attain prior to birth depends almost exclusively upon the feeding properties of the mother. Apart from all considerations of the male, fat cows and small calves, fat women and small children, lean cows and large calves, lean women and fat children, are examples of daily occurrence. Neither do I believe that high feeding has any influence, except an evil one, upon the size of the offspring, for I could cite an instance of a large dairy of cows stuffed daily with Turnips, oilcake, and Linseed mash, which produced a lot of poor nasty calves, whilst other cows, taking their luck in the straw yard, produced comparatively first-rate calves. Look, again, at the puny offspring of many of our high and middle classes, as compared with the fat, ruddy, chubby, hardy children of the half-starved and hardly worked peasantry of England and Ireland, and especially of Wales, and here is further proof that underfeeding is better than pampering. In the example which "T." cites of his own want of success, perhaps his stock suffered as much from their predatory habits, received positive injury thereby, as from being put to a large male. I grant all he says against the mountain breed, they are especially in inclosed districts a perfect nuisance; but even that does not "kick the beam" against the fine quality of their mutton, especially when that mutton is formed among the sweet herbs and their mountain Heather. Of "T.'s" argument in favour of in-and-in breeding, I may remark, that by such a course he may get fine quality and high feeding properties, and great aptitude under careful management to lay on meat; but most assuredly the constitution will deteriorate, and if obliged to "rough it," animals so finely bred will not do to compare with their more plebeian brethren. I know an instance where cows were bred in-and-in until they ceased to yield milk sufficient to support their calves, and a few weeks after calving would go quite dry; still they were always fat, and fat they would be even in the straw-yard. In conclusion, however, I may remark that, in speaking of putting mountain ewes to a large ram, I spoke comparatively of Welsh as compared with English farming, or good ordinary Southdowns, such as are seen in Wales, and not of the prize animals of Goodwood and other places in this country. *W. P. Ayres, Whittlebury Lodge, Jan.* 15.

Lord Faversham's Ox at Birmingham.—If I had known that you would have published the weights of the beasts shown at Birmingham, I would also have sent you the weight of the white ox (short-horn) shown at Birmingham, and fed by the Right Hon. Lord Faversham, of Duncombe Park, in this county. The particulars are as follows:—

Live Weight of the Ox:—162 Imperial Stones Measure.

Length.	Girth.	Carcase.	Loose Fat.
		Actual Weight.	
feet inch.	feet in.	st. lbs.	st. lbs.
6 0	8 8	108 5½	16 13¼

I should have liked this to have appeared in your Paper, as it appears his lordship's ox had more loose fat than any beast shown either at Baker Street or Birmingham except No. 32, which had 17 stone. *Walter Taylor, Malton, Yorkshire.*

Payne's Defiance Wheat.—Mr. Mechi asks of your correspondents whether the value of Payne's Defiance Revitt Wheat is, as a rule, 10*s.* per quarter below other Wheats. I have grown it for two years, and the millers who buy nearly all my corn, and they are perhaps doing the largest business in the county, have always considered that, weight for weight, the Revitt is 5*s.* per coomb under value. This, coupled with the fact that I cannot grow a larger acreable yield than of the old sorts—Spalding, for instance—has led me to eschew the growth of Revitts for the future. *T. R. Ellis, Oxnead Hall, Buxton, Norfolk.*

Gorse.—In your answer to "a Constant Reader," January 8, there are several points in which I think you have not had perhaps experience in Gorse feeding. I will state them as briefly as I can. The common Ulex europæus is the best in every point of view, both in quality, quantity, and hardihood, even if the immense trouble and expense of growing U. strictus was not sufficient bar to its introduction. The sowing directions are very good. The plan, however, of cutting the alternate rows annually is very bad. If the soil it is grown on is sandy you may cut it every year; but if not well qualified for Gorse, every other year. But instead of cutting the alternate rows in the troublesome manner you mention, mow half your plot each year with a scythe, and simply rake it up as you would any green crop. The expense and trouble of this is no more than so much Lucerne, &c. By mowing regularly you save all the expense of separating woody stems, as there will be none. The mallet and block is very well for a poor cottager with one or two cows; but to use Gorse upon a large scale, as it ought to be on all light sandy soils, as one of the very best and cheapest foods for cattle, horses, and sheep through eight months in the year, get a good strong chaff-cutter that will cut half-inch chaff (I find Ransome and Parsons, of Salford, the best I know). If with a horse-power attached, this will cut up a good cart load in a very short time once over, the man feeding having gloves on. Then lay straw on the feeder, and put the once chopped Gorse upon it with a shovel; the straw pulls it on, and it gets quite as much cut and bruised as is useful for horses, cows, calves, and sheep. I think no one who fairly tries this plan will ever give it up again. I should much like to see a light sand farm of say 200 acres well cultivated, and with sufficient capital for boxes, &c., farmed so as to have 160 acres corn and green crops, and the 40 worst of Gorse. The number of stock it would keep profitably, if in boxes all the year, would be very great. I began by saying I would be brief; but I have made a sad long story of it I fear. It may be useful, however, to your "Constant Reader." *W. D. F.*

Law Expenses.—I have lately purchased some hill land, to the purchase of which no objection was made by any one, the title as clear as part ownership is in England. The sum amounted to 480*l.*; the law expenses for this 480*l.* were 74*l.*! *John Ay, Winscombe.*

Chronicles of a Clay Farm.—I have lately been rereading this work, which is well worthy the attention of all interested in agriculture, whether landlord, tenant, or implement maker. I think Mr. Hoskyns is on the right track when he says that steam cultivation must be done by a cylinder of claws revolving independently of the draught, and there is little doubt that it will some day be accomplished; but as yet I fancy the weight of the engine, if constructed as portable engines and locomotives now are, would be so great as to prevent its working, except, perhaps, when the ground is very hard. Supposing that it takes as much power to cut up a breadth of 9 inches of soil into a fine mould, as it does to turn over a furrow of that width (and I do not think you can allow less), then, if the cylinder were 6 feet wide it would require 16-horse power, viz., two to every 9 inches. It is pretty good work for three horses to draw a seven-horse power portable engine along a road, and I do not think six horses power would be more than sufficient to move so heavy a machine along a stubble field; we have then a 22-horse power engine besides the revolver—how is such a cumbrous affair to be turned short round each time it arrives at the end of a field? Of the expense I say nothing, as I think if it can once be accomplished the cost may be reduced afterwards. I must apologise for trespassing so much on your space; but being interested in agriculture, I am anxious to know if Mr. Hoskyns can overcome the difficulty I have mentioned, and I have no means of communicating with him but through your columns. *A Farmer in Embryo.* [The difficulty to which you allude has long been the acknowledged hindrance to the progress of steam culture.]

Societies.

Highland and Agricultural.—At the late half-yearly general meeting of this Society, the Duke of Buccleuch in the chair, 78 new members, 49 of whom are tenant-farmers, were elected.

Agricultural Statistics.—Sir John M'Neill said he had the pleasure of reporting to the society what might be considered as the completion of the inquiry, and he might state with confidence that in no part of the United Kingdom had there yet been collected a body of agricultural statistics so worthy of trust or so complete as those which had now, through the instrumentality of the Highland Society, been collected for Scotland. While congratulating the Society upon their success, he did not mean at all to assert that the returns which had this year been obtained were complete and perfect. There were, necessarily, some defects for which they were not responsible. He might instance the fact of the impossibility of giving the entire area of the country from the want of such a survey as would alone enable them to do it with accuracy; but when they had obtained a trigonometrical survey of Scotland, they would be able to give returns complete as regarded the area. There was another imperfection also in the returns, which was not likely to occur again. To obtain accurate returns of stock in all parts of the country it was necessary to follow the same system which was adopted in enumerating the population—to take the numbers upon one day. But from the late season at which the authority was given, and from the difficulty of obtaining correct returns of occupants, it was impossible to accomplish that this year. The tables would be forwarded to the Board of Trade, and he trusted that the board would have no objection to publicity being immediately given to the results thus obtained. He thought the tenant farmers who had laboured so zealously in the matter were entitled to the immediate benefit of the Scotch tables.

The Duke of Buccleuch said they were deeply indebted to the gentlemen who had acted as enumerators in the different districts. They had done their duty in a most excellent manner. But he should be doing an injustice to the position he held as their chairman, and also to his position as a member of the society, if he did not express most distinctly his own individual opinion, and, he was sure, the opinion of every one, of the invaluable services which had been rendered to them by their secretary, Mr. Hall Maxwell. His labours had been labours of love—purely gratuitous, and highly honourable to himself. He thought they could not do less than pass a vote of thanks to Mr. Maxwell for the manner in which he had conducted the inquiry (cheers).—Lord Panmure thought they should also bear a public testimony to the zeal of the tenantry of Scotland, through whom alone these statistics could have been furnished. He concluded by seconding the proposition to give a vote of thanks to the secretary for his zeal in conducting the investigation. The motion having been unanimously adopted, Mr. Maxwell returned thanks.

The Chemical Department.—Dr. Anderson reported that continued progress was being made in this department. They had just completed a very extensive inves-

ation into the composition of a great variety of oilcakes, and this would shortly be laid before the society. They had also been investigating the composition of oilcake made from the earth-nut in France, and which seemed likely to be of considerable importance; and they had been engaged in determining the properties of soils, &c. As regarded analyses made for individuals, the number of these during the past half year had been larger than was usual during the latter half of the year, when farmers were occupied with other matters. It was interesting to observe that the character of these analyses was undergoing some change. During the last year the analyses of superphosphates had very largely increased, the use of superphosphates being greatly on the advance in Scotland. When he first became chemist to the society, these analyses were somewhat of a rarity, but the case was now very different, and, while formerly they had been of an inferior character, the quality had now greatly improved. The report was approved of.

The Inverness Show. Mr. Maxwell stated that arrangements had been made for holding the next show at Inverness, in 1856, and that a list of the classes of stock was now before the local committee, of which Lord Lovat had undertaken to act as chairman. Mr. Maxwell added that the society would meet in Glasgow in 1857, and that there was an application from Aberdeen for 1858.

Farmers' Clubs.

LONDON.—The following have been selected as subjects for discussion during the present year:—

	Proposed by
February 5.—To what extent can Town Sewage be profitably applied to the purposes of Agriculture?	Mr. J. J. MECHI, of Tiptree Hall, Essex.
March 5.—The Cultivation of Italian Rye-grass	Mr. J. C. MORTON, of Upper Wellington Street, London.
April 2.—The most economical mode of Cultivating Root Crops	Mr. W. BENNETT, of Cambridge.
May 7.—On the general application of Steam Power to Agricultural Purposes, and, if practicable, what would be its natural results?	Mr. J. WILLIAMS, of Baydon, Wilts.
June 4.—On the Economy and Cost of Good Roads	Mr. J. BAILEY DENTON, of Stevenage, Herts.
November 5.—The best system of Stall-feeding Cattle—particularly on Farms chiefly Arable, and where Economy in the Consumption of Hay, or its entire omission in the process is an important consideration	Mr. OWEN WALLIS, of Overstone Grange, Northampton.
December.—Upon the Management of Estates so as to insure their utmost Development and Improvement	Mr. R. BAKER, of Writtle, Essex.

The discussions commence at half-past 5 o'clock. There are no meetings for discussion in January, July, August, September, or October.

Notices to Correspondents.

BUSHEL OF WHEAT: *A Northern.* The cost of a bushel of Wheat is what no two men will agree upon; the preliminaries to a discussion of that point need themselves to be discussed, and this we hope shortly to do.

COVERED YARDS: *An Anonymous Correspondent* calls the attention of our readers to this subject, and we shall be much obliged for information on it from any one who can speak from experience. He asks for "reliable information as to the construction of covered yards for manure. He does not refer to homesteads under one roof.) On how many sides should there be walls, and with what openings? What height should the wall plates be from the ground to allow for the manure and young stock kept in the yard? What is the best arrangement for troughs for feeding the stock, so as not to be interfered with by the manure? What is the best and cheapest form and span of roof to cover such a space, say a square of 60 feet or upwards? Should there be any arrangements for light or air in the roof? Any information on this subject, or indication where it can be got will oblige. Also as to where practical information can be got as to cast-iron pipes for liquid manure. Can the system be worked without machinery in 3-inch pipes, where there is a small fall, say under 10 feet? Would it answer simply pumping up the liquid manure into a small supply tank from the larger one below, so as to give a fall of the height mentioned above? Distribution of liquid manure by gravity is spoken of in some of the papers on the subject, but as far as appears this is only by open channels like water gutters, for no mention is made of pipes distributing by gravity, without steam-engine or horse-gear." Distribution by gravity is generally mere surface distribution, but it may be by pipes if the position of the buildings be high enough above the land to be so treated. It is plain that the pressure of a column of water, whether the natural result of situation or the artificial result of pumping to an elevated tank, has all the effect of the force-pump and condenser, and will be equally efficient.]

NITRATE OF SODA: *R. V.* We would mix nitrate of soda with salt in your inland county with greater confidence than elsewhere. It may be applied with good effect for Beans; and for a rapid growth, such as that of Rhubarb, we imagine that it and guano applied at frequent intervals in the liquid way would be the best plan to adopt.

POTATOES: *Worcester.* You should have got gas lime together in compost months ago, and turned it frequently if you are going to use it now. A "waggon load" per acre is a common dressing. You may apply it broadcast, and leave it for some weeks before turning it in. You should plant early in spring, early sorts in early soils, and so you will run least risk of the disease. We should ourselves prefer a deepish planting early in March to autumn planting.

ROOT GRAPPLING MACHINE: *A Small Farmer.* We cannot say from personal experience which is the best of the few that we have seen—and must therefore be dependent upon our correspondents giving us information. We should not purchase any of them as at present advised, but retain the use of the Banbury Turnip cutter.

ROUND BRICKS: *Mr. Norton* asks the probable cost of manufacturing round balls of well burned brick, some 3 or 4 inches in diameter. [We would dissuade you from the expence of a patent. The existing plan of pipe drainage affords a much more perfect channel for the exit of drainage water than the interstitial spaces left in the manner you claim to have invented.]

SMALL FARM: *H. G.* We have received your particulars and will endeavour to make use of them in an article on the subject in a week or two.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.*

The barrel is 27½ in. long, and the legs are 5 ft. high.

1¼ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

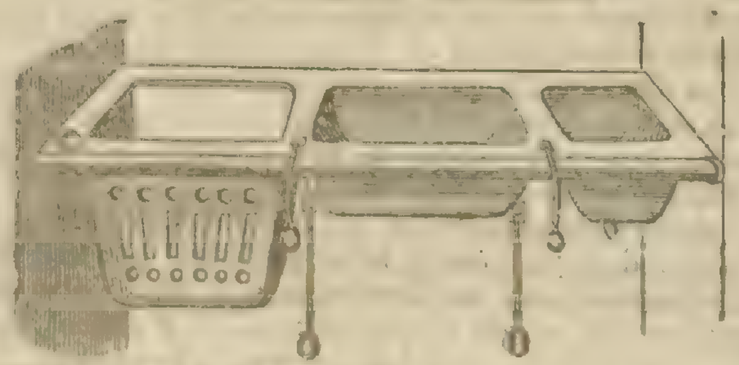
Diameter of Barrel,	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2¾ „	long 3 „ 3 „		1	15	0
3 „	ditto 3 „ 6 „		2	12	0
3½ „	ditto 3 „ 6 „		2	18	0
4 „	ditto 3 „ 6 „		3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto ditto	ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.

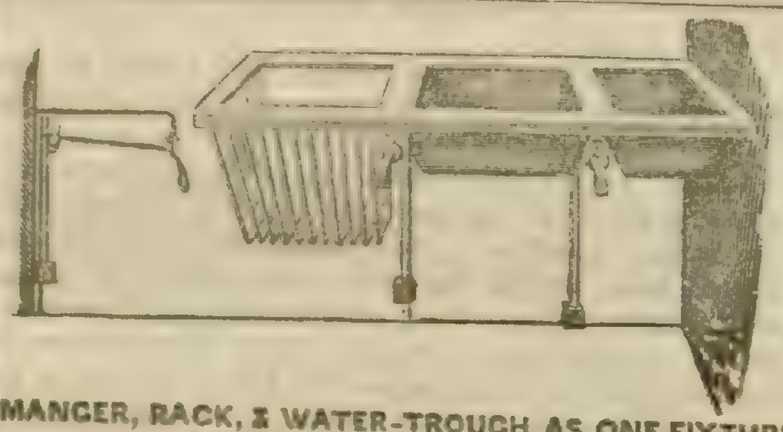


THE only Patented invention of this description constructed so as to prevent considerable waste of Hay and Corn, together with all the newest improvements.

NEWLY IMPROVED ECONOMIC STABLE FITTINGS, FORTY SHILLINGS PER SET, to fill up the whole width of Stalls, and can be had enamelled or galvanised. Every description of Mangers, Racks, and Stable Furniture in stock; Iron Hurdles, Gates, Fencing, &c.

Manufacturer of Kite's Patent Noiseless Cast-Iron Smoke-Curing Chimney Caps (200 on Buckingham Palace), price 35*s.* each. Price Lists and Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, IRON FOUNDER, &c., 370, Oxford Street, a few doors east of the Pantheon.



MANGER, RACK, & WATER-TROUGH AS ONE FIXTURE.

IMPROVED AND NEWLY PATENTED.

COTTAM AND HALLEN, the original inventors, obtained the Great Exhibition Prize Medal for this arrangement, to which all the latest improvements are adapted, secured by Patent, including a method entirely new of attaching the halter-weight and rein from the back of the manger to the under front of the plate, allowing the horse greater freedom, and being noiseless in operation, add much to its comfort whilst feeding and convenience when at rest, as likewise, from their position avoiding the liability of the most restive horse getting cast. No well-managed stable should be without these fittings.

COTTAM'S ENAMELLED MANGERS are constructed in the best possible manner, both as to form and utility; are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, and Enamelled. Improved Surface Drain, with Safety Covers, Sanitary Traps, Stable Pumps, Loose Box, Fittings, Gutta Percha Preserving Saddle and Harness Brackets, and every article in Stable Furniture, in stock. An extensive assortment of Patterns for both Plain and Ornamental Castings and every description of Wrought and Cast Iron Work for building and other purposes. Agricultural and Horticultural Implements, Iron Gates, both plain and ornamental, Hurdles, Strain Fencing, &c.

Estimates and Catalogues on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

WARMING AND VENTILATING.

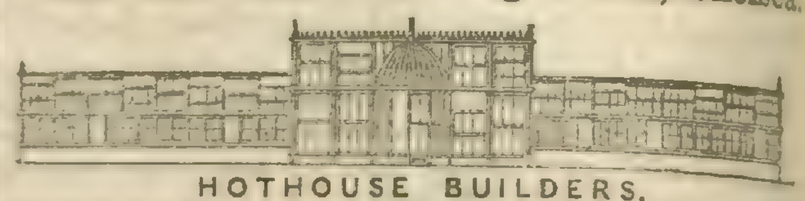
TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d.* per square yard: 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.* Scrim Canvass, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

PUBLIC INVITATION.

JOHN WEEKS AND CO., King's Road, Chelsea, most respectfully invite those interested in Horticulture, and in the principles of heating by Hot water, to visit their Horticultural Establishment during THIS SEVERE WEATHER. They will now have a fair opportunity of testing the efficiency of the heating apparatus, which is worked by one boiler, 5 feet by 3 feet 6 inches, circulating the water through 5000 feet of pipe extending through houses and pits upwards of 1000 feet in length, and diffusing over the whole a greater supply of heat than is necessary.

HORTICULTURE IN ALL ITS BRANCHES.

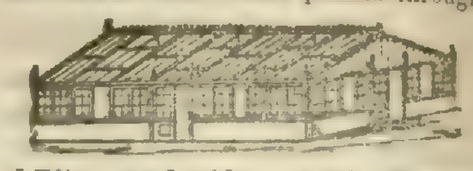
JOHN WEEKS & Co., King's Road, Chelsea.



HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.

The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.



Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HOT-WATER PIPES at wholesale prices, with Elbows, Syphons, Tee Pipes, and every requisite connection. Cast Iron Boilers, 55*s.* each. Improved Soot Doors and Furnace Doors. Builders' Castings of every description kept in Stock at—Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street (near Blackfriars Bridge), London.

SHEET GLASS (15 oz.) of good quality in 100 feet boxes.

10 in. by 8 in. and under	... ...	15*s.* per box.
11 in. by 9 in. to 22 in. by 14 in.	... ...	17*s.* „
Larger sizes to 28 in. by 18 in.	... ...	19*s.* „

Also similar sizes in 21 oz. Sheet at 24*s.* per box. Boxes charged 2*s.* each, and returnable at the same price, if delivered free. CRYSTAL WHITE GLASS, Crown and Sheet Glass in Crates, British and Patent Plate, &c. &c. White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 8*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS FOR CONSERVATORIES.

THOMAS MILLINGTON'S present prices for good 16 oz. sheet glass, boxes included.

6 in. by 4 in. to 6 in. by 5½ in.	... 13*s.* 3*d.*	per 100 feet.
7 by 5 to 8 by 6	... 13 6	
8½ by 6½ to 10 by 8 ...	... 14 0	
10½ by 8½ to 14½ by 10½ ...	... 16 0	
17 by 10 to 18 by 12 ...	... 18 0	

A great variety of sizes. Particulars had on application.

ORCHARD HOUSE SQUARES on Mr. RIVERS's plan, to whom I have sold some thousands of feet.

Large Sheets for cutting up, in cases, at 2½*d.* and 3*d.* per foot.

HARTLEY'S IMPROVED ROUGH PLATE GLASS, Sheet, and Rough Plate, Tiles, Milk Pans, Bee and Propagating Glasses, Wasp Traps, Cucumber Tubes, Preserve Jars, with and without covers; Fern Glasses.

Plate, Sheet, Crown, and Ornamental Window Glass. Crystal Glass Shades for ornaments.

Greenhouses, erected in either wood or iron. Garden Lights and Frames.

87, Bishopsgate Street Without, London—same side as Eastern Counties Railway.

HARTLEY'S PATENT ROUGH PLATE GLASS, 1-8th thick, or 2 lbs. to the foot; 3-16ths, or 3 lbs.; and 1-4th, or 4 lbs. to the foot, for Ridge and Furrow Roofs, Greenhouses, Railway Stations, Engine Sheds, Mills, Market Halls, and Public Buildings generally.

Packed in Boxes of 50 feet each.

6 by 4 and 6½ by 4½	... ...	10*s.* 6*d.* per box.
7 „ 5 „ 7½ „ 5½	... ...	12 0 „
8 „ 6 „ 8½ „ 6½	... ...	13 6 „
9 „ 7 „ 9½ „ 7½ and 10 by 8	...	15 0 „

For larger sizes a full List of Prices will be sent on application. Boxes are charged 2*s.* each extra, full price allowed if returned free of expense.—For further information apply to

JAMES PHILLIPS & Co.,
116, BISHOPSGATE STREET WITHOUT.

"Rough Plate has never been, and never can be, prejudicial to the colouring of Grapes; though we can easily believe that it has been charged with such a fault by persons who have not skill enough to manage Grapes under glass."—*Gardeners' Chronicle.*

"There *can be no question now* that Rough Plate Glass is the most beautiful as well as the most useful kind of glass that can be employed in horticulture. It is free from all the faults of transparent glass, and has many advantages peculiar to itself, without *a single disadvantage as a set off.*"—*Gardeners' Chronicle.*

WEEDS ON WALKS.

MR. FLEMING'S WEEDING OR SALTING MACHINE FOR GRAVEL WALKS, COURT YARDS, &c., manufactured and sold by ALEXANDER SHANKS & SON, Arbroath, Forfarshire, from whom particulars with prices may be had.

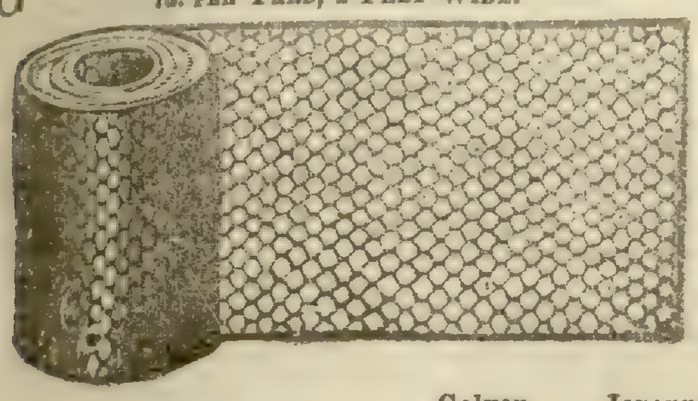
PHILLIPS' PATENT.

THE PRIZE PULPING MACHINE of the Royal Agricultural Society's Show, held at Lincoln, July, 1854. The First and only Prize ever offered by the Royal Agricultural Society for the best Machine for reducing Roots to a Pulp was awarded to the Machine Invented and Exhibited by FREDERICK PHILLIPS, of The Hall Farm, near Brandon, Suffolk.

FREDERICK PHILLIPS begs to inform the trade that he is prepared to grant Licenses for the making of these Machines.

WOOLLEN NET FOR THE PROTECTION OF WALL FRUIT TREES FROM FROST, 2 and 3 yards wide, can be had of WEATHERHEAD, WALTERS, & Co., Derby. *See Gardeners' Chronicle* of Oct. 28, 1854.

GALVANISED WIRE GAME NETTING.—7*d.* PER YARD, 2 FEET WIDE.



	Galvanised.	Japanned iron.
2-inch mesh, light, 24 inches wide ...	7*d.* per yd.	5*d.* per yd.
2-inch " strong " ...	9 "	6½ "
2-inch " extra strong " ...	12 "	9 "
1½-inch " light " ...	8 "	6 "
1½-inch " strong " ...	10 "	8 "
1½-inch " extra strong " ...	14 "	11 "

All the above can be made any width at proportionate prices. If the upper half is a coarse mesh, it will reduce the prices one-fourth. Galvanised Sparrow-proof Netting for Pheasantries, 3*d.* per square foot. Patterns forwarded post free.

Manufactured by BARNARD & BISHOP, Market Place, Norwich, and delivered free of expense in London, Peterborough, Hull, or Newcastle.

STEPHENSON AND PEILL, 61, Gracechurch Street, London, and 17, New Park Street, Southwark, Manufacturers of Copper Cylindrical and Improved Conical Iron BOILERS, and Conservatory and Hothouse Builders, either in Wood or Iron, respectfully call the attention of the Nobility, Gentry, and Nurserymen to their simple but efficacious method of warming Horticultural and other Buildings by Hot Water.

From the extensive works they have executed, references of the highest respectability can be given, and full particulars furnished on application.

THE COMFORT OF A FIXED WATER-CLOSET FOR 1*l.*—Places in gardens converted into comfortable water-closets by the PATENT HERMETICALLY SEALED PAN, with its self-acting valve, entirely preventing the return of cold air or effluvia. Any carpenter can fix it in two hours. Price 1*l.* Hermetically-sealed Inodorous Chamber Commodes, 1*l.*, 2*l.* 4*s.*, and 3*l.*; also Improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus, with engravings, forwarded by enclosing two postage stamps.—At FYFE & Co.'s Sanatorium, 46, Leicester Square, London.

NEW WINTER SOAP.

METCALFE, BINGLEY, AND CO.'S OATMEAL and CAMPHOR SOAP, in tablets (registered Nov. 3, 1854). Price 6*d.* each. This soap will be found the purest and most perfect winter soap ever introduced to the public. It preserves the hands from chapping, and renders the skin soft and agreeable.—Sold wholesale and retail by the inventors and sole manufacturers, METCALFE, BINGLEY, & Co., Brushmakers and Perfumers to H.R.H. Prince Albert, 130B and 131, Oxford Street.

CAUTION.—To prevent fraud, each tablet bears the registered mark and the names and address of the inventors, as above.

METCALFE'S ALKALINE TOOTH POWDER, 2*s.* per box.—The above may be obtained of most respectable Chemists, Perfumers, &c.

TO PARENTS AND GUARDIANS.—The return of youth to the respective boarding-schools induces a solicitude for their personal comfort and attraction. Now it is that ROWLANDS' MACASSAR OIL, for accelerating the growth and for improving and beautifying the hair, ROWLANDS' KALYDOR, for improving the skin and complexion, and removing cutaneous eruptions, and ROWLANDS' ODONTO, or PEARL DENTRIFICE, for rendering the teeth beautifully white and preserving the gums, are considered indispensable accompaniments for the attainment of those personal advantages so universally sought for and admired. Beware of Spurious Imitations. The only Genuine of each bears the name of ROWLANDS' preceding that of the article on the wrapper or label.—Sold by A. ROWLAND and SONS, 20, Hatton Garden, London, and by Chemists and Perfumers.

AMANDINE.

A WHITE HAND is indispensable to all; it is the distinguishing mark between refinement and vulgarity. With the aid of Amandine, prepared by H. BREIDENBACH, every hand may be rendered soft, white, and delicate; every rude impression of hard usage and rough weather removed; and the seal of elegance impressed upon it, let its present condition be ever so unpromising. Sold in jars, 2*s.* 6*d.* each.—H. BREIDENBACH, Perfumer, 157B, New Bond Street, London; and by Perfumers and Druggists.

TO NERVOUS SUFFERERS.

A RETIRED CLERGYMAN having been restored to health in a few days, after many years of great nervous suffering, is anxious to communicate to others the means of cure; he will therefore send (free), on receiving a stamped envelope, properly addressed, a copy of the prescription used.—Direct Rev. E. DOUGLASS, 18, Holland Street, Brixton, London.

RUPTURES EFFECTUALLY CURED WITHOUT A TRUSS.—All Sufferers from this alarming complaint are earnestly invited to consult or write to Dr. LESLIE, as he guarantees them relief in every case. His remedy has been successful in curing thousands of persons during the last eleven years, and is applicable to every kind of single and double Rupture, however bad or long standing, in male or female of any age, causing no confinement or inconvenience in its use whatever. Sent post free to any part of the world, with full instructions for use, on receipt of 7*s.* 6*d.* in postage stamps, cash, or Post-office order, payable at the General Post-office, to Dr. HERBERT LESLIE, 97A, Manchester Street, Gray's Inn Road, London. At home daily (except Sunday) from 11 till 3 o'clock. A Pamphlet of Testimonials sent post free on receipt of one postage stamp.

FURNISH YOUR HOUSE WITH THE BEST ARTICLES AT DEANE'S IRONMONGERY AND FURNISHING WAREHOUSES. Established A.D. 1700. A Priced Furnishing List, free by post.—DEANE, DRAY & Co. (Opening to the Monument,) London Bridge.

HOT-AIR, GAS, VESTA, JOYCE'S STOVES.—STOVES for the economical and safe heating of halls, shops, warehouses, passages, basements, and the like, being at this season demanded, WILLIAM S. BURTON invites attention to his unrivalled assortment, adapted (one or the other) to every conceivable requirement, at prices from 10*s.* each to 30 guineas. His variety of register and other stoves is the largest in existence.

THE PERFECT SUBSTITUTE for SILVER.—The real NICKEL SILVER, introduced 20 years ago by WILLIAM S. BURTON, when Plated by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle Pattern.	Thread or Brunswick Pattern.	King's Pattern.
Tea Spoons, per dozen ...	18*s.*	26*s.*	32*s.*
Dessert Forks " ...	30*s.*	40*s.*	46*s.*
Dessert Spoons " ...	30*s.*	42*s.*	48*s.*
Table Forks " ...	40*s.*	56*s.*	64*s.*
Table Spoons " ...	40*s.*	58*s.*	66*s.*

Tea and Coffee Sets, Waiters, Candlesticks, &c., at proportionate prices. All kinds of replating done by the patent process.

CHEMICALLY PURE NICKEL, NOT PLATED.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, full size, per doz.	12*s.*	28*s.*	30*s.*
Dessert ditto and ditto ...	10*s.*	21*s.*	25*s.*
Tea ditto ...	5*s.*	11*s.*	12*s.*

CUTLERY WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on Sale at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales; 3½-inch ivory-handled table knives, with high shoulders, 11*s.* per dozen; desserts to match, 10*s.*; if to balance, 1*s.* per dozen extra; carvers, 4*s.* per pair; larger sizes, from 14*s.* 6*d.* to 26*s.* per dozen; extra fine, ivory, 32*s.*; if with silver ferrules, 37*s.* to 50*s.*; white bone table knives, 7*s.* 6*d.* per dozen; desserts, 5*s.* 6*d.*; carvers, 2*s.* 3*d.* per pair; black horn table knives, 7*s.* 4*d.* per dozen; desserts, 6*s.*; carvers, 2*s.* 6*d.*; black wood-handled table knives and forks, 6*s.* per dozen; table steels, from 1*s.* each. The largest stock in existence of plated dessert knives and forks, in cases and otherwise, and of the new plated fish carvers. Also a large assortment of Razors, Penknives, Scissors, &c., of the best quality.

LAMPS OF ALL SORTS AND PATTERNS.—The largest, as well as the choicest, assortment in existence of FRENCH and ENGLISH MODERATEUR, PALMER'S, CAMPHINE, ARGAND, SOLAR, and other LAMPS, with all the latest improvements, and of the newest and most *recherché* patterns, in ormolu, Bohemian, and plain glass, or papier-mâché, is at WILLIAM S. BURTON'S, and they are arranged in one large room, so that patterns, sizes, and sorts can be instantly selected.

Real French Colza Oil, 5s. per gallon.

Palmer's Candles, 9d., 9½d., and 10d. per lb.

DISH COVERS AND HOT-WATER DISHES in every material, in great variety, and of the newest and most *recherché* patterns. Tin Dish Covers, 6*s.* 6*d.* the set of six; Block Tin, 12*s.* 3*d.* to 28*s.* 9*d.* the set of six; elegant modern patterns, 34*s.* 0*d.* to 58*s.* 6*d.* the set; Britannia Metal, with or without silver-plated handles, 76*s.* 6*d.* to 110*s.* 6*d.* the set; Sheffield Plated, 10*l.* to 16*l.* 10*s.* the set; Block Tin Hot-water Dishes, with wells for gravy, 12*s.* to 30*s.*; Britannia Metal, 22*s.* to 77*s.*; Electro-plated, on Nickel, full size, 11*l.* 11*s.*

WILLIAM S. BURTON has TEN LARGE SHOW ROOMS devoted to the show of GENERAL FURNISHING IRONMONGERY (including Cutlery, Nickel Silver, Plated and Japanned Wares, Iron and Brass Bedsteads and Bedding), so arranged and classified that purchasers may easily and at once make their selections.

Catalogues, with engravings, sent (per post) free. The money returned for every article not approved of.

No. 39, Oxford Street (corner of Newman Street); 1, 2, and 3, Newman Street; and 4 & 5, Perry's Place.

KNOW THYSELF!—The Secret Art of DISCOVERING the TRUE CHARACTER of INDIVIDUALS from the peculiarities of their HANDWRITING, has long been practised by Miss GRAHAM with astonishing success. Her startling delineations are both full and detailed, differing from anything hitherto attempted. All persons wishing to "know themselves," or any friend in whom they are interested, must send a specimen of their writing, stating sex and age, enclosing 13 penny post stamps to Miss GRAHAM, 10, Chichester Place, King's Cross, London, and they will receive in a few days a minute detail of the mental and moral qualities, talents, tastes, affections, virtues, failings, &c., of the writer, with many other things hitherto unsuspected.—"Miss GRAHAM is a most successful graphiologist." *Family Herald.*

DO YOU WANT BEAUTIFUL HAIR, WHISKERS, &c.?—COUPELLE'S CRINUTRIAR, though extensively imitated, is universally acknowledged as the only preparation to be really depended upon for the unfailing production of Hair and Whiskers in two or three weeks; as also checking Greyness, Baldness, &c., and rendering the Hair beautifully luxuriant, curly and glossy. Mr. WILLIAMS, 8, Lowther Street, Liverpool.—"I can now show as fine a head of hair as any person, solely from using your Crinutriar." Sergeant CRAVEN, Longford Barracks, Ireland.—"Through using your Crinutriar, I have an excellent Moustache, which I had before despaired of." Mrs. CARTER, Pangbourne, Berks.—"My head, which was quite bald, is now covered with new hair." Price 2*s.* per package, through all Druggists and Perfumers, or sent post free on receipt of 24 penny stamps by ROSALIE COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London.

HOLLOWAY'S OINTMENT AND PILLS INCOMPARBLE REMEDIES FOR BAD LEGS.—Mr. Shackell, Butcher, of Old Brentford, was afflicted for a long time with three wounds in his legs, which rendered him totally unable to attend to his usual avocations; in fact his leg was so bad that it defied all medical skill to effect a cure. He then made use of HOLLOWAY'S Ointment and Pills, paying every attention to the instructions given with the medicines, and the result was, after persevering with these remedies for about 10 weeks, that his leg is completely cured, and he now enjoys the best of health.—Sold by all Medicine Vendors, and at Professor HOLLOWAY'S Establishment, 244 Strand, London, and 80, Maiden Lane, New York.

ASTHMA, COUGHS, COLDS, AND INFLUENZA SPEEDILY CURED, AND INSTANTLY RELIEVED BY THE USE OF SPENCER'S PULMONIC ELIXIR.

This fine medicine will be found admirably adapted to promote expectoration, ease the breathing, loosen the phlegm, abate fever, and allay the tickling sensation which occasions the cough, without tightening the chest; and for all temporary and local affections, such as wheezing, irritation of the throat, palpitation of the heart, hoarseness of the voice, influenza, &c., it affords immediate relief; while in more chronic disorders, as periodical coughs or inveterate asthma, it is equally valuable in its effects, although of course a little longer perseverance in the use of the article is required.—Prepared only by T. ROBERTS & Co., Crane Court, Fleet Street, London; and by all respectable medicine-vendors and chemists in the kingdom. In bottles at 1*s.* 1½*d.* and 2*s.* 9*d.* each; the bottles at 2*s.* 9*d.* contain nearly as much as three small ones.

*** Ask for SPENCER'S Pulmonic Elixir.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

AT MR. MECHI'S ESTABLISHMENT, 4, Leadenhall Street, London, are exhibited the finest specimens of British Manufactures in Dressing Cases, Work-boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury suitable for presentation. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c., as usual. Shipping orders executed for merchants and captains. An extensive assortment of superior Hair and other Brushes for the Toilet.

TO MARKET GARDENERS AND OTHERS.

DAWLEY DEEP, MIDDLESEX, NEAR BULL'S BRIDGE STATION, ON THE GREAT WESTERN RAILWAY.

TO BE LET ON LEASE, for a term of years to be agreed upon, about 21 acres more or less of highly cultivated GARDEN GROUND, well stocked with a choice assortment of Fruit Trees of all kinds, and in full bearing condition; bounded by a high brick wall on one side facing the south, and covered with Fruit Trees of the finest quality. Immediate possession if required.—For further particulars, inquire at 23, Holywell Street, Westminster; or of Mr. SMITH, on the premises.

NURSERY AND SEED BUSINESS,

ESTABLISHED IN THE YEAR 1819.

TO BE LET, with immediate possession, the NURSERY and SEED SHOP at Taunton, for some time past in the occupation of Messrs. M'Intyre and M'Intosh. The Grounds and Stock are in excellent condition, moderately rented, and are well worthy the attention of any person wishing to carry on the business. If required the quantity of ground may be reduced. The Nursery is about 5 minutes' walk from the Railway Station. Apply to Mr. YOUNG, the Proprietor, Elm Cottage, Taunton.

TO BE LET ON LEASE, for a term from Michaelmas next, with the usual entry forthwith, a highly reputed CORN and STOCK FARM, in North Hants, containing 1057 acres, very compact, and with Market and Railway facilities.—To view and treat, apply to LAMB, BROOKS, & Co., Solicitors, Basingstoke, or Odiham, Hants. References as to substance and character will be required.

TO BE SOLD, at about half-price, a PATENT CONSERVATORY—a great bargain—on account of making alterations. Now standing in front of E. DENCH'S Patent Hothouse Works, King's Road, Chelsea.

TO BE SOLD, BUFF COCHIN CHICKENS, from first class Prize Birds, Brahma Pootra Chickens, from imported American Prize Birds, and Spanish Chickens. Also some very good one-year-old Birds of the above descriptions. Wire, Game, and Poultry Netting, Poultry Hurdles, Hen-houses, Chicken Coops, Flower Stands, and Trainers, Garden Arches, and every kind of Wire Work, useful and ornamental.—T. H. FOX'S, City of London Wire Works, 44, Skinner Street, and 6 & 8, Snow Hill. Illustrated Catalogues forwarded post free.

Sales by Auction.

COCHIN CHINA FOWLS.

MR. J. C. STEVENS begs to notify that he has received instructions from Thomas Sturgeon, Esq., of Grays, to announce for Sale by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 23d January, at 12 o'clock precisely, a selection of COCHIN CHINA FOWLS consisting entirely of first-class birds. *** This is the only old and known strain of Buffs now in the hands of the original breeder. Mr. Sturgeon has bred them with rare care and judgment for many years, no second-rate bird has been bred from, and they are unrivalled in their combination of form, size, and colour. Up to 1852 they were the winners of all the best prizes at Birmingham, Cheltenham, Winchester, &c., and were never beaten, since which they have not been shown till within the last few weeks, when they took the Silver Vase and 1st Prize at Manchester.—May be viewed the morning of sale. Catalogues, by enclosing a stamped directed envelope, to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

COCHIN CHINA FOWLS.

MR. PUNCHARD'S ANNUAL SALE.

MR. J. C. STEVENS begs to notify that he has received instructions from Mr. Punchard to announce for Sale by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 30th January, at 12 o'clock precisely, a selection of first class COCHIN CHINA FOWLS, bred in the celebrated Yards of Blunts Hall, Haverhill, the Stock of which has been strengthened by careful importations, and the Birds from which were the winners of the Silver Vase, and also one other First Prize for Cochins, at the late Birmingham Exhibition.—May be viewed on the morning of Sale, and Catalogues had by inclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

POSTPONEMENT OF SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Mons. A. Van Geert, of Ghent, to announce that the SALE of CAMELLIAS and other Plants, announced for the 25th inst., is, in consequence of the inclemency of the weather, postponed till further notice.—American Nursery, Leytonstone, Essex.

BROMPTON PARK NURSERY.

TO GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to an unreserved Sale by Auction, on the premises, the Brompton Park Nursery, Brompton, near the "Hoop and Toy," on MONDAY, January 22d, at 11 o'clock, by order of the Royal Commissioners for the Exhibition of 1851, in consequence of the land being required for the formation of new roads, a portion of the valuable Stock growing on the above celebrated Nursery, consisting of FRUIT TREES and EVERGREENS, comprising Standard and Dwarf trained and untrained Apple, Pear, Plum, Peach, Nectarine, Apricot, Cherry, a quantity of Vines, Clematis, and Ivies in pots, Rhubarb, &c.—May be viewed three days prior to the Sale. Catalogues may be had of the principal Seedsmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO NURSERYMEN, GENTLEMEN, AND OTHERS.

MR. J. WILLMER will Sell by Auction, on the Premises, Sunbury Nursery, on TUESDAY, January 23, 1855, and following day, at 12 o'clock precisely each day, the stock of this well known Nursery, consisting of Green and Striped Hollies, from 2 to 10 feet; Arbutus, 3 to 7 feet; Laurels, 3 feet; Portugals, 3 to 5 feet; Yews, 4 to 10 feet; Red Cedars, 2 to 6 feet; Arborvitæ, 2 to 4 feet; Cedrus Deodara, 4 to 6 feet; Bays, 3 to 4 feet; Scarlet Rhododendrons, Rhododendron pontica, Laurustinus, 3 to 6 feet; Evergreen Privet, 2 feet; Aucuba, 2 to 4 feet; Phillyrea, 6 feet; Box Edging, Irish Ivy in pots, Standard and Dwarf Pears, large dwarf Plums, Standard Quinces, Hornbeam hedges, Spruce and Balm Firs from 4 to 12 feet, Beech, Elm, Lime, Ash, Acacia, Oak, Horse Chesnut, Spanish Chesnut, from 6 to 14 feet. May be viewed till time of Sale, and Catalogues had on the Premises, or by forwarding two Postage Stamps to the Auctioneer, Sunbury, Middlesex.

LAURELS FOR THE MILLION.

DAVID FERGUSON, Landscape Gardener and Contracting Planter,

INFORMS the public that he grows a LARGE STOCK of TREES and SHRUBS for the purpose of enabling him to CHARGE LOW, and give at once PRESENT EFFECT, when carrying out his plans, which is of consequence to those who prefer having the BENEFIT of Shady Walks, Glades, and Recesses of their own planting, in place of the mixed MILK and WATER SYSTEM of planting frequently met with for the benefit of GRANDCHILDREN.

As D. F. has MORE LAURELS than would crown the Heads of all the HEROINES and HEROES in EUROPE, he will be happy to part with them on LOW TERMS for CASH; also NEW DOUBLE PINK and SINGLE CRIMSON THORNS, YEWS, PORTUGAL LAURELS, BERBERIS AQUIFOLIUM, BOX, AUCUBAS, CEDRUS DEODARA, Standard and Dwarf Budded GEANT DES BATAILLES, and other ROSES, &c. If the LAURELS are taken by the Ten, Twenty, Fifty, or ONE HUNDRED THOUSAND, they will be sold at a price that will soon SAVE THEIR COST in LABOUR. My Plan is to lay them in very close together as under cover, giving at once a good ground outline, and something for the eye to repose on, in place of the HOEING, SCRAPING, and ALWAYS WANTING UNSATISFACTORY SYSTEM generally practised.

D. F. was many years Gardener to the late P. C. Labouchere, Esq., Hylands, Essex, and is well acquainted with Forcing Grapes, Peaches, Apricots, Strawberries, Melons, French Beans, Lettuce, Carrots, &c., on the Dutch system, which is superior to the British where a good stud of horses is kept.

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D. F. will feel much pleasure in recommending a worthy gardener to any Lady or Gentleman in want of one.—Stowe, Buckingham.

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PETER LAWSON AND SON beg leave to intimate to their English customers and the public that they are prepared to supply from their London establishment assortments of GARDEN and FLOWER SEEDS of superior quality, comprising all the esteemed standard sorts and those recently introduced. They will be happy to send Catalogues on application.

P. L. & Son have also to intimate that they will shortly issue their LIST of AGRICULTURAL SEEDS, all of which have been carefully saved from the most select stocks.

Liberal arrangements will be made for the carriage of their seeds to all quarters.

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Queen's Seedsmen, Wood Foresters, &c., for Scotland, and to the Highland and Agricultural Society, 27, Great George Street, Westminster, London.

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P.S. Also, R. Kennedy's General Catalogue of British and Foreign Ferns forwarded on receipt of six postage stamps.

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JOHN CHATER AND SON offer the following New and Choice HOLLYHOCKS in Pots at 18s. per dozen, hamper included:—Pourpre de Tyre, Yellow Model, Saffranot, Duke of Rutland (new), Penelope, Swansdown, Gem, Lady Braybrooke, Spectabilis, White Perfection, Black Prince (new), King of Roses, Raphael, Napoleon, Magnum Bonum, &c.

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SUPERB LATE WHITE BROCCOLI—"EMPEROR."

E. P. DIXON having purchased the entire stock of the above Broccoli of Messrs. Elletsons, Market Gardeners, Thorngumbald, near Hull, begs to announce that he is prepared to send it out in sealed packets at 2s. 6d. each. This Broccoli has been raised by the Messrs. Elletsons, the raisers of the Mammoth, sent out some time ago, who state that the EMPEROR, if sown at the same time, will come into use before it. Is of very dwarf growth, perfectly hardy, with heads from 15 lbs. to 20 lbs. weight; keeps its colour, and stands firm three weeks after it is ready to cut. A noble flower, and commands the best price of any other in the Hull market, where it is well known, and will be a great acquisition to the market gardeners around London, as well as those who wish for a first-rate Broccoli.

PURE MAMMOTH BROCCOLI.—Numerous applications having been made to Messrs. Elletsons last season for Seed of the Pure Mammoth Broccoli, they determined to allow a flat to stand for Seed, carefully selected from the original stock, producing heads from 18 lbs. to 25 lbs. each. E. P. D. having purchased the stock of this celebrated Broccoli is prepared to send it out in packets at 2s. 6d. each.

Each may be had of Messrs. NOBLE, COOPER, & BOLTON, 152, Fleet Street; and Messrs. HURST & M'MULLEN, 6, Leadenhall Street, London. Also of the Advertiser, 57, Queen Street, Hull.

NEW CATALOGUE OF FLORISTS' FLOWERS, 1855.

CAREY TYSO, FLORIST, &c., Wallingford, Berks, will send his DESCRIPTIVE CATALOGUE of Anemones, Ranunculuses, Carnations, Picotees, Dahlias, &c., for one stamp. Also his Flower Seed List for one stamp.

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A. PAUL AND SON will be happy to forward the following priced Nursery CATALOGUES in return for one postage stamp each:—A, ROSES; B, ORNAMENTAL TREES AND CONIFERS; C, FRUIT TREES; D, HERBACEOUS PLANTS; F, GREENHOUSE PLANTS, &c.; G, SEEDS; H, HOLLYHOCKS; I, BULBS.—Nurseries, Cheshunt, Herts.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 4.—1855.] SATURDAY, JANUARY 27. [PRICE 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The WINTER MEETING will take place at the Society's House, 21, Regent Street, on TUESDAY, February 6, from 12 to 4 P.M.

KENILWORTH.—THE GRAND ANNUAL EXHIBITION OF FLOWERS, FRUITS, AND VEGETABLES (open to all exhibitors), will be held (by permission) among the Ruins of Kenilworth Castle, on WEDNESDAY, 4th of July next, when Prizes on the usual liberal scale will be awarded. Further particulars will be duly announced.

Priory Gardens, Warwick, Jan. 23. J. CHEYNE, Sec.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—At a General Meeting of the Subscribers to this Institution, held on Wednesday, the 17th inst., at the Horticultural Society's Rooms, Regent Street, for the purpose of Electing Three Pensioners on the Funds of the Society, the following was the result of the Ballot:—

CANDIDATES.

NAME.	APPLICATION.	AGE.	VOTES.
JOHN APPLEBY	Tenth	62	348
CORNELIUS ROBINSON	Eighth	77	289
HENRY SCHNEIDER	Seventh	88	441
JOHN BLACKE	Fourth	80	57
ROBERT OLIVER	Fourth	72	481
WILLIAM THACKER	Fourth	67	46
CHARLES CHARLTON	Third	68	190
ELIZABETH CURTIS	Third	70	517
JOSEPH JEFFREY	Third	62	41
JOHN KENT	Third	72	89
GEORGE KIDD	Third	69	163
JOHN LAWSON	Second	76	26
JAMES SMITH	Second	69	25
ANN ARNOLD	First	68	86
THOMAS BLAIR	First	70	158
FREDERICK BURNET	First	68	71
WILLIAM DUNGATE	First	69	20
ALEXANDER GREGORY	First	62	69
WILLIAM THORNTON	First	69	9

The Chairman declared Elizabeth Curtis, Robert Oliver, and Henry Schneider, as having the greatest number of Votes, duly elected Pensioners on this Charity.

E. R. CUTLER, Secretary.

14, Tavistock Row, Covent Garden, January 18.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—JOHN KENT desires to return his most sincere thanks to those friends who so kindly supported him at the last Election, and hopes to be favoured with their further support at the Election in June next.

GARDENERS' BENEVOLENT INSTITUTION. HENRY SCHNEIDER, of Ford, Wilts, returns his grateful thanks to the subscribers who so kindly supported him on his election as a pensioner of the above institution.—Jan. 27.

ROBERT OLIVER begs to return his very grateful thanks to those members of the GARDENERS' ROYAL BENEVOLENT INSTITUTION, who have so kindly voted for him at the late election.—Sheffield, Jan. 24.

FRUIT TREES, FOREST TREES, EVERGREEN SHRUBS, &c. Catalogues of the above may be had on application to WILLIAM BARRATT, Wakefield.

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DIOSCOREA JAPONICA.

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A Descriptive List of his large Collection of Pelargoniums, Show and Fancy varieties, also Stove, Greenhouse, and Hardwooded Plants, may be had Post free, by applying at the Nursery, Surrey Lane, Battersea, Surrey.

TO THE SEED TRADE.

WILLIAM E. RENDLE, SEED MERCHANTS, Plymouth, *have to offer some very Choice Stocks of* SEEDS *to the Trade. Wholesale Catalogues can be had on application to*

WILLIAM E. RENDLE & Co., Union Road, Plymouth.

WHITE BELGIAN CARROT, MANGOLD WURZEL, &c.—*Several Tons to be disposed of at the lowest market prices.—Apply to*

WILLIAM E. RENDLE & CO., SEED MERCHANTS, Plymouth.

NEW SEEDS JUST HARVESTED *can now be obtained of the most genuine description, from*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

TRUE PENZANCE BROCCOLI, *saved by one of the best growers in the neighbourhood of Penzance*, 1*s*. per packet, from WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

HOLCUS SACCHARATUS, OR CHINESE SUGAR CANE.—*For a full description, see the leading article in the* GARDENERS' CHRONICLE, *by Professor Lindley, page* 35, *January* 20, 1855.

WILLIAM E. RENDLE & Co., Seed Merchants, have just imported from France an excellent parcel of Seeds, which will be sold in sealed packets at 1*s*. and 2*s*. 6*d*. each, post free.—Apply to

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

HOLCUS SACCHARATUS, OR CHINESE SUGAR CANE.

SUTTON AND SONS *can supply this Seed genuine as imported in sealed packets at* 1*s*. *or* 2*s*. 6*d*. *each. Post Free.*

For description and uses, see *Gardeners' Chronicle*, Dec. 30th, 1854, p. 835.—SUTTON & SONS, Seed Growers, Reading.

IPOMŒA RUBRO CÆRULEA.

GEORGE ROBERTS begs to acquaint the Seed Trade that he can supply the above choice seed at a considerable reduction on the prices of past years.

32, Moorgate Street, London.

SEEDLING FOREST TREES AND SHRUBS.

DAVID REID AND SON, NURSERYMEN and FLORISTS, Leith Walk, Edinburgh, beg to direct the attention of the trade to their Stock of Seedlings as above.

Catalogues free on application.

YEWS FOR HEDGES.

EDWARD SANG AND SONS, Kirkaldy, have for sale, at a low price, a large quantity of fine healthy YEWS, once, twice, and three times transplanted, in various sizes, from 12 to 30 inches high.

TO THE TRADE.

J. ROY, Jun., SEEDSMAN, Aberdeen, has got to hand a consignment of 35 bales of very superior CUBA BAST. The bales weigh about 1½ cwt. each. Price forwarded on application.

JOHN HOLLAND can supply, in strong plants, the heaviest Lancashire Show GOOSEBERRIES (named), of excellent flavour, and large size, at 6*s*. per dozen, on receipt of Post-office order, payable to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

MANGOLD WURZEL SEED.

TO BE SOLD, LONG RED and YELLOW GLOBE, growth of 1854, from superior stock.—Apply to R. S. HEWS, Kelvedon, Essex.

IMPORTANT TO SEEDSMEN AND OTHERS.

TO BE SOLD by a Grower, at a moderate Price, 300 Bushels of GREEN GLOBE TURNIP SEED, all of the growth of 1854, first-rate in sample, and stock warranted. To be sold in small or large quantities, at the option of the purchaser.—Apply to Mr. WM. TAYLOR, Nashenden Farm, Rochester, Kent.

TO BE SOLD immediately, fine sound DUTCH BULBS, just arrived, at about half catalogue price. They consist of every description of Hyacinth, Tulip, Anemones, Ranunculuses, Narcissus, &c.—For particulars of price, apply, by letter, to Mr. JOHN WILLIAMS, 9 and 10, St. Bride's Avenue, Fleet Street, London.

ASH-LEAVED KIDNEY POTATOES.

TO BE SOLD, a quantity of this valuable POTATO, sound and pure, at 5*s*. per 4 stones. They will be put on to the Railway without additional charge, excepting cost price of bags.—Apply to JOHN BELDON, Gardener, East Abbey, Richmond, Yorkshire.

THE EARLY CHAMPION ASHLEAF.

JOSEPH WILSON, SEEDSMAN, Ipswich, begs to call the attention of Growers and the Trade to the New ASHLEAF called the "EARLY CHAMPION," as being decidedly the finest ever yet introduced; it is more prolific, finer flavour hardier, and about 10 days earlier than any other Ashleaf; out of an acre planted last season there was not a single diseased root found. Price 12*s*. per bushel, free to London, and no charge for sacks. Orders must be accompanied with a remittance.

THE FLUKE POTATO.—A new second early variety, surpassing every other in its capability of resisting the Potato disease, and without exception the finest and most prolific Potato in cultivation. Price per cwt., 15*s*., bags included.

To be had genuine of THORNHILL & DICKSON, Lawrence Hill Nurseries; and No. 1, Wine Street, Bristol.

THE FLUKE KIDNEY POTATO.—This excellent variety is now planted here as the principal crop, being more free from disease and more prolific than any other in cultivation. It was raised in Middleton, and may be had genuine in any quantity at 5*s*. per bushel of 56 lbs.—Apply to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

Post-office Orders to be made payable at Middleton, Lancashire.

SUTTON'S SHORT SEED LIST.

SUTTON'S SHORT SEED LIST, *containing only the most desirable sorts, will be sent post free, in return for one penny postage draft or receipt stamp.*

SUTTON & SONS, Seed Growers, Reading, Berks.

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY for 1855 *is now published, price* 6*d*. *To be had of all Booksellers, and from*

WILLIAM E. RENDLE & Co., *Seed Merchants, Plymouth*

PRICED NURSERY CATALOGUES.

A. PAUL AND SON will be happy to forward the following priced Nursery CATALOGUES in return for one postage stamp each:—A, ROSES; B, ORNAMENTAL TREES AND CONIFERS; C, FRUIT TREES; D, HERBACEOUS PLANTS; F, GREENHOUSE PLANTS, &c.; G, SEEDS; H, HOLLYHOCKS; I, BULBS.—Nurseries, Cheshunt, Herts.

GERMAN FLOWER SEEDS.

MOSCHKOWITZ AND SIEGLING, Erfurt, beg to inform the trade that their new Wholesale Catalogue of Choice German and other Flower Seeds, is now ready, and may be had on application to their Agent, Mr. H. HENKEL, 70, Fenchurch Street, London.

ROBERT KENNEDY, Agent for Messrs. Platz and Son, Seed Growers, Erfurt, has much pleasure in announcing he has received their Catalogue of Flower and Vegetable Seeds for the trade for 1855, which abounds with new articles of great interest, and will be forwarded, per post, on application to R. KENNEDY, Bedford Conservatory, Covent Garden, London.

P.S. Also, R. Kennedy's General Catalogue of British and Foreign Ferns forwarded on receipt of six postage stamps.

EARLY DANIEL O'ROURKE PEAS.

J. G. WAITE begs to inform the Trade that he is now ready to execute orders for this valuable early Pea. Price can be had on application.

Seed Establishment, 181, High Holborn, London.

NEW CAULIFLOWER.

WAITE'S "ALMA," far superior to Walcheren, very large and firm heads. Price to the trade 24*s*. per lb.; smaller quantities 2*s*. 6*d*. per oz. No orders attended to for less quantities than one ounce.—Seed Establishment, 181, High Holborn, London.

GOLDEN DROP GREEN FLESH MELON,

SIX SEEDS FOR 1*s*. 6*d*.

WILLIAM WOOD AND SON beg to inform their Friends and the Public that they have sold their stock of Seeds of the above superior Melon to Mr. EDWARD TILEY, Nurseryman, 14, Abbey Churchyard, Bath, who will be happy to supply orders for the same.

COLE'S CRYSTAL WHITE, & COLE'S DWARF RED CELERY.

J. THORNELEY, COLE, & Co., NURSERYMEN, SEEDSMEN, and FLORISTS, Withington, near Manchester, beg to announce that they are now prepared to supply these two well-known varieties, raised by Mr. W. Cole (late of Dartford).

CRYSTAL WHITE, ½ oz. packets, free by post, for 12 stamps.
SUPERB DWARF RED, ½ oz. pkts., free by post, for 9 stamps.
Price per lb. to the Trade on application.

PYRAMIDAL PEAR TREES,

GRAFTED ON THE QUINCE STOCKS.

J. AND J. FRASER have still to offer strong trees of the above PEARS; a Descriptive Catalogue of the sorts may be had on application. To prevent disappointment early orders are requested, as the Stock of some of the varieties is getting low.—The Nurseries, Lea Bridge Road, Essex.

RANUNCULUSES, ANEMONES, LILIUM LANCIFOLIUM, CALOCHORTUS LUTEUS, CALLIPRORA FLAVA, GLADIOLUS, TRITONEA AUREA, DIELYTRA SPECTABILIS, VALLOTA PURPUREA, ANOMATHECA CRUENTA, AND AURICULAS.

HENRY GROOM, CLAPHAM RISE, near LONDON, by Appointment FLORIST TO HER MAJESTY, begs to say that he has a fine Selection of the above BULBS, &c., which he can supply at Moderate Prices. His Catalogue will be forwarded on application.

GENERAL SEED ESTABLISHMENT, NORTHAMPTON.

JOHN JEYES begs leave to inform his Patrons and Friends that his general stock of Seeds is now complete, and that he shall feel obliged by their early orders. He has a good supply of all those various Seeds his Establishment has long been celebrated for, such as—

Matchless Cabbage	Snow's Green Cos Lettuce
Imperial Cos Lettuce	" Broccoli
Conqueror Pea	Northampton Market Broccoli
Blood Red Beet	Giant Asparagus,
Dwarf Prolific Bean	&c. &c.

RHUBARB ROOTS for FORCING or PLANTING.—Strong one-year planted roots of MYATT'S VICTORIA and LINNÆUS, MITCHELL'S ROYAL ALBERT, at 6*s*. per doz.; HOWARD'S PRINCE ALBERT, 12*s*. per dozen. This is a larger variety than the Victoria, and is extensively cultivated about Manchester. Price to the trade of the above, per 100 or 1000, on application to MESSRS. J. MYATT AND SONS.

Manor Farm, Deptford, Jan. 27.

CHEAP AND GOOD CINERARIAS.—Fine flowering plants from Turner's best seed in large 60 and 48 pots, just coming into bloom, at from 4*s*. to 6*s*. per dozen. Also fine plants of named varieties, consisting of Mr. and Mrs. S. Herbert, Adela Villiers, Garland, Constellation, Lady H. Campbell, Kate Kearney, Flora M'Ivor, Étoile de Venus, &c., at 9*s*. per dozen.—WOOD & INGRAM, Nurseries, Huntingdon.

ARTHUR HENDERSON AND CO. beg leave to inform their patrons and friends that their Stock of VEGETABLE and FLOWER SEEDS (containing many choice and new kinds) is now ready for sending out.

Their Seeds may be fully relied on as being in every respect of first-rate quality, and true to their sorts. Catalogues may be had on application.—Pine Apple Place, Edgeware Road, London.

SUTTON'S COLLECTIONS OF GARDEN SEEDS.

No. 1. A COMPLETE COLLECTION of KITCHEN GARDEN SEEDS for a LARGE GARDEN, for one whole year's supply	£3 0 0
No. 2. A COMPLETE COLLECTION of DITTO, in quantities proportionately reduced	2 0 0
No. 3. A COMPLETE COLLECTION of DITTO DITTO	1 5 0
No. 4. A COMPLETE COLLECTION of DITTO DITTO	0 15 0

The sorts of Vegetable included in these Collections are those which we have proved to be the most prolific, best flavoured, and most worthy of general cultivation, and of which sorts we have therefore grown large crops of *Seed;* by this means we are enabled to furnish "A Complete Collection for one Year's Supply," of superior quality, and at much less expense than when a Gentleman or his Gardener make his own selection. (With instructions on Cultivation.) THE QUANTITIES CONTAINED IN EACH COLLECTION will be observed in the respective columns below.

	No. 1 COLLECTION, £3 0 0	No. 2 COLLECTION, £2 0 0	No. 3 COLLECTION, £1 5 0	No. 4 COLLECTION, £0 15 0
PEAS, the best sorts for succession throughout the summer	20 quarts	12 quarts	6 quarts	6 pints
BEANS, the best sorts for succession	10 ditto	6 ditto	3 ditto	3 ditto
FRENCH BEANS, Runners and Dwarfs	4½ pints	2½ pints	1½ pint	1 pint, 2 sorts
BEET, Sutton's Dark Red and Atkins' Crimson	3 ounces	1½ ounce	1 large pckt.	1 packet
BORECOLE or Sprouting Kale, of sorts	2 ditto	1½ ditto	3 packets	2 ditto
BRUSSELS SPROUTS, fresh imported	1 large pckt.	1 large pckt.	1 packet	1 packet
BROCCOLI, the best sorts for succession throughout the year	5 large pckt.	5 ditto ditto	4 packets	3 packets
CABBAGE, best sorts for succession throughout the year, including Sutton's Imperial	5 ounces	3 ounces	3 ditto	2 large ditto
SAVOYS, fine curled	2 ditto	1 ditto	1 large ditto	1 ditto
CARROT, best sorts for summer and winter use	10 ditto	6 ditto	3 ounces	2 ounces
CAULIFLOWER, true Walcheren and others	1½ ditto	2 large pckt.	2 packets	2 packets
CELERY, Sutton's Solid White and Sutton's Superb Pink	1½ ditto	1 ounce	2 large pckt.	2 ditto
CRESS, plain and curled	1 pint and 4 ounces	½ pint and 2 ounces	4 ounces	2 ounces
CUCUMBER, the best sorts in cultivation	3 packets	3 packets	2 packets	2 packets
ENDIVE, best sorts	1½ ounce	¾ ounce	1 large pckt.	1 ditto
LEEK, Large Scotch	1 ditto	1 ditto	½ ounce	1 ditto
LETTUCE, Sutton's Superb Cos, Bath Cos, and others for succession throughout the year	2 ditto	1½ ditto	3 large pckt.	2 packets
MUSTARD	1 quart	1 pint	½ pint	2 ounces
MELON, choicest sorts known	2 packets	2 packets	1 packet	1 packet
ONION, True Reading, and others	10 ounces	6 ounces	3 ounces	2 ounces
PARSLEY, splendid curled kinds	4 ditto	2 ditto	1 ditto	½ ditto
PARSNIP, Jersey Marrow, very fine	6 ditto	4 ditto	2 ditto	1 ditto
RADISH, finest sorts for succession	1 pint and 8 ounces	½ pint and 8 ounces	6 ounces	3 ditto
SPINACH, summer and winter kinds	2 pints	1 pint	4 ounces	2 ditto
SALSAFY	1 large pckt.	1 large pckt.		
SCORZONERA	1 ditto ditto	1 ditto ditto		
TURNIP, Orange Jelly, and other fine sorts for succession	16 ounces	8 ounces	4 ounces	3 ditto
VEGETABLE MARROW, choice sorts	1 large pckt.	1 large pckt.	1 packet	1 packet
SWEET AND POT HERBS	10 packets	8 packets.	6 packets	4 packets

N.B. *If any of the above articles are not required, they should be named when giving the order, and* INCREASED QUANTITIES OF OTHER SORTS *will be given in lieu of those to be omitted.*

SUTTON'S COLLECTIONS OF FLOWER SEEDS.

Ladies and Gentlemen requiring showy kinds of Flower Seeds are respectfully recommended to leave the selection of sorts wholly or partly to us, and we will supply those which we know to be really worthy of cultivation. *Should the purchaser have any preference for certain kinds, they should be named in giving the order, that we may include them, or should any sorts be already possessed, they should be named, that we may omit them.*

COLLECTIONS OF FLOWER SEEDS TO BE SENT FREE BY POST.

The best 100 sorts of FLOWER SEEDS, hardy, half-hardy, and tender, with instructions	£1 1 0
The best 50 sorts of DITTO, with instructions	0 10 6
The best 36 sorts ditto ditto	0 7 6
The best 24 sorts ditto ditto	0 5 0

Also Natural Grasses for Lawns and Meadows, Fine Mangold Wurzel, Turnip, and other Agricultural Seeds.

ALL PACKAGES OF THE VALUE OF 10s. AND UPWARDS ARE DELIVERED FREE to any Station on the Great Western, and Berks and Hants Railways, or of not Less than 20s. Value the Parcel will be Sent Free to any Station on the following Railways:—South Western, South Eastern, Great Western, Oxford, Worcester and Wolverhampton, Eastern Counties, Oxford and Birmingham, Bristol and Exeter, and South Wales.

And Packages of 40s. Value and upwards are delivered free, not only by the above named Railways, but also to Edinburgh, Glasgow, Liverpool, and all Stations of the NORTH WESTERN, GREAT NORTHERN, *and* MIDLAND RAILWAYS.

Post-office Orders payable to JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

WHEELER AND SON'S
SHORT SELECT SEED LIST.

OUR PRICED LIST OF SEEDS for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers. *We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year;* and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.

J. C. WHEELER & SON, GLOUCESTER.
SEEDSMEN TO THE GLOUCESTERSHIRE AGRICULTURAL SOCIETY.

To Farmers, Potato Growers, and Others.

JACKSON'S PATENT PREPARATION
FOR
PRESERVING POTATOES, WHEAT, AND OTHER SEEDS

From DISEASE, the RAVAGES of the SLUG, GRUB, and WIREWORM, in addition to which the CROPS are brought forward in HEALTH AND VIGOUR, and the yield is greatly increased, in proof of which the following extracts are given from numerous letters received by Mr. JACKSON.

EXTRACTS:—

"One of the fields of this farm, the property of MRS. STANBURY, was planted with Regents Potatoes in April last, some of which were prepared by you. The result now is, that the whole of the crop from the unprepared sets is thoroughly diseased, and hardly worth the trouble of taking up; while those raised by the side of them from the prepared sets are not only in a beautiful state of preservation from the disease, but the produce is much greater,—the Potatoes are more numerous than the others; indeed, if there were no such thing as the disease to be feared, it would be worth the trouble and expense of preparing the sets by your process, even for the sake of the improved crops. I shall certainly, for the future, prepare all my Potatoes for seed by your process; and I intend to adopt it for preserving my Wheat from the Smut.

"G. B. BAXTER.

"Belmont Farm, Eltham, Kent, August 28, 1854."

"Admiral Sir J. A. GORDON, K.C.B., Marlee House, Blairgowrie.

"SIR,—I have received your note of the 16th. The Potatoes that came here from England, prepared by Mr. JACKSON, were planted in a piece of new ground, and according to the directions sent by him along with them as to distance between the plants, &c. They came up well, with strong healthy stems; I have now taken the whole crop up, and there is not the slightest appearance of any disease amongst them. They are of large equal size and very prolific. There were long black unprepared Kidneys planted in the same patch, and a great deal of them are not fit for use, at least a third part are diseased. I hope Mr. JACKSON's process may be widely known, as it is a great boon.—I am, &c.,

JOHN SHANKS,
"Forester, Kildrummy Castle.

"Kildrummy Castle, Aberdeenshire, November 17, 1854."

"I am very much pleased with the result of the experiments I have made with your Prepared Potatoes; for I planted them, without any manure, in ground where for several years I have hardly had a sound Potato, and I now find the crop perfectly free from disease, and in a very fine condition; while those of the same sort, unprepared, which were planted at the same time, and next to them, are diseased and eaten by worms.

"The Potatoes from the Prepared Seed were so remarkably good that I was induced to weigh them, and I found, to my great astonishment, that they were as 200 to 150 of the others, or about 25 per cent. in favour of your preparation.

"T. AUSTEN, Nurseryman and Seedsman.

"Blackheath, Kent, 24th August, 1854."

Sold by Messrs. CHARLWOOD & CUMMINS, Seedsmen, Covent Garden; and JOHN KERSAN, Seedsman, 4, Great Russell Street, Covent Garden; all Seedsmen and Chemists; and at the Patentee's, 18, Cannon Street, London Bridge, in Packets of One, Two, Three or Four Pounds, or in Bulk for the use of Farmers and Potato Growers.

SUPERB HOLLYHOCKS, ROCKETS, SEEDS, ETC.

WILLIAM CHATER'S descriptive list of his superb HOLLYHOCKS, containing hints on their culture and observations on exhibiting, &c., may be had on application by enclosing a postage stamp. Packets of seed, consisting of 21 varieties, selected from the best show flowers, 5s.; 12 varieties, 2s. 6d.; and from good double sorts, 1s.

Very superior Quilled German Asters, 12 distinct varieties, separate, 2s., mixed 1s. per packet. Also Choice French Asters, 12 varieties, separate, 3s., mixed, 1s. 6d. Fine Quilled African Marigolds, lemon and orange, 6d. per packet.

New Double Crimson ROCKET, excellent bedding plant for spring flowering, 6s. per dozen, or 2d. per 100. Double French White, 4s. per dozen, or 30s. per 100.

Saffron Walden Nursery, January 27.

HOLLYHOCKS.

JOHN CHATER AND SON offer the following New and Choice HOLLYHOCKS in Pots at 18s. per dozen, hamper included:—Pourpre de Tyre, Yellow Model, Saffranot, Duke of Rutland (new), Penelope, Swansdown, Gem, Lady Braybrooke, Spectabilis, White Perfection, Black Prince (new), King of Roses, Raphael, Napoleon, Magnum Bonum, &c.

Also the following strong ground Roots, 7s. 6d. per dozen:—Queen, Bella Donna, Elegans, Brilliant, Marmion, Mrs. Russell, Venosa rubra, Obscura, Aurantia, Purpurea elegans, Flower of the Day, Marchioness of Breadalbane, Queen of England, and Model of Perfection.

New Crimson Rockets, 6s. per dozen; Double White do., 3s. per dozen, 20s. per 100.

Hollyhock Seed, in packets containing 200 seeds, 1s. 6d.; 400, 2s. 6d.; warranted from best flowers. Choice Pansy, 1s. per packet. Sweet William, 6d.

Descriptive Catalogues may be had on application to J. CHATER & SON, Haverhill, Suffolk.—Post Office Orders payable at Haverhill.

PRICES OF PINES IN LIVERPOOL FOR JANUARY, 1855.

JAMAICAS, 2 lbs. each and upwards,			5s. 6d.,	5s. per lb.
MONTSERRAT	"	"	5s. 6d.,	5s. "
CAYENNES	"	"	5s.	"
QUEENS	"	"	5s.	"
BLACK PRINCE	"	"	5s.,	4s. 6d. "
ENVILLES	"	"	5s.,	4s. 6d. "
ANTIGUA	"	"	4s. 6d.	"
PROVIDENCE	"	"	4s. 6d.	"

CUCUMBERS, 2s. 6d., 2s., 1s. 6d., 1s. each.
ASPARAGUS, 5s., 7s. 6d., 10s. per hundred.
Forward Immediately to GEORGE TAYLOR, JUN.,
FRUIT SALESMAN, St. John's Market, Liverpool.
Terms "Cash."

R. PARKER begs to offer the following CHOICE SEEDS, all of which are warranted new and true to name:

GODFREY'S (BLACK SPINE) CUCUMBER, the finest variety in cultivation, packets containing 12 seeds 1s. 6d.

Also the following esteemed varieties of CUCUMBERS and MELONS, in packets containing 12 seeds, at 1s. each:—

CUCUMBERS.	MELONS.
Henderson's Black Spine.	Victory of Bath.
Improved Patrick.	Beechwood.
Walker's Long Rambler.	Bromham Hall.
Manchester Prize.	Canteloupe.
Hunter's Prolific.	Duke of Bedford.
Superlative Improved.	Golden Perfection (extra fine).
Cuthill's Black Spine.	Scarlet Flesh (Anderson's).

Ohio Squasha Custard Gourd, 6d. ... ... per packet.
Antirrhinum, from named flowers, 6d. ... "
Calceolaria, from fine varieties, 1s. 6d. and 2s. 6d. "
Hollyhock, from fine named varieties, 1s. 6d. and 2s. 6d. "
Lilium giganteum, the most distinct and noble species of the genus, packets containing 20 seeds, 2s. 6d.

*** A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Islington.

NEW RIDGE CUCUMBER, VECTIS.

THOMAS TAYLOR begs to inform the public he has produced this fine Cucumber and grown it this last three years, and can with confidence recommend it as the best ridge Cucumber ever offered to the public, being equal in quality and flavour to many of the frame varieties, and very prolific. T. T. is now ready to send it out at 1s. per packet, 12 seeds post free.—THOS. TAYLOR, Nurseryman, Weston-super-Mare, Somerset.

DR. SYNTAX CUCUMBER.—The above celebrated variety has been nearly lost to gardeners for several years past. It is known by all experienced growers of Cucumbers to be the very best sort in existence for early work.

A paper sent free per post on receipt of 13 stamps.

SNOW'S HORTICULTURAL BROCCOLI.—Half-ounce Packet sent free per post on receipt of 24 stamps.

NORTHAMPTON MARKET BROCCOLI.—This variety is grown by the market gardeners here, and excites the admiration of all who see it. Visitors say "they never saw such Broccoli anywhere else." Half-ounce Packets sent free per post for 14 stamps.—JOHN JEYES, Nurseries, Northampton.

SPRUCE FIRS from 6 to 9 feet high, well-rooted, and quite safe to remove, being well adapted for screens, filling up old plantations, or for immediate effect.

FINE BEECH fit for hedges or plantations, 6 feet and upwards.

G. WHEELER, Nurseryman, Warminster, Wilts, having a surplus stock of the above, is disposed to sell them on extremely moderate terms, which may be obtained on application.

G. W. has a good stock of SCOTCH FIRS, 2 to 3 feet, a large stock of RHODODENDRON suitable for cover in woods, plantations, drives, &c., from 1 foot and upwards, with fine strong American Azaleas, at very moderate prices.

SEEDLING CALCEOLARIA, raised from the finest spotted kinds, will be sent carriage free on receipt of a Post Office Order for the amount, at 30s. per 100.

	Per doz.
BULBS OF TIGRIDIA PAVONIA, Red Tiger Flower...	2 0
" " CONCHIFLORA, Yellow ditto	4 0
" " WHEELERI, Scarlet ditto ...	4 0

Carriage free for cash.

CUCUMBERS, first-rate.—THE KING, a very handsome Black Spine, and Ingram's Hybrid White Spine, a most prolific kind, both approved and esteemed sorts, at 1s. per packet.—G. WHEELER, Warminster, Jan. 27.

NOTICE.—The EXECUTORS of the late MR. MOSES REID, NURSERYMAN and SEEDSMAN, of Middlewich, having disposed of the Stock and Business to Mr. G. H. NUTTING, all further orders and communications connected with the concern are requested to be made to him. He is also authorised to receive all outstanding accounts due to the late Mr. Reid.

Middlewich, 25th Jan., 1855. MOSES REID, B. D. VAWDREY, } Executors.

GEORGE H. NUTTING wishes most respectfully to solicit a continuation of the patronage so liberally bestowed upon the late Mr. Reid, and trusts by constant attention to the wishes of his patrons to merit their confidence and support. He would further assure the public generally that all Plants and Seeds sent out by him will be of the best quality, correctly named, and at the lowest remunerating price.

*** A few large Oak and other Trees suitable for Hedge-row or Park planting on Sale; apply as above.

DICKSON'S EARLY FAVOURITE PEA (NEW).

FRANCIS AND ARTHUR DICKSON AND SONS, Seed Merchants, &c., Chester, have much satisfaction in introducing the above new Pea, which they believe they are perfectly justified in saying is the best and most prolific Early Pea in cultivation.

It has been tried side by side with all the best early and second early Peas of the day, and has been pronounced by many eminent gardeners who saw it under the circumstances to be much superior to any variety of its season hitherto introduced.

It comes in about a week later than the "Early Emperor" (sown at the same time), grows about 4 feet high, and produces a wonderful profusion of pods, which contain on an average 10 Peas of excellent quality and flavour.

For opinions of Dr. Lindley and Mr. Thompson, see *Gardeners' Chronicle* of 20th January, 1855.

Price 3s. 6d. per Quart; per Pint, 2s. Messrs. Hurst & M'Mullen, Seedsmen, &c., 6, Leadenhall Street, wholesale London Agents; and to be had from most Nurserymen and Seedsmen throughout the United Kingdom.—N. B. The Trade supplied on liberal terms.—106, Eastgate Street, Chester; (and 14, Corporation Street, Manchester).—Jan. 27.

NEW PEA.

W. J. EPPS, Seed Merchant and Grower, Maidstone, has much pleasure in offering the following Pea, feeling assured it will give the highest satisfaction.

LORD RAGLAN, OR IMPROVED MAMMOTH.

This Pea was selected from Hair's dwarf Mammoth two years since, and is unquestionably the best and finest in cultivation, and will prove to be the standard Pea of the day. It is a dwarf green wrinkled marrow of very large size, and an immense cropper. Habit dwarf, branching 3 to 4 feet high, producing immense clusters of large bright green pods from the base of the haulm to the top, and similar in shape to the Scimitar, but of greater size, well filled with seven to ten Peas, which are larger than the British Queen, and equal, if not superior in its flavour.

Price, 5s. per Quart. Wholesale Prices to be had on application. Agent: Messrs. Hurst and M'Mullen, Seed Merchants, Leadenhall Street, London.

R. PARKER begs to offer the following:—CINERARIAS (Seedlings), from all the finest varieties, carefully selected, including the new varieties sent out last autumn. Strong established plants, in 4-inch pots, at 4s. per dozen. A choice collection of named Cinerarias in strong established plants, purchaser's selection, at 9s. per dozen.

ROSES, consisting of the best varieties of Hybrid Perpetuals, Teas, Bourbons, &c., well established in pots. Purchaser's selection, at 12s. per dozen. List of names forwarded upon application.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Islington.

SUPERB LATE WHITE BROCCOLI—"EMPEROR."

E. P. DIXON having purchased the entire stock of the above Broccoli of Messrs. Elletsons, Market Gardeners, Thorngumbald, near Hull, begs to announce that he is prepared to send it out in sealed packets at 2s. 6d. each. This Broccoli has been raised by the Messrs. Elletsons, the raisers of the Mammoth, sent out some time ago, who state that the EMPEROR, if sown at the same time, will come into use before it. Is of very dwarf growth, perfectly hardy, with heads from 15 lbs. to 20 lbs. weight; keeps its colour, and stands firm three weeks after it is ready to cut. A noble flower, and commands the best price of any other in the Hull market, where it is well known, and will be a great acquisition to the market gardeners around London, as well as those who wish for a first-rate Broccoli.

PURE MAMMOTH BROCCOLI.—Numerous applications having been made to Messrs. Elletsons last season for Seed of the Pure Mammoth Broccoli, they determined to allow a flat to stand for Seed, carefully selected from the original stock, producing heads from 18 lbs. to 25 lbs. each. E. P. D. having purchased the stock of this celebrated Broccoli, is prepared to send it out in packets at 2s. 6d. each.

Each may be had of Messrs. Noble, Cooper, & Bolton, 152, Fleet Street; and Messrs. Hurst & M'Mullen, 6, Leadenhall Street, London. Also of the Advertiser, 57, Queen Street, Hull.

NEW SEEDLING POTATO—THE CHAMPION KIDNEY.

This Potato bears a great resemblance to that fine old Potato, the Ashleaf Kidney; it possesses the following good qualities over the Ashleaf. If planted at the same time it will be ten days earlier, all the sets always vegetate well, and do not die off in the ground as the Ashleaf does; 2 pecks of seed will produce a greater weight of Potatoes than 3 pecks of the Ashleaf. It is quite equal to that in flavour, and is eatable during the whole winter. Sets that have had the shoots broken off five or six times during the spring will vegetate again as if it had been the first shoot. About twenty Gentlemen and Gardeners who had seed to plant last season have assured me that they never before grew any Potato to equal it, and should continue to grow it as a first early Potato. Numerous orders have been already received from persons who saw it growing during the last summer. It has been grown and thoroughly proved for the last four years, and found to be less liable to disease than any other Potato that has been grown. Out of 25 sacks grown this season there was not a single diseased Potato among them.

Sold in quantities of not less than 1 peck; they will be sent Hamper and Package free, at 5s. 6d. per peck, or 4 pecks for 1l., hamper free. A remittance in cash must accompany all orders, or small amounts in penny postage stamps. Purchasers would do well to name the nearest railway station to their residence.

EDWARD TILEY, Nurseryman, Seedsman, & Florist, 14, Abbey Church Yard, Bath, Somerset.

AMERICAN NURSERY.

GEORGE BAKER'S DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, &c., as exhibited by him in the Royal Botanic Gardens, Regent's Park, may be had by inclosing two postage stamps.

G. B. begs to call attention to his fine stock of Weeping Hollies, Coniferous Plants, Ornamental Shrubs, &c.—American Nursery, Windlesham, near Bagshot, Surrey, near Staines Station, South-Western Railway, where conveyances may be obtained.

AMERICAN PLANTS.

JOHN WATERER begs to announce that he has published a new Catalogue of his Rhododendrons, &c., as exhibited by him in the Gardens of the Royal Botanic Society, Regent's Park, London. It describes the colours of all the Rhododendrons considered worthy of cultivation, with a Treatise on their successful management, and may be had by enclosing two postage stamps.

The American Nursery, Bagshot, Surrey, near Farnborough Station, South-Western Railway.

AMERICAN PLANTS.—A Descriptive Priced CATALOGUE of HARDY AMERICAN PLANTS for the coming season is just published, and may be had by enclosing two stamps for postage. As everything in the way of American Plants is grown to an unequalled extent at this Nursery, intending purchasers would do well to provide themselves with this Catalogue.

WATERER AND GODFREY, Nephews and Successors to the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey.

W. DRUMMOND AND SONS' NEW DESCRIPTIVE CATALOGUE, containing select varieties only, of VEGETABLE and FLOWER SEEDS is now ready, and may be had post free on receipt of one postage stamp. This Catalogue will, at a glance, furnish the Gardener with all the necessary material for drawing out his Seed List correctly and without trouble. In reference to it the *Gardeners' Chronicle* remarks:—

"It is simple, short, and one of the best we have seen. They are pursuing the sensible course we have so often insisted upon for the sake of both buyer and seller;" and this opinion has been cordially responded to by all our old and many new customers.

W. Drummond & Sons' Seed and Implement Warehouse, Stirling.

GODFREY'S BLACK SPINE.

Splendid and Prolific Frame Cucumber.

WOOD AND INGRAM beg to offer seeds of the above beautiful variety. Colour, magnificent dark green, with a very fine bloom; average length, 18 to 21 inches, and produces in great abundance through an entire season. Packets, containing 12 seeds, 2s. 6d.; 6 ditto, 1s. 6d.

W. & I. will be happy to refer any persons wishing further information respecting the variety to three or four Noblemen and Gentlemens' Gardeners who have grown it, and prefer it to any other.

London Agents: Messrs. Hurst & M'Mullen, 6, Leadenhall Street.

W. & I. have also the following esteemed varieties to offer, in packets, 1s. each, containing 12 seeds:—

Sion House	Sagg's Royal Exhibition
Barnes's Fearnought	Conqueror of the West
Walker's Prolific	Improved Sion House
Constantine's Incomparable.	Manchester Hero.

Huntingdon Nurseries, January 27.

SPECIMEN IRISH YEWS.

THOMAS JACKSON AND SON, having a large Stock of fine specimens of this very ornamental tree, beg to offer them at the undernamed low prices.

8 to 9 feet high,	and 8 feet in circumference	...	63s.	0d.	each.
8 "	and 4 to 5 feet	" ...	21	0	"
7 to 8 "	and 4 feet	" ...	15	0	"
6 to 7 "	and 3 to 4 feet	" ...	10	6	"
6 "	and 3 feet	" ...	7	6	"

Handsome smaller specimens at proportionately lower prices. Kingston, Surrey.

VEGETABLE AND FLOWER SEEDS.

PETER LAWSON AND SON beg leave to intimate to their English customers and the public that they are prepared to supply from their London establishment assortments of GARDEN and FLOWER SEEDS of superior quality, comprising all the esteemed standard sorts and those recently introduced. They will be happy to send Catalogues on application.

P. L. & Son have also to intimate that they will shortly issue their LIST of AGRICULTURAL SEEDS, all of which have been carefully saved from the most select stocks.

Liberal arrangements will be made for the carriage of their seeds to all quarters.

PETER LAWSON AND SON,

Queen's Seedsmen, Wood Foresters, &c., for Scotland, and to the Highland and Agricultural Society, 27, Great George Street, Westminster, London.

VEGETABLE AND FLOWER SEEDS.

JAMES DICKSON AND SONS beg to intimate to their Patrons and the Public that, having now completed their stock of GARDEN and FLOWER SEEDS for this season, from the best growers and truest stocks, they are now prepared to send them out, making arrangements for carriage likely to meet the views of all parties who may favour them with their commands. Priced Catalogues may be had on application.

J. D. & Sons would also call attention to their AGRICULTURAL SEEDS, which have been carefully grown under their own inspection, from selected stock, priced lists of which will be ready shortly.—Nursery and Seed Warehouse, 32, South Hanover Street, Edinburgh.

GRASS SEEDS.

SUTTON'S GRASS SEEDS (Carriage Free). NATURAL GRASS SEEDS FOR PERMANENT PASTURES, separate or mixed, expressly to suit the soil.—Messrs. Sutton and Sons having for many years paid especial attention to the examination of Natural Pastures, and the collecting of the Grasses which thrive in the various soils of Great Britain and Ireland, are enabled to supply the sorts and quantities of Seeds, varied to suit the soil for which they are intended. The cost will vary from **24s.** to **30s.** per acre, according to the sorts and quantities the soil requires.

FINE LAWN GRASS SEEDS, for making New or improving Old Lawns, price **1s.** per pound, 2s. 6d. per gallon, or 20s. per bushel. For forming new Lawns, 2½ bushels, or 50 lbs., is the quantity required per acre.

FINE GRASS AND CLOVER SEEDS FOR IMPROVING OLD PASTURES (Sutton's Renovating Mixture). Quantity required per acre, 8 lbs. to 12 lbs. **price 9d.** per lb.

N.B. *It will be seen above that we have greatly reduced the prices of our Grass Seeds this season, especially the fine Lawn Seeds and "Sutton's Renovating Mixture" for improving Meadows and Pastures; and we doubt not that our liberal charges will induce a more general practice of sowing our superior kinds of Grass Seeds.*

Sutton & Sons, Seed Growers, Reading, Berks.

RENDLE'S COMPLETE COLLECTIONS OF KITCHEN GARDEN SEEDS *are now ready. They can be had to suit various sized Gardens at the following prices:—*

No. 1 COLLECTION	... ...	£3	0	0
" 2 "	... ...	2	0	0
" 3 "	... ...	1	5	0
" 4 "	... ...	0	15	0

The quantities are fully detailed in their "Price Current and Garden Directory," a new edition of which is just published.

William E. Rendle & Co., Seed Growers, Plymouth.
Established 68 Years.

MELVILLE'S HARDY SCOTCH BROCCOLI *will stand the most severe winter, and therefore invaluable.* 100 Seeds for 1s.

For full description, see "Rendle's Price Current and Garden Directory for 1855."

William E. Rendle & Co., Seed Merchants, Plymouth.

MELVILLE'S TREBLE CURLED GARNISHING BORECOLE.—*This is the choicest and most useful Vegetable for garnishing ever introduced, and should be grown in every garden.* 200 Seeds for 1s.

For description see "Rendle's Price Current and Garden Directory for 1855."

William E. Rendle & Co., Seed Merchants, Plymouth.

MELVILLE'S NEW INTERMEDIATE HYBRID CABBAGE.—*This is a valuable addition to our stock of Vegetables, and should be had by all who have gardens.* 200 Seeds for 1s.

For description see "Rendle's Price Current and Garden Directory for 1855."

William E. Rendle & Co., Seed Merchants, Plymouth.

NURSERY AND SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE AND CO., Seed Growers, beg most respectfully to invite the attention of the trade to their very superior Stocks of GARDEN AND AGRICULTURAL SEEDS, all of which have been carefully grown by themselves.—Catalogues of prices may be had on application.

TWO NEW CUCUMBERS—"SIR COLIN CAMPBELL" AND "GENERAL CANROBERT."—For the full Description of the above two unequalled Cucumbers, and the List of EDWARD TILEY'S Collection of Cucumbers and Melons, which have all been thoroughly proved, see Advertisement and Cut in the *Gardeners' Chronicle* of January 13, 1855.

Sir Colin Campbell	... ...	3s. 6d. per packet.
General Canrobert	... ...	3 6 "

A packet of either of the Melons mentioned in the former Advertisement will be given to the Purchaser of the above two Cucumbers. A remittance in cash or penny postage stamps must accompany every order, and the whole or any part (as the case may be) will be immediately forwarded.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somersetshire.

The Gardeners' Chronicle.

SATURDAY, JANUARY 27, 1855.

The following stereotyped paragraph, we suppose proceeding from the Treasury, has appeared in such of the morning papers as would insert it.

"The instructions to the surveyors (Messrs. J. Mathews, W. Murton, and W. Menzies), appointed by the Treasury to report on the royal forests maintained for the growth of navy timber, with their reports thereon, have been laid before parliament. After having delivered five separate reports, referring to questions which had arisen with respect to various details of management, the surveyors were directed to frame a general report regarding the condition, management, capabilities, and future prospects of the royal forests they had visited—viz., Alice Holt, Woolmer, Bere, Parkhurst, New Forest, Dean Forest, High Meadowwood, and Delamere. These forests contain altogether about 103,150 acres, but the surveyors consider that the beneficial interest of the Crown may be represented by about 30,000 acres of young plantations; and not only, they say, is the state of those plantations "such as to merit approval, but, having reference to their regularity, growth, and prospective ultimate development, they are not surpassed by any forest property in the kingdom." A calculation of their value leads the surveyors to the conclusion that they were 'a profitable and most advantageous investment of public money, though for the first period of their growth they appear to make but small return upon their original outlay.' The surveyors are of opinion that the present local management is carried on with skill and ability; they deprecate the system of thinning with reference to annual profit, instead of ultimate crop; and they also object strongly to the system upon which timber is now supplied to the Royal Navy, as that department 'should not be permitted to require more than the forests can supply consistently with a due consideration of their permanent welfare.' They express their belief that at the end of another century the navy will be mainly dependent upon these forests for its supply of timber; they point out the mistake which has been committed in taking so much large timber from the forests within the last few years, during a period when the price has been unusually low; and the report concludes with an observation on the importance of securing the services of intelligent and thoroughly experienced gentlemen to discharge the very onerous duties of deputy surveyors."

In order to determine the value of such a document as that of which the above professes to be

ESTABLISHED ABOUT HALF A CENTURY.

BASS AND BROWN'S NEW SEED LIST

IS NOW READY,

AND CONTAINS EVERYTHING WHICH CAN BE DESIRED OF THE CHOICEST, NEW, AND OTHER VEGETABLES.

Considerable attention is paid to grow only the finest sorts for sale, and our Collection is very select.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

The following, of the very best in cultivation, cannot fail to give the most complete satisfaction.

No. 1, Collection for a large garden, containing quantities sufficient for one year's supply	£3	0s.	0d.
No. 2, Collection in smaller proportion	2	0	0
No. 3, Collection in smaller proportion...	£1	5s.	0d.
Collection of good kinds for a small garden	0	15	0

A FEW CHOICE NEW VARIETIES OF PEAS.

EPPS'S LORD RAGLAN, or Improved Mammoth, producing 8 to 10 Peas in a pod, and allowed to be the finest in cultivation ... ... per quart 5s. 0d.

EPPS'S MONARCH, new tall marrow, and the largest sized Pea cultivated ... ... per quart 5 0

FAIRBEARD'S NEW NONPAREIL, a delicious new wrinkled marrow, of great produce and fine pods, a very rapid grower, coming in before the Champion of England 2 6

MEIN'S PARADISE, a most valuable early very large marrow Pea, pods large, long, and well filled, and fine flavour. This Pea, though very large, comes in immediately after the Warwick ... ... per quart 1s. 6d.

HAIR'S DEFIANCE, wrinkled marrow, fine do. 1 9

*** Sangster's No. 1, Daniel O'Rourke, Hair's Dwarf Mammoth, Early Emperor, or Fairbeard's Conqueror, Burbidge's Eclipse, Champion of England, and other best sorts.

The List of FLOWER SEEDS will also be found, as usual, very select. Goods Carriage free (not under 20s.) to all the London Termini, and all Stations on the London and Norwich Colchester Line.

SEED & HORTICULTURAL ESTABLISHMENT, SUDBURY, SUFFOLK.

the substance, it is indispensable to ascertain the competence of the parties from which it proceeds to report upon the matters referred to them. Who are Messrs. MATHEWS, MURTON, and MENZIES?—these new advisers of the Treasury. Upon that point we can learn very little. Nobody knows much about them. One is said to be or have been connected with railway transactions; another is, we are told, a Kentish timber dealer, or something of that kind; the third is a deputy surveyor in Windsor Forest. What their qualifications are for so difficult and responsible a duty as that of reporting on the Royal forests, for which not only great knowledge of foresting, but perfect independence of character is indispensable, we are not informed. Why they were selected in preference to men of high public character and unquestionable knowledge, such as Sir JOSEPH PAXTON or those he could have named, is an enigma. Why they have been employed to supersede Mr. CLUTTON is equally unexplained, though perhaps not unintelligible. Mr. CLUTTON, however much we may have felt it necessary to differ from him respecting his reports, is, at all events, well known as a gentleman of high professional standing and indisputable intelligence. It would have been useless to ask him to join in that intrigue which was contrived to ruin Mr. BROWN, in order that the Deputy-Surveyorship of Dean Forest might be once more at the disposal of some nameless personage in the Government. Tools of a different temper were required, and were found.

The reports before us consist mainly of assertions as to matters of fact, the value of which can only be ascertained by personal inspection of the forests. They are intended to contradict other assertions made by Mr. BROWN, which, nevertheless, they every now and then confirm. The aim of the reporters is to depreciate the recommendations made to Mr. KENNEDY, and to extol the management which compelled the late commissioner to look around him for the advice of a better man than any of the forest officers. We also find ourselves in a cloud of opinions and general statements, in which everything palpable or well defined, by which to judge of the real knowledge of the reporters, is carefully suppressed. At one or two points, however, they fortunately descend to particulars, and thus inadvertently furnish a scale by which their knowledge of what they have been employed to advise upon may be exactly measured. We shall presume to apply that scale, at the same time assuring our readers that the following passage is a literal extract from the report, the italics only being our own:—

"We believe that no difference of opinion now exists as to the mischief which inevitably follows the amputation of a living branch from an Oak, if the tree is destined to become timber; such practice does not now exist, and therefore it would be superfluous in us to express our condemnation of it; but the removal of decayed branches may reasonably form a subject of controversy. Dead branches are caused very frequently by injudicious thinning; but upon some uncongenial subsoils no process of thinning will protect the trees from this infirmity. Throughout the whole of the forest we found the greatest number of decayed branches upon the worst soils, and it is scarcely probable that these were the only portions which had been injudiciously thinned.

"When from *any cause* a branch dies, the decay usually commences at its extremity, and gradually approaches the main stem. The process is a slow one, *and the moment it begins, Nature sets to work to counteract the mischief.* When the sap wood of that part of the branch which adjoins the trunk begins to give way, the sap wood of the trunk closes tightly upon it, and continues to grow and press round it until the branch is altogether decayed. *It then quickly heals over, and the future growth of the tree covers altogether the base of the dead bough*, of which nothing more is seen until the tree is ultimately opened and the defective SPOT detected.

"If, however, you anticipate the gradual decomposition of a dead bough by cutting it off, *its base commence (sic) to decay*, and that more rapidly than the growth of the sap wood; *a hole for the reception of water is the consequence*, and an injury which the constitution of the tree cannot overcome. *We are decidedly of opinion that all trees should be left entirely to themselves, and no decayed branch removed on any pretence whatever.* If a tree is of so weakly a constitution that it cannot overcome the effects of decayed branches, it can never be worth growing, and should be taken down at once."

It would be difficult for any set of men to stultify themselves more than by putting their names to such a statement as this. It is certain that those who drew it up must be unacquainted with everything which a forester should know. The deputy-surveyors must themselves feel scandalised at being *patronised* by people capable of displaying such an incredible amount of ignorance. These gentlemen say that when trees become stag-headed from old age, "Nature sets to work to counteract the mischief;" they say further that when a branch dies, the sap wood of the trunk closes over it, and covers the base of the dead bough, so that nothing but a defective *spot* remains. They do not know what causes the faults in deal; it has never occurred to them that in this common timber the loose knots which tumble out (as at A) as soon as it becomes planks, are the consequences of the sap wood having closed over dead boughs, so that "nothing more is seen until the tree is ultimately opened." It would seem as if they thought it immaterial what the condition of timber is, provided the tree shows fair outside. Let us advise them to make some inquiries on this subject in Her Majesty's dockyards, of which, by the way, they seem to entertain a wholesome dread. Mr. BENNETT, the sensible and experienced timber inspector at Portsmouth, could, we suspect, enlighten their understandings. In the meanwhile, the example next represented may help to show them what the real effects are of leaving decayed branches on timber trees. It may possibly also throw light upon the future quality of the timber to be expected from the Royal forests, after they shall have been managed for a few years under the intelligent advice of the experienced *practical* gentlemen whom Mr. WILSON has introduced to the Treasury.

There was once a really great forester, JOHN SANDYS, of whom we suppose Messrs. MATHEWS, MURTON, and MENZIES, never heard. For their information we will acquaint them that it was he who created the magnificent forest property of the present Earl of LEICESTER. And what does SANDYS say about leaving dead branches upon living trees:—

"There is a method of pruning still practised by some persons, of leaving a foot or more of the branch on the tree *to die and rot off*, which if only an inch in diameter may take several years to accomplish, during which time the stem increases, *and when the stump falls down, a hole is left as deep as the tree has grown since the snagging, which hole must have time to fill up after the rotten branch is gone.* The *healing of the wound is consequently delayed, and the defect in the timber greater.* Instead of taking off a large branch by the stem, a great part of it may be cut off at a distance from it, leaving a small side branch to draw the sap and keep it alive, which is better than leaving a snag; but this method should seldom be practised, being only the result of former bad management."

There is a certain Sir JOSEPH PAXTON, of whom it is possible that the new Treasury agents have heard. Some think that he knows as much as most men about foresting; and what is his recorded opinion?

"All scientific planters," wrote Mr. PAXTON some years since, "agree as to the propriety of removing dead or decayed branches. Whenever dead branches are found on any tree, they cannot be too soon removed; and even Fir plantations, which when thickly planted are generally self-pruned, *will be improved* by having all the dead wood pruned off quite close to the stem."

In the University of Cambridge there is, and we trust long will be, a professor of Botany named HENSLOW. It chanced that some years since Lord BRAYBROOKE submitted to his examination a number of specimens of timber in which the branches had been allowed to die back. The result of that examination, now before us, was as follows:—

"In the specimens sent for my inspection, the fore-shortened branches were all in a *state of decay*, and where the experiment was pronounced complete, the stumps had become embedded in new wood which had closed over them, exactly as it does over the surface of the cut produced by close-pruning. Now the only difference between the two results appears to me to be this: that *in the close-pruning we have two clean surfaces, the one of the old and the other of the new wood*, brought into close contact; whilst in the case of the fore-shortened branch, *we have the decayed remains of a rotten stump surrounded by an irregular surface of the new wood.*"

So much for the common sense of Mr. WILSON's friends as regards pruning timber. Here is another bright example:—

"The plea has been, that much timber having arrived at maturity, was deteriorating in quality. This is no less a mistake. A tree which has flourished from two to three centuries and arrived at full maturity, *will suffer no material deterioration for another 40 or 50 years.*"

That is to say, it will not rot at the heart, nor become "short" nor "foxey," nor undergo any organic change which will reduce its value in the timber market. According to this doctrine the Larch does not begin to rot when the first symptoms of decay appear in its extremities; nor should it then be felled, for its getting more and more rotten every year causes "no material deterioration." According to Messrs. MENZIES, MURTON, and MATHEWS, a tree is none the worse for becoming stag-headed, and there is no chance of a break up of its tissues for 40 or 50 years. *A fortiori*, a tree that has died outright is as good for timber as one that is felled in its prime. Is this the sort of stuff that Messrs. MURTON and MATHEWS sell to their customers? We hope not. Is this the timber that Mr. MENZIES, himself a deputy surveyor, would send into the dockyards? We presume their recommendation is founded on the principle that what is good for trade is good for everything else. Bad timber soon perishes, and the workman who used it will soon have a new job in replacing what has decayed.

The more timber is old and exhausted, the further it is beyond its prime, the more it is subject to dry rot; and it is the timber which is most subject to dry rot that these new advisers of the Crown recommend should be purveyed for the navy. "Lorsqu'un arbre est couronné, plus il vieillit, moins il est propre aux ouvrages de construction; il faut donc l'abbattre pour en tirer parti, à moins qu'on ne veuille le conserver pour profiter de l'étendue de ses branches et de l'ombrage qu'elles procurent." So says a great and experienced continental writer, so says science, so says common sense. But that is not the opinion of Mr. WILSON's agents.

Surely it is a national disgrace that the great departments of the state should thus be at the mercy of men who have not enough knowledge of the commonest things to learn even how to select their agents. We see the consequences everywhere; our system is utterly rotten; everybody is taken

for exactly the duties he least understands, and the inevitable result is what we now see in that Crimean operation, which, notwithstanding the magnificent courage of our heroic troops, has become the pity of the French, the disgrace of ourselves, the derision of everybody else.

On a former occasion we called attention to some extraordinary instances of ignorance of the commonest facts of Natural History, which had appeared in certain articles of one of our leading reviews, in other respects by no means deficient in ability; and we did so because it indicated some radical defect in the education of a large and very important portion of the community. Another instance has just fallen under our notice, and as the same defect is indicated in a thousand directions, and if we may judge by the sneering though personally complimentary remarks of a medical journal of extensive circulation on the appointment of Mr. Busk and Dr. Hooker, as examiners by the Indian board, there is an indisposition in some quarters to mend matters, we are at least willing to record our own sentiments by the production of the passage, which we should not feel inclined to do if the utter want of knowledge of such subjects which it evidences was less glaring. Were we inclined to be hypercritical, two other passages* might be adduced from the same review, but the one in question is so marked, that it wants no corroboration. It occurs in an article entitled "the London Commissariat," which treats of the different sources from whence the alimentary wants of the metropolis are supplied. Speaking of Strawberries the reviewer says "Mr. Myatt, of Deptford, is the great grower; by judicious *grafting* he has produced from the old stock half-a-dozen different kinds, the most celebrated being the British Queen, which attains a prodigious size." Now, we are not disposed to deny the possibility of grafting one kind of Strawberry upon another, though the attempt might be attended by some formidable practical difficulties, but every one acquainted with the simplest principles of horticulture is aware that new varieties, except such an accidental case as that of the Laburnum, partaking of the twofold nature of Cytisus Laburnum and Cytisus purpureus, could not by any possibility arise from the process. Nor can we suppose that by a mere slip of the pen the word "grafting" has been written instead of crossing, because the word "stock" which follows depends upon the previous keyword. It is in point of fact most clearly a part of that educational deficiency which makes our upper classes so often the prey of every pretender to knowledge, and which leads to such disastrous issues in so many public undertakings, both at home and abroad. Self-interest indeed and a habit of jobbing are often concerned, but powerful as such influences may be there can be no doubt that the ignorance we speak of is their most efficient handmaid, and that in many cases better knowledge would render the probable result so notorious as to prove an effectual prevention.

New Plants.

III. Bolbophyllum lasianthum, *aliàs* Anisopetalum lasianthum, *De Vriese ic.* 249 *ined.*

B. (*bulbosum, repens, spiciforme, sarcanthum*) foliis latis oblongis coriaceis scapo valido laxè vaginato æqualibus, racemo pubescente, floribus carnosis, sepalis oblongo-lanceolatis acuminatis lateralibus longioribus setis piliformibus carnosis vestitis, petalis linearibus setaceo-acuminatis multò brevioribus, labello linguiformi angusto marginato basi crassissimo cristâ ovali foveatâ, columnæ angulis acutissimis integris.

The first knowledge we had of this remarkable plant was from a coloured drawing, from Sumatra, shown us by our learned friend Prof. de Vriese. It has now been examined in a living state, a specimen said to have come from Manilla having flowered with Mr. Loddiges. It is almost the largest species known, the leaves measuring fully 7 inches by 2, the scape being somewhat taller and the flowers nearly 2 inches long. The latter are dull purple, and copiously covered with long fleshy hair-pointed bristles. It evidently belongs to the group formed by *B. Careyanum, quadrisetum, setigerum, Khasyanum, nilgherrense, imbricatum, &c.*

VEGETABLE PATHOLOGY.—No. LVI.

251. Sterility.—*Accidental and Functional.*—We have hitherto considered those cases of sterility in which the malady is as far as can be ascertained wholly independent of outward causes, and due solely to some peculiarity of constitution, whether purely functional or inducing evident organic change. But sterility depends frequently on external causes, where there is no natural tendency in the plant to such a condition, and these when known are, under certain circumstances though by no means always, more or less within the control of the cultivator. The formation of fruit is the main end of vegetation, and requires a great exertion of force for its accomplishment. This is frequently so great, and the consumption of nutritive matter so complete, that life ceases in consequence of exhaustion with the perfection of the process. It can easily be understood therefore, that although a plant may flourish to a certain extent, and produce its annual crop of leaves, or even proceed to some imperfect transformation of them, outward circumstances of climate and situation may be such as to prevent the perfection of the fruit. This is the case with many exotic plants in our stoves, which rarely, if ever, produce anything more than foliage. In all such cases the skill of the cultivator which has at last produced promise of fruit in the Mangosteen, an instance apparently the most hopeless, will at length, in all probability, be crowned with success, wherever it may be thought necessary to make the necessary expenditure of time and labour, in addition to all those appliances which cannot be supplied without ample pecuniary resources. As regards mere acclimatisation, little can be done except by the production of new varieties more hardy than the original or more adapted to the peculiar state and order of the seasons.

252. One great difficulty, whether in cultivation in the stove or in the open air, is due to the impossibility of giving the same rest, whether arising from heat or cold or drought or moisture, which the plants possess in their own country. The want of this even in the absence of any climatic excess, which may be injurious to life, is often such as to preclude successful cultivation. Our northern fruit trees, for instance, when removed to tropical or subtropical climates are not able to endure the constant state of excitement to which they are exposed, and at the best produce a continued succession of leaves without fruit, while many of them are unable to linger through more than a very limited number of seasons.

253. The separation of the sexes in many species is a necessary cause of sterility where one sex only is in cultivation, as in the common Aucuba, the Weeping Willow, and some other less familiar instances, but even where both sexes are in cultivation, impregnation may not take place from the absence of proper insects which in the native country effect this process. The Vanilla, for instance, remained barren under cultivation till it was artificially impregnated by Professor Morren, and the process is now performed by many gardeners, the trouble being amply compensated by the value of the produce, which is quite equal, if not superior, to the best importation.

254. But sterility is often induced in the more common objects of cultivation by outward circumstances of various kinds. The floral organs are greatly altered or influenced by the nature and condition of the soil. Anything which induces a weak state of health or an imperfect assimilation of sap, leads directly to weakness of the reproductive process in plants.* Witness the infertility of badly drained orchards or fields, against which the most liberal cultivation in other respects is not able effectually to contend.

255. Excess of nourishment again will often produce sterility where there is no constitutional tendency to it. In this case rank shoots are produced, without the formation of flower-buds, and the flower-buds themselves when expanded do not perfect their pistils. Even without artificial manure, the supply of raw nutriment from the soil is so rapid as to produce the same effects, for fertility does not depend on the immediate supply of nutriment, but on matter already deposited.† The precise mode in which this is regulated will perhaps never be known; but in such cases experience shows that plants may be forced into fruit by root-pruning, or by confining the descending sap within certain limits by separation of the bark, the application of a ligature, or deflection of the branches, so as to subject them to the laws of gravity.‡

256. The parasitic growth of fungi again may produce sterility by appropriating that nutriment which was prepared for the purposes of fructification. It is seldom, indeed, except where organic mischief is induced, of which we shall have to speak presently, that the sterility is perfect. Where, however, mildew is prevalent, whether externally or internally, the fruit is always more or less affected, as the farmer knows to his cost by the effœte or dwindled produce of his crops.

257. Various external causes, as wind, rain, &c., may prevent the settling of the pollen on the stigma, or may wash it off before it has germinated. So long, however, as the stigmatic surface is uninjured, such accidents are not probably of much consequence. *M.J.B.*

RHODODENDRONS: GRAFTED OR NOT GRAFTED?

This is a question of considerable horticultural importance; the communications of "J. R." induce us to offer a few facts which may assist in solving it. A series of years devoted to the culture and propagation of the Rhododendron enable us to assert confidently that there is no species or variety in cultivation which might not be advantageously grafted upon the stock of another, always supposing that a suitable stock can be found. Many of the Sikkim Rhododendrons will succeed admirably, as we shall presently show, upon stocks of the common ponticum; while if grafted on those of hybrid catawbiense, they either fail altogether, or at best merely vegetate. On the contrary, most of the hybrids in cultivation grow well upon hybrid catawbiense, and more especially so if the hybrids so grafted are strongly crossed with catawbiense. They also succeed well on ponticum; and for dwarf plants, such as are grafted near the soil, the latter is largely and advantageously employed. For standards, however, ponticum stocks are not so well adapted, and for this reason: they are readily excited into growth in spring, and if, which is often the case, after being so excited, we have severe frosts, the bark, being full of sap, bursts by expansion, causing of course the death of both stock and graft. Stocks of hybrid catawbiense are not found to suffer in this way, consequently it is largely employed as standards to graft hybrids upon.

Your correspondent "J. R." thinks that maximum would be a good stock, grounding his theory upon the fact of the species being a large and robust grower. In practice it is found to be the worst of all stocks, and very few kinds will succeed upon it. Again, campanulatum will not grow on ponticum. It will certainly make a feeble union with the stock, but it merely vegetates, and never makes a creditable plant; while on hybrid catawbiense, it grows tolerably well; but as yet no stock has been found to suit it well. Among the Sikkim Rhododendrons, glaucum, cinnabarinum, and ciliatum may be named, for which a suitable stock has not been found; and while Dalhousiæ, Edgeworthi, and many others luxuriate on ponticum, they refuse to flourish on hybrid catawbiense.

Of the relative degree of luxuriance between grafted plants of the Sikkim Rhododendrons and others on their own roots, age and all other circumstances being equal, we subjoin a few examples:—From a number of seedlings of Dalhousiæ, four years old, a few were selected, cut down, and the shoots separated into single eyes, and grafted on ponticum stocks. In one year these grafts made shoots from 12 to 16 inches long, having leaves 6 inches long by 3 inches broad. The remaining seedlings are now not more than 14 inches high, though five years old, and in every way less luxuriant than the grafted plants. We have a very fine specimen of this plant five years, grafted on a 3 feet ponticum stem; the head is 2½ feet high by as much through, having six large flower buds. We need hardly say that a seedling of the same age, under the best treatment, would not bear comparison with this plant. When this one was grafted, 25 others were inserted on hybrid catawbiense stocks. There is now one alive, and that but a sorry specimen. Edgeworthi also grows rapidly on ponticum, yet it will scarcely live on hybrid catawbiense. A specimen four years grafted on the former has now 12 flower buds, and another nine. The shoots made last year on these plants are 15 inches long; while others on their own roots, and of the same age, make about 4 inches of wood in a season, and are in every way inferior, both as regards health and general appearance.

With the ordinary garden hybrids there is also the same advantage apparent, both as regards luxuriance of growth and precocity and abundance of flower of grafted plants over others on their own roots. We have now a batch of seedlings, four years old, the best of which are about 12 inches, having at most but two or three shoots—many of them only one. When these plants were one year old a number were selected from among them, from which the tops were taken off and grafted upon ponticum stocks. They are now from 12 to 22 inches high from the graft, and from 12 to 18 inches through the head, and many of them have from two to a dozen flower-buds. The seedlings have not a single bud among them. Some of the other objections raised by "J. R." we shall allude to in another article. *Standish & Noble.*

COMMON THINGS.

Early Peas.—The following mode of producing these has been practised with success. Cut turves 2 or 3 inches in breadth and 18 inches in length, turn them upside down, make a small mark lengthwise in the turf sufficient to hold one row of Peas. Place them on a hotbed or in a pit with a little heat, then sow the Peas. Two ordinary lights will hold about 50 yards. Sow about the 1st of next month, and plant out on the first favourable opportunity in March.

Composition for Fruit Trees.—The subjoined has been found of use in protecting the buds of Gooseberries from the ravages of birds in the winter and spring months, as well as an effectual remedy for clearing the bark of fruit trees generally from Moss, Lichen, and the larvæ of insects:—Take hot lime and soot in equal quantities; add cow's urine until the mixture has attained the consistency of thick paint. Paint the trees regularly over with the ingredients thus prepared, and the result will be not only a beautifully clean and clear bark, but an increased vigour will also be perceptible in the growth of those trees to which the mixture has been applied.

Propagation of Tropæolum tricolorum.—The simplest mode of doing this is to take off the weak laterals that are not likely to flower, when about 2 inches long; if with a heel so much the better. Any time from

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* The two passages in question are contained in p. 295 of the review.

* It is well known that in some conditions of the animal system which tend to ultimate death, as in persons of a strumous habit, there is an increased productiveness, but that when those peculiar functions cease death ensues very rapidly. Something similar or rather something analogous obtains in fruit trees subject to gumming. They are often peculiarly productive just before dissolution. A large crop is formed and perhaps ripens, and vitality is exhausted by the effort, the small connecting thread of living tissue being unable to keep up the necessary supply.

† Many fruit trees bear only every alternate year, an interval of rest being requisite for the deposition of new fruit-producing matter.

‡ Sterility may arise from a precisely contrary cause, viz., the over-production of flowers, the strength of the plant being so exhausted as to prevent fertilisation. This case, however, will come as a consequence under another head.

February till May fill the pot half full of crocks, then with a mixture of peat and sand till within 2 inches of the top; fill up with silver sand, and water with a fine rose to settle it. Then dibble in the cuttings all round, within 1 inch of the rim, leaving about half an inch of the cutting above the sand. Place the pot on a shelf in the front of the greenhouse; keep the sand constantly moist, taking care that the cuttings are always erect. In the course of two months many of them will throw up shoots from under the sand. The pot should then be removed to a shady situation out of doors. When the stems decay, do not disturb the sand, but water sparingly. In October let them be placed in the greenhouse, when all that have made small tubers will grow. It is from these plants that the best cuttings are obtained in the spring. In the following May turn the whole ball out of the pot in a warm situation in the open ground. After they have finished growth take them up and sift the ball through a fine sieve, carefully picking out the tubers. They are then treated in all respects as the older tubers, and will make fine flowering plants the following spring. If seeds are used they should be soaked in water 24 hours before sowing, and the outer shell carefully removed; under this treatment they will grow much sooner and with greater certainty. They should remain in the seed pot until after they have formed a tuber. A small stick can be placed against each plant, to which it will climb, and it serves to indicate the place of the tuber when the stem is dead. Many seeds will remain 12 months before vegetating.

Wood-lice.—By the following simple method, frames and pits might be kept comparatively free from these intruders; at all events, they might be so far subdued as not to be injurious to plants. Put a cold boiled or roasted Potato into a small flower-pot; cover the Potato with Moss, leaving a little hanging out of the pot by way of enticing the insects to enter; then lay the pot on its side in a corner of the frame. Wood-lice feed in darkness, and at the approach of day they retire to their hiding places in cracks and crevices, or amongst the loose soil or bark; the Moss is therefore necessary to induce them to remain in the pot, to which they will flock in hundreds after having once tasted the Potato. Every morning the pots should be taken out of the pits and the wood-lice destroyed; the same bait will serve for a week or longer. If properly attended to, half-a-dozen pots so prepared will soon clear a frame of these troublesome pests. A toad or two is also of great service in thinning their numbers.

CHOICE OF PEAR SEEDS, THEIR PRESERVATION, AND TIME OF SOWING.

THE essential properties of a new variety of Pear exist in a rudimentary state in the seed. Time and favourable circumstances will develope the embryo plant, but cannot change its specific nature. Its existence dates from the time that the pistil is fertilised by the pollen before or after the opening of the corolla. In dissecting a flower before the corolla is open the anthers are found close to the stigma, and at the base of the style the rudiments of the ovaries may be observed. Does fertilisation take place before the opening of the corolla, or more probably not till after the solar rays have produced certain effects on the organs of fructification! Are the anthers of the same flower sufficient for the fertilisation of the pistillum without the assistance of other flowers, or perhaps the flowers of other trees, the pollen of which may be deposited by bees or flies!

The minute examination of these questions is of importance, and will lead to a knowledge of the mode in which artificial fecundation may be effected in certain circumstances, and of the precautions necessary to be taken. Perhaps in this way more certain results may be obtained in regard to obtaining long-keeping varieties, an endeavour which ought to receive the particular attention of those who engage in raising varieties of fruit from seed.

Seedling varieties of Pears vary infinitely in successive generations. This truth is being continually proved by ocular demonstration. There is another principle connected with the above, which is, the more a type has entered into a state of variation, the greater is its tendency to continue doing so, and the more it has varied from the original type, the more it is disposed to vary still farther.

Certain latitudes and influences of climate are doubtless more favourable than others for obtaining good results as regards the Pear and other fruit trees; but the investigation of these would lead us too far from the principal subject.

It is rare to see two identical varieties produced from seed of the same variety. It is even a well-established fact that the seeds taken from the same fruit produce varieties so distinct in wood, leaves, and fruit that no resemblance to their common origin can be traced. This fact proves to a certain extent that the bees and flies play an important part in the fertilisation of the pistil. It is therefore important, that in a garden where experiments in raising new sorts are carried on, no varieties should exist except those that are of first-rate quality; and that the collection should be as far distant as possible from any bad varieties. It may be supposed that when the bees fly to a distance, the pollen is detached from their legs by the action of the air; therefore we must attribute the complete fertilisation of the flowers of a tree to the pollen of adjoining trees that are visited by bees and flies. The consideration of these circumstances ought not to be omitted. Moreover it is essential to have only vigorous trees, on the Pear stock, obtained from the latest generation of improved seedlings.

A limited number of fruit should only be left on the tree, from which seedlings are intended to be raised, in order that the fruit may acquire its natural size and perfection. When gathered, the finest should be selected from spurs on the most vigorous part of the tree. The fruit should be kept in a suitable place till it becomes quite ripe.

In cutting the fruit care should be taken not to injure the seeds, of which three, four, or five may be found, perfectly matured, in the cells. Whether the seed is roundish, flat, oval, or oblong, or whether its colour is black or nut-brown, provided it has a well-fed pulp, it may be considered fertile and ought to produce a plant, if preserved with care and sown at the proper season.

When taken out of the cells, the seeds should be put in a small jar, half filled with dry sand, with which the seeds should be mixed. The jar should be placed in the dark, where the seeds can neither dry nor rot. After remaining in this situation for a month or two, the seeds should be taken out and put in papers, each sort separately, marking the name or number of the variety of fruit from which the seeds were taken, together with the date of the ripening of the fruits. These directions, it will be understood, are necessary, in order that amongst the seedlings raised the preference may be given in planting to those likely to prove the best. The seed is collected from the middle of autumn till the end of spring; and by keeping it in the way above-mentioned the skin of the seed will acquire a consistence, and the kernel a firmness that will enable it to vegetate with greater vigour when committed to the soil, in the open air. I have seen Pear seeds sown in garden pots, in wooden boxes, and on gentle hotbed; but from many years' experience I have found that it is preferable to sow the seeds in the open ground. They grow in the latter during the first year with the proper degree of vigour, and make a substantial growth. In September, a part of the garden is chosen which is not infested by any kind of insect. The ground is dug deeply but not manured. It is carefully cleaned from all weeds, and at the same time the soil is made as fine as possible. About the end of the month drills are made 2 feet apart and about 2 inches deep. After the bottoms of the drills have been levelled a thin layer of wood ashes is sown in them. The seeds, preserved since the winter or spring, are steeped in a solution of sulphate of lime, and placed about 2 inches apart in the drills. A strong Oak stake is driven into the ground to mark where each sort is sown; a piece of lead is nailed on the stake and stamped with the letter S, and the number of the variety sown. Before covering the seeds, they should be pressed on the flat side or on the edge with the finger, in order that the radicle may strike directly downward, and the plumule spring upwards without proceeding first in a horizontal direction and then forming a curve at the base of the stem, which would be the case if the seeds were not properly placed. All the drills are successively covered in the same way. During the winter and spring some parings of turf should be scattered over the surface of the ground, in order to afford nourishment to the worms and prevent them from attacking the seedlings, the seed leaves of which will appear above ground towards the end of the following March. *J. de Jonghe, Brussels, Jan.* 14.

Home Correspondence.

Nurserymens' Catalogues.—It is a great pity that no plan can be hit upon for securing correctness and uniformity in the catalogues of the leading flower seedsmen; as to the smaller fry, it is perhaps too much to expect from them any attention to such matters. I subjoin a few specimens of the confusion that prevails, selected almost at random from the lists of the present year. Perhaps you would take the trouble to determine which is the correct description.

		JAMES CARTER.	J. VEITCH, JUN.	FLANAGAN & SON.	RENDLE & CO.
Campanula Vidali	Colour.	*Blue.*	.....	.....	White spotted.
Collinsia bartsiæfolia ...	Ditto	Purple.	*Pink and White.*	.....	.....
Cuphea platycentra ...	Do. & duration.	Red & yellow *Biennial.*	Scarlet. Hf.-hardy perennial.	.....	*Scarlet and white.*
Cuphea silenoides	Ditto & ditto.	Flesh. *Half-hardy annual.*	Crimson and yellow. Hf.-hardy perennial.	Brown & yellow. *Hf.-hardy annual.*	Yellow and red.
[All wrong. Should be *crimson and lilac.*]					
Lupinus Hartwegi	Colour.	*Blue and Pink.*	*Blue and white.*	.....	.....

A. C., Chelmsford. [We have printed in italics the descriptions nearest the truth.]

Sweet-scented Camellia.—I should be glad to hear if any of your correspondents have in their possession or have seen a sweet-scented Camellia. I have one (a young plant) which I purchased last year when in bud. When the flowers expanded I discovered their sweetness, which resembles a very delicate Hyacinth; but for fear I might be mistaken, I had several friends who equally smelt the sweetness of the flower. A gardener in this neighbourhood, who heard of it, asked me for some cuttings; but as the plant was small, I refused to give them. And he then said, "Oh! it is only a freak of Nature; it will never be sweet again." However, it is now in bloom in my conservatory, and is quite as sweet as it was last year. I have no flowers in bloom in my conservatory but Camellias, and therefore there can be no confusion of scents to deceive me. *Violet.*

Soil for Rhododendrons.—I am astonished at Mr. John Waterer's statement (see p. 804, 1854) that Rhododendrons, &c., will grow in any ordinary garden soil, or where leaf-mould or other rich vegetable soils are in abundance. When gardener to the late P. C. Labouchere, Esq., of Hylands, Essex, I grew them with success in strong adhesive yellow clay with a spadeful or two of peat to start with, and I believe that there is hardly a county in England in which Rhododendrons are not to be found growing and increasing naturally in loam; nevertheless this does not confirm Mr. Waterer's assertion. If Mr. W. will call on me I will show him, not 100 miles from Buckingham, a rather costly experiment carried out about three years ago on the principles he promulgates, the result of which is that the plants, struggling on in what came with them, are dying a slow but sure death, furnishing a miserable substitute for a very fine orchard of fruit trees, which would have done a Knight's or a Rivers's heart good to have seen. These were cleared away by the advice of a celebrated landscape gardener, who, if deserving of the name, ought to have known better. I believe that Rhododendrons have been tried here long before my predecessor's time, Capability Brown, in leaf-mould, bog earth, &c., without success; for when I came in 1839 there was not a plant in a healthy growing state in the grounds. As the Duke of Buckingham was very anxious to get them to grow, I tried several samples of soils in the neighbourhood for them, and amongst them I found at least 500 acres of land within 2 miles of Stowe, in which they will grow as well, if not better than in the justly celebrated nurseries at Bagshot, in Surrey. I would, therefore, strongly advise admirers of this truly magnificent class of plants before they attempt to plant them extensively to collect a small portion of the various soils in their immediate neighbourhoods, to add a portion of leaf-mould and other vegetable soil to each, and what is also good cow's manure, as it is difficult to ascertain what they will or will not grow in without a trial. I trust, therefore, that this hint may induce many to grow them who have never before attempted their cultivation, and that the assertions I have just made are facts I have ocular proof to show. *David Ferguson, Stowe, Buckinghamshire.*

Holcus saccharatus.—In No. 52, 1854, attention has been drawn to a novelty of the year, in the shape of a tall reedy Grass, called Holcus saccharatus, of whose economical virtue I find that great expectations are raised. Such being the case, permit me to observe that much valuable information respecting this plant may be obtained from some of your readers in Western India, particularly from the Deccan sportsmen and officers, who use it largely, under the name of Jowaree, in preference to the coarse Grass or hay obtainable there, in feeding their hunters and chargers, which thrive well upon it—so much so, indeed, that when sent to the coast for racing purposes a supply of it invariably accompanies them. I have great doubts, however, whether this Holcus contains a sufficient quantity of saccharine matter to be converted economically into sugar, even on the spot where the plants attain their full perfection, for surely in such case Dr. White in his valuable "Materia Medica of Hindostan" would have noticed it, or we should have heard of it otherwise. The seed is used for food by natives too poor, I believe, to purchase Rice, and can be procured in India in any quantity. *B. N., Chichester.* [The French expressly state that there are doubts about the Chinese Holcus being the same as the Indian one.]

White Blackberry.—On January the 3d, 1852, a flourish of trumpets announced Mr. Needham's white Blackberries as a valuable addition to our rubaceous fruits. Having no white blackbirds hereabouts to eat them, I was in hopes they would fare better than my Raspberries. By January, 1855, this ought no longer to be a very rare plant: but I hear nothing more of it, and nowhere see it offered for sale. Pray report progress. *A. H.* [*We* have nothing to report, except that the plants sent to the Horticultural Society died. If any of our readers possess information respecting the plant we should be obliged by receiving it.]

Mr. Carton and his Family.—It will be gratifying to the benevolent individuals who contributed the money to enable Mr. Carton and his family to emigrate to Australia two years ago, to know that he has not only safely arrived there but that he has found profitable employment in gardening. A gentleman has come to this country lately who had actually employed Mr. Carton as his gardener at the rate of 7*l.* a week. I hear also that his daughter is married. We may therefore hope that all things will now go well with him. *A. Forsyth, St. Mary's Church.*

Datura ceratocaulon.—For the information of your correspondent who says he has great difficulty in raising this plant from seeds, allow me to state that, if the latter are sound and good, they will vegetate readily, if sown in a pot and plunged in a moist bottom-heat, or if sown on a hotbed and treated in the same way as other tender annuals. It must be borne in mind that this plant is a native of Cuba, and will therefore only live in the open air with us during the hottest part of our summer and autumn months. Although the

flowers are large and handsome, the plant itself has a coarse weedy appearance, on which account it is not much esteemed or generally cultivated. A good figure of it is given in Jacquin's "Hortus Schoenbrunensis," vol. 3, t. 339, published in 1798; but it was not until 1805 that it was introduced through Spain into our gardens. It is figured and described in the "Botanical Register," t. 1031, and "Botanical Magazine," t. 3352. *W. B. B.*

The Fluke Potato.—In shape this Potato is an oblong oval. Its surface is even, rather flat than otherwise; the length and diameter in a true specimen being about the proportions of 6 × 4 × 2½. When dressed for the table it is dry and floury, and of first-rate flavour. Buyers, however, must take care that they get the true kind; for there are many good likenesses of the Fluke in the market, and which are sold for it. Those, however, who have seen the Fluke once—especially when growing—will never mistake any other variety for it. The leaves are very dark green, the stems robust and erect, until they attain the height of 18 inches, when they begin to fall abroad, and grow to the length of 2 or 3 feet. When the stems first appear they are almost black; but as they progress in growth they gradually change to a dark green. This variety should not be planted at a less distance apart than 2 feet betwixt the rows, and 1 foot in the row. If planted closer the produce will be small though abundant, and much deteriorated in quality. That is the distance for ordinary cultivation, and if the soil is a rich light loam, 1 sack of 2 cwt. to the rod may be safely calculated upon. Several growers in this neighbourhood have realised this produce in good garden ground, all sound and good, and 95 per cent. large and fit for table. As regards size of tuber, the ordinary produce is from 9 to 3 in. in length, with the proportion before given. The Potato disease has but little influence on the Fluke. Those planted in February of last year, in this locality, showed no symptoms of attack throughout the growing season, while Regents, Prolifics, Forty-folds, Champions, Cups, &c., were all cut down in June and July, and the tubers were much diseased. The Flukes, on the contrary, remained green and healthy until September, and the tubers, with very trifling exceptions, were perfectly ripened and sound. Indeed, the fact is all but universally acknowledged that no Potato resists the disease like the Fluke. *G. Dickson, Lawrence Hill, Bristol.*

Societies.

Linnean, *Jan.* 17.—The President in the chair. The following papers were read:—1. Extract from a letter addressed by Rev. W. H. Hawker to the President, relating to the discovery of several new localities for some rare Ferns and shells. Mr. Hawker writes as follows:—"Last year I paid a visit to the English lakes, and had the good fortune to find Polystichum lonchitis growing near Ulleswater. I brought away one plant, and sent a frond to Newman, who, however does not mention it in his new edition. This year, in July, I went to the lakes again, and had the pleasure of confirming the above discovery; and, moreover, on my mentioning it to other collectors up there, a search was instituted, which has resulted in its turning up in several new localities in that district, *e.g.*, Helvellyn, Fairfield, &c. This Fern has never before been found in the lake country, I believe. Whilst up there this year, I went a few days' botanising ramble with Mr. Clowes, of Windermere, and on one of these days whilst clambering on a terrific precipice, I had the delight to find Asplenium septentrionale growing in quantity, and right amongst them I found two plants of Asplenium germanicum! A guide was with me, who found close by Woodsia ilvensis, growing in some quantity—three good things, were they not, to be growing on a spot only a few yards square? It was on an outcrop of the iron ore, which seems to me always to be a good matrix for Ferns. This took place not many miles from Scawfell, though not on it. It was of course plain that the locality had never before been visited by a botanist. Mr. Clowes found Euphorbia Cyparissias growing on Whitbarrow fells in great quantity. I have gathered it on the mountain limestone of Somersetshire, near Wells, and should think it will prove to be a true native. * * Last September and October I took a rapid run on the continent, up the Rhine, &c. The season was late; flowers were mostly over, and deciduous Ferns killed down, so that on the Alps I did not gather Woodsia alpina as I wished. I found on the Jura in one spot my dear Asplenium fontanum. In the Pine forests of the Alps and Jura Polystichum lonchitis grows in the most wonderful luxuriance. I have dried some fronds 22 inches long. Its appearance is quite beautiful. Asplenium septentrionale, too, abounded on alpine rocks." 2. A letter addressed to the Secretary by John Hogg, Esq., on the subject of the Tunny stranded in September last at Tees Bay, and noticed by him at a former meeting. Mr. Hogg has ascertained that the fish was really a Tunny, and of very large size. 3. Extract from a memoir "on the origin and development of vessels in monocotyledonous and dicotyledonous plants," by Dr. F. F. Allemão, of Rio de Janeiro, translated and communicated by J. Miers, Esq. In a note to this paper the translator observes that Dr. Allemão, in making his observations, was desirous of testing the validity of the theory first suggested by Du Petit Thouars, and more recently modified and supported by Gaudichaud, which contends, contrary to the views of Mirbel and other eminent physiological botanists, that all woody fibres of the stem proceed from the nascent leaf-buds, and thence descend to the radicular extremity of plants. Dr. Allemão states that his observations in no way tend to support this theory. 4. Memoir on "new species of Proteaceæ," by Dr. Meisner. In the remarks prefatory to the technical descriptions which formed the bulk of this paper, Dr. Meisner remarks that since the publication of Brown's Prodromus in 1810, upwards of 400 new species have been added to the 204 Australasian species of that work, namely 163 by Dr. Brown, 48 by Dr. Lindley, and 195 by himself. The number of new species described or noticed in this paper was 66, including 12 of which characters drawn up from specimens in the Society's Herbarium had been forwarded to the author by Mr. Kippist, the Society's Librarian.

Notices of Books.

Knowledge is Power, a View of the Productive Forces of Modern Society, and the results of Labour, Capital, and Skill. By Charles Knight. London. Murray. Fcp. 8vo., pp. 436 (*7s. 6d.*)

The object of this volume is mainly to present unlearned persons with illustrations of the great principles of political economy. The author has not attempted to do this in a formal and systematical manner, which might be repulsive rather than attractive, but he has endeavoured to convey a knowledge of the fundamental laws of social progress, by adducing examples illustrative of the circumstances under which it has and has not been made.

"Without attempting to give this volume the formal shape of a treatise on Political Economy, it is the wish of the author to convey the broad parts of his subject in a somewhat desultory manner, but one which is not altogether devoid of logical arrangement. He desires especially to be understood by the *young;* for upon their right appreciation of the principles which govern society will depend much of the security and happiness of our own and the coming time. The danger of our present period of transition is, that theory should expect too much, and that practice should do too little, in the amelioration of the condition of the people."

Young persons and those who, although not young in years, are little advanced in knowledge, are too apt to regard a study of these matters as dry, uninteresting, and to them, at least, unprofitable. The sooner such an opinion ceases to be current the better, for, as has been most truly observed, "it is only in the ignorance of the people and their consequent mental imbecility that governments or demagogues can find the means of mischief;" and if there be one study which more than another is calculated to free the mind from pernicious error, that subject is undeniably what is ordinarily called political economy. Any work therefore which is calculated to dispel the notion that political economy is dry and uninteresting, and which, whilst it impresses the great truths of the science upon the minds of the young, engages their attention and induces them to read on, is certainly a boon to society. Such a work is the one now before us. It is not altogether a new production, but is a combination and expansion of two little works by the same author, viz., "The Results of Machinery" and "Capital and Labour," which have both enjoyed more than ordinary popularity. As an example of the manner in which the subject is treated, we extract a paragraph on "making good for trade:"—

"When a mob amused themselves by breaking windows, as was once a common recreation on an illumination night, by way of showing the amount of popular intelligence, some were apt to say they have "made good for trade." Is it not evident that the capital which was represented by the unbroken windows was really so much destroyed of the national riches when the windows were broken?—for if the windows had remained unbroken, the capital would have remained to stimulate the production of some new object of utility. The glaziers, indeed, replaced the windows; but there having been a destruction of windows, there must have been a necessary retrenchment in some other outlay, that would have afforded benefit to the consumer. Doubtless, when the glazier is called into activity by a mob breaking windows, some other trade suffers; for the man who has to pay for the broken windows must retrench somewhere, and, if he has less to lay out, some other person has less to lay out. The glass-maker, probably, makes more glass at the moment; but he does so to exchange with the capital that would otherwise have gone to the maker of clothes or of furniture: and, there being an absolute destruction of the funds for the maintenance of labour, by an unnecessary destruction of what former labour has produced, trade generally is injured to the extent of the destruction. Some now say that a fire makes good for trade. The only difference of evil between the fire which destroys a house, and the mob which breaks the windows, is, that the fire absorbs capital for the maintenance of trade, or labour, in the proportion of a hundred to one when compared with the mob. Some say that war makes good for trade. The only difference of pecuniary evil (the moral evils admit of no comparison) between the fire and the war is, that the war absorbs capital for the maintenance of trade, or labour, in the proportion of a million to a hundred when compared with the fire. If the incessant energy of production were constantly repressed by mobs, and fires, and wars, the end would be that consumption would altogether exceed production; and that then the producers and the consumers would both be starved into wiser courses, and perceive that nothing makes good for trade but profitable industry and judicious expenditure. Prodigality devotes itself too much to the satisfaction of present wants: avarice postpones too much the present wants to the possible wants of the future. Real economy is the happy measure between the two extremes; and that only 'makes good for trade,' because, while it carries on a steady demand for industry, it accumulates a portion of the production of a country to stimulate new production. That judicious expenditure consists in

"'The sense to value riches, with the art
T' enjoy them.'"

The work is profusely illustrated with prints of machines, &c., and is well adapted for the instruction and improvement of the intelligent of either sex.

Ainsworth and Yeats; a Treatise on the Elements of Algebra. (Ingram.) This is a book of rules and examples useful enough to an ordinary schoolmaster, but scarcely adapted to the wants of those who desire to learn something more than the routine of working problems. As a companion, however, to such a work as Professor De Morgan's Elements of Algebra, the present volume may be found useful, owing to the great quantity of exercises (with their answers) given in it.

Garden Memoranda.

Messrs. Jacksons' Nursery, Kingston.—The show-house here is at present gay with Hyacinths, double Van Thol Tulips, Chinese Primroses, winter flowering Heaths, Camellias, Red Indian Daphnes, which quite scent the whole house with their delightful perfume, and the cheerful yellow flowered Jasminum nudiflorum. The latter is a most valuable shrub for winter decoration, as it requires little or no forcing to bring it into flower; and its blossoms, which are produced in great abundance, last a long time in perfection.

Between this and the other glass-houses is a straight walk, on either side of which are beds of Conifers, and among them we remarked one filled with thriving plants of Cephalotaxus adpressa, which has been proved to be perfectly hardy. Among other out-of-door plants we noticed a collection of the finer kinds of Rhododendrons in pots, all unusually well furnished with flower-buds, and in excellent condition for forcing.

To the left of this walk are two span-roofed Orchid houses filled with a well varied and excellent collection of these favourite plants. Among them the orange coloured Calanthe curculigoides was in flower, as were also Leptotes bicolor, several varieties of Lycaste Skinneri, the orange flowered Epidendrum vitellinum, the useful Barkeria Skinneri, the curious rather than beautiful greenish yellow Rodriguezia planifolia, and others. Among such as were not in bloom we noticed some thriving plants of the different kinds of Anguloa. These, it was stated, do best while growing to be kept constantly very moist at the root. There were also many fine specimens of Dendrobes, Trichopilia coccinea, which is found to succeed well in a comparatively cool house; Odontoglossum hastilabium, Insleayi, nebulosum and membranaceum, the last coming into flower; Oncidium bicallosum throwing up a strong flower spike, and a variety of Cattleya called sulphurina, which is reported to be even handsomer than C. citrina. A fine plant of Cattleya superba was just going out of bloom, and of the best variety of C. intermedia there was a large stock, as there was also of Barkeria spectabilis. Of the latter there were at least a hundred plants, all of them on blocks, hung up near the glass. Miltonia spectabilis succeeds uncommonly well here, being green and healthy, without any of that yellow colour which it generally has. Plants of Oncidium Papilio were numerous, as were also those of the useful Dendrobium formosum; Vanda Roxburghi grows strongly here, and there were numbers of thriving specimens of Aerides. Of the singular looking Uropedium Lindeni there were seven plants, together with other rare and valuable Orchids, which were intermixed with Ferns, Dracænas, Aphelandra Leopoldi, Marantas, and other plants remarkable for the beauty of their foliage, which serves to maintain a certain amount of gaiety at this dull season of the year. At one end of this house was a boxful of variegated Orchids, which were covered with long panes of glass laid loosely across the box, to which, by simply moving the panes, as much or as little air could be given as might be deemed desirable. In a damp corner Lycopodium stoloniferum was growing luxuriantly, and for such a situation few plants are more suitable or have a better appearance.

In a cool-house was a plant of Epiphyllum truncatum, quite 6 feet high, worked on Cereus speciosissimus. This rotted off at the root some two years ago; but on cutting the stem through just above the decayed part, and letting the cut surface touch the soil, it threw out healthy roots, and now the plant is as firmly established as ever it was, and has produced abundance of blossoms.

The Camellias and Azaleas in the different houses are well set with bloom, as are also the Rhododendrons, of which there are large numbers here, more especially of the Sikkim kinds. Among the latter were fine plants of Thomsoni and ciliatum; the latter, even the smallest of them, covered with flower-buds, and for spring decoration few plants are better adapted. Of yellow Rhododendrons there also promises to be a good display, the different varieties of aureum being well set with flower-buds.

In the Heath house some of the winter flowering species were in blossom, and others were full of bloom buds; with the latter depressa was unusually well

covered. In another house were quantities of seedling Heaths, consisting chiefly of triumphans crossed with other sorts.

Of Rhodoleia Championi we remarked some good plants, but as yet they have no appearance of blooming. Statice arborea, in the shape of healthy young plants, struck from cuttings, was plentiful; Crocuses in pots in heat were coming into flower. They are potted in November, and plunged in tan in a cool place, from which they are introduced into heat as they are wanted. Those in flower were Queen Victoria (white), and Sir Walter Scott (lilac striped), which is one of the largest Crocuses in cultivation. Hyacinths were also placed in heat, with a little moss thrown over them to keep their flower spikes from drawing. In the same house was a quantity of Duchess of Norfolk Rose grafted on the Manetti stock. The latter had been growing in pots, and were brought into heat and worked in the beginning of the present month. All the grafts appeared to have taken.

FLORICULTURE.

SEEDLING DAHLIAS.—The Dahlia is subject to vary so much in different situations and seasons, that great difficulty exists in gaining an accurate knowledge of the merits of each kind, especially of those which have been only seen for one season. The circumstances under which it is grown are also so various that unless you see the plant you cannot fairly judge the merits of the flower. A great deal of attention is requisite in order, if possible, to find out what particular culture a given plant has been subjected to; for example, whether the shoots have been much thinned, the flowers shaded, a great deal of manure given, or none at all, &c. All these circumstances should be inquired into, or how can we expect to get fine flowers from new kinds? The following facts with regard to new Dahlias should always be borne in mind before condemning them the second year. First, that the seedling plant is much debilitated by propagation, and therefore the flowers are rarely as good the second season as they are the first and third. This circumstance alone accounts, in a great measure, for the dissatisfaction expressed of late years concerning the merits of new Dahlias. Second, that the best flowers are obtained from those plants struck from the first cuttings produced by the mother plant, notwithstanding that they are seldom as strong as the cuttings that are afterwards produced. Third, that exciting the roots by means of a strong heat early in the spring, and striking the young plants on a strong dung bed tend to weaken the plants so treated to such a degree that they frequently require two or three seasons to recover and regain their original character. Thus it is found that good flowers are obtained with the least trouble from those plants kept in pots the first season after striking (termed by the trade pot roots), planted out the following season, and allowed to start of their own accord. Fourth, that in wet seasons manure is frequently very injurious, from its causing the plant to grow too luxuriantly, and thus to produce but few flowers; while in very dry seasons it is equally beneficial. Much more depends on a change of soil than on its composition and quality: with moderate attention good flowers may even be obtained from plants growing in brick-rubbish. Fifth, that water is a point which cannot be too much attended too; a great difference exists between hard and soft water, but still more depends on the manner in which it is applied, for one or two good waterings are much better than a small quantity given three or four times a week—which is but too common a practice among amateurs. And sixth, that taking up the roots immediately after a frost has destroyed the top is the principal cause of so many roots dying during the winter season. I would recommend the young Dahlia grower to remember these facts, which may not only be taken as rules for judging new Dahlias by, but may also save him the vexation and disappointment consequent on the production of bad flowers from new and expensive varieties. *E. B.*

HYACINTHS.—It may not be generally known that Hyacinths which are grown in water are essentially improved by a little water being poured upon the crown of the bulb after it begins to grow, increasing in quantity when the buds begin to open. The dry air of rooms deprives them of that moisture which nature affords them, either in rain or dew, to enable the flowers to expand freely; and if anybody tries the experiment in a room with a flower that disappoints his daily observation of its progress, he will find out the value of this simple application. *H.*

Miscellaneous.

Death of Mr. Joseph Myatt.—We have to record the death of this horticultural veteran, who expired on the 8th inst. in his 85th year. We need not say that he was *the* Myatt whose name has so long been celebrated as the great modern improver of the races of Strawberries and Rhubarb.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—The soil in beds and borders should be examined occasionally to some depth to see that it has not become too dry for the health of the plants, for although comparatively little water is required at this season by plants growing in beds and borders, they are sometimes allowed to suffer through dryness, and when the soil is once permitted to become excessively dry, it is a work of some difficulty to bring it into a healthy state again. When it is found necessary to water the beds choose a fine morning, and give enough to well moisten the soil, using chilled water, and be careful to guard against damp for a few days afterwards by giving air, or when this cannot be done, use sufficient fire-heat to secure a gentle circulation of the atmosphere. Go carefully over the plants every morning, and remove any decaying leaves or flowers as soon as they are perceptible, for no amount of floral display will render a house agreeable unless accompanied by cleanliness and neatness. And as soon as the beauty of any of the pot specimens is over remove them to suitable quarters elsewhere, and supply their places with others in full flower; and at this season, when the garden generally is so devoid of attraction, use every available means to render this house as gay as possible.

FLOWER GARDEN AND SHRUBBERIES.

WITH the exception of pruning or thinning, and wheeling, little can be done in these departments in the present state of the ground; but as wheeling can be more comfortably and expeditiously done than when the surface of the ground is soft, any of the beds that may require renewing should be seen to at once. And any of the shrubbery borders which may require a dressing of fresh soil or manure should also be attended to, but avoid digging ground when it is covered with even a thin coat of snow. Any new work that may be in hand involving the removal of a considerable bulk of soil, cutting walks, or anything which can be judiciously done now should be pushed forward as expeditiously as possible, in order to have the hands at liberty for the ordinary routine of spring work, which will soon be demanding attention. When the hands cannot be profitably employed at out-door work see to getting an ample stock of stakes made and painted; as also pegs, tallies, brooms, &c., and put aside ready for use when wanted. The preparation of these things is sometimes omitted until they are wanted for use, and then it is generally difficult to spare time for such tedious work, therefore see that there is a sufficient stock of all such things in readiness before the busy season arrives.

FORCING DEPARTMENT.

PINERIES.—The present state of the weather will necessitate the use of a considerable amount of fire-heat, particularly where a high temperature is being maintained with the view of inducing the plants to show fruit, and in the case of swelling fruit, see that a proportionate amount of atmospheric moisture is secured, for accommodating as the Pine must be admitted to be, it is by no means benefited by a warm parched state of the atmosphere; see that none of the stock is allowed to suffer for want of water at the root. For succession stock a temperature of 50° to 55° by means of fire-heat will be sufficiently high while sharp weather continues, but it should not be allowed to fall below 50°. VINERIES.—The early house will require very careful attention, and as the Vines will probably be in bloom, the night temperature must not be allowed to fall below 60°, and 70° should be secured during the day. Secure a sweet healthy state of the atmosphere by sprinkling the floors, &c. as may be necessary, and admit fresh air whenever this can be safely done. Also attend carefully to the border, and if fermenting material is used do not allow the heat to decline, and where this is not used see that the covering is efficient, and unless a waterproof covering is used remove the snow, and do not allow this as it thaws to sink into the covering, &c., abstracting what little warmth may remain in the border.

HARDY FRUIT AND KITCHEN GARDEN.

The pruning of large orchard trees is a matter which even at the present day is too frequently neglected, and the result is that the heads of the trees get so crowded with wood as to render a crop of fruit, except upon the extremities of the outer branches, not to be expected; and the thicket of worse than useless spray, which the trees have to support, is injurious both to the size and quality of the fruit, and also to the general health of the tree. Where this state of things has been allowed to prevail hitherto, advantage should be taken of the first opportunity of sparing time from other work to give the trees a careful pruning, thinning out the inner branches severely. In the case of large branches being cut off, the surface of the wound should be neatly trimmed off with a sharp tool, and covered with a coat of paint, to prevent the wet soaking into and rotting the wood. Prepare soil, &c., that may be wanted for planting young trees, and get it laid down where it will be needed. Also proceed with the pruning of fruit bushes, &c., when the weather admits, and get manure wheeled upon the ground ready for forking in. The present frost will be of great service in rendering the ground fit for wheeling upon, and no time should be lost in getting every spare bit of ground manured. The present will also be a favourable opportunity for getting fresh soil wheeled upon ground intended to be dressed with this, but digging or trenching should not be attempted while there is snow upon the ground. See to the protection of Lettuce, Cauliflower, &c., under glass, by guarding them from severe frost; but take every opportunity of exposing such things to light and air. Attend to keeping up a succession of French Beans, and use the syringe freely on those growing in the forcing houses, as they are particularly liable to the attacks of red spider, which, if once allowed to gain a footing in a house, soon spreads and becomes very troublesome. Also introduce roots of Asparagus, Seakale, and Rhubarb, into heat at regular intervals, so as to make sure of a constant supply. Rhubarb and Seakale do perfectly well on a shelf, or the floor of the Mushroom house, where they are probably less troublesome than elsewhere.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Jan. 25, 1865, as observed at the Horticultural Gardens.

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind.	Rain.
Friday 19	1	29.984	29.879	28	13	20.5	38	40	S.E.	.05
Satur. 20	2	29.839	29.702	31	18	24.5	37	39	N.E.	.20
Sunday 21	3	29.841	29.724	34	17	25.5	37	39	N.E.	.00
Mon. 22	4	29.803	29.762	35	18	26.5	37	39	S.W.	.10
Tues. 23	5	29.868	29.807	34	24	29.0	36½	39	N.	.05
Wed. 24	6	30.003	30.000	37	26	32.0	36½	39	N.E.	.00
Thurs. 25	7	30.023	29.991	38	23	30.5	37	39	N.W.	.11
Average.		29.914	29.838	33.8	19.8	26.9	37.0	39.1		.56

Jan. 19—Sharp frost; uniformly overcast; clear; severe frost.
— 20—Frosty; overcast; cloudy; snowing.
— 21—Ground covered with snow; sharp frost; hazy; severe frost.
— 22—Snowing; uniformly overcast; hazy; snowing.
— 23—Snow 2—3 inches deep; overcast.
— 24—Light clouds; partially overcast; slight thaw.
— 25—Cloudy; fine; overcast; thawing; frosty
Mean temperature of the week 11 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Feb. 3, 1865.

Jan. and Feb.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 28	44.9	31.6	38.3	16	0.17 in.	2	4	2	—	—	12	5	2
Mon. 29	45.5	32.3	38.9	12	0.32	4	4	—	1	2	9	3	4
Tues. 30	44.3	31.9	38.1	13	0.38	2	2	3	3	3	8	7	1
Wed. 31	44.5	31.8	38.2	14	0.32	3	4	1	2	9	5	3	1
Thurs. 1	42.4	32.0	37.2	12	0.52	5	5	1	2	3	7	3	4
Friday 2	44.2	30.8	37.5	11	0.78	2	6	3	3	2	7	4	2
Satur. 3	44.3	31.3	37.8	13	0.42	2	4	3	2	2	11	3	2

The highest temperature during the above period occurred on the 1st, 1852, and 3d, 1850—therm. 57 deg.; and the lowest on the 2d, 1831—therm. 13 deg.

Notices to Correspondents.

APRICOTS: *Constant Reader.* There are many Syrian Apricots, and the Kaisha is one of the best among them.

ASPARAGUS: *J A C.* Salt it about the middle of March, making the beds quite white, and again in July. ‡

BANKING ACCOUNTS: *Y Z.* Ask the bankers themselves or else your solicitor.

DISEASES: *J R.* We have seen many cases similar to those which you have forwarded, of decaying leaves of Ixora and Camellia. The leaf of Asplenium lucidum, for it is probably that species, appears to be similarly affected, but the spots on the Pteris are somewhat different. Such affections proceed, in all probability, from a state of atmosphere which impairs the vitality of the cells in different parts of the leaves, exposing them therefore to chemical decomposition, which is more or less rapid according to circumstances. If the state of the atmosphere be the cause, it is hopeless to look for any remedy. As regards Ferns, we have seldom seen any so healthy as in a house where manure water is occasionally sprinkled on the hot water pipes, but it is a practice which requires cautious watching.—*H W.* This seems to be a case very similar to the foregoing. In that, however, the condition of the roots was healthy. Examine the roots of your Luculia, and if they are right, consider whether there is any peculiarity about the atmosphere of your conservatory likely to induce disease. If the disease arises from any general cause, as appears to be the case in the instance stated above, the only thing is to wait with patience for more favourable circumstances.—*Pine Amateur.* We have seen an affection of Pines precisely similar to that of which you have forwarded a specimen, in consequence of streams of unwholesome air arising from the rank tan at particular spots, owing to some defect in the heating. As soon as the defect was remedied the plants recovered their healthy appearance. In the case to which we allude the points of issue of the foul air were evident enough, as everything with which it came in contact was stained. Without ocular inspection it is impossible to say whether or not some similar cause may have affected your plants. It is at any rate worth inquiry. The evil is in the specimen quite superficial, and we therefore hope your Pines will not suffer materially. *M. J. B.*

DURATION OF VEGETABLE LIFE: *G W N.* There cannot by any possibility be one word of truth in the statement. We should not believe that his lordship did not know that the Dahlia is a native of Mexico, if every-day experience did not tell us that the commonest things are those about which what are miscalled the educated classes know the least.

GOLDEN YEW: *Platanus.* All coniferous plants, and the Yew is one, are to be worked by herbaceous grafting; or, in many cases, cuttings slipped off with a heel, in August, strike readily in sand under a bell-glass. But no grafted Conifer is long-lived, unless it is worked on its own species. We have no belief that Libocedrus grafted on Thuja would have any permanent value. We presume that the collection you inquire after is that of Mr. Gambier Parry, of Highnam Court, near Gloucester.

HORTICULTURAL SOCIETY'S SCHEDULE: *W B.* Apply at the Society's rooms, 21, Regent Street.‡

NAMES OF FRUITS: *A B, Banbury.* Your Pear is the Beurré Rance.

NAMES OF PLANTS: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*T T.* Odontoglossum Bictonense, Warrea discolor, a Cattleya which looks like a withered specimen of gigantea, Maxillaria meleagris, and Oncidium Wentworthianum.—*Castletown.* We are sorry to see that your inquiry was accidentally mislaid. The leaf belongs to Eriobotrya japonica, a half hardy Japanese tree, called the Loquat, the fruit of which resembles a small Apricot. In Ireland it is hardy, but it will not fruit unless in a greenhouse, where it becomes a small tree.—*W C.* We do not remember; unusual plants, not in flower, cannot be named.—*A Learner.* We cannot undertake to name cryptogamic plants having no relation to gardening. They infest your trees because the ground is ill drained, and the trees out of health.

ROSARY: *A Sub.* We see no reason why you should not have it in some open space in a wood, provided the soil is good enough. A wall made of loose stones will do as well as one of faggots for a trellis-house; probably better, because it would harbour insects less. This inquiry has been accidentally overlooked.

VINES: *Vitis.* If you wish to make certain of a crop next season cut away half the old wood this year, and half the next.—*W.* We would prune on the spur system. Now is as good a time as any for performing the operation. ‡

WOOLLEN NETTING: *A L.* It is advertised in our last week's Number, p. 47, to which we beg to refer you.‡

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
WM. INGLIS CARNE, 10, Mark Lane, London.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch.
Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7l. per ton; Superphosphate of Lime, 7l.; Sulphuric Acid and Coprolites, 6l.
Office, 69, King William Street, City, London.
N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE LONDON MANURE COMPANY beg to call the attention of Agriculturists to their WHEAT and CLOVER MANURES for present use. The London Manure Company also offer Genuine Peruvian Guano, Nitrate of Soda, Concentrated Urate, Superphosphate of Lime, Fishery and other Salts, and all Artificial Manures of value. The London Manure Company guarantee Peruvian Guano and every Manure they supply to be strictly genuine. EDWARD PURSER, Sec.
Bridge Street, Blackfriars.

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The above manure is now ready for delivery. For Wheat, Barley, and all corn crops, 7l. 10s. per ton; Turnip and root crops, 6l. 10s. per ton; free delivered to any railway or vessel in London, and supplied direct from their works, on application to
ODAMS, PICKFORD, & KEEN,
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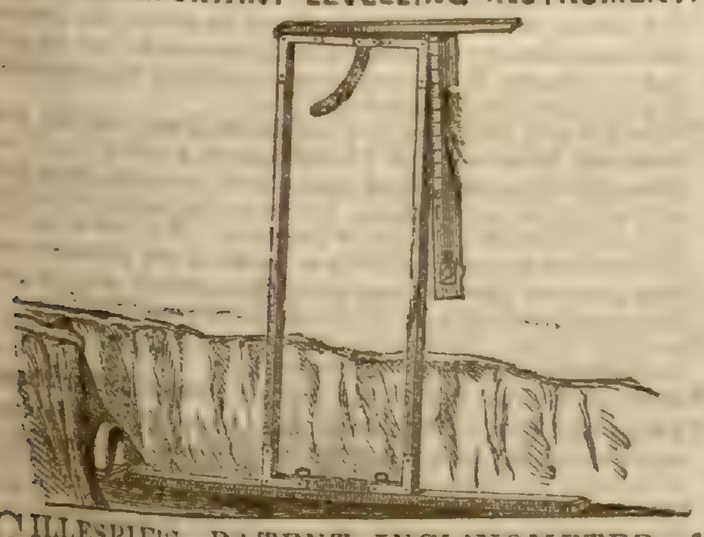
SEWAGE CHARCOAL MANURE.—This highly fertilising Manure, which is Peat Charcoal completely saturated with London Sewage, will be found most efficient for every species of crop; more especially for Peas, Beans, Turnips, Mangold Wurzel, and other root crops. It will produce a greater return for the outlay than Guano or any other Manure at an equivalent value: it also possesses the property of retaining its fertilising power longer than other Manures now in use. It may be obtained at the SEWAGE MANURE WORKS, Stanley Bridge, Fulham, at 4l. per ton, and in quantities less than half a ton, at 5s. per cwt., for ready money only; and in quantities not less than a ton, will be delivered at the London Termini of the Railroads free of charge for cartage. No charge for sacks.
It may also be had from Messrs. G. GIBBS & Co., 26, Down Street, Piccadilly, Agricultural Seedsmen, Agents for London; and from all the other Agents of the Company.

INGLIS AND CHISHOLM, Charles Street, Garratt, Manchester, make STEAM ENGINES for Agricultural and other purposes of the best quality at a reasonable price.—Address INGLIS & CHISHOLM, Charles Street, Garratt, Manchester.

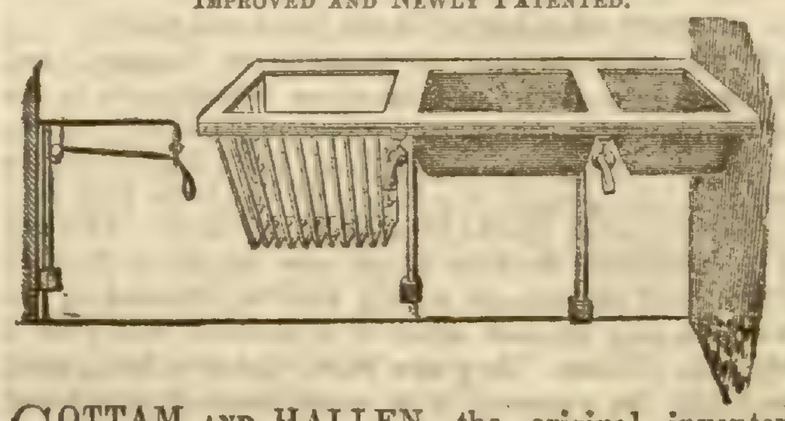
NEW AND IMPORTANT LEVELLING INSTRUMENT.



GILLESPIE'S PATENT INCLINOMETER, for Taking, Fixing, and Adjusting Surface Slopes of Lands, Earthen Embankments, Railway Gradients, &c., and the Dip, Outfall, or Rise of Drains, Water Courses, &c., and universally applicable to determine the plans and aid the execution of all levelling or sloping operations known in civil engineering.
PRICES:—Inclinometer, with mahogany frame and brass mounting ... ... £3 3s. 0d.
Do. with oak frame and wrought iron mounting 2 12 0
Light Telescope, 10s. 6d. extra.
TESTIMONIALS.
From Mr. James Gentles, Contractor—"I have for a considerable time past used Gillespie's Patent Inclinometer in extensive drainage operations carried on by me, and I have found it to be of the greatest service, in showing the minutest slope in the ground, and in saving of labour; and I could not have constructed many of the drains with any degree of accuracy without its assistance."—James Gentles, Hart Hill, by Whitburn.
Extract of a letter from John Mitchell, Esq., Stand Hill, Bathgate.—"I highly appreciate its capabilities as a levelling instrument. In level lands, where there is a difficulty in detecting in which direction the land slopes, it is invaluable."
Extract of a letter from Mr. John Turner, Surveyor, Whitburn.—"The more I have tested it the more have I appreciated its value. By this invention the power of levelling is brought within the reach of all men of ordinary capacity."
Sold by WILLIAM DRAY & Co., Engineers, &c., Swan Lane, London. Specimens and Models may be seen at their Warerooms. Also a Descriptive Treatise on the nature and uses of the Patent Inclinometer, and copies of Recommendations of its efficiency and value to be had on application.

CLAYTON, SHUTTLEWORTH, AND CO.'S PRIZE PORTABLE STEAM-ENGINES, AND COMBINED THRASHING, STRAW SHAKING, RIDDLING, AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as thrashed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.
C. S. and Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading agricultural shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

MANGER, RACK, & WATER-TROUGH AS ONE FIXTURE.
IMPROVED AND NEWLY PATENTED.



COTTAM AND HALLEN, the original inventors, obtained the Great Exhibition Prize Medal for this arrangement, to which all the latest improvements are adapted, secured by Patent, including a method entirely new of attaching the halter-weight and rein from the back of the manger to the under front of the plate, allowing the horse greater freedom, and being noiseless in operation, add much to its comfort whilst feeding and convenience when at rest, as likewise, from their position, avoiding the liability of the most restive horse getting cast. No well-managed stable should be without these fittings.
COTTAM'S ENAMELLED MANGERS are constructed in the best possible manner, both as to form and utility; are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, and Enamelled. Improved Surface Drain, with Safety Covers, Sanitary Traps, Stable Pumps, Loose Box, Fittings, Gutta Percha Preserving Saddle and Harness Brackets, and every article in Stable Furniture, in stock. An extensive assortment of Patterns for both Plain and Ornamental Castings, and every description of Wrought and Cast Iron Work for building and other purposes. Agricultural and Horticultural Implements, Iron Gates, both plain and ornamental, Hurdles, Strain Fencing, &c.
Estimates and Catalogues on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.
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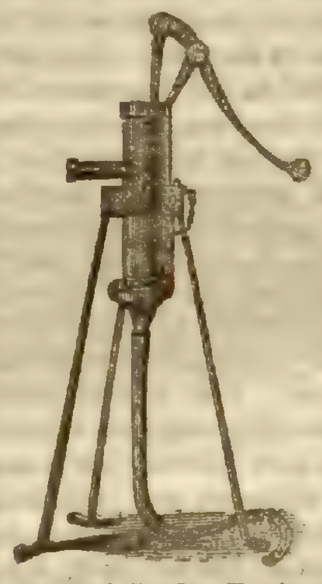
WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3l. 3s. The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe, 1s. 6d. per foot.
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May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel,	Length of Barrel, under nose.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 12 0
2½ „	long 3 „ 3 „		1 15 0
3 „	ditto 3 „ 6 „		2 12 0
3½ „	ditto 3 „ 6 „		2 18 0
4 „	ditto 3 „ 6 „		3 5 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 12 0
2½ in.	long ditto	ditto ditto	2 15 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

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"FRIGI DOMO," a Canvass made of prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, and from attacks of insects and morning frosts. To be had in any required length, upwards of 2 yards wide, at 1s. 6d. per yard run, of ELISHA THOMAS ARCHER, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey.

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The first Session of 1855 will begin in February. The Annual Fees for Boarders vary from 45 to 80 guineas, according to age and other circumstances. The Fee for Out-Students is 40l. per annum. The College Course of Lectures and Practical Instruction is complete in one twelvemonth—though a longer course is recommended. There is a department for general as well as for agricultural purposes. Prospectuses and information can be had on application to the Principal.

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THE LANDS IMPROVEMENT COMPANY, INCORPORATED BY SPECIAL ACT OF PARLIAMENT FOR ENGLAND AND SCOTLAND.—To Landowners, the Clergy, Solicitors, Surveyors, Estate Agents, &c.—Loans may be contracted for the execution by the proprietor or by the Company of every landed improvement, especially Drainage, Building, Clearing, Enclosing, Warping, Irrigation, Embanking, Reclamation, Roads, Planting, Machinery, &c. The plans (of buildings), specifications, and estimates are prepared by the proprietors, and are submitted to the approval of the Enclosure Commissioners. Proprietors may avail themselves of the powers of the Act to recover from the inheritance their own funds to be expended on improvements. They may also apply jointly for the execution of a mutual improvement, such as a common outfall, &c. For forms of application, &c., apply to the Hon. WM. NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

The Agricultural Gazette.
SATURDAY, JANUARY 27, 1855.
MEETINGS FOR THE ENSUING WEEK.
THURSDAY, Feb. 1—Agricultural Imp. Society of Ireland.

THE Act for providing a metropolitan market in place of Smithfield directed the issuing of a commission to undertake its execution. If this had not been done by the "Mayor, Aldermen, and Commons" of the City of London, it would have become lawful for Her MAJESTY to issue this commission. In either case the Act declares that unless the market for the provision of which it is passed be declared open within three years and six months from the date of its enactment, the powers of the commission so issued, and all other powers conferred, shall cease and be void. That period ceases on the 1st of March; and, although the declaration in question was not published in last night's *Gazette*, yet next Tuesday's edition will be still within the period named, and no doubt the requisite announcement will appear in it, in order to keep within the law. The 10th section of the Act enables such a declaration, although the actual opening of the place should be postponed beyond the date of the declaration in question.

We are informed that the new market place in Copenhagen Fields will not be opened for use for at least a fortnight. Excepting the places for calves and pigs the arrangements are already complete.

WE are exceedingly glad to find that the differences arising out of the discussion at Tiptree, in reference to Mr. TELFER's Hay or Grass crop (as people choose to take it), are losing their personal character; and that the real question at issue—the possibility of producing profitably those prodigious growths of which Myre Mill and Cunning Park afford the instances—is at length separating itself, as it ought long ago to have done. The subject is on the list of the London Farmers' Club, for discussion at their meeting in March, and the truth will, we hope, be then related by eye witnesses, so that, whatever it may prove to be, it shall be placed beyond dispute.

Mr. TELFER's last letter, to which we shall again

direct attention, has been replied to by Mr. HAMILTON, who has done good service in this renewed agitation of the matter; for the truth has been elicited by him, if not originally stated by him. Those who have not read this correspondence will find the facts on which it has turned, given at pages 763, 825 and 843 of last year's volume. Mr. TELFER's letter is given at the last-named page, and Mr. HAMILTON's reply to it has just been published in the *Dublin Farmers' Gazette*. Mr. TELFER obtained his 270 tons of green food off 7 acres of Italian Rye-grass by manuring 3½ acres up till the second cut, and after that manuring another 3½ acres which had been sown that year, leaving the former 3½ acres to go to seed. He believes, and so do we, that the 3½ acres left to seed would, had the manure been continued there, have produced as much as the young seeds on which it was turned; and so he takes credit for having done all he says on 3½ acres instead of 7. Or, rather, he contends that it is really a question not of acreage, but of manuring; and in the case of so rapidly-growing a plant as Italian Rye-grass, we believe he is right. Nevertheless, this style of reasoning will not satisfy a matter-of-fact disputant, and Mr. HAMILTON, of course, makes good use of his advantage. He says:—

"As to Mr. TELFER's own account of his 7 acres, with all his ingenious shifting of the paternity of his crop from one 3½ acres in spring to another 3½ acres in autumn, and his liberal choice of 3½, 5½, or 7 acres, from which we are to calculate the annual produce, he only makes out 270 tons, or 38½ tons to each of 7 acres, though he *puts it all to his credit of 3½ acres*. But will this reasoning satisfy the public mind? Are farmers to have their second acres to ride out their conclusions upon as a fox-hunter has his second horse to meet him when the first is exhausted? Mr. TELFER (who informed me that the hay was all used before the 1st of November) allows that he did use two 3½ acres during the run of the season."

As to the matters of detail to which we alluded at page 825, Mr. HAMILTON says:—

"With respect to the number of hydrants, this does not affect the question at all; the proportion of 1 to 6 acres will be found everywhere else the minimum; and in the parliamentary minutes of the Board of Health there appear to be no instances quoted where the hydrants are in a smaller proportion; and if I misunderstood Mr. TELFER on this point, the printed account of his farm which he gave me, and which describes his hose as 150 yards long, was not likely to undeceive me. I only profess to give the best information I could collect from others, and with due caution, when pointing out the mode by which these statements could be checked, I expressed my own feeling that the data were unsatisfactory, and my conviction that, though large results were obtainable, certainly there was no *proof* that the result of about 100 tons of Grass had ever been obtained at three cuttings, there or elsewhere. I cannot, however, but deprecate all such controversies as the present, which I did not originate, nor do I think a *tu quoque* case worthy of the editor of the *Agricultural Gazette*, who should rather aim at supplying the deficiencies that I pointed out than defending Mr. CAIRD in his announcement as a fact, that 25 tons of hay had been realised from a Scotch acre of land. We have seen this 100 tons of green Grass shrinking back to 65 in one statement, 74 in another (Mr. TELFER's own), and, I think I have shown practically, in Mr. TELFER's case, to 38½. The conclusion I draw from this is, that there has not been weighing and measuring enough either in extent or accuracy, to enable any of us to judge what results we might count upon if we adopted the same system, and I hope that the result of all this writing may be faithful and painstaking records of the coming season's produce."

Without wishing to revive any personal discussion in connection with this subject, we must be allowed here to say that our argument was not a *tu quoque* argument at all. It was not for the purpose of proving Mr. HAMILTON to be just as inaccurate as any other person whose inaccuracy he alleged that we wrote: it was for the purpose of proving that the data on which Mr. HAMILTON's charge of inaccuracy rested were themselves inaccurate. It is a very different thing to charge equal inaccuracy on an assailant, which is what we are said to have done, and to prove his charge of inaccuracy to be itself inaccurate, which is what we claim to have done. It was not to prove anything whatever of Mr. HAMILTON that our remarks were aimed; it was to arrive at the agricultural truth which was under discussion that we inquired into the ability of witnesses and the character of their evidence.

We hope in the course of a month or two that the truth of this most important of the many important agricultural movements of the past year will be made clearly to appear. We can confidently predict that whatever the exact figures may be that represent the truth, they will be enough to astonish those who are satisfied with averages.

SEVERAL months ago a correspondent called attention to a plan of UNDERGROUND MANURING, which had been patented by Mr. WILKINS, a citizen, we believe, of London, who at Wokingham and Reading had exhibited the results of his patent method with extraordinary success. This has been done only on the small scale; and, indeed, the first expense of the plan, greater than the fee simple of the land, hinders its being done on any other. We have seen his experimental plot at Reading; it consists of not more, probably, than a quarter of an acre; one half of which has been prepared by Mr. WILKINS, and the other half treated in the ordinary method. The unfortunate circumstance connected with all these experiments hitherto is, that *both* the plots in each case have been under Mr. WILKINS's direction. That he has honestly done his best by the half which he hoped to prove comparatively a failure is, however, believed. At a public meeting at Reading which he called to exhibit the results of his practice, the large Mangolds produced by his peculiar plan were contrasted with puny roots of common cultivation grown in adjoining rows—fine grown Hemp and Flax were shown beside the stunted stems of the ordinary mode of growth, and other contrasts were exhibited. But on claiming for his method of culture the merit of these contrasts, he was met by a very reasonable scepticism as to the honesty and genuineness of these inferior samples. Were the plots which grew them really cultivated as a good farmer would?—that was what no one knew—the audience had the word of a stranger as their only guarantee, and he was likely to leave them unconvinced. It was fortunate for Mr. WILKINS that his proceedings had been watched by Messrs. SUTTON, the seedsmen, of Reading, whom everybody in the audience knew and trusted; and when Mr. MARTIN SUTTON, in the midst of all these murmurs of incredulity, stood up to bear witness to the honesty of Mr. WILKINS's account, the reality of the experience which he related, and the genuineness of the specimens which he exhibited—the people felt at once that here was the missing link by which alone the chain of evidence became complete; and the credit of the speaker saved.

The farmers who listened to his statement went away convinced. That is to say they believed that by laying an impervious floor, whether by brick, cement, or what not, some 20 or 30 inches below the surface of the soil, and upon that floor laying parallel rows of pipes at intervals of several feet, replacing the original soil over all, and preserving by upright pipes communication between the horizontal rows of pipes and the surface of the ground; by then pouring in liquid manure from above, and saturating the soil with it from below upwards—for this is Mr. WILKINS's method:—by adopting all this system, at a cost of some 100*l.* to 200*l.* per acre, the most marvellous increase of fertility is obtainable. That was what they believed and what we believe, and what every one, no doubt, is ready to believe. But how many of that agricultural audience went home to put the plan into operation? Of course, not one: it is not likely that they should. If we had 150*l.* per acre to spare upon our farm we should invest it in the purchase of our occupation, not in improving its fertility for another at this expensive rate.

Mr. WILKINS is an indefatigable and enthusiastic man. He holds meetings in Oxford Town Hall, at the London Tavern, and wherever he can find an audience. He urges his plans with the utmost confidence, and is gaining all the support which energy and activity command. At the Oxford meeting, last week, a considerable sum of money was subscribed for a trial of the plan upon one acre of ground, and the terms on which the patentee was prepared to negotiate with any county association who would carry out his plan were made known. The scheme, so far as that programme describes it, seems to be intended merely for garden application, and it could not be otherwise. Cottages with gardens under 5*l.* 5*s.* annual rent are to pay one penny per annum, and houses with gardens under 20*l.* a-year 7*s.* 6*d.* per annum for license to adopt the system. It may be worth while trying the experiment for its possible horticultural results; it may, perhaps, be worth while even in an agricultural point of view, to determine the question of the usefulness to plants of so artificial a treatment and supply of food, but that it will ever be of direct use to the *farmer* we do not believe; and if an energetic man shall divert, by his representations, the attention of improvers from more feasible plans of agricultural improvement, he will do mischief by calling their attention to this subject.

IT is interesting to compare THE IMPORTS of corn during the autumn months of the past year with the imports of previous years during the same season, as illustrative both of the productiveness of the past season here and of the diminished ability of other countries to supply us. To what extent that disability has arisen from the entire cutting off of certain sources of supply, from the difficulty of obtaining means of transport, or from bad harvests in other countries, we do not here inquire. The main facts are that since September 5, 1854, to January 5, 1855, the imports of Wheat have been 396,340 quarters, and of Flour 255,785 cwts.; the quantities imported in the similar months of 1851, 1852, and 1853 being 755,428—1,389,661—and 1,839,447 quarters of Wheat, and 1,541,863—991,758—and 1,709,197 cwts. of Flour respectively. Take into account the high prices which have this year failed so extraordinarily to attract supplies, and we must believe that all of the causes indicated have combined to produce so remarkable a result. As indicating the relative growths of this year and of last, we may mention that since September the amount of sales of English Wheat officially recorded has been 1,674,166 quarters this year against 1,004,546 during the same weeks of 1853.

OUR readers are aware that Mr. PUSEY, in whom, more than in any other man, the interests of the Royal Agricultural Society of England are embodied, has been suffering from very severe illness. We are glad to learn from the letter of Dr. ACLAND to the daily papers that he is at length rallying; and we sincerely trust that in due time he may recover from his severe attack, and be able to resume the position he has so long and so usefully occupied in the councils and direction of the Agricultural Society.

REPORT AND ESTIMATE OF A FARM.

I NOW send you a detail of the mode of cultivation which I think would be the most profitable for you to adopt: an estimate of the working cattle and implements required, and of the number of sheep and other stock you will be able to keep.

This farm is on the chalk formation, and the soil is either a thin gravelly loam or chalk with flints. It consists of 260 acres, of which 20 acres are in pasture, 60 in down, and the remaining 180 acres are under the plough. Of these 180 acres I would have always 20 acres in Saintfoin, and of the remaining 160 acres, one-half, or 80 acres, I would have producing grain, and the other half producing Turnips or other roots, and fodder crops, these to alternate yearly with each other.

The Norfolk or four field system, which is almost universally adopted in your district, is to take Wheat after Clover or seeds, then Turnips after the Wheat, Barley with Clover seeds sown amongst the Barley, and after Barley Clover or seeds; this finishes the rotation. From this system it is evident that the several crops come around on the same field every four years. This quick repetition of the same crop on the same ground is the greatest objection to the Norfolk system, as it has been found that the land soon gets tired of Clover and Turnips when repeated on the same ground in so short a period. The Clover very frequently fails, dying in the spring or in the early part of the summer. The Turnip is also a failing crop, producing fingers and toes instead of large bulbs when repeated every four years.

The Scotch, or six field system, puts off the Clover and root crops two years more than the Norfolk system; but then they have only one-sixth part of their land in roots, and one-sixth part in Clover, one-sixth part being in Beans or Peas, and the remaining three-sixths in corn; by this rotation they have one-third only producing fodder crops, and two-thirds producing grain for sale in the market.

By adopting the alternate system of a seed producing and a fodder producing crop, you can have those crops which the land soon gets tired of at as great a period apart as you have crops on your list whose nature and habits are different.

I have for years adopted the eight field system, and have found it to be most productive of large crops of Clover, and all the various kinds of roots, as these never occur on the same field oftener than once in eight years; and the grain crop I adopted was Wheat after all the roots and Clover or other fodder crops; but my land was of a strong clayey loam, and by deep cultivation, and the application of a large quantity of manure to all the root and fodder crops, I had large crops of Wheat every two years.

The succession of crops which I think best adapted for the dry friable land of your farm is the following:—Divide the 180 acres of area into nine fields of 20 acres each; one of the fields, or 20 acres, to be always in Saintfoin; this field to be renewed every five years by laying down another field of Saintfoin, and breaking-up the old Saintfoin field. Then say—

No. 1, to be in Clover	20 acres
No. 2, to be Wheat, after the Clover...	20 "
No. 3, Winter Vetches, Winter Barley, and Rye, for spring fodder, and then planted with Rape for sheep	20 "
No. 4, Oats, after the Vetches, Rye, and Rape ...	20 "
No. 5, Turnips, Swedes, Cabbages, after the Oats ...	20 "
No. 6, Wheat, after the Turnip seeds and Cabbages...	20 "
No. 7, Mangold, Carrots, and Potatoes, after the Wheat	20 "
No. 8, Barley, with Clover, after Mangold, Carrots, and Potatoes	20 "

By this arrangement you will have—

In Wheat two 20 acre fields, Nos. 2 & 6	40 acres
In Oats (No. 4)	20 "
In Barley (No. 8)	20 "
80 acres of seed producing crop	80

And for spring and summer food for sheep—

The Clover field, No. 1, for hay or pasture	20 acres
Vetches and Rye or Winter Barley, No. 3	20 „
The Pasture and Down	80 „
The Saintfoin field for hay or pasture	20 „
	140

And for winter keep for sheep you will have—

Of Turnips and Swedes (No. 5)	20 acres
Mangold, Carrots, and Potatoes (No. 7)	20 „
And the second crop of No. 3, late sown Rape after the Barley, Vetches, &c.	20 „
	60

To cultivate the 180 acres of this dry friable arable land under the alternate system of husbandry, you will require six horses to give you animal power sufficient to do all the work you will require. The expense of your working cattle and implements may stand thus :—

To six working horses, at 25*l.* each			£150 0*s.* 0*d.*	
Implements:—				
„ three ploughs (Howard's) 3*l.* 3*s.* ...	£9 9*s.* 0*d.*			
„ three sets of draft trees	0 15 0			
„ one cultivator	10 10 0			
„ two pairs of heavy iron harrows ...	6 6 0			
„ two pairs of light harrows	5 0 0			
„ two horse hoes	5 10 0			
„ two rollers, at 10*l.* and 4*l.*	14 0 0			
„ a corn drill	20 0 0			
„ five one-horse Scotch carts, at 10*l.* ...	50 0 0			
„ five harvest carts, bodies for the same wheels, at 5*l.*	25 0 0			
„ harness for six horses, at 4*l.*	24 0 0			
„ one wheelbarrow	1 10 0			
„ stable furniture	4 0 0			
			176	0 0
Barn Implements:—				
To winnowing machine	13 0 0			
„ riddles, sieves, rakes, and forks ...	4 0 0			
„ 1 bushel measure, 1 peck, 1 quarter ...	2 0 0			
„ two ladders	2 0 0			
„ 60 sacks	6 0 0			
„ two hay-cloths	16 0 0			
			43	0 0
Implements for Stock:—				
To two Turnip cutters	8 0 0			
„ a chaff-cutter	6 0 0			
„ a cake-bruiser	5 0 0			
„ a Linseed and corn bruiser	6 0 0			
„ 80 dozen of hurdles, at 6*s.*	24 0 0			
„ ten feeding troughs, at 6*s.*	3 0 0			
			52	0 0
			£271	0 0

In estimating the quantity of sheep you will require, it will be necessary to ascertain the quantity of food your fodder crops will produce. For these there will be 20 acres of Clover and 20 acres of Saintfoin; these 40 acres may be made into hay, or part of them may be pastured; either way, there is the aftermath as pasture for the sheep during the summer and autumn. Then there is the 20 acres of pasture, and 60 acres of Clover, as summer and autumn food for the sheep and other stock, and as winter food for your sheep you have 20 acres of Turnips and Swedes, and 20 acres of Mangold, Carrots, and Potatoes; and the second crop, say 20 acres of Rape, after the Vetches, Rye, and Winter Barley. These 60 acres of roots will, with what hay or chaff you have, give you fodder enough for 450 sheep for seven months; and the 60 acres of Clover, 20 acres of pasture, and 20 acres of Vetches, Rye, and Winter Barley will give you food for the sheep during the five summer months, which, together with your 40 acres of hay, and 20 acres of Oat-straw, will enable you to keep your working cattle and three cows, three calves, three year-olds, and three two-year olds. But to the straw for the beasts you will have to add some oilcake, say 5 tons, or Linseed and Bean-meal, and Oats. We may estimate your sheep and beasts at—

Say 225 ewes and lambs, at 32*s.* 6*d.*	£365 12*s.* 6*d.*		
„ 50 ewe lambs for stock, say 25*s.*	62 10 0		
„ 3 rams, at 5*l.*	15 0 0		
	£443 2 6		
To 3 cows in calf, say 15*l.*	£45		
„ 3 year-olds, at 6*l.*	18		
„ three 2-year olds, at 10*l.*	30		
„ two breeding sows	10		
		103	0 0
		£546	2 6
Seed Expenses:—			
Wheat for 40 acres, say 60 bushels at 6*s.*	£18 0*s.* 0*d.*		
Barley for 20 acres, say 40 bushels, at 4*s.*	8 0 0		
Oats for 20 acres, 40 bushels, at 3*s.*	6 0 0		
Clover and Grass seeds for 20 acres, say	15 0 0		
Carrots, Mangold, Swede Carrots, and Potatoes, say for 40 acres, and 20 acres of Rape	8 0 0		
Vetches, Rye, Winter Barley	8 0 0		
Seed	£63 0 0		
To corn for horses, say 2 bushels per horse, weekly 12 bushels, 52 weeks, or 83 quarters of Oats, at say 22*s.*	£91 0 0		
Say manual labour on 180 acres, at 35*s.* per acre ...	315 0 0		
Manure for 80 acres yearly, at 25*s.* per acre ...	100 0 0		

On your entering there will be certain acts of husbandry to pay, but this will be allowed to you on your leaving at the end of your lease.

RECAPITULATION OF CAPITAL REQUIRED.

Working cattle	£150 0*s.* 0*d.*
Implements	271 0 0
Sheep	443 2 6
Cows and other stock, and Pigs	103 0 0
Value of Stock	£967 2 6

The yearly expenses may be stated thus, say—

Seed corn	£ 63 0*s.* 0*d.*	
Horse corn	91 0 0	
5 tons of oilcake, at 10*l.*	50 0 0	
Manual labour, say	315 0 0	
Manure, say	100 0 0	
		£619 0 0
Your tradesmen's bills, say—		
Carpenter, 3*l.* a plough	£9 0*s.* 0*d.*	
Smith, 3*l.* a plough	9 0 0	
Saddler	3 0 0	
Hurdles	8 0 0	
		£29 0 0
		£648 0 0

The probable return from 225 southdown ewes put to Cotswold rams may be 275 lambs, say 50 lambs to be kept for ewes, and—

225 sold at, say 26*s.* each			£292 10*s.* 0*d.*	
50 cast off ewes, say 35*s.*			87 10 0	
Wool, 278 fleeces at 5 lbs., 1390 lbs. at 1*s.*			69 10 0	
			£449 10 0	
The three cows should produce 7*l.* each ...	£21			
Three fat 3-year olds, 23*l.* each	69			
The two sows should produce 20 pigs, 50*s.* each	50			
			£120 0 0	
The return from the stock			569 10 0	
40 acres in Wheat, at 28 bushels per acre, 1120 bushels at 6*s.* per bushel	336 0 0			
20 acres in Barley, at 36 bushels per acre, 720 bushels at 3*s.* 9*d.* per bushel	135 0 0			
20 acres of Oats, at 56 bushels per acre, 1120 bushels at 2*s.* 9*d.* per bushel ...	154 0 0		625 0 0	
			£1194 10 0	

The capital required for the cultivation of your farm, consisting of 260 acres, the yearly expense of cultivation, the interest required to keep this capital of the same value, and the interest on the capital invested : —

		Capital required.	Interest and yearly expense.
To working horses ...	£150 0 0		
„ implements	271 0 0	£421 0 0	
„ 10 per cent. on this sum to keep it always of the same value ...			£42 2 0
„ sheep, cows, and pigs		546 2 6	
„ 7½ per cent. to insure the stock against loss			40 19 0
„ Capital invested		£967 2 6	
„ 10 per cent. interest on this capital invested			96 14 0
„ seed corn, horse corn, manual labour, manure, oil-cake, or Linseed		619 0 0	619 0 0
„ 5 per cent. on this is equal to 10 per cent., as it has not been out for more than half a year ...			30 19 0
„ tradesmen's bills		29 0 0	29 0 0
		£1615 2 6	£858 14 0
„ Rent and parochial rates ...			236 0 0
„ yearly payments and interest ...			£1094 14 0
The return amounting to			1194 10 0
Deduct the yearly payments... ...			1094 14 0
Clear profit			£99 16 0
Which, together with 10 per cent. on the capital invested, 967*l.* 2*s.* 6*d.* ...			96 14 0
And 5 per cent. on the yearly expense of cultivation, being 619*l.*, amounts to			30 19 0
These three items making together the amount of your income.			£227 9 0

—*J. M.*

TITHE COMMUTATION SEPTENNIAL AVERAGES.

[We have received a letter from Mr. Willich explanatory of the gradually decreased value of the Rent-charge from 1849, notwithstanding the gradual increase in the price of Wheat. The following is an extract.]

It was enacted by the 57th clause of the Tithe Commutation Act (6 and 7 Wm. IV. c. 71), that the amount of the rent-charge, as awarded or agreed upon, should be divided into three portions, and that every tithe rent-charge should be deemed to be of the value of such number of imperial bushels, and decimal parts of an imperial bushel, of Wheat, Barley, and Oats, as the same would have purchased at the average prices for seven years ending Thursday before Christmas Day 1835, in case one third part of each rent-charge had been invested in the purchase of Wheat, one third thereof in the purchase of Barley, and the remaining one third part in the purchase of Oats.

In conformity with the above, we find that 100*l.* expended in Wheat, Barley, and Oats, would have purchased the following quantities at the average prices for seven years to Christmas 1835, as fixed in the *London Gazette* of Dec. 9, 1836.

	£ s. d.		Per Imp. Bushel. s. d.		Imp. Bushels.
⅓ or	33 6 8	in Wheat at	7 0¼	is equivalent to	94.955489
⅓ or	33 6 8	in Barley at	3 11½	„	168.421052
⅓ or	33 6 8	in Oats at	2 9	„	242.424242
	£100 0 0				

It is therefore clear that the rent-charge was not a fixed money payment of 100*l.*, but only such a sum as the above quantities of Wheat, Barley, and Oats are equivalent to, according to the average prices for seven years to each preceding Christmas.

The Septennial Averages as published in the *London Gazette* may be shown to be correct by the following statement of the Annual Averages.

	Wheat per Imp. Quarter.	Barley per Imp. Quarter.	Oats per Imp. Quarter.
1848	50*s.* 6*d.*	31*s.* 6*d.*	20*s.* 6*d.*
1849	44 3	27 9	17 6
1850	40 3	23 6	16 5
1851	38 6	24 9	18 7
1852	40 9	28 6	19 1
1853	50 3	36 2	21 0
1854	72 5	36 0	27 11
	7)339 11	7)205 2	7)141 0
	8)48 6	8)29 3	8)20 1
Average per Imp. Bushel	6 0¾	3 7¾	2 6

The year 1847, which in the above account is replaced by the year 1854, was, in consequence of the scarcity which then existed, one of high prices, and particularly so as to Barley and Oats, viz.:

1847—Wheat, 69*s.* 9*d.* Barley, 44*s.* 2*d.* Oats, 28*s.* 8*d.*

On comparing these amounts, which are excluded from the seven years, with those of 1854, which are added, it will be evident that the septennial average must necessarily be less than in the preceding year, although the price of Wheat was a little more in 1854 than in 1847.

We have seen that the 100*l.* rent-charge was from the passing of the Act to be represented by a certain number of bushels of Wheat, Barley, and Oats; therefore, if we value these bushels by the septennial average prices, as fixed in the *London Gazette* of the 5th inst., we shall find the value of 100*l.* of Tithe Rent-charge for the year 1855 as follows:

		s. d.		£ s. d.
94.955489 bush. of	Wheat at	6 0¾	per imp. bush. ...	28 15 8
168.421052 „	Barley at	3 7¾	„	30 14 0¼
242.424242 „	Oats at	2 6	„	30 6 0¼
				£89 15 8¾

—*Charles M. Willich, Actuary, University Life Office.*

SOURCES OF AMMONIA.

[Extracted from a paper by Dr. Anderson in the Transactions of the Highland Society.]

It is sufficiently well known that the manufacture of gas is the source of all the ammonia, with trifling exceptions, now employed in the arts, and consequently the production of that substance is limited by the extent to which gas is consumed. Under these circumstances it might seem at first sight that nothing remains to be done, and that the quantity of ammonia cannot be increased at will. This inference would undoubtedly be correct if all the ammonia produced in the manufacture of gas were worked up and converted into a marketable commodity. But this is very far from being the case. The ammoniacal liquor of the gas-works is commonly looked upon as a refuse, and except in large towns, where the quantity produced is sufficiently large to support a separate work in which the liquor is purified, and converted into sulphate or other salts of ammonia, it is generally allowed to run to waste. What proportion is thus lost it is impossible to say, but it is certainly very large, and is probably increasing. Of late years a great extension has taken place in the manufacture of gas on the small scale, so that every small town, and even village, has its gas-work; and it is in these small works that the greatest waste takes place, for in them it is usually considered, and perhaps, in some instances, with justice, that the working up what may be called the refuse products is not remunerative. In the extremely small gas-works, where the quantity is very trifling, this is no doubt sometimes true; but in moderately small towns it could certainly be carried out with success, if taken up as a regular part of the manufacture of gas. It is somewhat remarkable that the gas companies have shown an extreme indisposition to do this, and, so far as I know, there is only one gas-work in Britain where it is done—in that of Manchester, which in many respects is an admirably conducted establishment. In all other large works the gas liquor is sold, generally at a very low price, to another manufacturer, by whom it is converted into marketable products. The manufactory in which these processes are conducted is generally placed near a large gas-work, and it is customary, when other circumstances are suitable, for the manufacturer to purchase and convey to his work the produce of small gas-works in the neighbourhood. With distant works this cannot be done with profit, and in these cases it generally happens that the liquor is lost. The extent of this loss may be estimated when it is borne in mind that coal contains in general about 1.5 per cent of nitrogen, and though there is always a considerable loss we may fairly assume it to yield 1 per cent. of ammonia—and at this rate every ton of coal would yield nearly 1 cwt. of sulphate of ammonia.

Now, in order to convert the ammonia into sulphate, all that is requisite is to add to it the necessary quantity of sulphuric acid, and to evaporate it until the fluid has reached a sufficient degree of concentration to yield crystals, an operation which is far from troublesome, and does not require any great amount of skill. The question then is, whether this process can be profitably carried on in a gas-work?—and of this there can be very little doubt, when we consider that almost exactly three-fourths of the whole weight of the sulphate of ammonia consists of sulphuric acid. The price of sulphuric acid varies much, but, supposing it to cost the manufacturer 8*l.* per ton, which is greatly above the average, the quantity required to produce a ton of sulphate of ammonia would cost 6*l.*, and the product is at present sold at from 16*l.* to 18*l.* per ton, thus leaving 10*l.* to cover the cost of manufacture, and to leave a price for the ammoniacal liquor. The cost of manufacture will consist of the wear and tear of the evaporating pans, and the coal required for the evaporation; but this latter expense might be in part or entirely saved, by an arrangement for economising the waste heat from the retort furnaces.

It is impossible to arrive at any correct estimate of the amount of ammonia which is at present wasted, but it certainly would not be an over-estimate to fix it at from one-fourth to one-third of all produced. There are many towns of 20,000 or 30,000 inhabitants where the whole is got rid of by running it into the drains; and, even in so large a town as Dublin, it is only within the last two or three years that sulphate of ammonia has been manufactured. Could a third be added to the production, it cannot be doubted that a decided fall in the price would immediately follow.

In the preceding remarks I have referred only to the means of more completely employing that portion of the ammonia which is condensed in the liquor, but a large quantity is also lost by passing off uncondensed in the gas; and though various methods of arresting it have been proposed, these have hitherto been attended with very partial success. Within the last year or two, however, a process has been patented, by which the purification of the gas is effected in a very complete manner, and the ammonia separated is at once obtained in a state in which it can be employed as a manure. I am given to understand that a mixture of sulphate of iron, lime, and sawdust is made, which is introduced into the purifiers of the gas-works, and after having been exposed as long as it continues to purify the gas sufficiently, it is removed, and replaced by another quantity. The product is a dark-coloured, almost black substance, perfectly granular and tolerably dry, and has a strong smell of gas, which at once betrays its source. Several analyses of this substance, made in my laboratory, have shown it to contain from 7 to 8 per

cent. of ammonia; but I have been informed that it can be, and is, obtained with as much as 12 per cent. The rest of its constituents, consisting of sawdust, sulphate of lime, and oxide of iron, are not of value as manurial substances, and the article must therefore be estimated entirely from its ammonia. The importance of this process and its product cannot at present be properly estimated, as the patent has not come into full operation; but it is said that, if generally adopted, it would produce upwards of 100,000 tons per annum of the manure; and assuming it to contain 8 per cent. of ammonia, this would correspond to upwards of 30,000 tons of sulphate of ammonia. When it is remembered that all this ammonia has hitherto been entirely lost, the value of the process appears considerable; and it is most desirable that it should be generally adopted by the gas companies. The product at the present price of sulphate of ammonia is worth from 5*l.* 10*s.* to 6*l.* per ton; and at that price it would undoubtedly meet with purchasers. I am not aware that it has yet been employed in Scotland to any extent as a manure; but if it has, it would be conferring a benefit upon agriculture if the results were made public.

The price of ammonia might be diminished in another way, and though there are no immediate prospects of much being done in the direction in question, it is worth mentioning. It is entirely in the form of sulphate that it is at present employed, and, from what has been already said, it must be obvious that the value of the salt depends on its ammonia alone, and not on its sulphuric acid, which is used only as a means of converting the ammonia into a solid and transportable form. Of every ton of sulphate of ammonia, about three-fourths consists of sulphuric acid, costing from 5*l.* to 6*l.*; and it is manifest that, if this could be dispensed with or replaced by any cheaper substance, the price of ammonia in a transportable form would be proportionally lowered. In fact, what is required is a cheap acid. It does not appear that there is much prospect of this requirement being supplied, but attempts have been made to employ refuse acids, or refuse mixtures containing acid, to neutralise the ammonia of the gas works, and with considerable success. A salt has been lately sold to some extent under the name of muriosulphate of ammonia, which appears to be made in this way. An analysis of this substance, made in my laboratory, has given the following results:—

Sulphate of ammonia	62.55
Muriate of ammonia	1.22
Chloride of potassium	4.75
Chloride of sodium	17.35
Water	14.49
	100.36
Ammonia	16.50

This substance, then, has a value about two-thirds that of pure sulphate of ammonia. It is obvious, however, that the value of such a substance is liable to great variation according to the amount of common salt (chloride of sodium) and water which it contains, and the subjoined analysis will show to what an extent it may vary, not only in the proportion, but even in the nature of its constituents:—

Sulphate of ammonia	43.79
Sulphate of soda	9.19
Sulphate of magnesia	18.38
Chloride of potassium	2.94
Chloride of sodium	0.35
Water	25.39
	100.00
Ammonia	11.28

In this case the value of the substance will be less than half that of sulphate of ammonia.

It still happens, however, that a price remains to be paid for the acid, and hence the question has arisen, Why not employ the ammonia alone? It is unnecessary to refer to the fact that gas liquor has been employed as a manure, and with much success; but its applicability is limited by its bulk, which raises the cost of transport so much that it can only be used in places situated in the immediate vicinity of gas-works; while even supposing it brought upon the farm, it must be largely diluted, and in ordinary cases applied by the watering cart at great expense. The latter objection does not apply to those farms in which pipes are distributed through the fields, as in that case the gas liquor can be easily applied along with other liquid manures. But even with such farms the cost of conveyance is very great, unless they happen to be well situated. In some gas-works, however, the crude ammoniacal liquor is submitted to rectification, and obtained of such a strength as to admit of easy and cheap transport. A sample of this concentrated ammoniacal liquor, analysed in my laboratory, was found to contain 16,490 grains of ammonia per gallon, or upwards of 20 per cent. One ton and a quarter of this fluid will therefore contain as much ammonia as a ton of sulphate of ammonia, and as it is sold at 6*d.* per gallon, the price of the ammonia in this state does not exceed 2½*d* per pound. When sulphate of ammonia costs 14*l.* per ton, the ammonia in it is sold at 6*d.* per pound, and when at 18*l.* at nearly 8*d.*; and it is obvious that the employment of this fluid would be attended with great economy. Unfortunately it happens from the nature of the manufacture of gas, that the greater part of the ammoniacal liquor is produced in winter, at a time when it cannot be applied to the land, and the farmer would be compelled to purchase it in winter, and preserve it until it was required. The volatility of ammonia, when uncombined with an acid, is such, that this strong fluid could not be kept without considerable loss, and there is little prospect of its coming into use; but supposing the farmer to buy not only that substance, but also sulphuric acid, it would be possible for him to mix the two and preserve the mixture in open tanks without loss, or, what would be better still, in closed casks. At this rate he would obtain his ammonia in the state of sulphate, although still in the fluid form, at 5½*d.* per lb., in place of from 6*d.* to 8*d.* It may be questioned, however, whether this saving would at all compensate for the increased trouble and expense of storing the fluid.

While, therefore, I doubt whether much can be done at the present time in this way, I am strongly impressed with the opinion that encouragement should be given to the working up the ammonia of the small gas-works; and as, from what has been already said, it cannot be doubted that a considerable profit is to be derived from it, the farmers of any districts in which small gas-works exist would do well if they were to make an offer to take sulphate of ammonia from them at a definite price. It is certainly nothing but the difficulty of obtaining a local demand, which prevents these gas-works from attempting to dispose of their waste products.

Home Correspondence.

Root-grating Machine.—From the reply to a "Small Farmer" in the *Agricultural Gazette* of the 20th inst., I can give him somewhat more information than that reply furnishes. If he feeds his animals with cut roots alone, there is no better article than Gardner's cutter in general use; but if he is desirous of adopting the far more economical and scientific practice of making his animals eat roots and more solid food mixed together, he will require a different machine. Carson's, of Warminster, is a very effective article for cutting Swedes, &c., into thin ribands, which mix intimately with chaff. I have had one (price 4*l.* 10*s.* cash) in use for four years, which has cut for a large stock of bullocks their entire supply during that period. The first pulping machine was produced at Lincoln by Phillips, which I see advertised in the same *Gazette*. This appeared to do its work perfectly, but the cost (11*l.*) was too high for the purpose. I was informed at the Smithfield Show the cost had been reduced 4*l.*, or thereabouts. There was another machine exhibited there which appeared quite as efficient for all practical purposes, though it worked in a different way, the cost of which was 6*l.* 6*s.* I have unfortunately mislaid the manufacturer's description of the machine and his address. Not having had actual experience of the two latter machines, I can only say they appeared to accomplish the perfect comminution of the root for feeding purposes. *C. L.*

Employers and Employed.—From time immemorial there have been classes in society, some rich, others poor—one to command, another to obey; learned and ignorant—master and servant. The separation now existing between men and women placed in the various positions of life was not always so great. By going back fifty or sixty years, it will be found the mass of agricultural labourers were better cared for; boys grew to men on the same estate—son succeeded to father; the peasants remained bound to the same locality by peculiar feelings; they seldom thought of migrating, looking upon the family estate of their master and mistress, at least the labour of it, as belonging of right to them. The attachment was that of the better part of the feudal system without its imperfections, the owner of property being considered as a father as well as ruler, showing kindness and consideration to all those in his service. The interest of master and man was closely woven together—they might be said truly to rely on each other for assistance in time of need. The selfish principle of accumulating money by every means, without reference to the comforts and welfare of those by whose aid it is gathered together, has, in a great measure, severed the bond of union so much to be desired between employer and employed, both in large and small concerns. There is one splendid example to the contrary in Price's Candle Manufactory, where a system of education was commenced and carried out, single-handed, by a clerk or manager to the establishment, and afterwards supported, and still continues to be so, by the company. Now, if one influential house can organise and maintain schools, libraries, and a church, surely other firms equally wealthy can follow so brilliant an example of charity in its full meaning. Landholders, merchants, manufacturers, shopkeepers, and householders of every description will find that kindness and attention to the temporal and spiritual wants of their dependants are never thrown away, but remembered with gratitude—shown by real interest taken in everything that belongs to their masters and mistresses. In all relations of life the higher views as accountable beings should be the guiding principle of action. All mankind belong to the same great family. It is education and superintendance in youth that marks the difference in manners, tastes, opinions, and amusements. With regard to morality, the upper orders are more refined in their profligacy, according to the notions of the world, but not less guilty than the lower classes, who carry on their drunken orgies in beer-houses and the gin palace. In proof of the high cast of character lying dormant in the peasantry and artisans of the United Kingdom, it is only necessary to refer to their conduct during the campaign in the Crimea. They who have shown such daring and chivalric courage under the hottest fire, who have evinced such patience and constancy under unheard-of sufferings from disease and starvation, cannot be composed of senseless clay, or unworthy to be numbered amongst the noblest works of God. The reflections of those who have so terribly neglected to provide for the common wants of our gallant and enduring soldiers are not to be envied. Thousands have been sacrificed to blundering incapacity, or something worse. It must be recollected that the heroes of Alma, Inkermann, and Balaklava, were drawn from the toilers in our fields and manufactories, whose sinews and intelligence are used (too often abused) without a corresponding return, in providing useful instruction, and giving them time to take advantage of it. It is enough to make a nation weep tears of blood to witness the destruction of the finest expedition that ever left the shores of England, not from the bullets and swords of the enemy, but from neglect of the commonest precautions. Was such a thing ever heard of before as an army allowing itself to be cut off from supplies of food, firing, ammunition, clothing, medical comforts, tents, &c., lying within seven miles of the camp, from the want of a road in a country where stone is plentiful, the natives ready to work, and where it ought to have been known the country was impassable in winter, without some exertion being made to keep up a communication with the transports? A dark page in the Anglo-Saxon history. *Falcon.*

Payne's Defiance.—Mr. Mechi, in your paper of the 6th, in asking for information respecting the price of Payne's Revitt Wheat, says it is "10*s.* below other red Wheat." Generally speaking I think Payne's Revitts are about 2*s.* 6*d.* per quarter cheaper than other red Wheat of the same weight. This year is an exception, on account of the large breadth and the blight, which seems to have affected this sort of Wheat more than any other; but even this year I don't think the difference is more than 4*s.* or 5*s.* per quarter. Mr. Mechi weighed 62 lb. (mind ye) to the bushel. Perhaps Mr. Mechi's neighbours don't know the value of this Wheat. I know a miller who lately ground a moiety of this Wheat for a whole year, and he made quite as good flour as his neighbouring millers. Referring to the blight, I know to my cost that it is true. I had about 4 acres of Payne's Revitts on the Lois-Weedon system; it looked well till nearly harvest, then the blight took it; perhaps its being thin on the ground is some of the cause. The grains of Wheat were wonderfully thin, so that I had only 2 quarters per acre. I have no hesitation in saying that if the grains of Wheat had been four times as large, instead of two, I should have had 8 quarters per acre. This information (such as it is) is from *J. P. P., Colne Engaine, Essex.*

Societies.

Society of Arts, *Jan. 24.—On the Uses of Peat and other Charcoals.*—Mr. Longmaid read a paper on this subject, in which he referred principally to the use of charcoal as fuel, and the value of such fuel, especially in the iron manufacture. He also alluded to Dr. Stenhouse's experiments with charcoal as a disinfectant, and remarking that it was possible to renew charcoal that had been so used and reconfer its disinfecting powers, he said that this need not be practised, seeing that it then becomes useful as a manure:

"Professor Liebig states that peat and spent bark are most difficult forms of organic matter to deal with as manure; that peaty matter remains for years exposed to the influence of air and water without undergoing change, and in this state yields little or no nutriment to plants. Recent experience has, however, shown that when organic matters, such as peat and spent tan, are converted into charcoal, they become exceedingly valuable as vehicles for the transmission of water, nitrogenous compounds, carbonic acid, &c., to the plants, first separating these matters from the atmosphere, and again yielding them up when required. The mode of applying charcoal as manure is simple; it should be ground to a coarse powder, and then strewn over farmyards, manure heaps, stables, cow-houses, pig-styes, cesspools, or placed in manure tanks, urinals, &c. It is suitable for being applied, also, without mixture by the drill or broadcast, in the proportion of 4 to 7 cwt. per acre, to all green and corn crops, and will be found a valuable addition to most soils, especially clayey ones.

In the discussion which followed the reading of Mr. Longmaid's paper, the uses of charcoal as a filter for disinfecting sewage manure were referred to. Mr. W. F. Cooke spoke of the immense quantity of useless and mischievous wood in hedgerows and woodland, which, could it be easily converted into charcoal, would be useful agriculturally. Mr. Scott alluded to his experience of charcoal as a dressing for Potatoes.

"During the years 1846-7-8, when the disease of that root was most prevalent throughout the United Kingdom, his crop of Potatoes in Cheshire, which had been dressed with charcoal, was comparatively free from disease. Charcoal was well known to be most useful as a deodoriser. He had used it in his stables, and it was known that nothing was more injurious to a horse than the smell of his own house, but the charcoal had the effect of rendering the stables sweet and wholesome, and after it had performed that office it was available for manure. With regard to the advantages of converting wood into charcoal, they were at present extremely problematical. The peat bog for fuel was worth, perhaps, from 6*l.* to 8*l.* per acre, whilst the land was prepared for reclamation, but when converted into charcoal, it had never yet, he believed, been found to pay, and therefore it was hardly fair to characterise this as one of the unappreciated and undeveloped resources of Ireland."

Notices of Books.

Land Drainage and Drainage Systems. By J. Bailey Denton, F.G.S., Assoc. Inst. C.E. J. Ridgway, 169, Piccadilly.

This pamphlet, which deserves a much fuller review than we can this week give it, contains the paper read by Mr. Denton before the London Farmers' Club. We have already alluded to that paper; it is considerably enlarged, and illustrated by numerous engravings in its present form. We have no hesitation in characterising

it as one of the best, fullest, and most practical essays on its subject. This character of it we shall hope to justify in a future number; our object now is just to intimate the fact of its publication in such terms as may promote its circulation and perusal.

Calendar of Operations.

JANUARY.

Berwickshire Merse Farm, *Jan.* 22.—The weather of December was characterised by frequent changes of short duration. Two or three days of hard frost were suddenly followed by a drizzling fresh; a few days of fine weather and frost again in rotation. In those fresh intervals, the previous dry state of the soil admitted of Wheat sowing after Turnips, to some extent; but such operations were often cut short by the inconstancy of the elements. A hurricane, more violent than any within the memory of the "oldest inhabitant," ushered in the new year, stripping roofs, levelling trees, and blowing away stacks in exposed situations. On some farms the loss of grain completely carried away is very serious, besides the mixing of various kinds together. The ensuing fortnight was quite like spring, mild, moist, growing weather. The land being in first-rate order, a considerable breadth of Wheat was sown, after Turnips eaten on with folded sheep. The young Wheat plant has made great (we hope not too great) progress during the late fine weather. Turnips will generally be sufficient to carry on feeding stock, with the assistance of corn, cake, &c. Live stock have done very well in this mild season. Stackyards have not been spared, though the winter has been too dry for "putting down" straw; and it seems that more than one half of the crop has passed into the market, in the case of Wheat at least, for immediate consumption. For a week past we have had constant showers of soft snow, partially lying, and a gentle breeze from south-east. This will wash nicely in the guano lately sown on seeds intended for soiling and hay. *J. T.*

Cheshire: *Jan.* 18.—The months of December and January generally are the least interesting of the whole year to the Cheshire farmer, as the business of the farm is usually confined to fallowing the Wheat stubbles, carting out manure, and providing straw for the cattle. This winter the weather has been so mild and dry that field operations of varied character, such as pulling and storing Turnips, sowing Wheat on the cleared land, and preparing for spring and green crops, have scarcely been interrupted, and perhaps the only thing clay land farmers have had to complain of has been the want of frost to enable them to cart out their manure to the pasture land, or for their green crops, and this cause of complaint is likely to be removed by the severe frost of the two last nights. Wheat generally is looking remarkably well, and at present, so far as our observations go, there is very little "winter proud" as it is called; this, we think, may be attributed in some measure to farmers sowing their Wheat at a later period than formerly, excepting on the very coldest clay soils, and on these it is not safe to defer it beyond the end of September or beginning of October. Turnips are keeping better than was expected, after so severe an attack of mildew; and the system of cutting and mixing them with chaff or cut straw, for the entire stock, is growing into favour. The best machine we have seen for this purpose is Moody's patent improved. On our farm Turnips are prepared by the above machine twice a day for 100 head of cattle, horses, and colts, and they are looking much better than usual under this treatment; the pleuro-pneumonia, we are sorry to observe, still lingers in some parts of the county, and it is greatly to be feared that many dairy farmers are suffering severely from its ravages. Sheep appear to have done well so far through the fine open winter, which has caused a little springing of fresh Grass on the best land; and young cattle, too, have been able to pick up a little Grass in the meadows, where they have been allowed to range to a much later period than usual. Irrigated meadows, excepting where they are favoured with a constant but an abundant stream of water, are not in the forward state we have seen them at this season of the year, in consequence of the small quantity of rain we have had, which has failed to replenish the reservoirs that were nearly dried up during the last summer. Labourers generally have been plentiful up to the present time, but as the militia regiments are now being embodied throughout the kingdom, there will in all probability be a scarcity, as the demand for them increases during the spring months. Store and other cattle fetch high prices in the market, and store pigs, which a short time ago were a complete drug, have materially risen in value. *W. P.*

Notices to Correspondents.

Gorse Crushers: *W D F.*, in his article upon Gorse as food for cattle last week, wrote "Ransome and Parsons, Salford," as the makers of the chaff-cutter he recommended, instead of "Richmond and Chandler, Salford," who are the makers of the machine he uses. They have now a machine purposely for Gorse, which can be geared so as to cut an eighth of an inch. If it does this effectually one cutting of the Gorse would answer, and save much trouble and expense.

Guano, &c.: *Waterford.* 40 lbs. of vitriol per cwt. of bones will to a great extent reduce them. 2 cwt. of guano, and 2 cwt. of bone-dust so treated would, well mixed with a cart load of mould, and then spread out of the cart with a shovel, make a good dressing per acre of Grass land. Apply it late in February.

Hedges: *A D.* Try Hornbeam, if you *cannot* get Thorn to grow in the gaps that need to be filled.

Italian Rye-grass, &c.: *R Heath.* It usually forms a part now of most mixtures for permanent Grass; being useful at any rate during the earlier years. 8 lbs. or 10 lbs. may be sown in the quantity of mixed seeds, which generally on the whole extends to 40 or 50 lbs. per acre.

Knowledge of Agriculture: *R E H.* You cannot get a "sound knowledge of practical and profitable farming" by books. You may study such books as the "Cyclopædia of Agriculture," Stephens's "Book of the Farm," Low's "Practical Agriculture," and then go and live upon a farm for a year, and in that way you will obtain what you are in search of.

Lime and Salt: *R Heath.* We would get the leaves into a half-rotten state by making a compost with earth before applying the lime. The latter will be much more useful and efficient then. It is most efficient in any circumstances when applied, not in lumps, but artificially slaked. Salt does not act upon fresh lime, or rather is not acted on by it. If mixed with fresh slaked lime, it should lie with it for a month or two before use. The lime becomes carbonate; and carbonate of lime and muriate of soda will react on one another, producing muriate of lime and carbonate of soda, which latter mixture is more caustic and alkaline than the former, and so better fitted to produce those effects in the soil for which lime is applied.

Poultry: *An Old Subscriber and P P.* "Fowls," by Bailey, and "Profitable Poultry," by Tegetmeier, are both good books. The former is probably more what you desire.

Roofing: *A Northern Subscriber* asks for some plan to supersede the present system of roofing with wood and tiles or slates for farm buildings? After high winds they have slates blown off; or the timber (often cut on the property) settles, or shrinks, or rots (dry). Is there any sort of brick arch with bricks shaped so as to act as roof and tiles—if not too expensive? [It *would* be too expensive.]

Mall Farm: *H G.* The report in another column may help you. We hope, however, to give an estimate more nearly applying to your circumstances.

Superphosphate of Lime: *Cheshire.* 3 cwt. per acre is ordinarily a good dressing for Grass land.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY respectfully invite attention to their stock of the following very desirable HARDY PLANTS.

Araucaria imbricata, from 2 to 7 feet high; as handsome as plants can be.
Cedrus Deodara, in any quantity, from 1 to 3 feet high
Do. do., 4, 5, 6, 7, 8, and 10 feet high; splendid plants
Cedars of Lebanon, 3, 4, 6, and 10 feet high
Pinus Douglasi, 3 to 10 feet
" insignis, 2 to 7 feet
" Menziesi, 3 to 7 feet
" Pinsapo, fine plants, 3 to 6 feet
" Nordmanniana, 1½ to 3 ft., all from seed and remarkably handsome
" nobilis, 1½ to 2 feet; a few larger, 5 and 6 feet high, on their own roots, and with perfect leaders
" Montezumæ, 2 to 4 feet
Pinus canadensis, 3 to 8 feet
Cupressus macrocarpa or Lambertiana, 4 to 7 feet
" thyoides variegata, 3 to 4 feet (the variegated white Cedar)
Juniperus, Upright Irish, perfect columns, 3 to 7 feet
" chinensis, 2 to 8 feet
Yew, common English, 3 to 8 feet
" Irish, 4 to 10 feet
" gold-striped, 1½ to 3 feet
" do., tall standards, 4 to 7 ft.
" Dovaston, or Weeping, worked on tall straight stems
Thuja aurea, the finest plants in the country
Libocedrus chilensis, the finest plants in the country
Large variegated Hollies
" Standard Bays

Also an immense stock of large Evergreens, Standard Ornamental Trees, &c.

All the plants here offered may be seen growing in our Nursery; they are removed every year, and will travel any distance with perfect safety. Of some, such as Araucarias, Deodaras, Golden Yews, Thuja aurea, Pinus nobilis, Nordmanniana, we have any quantity; and the plants, for root and branch, are not to be surpassed. Priced Catalogues will be forwarded on application, enclosing two postage stamps, to Waterer and Godfrey, nephews and successors of the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey, near the Woking Station, South-Western Railway, where all trains stop, and where capital conveyances can be obtained.

The 2*d.* stamp will also include a descriptive Catalogue of their American Plants, Roses, and Nursery Stock in general.

MESSRS. E. G. HENDERSON AND SON, of the Wellington Road Nursery, St. John's Wood, London, beg to inform their Patrons and the Public that their NEW CATALOGUE OF SEEDS for 1855 is now ready, and will be forwarded post free on application.

E. G. H. & Son take this opportunity of stating that none but the most popular and improved kinds of Vegetable Seeds appear in their list; and among the Flower Seeds only those whose beauty and merit are universally acknowledged, together with a carefully selected stock of the principal new varieties.

E. G. H. & Son beg respectfully to call particular attention to the following choice seeds of Florists' Flowers, which have been saved from a fine collection of named plants, and also to the annexed New and Choice Flowers, which they can confidently recommend, and in their Catalogue will be found the names of 20 beautiful ornamental Grasses. Also 12 variegated and ornamental foliage plants, for decorating the flower garden during the summer months, with full descriptions and other information respecting the following

CHOICE FLORIST FLOWERS.

	Per packet—*s.*	*d.*
Antirrhinum, extra fine mixed	0	6
Auricula, fine mixed ...	1	6
Balsam, double Camellia flowered, in packets of 6 distinct colours separate	3	0
" double Rose flowered in packets of 6 distinct colours separate ...	3	0
" new double Camellia Rose, in packets of 10 distinct colours separate, extra fine ...	5	0
" Aurora, fine dbl. cr.	1	0
" new dbl. pale yellow	1	0
Carnation, from stage flowers...	1	6
Calceolaria, from choice hybridized flowers 2*s.* 6*d.* and	5	0
Cineraria, from choicest varieties ... 1*s.* 6*d.* and	2	6
Chrysanthemum, Pompone, fine mixed	1	0
" large flowered, fine mixed	1	0
Geranium, choice show ...	2	6
" choice fancy ...	2	6
Hollyhock, first quality ...	2	6
" second quality	1	0
" in 12 distinct colours, each colour ...	0	6
Pansy, choice show, from named flowers ...	1	6
" choice fancy, from beautiful striped and spotted flowers ...	1	6
Petunia, from extra fine named varieties ...	1	0
" saved from crimson flowers with green edges	1	0
Verbena, choice mixed ...	1	0
Mimulus, beautifully blotched	0	6

NEW AND OTHER CHOICE FLOWERS.

	Per packet—*s.*	*d.*
Abronia umbellata ...	1	6
Anagallis azurea grandiflora	1	0
" rubra	1	0
Arctotis breviscapa ...	0	6
Aster, new Peony pyramid, in packets of 10 distinct colours separate	3	6
" new bouquet pyramidal, in packets of 12 distinct colours separate	3	6
Alonso Warscewiczii ...	5	0
Clintonia pulchella ...	0	6
Coreopsis coronata ...	0	6
" filifolia	0	6
" bicolor nana ...	0	6
" Drummondi grandiflora ...	0	6
Calendrina umbellata ...	0	6
Cyclamen persicum ...	1	0
" " rubrum	1	0
Centauridium Drummondi	0	6
Dianthus Dunnetti superba	1	0
" chinensis flora pleno, extra fine ...	0	6
Digitalis, new spotted ...	0	6
Eucnida bartonioides ...	0	6
Eschscholtzia tenuifolia...	1	6
Gramanthes gentianoides	0	6
Humea elegans	0	6
Ipomea rubra cærulea ...	1	0
" limbata	2	0
Leptosiphon luteum ...	0	6
" aureum ...	1	0
Linum grandiflorum rubra 1*s.* 6*d.* and	2	6
Lobelia racemosioides ...	0	6
" erinus oculata ...	0	4
" Queen Victoria (scarlet)	0	6
" Roi Leopold (blue)	0	6
Larkspur, new double improved Hyacinth flowered, in packets of 6 distinct colours ...	2	6
Limnanthes sulphurea odorata	1	0
Lychnis fulgens (scarlet)	0	6
Lythrum roseum superbum	0	4
Mignonette, new large flowering	0	3
Oxalis rosea	0	6
Phlox Decousata, from fine named varieties ...	1	0
" Drummondi coccinea	0	6
Portulacca, new orange ...	0	6
" rosea	0	6
Primula sinensis fimbriata, alba, and rubra, mixed	2	6
Poppy, new large Peony flowered, in 8 brilliant colours...	2	0
Rhodanthe manglesi ...	0	6
Reseda myriophylla (new Mignonette)	1	0
Schizanthus Grahami carnea	0	4
" retusus ...	0	3
" retusus albus...	0	6
Salpiglossus, scarlet, blue, and sulphur, each ...	0	6
Stock, Scarlet Intermediate	0	6
" German, new large flowering, in packets of 6 distinct colours, separate	2	6
" Intermediate, or Autumn, in packets of 12 distinct colours separate	3	0
" Brompton, or Winter, in packets of 10 distinct colours, sep.	2	6
" Emperor, in pkts. of 5 distinct colours, separate	2	0
Sweet William, new dbl. mixed	0	6
Tropæolum, Triomphe de Gand	0	6
" Lilie Schmidt	0	6
" tricolor ...	0	6
" Schewerianum	0	6
Vittadenia lobata... ...	1	0
Whitlavia grandiflora ...	1	6

Holcus Saccharatus (New Sugar Cane). 1*s.* and 2*s.* 6*d.*
Dioscorea Batatas (Japanese Yam), 2*s.* 6*d.* each tuber.
January 27.

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	s.	*d.*
Andromeda floribunda, fine, per dozen ... ... 12*s.* to	18	0
25 Azaleas, new hardy Belgian varieties, one of a sort on their own roots	20	0
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12 Rhododendrons, including Scarlet, White and Rose hardy varieties	12	0
Fine hardy Scarlet Rhododendrons, 2 feet, per dozen ...	12	0
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24 Choice Ericas, one of a sort	16	0
6 Bulbs Lilium Lancifolium, one of a sort	12	0

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Fine standard and dwarf-trained Peaches, Nectarines, Apricots, Plums, Pears, and Cherries. The best and most approved sorts of these respective kinds, to name, each, 3*s.*, or, per dozen	30	0
Untrained or maiden do., 1*s.* 6*d.* each, or, per dozen ...	15	0
Apples, dwarfs and standards of best sorts, per dozen, 10*s.* to	15	0
Fine Gooseberries, Currants, and Raspberries, per dozen	3	0
Figs, Medlars, Quinces, Walnuts, and Mulberries, each ...	2	0
Filberts, new thin shelled and red skinned, per dozen ...	3	0
Strong Vines, from eyes and layers, in pots, per dozen ...	18	0

Large stock of Transplanted fine Scotch Larch and Spruce Firs, cheap.

New Gardens and Greenhouses furnished on moderate terms.

New Priced Catalogue of Plants and Seed List for 1855 by post.

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Cole's Red

EPPS, Seed Grower and Merchant, Maidstone.

LYNCH'S STAR OF THE WEST CUCUMBER.—This might with propriety be called the Champion of the West, for it has won 11 prizes at different Horticultural Exhibitions. It is a seedling raised by Mr. Lynch, the well-known Gardener to the Right Hon. the Earl of St. Germans, Lord Lieutenant of Ireland. He has grown it for several years, and has beaten everything that has been put in competition with it, including all the newest and most recently introduced varieties. We have purchased the whole stock, having given a very large sum for all the seeds in his possession, and it is now for the first time sent out; to those who want a good flavoured, prolific, and prize Cucumber, we would recommend to obtain a packet of the seeds.

It is a first-rate winter fruit, and, with careful management, can be had in perfection all the year round. It is most prolific, and bears two-fruit on every joint, and as many as 42 have been counted on a single plant in a tub from 5 to 22 inches in length. The fruit is quite round, like the barrel of a gun, and free from any ribs or roughness on the skin. It has a short handle, and is in every way calculated to beat any other sort in cultivation. The spines are white, and they stand out in the most prominent way. The stock is very limited.

Three seeds, per packet, 1*s.* 6*d.* | Five seeds, per packet, 2*s.* 6*d.*

The following is an official account of the number of Prizes won by Mr. Lynch, in competition with all the best Gardeners and the best varieties in the neighbourhood:—

"Royal Devon and Cornwall Horticultural Society, Nov. 11, 1854.

"Dear Sir,—The prizes awarded you for your Cucumber are as follows:—

1851.—May 15th, First Prize	1852.—Sept. 9th, First Prize
" July 17th, Extra Prize	1853.—June 8th, Second Prize
" Sept. 4th, First Prize	" Sept. 8th, First Prize
1852.—May 27th, First Prize	1854.—June 1st, First Prize
" July 22d, First Prize	" Sept. 9th, First Prize

In all, 10 Prizes.

"I remain, dear sir, yours truly,
"Nathaniel J. Easton, Hon. Sec.

"Mr. R. Lynch, Gardener to Earl of St. Germans, Port Elliott."

WM. E. RENDLE AND CO., Seed Merchants, Plymouth.

HOLCUS SACCHARATUS,
OR CHINESE SUGAR CANE.
(See Gardeners' Chronicle, Dec. 30th, 1854.)

MR. JOHN HENDERSON, formerly of the firm of John A. Henderson & Co., Pine Apple Place, London, has the honour to announce that he is prepared to supply Gentlemen, Amateurs, and Professionals, with seed of this most valuable and estimable plant.

As the Dioscorea Batatas seems well adapted to make good any deficiency arising from failure in the Potato crops, so this appears admirably calculated to meet many wants of the present day. That it may be used for the purposes of distillation, and may therefore preserve the grain of the country, is not less certain than that the leaf and stem (after the saccharine matter has been extracted) contain a large amount of fibre, of such a nature as can be employed in the manufacture of every kind of paper. In both these points, as well as in many others, this plant demands the attention of every Gardener and Amateur throughout the country; the more so as from the necessity that at present exists for the production of fibres that may be used in paper manufacture a due remuneration may be fairly expected by growers, even after the plant has, so to speak, paid itself by the saccharine matter extracted from it.

Mr. Henderson hopes, in a few days, to have ready for the press a more lengthened account of this plant, as well as a complete statement of the latest experiments in connection with the Dioscorea Batatas. As there are many varieties of the Holcus W. J. H. can only be responsible for seed forwarded by himself, which he is prepared to do in sealed packets, at 1*s.*, 2*s.* 6*d.*, 5*s.*, and 10*s.*, according to quantity.

Orders to be accompanied with a remittance to Mr. John Henderson, Kingskerswell, Newton Abbot, South Devon.

P.S. Price to the Trade can be had on application.

SNOW'S SUPERB BROCCOLI.—Every seed new and true. Sealed packet, 1s.; per oz., 3s.; pound bags for the trade on liberal terms.

GLENNY'S IMPROVED BALSAM.—Unequalled for size, doubleness, and colour; 6 classes, 3s.; mixed, 1s.; sealed packets with culture.

DOUBLE HOLLYHOCKS from noble flowers. Sealed packet, 1s.

Stamps or P.O. orders to GEORGE GLENNY, Horticultural agent, Dungannon House, Fulham. Sales, valuations, &c., attended; Ground Laid Out, Rockwork, Ornamental Water, &c., planned and executed.

BANKS' NEW SEEDLING FUCHSIAS FOR 1855.

W. J. EPPS begs to state that he has purchased the following Seedling Fuchsias, raised by that celebrated grower, E. BANKS, Esq., of Sholden Lodge, Deal; they were the first selection from his splendid batch of Seedlings of 1854, and have been thoroughly proved. They are distinct, rich, and the greatest advance upon any of the kinds known, and cannot fail to give the highest satisfaction.

CLIMAX.—(named by Mr. BANKS).—Tube stout, sepals very broad reflex, with a pretty curve or half circle, the points of the petals touching the seed vessel; colour, rich velvety crimson—the corolla is very large, of a splendid violet blue and great substance; habit, robust, and blooms particularly free. 7s. 6d.

FAIRY QUEEN.—Very distinct and striking, immense bloomer, beautiful waxy white tube and sepals, tinged with lemon, long well-proportioned flower; corolla large, and of a very rich plum colour puce. 7s. 6d.

GRAND SULTAN.—A very noble flower, and will be many years before it is equalled; beautiful foliage, and first-rate for exhibiting; flowers large, very stout, sepals reflex, similar to the Turn Cap Lily, and of a very rich crimson colour; corolla large, and very dark velvety purple. 7s. 6d.

MAID OF KENT.—This Fuchsia is pronounced by the following judges, viz., Mr. Edwards, Secretary to the Floricultural Society; Mr. Barnes, of Camden Nursery; Mr. Todd, of Sutton, to be the prettiest and most distinct Fuchsia yet raised; habit, dense and bushy, producing great clusters of pretty reflexed blooms, of great substance, very clear waxy white, with a rich plum-coloured puce corolla, and exceedingly striking. 10s. 6d.

BEAUTY OF THE BOWER.—A very rich and perfect formed flower, scarlet tube and sepals, which reflex over the tube, displaying a beautiful dark purple corolla of great substance: habit, perfect. 7s. 6d.

OMER PACHA.—A large and well-proportioned flower, with dark crimson tube and sepals: corolla, intensely dark velvety purple: habit, excellent and very graceful. 7s. 6d.

The Set will be sent out in April.—Strong Plants, at 42s.

The usual discount to the Trade where three of each are taken.

Agent—HENRY and M'MULLEN, Seed Merchants, Leadenhall Street, London.—Bower Nurseries, Maidstone.

MESSRS. E. G. HENDERSON AND SON, of the Wellington Nursery, St. John's Wood, London, will commence sending out plants in April next of their NEW SEEDLING FUCHSIAS WITH WHITE COROLLAS, BOTH DOUBLE AND SINGLE, also TWO STRIPED OR VARIEGATED COROLLA'D FUCHSIAS, and TWO UNIQUE FUCHSIAS with VIOLET AND BLUE COROLLAS. The last two were purchased of E. Banks, Esq., after having been flowered, the second season, and proved as flowers possessing unquestionable merits, and unequalled by other red varieties previously sent out. All the other varieties were purchased of W. Story, Esq., of Newton, in the county of Devon, who succeeded in introducing a Scarlet Fuchsia with White Corolla, which new feature in this tribe gives one of the greatest novelties that they have had the pleasure of seeing for many years. Mr. Story, being the raiser of this new Class, offered them to Messrs. Henderson for ONE HUNDRED GUINEAS, which offer they accepted. A faithful drawing of three of the varieties here offered has been taken by Mr. James Andrews, the well-known floricultural and horticultural artist, sketches from which have appeared in Van Houtte's "Flore des Serres," Verschaffelt's "Illustration Horticole," and will also appear in Turner's "Florist," for February. The dwarf, compact, and free flowering habits of the plants will be sure to please every grower of this tribe.

QUEEN VICTORIA (Story's).—Splendid wide sepals, beautifully reflexed, of a bright scarlet crimson, and a lovely clear white corolla. Price 10s. 6d.

PRINCE ALBERT (Banks's).—Scarlet crimson sepals reflexed, and rich violet corolla. This flower we consider unequalled by any, its reflexing properties being such that either more or less would be a fault; indeed the flower is perfection itself. 10s. 6d.

MRS. STORY (Story's).—Fine large scarlet tube, long wide sepals reflexed; corolla fine substance, and clear white. 10s. 6d.

RANUNCULÆFLORA (Story's).—Scarlet sepals and tube, with double white corolla, a flower not having that confused appearance as many of the double varieties are known to possess. This was considered the best of the only two double white varieties flowered by Mr. Story. 21s. The other double variety we do not appear to have received.

PERUGINO (Story's).—Fine large scarlet sepals and tube, with a conspicuous striped corolla of rose and purple flakes, handsomely reflexed and free flowering. 10s. 6d.

EMPRESS EUGENIE (Story's).—Wide reflexed petals of a rosy crimson, the inside of petals having a violet shading; corolla fine white. 10s. 6d.

RAFFAELLE (Story's).—A beautiful variegated corolla with crimson sepals well reflexed, and of good substance; the colour of the corolla is a rich chocolate flaked with rose, free flowering. 10s. 6d.

LADY OF THE LAKE (Story's).—Fine deep crimson, with a blush white corolla, very pretty. 10s. 6d.

WATER NYMPH (Story's).—Bright scarlet crimson globe stout, wide petal, corolla fine clear white; an elegant flower. 10s. 6d.

Or if the set of nine be taken, the price, 4l. 4s. A coloured plate of three of the above Fuchsias and one of Cyclamen Atkinsi will be forwarded by post, on receipt of six postage stamps.—January 27.

FUCHSIA (Banks's Favourite).—Fine handsome scarlet sepals and tube; large and conspicuous flowers, with sepals finely reflexed; and a splendid blue-violet corolla of great substance. The stock plant being small the number of plants will be limited. Price 10s. 6d.

MESSRS. E. G. HENDERSON AND SON were surprised to see an advertisement a few weeks back in the *Gardeners' Chronicle*, from Messrs. Lucombe, Pince, and Co., of Exeter, offering two new Fuchsias, similar in character to those described above, and after a written communication with Mr. Story, it was thought necessary for one of the Firm to make further inquiries about them, and in consequence Mr. ANDREW HENDERSON went to Exeter and Newton, where he was informed by a jobbing gardener at Newton that he had received SEVEN POUNDS for them after (as the said jobbing gardener stated) he had been offered 20*l.* for them by a Nurseryman in London, but whose name or address he did not know.

Messrs. E. G. H. & Son think the above explanations necessary, in consequence of a great number of their customers having criticed them at higher prices than are quoted above. This reduction is made in consequence of information which they have received, that leaves no doubt on their minds but that those to be sent out by Messrs. Lucombe, Pince, & Co., are similar in character to the above.—Wellington Nursery, St. John's Wood.

DIOSCOREA BATATAS—THE NEW CHINESE POTATO.—This new esculent was fully described by Professor Lindley in the *Chronicle* of December 23, 1854.

The Subscribers are now importing a choice lot of Roots, and can supply them on the following terms:—

Four Tubers	£0 10 0	Fifty Tubers	£5 5 0
Ten „	1 2 6	Hundred „	10 0 0

First Orders will have the best Roots.—Apply to WILLIAM E. RENDLE & CO., Seed Merchants, Plymouth.

CHOICE CALCEOLARIAS.

J. COLE begs to offer a few dozen of his unblooned Seedling HERBACEOUS CALCEOLARIAS from his choice stock; they were the admiration of all who saw them last summer. They are not potted off, though strong enough for large 60-sized pots. The Seed was saved from selected stock, carefully impregnated. J. C. offers them at 4s. per dozen, or 25s. per hundred. A remittance solicited from unknown correspondents.—Keyfield Nursery, St. Alban's, Herts.

UNEQUALLED NEW MELON,
GOLDEN DROP GREEN FLESH.

EDWARD TILEY having purchased the whole of Messrs. Wood & Son's stock of Seeds of the above-named Melon, can with confidence recommend it to all growers of that splendid fruit. It has been thoroughly proved by an eminent Melon grower, and declared by all who have seen and tasted it to be one of the finest-flavoured Melons yet grown. It is a very beautiful colour when ripe, skin very thin, flesh firm and solid, and of a most superior melting and delicious flavour. Free setter and prolific bearer. It possesses a great advantage over others in its exceedingly handsome appearance when placed upon a table or on the stall of a fruit salesmen, and for exhibition this Melon will be the favourite.

THE KING, Superb Scarlet Flesh Melon.—This is a variety very much wanted, and which has for some time past been neglected, but is now becoming in great request; such being the case, EDWARD TILEY has just procured a stock of this most superb Hybrid Scarlet Flesh Melon, which he can recommend with as great confidence as those before sent out by him, and which have all given the greatest satisfaction to the public.

Each of the above varieties may be had in packets containing six seeds, 1s. 6d. per packet.

The following fine varieties of Melons can be highly recommended, and are all warranted true:—

The Queen	1s.	Beechwood	1s.
Bromham Hall	1s.	Windsor Prize	1s.
Incomparable	1s.	Emperor	1s.
Golden Ball...	1s.	Fleming's Hybrid Persian	1s.
Golden Perfection... ...	1s.	Blackall's Green Flesh ...	1s.
Rowood	1s.	Bailey's ditto ...	1s.
Victory of Bath	1s.	Snow's Hybrid	1s.
Cameron Court	1s.	Gordon Castle	1s.
Chichester Prize	1s.		

A packet of the Golden Drop and one of the King Melon, and one packet of any other variety mentioned will be forwarded, post free, on receipt of 3s. 6d. in cash or penny postage stamps.

EDWARD TILEY, Nurseryman, Seedsman and Florist, 14, Abbey Church Yard, Bath, Somerset.

LIQUID AMBER.—The undernamed is a buyer of either a large or small quantity of the above. Send cash price, and height, to Mr. JEYES, Nurseries, Northampton.

TENTS, MARQUEES, AND RICK CLOTHS.—Now on Sale, several second-hand Rick Cloths, Marquees, and Tents, of various sizes. Some of the Marquees are well adapted for Horticultural Societies. One 50 feet by 30, price 35*l.*; one 70 feet by 30, 50*l.*; and one 100 feet by 30, 65*l.* These are almost new, and quite ready for use. Small tents for the Wars or Emigrants, weighing 12 lbs., price 25s. each, new and waterproof. Small Tents for Gardens, 30*l.* each.—R. RICHARDSON, 21, Tonbridge Place, New Road, London.

BLOSSOM OF FRUIT TREES.—WORSTED NET to effectually protect the blossom of wall fruit trees from frost and blight, and the ripe fruit afterwards from wasps and flies, 7*d.* per square yard, in various widths. All kinds of garden, fishing, and sheep nets, made by machinery, and at very low prices.—R. RICHARDSON, 21, Tonbridge Place, New Road, King's Cross, London.

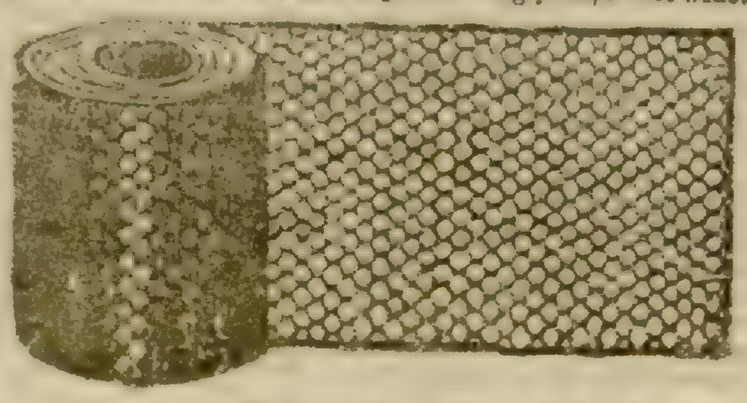
TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d.* per square yard; 200 yards, 14s.; 500 yards, 30s.; 1000 yards, 50s. Scrim Canvass, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

WOOLLEN NET FOR THE PROTECTION OF WALL FRUIT TREES FROM FROST, 2 and 3 yards wide, can be had of WEATHERHEAD, WALTERS, & Co., Derby. See *Gardeners' Chronicle* of Oct. 28, 1854.

HALL'S GARDEN NETTINGS; the best and cheapest for all purposes of shelter and shade from Frost, Hail Storms, and Gales of Wind. No. 0, 5*d.*; No. 1, 5½*d.*; No. 2, 6*d.*; Nos. 3 and 4, 7*d.* All 56 inches wide, and in lengths of 10, 20, 30, and 60 yards.—Manchester.

CHEAP WIRE GAME & POULTRY NETTING, 5*d.* per running yard.

GALVANISED DITTO, 7*d.* per running yard, 2 feet wide.



	Galvanised.	Not Galvanised.
24 in. wide, 2 in. mesh,	7*d.* per yard.	5*d.* per yard
30 in. „ 2 in. „	9*d.* „	6½*d.* „
36 in. „ 2 in. „	10½*d.* „	7½*d.* „
48 in. „ 2 in. „	1s. 2*d.* „	10*d.* „

Sparrow Proof Netting, Galvanised, 3*d.* per square foot, made to any size for the same proportionate price. This article was shown at the Great Exhibition, where it was so much admired for its light and durable appearance, and acknowledged to be the cheapest and best article of the kind ever offered. Extra strong Wire Sheep Netting, 3 feet high, 1s. 6*d.* and 2s. 3*d.* per yard. Also every description of Flower Trainers, Dahlia Rods, Garden Arches, Bordering, Flower Stands, Tying Wire, Trellis Work, Invisible Wire Fencing, Hurdles, and every description of Wire Work for Horticultural purposes.—Illustrated Catalogues of Patterns forwarded, post free, on application to T. H. FOX, City of London Wire Work and Iron Fence Manufactory, 44, Skinner Street, and 6 and 8, Snow Hill, London.

WEEDS ON WALKS.

MR. FLEMING'S WEEDING OR SALTING MACHINE FOR GRAVEL WALKS, COURT YARDS, &c., manufactured and sold by ALEXANDER SHANKS & SON, Arbroath, Forfarshire, from whom particulars with prices may be had.

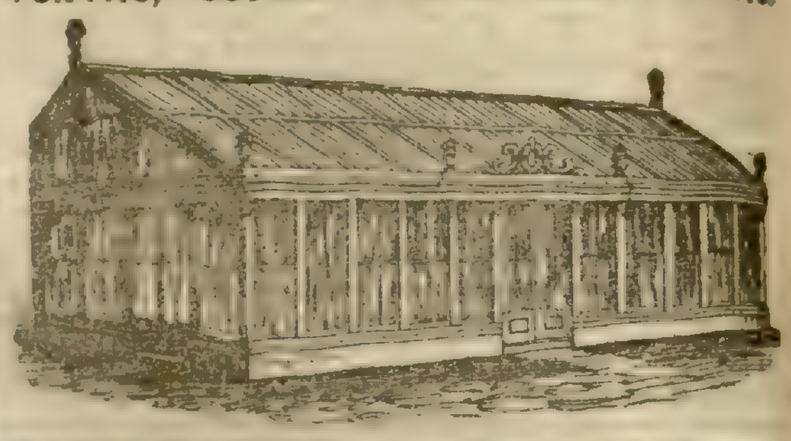
MAW'S ENCAUSTIC TILE PAVEMENTS form an indestructible and highly decorative substitute for ordinary flooring, and their imperishable Oil Cloth Coverings for Entrance Halls, Passages, Verandahs, Conservatories, &c.—MAW & Co. send free of expense their Book of Designs, suitable in price and style for every description of Building.—Benthall Works, Broseley, Salop.

CHEAP FUEL.

GAS COKE, as used in the Royal Conservatories, admirably adapted for Furnaces (as producing no smoke), and also well suited for Household Fires, to be had at 9s. per Chaldron in quantities of not less than 20 Chaldrons, cleared by barge or carts within a week, from the PHŒNIX GAS WORKS, Bankside, Southwark, or at the Bridge Foot at Vauxhall. Two Chaldrons delivered within a mile of the Works on the Surrey side of the Thames at an additional charge of 2s. per Chaldron. A smaller quantity or delivery at a greater distance at a moderately increased rate.

HOT-WATER PIPES at wholesale prices, with Elbows, Syphons, Tee Pipes, and every requisite connection. Cast Iron Boilers, 55s. each. Improved Soot Doors and Furnace Doors. Builders' Castings of every description kept in Stock at—Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street (near Blackfriars Bridge), London.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

SHEET GLASS (15 oz.) of good quality in 100 feet boxes.

10 in. by 8 in. and under	15s. per box.
11 in. by 9 in. to 22 in. by 14 in.	17s. „
Larger sizes to 28 in. by 18 in.	19s. „

Also similar sizes in 21 oz. Sheet at 24s. per box. Boxes charged 2s. each, and returnable at the same price, if delivered free. CRYSTAL WHITE GLASS, Crown and Sheet Glass in Crates, British and Patent Plate, &c. &c. White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS FOR CONSERVATORIES.

THOMAS MILLINGTON'S present prices for good 16 oz. sheet glass, boxes included.

6 in. by 4 in. to 6 in. by 5½ in. ...	13s. 3*d.*	per 100 feet.
7 by 5 to 8 by 6	13 6	
8½ by 6½ to 10 by 8	14 0	
10½ by 8½ to 14½ by 10½	16 0	
17 by 10 to 18 by 12	18 0	

A great variety of sizes. Particulars had on application.

ORCHARD HOUSE SQUARES on Mr. RIVERS's plan, to whom I have sold some thousands of feet.

Large Sheets for cutting up, in cases, at 2½*d.* and 3*d.* per foot.

HARTLEY'S IMPROVED ROUGH PLATE GLASS, Sheet, and Rough Plate, Tiles, Milk Pans, Bee and Propagating Glasses, Wasp Traps, Cucumber Tubes, Preserve Jars, with and without covers; Fern Glasses.

Plate, Sheet, Crown, and Ornamental Window Glass. Crystal Glass Shades for ornaments.

Greenhouses, erected in either wood or iron. Garden Lights and Frames.

87, Bishopsgate Street Without, London—same side as Eastern Counties Railway.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present prices of Glass for Cash:—

	SHEET SQUARES. In Boxes of 100 feet.	CROWN SQUARES. In Boxes of 100 feet.
Under 6 by 4	£0 12s. 6*d.*	... 8s. 6*d.*
6 by 4, and 6½ by 4½	0 13 0	... 12 6
7 „ 5, — 7½ „ 5½ } 8 „ 6, — 8½ „ 6½ }	0 15 0	... 14 0
9 „ 7, —10 „ 8, 12 by 9, 12 by 10, 14 by 10 }	1 0 0	

Larger Sizes, not exceeding 40 inches long.

16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. „ 4½*d.* to 5*d.* „ „ „
26 oz. „ 6*d.* to 7½*d.* „ „ „

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

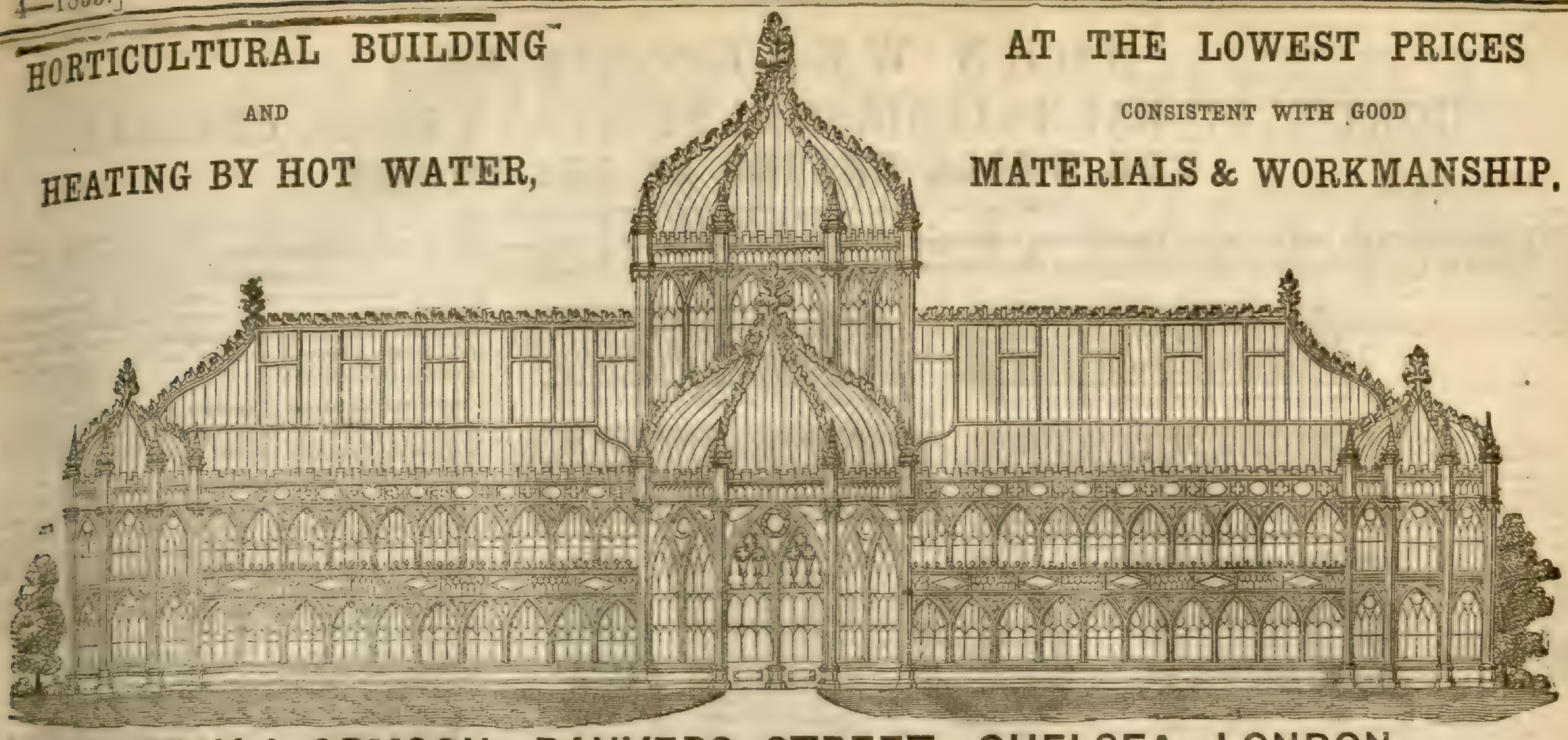
Glass Tiles, ¼ of an inch thick, packed in cases, containing 50, at 1*l.* 17s. 6*d.* per case. Packages 2s. each extra, but allowed for when returned.

Glass Milk Pans, 21s. per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER,

AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

AN IMMENSE STOCK OF

GARDEN ORNAMENTS

AT NOW BE INSPECTED AT

AUSTIN AND SEELEY'S

ARTIFICIAL STONE WORKS,

Or Pattern Sheets will be sent by post to any Gentleman who may not have an opportunity to call.

KEPPEL ROW, NEW ROAD,

REGENT'S PARK, LONDON.

STEPHENSON AND PEILL, 61, Gracechurch Street, London, and 17, New Park Street, Southwark, Manufacturers of Copper Cylindrical and Improved Conical Iron BOILERS and Conservatory and Hothouse Builders, either in Wood or Iron, respectfully call the attention of the Nobility, Gentry, and Nurserymen to their simple but efficacious method of warming Horticultural and other Buildings by Hot Water.

From the extensive works they have executed, references of the highest respectability can be given, and full particulars furnished on application.

THE COMFORT OF A FIXED WATER-CLOSET FOR 1*l.*—Places in gardens converted into comfortable water-closets by the PATENT HERMETICALLY SEALED PAN, with its self-acting valve, entirely preventing the return of cold air or effluvia. Any carpenter can fix it in two hours. Price 1*l.* Hermetically-sealed Inodorous Chamber Commodes, 1*l.*, 2*l.* 4*s.*, and 3*l.*; also Improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus, with engravings, forwarded by enclosing two postage stamps.—At FYFE & Co.'s Sanatorium, 46, Leicester Square, London.

TESTIMONIAL.—The following Testimonial of the valuable efficacy of CUPISS'S CONSTITUTION BALLS is so excellent that the proprietor begs to call the attention of the public to a perusal of it.

"Combs, Stowmarket, October 25th, 1850.

"DEAR SIR,—Having for two years past experienced great trial with the lung complaint in my neat stock, last year having lost five out of seven, I employed an old experienced veterinary surgeon, with little or no success. The two cases saved I believe to be from the use of blisters on each side of the chest, and CUPISS'S CONSTITUTION BALLS, which you recommended; and this year having two cases of the same disease, quite as bad as the others, I adopted the same means of cure, and am happy to state with success, having saved them both. I cannot speak too highly of the use of the Balls; I believe them to be as good for neat cattle as for horses. I think this statement of importance to Agriculturalists, and as Agent for CUPISS'S Constitution Balls, you are at liberty to make use of the above information as you may deem fit.—Yours faithfully, "JOHN COBBOLD.

"To Mr. J. B. CUTTING, Chemist, &c., Stowmarket."

The Constitution Balls are prepared only by FRANCIS CUPISS, M.R.C.V.S., Author of the "Prize Essay on the Diseases of the Liver of the Horse," Diss, Norfolk; and sold by all respectable medicine vendors in town and country, in packets, six Balls each, 3*s.* 6*d.* per packet, with a wrapper giving full directions for the use of the Balls, and treatment of the animal whilst taking them. Any gentleman using the Balls may consult the Proprietor gratuitously, either personally or by letter post paid.

WATERPROOF PATHS.—BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

LANDSCAPE GARDENER AND GARDEN ARCHITECT.

MR. W. DAVIDSON is about concluding his engagement with Sir William F. F. Middleton, Bart., of Shrubland Park, in consequence of the completion of extensive alterations on which he has been there employed; and respectfully tenders his services in the above capacities to Noblemen and Gentlemen, and the Public generally, in laying out or improving Gardens, Grounds, Parks, Cemeteries, Arboretums, &c. Mr. D. feels strongly the importance of the opportunities he has had of maturing his taste for natural arrangement and artistic design, under Sir William and Lady Middleton, and appeals with confidence to Shrubland for examples of his practical and scientific knowledge, as a Civil Engineer, in directing the satisfactory and economical execution of works in general. He begs to mention further, that his practical experience enables him to offer advice upon all subjects connected with a garden, both structural and cultural. Mr. D. will give careful attention to every matter, extensive or otherwise, in which his advice may be required, and will regulate his professional charges in proportion to the nature and extent of each particular case. Mr. D. is kindly permitted to refer to Sir William Middleton, Bart., Shrubland Park, Ipswich; Sir Charles Barry, Westminster; Dr. Lindley, and many others who are pleased to consider him worthy of their patronage and recommendation.

37, Bloomsbury Street, Bedford Square, London.

WANTED to Rent, from Lady Day, a SMALL FARM near London. A good House is required with 40 to 100 acres of Land (arable and pasture), and the requisite Outbuildings; and within 25 miles from town.—Apply, by letter, to the Editor of the *Agricultural Gazette*, 5, Upper Wellington Street, Strand, London.

TO BE LET ON LEASE, for a term from Michaelmas next, with the usual entry forthwith, a highly reputed CORN and STOCK FARM, in North Hants, containing 1057 acres, very compact, and with Market and Railway facilities.—To view and treat, apply to LAMB, BROOKS, & Co., Solicitors, Basingstoke, or Odiham, Hants. References as to substance and character will be required.

TO BE LET ON LEASE, FARMS IN DORSETSHIRE, on the Milton Abbey Estate, seven miles from Blandford, and 11 from Dorchester, with entry at 25th March, and 11th October next.

1st. DELCOMBE, in the parish of Milton Abbas, containing 335 acres or thereby, whereof 140 acres are Grass, and 195 arable; the greater part a deep, friable, calcareous loam. This farm is equally adapted for a mixed dairy and corn management, or for corn and stock. The buildings are commodious, and the farm residence is picturesquely placed on a lawn, with a walled garden. The farm is tithe free.

2d. ANSTEY FARM, in the parish of Hilton, now containing 304 acres, or thereby, whereof 190 acres are Grass and Meadow, and 114 Arable. This Farm has hitherto been occupied as a dairy and corn farm, for which it is well adapted, the land being well watered and of good quality. It is capable of much improvement by drainage and otherwise, for which every facility and encouragement will be offered by the landlord. The arable part of the farm is a friable loam on chalk, the Grass land in the vale a deep earthy soil.—For further particulars apply in London, to JAMES CAIRD, 9, Little Ryder Street, St. James's; and in Dorset, to WALTER ANDERSON, Milton Abbey, Blandford.—Jan. 27.

NURSERY AND SEED BUSINESS,

ESTABLISHED IN THE YEAR 1819.

TO BE LET, with immediate possession, the NURSERY and SEED SHOP at Taunton, for some time past in the occupation of Messrs. M'Intyre and M'Intosh. The Grounds and Stock are in excellent condition, moderately rented, and are well worthy the attention of any person wishing to carry on the business. If required the quantity of ground may be reduced. The Nursery is about 5 minutes' walk from the Railway Station.

Apply to Mr. YOUNG, the Proprietor, Elm Cottage, Taunton.

TO BE LET, with immediate Possession, a NURSERY AND FLORIST BUSINESS situated in a first class neighbourhood near the Regent's Park. The ground is well stocked, and the Greenhouses, Pits, Frames, &c., contain a choice collection of Plants in the highest condition. There is an excellent Residence, with Stable, Coach-house, Potting and Store Rooms. It is well worthy the attention of any person wishing to carry on the business.—For further particulars inquire at the office, 10, Victoria Terrace, Belsize Road, St. John's Wood, London.

EGGS, from the Yards of Mr. G. BOTHAM, Wexham Court.—Prize Spanish, 30*s.*; ditto Brahma Pootras, 21*s.*; ditto White Cochin, 21*s.*; ditto Grey Dorking, ditto Red Speckled Dorking, ditto Silver Pencilled Hamburgs, ditto Duckwing, Game, ditto Rouen and Buenos Ayres Ducks, at 10*s.* 6*d.* per setting of 13.—May be had by sending a Post-office order, payable at Slough. Box and packing, 1*s.*

TO BE SOLD, BUFF COCHIN CHICKENS, from first class Prize Birds, Brahma Pootra Chickens, from imported American Prize Birds, and Spanish Chickens. Also some very good one-year-old Birds of the above descriptions. Wire, Game, and Poultry Netting, Poultry Hurdles, Hen-houses, Chicken Coops, Flower Stands, and Trainers, Garden Arches, and every kind of Wire Work, useful and ornamental.—T. H. Fox's, City of London Wire Works, 44, Skinner Street, and 6 & 8, Snow Hill. Illustrated Catalogues forwarded post free.

COCHIN CHINA FOWLS.

MR. PUNCHARD'S ANNUAL SALE.

MR. J. C. STEVENS begs to notify that he has received instructions from Mr. Punchard to announce for Sale by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 30th January, at 12 o'clock precisely, a selection of first class COCHIN CHINA FOWLS, bred in the celebrated Yards of Blunts Hall, Haverhill, the Stock of which has been strengthened by careful importations, and the Birds from which were the winners of the Silver Vase, and also one other First Prize for Cochins, at the late Birmingham Exhibition.—May be viewed on the morning of Sale, and Catalogues had by inclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

FANCY POULTRY.—PERIODICAL SALE.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, Feb. 6, at 12 o'clock precisely, about 240 Lots of CHOICE POULTRY and PIGEONS, from the yards of E. Simons, Esq., Birmingham; R. J. Simpson, Esq., Sandbach; Mrs. Mills Ringwood, and others, consisting of Spanish, Cochins of all colours, Brahma Pootras, Hamburghs, Polands, Andalusians, Dorkings, Game, Malays, Sebright Bantams, a few Silver Pheasants, and some well bred carrier and other Pigeons.—May be viewed on the morning of Sale, and Catalogues had by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden, London.

POSTPONEMENT OF SALE.

MR. J. WILLMER begs to announce that the Sale at the Sunbury Nursery is in consequence of the inclemency of the weather postponed till the 13th and 14th of February, at 12 o'clock precisely each day.—Further particulars and Catalogues had by enclosing two postage stamps to Mr. J. WILLMER, Auctioneer and Valuer, Sunbury, Middlesex.

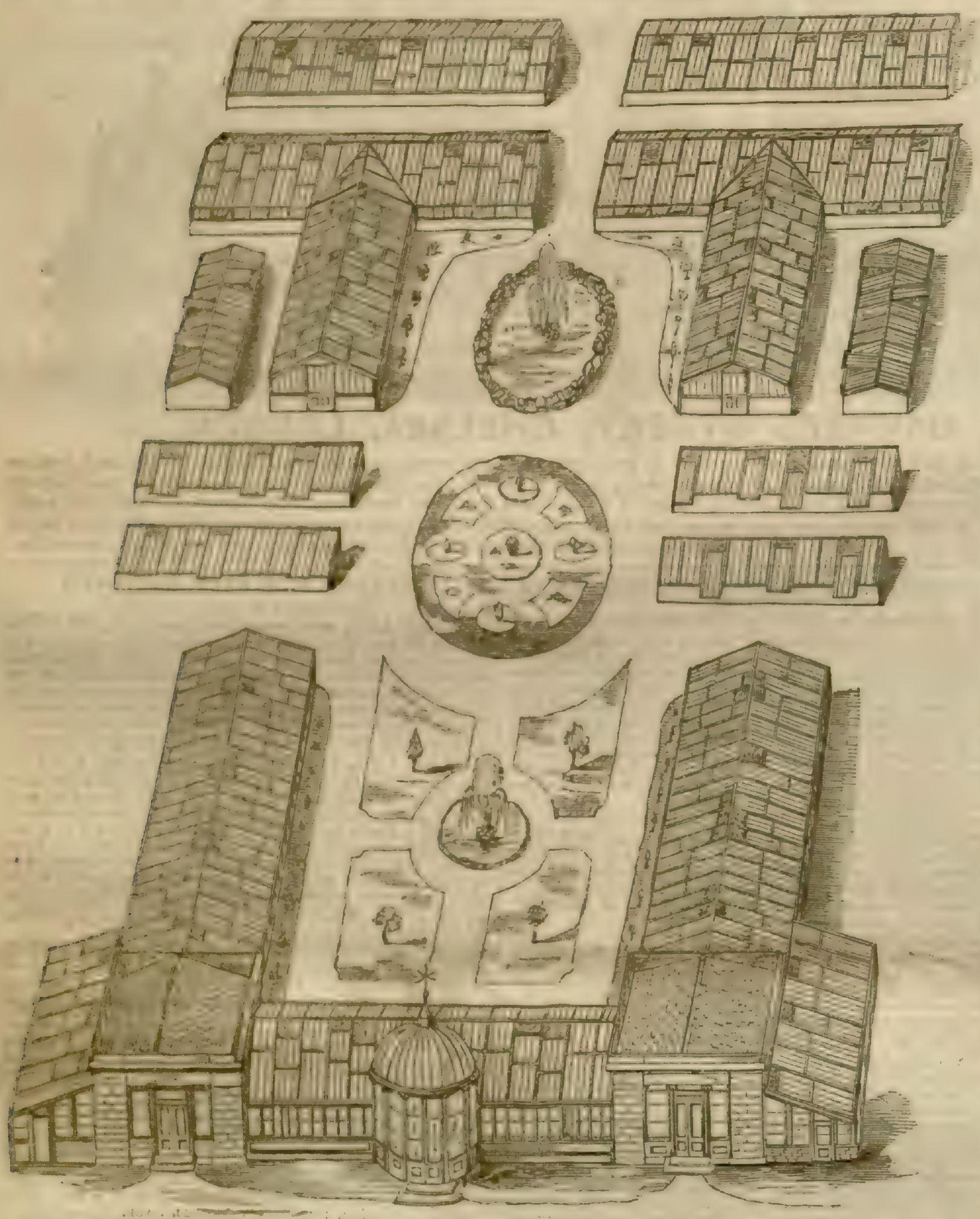
BROMPTON PARK NURSERY.

TO GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to an unreserved Sale by Auction, on the premises, the Brompton Park Nursery, Brompton, near the "Hoop and Toy," on MONDAY, February 5, at 11 for 12 o'clock precisely, by order of the Royal Commissioners for the Exhibition of 1851, in consequence of the land being required for the formation of new roads, a portion of the valuable Stock growing on the above celebrated Nursery, consisting of FRUIT TREES and EVERGREENS, comprising Standard and Dwarf trained and untrained Apple, Pear, Plum, Peach, Nectarine, Apricot, Cherry, a quantity of Vines, Clematis, and Ivies in pots, Rhubarb, &c.—May be viewed three days prior to the Sale. Catalogues may be had of the principal Seedsmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

JOHN WEEKS AND CO.'S
HORTICULTURAL ESTABLISHMENT, KING'S ROAD, CHELSEA.
THE WHOLE HEATED BY ONE BOILER.

THE LENGTHENED NOTICE of this Establishment, which appeared in the *Gardeners' Chronicle* of December 16, 1854, directed the attention of the Horticultural World to the great improvements made by Messrs. WEEKS & Co. in the method they have recently adopted for heating it, and in order to give some idea of the character of the Establishment to numerous Correspondents whose distance from town does not admit of their personally inspecting it at present, the adjoining sketch has been made, and the following observations are most respectfully submitted to them and all others interested in Horticultural proceedings.



This Establishment is now the most complete of any in the country, consisting of Conservatories, Greenhouses, Hothouses, and several Pits, with top and bottom heat, all appropriated to their several purposes.

Until very lately there were six boilers of various sizes, but all on the same principle, employed here to heat the different Houses and Pits, and although those boilers were found both efficient and economical during eight years, each doing three times more work than the common description of boiler, recent improvements convinced Messrs. WEEKS & Co. that highly important results were attainable by substituting one boiler, of a similar construction, for the six; and now, the whole of this extensive establishment is heated effectually by ONE boiler 5 feet high by 3 feet 6 inches in diameter, exposing to the immediate action of the fire a surface of 340 feet, superficial. The expense attending this great alteration of connecting all the pipes of the various houses and pits to one boiler will be fully repaid in one season. The boiler is fed from the top, which is nearly on a level with the surface of the surrounding ground, but there are furnace doors, and the usual openings in the brickwork below, from which it is cleared out, and to cause a draught. The glass-houses, which may be said to be built round the four sides of a long square, or parallelogram, which has a gentle rise to the end farthest from the boiler, are certainly well placed for being all warmed from one boiler, which is effected as follows:—The boiler is placed at, say, the right-hand corner of the square. A 4-inch flow pipe is led in a straight line from it on the same side to the bottom of the square, or as far as there are houses, and the return pipe is brought back to the boiler in the same drain immediately below it. Another main 4-inch flow and return pipe is taken through the show houses and down the other side of the square, to furnish means of heating the houses on that side, and from these two main pipes all the houses are warmed by connecting the pipes which are carried round them with the two main pipes just mentioned, which are also made to pass through as many houses as lie in their way; and in order that the heat they contain may be turned to as good an account as possible, the drains in which they are placed have been covered, inside the houses, with neat iron gratings, which permit the warmth to pass through into the houses.

The whole of the several Houses and Pits can be heated at one time, or separately, with a full command of heat, and any part regulated at pleasure.

If the Houses and Pits were placed in a line, they would extend about 1000 feet, exposing to the atmosphere upwards of 16,000 superficial feet of glass. The water circulates in the various Houses and Pits through 5000 feet of pipe.

An experience of upwards of thirty-six years as Horticultural Builders, and Hot Water Apparatus Manufacturers, having afforded Messrs. WEEKS & Co. constant opportunities for effecting important practical improvements in Building and Heating, induced them to build their present Nursery, so that the Nobility and Gentry about to erect Horticultural Buildings, might have the means afforded them of inspecting an extensive variety of Horticultural Houses and Pits with the Heating Apparatus in full operation.

The extraordinary efficiency and economy of the heating apparatus will perhaps be better understood by the following comparison of the work it does in Messrs. WEEKS' Establishment by One Boiler, and the work done by the 12 boilers at the Great Palm House, at the Royal Gardens, Kew:—

THE HOUSES AND PITS AT MESSRS. WEEKS AND CO.'S

Measure in length	1,000 feet
Superficial feet of surface covered	13,480 "
Surface of glass exposed to the atmosphere	16,000 "
Length of pipe to heat the whole	5,000 "
Fuel consumed in 24 hours during the winter months, at a cost of 3*s.* per day	3 sacks of coke.

The boiler requires attention only once in 12 hours, and then but for one hour; thus occupying a man but for two hours out of the 24, at a cost of say 8*d.* per day.

THE GREAT PALM HOUSE, KEW,

Measures in length	355 feet
Superficial feet of surface covered	23,900 "
Surface of glass exposed to the atmosphere	42,200 "
Length of pipe to heat the whole	15,000 "
Fuel consumed in 24 hours during the winter months, being two parts coke and one part coal, at a cost of 4*l.* 16*s.* per day	72 sacks

The boilers, 12 in number, occupy the whole attention of two men by day and one by night, at a cost of say 10*s.* per day.

It results from the foregoing statements that the Apparatus of Messrs. WEEKS, with one boiler, is doing about as much work as four boilers do in the Kew Palm House; and that with three, or, at most, four boilers such as Messrs. WEEKS have now in use, the Great Palm House at Kew could be heated at a cost in fuel and labour of 14*s.* 8*d.* per day, effecting a saving of, say 1095*l.* per annum. Messrs. WEEKS assert that there is not in the kingdom an apparatus doing anything like the same work with one boiler, nor, under any circumstances, at so trifling an expense.

The Nobility and Gentry who may honour this Establishment with a visit will be no less struck with the extensive and splendid collection of STOVE and GREEN-HOUSE PLANTS, which are kept in the highest state of cultivation and are for sale at very low prices, than they will be by the very perfect arrangements above described for supplying each compartment with the necessary warmth. They will also find a fine assortment of strong GRAPE VINES in pots from eyes, all of the best sorts, and STRAWBERRY PLANTS for Forcing in the finest condition.

Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to

JOHN WEEKS & CO., King's Road, Chelsea, London.

HOTHOUSE BUILDERS AND HOT-WATER APPARATUS MANUFACTURERS, NURSERYMEN, SEEDSMEN, &c., &c.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. 27, Victoria Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, January 27 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 5.—1855.] SATURDAY, FEBRUARY 3. [PRICE 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The WINTER MEETING will take place at the Society's House, 21, Regent Street, on TUESDAY, February 6, from 12 to 4 P.M.

KENILWORTH AND LEAMINGTON HORTICULTURAL and FLORICULTURAL EXHIBITIONS for 1855.

The KENILWORTH EXHIBITION will be held (by permission) among the Ruins of Kenilworth Castle, on WEDNESDAY, 4th of July next.

The SECOND EXHIBITION will be held at the Arboretum, Leamington, on WEDNESDAY, the 22d of August next.

Full particulars will be duly announced. J. CHEYNE, Sec.

The Priory Gardens, Warwick, Feb. 3.

ENROLLED AGREEABLY TO ACT OF PARLIAMENT.

UNITED GARDENERS' BENEFIT SOCIETY, Waterloo Arms, Camberwell, Surrey. Instituted 1839.

This Society (established for Gardeners only under 35 years of age), has proved for 16 years the accuracy and soundness of principle upon which it is founded, namely, the highest amount of benefits to be received by its Members in Sickness, Superannuation, and Mortality, for the smallest amount of contribution consistent with stability and permanence. The accounts are always open to the inspection of all the members, who have also the control of the expenditure of its funds; it is therefore incumbent on all, by a small monthly contribution, to provide against the casualties of life, from which none are exempt, by enrolling themselves in a Society of this nature, which guarantees 12*s*. per week in sickness; 3*s*. and 4*s*. per week superannuation; 10*l*. at the death of a member, and 8*l*. member's wife, for the small contribution of 2*s*. 3*d*. per month.

Camberwell Green, Surrey. CHARLES STUNELL, Secretary.

DAVID FERGUSON, LANDSCAPE GARDENER and CONTRACTING PLANTER, Stowe, Buckingham.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

CEMETERIES.

WILLIAM MASTERS AND SON having been engaged upon extensive Cemetery works, are prepared to undertake the LAYING OUT and PLANTING NEW GROUNDS, as well as the Ornamenting such as are closed by the recent Act of Parliament, by contract or otherwise.—WILLIAM MASTERS & SON, Landscape Gardeners, Canterbury.

MANGOLD WURZEL SEED, LONG RED, and YELLOW GLOBE, warranted genuine, and the growth of 1854. Price 45*l*. per ton.—Apply to R. S. HEWS, Kelvedon, Essex.

NEW SEEDS JUST HARVESTED *can now be obtained of the most genuine description, from* WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

TRUE PENZANCE BROCCOLI, *saved by one of the best growers in the neighbourhood of Penzance*, 1*s*. per packet, from WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SEED POTATOES.

SUTTON AND SONS, SEED GROWERS, Reading, have a large STOCK of the best early kinds of POTATOES, very true and free from disease. Prices, &c., with instructions on cultivation, will be found at page 20 of SUTTON'S Seed and Plant List, just published, price Sixpence (or gratis to purchasers).

SUTTON & SONS, Seed Growers, &c., Reading.

NEW ASHLEAF—THE "EARLY CHAMPION."

JOSEPH WILSON, SEEDSMAN, Ipswich, begs to state that his stock of early SEED POTATOES comprises the following splendid varieties, grown expressly for seed purposes, and free from disease. The "Champion" Ashleaf, 12*s*., a new variety, sent out for the first time this season; they are about 10 days earlier than any other Ashleaf, finer in flavour and more prolific. Jackson's improved early Ashleaf, 9*s*.; the Short top Ashleaf, 7*s*. 6*d*.; Nonpariel Kidneys, 6*s*. 6*d*.; Moss Kidneys, 6*s*. 6*d*.; British Queens, 7*s*. 6*d*., the earliest round variety known. Early Frame and Ashleaf Seedlings, 8*s*. per bushel. Free to London: no charge for sacks. A remittance must accompany all orders.

THE FLUKE POTATO.—A new second early variety, surpassing every other in its capability of resisting the Potato disease, and without exception the finest and most prolific Potato in cultivation. Price per cwt., 15*s*., bags included. To be had genuine of THORNHILL & DICKSON, Lawrence Hill Nurseries; and No. 1, Wine Street, Bristol.

THE FLUKE KIDNEY POTATO.—This excellent variety is now planted here as the principal crop, being more free from disease and more prolific than any other in cultivation. It was raised in Middleton, and may be had genuine in any quantity at 5*s*. per bushel of 56 lbs.—Apply to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

Post-office Orders to be made payable at Middleton, Lancashire.

SUTTON'S SHORT SEED LIST.

SUTTON'S SHORT SEED LIST, *containing only the most desirable sorts, will be sent post free, in return for one penny postage draft or receipt stamp.*

SUTTON & SONS, Seed Growers, Reading, Berks.

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY for 1855 *is now published, price* 6d. *To be had of all Booksellers, and from* WILLIAM E. RENDLE & Co., *Seed Merchants, Plymouth*

MESSRS. J. AND H. BROWN'S NEW PRICED CATALOGUE can be had by post. American Plants, Coniferæ, Orchidea, Stove and Greenhouse Plants, Fruit Trees, &c. A separate List of Garden and Flower Seeds.

Albion Nursery, Stoke Newington, London.

BASS AND BROWN'S SEED AND PLANT LIST FOR 1855, sent free by post for three penny stamps.

It contains as usual a large number of the most attractive and popular new articles, with much descriptive and useful information.

The AUTUMN PLANT LIST also for three penny stamps.

BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

PRICED NURSERY CATALOGUES.

A. PAUL AND SON will be happy to forward the following priced Nursery CATALOGUES in return for one postage stamp each:—A, ROSES; B, ORNAMENTAL TREES AND CONIFERS; C, FRUIT TREES; D, HERBACEOUS PLANTS; F, GREENHOUSE PLANTS, &c.; G, SEEDS; H, HOLLYHOCKS; I, BULBS.—Nurseries, Cheshunt, Herts.

LOUIS VAN HOUTTE'S SEED CATALOGUE is to be had at MR. R. SILBERRAD'S, 5, Harp Lane, Great Tower Street, London.

FRUIT TREES, FOREST TREES, EVERGREEN SHRUBS, &c. Catalogues of the above may be had on application to WILLIAM BARRATT, Wakefield.

☞ A quantity of fine Transplanted White Thorns.

ROBERT KENNEDY, Agent for Messrs. Platz and Son, Seed Growers, Erfurt, has much pleasure in announcing he has received their Catalogue of Flower and Vegetable Seeds for the trade for 1855, which abounds with new articles of great interest, and will be forwarded, per post, on application to R. KENNEDY, Bedford Conservatory, Covent Garden, London.

P.S. Also, R. Kennedy's General Catalogue of British and Foreign Ferns forwarded on receipt of six postage stamps.

NEW SHRUBBY CALCEOLARIAS.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that a Descriptive Catalogue of his beautiful new Shrubby Calceolarias is now ready, and may be had upon prepaid application.

Very choice Calceolaria and Pansy Seed, 2*s*. 6*d*. per packet. Postage stamps are respectfully requested in payment of the seeds.

CAREY TYSO'S CATALOGUE OF FLORISTS' FLOWERS FOR 1855 may be had post free for two labels; TREATISE ON RANUNCULUS for eight labels; ditto on ANEMONE for four labels.

RANUNCULUSES, 100 splendid named sorts, 40*s*. to	£4	0	0
" 25 superb seedling ditto ...	1	10	0
" 100 fine mixtures ... from 8*s*. to	1	0	0
DOUBLE ANEMONES, 50 fine named sorts, 10*s*. to	0	13	0

IMPORTED GERMAN SEEDS.—Asters, Balsams, Stocks, Larkspurs, Poppies, Zinnias, &c., in named assortments, 2*s*. 6*d*. each. Ranunculus and Anemone Seeds, 2*s*. 6*d*. per packet.

C. TYSO's sovereign assortments of 18 select Ranunculus, and 18 choice Anemones, postage free for 21*s*.—Wallingford, Berks.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year; and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

W. DRUMMOND AND SONS' NEW DESCRIPTIVE CATALOGUE, containing select varieties only, of VEGETABLE and FLOWER SEEDS is now ready, and may be had post free on receipt of one postage stamp. This Catalogue will, at a glance, furnish the Gardener with all the necessary material for drawing out his Seed List correctly and without trouble. In reference to it the *Gardeners' Chronicle* remarks:—

"It is simple, short, and one of the best we have seen. They are pursuing the sensible course we have so often insisted upon for the sake of both buyer and seller;" and this opinion has been cordially responded to by all our old and many new customers.

W. DRUMMOND & SONS' Seed and Implement Warehouse, Stirling.

AMERICAN PLANTS.

JOHN WATERER begs to announce that he has published a new Catalogue of his Rhododendrons, &c., as exhibited by him in the Gardens of the Royal Botanic Society, Regent's Park, London. It describes the colours of all the Rhododendrons considered worthy of cultivation, with a Treatise on their successful management, and may be had by enclosing two postage stamps.

The American Nursery, Bagshot, Surrey, near Farnborough Station, South-Western Railway.

AMERICAN PLANTS.—A Descriptive Priced CATALOGUE of HARDY AMERICAN PLANTS for the coming season is just published, and may be had by enclosing two stamps for postage. As everything in the way of American Plants is grown to an unequalled extent at this Nursery, intending purchasers would do well to provide themselves with this Catalogue.

WATERER AND GODFREY, Nephews and Successors to the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey.

NEW CAULIFLOWER.

WAITE'S "ALMA," far superior to Walcheren, very large and firm heads. Price to the trade 24*s*. per lb., smaller quantities 2*s*. 6*d*. per oz. No orders attended to for less quantities than one ounce.—Seed Establishment, 181, High Holborn, London.

EARLY DANIEL O'ROURKE PEAS.

J. G. WAITE begs to inform the Trade that he is now ready to execute orders for this valuable early Pea. Price can be had on application.

Seed Establishment, 181, High Holborn, London.

EARLY WHITE FIELD PEA.—NEW EARLY RACEHORSE—comes off early in July in time for Turnips and is a good cropper. Price 12*s*. per bushel.

SUTTON & SONS, Seed Growers, Reading.

GOLDEN DROP GREEN FLESH MELON, SIX SEEDS FOR 1*s*. 6*d*.

WILLIAM WOOD AND SON beg to inform their Friends and the Public that they have sold their stock of Seeds of the above superior Melon to Mr. EDWARD TILEY, Nurseryman, 14, Abbey Churchyard, Bath, who will be happy to supply orders for the same.

GOLDEN DROP GREEN-FLESHED MELON.

J. CHARTRES AND CO. have a limited quantity of Seed of this splendid variety, which they can with confidence recommend. It is of moderate size, oval shape, and beautiful gold colour. Six seeds, 1*s*.

Seed Warehouse, 74, King William Street, City, London.

CONQUEROR OF THE WEST CUCUMBER.—A Packet, containing 12 good seeds of this first-rate Frame Cucumber, which for productiveness is second to none, will be sent post free, on receipt of 12 postage stamps, addressed to JAMES LAKE, Nurseryman, &c., Bridgewater.

GENUINE SEEDS.

JAMES CHARTRES AND CO. beg to inform their patrons and purchasers of Seeds generally that their unrivalled stock is now arranged, and they earnestly solicit early orders, as many choice articles are deficient in quantity this season. A Catalogue may be had upon application.

Seed Warehouse, 74, King William Street, City, London.

GENUINE SEEDS.

THE MEMBERS OF THE "SEED GROWERS SOCIETY," continue to supply genuine AGRICULTURAL, VEGETABLE and FLOWER SEEDS at Growers prices. Lists with price and terms of business may be had on application to the Secretary, JOHN MOSS, Jun., Feering, Kelvedon, Essex.

IPOMŒA RUBRO CÆRULEA.

GEORGE ROBERTS begs to acquaint the Seed Trade that he can supply the above choice seed at a considerable reduction on the prices of past years.

32, Moorgate Street, London.

TO THE TRADE.

J. ROY, Jun., SEEDSMAN, Aberdeen, has got to hand a consignment of 35 bales of very superior CUBA BAST The bales weigh about 1½ cwt. each. Price forwarded on application.

YEWS FOR HEDGES.

EDWARD SANG AND SONS, Kirkaldy, have for sale, at a low price, a large quantity of fine healthy YEWS, once, twice, and three times transplanted, in various sizes, from 12 to 30 inches high.

WANTED, FRUIT AND VEGETABLES.—LIVERPOOL PRICES.

PINE APPLES, 2 lbs. and above	5*s*. 6*d*.	to 5*s*.
CUCUMBERS, each	2*s*. 6*d*., 2*s*., 1*s*. 6*d*.,	to 1*s*.
ASPARAGUS, per hundred	5*s*., 7*s*. 6*d*.,	to 10*s*.

Other kinds in like proportion.

Forward Immediately to GEORGE TAYLOR, JUN., FRUIT SALESMAN, St. John's Market, Liverpool.

CIDER APPLES.

WANTED, a few dozen Strong Standard CIDER APPLES, amongst them the COCKAGEE; also a few Standard PERRY PEARS. Any one having either of the above to part with, may hear of a purchaser by applying to G. WYATT, Nurseryman, Seedsman, &c., High Street, Banbury, Oxon.

WANTED to Purchase 150,000 three years' Transplanted QUICKWOOD.—Address, cash price, to Mr. J. NICHOLSON, 48, Lowgate, Hull.

TO THE TRADE.—SEEDLING BEECH.

WILLIAM TAYLOR, NURSERYMAN and SEEDSMAN, Cupar, Fife, has to offer 100,000 one-year Seedling BEECH, very fine. Price may be had on application.—Seed Warehouse, Cross, Cupar, Fife. Feb. 3.

TO BE SOLD, at Prices that will be sure to give satisfaction, 10,000 STRONG CURRANTS of the following sorts, viz.:—Red and White Dutch, common Black and Black Naples, Wilmot's Superb Red, Champaign and Raby Castle. Also a quantity of strong dwarf-trained Pears and Plums of the best sorts, Fastolff and other Raspberries, strong standard Pears, and a quantity of prime Seed Potatoes, well kept, of the best sorts.—For further particulars, apply to JAMES LAKE, Nurseryman, Bridgewater.

FRUIT TREES, SURPLUS STOCK.

APPLES, PEARS, PLUMS, CHERRIES, GOOSEBERRIES, & CURRANTS.

TO BE SOLD, at any reasonable offer, for the purpose of clearing some ground, several hundred Pear trees, comprising Winter Nelis, Gracilis, Williams' Bon Chrétien, Hazel, Summer, Portugal, Beurré Capiaumonts, and other varieties. 400 Wellington and Quarrinton Apples, 200 Prince of Wales and Magnum Bonum Plums, 50 Duke Circassian and Morello Cherries. All the above of about 10 years' growth, and coming into full bearing. 10,000 Rifleman Gooseberry Plants, from 1 to 4 years old, and 2000 large Red Grape Currants, 2 years old.

To view, apply to Mr. MITTON, Lampton, 1 mile from either the Isleworth or Hounslow Stations of the South Western Railway.

VEGETABLE AND FLOWER SEEDS.

PETER LAWSON AND SON beg leave to intimate to their English customers and the public that they are prepared to supply from their London establishment assortments of GARDEN and FLOWER SEEDS of superior quality, comprising all the esteemed standard sorts and those recently introduced. They will be happy to send Catalogues on application.

P. L. & Son have also to intimate that they will shortly issue their LIST of AGRICULTURAL SEEDS, all of which have been carefully saved from the most select stocks.

Liberal arrangements will be made for the carriage of their seeds to all quarters.

PETER LAWSON AND SON,
Queen's Seedsmen, Wood Foresters, &c., for Scotland, and to the Highland and Agricultural Society, 27, Great George Street, Westminster, London.

LYNCH'S STAR OF THE WEST CUCUMBER.

—This might with propriety be called the Champion of the West, for it has won 11 prizes at different Horticultural Exhibitions. It is a seedling raised by Mr. Lynch, the well-known gardener to the Right Hon. the Earl of St. Germans, Lord Lieutenant of Ireland. He has grown it for several years, and has beaten everything that has been put in competition with it, including all the newest and most recently introduced varieties. We have purchased the whole stock, having given a very large sum for all the seeds in his possession, and it is now for the first time sent out; those who want a good flavoured, prolific, and prize Cucumber, we would recommend to obtain a packet of the seeds.

It is a first-rate winter fruit, and, with careful management, can be had in perfection all the year round. It is most prolific, and bears two fruit on every joint, and as many as 42 have been counted on a single plant in a tub from 5 to 22 inches in length. The fruit is quite round, like the barrel of a gun, and free from any ribs or roughness on the skin. It has a short handle, and is in every way calculated to beat any other sort in cultivation. The spines are white, and they stand out in the most prominent way. The stock is very limited.

Three seeds, per packet, 1s. 6d. | Five seeds, per packet, 2s. 6d.

The following is an official account of the number of Prizes won by Mr. Lynch, in competition with all the best Gardeners and the best varieties in the neighbourhood:—

"Royal Devon and Cornwall Horticultural Society, Nov. 11, 1854.

"Dear Sir,—The prizes awarded you for your Cucumber are as follows:—

1851.—May 15th, First Prize	1852.—Sept. 9th, First Prize
" July 17th, Extra Prize	1853.—June 8th, Second Prize
" Sept. 4th, First Prize	" Sept. 8th, First Prize
1852.—May 27th, First Prize	1854.—June 1st, First Prize
" July 22d, First Prize	" Sept. 9th, First Prize

In all, 10 Prizes.

"I remain, dear sir, yours truly,
"NATHANIEL J. EASTON, Hon. Sec.

"Mr. R. Lynch, Gardener to Earl of St. Germans, Port Eliott."

WM. E. RENDLE AND CO., SEED MERCHANTS, Plymouth.

SUPERB LATE WHITE BROCCOLI—"EMPEROR."

E. P. DIXON having purchased the entire stock of the above Broccoli of Messrs. Elletsons, Market Gardeners, Theringham, near Hull, begs to announce that he is prepared to send it out in sealed packets at 2s. 6d. each. This Broccoli has been raised by the Messrs. Elletsons, the raisers of the Mammoth, sent out some time ago, who state that the EMPEROR, if sown at the same time, will come into use before it. Is of very dwarf growth, perfectly hardy, with heads from 15 lbs. to 20 lbs. weight; keeps its colour, and stands firm three weeks after it is ready to cut. A noble flower, and commands the best price of any other in the Hull market, where it is well known, and will be a great acquisition to the market gardeners around London, as well as those who wish for a first-rate Broccoli.

PURE MAMMOTH BROCCOLI.—Numerous applications having been made to Messrs. Elletsons last season for Seed of the Pure Mammoth Broccoli, they determined to allow a flat to stand for Seed, carefully selected from the original stock, producing heads from 18 lbs. to 25 lbs. each. E. P. D. having purchased the stock of this celebrated Broccoli, is prepared to send it out in packets at 2s. 6d. each.

Each may be had of Messrs. NOBLE, COOPER, & BOLTON, 152, Fleet Street; and Messrs. HURST & M'MULLEN, 6, Leadenhall Street, London. Also of the Advertiser, 57, Queen Street, Hull.

HOLCUS SACCHARATUS,
OR CHINESE SUGAR CANE.
(See GARDENERS' CHRONICLE, Dec. 30th, 1854.)

MR. JOHN HENDERSON, formerly of the firm of JOHN A. HENDERSON & Co., Pine Apple Place, London, has the honour to announce that he is prepared to supply Gentlemen, Amateurs, and Professionals, with seed of this most valuable and estimable plant.

As the Dioscorea Batatas seems well adapted to make good any deficiency arising from failure in the Potato crops, so this appears admirably calculated to meet many wants of the present day. That it may be used for the purposes of distillation, and may therefore preserve the grain of the country, is not less certain than that the leaf and stem (after the saccharine matter has been extracted) contain a large amount of fibre, of such a nature as can be employed in the manufacture of every kind of paper. In both these points, as well as in many others, this plant demands the attention of every Gardener and Amateur throughout the country; the more so as from the necessity that at present exists for the production of fibres that may be used in paper manufacture a due remuneration may be fairly expected by growers, even after the plant has, so to speak, paid itself by the saccharine matter extracted from it.

Mr. HENDERSON hopes, in a few days, to have ready for the press a more lengthened account of this plant, as well as a complete statement of the latest experiments in connection with the Dioscorea Batatas. As there are many varieties of the Holcus W. J. H. can only be responsible for seed forwarded by himself, which he is prepared to do in sealed packets, at 1s., 2s. 6d., 5s., and 10s., according to quantity.

Orders to be accompanied with a remittance to Mr. JOHN HENDERSON, Kingskerswell, Newton Abbot, South Devon.

P.S. Price to the Trade can be had on application.

BANKS' NEW SEEDLING FUCHSIAS FOR 1855.

W. J. EPPS begs to state that he has purchased the following Seedling Fuchsias, raised by that celebrated grower, E. BANKS, Esq., of Sholden Lodge, Deal; they were the first selection from his splendid batch of Seedlings of 1854, and have been thoroughly proved. They are distinct, rich, and the greatest advance upon any of the kinds known, and cannot fail to give the highest satisfaction.

CLIMAX.—(named by Mr. BANKS.)—Tube stout, sepals very broad reflex, with a pretty curve or half circle, the points of the petals touching the seed vessel; colour, rich velvety crimson—the corolla is very large, of a splendid violet blue and great substance: habit, robust, and blooms particularly free. 7s. 6d.

FAIRY QUEEN.—Very distinct and striking, immense bloomer, beautiful waxy white tube and sepals, tinged with lemon; long well-proportioned flower; corolla large, and of a very rich plum colour puce. 7s. 6d.

GRAND SULTAN.—A very noble flower, and will be many years before it is equalled; beautiful foliage, and first-rate for exhibiting; flowers large, very stout, sepals reflex, similar to the Turn Cap Lily, and of avery rich crimson colour; corolla large, and very dark velvety purple. 7s. 6d.

MAID OF KENT.—This Fuchsia is pronounced by the following judges, viz., Mr. Edwards, Secretary to the Floricultural Society; Mr. Barnes, of Camden Nursery; Mr. Todd, of Sutton, to be the prettiest and most distinct Fuchsia yet raised; habit, dense and bushy, producing great clusters of pretty reflexed blooms, of great substance, very clear waxy white, with a rich plum-coloured puce corolla, and exceedingly striking. 10s. 6d.

BEAUTY OF THE BOWER.—A very rich and perfect formed flower, scarlet tube and sepals, which reflex over the tube, displaying a beautiful dark purple corolla of great substance: habit, perfect. 7s. 6d.

OMER PACHA.—A large and well-proportioned flower, with dark crimson tube and sepals: corolla, intensely dark velvety purple: habit, excellent and very graceful. 7s. 6d.

The Set will be sent out in April.—Strong Plants, at 42s. The usual discount to the Trade where three of each are taken.

Agent:—HURST and M'MULLEN, Seed Merchants, Leadenhall Street, London.—Bower Nurseries, Maidstone.

SPRUCE FIRS from 6 to 9 feet high, well-rooted and quite safe to remove, being well adapted for screens, filling up old plantations, or for immediate effect.

FINE BEECH fit for hedges or plantations, 6 feet and upwards.

G. WHEELER, Nurseryman, Warminster, Wilts, having a surplus stock of the above, is disposed to sell them on extremely moderate terms, which may be obtained on application.

G. W. has a good stock of SCOTCH FIRS, 2 to 3 feet, a large stock of RHODODENDRON suitable for cover in woods, plantations, drives, &c., from 1 foot and upwards, with fine strong American Azaleas, at very moderate prices.

SEEDLING CALCEOLARIA, raised from the finest spotted kinds, will be sent carriage free on receipt of a Post Office Order for the amount, at 30s. per 100. Per doz.

BULBS OF TIGRIDIA PAVONIA, Red Tiger Flower... 2 0
" " CONCHIFLORA, Yellow ditto 4 0
" " WHEELERI, Scarlet ditto ... 4 0
Carriage free for cash.

CUCUMBERS, first-rate.—THE KING, a very handsome Black Spine, and Ingram's Hybrid White Spine, a most prolific kind, both approved and esteemed sorts, at 1s. per packet.—G. WHEELER, Warminster, Feb. 3.

MESSRS. E. G. HENDERSON AND SON will commence sending out plants in April next of their new Seedling Fuchsias, with white Corollas, both double and single, and some others with blue, violet, and variegated Corollas (For description and price see back No. of this Journal for Jan. 27th, 1855), or a printed list will be sent free by post on application; and a coloured plate of three of the varieties will be sent post free on receipt of six postage stamps.

QUEEN VICTORIA.	EMPRESS EUGENIE.
PRINCE ALBERT.	RAFFAELLE.
MRS. STORY.	LADY OF THE LAKE.
RANUNCULIFLORA.	WATER NYMPH.
PERRUGINO.	BANKS'S FAVOURITE.

The entire stock of all Seedling Fuchsias distinguished with a white Corolla were purchased for ONE HUNDRED GUINEAS of the late W. Story, Esq., of Newton, in the county of Devon, who succeeded in introducing this great novelty. And in consequence of an advertisement which appeared a few weeks back in the *Gardeners' Chronicle* from Messrs Lucombe, Pince, & Co., of Exeter, offering two new Fuchsias similar in character to those purchased of Mr. Story, and after a written communication with that gentleman (who was then confined to his bed by illness) it was thought necessary for one of the firm to make further inquiries about them, and in consequence Mr. ANDREW HENDERSON went to Exeter and Newton, when he was informed by a jobbing gardener at Newton that he had received Seven Pounds for them after (as the said jobbing gardener stated) he had been offered £20 for them by a nurseryman in London, but whose name or address he did not know.

Messrs. E. G. H. & Son think the above explanations necessary in consequence of a great number of their customers having ordered them at higher prices than those quoted. This reduction is made in consequence of information which they have received that leaves no doubt on their minds but that those to be sent out by Messrs. Lucombe, Pince, & Co. are similar in character to the above.—Wellington Nursery, St. John's Wood, February 3.

NOTICE.

EDWARD TILEY having received several letters wishing to know if his new seedling "Champion Kidney" Potato is the same as the one advertised by Mr. Joseph Wilson, of Ipswich, under the name of "The Early Champion Ashleaf," begs to say that it is not, for he purchased the whole stock from the Grower, who obtained it in the first instance from the seed of the Potato Apple, and has never parted with any of the produce but to him. E. T. feels confident that it will give the greatest satisfaction to all purchasers who may favour him with orders for the same.

TILEY'S SEEDLING POTATO—THE CHAMPION KIDNEY.—Never before sent out.

This Potato bears a great resemblance to that fine old Potato, the Ashleaf Kidney; it possesses the following good qualities over the Ashleaf. If planted at the same time it will be ten days earlier, all the sets always vegetate well, and do not die off in the ground as the Ashleaf does; 2 pecks of seed will produce a greater weight of Potatoes than 3 pecks of the Ashleaf. It is quite equal to that in flavour, and is eatable during the whole winter. Sets that have had the shoots broken off five or six times during the spring will vegetate again as if it had been the first shoot. About twenty Gentlemen and Gardeners who had seed to plant last season have assured me that they never before grew any Potato to equal it, and should continue to grow it as a first early Potato. Numerous orders have been already received from persons who saw it growing during the last summer. It has been grown and thoroughly proved for the last four years, and found to be less liable to disease than any other Potato that has been grown. Out of 25 sacks grown this season there was not a single diseased Potato among them.

Sold in quantities of not less than 1 peck; they will be sent Hamper and Package free, at 5s. 6d. per peck, or 4 pecks for 1l. hamper free. A remittance in cash must accompany all orders, or small amounts in penny postage stamps. Purchasers would do well to name the nearest railway station to their residence.

EDWARD TILEY, NURSERYMAN, SEEDSMAN, & FLORIST,
14, Abbey Church Yard, Bath, Somerset.

PAGE'S PRODIGY PEA,

THREE SHILLINGS & SIXPENCE PER QUART.

PAGE AND CO. can now supply the above, and beg to refer to Mr. James Duncan's letter of May 14, with Dr. Lindley's remarks, in the *Gardeners' Chronicle* of May 20, 1854:—

"Seeds of this very dwarf and early variety were obtained from Messrs. Page & Co., of Oxford Street, Southampton, whose name it bears, and were sown side by side with many others the first week of December last. It has proved equally early as the Frame and Dancroft Rival, and much more so than the Longpod and Dwarf, to which it bears some resemblance, but it differs from that variety in the leaves being somewhat smaller and the plant of a more dwarf habit. I send raw specimens of both sorts to show their difference, and the precocity and prolific habit of the Prodigy Pea. I have found it an admirable variety for cultivating on the beds of the large fruit house at this place, and I consider it well adapted either for pot or frame culture, or for growing at the bottom of fruit-tree walls, where a protection could readily be afforded it from the inclemency of the weather." *James Duncan, Raby Park, May 14.* [The Prodigy was covered with small pods, containing on an average four Peas each, while the pods on the Longpod had scarcely formed, and of course contained no Peas fit for use.]

No. 1. A Complete Collection of Garden Seeds ...	£3	0s.	0d.	No. 1. 100 packets of Beautiful Flower Seeds	£1	5s.	0d.
" 2. Do. do. do.	2	0	0	" 2. 50 do. do. do.	0	15	0
" 3. Do. do. do.	1	5	0	" 3. 25 do. do. do.	0	8	0
" 4. Do. do. do.	0	15	0	" 4. 12 Hardy Annuals	0	1	0

Fine Double Tuberoses, 4s. per dozen.

FINEST MIXED PERMANENT PASTURE and LAWN GRASSES, not to be surpassed in the Trade; and it is with pleasure Her Majesty's beautiful grounds at Osborne Palace, the Southampton Parks, &c. can be referred to.

Offices and Warehouses, 37 & 38, Oxford Street, adjoining Radley's Hotel,
(ONE MINUTE'S WALK FROM THE RAILWAY AND DOCKS) AND
58, Above Bar, Southampton.

To Farmers, Potato Growers, and Others.

JACKSON'S PATENT PREPARATION
FOR
PRESERVING POTATOES, WHEAT, AND OTHER SEEDS

From DISEASE, the RAVAGES of the SLUG, GRUB, and WIREWORM, in addition to which the CROPS are brought forward in HEALTH AND VIGOUR, and the yield is greatly increased, in proof of which the following extracts are given from numerous letters received by Mr. JACKSON.

EXTRACTS:—

"One of the fields of this farm, the property of MRS. STANBURY, was planted with Regents Potatoes in April last, some of which were prepared by you. The result now is, that the whole of the crop from the unprepared sets is thoroughly diseased, and hardly worth the trouble of taking up; while those raised by the side of them from the prepared sets are not only in a beautiful state of preservation from the disease, but the produce is much greater,—the Potatoes are more numerous than the others; indeed, if there were no such thing as the disease to be feared, it would be worth the trouble and expense of preparing the sets by your process, even for the sake of the improved crops. I shall certainly, for the future, prepare all my Potatoes for seed by your process; and I intend to adopt it for preserving my Wheat from the Smut.

"G. B. BAXTER.

"Belmont Farm, Eltham, Kent, August 28, 1854."

"Admiral Sir J. A. GORDON, K.C.B., Marlee House, Blairgowrie.

"SIR,—I have received your note of the 16th. The Potatoes that came here from England, prepared by Mr. JACKSON, were planted in a piece of new ground, and according to the directions sent by him along with them as to distance between the plants, &c. They came up well, with strong healthy stems; I have now taken the whole crop up, and there is not the slightest appearance of any disease amongst them. They are of large equal size and very prolific. There were long black unprepared Kidneys planted in the same patch, and a great deal of them are not fit for use, at least a third part are diseased. I hope Mr. JACKSON's process may be widely known, as it is a great boon.—I am, &c.,

JOHN SHANKS,
"Forester, Kildrummy Castle.

"Kildrummy Castle, Aberdeenshire, November 17, 1854."

"I am very much pleased with the result of the experiments I have made with your Prepared Potatoes; for I planted them, without any manure, in ground where for several years I have hardly had a sound Potato, and I now find the crop perfectly free from disease, and in a very fine condition; while those of the same sort, unprepared, which were planted at the same time, and next to them, are diseased and eaten by worms.

"The Potatoes from the Prepared Seed were so remarkably good that I was induced to weigh them, and I found, to my great astonishment, that they were as 200 to 150 of the others, or about 25 per cent. in favour of your preparation.

"T. AUSTEN, Nurseryman and Seedsman.

"Blackheath, Kent, 24th August, 1854."

Sold by Messrs. CHARLWOOD & CUMMINS, Seedsmen, Covent Garden; and JOHN KEENAN, Seedsman, 4, Great Russell Street, Covent Garden; all Seedsmen and Chemists; and at the Patentee's, 18, Cannon Street, London Bridge, in Packets of One, Two, Three or Four Pounds, or in Bulk for the use of Farmers and Potato Growers.

CHOICE CALCEOLARIAS.

J. COLE begs to offer a few dozen of his unbloomed Seedling HERBACEOUS CALCEOLARIAS from his choice stock; they were the admiration of all who saw them last summer. They are not potted off, though strong enough for large 60-sized pots. The Seed was saved from selected stock, carefully impregnated. J. C. offers them at 4*s.* per dozen, or 25*s.* per hundred. A remittance solicited from unknown correspondents.—Keyfield Nursery, St. Alban's, Herts.

JOHN HOLLAND can supply, in strong plants, the heaviest Lancashire Show GOOSEBERRIES (named), of excellent flavour, and large size, at 6*s.* per dozen, on receipt of Post-office order, payable to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

GENERAL SEED ESTABLISHMENT, NORTHAMPTON.

JOHN JEYES begs leave to inform his Patrons and Friends that his general stock of Seeds is now complete, and that he shall feel obliged by their early orders. He has a good supply of all those various Seeds his Establishment has long been celebrated for, such as Matchless Cabbage, Imperial Cos Lettuce, Conqueror Pea, Blood Red Beet, Dwarf Prolific Bean, Snow's Green Cos Lettuce, do. Broccoli, Northampton Market Broccoli, Giant Asparagus, &c. &c.

RHUBARB ROOTS for FORCING or PLANTING.—Strong one-year planted roots of MYATT'S VICTORIA and LINNÆUS, MITCHELL'S ROYAL ALBERT, at 6*s.* per doz.; HOWARD'S PRINCE ALBERT, 12*s.* per dozen. This is a larger variety than the Victoria, and is extensively cultivated about Manchester. Price to the trade of the above, per 100 or 1000, on application to MESSRS. J. MYATT AND SONS.
Manor Farm, Deptford, Feb. 3.

CHEAP AND GOOD CINERARIAS.—Fine flowering plants from Turner's best seed in large 60 and 48 pots, just coming into bloom, at from 4*s.* to 6*s.* per dozen. Also fine plants of named varieties, consisting of Mr. and Mrs. S. Herbert, Adela Villiers, Garland, Constellation, Lady H. Campbell, Kate Kearney, Flora M'Ivor, Étoile de Venus, &c., at 9*s.* per dozen.—WOOD & INGRAM, Nurseries, Huntingdon.

AMERICAN NURSERY.

GEORGE BAKER'S DESCRIPTIVE CATALOGUE OF AMERICAN PLANTS, &c., as exhibited by him in the Royal Botanic Gardens, Regent's Park, may be had by inclosing two postage stamps.

G. B. begs to call attention to his fine stock of Weeping Hollies, Coniferous Plants, Ornamental Shrubs, &c.—American Nursery, Windlesham, near Bagshot, Surrey, near Staines Station, South-Western Railway, where conveyances may be obtained.

CHARLES SHARPE AND CO., SEED GROWERS, beg most respectfully to invite the attention of the Trade to their very superior stocks of Carrot, Mangold Wurzel, and Turnip Seeds, all of which have been carefully grown by themselves. Pfices may be had on application.

DIOSCOREA JAPONICA.

C. S. & Co., have received from abroad a quantity of Roots of the above, and will be glad to supply the Trade. Prices on application.

Nursery and Seed Establishment, Sleaford.

SNOW'S SUPERB BROCCOLI.—Every seed new and true. Sealed packet, 1*s.*; per oz., 3*s.*; pound bags for the trade on liberal terms.

GLENNY'S IMPROVED BALSAM.—Unequalled for size, doubleness, and colour; 6 classes, 3*s.*; mixed, 1*s.*; sealed packets with culture.

DOUBLE HOLLYHOCKS from noble flowers. Sealed packet, 1*s.*

Stamps or P.O. orders to GEORGE GLENNY, Horticultural agent, Dungannon House, Fulham. Sales, valuations, &c., attended; Ground Laid Out, Rockwork, Ornamental Water, &c., planned and executed.

POLYANTHUS SEED.

JAMES WOODS has again this year to offer a quantity of POLYANTHUS SEED, saved with more than ordinary care, from named and good laced flowers, which he can recommend with confidence, having had numerous Testimonials from different parts of the Kingdom of good and valuable flowers being raised from his seed. He will be able to send seed to grow 300 plants, with directions for sowing. Price 1*s.* per packet, or sent free, on receipt of 13 postage stamps to JAMES WOODS Florist, Harwich, Essex.

P.S. Plants of Polyanthus will be sent out in April, with blooms on each plant, with name or otherwise, from 6*d.* to 3*s.* 6*d.* per plant.

J. W. has a small quantity of Auricula Seed, saved from a fine collection of Alpines, at 1*s.* per packet as above.

WILD'S IPSWICH STANDARD CUCUMBER, the best in the world for Table, Market, or Exhibition, 2*s.* 6*d.* per packet.

EXTRACT OF A LETTER FROM A SUBSCRIBER.—"As to Cucumbers, I have four varieties now in bearing, but the 'Ipswich Standard' eclipses the lot. I am now (11th January), cutting splendid fruit 14 to 18 inches long, coming up to your standard of 12 diameters in every stage of their growth, viz., at 12 inches long 1 inch diameter; at 18 inches, 1½ inch. I have no hesitation in saying that your Cucumber is a perfect beauty, and the best doing one I ever saw. P.S. I will send you a specimen shortly, which I would thank you to send to Dr. Lindley."

Semi-double PRIMULA SINENSIS, in five colours, the best ever seen, 2*s.* 6*d.* per packet.

"My opinion of them is that they are not only the best that have yet been obtained, but possess a new character in the velvety substance of their petals."—*Mr. D. Beaton.*

Agent, Mr. CHAS. TURNER, Royal Nursery, Slough.
THOMAS WILD, Ipswich.

TWO NEW CUCUMBERS—"SIR COLIN CAMPBELL" AND "GENERAL CANROBERT."—For the full Description of the above two unequalled Cucumbers, and the List of EDWARD TILEY'S Collection of Cucumbers and Melons, which have all been thoroughly proved, see Advertisement and Cut in the *Gardeners' Chronicle* of January 13, 1855.

Sir Colin Campbell ... ... 3*s.* 6*d.* per packet.
General Canrobert ... ... 3 6 "

A packet of either of the Melons mentioned in the former Advertisement will be given to the Purchaser of the above two Cucumbers. A remittance in cash or penny postage stamps must accompany every order, and the whole or any part (as the case may be) will be immediately forwarded.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somersetshire.

SUPERB HOLLYHOCKS, ROCKETS, SEEDS, ETC.

WILLIAM CHATER'S descriptive list of his superb HOLLYHOCKS, containing hints on their culture and observations on exhibiting, &c., may be had on application by enclosing a postage stamp. Packets of seed, consisting of 20 varieties, selected from the best show flowers, 5*s.*; 12 varieties, 2*s.* 6*d.*; and from good double sorts, 1*s.*

Very superior Quilled German Asters, 12 distinct varieties, separate, 2*s.*, mixed 1*s.* per packet. Also Choice French Asters, 12 varieties, separate, 3*s.*, mixed, 1*s.* 6*d.* Fine Quilled African Marigolds, lemon and orange, 6*d.* per packet.

New Double Crimson ROCKET, excellent bedding plant for spring flowering, 6*s.* per dozen, or 2*l.* per 100. Double French White, 4*s.* per dozen, or 30*s.* per 100.

Saffron Walden Nursery, February 3.

GODFREY'S BLACK SPINE.

SPLENDID AND PROLIFIC FRAME CUCUMBER.

WOOD AND INGRAM beg to offer seeds of the above beautiful variety. Colour, magnificent dark green, with a very fine bloom; average length, 18 to 21 inches, and produces in great abundance through an entire season. Packets, containing 12 seeds, 2*s.* 6*d.*; 6 ditto, 1*s.* 6*d.*

W. & I. will be happy to refer any persons wishing further information respecting the variety to three or four Noblemen and Gentlemens' Gardeners who have grown it, and prefer it to any other.

London Agents: Messrs. HURST & M'MULLEN, 6, Leadenhall Street.

W. & I. have also the following esteemed varieties to offer, in packets, 1*s.* each, containing 12 seeds:—

Sion House	Sagg's Royal Exhibition
Barnes's Fearnought	Conqueror of the West
Walker's Prolific	Improved Sion House
Constantine's Incomparable.	Manchester Hero.

Huntingdon Nurseries, February 3.

GARAWAY, MAYES, AND CO., having a large Stock of LILIUM GIGANTEUM Seed, can supply full picked seed at 10*s.* 6*d.* per 100.

G., M., and Co. can supply DIOSCOREA BATATAS at the advertised prices. Early application is requested, as the stock is limited.

Catalogues of Kitchen Garden, Flowers, and Agricultural Seeds, may be had on application. Prices if desired. For prices of Cucumber and Melon Seeds see Advertisement of Dec. 30, 1854.

Dordham Down Nurseries, Bristol, Feb. 3.

HOLLYHOCKS.

JOHN CHATER AND SON offer the following New and Choice HOLLYHOCKS in Pots at 18*s.* per dozen, hamper included:—Pourpre de Tyre, Yellow Model, Saffranot, Duke of Rutland (new), Penelope, Swansdown, Gem, Lady Braybrooke, Spectabilis, White Perfection, Black Prince (new), King of Roses, Raphael, Napoleon, Magnum Bonum, &c.

Also the following strong ground Roots, 7*s.* 6*d.* per dozen:—Queen, Bella Donna, Elegans, Brilliant, Marmion, Mrs. Russell, Venosa rubra, Obscura, Aurantia, Purpurea elegans, Flower of the Day, Marchioness of Breadalbane, Queen of England, and Model of Perfection.

New Crimson Rockets, 6*s.* per dozen; Double White do., 3*s.* per dozen, 20*s.* per 100.

Hollyhock Seed, in packets containing 200 seeds, 1*s.* 6*d.*; 400, 2*s.* 6*d.*; warranted from best flowers. Choice Pansy, 1*s.* per packet. Sweet William, 6*d.*

Descriptive Catalogues may be had on application to J. CHATER & SON, Haverhill, Suffolk.—Post Office Orders payable at Haverhill.

GRASS SEEDS.

SUTTON'S GRASS SEEDS (CARRIAGE FREE). NATURAL GRASS SEEDS FOR PERMANENT PASTURES, separate or mixed, expressly to suit the soil.—Messrs. SUTTON and SONS having for many years paid especial attention to the examination of Natural Pastures, and the collecting of the Grasses which thrive in the various soils of Great Britain and Ireland, are enabled to supply the sorts and quantities of Seeds, varied to suit the soil for which they are intended. The cost will vary from **24s.** to **30s.** per acre, according to the sorts and quantities the soil requires.

FINE LAWN GRASS SEEDS, for making New or improving Old Lawns, price **1s.** per pound, 2*s.* 6*d.* per gallon, or 20*s.* per bushel. For forming new Lawns, 2½ bushels, or 50 lbs., is the quantity required per acre.

FINE GRASS AND CLOVER SEEDS FOR IMPROVING OLD PASTURES (SUTTON'S Renovating Mixture). Quantity required per acre, 8 lbs. to 12 lbs. **price 9d.** per lb.

N.B. *It will be seen above that we have greatly reduced the prices of our Grass Seeds this season, especially the fine Lawn Seeds and "SUTTON'S Renovating Mixture" for improving Meadows and Pastures; and we doubt not that our liberal charges will induce a more general practice of sowing our superior kinds of Grass Seeds.*

SUTTON & SONS, Seed Growers, Reading, Berks.

R. PARKER begs to offer the following CHOICE SEEDS, all of which are warranted new and true to name: GODFREY'S (BLACK SPINE) CUCUMBER, the finest variety in cultivation, packets containing 12 seeds 1*s.* 6*d.*

Also the following esteemed varieties of CUCUMBERS and MELONS, in packets containing 12 seeds, at 1*s.* each:—

CUCUMBERS.	MELONS.
Henderson's Black Spine.	Victory of Bath.
Improved Patrick.	Beechwood.
Walker's Long Rambler.	Bromham Hall.
Manchester Prize.	Canteloupe.
Hunter's Prolific.	Duke of Bedford.
Superlative Improved.	Golden Perfection (extra fine).
Cuthill's Black Spine.	Scarlet Flesh (Anderson's).

Ohio Squasha Custard Gourd, 6*d.* ... ... per packet.
Antirrhinum, from named flowers, 6*d.* ... "
Calceolaria, from fine varieties, 1*s.* 6*d.* and 2*s.* 6*d.* "
Hollyhock, from fine named varieties, 1*s.* 6*d.* and 2*s.* 6*d.* "
Lilium giganteum, the most distinct and noble species of the genus, packets containing 20 seeds, 2*s.* 6*d.*

*** A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Islington.

UNEQUALLED NEW MELON, GOLDEN DROP GREEN FLESH.

EDWARD TILEY having purchased the whole of Messrs. Wood & Son's stock of Seeds of the above-named Melon, can with confidence recommend it to all growers of that splendid fruit. It has been thoroughly proved by an eminent Melon grower, and declared by all who have seen and tasted it to be one of the finest-flavoured Melons yet grown. It is a very beautiful colour when ripe, skin very thin, flesh firm and solid, and of a most superior melting and delicious flavour. Free setter and prolific bearer. It possesses a great advantage over others in its exceedingly handsome appearance when placed upon a table or on the stall of a fruit salesmen, and for exhibition this Melon will be the favourite.

THE KING, Superb Scarlet Flesh Melon.—This is a variety very much wanted, and which has for some time past been neglected, but is now becoming in great request; such being the case, EDWARD TILEY has just procured a stock of this most superb Hybrid Scarlet Flesh Melon, which he can recommend with as great confidence as those before sent out by him, and which have all given the greatest satisfaction to the public.

Each of the above varieties may be had in packets containing six seeds, 1*s.* 6*d.* per packet.

The following fine varieties of Melons can be highly recommended, and are all warranted true:—

The Queen	1*s.*	Beechwood	1*s.*
Bromham Hall	1*s.*	Windsor Prize	1*s.*
Incomparable	1*s.*	Emperor	1*s.*
Golden Ball...	1*s.*	Fleming's Hybrid Persian	1*s.*
Golden Perfection... ...	1*s.*	Blackall's Green Flesh ...	1*s.*
Bowood	1*s.*	Bailey's ditto ...	1*s.*
Victory of Bath	1*s.*	Snow's Hybrid	1*s.*
Camerton Court	1*s.*	Gordon Castle	1*s.*
Chichester Prize	1*s.*		

A packet of the Golden Drop and one of the King Melon, and one packet of any other variety mentioned will be forwarded, post free, on receipt of 3*s.* 6*d.* in cash or penny postage stamps.

EDWARD TILEY, Nurseryman, Seedsman and Florist, 14, Abbey Church Yard, Bath, Somerset.

NOW READY.

SUTTON'S COMPLETE COLLECTIONS OF KITCHEN GARDEN SEEDS *are now ready, and should be ordered forthwith, by which a full supply of every kind of Vegetable Seed required during the whole year will be secured (including the best sorts yet introduced), and at a very small cost, viz.:—*

No. 1 Collection ...	£3 0 0	No. 3 Collection ...	£1 5 0
No. 2 do. ...	2 0 0	No. 4 do. ...	0 15 0

The quantities in each collection being apportioned to the size of the garden, INSTRUCTIONS ON CULTIVATION will be enclosed with Nos. 1, 2, and 3. To secure the best sorts, orders should be given immediately, addressed

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

SUTTON'S COMPLETE COLLECTIONS, CARRIAGE FREE.

PARTICULARS OF THE SORTS AND QUANTITIES CONTAINED IN SUTTON'S COLLECTIONS OF SEEDS will be SEEN AT PAGE 50 OF "GARDENERS' CHRONICLE" FOR JANUARY 27.

By the perusal of this List, it will be seen that the very best kinds of Vegetable Seeds may be obtained in full quantities, and proper proportions for one year's supply of a large garden for the sum of 3l., and other complete Collections of equally choice sorts for smaller Gardens at 2l., 1l. 5s., and 15s. The economy of cost is by no means the only advantage gained by ordering one of these Collections.

Address, JOHN SUTTON & SONS, Seed Growers, Reading.

RENDLE'S COMPLETE COLLECTIONS OF KITCHEN GARDEN SEEDS *are now ready. They can be had to suit various sized Gardens at the following prices:—*

No. 1 COLLECTION	£3 0 0
" 2 "	2 0 0
" 3 "	1 5 0
" 4 "	0 15 0

The quantities are fully detailed in their "Price Current and Garden Directory," a new edition of which is just published.

WILLIAM E. RENDLE & CO., Seed Growers, Plymouth.
ESTABLISHED 68 YEARS.

HOLCUS SACCHARATUS, OR CHINESE SUGAR CANE.—*For a full description, see the leading article in the* GARDENERS' CHRONICLE, *by Professor Lindley, page* 35, *January* 20, 1855.

WILLIAM E. RENDLE & CO., Seed Merchants, have just imported from France an excellent parcel of Seeds, which will be sold in sealed packets at 1*s.* and 2*s.* 6*d.* each, post free.—Apply to WILLIAM E. RENDLE & CO., Seed Merchants, Plymouth.

DIOSCOREA BATATAS—THE NEW CHINESE POTATO.—This new esculent was fully described by Professor Lindley in the *Chronicle* of December 23, 1854.

The Subscribers are now importing a choice lot of Roots, and can supply them on the following terms:—

Four Tubers	£0 10 0	Fifty Tubers	£5 5 0
Ten "	1 2 6	Hundred "	10 0 0

First Orders will have the best Roots.—Apply to
WILLIAM E. RENDLE & CO., Seed Merchants, Plymouth.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 3, 1855.

MEETINGS FOR THE ENSUING WEEK.
TUESDAY, Feb. 6—Horticultural ..... 2 P.M.

WHETHER or not Rhododendrons, when grafted, are likely to be long-lived and healthy, is one of those questions which have to be determined upon general principles, as well as upon facts, or what are called by that name.

"A detached portion of a plant is not merely capable of producing the organs necessary to the formation of a perfect plant, but it has also the property of being able to blend with another plant, and lead a common life with it. On this capability depend the numerous garden operations which are known under the not very apt name of ennobling (*veredeln*, grafting). The contact of young succulent parts, which are in the course of development, is a necessary condition of this blending. Such a condition is very easily brought about in dicotyledonous plants, because in them there exists between the bark and wood that layer of young tissue in course of development called *cambium*; and there is little difficulty in so bringing together two plants, that this layer in each shall meet at some one point. But in the monocotyledons, in which the vascular bundles lie scattered through the whole stem, and no definite cambium layer exists, the conditions are far more unfavourable. It is true, according to DE CANDOLLE'S account, that BAUMANN, of Bollwiller, succeeded in grafting *Dracæna ferrea* on *D. terminalis*; but the scion died after the first year. The experiments, indeed, of CALDRINI on grafting Grasses had a more favourable result, for he succeeded in grafting even species of different genera, such as Rice upon *Panicum crus galli*. This result may be explained by the fact that in Grasses the lower part of the internodes enclosed in the leaf-sheath remains for a long time soft and succulent. A second and indispensable condition in grafting is a great similarity of the stock and scion; they must not only be nearly allied botanically, but be much alike in the composition of their sap. Yet although the possibility of grafting plants upon each other depends, in general, upon their close natural relationship, still many anomalies occur. In most cases different species of the same genus may be grafted on each other, or even in some instances species of nearly-allied genera, as, for example, Pears on Quinces, or White Thorn (*Cratægus oxyacantha*), or the snowy Mespil (*Amelanchier vulgaris*), while the common Lilac takes on the Ash tree and *Phillyrea latifolia*, the Olive on the Ash tree, and the Spanish

Chestnut on the Oak. Nevertheless, on the other hand, no union, or at least no permanent union, can be secured, where there is a far closer botanical affinity, as, for example, between the sweet Chestnut and the Beech, or the Apple and the Pear."

To this effect writes Mohl in that admirable treatise of his on the cells of plants*, the best work on Vegetable Physiology in any language. We quote it because, although he merely states notorious facts, yet the manner of putting them may be new to some of our readers. Let us see how far it goes to settle the matter in dispute among our correspondents.

It is, we think, incontestable, that although two plants of different species may be made to form a mutual adhesion by the process of grafting, yet that such adhesions are seldom if ever permanent, or even advantageous to the vigour of the scion. It is only when varieties of the same species are worked on each other, that a perfectly sound and durable union is effected; and not always even then, as we see when a fast growing Apple tree is grafted upon a diminutive variety such as the Paradise. If the union is to be perfect and the double or grafted plant to be in all respects as healthy as either of its parents the two must grow at the same rate, must have their sap in action at the same instant of time, and the quality of their secretions, be they what they may, must be identical. This happens when Pear trees grow on Pear trees, or Apples on Apples of similar habits. It does not happen in the same degree where Pears are grafted on Quinces, or Peaches are budded on the varieties of Plum. For although we employ such stocks, and with advantage, it is expressly because there is so much difference in the constitution of the scion and stock as to diminish the rate of growth of the former; and although the Peach will live for many years on a Plum, yet all gardeners know how great is their tendency to separate. In fact, if an old Peach tree worked on a Plum stock be allowed to dry, and is then so placed horizontally that the joint (of graft and stock) rests without support between two upright posts, and then receives a violent blow, the stock and scion will come asunder, as if no organic union had ever been effected. Had the Peach been worked on the Peach under equally favourable conditions, no such fracture would be practicable.

Wherever we look we are met with evidence to this fact. A man may graft a Cherry on a common Laurel, a Cedar of Lebanon on a Larch, or a China Rose upon a Dog-rose, and we all know that *saleable* plants are thus manufactured. But it will soon cease to be worth the while of the trade to form such plants, seeing that buyers now generally learn that they are merely ephemeral curiosities. If any one doubts this let him inquire how many of the thousands of worked Conifers which have come into the market within the last 20 years are still alive. It would turn out, we have little doubt, that the only healthy specimens now discoverable are those of varieties of the same species, or closely allied species, worked on each other, as for instance the yellow-berried Yew on the common Yew, or the Deodar on the Cedar of Lebanon. Is the Rhododendron an exception to the universal law? We think not. When a variety of Rhododendron *ponticum* is worked on the wild *ponticum* it finds itself at home and grows as well and is probably just as long lived as if it were "on its own bottom." But this does not appear to be the case when the varieties of *catawbiense* are put upon *ponticum*, or of *arboreum* and its allies on some European or North American stock. In saying this, we would by no means assert that very fine specimens of tree Rhododendrons may not be produced by grafting *catawbiense* on some other stock; but we certainly cannot admit that they are ever so handsome or so durable as if they found themselves on their own stock; and this is what we understand our correspondent "J. R." to contend for. It is not the mere act of grafting that is objected to, but that of grafting upon stocks of another species; and if this is so, all the remarks of Mr. Pearson become irrelevant.

In fact one of our practical correspondents who advocates the cause of grafted Rhododendrons, virtually gives up his case when he contends that the scion roots so quickly into the ground, provided the graft is low enough, that it soon acquires an independent existence. When that happens the plant is no longer grafted, but gets upon its own roots.

It is alleged that Sikkim Rhododendrons grafted on *ponticum* immediately form strong shoots, while the seedlings of the same species on their own roots remain weak. No doubt such is the fact. But the question at issue is not whether plants will "take," but whether they will "stand," to use the language of gardening; and if they do stand, whether they will retain their vigour when old. It may indeed be asked, and very fairly, whether that would be any advantage in gardening. Perhaps not; perhaps it is more desirable to have a somewhat stunted plant which flowers profusely, rather than a vigorous plant with more copious foliage. Such a case would be parallel with that of the Peach and its Plum stock. But we do not understand that to be the point under discussion, any more than whether it is possible for the nurseryman to supply his customers if he is to trust to so slow a process as layering.

Upon the whole it seems to be a safe conclusion that Rhododendrons are like other plants; that, where suitable stocks can be found, there is no good reason why they should not be grafted; and that, when stocks are unsuitable, the same bad consequences attend the operation as in other cases. Grafted plants may be as good or better for garden purposes than any others, or they may be much worse; all depends upon the stock.

* Principles of the Anatomy and Physiology of the Vegetable cell; translated by Henfrey. 8vo. Van Voorst. 1852.

What is meant by the term "double digging?" and what is it worth an acre? This would seem to be a simple question, and yet when the inquiry is raised it proves to be surrounded by as much mystery as the authorship of Junius. In Northamptonshire it appears, when the subsoil is unbroken, to consist of two shallow spits, each about 5 inches deep, or one 4 inches, and the other 6; after the subsoil is rendered loose by gradual breaking up year after year, the double digging becomes deeper till at last the soil is turned over to the depth of 20 or even 24 inches. For this the sum of 3*l.* is paid per acre. On the other hand, in Hertfordshire, the expression is applied to digging 20 inches deep at once, and breaking up the bottom, for which 10*l.* an acre is paid the first time and 8*l.* afterwards. Here we find an enormous difference in the meaning of the expression. A Gloucestershire correspondent says upon this subject:—

"I used to cultivate a plot of ground—20 acres—wholly by the spade. It was for the most part what would be called an adhesive loam. I could get it worked over 2 to 3 inches deep with the Teazel spade, a long, light, narrow tool, used by the hands without the foot, for 1*d.* per perch. The ordinary digging by spade cost 2*d.* per perch: this would be probably 7 inches deep. And with the 'grafting tool,'—a long, straight, narrow spade working 10 inches deep—the digging cost 3*d.* per perch. Trenching or double digging was done by two men, or man and boy; a trench, 3 feet wide, was taken out by the spade some 6 to 7 inches deep, and the earth carted to the side of the field where the digging would end. A man worked in the trench digging the subsoil over 10 inches deep with the grafting tool, taking the full width of 3 feet, and working from end to end of the trench. A lad dug the top-soil of the next 3 feet division with the common spade, throwing the whole of the earth so moved on to the top of the dug subsoil, and so opening a new trench for the man. The lad received 3*d.*, and the man 5*d.* a perch for his work; the former earned 1*s.* 6*d.*, and the latter 2*s.* 6*d.* a day. Wages generally were 2*s.* a day."

In this instance the double digging cost 5*l.* 6*s.* 8*d.* an acre; but it was neither the double digging of Northamptonshire nor Hertfordshire. The importance of the question before us is thus manifest, for it is applied in three different ways in three different counties, and the respective values of the expression are as 3*l.*, 8*l.* or 10*l.*, and 5*l.* 6*s.* 8*d.*

The cost of spade husbandry must necessarily be considered the first element in any calculation of its economical value; and it is obvious, from what has been said, that such cost is very far from being represented by terms in common use. The language of digging is almost as vague as that of mensuration, which calls "rod" the 160th part of an acre in one county and the fourth in another. Let us see if there is no means of reducing the facts into better order.

There are six kinds of digging generally practised, and no more. These are—

1. *Turning in*, or *flat digging*, which is merely turning over the surface by an oblique thrust of the spade, so as to bury weeds, and to level the surface. This may be taken as 4 inches.

2. *Digging*, properly so called, or one spit digging, in which the spade is forced into the ground nearly perpendicularly, so as to break up the soil to 9 or 10 inches.

3. *Bastard trenching* is the same as the last, except that the bottom "crumb" is thrown forward as well as broken up. Depth, 10 inches.

4. *Two spit digging*, when one spit is cast forward and the next merely forked up. This is sometimes called double digging near London.

5. *Two spit trenching*, namely 2 spits and a crumb, or 20 inches, also called double digging.

6. *Three spit trenching*, or 30 inches and a crumb.

Of these numbers 3, 4 and 5 are each called double digging in the neighbourhood of London. When an attempt is made to ascertain what each costs or ought to cost, there seems to be as much difference of opinion as there is in the names of the operation. Upon this point we have questioned some of the great London gardeners as well as their labourers; and the result is given in the following table, in which A represents Northamptonshire, B Hertfordshire, C Gloucestershire, and D to N our London informants.

1. *Turning in.*—C, 1*l.* 6*s.* 8*d.*

2. *Digging.*—B, C, E, H, K, L, M, N, 2*l.*; D, 1*l.* 6*s.* 8*d.*; I, 1*l.* 13*s.* 4*d.*

3. *Bastard trenching.*—A, 3*l.*; I, 2*l.* to 2*l.* 13*s.* 4*d.*

4. *Two spit digging.*—I, 2*l.* to 2*l.* 13*s.* 4*d.*

5. *Two spit trenching.*—A, 3*l.*; B, 8*l.* to 10*l.*; C, 5*l.* 6*s.* 8*d.*; D, 4*l.* 13*s.* 4*d.*; E, 6*l.*; F, H, K, 4*l.*; M, 4*l.* 13*s.* 4*d.* to 5*l.* 6*s.* 8*d.*

6. *Three spit trenching.*—D and N, 11*l.* 6*s.* 8*d.*; E, 10*l.*; H, 6*l.*

These enormous discrepancies in one of the most familiar operations in husbandry, show how little accord there is in even the same parts of the country in settling the mode of executing work, or naming the varieties of work, or paying for it. No doubt some difference arises from the nature of land, and some from the price of labour; but that explanation is evidently insufficient when it is recollected that all the letters from D to N apply to the well-worked friable land lying on the west of London.

Would it not be worth our correspondents' while to enable us to compile a large table of prices by communicating to us the rates they pay according to the six modes above described, pointing out the soil which is worked, and the county in which it lies. We would willingly undertake the labour of condensing and arranging such returns, in the belief that they would prove of very great general benefit. At all events until they shall have been collected all our calculations respecting the true cost of spade husbandry must remain in inextricable confusion.

New Plants.

112. Geonoma corallifera. *Hooker, Bot. Mag.*, t. 4831.

It is to be hoped that the public taste is so far improved as to be content to take more pleasure in beautiful forms than in merely brilliant colours. If that really be so, it may be expected that the smaller races of Palms, the most graceful of all plants, will become more common in gardens, and that the lumpish forms of so many of our favourite greenhouse shrubs will be diversified by the perpendicular stems and narrow bright green foliage of plants like this. Sir W. Hooker speaks of that now mentioned in the following terms:—"The little Palm before us was received from the Jardin des Plantes, of Paris, without any locality being given. It does not appear to exceed, if it equals, the height of a man; attracts attention by the rich, coral-like, simple, thick, and fleshy spadices, almost a foot long,—while young, green indeed, but then studded with the red female flowers, placed at considerable distances from each other. It is evidently a *Geonoma*, a graceful genus of small reed-stemmed Palms, peculiar to the tropical parts of South America, of which upwards of thirty species are described by authors."

VEGETABLE PATHOLOGY.—No. LVII.

258. Sterility. — *Accidental and Organic.* — The stigmatic surface or tissue may, however, be more or less injured by outward agents. Its peculiar secretion which favours the development of the pollen tubes may be washed off by constant rain; it may be dried up by sudden heat succeeding a low temperature, as after a thick fog;* or the tissue itself may be destroyed by frost, or decay prematurely by reason of ungenial conditions of the atmosphere. The tissue may be affected either before or after impregnation; but in either case the consequence is equally, though not so immediately fatal. The injury again may take place either before or after the expansion of the blossom. In springs such as we have experienced for some years the pistils of Pears, for example, are often affected before the blossom expands, the cold being sufficient to destroy their delicate tissue, though it does not immediately affect the vitality of the envelopes. In these cases the styles on the expansion of the blossom present a dark brown or black tint, which extends frequently to the base. The dark tint is not, however, confined to the style, but penetrates into the internal tissues. The centre of the placental column is more faintly tinged, and even the ovules themselves, probably from the

* It is asserted in a late article in the "Household Words," which must have been written by some one acquainted with the French vineyards that the disease called by the French coulure, the abortion and dropping off of the blossom, is thus induced; and this agrees with the statement of Ré on the subject. The word, however, is applied, as the word blight in England, to more diseases than one. It often indicates a premature falling or desiccation of the fruit, analogous to that which takes place in the process of stoning in Plums, Apricots, &c. The phrase quoted in the "Dictionary of the Academy" refers to this second malady, "La vigne est sauvée de la gelée, il n'y a plus que la coulée à craindre." The fall of flowers and fruit may alike arise from many different causes.

rapid imbibition of putrefactive matter from the sphacelated parts above, and the consequent destruction of vitality. At this stage the walls of the ovary are nearly of their normal tinge; but in a few hours, together with the stem, it becomes yellow, and separates from the common panicle. In a few instances the fruit itself begins to swell, but probably, in those cases only where the stigma or style has been affected after impregnation. The stamens in the same blossoms are often perfect and produce pollen, but sometimes like the styles, though more rarely, they become black.* A few blossoms occur, which are almost blind with the exception of rudimentary styles; but these suffer equally with the others.

259. It is probable that a far greater degree of frost is, in general, requisite to injure the male than the female organs. It is very possible, however, after the anthers and their pollen may have escaped all injury from frost, that excessive moisture, even though it may not affect the stigmatic tissue, may render the pollen grains effete. In general, the moisture secreted by the stigma is quite sufficient for the development of the pollen tubes, and in some cases they travel so slowly that an injury to the upper portion of the style is not necessarily fatal, provided no contagion from the dead matter take place; but if the moisture is excessive, the grains may burst either before or after they reach the stigma, and in consequence no pollen tubes can be emitted. As, however, pollen grains will germinate between two slips of glass, as proved by Reissek, if immersed in water, or in other situations than the stigma, this cause of evil may not be so powerful as might at first sight be expected.

260. Sterility is sometimes ascribed to the blasting of lightning, but this, like other general effects of electricity is very doubtful. The violent rain with which thunderstorms are usually accompanied may be injurious, and may sometimes account for the evil effects attributed to the lightning.

261. Fungi again may have a direct influence on fertility by attacking the organs of fructification. Some, as Microbotryon, infest the male organs, but a far greater number the female, to which they are more or less pernicious, according to the stage of progress at which they have arrived. Ergoted seeds, for instance, are sometimes only partially affected, insomuch that they are capable of germination. Such cases are figured by Tulasne in his memoir on Ergot, but we are not aware whether the seedlings have ever arrived at perfection.

262. Insects may produce sterility either by the direct destruction of the flowers or their constituents, or by the deposit of eggs in their tissues causing a hypertrophy of particular parts at the expense of the ultimate fertility; or without any hypertrophy, as in the case of the Curculio of the Hazel nut, and many other instances, by feeding on the fruit. In many cases the balance between the supply and demand of food is so nice that at the moment of perfection of the larva the seed is perfectly destroyed. In other cases, however, as in those weavels which attack Beans and Peas the seeds may be capable of germination provided the radicle and plumule be uninjured. The seedlings, however, which arise from such seeds will be proportionally weak, and will not ultimately succeed if there is not a plentiful supply of nutriment from without.

263. As the sarcocarp may be developed though no seed arrive at perfection, so the seeds may be matured while the sarcocarp is dwindled, as in more than one disease with which Grapes are affected. Such cases, though as disastrous as perfect sterility to the cultivator, belong to a different head, under which they will be severally treated. *M. J. B.*

COMMON THINGS.

Camellias.—Any person possessing a sufficient stock of these favourite plants, and the necessary accommodation, may have a supply of blossoms from August to May. To secure this, it is necessary to place a portion of the plants in a growing temperature of 60° or 65° in January, or early in February, and others at intervals of a month or six weeks, leaving the latest portion to make wood and set flower buds in a cool-house; it may, however, be necessary to remove the late plants to a higher temperature, to induce them to form flower buds; but, except in the case of very vigorous young plants, this will hardly be required. The Camellia is somewhat easily injured by the direct rays of the sun while in a growing state; it enjoys a shady situation, under Vines for instance. The plants should be freely supplied with weak manure water at all seasons, and especially while growing, and they will be benefited by frequent syringings. As soon as they have made their wood and formed their flower buds, they must be removed to a cooler situation, and, as soon as the weather will permit, may be placed in a sheltered shady place out of doors. The plants which were placed in heat in January or February will probably be in flower in August, but if not, they may be removed to a warmer atmosphere, to encourage them to develope their buds.

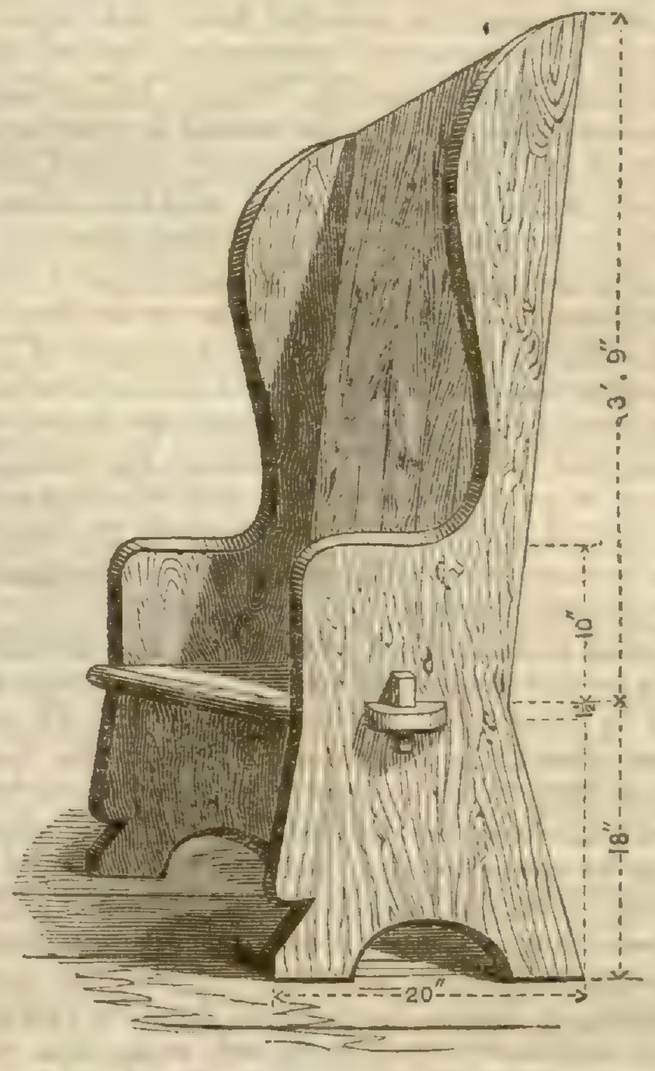
Rhododendrons as Standards. — To have standard Rhododendrons on their own roots, take them from the seed bed and plant them about 8 inches apart, where they should be permitted to remain for three or four years without thinning. When the plants are from 4 to 5 feet high, all the side shoots should be pinched off, which should be done constantly till they have attained the desired height, when the head may be allowed to form. If they are planted in good bog mould, they will make strong stems at this age, have a neat appearance, and flower as freely as when grown in the shape of low bushes. Four-feet stems are high enough, for when taller the plants are apt to be injured by wind.

Achimenes and Gesneras.—These should now be started into growth. The Achimenes should be planted in shallow pans in light sandy soil, covering them very lightly so as to allow of their being separated when fairly started with the least possible injury. Where these plants are grown largely and in a long succession, such as have been the longest at rest should be selected for early work. A few tubers of Gesnera zebrina for early flowering may also now be potted. These should be started singly in small pots.

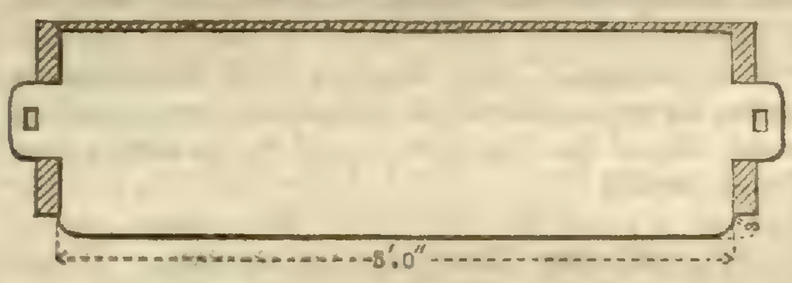
* This exactly agrees with the account given by Ré, who is always worthy of attention where he observes for himself.

COTTAGERS' COMFORTS.

Seeing my gardener lying uncomfortably on three chairs ill, I thought how much more easy was the old settle, now only found in country inns. I have had two made of Elm, of which I send drawings and plan. If the labourers, or even farmers, had the choice, they would and do prefer the vulgar, dear, and (in draughty cottages) not nearly so comfortable sofa. The two uprights and the seat (which pro-



jects 3 inches beyond them) are of 1½-inch Elm, the back is of ½-inch Elm, with coverings to the joints to exclude draught, and reaches to the ground. The seat is let quite through the uprights, and is "pinned" on



the other side, which plan gives the settle great strength, and does away with any other framing. It is a perfect invalid labourer's couch. *Somerset.*

VEGETATION AND CLIMATES OF FOREIGN COUNTRIES.—No. II.

Nice, *Jan.* 26, 1855.—During the last fortnight some unusually cold weather has been experienced here, which has much checked the progress of vegetation, so there will not be anything material to report on that head. I also see by the newspapers that there has been severe frost in England, and it may be interesting to trace the progress of the late general decrease of temperature in most parts of Europe. From the various foreign papers which I see here I have taken the following information:—

	Jan. 17		18		19		20		21		22	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Paris	24	19	14	10	15	11	15	10	16	13	28	20
Brussels ...	31	17	...	...	21	12	20	14	...	...	28	18
Lyons, 7 a.m.	...	...	...	25	...	17	...	17	...	11	...	17
Nice	43	39	44	39	44	41	42	28	36	30	48	26

The French keep their register per centigrade. I have altered mine to Fahrenheit.

At Strasburg on the 17th the thermometer was down to 14°, and on the 19th to 13°; at Nantes on the 20th, to 14°; at Havre on the 19th, to 14°, and on the 20th, to 10°; at Rouen on the 19th the max. was 14°, and min., 10°. But the lowest temperature in France was in the department of the Yonne, where on the 19th it was down to 5°, or 27° below freezing; and at Auxerre on the 18th, to 4°; at Orleans, to 12°.

The fall of snow appears to have been very general on the 21st (Sunday) at Paris, Lyons, Marseilles, &c., nearly a foot in depth. The French mail was much delayed in consequence. No letters or papers were received here on Sunday, Monday, or Tuesday. The decrease of temperature at Nice was preceded by a violent storm, which raised the sea to a great height, and did much damage to the roads, and also to many of the fishing boats.

The Ferns found here are in nearly full foliage, comprising the Adiantum Capillus Veneris, which is very abundant, and in some places the fronds are from 18 to 20 inches in length. Ceterach officinarum is also very abundant. Polypodium vulgare and a serrulated variety, Adiantum nigrum, Scolopendrium vulgare, Asplenium Trichomanes, Ruta muraria, and Pteris cretica; the two latter rarely to be met with.

There are several sorts of Palm trees, many of them very fine specimens, more than 20 feet high. One of them, a Date Palm, has two immense hanging bunches of fruit, and is a splendid object. There are also some trees of the Asclepias in full flower; and a purple Polygala 8 feet high, likewise in full blossom: all in the open air. The recent frosts do not seem to affect them so much as they would in England, on account of the peculiar dryness of the atmosphere; and from this cause damp is seldom seen on the windows in the morning. The Acacia tomentosa has been looking very handsome, with its large bright yellow blossoms. The Tuberoses are now over; until recently good-sized bunches of them might be purchased for 6*d.* I yesterday saw a large bouquet, beautifully made up, consisting of an outer border of double Neapolitan Violets, then a circle of eight white Camellias mixed with the white Aspique, then an inner circle of Violets with a red Camellia in the centre.

One of the many handsome Evergreen trees in the vicinity is the Carob or Carrubia, some very large. Its leaf resembles our Acacia, but is thicker. It bears a long pod, with Beans something like the Scarlet Runner, which is very sweet and much esteemed by the mules and donkies, which are kept here in great numbers.

The following is the account of the Thermometer in the Shade since my last.

	7 A.M.	12 P.M.	10½ P.M.
January 12	45	53	42
" 13	37	51	44
" 14	38	55	45
" 15	44	43	38
" 16	37	43	40
" 17	40	43	30
" 18	39	44	40
" 19	43	44	41
" 20	41	42	28
" 21 (snow)	35	36	30
" 22	26	48	32
" 23	33	47	38
" 24	38	44	43
" 25	43	48	37

Persons who have been resident here many years, say they do not recollect so cold a week as the last has been.—*E. C.*

WELLINGTONIA GIGANTEA, OR THE GREAT TREE AND THE GREAT MAN.

The above was the title of a very interesting lecture, delivered on the 15th ult., by J. Bateman, Esq., M.A., F.R.S., of Biddulph Grange, in the Assembly Room, Congleton. The lecture was delivered in connection with the Congleton Mechanics' Institution, before a numerous and highly respectable audience.

Mr. Bateman commenced the lecture by observing that perhaps some present would be already acquainted with the extraordinary tree which had recently been discovered in North America, and to which had been given the name of a still more extraordinary man. The subject of the lecture might strike some as strange and curious, but he hoped that, as they proceeded, they would find that it opened out into interesting and profitable trains of thought. The arrangement of the lecture would be briefly this:—He should first give some information as to the district in which the Wellingtonia was discovered; then he should describe the tree itself, and afterwards make some allusions to the great man from whom the great tree had derived its name; and, in conclusion, offer some general reflections, which it would be seen that the subject naturally suggested. If they were to ask for a detailed description of the scene in which the subject of the lecture was laid, it would be requisite that he should refer to an atlas published within the last four or five years, as on the maps issued previously to that time, they would find the country described under the vague designation of "unknown." But how great a change had taken place within those few years! Where at t at time stretched a wild and unknown desert, now stood a magnificent city; and in the bay of San Francisco, which was then scarcely ruffled by the oars of a solitary canoe, now floated vessels from all countries. The magician that had waved his hand over the desert and the waters, and produced this fairy change, was gold. They would already have discovered that he alluded to California. (Loud applause.) The discovery of gold in California caused a great tide of emigration to set in that way, and, as might have been expected, a large proportion of those who immigrated from all countries were characters of the very worst description. Then followed those scenes of rapine, violence, and blood, the recital of which made Europe shudder; and what should have been the inauguration of the "golden age" more nearly resembled the breaking loose of hell. These scenes, he said, were occurring on one side of the great range of hills dividing the Californian coast from the inland territories of North America; and at the foot of the hills on the other side was going on a spectacle equally strange and deplorable. For on the other side of those hills lay Utah, the Great Salt Lake, around which swarmed a great Mormon population, under the rule of that licentious potentate, Mr. Brigham Young. He would not, however, dwell upon these painful scenes, but alike leave the Mammonites and the Mormonites, and turn to the calm and peaceful solitudes of primeval nature. (Loud applause.) Among the travellers who visited California when the gold discoveries began to attract the attention of Europe was Mr. Lobb, who travelled as the agent of the most enterprising nurserymen this country ever produced—he alluded to Messrs. Veitch of Exeter and London, who sent him out, not to carry away auriferous spoils from the country, but to examine into its vegetable productions. Mr. Lobb made numerous interesting discoveries, and after ascending the hills to a height

of above 300 feet, his eyes first rested on these monarchs of all trees, which were popularly named Wellingtonia Gigantea. They towered to a [illegible] stature, some among them rising to a height of [illegible] feet, or more than twice the height of the tallest factory chimney in Congleton, and with a proportionate girth, in some instances giving a circumference of 30 feet, and a diameter of 10 feet, thus capable of furnishing single planks of large size, which would be sufficient to floor that room. (Loud applause.) He (Mr. Bateman) was not of the opinion to think of bringing to this country an actual specimen of this monster tree, but Mr. Lobb had sent an accurate drawing of it, from which he (Mr. Bateman) had copied the diagram to which he then directed their attention. He now briefly explained a diagram representing a Wellingtonia 300 feet high and 3000 years old, which had been drawn on a scale of 1 foot to 10 yards. For the purpose of affording means for comparison, he had inserted in the drawing a ladder of a common length, leaning against the trunk, and a man ascending it. The gigantic size of the tree dwarfed the ladder to an appearance like that of a walking-stick, and the man half way upon it seemed about the size of a beetle. He had also drawn a Beech, Fir, and an Oak tree on the same scale; but, by comparison, they both sank into the appearance of insignificant shrubs; still, however, he said the eye had a difficulty in comprehending its astonishing dimensions, and he had adopted another means for comparison. He had drawn sketches of the tallest buildings in the world, selecting the Pyramids of Egypt, St. Peter's at Rome, Salisbury Cathedral, and St. Paul's at London. They would, however, see that the Wellingtonia left St. Paul's far behind; it was some feet higher than Salisbury Cathedral, the highest building in England; it contested the palm with St. Peter's and was but a small distance below the Pyramid. He then compared it with drawings of other trees, and, in comparison he said, the Palm tree appeared only like a Sugar Cane, the Spruce Fir like a Juniper, and even the famed Cedar of Lebanon only as a bush. To convey a more perfect idea of its astonishing size, he related several anecdotes concerning it. The method by which these trees were felled, he said, was to bore them through and through with immense augers, and then wait for a strong wind to complete the work. He described the great violence which attended the fall, and mentioned that on one occasion a traveller on horseback rode up in the trunk of one of the felled trees, to a distance of nearly a hundred yards. Some of the hollow trunks of these trees, he said, would have served for the smaller tubes of the Britannia Bridge, and here was a hint for railway contractors. If they wished to bridge over a stream, they had only to plant one of these trees on the bank, and, when it was full grown, fell it so as to reach across into the other side, and there would be a bridge already made. The only difficulty in the way was one which he would confess was rather a strong objection—that they would have to wait for 3000 years before the tree had matured itself, that being the period it occupied in attaining to its full growth. (Laughter and applause.) He then directed attention to a specimen of the bark of the Wellingtonia, which he produced, and which was of an astonishing thickness. He said it had a cocoa-fibre texture, and gave both a pungent smell. He related an amusing story of a clever practitioner in the land of Barnum, where he said there were men always ready to turn an honest or dishonest penny, who stripped one of these trees of its bark, and then joined the bark together and produced an actual representation of the Wellingtonia, and made a show of it in San Francisco, furnishing it inside with a pianoforte and carpets, and receiving parties in it. The interior of one of these trees, he said, would furnish an area large enough to contain all the wives of Mr. Brigham Young, and all the husbands of Lola Montes, who, by the way, was at present in San Francisco. (Laughter.) He then pointed attention to a diagram representing the lower portion of the trunk of a young Wellingtonia about 1000 years old! He proceeded to explain the general characteristics of the tree, and placed it as a distinct genus between the Pine and the Juniper, having the cone of the Pine, though proportionably smaller, and the foliage of the Juniper. It belonged, he said, to that most useful race to which we were indebted for Deal or Pine, and for masts for our shipping; which also furnished resin, pitch, turpentine, and many other useful articles. It was also stated that from the bark of this class of trees the wretched Russian serfs obtained a sort of bark bread, which, of necessity, must be a very disagreeable compound. And while on this topic, he would mention that a writer in the "Quarterly Review" says, that it is possible, by skilful manipulation, to manufacture a respectable loaf out of a deal board, and as it was well known that sawdust contained some grains of albumen, it was possible that, as the writer wittily remarked, "bread" and "board" might come to be synonymous terms. (Laughter.) The Wellingtonia, it would be seen, was valuable from considerations of utility, and, in addition, it was a magnificent ornament to the landscape. Considering the fitness of the name which had been given to this tree, he reminded the audience that figures of trees were often emblematically used in scripture to represent great or good men. He drew a distinction betwixt the senses in which the Palm and the Cedar were employed in the Bible, and read a lengthy passage in illustration from Ezekiel (chap. xxxi.) These authorities, he said, would justify the title of the lecture, although they destroyed all claims to originality on that point, when it was seen that, 25 centuries ago, Scriptural writers had compared the great tree with the great man. (Applause.) He then explained the method by which they arrived at the age of the Wellingtonia, by counting the number of concentric rings in the trunk, it having been ascertained that these rings were formed annually, and that each circle stood for a year. He explained in a very simple manner the process of restoration and growth taking place annually in the vegetable kingdom, by the circulation of the sap, which enabled them to arrive at the results above-mentioned. This, he said, related to what they might term "arboreal" time, by which nature regulated her proceedings in the vegetable world, and which was at times useful in checking the vagaries of antiquarians. He related an instance in which naturalists had been able to indicate the age of ruins in Central America, by ascertaining the period of their desertion by the age of the trees that had grown over their walls. To prove the correctness of the principle by which they thus measured the existence of trees, he produced a wedge cut out of a Scotch Fir tree, grown on the Knypersley estate, and, being able by the aid of other circumstances to fix the date when it was planted by a former occupant of the estate, he counted the concentric circles, and found that they exactly agreed with the number of years which had intervened. He then applied this reasoning in the case of the Wellingtonia, and by a diagram on which spaces were marked, representing each 100 rings, which he said were found to exist in the specimen on the scale of 25 rings to the inch, and by calculating the diameter they ascertained that the age of the tree could not be less than 3000 years. He observed to what a remote period of time the existence of one of these trees led them. Pointing to the wand with which he explained the diagrams, he said, when that tree was but the thickness of that wand, there occurred a siege which was then as important, and had since been as famous in history as would be the present siege of Sebastopol—he alluded to the memorable siege of Troy. (Applause.) He would however add, that he hoped it would not occupy Lord Raglan 10 years in reducing Sebastopol. (Renewed applause.) To turn to Scriptural history, they found that the tree began to live in the days of the Judges; it would be quite a youth in the time of David. At the period of our blessed Lord's incarnation it would be about 1200 years old, and it completed its second millennium during the dark ages of the Papacy. (Applause.) When it was about 2000 years old, a sad event, as far as concerned itself, occurred—viz., the discovery of America; for it was certain that when the enterprising Europeans set foot on the shores of the New World, the tree would not long remain "monarch of all it surveyed." That period was the most remarkable of preceding history. Then Constantinople was captured by the Turks, and artillery for the first time made an appliance of war. Also about that time the printing press was discovered, and soon followed by the circulation of Bibles, which led to the glorious Reformation. At the time of that event, in the 16th century, the tree would be in a green old age and so it continued until the 18th century, so remarkable in history, as being inimical to crowned heads, and then this monarch of the American woods fell before the axe of European aggression. (Loud applause.) But the tree was as yet without a name. They would be aware already, he remarked, that botanists frequently gave the names of princes, nobles, and great men to their discoveries. He mentioned several instances in illustration, and said that this had been carried out until for some time past there had scarcely been a family of note which had not furnished a name for some plant. But it strangely happened that in this particular the Great Duke had been omitted. But about the time that we lost our great man, the great tree was discovered; and a specimen was submitted to Professor Lindley, who, finding that it belonged to a new genus, proceeded to name it, selecting for that purpose the title of the great Duke. He read the dedication as made by the Professor, which concluded by saying that the most appropriate name for the greatest tree was the title of our greatest man, and, therefore, it should be henceforth known as Wellingtonia Gigantea. This was not the first occasion, he said, that Wellington and giant had been coupled together; and he amused the audience by reading a French nursery rhyme, done into English by Sir Walter Scott, with which, during the time of the Peninsular war, French nurses frightened refractory children into sleep, by telling them that "Giant Wellington might come that way," &c. He resumed: to become serious, he did not know if we should not have to go to war with America about this choice of name. He read an extract from an article in the *California Farmer*, in which Dr. Winslow, writing on this subject, complained vehemently of an English name having been given to an American tree, and characterised it as indicating scientific arrogance and indelicacy, to select the name of Wellington as that of the greatest of trees, when the name of Washington would have been in every way more suitable. (Laughter.) And the doctor, in magniloquent language, proposed that the name of the tree should be changed, and it should henceforth be called "Washingtonia Californica." He observed that both law and equity, however, were against the doctor—equity, because the Americans were at full liberty to have discovered the tree themselves, if they could, and to have named it after Washington, if they chose: and they were now at liberty to discover, if they could, a tree still more magnificent, and might designate that by the name of their great founder. (Laughter and renewed applause.) Botanical law was also against him, for it was a principle established by scientific men, for their own convenience, that, unless it could be shown that the discoverer was wrong as regarded the structure of a plant or tree, the name that he had given to it would continue to designate it to the end of time. He related some amusing instances, in which this circumstance had been made use of by botanists, for the gratification of envy, and otherwise. He would now proceed, he said, to speak briefly of the "great man" himself. He concluded this portion of the lecture by drawing a historical parallel betwixt Wellington and Cæsar; and after remarking that our Duke was as great a warrior, as good a writer, and as distinguished a statesman, he added that he was a nobler patriot, and gave the precedence to Wellington, in that Cæsar treacherously assumed the purple. He then proceeded to offer some general reflections which the progress of the subject had suggested. They had seen, he remarked, that the existence of two of these trees would span the whole period of recorded history. The progenitor of the tree represented before them would have been upwards of 6000 years old by this date; and, consequently, must have been contemporary with the placing of the first man upon the earth, and witnessed the world in its primeval beauty. The second tree had scarcely arrived at middle age when our Lord descended upon the earth, and pointing to a small specimen before him, scarcely the length of his finger, he asked what might be the fate of that plant. Already, as it were, the shadows of great coming events were falling around them. He concluded by a magnificent description of the new world which would succeed when the earth emerged from its fiery baptism, and from which not one human being need be excluded. He desired them not, like stiff-necked Israel in days of old, to think scorn of that pleasant land; and refuse to give credence unto the words of God. He concluded amid great and prolonged applause.

We beg to add that the diagrams, by which Mr. Bateman illustrated his lecture, were on a very large scale, and appeared to have been executed in a first-rate manner. *From the Staffordshire Sentinel, January* 20, 1855.

[These diagrams have been very obligingly sent to London by the ingenious and learned lecturer, and will be exhibited at the Horticultural Society's meeting on Tuesday next.]

Home Correspondence.

Sweet-scented Camellia (see p. 54).—Would your correspondent "Violet" inform me whether his sweet-scented Camellia is a single or double variety; if single it is no great novelty, as I have a seedling which has bloomed twice, and proved decidedly fragrant each time. To me the scent resemblesthat of a Wallflower, but not so strong, while others have compared it to a Hyacinth. It is a large single variety, and bloomed first three years ago. Being anxious to get a double kind possessing the same property, I impregnated it with double varieties and obtained seeds, plants from three of which bloomed last year at two years old. No. 1 was double, but it had no scent; No. 2 was single, and both in scent and shape resembled the parent; the 3d was single, but without any scent. Last year the mother plant bloomed again, but I was not fortunate enough to save any seed either from that or the young sweet-scented one, No. 2. It is full of buds this year, and appears to be a very free bloomer; but I shall not be satisfied till I get a good shaped double sweet-scented variety. If "Violet's" plant possesses these qualities, it is certainly a valuable acquisition. *John Hally, Blackheath.*

Datura Ceratocaulon.—The highly disciplined and artistic taste of the present time with regard to massing and arranging flowering plants in beds, according to the harmony of colours of their flowers, as well as the variegation of the foliage of the less showy flowering kinds, has excluded and comparatively thrown out of cultivation many of our perennial herbaceous plants, and also very many annuals, which formerly were universally grown. It is true so many good things have been introduced of late years through the instrumentality of the Horticultural Society in sending out collectors as well as through the spirited enterprise of private individuals in exploring the distant regions of the globe, that private cultivators are compelled to make a very moderate selection from the many new and interesting plants that we at present possess. But whilst I admit that Datura ceratocaulon has no peculiar claim to continued cultivation above many others which are now seldom seen, it is still worthy of the notice of those who may retain a border for the growth of mixed flowering plants alongside some favourite walk. The peculiar suitableness of this Datura for the situation consists in a certain grotesqueness of stem and branches, together with fine large funnel-shaped whitish flowers, which expand late in the afternoon, thus giving variety and cheerfulness to the evening walk, whilst those plants whose gay coloured flowers affect the sunlight are imperceptibly closing to repose. Complaint has been made of the difficulty in getting the seeds to vegetate. I have grown this plant many years, and have obtained a sufficient supply by letting it shed its seeds upon the ground in the autumn, and afterwards digging them in. The following spring when the weather set in warm many of the seeds vegetated, and when the plants were sufficiently strong they were transplanted with very little check. The seeds will lay in the ground and retain their vitality for several years; but I now would more particularly recommend them to be gathered as the seed-vessels burst. Let a flower-pot of sufficient depth and width be filled with garden soil to within 4 or 5 inches of the top, on which spread a thick layer of the seed; then fill the pot with the soil, place it in a cold frame and protect it from frost. About the beginning of April stir the soil in the pot so that many of the seeds may be within one inch of the surface. Place the pot in the shade in a house or frame, where there is a moderate growing heat. If in a frame, plunge the pot in the soil, and water sparingly. If after a month or six weeks no plants appear, plunge the pot to the rim in the open ground, there to remain until late in the autumn, to be again taken up and put in a frame, and in the spring following the same process must be repeated. When the plants come up they should be potted and treated as other tender annuals are, until such time as the weather permits their being planted out. If under these conditions no seeds vegetate, the failure I apprehend must be attributed to the seed not having been fertilised. *James Falconer.*

Cure for Fleas.—I have not noticed any exact reply to an inquiry that appeared in your pages some few weeks ago respecting some unknown plant reported to possess the power of destroying fleas. I have met with the following passage, which perhaps may satisfy the inquirer:—"Piré otou, an herb which is sold here (Erzeroum) in powder (Anthemis rosea or carnea), instantly kills fleas and other insects, and would be invaluable to travellers in warm weather." This passage occurs in Curzon's "Armenia." *Richard D. Ball, Heckfield Heath, Winchfield.* [The same is said of our Chrysanthemum leucanthemum, and other strong-scented Composite plants.]

Broccoli.—In a late number Mr. Sutton gives a list of seeds of this useful vegetable, by which we may have it from September till June, certainly quite long enough. Mr. Dixon and others mention theirs as being super-excellent in size, &c. What I want, being in the situation of many of your readers, viz., my own gardener, is a list of the best Broccolis, with the times to sow as well as reap, and I believe that any respectable nurseryman who would take the trouble of advertising packets of the really best kinds in succession at so much per set, with times of sowing, would find it answer well. *N. O. T.*

Grafted Rhododendrons.—The following remarks were penned before Messrs. Standish and Noble's paper at p. 53 was published, and do not consequently apply to them. The advocates of grafted Rhododendrons have one and all adopted what appears to me a curious line of defence, a species in fact of horticultural *alibi*, and a very Irish one, viz., that they are, in fact, not grafted, because they speedily establish themselves on their own roots. That is to say, that there is no real objection to a grafted Rhododendron, because, if you plant it properly, in a year or two it becomes a self-rooted plant. They, in fact, plead guilty to my indictment, and yet call upon your readers to say "no true bill." I think I need hardly waste more words on this point. It appears that a grafted Rhododendron is considered by its advocates a sort of provisional plant, a half-struck cutting, or half-rooted layer, which, if you understand it and treat it properly, will become all you desire. Now, I must confess when I buy plants I like them really rooted, and not provisionally, or at least to know what I am buying, and if I have only elucidated this point I think your readers will thank me for having raised the discussion. Mr. Fraser's remarks, however, raise so many questions of wider bearing, I must beg room for a few observations on them. In the first place, Mr. F. charges me with refuting myself, with "upsetting my own theory," because I state that the stocks of grafted Rhododendrons, though inadequate, in my opinion, to nourish the stronger growing species grafted on them, nevertheless throw up lateral shoots and suckers. His implied proposition appears to be that no stock grafted with a species more luxuriant than itself will produce suckers. The Plum when grafted or budded with the Apricot or Peach, the Paradise stock when grafted with a strong growing Apple, and many other examples, refute this suggestion. The stocks, though obviously of slower, smaller, and feebler growth than the grafts do continually throw up suckers, as every gardener knows. My statement is that plants having a natural tendency to throw out lateral shoots or suckers, continue to do so, though grafted with species more luxuriant than themselves. In other words, that grafting does not change the nature or habit of the stock, however much it may modify the graft, and I appeal to all vegetable physiologists to confirm or refute my state-

ment. Mr. Fraser further charges me with not having given sufficient proof that the stocks generally employed are deficient in strength, and a somewhat obscure passage follows, which, if I understand it aright, means to assert that the natural seedlings of R. ponticum and maximum are more luxuriant than cross-bred plants of the same species crossed with arboreum, and by inference I suppose that seedlings of ponticum and maximum are adequate stocks for the hybrids. Now, as far as my observation goes, the very reverse of this is the case—witness: R. arboreo-caucasicum (R. Russellianum), a plant three times as luxuriant as its dwarfish parent R. caucasicum and R. alta-clerense, more luxuriant than R. catawbiense. But Mr. Fraser makes a further assertion, which, if he is able to establish it, will add an important fact to our physiological knowledge, and disprove an opinion of the late Dean of Manchester, founded on 40 years' experience. Mr. Fraser states that hybrids exhibit almost invariably the character and habits of the female parent, and that hybrids between R. arboreum and catawbiense are not hardy unless the seed be saved from catawbiense, *i.e.*, unless the female be hardy. Mr. Herbert states (Hort. Soc. Journal, Vol. II., p. 98):—"Cross-bred vegetables seem to assimilate more to the male than to the female parent, though sometimes the reverse is the case;" and he adds—"As far as I have seen, a cross where the male is hardy and the female tender, is much more hardy than one where the female is hardy and the male tender. This is very important and conspicuous in cross-bred Rhododendrons." These remarks were written in 1846. What experiments have since been made to disprove this opinion?—and upon what facts does Mr. Fraser found his statement? Since Mr. Herbert's day we have few records of experiments on cross-breeding, and if Mr. Fraser can furnish any in confirmation or confutation of Mr. Herbert's opinions, he will do good service to vegetable physiology. I must not be tempted to diverge into the subject of grafting in general, though some of my critics challenge me to such a course. I will only remark, that with certain peculiar exceptions I never saw a plant yet that was not stunted by grafting, unless it be the yellow Horse Chesnut. The Copper Beech undoubtedly is, unless the disease which affects its colour affects also its growth, for who ever saw a Copper Beech as large and luxuriant as the common Beech, and, strange to say, where it does flourish more than usual, on soils where the Beech is native, it appears to have a tendency to lose its colour. I am asked whether I would cultivate the Peach on its own roots. Certainly I would, if I could obtain such plants; and, as the next resort, I would have them grafted or budded on the Almond, according to Mr. Knight's suggestion. I have no experience on this head, but the opinion of Mr. K., who, as a physiologist, gardener, and accurate observer has seldom been surpassed, will I think justify me in differing from some of my critics, and till they have disproved his theories, I am content to abide by them. *J. R.*

Frigi Domo injured by soaking in boiled oil.—In order to render it less liable to injury by the weather, I soaked a few yards of "Frigi Domo" in the boiled oil commonly used by house painters. When I examined it after three days' soaking, the outside folds of the cloth were little injured, but the inside was burnt almost to powder, forming a black charred mass without any coherence excepting in the parts nearest the outside, where on being opened, it fell into small, thin, dark flakes, still retaining their exact original shape. Can any of your readers explain the cause of this accident, and inform me at the same time whether boiled oil can be advantageously used in general for coating over cotton or hempen netting and cloth exposed during the spring on fruit walls? *A Subscriber, Birches Green, near Birmingham.*

Notices of Books.

Food and its Adulterations, &c. By A. H. Hassall, M.D. 8vo. Longmans (28*s.*).

For some three or four years the public mind has been excited by a series of articles in the medical journal called the *Lancet*, showing that almost every article of daily consumption is adulterated. The examination of substances was said by the editor, Mr. Wakley, the Coroner for Middlesex, to be placed in the hands of an "Analytical Sanitary Commission." The reports of this "Commission" were read and admired by the unlearned, who fancied they discovered in them a profundity of scientific knowledge. Every one asked who are the members of this Analytical Sanitary Commission? what are their means of information? and how far are their reports entitled to confidence? But although nobody avowed the authorship, it soon became evident that the members of the "Commission" must be only ordinary observers, and that although their statements were useful, and up to a certain point accurate, yet that they were open to suspicion as well as deficient in the kind of knowledge which was to be expected from "An Analytical Sanitary Commission."

We now learn that the only member of this "Commission" has been Dr. Arthur Hill Hassall, the writer of the book before us, previously known as the author of some indifferent works on microscopical subjects, and of a highly-coloured report upon the water furnished to London by the water companies. So that it appears there are no Commissioners at all in this matter, unless Dr. Hassall be taken to consist of several gentlemen rolled into one, and that the title given to his investigations in the *Lancet* was not altogether free from the imputation of misrepresentation; rather an awkward beginning for an inquiry into supposed frauds, for the detection of which great skill and knowledge were required, as well as a reputation upon which even uncharitable persons would not dare to breathe.

For about four years this "Analytical Sanitary Commission" has been terrifying the public, and bullying shopkeepers; the latter, we have no doubt, in many cases with very sufficient reason. The result is the bulky volume before us, consisting of 659 pages of closely-printed matter, and 159 woodcuts. Of their true value as a whole it is beyond our power to make anything like a complete report; we can only say that although there is no doubt about their general truth, yet that where we have followed them, as in the case of Coffee and Tobacco, they indicate but a slender knowledge of the subject; and that in other instances, that of water for example, they are extravagant exaggerations, not written in the spirit of fair inquiry, to say nothing of science, but for the purpose of astonishing those readers of the *Lancet* who do not know how to use a microscope, or who do not possess one.

Undoubtedly there is an enormous amount of fraud practised by the shopkeepers of this country, especially upon the poor, and it is a good work to expose their iniquity. Mr. Wakley, we will add, deserves our thanks for boldly publishing the names of the delinquents, always supposing they were so, and holding them up to reprobation; for it is practically useless in this country to charge any body of men with offences. General allegations are inoperative, and besides there is something cowardly in them; it is only when delinquents are personally exposed that the power of criticism is felt and recognised. But the power thus wielded is a terrible one; and it is doubtful whether it ought to be in the hands of unknown irresponsible persons, screened by such high-sounding names as that of the "Analytical Sanitary Commission of the *Lancet*," which turns out to be what our learned and gallant friends across the Channel would call a mystification; we shall not translate the word into English. Such power is very apt to be abused, accidentally if not intentionally, and, unless we are much misinformed, it actually has been by Dr. Hassall himself. But let that pass—all men are liable to error.

One would have imagined that the publication of these papers in the columns of a weekly paper would have been sufficient to give them publicity, especially when that paper is the *Lancet*, having a very large professional circulation. And we should have been at a loss to know what could have led to such crude memoranda being collected, with little or no abridgment, into a volume of between 600 and 700 pages, more than one-half of which is irrelevant matter, had we not read the preface and the dedication of the work to Sir Benjamin Hall, the new President of the newly constituted Board of Health. We now see that Dr. Hassall is of opinion that a standing "Analytical Sanitary Commission" ought to be appointed by Act of Parliament, and that that part of the duties of the Excise, which consists in prosecuting fraudulent dealers, should be transferred to the new "Analytical Sanitary Commission," which we suppose is to be again composed of several gentlemen rolled into one, who is (are) to relieve the most able and active Chairman of Inland Revenue of one of the most important and delicate parts of his administrative functions. In pronouncing upon the necessity of this great reform in our institutions, Dr. Hassall does not mince his words. On the contrary, he calls the Excise a clumsy and inefficient as well as expensive machine; describes the methods at present adopted by the Excise for detecting adulterations as unworthy of the scientific character of the times in which we live; and unhesitatingly asserts that it does not "sufficiently employ the resources of science for the discovery of adulteration. They rely too much," he adds, "upon the information of Excise inspectors, and too little upon science, upon the resources of chemistry, more particularly of organic chemistry, and especially upon a knowledge of vegetable structure as revealed to the competent observer by means of the microscope."

If the statements of the "Analytical Sanitary Commission" are not more consistent with fact than this, we can only say that a monstrous wrong has been done to the dealers gibbeted in the *Lancet*. So far from Dr. Hassall's reckless assertions being true, they are the very reverse of the truth. Not to mention the well-known very elaborate experiments upon malt, conducted for the Board of Excise by the late lamented Dr. Thomson, of Glasgow, or of the numerous cases which have been carried to so successful an issue by scientific witnesses that fraudulent dealers now rarely venture to resist Excise prosecution, we have at this moment before us an elaborate report upon a most important subject deeply affecting the public revenue, which report is signed:—

Dugald Campbell,	Jos. Dalton Hooker,
Wm. B. Carpenter,	John Lindley,
Thomas Graham,	John Stenhouse.

Does Dr. Hassall—we beg his pardon, does "The Analytical Sanitary Commission"—mean to say that these are names unknown in science? or does he proclaim that they do not move in the same orbit as himself? If that is the meaning of the ignorant calumny just quoted, we are ready to admit its truth; for we will undertake to say that not one of these gentlemen would endorse any one of the reports of the "Analytical Sanitary Commission."

But our learned and very disinterested author complains that the Excise rely too much upon their inspectors. Does he know who those inspectors are? or what their attainments? If not, we can inform him that they are able, active, and acute public officers; that they understand their duties; and that it is because of their intelligence and acuteness that scientific witnesses, —sometimes, we regret to say, untrustworthy witnesses—have been so little employed of late. We should like to see one of these most respectable officers placed in a witness box, and immediately succeeded there by the agent of the *Lancet*, if it were not that we should regret to see any man exposed to so humiliating a comparison.

Instead of thinking it wrong to employ the Excise inspectors in detecting fraud, we must take the liberty of saying that they are in every way preferable to such an irresponsible anonymous "Analytical Sanitary Commission" as the *Lancet* got up. We think, moreover, that the rule should be to rely upon their evidence, calling in such an expensive machinery as scientific assistance being the exception, to be applied only in difficult cases. Everybody who knows anything knows perfectly well that the Inland Revenue, of which the Excise is a branch, if not the best of all our public offices is at least second to none for honesty, activity, knowledge, and thoroughly good organisation. Its chairman is a man of perfect knowledge of the intricate duties of his department, and of a firmness in the administration of them only equalled by the courtesy which attends it—most important qualifications in an officer of Government called upon daily to enforce a very unpopular though necessary branch of law; and we presume to add, at the risk of hurting the susceptibilities of the "Analytical Sanitary Commission," that to publish a huge 8vo, with no other apparent aim than to persuade people to the contrary, is alike discreditable to the good sense and good feeling of the author.

Garden Memoranda.

Horticultural Society's Garden, Turnham Green.—The large Lælia superbiens in the curvilinear stove is now in full bloom, and an extremely striking object it is, seven glorious flower-spikes with which it is furnished being all at one time in the greatest possible perfection. This fine plant has blossomed every winter for these last seven years, and therefore its flowering annually may henceforth be looked forward to with certainty. Those who wish to see it on this occasion should, however, lose no time in doing so, as it will soon begin to fade. It has already been in flower a fortnight The noble specimen of Dendrobium speciosum which bloomed so magnificently along with the above some two or three years ago, is again showing flower; but not near so finely as on that occasion. Angræcum virens, Barkeria Skinneri, and a few other Orchids, are also at present in blossom.

Inside Ewing's glass walls, Chinese Primroses planted out are now flowering as beautifully as they do in pots in ordinary greenhouses. The only protection they have had from the severity of the weather is the glass, which makes their situation 2° warmer than the open garden. It will thus be seen how hardy such plants are when they can be kept comparatively dry.

In the Rose house the plants have all been pruned; and, with a view to keep off mildew, they have been liberally dusted with sulphur, first damping the shoots and leaves to make it stick. The borders have also been forked up and put in order for the winter.

In the orchard house the raised beds on which the Roses grew before they were transferred to the Rose house, are now being levelled down and forked up preparatory to setting fruit trees in pots on them. Of the latter the Society has now a good collection, which this year is to have a fair trial in this house. Even Raspberries have been potted for the purpose of sharing in the experiment.

In the great conservatory the different Brugmansias are again covered, as they nearly always are, with their long, red, trumpet-shaped flowers; but of all the plants in this house, by far the greatest favourite, and justly so, is the Luculia gratissima, which is at present finely in blossom; and even in this cool-house the large clusters of delicate rose-coloured flowers which terminate nearly every shoot emit a fragrance which quite loads the air in their neighbourhood with sweetness. This is a plant which no conservatory bed should be without. All the care that it requires is merely to keep it clean, and every year to remove as much of the exhausted soil from the roots as possible without injuring or disturbing them, and to replace it with fresh material; but even this attention is only needed after the plant has stood for some years in the same place, and has begun to show symptoms of want of vigour. Its flowers being much prized for bouquets, subjects the plant to a regular annual pruning, which, however, seems rather to improve than injure it.

Chimonanthus fragrans and grandiflorus are at present in blossom on the conservative wall, where they are matted up to keep the flowers from being spoiled by exposure to the severity of the weather. The well known fragrance of the blossoms of this plant we need not say renders it quite worthy of this attention. On the same wall Jasminum nudiflorum is pushing forth a few of its round yellow flowers, but it is only under glass at this inclement season that they are developed in perfection; when this is afforded them they open in

sufficient numbers and so clear and beautiful as to produce a cheerful and even rather a striking effect.

In the orchard department, Pear trees on walls are being pruned, as are also open dwarfs in belts. Where loose bark has accumulated on the stems or limbs of the latter in sufficient quantity to offer a harbour for insects, it is being carefully scraped off, and the parts are to be dressed with the following composition, viz., half a peck of quick lime, half a pound of sulphur, and a quarter of a pound of lamp black mixed together with as much water as will form them into a thick paint. This mixture is recommended in "Lindley's Guide to the Orchard," to be applied in a warm state, or something more than blood heat. Some new varieties of Belgian Pears, received from M. De Jonghe, have been planted along the front of the Peach border, where they are to be trained as dwarf pyramids.

Woollen netting similar to that described and represented by a wood-cut a week or two ago, at p. 24, is being put in readiness for the protection of wall trees in spring.

With respect to the kitchen garden little can be said, as it is at present covered with snow. It is, however, very greatly improved, and we understand that special attention is to be paid in it this year to the proving and reporting on the qualities and peculiarities of all kinds of esculents. We therefore invite nurserymen and others to forward samples of their new seeds to the Society for trial, which they may be assured will be carefully made and faithfully reported. In this way, what is really meritorious will be distinguished from that which is not, and the result cannot fail to benefit all parties, as well as increase the usefulness of the Society. *In short the Trade has thus an opportunity of apprizing the public, upon authority above suspicion, what the value of their novelties really is.* We have no doubt they will avail themselves of it.

FLORICULTURE.

The Calceolaria.—Florists, and even gentlemen's gardeners, have lately evinced a disposition to throw the herbaceous kinds of Calceolarias out of cultivation, and to substitute for them shrubby sorts which are more easily managed, and against which I have not a word to say; but still I regret to see the other varieties, most of which are far handsomer than the shrubby kinds, so much neglected as they now are. I have therefore furnished the following remarks on their management, with the view of directing more attention to them than they have lately received. It is true they are somewhat difficult to winter, but nevertheless I feel certain that any one who will strictly carry out my plan of growing them need entertain no apprehensions of failure. Let us commence at the time they have done flowering, which is, under ordinary circumstances, about the latter end of June. As soon afterwards as circumstances will permit, divest them of their flower stalks and dead leaves, and top-dress them about an inch deep with silver sand and yellow loam in equal portions, taking care that all the ripe joints of the young shoots are covered for about half that depth; afterwards place them in a cool shady situation until the beginning or middle of September, giving occasional waterings during that period. By this time it will generally be found that most of the shoots so covered have emitted a sufficient number of roots to admit of their being removed with safety from the parent plant; this operation I perform in the same manner as is generally done by gardeners in the removing of layers of Carnations. I then plant them in 5-inch pots, or smaller if necessary, and place them in a frame on a gentle bottom heat of tan, taking care at this period to guard against the direct influence of the sun until they are fairly established in their pots. The compost I use for the first potting is, three parts of yellow loam, four of well decomposed leaf mould, one of cow dung, which has lain at least twelve months, and two of silver sand. This soil I vary as the plants strengthen and approach their flowering season, until the proportions are five of loam, two of leaf mould, two of cow dung, and one of silver sand. From the time the plants are well established in their pots I give them no particular attention beyond that of slightly fumigating them once a week, a routine to which I subject them during their whole period of growth, until about the beginning of January, when I shift them into larger pots and place them on the front stage of a Geranium house, the temperature of which is kept at 45° with an exceedingly humid atmosphere. I ought to observe, that in shifting I always sink the ball a little to admit of a top dressing of fresh mould being put over the ripe joints of the young wood, which very soon emit roots, an operation which tends materially to increase the size and strength of the plants. I am also very particular as to drainage, never allowing a particle of the old drainage to be removed; and by the time they are placed in their flowering pots, I have a complete open drain from within a few inches of the surface down to the bottom of the pot, with the exception of the layers of fresh turf, which I always introduce between the mould and potsherds. This temperature, and a careful attention to fumigation, I consider the most essential points in the cultivation of Calceolarias of this class; for if they once become infested by green fly, no art can prevent the disfigurement of their foliage, and few plants are more impatient of an excess of moisture at their roots than herbaceous Calceolarias are. It should be observed, however, that in fumigating, care must be taken to avoid doing so in excess; for if smoke is applied to them in the same quantity as would be proper for Peaches or other plants of a hardier nature, they will be certain to suffer from its effects. In watering, I am guided more by the appearance of their foliage than by the mould in the pots; if they are in a proper state, their foliage will be found every morning to be fringed with drops of dew, which is a certain indication of health. When this has not been the case, I have always found that my plants were either too wet or too dry. By using the above compost, attending to temperature and atmospheric moisture, avoiding an excess of water at their roots, and slightly fumigating once a week, I have grown many of the beautiful, but now old-fashioned, varieties, to the size of between 2 and 3 feet in diameter in the head of flowers. This, however, cannot be accomplished without following accurately the instructions just laid down, which I consider necessary to bring such plants to perfection. *S.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—In the present state of the weather a considerable amount of fire-heat will be necessary, the drying effects of which will be injurious to plants generally, and particularly those in bloom, unless counteracted by judiciously sprinkling the beds, &c. Do not, however, throw more moisture into the atmosphere than may be necessary to render it "sweet and healthy," for while fresh air cannot be admitted, any excess might be more injurious than the opposite extreme. Attend to maintaining a constant supply of flowers by introducing into gentle heat at short intervals proper quantities of the various plants suitable for forcing, as Rhododendrons, Azaleas, Kalmias, Deutzias, Dielytra spectabilis, Roses, Dutch Bulbs, &c., of all of which everybody who has a conservatory to keep gay in winter should have a good stock of well prepared plants. Large specimens of Clerodendrons, Allamandas, Vincas, Dipladenias, &c., that have fairly started into growth, should now be turned out of their pots, reducing the balls as much as can be done without very seriously injuring the roots, repotting them in the same sized pots, using rich soil. The plants should be placed in a mild bottom heat after repotting, and be very cautiously supplied with water at the root until they get into free growth. Afford them a thoroughly moist atmosphere, however, with an occasional sprinkling over head with a fine rosed syringe.

FLOWER GARDEN AND SHRUBBERIES.

Little can be done here in the present state of the weather beyond such operations as were referred to last week. Those who are fortunate enough to have the command of a gravel pit should get a good supply of this provided while the weather is unfavourable for most out-doors operations. Let everything in the shape of in-doors work, which can be done now to save time after the weather has improved, be attended to. See to having plenty of soil prepared for striking cuttings in, as also for potting off, and have plenty of draining materials prepared and sorted out in sizes. Where the stock of bedding out plants is short, the strongest stove plants should be selected and placed in a moist growing temperature, keeping them as near the glass as possible in order to secure strong growth and obtain good cuttings. If the plants are well rooted, it will be advisable to give them a shift, using rich soil; for it is of great importance to obtain strong cuttings, as they are not half the time becoming established plants as when weakly dwindling shoots have to be used for cuttings.

FORCING DEPARTMENT.

Vineries.—Discontinue syringing Vines that are showing fruit; but secure plenty of moisture in the atmosphere by frequently sprinkling the passages, &c. Be satisfied with as low a temperature as will be safe under the state of the Vines at night, and on cold cloudy days, but take advantage of sunshine to raise it considerably, and be cautious how cold air is admitted where the Vines are in leaf. As the Grapes are cleared from late houses, prune and wash the Vines with soft soap, and a little soot and lime, also thoroughly clean the woodwork, glass, &c., and have everything clean and ready for next campaign. Peach House.—Discontinue syringing where the blossoms are beginning to open, but secure a nice, moist, healthy state of the atmosphere by sprinkling the passages, &c., as may be necessary, but avoid anything like dampness while the trees are in bloom. Maintain a steady night temperature of 50° to 55° while the trees are in bloom. Take every possible opportunity of admitting fresh air, and where the external air can be made to pass over the heating apparatus, so as to get heated before coming in contact with the plants, a gentle circulation should be constantly kept up until the fruit is fairly set. Avoid the admission of currents of dry, cold air, however, which would be most injurious to the trees. Figs.—See that trees planted out are properly moist at the roots, and also keep those in pots and tubs carefully supplied with water, for any excess as respects the presence or absence of moisture at the root is very dangerous after the appearance of the fruit, and is the frequent cause of its dropping off. Maintain a moist atmosphere, and if necessary to water the border, use tepid water, giving enough to nicely moisten the whole of the soil. Let the temperature range from 50° or 55° at night to 60° or 65° by day, giving air whenever it can be done with perfect safety.

HARDY FRUIT AND KITCHEN GARDEN.

Where orchard trees are infested with insects, the bark should be well scraped with a blunt tool to remove as many of the larvæ of the insects as possible, after which the parts should receive a coat of the composition recommended in this paper last week, under the head of "Common Things," viz., hot lime and soot in equal quantities, mixed with cow's urine until it attains the consistency of thick paint. The composition should be well rubbed into the crevices of the bark, in order to make sure of its reaching every hiding place of the enemy, and if a little cow manure was worked up in the composition, it would be useful in causing it to adhere better. It is a tedious process to properly cover large old trees with this, but its effect in clearing them of insects will well repay the trouble, and an occasional coat to young trees will be useful in keeping them clear. The present weather is likely enough to destroy early sown Peas, and where this is apprehended, a quantity should be sown in strips of turf, and raised in a gentle heat, to be hardened off and planted out towards the end of the month. Also make a successional sowing of an early variety on a warm border as soon as the state of the weather permits. Daniel O'Rourke is the earliest variety we know. Likewise get in some early Mazagan Beans, and a sowing of some variety of Pea of good quality, as Champion of England, should be made in order to have these in as early as possible. Look over last week's directions, and push forward any out-doors work as fast as the weather will admit. See to having a bed prepared for forcing Potatoes, Radishes, &c., and put in a pinch of Lettuce, &c., in moderate heat to be hardened off, and planted out to succeed those that were raised in autumn.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Feb. 1, 1855, as observed at the Horticultural Gardens.

Jan. and Feb.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep	Wind	Rain.
Friday 26	8	30.003	29.871	37	17	27.0	37	39	S.W.	[illegible]
Satur. 27	9	29.972	29.946	34	15	24.5	37	39¼	N.E.	[illegible]
Sunday 28	10	29.934	29.847	36	26	31.0	36½	39½	N.W.	[illegible]
Mon.. 29	11	29.730	29.597	35	17	26.0	36	39	N.W.	[illegible]
Tues. 30	12	29.718	29.669	33	25	29.0	36½	39½	N.E.	[illegible]
Wed. 31	13	29.498	29.425	31	23	27.0	36	38½	N.E.	[illegible]
Thurs. 1	14	30.002	29.786	33	17	25.0	36	38½	N.E.	[illegible]
Average.		29.832	29.734	34.1	20.0	27.0	36.4	39.0		[illegible]

Jan. 26—Frosty; hazy; overcast; sharp frost.
— 27—Foggy; fine; sharp frost at night.
— 28—Overcast; snowing; slight frost.
— 29—Overcast; snow showers; overcast.
— 30—Snowing, with brisk north-east wind; overcast.
— 31—Overcast and windy; drifting snow; overcast.
Feb. 1—Clear; sunshine in forenoon; overcast; snow 5 inches deep.
Mean temperature of the week 11 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Feb. 10, 1855.

Feb.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 4	44.7	33.2	38.9	13	0.31 in.	3	4	2	1	6	7	4	[illegible]
Mon. 5	44.7	32.8	38.8	11	0.59	2	3	2	2	3	[illegible]	[illegible]	[illegible]
Tues. 6	46.0	33.0	39.5	14	0.25	2	2	3	3	4	[illegible]	[illegible]	[illegible]
Wed. 7	46.7	33.6	40.2	16	0.28	2	1	3	—	4	10	6	[illegible]
Thurs. 8	45.7	33.3	39.5	16	0.67	1	3	2	1	4	11	4	[illegible]
Friday 9	45.6	32.1	38.8	12	0.40	—	4	2	2	1	12	5	3
Satur. 10	44.7	30.7	37.7	12	0.52	4	5	2	2	[illegible]	1	3	[illegible]

The highest temperature during the above period occurred on the 10th, 1831—therm. 65 deg.; and the lowest on the 9th, 1847—therm. 4 deg.

Notices to Correspondents.

Books: *J B.* We will inquire and give you our advice next week. You are very right to ask how you can lay your money out to the best advantage.—*Sub.* We never recommend dealers. Any respectable bookseller can procure "Roberts on the Vine" for you if he chooses.‡

Cucumber Roots: *H B.* Just received. Will be noticed next week.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*X A.* Bifrenaria Hadweni.—*W S H.* Unusual plants not in flower cannot be named.—*J A M.* Chimonanthus fragrans.

Pyramidal Pear Trees: *Sub.* If these are received from the nursery unpruned, which they ought not to be, as they should have their shoots shortened in August so as to require no pruning when planted, the side shoots should be shortened in February to within 6 or 9 inches of the stem, the latter for vigorous growing varieties, the leading shoot to 12 inches; the shortened side shoots will each of them put forth the first season of growth, say three or more shoots; all of these but one should be pinched early in July to the length of 2 inches, and one for a leading shoot to each side branch left to grow till the end of August, and then shortened to within 6 or 9 inches, according to the vigour of the tree. The shortened leading shoots of the tree will put forth from three to five shoots; these, all but one for the leader, must be pinched to within 6 inches early in July and the leader left to grow till the end of August, and then shortened to 10 or 12 inches. This, in as few words as possible, is the annual course of treatment. For a more detailed account, Mr. Rivers' pamphlet on the subject, advertised in another column, might be consulted with advantage. We may add that some varieties on the Quince stock form too many blossom buds; when this is the case thin them out in February with a sharp penknife.

Thermometers: *G C S.* Your thermometer tube should on no account be on metal, but on wood. For registration the common horizontal spirit thermometer, when well made, is the best. Don't hang the thermometer against any wall, but place it over Grass a foot from the ground, behind a screen which will keep off the sun by day, without interfering with radiation at night.

Vinery: *E.* Your bedding out plants will do no harm to your Vines so long as the latter are not forced into bud: but when that happens you will have to take out your bedding plants unless you have such a command of air as will prevent the latter being drawn up without injuring the tender leaves of the Vines.

White Blackberry: *S J.* We shall be glad to receive the cuttings you are so obliging as to offer.‡

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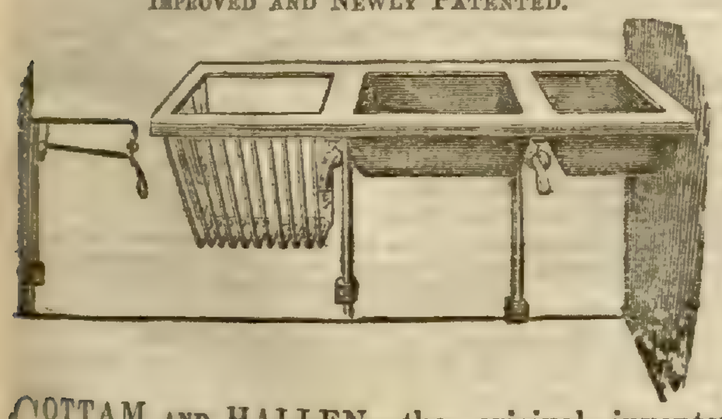

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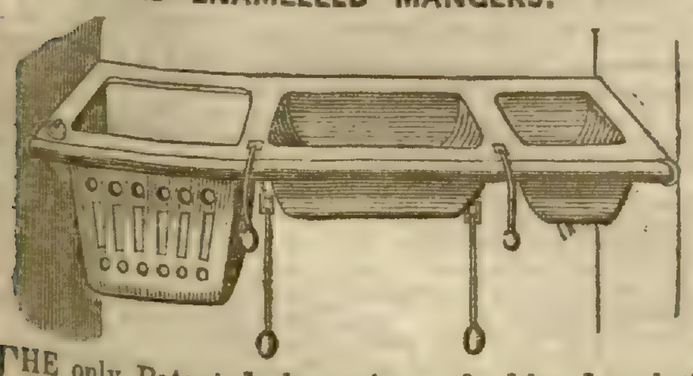

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THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1855.—The Prize Lists for Stock, Domestic Poultry, and Roots, are now ready, and Copies may be obtained on application to JOHN MORGAN, Jun., Secretary.
Offices, 38, Bennett's Hill, Birmingham, February 3.

The Agricultural Gazette.

SATURDAY, FEBRUARY 3, 1855.

MEETINGS FOR THE ENSUING WEEK.
THURSDAY, Feb. 8—Agricultural Imp. Society of Ireland.

IN a useful and instructive article upon FIRES AND FIRE INSURANCES in the current number of the *Quarterly Review*, there is a paragraph or two on agricultural fires and incendiarism among farming stock. The information upon which the reviewer proceeds has been given to him principally by the manager of the County Fire Office; and as the subject is of course interesting to our readers, we extract the facts ascertained by the experience of this one company. Over a total insurance of eight millions, property amounting in value to 8819*l.* 11*s.* 4*d.* was destroyed by 128 fires between January 1, and November 30, 1854. Of these fires 49 (destroying 5214*l.* 6*s.* 11*d.*) were the work of an incendiary, 17 (destroying 181*l.* 5*s.* 10*d.*) were by lightning, 20 (destroying 1211*l.* 18*s.* 10*d.*) were by children and others playing with lucifers, 2 (resulting in a loss of 430*l.*) were by steam threshing machines, and the remainder are classed as "general."

Of these causes, lucifers and incendiarism (which will be reduced as education does its work) are the principal. The latter, it is assumed, will be in some degree checked by the practice adopted by some insurance offices of posting up large bills on those premises which they have insured, which after stating that no lucifers are to be used nor pipes smoked, go on to say—"*This farm is insured; the fire office will be the only sufferers in the event of a fire.*" On this the reviewer properly remarks that the crime is very far from being prompted by personal ill-will—it is often the result of mere general discontent and misanthropy. Kind treatment of labourers, however, and of neighbours of that class generally, though it may not altogether hinder incendiarism will certainly prove of service in the event of a fire by the hearty good-will with which assistance will be rendered towards its extinction. On lucifers as a cause of fires, it is stated that one large fire insurance company has lost 10,000*l.* a year since their introduction; and they are sufficiently mischievous in the hands of children, or, indeed, of carelessness of any age, to render the absolute denial of matches to farm labourers about the stacks and buildings a most reasonable and right precaution.

The following are the precautions suggested by Mr. BEAUMONT, secretary of the County Fire Office:

Forbid the use of lucifers and the practice of smoking in or near the rick yards. Ricks to be placed in single line, and as far from one another as conveniently possible. Hay ricks and corn ricks to be placed alternately. Rick-yards to be kept clear of all loose straw. A pond to be provided close to the rick-yard. The steam threshing machine to be always placed to leeward of the rick, and as far from it as may be; the loose straw to be removed continually from it, and two or three pailsful of water to be provided close to the ash-pan, which should be always full of water.

Some of these instructions will of course be modified by other considerations than the risk of fire: it is not, for instance, very likely that hay-ricks will be alternated with corn-ricks, or that the latter will, when the whole produce of the farm is brought together, be placed in single file upon the ground. The remarks about the use of the portable steam-engine, and the order about lucifers and smoking, are self-evidently right and reasonable.

Mr. BEAUMONT further gives instructions how to act when a fire breaks out in a rick yard. The main point is not to disturb the burning rick, which should at once be placed under the superintendence of the most trustworthy man on the spot, who is to see to its not being disturbed or scattered. Measures for the extinction of the fire by pressure and by water are of course to be applied; but the main and immediate labour should be directed to hindering the fire from spreading; and this is to be done by covering the neighbouring ricks with all the blankets, tarpaulins, &c., that can be procured from the house and from neighbours, soaking them constantly with water, and placing them especially on that side and those parts on which the wind blows.

The main purpose of the article in the *Review* is to detail the general statistics of fires, more especially within the London district; but this incidental reference to agricultural fire insurance seemed important enough to deserve this notice of it.

WE learn from the letter in another column that the sale of Mustard-cake for Rape-cake at Hull the other day was not fraud, but accident or negligence. The broker through whom the cake was purchased, and who at once indemnified the owner of the cattle for his losses, failed, on a second trial, to obtain a verdict against the merchants from whom the cake was procured. The cake, it appeared in evidence, was sold not as Rape-cake but as manure-cake. We have a full report of the trial before us, and of course the evidence is conflicting enough, but that version of the affair seems to have been believed by the jury; and so although it is asserted that Rape-cake was asked for, yet the sample and the bulk having been delivered as manure-cake, those who suffered from its use as food were not allowed to charge their losses on the merchants. The only use we would make of the occurrence is to point out not only the liability to error in dealings of this kind—a matter of importance where so much may hinge upon it, but the difficulty which there is even to experienced persons in detecting error. The broker through whom this business was transacted is innocent throughout of all but blundering, which in a person of his experience would seem remarkable were there not other instances equally

mistaken. The following, for example, is an extract from the evidence:—

Thomas [illegible] and crusher and oilcake manufacturer—I have manufactured Mustard-cake, not frequently, but have done so. When made it is sold to a dealer, easily distinguishable from Rape-cake. The difference in price varies from 2s. 6d. to 5s. per ton. Between Rape and Mustard, there is a little difference in the colour. Rape-cake is of a green colour; Mustard-cake is yellow.

Cross-examined. There are several kinds of Rape-cake, and several kinds of Mustard. A man in the trade could distinguish them. I never mix Mustard and Rape in manufacture. I sometimes buy damaged cake when I have a customer who wants cheap cake. I do not then mix the cakes.

By the Jurors—Generally speaking the quality is easily distinguishable by sight. I never saw any green Mustard-cake; never saw any so green as this; this is an average colour of green Rape-cake. Brown Rape-cake can be told from brown Mustard because it is so much browner. Mustard-cakes do not vary much in colour. Green Rape-cakes do not vary much in colour. Brown Rape does not vary much in colour. This is light coloured Mustard-cake. I will not taste it. (Laughter.)

Mr. Deacon—There is not a bit of Mustard in it. I will call Mr. Scott to prove that it is Rape-cake. (Laughter.)

The Jurors taste it, and says—It is Rape-cake.

Mr. Deacon—That is Rape-cake. (Laughter.) There is the infallible Mr. Jackson. (Renewed laughter.)

Jackson (taste)—I should still say it is Mustard-cake. It is stronger than the Rape.

Mr. Deacon—Don't eat all that cake.

We suppose Mr. Jackson to be, as represented, a person of experience, and it appears from his evidence that an examination, such as may be made by inspection, taste, &c., on the spot, fails to distinguish the wholesome Rape-cake from the poisonous Mustard. Indeed from Dr. Voelcker's letter at p. 42, it is plain that the difference does not exist in the dry cakes; the formation of the poisonous irritant—the characteristic volatile oil of Mustard—being the result of maceration in cold water, by which, or rather by the peculiar fermenting process which ensues, a harmless substance called myronic acid is converted into the irritating oil of Mustard. The attention which has been directed by the trial to this subject will be useful, as every beacon is that points out dangers, risks, and liabilities, whether from fraud or carelessness.

The *Dublin Farmers' Gazette* has, by its correspondents and otherwise, recently been usefully informing its readers on the Rearing and Feeding of Calves; and as the subject will soon, in the order of the season, be forced upon the attention of all stock breeders, we will contribute to the discussion a description given us of the method adopted in Berwick-shire by one of the most intelligent farmers in that county. It is no detraction from the value of the letter that its date is Aug. 21, 1843, for it describes a practice which was successful then, and is successful still, in what Mr. Mechi does not believe—the profitable manufacture of beef:—

I rear about 25 annually, and pursue substantially the same system, which I shall endeavour to give you in as minute detail as I can. I keep from eight to ten cows; our calculation being that each cow should keep from two and a half to three calves. As the growing of beef is our object, we do not trouble ourselves about pedigrees, but endeavour to have cows combining in as great a degree as possible those qualities most suitable for our purpose. They must be good milkers, otherwise we cannot rear a sufficient number of calves; they must have a ready tendency to fatten, and come early to maturity, otherwise we cannot sell the produce fat at two years old; and they must have good size, otherwise there will be a short-coming in the weight of beef. In other words, they must be well-bred short-horns, only paying more attention to their milking properties than is usually done by breeders of bulls. We do not in general attempt breeding bulls ourselves, but go to some one of the noted breeders in Northumberland, and purchase as good an one as we can get; use him for two or three seasons, and then fatten him, and return to the same source for a fresh one. In order to have as level a lot as possible, my practice is to allow the cottagers on my own farm, and some others in the neighbourhood, to send their cows to my bull gratis, on condition that I shall get the calf at fair market price, if I require it. In this way I usually have my entire lot the progeny of my own bull. I endeavour to have all my cows to calve, if possible, betwixt 1st February and 1st April. If they are much earlier, the cows get almost dry before the grass comes; if they are much later, the calves cannot be got off fat with the rest of the lot. If they could all be got in February, it would suit all purposes best.

As soon as a calf is dropped, I have it removed from its dam and carefully rubbed with wisps of hay until it is dry, imitating as closely as possible what the dam would do if allowed to get at it with her tongue. It is then put into a crib in the calf-house and covered over with dry straw, and gets a little of its own mother's milk from the pail as soon as possible. For the first fortnight it gets milk only, but as much of that as can be spared. If pains be taken, it will usually at this age begin to eat a little oilcake and sliced Swedish Turnips. The oilcake should be broken about the size of lump sugar as brought to table. The servant should have a piece ready to put into its mouth after drinking its milk, as it is then disposed to suck anything which it can get hold off. By doing this a few times, and putting a few pieces into its trough, it will soon begin to eat of its own accord, and should then get as much oilcake, Turnip, and hay as it will eat, for when it has fairly taken to this kind of food its allowance of milk can be diminished, so as to meet the necessities of the younger calves which will be coming on in succession. This is the more needful, as I never, if it can possibly be avoided, give them any liquid except unadulterated milk—warm from the cow. When there is a necessity for resorting to a substitute, I generally use sago boiled in water till it forms a thick jelly, and allowed to cool to the same temperature as the milk with which it is mixed at the time of feeding. My cows are milked three times a-day, and the calves fed as often, the milk being carried direct from the byre to the calf-house.

When the calves have attained to eight weeks old, their mid-day allowance of milk is usually withdrawn, as they can then eat dry food in sufficient quantity to meet their necessities, and it is of more importance to have the milk for the younger calves which are almost entirely dependent upon it. It is always with very great reluctance that I allow anything to be mixed with the milk by way of helping the quantity, as the certain consequence of doing so is, that a sour smell meets you on entering the house, giving evidence that there is indigestion to a greater or less degree. The cows at this season should be fed with white Turnips, as the quantity of milk is greater than when Swedish Turnips are used, and, moreover, much more wholesome for the calves. The milk from the latter is certainly richer, but a lengthened trial has satisfied us that it has a tendency to induce inflammatory attacks in the calves fed upon it. As the calves get from four to six weeks old we remove them from their cribs into a larger house, where eight or ten can be accommodated together and have room to pick about; and when the fat cattle are sold they are put into the most sheltered feeding yard, where they have still more room and are gradually prepared for being turned out to the home paddock. I am never in a hurry to put them to Grass, and have them brought in at night for several weeks after they are turned out. At four months old they are entirely weaned from milk, and are put upon a piece of good seeds, and continue to receive at least a pound of oilcake daily during the summer, or until they have so evidently taken with the pasture *as to be improving in condition.*

They should not lie out at night very late in autumn, but so soon as the nights begin to lengthen and get chilly they should be brought into a yard at night, and get some second cuttings of Clover, Tares, or such like, and Turnips whenever they are ready. Whenever put on Turnips the daily allowance of oilcake must be renewed and continued all through the winter and spring until they are again turned to Grass. This not merely promotes their growth, but as far as the experience of five or six years can determine the point, it appears to be a specific against blackleg, which was often so fatal in this neighbourhood as to deter many farmers from breeding altogether.

It is well to keep in view the purpose for which Linseed cake is used at the different stages of their growth. When first given the object is to accustom them to a wholesome and nutritious kind of food, which when once taken to enables you to rear a greater number of calves on a given quantity of milk; and then again, when the milk is entirely withdrawn, you can by increasing the allowance of cake entirely prevent that check to their growth and loss of condition which inevitably takes place when they are weaned from milk and have Grass only to depend upon. But I give cake during the following winter along with Turnips, for the *specific purpose of preventing* black-leg; for, saving this, I believe that Turnips, *ad libitum*, with a little bruised grain, would fatten them equally well at rather less expense. When put to Grass as year-olds, they grow decidedly better on seeds than on old pasture. However, if they have been well done to, and are *very forward in condition*, they will do better on the old pasture than they would if leaner. They should be put on Turnips again as soon as the latter are ready; and it is seldom that we give anything more than Turnips and straw. We feed them all in open yards with a good warm shed attached, care being taken to keep both yard and shed, but especially the latter, well littered, that they may always have a comfortable bed to tempt them to lie as much as possible. They are fed twice a day in troughs built along by the yard wall, into which the Turnips are put whole, and chopped by a transverse knife which cuts each Turnip into four pieces. Globe Turnips are used till near Christmas, and then Swedes till May, when they are usually sold.

I think I have now stated everything of importance connected with your inquiry, and much, I dare say, that you knew better about before than I could tell you. The leading feature of our system, as you will perceive, is to feed well from ever the animals are born, taking especial care to secure a progressive improvement. If at any time they get low in condition, there is not only a loss of time, but a needless waste of food ere the lee-way is made up. It is also of the greatest importance to select the calves with care, and *not to attempt to rear more than you can do thorough justice to all along.*

There has been no announcement made as yet in accordance with the Act for the provision of a Metropolitan Market instead of Smithfield: and on inquiry at the City architect's office, we were informed that no information exists there as to the period when the new market will be opened. It was rumoured the other day that a letter had been received from the Home Secretary objecting to some of the arrangements, and among others to the retention of the Monday as the market day.

DISTRIBUTION OF HORSE LABOUR.

We shall detail the mode of cultivation of each of the crops in due rotation on a farm of 240 acres, showing the quantity of horse-labour required in each month, when it is most proper to have the work done.

The Field No. 1: 30 acres; 25 acres in Swedes, and 5 acres in Turnips.

The kind of horse labour required for Turnips.	The months when the work should be done.	Days' work of a man and two horses.	
To be ploughed the first time ...	January & February	30	
„ carting 450 loads of manure	March	9	39
„ ploughing in the manure ...	March	30	
„ cultivating the ground with three horses	May	9	15
„ a double turn of the heavy harrow	May	6	
„ carting 300 loads of short prepared dung	June	6	33
„ cultivating deep to mix the dung on the surface ...	June	9	
„ a double turn of the harrow	June	6	
„ rolling	June	2	
„ drilling up the land making two drills at one bout ...	June	10	
„ horse-hoeing Swedes... ...	July and August		18

This is 20 days in January, 10 in February, 39 in March, 15 in May, 33 in June, 9 in July, and 9 in August; in all 135 days.

No. 2: 30 acres in Wheat after the Turnips.

The kind of horse labour required.	The months when the work must be done.	Days' work of a man & pair of horses.
To ploughing the land with a shallow furrow	October	30
„ a double turn of the harrow ...	October	6
„ drilling the seed in rows 10 in. apart	October	3
„ a double turn of the harrow ...	October	6

This field requires 45 days of two horses in the month of October.

No. 3, of 30 acres: 10 acres to be in Winter Beans.

The kind of labour required for Beans.	The months to do the work.	Days' work of a man and two horses.
To cultivating the land twice across each other	August	9
„ a double turn of the harrow ...	August	2
„ carting 200 loads of manure ...	August	4
„ ploughing the land	August	10
„ two double turns of the harrow ...	August	4
„ drilling the Beans	August	2
„ horse-hoeing twice	April	2

These 10 acres of No. 3 require 31 days' work of two horses in August, and 2 days in April.

No. 3: 10 acres in Carrots.

The kind of work required for Carrots.	Time when the work should be done.	Days' work of a man and two horses.
To carting 250 loads of manure ...	August	5
„ ploughing in the manure 8 in. deep	August	10
„ cultivating twice across	March	4
„ manuring the double time ...	March	4
„ rolling and drilling	March	3

This crop of 10 acres requires 15 days' work of a pair of horses in August, and 11 days in March.

No. 3: 10 acres in Potatoes.

The kind of work required for Potatoes.	Time when the work should be done.	Days' work of a man and two horses.
To carting 250 loads of manure ...	September	5
„ ploughing in the manure deep ...	September	10
„ ploughing the land the 2d time	February	10
„ harrowing a double time ...	April	2
„ cultivating twice across	April	3
„ drilling for and covering the Potatoes	April	6
„ horse-hoeing twice	May	2
„ drilling up the Potatoes	June	3

This crop requires 15 days' work in September, 10 days in February, 13 days in April, 2 days in May, and 3 days in June.

No. 4: 30 acres, to be in Wheat.

The kind of work required for Wheat.	The months when the work should be done.	Days' work of a man and two horses.
To ploughing the land twice after the roots are off	November	30
„ a double turn of the harrow ...	November	6
„ drilling the seed	November	3
„ a double turn of the harrow ...	November	6

This crop of Wheat requires 45 days' work of a pair of horses in November.

No. 5: 30 acres, in Mangold Wurzel.

The kind of work required for Mangold Wurzel.	The time to do the work.	Days' work of a man and two horses.
To ploughing first time ...	Oct., 10; Nov., 10; Dec. 10	30
„ harrowing a double time	Jan., 2; Feb., 2; Mar. 2	6
„ carting 450 loads of manure	Jan., 3; Feb., 3; Mar. 3	9
„ ploughing in the dressing	Jan., 10; Feb., 10; Mar. 10	30
„ cultivating	April, 4; May, 5	9
„ harrowing a double time	April, 3; May, 3	6
„ carting 300 loads of short manure	April, 3; May, 3	6
cultivating and mixing the short manure on surface	April, 4; May, 5	9
„ drilling up the land for plou.hing	April, 4; May, 5	9
„ horse-hoeing 4 times ...	May, 6; June, 6; July 6	18

This crop requires 10 days' work in October, 10 days in November, 10 days in December, 15 days in January, 15 days in February, 15 days in March, 18 days in April, 27 days in May, 6 days in June, and 6 days in July; in all 132 days of two horses.

No. 6: 30 acres, to be in Wheat.

The kind of work required for a crop of Wheat.	The months when the work should be done.	Days' work of a man and two horses.
To ploughing the land after the roots are off	December	30
" harrowing the land a double time	December	6
" drilling the seed	December	3
" harrowing the land a double time	December	6

This crop of Wheat requires 45 days' work of two horses in December.

No. 7: 30 acres Clover.

The kind of work required for the Clover crop.	The time when the work should be done	Days' work of a man and two horses.
To be rolled	April	2

This crop requires the labour of a pair of horses two days in April.

No. 8: 30 acres in Wheat after Clover.

The kind of work required for a crop of Wheat	The time when the work should be done	Days' work of a man and two horses.
To ploughing	September	30
" harrowing it three double times ...	September	18
" drilling the seed ...	September	3
" harrowing the land after the seed a double time	September	6

This crop requires 57 days' work of two horses in September.

Abstract of the amount of horse labour required during each month on the whole of the arable land.

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
The Field No. 1	20	10	39	...	15	33	9	9				
" No. 2	...	...	...	...	...	...	...	...	...	45		
" No. 3	...	10	11	15	2	3	...	46	15			
" No. 4	...	...	...	...	...	...	...	...	...	...	45	
" No. 5	15	15	15	18	27	6	6	...	...	10	10	10
" No. 6	...	...	...	...	...	...	...	...	...	...	...	45
" No. 7	...	...	...	2								
" No. 8	...	...	...	...	...	...	...	...	57			
	35	35	65	35	44	42	15	55	72	55	55	5 5

From the above table it appears that 363 days' labour of a pair of horses is required to be done during the year, and the greatest amount of labour is required in September, being 172 days besides the horse labour in carting the harvest, which may require 26 days more, but part of this work may be spread over August and October.

The following table will show the number of working days, in which land that has been perfectly drained will be in a proper working condition in each month, the working hours each day, the extent of land which may be ploughed each day, and the acres ploughed per month.

Months.	Dry working days.	Working hours on each day.	Extent ploughed each day.	Acres ploughed per month.
January ...	14	8	1	14
February .	14	8	1	14
March ...	18	9	1⅛	20
April ...	20	10	1¼	25
May ...	20	10	1¼	25
June ...	20	10	1¼	25
July ...	20	10	1¼	25
August ...	20	10	1¼	25
September	20	10	1¼	25
October ...	18	10	1¼	22
November .	18	9	1⅛	18
December .	16	8	1	16
	216	...	...	254

By this table we find there are 216 dry working days in the year, and that a man and two horses can in that time plough 254 acres of land, and we have found that the greatest number of days' work required under this system of cultivation is in 72 days of a pair of horses in September; and as there are but 20 working days in that month, we shall require at least 3½ pairs of horses, so as to have a sufficient horse power to meet all circumstances of the weather. We therefore propose to have seven working horses, besides a horse which may be used in the gig, and work in the cart or plough when wanted. *J. M.*

STATISTICS OF CATTLE FEEDING.

In my remarks on feeding (*Agricultural Gazette*, Sept. 30 and Oct. 7), I adverted to the effect of costive and laxative food on the live weight of the animal. As my cattle have since then undergone a change of treatment and of habitation, I supply three weighings of my milch cows, from which this effect appears clearly exemplified:—

	Live Weight.				
	October 3.	October 31.	Weight less.	Nov. 28.	Weight more in 8 weeks.
	cwt. qr. lb.	cwt. qr. lb.	lbs.	cwt. qr. lb.	lbs.
No. 1.....	Changed	9 1 0	...	10 1 20	...
" 2.....	10 2 0	10 0 0	56	11 1 0	84
" 3.....	12 2 0	11 3 0	84	13 0 0	56
" 4.....	Changed	8 1 0	...	8 2 20	...
" 5.....	Ditto	8 1 0	...	Newly calved	...
" 6.....	10 0 0	9 2 0	56	10 1 20	48
" 7.....	11 2 0	11 1 0	28	12 0 0	56
" 8.....	9 0 0	8 2 0	56	9 2 0	56
" 9.....	10 1 0	10 1 0	...	10 3 20	76
" 10.....	11 0 16	10 3 0	78	11 2 0	40
" 11.....	Changed	9 3 20	...	9 3 0	...
" 12.....	Changed	8 1 0	...	8 3 20	...
" 13.....	10 1 0	9 2 0	84	10 1 0	...
" 14.....	9 2 0	8 3 0	84	9 2 0	...
" 15.....	9 3 14	9 1 0	70	10 0 20	34

During summer and up to the first week in October, these cows were turned out on a near pasture during day, and housed during the night. Each morning and evening they were supplied with steamed food, of which I gave a description in the *Agricultural Gazette*, Sept. 30. On this fare their evacuations were of proper consistency; during the remainder of October they were wholly housed, and were supplied with cut aftermath or eddish, together with three feeds of steamed food per day. On this fare they were relaxed, and when weighed on the 31st October the ten animals which were under treatment the whole of this time showed a deficiency of 59½ lbs. each on the average. During November their Grass was changed to 12 lbs. of hay, with 30 to 40 lbs. of Cabbages each, with the like allowance of steamed food. On this their evacuations were restored to their proper consistency. It will be seen on reference to the weights, Nov. 28th, that the same ten cows had not only regained the loss shown when in a relaxed state, but 45 lbs. each on the average, or 5½ lbs. per week on the whole eight weeks in addition.

The quantity of material supplied as food and in progress through the system will be found to have a main influence on the comparative live and dead weight of cattle. If we take into consideration a full grown animal in fair store condition, which has been on Grass or other bulky food, and has filled itself, and treat it for fattening, I am of opinion that the gain in weight will be wholly to useful vendible material, and that the quantity of material in process through the system will not increase, but when prime there will be a decrease. I cannot otherwise account for the circumstance, that fat cattle which yield largely of loose fat, which counts as offal, weigh heavier when killed, carcase weight, than those of the same live weight which have less of loose fat. The capability to contain a greater quantity of this material may be inferred from the circumstance that animals fed to satiety weigh 60 to 80 lbs. more in an evening than before their meal the following morning. I have known a beast, which in contending with the cold of October, had gorged itself on aftermath, on being changed to feeding in stall, weigh less by more than 1 cwt., evidently without loss of condition. The necessity of the weighings being timed at like hours will be obvious; mine always take place in the morning before a meal. I may now mention one satisfactory result attendant on these monthly weighings. It enables me to compute with greater accuracy the proportion of live and dead weight; for a well-fed beast I calculate on 21 to 12, or 100 to 57⅛, and modify this according to condition, &c. On four cattle sold in December at 18*l.* each, my purchaser supplied me with the weights of carcase and of loose fat, which I subjoin:—

	Live weight.			Computed weight.	Actual weight.	Loose fat.	Together.
No.				stones.	st. lbs.	lbs.	st. lbs.
2	10 2 0	at 21 to 12		84	82	88	93
3	9 3 0	... ...		78	79 2	80	89 2
7	10 1 0	... ...		82	81	98	93 2
8	10 3 0	... ...		86	85 1	64	93 1
				330	327 3		

It will be observed that the computed weight differs only from the actual weight, 21 lbs. on the whole four. Now, though I do not in every instance pretend to a like accuracy, yet I think it improbable that I err to the extent of 5 per cent.; indeed, I have no hesitation in ensuring a respectable purchaser against any such deviation.

Nos. 7 and 8 differ 56 lbs. in live weight, 33 lbs. in carcass or dead weight, and only a single pound in vendible material, carcase and loose fat together. The two animals being very similar in thickness of hide, and strength of bone, the only mode of explaining the difference in the live weight and vendible material appears to be by supposing that the riper beast, No. 7, contained with more of fat, less of waste offal, or material in process through the system, or that with the increase of internal fat, there occurs a displacement of this material.

I now proceed to explain my views on a subject of importance to feeders—the relative cost of live or store stock to that of fat. In order to assure your readers of my competency on this subject I may state that I make my own bargains both as buyer and seller; and that, on my purchases arriving at home from market or fair, I attend to the weighings, to ascertain their comparative cost. On looking over my purchases for some time, I find that on comparing the live weights of lean or store cattle which have had one or two calves—a description which I find answer my purpose best for stall feeding—their cost averages less by 2*l.* to 3*l.* each than that of fattened animals of the same live weight. On comparing the estimate of carcase or dead weight of the two, the result is different. Take for example a beast of 9 cwt. when fat; I should compute her weight as 21 live to 12 dead weight. The opportunities of ascertaining the comparison of live and dead weight of lean stock are by no means so frequent as of fat. The scale of weights in "Morton's Cyclopædia" give those of half fat at 100 live to 50 dead weight: it has come within my own observation that partly fed animals have yielded less than one-half of their live weight. I am therefore disposed to estimate the relative weights of store stock in the condition in which I usually buy them, as 100 to 43 or 46.

Live Weight.

	cwt. stones	stones	£ s. d.
A fat beast of 9 or 126, at 21 to 12, =	72, 4*s.* ...	14	8 0
A lean " of 9 or 126, at 100 to 43, =	54, 4*s.* ...	10	16 0

Now, when beef is at 6*d.* per lb., I should expect to purchase a beast of 9 cwt. live weight for 12*l.* It will thus appear that store stock are cheaper by 2*l.* to 3*l.* each, reckoned on the live weight; yet reckoned on the dead weight they are dearer by 1*l.* to 1*l.* 4*s.* I should compute the store animal of 9 cwt. live weight to weigh, when fatted, 12 cwt., to attain which would require 24 weeks feeding, at a gain of 14 lbs. per week. The 12 cwt. would then be 168 live at 21 to 12, equal to 96 dead weight, and the value, taken also at 6*d.* per lb., would be increased to 19*l.* 4*s.* for 24 weeks, or at the rate of 6*s.* per week. If the animal have undergone a change of food, some little should be allowed for this. I have no hesitation in saying that such a gain per week on stall feeding is not more than my practice leads me to calculate upon, or than I usually obtain. If I assume a higher proportion for store stock, say 50 per cent., the increase at 14 lbs. per week would consist of

11 lbs. per week	or 24 weeks,	33 stones,	meat or carcass weight
3 lbs. "	" 24 weeks,	9 "	of offal
14		42	

On looking over the different items of offal of a full grown animal, I cannot find that they are capable of increase to anything like the extent of 72 lbs. I except the tallow or loose fat, with the increase of which, as I have already observed, there is a concurrent increase of the carcase or dead weight.

An animal of 9 cwt. in store condition may probably contain 30 to 40 lbs. of loose fat; after 24 weeks of feeding, I should calculate on a yield of 100 to 112 lbs., being an increase of 3 lbs. per week, which will be in addition to the gain of meat or carcase weight; if then there be a gain in weight of 14 lbs. per week, there will be an additional gain in loose fat of 3 lbs. per week, making together 17 lbs. per week of vendible material It will be observed that the proportion of live to dead weight, whether this be 100 to 50, or 100 to 43, does not affect the money gained per week. If I purchase an animal of 9 cwt. for 12*l.*, and after 24 weeks feeding sell it for 19*l.* 4*s.*, the return for food will be at the rate of 6*s.* per week.

These calculations are applicable to full grown animals, which have had their fill of bulky food, but not to young growing stock, or to such as have been hungered or driven to a distance. This will appear from the following observations, on 12 heifers 2½-years old, which I bought at a Easter fair in 1854; they had been brought thither from a distance of from 20 to 30 miles, and travelled nearly a like distance home, being on the way but scantily supplied with hay. Their weight on arrival was 6½ cwt. each on the average; as they were intended for grazing in a pasture at some distance from the homestead, they were kept in stall till the 16th of May, on hay only with water, when their weight was found to average 7 cwt. 1 qr. 4 lbs., or 88 lbs. each more than on arrival. It will be clear that this gain of weight was almost wholly due to the process of filling, and with little or no addition to the carcase weight. *Y.*

(*To be continued.*)

Home Correspondence.

Steam Cultivation.—I have just read the observations of your correspondent "A Farmer in Embryo," on the subject of steam cultivation. I wish your correspondent to refer to the articles on steam cultivation in Nos. 5 and 38 of the *Agricultural Gazette* for 1850. He will there see how lucidly and logically Mr. Hoskyns has defined the "Method of the Horse," the "Method of the Machine," and the "Method of the Man" in executing work. His explanations, illustrations, and deductions are indisputable; he demonstrates as clearly as possible that the "Method of the Horse" is to go "right ahead;" but that the "Method of the Machine" is to go "right round!" After this clear and faithful explanation of how the different powers operate, if your correspondent reads on, he will observe Mr. H. proceeds to make or fabricate a very good and available species of mechanism for the purpose of tilling the land by steam-power; but how does he then describe this machine as used on the land? Your correspondent at this, the critical point, will discern how strong the "Old Adam" is, even in such a man as Mr. Hoskyns — for he proposes (in direct antagonism to his own deduction) that his steam cultivator should be dragged "right ahead," just after the method or manner of the horse-cum-plough, cutting up a ribbon of earth of definite width, but probably half a mile or more in length. Now what can Mr. Hoskyns have to urge in defence of his using a steam machine precisely after the method of a horse with the plough? Set a man to dig a rod of land, and who ever saw him take that quantity out in a ribbon of earth 1 spit wide and 90 yards in length, by going "right ahead," after the manner of the horse? No, you will generally find the individual standing stock-still nearly in one spot, until he has dug a rod of land. Why does the man behave in so non-agricultural a manner? What induces him to move his heavy carcase about so little in executing a given amount of work? I will not enter into the discussion now; but I should like to know how it happens that Mr. Hoskyns has proposed to use a steam cultivator precisely after the method of the plough. *C. Burcham*, 4, *Seymour Street, Euston Square.* [Does not the man in digging to and fro over a *plot* move just about as much as if he dug from one end of the field to the other along the edge of a furrow?]

Law Expenses.—Mr. Jno. Ay, of Winscombe, complains that a purchase he has lately made of land at the price of 410*l.* has cost him in law expenses 74*l.* Now, no one can judge between him and his solicitor, who, although not named, must be known to those acquainted with the locality and with Mr. Ay, which I am not, and I submit that in justice to the solicitor Mr. Ay should

go a step further and send you his contract and the bill, which, if you will publish, I will undertake to remark upon, not as between him and his solicitor, but as regards the landed interest of this country. A vendor is sometimes put to heavy expenses. I have known cases where, in a purchase to the amount of thousands, the whole amount would have been absorbed if the purchaser's solicitor had not had sufficient moral courage to waive the legal rights of his client. A purchaser is, however, differently situated, and generally forewarned, and the amount mentioned appears to be indeed excessive without explanation. *A County Solicitor of 35 Years' Practice.* [There is no queston between Mr. Ay and his solicitor. This, we may mention, was expressly told us by him in an accompanying note. The case was described, not for its personal bearing at all, but simply as illustrative of the general subject.]

Spade Husbandry.—A correspondent (J. Hamilton) in your Paper of the 6th inst. declares his intention of cultivating 50 acres with the spade. With your permission I will state a course of cropping which I have found beneficial, and possibly it may be in some respects new to him. My land (9 acres) is a stiff clay mixed with flint, with a chalk subsoil several feet beneath the surface. The course I have followed is five-fold. 1. Beans.—For these the ground is well manured and dug with the Kentish spade in the autumn. The Beans are put in in rows 23 inches apart with a one-horse drill plough; they are hand and horse-hoed, and every weed carefully extracted. As soon as the Beans are cut the horse-hoe is again sent to work across the Bean stubble. 2. The land being now quite clean, the Wheat is drilled in by the same drill plough, without digging the ground. The advantage from this plan is saving of expense in digging the land, a firm seed-bed, freedom from wire-worm and seedling weeds. As soon as the Wheat is carried a man goes over the ground, and carefully digs up every weed. 3. The ground is then prepared for the third crop (Oats) thus:—It is dug two spits deep with a spud or fork, about one spit in three of the subsoil being thrown on the top, the rest merely turned. This work can be done for about 4½*d.* or 5*d.* a rod [!]; 2 cwt. of guano can be added if necessary. 4. The fourth crop is a root one, for which the ground is weeded, manured, and dug roughly in the autumn, and it works down finely in the spring. 5. The roots are followed by Wheat and Barley in equal proportions. This completes the rotation. My stock is confined to my horse, cows, and pigs, who consume the Oats, Beans, Barley, and roots, and make a large supply of manure. *P. R.*

Lois-Weedon.—Notwithstanding the rather wide discussion of the Lois-Weedon inquiry, I think there is still much to be said in the matter. I must think that even among the most scientific, the best instructed, there has been some misapprehension, some overlooking, and among the more practical certainly there have been very often mistakes, and a short-sightedness which, in spite of the very plain instructions of Mr. Smith, has led to error and failure in attempts to work out his plan. Even Mr. Smith himself, if I may say so without presumption, may do more than the needful in bringing up so often and so much of the cruder subsoil, and thus, in the cost of an annual double digging, adding an obstacle to the more general adoption of his plan, to the more general acceptation of his principles. In a subsoil even moderately replenished with the inorganic food of plants, a far less quantity of it exposed to atmospheric influence would surely supply crops of greatest demand with enough of it. Indeed, the amount of organic matter that the air can supply is but sufficient to act on a very small part of the inorganic substances that are brought up, and I see not the necessity for bringing up more of the latter than the former can saturate. Mr. Piper in his experiment, so far from bringing up any subsoil, does not even bring up the under active soil. His light manuring may in some degree furnish a succedaneum for deep digging; but is it not possible that the mere keeping open the surface to atmospheric inflow may be sufficient to induce an organic action in the subsoil equal to the demands of the crop? In the late lecture on Mr. Smith's system at Oxford, Dr. Daubeny seems to overlook that Mr. Smith uses up his ammoniacal manure on those crops to which the natural supply is not sufficient. "I do not throw away my manure," says Mr. Smith, and I must think his objection to its general application is rather weak. Dr. Daubeny admits that the organic supply from the air is sufficient, which is indeed all Mr. Smith contends for, but observes, "before such a result" (the general applicability of the system,) "can be arrived at with any kind of confidence, trials must be made on limestones and on granites as well as on clays and loams, and on light soils as well as on heavy ones. Until this has been done, it is impossible to predict in any particular case that a sufficient amount of ammonia can be absorbed by the soil through the mere process of pulverisation, to answer our purpose and to provide materials for an abundant crop." Is it possible to conceive any soil under due pulverisation, its surface being kept open and unpuddled, can refuse to absorb all the ammonia that falls on it? It is not of this capability of absorption, but of retaining that there can be any question. Now, under this system of Mr. Smith's of continual working the surface during the growth of the crop, the retention of ammonia seems of less moment than the absorption of it, for the plants are there ready to drink it in as it falls. The retentiveness of the soil is foreign to the question, excepting in so far as it holds with respect to all tillage and the fruitfulness of all soils. In the same lecture a letter of Mr. Cutterbuck's raises an objection on the score of labour and its interfering with the necessary labour on green and root crops at the time they require it, but the heavy labour, the double digging, takes place in the winter, when certainly the tillage of root and green crops do not demand manual labour. Any difficulty in spring and summer labour I think may be removed by using in the intervals a horse and a drill grubber, or other similar implement, all that is necessary then being to keep the surface open and clean. There cannot be a question that three-fifths of the land is under crop, but I go farther than Mr. Cutterbuck, and assert that in effect the whole land is cropped, and in this I conceive lies a great advantage of the system, that while a full crop is obtained a fallow is got too. The crop draws in its nourishment from all the circumambient air of the whole field, while to the roots flow all the soluble matters of the whole ground, as well from the worked intervals as from the parts actually occupied by them, or the whole theory falls to the ground, for it is built upon the organic sufficiency of the atmospheric matters absorbed by the whole field, and on their operation in rendering soluble and accessible to the roots of the plants the inorganic substances in the whole of the ground. But the greatest benefit conferred on agriculture by the Lois-Weedon plan has been overlooked. It is not as a whole in itself that we must prize it, but as a part: it is in a connection with the general cropping of land—as a clean and disintegrating preparation for other crops. After a few years of such a system of grain growing, of Barley or Oats where the land is not fitted for Wheat, how clean and well prepared is the land for the reception of small seeds, whether those of our ordinary green crops or of Clovers and Grasses; how highly oxygenised, carbonated, and ammoniafied with an abundant supply of inorganic matters in a soluble state or ready to assume it! *J. M. Goodiff.*

Is "Under-ground Manuring" a Novelty?—I see by the *Gardeners' Chronicle* of Saturday last that a Mr. Wilkins has taken out a patent for under-ground manuring, and that he has had ability enough to induce the good people of Oxford to subscribe a sum of money to carry out what he calls his experiment. As the gardeners near Chelmsford have been in the habit of using this plan for the last eight or 10 years, in consequence of the late Mr. Wix, solicitor, of Chelmsford, who was an excellent gardener, having got the prize there for early Celery grown in this way, I should like to know if a toll is now to be levied upon those who have long been accustomed to the use of this mode of using liquid manure. My gardener tells me it is now eight years since it was so used by my desire. Mr. Wix's plan is to place two rows of common land draining pipes one on each side of the Celery, and the liquid is introduced by the upright pipe, as described in Mr. Wilkins's plan. The objection to any permanent laying down of pipes is that it is well known by agriculturists, although probably not by a chance audience either at Oxford, Reading, or London, that the roots of Mangold Wurzel run a long way for their food, and that, consequently, these roots would soon block up the pipes; and if they were kept out by cement or collars, or any other scheme, the object of introducing the liquid manure in a proper manner would be most certainly defeated, as you say it can never be adopted to any extent except in gardens, and I confess I see no advantage after eight years' experience (of this now called new science) in having the pipes permanently fixed. I am decidedly of the contrary opinion. I must enter my protest against this scheme being considered a novelty. Although Mr. Wix has been dead some years, it might easily be ascertained when, where, and how he adopted the plan. As this scheme is altogether upon a contrary principle to that adopted at Tiptree Hall, no doubt it is open to try various extensions of this mode of growing plants. Any man with a few pipes may easily satisfy himself of the advantage of growing Celery by this plan. I have no doubt of the truth of all the circumstances stated by Mr. Wilkins; I only enter my protest against its being considered a novelty. If you think it worth while you are at liberty to state what I have said in the *Gardeners' Chronicle. J. T. Tyrell, Borcham House, Jan.* 29.

Poisonous "Rape" Cake.—Observing in your last week's paper a reference to some Mustard cakes which a Russian firm* had sold for Rape cakes to a broker in Hull, and which broker had sent them to a farmer, who had fed some beasts on them which had after a short time died, we, as the sellers of said cakes, beg to enclose you a report of the second trial we have had respecting them, from which you will see the firm in question got a verdict. The cakes they sold as manure cakes, invoiced them as such, and after doing all which is necessary as sellers, they are to be held accountable for the ignorance manifested by a broker, who twice sampled the bulk. They would feel obliged if, in your editorial capacity, you would notice this trial, because for the agriculturist it is an important one, and shows the necessity of sending their orders to persons well acquainted with cakes. *James Butler, 60, Waverley Street, Hull.*

Farmers' Clubs.

Wakefield.—*The Effects on the Turnip Crop of various kinds of Manure.*—At a recent meeting of this club Mr. Hunt, of Wortley, read a paper on this subject, from which we made the following extracts:—

"I have to explain to you a few experiments I have tried this season with different kinds of artificial manures. The land having been previously manured all alike with 18 tons of farm manure per acre, the results were computed by Mr. Barratt and myself, as follow:—To lot 1 was applied 2 cwt. of best Peruvian guano; to lot 2, the same cost of Mr. Simpson's Turnip manure; to lot 3 the same cost of sulphate of ammonia; to lot 4 the same cost of Sheffield bone-dust; to lot 5 30 bushels of wood charcoal saturated with liquid manure from the cattle tanks. After a careful examination we both arrived at the same conclusion, that the Turnips manured with the saturated charcoal were at least equal in bulk to the lot manured with guano, but superior in quality in consequence of the guanoed Turnips being more run to long necks. Mr. Simpson's lot we considered a good second. The bone-dust lot and the sulphate of ammonia lot not near so good. The cost of the charcoal may be considered doubtful, as I have the opportunity of obtaining it from Lord Wharncliffe's woods and plantations without payment, but I may remark that previous to my using it a person was allowed to make it for sale, by paying 1*s.* per cart load, which would contain about 60 bushels. It is necessary to explain that the material I speak of is not made from the cordwood, but merely the small branches, which are generally left after woodfalls and thinning of plantations. The burning of this into charcoal I let to a person, supplying him with a horse and cart to convey it to a shed at the farm, where he passes it through a riddle in order to separate the larger lumps from the small, and I pay him 2*d.* per bushel upon the whole. I then take the first opportunity of putting the large lumps through the bone mill, which process reduces them almost to a powder, which is then returned to the bulk. Having two liquid manure tanks at the farm, and on an average 40 to 50 head of cattle feeding during the whole of the year, of course a large amount of liquid manure is produced, which, during the summer months, is applied to the frequent cuttings of Grass consumed by the cattle. After I have ceased cutting Grass, which this season took place about the 10th of November, I apply the liquid to the charcoal until it becomes completely saturated; this I continue to do until I again require the liquid to apply to the Grass land, in order to obtain as early a cutting as possible. I have not had sufficient experience to be able to state the quantity of liquid a given amount of charcoal will absorb; but Mr. Dawson has stated that when the charcoal is fresh made it will absorb about 80 times its weight. I have tried sawdust and other matters as an absorbent for the liquid, but have never found anything equal to charcoal. I also find it an excellent deodoriser, so much so that, when a heap containing upwards of 1000 bushels has been completely saturated, no smell can be detected. As I before stated, the burning and riddling the charcoal costs me 2*d.* per bushel, therefore if we add 1*d.* per bushel for other labour, it will be 3*d.* per bushel, which, at 30 bushels per acre, amounts to 7*s.* 6*d.* per acre. I do not add any cost for the liquid, as that article I think may be valued at such various prices by other people. For my own part, I profess to produce it over and above a fair profit in my feeding operations."

Mr. Hunt then described his method of preparing land for the Turnip crop:—

"I endeavour to have the land cleared of twitch, &c., in the autumn previous, when I commence as early as possible to cart and spread upon the land the full quantity of solid manure I intend it to receive; and as fast as the ploughs can do their work, I have the same ploughed in as deep as possible (not less than 1 foot where the soil will admit). I then allow it to remain in its rough state until the spring of the following year, and when dry enough it is dragged, harrowed, and rolled; after this it remains until the time for sowing arrives. I then (without any more ploughing) ridge up lightly with a common plough one way, and cover in the saturated charcoal in the usual way on the return of the plough, when the seed is deposited by the drill as quickly as possible when the weather is dry. I have invariably found by this system a much finer mould on the surface obtained than after spring ploughing, in consequence of which the Turnips get a quicker start, which we all know has a good deal to do with the future prospect of the crop. It was frequently remarked during the late extremely dry summer, when Turnips generally gave up growing, that the Turnips in the Wortley Farm continued to grow. This I attribute to the manure having been ploughed in in the autumn to a good depth, and by not being disturbed by spring ploughing the moisture it had obtained during the previous winter was not removed, but was quietly sought for and abstracted by the roots of the Turnips striking down to it. It has been frequently said that the cultivation of a farm ought somewhat to resemble the cultivation of a garden in the preparation of soil for Turnip growing, and I think the remark is particularly well applied. Now, if we watch a market-gardener or a seedsman preparing his soil for the reception of seeds to be sown in the spring, we invariably find him applying his manure and digging it in to a good depth in the autumn, leaving the surface as rough as possible, to be acted upon by the atmosphere during the winter; but we do not find him in the spring of the following year destroying by more digging the loose surface thus obtained. Instead of which, he contents himself with simply using the rake to level the surface, knowing well that the exposure to the atmosphere during winter is a much more efficient pulveriser than the facing process he is able to submit the soil to. Such I have found the case where I have prepared the soil for Turnip growing as above stated."

* The firm stated as being a Russian firm is not so; one member is a German and the other an Englishman.

Reviews.

Remarks on the Tuberous Plants proposed as Substitutes for the Potato, &c. By F. F. Mérat, Member of the Central Society of Agriculture, Paris.

The Potato crop of last year has proved so generally successful that we may venture to entertain the hope it may be continued to us in renovated vigour and productiveness. Looking back to the many notions which have occupied men's minds as to the probabilities of finding some other tuber-bearing plants which by culture might replace the diseased and declining Potato, we have been amused, and in some respects instructed, by the perusal of the treatise published by a French gentleman under the title above given.

We picture to ourselves so many raw striplings presenting themselves as substitutes for good men and true, to a recruiting officer, and rejected as unfit for service from some serious defects. First the Dahlia advances for inspection. Forty years ago, the author informs us, it was supposed that in this plant was discovered a rival of the Solanum of Peru—its large tubers were offered in France as nutritive for man and beast, but rejected as an esculent when tasted; and no wonder—though retained as a handsome showy sentry in a garden. Next comes the Boussingaultia basellöides, vastly above our ordinary military standard, even before it was lowered to 5 feet 4 inches—of gigantic proportions, worthy of the sesquipedalian name, being about 18 feet high, with

grand leafy covering, but of villainous flavour.—Rejected accordingly.

The Apios tuberosa.—American by birth, known to us more than three centuries, and almost naturalised in Austria and the north of Italy; admissible under the Foreign Enlistment bill, but not worth our possession, as it is found to skulk in holes and corners of hedges and copses, where its progeny does not exceed the size of an ordinary egg, after four years' growth. The tubers, in sober fact, are represented to be no larger than Nuts, when boiled, sweet like Chesnuts, woody in fibre, capricious in growth, and by no means nutritive—very unworthy to stand beside an Irish Lumper.

The *Psoralea esculenta*, from the banks of the Missouri, where the native Indians are said to feed upon its tubers, which are about the size of a pigeon's egg, covered with a very tough envelope. The inner part, however, which has a dry, farinaceous look, may be alimentary, but is so slow in growth, so tasteless, hard, and woody, even after some hours' boiling, that it, too, cannot be accepted.

Lathyrus tuberosus, which is not of American extraction, bears tubers externally resembling those of the preceding plant, over which it may possess some trivial advantages. It is indigenous to some parts of France, and is sold in some markets to children; but M. Mérat states also that after cultivation in his garden during four or five years, it showed little evidence of amelioration. The haulms of all these plants are useless as fodder; in this respect, however, they are not inferior to the Potato. "We see then," observes our author, "that of the preceding tubercules (all, excepting the Lathyrus, borrowed from America) there is not one capable of yielding aliment in any remarkable degree. If, as is alleged, some savage tribes feed upon these American tubers, what does this prove? That they have apparently no better means of sustenance. Do we not see them, in other regions of the globe, feeding upon even worse substances—swallowing unctuous clay, larvæ, insects, &c. Are we, therefore, to do the same, who possess excellent cereals, &c. Unless, indeed, long cultivation should produce on these roots offsets such as have attended the cultivation of the Potato we have nothing to expect from them. Genuine agriculturists must emphatically pronounce against them, and disabuse the public of illusions which can only be mischievous." He excepts from condemnation the Peruvian plant *Ulluco*, as possibly containing the qualities which, with culture, might fulfil at least some of the conditions necessary to qualify it to serve (but still imperfectly) instead of the Potato. In 1847 the French Minister of Agriculture distributed some tubers of the Ulluco to public garden establishments; and these tubers produced others similar to those of the parent plant—some underground and others axillary (and when the stem was losing its vitality), but both equally capable of reproducing. The Ulluco strongly resembles the Potato; the taste, however, of the former in the raw state is worse than that of the Potato in the same uncooked state; nor does it become well flavoured and farinaceous by boiling, however prolonged this process; on the contrary it only grows harder, and clogs and becomes watery and very disagreeable to the taste. This is the best of a bad lot, and though as the Solanum tuberosum was a tasteless root when first dug up from Sir Walter Raleigh's garden at Youghal, there is a possibility that the Ullucus tuberosus (distinguished from the Ullucus Kunthi, the Napi lissa of naturalists), might become presentable at table, if under the foregoing candid expressions of discouragement it were worth while to train and nurture it, the general opinion will probably be that it ought not to be placed on the muster roll of our esculents. M. Mérat is a decided admirer of the Potato—into the culture and malady of which he has fully and judiciously inquired in the course of his publication.

Miscellaneous.

Mr. Hutton's System of Cattle Feeding.—Mr. John Hutton, of Sowber Hill, near Northallerton, has been taking into hand, for some years, poor, wild, worn-out farms, as his tenants dropped, until he has about fifteen hundred acres or more, and has followed out the system of steam-boiling Linseed and meal, combining this with chaff, and so feeding a large number of cattle. He has thus renovated the poor, worn-out soils, and reduced the whole to a state of garden cultivation, combined with the successful feeding of prime short-horn steers. A party of some 29 agriculturists lately inspected his farming operations, and the clean, healthy, and happy condition of 50 well-fed short-horn steers, ready for market, the sleek and almost fat condition of the straw fold or store cattle in his yards—many worse are sold for fat—the healthy condition of his draught horses, are evidences of the value of the Linseed compound on which they are fed—the fat cattle to the utmost limit, and the store stock and horses once a day. To suit the expenses of the times the following is the formula of his feed, and, as will be seen, the cost of feeding is at this dear season not more than 6*s.* per week:—

Cost of keeping a Fat Beast for One Week.
April 18, 1854.

	s.	*d.*
26 lbs. of meal, at 1*d.* per lb. ...	2	2
13 lbs of Linseed, at 1½*d.* per lb. ...	1	7½
Turnips (from 70 lbs. to 80 lbs. per day) ...	1	6
Coals ...	0	1½
Labour on each beast ...	0	7
	6	0

The food given to the draught horses is 1 lb. of Linseed and 3 lbs. of meal, at noon, at the cost of 4½*d.* per day. The small quantity of roots per day—taking the minimum of 70 lbs.—would, in 20 weeks, amount to some 4½ tons only, thus finding all the roots necessary for feeding four cattle on 1 acre of a 20 ton per acre crop. *Journal of the Chemical Society.*

Calendar of Operations.

JANUARY.

Border of the Fens, *Jan.* 29.—A fortnight of frost and snow in January seems to be regarded generally with feelings of satisfaction, and if such weather should prevail for four or five weeks we should be reconciled by the expectation of enjoying favourable weather in the spring, to compensate largely for present severity; and we know that all heavy land will be greatly fertilised by the agency of frost if ploughed up a good depth, and, indeed, loamy soils also must derive much benefit from the same cause, if previously turned up. This may seem a truism not worth repeating, but we saw this morning two fields that occasioned this remark—one was a Wheat stubble, where no game is preserved, undisturbed since harvest, the other, a large piece of 30 acres, had been scarified and left with all the Grass and rubbish. Now we cannot but think this to be an abuse of scarifiers, as no doubt if such implements had not been in vogue this field would have been ploughed 5 or 6 inches deep, and would have been then better for all purposes than it now is; and in this instance the excuse of horses being otherwise engaged in the farm will not hold good. Yards are everywhere being emptied of manure, but the disposal of that manure varies very much; we before described our method, which we continue to practise, endeavouring to improve by varying the place of deposit, the quantity in each heap, and the degree of pressure applied to hasten or retard fermentation according to the stage of its decay and moist or dry condition. The object of all should be at this period of the year to make manure, whereas we see abundance of cases where manure is carted to arable and Grass fields direct from the yards, so that you see at one end of the field heaps of soiled straw, the colour scarcely changed, in another part dry friable dung, and elsewhere it may be, good manure of a dark colour. Stock of all kinds demand the greatest care and attention; shelter from wind in any quarter cannot be too much insisted on; beasts tied or shut up to fatten ought to lie warm, with sufficient ventilation, but store stock and young horses in yards with open hovels will generally be found to prefer the open yard, and should have liberty to take the air as much as they please, shelter being provided in case they want it, and to keep out draughts of wind, which do them as much harm as we should receive from sitting near an open door or window during cold weather. Jobbing labourers now find work rather scarce, as farmers can only just employ their regular hands, carting manure, or earth, or gravel being the staple occupations while the ground is covered with snow. Hedging furnishes something to do for one or two men, and improvements, where the tenure of a farm admits of their being made, will always be undertaken by improving tenants; roads are recommended by some, but roads are permanent improvements, and cannot be lightly undertaken without leases or some security for a return corresponding to the outlay; nobody denies the blessing of good roads, but some expectation of being remunerated must exist; for any man laying out money to benefit his successor without adequate advantage to himself is foolish, to say the least of it; and in farming, every man who has good-naturedly parted with his money knows full well how easy it is to lay it out, but with uncertain occupancy when will he see it again? Ordinary labourers now receive 13*s.* a week; Wheat 70*s.* per quarter; beasts make 8*s.* a stone; Linseed cake, 13*l.* a ton; pigs, 6*s.* 6*d.* to 7*s.* a stone; Barley-meal, 1*s.* to 1*s.* 2*d.* per stone; Potatoes, 8*s.* per sack of 2 cwt. *J. W., Peterborough.*

West Sussex, *Jan.* 30.—We have lately had a slight fall of snow with moderate frosts, which have been very seasonable, both for checking vegetation and allowing of our carting on the fields. There is no fear now of the Wheat being too forward; it will be in the very best state of progress to meet a favourable spring, and it will also be looking for a few April showers, for the land is very dry. I should think it has not been drier in the memory of man. At this time of the year, even on our clay lands, the ditches are dry as they were in the summer; and a few miles back among the downs water is getting expensive, being sold by the bucketful. And as the winter is now advanced without rain, fears are entertained about the supply next summer. Turnips are also checked in time; they were beginning to look rather green. They have kept better than we expected; many of them were rotted in the autumn, no more have gone since. The ewes and lambs have done well, as might be expected in this dry weather. The lambing season is nearly over. Fatting cattle do very well, they have 1¼ bushel of Swedes and Mangold Wurzel cut together, and given twice a day, and 5lbs. Linseed-cake and what hay they will eat, which is about 10lbs. each, and on this they do better than when they had three bushel Swedes and 4lbs. cake with hay *ad lib.* Peas are now being put in as the weather permits. And the little frost that we have had has been suitable for carting out dung to the fields. This with chalk carting, road mending, and the necessary barn work, is our present occupation. Wheat thrashing is far advanced, and our market has lately been well supplied. At another time I may give a description of our Chichester market, which for order and business-like system I believe is not surpassed by any county town in England. *G. S.*

Notices to Correspondents.

Boarding for Stalls: *Mr Young*, of Leeds, keeps his horses on boarded floors with some straw on them, and finds it a great economy in straw, and also advantageous to the health of the animals. He is an extensive livery stable keeper. He lays three ground sleepers (for a 6-feet width) the whole length of the stall, from wall to outside of gutter. They are of Larch or Oak 3 inches thick and 4 inches wide, and cross rails are nailed above them with what are called diamond nails—4 nails through into each sleeper. These cross boards are of Elm, 6 or 7 inches wide, 1½ to 2 inches thick, and from 1¼ to 2 inches apart, to allow the wet to get through.

Cow: *Liverpool.* We fear she is past all surgery. The mesenteric glands are probably diseased. The following may be tried:—Calomel, opium powdered, half a drachm each, to be given daily in thick flour gruel for four or five days. A few Beans and Rape-cake may be given with the food. *W. C. S.*

Dextrine: *Dextrine.* We presume the effect of the acid on the starch to be its conversion into dextrine, which if washed clear of the acid may no doubt be used as food. The freedom from acid will be ascertainable by taste.

Potatoes: *S F* says:—"I am preparing to plant a crop of Potatoes, and am very desirous to prove the principle of culture recommended by your correspondent "S.," Forfarshire, which appears to me very judicious. His four points I shall exactly observe; but as I feel anxious to carry out his system to the utmost, I would venture to ask him to state the depth he plants his Potatoes, and how the hoeing is effected."

Poultry Books: *T P.* Mr. Baily's address is Mount Street, Grosvenor Square. Your bookseller will obtain Tegetmeier's work.

Salt: *J A Carr.* Place a lump before her, and let her take as much as she chooses. That is the best way of determining the proper quantity.

Salt and Lime: *An Old Subscriber.* Chalk and salt should be just as efficient as lime and salt; in both cases time is needed for the assumption by the original mixture of the altered form of combination, to which its efficiency is due.

Water: *D C L.* Wind will not fill the wells except it be accompanied by water!

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY respectfully invite attention to their stock of the following very desirable HARDY PLANTS.

Araucaria imbricata, from 2 to 7 feet high; as handsome as plants can be.
Cedrus Deodara, in any quantity, from 1 to 3 feet high
Do. do., 4, 5, 6, 7, 8, and 10 feet high; splendid plants
Cedars of Lebanon, 3, 4, 6, and 10 feet high
Pinus Douglasi, 3 to 10 feet
" insignis, 2 to 7 feet
" Menziesi, 3 to 7 feet
" Pinsapo, fine plants, 3 to 6 feet
" Nordmanniana, 1½ to 3 ft., all from seed and remarkably handsome
" nobilis, 1½ to 2 feet; a few larger, 5 and 6 feet high, on their own roots, and with perfect leaders
" Montezumæ, 2 to 4 feet
Pinus canadensis, 3 to 8 feet
Cupressus macrocarpa or Lambertiana, 4 to 7 feet
" thyoides variegata, 3 to 4 feet (the variegated white Cedar)
Juniperus, Upright Irish, perfect columns, 3 to 7 feet
" chinensis, 2 to 8 feet
Yew, common English, 3 to 8 feet
" Irish, 4 to 10 feet
" gold-striped, 1½ to 3 feet
" do., tall standards, 4 to 7 ft.
" Dovaston, or Weeping, worked on tall straight stems
Thuja aurea, the finest plants in the country
Libocedrus chilensis, the finest plants in the country
Large variegated Hollies
" Standard Bays

Also an immense stock of large Evergreens, Standard Ornamental Trees, &c.

All the plants here offered may be seen growing in our Nursery; they are removed every year, and will travel any distance with perfect safety. Of some, such as Araucarias, Deodaras, Golden Yews, Thuja aurea, Pinus nobilis, Nordmanniana, we have any quantity; and the plants, for root and branch, are not to be surpassed. Priced Catalogues will be forwarded on application, enclosing two postage stamps, to Waterer and Godfrey, nephews and successors of the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey, near the Woking Station, South-Western Railway, where all trains stop, and where capital conveyances can be obtained.

The 2*d.* stamp will also include a descriptive Catalogue of their American Plants, Roses, and Nursery Stock in general.

MESSRS. E. G. HENDERSON AND SON, of the Wellington Road Nursery, St. John's Wood, London, beg to inform their Patrons and the Public that their NEW CATALOGUE OF SEEDS for 1855 is now ready, and will be forwarded post free on application.

E. G. H. & Son take this opportunity of stating that none but the most popular and improved kinds of Vegetable Seeds appear in their list; and among the Flower Seeds only those whose beauty and merit are universally acknowledged, together with a carefully selected stock of the principal new varieties.

E. G. H. & Son beg respectfully to call particular attention to the following choice seeds of Florists' Flowers, which have been saved from a fine collection of named plants, and also to the annexed New and Choice Flowers, which they can confidently recommend, and in their Catalogue will be found the names of 20 beautiful ornamental Grasses. Also 12 variegated and ornamental foliage plants, for decorating the flower garden during the summer months, with full descriptions and other information respecting the following

CHOICE FLORIST FLOWERS.

Per packet—	*s.*	*d.*
Antirrhinum, extra fine mixed ...	0	6
Auricula, fine mixed ...	1	6
Balsam, double Camellia flowered, in packets of 6 distinct colours separate ...	3	0
" double Rose flowered in packets of 6 distinct colours separate ...	3	0
" new double Camellia Rose, in packets of 10 distinct colours separate, extra fine ...	5	0
" Aurora, fine dbl. cr.	1	0
" new dbl. pale yellow	1	0
Carnation, from stage flowers... ...	1	6
Calceolaria, from choice hybridized flowers	2*s.* 6*d.* and	5 0
Cineraria, from choicest varieties ...	1*s.* 6*d.* and	2 6
Chrysanthemum, Pompone, fine mixed ...	1	0
" large flowered, fine mixed ...	1	0
Geranium, choice show ...	2	6
" choice fancy ...	2	6
Hollyhock, first quality ...	2	6
" second quality	1	0
" in 12 distinct colours, each colour ...	0	6
Pansy, choice show, from named flowers ...	1	6
" choice fancy, from beautiful striped and spotted flowers ...	1	6
Petunia, from extra fine named varieties ...	1	0
" saved from crimson flowers with green edges ...	1	0
Verbena, choice mixed ...	1	0
Mimulus, beautifully blotched ...	0	6

NEW AND OTHER CHOICE FLOWERS.

Per packet—	*s.*	*d.*
Abronia umbellata ...	1	6
Anagallis azurea grandiflora ...	1	0
" rubra ...	1	0
Arctotis breviscapa ...	0	6
Aster, new Peony pyramid, in packets of 10 distinct colours separate	3	6
" new bouquet pyramidal, in packets of 12 distinct colours separate ...	3	6
Alonso Warscewiczi ...	5	0
Clintonia pulchella ...	0	6
Coreopsis coronata ...	0	6
" filifolia ...	0	6
" bicolor nana ...	0	6
" Drummondi grandiflora ...	0	6
Calendrina umbellata ...	0	6
Cyclamen persicum ...	1	0
" " rubrum	1	0
Centauridium Drummondi	0	6
Dianthus Dunnetti superba ...	1	0
" chinensis flora pleno, extra fine ...	0	6
Digitalis, new spotted ...	0	6
Eucnida bartonioides ...	0	6
Eschscholtzia tenuifolia...	1	6
Gramanthes gentianoides	0	6
Humea elegans ...	0	6
Ipomea rubra cærulea ...	1	0
" limbata ...	2	0
Leptosiphon luteum ...	0	6
" aureum ...	1	6
Linum grandiflorum rubra 1*s.* 6*d.* and	2	6
Lobelia racemosioides ...	0	6
" erinus oculata ...	0	4
" Queen Victoria (scarlet) ...	0	6
" Roi Leopold (blue)	0	6
Larkspur, new double improved Hyacinth flowered, in packets of 6 distinct colours ...	2	6
Limnanthes sulphurea odorata ...	1	0
Lychnis fulgens (scarlet)	0	6
Lythrum roseum superbum	0	4
Mignonette, new large flowering ...	0	3
Oxalis rosea ...	0	6
Phlox decussata, from fine named varieties ...	1	0
" Drummondi coccinea	0	6
Portulacca, new orange ...	0	6
" rosea ...	0	6
Primula sinensis fimbriata, alba, and rubra, mixed	2	6
Poppy, new large Peony flowered, in 8 brilliant colours... ...	2	0
Rhodanthe manglesi ...	0	6
Reseda myriophylla (new Mignonette) ...	1	9
Schizanthus Grahami carnea ...	0	4
" retusus ...	0	3
" retusus albus...	0	6
Salpiglossus, scarlet, blue, and sulphur, each ...	0	6
Stock, Scarlet Intermediate ...	0	6
" German, new large flowering, in packets of 6 distinct colours, separate ...	2	6
" Intermediate, or Autumn, in packets of 12 distinct colours separate ...	3	0
" Brompton, or Winter, in packets of 10 distinct colours, sep.	2	6
" Emperor, in pkts. of 5 distinct colours, separate ...	2	0
Sweet William, new dbl. mixed ...	0	6
Tropæolum, Triomphe de Gand ...	0	6
" Lille Schmidt	0	6
" tricolor ...	0	6
" Scheweriannum	0	6
Vittadenia lobata... ...	1	0
Whitlavia grandiflora ...	1	6

Holcus Saccharatus (New Sugar Cane), 1*s.* and 2*s.* 6*d.*
Dioscorea Batatas (Japanese Yam), 2*s.* 6*d.* each tuber.
February 3.

PRIZE MEDAL—1851.
AT A VERY ECONOMICAL RATE.

SAMUEL CUNDY, Mason and Builder, Pimlico Marble and Stone Works, Belgrave Wharf, Lower Belgrave Place, Pimlico, London.

Marble Chimney-pieces manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price. A good Marble Chimney-piece for 40s. Marble Work in all its branches at a remarkably cheap rate for Halls, Dairies, Larders &c. Circulars sent on application.

N.B. The "Royal Blue" Omnibuses pass the Works every ten minutes from the Bank.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvass made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 6d. per yard run, of Emma Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than mats as a covering."

HOT-WATER PIPES at wholesale prices, with Elbows, Syphons, Tee Pipes, and every requisite connection. Cast Iron Boilers, 55s. each. Improved Soot Doors and Furnace Doors. Builders' Castings of every description kept in Stock at — Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street (near Blackfriars Bridge), London.

SHEET GLASS (15 oz.) of good quality in 100 feet boxes.

10 in. by 8 in. and under	... ...	15s. per box.
11 in. by 9 in. to 22 in. by 14 in.	... ...	17s. "
Larger sizes to 28 in. by 18 in.	... ...	19s. "

Also similar sizes in 21 oz. Sheet at 24s. per box. Boxes charged 2s. each, and returnable at the same price, if delivered free. CRYSTAL WHITE GLASS, Crown and Sheet Glass in Crates, British and Patent Plate, &c. &c. White Lead, Oils, Turpentine, Colours, &c.—G. Farmiloe & Son, 118, St. John Street, West Smithfield.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.		Inches.		Per foot.		Per 100 feet.
		Under 6 by 4	at	1½d.	is	£0 12 6
From 6 by 4		" 7 " 5	"	2d.	"	0 16 8
7 " 5		" 8 " 6	"	2¼d.	"	0 18 9
8 " 6		" 10 " 8	"	2½d.	"	1 0 10
10 " 8		" 12 " 9	"	2¾d.	"	1 2 11

Larger sizes, not exceeding 40 inches long.
16 oz. from 3d. to 3½d. per square foot, according to size.
21 oz. " 3½d. to 5d. " " "
26 oz. " 3¾d. to 7½d. " " "

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to James Hetley & Co., 35, Soho Square, London.

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Packed in Boxes of 50 feet each.

6 by 4 and 6½ by 4½	... ...	10s. 6d. per box.
7 " 5 " 7½ " 5½	... ...	12 0 "
8 " 6 " 8½ " 6½	... ...	13 6 "
9 " 7 " 9½ " 7½ and 10 by 8	...	15 0 "

For larger sizes a full List of Prices will be sent on application. Boxes are charged 2s. each extra, full price allowed if returned free of expense.—For further information apply to

JAMES PHILLIPS & Co.,
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"Rough Plate has never been, and never can be, prejudicial to the colouring of Grapes; though we can easily believe that it has been charged with such a fault by persons who have not skill enough to manage Grapes under glass."—*Gardeners' Chronicle.*

"There *can be no question now* that Rough Plate Glass is the most beautiful as well as the most useful kind of glass that can be employed in horticulture. It is free from all the faults of transparent glass, and has many advantages peculiar to itself, *without a single disadvantage as a set off.*"—*Gardeners' Chronicle.*

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N.B. Printed regulations for treatment sent; also, just arrived very moist and open Parmasan Cheeses.

WOOLLEN NET FOR THE PROTECTION OF WALL FRUIT TREES FROM FROST, 2 and 3 yards wide, can be had of Weatherhead, Walters, & Co., Derby. See *Gardeners' Chronicle* of Oct. 28, 1854.

HALL'S GARDEN NETTINGS; the best and cheapest for all purposes of shelter and shade from Frost, Hail Storms, and Gales of Wind. No. 0, 5d.; No. 1, 5½d.; No. 2, 6d.; Nos. 3 and 4, 7d. All 56 inches wide, and in lengths of 10, 20, 30, and 60 yards.—Manchester.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1d. per square yard; 200 yards, 14s.; 500 yards, 30s.; 1000 yards, 50s. Scrim Canvass, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

BLOSSOM OF FRUIT TREES. — WORSTED NET to effectually protect the blossom of wall fruit trees from frost and blight, and the ripe fruit afterwards from wasps and flies, 7d. per square yard, in various widths. All kinds of garden, fishing, and sheep nets, made by machinery, and at very low prices.—R. Richardson, 21, Tonbridge Place, New Road, King's Cross, London.

THE WORSTED GARDEN NETTING.—1 inch Mesh, four stranded Worsted Netting, 2 yards wide, 5d. per yard; 4 yards wide, 10d. per yard. This is the lightest, neatest, and most approved article for protecting the bloom of Peach, Nectarine, and other Trees from frost or blight ever used. The Worsted Netting, if properly fixed, will resist more frost, and, with slight alteration, admit the air better than any other material.

Directions for fixing.—Run a cord in both edges with two yards of net to one yard of cord. Fix the top edge. Permanently attach a weight or tie down. The bottom edge at night will close the mesh. Let it loose in the morning, the mesh will expand, and admit air and light as required. See woodcut in *Gardeners' Chronicle* for Jan. 13th. I can fix the above like the cut at 1s. 8d. per yard, without poles.

SUPERIOR ELASTIC HEXAGON GARDEN NET, 76 Meshes to the square inch, effectually excludes Birds, Wasps Flies, &c., from Fruit Trees, Flower or Seed Beds.

GARDEN NETS, FISHING NETS, SHEEP NETS, AND RABBIT NETS (made by hand, as machine-made knots slip), supplied at very low terms. Samples sent free.

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Six Tents to sell cheap.—Old Tanned Nets repaired 5s. per 100 yards.

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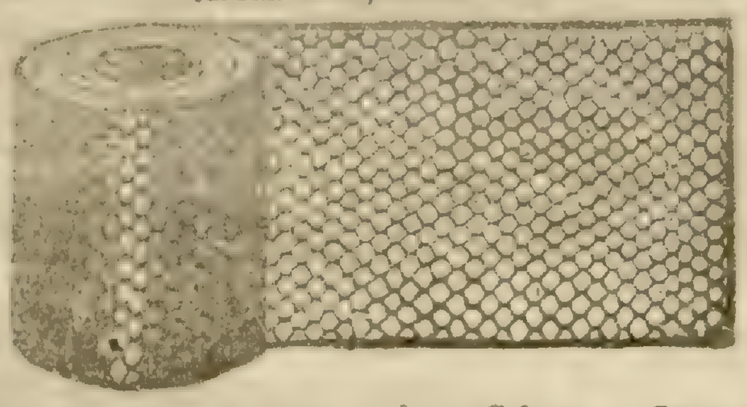

	Galvanised.	Japanned iron.
2-inch mesh, light, 24 inches wide ...	7d. per yd.	5d. per yd.
2-inch " strong " ...	9 "	6½ "
2-inch " extra strong " ...	12 "	9 "
1⅝-inch " light " ...	8 "	6 "
1⅝-inch " strong " ...	10 "	8 "
1⅝-inch " extra strong " ...	14 "	11 "

All the above can be made any width at proportionate prices. If the upper half is a coarse mesh, it will reduce the prices one-fourth. Galvanised Sparrow-proof Netting for Pheasantries, 3d. per square foot. Patterns forwarded post free.

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☞ A few articles which have been standing as patterns for many years will be sold at reduced prices. Any gentleman unable to visit the yard may have sketches sent, if he will describe the object required, and the price.

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JAMES VEITCH, Jun., fully impressed with the correct principle of ventilation for Plant Houses, &c. afforded by MOORE'S PATENT VENTILATORS, has had a house fitted up with them at Chelsea, which it will be a pleasure to him to show to any persons visiting his Nursery.

For the admission of air, in upright sashes, he believes it to be the most complete and best plan at present in use. In appearance it is neat and elegant, easily worked, and not liable to get out of order; but what is of far more consequence than this, these Ventilators admit the air in such a manner that they can be used in all weathers, and with them the admission of air is so under command that plants cannot fail to be benefited by their adoption.

James Veitch, Jun., *desires it to be fully understood that he has no personal interest whatever in the adoption of the above Ventilators, but believing them to be a decided improvement on all other plans, he is desirous of giving the public an opportunity of seeing and judging for themselves.*—Exotic Nursery, Chelsea, Feb. 3.

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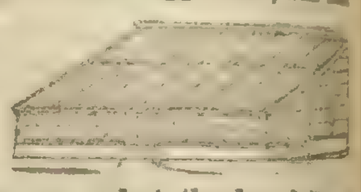
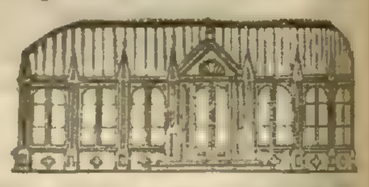


The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3s. 8d. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



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The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 30s. The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1s. 6d. per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3s. 6d. per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Sons, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

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PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel,	Length of Barrel, under nose.		£ s. d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 12
2½ " long	3 " 3 "		1 15
3 " ditto	3 " 6 "		2 12
3½ " ditto	3 " 6 "		2 15
4 " ditto	3 " 6 "		3 5
2½ " short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2 12
2½ in. long ditto	ditto	ditto	2 15

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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PACKED IN ONE HUNDRED FEET BOXES, THIRDS QUALITY, BOXES INCLUDED.

Inches.	Per 100 ft.	Inches.	Per 100 ft.	Inches.	Per 100 ft.	Inches.	Per 100 ft.	Inches.	Per 100 ft.	Inches.	Per 100 ft.
6 by 4	12s.	12 by 10	20s.	14 by 11	20s.	16½ by 12½	20s.	18 by 13	20s.	18 by 14	20s.
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7 " 5	14s. 6d.	13 " 10		15 " 11		17½ " 12½		19 " 13		19 " 14	
7½ " 5½		13½ " 10½		15½ " 11½		18 " 12		19½ " 13½		19½ " 14½	
8 " 6		14 " 10		16 " 11		18½ " 12½		20 " 13		20 " 14	
8½ " 6½		14½ " 10½		16½ " 11½		19 " 12		20½ " 13½		20½ " 14½	
9 " 7		15 " 10		17 " 11		19½ " 12½		21 " 13		21 " 14	
9½ " 7½		15½ " 10½		17½ " 11½		20 " 12		21½ " 13½		21½ " 14½	
10 " 8		16 " 10		14 " 12		20½ " 12½		22 " 13		22 " 14	
10½ " 8½	17s. 3d.	16½ " 10½		14½ " 12½		16 " 13		16 " 14		22½ " 14½	
11 " 9		17 " 10		15 " 12		16½ " 13½		16½ " 14½		23 " 14	
11½ " 9½		17½ " 10½		15½ " 12½		17 " 13		17 " 14		23½ " 14½	
12 " 9		13 " 11		16 " 12		17½ " 13½		17½ " 14½		24 " 14	
12½ " 9½		13½ " 11½									

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British Plate, Patent Plate, Sheet, Crown, and Coloured Window Glass. Pure White Shades for Ornaments. Pumps, Water Closets, and Plumbers' Brass Work. Genuine White Lead, Paint, Colours, Varnishes, Brushes, &c. Tariffs of the above on application to

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FURNISH YOUR HOUSE WITH THE BEST ARTICLES AT DEANE'S IRONMONGERY AND FURNISHING WAREHOUSES. Established A.D. 1700. A Priced Furnishing List, free by post.—DEANE, DRAY & Co. (Opening to the Monument,) London Bridge.

DISH COVERS AND HOT-WATER DISHES in every material, in great variety, and of the newest and most *recherché* patterns. Tin Dish Covers, 6*s.* 6*d.* the set of six; Block Tin, 12*s.* 3*d.* to 28*s.* 9*d.* the set of six; elegant modern patterns, 34*s.* 0*d.* to 58*s.* 6*d.* the set; Britannia Metal, with or without silver-plated handles, 76*s.* 6*d.* to 110*s.* 6*d.* the set; Sheffield Plated, 10*l.* to 16*l.* 10*s.* the set; Block Tin Hot-water Dishes, with wells for gravy, 12*s.* to 30*s.*; Britannia Metal, 22*s.* to 77*s.*; Electro-plated, on Nickel, full size, 11*l.* 11*s.*

THE PERFECT SUBSTITUTE for SILVER.—The real NICKEL SILVER, introduced 20 years ago by WILLIAM S. BURTON, when Plated by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle Pattern.	Thread or Brunswick Pattern.	King's Pattern.
Tea Spoons, per dozen ...	18*s.*	26*s.*	32*s.*
Dessert Forks " ...	30*s.*	40*s.*	46*s.*
Dessert Spoons " ...	30*s.*	42*s.*	48*s.*
Table Forks " ...	40*s.*	56*s.*	64*s.*
Table Spoons " ...	40*s.*	58*s.*	66*s.*

Tea and Coffee Sets, Waiters, Candlesticks, &c., at proportionate prices. All kinds of replating done by the patent process.

CHEMICALLY PURE NICKEL, NOT PLATED.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, full size, per doz.	12*s.*	28*s.*	30*s.*
Dessert ditto and ditto	10*s.*	21*s.*	25*s.*
Tea ditto	5*s.*	11*s.*	12*s.*

HOT-AIR, GAS, VESTA, JOYCE'S STOVES.—STOVES for the economical and safe heating of halls, shops, warehouses, passages, basements, and the like, being at this season demanded, WILLIAM S. BURTON invites attention to his unrivalled assortment, adapted (one or the other) to every conceivable requirement, at prices from 10*s.* each to 30 guineas. His variety of register and other Stoves, Fenders, and Kitchen Ranges is the largest in existence.

WILLIAM S. BURTON has TEN LARGE SHOW ROOMS devoted to the show of GENERAL FURNISHING IRONMONGERY (including Cutlery, Nickel Silver, Plated and Japanned Wares, Iron and Brass Bedsteads and Bedding), so arranged and classified that purchasers may easily and at once make their selections.

Catalogues, with engravings, sent (per post) free. The money returned for every article not approved of.

No. 39, Oxford Street (corner of Newman Street); 1, 2, and 3, Newman Street; and 4 & 5, Perry's Place.

THE COMFORT OF A FIXED WATER-CLOSET FOR 1*l.*—Places in gardens converted into comfortable water-closets by the PATENT HERMETICALLY SEALED PAN, with its self-acting valve, entirely preventing the return of cold air or effluvia. Any carpenter can fix it in two hours. Price 1*l.* Hermetically-sealed Inodorous Chamber Commodes, 1*l.*, 2*l.* 4*s.*, and 3*l.*; also Improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus, with engravings, forwarded by enclosing two postage stamps.—At FYFE & Co.'s Sanatorium, 46, Leicester Square, London.

TO NERVOUS SUFFERERS.

A RETIRED CLERGYMAN having been restored to health in a few days, after many years of great nervous suffering, is anxious to communicate to others the means of cure; he will therefore send (free), on receiving a stamped envelope, properly addressed, a copy of the prescription used.—Direct Rev. E. DOUGLASS, 18, Holland Street, Brixton, London.

ASTHMA, COUGHS, COLDS, AND INFLUENZA SPEEDILY CURED, AND INSTANTLY RELIEVED BY THE USE OF SPENCER'S PULMONIC ELIXIR.

This fine medicine will be found admirably adapted to promote expectoration, ease the breathing, loosen the phlegm, abate fever, and allay the tickling sensation which occasions the cough, without tightening the chest; and for all temporary and local affections, such as wheezing, irritation of the throat, palpitation of the heart, hoarseness of the voice, influenza, &c., it affords immediate relief; while in more chronic disorders, as periodical coughs or inveterate asthma, it is equally valuable in its effects, although of course a little longer perseverance in the use of the article is required.—Prepared only by T. ROBERTS & Co., Crane Court, Fleet Street, London; and by all respectable medicine-vendors and chemists in the kingdom. In bottles at 1*s.* 1½*d.* and 2*s.* 9*d.* each; the bottles at 2*s.* 9*d.* contain nearly as much as three small ones.

*** Ask for SPENCER'S Pulmonic Elixir.

DR. DE JONGH'S

LIGHT BROWN COD LIVER OIL, prepared for MEDICINAL USE in the LOFFODEN ISLES, NORWAY, and put to the test of Chemical Analysis.

This pure and unadulterated, transparent, light brown Cod Liver Oil, long known and justly appreciated on the Continent, has now acquired the general confidence of the Medical Profession in this country, by whom it has been extensively and successfully prescribed, and with almost immediate and remarkably beneficial results—in many instances where ordinary Cod Liver Oil had been copiously, though ineffectually administered.

It owes its superior efficacy not only to its method of preparation, but to the fact—clearly established by chemical analysis and therapeutic experiments—that the liver of the species of cod fish from which it is exclusively procured naturally contains a larger quantity of iodine, of the elements of the bile and other essential remedial properties, than is found in other kinds of the GENUS GADUS. It is of the finest quality, free from any admixture, or the usually repulsive, sickly, and nauseous flavour or after-taste of the Pale Oils, or of the coarse Brown Oil, commonly sold, though totally unfit for medicinal purposes.

Being sold by IMPERIAL MEASURE it is as low in price per ounce as any other genuine Cod Liver Oil, whilst its regular and speedy effects render it incalculably cheaper. Medical and Scientific Testimonials of the highest character delivered or forwarded, GRATIS, on application to Dr. de Jongh's Sole Agents and Consignees, ANSAR, HARFORD, and CO., 77, STRAND, London, by whom the Oil is sold wholesale and retail, in bottles capsuled and labelled with Dr. de Jongh's stamp and signature, and in THE COUNTRY by respectable Chemists and Vendors of Medicine. Where difficulty occurs in procuring the Oil, four half-pint bottles will be forwarded to any part of England, CARRIAGE PAID, on receipt of a remittance of 10*s.*

Half-pints (10 ounces), 2*s.* 6*d.*; Pints (20 ounces), 4*s.* 9*d.*; Quarts (40 ounces), 9*s.*

RUPTURES EFFECTUALLY CURED WITHOUT A TRUSS.—All Sufferers from this alarming complaint are earnestly invited to consult or write to Dr. LESLIE, as he guarantees them relief in every case. His remedy has been successful in curing thousands of persons during the last eleven years, and is applicable to every kind of single and double Rupture, however bad or long standing, in male or female of any age, causing no confinement or inconvenience in its use whatever. Sent post free to any part of the world, with full instructions for use, on receipt of 7*s.* 6*d.* in postage stamps, cash, or Post-office order, payable at the General Post-office, to Dr. HERBERT LESLIE, 37A, Manchester Street, Gray's Inn Road, London. At home daily (except Sunday) from 11 till 3 o'clock. A Pamphlet of Testimonials sent post free on receipt of one postage stamp.

NEW WINTER SOAP.

METCALFE, BINGLEY, AND CO.'S OATMEAL and CAMPHOR SOAP, in tablets (registered Nov. 3, 1854). Price 6*d.* each. This soap will be found the purest and most perfect winter soap ever introduced to the public. It preserves the hands from chapping, and renders the skin soft and agreeable.—Sold wholesale and retail by the inventors and sole manufacturers, METCALFE, BINGLEY, & Co., Brushmakers and Perfumers to H.R.H. Prince Albert, 130B and 131, Oxford Street.

CAUTION.—To prevent fraud, each tablet bears the registered mark and the names and address of the inventors, as above.

METCALFE'S ALKALINE TOOTH POWDER, 2*s.* per box.—The above may be obtained of most respectable Chemists, Perfumers, &c.

TO PARENTS AND GUARDIANS.—The return of youth to the respective boarding-schools induces a solicitude for their personal comfort and attraction. Now it is that ROWLANDS' MACASSAR OIL, for accelerating the growth and for improving and beautifying the hair, ROWLANDS' KALYDOR, for improving the skin and complexion, and removing cutaneous eruptions, and ROWLANDS' ODONTO, or PEARL DENTRIFICE, for rendering the teeth beautifully white and preserving the gums, are considered indispensable accompaniments for the attainment of those personal advantages so universally sought for and admired. Beware of Spurious Imitations. The only Genuine of each bears the name of ROWLANDS' preceding that of the article on the wrapper or label.—Sold by A. ROWLAND and SONS, 20, Hatton Garden, London, and by Chemists and Perfumers.

MESSRS. SHOOLBRED AND BRADSHAW, 34, Jermyn Street, PATENTEES. Manufacturers of every description of ELASTICAL SURGICAL BANDAGES, as recommended by all the most eminent surgeons, in acknowledging the very extensive support they have received, beg to call attention to the various improvements they are making in patent Elastic Stockings, Knee Caps, Socks, and Ladies and Gentlemen's Spine Supporters. A new description of Belt, invaluable for prevention of Cholera and the cure of Rheumatism, Lumbago, &c. N.B. Every description of India-rubber Bandages vulcanised on the newest principle.

BASS'S EAST INDIA PALE ALE. BARCLAY'S PORTER AND STOUT, in 18 Gallon Casks, Bottles, Half-Bottles, and Imperial Pints.

BERRY, BROTHERS, & Co., 3, St. James's Street, London.

LIQUID AMBER.—The undernamed is a buyer of either a large or small quantity of the above. Send cash price, and height, to Mr. JEYES, Nurseries, Northampton.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 16*s.* per ton, delivered to any of the London Wharfs or Railways, or within a circuit of five miles. Peat and loam at moderate prices.—KENNARD, BROTHERS, Swan Place, Old Kent Road.

WANTED TO RENT, from Lady Day, a SMALL FARM near London. A good House is required, with 40 to 100 acres of Land (Arable and Pasture), and the requisite Outbuildings; and within 25 miles from town.—Apply, by letter, to the Editor of the *Agricultural Gazette*, 5, Upper Wellington Street, Strand, London.

WANTED, about Lady-day next, in a strictly single-handed place, where a cow is kept and assistance only given occasionally in mowing and weeding, a very active and industrious Man, as GARDENER, who is well acquainted with the duties of his calling, and has a decided taste for flowers. He will have the care of a Conservatory, Greenhouse, and Stove, on a small scale; in addition to a Flower-garden on the "bedding-out" plan, with a walled Fruit and Vegetable garden. No one need apply whose character and abilities will not bear the strictest investigation, or who is not a member of the Church of England, unless a Scotch Presbyterian. Wages 16*s.* a week, with a house free if a married man.—Letters to be addressed to A. B. C., Post Office, Kingsbridge, Devonshire.

NURSERY AND SEED BUSINESS,

ESTABLISHED IN THE YEAR 1819.

TO BE LET, with immediate possession, the NURSERY and SEED SHOP at Taunton, for some time past in the occupation of Messrs. M'Intyre and M'Intosh. The Grounds and Stock are in excellent condition, moderately rented, and are well worthy the attention of any person wishing to carry on the business. If required the quantity of ground may be reduced. The Nursery is about 5 minutes' walk from the Railway Station. Apply to Mr. YOUNG, the Proprietor, Elm Cottage, Taunton.

TO BE SOLD, the BUSINESS, GREENHOUSES, PITS, FRAMES, and STOCK therein, containing a choice collection of Plants in the finest condition; also the Lease of the ACACIA ROAD NURSERY, situated in the best part of St. John's Wood, and close to the Regent's Park. There is an excellent Residence, with Stable, Coach, and Potting-houses. Well worthy the attention of any person wishing to carry on the business. A part of the purchase money may remain on security if required. Further particulars may be obtained of the proprietor, ROBERT YEO, Esq., 10, Victoria Terrace, Belsize Road, St. John's Wood, London.

TO BE SOLD, BUFF COCHIN CHICKENS, from first class Prize Birds, Brahma Pootra Chickens, from imported American Prize Birds, and Spanish Chickens. Also some very good one-year-old Birds of the above descriptions. Wire, Game, and Poultry Netting, Poultry Hurdles, Hen-houses, Chicken Coops, Flower Stands, and Trainers, Garden Arches, and every kind of Wire Work, useful and ornamental.—T. H. FOX'S, City of London Wire Works, 44, Skinner Street, and 6 & 8, Snow Hill. Illustrated Catalogues forwarded post free.

DORKING FOWLS.—Eggs, from remarkably large and weighty birds, of the best coloured breed, will be disposed of at 15*s.* the dozen, box included.—Address W. G., Railway Inn, Holme, Stilton, Hunts.

POSTPONEMENT OF SALE.

MR. J. WILLMER begs to announce that the Sale at the Sunbury Nursery is in consequence of the inclemency of the weather postponed till the 13th and 14th of February, at 12 o'clock precisely each day.—Further particulars and Catalogues had by enclosing two postage stamps to Mr. J. WILLMER, Auctioneer and Valuer, Sunbury, Middlesex.

BROMPTON PARK NURSERY.

TO GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to an unreserved Sale by Auction, on the premises, the Brompton Park Nursery, Brompton, near the "Hoop and Toy," on MONDAY, February 5, at 11 for 12 o'clock precisely, by order of the Royal Commissioners for the Exhibition of 1851, in consequence of the land being required for the formation of new roads, a portion of the valuable Stock growing on the above celebrated Nursery, consisting of FRUIT TREES and EVERGREENS, comprising Standard and Dwarf trained and untrained Apple, Pear, Plum, Peach, Nectarine, Apricot, Cherry, a quantity of Vines, Clematis, and Ivies in pots, Rhubarb, &c.—May be viewed three days prior to the Sale. Catalogues may be had of the principal Seedsmen in London, and of the Auctioneers American Nursery, Leytonstone, Essex.

PETER LAWSON AND SON,

QUEEN'S SEEDSMEN, WOOD FORESTERS, &c., FOR SCOTLAND,

AND TO THE HIGHLAND AND AGRICULTURAL SOCIETY.

1, George IV. Bridge, Edinburgh; and 27, Great George Street, Westminster, London.

THE following is a List of new and extremely rare and valuable CONES and SEEDS of CONIFERÆ and other Plants, all hardy, and suited for cultivation in this country; forming the most interesting Collection ever brought to Europe. They were gathered, with great care and discrimination, in October last, in North-West America, and have been received in the best condition. The collector, a gentleman devoted to Natural Science, is presently preparing a Memoir of his Expedition, which will shortly be read before the Botanical Society of Edinburgh, and afterwards, with the permission of that body, published, with drawings, &c., in some of the leading Journals. Some of the species have been described, and are known to scientific men, and have also been introduced, but in very limited quantities, by the Horticultural Society of London and the Oregon Expedition; still, from their extreme rarity, their general appearance and value are very little known in this country. We append, therefore, a short description of each from some established authority, where such can be obtained. We place the Cones and specimens of Leaves, &c., at the disposal of a few learned Societies and Museums, and shall be happy to divide the remainder among purchasers of the Seeds, free of charge; but there are so very few, that, except to very early applicants, we cannot recommend any dependence to be placed on this offer. The consignment being limited, we must ask the favour of immediate commands, which will be duly and faithfully executed in the order in which they are received. To our ordinary Customers the usual credit will be given; but unknown Correspondents are requested to favour us with a reference. In all cases 5 per cent. will be allowed for cash, which may be remitted by Post Office Orders, Bankers' Cheque, or otherwise.

LIST OF NEW AND RARE CONIFERÆ.

1. PINUS NOBILIS, Dougl. (Noble Silver Fir). A noble tree, justly so named by the discoverer. It is as majestic in form as the Araucaria imbricata. According to Douglas, it forms vast forests on the mountains of northern California, and along the river Columbia, where it attains a great height, and produces excellent timber. It is quite hardy, and is a crowning beauty of Pinetums. Seedling plants are very rare in Europe. (SYN.—Abies Nobilis, Lindl. Picea nobilis, Loud.) Entire Cones, as gathered from the trees, each 5*l.*
2. PINUS GRANDIS, Dougl. (Great Californian Silver Fir). A native of northern California, where it grows in low moist valleys, and attains the height of from 150 to 200 feet. This noble tree has beautiful shining green leaves, is quite hardy, but very rare in this country, especially seedling plants. (SYN.—Abies grandis, Lindl. Picea grandis, Loud.) Entire Cones, as gathered from the trees, each 5*l.*
3. PINUS LAMBERTIANA, Dougl. (Lambert's Pine). This giant of vegetable production attains upwards of 200 feet in height by 60 feet in circumference. It is found on mountains in lat. to 42° lat. in North-West America, at a distance of 100 miles from the sea. It attains its greatest height in soil consisting of pure sand, where it perfects its seeds, which are large and used as food. It has a clean stem for two-third parts of its entire height, terminating in an open pyramidal head. Branches in whorls, rather pendulous; bark smooth, of a light brown; leaves 4 to 5 inches long, of a grass-green colour. Cones often 12 to 16 inches long by 12 inches in circumference, rather tapering and drooping on coming to maturity, although upright at first. The timber is white, soft, and light, exuding a resin which, when roasted, is used as a substitute for sugar by the natives. Hardy, but rare as seedlings in this country. 50 clean seeds, quite fresh, 1*l.* 5*s.*
4. PINUS TUBERCULATA. Growing at an elevation of 5000 feet; very little known. Cones containing seeds, in fine order, each 2*l.* 2*s.*
5. PINUS MONTICOLA, Dougl. (Mountain Weymouth Pine). A tree of great height, inhabiting the high mountains near the cataracts of Columbia, North-west America. It has a slight similarity to the Cembra Pine of Siberia, but is smoother in the leaves, and grows twice as fast. Cones 6 to 8 inches long, cylindrical, smooth, generally growing in whorls from the axils of the verticillate-standing branches. Hardy seedling plants are very rare in this country. 50 picked seeds, quite fresh, 2*l.* 2*s.*
6. PINUS JEFFREYI, Oregon Committee. A magnificent hardy tree about 150 feet high and 4 feet in diameter, found in Shasta valley, North California, by Jeffrey. The seeds of this lot are in fine order; plants of this truly valuable tree are very scarce in this country. Cones with seeds, each 3*l.* 3*s.* 50 picked seeds, 2*l.* 2*s.*
7. PINUS, new Sp. (provisionally named P. Beardsleyi). The tree is of great beauty and size; one which was cut down measured 123 feet in height, and 44 inches in diameter at the stump. Another tree near it measured 17 feet 4 inches in circumference at three feet from the ground. The stem was a very handsome column, about thirty feet to the first branch; timber good and clear. It was found on the top of the mountain, same altitude as P. Jeffreyi, Monticola, and grandis, and higher than Benthamiana or Lambertiana. Cones with seeds, each 2*l.* 2*s.*; 50 picked seeds, 2*l.* 2*s.*
8. PINUS, new Sp. (provisionally named P. Craigiana). This tree in its growth somewhat resembles the preceding. It was found upon the same mountain, about a quarter of a mile farther down. The prickle on the cone points toward the tip, while that on the preceding cone points backwards. Cones with seeds, each 10*l.*; 50 picked seeds, 2*l.* 2*s.*
9. ABIES, new Sp. (provisionally named Abies Hookeriana). A new species allied to A. Pattoniana, but quite distinct, and, like it, a tree of exceeding beauty and gracefulness. The height was about 50 feet; 20 inches in diameter at the stump. It was growing at a great altitude, and surrounded by snow on 16th October. Timber hard and tough. 6 cones with seeds, 3*l.* 3*s.*; 50 picked seeds, 2*l.* 2*s.*
10. PINUS, new Sp. (provisionally named Pinus MacIntoshiana). Of this, only one tree, about 15 feet high, was found; and of the few cones upon it every one was secured. Cones with seed, each 5*l.*; 25 picked seeds, 2*l.* 2*s.*
11. THUJA CRAIGIANA, Balfour (Libocedrus decurrens, Torrey). Lindley says this is a "Magnificent new species." It is characterised by its curiously compressed branchlets, and imbricated shining boat-shaped leaves; tree 40 feet high by 3 in diameter, timber very durable. 100 seeds, 2*l.* 2*s.*; 50 ditto, 1*l.* 5*s.*
12. CUPRESSUS, new Sp. (provisionally named Cupressus Lawsoniana). This was the handsomest tree seen in the whole expedition; and it is a subject of much regret that it was found impracticable to obtain more than a very few seeds. It was found on the banks of a stream in a valley on the mountains; is about 100 feet high, and 2 feet in diameter; the foliage is most delicate and graceful. The branches spread upwards like a Spruce, and hang down at the tips like an ostrich feather—the top shoot drops like a Deodar. The timber is good, clear, and workable. Seeds, each 5*l.*
13. CUPRESSUS, new Sp. (provisionally named Cupressus MacNabiana). This appears to be the same as one introduced by Jeffrey. Seeds, each 10*s.* 6*d.*
14. TAXUS (? new Sp. provisionally named Taxus Lindleyana). A true Yew; 5 feet 10 inches round the base; was growing well under taller trees; and would, consequently, make a good filler-up where ordinary underwood does not readily grow. Wood admirably adapted for every purpose requiring hardness and elasticity. Used by the aboriginal Indians of the interior for bows and shafts of weapons. 50 seeds, 2*l.* 2*s.*
15. JUNIPERUS (probably the same as one introduced by Jeffrey). Seeds, each 5*s.*
16. PINUS BENTHAMIANA, HARTWEG. (Bentham's Pine). A noble Pine, attaining more than 200 feet in height, by 28 feet in circumference; found on the mountains of Santa Cruz, and others in California, ranging above P. Sabiniana, and in some places associated with P. Lambertiana. Branches numerous, large, spreading, rather irregular, covered with a rough bark. Leaves thickly set on the branches, dark green, usually 11 inches long, strong, rather flat, with a slightly elevated mid-rib on the inside. Cones 6 inches long, ovate, conical, straight, leaning, sessile, in clusters by three and four together. As it is quite hardy, it is likely to prove a valuable timber tree in this country. Decidedly one of the most ornamental of Conifers. Seedling plants still very rare in this country. 12 seeds, 2*l.* 2*s.*
17. ABIES DOUGLASI, var. religiosa. The cones of this variety are more ovate than the species, and the leaves broader, longer, and of darker green. 6 seeds, 10*s.* 6*d.*

LIST OF NEW AND RARE MISCELLANEOUS SEEDS.

18. ASH (supposed to be new), 12 seeds, 10*s.*
19. BIRCH (supposed to be new). Packet of seeds, 7*s.* 6*d.*
20. MAPLE (supposed to be new). Of remarkably rapid growth, some of this year's shoots are of an immense length; 6 seeds, 7*s.* 6*d.*
21. AZALEA (white). Packet of seeds, 7*s.* 6*d.*
22. DARLINGTONIA CALIFORNICA. This new Sarracenia has never yet been introduced into either this country or the Continent, and was only first described in the Smithsonian Contributions to Knowledge last year. Small packet of seeds, 5*s.*
23. LILIACEÆ (no name). Found growing in marshy places on the banks of Trinity River; height, 7 to 8 feet. Packet of seeds, 2*s.* 6*d.*
24. TULIP TREE (supposed to be new and distinct. Seeds, each, 1*s.*
25. CERASUS, sp. (GRAPE CHERRY). A hardy shrub, with large leaves, and edible berries, about the size of Frontignan Grapes. Seeds, each, 1*s.*
26. ERICACEÆ (MANZANITA). The Indians use this berry as food in the shape of meal, first separating the seeds. Seeds, each, 1*s.*
27. CLEMATIS, species found on the banks of Swift Creek. Packet of seeds, 2*s.* 6*d.*
28. GRANDMAMMA'S VALENTINE. Swift Creek. Seeds, each 1*s.*
29. SPIGNET. 12 seeds, 3*s.*
30. BRYONIA, Sp. Creeper. 12 seeds, 3*s.* 6*d.*
31. YELLOW EVERLASTING. Seeds, per packet, 2*s.* 6*d.*
32. BLACK FRUIT, about the size of Quince. Seeds, each, 1*s.*
33. CLEMATIS, Sp. Seeds, each, 1*s.*
34. BERBERIS MURRAYI (Mahonia). Very fine. Seeds, each, 2*s.* 6*d.*
35. LINUM, Sp. Seeds, each, 1*s.*
36. ROSA, Sp. Seeds, each, 1*s.*
37. PLATANUS, Sp. Seeds, each, 2*s.*
38. SAMBUCUS, Sp. Small foliage. 12 seeds, 2*s.* 6*d.*
39. CERASUS (Laurel). 12 seeds, 4*s.*
40. RHUS VIRIDIFLORA (the Yedra poison). Seeds, packet, 2*s.*
41. MATRICARIA. (A new Camomile). Very bitter, used as medicine. Packet, 2*s.*
42. VIBURNUM, Sp. From the Sacramento. 12 seeds, 4*s.*
43. LILIACEÆ, Sp. From the Sacramento. 12 seeds, 4*s.*
44. ERICACEÆ, Sp. from Harrison's Traps. 12 seeds, 4*s.*
45. LUPINUS, Sp. Blue true sort. 12 seeds, 2*s.*
46. GNAPHALIUM, pure white. Packet of seeds, 4*s.*
47. COTONEASTER, Sp. Seeds, each, 1*s.*
48. LONICERA, Sp. Trinity Mountain. 12 seeds, 6*s.*
49. PAPAVERACEÆ, Sp. Very large pods. Packet of seeds, 2*s.* 6*d.*
50. PYRUS, Sp. 12 seeds, 4*s.*
51. A species of CEANOTHUS (probably thyrsiflorus). In packets, 1*s.* and 2*s.*
52. A very beautiful velvet-leaved blue TREE LUPINE. Packet, 2*s.* 6*d.*
53. A yellow TREE LUPINE, in habit like the Laburnum, both in growth and abundance of flowers, which possess an agreeable fragrance. Packet, 2*s.*
54. NUTTALLIA CERASIFORMIS. A beautiful hardy border plant, with bay-like leaves, and small stone fruit like a Cherry. Packet, 1*s.* 6*d.*
55. A beautiful climbing CUCURBITACEOUS PLANT, allied to Sicyos, with large seeds, contained in a spiny capsule. Packet, 1*s.* 6*d.*
56. CLUB-HEADED WHEAT, cultivated by the old Californians, 200 seeds, 20*s.*
57. WHEAT (a variety of Triticum durum), with solid stalks 200 seeds. 15*s.*

EXPECTED SHORTLY, CONSIGNMENTS OF PINUS CEPHALONICA AND P. PINSAPO, VALONIAN OAK, ARAUCARIA IMBRICATA, AND CRYPTOMERIA JAPONICA, which, if received in good order, will be offered for sale as under:—

58. PINUS CEPHALONICA ...	... per 100 seeds	£0	2*s.*	6*d.*
59. „ PINSAPO	... „	0	7	6
60. ARAUCARIA IMBRICATA	... „	2	10	0
61. CRYPTOMERIA JAPONICA	... „	0	5	0
62. VALONIAN OAK	... per dozen	0	1	0

In the meantime, we shall be happy to receive orders, to be executed on arrival of the Seeds.

Note.—The small seeds can easily be forwarded by post; but where the Cones are ordered, the mode of transit must be distinctly stated. The seeds being fresh, will, it is expected, germinate readily; but for the information of those not having a gardener to treat them in heat, a cold frame, or even a sheltered spot in the open air will do perfectly well, though they may take longer to spring. The soil should be lightish, and care taken to prevent excess of moisture.

MELVILLE'S HARDY SCOTCH BROCCOLI *will stand the most severe winter, and therefore invaluable.* 100 Seeds for 1*s.*

For full description, see "RENDLE'S Price Current and Garden Directory for 1855."

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

MELVILLE'S TREBLE CURLED GARNISHING BORECOLE.—*This is the choicest and most useful Vegetable for garnishing ever introduced, and should be grown in every garden.* 200 Seeds for 1*s.*

For description see "RENDLE'S Price Current and Garden Directory for 1855."

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

MELVILLE'S NEW INTERMEDIATE HYBRID CABBAGE.—*This is a valuable addition to our stock of Vegetables, and should be had by all who have gardens.* 200 Seeds for 1*s.*

For description see "RENDLE'S Price Current and Garden Directory for 1855."

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

R. PARKER begs to offer the following:—CINERARIAS (Seedlings), from all the finest varieties, carefully selected, including the new varieties sent out last autumn. Strong established plants, in 4-inch pots, at 4*s.* per dozen. A choice collection of named Cinerarias in strong established plants, purchaser's selection, at 9*s.* per dozen.

ROSES, consisting of the best varieties of Hybrid Perpetuals, Teas, Bourbons, &c., well established in pots. Purchaser's selection, at 12*s.* per dozen. List of names forwarded upon application.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Islington.

RANUNCULUSES, ANEMONES, LILIUM LANCIFOLIUM, CALOCHORTUS LUTEUS, CALLIPRORA FLAVA, GLADIOLUS, TRITONEA AUREA, DIELYTRA SPECTABILIS, VALLOTA PURPUREA, ANOMATHECA CRUENTA, AND AURICULAS.

HENRY GROOM, CLAPHAM RISE, near LONDON, by Appointment FLORIST TO HER MAJESTY, begs to say that he has a fine Selection of the above BULBS, &c., which he can supply at Moderate Prices. His Catalogue will be forwarded on application.

PYRAMIDAL PEAR TREES,
GRAFTED ON THE QUINCE STOCKS.

J. AND J. FRASER have still to offer strong trees of the above PEARS: a Descriptive Catalogue of the sorts may be had on application. To prevent disappointment early orders are requested, as the Stock of some of the varieties is getting low.—The Nurseries, Lea Bridge Road, Essex.

LAURELS AND ROSES.

DAVID FERGUSON, LANDSCAPE GARDENER and CONTRACTING PLANTER, Stowe, Buckingham, in answer to inquiries, begs to state that he has good LAURELS for laying, 1 foot to 4 feet in height, at 1*l.* to 3*l.* per 1000, if 10,000, 20,000, 50,000, or 100,000 are taken.

Fine RED GIANT DES BATAILLES and other ROSES, 4*l.* per 100, or 35*l.* per 1000.

DWARF BUDDED, on the WILD ROSE, 2*l.* per 100, or 17*l.* per 1000.

ARTHUR HENDERSON AND CO. beg leave to inform their patrons and friends that their Stock of VEGETABLE and FLOWER SEEDS (containing many choice and new kinds) is now ready for sending out.

Their Seeds may be fully relied on as being in every respect of first-rate quality, and true to their sorts. Catalogues may be had on application.—Pine Apple Place, Edgeware Road, London.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks, at 5*s.*; 12 varieties, 2*s.* 6*d.*; and from good double sorts, 1*s.*

Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s.* per packet; separate, 2*s.* Fine Quilled African Marigolds, 6*d.* per packet.—Saffron Walden Nurseries.

COLE'S CRYSTAL WHITE, & COLE'S DWARF RED CELERY.

J. THORNELEY, COLE, & Co., NURSERYMEN, SEEDSMEN, and FLORISTS, Withington, near Manchester, beg to announce that they are now prepared to supply these two well-known varieties, raised by Mr. W. Cole (late of Dartford).

CRYSTAL WHITE, ½ oz. packets, free by post, for 12 stamps.
SUPERB DWARF RED, ½ oz. pkts., free by post, for 9 stamps.
Price per lb. to the Trade on application.

DR. SYNTAX CUCUMBER.—The above celebrated variety has been nearly lost to gardeners for several years past. It is known by all experienced growers of Cucumbers to be the very best sort in existence for early work.

A paper sent free per post on receipt of 13 stamps.

SNOW'S HORTICULTURAL BROCCOLI.—Half-ounce Packet sent free per post on receipt of 24 stamps.

NORTHAMPTON MARKET BROCCOLI.—This variety is grown by the market gardeners here, and excites the admiration of all who see it. Visitors say "they never saw such Broccoli anywhere else." Half-ounce Packets sent free per post for 14 stamps.—JOHN JEYES, Nurseries, Northampton.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. 27, Victoria Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, February 3, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 6.—1855.] SATURDAY, FEBRUARY 10. [PRICE 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—GARDENERS and NURSERYMEN who propose to EXHIBIT at the next MEETING on March 6, can have the Schedule of the day sent them by post, upon application at this Office.
21, Regent Street. W. B. BOOTH.

HORTICULTURAL SOCIETY OF LONDON.—WINTER MEETING, FEBRUARY 6, 1855.

AWARD OF MEDALS.

NEW PLANTS	C 2, Genetyllis fuchsioides: Messrs. Henderson, Wellington Nursery.
EPACRISES	S B, Messrs. Veitch; C 1, Mr. Todman; C 3, Mr. Ingram.
ERIPHYLLUMS	S B, Mr. Fleming.
CAMELLIAS	S K, Mr. Higgs.
INDIAN AZALEAS	S K, Mr. Todman; S B, Mr. Fleming; C 1, Messrs. Rollisson.
ORCHIDS	L S, Messrs. Rollisson; S K, Messrs. Veitch; S B, Mr. Woolley.
CHINESE PRIMULAS	S B, Mr. Green; C 1, Mr. M'Ewen; C 2, Mr. Chilman.
SINGLE SPECIMENS	C 1, Epacris hyacinthiflora: Messrs. Veitch. C 2, Eriostemon myoporoides: Mr. Todman.
LATE GRAPES	S K, Mr. Forbes; S B, Mr. Clark; C 1, Mr. Snow; H M, Mr. Butcher, Mr. Ingram, Mr. Fleming, Mr. Jennings.
EARLY GRAPES	S K, Mr. Forbes.
PINE APPLES	S K, Mr. Fleming; S B, Mr. Dodds; C 1, Mr. James; H M, Mr. Bailey.
APPLES	S B, Mr. M'Ewen; C 1, Mr. Snow.
PEARS	S B, Mr. Tillyard; C 1, Mr. Snow; C 2, Mr. M'Ewen; H M, Mr. Robertson, Mr. Bloore.
FORCED VEGETABLES	S K, Mr. Ingram; S B, Mr. M'Ewen.
FORCED SALADS	C 1, Mr. M'Ewen.

MISCELLANEOUS.—C 2, Seedling Azalea: Mr. Fleming. C 2, Seakale: Mr. Fleming. C 2, Cinerarias: Mr. Todman. C 2, Brussels Sprouts: Mr. M'Ewen. H M, Design for a Winter Vegetable Garden: Mr. John Miller. H M, Model of a Rising Stage: Mr. Smith.

SCOTTISH ARBORICULTURAL SOCIETY.—The Society have agreed to offer Prizes (open to all) for ESSAYS on the following branches of Practical Forestry; the Essays to be, in every case, founded on the experience of the author:—

I. DRAINAGE | II. PRUNING | III. THINNING
IV. STRIPPING AND CURING OF OAK BARK.

Essays intended for competition must be sent to Mr. JAMES ALEXANDER, 1, Waterloo Place, Edinburgh, the Secretary, on or before 1st of August, 1855, each bearing a certain motto, and accompanied by a separate sealed letter, bearing the same motto, and containing the name and address of the author.

The Society also invite communications on subjects connected with Forestry, for which special prizes are not offered.

The Laws of the Society, and other information may be obtained on application to the Secretary, as above.

TO THE MEMBERS OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—ELIZABETH CURTIS begs to return her grateful thanks to all the members who so kindly favouring her with their votes, have enabled her to become a Pensioner of the above Institution.—Clapham, Feb. 10.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.
** Plans and Estimates furnished.

DAVID FERGUSON, LANDSCAPE GARDENER and CONTRACTING PLANTER, Stowe, Buckingham.

CEMETERIES.

WILLIAM MASTERS AND SON having been engaged upon extensive Cemetery works, are prepared to undertake the LAYING OUT and PLANTING NEW GROUNDS, as well as the Ornamenting such as are closed by the recent Act of Parliament, by contract or otherwise.—WILLIAM MASTERS & SON, Landscape Gardeners, Canterbury.

NOTICE OF REMOVAL.

WILLIAM HILL, HORTICULTURAL SURVEYOR, BUILDER, and HOT-WATER ENGINEER, late of Greenwich, respectfully requested to be addressed.—Streatham Hill, Surrey.

R. PARKER begs to offer the following:—CINERARIAS (Seedlings), from all the finest varieties, carefully selected, including the new varieties sent out last autumn. Strong established plants, in 4-inch pots, at 4*s*. per dozen. A choice collection of named Cinerarias in strong established plants, purchaser's selection, at 9*s*. per dozen.

ROSES, consisting of the best varieties of Hybrid Perpetuals, Teas, Bourbons, &c., well established in pots. Purchaser's selection, at 12*s*. per dozen. List of names forwarded upon application.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Islington.

PRESENT PRICES OF AGRICULTURAL SEEDS.—SEE MESSRS. SUTTON'S DESCRIPTIVE LIST, on the last page of this day's *Gardeners' Chronicle*.

SUTTON'S SHORT SEED LIST.

SUTTON'S SHORT SEED LIST, *containing only the most desirable sorts, will be sent post free, in return for one penny postage draft or receipt stamp.*
SUTTON & SONS, Seed Growers, Reading, Berks.

BASS AND BROWN'S SEED AND PLANT LIST FOR 1855, sent free by post for three penny stamps.
It contains as usual a large number of the most attractive and popular new articles, with much descriptive and useful information.
The AUTUMN PLANT LIST also for three penny stamps.
BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

MESSRS. J. AND H. BROWN'S NEW PRICED CATALOGUE can be had by post. American Plants, Coniferæ, Orchidea, Stove and Greenhouse Plants, Fruit Trees, &c. A separate List of Garden and Flower Seeds.
Albion Nursery, Stoke Newington, London.

PRICED NURSERY CATALOGUES.

A. PAUL AND SON will be happy to forward the following priced Nursery CATALOGUES in return for one postage stamp each:—A, ROSES; B, ORNAMENTAL TREES AND CONIFERS; C, FRUIT TREES; D, HERBACEOUS PLANTS; F, GREENHOUSE PLANTS, &c.; G, SEEDS; H, HOLLYHOCKS; I, BULBS.—Nurseries, Cheshunt, Herts.

DOWNIE AND LAIRD beg to intimate that their NEW LIST of FLORIST FLOWERS, &c., for 1855, is now ready, and may be had on application.—17, South Frederick Street, Edinburgh, Feb. 10.

ROBERT KENNEDY, Agent for Messrs. Platz and Son, Seed Growers, Erfurt, has much pleasure in announcing he has received their Catalogue of Flower and Vegetable Seeds for the trade for 1855, which abounds with new articles of great interest, and will be forwarded, per post, on application to R. KENNEDY, Bedford Conservatory, Covent Garden, London.
P.S. Also, R. Kennedy's General Catalogue of British and Foreign Ferns forwarded on receipt of six postage stamps.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh, respectfully intimate that they are supplying their English customers and the public, at their London Establishment, 27, Great George Street, Westminster, with VEGETABLE and FLOWER SEEDS of the best description, and at moderate prices. Catalogues may be had on application.
27, Great George Street, Westminster, Feb. 10.

PERENNIAL RYE-GRASS SEED.

STUART AND MEIN, SEED MERCHANTS, Kelso, have on hand 50 quarters of good PERENNIAL RYE-GRASS SEED, about 15 lb. per bushel, which they can sell at a moderate price.—Apply, with reference, pre-paid, as above.

CAMELLIAS.

CHANDLER AND SONS beg to inform their friends and customers, that they have a large stock of young CAMELLIAS this season, now coming into flower, and in a fit state to travel without injury. Fine plants well set with buds, 3*s*. 6*d*. to 5*s*. and upwards each.—Wandsworth Road, Vauxhall.

JOHN DOBSON AND SON'S SEED CATALOGUE FOR 1855 may be had on application, enclosing one stamp.
Woodlands Nursery, Isleworth.

JOHN DOBSON AND SON will have much pleasure in forwarding their NEW GENERAL CATALOGUE OF FLORISTS' FLOWERS, on receipt of one stamp for postage.
Woodlands Nursery, Isleworth.

PHLOX OMNIFLORA COMPACTA, New White Phlox. The above is strongly recommended for bedding purposes, being very dwarf. Strong plants in March, price 3*s*. 6*d*. each. Further particulars may be had on application to JOHN DOBSON & SON, Woodlands Nursery, Isleworth.

GRAPE VINES FROM EYES.

R. GLENDINNING has a large Stock of the undermentioned Vines, extra strong in pots, with well ripened wood, 5 ft. and upwards in the canes. Some of the kinds are new, and which have been proved and found of first-rate quality:—

Black Hamburgh	Cabul
The Pope's Hamburgh	Gromier du Cantal
Wilmot's Hamburgh	Welbeck Tripoli
Mill Hill Hamburgh	Grove End Sweetwater
Victoria Hamburgh	Pitmaston White Cluster
Barnes's Muscat	Chasselas Musqué
Reeves's Muscadine	Black Prince
Raisin de Calabre	Muscat non de jura
White Frontignan	Chasselas de Fontainebleau
Grizzly Frontignan	Royal Muscadine
Black Frontignan	Large White Sweetwater

Chiswick Nursery, London.

GEORGE TAYLOR, JUN., FRUIT SALESMAN, St. John's Market, Liverpool.
Purchaser of every description of Choice Garden Produce during the Season. Growers having Fruits and Early Vegetables to dispose of, may apply or forward as above.
TERMS, CASH.

CHEAP AND GOOD CINERARIAS.—Fine flowering plants from Turner's best seed in large 60 and 48 pots, just coming into bloom, at from 4*s*. to 6*s*. per dozen. Also fine plants of named varieties, consisting of Mr. and Mrs. S. Herbert, Adela Villiers, Garland, Constellation, Lady H. Campbell, Kate Kearney, Flora M'Ivor, Étoile de Venus, &c., at 9*s*. per dozen.—WOOD & INGRAM, Nurseries, Huntingdon.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s*. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. CORBETT'S Foreign Warehouse, 18, Pall Mall.
N.B. Printed regulations for treatment sent; also, just arrived very moist and open Parmasan Cheeses.

NEW CAULIFLOWER.

WAITE'S "ALMA," far superior to Walcheren very large and firm heads. Price to the trade 24*s*. per lb., smaller quantities 2*s*. 6*d*. per oz. No orders attended to for less quantities than one ounce.—Seed Establishment, 181, High Holborn, London.

EARLY DANIEL O'ROURKE PEAS.

J. G. WAITE begs to inform the Trade that he is now ready to execute orders for this valuable early Pea. Price can be had on application.
Seed Establishment, 181, High Holborn, London.

R. PARKER, FLORIST, Dalston, has VERBENA and SCOTCH RANUNCULUS SEED saved from the best Show Flowers of last year, at 2*s*. 6*d*. and 5*s*. per packet.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks, at 5*s*.; 12 varieties, 2*s*. 6*d*.; and from good double sorts, 1*s*.
Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s*. per packet; separate, 2*s*. Fine Quilled African Marigolds, 6*d*. per packet.—Saffron Walden Nurseries.

COLE'S CRYSTAL WHITE, & COLE'S DWARF RED CELERY.

J. THORNELEY, COLE, & Co., NURSERYMEN, SEEDSMEN, and FLORISTS, Withington, near Manchester, beg to announce that they are now prepared to supply these two well-known varieties, raised by Mr. W. Cole (late of Dartford).
CRYSTAL WHITE, ½ oz. packets, free by post, for 12 stamps.
SUPERB DWARF RED, ½ oz. pkts., free by post, for 9 stamps.
Price per lb. to the Trade on application.

CHOICE CALCEOLARIAS.

J. COLE begs to offer a few dozen of his unbloomed Seedling HERBACEOUS CALCEOLARIAS from his choice stock; they were the admiration of all who saw them last summer. They are not potted off, though strong enough for large 60-sized pots. The Seed was saved from selected stock, carefully impregnated. J. C. offers them at 4*s*. per dozen, or 25*s*. per hundred. A remittance solicited from unknown correspondents.—Keyfield Nursery, St. Alban's, Herts.

GENERAL SEED ESTABLISHMENT, NORTHAMPTON.

JOHN JEYES begs leave to inform his Patrons and Friends that his general stock of Seeds is now complete, and that he shall feel obliged by their early orders. He has a good supply of all those various Seeds his Establishment has long been celebrated for, such as Matchless Cabbage, Imperial Cos Lettuce, Conqueror Pea, Blood Red Beet, Dwarf Prolific Bean, Snow's Green Cos Lettuce, do. Broccoli, Northampton Market Broccoli, Giant Asparagus, &c. &c.

TRUE PENZANCE BROCCOLI, *saved by one of the best growers in the neighbourhood of Penzance*, 1*s*. per packet, from WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

MANGOLD WURZEL SEED, LONG RED, and YELLOW GLOBE, warranted genuine, and the growth of 1854. Price 45*l*. per ton.—Apply to R. S. HEWS, Kelvedon, Essex.

DIOSCOREA BATATAS, or Chinese Potato, 2*s*. 6*d*. each, or five for ... ... 10*s*. 6*d*.
HOLCUS SACCHARATUS, sealed packets of 500 Seeds 1 0
" " " 1200 Seeds 2 0
THOMAS JACKSON & SON, Kingston-on-Thames.

WANTED, Ten Thousand OSIER SETS for immediate planting, delivered at any station on the South Western Railway.—Apply, stating the price, to F. F., Avon, Ringwood.

WANTED, 50,000 each, 2, 3, and 4 feet transplanted LARCH FIRS.—Application, stating price and where delivered, to A. B. HURST & Co., Seedsmen, 6, Leadenhall Street, London. Feb. 10.

T. AND G. SWAILES having a large stock of the undermentioned, would sell at low prices—BEECH, one-year seedling fine; ASH, transplanted, 3, 4, and 5 feet; ELMS, Wytch and Scotch, &c., 3, 4, and 5 feet; HOLLY, transplanted, 1, 2, and 3 feet. Prices on application.
Beverley Nurseries, Feb. 10.

PYRAMIDAL PEAR TREES,
GRAFTED ON THE QUINCE STOCKS.

J. AND J. FRASER have still to offer strong trees of the above PEARS; a Descriptive Catalogue of the sorts may be had on application. To prevent disappointment early orders are requested, as the Stock of some of the varieties is getting low.—The Nurseries, Lea Bridge Road, Essex.

FRUIT TREES, FOREST TREES, AND SHRUBS, GARDEN AND FLOWER SEEDS, PERMANENT PASTURE GRASSES, and FINE DWARF LAWN GRASSES.—Catalogues of the above may be had on application to WILLIAM BARRATT, Saint John's Nursery, Wakefield.

JOHN HOLLAND can supply, in strong plants, the heaviest Lancashire Show GOOSEBERRIES (named), of excellent flavour, and large size, at 6*s*. per dozen, on receipt of Post-office order, payable to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

TO BE SOLD, at Prices that will be sure to give satisfaction, 10,000 STRONG CURRANTS of the following sorts, viz.:—Red and White Dutch, common Black and Black Naples, Wilmot's Superb Red, Champaign and Ruby Castle. Also a quantity of strong dwarf-trained Pears and Plums of the best sorts, Fastolff and other Raspberries, strong standard Pears, and a quantity of prime Seed Potatoes, well kept, of the best sorts.—For further particulars, apply to JAMES LAKE, Nurseryman, Bridgewater.

IMPORTANT TO SEEDSMEN AND OTHERS.

TO BE SOLD immediately by the grower, at a low price for cash, 200 Bushels of GREEN GLOBE TURNIP SEED, all of the growth of 1854; first-rate in sample and condition, and stock warranted. To be sold in small or large quantities, at the option of the purchaser.—Apply to Mr. W. TAYLOR, Nashenden Farm, Rochester, Kent.

DICKSON'S EARLY FAVOURITE PEA (NEW).

FRANCIS AND ARTHUR DICKSON AND SONS, Seed Merchants, &c., Chester, have much satisfaction in introducing the above new Pea which they believe they are perfectly justified in saying is the best and most prolific Early Pea in cultivation.

It has been tried side by side with all the best early and second early Peas of the day, and has been pronounced by many eminent gardeners who saw it under the circumstances to be much superior to any variety of its season hitherto introduced.

It comes in about a week later than the "Early Emperor" (sown at the same time), grows about 4 feet high, and produces a wonderful profusion of pods, which contain on an average 10 Peas of excellent quality and flavour.

For opinions of Dr. Lindley and Mr. Thompson, see *Gardeners' Chronicle* of 20th January, 1855.

Price 8s. 6d. per Quart; per Pint, 2s. Messrs. Hurst & M'Mullen, Seedsmen, &c., 6, Leadenhall Street, wholesale London Agents; and to be had from most Nurserymen and Seedsmen throughout the United Kingdom.—N. B. The Trade supplied on liberal terms (196, Eastgate Street, Chester, and 14, Corporation Street, Manchester).—February 10.

TWO NEW CUCUMBERS—"SIR COLIN CAMPBELL" AND "GENERAL CANROBERT."—For the full Description of the above two unequalled Cucumbers, and the List of EDWARD TILEY'S Collection of Cucumbers and Melons, which have all been thoroughly proved, see Advertisement and List in the *Gardeners' Chronicle* of January 13, 1855.

Sir Colin Campbell ... . 3s. 6d. per packet.
General Canrobert ... ... 3 6 „

A packet of either of the Melons mentioned in the former Advertisement will be given to the Purchaser of the above two Cucumbers. A remittance in cash or penny postage stamps must accompany every order, and the whole or any part (as the case may be) will be immediately forwarded.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somersetshire.

DR. SYNTAX CUCUMBER.—The above celebrated variety has been nearly lost to gardeners for several years past. It is known by all experienced growers of Cucumbers to be the very best sort in existence for early work.

A paper sent free per post on receipt of 18 stamps.

SNOW'S HORTICULTURAL BROCCOLI.—Half-ounce Packet sent free per post on receipt of 24 stamps.

NORTHAMPTON MARKET BROCCOLI.—This variety is grown by the market gardeners here, and excites the admiration of all who see it. Visitors say "they never saw such Broccoli anywhere else". Half-ounce Packets sent free per post for 14 stamps.—John Jeyes, Nurseries, Northampton.

FLEMING'S HYBRID CASHMERE MELON.—The above new Melon was raised by Mr. Fleming at Trentham, and exhibited by him for the first time at the Great Meeting of the Horticultural Society of London at Chiswick on the 10th June last against a multitude of competitors, when it was awarded the first prize, and pronounced by the judges to be very far superior to all others produced, and decidedly the best Melon known. The entire Stock is in the hands of the undersigned. Packets of Six Seeds, 2s. 6d., of 15 do., 5s.

R. GLENDINNING, Chiswick Nursery, London.

NOW READY.

WILLIAM AND GEORGE DAVISON can supply complete collections of KITCHEN GARDEN SEEDS, to suit the various sized Gardens, at the following prices:—

No. 1 Collection	... £3 0 0	No. 3 Collection	... £1 2 6
No. 2 „	... 1 16 0	No. 4 „	... 0 12 6

FLOWER SEEDS: 50 packets, including the best hardy, half hardy, and tender Annuals and Biennials, with printed instructions, 10s. 6d.; 25 ditto ditto, 6s.; 12 ditto ditto, 3s.

GRASS SEEDS: Fine Lawn Grass Seed 1s. per lb.; Grass Seeds for laying down permanent pasture mixed to suit any soil, 30s. per acre. Every variety of agricultural Seeds of the finest quality. Priced Catalogues may be had on application to W. & G. Davison, Seed Warehouse, St. Peter's Street, Hereford.

GODFREY'S BLACK SPINE.
SPLENDID AND PROLIFIC FRAME CUCUMBER.

WOOD AND INGRAM beg to offer seeds of the above beautiful variety. Colour, magnificent dark green, with a very fine bloom; average length, 18 to 21 inches, and produces in great abundance through an entire season. Packets, containing 12 seeds, 2s. 6d.; 6 ditto, 1s. 6d.

W. & I. will be happy to refer any persons wishing further information respecting the variety to three or four Noblemen and Gentlemens' Gardeners who have grown it, and prefer it to any other.

London Agents: Messrs. Hurst & M'Mullen, 6, Leadenhall Street.

W. & I. have also the following esteemed varieties to offer, in packets, 1s. each, containing 12 seeds:—

Sion House	Sagg's Royal Exhibition
Barnes's Fearnought	Conqueror of the West
Walker's Prolific	Improved Sion House
Constantine's Incomparable.	Manchester Hero.

Huntingdon Nurseries, February 10.

CAREY TYSO'S CATALOGUE OF FLORISTS' FLOWERS for 1855 may be had post free for two labels; TREATISE ON RANUNCULUS for eight labels; ditto on ANEMONE for four labels.

RANUNCULUSES, 100 splendid named sorts, 40s. to £4 0 0
„ 25 superb seedling ditto ... 1 10 0
„ 100 fine mixtures ... from 8s. to 1 0 0
DOUBLE ANEMONES, 50 fine named sorts, 10s. to 0 13 0

IMPORTED GERMAN SEEDS—Asters, Balsams, Stocks, Larkspurs, Poppies, Zinnias, &c., in named assortments, 2s. 6d. each. Ranunculus and Anemone Seeds, 2s. 6d. per packet.

C. Tyso's sovereign assortments of 18 select Ranunculus, and 18 choice Anemones, postage free for 21s.—Wallingford, Berks.

CHARLES TURNER begs to intimate that his New SPRING CATALOGUE is now ready, and contains descriptive lists of—

Dahlias,	Carnations,	Scarlet and Horseshoe Geraniums,
Fancy Dahlias,	Picotees,	Delphiniums,
Cinerarias,	Pinks,	Mimulus,
Verbenas,	Pansies,	Pentstemons,
Fuchsias,	Auriculas,	Petunias,
Hollyhocks,	Shrubby Calceolarias,	Bedding Plants, &c.,
Chrysanthemums,		

including several new Dahlias, new Verbenas, new White Bedding Calceolaria, &c., offered for the first time. Can be had on application.—Royal Nursery, Slough.

ESTABLISHED ABOUT HALF A CENTURY.

BASS AND BROWN'S NEW SEED LIST
IS NOW READY,
AND CONTAINS EVERYTHING WHICH CAN BE DESIRED OF THE CHOICEST, NEW, AND OTHER VEGETABLES.

Considerable attention is paid to grow only the finest sorts for sale, and our Collection is very select.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.
The following, of the very best in cultivation, cannot fail to give the most complete satisfaction.

No. 1, Collection for a large garden, containing quantities sufficient for one year's supply ... ... £3 0s. 0d.	No. 3, Collection in smaller proportion... ... ... £1 5s. 0d.
No. 2, Collection in smaller proportion 2 0 0	Collection of good kinds for a small garden 0 15 0

A FEW CHOICE NEW VARIETIES OF PEAS.

EPPS'S LORD RAGLAN, or Improved Mammoth, producing 8 to 10 Peas in a pod, and allowed to be the finest in cultivation ... ... per quart 5s. 0d.

EPPS'S MONARCH, new tall marrow, and the largest sized Pea cultivated ... ... per quart 5 0

FAIRBEARD'S NEW NONPAREIL, a delicious new wrinkled marrow, of great produce and fine pods, a very rapid grower, coming in before the Champion of England 2 6

MEIN'S PARADISE, a most valuable early very large marrow Pea, pods large, long, and well filled, and fine flavour. This Pea, though very large, comes in immediately after the Warwick ... ... per quart 1s. 6d.

HAIR'S DEFIANCE, wrinkled marrow, fine do. 1 9

*** Sangster's No. 1, Daniel O'Rourke, Hair's Dwarf Mammoth, Early Emperor, or Fairbeard's Conqueror, Burbidge's Eclipse, Champion of England, and other best sorts.

The List of FLOWER SEEDS will also be found, as usual, very select. Goods Carriage free (not under 20s.) to all the London Termini, and all Stations on the London and Norwich Colchester Line.

SEED & HORTICULTURAL ESTABLISHMENT, SUDBURY, SUFFOLK.

To Farmers, Potato Growers, and Others.

JACKSON'S PATENT PREPARATION
FOR
PRESERVING POTATOES, WHEAT, AND OTHER SEEDS

From DISEASE, the RAVAGES of the SLUG, GRUB, and WIREWORM, in addition to which the CROPS are brought forward in HEALTH AND VIGOUR, and the yield is greatly increased, in proof of which the following extracts are given from numerous letters received by Mr. Jackson.

EXTRACTS:—

"One of the fields of this farm, the property of Mrs. Stanbury, was planted with Regents Potatoes in April last, some of which were prepared by you. The result now is, that the whole of the crop from the unprepared sets is thoroughly diseased, and hardly worth the trouble of taking up; while those raised by the side of them from the prepared sets are not only in a beautiful state of preservation from the disease, but the produce is much greater,—the Potatoes are more numerous than the others; indeed, if there were no such thing as the disease to be feared, it would be worth the trouble and expense of preparing the sets by your process, even for the sake of the improved crops. I shall certainly, for the future, prepare all my Potatoes for seed by your process; and I intend to adopt it for preserving my Wheat from the Smut.

"G. B. Baxter.

"Belmont Farm, Eltham, Kent, August 28, 1854."

"Admiral Sir J. A. Gordon, K.C.B., Marlee House, Blairgowrie.

"Sir,—I have received your note of the 16th. The Potatoes that came here from England, prepared by Mr. Jackson, were planted in a piece of new ground, and according to the directions sent by him along with them as to distance between the plants, &c. They came up well, with strong healthy stems; I have now taken the whole crop up, and there is not the slightest appearance of any disease amongst them. They are of large equal size and very prolific. There were long black unprepared Kidneys planted in the same patch, and a great deal of them are not fit for use, at least a third part are diseased. I hope Mr. Jackson's process may be widely known, as it is a great boon.—I am, &c.,

John Shanks,
"Forester, Kildrummy Castle.

"Kildrummy Castle, Aberdeenshire, November 17, 1854."

"I am very much pleased with the result of the experiments I have made with your Prepared Potatoes; for I planted them, without any manure, in ground where for several years I have hardly had a sound Potato, and I now find the crop perfectly free from disease, and in a very fine condition; while those of the same sort, unprepared, which were planted at the same time, and next to them, are diseased and eaten by worms.

"The Potatoes from the Prepared Seed were so remarkably good that I was induced to weigh them, and I found, to my great astonishment, that they were as 200 to 150 of the others, or about 25 per cent. in favour of your preparation.

"T. Austen, Nurseryman and Seedsman.

"Blackheath, Kent, 24th August, 1854.

Sold by Messrs. Charlwood & Cummins, Seedsmen, Covent Garden; and John Keenan, Seedsman, 4, Great Russell Street, Covent Garden; all Seedsmen and Chemists; and at the Patentee's, 18, Cannon Street, London Bridge, in Packets of One, Two, Three or Four Pounds, or in Bulk for the use of Farmers and Potato Growers.

SEED POTATOES.

SUTTON AND SONS, Seed Growers, Reading, have a large STOCK of the best early kinds of POTATOES, very true and free from disease. Prices, &c., with instructions on cultivation, will be found at page 20 of Sutton's Seed and Plant List, just published, price Sixpence (or gratis to purchasers).

Sutton & Sons, Seed Growers, &c., Reading.

THE FLUKE POTATO.—A new second early variety, surpassing every other in its capability of resisting the Potato disease, and without exception the finest and most prolific Potato in cultivation. Price per cwt., 15s., bags included.

To be had genuine of THORNHILL & DICKSON, Lawrence Hill Nurseries; and No. 1, Wine Street, Bristol.

THE FLUKE KIDNEY POTATO.—This excellent variety is now planted here as the principal crop, being more free from disease and more prolific than any other in cultivation. It was raised in Middleton, and may be had genuine in any quantity at 5s. per bushel of 56 lbs.—Apply to John Holland, Bradshaw Gardens, Middleton, near Manchester.

Post-office Orders to be made payable at Middleton, Lancashire.

MYATT'S NEW SEEDLING POTATO, BROCKLEY KIDNEY.

W. AND J. MYATT can dispose of a limited quantity of the above excellent new Potato, which they have proved to be a first-rate variety, and has been selected as the best out of a many thousand seedlings raised at Manor Farm.

In flavour it is quite equal to the Ash-leaf, and for produce very far superior; it is a compact strong grower, and ripens off quickly, making it an invaluable summer variety. To be sent out in peck bags, 3s.; bushel, 56 lbs., 10s.

Also, EARLY MAY or BRITISH QUEEN, the earliest round Potato, middling size, suitable for planting whole, 5s.; Early Shaw, 5s.; York Regent's, 5s.; Hen's Nest, a good field Potato, 5s. per bushel; Red Ash-leaf, 2s. 6d. per peck. These are all one year's growth, from Yorkshire or Scotch sets, and will be delivered free to any railway terminus in London.

Post Office Orders are requested from unknown correspondents, payable at Deptford, to William Myatt.

Manor Farm, Feb. 10.

SEED ESTABLISHMENT, WISBEACH, CAMBRIDGESHIRE.

CHARLES SHARP begs to call the attention of the Nobility, Gentry, and the Trade to his unrivalled collection of SEED POTATOES, which have been grown and selected with great care, and perfectly free from disease. The undermentioned prices include hampers and package. Terms to the Trade known on application.

POTATOES:—

	Per bush. of 4 st.		Per bush. of 4 st.
Ash Leaf Kidney (Jackson's)	...10s.	Early (for Seedling)	... 5s.
Walnut Leaf (Jackson's)	...10s.	American Early ...	... 7s.
Early Emperor ...	...10s.	Forty-Fold	... 5s.
„ Shilling's ...	...10s.	Kentish Kidney ...	... 5s.
„ Martin's Globe	...10s.	York Regent's ...	... 6s.
„ Oxford Large ...	8s.	White Rough ...	... 6s.
„ Round Dunne (for Forcing)	8s.	French Blues ...	... 7s.
		White Kidney ...	... 5s.
		British Queen ...	... 8s.

The largest and best produce in cultivation.

THE NEW CHINESE POTATO (DIOSCOREA BATATAS.

MR. JOHN HENDERSON has the pleasure of informing the Nobility, Gentry, and Clergy, that the opinions already expressed by him (in the columns of this journal) respecting the excellent qualities of the above new esculent (which he has had the honour of introducing into this country) are fully borne out by the most eminent Horticulturists and Botanists of the day, among whom he may mention Dr. Lindley, Professor Decaisne, of the Museum of Natural History, Paris; M. Louis Vilmorin, the well-known and scientific horticulturist, and M. Pépin, of the Jardin des Plantes, Paris.

Mr. J. Henderson also begs to call attention to the leading article in the *Gardeners' Chronicle* of the 13th ult., giving a full description of experiments made last year in order to test the value of this new vegetable; and which proves that in produce it is greater than the ordinary Potato, of hardier growth, and in its eating, cooking, and keeping qualities far its superior.

Tubers, with description of the Chinese mode of culture, to be obtained of Mr. John Henderson, Kingskerswell, South Devon, at the following prices for cash:—

Four tubers, 10s.; ten do., 1l. 2s. 6d.; fifty do., 5l. 5s.

Post-office orders are requested to be made payable at Newton Abbott, South Devon.

NEW ASHLEAF—THE "EARLY CHAMPION."

JOSEPH WILSON, Seedsman, Ipswich, begs to state that his stock of early SEED POTATOES comprises the following splendid varieties, grown expressly for seed purposes and free from disease. The "Champion" Ashleaf, 12s., a new variety, sent out for the first time this season; they are about 10 days earlier than any other Ashleaf, finer in flavour and more prolific. Jackson's improved early Ashleaf, 9s.; the Short top Ashleaf, 7s. 6d.; Nonpariel Kidneys, 6s. 6d.; Moss Kidneys, 6s. 6d.; British Queens, 7s. 6d., the earliest round variety known. Early Frame and Ashleaf Seedlings, 8s. per bushel. Free to London; no charge for sacks. A remittance must accompany all orders.

J. W. begs to say that the whole of the varieties offered have been grown especially for him, and that he has no connection whatever with any other Seedsman.

NOTICE.

EDWARD TILEY having received several letters wishing to know if his new seedling "Champion Kidney" Potato is the same as the one advertised by Mr. Joseph Wilson, of Ipswich, under the name of "The Early Champion Ashleaf," begs to say that it is not, for he purchased the whole stock from the Grower, who obtained it in the first instance from the seed of the Potato Apple, and has never parted with any of the produce but to him. E. T. feels confident that it will give the greatest satisfaction to all purchasers who may favour him with orders for the same.

TILEY'S SEEDLING POTATO—THE CHAMPION KIDNEY.—Never before sent out.

This Potato bears a great resemblance to that fine old Potato, the Ashleaf Kidney; it possesses the following good qualities over the Ashleaf. If planted at the same time it will be ten days earlier, all the sets always vegetate well, and do not die off in the ground as the Ashleaf does; 2 pecks of seed will produce a greater weight of Potatoes than 3 pecks of the Ashleaf. It is quite equal to that in flavour, and is eatable during the whole winter. Sets that have had the shoots broken off five or six times during the spring will vegetate again as if it had been the first shoot. About twenty Gentlemen and Gardeners who had seed to plant last season have assured me that they never before grew any Potato to equal it, and should continue to grow it as a first early Potato. Numerous orders have been already received from persons who saw it growing during the last summer. It has been grown and thoroughly proved for the last four years, and found to be less liable to disease than any other Potato that has been grown. Out of 25 sacks grown this season there was not a single diseased Potato among them.

Sold in quantities of not less than 1 peck; they will be sent Hamper and Package free, at 5s. 6d. per peck, or 4 pecks for 1l. hamper free. A remittance in cash must accompany all orders, or small amounts in penny postage stamps. Purchasers would do well to name the nearest railway station to their residence.

EDWARD TILEY, Nurseryman, Seedsman, & Florist,
14, Abbey Church Yard, Bath, Somerset.

THE LARGEST STOCK AND LOWEST PRICES IN ENGLAND.

JOHN WESTWOOD, the FLORAL NURSERY, Acton Read, Turnham Green, near London, having an enormous and well selected stock of SOFT-WOODED PLANTS, and most extensive premises (the glass covering 3 acres of land), is enabled to offer it to the public and the Trade at prices far lower than any hitherto heard of, but as it is impossible to convey by advertisement anything like detailed or sufficient information of the advantages or resources of his establishment, he respectfully requests all who desire to purchase plants to apply for his Catalogue for 1855 (which is now ready), and he will immediately forward it postage free.

RHUBARB ROOTS for FORCING or PLANTING.—Strong one-year planted roots of MYATT'S VICTORIA and LINNÆUS, MITCHELL'S ROYAL ALBERT, at 6s. per doz.; HOWARD'S PRINCE ALBERT, 12s. per dozen. This is a larger variety than the Victoria, and is extensively cultivated about Manchester. Price to the trade of the above, per 100 or 1000, on application to MESSRS. J. MYATT AND SONS.
Manor Farm, Deptford, Feb. 10.

NEW SHRUBBY CALCEOLARIAS.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that a Descriptive Catalogue of his beautiful new Shrubby Calceolarias is now ready, and may be had upon prepaid application.
Very choice Calceolaria and Pansy Seed, 2s. 6d. per packet. Postage stamps are respectfully requested in payment of the seeds.

NEW RIDGE CUCUMBER, VECTIS.

THOMAS TAYLOR begs to inform the public he has produced this fine Cucumber, grown it for three years, and can confidently recommend it as the best ridge Cucumber ever offered to the public, being equal in quality and flavour to many of the frame varieties, and very prolific. T. T. is now ready to send it out at 1s. per packet, 12 seeds, post free.—THOS. TAYLOR, Nurseryman, Weston-super-Mare, Somerset.

CHARLES SHARPE AND CO., SEED GROWERS, beg most respectfully to invite the attention of the Trade to their very superior stocks of Carrot, Mangold Wurzel, and Turnip Seeds, all of which have been carefully grown by themselves. Prices may be had on application.
DIOSCOREA JAPONICA.
C. S. & Co., have received from abroad a quantity of Roots of the above, and will be glad to supply the Trade. Prices on application.
Nursery and Seed Establishment, Sleaford.

GERANIUM—"ENGLAND'S GLORY."

BAINBRIDGE AND HEWISON have purchased this beautiful bedding Geranium. The colour of the flower is pale flesh, or maiden's blush; the leaf of the horse shoe kind, and very glossy; the individual flowers are smooth, of great substance, and of exquisite form. It is an abundant bloomer, an exceeding large trusser, and throwing its flowers well above the foliage. It resembles much the Hydrangia, and is considered the best Geranium out for bedding or conservatory.
Plants in June, 1855, 5s. each. The usual allowance to the trade when three Plants are taken.—York Nurseries, Feb. 10.

VEGETABLE AND FLOWER SEEDS.

JAMES DICKSON AND SONS beg to intimate to their Patrons and the Public that, having now completed their stock of GARDEN and FLOWER SEEDS for this season, from the best growers and truest stocks, they are now prepared to send them out, making arrangements for carriage likely to meet the views of all parties who may favour them with their commands. Priced Catalogues may be had on application.
J. D. & Sons would also call attention to their AGRICULTURAL SEEDS, which have been carefully grown under their own inspection, from selected stock, priced lists of which will be ready shortly.—Nursery and Seed Warehouse, 32, South Hanover Street, Edinburgh.

POLYANTHUS SEED.

JAMES WOODS has again this year to offer a quantity of POLYANTHUS SEED, saved with more than ordinary care, from named and good laced flowers, which he can recommend with confidence, having had numerous Testimonials from different parts of the Kingdom of good and valuable flowers being raised from his seed. He will be able to send seed to grow 200 plants, with directions for sowing. Price 1s. per packet, or sent free, on receipt of 18 postage stamps to JAMES WOODS, Florist, Harwich, Essex.
P.S. Plants of Polyanthus will be sent out in April, with blooms on each plant, with name or otherwise, from 6d. to 3s. 6d. per plant.
J. W. has a small quantity of Auricula Seed, saved from a fine collection of Alpines, at 1s. per packet as above.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.
We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year; and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

W. DRUMMOND AND SONS' NEW DESCRIPTIVE CATALOGUE, containing select varieties only, of VEGETABLE and FLOWER SEEDS is now ready, and may be had post free on receipt of one postage stamp. This Catalogue will, at a glance, furnish the Gardener with all the necessary material for drawing out his Seed List correctly and without trouble. In reference to it the *Gardeners' Chronicle* remarks:—
"It is simple, short, and one of the best we have seen. They are pursuing the sensible course we have so often insisted upon for the sake of both buyer and seller;" and this opinion has been cordially responded to by all our old and many new customers.
W. DRUMMOND & SONS' Seed and Implement Warehouse, Stirling.

AMERICAN PLANTS.

JOHN WATERER begs to announce that he has published a new Catalogue of his Rhododendrons, &c., as exhibited by him in the Gardens of the Royal Botanic Society, Regent's Park, London. It describes the colours of all the Rhododendrons considered worthy of cultivation, with a Treatise on their successful management, and may be had by enclosing two postage stamps.
The American Nursery, Bagshot, Surrey, near Farnborough Station, South-Western Railway.

AMERICAN PLANTS.—A Descriptive Priced CATALOGUE of HARDY AMERICAN PLANTS for the coming season is just published, and may be had by enclosing two stamps for postage. As everything in the way of American Plants is grown to an unequalled extent at this Nursery, intending purchasers would do well to provide themselves with this Catalogue.
WATERER AND GODFREY, Nephews and Successors to the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their Mixtures of Grass Seeds are now ready for delivery at the following prices:—
Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre ... ... 30s. per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32s. per acre.
Mixtures for improving and renovating old Grass Land, 1s. per lb.
Mixtures (finest sorts) for forming Lawns... ... 1s. 3d. per lb.
These Seeds are are all new, and have all been properly cleaned and their growing properties fully tested. Directions for sowing accompany the seed.
G. G. and Co.'s New Priced AGRICULTURAL CATALOGUE will shortly be ready, and will be forwarded free on application.
GEORGE GIBBS & CO., SEEDSMEN,
26, Down Street, Piccadilly, London.

DAWE, COTTRELL, AND BENHAM, beg to inform their friends and patrons that their Descriptive Retail LIST of FLOWER, GARDEN, and AGRICULTURAL SEEDS is now ready, and may be obtained, post free, on application.
D., C., & B. also beg to offer the following CHOICE ROOTS at very low prices.

Anemones, single purple, very fine ...	per dozen ...	3s.
" " scarlet, " ...	" ...	2s.
" " mixed, " ...	per lb. ...	3s.
Gladiolis florabundus, large	per dozen ...	2s.
" Gandavensis, very fine ...	" ...	5s.
and many other choice varieties.		
Iris Germanica, splendid var., mixed,	per dozen ...	4s.
Ranunculus, mixed, double, very fine,	per 100 ...	5s.
Tuberoses, fine double, Italian ...	per dozen ...	3s.

36, Moorgate Street; and 304, Laurence Pountney Lane, Cannon Street, London.—Established at 28, Cornhill, 1720.

NEW PLUMS.

MR. H. DOWLING, FRUIT GROWER, Woolston Lawn, Southampton, begs most respectfully to return his sincere thanks to the Nobility, Gentry, and Public generally, for the liberal patronage he has received, and informs them that owing to his Garden being about to be cleared for building, he has to offer the above at unusually low prices. Fruit Growers and the Trade will find this a rare opportunity to supply themselves with them. H. D. has received Testimonials from those that fruited them this season. He can with confidence recommend the Black Gage and Angelina Burdett as superior to any other Plum for prolificness and flavour; good strong Trees, and the prices can be obtained at Mr. CHARLES TURNER'S Royal Nursery, Slough; of Mr. HENDERSON, Pine Apple Place, London; or the Grower, at Woolston Lawn, Southampton.

ARTHUR HENDERSON AND CO. beg leave to inform their patrons and friends that their stock of VEGETABLE and FLOWER SEEDS (containing many choice and new kinds) is now ready for sending out. Catalogues may be had on application.

Lilium giganteum Seed	per 100 seeds ...	5s. 0d.
White-topped Clary	per packet ...	1 6
Limnanthus sulphurea odorata...	" ...	1 6
Dianthus Dunnetti superbus ...	" ...	1 6
Escholtzia tenuifolia	" ...	1 0
Leptosiphon aureum	" ...	1 6
Whitlavia grandiflora	" ...	1 6

Pine Apple Place, Edgeware Road, London.

SPRUCE FIRS from 6 to 9 feet high, well-rooted and quite safe to remove, being well adapted for screens, filling up old plantations, or for immediate effect.
FINE BEECH fit for hedges or plantations, 6 feet and upwards.
G. WHEELER, Nurseryman, Warminster, Wilts, having a surplus stock of the above, is disposed to sell them on extremely moderate terms, which may be obtained on application.
G. W. has a good stock of SCOTCH FIRS, 2 to 3 feet, a large stock of RHODODENDRON suitable for cover in woods, plantations, drives, &c., from 1 foot and upwards, with fine strong American Azaleas, at very moderate prices.
SEEDLING CALCEOLARIA, raised from the finest spotted kinds, will be sent carriage free on receipt of a Post Office Order for the amount, at 30s. per 100.

	Per doz.
BULBS OF TIGRIDIA PAVONIA. Red Tiger Flower...	2 0
" " CONCHIFLORA, Yellow ditto	4 0
" " WHEELERI, Scarlet ditto ...	4 0

Carriage free for cash.
CUCUMBERS, first-rate.—THE KING, a very handsome Black Spine, and Ingram's Hybrid White Spine, a most prolific kind, both approved and esteemed sorts, at 1s. per packet.—G. WHEELER, Warminster, Feb. 10.

TO THE TRADE.

JOHN HARRISON begs to offer to the Trade the undermentioned plants, of which he has a large stock.

Rose Manetti, strong cutting	25s. 0d.	p. 1000
Raspberry, Northumberland Fillbasket, the best variety in cultivation, 20s. per 100 ...	160 0	"
Do. Fastolff, 8s. per 100, or	60 0	"
Do. Wilsher Red Globe, ...	10 0	per 100
Do. Magnum Bonum	10 0	"
Rhubarb, Victoria, strong	25 0	"
Do. Royal Albert, do.	30 0	"
Currants, Victoria, 1 year old...	6 0	"
Do. do. 2 years old, strong ...	12 0	"
Do. Black Naples, 1 year	6 0	"
Do. do. do. 2 years	10 0	"
Do, do. Bang-up, extra fine	12 0	"
Arbor-Vitæ, 1½ to 2 feet	15 0	"
Juniper, Swedish, 1½ feet	25 0	"
Cupressus Funebris, 1½ feet	100 0	"
Delphinium Barlowi, strong	40 0	"

Roses of all the best varieties in cultivation, of which J. H. has a stock of many thousands, one year established in pots, and fit for immediate forcing.—Nursery, Darlington, Feb. 10.

NEW CINERARIAS.

C. H. GARDINER, of Fant Nursery, Maidstone, will commence sending out plants on the 1st of March next of the following first-class flowers, raised by Mr. Frost, gardener to E. L. Betts, Esq., of Preston Hall, and pronounced by competent judges to be equal if not superior to any in cultivation.
LADY JULIA CORNWALLIS—White, with great depth and width of petal, finely margined with porcelain blue, light blue disc, fine shape, extra size; first-class flower. 10s. 6d.
MISS BANNERMAN—Clear white, with well defined margin of rosy crimson, dark disc, large fine-shaped petals; habit good; one of the best. 10s. 6d.
MRS. R. RICKETTS—White ground colour, with broad margin of rich plum; good form and habit. 10s. 6d.
SIR W. MIDDLETON—Deep purple, with distinct ring of crimson round the disc; large fine-shaped petals of extra size and good habit; first-class flower. 10s. 6d.
MATILDA—White, with purple lilac edge; light disc; good shape and habit. 5s.
FORGET-ME-NOT—Fine shaped petals; colour crimson purple; good habit and fine form. 7s. 6d. If the set of six be taken, the price 2l. 10s.

RANUNCULUSES, ANEMONES, LILIUM LANCIFOLIUM, CALOCHORTUS LUTEUS, CALLIPRORA FLAVA, GLADIOLUS, TRITONEA AUREA, DIELYTRA SPECTABILIS, VALLOTA PURPUREA, ANOMATHECA CRUENTA, AND AURICULAS.

HENRY GROOM, CLAPHAM RISE, near LONDON, by Appointment FLORIST TO HER MAJESTY, begs to say that he has a fine Selection of the above BULBS, &c., which he can supply at Moderate Prices. His Catalogue will be forwarded on application.

IPOMŒA RUBRO CÆRULEA.

GEORGE ROBERTS begs to acquaint the Seed Trade that he can supply the above choice seed at a considerable reduction on the prices of past years.
32, Moorgate Street, London.

CONQUEROR OF THE WEST CUCUMBER.—A Packet, containing 12 good seeds of this first-rate Framé Cucumber, which for productiveness is second to none, will be sent post free, on receipt of 12 postage stamps, addressed to JAMES LAKE, Nurseryman, &c., Bridgewater.

GENUINE SEEDS.

THE MEMBERS OF THE "SEED GROWERS SOCIETY," continue to supply genuine AGRICULTURAL, VEGETABLE and FLOWER SEEDS at Growers' prices. Lists with price and terms of business may be had on application to the Secretary, JOHN MOSS, Jun., Feering, Kelvedon, Essex.

AMERICAN NURSERY.

GEORGE BAKER'S DESCRIPTIVE CATALOGUE OF AMERICAN PLANTS, &c., as exhibited by him in the Royal Botanic Gardens, Regent's Park, may be had by inclosing two postage stamps.
G. B. begs to call attention to his fine stock of Weeping Hollies, Coniferous Plants, Ornamental Shrubs, &c.—American Nursery, Windlesham, near Bagshot, Surrey, near Staines Station, South-Western Railway, where conveyances may be obtained.

MAY'S MAGNUM BONUM LETTUCE.—Parties who were disappointed last season in receiving the above, can now have it by early application, in Packets 1s. each, free by post. We have numerous letters to show, received from parties who had it last season, to say that it is the most magnificent Lettuce they ever saw.—Address, HENRY MAY, The Hope Nurseries, near Bedal, Yorkshire.

HOLCUS SACCHARATUS, OR CHINESE SUGAR CANE.—*For a full description, see the leading article in the* GARDENERS' CHRONICLE, *by Professor Lindley, page* 35, *January* 20, 1855.
WILLIAM E. RENDLE & Co., Seed Merchants, have just imported from France an excellent parcel of Seeds, which will be sold in sealed packets at 1s. and 2s. 6d. each, post free.—Apply to WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

MELVILLE'S HARDY SCOTCH BROCCOLI *will stand the most severe winter, and therefore invaluable.* 100 Seeds for 1s.
For full description, see "RENDLE'S Price Current and Garden Directory for 1855."
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

MELVILLE'S TREBLE CURLED GARNISHING BORECOLE.—*This is the choicest and most useful Vegetable for garnishing ever introduced, and should be grown in every garden.* 200 Seeds for 1s.
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SUTTON'S COMPLETE COLLECTIONS OF KITCHEN GARDEN AND FLOWER SEEDS *may still be obtained, as see last week's Gardeners' Chronicle.*
JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 10, 1855.

THE WINTER MEETING of the HORTICULTURAL SOCIETY last Tuesday in Regent Street, under the new arrangements, was perfectly successful, as will be seen from the report in another column. It was quite a representation in miniature of the great exhibitions at Chiswick. Richly as the tables were covered with beautiful objects, there is no doubt that the display would have been still finer had the weather been more propitious; but exhibitors cannot carry tender plants of great value through sleet and a north-east wind without exposing them to danger; and it was impossible not to admire the horticultural enthusiasm which produced so much in such a season.

The only difficulty that the Society seems likely to encounter resides in the very limited space at command. It is however to be hoped that the number of hours, four or five according to the season, during which the meeting lasts, will enable visitors to see everything with no more inconvenience than attends a London evening party.

AMONG the interesting subjects introduced at the meeting of the Horticultural Society were the fine diagrams of WELLINGTONIA used by Mr. BATEMAN in his interesting lecture, of which we last week gave a report; with the addition of the following remarks, by a Fellow of the Society, upon the supposed age of the trees now existing in California.

It appears that "in *Silliman's Journal*, vol. xviii. p. 286, is a correction of the exaggerated estimates made of this subject. It states that—

"1st, the hollowed section exhibited at Philadel-

Phia, which formed the basis of the former calculation, was not from the famous Wellingtonia, but from a Sequoia sempervirens growing much nearer San Francisco.

"24. Dr. Torrey has now had an opportunity of counting the whole of the layers on a *complete radius* of a trunk of *the* Wellingtonia, and he finds they are only 1120, not 3000 in number.

"In proof of the fallacy (which has of late years been occasionally alluded to) of calculating the number of rings in a tree by counting those of a portion of the radius, and of estimating the remainder by measurement, Dr. Torrey gives the following data on the rate of growth of the Wellingtonia:

The 1st 100 layers	occupied	17½	inches.	
2d	"	"	14	"
3d	"	"	12¼	"
4th	"	"	13	"
5th	"	"	16¼	"
6th	"	"	8¾	"
7th	"	"	7¾	"
8th	"	"	11	"
9th	"	"	10	"
10th	"	"	11	"
11th	"	"	11¼	"
Remaining 20 layers			1	"

1120 layers occupied 135 inches, or 11 feet 3 inches, the semi-diameter of the trunk.

"In illustration of the still greater fallacy of calculating the age of a tree from the thickness of its stem, without even knowing the rate of growth of any part of it, whence arose the fabulous estimates of the age of the Adansonia, I may mention that I lately counted the rings corresponding to the known age of a Quercus pedunculata of 62 years of age, which had the very same diameter as other trees of the same species growing within a few miles of it, with between 110 and 120 rings.

"The Wellingtonia remains, however, the oldest tree in a state of health whose age has been *ascertained*, and 1120 years is no mean age, although I believe some of the stunted, battered, half-rotten, but ever re-shooting up Olives of the Mediterranean, to be much older than that."

More than 20 years ago the writer of the present article pointed out (Introduction to Botany), in the following observations upon the growth of exogenous trees, how great are the errors to which De Candolle's method of computing age is liable.

"With regard to judging of the age of a tree by the inspection of a fragment, the diameter of the stem being known, a little reflection will show that this is to be done with great caution, and that it is liable to excessive error. If, indeed, the zones upon both sides of a tree were always of the same, or nearly the same thickness, much error would, perhaps, not attend such an investigation; but it happens that, from various causes, there is often a great difference between the growth of the two sides, and consequently, that a fragment taken from either side must necessarily lead to the falsest inferences. For example, I have now before me four specimens of wood taken almost at hazard. The measurements of either side, and their age, as indicated by the number of zones they comprehend, are as follows:—

	Diameter of		Total.	Real Age, or Number of Zones.
	Side A.	Side B.		
Benthamia fragifera	9 lines	36 lines	45 lines	40
Pyrus foliolosa	8 "	22 "	30 "	36
Magnolia insignis	11 "	20 "	31 "	17
Alnus napalensis	11 "	23 "	34 "	8

"Now, in the first of these cases, suppose that a portion of the side A were examined, the observer would find that each zone is 0.225 of a line deep: and, as the whole diameter of the stem is 45 lines, he would estimate the side he examined to be 22.5 lines deep; consequently, he would arrive, by calculation, at the conclusion that, as his plant was one year growing 0.225 of a line, it would be 100 years in growing 22.5 lines, while, in fact, it has been only 40 years. And so of the rest."

The statements of Dr. Torrey as above given from *Silliman's Journal*, confirm in every particular the justice of the foregoing remarks. Nevertheless, we are still at liberty to believe in the possibility of trees living to the age of 3000 years and more, although we have no positive proof that they have actually done so. In the garden of the late Sir Robert Vaughan, at Nannan, in Merionethshire, there once existed a gigantic Oak, which was said by tradition to have been the very tree in which Owen Glendwr confined the Welch chieftain, Howel Sale, taken prisoner by him in the time of Henry IV. Let us suppose this tree, which was of course hollow, to have been only 3 feet in diameter in 1410 (and it could not have been less, and was probably much more), and let us take the annual growth of old Oak trees to be 1 inch of semi-diameter in 20 years, it must in that case have been 360 years old in 1410; to this add 403—the number of years that intervened between 1410 and 1813, when it was blown down, and we shall obtain a total age of 763 years. It was, no doubt, much older,* and there is no physical reason why, if a tree can grow for 763 years, it should not, in the absence of accidents, acquire four times as great an age.

Nor is it necessary to limit to Wellingtonia the evidence of trees having actually enjoyed a prodigious longevity. The so-called Cypress of Montezuma, in the garden of Chapultepec (Mexico) measured, not many years ago, forty-one feet (English) in circumference; but it dwindled to nothing before the gigantic trunk of a Taxodium near Santa Maria de Tesla, in the province of Oaxaca, which was first mentioned by Exter, who found its circumference to be 117.10 feet (French). De Candolle thought that, in this case, either several trees might have grown together, or that the measurement had been taken round the dilated base of the trunk; but Zuccarini assures us that Baron Von Karwinski twice measured this tree, and sent him a drawing of it, which enabled him to remove all such doubts. "The measurement," he says, "was always taken above the dilatation, and on each occasion the girth was found somewhat to exceed 117 feet. The dilated base was not measured, but from the drawing it must have a circumference of at least 200 feet, and thus the diameter of the trunk must be about 39 feet, and of the enlarged base about 60.5 feet. The dilated base surrounds the whole trunk equally, so that it cannot readily be supposed that the size is owing to the accretion of several trunks. Now, if we take as a basis for computation the statement of Michaux, given by De Candolle, that the most thriving specimen of the tree in France attained in 45 years a diameter of 1 foot, or 144 lines, and consequently, that annual rings were formed of the thickness of 3·2 lines, and supposing a similar increase of wood to occur up to the most recent period of growth, it would appear that the trunk in question, which has a diameter of 5352 lines, would be 1672 years old. This supposition, however, is rather improbable, since perhaps none of the Conifers in the latter periods of their growth ever deposit so much as 12·8 lines of wood within four years. If, again, we assume the annual increase to average only one line, we get 5352 rings, and, consequently, that number of years is the age of the tree; but if we take the mean of these two numbers, we should arrive at 3512 as the most probable number of years of age, and at an annual addition of ligneous rings of 1.6 lines in thickness, which is sufficiently considerable." (*Ray Papers*, 1846, *p.* 21.)

All this is however conjectural in the absence of an actual counting of the rings; as is the age of the great Brazilian Leguminous trees found by Von Martius, and computed by one calculator to be 4000 years old, while another, employing a different mode of estimation, could not reduce it below 2052 years. But these were pygmies by the side of the Taxodium of Tesla.

These remarks do not diminish our interest in Wellingtonia; they only reduce fabulous history within the limit of fact, itself sufficiently surprising, and show that, colossal as are the dimensions of "the great tree," they are equalled by other trees concerning which there is no room for doubt.

Advices from Shanghai, of Nov. 18, inform us that Mr. Fortune had just returned from the Tea districts in Che-Kiang, with another large collection of seeds and plants for the East India Company. It appears, from a report from Dr. Jamieson, that 23,892 Tea plants had reached the Himalayas in good condition, along with 178 healthy seedlings of the Chinese Chesnut (a species of Castanea), 628 plants of the Hemp Palm, several grafted specimens of the Yang-mae, or eatable *Myrica*, and various other plants. Among the latter is the true *green* Indigo (so called) a plant hitherto so little known that it has been supposed to be *Sophora japonica*, the dye of which is, we understand, yellow, not green. Our letters do not say what the green Indigo really is, but we shall probably learn ere long.

New Plants.

112. Senecio mikanioides, *Otto. Walpers' Repertorium*, vi. 264; *aliàs* Mikania senecioides *of Gardens; aliàs* Delairea odorata, *Lemaire Hortic. univ., May* 1844; *aliàs* Breonia palmata *of Belgian Gardens.*

This plant having been made the subject of a communication in the last number of the "Revue Horticole," and being almost unknown with us, the following notes upon it may prove useful. It is a climbing greenhouse shrub from the Cape of Good Hope, suited for purposes such as those to which *Lophospermum* is applied. The leaves are deeply cordate and angular. The flower heads appear in large loose long stalked axillary corymbs; are yellow and sweet-scented, but having no ray want breadth of colour. According to M. Verlot, of Orleans, its cuttings should be struck in heat in February or March, put into small pots as soon as they have struck, and planted out in May, when they immediately push vigorously; with us June should be read for May. Last year 10 plants were employed to cover a paling (*barrière*) 36 feet long and 4 feet wide; they were repeatedly stopped to make them throw out laterals, and in three months they had covered the space. The plant may also be pegged down, and made to cover slopes and beds with verdure. It will not, however, flower out of doors, even at Orleans, but must be brought into the greenhouse in the autumn. The flowers, which smell like Heliotrope, will then open in December and January. The plant, though only a climbing Groundsel, seems to be worth growing for winter decoration.

* There is an apocryphal story of an Oak tree having been felled in the Ardennes, within whose trunk were found coins struck 276 years before the foundation of Rome. That tree was, therefore, estimated to have been 3600 years old.

VEGETABLE PATHOLOGY.—No. LVIII.

264. Apostaxis.* *Distillation.*—Under this denomination it is proposed to consider all abnormal emissions of nutritive or secreted fluids. The circumstances under which the phenomena take place may be very various, and the consequences of more or less gravity, according as they are temporary or chronic, or may be complicated with other diseased action.

265. Apostaxis (*Constitutional and Functional*),—Weeping.—The nutriment of plants is received from the ground, in the form of a very attenuated solution, which in its progress through the system levies contributions from matter previously assimilated; insomuch, that when it has arrived at the leaves, though still highly aqueous, it is charged more abundantly with extraneous matter than it was on its first imbibition. That the sap may serve for the proper nutriment of the plant in its return from the leaves, it is necessary that a large portion of the water should be eliminated, an effect which is produced by the process of exhalation, in consequence of which the watery particles pass off in the state of vapour, as may easily be observed by the condensation of this insensible perspiration on a glass or any other cold polished surface. The fluid in such cases is found not to be pure water, but to contain a slight per-centage of heterogeneous matter. This process is absolutely necessary to health, and where it is impeded it is a fruitful source of mischief. It is in a high degree dependent upon outward atmospheric condition or other external causes, to which we shall have to advert hereafter; for it is altogether uncertain whether in any case constitutional weakness prevents it from taking place, the effect of which would be to produce a general dropsy. The affection or condition which we have under consideration is of a precisely contrary nature, and can, when slight, scarcely be considered a disease. It is not, however, a normal condition, or one which, if chronic, could be productive of any other than evil results. Under the circumstances of which we speak, so far from the exhalation being impeded, it is exaggerated into a copious dripping of a watery fluid from the leaves, to which the name of weeping has been applied. It is not to be confounded with the showers of manna which in hot weather descend from many trees, and to which probably the tales of the poets are for the most part applicable, but is simply an overflow of the ascending unelaborated sap, occurring principally if not exclusively at the tips of the leaves or serratures, and thus simulating in some measure the formation of dew. It is peculiarly common in the Vine when cultivated in conservatories, and may be seen in especial abundance in such plants as Canna, where the watery fluid sometimes almost streams from the leaves. It is observed principally when water has just been applied to the roots, and depends upon the upward current being too strong to be arrested by the walls of the more external vessels, so as to wait for the natural exhalation due to external agency, insomuch that the fluid matter bursts forth bodily, the points of least resistance probably being the more or less acuminate portions of the foliage through which it drips. It is very probable that there may be some lesion of the cells at these points, or otherwise the natural course should seem to be rather through the stomates. It would be interesting to institute a comparison between the condensed fluid arising from evaporation, and the fluid thus exuded; but we are not able to find that such an estimate has at present been made. The waste of matter due to the phenomenon is probably never very large, but a little attention would soon show at what time of the day, or under what condition the evaporating power of the atmosphere is such as to admit of this sensible passage of the fluid, and at such times and under such conditions water should not be applied to the roots. As, however, the phenomenon is far more visible in some particular plants than in others, and is not exhibited in all at the same time and under similar conditions, it depends probably in great measure on constitutional peculiarities over which the cultivator has no control.†

266. A similar affection takes place in the buds of

* Derived from ἀπο from and σταζω to flow.

† An aqueous fluid is copiously secreted in Nepenthes, Sarracenia, and Heliamphora, and not improbably is derived from the plant itself in Dischidia and some other cases where the fluid contained in open cavities is supposed to be altogether extraneous. What relation some of these cases may have to the phenomenon in question is at present uncertain; in others the fluid has peculiar properties, and is evidently a real secretion.

Vines, and of some other trees, in consequence of the exuberance of the spring sap. It is perhaps well in such cases that nature should find a ready outlet for fluids which might produce bad consequences if stagnating in the cells without any aqueous exhalation. In both instances perhaps it would be more proper to consider the matter as an abnormal phenomenon than as a real malady. *M. J. B.*

COMMON THINGS,

Centradenia rosea.—Though not very showy, this is really a useful little plant, which, under ordinary cultivation, may be made to blossom abundantly all through the winter and spring. Cuttings struck early this month, and properly attended to, will be bushy plants by the end of June, at which time they should be in 5-inch pots, and should be removed from the stove or propagating house to a light and airy greenhouse shelf. If large specimens are not wanted, they should not be shifted after this, but should be allowed to become somewhat pot-bound, and they will not require any further attention, except moderate waterings till the end of September, when a few of the plants may be introduced to a light and warm shelf in a stove or intermediate house, where a temperature of 65° or 70° by day can be given. The rest may follow successively; and it is worthy of remark that they do not open well except in tolerably bright light; they, therefore, do best placed on a shelf near the glass. For soil take equal parts of loam, sandy peat, and vegetable mould, mixed with a good sprinkling of powdered charcoal.

Club in Broccoli.—The following is a good way of preventing this troublesome disease. In the autumn never omit to ridge up the ground intended for spring sowing, in order that it may have the benefit of the winter's frost to pulverise it. When the time for sowing has arrived level the ground roughly, then dig it over regularly, and form it into beds; when that is done, burn any prunings of shrubs and trees that may have been collected during winter, and spread the ashes on the beds to the depth of 2 or 3 inches. Then with a Potato fork well mix the ashes with the earth to the depth of 4 or 5 inches, sow the seed in the usual way, rake all in smoothly, and the operation is finished. It may be added that the fresher the ashes are the better, and that those from green wood are preferable to those from dry. It will be evident that the alkaline bases found in the wood ashes are what produce the effect.

CHOIX D'UN AMATEUR PEAR.

There are some historical details relating to the origin of certain varieties of Pears which are only verbally known in the countries in which the varieties have been obtained. If one does not take the trouble to give an exact account where it will be recorded in pomological works of the day, his knowledge will be lost in some few years. After a certain lapse of time, when the variety begins to fruit in various gardens, questions will be asked respecting the name of this Pear, when and where was it raised?

Towards the end of his career, the late Van Mons, not expecting to see the fruit of his seedlings from the latest sowings in the nurseries of Louvain, and fearing that after his decease these seedlings would not be preserved, sent grafts of a certain number of the most promising of these seedlings to his friend and pupil, M. Bouvier, of Jodoigne. One portion of these was sent in 1837. Being worked on strong seedling stocks, most of the varieties fruited in 1842 and 1843. The grafts, it will be understood, were well selected and carefully worked.

Neither the first nor the second fruiting was thought sufficient by M. Bouvier for determining the relative merits of the seedlings; but of the third production, which was very abundant in 1844, that being a most favourable season, he submitted many of the fruits to his amateur friends and connoisseurs like himself; and he then, without hesitation, said of the above-named variety, "This is my choice" (*ceci est mon choix*); and being unanimously approved, it was agreed that the variety should be called *Choix d'un Amateur*, adding the words Van Mons, the grafts having been taken from one of the seedlings raised by the professor at Louvain. As possessor of the nurseries, M. Bivort was charged with sending out this new variety, and it was announced in his catalogue 1845-6. Since then it has been cultivated in our nurseries, and has been observed up to the time of its fruiting.

In 1849, a good graft having been placed at 7 feet high on a strong stock, we had the satisfaction of seeing last summer, on the branches of this graft, about a score of handsome fruit.

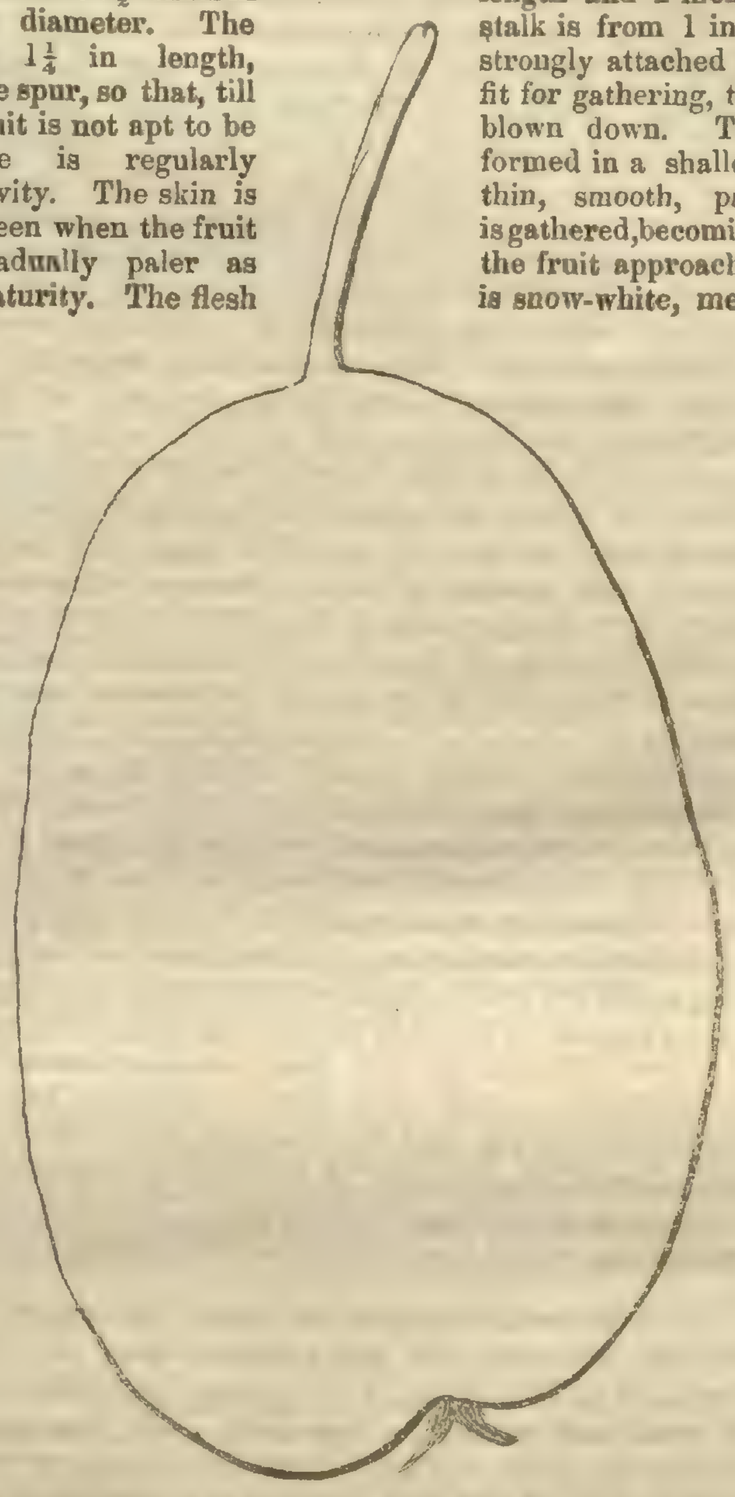
As this variety is not described in any special work, nor even in any catalogue, as far as I am aware, and as the fruit is but little known, I shall endeavour to give a description of the tree, and of the fruit and its qualities.

The seedling itself we have not been able to discover, neither in the collections of the successors of Van Mons nor in the gardens of Louvain, where, after the decease of the professor, it had doubtless been lost, together with many other valuable sorts. The strong stem grafted in 1837 has been in vain searched for in the garden of the late M. Bouvier. We have been informed that his successors divided the best of the trees, which were consequently sent in different directions. We can therefore only describe such of the characters of this variety as may be done with confidence from a pyramid of seven, and a standard of five years from the graft, and in a bearing state.

By the colour of its wood, the form of its branches and shoots, by its leaves and the general habit of the tree, this variety is as distinct from all others as the Beurré d'Hardenpont, Marie Louise, Docteur Trousseau, Prince Albert, Leopold I., and Comte de Paris, are distinct among themselves.

The tree is hardy and vigorous, and forms a handsome pyramid. Its shoots are long and spreading; the upright stem is erect, and of stiff growth. The colour of the trunk is greyish olive brown, and the two-year-old branches partake of the same hue. The one-year-old wood is pale greenish brown, sprinkled with grey dots, but these disappear the second year. The upper parts of the shoots are bright brown, with very distinct white spots. The buds are about an inch apart; on the bearing wood they approach to half that distance. The wood-buds are very large, but pointed; the fruit-buds are still larger and rounded; both have a greyish appearance. The fruit-buds are large, plump, and can be known decidedly in the second year of their formation, a sign that the tree is a good bearer. The flower is large and sets readily, which proves its hardiness. The leaves are of a delicate green, undulated, and channelled, and possess all the characters of those of varieties which produce the finest fruits. It is very productive as an orchard standard. A strong graft, taken from the stem of the stock plant and worked on a vigorous stock, had the shoots properly disbudded, pinched and not much shortened, and produced in the summer of 1854 a score of fruits after 50 had been thinned off in May. Part of the fruit gathered on the 18th of September commenced to ripen on the 25th of that month. Another part, gathered on the 28th September, ripened from the 10th to the 25th of October.

The general form of the fruit is oblong-ovate, full towards the stalk, and swelling towards the eye. It is from 3 to 3½ inches in length and 2 inches in diameter. The stalk is from 1 inch to 1¼ in length, strongly attached to the spur, so that, till fit for gathering, the fruit is not apt to be blown down. The eye is regularly formed in a shallow cavity. The skin is thin, smooth, pale green when the fruit is gathered, becoming gradually paler as the fruit approaches maturity. The flesh is snow-white, melting, juicy, vinous and sugary, very free from grit, except a little near the core, which is small. The seeds are small, roundish, but well filled, which indicates that the variety has sprung from a good race; their colour is black or brownish black.



In short this variety may be considered as a valuable acquisition. Although it ripens at the same time as many other excellent sorts, the Choix d'un Amateur will maintain a distinguished place in the collections of good judges who have tested the fruits, of which none of the 20 gathered was found in any way imperfect; and it well deserves the name of Choix d'un Amateur, applied to it by M. Bouvier. From its form it could not be ranked in any of the classes of Pears designated by a generic name [such as Bergamotte, Bon Chrétien, &c]. It is necessary to remark that this variety does not succeed on the Quince stock. *J. de Jonghe, Brussels, Jan.* 16, 1855.

Note.—It is probable that as the tree gets older the fruit in favourable seasons will be larger and less variable in form. This observation is applicable to all varieties of Pears recently obtained from seed; for with regard to the qualities of such we cannot decide with certainty till after having obtained fruit for several successive years from healthy, vigorous, well established trees.

CLIMATE OF FOREIGN COUNTRIES.—No. III.

Nice, *Feb.* 2, 1855.—The snow mentioned in my last as having fallen here on the 21st ult. has since quite disappeared, and is now succeeded by beautiful warm weather. Yesterday was equal to any of our English summer days. In confirmation of my statement that the temperature had been unusually low, I may observe that a person who has been resident here for the last five years informed me that the thermometer in a room without fire has not been known to be under 50 until recently, when it fell to 45°.

At Paris, on the 24th ult., a partial thaw succeeded to the late frost, but severe weather has again set in there. On the 26th the thermometer fell to 23°, on the 27th to 20°, on the 28th to 18°, on the 29th to 12°. The Seine began again to freeze over. It has been nearly the same at Lyons, and also very cold at Brussels. On the 22d at Strasbourg it was down to 18° below zero of centigrade or zero of Fahrenheit. The same at Turin on the 24th, and again on the 29th and 30th 31° below freezing. Here the min. was 5° above freezing, and at a distance of only about 120 miles, the difference being no doubt mainly attributable to the peculiar situation of Nice and the proximity of Turin to the Alps.

I hope that the following description of the London weather, which I take from the correspondence of the French newspaper *La Presse*, is a little overdrawn. You may, however, like to see what account is given to foreigners of the climate of our fatherland. Writing from London 26th January, the correspondent says:—"It has snowed for the last four or five days without interruption; a thick fog and rime envelopes the city. It is mid-day, and I can hardly distinguish the letters I trace upon the paper. This lugubrious atmosphere naturally makes the spirits to be in unison with the sentiments which now prevail in England."

The increase and decrease of the power of the sun's rays here in the day will appear from the following account of a thermometer hung therein on the 26th ult.: 9 o'clock, 94°; half-past 9, 107°; 10 o'clock, 114°; half-past 10, 119°; half-past 11, 124°; at 12, 121°; half-past 12, 117°; 1, 110°; 2, 90°; 4, 74°.

New Potatoes are now sold in the market, at 9*d.* the kilogramme, being rather more than 2 lbs. weight English; Green Peas (in pod), 1*s.* 3*d.* for the same quantity. In the vicinity of Nice there is a valley partly covered with the beautiful single blue Hepaticas (triloba), which are now coming into flower. Crocuses (wild) are also in blossom. Some Snowdrops in pots I saw yesterday treated as greenhouse plants; they are, however, found wild on some of the hills. Primroses also are in flower, but are rather scarce. Violets, the sweet single blue, are becoming quite plentiful on the banks, and the Anemones in the Olive grounds. There is a beautiful bright yellow flower now also in blossom (under protection) called "Jonquil ferruginea," upright in growth, the flowers nearly the size and shape of the Petunia—a charming winter plant.

Temperature at Nice.

1855.	7 A.M.	12 P.M.	10½ P.M.
January 26	35	53	37
" 27	37	48	39
" 28	34	53	40
" 29	37	55	44
" 30	44	59	42
" 31	45	56	46
February 1	56	63	46

—*E. C.*

NOTES UPON THE LATE REPORT TO THE TREASURY ON THE PRESENT STATE OF THE ROYAL WOODS AND FORESTS.

In the instructions to the Commissioners when authorised to inspect Alice Holt Forest, and to give their opinion on the point of dispute between Mr. Brown and the Deputy Surveyor, the Commissioners are, with a semblance of impartiality, desired to have *no intercourse with either of the parties interested:* from page 5, however, it appears that they did call to their assistance the Deputy Surveyor's officers, men openly opposed to Mr. Brown.

(P. 13.) The Commissioners are directed to decide on various questions of controversy which have arisen between Mr. Brown and the Deputy Surveyor of Bere Forest, and are directed *to resort to the latter and his officers for explanation and information;* of course Mr. Brown being absent. What is the worth of a verdict given under such circumstances?

In spite, however, of the "foregone conclusion" of the referees, their statement on one of the most important points rests solely on information supplied by the Deputy Surveyor: for instance (p. 15) great credit is attached to that officer for his "skill in dealing with difficult local circumstances;" and at p. 16 "the drainage" is said to have been "originally well laid on and abundant," while in the following paragraph the "drainage up to a recent period has been greatly neglected." We doubt the existence of such sagacity on the part of the Commissioners as would enable them to discover from inspection the exact time during which a drain lay neglected, and when it again began to receive proper attention.

The paragraph (page 15), "The amount of income, &c.," is utterly unsound, and proves the determination of the Commissioners to adhere to the good old plan of eschewing all profitable returns. What private gentleman does not consider profit from thinnings a criterion (among others) of good management?

(P. 20.) Where one "dead branch is caused" by *injudicious* thinning, 50 are killed by *defective* thinning. Branches are killed by the *absence* of air and light, not by their presence.

(P. 20.) The intense ignorance displayed by the

Commissioners in their remarks on pruning dead timber is sufficiently exposed in the *Gardeners' Chronicle*. See also remarks on Gs 340, line 9 from bottom

(P. 21.) The proposal to "leave" a few sticks of good Oak timber "to go" with "worthless Beech" in order to sell the latter, is worthy of a rascally auctioneer. Turn an honest penny if you can by selling judicious thinnings, but be assured that if the officers of the forest adopt the suggestion they will proclaim themselves *knaves* by making the offer, but find no merchants such *fools* as to accept it.

Page 23 settles Mr. Lipscombe's case, for though Mr. Kennedy may have "failed to bring any specific charge against Mr. Lipscombe," (p. 22) the very scanty knowledge of the Commissioners has detected enough to justify his decision.

Page 27 appears to be a piece of patchwork—each Commissioner giving his own opinion. One says "the management has for a very long period been dictated by skill, energy, and judgment." Five lines lower down another disapproves of what he considers "a violation of good management." One says it is "a question of controversy (we are not told between whom, certainly no one outside the Royal forests controverts the matter) to what extent underwood may safely be grown in plantations," another is of opinion that any "chance of injury from the introduction of a second crop should be carefully avoided," which chance it appears has been incurred by the care of surveyors "whose management has for a long time been dictated by skill, energy, and judgment." * *

ON THE PRUNING OF FRUIT TREES DURING THE FIRST YEAR AFTER PLANTING.

No rule is without its exception; and the writer of an article on this subject in a late number of the "Revue Horticole" is in my opinion wrong, when he lays it down as a general rule that every tree which has been transplanted ought to be cut down to the height of a foot, or a little more above the level of the soil. Such treatment is very good in some cases but not in others. It seems to me to be very good in two cases, viz.:—

1. When the trees, after being taken from a nursery, have been long exposed for sale; for then their roots are tired, somewhat dried, and the lateral branches have often suffered by carriage from place to place.

2. When the plants that leave the nursery as pyramids have been deprived of their lower lateral members, which are indispensable to the formation of a regular pyramid.

In these cases cutting down is the best mode of treating a Pear tree, whether it be in the shape of a pyramid or of a fan-trained tree; but why have recourse to it when unnecessary? It can be easily dispensed with, as a few examples will show.

In November, 1851, a nursery was destroyed, but all the plants in it, good and bad, were replanted; both plans, viz., cutting down and not cutting down, were tried, and the results obtained by the latter mode of treatment were as follows:—The worst plants were not cut down until the month of March in this year, and their renewed growth was directly proportional to the mode in which they were taken up, and of the state of vitality of their roots; nor did they disappoint the hopes which had been entertained of them.

The good pyramids taken up with care were replanted with all necessary precaution. In March, 1852, they were not cut down but pruned one-fifth shorter than they were before. The flowers which appeared the first year were taken off, in order that the fruit might not absorb the sap which should be expended in the elongation of the wood. In 1853 these pyramids were pruned just as if they had been of old standing, and they produced a certain quantity of fruit. These trees are now in as satisfactory a state as possible. It is true that only the fruit on the vigorous branches has been kept, and that, as in 1852, all the flowers on the more feeble branches have been destroyed. By this means, and by pinching in April, May, June, and July, the equilibrium of the sap has been maintained, and a perfect harmony has been established in the wood of the trees.

It did not appear prudent to delay the pinching until August, as advised by M. Jussiaume; by this time the vigorous buds have gained so much on the more feeble ones that it is too late to establish the equilibrium, which the development of strong parts has destroyed.

The best plan to be followed by those who intend to plant fruit trees is to choose the best formed plants from the neighbouring nurseries, and to plant them from the month of November with the necessary precautions, which are but too often overlooked. Thus if a tree is to be replaced, the old soil should be removed and a new soil rich in humus should be substituted. If at the time of plantation the ground is very dry, it is advisable, when the plant is well in its place at the proper depth, to water the earth at the foot of the tree from a pot with a rose; the roots will thus be consolidated, and will strike before winter.

In November, 1852, some fan-trained Pear trees, and not less than 5 yards in extent, were also transplanted at the same place—Petit Bourg. Treated as above, they recovered perfectly, and this year fruit has been kept on the stronger branches; the quantity exceeded all expectation. The trees were, it is true, transplanted with the greatest care, and then all the roots were taken up for a yard and a half at least from the stem.

The same plan was followed on an occasion when an old orchard (*Normandie*) was destroyed; the trees from it were transplanted here and there in the kitchen garden, and they have yielded excellent fruit.

The pyramids which were not cut down yielded this year as many as eight Pears each, of good quality. Amongst them were some Duchesses (d'Angoulême) which were not less than a foot in circumference, and to all appearance the next gathering will be much more abundant.

These facts lead to the conclusion that cutting down is not indispensable, and that it is not wise inconsiderately to sacrifice that which is useful, and so to defer, for perhaps four years, the production of the means of enjoyment.

I am aware that the necessity for cutting down is attributed to the horizontal position which the lateral branches of the bottom of the pyramid must be compelled to take, in spite of their tendency to grow upwards. But this necessity is by no means so obvious when it is remembered that there are many trees which, without being cut down, have their branches brought from a vertical to a horizontal position by the weight of their fruit. So much is this the case in many instances that the branches have either to be propped up from below or tied back from above. *E. Bardon, in Revue Horticole.*

CONSUMPTION OF FUEL IN THE ROYAL BOTANIC GARDENS, KEW.

My attention was lately directed to an advertisement of Messrs. John Weeks & Co., in the *Gardeners' Chronicle* for Saturday, Jan. 27, last page (and probably it exists in previous numbers), which is calculated to convey very erroneous notions of the consumption of fuel in our Palm-house; and, if true, showing us to be guilty of a most extravagant and unjustifiable use of the public money.

The object of Messrs. Weeks is to prove "the extraordinary efficiency and economy of their heating apparatus," and that, in their establishment at Chelsea, "it does more work with one boiler than is done by 12 boilers in the great Palm-house at the Royal Gardens of Kew." Then he proceeds to draw the following comparison:—

1. THE HOUSES AND PITS AT MESSRS. WEEKS & CO.

Measure in length	1,000 feet
Superficial feet of surface covered	13,480 "
Surface of glass exposed to the atmosphere	16,000 "
Length of pipe to heat the whole	5,000 "
Fuel consumed in 24 hours during the winter months, at a cost of 3*s.* per day	3 sacks of coke.

The boiler requires attention only once in 12 hours, and then but for one hour; thus occupying a man but for two hours out of the 24, at a cost of say 8*d.* per day.

2. THE GREAT PALM HOUSE, KEW,

Measures in length	355 feet (we reckon 362 feet)
Superficial feet of surface covered	23,900 "
Surface of glass exposed to the atmosphere	42,200—we say 45,000 "
Length of pipe to heat the whole 15,000 feet—we say 17,158 feet, besides 1076 feet of tank	
Fuel consumed in 24 hours during the winter months, being two parts coke and one part coal, at a cost of 4*l.* 16*s.* per day	72 sacks

The boilers, 12 in number, occupy the whole attention of two men daily, at a cost say of 10*s.* per day.

It should here be observed that, in the above calculations — inaccurate as we know them to be as concerns Kew—the difference in height between Messrs. Weeks' small greenhouses and pits and the 66 feet of elevation of the Palm-house, along with the tropical heat of the latter as compared with the cool temperature of the houses in the nursery in the King's Road, are facts altogether unnoticed.

Then follows the most astounding assertion:—"It results from the foregoing statements that the apparatus of Messrs. Weeks, with one boiler, is doing about as much work as four boilers do in the Palm-house; and that with three, or, at most, four boilers, such as Messrs. Weeks now have in use in their nursery, the great Palm-house could be heated at a cost, in fuel and labour, of 14*s.* 8*d.* per day, effecting a saving say of 1095*l.* per annum"!!

It is difficult to know the exact data on which Messrs. Weeks found their calculations. We will grant that they expend only 14*s.* 8*d.* per day during the winter months, in their nursery establishment, for fuel and labour. They cannot suppose that if it costs us "5*l.* 6*s.* per diem for the winter months," as they express it, the same expenditure should go on throughout the year.

Allowing then, for

The winter (six) months, at 5*l.* 6*s.* per diem ...		£967 0 0
Summer months (six), say one half...		483 10 0
Cost for the whole year		1450 10 0
Taking Messrs. Weeks' mode on the same principle:—		
Six winter months, at 14*s.* 8*d.* per day	£133 0 0	
Ditto summer	66 10 0	
		199 10 0
		£1251 0 0

By this calculation we are placed in a worse plight than by Messrs. Weeks' showing, to the amount of 156*l.*; for he reckons our loss in fuel and wages at 1095*l.* only. But let us come to facts.

ACTUAL COST OF FUEL AND LABOUR AT KEW.

The average yearly cost of fuel for the whole establishment for the last six years is	£756 0 0
Cost in 1846 and 1847, before the Palm-house fires were lighted, average for two years	394 0 0
Leaving for the Palm-house	£362 0 0

But since 1846 and 1847 the number of fires in the garden has increased considerably, in consequence of new structures, additional dwelling-houses, the Museum, and fires in the Herbarium rooms and Library; so that the Palm-house can in no way be calculated to average more than 300*l.* a year. Thus, then, say—

Fuel...	£300 0 0
2 stokers	91 0 0
Night attendant for eight months	32 0 0
Total cost of Palm-house for fuel and labour...	£423 0 0

Can Mr. Weeks be serious in saying that we could, by adopting his principle of heating, save 1095*l.* per annum out of 423*l.*?

I am far from wishing it to be understood that with the experience we have now acquired we should not be able, had we another such structure to erect, to correct several grave errors, and to economise our fuel; but how a business man like Mr. Weeks could have fallen into such enormous errors and miscalculations as we have here endeavoured to rectify, and how he can tax us with such a gross misapplication of public money, I must leave that gentleman to settle in his own mind. Were it fair to suppose that he has made mistakes of an opposite character in his calculations, and in favour of his own case, the fact might turn out, after all, to be that economy was more practised and paid attention to in the Royal Gardens of Kew than at the Horticultural establishment in the King's Road, Chelsea. *W. J. Hooker, Director, Royal Gardens, Kew, Feb. 7.*

Home Correspondence.

Winter Figs.—Last September, having a number of Fig plants in pots showing a quantity of fruit, I determined to try whether they would continue to grow and ripen through the autumn and winter. With that view, I introduced one plant in a 9-inch pot into an old Pine-stove; here the fruit continued to grow and swell freely, and about the middle of November I gathered the first mature fruit, which was beautifully ripened and of excellent quality. During December and January I obtained abundance of nice fruit, and now, Feb. 5, the little plant has some 200 upon it, in various stages of growth. For nearly three months it has been standing in a dark corner of an old Pine stove, confined in a small pot, and in a humid atmosphere, with little air—circumstances all against the free and full development of such a plant as the Fig is, and during all that time it has borne a succession of nice fruit. Where a house can be devoted to the cultivation of the Fig in winter, with, of course, the essential requirements of light, heat, and air, I am fully satisfied from the above experiment that the Fig will be found one of the best winter fruits we have. *W. Barron, Singleton, Swansea.*

Mildew—A Hint to Rose Growers.—Last autumn I saw two small collection of Roses in pots. The leaves and shoots of one collection were covered with mildew: those of the other were green, healthy, and entirely free from that pest. How can this difference be accounted for? In this way I think. Both collections were plunged—but the mildewed plants merely to the rims of the pots, leaving the surface of the soil in which they were growing, wholly exposed, and they were frequently allowed to get very dry at root. The other collection was not only plunged, but the pots were covered with a couple of inches of rotten manure, which preserved the roots cool and moist. Beyond the simple precaution of securing a constant supply of moisture to the roots of the plants, all other circumstances were equal. The difference in the appearance of the plants was very great indeed. That excessive drought is often productive of mildew there is much evidence to prove. Many of your readers will recollect Mr. Knight's paper detailing his experiment with late Peas. It bears immediately on the point in question, and will be found in his "Physiological Papers." *G. W. L.*

Grafting Rhododendrons.—The questions propounded by "J. R." as to the grafting of Rhododendrons, may be considered as set at rest by the valuable practical observations of Messrs. Standish and Noble; but you will much oblige me if you will insert a paragraph respecting the "best mode and season for grafting." I have found the operation very uncertain. I wish Messrs. S. and N. would do this, and I am sure they would confer a favour on many working gardeners. In their communication the other week they say the shoots for grafting were separated into "single eyes." I can scarcely understand the meaning of this in a Rhododendron. I presume they do not graft the end of the shoot with the leaves. Any information will oblige. *Linda.*

Sweet Scented Camellia (see p. 70).—Mr. Hally says his scented Camellia is a single variety; mine is a double one, and a very good flower, though not so perfect as many other Camellias which I possess. It is of a brilliant rose colour. I have another Camellia which is a more perfect flower in shape, equally double, and of a more beautiful colour, to my fancy, which is scented but very slightly. *Violet.*

The Weather, Feb. 3, 1855.—This morning presents

a phenomenon here which I do not ever recollect to have witnessed before to the same extent. The thermometer about 10 p.m. yesterday marked 10° of frost, which decreased about 11 p.m. It appears that in the course of the night or towards morning heavy rain fell two or three hours, but without the entire cessation of frost. The result is that this morning everything exposed to the rain (which came from the east) is coated with ice. The walls of the garden and house are glazed with a coat upwards of an eighth of an inch thick, and the stems and branches of trees with a still thicker coat. The leaves of all evergreens are similarly coated to the thickness of about $\frac{1}{16}$th, or in some cases nearly ¼th inch, and each has an icicle at its top. I have taken several of these off laurel leaves, which were perfect leaves of ice, the icicle representing a stalk. The trees are of course bent in every direction, and had wind ensued this morning, scarcely anything could have escaped utter destruction, as the weight of the boughs is enormous. The more slender-leaved evergreens, like Red Cedars and Cypress, are converted pretty much into icicles; their bending twigs have frozen together into masses as soon as they came in contact. A slow thaw set in about 10 a.m.; but at the time I write, 1 p.m. the leaves are still covered with pendant icicles —a more severe trial of the hardiness of evergreens I can hardly conceive. If I am not mistaken, a similar occurrence is recorded in the United States, where the accumulation of ice was such as to crush and rend the deciduous forest trees; and I perceive that the deciduous trees are affected, but owing to the absence of wind are not broken. *J. Rogers, River Hill, Seven Oaks.*

Rain at Itchen Abbas in 1854.—

	Rain.	Wet days.		Rain.	Wet days.
January	2.74	19	Brought forward	14.04	111
February... ...	0.85	10	September ...	0.94	6
March	0.47	8	October	2.67	16
April	0.32	6	November ...	1.92	12
May	4.21	22	December ...	1.34	19
June...	2.57	14			
July	1.55	19	In the year ...	20.91	164
August	1.33	13	Average of 4 preceding yrs.	30.89	165
Carry forward...	14.04	111	Deficit, 1854 ...	9.98	1

W. W. Spicer, Itchen Abbas Rectory, Hants.

Frigi Domo Spoiled by Soaking it in Boiled Oil (see p. 71.)—Your correspondent, who asks how his Frigi domo has been "burnt," may have a solution to his inquiry in the fact of spontaneous combustion. Had the fabric been spread out or hung up openly until it was dry there would have been no danger. In applying boiled Linseed oil to cotton or hempen netting or cloth, the oil is apt to sleek the netting or cloth, and consequently render it less capable of affording protection in case of frost; the better way is to tan the fabrics. *R. Paton, Seedsman, Kilmarnock.*

Materials for Paper.—From the remarks made on Tuesday last, at the meeting of the Horticultural Society, on the Holcus saccharatus (the fibre of which is likely to be useful in the making of paper), it has occurred to me that a fibre of equal value might be obtained from the Sugar Cane after the juice has been extracted. Would it not be desirable to call public attention to the subject!—for should it prove the case, it would produce an almost inexhaustible stock, and be the means of affording a large profit to our West Indian planters. I expect, too, that the leaves of the Sugar Cane will contain as much or more fibre than the stalk. They should therefore not be lost sight of. *H. Groom, Clapham Rise.*

Caution.—We have had in Brighton and its vicinity an artful impostor, who represented himself to be "gardener" to a gentleman at Manchester, who, he stated, had bought an estate at Reigate, and that he was deputed to bargain for extensive ranges of hot-houses, which he has ordered of builders; also plants, shrubs, seeds, &c., of nurserymen. Having had a call from him, I consider it my duty to put the trade on their guard in the matter. He is about five feet six inches high, with dark complexion, dark hair and nearly trimmed whiskers, which are worn under the chin. He wears black trousers, black embroidered waistcoat, dark jacket, a loose over-coat, boots, and a black and green neck tie. He is an Irishman. After leaving Brighton he went to Uckfield, and favoured the trade there with his orders. *Edward Spary.*

Societies.

Horticultural, *Feb.* 6.—The Right Hon. Lawrence Sulivan in the chair. P. Secretan, Esq., A. Mongredien, Esq., and Mr. J. Milne were elected Fellows. It will be gratifying to know that the new regulations adverted to at p. 3, brought together an assemblage of flowers and fruits on this occasion such as the Society never has had before at its meetings in Regent Street. Not only was the meeting room filled with subjects of exhibition, but even the passage leading to it and the secretary's room next the library were full of gay-flowering plants, fruit, and examples of forced vegetables.

Of new plants, Messrs. Veitch had a white flowered Calanthe from Java, an Oncidium nearly related to pubes, and an Ansellia, not remarkable for beauty, from Natal. Messrs. E. G. Henderson showed Genetyllis fuchsioides, an Epacris-like plant with drooping brown bell-shaped flowers, whose only fault was want of brilliancy. That may, however, improve as the season advances.

Epacrises: of these there were several collections, the best of which came from Messrs. Veitch. It consisted of Hyacinthiflora candidissima, Vivid, and Fairbairni. The next in point of merit was furnished by Mr. Todman, gr. to Mrs. Buckmaster. It contained Hyacinthiflora, carnumbrata, and candida compacta. Mr. Ingram, gr. to her Majesty at Frogmore, was placed third. His plants were seedlings of his own, remarkably dwarf and well bloomed. The most conspicuous among them was perhaps Ingrami, a very brilliant scarlet kind. There was also a striking variety of grandiflora, with bright purplish red tubes tipped with white. Mr. Fleming, gr. to the Duke of Sutherland at Trentham, sent candida compacta, a very profusely flowered variety of incarnata, and a seedling called ardentissima. The last-named exhibitor also sent all the way from Trentham three nicely bloomed varieties of Epiphyllum truncatum, all of which, although most troublesome plants to carry, arrived in the most perfect condition, not a branch being broken or a flower bruised. From this it may be inferred that when plants are injured in transport by railway, the fault lies more in want of skill in packing than with the railway company, which is generally blamed for the mischief.

Camellias came from Mr. Higgs, gr. to Mrs. Barchard, and consisted of good-sized trees of Doncklaari, fimbriata, and the larger variety of punctata.

Of Indian Azaleas there were three collections of handsome plants, none of them very large, but all well bloomed. The first, from Mr. Todman, consisted of optima, which is one of the most brilliant of all Azaleas; præstans, and a rose-coloured semi-double kind. The second, from Mr. Fleming, comprised refulgens, a pink seedling, and another. The third group came from Messrs. Rollisson, of Tooting, and contained elata, semi-duplex maculata, which is one of the best of the half-double kinds, and purpurea rosea. Mr. Fleming also furnished two seedlings; No. 1 was a white ground flower, striped and mottled with pink; its fault was reported to be want of substance, which might be owing to the plants having been forced. No. 2 was not so good.

Of Chinese Primulas, the best came from Mr. Green, gr. to Sir E. Antrobus, Bart. These were fringed white and purple sorts, well bloomed. Mr. M'Ewen, gr. to the Duke of Norfolk at Arundel Castle, sent the second collection, and a third group was furnished by Mr. Chilman, gr. to Mrs. Smith, of Ashtead House, near Epsom.

Orchids were exhibited in great profusion, and in remarkably good condition. Messrs. Rollisson produced Angræcum eburneum, a magnificent specimen of this, when well grown, really handsome Orchid from the forests of Madagascar; a less conspicuous variety of it called virens, Vanda suavis, Lælia superbiens, with a noble spike of handsome flowers; Leptotes bicolor, quite carpeting the whole top of the pot with flowers; the White Butterfly plant (Phalænopsis amabilis) and a Eulophia, of no great beauty, from Java. Messrs. Veitch sent Barkeria Skinneri, Oncidium Cavendishi, Angræcum eburneum, Ansellia africana, Cœlogyne cristata, a most useful winter flowering species, &c. Mr. Woolley, gr. to H. B. Ker, Esq., sent Epidendrum rhizophorum, a species with Apricot coloured flowers like those of cinnabarinum —a colour so rare among Orchids; Phalænopsis amabilis, Epidendrum Skinneri, Calanthe vestita, the yellow-eyed variety, which is not near so handsome as the crimson-eyed sort, Angræcum virens, and a prettily flowered plant of Cypripedium insigne. From Messrs. Jackson, of Kingston, came a collection consisting of one of the best varieties of Lycaste Skinneri, the somewhat rare orange coloured Calanthe curculigoides, the pretty Odontoglossum membranaceum, and one or two other species.

Of single specimens Messrs. Veitch showed Epacris hyacinthiflora, and Mr. Todman had a good plant of Eriostemon myoporoides, which was, however, hardly sufficiently advanced in bloom.

Of Late Grapes there were several capital exhibitions. The best of these came from Mr. Forbes, gr. to the Duke of Bedford, at Woburn. They consisted of Black Hamburgh and West's St. Peters, both in an excellent state of preservation—scarcely, in fact, distinguishable from new Grapes. The next best exhibition was three bunches of Muscats from Mr. Clark, market gardener, Turnmoss, near Manchester. These were every way as good now as the beautiful bunches of this variety of Grape which were shown by Mr. Nash in December last. Mr. Snow, gr. to Earl de Grey, sent Black Barbarossa, which, though plump, was a little deficient in colour. Mr. Butcher likewise sent bunches of this Grape, as did also Mr. Fleming. Mr. Ingram furnished bunches of West's St. Peters, and Mr. Jennings, gr. to the Earl of Derby, Black Hamburgh. Black Barbarossa came from Mr. Morrison, gr. to A. Donaldson, Esq., and Mr. Page, gr. to W, Leaf, Esq. The latter also sent fair bunches of Muscat of Alexandria. Muscadine and Black Prince (!), both very much shrivelled, were shown by Mr. M'Ewen, gr. to Colonel Wyndham.

Of Early Grapes, Black Hamburghs, not very large, but well coloured and covered with a beautiful bloom, were contributed by Mr. Forbes, of Woburn.

Pine Apples:—Mr. Fleming showed a variety called Charlotte Rothschild, weighing 4 lbs. 4 oz., and a smooth-leaved Cayenne, weighing 4 lbs. A fruit of Charlotte Rothschild, weighing 4 lbs. 3 oz., was also exhibited by Mr. Dodds, gr. to Col. Baker, who gives this variety the character of being an excellent sort alike valuable either for winter or summer growth. Mr. James, of Pontypool Park, had a smooth-leaved Cayenne, weighing 4 lbs. 12 oz.; Mr. Bailey, Shardiloes, an unnamed variety, weighing 4 lbs. 2 oz.; Mr. Ingram, a Queen, weighing 13 lbs. 3 oz.; and Mr. M'Ewen, of Arundel, a Ripley Queen, 2 lbs. 6 oz. in weight.

Apples consisted of two collections, one from Mr. M'Ewen, of Arundel; the other from Mr. Snow, gr. to Earl de Grey. The latter had Blenheim Pippin, finely coloured, Golden Noble, a large yellow Apple, Ribston Pippin, Old Golden Pippin, Court Pendu Plat, and Young's Golden Pippin. Mr. M'Ewen had, in addition to these varieties, the Cockle Pippin, Golden Harvey, or Brandy Apple, and the King of the Pippins.

Pears.—Beautiful specimens of Easter Beurré, Glou Morceau, and Ne Plus Meuris, were shown by Mr. Tillyard, gr. to the Right Hon. the Speaker, at Heckfield. The same exhibitor also sent (but not for competition) examples of Winter Nelis, Beurré Rance, Susette de Bavay, Passe Colmar, and Knight's Monarch, all in a fit state for table. Mr. Snow, gr. to Earl de Grey, had the next best lot in point of merit. It consisted of Glou Morceau, Chaumontel, and Easter Beurré, all very fine fruit. Mr. M'Ewen, of Arundel, produced Easter Beurré, Beurré Rance, and Passe Colmar. Mr. Robertson, Stoke Edith Park, sent Chaumontel, large and beautifully coloured, Easter Beurré, and Glou Morceau. Finally, Mr. Bloore, gr. to the Rev. J. J. Hornby, contributed examples of Glou Morceau, Beurré Rance, and Winter Crassane.

Forced Vegetables.—Mr. Ingram furnished an excellent collection from Frogmore, consisting of Asparagus, large and fine, Seakale, French Beans, Mushrooms, Rhubarb, and Tomatoes. Mr. M'Ewen, of Arundel, had the next best set, which comprised small Kidney Potatoes, Fulmer's French Bean, Seakale, Asparagus, considerably smaller than Mr. Ingram's; Mushrooms and Rhubarb. The same exhibitor also sent a forced salad, containing Sion House Cucumber, Celery, Brown Cos Lettuce, Endive, and Mustard and Cress. Mr. Fleming sent Mushrooms and a box of Seakale.

Miscellaneous subjects of exhibition consisted of the following:—A collection of plants remarkable for fine foliage from Messrs. Henderson, of Pine Apple Place; a similar group from Messrs. Henderson, of Wellington Road; Lachenalias and Cinerarias from Mr. Todman; Acacia dealbata from Mr. Higgs; Lambert's Cone Apple, a sort resembling a small Cockle Pippin from J. Disney, Esq.; two seedling Apples from Mr. Smee, nurseryman, Halstead; a dish of Cuthill's Black Prince Strawberry, from Mr. Brown, of Waltham Abbey; seedling Potatoes of 1851 from T. L. Popham, Esq.; Brussels Sprouts, remarkably fine specimens, from Mr. M'Ewen; Holcus saccharatus, in a green state, and bearing seed, from Mr. Ingram, of Frogmore; also dried stalks of it and a sample of its fibre from Mr. Henderson, of Kingskerswell. In addition to what will be found at p. 35, respecting this plant, it was stated that its fibre, after the juice is pressed out of it, has been ascertained from paper-makers in this country to be worth at least 10*l.* a ton. A root and figure of the Potato Yam (Dioscorea Batatas) from M. Decaisne were also exhibited. The root was about the size of a well grown Parsnip, but, unlike that vegetable, in this case the thick end is that which pushes its way into the ground. It can only therefore be grown with advantage on ridges, and in deep light land; when first taken up this root was said to weigh about 3 lbs. A model of a rising stage came from Mr. Smith of Hummanby Hall, near Scarborough, Yorkshire. The shelves in this contrivance were moveable, and were susceptible of being raised towards the glass with the plants on them, or lowered at the will of the cultivator. It was considered that it might be useful in certain cases, more especially if machinery could be applied as the moving power instead of manual labour. Mr. Miller, gr. to Sir W. Smith, Bart., of Eardiston, sent a plan of a span-roofed pit or Vinery, 120 feet long and 15 feet wide, heated with hot water. This house is used as a Vinery in summer, and as a kind of vegetable garden, *i.e.*, a place for raising forced vegetables, and keeping plants in in winter, means being provided for turning the tops of the Vines out of doors during that season. It was thought to be worthy of commendation on account of its apparent simplicity of construction and general usefulness. Mr. Munro, gr. to Mrs. Oddie, showed a boiler for a hot-water apparatus, together with a plan of the same. It was a square box about a foot or so deep, filled with flue-pipes. It exposed a large surface to the action of the fire, and appeared to be altogether good in principle; the inventor was, however, recommended to try it in some public garden where attention could be called to it, and a report of its working capabilities obtained. Finally, on the walls of the meeting room, were suspended the drawings of Wellingtonia employed by Mr. Bateman in the interesting lecture fully reported in our columns of last week.

From the garden of the Society came among other things an example of a wild Hyacinth from Cabul. It was stated that this, which is little handsomer than a common Blue Bell, was in all probability the parent of the beautiful Dutch Hyacinths now cultivated everywhere.

The medals, &c., awarded on this occasion will be found in our advertising columns.

Notices of Books.

Pescatorea. Iconographie des Orchidées de la collection de M. Pescatore, au château de la Celle St. Cloud, parts 2, 3, and 4. Folio.

Three new numbers of this fine book have just reached us. We learn with much regret that the delay which has occurred in their delivery arises from the difficulty of finding an English bookseller willing to undertake the publication of so large and valuable a work upon conditions which its price and circulation will permit the authors to bear. It it to be hoped, however, that some arrangement will be made so as to enable the English

subscribers to receive with punctuality so beautiful a publication, which is indispensable to all lovers and growers of Orchids.

The numbers now before us contain figures of *Odontoglossum Cervantesii*, var. *membranaceum; Warcziewiczella marginata*, Rchb. f., of which the *Warrea quadrata*, Lindl. is a synonyme; *Cœlogyne asperata; Vanda suavis*, a beautiful white form, with crimson stains; *Odontoglossum navrina*, which is to be succeeded by figures of the yet finer *O. gloriosum* and *præstans*, *Cataseum sanguineum*, *Warcziewiczella candida*, Rchb. f., or *Warrea candida*, Lindl.; *Angræcum Brongniartianum*, Rchb. f., a glorious plant in the way of *A. virens* and *eburneum; Cattleya citrina*, a beautiful specimen from the garden of Mr. Consul Schiller, at Hamburgh (we have never seen so fine a specimen in this country); *Barkeria elegans; Odontoglossum hastilabium*, and *Renanthera matutina*. The work continues to be enriched with the learned scientific observations of M. Reichenbach, jun., the practical horticultural counsels of Mr. Luddeman, and an accurate general history of the plants in their wild state by Mr. Linden, who is the chief editor, and to whom those who wish to procure this really noble work should address themselves *au Jardin Royal de Bruxelles*.

The *Album Vilmorin*, another magnificent work, in elephant folio, published in Paris, contains highly finished representations of the principal hardy annual and perennial flowers, vegetables, and agricultural plants cultivated in France. The 185th number is now before us, containing two plates, one representing kitchen garden produce, the other a group of flowers. It says a great deal for the wealth of France that such bulky, costly works find purchasers enough to defray the large expense of publication. Those who are unacquainted with this album will be surprised to see how well the roots of Turnips, Leeks, and Beets look upon paper.

Victoria Regia; or the great Water Lily of America. By John Fisk Allen. Elephant folio, Boston, U.S.

In 17 pages of the largest elephant folio size, with six carefully coloured plates, and all the luxury of fine paper and beautiful typography, Mr. Allen has published an elaborate history of the discovery of the Victoria Lily, of the steps by which it became known to science, and of the conditions under which it flowered in the United States. His task has been executed in a manner worthy the Royal flower, and we congratulate him in having so much zeal for horticulture as to put upon record in this magnificent manner the facts connected with the first introduction of the plant to the United States. Mr. Allen's work shows, like other modern productions of the American press, that in art as well as in science Europe has to encounter for the future a rival worthy of the most advanced of her old countries, and already ahead of those which stand in the second rank.

FLORICULTURE.

Dahlias.—One of your correspondents says (see p. 56) that the best flowers are obtained from plants struck from the first cuttings produced by the parent plant; this is, however, by no means the case. He also says, thus it is that good flowers are obtained with the least trouble from those plants which are kept in pots the first season after striking, and which are termed by the trade "pot roots," being planted out the following season, and allowed to start of their own accord. What I would ask is, Which is the least trouble? To strike them one year and plant them, or to strike them, then keep them in pots through the summer, and plant them the following spring. I have grown Dahlias for these last five years, and have exhibited them, and I know from experience that your correspondent is decidedly wrong. Let those who like his plan try some plants on the old system next summer, and judge for themselves. The usual way is to put the old roots if possible in a moderate heat, but a dry one; for if any of the tubers are at all unsound, they are very likely to cause the decay of the whole plant if placed in a moist heat; as soon as the cuttings are about 4 inches long let them be taken off the old root, placed in thumb pots, putting a little silver sand immediately under the cuttings; then let them be placed in a moderate heat again, and shaded when needed, and they will strike in about a fortnight. When well rooted they should be placed in larger pots, and gradually hardened off till the time of planting; if some of these be planted by the side of those on your correspondent's plan, the latter will no more be adopted, for this reason:—the pot plants, having a number of eyes, continue throwing up suckers the whole season, which in the case of some sorts would deteriorate their quality very much, especially those kinds which are close in the petals. *J. M. M.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Any of the climbers that are found to be growing less vigorously than it is desirable that they should do will be benefited by having as much of the old soil removed from their roots as can be done with safety, replacing it with good fresh fibry materials. Ipomœa Leari, which is one of the most showy twiners in a close roofed house which we know of, requires to have the soil frequently renewed, or the old plants may be destroyed, the soil renewed, and good strong young plants turned out in April. Stove.—Plants in active growth requiring more pot room should be repotted, and many of the young stock just starting into growth will be benefited by a shift; but arrangements should be made for doing this without exposing the plants to the temperature of a cold shed, and there should be a good supply of soil at about the same temperature as that in which the roots have been growing ready for use when wanted. The whole of the repotted plants should be placed where they can be readily examined, so that they may be carefully supplied with water for a few weeks after repotting, and they will be benefited by a gentle sprinkling with the syringe on the mornings and evenings of bright days; but use the syringe sparingly during cloudy weather. Any of the Orchids that may be starting into growth should be repotted or top-dressed as may be required; for if this is deferred long after the commencement of growth, there will be great danger of injuring either the buds or young rootlets. Give a gentle syringing to plants on blocks, but only sufficient to prevent shrivelling.

FORCNG DEPARTMENT.

Pineries.—Where the bottom-heat is maintained by means of fermenting materials such beds as may have been recently renewed should be carefully watched, and if the heat at the bottom of the pots is found to exceed 90° the pots should be slightly raised in order to prevent injury to the roots. It is not usual now to subject the roots of Pines to a temperature of 110° or more, as we have seen growers of the old school quietly doing, but it is still to common a practice to allow the bottom-heat at times to become too strong, throwing the plants prematurely into fruit or otherwise injuring them. Indeed we believe that more harm is done to Pines by too much bottom-heat than by any other cause, and success cannot reasonably be expected while the roots are occasionally subjected to a baking heat. Maintain a steady bottom-heat of about 85° during the growing season, but depend upon it that 90° cannot be exceeded with safety. See that the soil about the roots of growing plants is not allowed to become too dry, and secure a moist state of the atmosphere, but use the syringe carefully, until the sun becomes more powerful to dry the hearts of the plants. Vineries.—The weather for some time past has been anything but favourable for early forcing, and the most careful attention will be necessary with houses where the Vines are fairly in leaf. Take every opportunity to admit fresh air to strengthen the shoots and foliage, &c.; but do this cautiously, and by small openings near the heating apparatus, and shut up early in the afternoon, letting the glass rise to 80°. Where the Vines are in bloom, let the night temperature range between 60° and 65°, raising it 10° by day, and Muscats need hardly be expected to set well unless they can be kept some 5° warmer; but it will be better in every case to let the temperature sink a few degree on sharp nights than to over heat the pipes, and render the atmosphere unhealthy. While the syringe cannot be used the evaporating pans must be kept at work, and the floors, &c., sprinkled in the morning or as often as may be necessary to secure a moist state of the atmosphere; for unless this is attended to, red spider will be very apt to make its appearance. But, perhaps, the great cause of red spider is an unhealthy root action, producing thin, weakly foliage, which despite the most careful internal management is sure to be attacked by this pest, therefore use every means to secure a dry, warm state of the borders. Give Vines in pots a liberal supply of manure-water in a tepid state.

HARDY FRUIT AND KITCHEN GARDEN.

Preparations should be made for getting in the main crop of Potatoes as soon as the weather and the state of the ground have become favourable. The experience of past years should have taught every person the impropriety of planting these upon fresh manured land, and although a heavy crop of the weakly early sorts cannot be obtained, except from land in good condition, the use of strong manures should be avoided even for these. By selecting a piece of ground that was well manured last season for a green crop, and giving this a good dressing of charred vegetable refuse or wood ashes, previous to planting the Potatoes, it will be less likely to favour an early attack of disease than if rich stimulating manure was used. And, except for very weakly growing varieties, the soil of most gardens is too rich to produce Potatoes of anything like quality. Push forward all kinds of wheeling while the ground is in a favourable state for such work. Soils of a heavy tenacious character are improved for working the more they can be exposed to the action of frost, and some persons dig such ground a second time, turning in the frozen surface, in order to expose a farther portion to the action of the weather; but where it may be desirable to do this the frozen part should not be dug in deep. Look well to the protection of Lettuce, Cauliflower, &c., under glass, and take every opportunity of exposing such things to air. Some of the strongest roots of early Rhubuarb might be covered with pots or boxes, and sufficient leaves and stable litter to produce a gentle warmth, this would save injuring the roots by removing them for forcing, but where there is a good stock of roots this is of little consequence, and is hardly worth the trouble and litter which it causes. Get ground prepared by heavy manuring and trenching for fresh plantations of Rhubarb, Seakale, and Asparagus, and remember that the ground for these things can hardly be made too rich.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Feb. 8, 1855, as observed at the Horticultural Gardens.

Feb.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind.
Friday	2	15	29.990	29.752	32	27	29.5	36	38½	E.
Satur.	3	16	29.510	29.429	39	23	31.0	36	38½	E.
Sunday	4	17	29.384	29.229	39	33	36.0	36	38½	E.
Mon..	5	18	29.308	29.287	40	31	35.5	36	39	S.W.
Tues.	6	19	29.542	29.318	35	29	32.0	37	39	N.E.
Wed.	7	20	29.811	29.744	36	27	31.5	37	39	N.E.
Thurs.	8	21	29.794	29.602	32	27	29.5	36	39	E.
Average.			29.619	29.488	36.1	28.1	32.1	36.3	38.8	

Feb. 2—Frosty wind; drifting snow; overcast; rain at night with strong wind.
— 3—Hazy throughout; most surfaces exposed to the wet of the night are glazed over with ice.
— 4—Dense fog; foggy; with slight thaw.
— 5—Overcast; drizzly; overcast.
— 6—Overcast; some snow-flakes; slight rain; snow showers.
— 7—Cloudy; snow at night; clear and frosty.
— 8—Constant fall of snow throughout the day to the depth of 4—5 inches, drifting occasionally.
Mean temperature of the week 6¾ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Feb. 17, 1855.

Feb.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday	11	44.3	30.1	37.2	12	0.34 in.	8	3	1	—	5	6	[illegible]	[illegible]
Mon.	12	44.6	29.7	37.1	12	0.28	3	4	—	—	5	9	[illegible]	[illegible]
Tues.	13	44.4	30.5	37.4	10	0.30	2	2	4	1	5	8	[illegible]	[illegible]
Wed.	14	45.6	32.0	38.8	10	0.50	—	2	3	2	4	9	[illegible]	[illegible]
Thurs.	15	46.7	31.7	39.2	10	0.25	2	3	2	—	5	7	[illegible]	[illegible]
Friday	16	46.0	31.2	38.6	5	0.23	5	3	1	3	—	8	[illegible]	[illegible]
Satur.	17	46.4	32.0	39.2	11	0.32	3	1	2	3	3	8	[illegible]	[illegible]

The highest temperature during the above period occurred on the 17th, 1831 — therm. 59 deg.; and the lowest on the 11th, 1845 — therm. 1 deg. below zero.

Notices to Correspondents.

Arnott's Stoves: *Henry.* They are little used now. Undoubtedly any ironmonger in a large way can supply you.

Bonapartea: *Wm. Link.* Your plant appears to be right. All you need do is to take care that it neither damps off nor catches cold. Give it all the warm air you can command.

Books: *S B.* The new edition of the "Theory of Horticulture" will be ready in a few weeks; it has reached p. 304 in the printer's hands. It is not intended to publish it in numbers. If you have as much as 5*l.* to spare for an English Dictionary you had better buy Richardson's, which some good-natured bookseller will let you have for less money than that.

Calandrinias: *X Y Z.* C. umbellata is an annual; discolor is a half shrubby greenhouse plant, which however does very well as a bedding out plant.

Camellias: *Sub, &c.* Cold and imperfect drainage often cause the buds of these to drop off, and even a scarcity of water after they are formed will produce the same effect. Another reason why Camellias drop their buds is leaving too many on the plant. Some varieties produce twice as many as they have strength to expand, the consequence of which is if they are not picked off at an early period they will drop off, and those that remain will often be deformed and small. If, therefore, you want good blooms, you must not permit too many buds to remain on a plant.‡

Dioscorea: *Sub.* The tubers of this sent out by the trade vary from the size of Peas to that of Hazel nuts.‡

Diseases: *T D H.* The disease on the leaves of your Oncidium appears to be of the same nature with those noticed under the initials "J. R." and "H. W.," Jan. 27, 1855. The whole plant seems to be affected, and if that be the case it is very doubtful whether you will find any remedy. It is evident at least that the present condition of your house does not suit the species, though there can be nothing radically wrong about it, or many other species would suffer. Your best chance is probably to alter the position of your plant in the house, and, if possible, to move it to some drier spot, if, as is apparently the case, the leaves are unusually succulent. It is however obvious that, without seeing the matter *in situ*, one can only guess at the conditions which may have induced disease, or the remedies which the case might suggest. *M. J. B.*

Erythrolæna conspicua: *O P.* asks if this plant is lost. We have not seen or heard of it for many years.

Ferns: *G A.* The specimen arrived safely, and is under examination by a friend, who will in time give us his opinion.

Grape Mildew: *M D.* inquires whether any of our readers can inform him whether the sulphuret of potash has been used as a remedy for the Grape blight. We have some idea that such a proposal has been made, but we are unable to find it recorded.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Erzeroum.* Letter of January 6 received. The arrival of the parcels will be immediately notified. Very happy indeed to hear that you are about to visit England.

Orange Trees: *A Sub.* We foresee no risk provided you do not use gas-tar, but merely employ pitch, properly so called, along with grease.

Prices of Digging. Received a *Northern* and *Bedale.*

Publishers: *A R.* Your question is, we apprehend, purely legal, and therefore beyond our province. We suspect you have no remedy in the absence of a special contract. Such occurrences are very common abroad, but we have never been able to obtain any satisfaction. The remedy we seek is not to take books in in numbers, but to wait for the completion of a volume, unless we know the author or publisher.

Rabbits Barking Trees: *V.* The following is said to be a good way of preventing the mischief. To 1 gallon stale urine add 1 quart powdered lime, and 1 pint foreign tar; warm the tar to mix with the above, then add as much cow dung as will bring it to the consistency of thin paint. Apply it to the trees with a painter's brush.‡

Raspberries: *Hortus.* These may be forced so as to be ripe with forced Cherries; the great difficulty is to prevent their growing too fast and becoming blind. We dare say some obliging correspondent will give you his practical experience in the matter.

Transplanting Evergreens: *B A C.* We would recommend you to wait till next August or September.‡

Vines: *L R L.* If your plants make good wood under the present management we should continue it without alteration. Stable litter will probably cause your soft-wooded plants to damp off. If liquid manure is wanted for the Vines make it by putting two double handfuls of guano into a pail of water; stir it a few times in 48 hours; then let it stand till it is clear, when it may be used, one pailful to each Vine. The sediment will be good manure for turning in to the kitchen garden borders—for Onions, Turnips, or other root crops.

White Blackberry: *A W.* This is an American, not English, plant.

Woollen Netting: *J H.* We would prefer 1-inch mesh to 2 inches. Mr. Harrison's, if we recollect rightly, is something less than 1 inch. We never recommend dealers.‡

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
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It may also be had from Messrs. G. GIBBS & Co., 26, Down Street, Piccadilly, Agricultural Seedsmen, Agents for London; and from all the other Agents of the Company.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*

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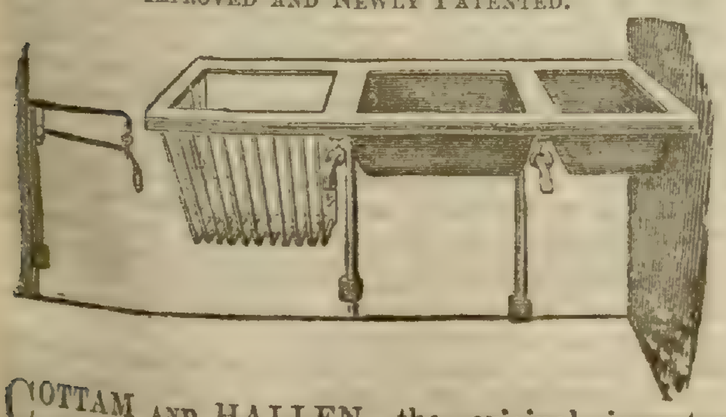
IMPROVED AND NEWLY PATENTED.



COTTAM AND HALLEN, the original inventors, obtained the Great Exhibition Prize Medal for this arrangement, to which all the latest improvements are adapted, secured by Patent, including a method entirely new of attaching the halter-weight and rein from the back of the manger to the under front of the plate, allowing the horse greater freedom, and being noiseless in operation, add much to its comfort whilst feeding and convenience when at rest, as likewise, from their position, avoiding the liability of the most restive horse getting cast. No well-managed stable should be without these fittings.

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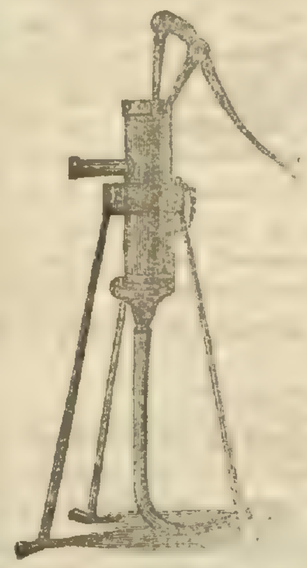
STEPHENSON AND PEILL, 61, Gracechurch Street, London, and 17, New Park Street, Southwark, Manufacturers of Copper Cylindrical and Improved Conical Iron BOILERS, and Conservatory and Hothouse Builders, either in Wood or Iron, respectfully call the attention of the Nobility, Gentry, and Nurserymen to their simple but efficacious method of warming Horticultural and other Buildings by Hot Water.

From the extensive works they have executed, references of the highest respectability can be given, and full particulars furnished on application.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

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Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1	12	0
2¾ "	long 3 " 3 "	gutta percha,	1	15	0
3 "	ditto 3 " 6 "	or cast iron	2	12	0
3½ "	ditto 3 " 6 "	flanged pipe,	2	18	0
4 "	ditto 3 " 6 "	as required.	3	5	0
2½ "	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto ditto ditto		2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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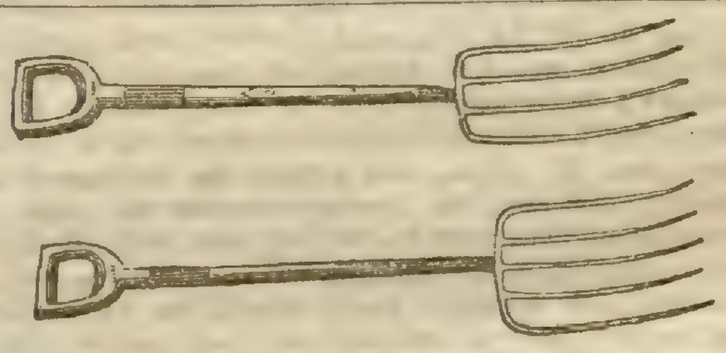

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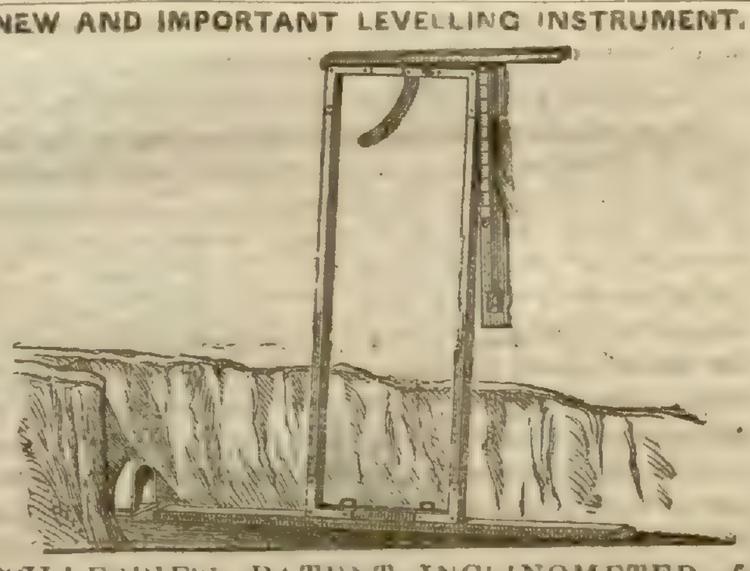

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PRESENT PRICES OF AGRICULTURAL SEEDS.—SEE MESSRS. SUTTON'S DESCRIPTIVE LIST, on the last page of this day's *Gardeners' Chronicle.*

The Agricultural Gazette.

SATURDAY, FEBRUARY 10, 1855.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, Feb. 14—Agricultural Society of England.
THURSDAY, — 15—Agricultural Imp. Society of Ireland.

EVERY profession has its enthusiasts; and agriculture in all its departments has them in abundance. Of those who are especially interested in *cultivation* we have teachers of deep and of shallow culture—of tilth without manure—and of manure applied in the liquid form, or as top-dressings in the solid form. In other divisions of the subject we have devotees of plant improvement and of animal improvement. Poultry has absorbed the whole regard of many; and there is many an ill cultivated farm occupied by men celebrated as breeders of stock, to prove that it also often too exclusively engages all the energy of the tenant. Agricultural improvement owes a great deal to enthusiasts. It makes progress piecemeal in the hands of those who are

thus interested in but pieces of its whole extent. If it had not been for BAKEWELL and for COLLING, the one giving a lifetime to the improvement of the sheep, and the other to the improvement of the Teeswater breed of cattle, not only would sheep and cattle not have been what they are, but British agriculture generally would not have attained its present powers as the food supply of more than 20 millions. Amateurs as well as farmers may therefore all feel well disposed towards agricultural enthusiasts.

The present value of the short-horn breed is the result of an enthusiasm commencing with the COLLINGS, but extended now over the owners of hundreds of herds—many as good as theirs. And the preservation of the present value of the breed depends upon the perpetuation of this feeling. That it is still as strong as ever there is abundant evidence. Mr. TOWNELEY might be called, or might send his herdsman, as witness to it; and an amusing illustration of it in another quarter was given to us the other day by Mr. STRAFFORD. As the editor of the short-horn herd book, Mr. STRAFFORD receives, of course, the earliest intelligence regarding every varying phase of the short horn breed. He is, as it were, the focus where one best can estimate the character and force of that particular branch of agricultural enthusiasm which that breed exhibits. When in his company the other evening, the following note arrived from the intelligent steward on the Earl's Court Estate, Old Brompton, the property of Mr. GUNTER. Mr. KNOWLES had charge of the Tortworth herd for several years, and may be allowed the feeling of satisfaction which dictated the following intimation:—

"The Steward's Cottage, Earl's Court, *Feb.* 1, 1855.

"DEAR SIR,—I have much pleasure in announcing the birth of a rich roan cow calf, last night, from the Tortworth Duchess. Both the infant and her Grace the mother are progressing favourably. I am, dear Sir,

"Yours truly, JAMES KNOWLES."

This calf is from Duchess 67, sold a yearling at the Tortworth sale for 367*l.*; and its sire is fourth Duke of Oxford, 11,387—a bull sold by Lord DUCIE to Mr. SAINSBURY, of Corsham, got by Grand Duke, the thousand guinea bull sent to America by Mr. BOLDEN, of Lancaster. The dam of the fourth Duke, namely, Oxford 6th, is also in America. In fact, nearly all of the Duchess blood are on the other side of the Atlantic. Mr. GUNTER and Mr. BOLDEN are the principal owners of the Duchess family in England. Mr. GUNTER has in his possession Duchess 67, bought a yearling at the Tortworth sale for 350 guineas, and her calf referred to in the note above—one of the most vigorous young quadrupeds that ever puzzled those who condemn in-and-in breeding. He has Duchess 70, purchased a calf at Tortworth for 310 guineas; and he has Duchess 69, purchased by Mr. TANQUERAY at the Tortworth sale for 420*l.*, and since sold by him to Mr. GUNTER for 525*l.* The calf from Duchess 67, by the fourth Duke of Oxford, unites in herself the blood of the best families of the short-horn breed, and the satisfaction expressed in the note that we have published, will be perfectly understood and sympathised with on both sides of the Atlantic!—Mr. BOLDEN owns two heifers, by the Grand Duke, from the fourth Duke of York's dam, Duchess 51; and he also possesses Grand Duke 2d, a very promising young bull, son of Duchess 64, sold at Tortworth for 600 guineas. It may illustrate the high market value of this blood to state that 500 guineas were offered for this young bull when a calf of a few months old.

We must not forget, however, that the short-horn breed includes many other families and herds of pure descent. The prices received at the sales during the past year have not equalled those of the previous year, partly because American competition—to which many heavy prices given have undoubtedly been due—has been directed chiefly to animals of the Oxford and the Duchess blood, but also because a second Tortworth sale has not happened during the past 12 months, and is not likely to occur again, even though we understand Mr. TANQUERAY's fine herd at Hendon is soon to be disposed of. The only sale of Duchess blood, of which we have heard, has been in the case of Duchess 69; and there the price (525*l.*) has been independent of competition; American influence cannot be pleaded in explanation. This is the highest price given during the year. The following are other prices that have been received, and if the exceptional character of Lord DUCIE's sale be taken to exclude it from consideration, it may be concluded, we think, that the value of the breed has not fallen in general estimation.

Application for information on the sales of the past year was made to Mr. WETHERELL, of Durham; and Messrs. GANLY & SON, of Dublin; and to Mr. STRAFFORD; and from the last-named gentleman we have received particulars of 17 sales—almost the only ones of any consequence in 1854—conducted by himself. The following is a short summary of the chief points which they exhibit:—

1854.	NAMES AND PARTICULARS.	Number Sold. Cows and Heifers.	Number Sold. Bulls and Calves.
April 11	Mr. Cartwright, of Aynhoe, Northamptonshire ... ... Among the prices were 56, 57, 59 guineas for cows; 40, 48, 41 for bull calves.	20	10
April 13	Mr. Wilkinson, Lenton, Notts ... ... 165 guineas were given for Phœnix, 130 for Zealous, 90 for Wiseton Lady, 90 for her daughter Roan Lady, 110 guineas for Lavender 3d; and among the bulls, Splendid fetched 110 gns., Monarch 75 gns. Amount of sale about 3000 gns.	50	15
April 27	Sir J. Lubbock, Kent ... ... Sold for 600 guineas! Prices went very low. Several have since been sent to Australia: at of course higher figures.	21	13
May 3	Mr. Adkins, Stratford-on-Avon ... ... Amount of sale, 1500*l.* General a bull fetched 70 guineas, and several cows reached sums between 40*l.* and 60*l.* Twenty pure bred animals of Mr. Goode's were sold after this sale on the same day.	39	10
May 24	Mr. Grant Duff, Aberdeenshire ... ... The amount of the sale was about 2000*l.* Several high prices were attained; Jenny Lind, 7 years old, fetched 100 guineas; Miss Bates and Miss Bates 24, 66 and 75 guineas; Pure Gold, 91 guineas; and Manganese 90; Monika and Iris, 95 each; and Lady Love for 110 guineas. Several bulls reached prices over 40 and 50 guineas.	30	14
June 7	Mr. Fawkes, of Farnley Hall, Yorkshire, annual sale ... ... Amount 527*l.*, a very high average for bulls.	0	8
July 14	Sir C. Knightley, Northamptonshire ... Amount, 571*l.* The prices, though many of them ranged above 50 guineas, were considered low.	0	15
July 18	Mr. Champion, Retford, Notts. ... ... Realised between 1400*l.* and 1500*l.* The prices ranged, for cows and heifers, between 40*l.* and 100*l.*; one fetched 130*l.* Two of the bulls fetched 52 and 60 gs.	30	5
Aug. 24	Mr. Kirkham, of Hagnaby, Lincolnshire.. The amount was near 3000*l.* Many of the cows realised prices between 50*l.* and 70*l.*; one fetched 160 guineas. Among the bulls and calves, 65, 72, and 100 guineas were obtained.	70	15
Sept. 5	Mr. Bolden, of Lancaster, sold for 415*l.* ... 50, 90, and 100 guineas were obtained. Mr. Carr, of Settle, sold a few on the same day.		7
Sept. 6	Mr. Dickenson, Ulverston, sold for 700*l.* 40*l.*, 51*l.*, and 60*l.* were reached.	27	6
Sept. 20	Mr. Ladds, Huntingdon, sold for 1700*l.* ... One bull fetched 105*l.*; the highest cow was 60 guineas.	54	12
Sept. 21	Mr. Abbey, Wellingborough ... ... Hardly realised 1000 guineas; one yearling calf sold for 35 guineas.	50	
Sept. 27	Lord Monck, county Wicklow ... ... Sold for 800*l.*	25	5
Sept. 28	Mr. Topham, Dowestown, Co. Meath ... Sold for 1850*l.* The highest price was 110*l.* for a cow; and 10 or 12 others ranged between 40*l.* and 60*l.*	58	12
Oct. 12	Mr. Dickenson, Willesden ... ... Sold for 1200*l.*	36	
Oct. 19	Lord Exeter, Stamford ... ... Sold for 700*l.*	27	8

Here, then, are 155 bulls and bull calves, and 537 cows sold for about 22,000*l.* This has, in fact, been an average year as to number and as to prices, and the number and the value are sufficient to indicate the national importance of the short-horn stock. Neither the one nor the other are of course the complete index which we should like to have. Private sales doubtless exceed in number, and we have seen, in the case of Duchess 69, that they sometimes exceed in prices given those submitted to and reached at public auction. The interests of breeders, after all, depend more upon the former than the latter; and the more numerous the herds, the more general the interest in the breed, the better are the interests served, whether of the country generally or of the owners of the stock.

The value of a record of pedigrees becomes of course more obvious as the number of herds and animals increases; and we are glad to hear that Mr. STRAFFORD is preparing a new volume of the "Herd Book" for publication. He is receiving pedigrees from all quarters;—from H. R. H. Prince ALBERT, and from many a tenant farmer, as well as from the great breeders, Lords BERNERS, HILL, and FEVERSHAM, Sir C. KNIGHTLEY, Messrs. AMBLER, COMBE, CRUICKSHANKS, FAWKES, TANQUERAY, TOWNELEY, TORR, and JONAS WEBB, and many other well-known names. No one is better qualified to receive and classify and conduct a publication of this kind, for no one probably in the country knows so thoroughly the herds and individuals of the short-horn blood. It is out of the knowledge of the editor that the public confidence in this publication has arisen. And Mr. STRAFFORD's acquaintance with his subject has been tested long enough to make one sure that the new volume will be a full and truthful record of the principal additions to the breed since the appearance of the last.

THE Report of the Highland Society to the Board of Trade on the AGRICULTURAL STATISTICS OF SCOTLAND for the year 1854, has at length been published. Mr. HALL MAXWELL reports most favourably of the success of the effort which has during the past year been made, and does full justice to the cordiality and activity with which he has been almost universally assisted.

"The Scotch farmers, as a body, at once recognised the importance and utility of the measure, and endeavoured to support and forward it by readily and faithfully affording the information required from them; and it is due to the small minority by whom the policy of the inquiry may have been questioned, or its objects misapprehended, to state, that they, in general, waived their objections, and abstained from interfering with the success of a measure approved of by the bulk of their fellow farmers. The exceptional instances of positive opposition and refusal have been extremely rare, and in but few of these have I experienced any difficulty in obtaining authentic information from other sources; the schedules still unreturned or unaccounted for do not amount to one-fifth of one per cent of the number issued."

We give below the main facts, namely, first, the extent in crops within the 32 counties of Scotland; second, the number of stock; and lastly, the gross produce of the country.

1. *Acreage of the several Crops in Scotland.*—Wheat, 168,216; Barley, 207,507; Oats, 932,994; Rye, 3809; Bere or Bigg, 18,118; Beans, 37,702; Peas, 6169¼; Vetches, 13,442½; Turnips, 433,915¾; Potatoes, 143,032¼; Mangold, 1946¾; Carrots, 1218; Cabbage, 1395½; Flax, 6670½; Turnip seed, 1429½; Bare fallow, 26,128¾; Grass in the rotation of the farm, 1,427,790½; Permanent pasture, 1,207,101¼; Irrigated meadows, 69,256¼; Sheep walks, 6,530,842¾; Houses, roads, fences, &c., 130,538¾; Waste, 830,730¼; Woods, 413,391; Total, 12,613,345½. [This is not the whole extent, chiefly owing to the fact that highland and stock farmers do not know the extent of their occupations.]

2. *Number of Stock.*—Horses, 156,595; Milk cows, 292,365; Other cattle, 438,334; Calves, 205,172; Ewes, gimmers, and ewe hogs, 3,360,289; Tups, wethers, and wether hogs, 1,426,946; Swine, 163,683.

3. *Gross Produce of Scotland, in bushels.*—Wheat, 4,848,499; Barley, 7,639,601; Oats, 33,854,319; Bere or Bigg, 537,250; Beans, 1,080,921; Turnips, 6,372,189 tons; Potatoes, 523,383 tons.

The average produce per acre in each county, and in each district of each county, is stated in detail; and a reference is made to the produce of the year relatively to the average produce of past years, to which we shall have further opportunities of alluding. We heartily congratulate Mr. HALL MAXWELL on the completion of his arduous labours. They have resulted in a thorough pioneering of the route for further exploration and accomplishment, and this, with the independent and undoubted value of the results obtained, is of the greatest possible advantage to the success of the effort that will be made to obtain annual returns at a much earlier period than the month of February of the agricultural produce of the country.

STATISTICS OF CATTLE FEEDING.

(*Continued from p.* 75.)

I NOW proceed to describe the performances of my 15 milch cows on hand, in December, 1854, of which I have already supplied some particulars.—Nos. 1, 2, and 12, bought as strippers, giving 7 to 8 quarts per day. No. 1 bought recently.

No. 2, July 11th, 9 cwt. 2 qr.; milk, 8 qts per day. Nov. 28th, 11 cwt. 1 qr.; milk, 8 qts per day; gain in 20 weeks 196 lbs.

No. 12, Sep. 5th, 8 cwt.; milk, 8 qts per day. Nov. 28th, 8 cwts 3 qr. 20 lb; milk, 6 qts per day; gain in 12 weeks 104 lbs.

Nos. 7, 11, and 15 are in calf, in different stages. Of these I may state that they improve perceptibly in condition and consequently in value.

Nos. 4, 5, and 13 have recently calved, with an average yield of milk of about 15 qts. per day; they are fully maintaining their weight. Nos. 3, 6, 8, 9, 10 and 14 have been in hand since calving. From the length of time they have been under treatment, 33 weeks on the average, their performance appears to merit particular attention, as showing more clearly the effects of their food. The three weighed on the 21st of February had calved six to eight weeks; those weighed on the 23d of May, four to six weeks previously to their first weighing:—

	Feb.		Milk. quarts.	Nov.		Milk. quarts.	Time on hand.	Gain.
		cwt. qr. lbs.			cwt. qr. lbs.		wks	
No. 6 ..	21	9 1 0	14	28	10 1 20	5	40	132
" 9 ...	21	9 2 1	15	28	10 3 20	6	40	160
" 10 ..	21	9 2 0	14	28	11 2 0	7	40	224
	May							
" 3 ..	23	11 2 0	18	28	13 0 0	6	27	168
" 8 ...	23	8 2 0	16	28	9 2 16	6	27	128
" 14 .	23	8 1 16	12	28	8 1 16	6	27	124
								6)936

Gain for 33½ weeks, being 4⅔ lbs. per week each, 156 lbs.

It will be observed that during the first half of the time the cows would about maintain their weight, and that the gain will have accrued during the latter half, being nearly 9½ lbs. per week, with an average yield of about eight qts. per day each. Their yield of milk will have probably averaged 10 qts. per day each throughout; it is, however, quite safe to estimate it at nine qts. per day. The whole six are free from calf, in which state

they hold better to their yield of milk. They were bought near calving, and their calves sold within a few days of being calved for 30*s.* each; I allow 10*s.* for the keep of the cow, and reckon 20*s.* towards reduction of cost. It will be seen that during the 33½ weeks they have averaged a gain of 156 lbs. each; this I apportion wholly to useful material, making at 6*d.* per lb. 3*l.* 18*s.* On comparing their value at present, I find them worth more by 2*l.* to 3*l.* each than their first cost. Up to the early part of May they were in stall, and on winter food; during the summer months on Grass, being housed at night, with two feeds of steamed food per day. During October they were again kept wholly in stall, and treated as previously described. Their progress throughout has been steady, and taking the yield of milk and gain of weight into consideration, the feeding in stall and on winter food has not been to comparative disadvantage. Of the quality I can only speak as regards the yield of cream and butter, which I have tested frequently, and with a result nearly uniform, being from 16 quarts of milk 26 oz. of butter. On one occasion, in Dec. 1854, when on stall food, the yield of butter reached fully 27 oz. from 16 quarts. This uniformity in the yield of butter can only be expected from attention to the temperature of the dairy. I may at some time seek occasion to explain, on the invitation of your intelligent Clitheroe correspondent, my mode of equalising this by the application of hot water in winter, and cold in summer.

The produce of the dairy is disposed of in new milk at 2*d.* per quart, or in butter at varying prices, and old milk at 1*d.* per quart. For some time the latter, owing to the higher range of butter, has been the more profitable. The pecuniary results will appear to be :—

9 quarts per day new milk, at 2*d.* per quart ... per week	10*s.*	6*d.*
Gain in value, 2*l.* 10*s.* each, during 33½ weeks	1	6
Yield of excrement, 84 lbs. per day, 5¼ cwt. per week ...	2	2
	14	2

To ascertain the quantity of excrement, the yield from eight cattle, of solid and liquid during 12 days, was found to weigh 71 cwt., being the contents of the tank under the tails of the animals, into which the excrement passes through open boards. To ascertain its value I have referred to several analyses made by Prof. Way of the manure from my cattle. I assume the per centage of nitrogen at 50—60 ammonia per cent., or for 112 lbs. 67.

Its value at 7*d.* per lb. will be ... ... per cwt.	0*s.*	4½*d.*
Phosphate of lime 64 per cwt.	0	0½
per cwt.	0	5

As the same food in quantity and quality is found adequate to supply the large yield of 14 quarts of milk rich in nitrogenous casein compounds, and also a phosphate of lime, the assumed per centage of these and the value of them in this excrement will be moderate, and probably below what is its real content. It is free from admixture of straw and other foreign material, and undergoes little or no fermentation previous to its being applied.

Your readers will find a description of food in the *Agricultural Gazette*, Sept. 30th and Oct. 7th. It consists of—

		Per week.
5 lbs. of Rape cake and 2 lbs. of Bean-meal per day,		2*s.* 7½*d.*
½ lb. of Bean-meal, or 7 lbs. per week		0 3½
12 lb. meadow hay, at 3*s.* 6*d.* p. cwt., 84 lb. p. week,	2*s.* 7½*d.*	2 11
10 lb. Bean & Oat straw & shells of Oats, 70 lb. ...	1 0	
32 lbs. of food, 10*s.* per ton 224 lb.	1 0	
		4 7½
Attendance, 1*s.*; coals, 1½*d.*; cooking, 1½*d.*		1 3
		8 9½

The green crops I use consist of Cabbages till December, Kohl Rabi till February, and after this Mangold. I have not ascertained the produce per acre of the Cabbages by actual weighing, and therefore do not venture an estimate. That it will doubtless be larger than any other I cultivate, may be inferred when I state that on weighing some of the individual plants I found them of 30 lbs. and 35 lbs. each, and such were by no means rare. My Kohl Rabi (Cabbage Turnip) is likewise productive. I have ascertained, by actual weighing, a produce of 34 tons per acre, including the fresh green tops or leaves, which are eaten with relish, and have not the laxative property of Turnip-tops. In cultivating Cabbages and Kohl Rabi I introduce between each row one of early Potatoes, which are taken up in time to allow their neighbours room to expand their foliage to the full. Each crop, Potatoes, Cabbage, or Kohl Rabi, I reckon as occupying the half of an acre; the early Potatoes afford satisfactory remuneration for their half. The manure applied is the mixed liquid and solid excrement of cattle, fed on the produce of my farm—that for next season has already been ploughed in near a foot deep; taken from under the animals in all its freshness, and without exposure to the atmosphere, except on its removal, it will remain undisturbed until the cultivator and harrow are used for preparing the ground for the reception of the plants and tubers. The Cabbages and Kohl Rabi would doubtless be a profitable substitute for the hay, yet I cannot use them to a great extent, without detriment to the flavour of the milk and butter.

(To be concluded in our next.)

Home Correspondence.

Rotation of Crops.—This is a subject which from time immemorial has claimed the attention of farmers; it involves that of manure also, and renders it the more complicated. There is one leading point connected with both subjects, which appears to have been overlooked; and to this I hope now to recal attention. About 30 years have elapsed since the late eminent philosopher De Candolle promulgated an hypothesis "On the fecal or radical excretion of plants," by which much light was thrown upon the inquiry concerning the necessity of rotations in cropping. In the spring of 1854, at a meeting of the Croydon Farmers' Club, it was stated that red Clover could not be generally re-cropped on the same land more frequently than about once in seven or eight years! I was thereby led to undertake a close and protracted series of experiments with several varieties of the trifolium family, the common red, the white or Dutch Clover, and some of the smaller yellow Trefoils. Plants were carefully lifted, the roots were washed, and then inserted in phials of very pure filtered rain, or distilled water. After standing and growing in such pure water for several days, I found that, in every case, matters had been excreted by the roots of each variety, which were detected, more or less palpably, and proved the presence of carbonic and sulphuric acids, of chlorine, potash, and ammonia. Now, although we may not be able to prove by such facts that plants do in reality poison the land by fecal exudation, so far as each individual is concerned, or conversely, that they may enrich or manure it for others of a different temperament; yet, as exudations do take place without question or doubt, we ought to keep our minds open, and our judgment free from the prejudice of empirical routine. I claim, therefore, the reconsideration of De Candolle's theory, and venture to assert that it is not solely by exhausting the soil that certain plants fail if planted on the same ground year after year; for were this the case manuring would renovate the ground, but it fails to do so, and thus, if Peas or Wheat be sown repeatedly, the farmer may manure to whatever extent he shall please, yet his crops will dwindle and become poorer. Soils differ everywhere, even in the same field or garden; and therefore each farmer ought to become his own chemist. In the Isle of Thanet, that rich granary of London, I had proof in 1820, that if Peas were frequently replanted the ground became poisoned or "overpead." The seed might germinate, but the plants soon became yellow, or (locally) "foxed," and yielded nothing of a crop. *J. T., Croydon, Feb.* 6.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL, *Feb.* 7.—Mr. MILES, M.P., president, in the chair.

FINANCES.—Mr. Raymond Barker, chairman of the Finance Committee, reported the current cash-balance in the hands of the bankers, at the end of the previous month, as 3818*l.* He informed the Council, that this balance included a subscription of 1400*l.* from the authorities of Carlisle, towards the expenses of the ensuing country meeting of the Society to be held in that city. He laid on the table, for the information of the members, the various quarterly statements of account connected with the different financial departments of the Society.

IMPLEMENTS AND MACHINERY.—Col. Challoner, chairman of the Implement Committee, submitted to the Council the report of that committee; which had reference principally to the following points :—

1. The recommendation of implement and machinery prizes for the Carlisle Meeting, similar to those offered at Lincoln, with the following alterations :—
   (1.) That the deep ploughing should be required at a depth of 9 instead of 10 inches.
   (2.) That the prize for the best liquid-manure or water-drill should be raised from 5*l.* to 10*l.*
   (3.) That the prize for the best reaper should be raised from 20*l.* to 30*l.*; and that an additional prize of 20*l.* should be offered for the second best reaper.
   (4.) That the horse-power for the fixed steam-engines should be reduced from ten to eight-horse power.
   (5.) That instead of the former prize of 5*l.* for the best corn-dressing machine, a prize of the same amount be offered for the best machine to "dress corn for market after it has been screened or riddled."
2. The recommendation of the following new conditions affecting the construction and trial of implements :—
   (1.) That in adjudicating on the award of the prize of 200*l.* at the Carlisle Meeting for the "steam cultivator that shall in the most efficient manner turn the soil, and be an economical substitute for the plough or the spade," the attention of the Judges be particularly called to these terms in which this prize is offered.
   (2.) That in adjudicating on the award of the prizes for reapers, the attention of the Judges be particularly called to the best mode of delivery.
   (3.) That in portable steam-engines worked on the expansive principle, the condition under which the steam is cut off shall not restrict the makers, as last year, to "a lap on the common slide," but simply to the employment of "no complicated means" for effecting that object.
   (4.) That the greatest attention be paid by the Mechanical Judges to the plans and specifications of the boiler and fittings proposed to be supplied by the winners of the fixed steam-engine prizes to their respective customers.
   (5.) That, in the case of the threshing-machines, the greatest attention be paid by the Judges to the state of the Barley after it has been threshed (as to injury more or less, or otherwise, of the grain, after such operation).
3. The recommendation of the following special objects:
   (1.) That, in future reports of the exhibition and trial of implements and machinery at the Country Meetings, published annually in the Journal, it be suggested to the Journal committee, that the drawings and specifications should be given of the boilers proposed for the two prize fixed steam-engines; in order that the purchasers of those engines may be enabled to ascertain that the implement maker supplies to him a proper boiler, similar to the one exhibited in his original drawings, and which the judges had included in their award, as an essential condition affecting the completeness and general value of the engine.
   (2.) The recommendation that the Council should place at the disposal of the Implement Committee the sum of 115*l.* for the purchase (at prime cost) of the Dynamometer for threshing machines, invented by Mr. Amos, and employed by him with so much success at the Lincoln Meeting; and a sum not exceeding 20*l.* for rendering the present three friction-breaks of the Society, for testing steam-engines, self-acting and independent of special calculation:—the adoption of these new arrangements not only saving the expense of a breaks-man, but affecting a saving of one day's time in the trials.

The Council unanimously confirmed and adopted this report.

CARLISLE MEETING.—Mr. Milward, as Chairman of the day of the General Carlisle Committee, submitted to the Council the report of that Committee, which had reference principally to the following points :—

1. The election of Mr. Fisher Hobbs, as Vice-Chairman of the Committee.
2. The settlement of the date for the Meeting, as the week commencing Monday, the 23d of July.
3. The suggestion that a pavilion should be constructed at Carlisle for the purpose of accommodating 800 guests at dinner, at four o'clock on the Thursday of the week of meeting.
4. The request to Mr. Brandreth Gibbs, that as Honorary Director of the Show, he would prepare as usual the preliminary plans for the respective show-yards at Carlisle.
5. The request to the Stewards of Implements that they would purchase the requisite amount of Barley and Wheat in the straw, for the purposes of the trial of agricultural machinery.
6. The adoption of the same schedule of Prizes and conditions of show, for Farm Poultry, at Carlisle, as at Lincoln last year.
7. The acceptance, with thanks, of the following Special Prizes, to be competed for at the Carlisle Meeting under the general regulations of the Society's Show.
   (1.) From the Carlisle Local Committee: 75*l.* for Cheviot Sheep, and 80*l.* for horses.
   (2.) From George Head Head, Esq.: 100*l.* for Galloway Cattle.
   (3.) From Robert Ferguson, Esq., Mayor of Carlisle: two pieces of plate, value 40*l.*, for the best thorough-bred stallion, and of 30*l.* for the best coaching stallion.

The Council confirmed and adopted this report.

STEWARD OF CATTLE-YARD.—On the motion of Mr. Simpson, seconded by Mr. Barnett, Sir Stafford Northcote, Bart., was appointed one of the Stewards of the Cattle-yard at the Country Meetings of the Society.

FOREMAN OF FIELD.—On the motion of Mr. Thompson, seconded by Mr. Hoskyns, power was given to the Implement Stewards, at the Country Meetings, to elect a Foreman of the Field, at such a rate of payment for his services as the Council may decide.

Important communications from the Earl of Clarendon, on the discovery of supplies of guano, were referred to the consideration of the President.—The annual report of the Royal Veterinary College was referred, with various other papers, to the weekly meetings of the Council, at which all members of the Society have the privilege of being present.

The Council adjourned to Wednesday, the 14th Feb., at 12 o'clock.

Farmers' Clubs.

LONDON.—A crowded meeting of the members of this Club was held on Monday last at the York Hotel, New Bridge Street, Blackfriars, for the purpose of taking into consideration the following important subject proposed by Mr. Mechi, of Tiptree Hall, Essex :—"*To what Extent can Town Sewage be Profitably applied to the Purposes of Agriculture.*" Mr. Shearer, of Hampshire, presided. The chairman, in introducing the business of the meeting, stated that they had met together that evening for the purpose of considering a subject which was of the utmost importance to the agriculturist. The committee had appointed him to take the chair, not because he was a distinguished practical farmer, but because they considered that he might be of use in promoting the interest of the Club, and of this he was sure, that after remembering the many pleasant evenings he had spent there, and the amount of practical knowledge he had derived, they could command him at any time (hear). This Club was of the greatest value to all connected with agriculture, and he therefore trusted all present would do their utmost to support and extend its usefulness. The subject which Mr. Mechi was about to bring under their consideration was fraught with the greatest interest, not only to farmers but to every class in the community, for by the introduction of railways, by the extension of common roads, and the large space occupied by new buildings, 10,000 miles of land in this country had been lost to them. It therefore behoved every class to do all they could to promote agriculture. With regard to town sewage it was a very important question, and one upon which he was certain the Club would be glad to receive any information In conclusion the chairman stated that he did not think the Club could receive information of more importance, or from a better source, than from Mr. Mechi.

Mr. MECHI, who, on rising, was received with cheers, spoke as follows :—One hundred years hence, which is not long in the history of a country, our successors will scarcely believe that a nation wanting annually many millions of quarters of grain to fill up its own inadequate production of food, should waste the only means by which such deficiency might be made good. I mean the productions of the land when they have fulfilled their office of nutrition to man and beast. Every one now at all conversant with the theory of modern agricultural chemistry must know that our agricultural produce loses little by such a process, and that the bulk of its elements are returned to us in the shape of excretæ if we take the trouble to collect them. I am aware that the practicability of doing so has been questioned; but I purpose this evening to show that there is no difficulty in the matter, except what exist

in the brain of man. The same power that brings your water into London will take it out again; for according to Prof. Way and other chemists, 2,500,000 inhabitants will only add 3769 tons in solid and fluids to the quantity of water.

If agriculturists studied attentively Professor Way's able paper on Town Sewage (see Royal Agricultural Society's Journal, vol. 15, part 1, page 1351), it would teach them a great and profitable lesson. They would learn that of all the manure made by human beings (and I have no doubt by animals) 12 parts out of 13 in weight escape as urine, only 1-13th part being solid! Well may farmers love the sheep-fold, and well may they deplore yard feeding, where the rains from the untroughed roofs may, in too many instances, thus take away nearly all their manure. Mr. Way, with his usual care and exactness, has found that, taking the average of men, women, and children, each individual of the population will in the course of 24 hours contribute to the sewage of a town one quarter of a pound of solid and three pounds of liquid excrement. A knowledge of these facts shows us how trivial is the question of solid manure, for at a quarter of a pound each daily the total solid manure of 2,500,000 people in this metropolis will only weigh 279 tons.

According to Mr. Way, the excrement of each person is diluted with or distributed through 20 gallons or 1400 times its own weight of water. It must appear singular to a disinterested observer that whilst farmers seek eagerly after every new manure, and are subjected to much imposition in such purchases, they appear to be apathetic on the question of town sewage.

I think much of this neglect must arise from the fact of its being in a fluid state, for to the distance of 100 miles from London the solid manure of the metropolis is purchased by agriculturists at an expense of from 4*s.* 6*d.* to 6*s.* per ton, one-half of this cost being, of course, for freightage, and then another 30 to 50 per cent. must be added for cartage to the fields, with a further charge for turning over, spreading, ploughing in, &c. Omitting the sanitary consideration, there can be no class so deeply interested in the question of town sewage as the British farmer. Those sewers carry away to our rivers all the products which he has at so much care and cost produced for the food of the people. To repair the exhaustion caused by these supplies, he rushes to Peru for birds dung, at an expense of some millions, whilst the very grave-yards of foreign nations are taxed to supply bones for his Turnips. The rapid increase of water closets and new sewers, with a more abundant water supply, are daily lessening the supply of human excreta in a solid form, diminishing, in fact, *pro tanto*, the ordinary channel of supply, so that shortly we may expect that only the stable manure and ashes of London will be availble for agricultural purposes, whilst the weekly supply of 6000 or 7000 bullocks, 40,000 sheep, and all the other vast solid and fluid consumeables of the metropolis, from tea to turtle, will be floating down the sewers unheeded and unsolicited.

This cruel neglect can only arise from a disbelief of the value of such manure, or from a doubt of the possibility of applying it economically. I purpose therefore this evening to go into statistical details with a view to ventilate the question, and to prove how easily such an operation may be successfully carried out with individual and general benefits. Water alone is manure: who can doubt this? Look to the costly water meadows in various parts of the kingdom, and what farmer who has a water meadow does not appreciate its great value to him, as producing early, late, and most abundant vegetation. My own experience with two miles of pipes on my farm of 170 acres has proved that fluid applications of manure are far the most profitable, and that their influence is quite as important and advantageous to cereal as to other crops. In proof of this I have threshed some fields of Wheat, producing 6 quarters per imperial acre; Oats, 13 quarters; and Barley, 8 quarters, which latter is 1 quarter more than I estimated in my balance sheet. Now such productions as these on a naturally wretched soil prove more than volumes of argument, and I have no hesitation in saying that had my neighbours to pay 2*l.* per acre annually in interest for improvements over and above their present rent to obtain similar results, they would be considerable gainers. If it answer my purpose to lay down pipes, erect an engine, make tanks, erect pumps, and so on, for the mere purpose of applying the manure made on my farm in a fluid state with a large supply of water from my spring, surely it must equally and more certainly pay a farmer to receive back his corn, bullocks, sheep, and other productions after they are done with at a very much smaller cost; for their very essence will return to him accompanied by all the good things that metropolitan luxury can command from every foreign part. If we go into a statistical inquiry of the weekly supply of London in tea, coffee, and sugar; wine, spirits, and beer; fish, flesh, and fowl (foreign and British); the tons of soap, and the thousand and one refuses of our manufacturers, gas-works, &c., one becomes amazed at the fructifying power involved in such a consideration. The alkaline and granited solutions of our London pavement by trituration and abrasion, the smuts from our smoke, have all a considerable value.

The mere wear and tear of shoe-leather has its value, as it grinds down the pavement into hollows. I apprehend that the daily cost of feeding each individual in this metropolis, taking the average of rich and poor, young and old, would not be less than 10*d.* per day, or 37½ millions sterling per annum. Now in parts of Lincolnshire it is the custom to value the manure at half the cost of the oil-cake consumed. On this principle, which appears to be a sound one, the agricultural value of the manure from this 37½ millions of food ought to be something very considerable, to say nothing of the food consumed by the animals of the metropolis. The rubbing, washing, and agitating which the solid excrement receives in passing through miles of tortuous sewers, cause it to be dissolved and pass away in a fluid state, which we may any day prove by an examination of the sewers' mouths at low water. I think farmers cannot be aware that all the solid and liquid manure of men and animals is liquifiable by solution or suspension, and can be applied in a shower, sinking deeply into the subsoil of drained land. Perhaps I may be here permitted to explain why I consider this mode of application far superior to the solid form. If you make a transverse cut or opening in the soil, you will find that the British agricultural pie-crust is only 5 to 8 inches thick. The slips and railway cuttings plainly reveal this humiliating fact. Below this thin crust we see a primitive soil, bearing most unmistakeable evidence of antiquity and unalterability. The dark shades of the cultivated and manured surface have not been communicated to the pale subsoil; and we have evident proof that solid manure ploughed in, in the ordinary way, exercises little influence on the subsoil. Nor can this be wondered at, when the plough sole has been polishing and solidifying the floor at the same depth for the last few centuries. Now, when I apply liquified manure (which means all the solid and liquid excrements of the farm animals mixed with water), it soaks deeply into the subsoil to the depth of the drains, which I have seen, on the very strongest clays, discharging the liquified manure at a depth of 4 and 5 feet. Here, then, is the secret of my great crops on a miserable soil. The manure vitalises, warms, and chemically changes the miserable subsoil; the roots of the growing crops know this, and send down their fibres or mouths to appropriate and elaborate the subterranean treasures now for the first time placed at their disposal in an available condition. I could show you 26 loads of rich oilcake bullock pudding, or manure; I would mix it with water, apply it in a shower, and you should search the surface in vain for any proof of its whereabout. It has gone down to do its work. I will not drag you through all the details of the *modus operandi* of this method of manuring; you may see it all any day you choose on my farm, or on any of those of others who are practising the same process. What I want you to believe is, that town sewage is liquid guano, applicable to every soil and every crop, and worthy of your utmost attention. It is true that undrained land, requiring drainage, such as heavy clays and spring soil, must undergo that operation before they can derive the benefit of such an application; but there are extensive tracts of chalks, sands, and hot gravels, almost praying to be fertilised by the sewage of our towns.

Although I apply my liquified manure on the surface, I am quite convinced that during the summer season and amongst the growing crops, it would be far more advantageous to apply it subterraneously, as effected by Mr. Wilkins last year at Wokingham, and this year at Reading. By this means the openness and tillage of the surface is undisturbed; the rays of heat and light are employed in warming the earth, and evaporating from the leaves, the subterranean supply of fluids which the plants absorb by their roots, and which arise to them by capillarity. The question is a large one, involving considerations of cost, but most certainly production is vastly increased and stimulated by the new method.

One important reason for the superiority of liquified over solid manures, is, that water is the great arrester and conveyance of ammonia, that invisible and truant spirit which is ever escaping unseen from reeking dung-heaps. It is this ammonia which dissolves the silica of the soil, and makes the kernel of our Wheat, and the lean of our flesh; and it is for this ammonia that we so affectionately prize unwashed Peruvian guano, or bird's dung. When you have learned to apply fluid manure to the soil, you will find your crops yield as much as they do after the sheepfold, and you will get corn as well as straw, that is, if you do not sow too much seed.

You must give up all hopes of obtaining town sewage in a solid form, for Professor Way's able paper (which every agriculturist should read), in the Royal Agricultural Society's Journal, and other evidences are conclusive on that point. I understand upon good authority that the commissioners of sewers have decided that a main tunnel on the south side of the Thames shall receive the sewage of 1,200,000 people, convey it to Plumstead marshes, whence it will be pumped in a reservoir, and at high tide pass away with the flood water of the Thames, that is if British agriculture is insane enough to permit such a cruel waste.

The question will arise who is to undertake this? Now, in railroad undertakings we find landed proprietors and other interested parties joining with town capitalists, and affording them every inducement and opportunity to open up a country with general benefit. Let the same be done with sewage. Depend upon it, without this co-operation no town capitalists will be so miscalculating as to place their capital at the mercy of local prejudice or neglect. It therefore remains with agriculture itself to determine whether this interesting question shall receive its proper solution. But supposing that the new company has laid down its main line of pipes for country distribution, where will you find the 3*l.* per acre for the net-work of iron-pipes, &c. requisite on every farm. It appears to me that where the capital is required it may be readily obtained from the Lands Improvement Company or Land Drainage Company, and that the annual charge which would liquidate principal and interest in a few years would leave a large margin of advantage for both landlord and tenant. To those who desire to see the mode of applying town sewage may be quoted the instance of G. H. Walker, Esq., who takes the town of Rugby, &c.; — Worsley, Esq., of Rusholme Park, near Manchester, who uses the sewage of a neighbouring district. In both these cases, steam-power is applied, although I think Mr. Walker's pipes of 3-inch diameter are hardly large enough for the diameter of his pumps.

Of course if the London sewage is used, I apprehend it would be pumped to elevated district reservoirs, whence it would flow from main pipes connected with smaller ones on the various farms, so that they would be always charged with a sufficient pressure to cause a jet; this would render unnecessary any steam engine or tank on the farm. A register of quantity like a gas meter would enable the company to make their periodical charge. I annex the following statistical account with which I have been favoured by Edwin Chadwick, Esq., C.B., our greatest authority in such matters:—

"The gross daily quantity of water pumped into the metropolis was in the year 1850, 44 million gallons. It may have been increased somewhat since that time, but I should expect that it would still be within 50 million gallons per diem. I proved at that time that about three-fifths of the quantity pumped in was wasted on account of the intermittent methods of distribution. The actual quantity consumed for domestic purposes, or that you could estimate for sewage as containing house refuse, or house manure in suspension or solution at times when there is no rain applicable as manure, would not be more than 20 million gallons per diem. I say house manure because rain and storm waters bring as surface washings dung from the streets, and soot and birds' dung from the roof of houses. You may judge of the daily quantity visibly by the fact, that 45 million gallons would be delivered in 24 hours by a brook 9 feet wide and 3 feet deep, running at the rate of 3 feet per second, or a little more than two miles per hour, and three sewers of 3 feet diameter, and of a proper fall will suffice for the removal (for distribution) of the same volume of refuse or soil water. The total weight of this annual supply of water is nearly 72 millions of tons. The daily cost of raising the whole supply by engine-power 100 feet high (for distribution) would be about 25*l.*, or 9000*l.* per annum. Supposing the supply were equally distributed, *i e.*, the 44 millions, it would be about 50 pails full for each house, and would weigh about 13 cwt."

Those who doubt the cheapness at which water can be raised may be assured by visiting the Croydon Water-works, where 650,000 gallons are forced to a mile distant, and elevated 150 feet, at a cost of 13½ cwt. of dust coal per diem of 24 hours. With regard to the mode of conveyance, it appears to me that our railway lines might be availed of to lay down lines of pipes, but of course all such questions would be easily arranged by competent engineering authorities. Perhaps it will be as well to state, that 15 yards of 3-inch iron pipe per acre, will be all that is required, or about 5½ cwt. of iron per acre; this is the quantity on my farm, I have 170 acres piped. Amongst numerous papers that I have written on this subject, I beg to refer to one under the head Sewage, in "Blackie's Cyclopædia of Agriculture." The value of London sewage has been variously estimated; but Professor Way, in his usual careful way, has calculated it by its ammonia at two millions sterling. He has made no valuation of the water alone; I apprehend that 50 millions of gallons daily, or 224,000 tons would have, even when unmixed with manure, a considerable irrigating value.

In order to ascertain whether this application of sewage will pay the farmer a profit, and leave a sufficient interest for the capital invested by a company, let us calculate 72 million tons of sewage at one penny per ton, would be 300,000*l.* Now, take the pumping or raising this quantity at the exaggerated sum of 50,000*l.* annually, there would remain 250,000*l.* as interest on capital invested, which, at six per cent., would be also the exaggerated sum of 4,000,000*l.* sterling.

I have assumed the sum of one penny per ton as representing that which would leave the farmer and landlord a very large profit on their pipe investment. I can confirm this by my own practical experience. But it must be obvious to any one who reasons that as 100 tons of water per acre represents a rain fall of 24 hours, this alone, without the saturation of manure, must be worth one penny per ton, or 8*s.* 4*d.* per acre, and indeed in dry weather for Grass crops very much more. As to the quantity required per acre, Mr. Telfer, of Canning Park, Ayr, tells me that he applies 500 tons of water per Scotch acre at five dressings, to his Italian Rye-Grass, with five cwt. of Guano at each dressing, making a total annual application of 25 cwt. of Guano per Scotch acre (one-fourth larger than the English acre). This is in a naturally moist climate, therefore we may estimate the water-absorbing power of the barren sandy wastes in the neighbourhood of the metropolis far more considerable. That those wastes would be rendered highly productive after the application of town sewage cannot be doubted.

The experiments of Mr. Wilkins, who grew two crops of Hemp and Flax in one season at Wokingham last year, settle the question. Now, if you apply 500 tons per acre you will only require 152,000 acres to absorb your 76 millions of tons. As 640 acres are a square mile, you would at that rate require 237 square miles, or a square area whose diameter would be about 15 miles. I have a strong conviction that a very much larger quantity of sewage, say 1000 tons

per acre, at least may be profitably applied to our sandy, gravelly, and chalky wastes. This would afford a great economy in distance and expense. On the Edinburgh meadows as much as 6000 tons per Scotch acre are applied; but that appears to me hardly a necessary quantity. Still, if such large quantities could be applied to so limited an area, it is clear that instead of one penny per ton the cost need not much exceed one farthing. Six thousand tons at one farthing per ton would be 6*l.* 5*s.* per acre. This would pay; for the average letting of the Edinburgh meadows to the cow-keepers was, I am informed, last year 21*l.* per acre—a pretty good evidence of the beneficial effects of town sewage on waste lands that were a few years since worthless and barren.

I apprehend no one will doubt the economy of transmission of fluids by tubes, seeing that by road carriage the charge of carting near the metropolis would be at least 8*d.* per ton per mile. There is no fear of our being overwhelmed with cheap hay or superabundant milk by this process, for our metropolitan wants become annually more and more gigantic, but I do know, from extended and minute observation, that the infants and juveniles of this metropolis would present a very different muscular and general development if this scheme were carried out, for now the wretched wrecks of noble short-horned cows, observable on every green patch around the metropolis, speak volumes of the thin sky-blue which is vainly expected by fond parents to form the bone and flesh of their dear children. Their pallid faces and feeble limbs present infallible evidence of defective nutrition. In conclusion I do hope that this club of practical agriculturists will, by their resolution this evening, stamp their opinion of the necessity for this great national economy. (Hear, hear, and cheers.)

Mr. Cuthbert Johnson admitted this was a most important and opportune subject, but one fraught with difficulty. The great difficulty was not in persuading the farmers of England of the great value of sewage manure, but was to be found in the fact that they had never been able to avail themselves of it. (Hear.) It was also forgotten in any experiments that had hitherto taken place that the sewage of a town was of the greatest value the further it could be removed from it. A new light has now dawned upon the subject through the great efforts of Mr. Chadwick, who has ably shown that the further every form of sewage was removed from the habitations of the people the better. One result of that gentleman's labours was that the towns have resolved to make an effort, and the Metropolitan Commission of Sewers, of which he was a member, had last week decided to form a large sewer, commencing near Lambeth, which, after traversing Southwark, Rotherhithe, Greenwich, and Woolwich, should finally empty itself at Plumstead, where it would be pumped into a large reservoir capable of containing the whole sewage of London for 24 hours; and at the first ebb of the tide the sluice gates were to be opened, so that this matter, which was of the greatest value to the English farmers, might be carried out to sea. He hinted, however, that when that plan was finished, some men would be found who would come forward and take the subject up, so that the sewage of London might be distributed over the thirsty grounds of the county of Kent. On the north side of the river also a great sewer was to be made, which was to empty itself at Barking Creek, so that on both sides the sewage of London would be made available for agriculturists. After quoting the opinion of Professor Way on the subject of the sewage of towns, and giving the results of the washings of the streets of London, all of which contained potash, and would be washed into the new sewers, Mr. Johnson proceeded to state that when the matters in the sewers were collected together in a solid form, the farmers used it, and he felt certain that when the sewage of London was collected together in the way proposed by the commissioners that they would again avail themselves of it. With regard to his own experiments, he might state that they had been very satisfactory. He had had the soil analysed before the operations began, and had had it done since, and he intended in the course of a few days to publish the result. The grass which had been subjected to the action of liquid manure was an object of great attraction; and he had had no less than five full cuts from his, while his neighbours on the other side of the hedge, who had not used liquid manure, had only had one cut and a half. His neighbour's crop was ripe while, as he before stated, his were only cuts.

Mr. Woods, of Sussex, felt certain that if the sewage of towns could be obtained by the farmers at the prices named by Mr. Mechi, it would be used to the full extent. All questions of a sanitary form were quite beyond what they had met to consider. He was sure that farmers would avail themselves of the liquid manure if they could get it, but they could not, and they were therefore compelled to content themselves with the solid. He considered the finest mode of dressing the land was by liquid manure, and all that the farmers wanted was to get the plan proposed carried out. (Hear.) It was a question for capitalists, and if they would only favour the farmers with cheap liquid manure, they would in return favour them with cheap food.

Mr. B. Webster, of Worcester, knew that land irrigated with night soil had been rendered three times as valuable. Having stated many instances where liquid manure was used with the greatest advantage, he complained of it on the ground of nuisance, and concluded by remarking that if the town sewage were conveyed and used on the dry sands of Bagshot, they would make the finest market ground in the world, but he very much doubted whether it would be of any use on cold clay land.

Mr. Chadwick said that he had considered the subject under consideration for many years, and with regard to the nuisances complained of, knew it was caused by the mode of distribution. But that was also the case with the water meadows, which not only extended the rot in sheep, but where villages were near, caused typhus and other fevers largely to prevail. In Italy, the laws would not allow a water meadow within six miles of a city. The nuisance complained of in the use of liquid manure would be obviated more or less by the use of the jet, and the object would be more effectually promoted. In the case of the Edinburgh water meadows, the rent of the space would pay for putting down iron pipes. After stating various instances in which the nuisance had been obviated by the use of the jet, he went on to say that by its use the same area would be fertilised to five times the extent. He knew of an instance where no less than 90 tons of cabbage had been grown on a Scotch acre, and of no case of cereal crop where the increased produce had not been more than a quarter per acre. Mr. Pusey also bore testimony to the use of the liquid manure, when he stated that his crops had been largely increased by the use of the water-drill. The greatest difficulty that stood in the way of the adoption of the plan carried out by Mr. Mechi was that of who should pay, the landlord or the tenant. The value of liquid manure was four or five times greater than that of solid manure, for while the solid was lying on the land waiting for some chance shower to come and wash the goodness into the land the better portions were escaping altogether. In conclusion he stated that by the adoption of the plan proposed he considered there would be a grand future for agriculture (Cheers).

Mr. Moore stated that he had read a report printed in 1826, upon the water meadows of Scotland, in which it was stated that land which had previously been not worth 1*s.* per acre was then worth 50*s.*, and that only for Grass land. He thought it a lie, and had travelled 300 miles to see for himself, and was really astonished. In using solid manure there was great waste, but one of the beautiful features in the use of the liquid manure was that you could feed the crop whenever it required it. With regard to the objection that it would be of no use on cold clay land, he could state from his own experience that it would not if the land was not drained, but where that had been done no land was so productive as clay land when cultivated with liquid manure. In proof of this he could instance the case of Glasgow, where the sterile land of that neighbourhood had been rendered very productive.

Mr. Sidney should like to see some experiments carried on on a scale proportionate with the importance of the subject, for he was tired of hearing of the results that had been obtained from the sixth of an acre or from a wine glass (laughter).

Mr. Nesbitt had had his attention directed to the subject for the past 5 or 6 years, and had ascertained from experiments that you could only separate the sedimentary matter from the liquid. But it was of the greatest consequence that you should in taking the solid also obtain the soluble nitrates and other salts; but that had not as yet been done, and they were all allowed to flow into the river. He thought it was only by collecting the whole of the sewage matter into a reservoir, and pumping it out again, that the valuable parts, which the land most needed, could be obtained. He had no doubt that liquid manure was of the greatest use to green crops; but with regard to cereals, one drawback would be, that if the crop had a dressing and a wet season was afterwards to set in the whole of the crop would be laid. (Hear.) He trusted that some plan would be brought forward for saving the sewage of towns and for letting the farms have it, considering, as he did, that it was of the greatest utility to them. It was a disgrace to the country and the age in which we lived, that so much valuable fertilising matter should be allowed to escape to the sea. (Hear.)

After a few words from Mr. Acton, who said it was a curious thing that the Grass on Kennington Park, which was laid on land composed of nothing but night soil, should have turned yellow, and from the Chairman: Mr. Mechi said he wished to disabuse the minds of all present that liquid manure was not so good on clay as light soil. He was certain that those opinions would differ if parties were only to see it in use. He concluded by moving a resolution to the effect that the Club considers that sewage manure might be rendered of great value; and that, if it could be supplied at a cost sufficiently moderate to warrant its use, its introducer would be entitled to their gratitude.—Mr. Oakley seconded the motion, which was put and carried.

Mr. Smith, of Rye, proposed a vote of thanks to Mr. Mechi, which was carried by acclamation.

A vote of thanks to the Chairman concluded the proceedings, and the meeting broke up.

Miscellaneous.

Death of Mr. Bolden of Lancaster.—It is with regret that we announce the death of Mr. Bolden, well known in the agricultural world as the owner of a valuable herd of short-horns. Mr. Bolden was in his 70th year, and was one of the few breeders of short-horns contemporary with the Collings'—who possessed a herd at the time of the Ketton sale.

Calendar of Operations.

FEBRUARY.

WESTER ROSS, *Feb.* 5.—After a fortnight of severe frost we have again a return of fresh weather with easterly wind. The frost came very opportunely, as there was much manure to cart out, which could scarcely have been accomplished in the previous wet weather, but which was satisfactorily and speedily executed when the wettest field afforded as firm footing as the best made road. And there are many things which are apt to be overlooked or forgotten until the season comes round when the ground is locked up, and the ordinary cultivators laid aside. Fresh weather has returned in time to admit of field operations being gone on with as early as is desirable, and it is not at all likely that we will now have a protracted frost or snow. A pretty large breadth of Wheat has been already sown, and. weather permitting, a good deal more will yet be laid down. The price of Barley has this year been low compared with the price of Wheat or Oats, and the likelihood is that there will be a smaller breadth of Barley and a larger proportion of Wheat sown than last year. The price of Oats is generally higher comparatively in this county than that of any other kind of grain, and is just now as high as the London price of Oats. A large proportion of our soil is well adapted for growing Wheat, and a very large proportion of the county is under sheep, and as our population is still respectably numerous, and as Oatmeal forms their staple food, especially since the Potato failure, we find that we can scarcely grow Oats enough to supply our necessities, so there are annually imported a few cargoes of this commodity from the more exclusively Oat-growing counties. Potatoes are once again to be pretty largely planted, on the faith that should we have a visit from the disease this year at all, it will make its appearance in a mild and harmless form; and, besides, although the disease came so early last year as to leave us no Potatoes to ship, and very few fit to eat, yet what we have got are an admirable size for planting whole. The disastrous attacks of that disease with us hitherto have been biennial, and believing this to be now its established habit, we look for a respite this season. There is a great deal of distress and poverty throughout the highlands, caused by the Potato failure. The farmers' expenditure this year bids fair to be larger than usual. Artificial manures of all sorts are more costly; wages of man, woman, and child, are increasing, and, by and bye, the farmer is likely to find that even should present prices continue, they would not be greatly too much to meet the increasing outlay.

Notices to Correspondents.

GORSE: *B.* The Rev. W. D. Fox, of Delamere, Cheshire, has been kind enough to give us the following replies to your questions: The Gorse seed commonly sold in the seedsmen's shops is the only kind of seed. Some will sell it as "French Gorse," but I do not think it is the least different. Decidedly sow where it is to remain: but it would also be a very good plan to have a quantity sown in boxes—old Orange boxes answer very well, and can be got for almost nothing—in order to fill up vacancies in September. If your ground is very foul, I would altogether sow in beds, and transplant in September, and you can clean the land, but, of course, it is much more expensive, and if the land is clean it will grow much better sown where it is to remain. It is more readily sown by forming the land into drills, but the less they are raised the better. Manure will much improve it, but is not necessary. If the drills are 2 feet apart, a horse hoe can be freely used for cleansing between rows.

ITALIAN RYE-GRASS: *Parvus Agricola.* We shall publish a full statement on the subject on March 10.

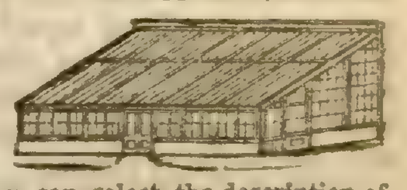
HOT-WATER PIPES at wholesale prices, with Elbows, Syphons, Tee Pipes, and every requisite connection. Cast Iron Boilers, 55*s.* each. Improved Soot Doors and Furnace Doors. Builders' Castings of every description kept in Stock at — Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street (near Blackfriars Bridge), London.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

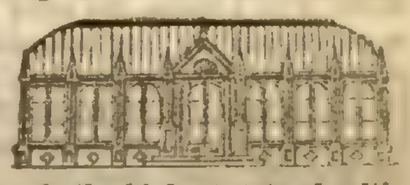
HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

GLAZING WITH OR WITHOUT PUTTY.

E. DENCH, PATENT HOTHOUSE WORK'S, King's Road, Chelsea.—Printed Price Lists supplied on application.

SHEET GLASS (15 oz.) of good quality in 100 feet boxes.

10 in. by 8 in. and under	15*s.* per box.
11 in. by 9 in. to 22 in. by 14 in.	17*s.* „
Larger sizes to 28 in. by 18 in.	19*s.* „

Also similar sizes in 21 oz. Sheet at 24*s.* per box. Boxes charged 2*s.* each, and returnable at the same price, if delivered free. CRYSTAL WHITE GLASS, Crown and Sheet Glass in Crates, British and Patent Plate, &c. &c. White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS FOR CONSERVATORIES.

THOMAS MILLINGTON'S present prices for good 16 oz. sheet glass, boxes included.

6 in. by 4 in. to 6 in. by 5½ in. ...	13*s.* 3*d.*	per 100 feet.
7 by 5 to 8 by 6	13 6	
8½ by 6½ to 10 by 8	14 0	
10½ by 8½ to 14½ by 10½	16 0	
17 by 10 to 18 by 12	18 0	

A great variety of sizes. Particulars had on application.

ORCHARD HOUSE SQUARES on Mr. RIVERS'S plan, to whom I have sold some thousands of feet.

Large Sheets for cutting up, in cases, at 2½*d.* and 3*d.* per foot.

HARTLEY'S IMPROVED ROUGH PLATE GLASS, Sheet, and Rough Plate, Tiles, Milk Pans, Bee and Propagating Glasses, Wasp Traps, Cucumber Tubes, Preserve Jars, with and without covers; Fern Glasses.

Plate, Sheet, Crown, and Ornamental Window Glass. Crystal Glass Shades for ornaments.

Greenhouses, erected in either wood or iron. Garden Lights and Frames.

87, Bishopsgate Street Without, London—same side as Eastern Counties Railway.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present prices of Glass for Cash:—

	SHEET SQUARES. In Boxes of 100 feet.	CROWN SQUARES. In Boxes of 100 feet.
Under 6 by 4	£0 12*s.* 6*d.*	... 8*s.* 6*d.*
6 by 4, and 6½ by 4½	0 13 0	... 12 6
7 „ 5, — 7½ „ 5½ }	0 15 0	... 14 0
8 „ 6, — 8½ „ 6½ }		
9 „ 7, — 10 „ 8, 12 by 9, 12 by 10, 14 by 10 }	1 0 0	

Larger Sizes, not exceeding 40 inches long.

16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. „ 4½*d.* to 5*d.* „ „ „
26 oz. „ 6*d.* to 7½*d.* „ „ „

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand.

Double-crown Glass of various dimensions in 100 feet boxes.

Glass Tiles, ¼ of an inch thick, packed in cases, containing 50, at 1*l.* 17*s.* 6*d.* per case. Packages 2*s.* each extra, but allowed for when returned.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps: Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

HOLCUS SACCHARATUS, OR CHINESE SUGAR CANE.

(See GARDENERS' CHRONICLE, Dec. 30th, 1854.)

MR. JOHN HENDERSON, formerly of the firm of JOHN A. HENDERSON & Co., Pine Apple Place, London, has the honour to announce that he is prepared to supply Gentlemen, Amateurs, and Professionals, with seed of this most valuable and estimable plant.

As the Dioscorea Batatas seems well adapted to make good any deficiency arising from failure in the Potato crops, so this appears admirably calculated to meet many wants of the present day. That it may be used for the purposes of distillation, and may therefore preserve the grain of the country, is not less certain than that the leaf and stem (after the saccharine matter has been extracted) contain a large amount of fibre, of such a nature as can be employed in the manufacture of every kind of paper. In both these points, as well as in many others, this plant demands the attention of every Gardener and Amateur throughout the country; the more so as from the necessity that at present exists for the production of fibres that may be used in paper manufacture a due remuneration may be fairly expected by growers, even after the plant has, so to speak, paid itself by the saccharine matter extracted from it.

Mr. Henderson hopes, in a few days, to have ready for the press a more lengthened account of this plant, as well as a complete statement of the latest experiments in connection with the Dioscorea Batatas. As there are many varieties of the Holcus W. J. H. can only be responsible for seed forwarded by himself, which he is prepared to do in sealed packets, at 1s., 2s. 6d., 5s., and 10s., according to quantity.

Orders to be accompanied with a remittance to Mr. JOHN HENDERSON, Kingskerswell, Newton Abbot, South Devon.

P.S. Seed to the Trade can be had on application.

R. PARKER begs to offer the following CHOICE SEEDS, all of which are warranted new and true to name:

GODFREY'S (BLACK SPINE) CUCUMBER, the finest variety in cultivation, packets containing 12 seeds 1s. 6d.

Also the following esteemed varieties of CUCUMBERS and MELONS, in packets containing 12 seeds, at 1s. each:—

CUCUMBERS.	MELONS.
Henderson's Black Spine.	Victory of Bath.
Improved Patrick.	Beechwood.
Walker's Long Rambler.	Bromham Hall.
Manchester Prize.	Canteloupe.
Hunter's Prolific.	Duke of Bedford.
Superlative Improved.	Golden Perfection (extra fine).
Cuthill's Black Spine.	Scarlet Flesh (Anderson's).

Ohio Squasha Custard Gourd, 6d. ... ... per packet.
Antirrhinum, from named flowers, 6d. ... "
Calceolaria, from fine varieties, 1s. 6d. and 2s. 6d. "
Hollyhock, from fine named varieties, 1s. 6d. and 2s. 6d. "
Lilium giganteum, the most distinct and noble species of the genus, packets containing 20 seeds, 2s. 6d.

*** A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Islington.

UNEQUALLED NEW MELON, GOLDEN DROP GREEN FLESH.

EDWARD TILEY having purchased the whole of Messrs. Wood & Son's stock of Seeds of the above-named Melon, can with confidence recommend it to all growers of that splendid fruit. It has been thoroughly proved by an eminent Melon grower, and declared by all who have seen and tasted it to be one of the finest-flavoured Melons yet grown. It is a very beautiful colour when ripe, skin very thin, flesh firm and solid, and of a most superior melting and delicious flavour. Free setter and prolific bearer. It possesses a great advantage over others in its exceedingly handsome appearance when placed upon a table or on the stall of a fruit salesmen, and for exhibition this Melon will be the favourite.

THE KING, Superb Scarlet Flesh Melon.—This is a variety very much wanted, and which has for some time past been neglected, but is now becoming in great request; such being the case, EDWARD TILEY has just procured a stock of this most superb Hybrid Scarlet Flesh Melon, which he can recommend with as great confidence as those before sent out by him, and which have all given the greatest satisfaction to the public.

Each of the above varieties may be had in packets containing six seeds, 1s. 6d per packet.

The following fine varieties of Melons can be highly recommended, and are all warranted true:—

The Queen	1s.	Beechwood	1s.
Bromham Hall	1s.	Windsor Prize	1s.
Incomparable	1s.	Emperor	1s.
Golden Ball	1s.	Fleming's Hybrid Persian	1s.
Golden Perfection	1s.	Blackall's Green Flesh	1s.
Rowood	1s.	Bailey's ditto	1s.
Victory of Bath	1s.	Snow's Hybrid	1s.
Cameron Court	1s.	Gordon Castle	1s.
Chichester Prize	1s.		

A packet of the Golden Drop and one of the King Melon, and one packet of any other variety mentioned will be forwarded, post free, on receipt of 3s. 6d. in cash or penny postage stamps.

EDWARD TILEY, Nurseryman, Seedsman and Florist, 14, Abbey Church Yard, Bath, Somerset.

LYNCH'S STAR OF THE WEST CUCUMBER.—This might with propriety be called the Champion of the West, for it has won 11 prizes at different Horticultural Exhibitions. It is a seedling raised by Mr. Lynch, the well-known Gardener to the Right Hon. the Earl of St. Germans, Lord Lieutenant of Ireland. He has grown it for several years, and has beaten everything that has been put in competition with it, including all the newest and most recently introduced varieties. We have purchased the whole stock, having given a very large sum for all the seeds in his possession, and it is now for the first time sent out: those who want a good flavoured, prolific, and prize Cucumber, we would recommend to obtain a packet of the seeds.

It is a first-rate winter fruit, and, with careful management, can be had in perfection all the year round. It is most prolific, and bears two fruit on every joint, and as many as 42 have been counted on a single plant in a tub from 5 to 22 inches in length. The fruit is quite round, like the barrel of a gun, and free from any ribs or roughness on the skin. It has a short handle, and is in every way calculated to beat any other sort in cultivation. The spines are white, and they stand out in the most prominent way. The stock is very limited.

Three seeds, per packet, 1s. 6d. Five seeds, per packet, 2s. 6d.

The following is an official account of the number of Prizes won by Mr. Lynch, in competition with all the best Gardeners and the best varieties in the neighbourhood:—

"Royal Devon and Cornwall Horticultural Society, Nov. 11, 1854.

"DEAR SIR,—The prizes awarded you for your Cucumber are as follows:—

1851.—May 15th, First Prize	1852.—Sept. 9th, First Prize
" July 17th, Extra Prize	1853.—June 8th, Second Prize
" Sept. 4th, First Prize	" Sept. 8th, First Prize
1852.—May 27th, First Prize	1854.—June 1st, First Prize
" July 22d, First Prize	" Sept. 9th, First Prize

In all, 10 Prizes.

"I remain, dear sir, yours truly,

"NATHANIEL J. EASTON, Hon. Sec.

Mr. R. Lynch, Gardener to Earl of St. Germans, Port Eliott."

WM. E. RENDLE AND CO., SEED MERCHANTS, Plymouth.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY respectfully invite attention to their stock of the following very desirable HARDY PLANTS.

Araucaria imbricata, from 2 to 7 feet high; as handsome as plants can be.
Cedrus Deodara, in any quantity, from 1 to 3 feet high
Do. do., 4, 5, 6, 7, 8, and 10 feet high; splendid plants
Cedars of Lebanon, 3, 4, 6, and 10 feet high
Pinus Douglasi, 3 to 10 feet
" insignis, 2 to 7 feet
" Menziesi, 3 to 7 feet
" Pinsapo, fine plants, 3 to 6 feet
" Nordmanniana, 1½ to 3 ft., all from seed and remarkably handsome
" nobilis, 1½ to 2 feet; a few larger, 5 and 6 feet high, on their own roots, and with perfect leaders
" Montezumæ, 2 to 4 feet
Pinus canadensis, 3 to 8 feet
Cupressus macrocarpa or Lambertiana, 4 to 7 feet
" thyoides variegata, 3 to 4 feet (the variegated white Cedar)
Juniperus, Upright Irish, perfect columns, 3 to 7 feet
" chinensis, 2 to 8 feet
Yew, common English, 3 to 8 feet
" Irish, 4 to 10 feet
" gold-striped, 1½ to 3 feet
" do., tall standards, 4 to 7 ft.
" Dovaston, or Weeping, worked on tall straight stems
Thuja aurea, the finest plants in the country
Libocedrus chilensis, the finest plants in the country
Large variegated Hollies
" Standard Bays

Also an immense stock of large Evergreens, Standard Ornamental Trees, &c.

All the plants here offered may be seen growing in our Nursery; they are removed every year, and will travel any distance with perfect safety. Of some, such as Araucarias, Deodaras, Golden Yews, Thuja aurea, Pinus nobilis, Nordmanniana, we have any quantity; and the plants, for root and branch, are not to be surpassed. Priced Catalogues will be forwarded on application, enclosing two postage stamps, to WATERER and GODFREY, nephews and successors of the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey, near the Woking Station, South-Western Railway, where all trains stop, and where capital conveyances can be obtained.

The 2d. stamp will also include a descriptive Catalogue of their American Plants, Roses, and Nursery Stock in general.

MESSRS. E. G. HENDERSON AND SON, of the Wellington Road Nursery, St. John's Wood, London, beg to inform their Patrons and the Public that their NEW CATALOGUE OF SEEDS for 1855 is now ready, and will be forwarded post free on application.

E. G. H. & Son take this opportunity of stating that none but the most popular and improved kinds of Vegetable Seeds appear in their list; and among the Flower Seeds only those whose beauty and merit are universally acknowledged, together with a carefully selected stock of the principal new varieties.

E. G. H. & Son beg respectfully to call particular attention to the following choice seeds of Florists' Flowers, which have been saved from a fine collection of named plants, and also to the annexed New and Choice Flowers, which they can confidently recommend, and in their Catalogue will be found the names of 20 beautiful ornamental Grasses. Also 12 variegated and ornamental foliage plants, for decorating the flower garden during the summer months, with full descriptions and other information respecting the following

CHOICE FLORIST FLOWERS.

	Per packet—s.	d.
Antirrhinum, extra fine mixed	0	6
Auricula, fine mixed	1	6
Balsam, double Camellia flowered, in packets of 6 distinct colours separate	3	0
" double Rose flowered in packets of 6 distinct colours separate	3	0
" new double Camellia Rose, in packets of 10 distinct colours separate, extra fine	5	0
" Aurora, fine dbl. cr	1	0
" new dbl. pale yellow	1	0
Carnation, from stage flowers	1	6
Calceolaria, from choice hybridized flowers 2s. 6d. and	5	0
Cineraria, from choicest varieties 1s. 6d. and	2	6
Chrysanthemum, Pompone, fine mixed	1	0
" large flowered, fine mixed	1	0
Geranium, choice show	2	6
" choice fancy	2	6
Hollyhock, first quality	2	6
" second quality	1	0
" in 12 distinct colours, each colour	0	6
Pansy, choice show, from named flowers	1	6
" choice fancy, from beautiful striped and spotted flowers	1	6
Petunia, from extra fine named varieties	1	0
" saved from crimson flowers with green edges	1	0
Verbena, choice mixed	1	0
Mimulus, beautifully blotched	0	6

NEW AND OTHER CHOICE FLOWERS.

	Per packet—s.	d.
Abronia umbellata	1	6
Anagallis azurea grandiflora	1	0
" rubra	1	0
Arctotis breviscapa	0	6
Aster, new Peony pyramid, in packets of 10 distinct colours separate	3	6
" new bouquet pyramidal, in packets of 12 distinct colours separate	3	6
Alonso Warscewiczi	5	0
Clintonia pulchella	0	6
Coreopsis coronata	0	6
" filifolia	0	6
" bicolor nana	0	6
" Drummondi grandiflora	0	6
Calendrina umbellata	0	6
Cyclamen persicum	1	0
" " rubrum	1	0
Centauridium Drummondi	0	6
Dianthus Dunnetti superba	1	0
" chinensis flora pleno, extra fine	0	6
Digitalis, new spotted	0	6
Eucnida bartonioides	0	6
Eschscholtzia tenuifolia	1	6
Gramanthes gentianoides	0	6
Humea elegans	0	6
Ipomea rubra cærulea	1	0
" limbata	2	0
Leptosiphon luteum	0	6
" aureum	1	6
Linum grandiflorum rubra 1s. 6d. and	2	6
Lobelia racemosfoides	0	6
" erinus oculata	0	4
" Queen Victoria (scarlet)	0	6
" Roi Leopold (blue)	0	6
Larkspur, new double improved Hyacinth flowered, in packets of 6 distinct colours	2	6
Limnanthes sulphurea odorata	1	0
Lychnis fulgens (scarlet)	0	6
Lythrum roseum superbum	0	4
Mignonette, new large flowering	0	3
Oxalis rosea	0	6
Phlox decussata, from fine named varieties	1	0
" Drummondi coccinea	0	6
Portulacca, new orange	0	6
" rosea	0	6
Primula sinensis fimbriata, alba, and rubra, mixed	2	6
Poppy, new large Peony flowered, in 8 brilliant colours	2	0
Rhodanthe manglesi	0	6
Reseda myriophylla (new Mignonette)	1	0
Schizanthus Grahami carnea	0	4
" retusus	0	3
" retusus albus	0	6
Salpiglossus, scarlet, blue, and sulphur, each	0	6
Stock, Scarlet Intermediate	0	6
" German, new large flowering, in packets of 6 distinct colours, separate	2	6
" Intermediate, or Autumn, in packets of 12 distinct colours separate	3	0
" Brompton, or Winter, in packets of 10 distinct colours, sep.	2	6
" Emperor, in pkts. of 5 distinct colours, separate	2	0
Sweet William, new dbl. mixed	0	6
Tropæolum, Triomphe de Gand	0	6
" Lille Schmidt	0	6
" tricolor	0	6
" Schewerianum	0	6
Vittadenia lobata	1	0
Whitlavia grandiflora	1	6

HOLCUS SACCHARATUS (New Sugar Cane). 1s. and 2s. 6d.
DIOSCOREA BATATAS (Japanese Yam), 2s. 6d. each tuber.

February 10.

LATE WHITE SUPERB BROCCOLI—"EMPEROR."

E. P. DIXON having purchased the entire stock of the above Broccoli of Messrs. Elletsons, Market Gardeners, Thorngumbald, near Hull, begs to announce that he is prepared to send it out in sealed packets at 2s. 6d. each. This Broccoli has been raised by the Messrs. Elletsons, the raisers of the Mammoth, sent out some time ago, who state that the EMPEROR, if sown at the same time, will come into use before it. Is of very dwarf growth, perfectly hardy, with heads from 15 lbs. to 20 lbs. weight; keeps its colour, and stands firm three weeks after it is ready to cut. A noble flower, and commands the best price of any other in the Hull market, where it is well known, and will be a great acquisition to the market gardeners around London, as well as those who wish for a first-rate Broccoli.

PURE MAMMOTH BROCCOLI.—Numerous applications having been made to Messrs. Elletsons last season for Seed of the Pure Mammoth Broccoli, they determined to allow a flat to stand for Seed, carefully selected from the original stock, producing heads from 18 lbs. to 25 lbs. each. E. P. D. having purchased the stock of this celebrated Broccoli, is prepared to send it out in packets at 2s. 6d. each.

Each may be had of Messrs. NOBLE, COOPER, & BOLTON, 152, Fleet Street; and Messrs. HURST & M'MULLEN, 6, Leadenhall Street, London. Also of the Advertiser, 57, Queen Street, Hull.

SNOW'S SUPERB BROCCOLI.—Every seed new and true. Sealed packet, 1s.; per oz., 3s.; pound bags for the trade on liberal terms.

GLENNY'S IMPROVED BALSAM.—Unequalled for size, doubleness, and colour; 6 classes, 3s.; mixed, 1s.; sealed packets with culture.

DOUBLE HOLLYHOCKS from noble flowers. Sealed packet, 1s.

Stamps or P.O. orders to GEORGE GLENNY, Horticultural Agent, Dungannon House, Fulham. Sales, valuations, &c., attended. Ground Laid Out, Rockwork, Ornamental Water, &c., planned and executed.

WILD'S IPSWICH STANDARD CUCUMBER, the best in the world for Table, Market, or Exhibition, 2s. 6d. per packet.

EXTRACT OF A LETTER FROM A SUBSCRIBER.—"As to Cucumbers, I have four varieties now in bearing, but the 'Ipswich Standard' eclipses the lot. I am now (11th January), cutting splendid fruit 14 to 18 inches long, coming up to your standard of 12 diameters in every stage of their growth, viz., at 12 inches long 1 inch diameter; at 18 inches, 1½ inch. I have no hesitation in saying that your Cucumber is a perfect beauty, and the best doing one I ever saw. P.S. I will send you a specimen shortly, which I would thank you to send to Dr. Lindley."

Semi-double PRIMULA SINENSIS, in five colours, the best ever seen, 2s. 6d. per packet.

"My opinion of them is that they are not only the best that have yet been obtained, but possess a new character in the velvety substance of their petals."—*Mr. D. Beaton.*

Agent, Mr. CHAS. TURNER, Royal Nursery, Slough.

THOMAS WILD, Ipswich.

MESSRS. E. G. HENDERSON AND SON will commence sending out plants in April next of their new Seedling Fuchsias, with white Corollas, both double and single, and some others with blue, violet, and variegated Corollas. (For description and price see back No. of this Journal for Jan. 27th, 1855), or a printed list will be sent free by post on application; and a coloured plate of three of the varieties will be sent post free on receipt of six postage stamps.

QUEEN VICTORIA.	EMPRESS EUGENIE.
PRINCE ALBERT.	RAFFAELLE.
MRS. STORY.	LADY OF THE LAKE.
RANUNCULIFLORA.	WATER NYMPH.
PERRUGINO.	BANKS'S FAVOURITE.

The entire stock of all Seedling Fuchsias distinguished with a white Corolla were purchased for ONE HUNDRED GUINEAS of the late W. Story, Esq., of Newton, in the county of Devon, who succeeded in introducing this great novelty. And in consequence of an advertisement which appeared a few weeks back in the *Gardeners' Chronicle* from Messrs Lucombe, Pince, & Co., of Exeter, offering two new Fuchsias similar in character to those purchased of Mr. Story, and after a written communication with that gentleman (who was then confined to his bed by illness) it was thought necessary for one of the firm to make further inquiries about them, and in consequence Mr. ANDREW HENDERSON went to Exeter and Newton, when he was informed by a jobbing gardener at Newton that he had received Seven Pounds for them after (as the said jobbing gardener stated) he had been offered £20 for them by a nurseryman in London, but whose name or address he did not know.

Messrs. E. G. H. & Son think the above explanations necessary in consequence of a great number of their customers having ordered them at higher prices than those quoted. This reduction is made in consequence of information which they have received that leaves no doubt on their minds but that those to be sent out by Messrs. Lucombe, Pince, & Co. are similar in character to the above.—Wellington Nursery, St. John's Wood, February 10.

LIQUID AMBER.—The undernamed is a buyer of either a large or small quantity of the above. Send cash price, and height, to Mr. JEYES, Nurseries, Northampton.

BANKS' NEW SEEDLING FUCHSIAS FOR 1855.

W. J. EPPS begs to state that he has purchased the following Seedling Fuchsias, raised by that celebrated grower, E. BANKS, Esq., of Sholden Lodge, Deal; they were the first selection from his splendid batch of Seedlings of 1854, and have been thoroughly proved. They are distinct, rich, and the greatest advance upon any of the kinds known, and cannot fail to give the highest satisfaction.

CLIMAX.—(named by Mr. BANKS.)—Tube stout, sepals very broad reflex, with a pretty curve or half circle, the points of the petals touching the seed vessel; colour, rich velvety crimson—the corolla is very large, of a splendid violet blue and great substance: habit, robust, and blooms particularly free. 7s. 6d.

FAIRY QUEEN.—Very distinct and striking, immense bloomer, beautiful waxy white tube and sepals, tinged with lemon; long well-proportioned flower; corolla large, and of a very rich plum colour puce. 7s. 6d.

GRAND SULTAN.—A very noble flower, and will be many years before it is equalled; beautiful foliage, and first-rate for exhibiting; flowers large, very stout, sepals reflex, similar to the Turn Cap Lily, and of a very rich crimson colour; corolla large, and very dark velvety purple. 7s. 6d.

MAID OF KENT.—This Fuchsia is pronounced by the following judges, viz., Mr. Edwards, Secretary to the Floricultural Society; Mr. Barnes, of Camden Nursery; Mr. Todd, of Sutton, to be the prettiest and most distinct Fuchsia yet raised; habit dense and bushy, producing great clusters of pretty reflexed blooms, of great substance, very clear waxy white, with a rich plum-coloured puce corolla, and exceedingly striking. 10s. 6d.

BEAUTY OF THE BOWER.—A very rich and perfect formed flower, scarlet tube and sepals, which reflex over the tube, displaying a beautiful dark purple corolla of great substance: habit, perfect. 7s. 6d.

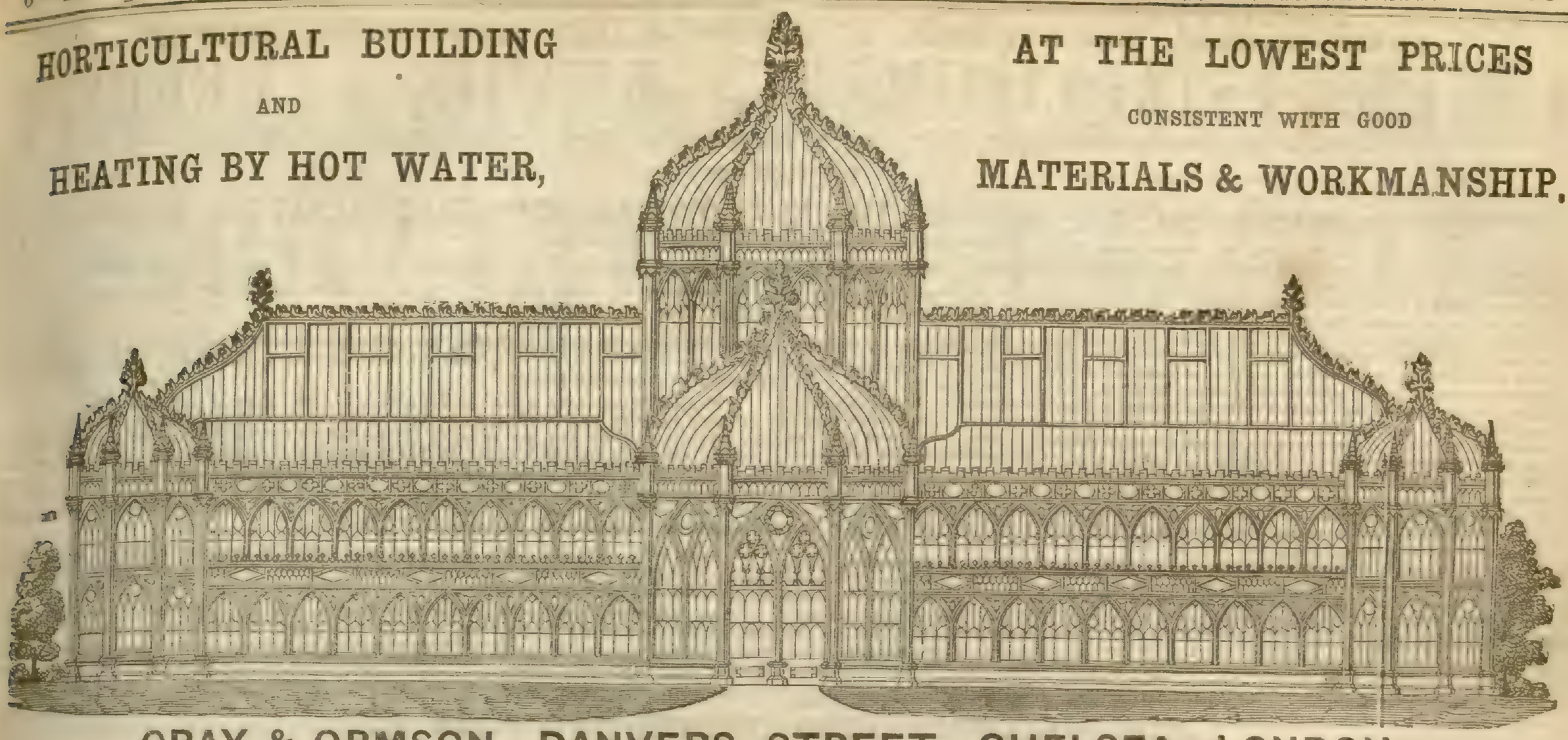
OMER PACHA.—A large and well-proportioned flower, with dark crimson tube and sepals: corolla, intensely dark velvety purple: habit, excellent and very graceful. 7s. 6d.

The Set will be sent out in April.—Strong Plants, at 42s. The usual discount to the Trade where three of each are taken.

Agent:—HURST and M'MULLEN, Seed Merchants, Leadenhall Street, London.—Bower Nurseries, Maidstone.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER,

AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.

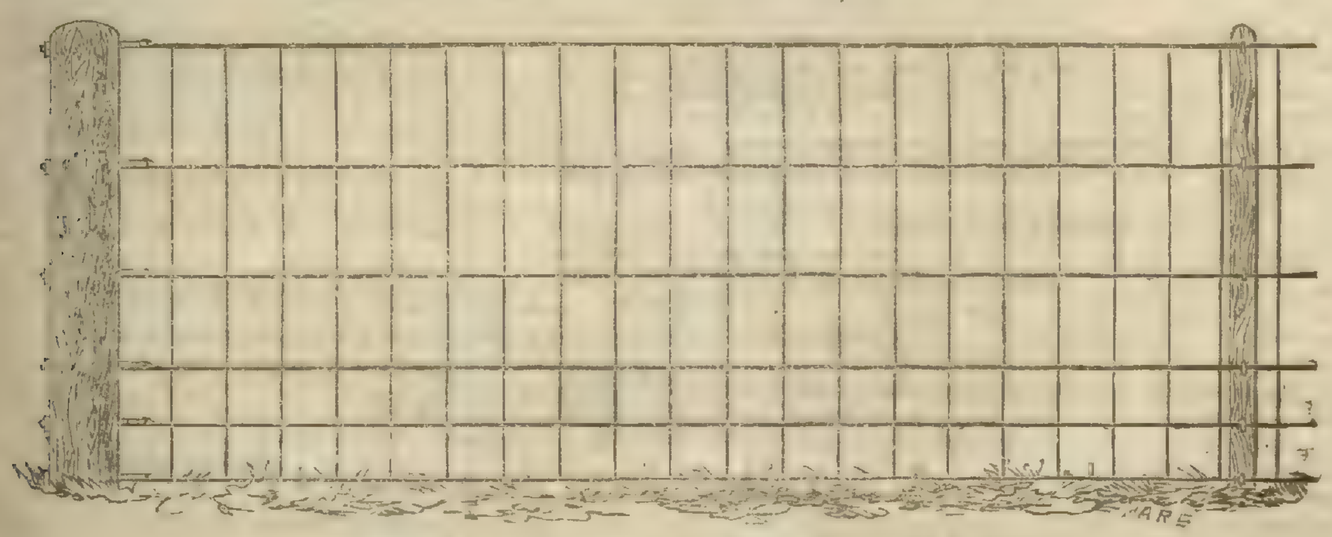


GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

BY HER MAJESTY'S ROYAL LETTERS PATENT.



TO AGRICULTURISTS.

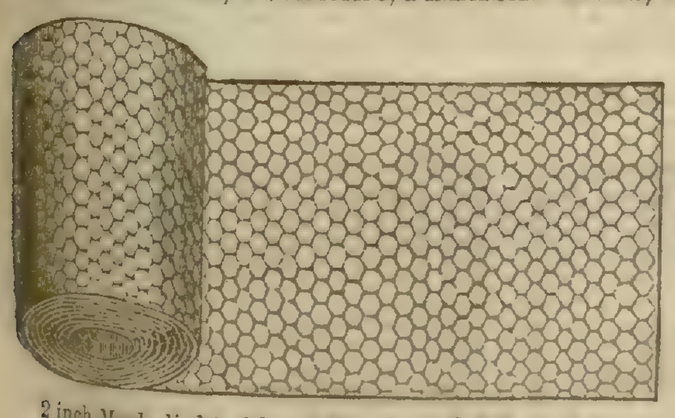
B. GREENING AND CO.

BEG to call attention to the Wire Fencing they are now offering at ONE SHILLING PER LINEAL YARD. It is 3 feet 9 inches high, very strong, exceedingly durable, and perfectly efficient, being warranted to turn Horses, Cattle, and Sheep. It is stronger than the common strained Wire Fencing, over which it possesses many considerable advantages. It may be firmly and effectively erected by farm labourers, it requires fewer supports than any other fence, and when fixed, although it is decidedly one of the firmest and most stable fences, yet it does not constitute that impediment to improvement that the strained fence or a hedge does, as it can be removed to another line without the expense of sending for skilled workmen.

Manufactured by Patent Machinery by B. GREENING and CO., Agricultural Iron Works, 1 and 3, Church Gate, Manchester.

N.B. Catalogues, Pattern Sheets, and Price Lists, sent per Post, on receipt of four Stamps (cost of Postage).

GALVANISED WIRE NETTING FOR GAME AND SHEEP FENCING, AVIARIES, PHEASANTRIES, &c.



2 inch Mesh, light, 6*d.* per lineal yard, 2 feet wide.
" strong, 8*d.* " "

Netting of any size or quantity, and Fencing of all kinds, supplied on the shortest notice.

WILLIAM DRAY & Co., Manufacturers, Swan Lane, Upper Thames Street, near London Bridge.

WOOLLEN NET FOR THE PROTECTION OF WALL FRUIT TREES FROM FROST, 2 and 3 yards wide, can be had of WEATHERHEAD, WALTERS, & Co., Derby. See *Gardeners' Chronicle* of Oct. 28, 1854.

HALL'S GARDEN NETTINGS; the best and cheapest for all purposes of shelter and shade from Frost, Hail Storms, and Gales of Wind. No. 0, 5*d.*; No. 1, 5½*d.*; No. 2, 6*d.*; Nos. 3 and 4, 7*d.* All 56 inches wide, and in lengths of 15, 30, and 60 yards.—Manchester.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.* Scrim Canvass, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

WEEDS ON WALKS.

MR. FLEMING'S WEEDING OR SALTING MACHINE FOR GRAVEL WALKS, COURT YARDS, &c., manufactured and sold by ALEXANDER SHANKS & SON, Arbroath, Forfarshire, from whom particulars with prices may be had.

MAW'S ENCAUSTIC TILE PAVEMENTS form an indestructible and highly decorative substitute for ordinary flooring, and their imperishable Oil Cloth Coverings for Entrance Halls, Passages, Verandahs, Conservatories, &c.—MAW & Co. send free of expense their Book of Designs, suitable in price and style for every description of Building.—Benthall Works, Broseley, Salop.

TO BE LET, EAST BOTTOM FARM, comprising Farm-house, with suitable Farm Buildings, three Cottages, and 411 acres, 1 rod, 18 perches of Arable and Pasture Land, together with the right of pasturage on an adjacent Down. The land is a light soil on chalk, congenial for Turnips and Stock, and lies well together. It is situate in the parish of Ringwold, in the county of Kent, four miles from the town of Dover, and three miles from Deal. Immediate possession may be had.—To view the farm apply to Mr. SANDFORD, Martin's Farm, near Dover; or to Messrs. OSBORN & GARRET, Estate Agents, Fareham, Hants.

TO BE LET ON LEASE, FARMS IN DORSETSHIRE, on the Milton Abbey Estate, seven miles from Blandford, and 11 from Dorchester, with entry at 25th March, and 11th October next.

1st. DELCOMBE, in the parish of Milton Abbas, containing 335 acres or thereby, whereof 140 acres are Grass, and 195 arable; the greater part a deep, friable, calcareous loam. This farm is equally adapted for a mixed dairy and corn management, or for corn and stock. The buildings are commodious, and the farm residence is picturesquely placed on a lawn, with a walled garden. The farm is tithe free.

2d. ANSTEY FARM, in the parish of Hilton, now containing 304 acres, or thereby, whereof 190 acres are Grass and Meadow, and 114 Arable. This Farm has hitherto been occupied as a dairy and corn farm, for which it is well adapted, the land being well watered and of good quality. It is capable of much improvement by drainage and otherwise, for which every facility and encouragement will be offered by the landlord. The arable part of the farm is a friable loam on chalk, the Grass land in the vale a deep earthy soil.—For further particulars apply in London, to JAMES CAIRD, 9, Little Ryder Street, St. James's; and in Dorset, to WALTER ANDERSON, Milton Abbey, Blandford.—Feb. 10.

NURSERY AND SEED BUSINESS,
ESTABLISHED IN THE YEAR 1819.

TO BE LET, with immediate possession, the NURSERY and SEED SHOP at Taunton, for some time past in the occupation of Messrs. M'Intyre and M'Intosh. The Grounds and Stock are in excellent condition, moderately rented, and are well worthy the attention of any person wishing to carry on the business. If required the quantity of ground may be reduced. The Nursery is about 5 minutes' walk from the Railway Station.

Apply to Mr. YOUNG, the Proprietor, Elm Cottage, Taunton.

TO BE SOLD, the BUSINESS, GREENHOUSES, PITTS, FRAMES, and STOCK therein, containing a choice collection of Plants in the finest condition; also the Lease of the ACACIA ROAD NURSERY, situated in the best part of St. John's Wood, and close to the Regent's Park. There is an excellent Residence, with Stable, Coach, and Potting-houses. Well worthy the attention of any person wishing to carry on the business. A part of the purchase money may remain on security if required. Further particulars may be obtained of the proprietor, ROBERT YEO, Esq., 10, Victoria Terrace, Belsize Road, St. John's Wood, London.

EGGS, from the Yards of Mr. G. BOTHAM, Wexham Court.—Prize Spanish, 30*s.*; ditto Brahma Pootras, 21*s.*; ditto White Cochin, 21*s.*; ditto Grey Dorking, ditto Red Speckled Dorking, ditto Silver Pencilled Hamburgs, ditto Duckwing, Game, ditto Rouen and Buenos Ayres Ducks, at 10*s.* 6*d.* per setting of 13.—May be had by sending a Post-office-order, payable at Slough. Box and packing, 1*s.*

DORKING FOWLS.—Eggs, from remarkably large and weighty birds, of the best coloured breed, will be disposed of at 15*s.* the dozen, box included.—Address W. G., Railway Inn, Holme, Stilton, Hunts.

TO BE SOLD, BUFF COCHIN CHICKENS, from first class Prize Birds, Brahma Pootra Chickens, from imported American Prize Birds, and Spanish Chickens. Also some very good one-year-old Birds of the above descriptions. Wire, Game, and Poultry Netting, Poultry Hurdles, Hen-houses, Chicken Coops, Flower Stands, and Trainers, Garden Arches, and every kind of Wire Work, useful and ornamental.—T. H. Fox's, City of London Wire Works, 44, Skinner Street, and 6 & 8, Snow Hill. Illustrated Catalogues forwarded post free.

FANCY POULTRY.—PERIODICAL SALE.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, Feb. 20, at 12 o'clock precisely, POULTRY and PIGEONS, many of which are first-class Birds: the Spanish Fowls comprise the brothers and sisters to those that took first prizes at Southampton, Cambridge, Reading, Salisbury, and Newport, and also those that took first prize at Colchester, from the yard of Sir Archibald Macdonald, at Lephook; very choice Spanish, from Mr. John Clarke, of Harsley Row; and first-rate White, Buff, and Black Cochins, Brahmas, Hamburghs, Dorkings, &c., from Mr. Cyrus Clark, of Glastonbury, G. C. Adkins, Esq., Edgbaston; some choice Carriers, Pouters, and other Pigeons, from J. Butt, Esq., and several well-known Fanciers.—Catalogues by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

PEAR AND APPLE TREES AND CAMELLIAS.
FROM THE CLARENDON NURSERIES, JERSEY.

MR. J. C. STEVENS is instructed by Mr. René Langelier to announce for Sale by Auction, at his Great Room, 38, King Street, Covent Garden, on FRIDAY, 23d Feb. and following day, at 12 o'clock, without reserve, 1000 PEAR TREES of the most approved melting sorts, including Queen Victoria (not yet out) and others new to this country, all of which Mr. Langelier can warrant true to name and worthy of cultivation; 100 fine Apple Trees (Hammond's Pippin) raised in the island of Jersey by James Hammond, Esq., the fruit of first-rate quality, keeping till June: also a collection of Double Camellias with flower-buds and some in bloom, all of good sorts.—Catalogues one week before the Sale of Mr. J. C. STEVENS, 38, King Street, Covent Garden, London.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Halley to Sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY, Feb. 22, at 12 o'clock, about 200 Choice Double CAMELLIAS, from 18 inches to 5 feet, comprising all the approved kinds, beautifully furnished with bloom buds; also a fine Collection of American Plants, comprising Ghent, and other Azaleas, Hybrid Rhododendrons, Kalmias, Magnolias, Andromeda floribunda, together with choice Ericas and Epacris of sorts, Roses, Dahlias in dry roots, &c.—On view the morning of Sale. Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

GREAT WESTERN, NORTH-WESTERN, SOUTH-WESTERN, AND SOUTH-EASTERN RAILWAY

SEED ESTABLISHMENT, READING, BERKS,

(Under the distinguished Patronage of the principal Members of the Royal Agricultural Society of England),

FOR SUPPLYING

SUTTON'S HOME-GROWN SEEDS TO ALL PARTS OF THE UNITED KINGDOM.

A Gentleman in connection with the GARDENERS' CHRONICLE and AGRICULTURAL GAZETTE, *who is in the practice of inspecting the principal Horticultural and Agricultural Establishments in the Kingdom, for the purpose of reporting the peculiar features of each, favoured us with a visit, and the Editor honoured us by publishing a Report, from which we present the following extract* (see GARDENERS' CHRONICLE, Nov. 27, 1852) :—

MESSRS. SUTTON AND SONS', READING, BERKS.—"This important seed establishment is situated in the Market Place of the fine old town of Reading, which is easily and speedily reached by the Great Western Railway. The shop is fitted up with all the appliances and conveniences for despatch which an extensive business demands. Behind the shop is an extensive double range of warehouses, which are occupied by Garden and Agricultural Seeds, more especially Turnip and Grass seeds, of both of which Messrs. Sutton have one of the best collections in the country. Beyond the Warehouses is a Garden in two compartments, both furnished with glass houses and pits. Here the vitality of the different kinds of seeds is tested, and the gayer kinds of plants kept for decorating the shop and for sale in pots. The principal Nursery, however, belonging to this Establishment, lies on the south side of the town, in a fine level situation. Here, Roses, Fruit Trees, Evergreens, and Conifers are chiefly cultivated, together with, here and there, patches of the more choice vegetables for trial.

"Of agricultural crops, a compartment was allotted to Turnips, containing about 40 varieties of Swedes, hybrid, and other kinds. Of the former, the best appeared to be Sutton's Purple-top and Rivers's Stubble Swede. Among hybrids, Sutton's, Skirving's, Dale's and Rivers's are all especially worthy of mention. The largest Turnip in the grounds was the New Lincolnshire Red, so called from its being brought originally from that county by Philip Pusey, Esq., who presented the stock to Messrs. Sutton. Of Mangolds and Beet (which were of great size), we noticed a large red variety, called the Elvetham Long Red; a new sort introduced by Messrs. Sutton; also very finely formed Yellow Globe Mangold, besides the large Crimson Beet, and the White Silesia Sugar Beet. There were also Kohl Rabi, Drumhead, and other Cabbages, White Belgian Carrots, and a very large new orange colour variety.

"Messrs. Sutton have given up the saving of Rye, Vetches, and seed corn, in order that undivided attention may be given to the finer seeds, such as those of Turnip and Grass. Of the latter, examples of all that are valuable to the farmer, or for forming permanent pastures are collected here, and correctly labelled, so that an opportunity is afforded of inspecting their different characters while growing in the same soil and under precisely the same treatment. In the horticultural portion of the piece of land set apart as "sample ground," we remarked rows of Broccolis, Cabbages, Lettuces, &c., all growing side by side, and labelled with their names in full; also beds of choice Beets, Carrots, &c., for transplanting for seed.

"Many sorts of Potatoes had been cultivated here, but now stored away. Messrs. Sutton stated, that from notes made at the time of digging up, Soden's Early Oxford and the Early Walnut-leaf Kidney, were the earliest.

"An interesting feature connected with Messrs. Sutton's Establishment is a library and reading-room, which adjoins the office on the first floor over the front shop. One of the shopmen acts as librarian, and there is a list of the books hung up in the room, which is open to all the men and boys on the Establishment." (*From the* GARDENERS' CHRONICLE *of Nov. 27th*, 1852.)

AGRICULTURAL SEEDS GROWN AND SOLD BY

JOHN SUTTON AND SONS, SEED GROWERS, READING, BERKS.

WITH PRICES FOR THE MONTH OF FEBRUARY ONLY.

AGRICULTURAL BEET.

	Per lb.—s. d.
NEW LARGE CRIMSON; nearly as large as Mangold, contains 50 per cent. more saccharine matter	1 6
WHITE SILESIAN SUGAR, French Seed	1 0

CARROT.

YELLOW BELGIAN (excellent) ..	2 6
WHITE BELGIAN, the heaviest cropper and most certain	2 6
ORANGE BELGIAN, rare saccharine, and quite as large as the white	3 0
LARGE RED ALTRINGHAM; large and nutritious	3 0
SHORT ORANGE	3 0

MANGOLD WURZEL.

FROM SELECTED ROOTS.

YELLOW GLOBE (Sutton's selected), suitable for any soil, very large ...	1 0
RED GLOBE, suitable for any soil ...	1 0
LONG RED; this sort requires good deep soil	1 0
LONG YELLOW; very similar to the preceding in shape	1 0

SUTTON'S ELVETHAM LONG RED; this is a very superior new variety. Every year the demand for Seed of this sort increases; but, owing to the unfavourable season, we have not been able to save nearly so much as we calculated upon, and we cannot procure this sort from other growers. Price 2s. 6d. per pound.

Mangold Wurzel Seed may be had cheaper in quantities of half a cwt. and upwards, if ordered immediately, except "The Elvetham."

KOHL RABI.

	Per lb.—s. d.
SUTTON'S LARGE GREEN; Turnip-rooted Cabbage	2 6
LARGE PURPLE; not so large as the preceding	1 6

There are many varieties of Kohl Rabi, varying materially in size. From them we select the above, as most worthy of cultivation.

TURNIP SEEDS.

A QUART OF TURNIP SEED WEIGHS ABOUT 1½ LBS.

Prices per Bushel on application.

	Per lb.—s. d.
HARDY WHITE SWEDE	1 6
GREEN-TOPPED YELLOW SWEDE.	1 9
ASHCROFT SWEDE, very large, hardy, and of quick growth, yellow flesh with reddish top	2 3
SKIRVING'S LIVERPOOL SWEDE ...	2 0
LAING'S SWEDE; fine shape, purple top	2 0
PURPLE-TOPPED YELLOW SWEDE (Sutton's fine stock), a heavy cropper, good form, hardy, and stores well ...	2 0
RIVERS' STUBBLE SWEDE; a large and first-rate sort in every respect, especially for late sowing	2 3
DALE'S HYBRID, green-topped yellow ..	1 2
SUTTON'S PURPLE-TOPPED YELLOW HYBRID, the hardiest, largest, and most nutritious of all hybrid Turnips	1 6
GLOBE, Green	1 2
White	1 0
LINCOLNSHIRE RED GLOBE, a superior variety, presented to us by Philip Pusey, Esq., M.P., being more solid and larger than any other. (See remarks by reporter of *Gardeners' Chronicle*)	1 2
TANKARD: Red, White, or Green ...	1 0

TURNIP SEEDS (*continued*)

	Per lb.—s. d.
YELLOW TANKARD (or Tankard Swede) an excellent sort, equal to any Swede ...	2 0
SUTTON'S EARLY SIX WEEKS, very early and large	1 2
GREEN-TOPPED & PURPLE-TOPPED YELLOW ABERDEEN, each... ...	1 2
ORANGE JELLY, grown from seed received from Mr. Chivas	1 2
SUTTON'S IMPERIAL GREEN GLOBE, *shape of Matson's, but much larger, and quite hardy*	1 2
YORKSHIRE PARAGON; a fine new White Globe Turnip, as solid and nearly as large as Lincolnshire Red	1 2
SUTTON'S GREEN-TOPPED YELLOW HYBRID possesses same good properties as our Purple-topped Hybrid, is of quicker growth, and more suitable for poor soils...	1 6
HARDY GREEN ROUND; a good old sort	1 0
STUBBLE STONE	1 0
SUTTON'S CRUICKSFIELD HYBRID SWEDE; a valuable new Hybrid, between Kohl Rabi and Skirving Swede ...	3 6

PARSNIPS.

COMMON CATTLE	1 9
NEW LARGE GUERNSEY, altogether a superior kind, some of the roots weighing seven pounds each	2 6

CLOVERS.

Common Red (or broad)	Trifolium incarnatum
White (or Dutch)	Suckling (Trifolium minus)
Trefoil (or Hop Clover)	Alsike Clover
True Perennial Red Clover	Bokhara Clover

PRICES OF CLOVERS ARE FLUCTUATING.

COW CABBAGE.

	Per lb.—s. d.
LARGE DRUMHEAD, from fine selected plants	2 6
THOUSAND-HEADED, very productive, tall, branching	2 6
SUTTON'S EARLY CATTLE; this, if planted 18 inches asunder, produces a very heavy crop, and in a short time. (Sow in March and August).	5 0

RYE-GRASSES,

	Per bushel.
TRUE ITALIAN RYE-GRASS	6 0
DITTO (SUTTON'S IMPROVED) ITALIAN	7 6
DITTO (DICKENSON'S) ITALIAN ...	7 6
PACEY'S PERENNIAL RYE-GRASS...	6 0
ANNUAL RYE-GRASS, OR COMMON RAY	3s. 6d. to 5 0

MISCELLANEOUS.

	Per lb.
Lucerne (fresh imported)	1 0
Furze, for fence and cover	1 0
Broom	1 0
Dwarf Rape or Cole	0 4
White Mustard	0 4

Burnet—Spurry—Chicory.
Yarrow, or Millefoil
Buckwheat.
Field Parsley, for Sheep feed.
Potatoes, choice sorts.
Linseed or Flax, clean English.
Ditto, Riga, imported.
Giant Saintfoin, 12s. per bushel.

Not bound by the above prices after March 1, as some kinds of Seeds are scarce this season, and will probably be worth much higher rates.

Should any kind become cheaper, the reduction will be allowed, as we always take care that those who order early shall have every advantage. We shall also be happy to make special contracts for large quantities if required.

SUTTON'S PERMANENT GRASS SEEDS.

Gentlemen intending to lay down Land to Permanent Pasture, or for one or two years lay, are recommended to communicate with us, stating the nature of the soil and situation, that we may advise as to sorts of Grass Seeds most suitable.

OLD MEADOWS DEFICIENT OF THE MOST NUTRITIVE GRASSES AND CLOVERS may be greatly improved by sowing at this season "SUTTON'S Renovating Mixture" of Seeds at the rate of 8 to 12 lbs. per acre, price 9d. per lb. Our finest LAWN GRASS SEEDS *are highly useful to improve Garden Lawns or to form new ones.*

The following sorts of NATURAL and ARTIFICIAL GRASSES MAY BE HAD SEPARATE, at low prices. All the best and most suitable of them are contained in MESSRS. SUTTON'S MIXTURES.

Achillea millefolium (Yarrow)
Agrostis stolonifera (Creeping Bent)
Anthoxanthum odoratum (Sweet Vernal)
Alopecurus pratensis (Meadow Foxtail)
Avena flavescens (yellow Oat Grass)
Agrostis alba (white Bent Grass)
Agrostis vulgaris (common Bent Grass)
Bromus arvensis (Field Brome Grass)
Cynosurus cristatus (Crested Dogstail)
Dactylis glomerata (round-headed Cocksfoot)
Festuca durinscula (hard Fescue)
Festuca loliacea (Darnel Fescue)
Festuca ovina (Sheep's Fescue)
Festuca rubra (red Fescue)
Festuca pratensis (Meadow Fescue)
Festuca elatior (Tall Fescue)
Festuca heterophylla (various-leaved)
Festuca tenuifolia (fine-leaved Fescue)
Glyceria aquatica (water-sweet Grass)
Holcus avenaceus (tall Oat-like Grass)
Hordeum bulbosum (bulbous Barley-grass)
Lolium perenne (Perennial Rye-grass)
Lolium perenne sempervirens
Lolium perenne Paceyanum
Lolium perenne Stickneyanum
Lolium perenne tenue
Lolium italicum (Italian Rye-grass)
Lotus corniculatus (Bird's-foot Trefoil)
Medicago lupulina (black Medick Grass, or yellow Trefoil)
Phleum pratense (Timothy)
Poa nemoralis (wood Meadow Grass)
Poa pratensis (smooth Meadow Grass)
Poa trivialis (rough Meadow Grass)
Poa fertilis (fertile Meadow Grass
Poa sempervirens (evergreen)
Trifolium minus (red Suckling) (Clover)
Trifolium pratense perenne (Perennial red
Trifolium repens (white Clover), best
Trifolium hybridum (Alsike Clover)

And many other kinds, a Priced List of which may be had on application, post free.

Mixtures for laying down Land to Permanent Meadow or Pasture.

The sorts contained in these Mixtures are grown in different localities, and gathered separately, by the hand, expressly for this purpose, by which means all noxious weeds are excluded; they consist of the most nutritive kinds of Fescues, Poas, Sweet Vernal, Perennial Clovers, Loliums, &c., and each sort being kept separate, they are subsequently mixed in such sorts and proportions as are most suitable to the soil to be laid down. 24s. to 30s. *per acre*, according to the sorts which the soil may require.

Mixtures for Reclaimed Marshes and Heath Lands.

Many acres of land of this description have been successfully laid down to Permanent Pasture by us, with seeds which we have found invariably to thrive on such soil; *and the cost for this purpose will be* but 15s. to 20s. *per acre.*

Mixtures for laying down Chalky or Gravelly Uplands and Sheep Downs.

For this purpose Grass Seeds are annually collected from dry and hilly districts, where they are found growing spontaneously; and after many years' experience, we can confidently assure our friends that a *good and permanent* Sward may be obtained on *any* upland, from this mixture.

Mixtures for Laying down Water Meadows.

In this department also we have been very successful, many customers having expressed their great gratification at the effect of these Seeds. *Cost of Seed now reduced to 24s. per Acre.*

Mixtures to Lay down New Park Lawns.

For this purpose all coarse growing kinds are carefully excluded, and the Sward will at all seasons present a luxuriant verdure so desirable in Parks contiguous to the Mansion.

Clover and Grasses for Alternate Husbandry.

Mixtures for one, two, or three years Lay, at 12s., 16s., or 22s. per acre.

Renovating Mixture for Improving Old Pastures.

Many old Upland Pastures, Parks, and Meadows, are nearly destitute of Clovers, and the finer and more nutritious sorts of Grasses, in which case we are in the practice of furnishing such sorts only as are wanting; if these seeds are sown *early in the Season*, the improvement in the Pasture will be very considerable and at a small expense. *Quantity of Seed required, 8 to 12 lbs. per Acre. Price reduced to 9d. per Pound.*

Fine Grass Lawns in Flower Gardens, &c.

The great expense of cutting and carting turves from a distance may be avoided, and a *superior* turf produced in a few months, by sowing SUTTON'S LAWN GRASS SEEDS, which consist solely of the finest and shortest growing kinds, perfectly *free from moss and other weeds. Price 2s. 6d. per Gallon, or 20s per Bushel or 1s. per Pound.*

ADDRESS, JOHN SUTTON AND SONS, SEED GROWERS, READING, BERKS.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. 27, Victoria Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, February 10, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 7.—1855.] SATURDAY, FEBRUARY 17. [PRICE 6*d*.

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SCOTTISH ARBORICULTURAL SOCIETY.—The First General Meeting of this Society was held at 6, York Place, Edinburgh, on 31st January, Mr. JAMES BROWN, President, in the Chair.

Donations to the Funds of the Society were announced from Messrs. P. Lawson & Son, Messrs. Dicksons & Co., Mr. Thomas Methven, Mr. Galbraith, and Messrs. Ballantyne & Sons.

Office-Bearers for the ensuing year were elected as follows:—

President—Mr. James Brown, Wood Commissioner to the Earl of Seafield, Grantown, Strathspey.

Vice-President—Mr. W. M'Corquodale, Forester to the Earl of Mansfield, Scone Palace.

Secretary—Mr. James Alexander, of the firm of Dicksons & Co., Nurserymen, Edinburgh.

Treasurer—Mr. John Anderson, of the firm of Dickson & Turnbull, Nurserymen, Bath.

Committee:—

Mr. Cowan, Forester to R. Dundas, Esq., Arniston.
Mr. Dickson, Forester to F. A. Thomson, Esq., Charleton.
Mr. Gardiner, Forester to the Earl of Eglinton, Eglinton Castle.
Mr. M'Cleish, Forester to the Duke of Northumberland, Alnwick Castle.
Mr. M'Donald, Forester to the Duc de Coigny, Bargany, Ayrshire.
Mr. M'Laren, Forester to the Earl of Hopetown, Hopetown House.
Mr. M'Laren, Forester to the Earl of Mansfield, Shaw Park.
Mr. Rutherford, Forester to Sir John Ramsden, Bart., Buckden.
Mr. Taylor, Forester to the Earl of Camperdown, Camperdown House.
Mr. Thomson, Deputy Surveyor to the Right Hon. H. M. Commissioners of Woods and Forests, Chopwell Woods.
Mr. Thomson, Forester to the Earl of Stair, Culhorn.
Mr. Methven, Nurseryman, Edinburgh.
Mr. Ravenscroft, Museum of the Highland and Agricultural Soc. [of Scotland.
Mr. Walter Sang, Nurseryman, Kirkaldy.
Mr. Balden, Forester to Lord Blantyre, Lennoxlove.

Assistant Secretary—Mr. G. Lawson.

The Society have agreed to offer Prizes (open to all) for ESSAYS on the following branches of Practical Forestry; the Essays to be, in every case, founded on the experience of the author:—

I. DRAINAGE | II. PRUNING | III. THINNING
IV. STRIPPING AND CURING OF OAK BARK.

Essays intended for competition must be sent to Mr. JAMES ALEXANDER, 1, Waterloo Place, Edinburgh, the Secretary, on or before 1st of August, 1855, each bearing a certain motto, and accompanied by a separate sealed letter, bearing the same motto, and containing the name and address of the author.

The Society also invite communications on subjects connected with Forestry, for which special prizes are not offered.

The Laws of the Society, and other information may be obtained on application to the Secretary, as above.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

CEMETERIES.

WILLIAM MASTERS AND SON having been engaged upon extensive Cemetery works, are prepared to undertake the LAYING OUT and PLANTING NEW GROUNDS, as well as the Ornamenting such as are closed by the recent Act of Parliament, by contract or otherwise.—WILLIAM MASTERS & SON, Landscape Gardeners, Canterbury.

NOTICE OF REMOVAL.

WILLIAM HILL, HORTICULTURAL SURVEYOR, BUILDER, and HOT-WATER ENGINEER, late of Greenwich, to Streatham Hill, Surrey, where all communications are respectfully requested to be addressed.—Streatham Hill, Surrey.

GENERAL SEED ESTABLISHMENT, NORTHAMPTON.

JOHN JEYES begs leave to inform his Patrons and Friends that his general stock of Seeds is now complete, and that he shall feel obliged by their early orders. He has a good supply of all those various Seeds his Establishment has long been celebrated for, such as Matchless Cabbage, Imperial Cos Lettuce, Conqueror Pea, Blood Red Beet, Dwarf Prolific Bean, Snow's Green Cos Lettuce, do. Broccoli, Northampton Market Broccoli, Giant Asparagus, &c. &c.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks, at 5*s*.; 12 varieties, 2*s*. 6*d*.; and from good double sorts, 1*s*. Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s*. per packet; separate, 2*s*. Fine Quilled African Marigolds, 6*d*. per packet.—Saffron Walden Nurseries.

CHOICE CALCEOLARIAS.

J. COLE begs to offer a few dozen of his unbloomed Seedling HERBACEOUS CALCEOLARIAS from his choice stock; they were the admiration of all who saw them last summer. They are not potted off, though strong enough for large 60-sized pots. The Seed was saved from selected stock, carefully impregnated. J. C. offers them at 4*s*. per dozen, or 25*s*. per hundred. A remittance solicited from unknown correspondents.—Keyfield Nursery, St. Alban's, Herts.

PRESENT PRICES OF AGRICULTURAL SEEDS.—SEE MESSRS. SUTTON'S DESCRIPTIVE LIST, on the last page of the *Gardeners' Chronicle* of February 3d.

SUTTON'S SHORT SEED LIST.

SUTTON'S SHORT SEED LIST, *containing only the most desirable sorts, will be sent post free, in return for one penny postage draft or receipt stamp.*
SUTTON & SONS, Seed Growers, Reading, Berks.

SUTTON'S FARM SEED LIST, WITH PRICES, may be had gratis and post-free on application. Goods delivered Carriage Free, as see second page of Catalogue.—Reading, Berks, February 17.

ITALIAN RYE-GRASS.

DICKENSON'S ITALIAN RYE-GRASS *may be obtained true of* Messrs. SUTTON & SONS, *Reading. Prices on application.*

CLOVER SEEDS.

GENUINE NEW CLOVER SEEDS *can be had at the lowest market prices of* JOHN SUTTON & SONS, SEED GROWERS, READING, BERKS.

TRUE PENZANCE BROCCOLI, *saved by one of the best growers in the neighbourhood of Penzance*, 1*s*. per packet, from WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

DIOSCOREA BATATAS, or Chinese Potato, 2*s*. 6*d*. each, or five for ... ... 10*s*. 6*d*.
HOLCUS SACCHARATUS, sealed packets of 500 Seeds 1 0
" " " 1200 Seeds 2 0
THOMAS JACKSON & SON, Kingston-on-Thames.

ACHIMENES, GLOXINIAS, ETC.

BASS AND BROWN have a large stock of fine Tubers of the following, which they can supply to the trade in quantities. Prices on application.

Achimenes Cherita.
" Mr. Aparpart.
" Louis Van Houtte.
" Margaretta (best white).
" Magnifica purpurea.
" Sir Traherne Thomas.

Gloxinea Leonie Van Houtte.
" Hogoveen.
" Willsoni.
" Duke of Wellington.

Verbenas, 60 new varieties of 1854, of the first raisers.

☞ A quantity of Corræa and Pimelea Stocks Wanted.
Sudbury, Suffolk.

LIVERPOOL IS THE BEST MARKET AT PRESENT FOR

PINES, ASPARAGUS, | CUCUMBERS, MUSHROOMS, &c.

Forward to GEORGE TAYLOR, Jun., FRUIT SALESMAN, St. John's Market, Liverpool.
Terms—CASH.

PYRAMIDAL PEAR TREES,
GRAFTED ON THE QUINCE STOCKS.

J. AND J. FRASER have still to offer strong trees of the above PEARS; a Descriptive Catalogue of the sorts may be had on application. To prevent disappointment early orders are requested, as the Stock of some of the varieties is getting low.—The Nurseries, Lea Bridge Road, Essex.

FRUIT TREES, FOREST TREES, AND SHRUBS, GARDEN AND FLOWER SEEDS, PERMANENT PASTURE GRASSES, and FINE DWARF LAWN GRASSES.—Catalogues of the above may be had on application to WILLIAM BARRATT, Saint John's Nursery, Wakefield.

LIQUIDAMBAR.—The undernamed is a buyer of either a large or small quantity of the above. Send cash price, and height, to Mr. JEYES, Nurseries, Northampton.

STRONG OAKS.

I. AND J. GAITSKILL have on hand a fine healthy stock of the above, 1½ to 2 feet and 2 to 3 feet, which will be sold cheap. Price on application.
Hall Santon Nurseries, Whitehaven; Feb. 17, 1855.

T. AND G. SWAILES having a large stock of the undermentioned, would sell at low prices—BEECH, one-year seedling fine; ASH, transplanted, 3, 4, and 5 feet; ELMS, Wytch and Scotch, &c., 3, 4, and 5 feet; HOLLY, transplanted, 1, 2, and 3 feet. Prices on application.—Beverley Nurseries, Feb. 17.

PERENNIAL RYE-GRASS SEED.

STUART AND MEIN, SEED MERCHANTS, Kelso, have on hand 50 quarters of good PERENNIAL RYE-GRASS SEED, about 15 lb. per bushel, which they cansell at a moderate price.—Apply, with reference, pre-paid, as above.

MANGOLD WURZEL SEED, LONG RED, and YELLOW GLOBE, warranted genuine, and the growth of 1854. Price 45*l*. per ton.—Apply to R. S. HEWS, Kelvedon, Essex.

IMPORTANT TO SEEDSMEN AND OTHERS.

TO BE SOLD immediately by the grower, at a low price for cash, 200 Bushels of GREEN GLOBE TURNIP SEED, all of the growth of 1854; first-rate in sample and condition, and stock warranted. To be sold in small or large quantities, at the option of the purchaser.—Apply to Mr. W. TAYLOR, Nashenden Farm, Rochester, Kent.

TO BE SOLD, Bishop's last and best PEA, 10 to 15 quarters at 56*s*. per quarter, and 7 to 8 quarters of a superior BLUE PEA, capital boiler, or an abundant bearer for podding, 56*s*. per quarter; also a quantity of genuine Skirving's Swede Seed of last year's growth, grown from large roots; transplanted and other sorts of Turnips and Mangold Seeds, &c.—Apply to Mr. GEORGE TABER, Seed Grower, Rivenhall, Witham, Essex. Delivered carriage free. Terms cash.

TO BE SOLD, at Prices that will be sure to give satisfaction, 10,000 STRONG CURRANTS of the following sorts, viz.:—Red and White Dutch, common Black and Black Naples, Wilmot's Superb Red, Champaign and Raby Castle. Also a quantity of strong dwarf-trained Pears and Plums of the best sorts, Fastolff and other Raspberries, strong standard Pears, and a quantity of prime Seed Potatoes, well kept, of the best sorts.—For further particulars apply to JAMES LAKE, Nurseryman, Bridgewater.

NEW CAULIFLOWER.

WAITE'S "ALMA," far superior to Walcheren very large and firm heads. Price to the trade 24*s*. per lb., smaller quantities 2*s*. 6*d*. per oz. No orders attended to for less quantities than one ounce.—Seed Establishment, 181, High Holborn, London.

EARLY DANIEL O'ROURKE PEAS.

J. G. WAITE begs to inform the Trade that he is now ready to execute orders for this valuable early Pea. Price can be had on application.
Seed Establishment, 181, High Holborn, London.

CONQUEROR OF THE WEST CUCUMBER.—A Packet, containing 12 good seeds of this first-rate Frame Cucumber, which for productiveness is second to none, will be sent post free, on receipt of 12 postage stamps, addressed to JAMES LAKE, Nurseryman, &c., Bridgewater.

WILD'S IPSWICH STANDARD CUCUMBER, the best in the world for table, market, or exhibition, 2*s*. 6*d*. per packet. Semi-double Primula sinensis, 2*s*. 6*d*. per packet, in five colours, the best ever seen.—Agents, TURNER, SLOUGH, FISHER, HOLMES & Co., Sheffield.
THOMAS WILD, Ipswich.

DR. SYNTAX CUCUMBER.—The above celebrated variety has been nearly lost to gardeners for several years past. It is known by all experienced growers of Cucumbers to be the very best sort in existence for early work.

A paper sent free per post on receipt of 13 stamps.

SNOW'S HORTICULTURAL BROCCOLI.—Half-ounce Packet sent free per post on receipt of 24 stamps.

NORTHAMPTON MARKET BROCCOLI.—This variety is grown by the market gardeners here, and excites the admiration of all who see it. Visitors say "they never saw such Broccoli anywhere else." Half-ounce Packets sent free per post for 14 stamps.—JOHN JEYES, Nurseries, Northampton.

MAY'S MAGNUM BONUM LETTUCE.—Parties who were disappointed last season in receiving the above, can now have it by early application, in Packets 1*s*. each, free by post. We have numerous letters to show, received from parties who had it last season, to say that it is the most magnificent Lettuce they ever saw.—Address, HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s*. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived very moist and open Parmasan Cheeses.

CHEAP AND GOOD CINERARIAS.—Fine flowering plants from Turner's best seed in large 60 and 48 pots, just coming into bloom, at from 4*s*. to 6*s*. per dozen. Also fine plants of named varieties, consisting of Mr. and Mrs. S. Herbert, Adela Villiers, Garland, Constellation, Lady H. Campbell, Kate Kearney, Flora M'Ivor, Étoile de Venus, &c., at 9*s*. per dozen.—WOOD & INGRAM, Nurseries, Huntingdon.

GENUINE SEEDS.

THE MEMBERS OF THE "SEED GROWERS SOCIETY," continue to supply genuine AGRICULTURAL, VEGETABLE and FLOWER SEEDS at Growers' prices. Lists with price and terms of business may be had on application to the Secretary, JOHN MOSS, Jun., Feering, Kelvedon, Essex.

NORTH CHINA SUGAR CANE—(HOLCUS SACCHARATUS).
NEW CHINESE POTATO—(DIOSCOREA BATATAS).

MR. JOHN HENDERSON, of Kingskerswell, South Devon, is still prepared to supply and warrant genuine Seeds of the above Sugar Cane, and tubers of the New Chinese Potato, with description of the Chinese mode of culture, at the following prices free, for cash:—

Holcus Saccharatus, in packets, at 1*s*., 2*s*. 6*d*., and 5*s*. each.
Discorea Batatas—four tubers, 10*s*.; ten ditto, 1*l*. 2*s*. 6*d*.

For further particulars as to culture, &c., see a pamphlet descriptive of the nature and progress of these plants, with directions for cultivation, by JOHN HENDERSON, price 1*s*., published by Mr. S. JOHNSON, St. Martin's Lane, and to be had of all booksellers. Post Office Orders are requested to be made payable at Newton Abbott, South Devon.

PRICED NURSERY CATALOGUES.

A. PAUL AND SON will be happy to forward the following priced Nursery CATALOGUES in return for one postage stamp each:—A, ROSES; B, ORNAMENTAL TREES AND CONIFERS; C, FRUIT TREES; D, HERBACEOUS PLANTS; F, GREENHOUSE PLANTS, &c.; G, SEEDS; H, HOLLYHOCKS; I, BULBS.—Nurseries, Cheshunt, Herts.

MESSRS. J. AND H. BROWN'S NEW PRICED CATALOGUE can be had by post. American Plants, Coniferæ, Orchidea, Stove and Greenhouse Plants, Fruit Trees, &c. A separate List of Garden and Flower Seeds.
Albion Nursery, Stoke Newington, London.

ROBERT KENNEDY, Agent for Messrs. Platz and Son, Seed Growers, Erfurt, has much pleasure in announcing he has received their Catalogue of Flower and Vegetable Seeds for the trade for 1855, which abounds with new articles of great interest, and will be forwarded, per post, on application to R. KENNEDY, Bedford Conservatory, Covent Garden, London.

P.S. Also, R. Kennedy's General Catalogue of British and Foreign Ferns forwarded on receipt of six postage stamps.

THE FLUKE KIDNEY POTATO.—This excellent variety is now planted here as the principal crop, being more free from disease and more prolific than any other in cultivation. It was raised in Middleton, and may be had genuine in any quantity at 5*s*. per bushel of 56 lbs.—Apply to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

Post-office Orders to be made payable at Middleton, Lancashire.

THE FLUKE POTATO.—A new second early variety, surpassing every other in its capability of resisting the Potato disease, and without exception the finest and most prolific Potato in cultivation. Price per cwt., 15*s*., bags included.

To be had genuine of THORNHILL & DICKSON, Lawrence Hill Nurseries; and No. 1, Wine Street, Bristol.

SUPERIOR EARLY BROCCOLI.

MITCHINSON'S PENZANCE OR EARLY WHITE CORNISH BROCCOLI.—*Published and handsomely illustrated, in February, a full-sized drawing of this most valuable, hardy, and early variety, that is the earliest, 1s. 6d. per packet, or 12s. per ounce.* Note Seed can be had in sealed packets of the following Agents in London:—Nash, Mearns, and Co., Strand; Dobie, Cuppedge, and Benham, Moorgate Street; Hooper and M'Mullen, Leadenhall Street; Flanagan and Son, Mansion House Street; or from Mitchinson's Seed Establishment, Truro, Cornwall.—December 2.

From numerous unsolicited Testimonials we select the following:—

To Messrs. Mitchinson and Co., Seed Merchants, Truro, Cornwall.

"Sirs, I have enclosed 18 postage stamps for a packet of your Penzance Broccoli Seed, the same kind as you sent me last year. I hope I am not too late, for I am anxious to procure it, if possible, for I can bear testimony to its value as a new, early, and a superior Broccoli, for I have been cutting upwards of 30 heads every week from the beginning of February.

"Dorking, Surrey, April 4, 1854. "W. Cockerwood."

To Messrs. Mitchinson and Son, Seedsmen, Truro, Cornwall.

"Sirs,—I enclose you 1s. 6d. worth of stamps and hope you will send me a small packet of the Early Broccoli you advertised last year. I have beat all my neighbours this year with your Broccoli, which has been very fine and true, and stood the winter well. "George Pender."

"Sandgate, Kent, April 10, 1854."

To Mr. Mitchinson, Seedsman, Truro.

(Enclosed with Specimen.)

"Sir,—I beg to forward you this Broccoli, one of the sort after your own name. I have had a splendid crop of them this season, many of which measured three feet in circumference, and quality excellent. Cut the first on the 11th of February. If seed is scarce, be kind enough to save two packets.—T. Rice, Gardener. Grampound, Cornwall. April 7, 1854."

OLD NURSERY AND SEED ESTABLISHMENT, NORTHAMPTON.

JOHN PERKINS, Seed Merchant & Grower, begs to call the attention of his Patrons and the Public to his General Stock of GARDEN and AGRICULTURAL SEEDS, &c., the greater portion of which have been grown by himself, and which he can with confidence recommend. Also the following kinds of Seed Potatoes, true to name:—Ashleaf, or Albion Kidney, Jackson's Improved Albion do., Golden Multiplier do., Flake Kidney, Thurston's Conqueror, Rounds, Ready Penny, Early King, Hicks' Early, Soden's Early Oxford, Early Shaws, Rillet's Flourball, American Seedling, Holland's Red.

The above may be obtained as cheap or cheaper than any other house in the trade, prices of which may be had on application. Also 100,000 one to two years' Seedling Oak, 50,000 Scotch Firs, 2 to 20 ft., 50,000 Beech, 3 to 4 ft. In addition to the above, J. P. has a very extensive stock of Fruit and Forest Trees, Flowering Shrubs, Evergreens, &c., &c., priced catalogues of which will be forwarded on application.

Nurseries about a quarter of a mile on the Bedford Road, also on the Billing Road, and at Wootton.

Seed Warehouse, Market Square, Northampton.

HOLCUS SACCHARATUS, OR CHINESE SUGAR CANE.—*For a full description, see the leading article in the* Gardeners' Chronicle, *by Professor Lindley, page 35, January 20, 1855.*

William E. Rendle & Co., Seed Merchants, have just imported from France an excellent parcel of Seeds, which will be sold in sealed packets at 1s. and 2s. 6d. each, post free.—Apply to William E. Rendle & Co., Seed Merchants, Plymouth.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 16s. per ton, delivered to any of the London Wharfs or Railways, or within a circuit of five miles. Peat and loam at moderate prices.—Kennard, Brothers, Swan Place, Old Kent Road.

LATE WHITE SUPERB BROCCOLI—"EMPEROR."

E. P. DIXON having purchased the entire stock of the above Broccoli of Messrs. Elletsons, Market Gardeners, Thorngumbald, near Hull, begs to announce that he is prepared to send it out in sealed packets at 2s. 6d. each. This Broccoli has been raised by the Messrs. Elletsons, the raisers of the Mammoth, sent out some time ago, who state that the EMPEROR, if sown at the same time, will come into use before it. Is of very dwarf growth, perfectly hardy, with heads from 15 lbs. to 20 lbs. weight: keeps its colour, and stands firm two weeks after it is ready to cut. A noble flower, and commands the best price of any other in the Hull market, where it is well known, and will be a great acquisition to the market gardeners around London, as well as those who wish for a fine Broccoli.

PURE MAMMOTH BROCCOLI.—Numerous applications having been made to Messrs. Elletsons last season for Seed of the Pure Mammoth Broccoli, they determined to allow a flat to stand for Seed, carefully selected from the original stock, producing heads from 18 lbs. to 25 lbs. each. E. P. D. having purchased the stock of this celebrated Broccoli, is prepared to send it out in packets at 2s. 6d. each.

Each may be had of Messrs. Noble, Cooper, & Bolton, 76, Fleet Street; and Messrs. Hurst & M'Mullen, 6, Leadenhall Street, London. Also of the Advertiser, 57, Queen Street, Hull.

DICKSON'S EARLY FAVOURITE PEA (NEW).

FRANCIS AND ARTHUR DICKSON AND SONS, Seed Merchants, &c., Chester, have much satisfaction in introducing the above new Pea, which they believe they are perfectly justified in saying is the best and most prolific Early Pea in cultivation.

It has been tried side by side with all the best early and second early Peas of the day, and has been pronounced by many eminent gardeners who saw it under the circumstances to be much superior to any variety of its season hitherto introduced.

It comes in about a week later than the "Early Emperor" (sown at the same time), grows about 4 feet high, and produces a wonderful profusion of pods, which contain on an average 11 Peas of excellent quality and flavour.

For opinions of Dr. Lindley and Mr. Thompson, see *Gardeners' Chronicle* of 20th January, 1855.

Price 3s. 6d. per Quart; per Pint, 2s. Messrs. Hurst & M'Mullen, Seedsmen, &c., 6, Leadenhall Street, wholesale London Agents; and to be had from most Nurserymen and Seedsmen throughout the United Kingdom.—N. B. The Trade supplied on liberal terms.—106, Eastgate Street, Chester; (and 14, Corporation Street, Manchester).—February 17.

NEW PLANTS.

A. VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to offer to Amateurs and to the trade his following new plants:—

ACHIMENES (TREVIRANIA), AMBROISE VERSCHAFFELT. This is the finest Achimenes of all; a correct drawing is figured in L'Illustration Horticole, Number 1, 1855. Nice plants will be sent out next May, each 8s.—N.B. One over if three plants are taken.

TYDŒA WARSCEWICZII; magnificent plant for foliage, and particularly for the flowers. It is the finest gesneriaceous plant of all; a correct drawing is figured in L'Illustration Horticole, Number 1, 1855. Strong plants are now ready for sale, each 15s.—N.B. One over if two plants are taken.

RHODODENDRON (HARDY) PRINCE CAMILLE DE ROHAN. This is the finest hardy variety raised; a correct drawing is figured in L'Illustration Horticole, Number 1, 1855. This variety is warranted to be quite hardy, and very free bloomer. Nice plants will be sent out next May, each 15s. N.B. One over if three plants are taken.

Agent in London: Mr. R. Silberrad, 5, Harp Lane, Great Tower Street.

HOPS SUPERSEDED BY THE BAVARIAN BITTER, a perfect substitute for Hops, of an agreeable flavour, quite soluble in wort or beer, saving the trouble of straining through a Hop-back, and giving to Beer the well-known keeping properties of the Bavarian Beer. Price of 1 packet, 2s. 8d., which is equal to 5 lbs. of best Hops.—Prepared only by Thomas Pratt Wills, St. George's Square, Portsea. Free per post.

To Farmers, Potato Growers, and Others.

JACKSON'S PATENT PREPARATION

FOR

PRESERVING POTATOES, WHEAT, AND OTHER SEEDS

From DISEASE, the RAVAGES of the SLUG, GRUB, and WIREWORM, in addition to which the CROPS are brought forward in HEALTH AND VIGOUR, and the yield is greatly increased, in proof of which the following extracts are given from numerous letters received by Mr. Jackson.

EXTRACTS:—

"One of the fields of this farm, the property of Mrs. Standbury, was planted with Regents Potatoes in April last, some of which were prepared by you. The result now is, that the whole of the crop from the unprepared sets is thoroughly diseased, and hardly worth the trouble of taking up; while those raised by the side of them from the prepared sets are not only in a beautiful state of preservation from the disease, but the produce is much greater,—the Potatoes are more numerous than the others; indeed, if there were no such thing as the disease to be feared, it would be worth the trouble and expense of preparing the sets by your process, even for the sake of the improved crops. I shall certainly, for the future, prepare all my Potatoes for seed by your process; and I intend to adopt it for preserving my Wheat from the Smut.

"G. B. Baxter.

"Belmont Farm, Eltham, Kent, August 28, 1854."

"Admiral Sir J. A. Gordon, K.C.B., Marlee House, Blairgowrie.

"Sir,—I have received your note of the 16th. The Potatoes that came here from England, prepared by Mr. Jackson, were planted in a piece of new ground, and according to the directions sent by him along with them as to distance between the plants, &c. They came up well, with strong healthy stems; I have now taken the whole crop up, and there is not the slightest appearance of any disease amongst them. They are of large equal size and very prolific. There were long black unprepared Kidneys planted in the same patch, and a great deal of them are not fit for use, at least a third part are diseased. I hope Mr. Jackson's process may be widely known, as it is a great boon.—I am, &c., John Shanks,

"Forester, Kildrummy Castle.

"Kildrummy Castle, Aberdeenshire, November 17, 1854."

"I am very much pleased with the result of the experiments I have made with your Prepared Potatoes; for I planted them, without any manure, in ground where for several years I have hardly had a sound Potato, and I now find the crop perfectly free from disease, and in a very fine condition; while those of the same sort, unprepared, which were planted at the same time, and next to them, are diseased and eaten by worms.

"The Potatoes from the Prepared Seed were so remarkably good that I was induced to weigh them, and I found, to my great astonishment, that they were as 200 to 150 of the others, or about 25 per cent. in favour of your preparation.

"T. Austen, Nurseryman and Seedsman.

"Blackheath, Kent, 24th August, 1854."

Sold by Messrs. Charlwood & Cummins, Seedsmen, Covent Garden; and John Kersan, Seedsman, 4, Great Russell Street, Covent Garden; all Seedsmen and Chemists; and at the Patentee's, 18, Cannon Street, London Bridge, in Packets of One, Two, Three or Four Pounds, or in Bulk for the use of Farmers and Potato Growers.

ESTABLISHED 1786.

WEST OF ENGLAND AGRICULTURAL AND HORTICULTURAL ESTABLISHMENT,

FOR THE SUPPLY OF EVERY REQUISITE FOR THE FARM AND GARDEN.

UNION ROAD, PLYMOUTH.

Under the Patronage of

Her Most Gracious Majesty the Queen, His Royal Highness the Prince of Wales and Duke of Cornwall, His Majesty the King of the Belgians, Her Imperial Highness the Duchess of Brabant, Her Royal Highness the Duchess of Orleans, His Excellency the Nepaulese Ambassador and Suite.

His Grace the Archbishop of York.
His Grace the Duke of Bedford.
His Grace the Duke of Devonshire.
His Grace the Duke of Leinster.
His Grace the Duke of Marlborough.
His Grace the Duke of Somerset.
The Most Hon. the Marquis of Conyngham.
The Right Hon. the Earl of Pembrough.
The Right Hon. the Earl of Burlington.
The Countess Dowager of Craven.
The Countess Dowager of Macclesfield.
The Right Hon. the Earl of Falmouth.
The Right Hon. the Earl of Fortescue.
The Right Hon. the Earl Howe.
The Right Hon. the Earl of Morley.
The Right Hon. the Earl of Mount Edgcumbe.
The Right Hon. the Earl of Portsmouth.
The Right Hon. the Earl of St. Germans.
The Right Hon. the Earl of Roseberry.
The Right Hon. the Earl of Wilton.
The Right Hon. Lord Viscount Ebrington.
The Right Hon. Lord Viscount Lorton.
The Right Rev. Lord Bishop of Ely.
The Right Rev. Lord Bishop of Exeter.
The Right Rev. Lord Bishop of Meath.
The Right Rev. Lord Bishop of Ossory.
The Right Rev. Lord Bishop of Ripon.
The Right Hon. and Rev. Dean of Windsor.
The Right Hon. Lord Ashburton.
The Right Hon. Lord Oranmore.
The Right Hon. Lady Bassett.
The Right Hon. Lord Belton.
The Right Hon. Lady Elizabeth Brownlow.
The Right Hon. Lord Carew.
The Right Hon. Lady Churchill.
The Right Hon. the Baroness de Sternberg.
The Right Hon. Lady Fortescue.
The Right Hon. Lord Graves.
The Right Hon. Lady Grenville.
The Right Hon. Lord Hill.
The Right Hon. Lord Lovelace.
The Right Hon. Lord Poulett.
The Right Hon. Lady Rose.
The Right Hon. Lord Sherborne.
The Right Hon. Lord Vivian.
Lewis William Buck, Esq., M.P.
Sir John Yarde Buller, Bart., M.P.
R. P. Collier, Esq., M.P.
John Ffolliott, Esq., M.P.
Sir Massey Lopes, Bart., M.P.
L. J. Bland, Esq., M.P.
Colonel William Edward Powell, M.P.
The London Horticultural Society.
The Royal Agricultural Society, Prince Edward's Island.
The South Devon Agricultural Association.
The Hon. the East India Company.

And upwards of two thousand of the leading aristocracy and principal families in Great Britain and Ireland.

WILLIAM E. RENDLE & CO.,

SEED MERCHANTS, PLYMOUTH,

BY SPECIAL APPOINTMENT TO THE SOUTH DEVON AGRICULTURAL ASSOCIATION, AND THE ROYAL AGRICULTURAL SOCIETY, PRINCE EDWARD'S ISLAND, SUPPLY ALL KINDS OF

SEEDS FOR THE FARM AND THE GARDEN.

CARRIAGE FREE, AS PER FOLLOWING SCALE:—

All Orders for Seeds above £1 (excepting heavy articles, as Grain, Tares, Clover, Seed Potatoes, &c., will be delivered Free of Carriage to any Railway Station between Plymouth and Paddington.

All Orders above £2, with the above exceptions, Free to any Station on the Broad Gauge Railways, or to any Market Town in Devon and Cornwall, or to Cork, Dublin, and Liverpool, by Steamers.

All Orders for Seeds above £5, with the above exceptions, will be delivered, Free of Carriage, to any Railway Station in England and Wales, and to any Steam Port in England, Wales, Scotland, and Ireland.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their Mixtures of Grass Seeds are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30s. per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32s. per acre.

Mixtures for improving and renovating old Grass Land, 1s. per lb.

Mixtures (finest sorts) for forming Lawns... ... 1s. 3d. per lb.

These Seeds are are all new, and have all been properly cleaned and their growing properties fully tested. Directions for sowing accompany the seed.

G. G. and Co.'s New Priced AGRICULTURAL CATALOGUE will shortly be ready, and will be forwarded free on application.

GEORGE GIBBS & CO., SEEDSMEN,

26, Down Street, Piccadilly, London.

THE LARGEST STOCK AND LOWEST PRICES IN ENGLAND.

JOHN WESTWOOD, the FLORAL NURSERY, Acton Road, Turnham Green, near London, having an enormous and well selected stock of SOFT-WOODED PLANTS, and most extensive premises (the glass covering 3 acres of land), is enabled to offer it to the public and the Trade at prices far lower than any hitherto heard of, but as it is impossible to convey by advertisement anything like detailed or sufficient information of the advantages or resources of his establishment, he respectfully requests all who desire to purchase plants to apply for his Catalogue for 1855 (which is now ready), and he will immediately forward it postage free.

RHUBARB ROOTS for FORCING or PLANTING.—Strong one-year planted roots of MYATT'S VICTORIA and LINNÆUS, MITCHELL'S ROYAL ALBERT, at 6s. per doz.; HOWARD'S PRINCE ALBERT, 12s. per dozen. This is a larger variety than the Victoria, and is extensively cultivated about Manchester. Price to the trade of the above, per 100 or 1000, on application to MESSRS. J. MYATT AND SONS.

Manor Farm, Deptford, Feb. 17.

NEW SHRUBBY CALCEOLARIAS.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that a Descriptive Catalogue of his beautiful new Shrubby Calceolarias is now ready, and may be had upon prepaid application.

Very choice Calceolaria and Pansy Seed, 2s. 6d. per packet. Postage stamps are respectfully requested in payment of the seeds.

MESSRS. E. G. HENDERSON AND SON will commence sending out plants in April next of their new Seedling Fuchsias, with white Corollas, both double and single, and some others with blue, violet, and variegated Corollas. For description and price see back No. of this Journal for Jan. 27th, 1855, or a printed list will be sent free by post on application; and a coloured plate of three of the varieties will be sent post free on receipt of six postage stamps.

QUEEN VICTORIA.	EMPRESS EUGENIE.
PRINCE ALBERT.	RAFFAELLE.
MRS. STORY.	LADY OF THE LAKE.
RANUNCULIFLORA.	WATER NYMPH.
PERRUGINO.	BANKS'S FAVOURITE.

The entire stock of all Seedling Fuchsias distinguished with a white Corolla were purchased for ONE HUNDRED GUINEAS of the late W. Story, Esq., of Newton, in the county of Devon, who succeeded in introducing this great novelty. And in consequence of an advertisement which appeared a few weeks back in the *Gardeners' Chronicle* from Messrs Lucombe, Pince, & Co., of Exeter, offering two new Fuchsias similar in character to those purchased of Mr. Story, and after a written communication with that gentleman (who was then confined to his bed by illness) it was thought necessary for one of the firm to make further inquiries about them, and in consequence Mr. ANDREW HENDERSON went to Exeter and Newton, when he was informed by a jobbing gardener at Newton that he had received Seven Pounds for them after (as the said jobbing gardener stated) he had been offered £20 for them by a nurseryman in London, but whose name or address he did not know.

Messrs. E. G. H. & Son think the above explanations necessary in consequence of a great number of their customers having ordered them at higher prices than those quoted. This reduction is made in consequence of information which they have received that leaves no doubt on their minds but that those to be sent out by Messrs. Lucombe, Pince, & Co. are similar in character to the above.—Wellington Nursery, St. John's Wood, February 17

Messrs. E. G. HENDERSON & SON, of the Wellington Road Nursery, St. John's Wood, London, beg to inform their patrons and the public that their New Catalogue of Seeds for 1855 is now ready, with full descriptions and other information, and will be forwarded post free on application.

E. G. HENDERSON & SON take this opportunity of stating that none but the most popular and improved kinds of Vegetable Seeds appear in their list, and among the Flower Seeds only those whose beauty and merit are univerally acknowledged, together with a carefully selected stock of the principal new varieties. They would call particular attention to the following new and choice seeds, which they can confidently recommend:—

Per packet	s.	d.
Antirrhinum, extra fine ...	0	6
Auricula, fine mixed ...	1	6
Abronia umbellata	1	6
Anagallis azurea grandiflora	1	0
" rubra "	1	0
Arctotis breviscapa ...	0	6
Aster, new Peony pyramid, in packets of 10 distinct colours, separate ...	3	6
" new bouquet pyramidal, in packets of 12 distinct colours	3	6
Balsam, double Camellia-flowered, in packets of 6 distinct colours, separate	3	0
" new double Camellia Rose, in packets of 10 distinct colours, separate, extra fine	5	0
" Aurora, new double crimson	1	0
" new dble. pale yellow	1	0
Carnation, stage flowers...	1	6
Calceolaria, ex. ex. 2s. 6d & 5s.		
Cineraria, ex. ex. 1s 6d. & 2s. 6d.		
Chrysanthemum pompone	1	0
" large flowered	1	0
Calendrinia umbellata ...	0	6
Dianthus Dunnetti, suprb.	1	0
" Chinensis flora pleno, extra fine	0	6
Eschscholtzia tenuifolia...	1	6
Geranium, choice show ...	2	6
" choice fancy	2	6
Hollyhock, first quality ...	2	6
" second quality ...	1	0
Ipomœa rubra cœrulea ...	1	0

Per packet	s.	d.
Ipomœa limbata	2	6
Leptosiphon luteum ...	0	6
" aureum	1	6
Linum grandiflora rubrum 1s. 6d., and	2	6
Lobelia Queen Victoria (scarlet)	0	6
Lobelia Roi Leopold ...	0	6
Larkspur, new double improved Hyacinth flowered, in packets of 6 distinct colours ...	2	6
Limnanthes sulphurea odorata	1	0
Mignonette, new, large ...	0	3
Mimulus, beautiful ...	0	6
Pansy, choice show ...	1	6
" choice fancy	1	6
Petunia, extra fine ...	1	0
Phlox Drummondi coccinea	0	6
Portulacca, new orange ...	0	6
" new rose	0	6
Primula sinensis fimbriata, alba and rubra mixed ...	2	6
Poppy, new large Pæony, in 8 brilliant colours ...	2	0
Reseda myriophylla, new Mignonette	1	0
Salpiglossis, scarlet, blue, and sulphur	0	6
Stock, German, new large flowering, in packets of six distinct colours ...	2	6
Verbena, choice mixed ...	1	0
Sweet William, new double	0	6
Whitlavia grandiflora ...	1	6

Lilium giganteum seed, 2s. 6d. and 5s. per packet.
Stoicus saccharatus (new Sugar-cane), 1s. to 2s. 6d. do.
Dioscorea Batatas (Japanese Yam), 2s. 6d. each tuber.
20 Ornamental Grasses (see Catalogue).
12 Ornamental foliage Annuals.

NEW PLUMS.

MR. H. DOWLING, FRUIT GROWER, Woolston Lawn, Southampton, begs most respectfully to return his sincere thanks to the Nobility, Gentry, and Public generally, for the liberal patronage he has received, and informs them that owing to his Garden being about to be cleared for building, he has to offer the above at unusually low prices. Fruit Growers and the Trade will find this a rare opportunity to supply themselves with them. H. D. has received Testimonials from those that fruited them this season. He can with confidence recommend the Black Gage and Angelina Burdett as superior to any other Plum for prolificness and flavour; good strong Trees, and the prices can be obtained at Mr. CHARLES TURNER'S Royal Nursery, Slough; of Mr. HENDERSON, Pine Apple Place, London; or the Grower, at Woolston Lawn, Southampton.

GODFREY'S BLACK SPINE.

SPLENDID AND PROLIFIC FRAME CUCUMBER.

WOOD AND INGRAM beg to offer seeds of the above beautiful variety. Colour, magnificent dark green, with a very fine bloom; average length, 18 to 21 inches, and produces in great abundance through an entire season. Packets, containing 12 seeds, 2s. 6d.; 6 ditto, 1s. 6d.

W. & I. will be happy to refer any persons wishing further information respecting the variety to three or four Noblemen and Gentlemens' Gardeners who have grown it, and prefer it to any other.

London Agents: Messrs. HURST & M'MULLEN, 6, Leadenhall Street.

W. & I. have also the following esteemed varieties to offer, in packets, 1s. each, containing 12 seeds:—

Sion House	Sagg's Royal Exhibition
Barnes's Fearnought	Conqueror of the West
Walker's Prolific	Improved Sion House
Constantine's Incomparable.	Manchester Hero.

Huntingdon Nurseries, February 17.

ARTHUR HENDERSON AND CO. beg leave to inform their patrons and friends that their stock of VEGETABLE and FLOWER SEEDS (containing many choice and new kinds) is now ready for sending out. Catalogues may be had on application.

Lilium giganteum Seed ...	... per 100 seeds ...	5s.	0d.
White-topped Clary	per packet ...	1	6
Limnanthus sulphurea odorata...	" ...	1	6
Dianthus Dunnetti superbus ...	" ...	1	6
Escholtzia tenuifolia	" ...	1	0
Leptosiphon aureum	" ...	1	6
Whitlavia grandiflora	" ...	1	6

Pine Apple Place, Edgeware Road, London.

CHARLES SHARPE AND CO., SEED GROWERS, beg most respectfully to invite the attention of the Trade to their very superior stocks of Carrot, Mangold Wurzel, and Turnip Seeds, all of which have been carefully grown by themselves. Prices may be had on application.

DIOSCOREA JAPONICA.

C. S. & Co., have received from abroad a quantity of Roots of the above, and will be glad to supply the Trade. Prices on application.

Nursery and Seed Establishment, Sleaford.

TO THE TRADE.

JOHN HARRISON begs to offer to the Trade the undermentioned plants, of which he has a large stock.

Rose Manetti, strong cutting	25s.	0d.	p. 1000
Raspberry, Northumberland Fillbasket, the best variety in cultivation, 20s. per 100 ...	160	0	"
Do. Fastolff, 8s. per 100, or	60	0	"
Do. Wilsher Red Globe, ...	10	0	per 100
Do. Magnum Bonum	10	0	
Rhubarb, Victoria, strong	25	0	"
Do. Royal Albert, do.	30	0	"
Currants, Victoria, 1 year old...	6	0	"
Do. do. 2 years old, strong ...	12	0	"
Do. Black Naples, 1 year	6	0	"
Do. do. do. 2 years	10	0	"
Do, do. Bang-up, extra fine	12	0	"
Arbor-Vitæ, 1½ to 2 feet	15	0	"
Juniper, Swedish, 1½ feet	25	0	"
Cupressus Funebris, 1½ feet	100	0	"
Delphinium Barlowi, strong	40	0	"

Roses of all the best varieties in cultivation, of which J. H. has a stock of many thousands, one year established in pots, and fit for immediate forcing.—Nursery, Darlington, Feb. 17.

CHARLES SHARP begs to call the attention of the Nobility, Gentry, and the Trade to his unrivalled collection of SEED POTATOES, which have been grown and selected with great care, and perfectly free from disease. The undermentioned prices include hampers and package. Terms to the Trade known on application.

POTATOES:—

	Per bush. of 4 st.		Per bush. of 4 st.
Ash-leaf Kidney (Jackson's)	10s.	American Early	7s.
Ash-leafed Kidney (Walnut-leafed)	10s.	Forty-Fold	8s.
Early Emperor	10s.	Kentish Kidney	8s.
" Shilling's	10s.	York Regent's	6s
" Martin's Globe ...	10s.	White Rough	6s.
" Oxford Large ...	8s.	French Blues	7s.
" Round Frame (for Forcing)	8s.	White Kidney	8s.
Early (Fox's Seedling) ...	8s.	British Queen, the largest and best produce in cultivation	8s.

Seed Establishment, Wisbeach, Cambridgeshire.

NEW ASHLEAF—THE "EARLY CHAMPION."

JOSEPH WILSON, SEEDSMAN, Ipswich, begs to state that his stock of early SEED POTATOES comprises the following splendid varieties, grown expressly for seed purposes, and free from disease. The "Champion" Ashleaf, 12s., a new variety, sent out for the first time this season; they are about 10 days earlier than any other Ashleaf, finer in flavour and more prolific. Jackson's improved early Ashleaf, 9s.; the Short top Ashleaf, 7s. 6d.; Nonpareil Kidneys, 6s. 6d.; Moss Kidneys, 6s. 6d; British Queens, 7s. 6d., the earliest round variety known. Early Frame and Ashleaf Seedlings, 8s. per bushel. Free to London; no charge for sacks. A remittance must accompany all orders.

J. W. begs to say that the whole of the varieties offered have been grown especially for him, and that he has no connection whatever with any other Seedsman.

MYATT'S NEW SEEDLING POTATO.
BROCKLEY KIDNEY.

W. AND J. MYATT can dispose of a limited quantity of the above excellent new Potato, which they have proved to be a first-rate variety, and has been selected as the best out of a many thousand seedlings raised at Manor Farm.

In flavour it is quite equal to the Ash-leaf, and for produce very far superior; it is a compact strong grower, and ripens off quickly, making it an invaluable summer variety. To be sent out in peck bags, 3s.; bushel, 56 lbs., 10s.

Also, EARLY MAY or BRITISH QUEEN, the earliest round Potato, middling size, suitable for planting whole, 5s.; Early Shaw, 5s.; York Regent's, 5s.; Hen's Nest, a good field Potato, 5s. per bushel; Red Ash-leaf, 2s. 6d. per peck. These are all one year's growth, from Yorkshire or Scotch sets, and will be delivered free to any railway terminus in London.

Post Office Orders are requested from unknown correspondents, payable at Deptford, to WILLIAM MYATT.

Manor Farm, Feb. 17.

RANUNCULUSES, ANEMONES, LILIUM LANCIFOLIUM, CALOCHORTUS LUTEUS, CALLIPRORA FLAVA, GLADIOLUS, TRITONEA AUREA, DIELYTRA SPECTABILIS, VALLOTA PURPUREA, ANOMATHECA CRUENTA, AND AURICULAS.

HENRY GROOM, CLAPHAM RISE, near LONDON, by Appointment FLORIST TO HER MAJESTY, begs to say that he has a fine Selection of the above BULBS, &c., which he can supply at Moderate Prices. His Catalogue will be forwarded on application.

COLE'S CRYSTAL WHITE, & COLE'S DWARF RED CELERY.

J. THORNELEY, COLE, & Co., NURSERYMEN, SEEDSMEN, and FLORISTS, Withington, near Manchester, beg to announce that they are now prepared to supply these two well-known varieties, raised by Mr. W. Cole (late of Dartford).

CRYSTAL WHITE, ½ oz. packets, free by post, for 12 stamps.
SUPERB DWARF RED, ½ oz. pkts., free by post, for 9 stamps.
Price per lb. to the Trade on application.

GREAT NOVELTIES FOR THE ENSUING SEASON,
FUCHSIAS WITH WHITE COROLLAS.

LUCOMBE, PINCE AND CO. beg leave to announce that they shall be prepared to send out two splendid and entirely novel Seedling Fuchsias, early in May next, viz.:—

FLORENCE NIGHTINGALE.

Pure white corolla, with brilliant scarlet sepals, finely reflexed; an extremely lovely and novel variety.

GALANTHIFLORA-PLENA

(The DOUBLE Snowdrop Corolla'd Fuchsia.)

Pure double white corolla, resembling a fine large double Snowdrop, with rich scarlet sepals; altogether distinct from anything of the kind ever yet produced. Price 10s. 6d. each.

The usual discount to the Trade when three or more are taken.

Exeter Nursery, Exeter.—ESTABLISHED 1720.

NEW BEDDING GERANIUM.
GAINES' SCARLET UNIQUE.

N. GAINES begs to inform the nobility, gentry, and trade in general that he can supply strong healthy plants of the above beautiful variety. In habit it is like Rollisson's Unique, producing magnificent trusses of brilliant scarlet flowers. It was exhibited at the Chiswick and Royal Botanic Horticultural Shows, where it was considered a great novelty, and well adapted for bedding purposes. Price 5s. per plant; when three are taken, a fourth will be sent to compensate for carriage.

A Descriptive List of his large Collection of Pelargoniums, Show and Fancy varieties, also Stove, Greenhouse, and Hard-wooded Plants, may be had post free, by applying at the Nursery, Surrey Lane, Battersea, Surrey.

NOW READY.

WILLIAM AND GEORGE DAVISON can supply complete collections of KITCHEN GARDEN SEEDS, to suit the various sized Gardens, at the following prices:—

No. 1 Collection ...	£3 0 0	No. 3 Collection ...	£1 2 6
No. 2 " ...	1 16 0	No. 4 " ...	0 12 6

FLOWER SEEDS: 50 packets, including the best hardy, half hardy, and tender Annuals and Biennials, with printed instructions, 10s. 6d.; 25 ditto ditto, 6s.; 12 ditto ditto, 3s.

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The Gardeners' Chronicle.

SATURDAY, FEBRUARY 17, 1855.

THE thermometer in the Valley of the Thames has been within the last few days almost as low as at any time since gardens have been enriched by the numerous half-hardy plants now so common. On the night of Saturday the 10th FAHRENHEIT's thermometer in the Garden of the Horticultural Society fell to 1° above zero, and a radiator to three degrees below. On the night of the 13th it fell in the same place to zero, and the radiator was 6° lower. To this we have no recent parallel except in the spring of 1838, when at Chiswick, the ordinary thermometer fell to 4½° below zero and the radiator to 12° below on the night of January 19, after which the temperature rose, so that on the 21st there was a thaw, which on the 22d became rapid, revealing all the disastrous effects of the rigorous weather.

Low as the thermometer certainly was at Chiswick on that occasion the cold was nearly as severe or still more so in other parts of the south of England, according to several independent observers. At Seven Oaks in Kent, Mr. ROGERS recorded 3° below zero, when his instrument became deranged, and the true minimum could not be ascertained. At

Beckenham it is said to have sunk to 13½° below zero at 7 A.M.; at Redleaf it was 1° above; at Cambridge it was seen at 3° above at 11 P.M.; at N. Stonham it was at zero; at Claremont it fell to 12° below, and at Walton on Thames to 14° below; at Worthing it was only 2° above, although it did not sink lower than 9° above at Arundel, 18° above at Bicton, and 15° above in the Isle of Wight.

It is superfluous to show how disastrous were the effects of that frost where it was felt in its greatest intensity. It is sufficient to say that the kitchen gardens round London were left without vegetables, that the Furze all died above ground, that the Vine was killed in several vineries, and that Strawberry plants in pots, prepared for forcing, lost their flower buds except where they were carefully protected.

What we shall find to be the effects of the present frost it is useless to conjecture; the reality will be apparent soon enough. In the meanwhile our readers may be interested in the following little facts, which are already ascertained.

In the glass wall in the garden of the Horticultural Society, the slight protection afforded by the glass and *iron* caused a considerable diminution of cold; thus on the night of the 10th when the external thermometer fell to 1°, that in the inside of the wall was not below 14°; and on the night of the 13th, the thermometer outside marking 0°, that within the wall marked 13°. Such a difference was probably attributable in great measure to the stillness of the atmosphere. It was sufficient to preserve the foliage and the flowers of Chinese Primulas, as well as *Callistemon lanceolatus*, *Viburnum suspensum*, *Edwardsia chilensis*, and similar half-hardy plants.

The effect of snow, even in small quantities, as a protecting material, was strikingly shown on the night of the 10th. While the exposed thermometer stood at 1°, another close by, covered by two inches of loose snow, was not lower than 20°, owing to the extremely bad conducting power of that substance. Hence arises the probability that in bad snowy climates, or, in even bitter climates, half-hardy bushes might be preserved by piling snow around and over a framework made to guard them. A difference of 19° in such a case as that now mentioned, with a guard of only 2 inches of snow, is, we believe, a fact quite unexpected.

From what is already known concerning the important influence of ground temperature on vegetation, it is probable that the effects of frost will always be found mitigated when that is high, and aggravated when it is low. We know how little plants suffer in the United States under that load of snow which prevents the escape of heat from the soil. To what extent the small amount of warmth belonging to the earth of this country really protects vegetation is a point to be ascertained: that, low as it is, it affords some protection is unquestionable. Perhaps the next few weeks may throw a gleam of light upon this matter. As a guide to those who have the means of investigating the subject, we may state that the following are the thermometrical facts which bear upon it.

In 1838 the thermometer at Chiswick fell to +4° on one occasion, and a few days after to —4½°. The lowest ground temperature was found to be 33° at 1 foot below the surface, and 35° at 2 feet.

This week the thermometer at Chiswick fell to 1° on one occasion, and a few days afterwards to 0°. The lowest ground temperature has been ascertained to have been 35° at 1 foot below the surface, and 37¾° at 2 feet. We have therefore had an excess of from 2° to 2¾° of temperature in the ground, and of from 3° to 4½° in the atmosphere; to which has to be added all the advantage of the long dryness and previous coldness of the present season. Theoretically, such differences ought to have a sensible effect in protecting plants; whether they really will have we shall know hereafter.

An Arboricultural Society has been formed in Scotland, with Mr. Brown, lately the victim of Treasury intrigue, but now Wood Commissioner to the Earl of Seafield, for its President, and some of our most experienced foresters on its committee, among whom we may mention the names of M'Corquodale, Cowan, Dickson, Gardiner, M'Cleish, M'Donald, the two M'Larens, Rutherford, Taylor, Thomson, of Chopwell; Thomson, of Culhorn; and Balden. This shows that whatever some gentlemen may think, those who really know what foresting is are of opinion that there is room for improvement, upon even the brilliant management which has been displayed in the Royal Forests. It is only just to the veteran Billington to say that the necessity of forming such an association has been advocated by him as long as we remember his name.

We regret that the limited space at our command renders anything like a report of the proceedings at the first meeting of the Society impossible. The following summary will, however, convey to the public some idea of the views of those who are its promoters.

After reminding the Society of the wonderful strides which the art of agriculture has made since the general establishment of societies for its advancement, and of the remarkable progress of horticulture from the operation of the same cause, the President proceeded to the following effect:—

"Should the art of arboriculture be discussed in as skilful a manner as these two sister arts; if the dross that adheres to it shall be as completely separated through the influence of science; if only its truer principles and methods shall be retained, and established upon a broad and solid foundation, we have no reason to fear that a similar result will not follow in regard to forestry. In looking forward, therefore, to the results of this association, I cannot but express my conviction that a new era is about to open on our business; and that the time is not distant, when not only foresters, but all the landed proprietors of the country, will attach themselves to an association on which their interests may so much depend.

"Arboriculture is, however, a more difficult subject than farming or gardening, inasmuch as a greater length of time is necessary to develope improvements, and conduct them to a profitable issue. And this is no doubt the reason that the cultivation of trees on sound principles has been so much neglected, so that their culture as a crop has been attended with unsatisfactory pecuniary results. Instances, however, are not wanting in which this branch of rural economy has been conducted on sound principles, and then it has invariably been found to be productive of profit to the proprietor—both directly by the proceeds of its produce, and indirectly by the shelter of trees enhancing the value of the arable land. Such examples, many of which I could point out, justify the expectation that were all plantations treated well, similar results would follow. But although many instances of well-managed plantations can be indicated, still I believe that every intelligent forester will agree with me that this happy condition of things is of limited extent; and that at least two-thirds of the plantations in Great Britain are at the present time so dealt with that their condition is hopeless, whether as a profitable or ornamental crop. This assertion may to some appear overstrained, but it arises out of my own experience in surveying woods in all parts of the country during the last 10 years.

"In England I have seen Oak plantations of nearly 30 years standing, with the trees in them only from 4 to 5 feet apart, not the slightest attention having been paid to thinning; of course, the crop consisted of mere poles. I do not know how profitable results should follow such management. In Scotland, too, I have found the same state of things—plantations unthinned for 35 years, the trees 4 feet apart on the average, and consequently so slender that to improve them was hopeless. Such examples are, I think, sufficient to show that there is great room for improvement in arboriculture, both in England and Scotland, and that it is for this desirable object that we have formed the Arboricultural Society, through which we hope to embody the experience of practical men, and to disseminate sound views on the subject."

After dwelling at considerable length upon the indispensable qualifications of a forester, Mr. Brown added:—

"Practical men in all branches of rural economy have been more disposed to follow the guidance of their own experience than to accept the light of science; hence the comparatively slow progress, till very recently, made in farming and gardening. The same remark applies to forestry. Hitherto foresters have been content to act by the uncertain light of their own experience. But now the application of science to those branches of cultivation is taking firm hold on the minds of all improving and enlightened men, and exerting its influences accordingly. If the great progress these arts have recently undergone is to be ascribed almost wholly to the example and influence of a few who, in advance of their fellows, have seen the importance of the aid of science and availed themselves of its resources, may we not hope that a similar result will ensue in the case of forestry? I have great pleasure in being able to testify that within the last few years, I have met with many highly intelligent and experienced foresters, several of whom are already members of this Society, who have availed themselves of the aid of science, and who are therefore an ornament to the profession. I am also happy to add that great exertion is being made by young foresters to acquire knowledge, and I feel warranted in saying that I have no fear as to the ability of foresters to carry out the scheme of this Society, provided only they meet with the assistance of those who are to be most benefited by their knowledge, I mean the landed interest of the country. Such assistance will, I believe, in due time be given. At present, our object must be to show that the Society is to be of advantage to proprietors generally; this proved, they will not hesitate to give their cordial co-operation."

Mr. Brown concluded by pointing out at length what he conceived to be the practical objects to which the Society should more especially direct attention.

The address of the President was succeeded by a communication from Mr. Thomson, the Deputy-Surveyor in Chopwell Woods:—"The business," he observed, "which we more immediately profess, has been so allowed to slumber as to seem as if upon its death-bed; and unless a feeling had recently been awakened in its behalf, it is to be feared that it might, sooner or later, have altogether slipped out of the catalogue of rural sciences. I say that a warm feeling has lately been enkindled in its favour; and if the feeling of inquiry which has lately been enkindled into the condition and capabilities of the woods and forests of Great Britain is judiciously strengthened, there is little doubt but a renovation of the entire system may be the result. Dictation on the part of this Society must, however, be carefully guarded against; but if the members of this Society bring themselves fully to understand the nature and responsibility of their self-imposed duties, there is no room for doubting that they will ultimately accomplish a greater or less amount of good. To a few foresters only are the principles upon which their art is founded known, and though you may find an active and intelligent brother here and there, it will be found in many cases, that those to whom is entrusted the rearing and management of our plantations, are destitute of the knowledge of the very elements of their profession. Indeed, we have frequently seen men, who, from age or accident, had become incapacitated for the performance of the ordinary duties of humble life, placed in charge of a district of woodland. It is needless to suggest how unprofitable such an arrangement must be.

"It should not be forgotten that forestry is a science, and, when intelligently practised, has to be studied as such, and that professional as well as general qualifications are necessary to its successful development. Foresters should therefore study accordingly. They should make themselves acquainted with the nature, history, habits, and peculiarities of all the plants with which they have ordinarily to deal; the different kinds, qualities, and capabilities of soil; the sources and effects of disease; the nature of climate, atmospheric influences, and other important particulars; so that, understanding their profession theoretically and practically in all its branches, it may become a fixed system, and cease to remain, as heretofore, a tissue of ill-wrought experiments.

"I maintain, then, that every young man who wishes to become a forester should serve an apprenticeship on an estate where the several departments of forest labour are extensively prosecuted, the management of a nursery included; he should afterwards endeavour to find employment for a few years (as he readily will) on other well conducted properties, staying about 12 months at each, and changing the scene of his operations as much as possible; and when this is done, he will find himself better able to undertake with confidence the superintendence of the woodlands on a large estate, than if he had remained for half a life-time in any single locality, imbibing only the traditions of his grandfathers."

This promises well. The advice given by both speakers is sound and should be followed. If that is done we may hope to see our English woodlands everywhere brought by degrees into a more prosperous state. If that is not done, and men continue to look to the Royal Forests as examples, we can only say that they must not expect either pleasure or profit from their property, but must rest contented with being picturesque.

VEGETABLE PATHOLOGY.—No. LIX.

267. Apostaxis.—*Constitutional and Organic.*—1. Bleeding.—The flow of sap in the spring is often so energetic as to try the resisting powers of the conducting tissue in the absence of a sufficiently strong compensating force of evaporation. Under such circumstances it either causes lesions of the tissue of more or less consequence, or avails itself of ruptures already present. In the Vine, Birch, Elm, Maple, and other trees which are subject to bleeding, if the spot from whence the fluid issues be carefully examined, there will generally appear some little fissure in the wood and bark, or some decayed spot, which is frequently referable to a shoot which has been broken off or has perished in consequence of the more urgent demands of larger branches, which have appropriated

its nutriment. It is asserted by Meyen and others that in these cases the spiral tissue becomes a conductor of fluid — a position which is at present, to say the least, extremely doubtful, and supposing it a well ascertained fact, it would be so aberrant from the assumed agency of such tissue in containing air, as to imply of itself temporary diseased action, even should the expansion of the leaves restore matters to their former state of equilibrium. It is obvious that if the consequences were confined to a temporary abstraction of superabundant fluid, health might eventually be altogether unimpaired, as in the analogous case of slight epistaxis, or nose bleeding in the human frame, forming an outlet at the expense of an unimportant temporary lesion of the vessels for the relief of the system. But unfortunately, in the vegetable kingdom, where lesion has once taken place it is not always so easily repaired, and a flow of sap once established in a certain direction may become chronic, and induce, by means of an extravasation of the fluids in the surrounding tissues, a diseased condition of the cell-walls, leading to gangrene and ultimate decay. In some cases, as in the open ulcers which are not uncommon in Elms, the discharge may be traced inwards to a collection of corrupt fluid due to the decomposition of the water or sap which has percolated through decayed tissues, and the matter which it may hold in solution. In other cases, the fluid, instead of presenting the colour of decayed wood, blackens everything it touches, is peculiarly fœtid, though extremely attractive to wasps and flies from its saccharine nature, and is evidently due to sap in a far greater degree of concentration. It is not in general traceable to any particular spot, but the whole of the surrounding woody tissue is impregnated with the same disagreeable odour, insomuch that when a tree so affected is felled, it is extremely unpleasant to stand by while the portions of the wood which are saturated with the fluid in question are severed by the axe. Sometimes where there can be no pretence of any inherent disease, as in the case of a sound tree—the Horse Chestnut, for example—cut down when the sap is commencing to flow, the discharge from the divided surface will put on the same fœtid character, in consequence of undergoing putrescent fermentation.* The discharge, however, in many cases seems to differ very slightly from ordinary ascending sap, though the stream is often altered in appearance externally by the production of such fungi as the orange-coloured Fusisporium ebulliens. Independently of any ulterior consequences, the perennial loss of a considerable quantity of ascending sap can scarcely be consistent with perfect health; and in the cases where the discharge is saccharine, the evil is of course aggravated, and the ultimate destruction more inevitable. If the affection is inveterate, the case does not admit of relief, for any suppression of the issue in one direction would only lead to rupture in another; but if the continuance of the affection has been due to ulterior causes, it may be possible to remedy the evil by freely opening the parts and the removal of decayed matter, after which protection from external agency may be supplied by varnish, collodium, or such other remedy as the particular circumstances may suggest. In pruning, it is of consequence that every diseased fragment or patch should be removed; and in those trees which are subject to much bleeding, the operation should be performed as early as possible, to insure the healing or hardening of the divided surface. In some cases, as in the Birch and Sugar Maple, where the sap is peculiarly plentiful, artificial means are taken to divert the fluid. In such cases, as the auger is passed half an inch into the wood itself, it should seem that the ascending sap is principally collected, and indeed exclusively, at the early part of the season; but in either case the process can be carried on only within certain limits without affecting the health of the tree materially. Loudon mentions the case of Count Wingersky, in Moravia, who planted the Sugar Maple extensively, but whose trees soon became sickly and died, in consequence of drawing sap from them every year. *M. J. B.*

EARLY PEAS.

"Shall you be able to gather a dish of Peas in May?" was a frequent inquiry amongst gardeners 40 years ago. The self-gratulation of the one as the question was answered in the affirmative, or the disappointed look of the other, fully expressed the importance of having an early dish of Peas; for, however unfavourable the soil or locality might be, the gardener knew well that if his neighbour had a dish of Peas in May, his failure would be attributed to his neglect or want of skill. Comparison of the means and assistance at his command would be made with those of his more successful neighbour, and remarks elicited tending to sour and make his temper as ungenial as the stiff, wet, undrained soil he had to cultivate; for it was then the practice, and with many it is still continued, to sow the first crop of Peas in November or beginning of December, notwithstanding the many casualties and failures to which they are liable, for with every care bestowed in covering with dry cinder ashes, &c., the mice find them out and carry them off to their winter dormitory, which causes the crop to come up patchy; the slugs, too, come in for a share of the spoil in defiance of the frequent application of lime, for in some seasons their name is Legion, especially in heavy soils. But even after struggling through these mishaps they are frequently attacked by an audacious flock of sparrows. In vain are all the recommended remedies for such a disaster tried; threads of all qualities and colours, feathers of every dye, dead cats, live cats, cats painted on boards, rattles, and jingling glasses, are of little avail against these determined freebooters. No, no; the sparrow is too familiar with man and his ways to take alarm at any subterfuge of that sort; he must find you a resolute foe armed with your gun before he gives way. The remnant of the Peas, however, still excites our hope; those that were cropped over send up fresh stems; the season advances, the growing weather of spring sets in, the surrounding vegetation assumes a vigorous and a healthy growth, the carefully tended Peas make progress. At last the embryo blossoms appear, but expectant hope is doomed to disappointment; still their stems are cankered, the foliage becomes yellow, and a frosty morning or two makes the failure complete. Such is the history and my general experience of a crop of Peas sown in November or December.

To gather early Peas is as important to the gardener now as it was 40 years ago, but in that long period I have only three times pulled a dish in May; it is true, some of my brother gardeners who had to cultivate a dryer soil in a warmer locality have succeeded once in five or six years in obtaining the desired result, and now that we have decidedly earlier varieties, the average will be less if the seasons are favourable, for the frosts, as the crop is coming into bloom, will retard the earlier Peas. The well-informed and reading portion of young gardeners have every opportunity of becoming acquainted, at least theoretically, with the means adopted at the present time to have a dish of early Peas, and who among the many aspirants to the highest rank of gardeners will fail to read, as far as the time and means at his disposal will permit, the principal periodicals on gardening of the present day? To neglect this will be to fall out of the rank and file of his calling to join the brigade of the "rule of thumb," the irregular and awkward squad of gardeners. There is one advice, however, which has frequently come under my notice, and which is so plausible that I have no doubt it has been frequently followed by eager and unexperienced gardeners, "Sow on strips of turf, forward them in a mild heat, and afterwards harden them off;" or thus, "Sow thinly in a one-light box, give a gentle heat, harden off, and transplant," &c. Now, I cannot say that this is judicious advice, for to bring forward Peas in heat, however mild, will stimulate their growth, so that their stems will become attenuated, and how they are to be hardened off to withstand the severity of the weather afterwards those who have tried the plan will best know. It has, however, frequently been a source of regret to me to have seen the unskilful attempt and its futile result. But I will not comment further on the means adapted by others, but give an account of my own practice; and here I would observe that I have nothing new to offer, but will simply state those conditions frequently gleaned from the experience of others, but which have been introduced into my own practice, as I have found them conducive to early and profitable results.

For many years I have discontinued sowing Peas in November or December, being fully convinced from my own experience, as well as from a careful comparison with the practice of other gardeners in the same neighbourhood, that it was merely throwing away seed and time. Another reason, which is frequently overlooked, is that the warmest and best places are invariably appropriated to the early sown Peas; thus throwing the sowings which are most to be depended on to more exposed situations, and if these sowings consist of what is now called second earlies the failure of the first crop necessarily makes the first dish of Peas late indeed.

In the first week in January, the first sowing of an early approved sort is made in 10-inch pots, or boxes 3 feet long by 10 inches wide, and 10 inches deep, but I prefer pots; have ready a sufficient quantity of soil, consisting of two parts well decomposed leaf-mould, one part loam, and one part sand. Fill the pots to within 3 inches of the top, shake the pot to level the soil, sow thinly over the surface, and fill up. From 2 to 3 quarts will be sufficient to sow in pots for a first crop. Place the pots in a cold vinery or pit where there is admitted at all times an abundance of air; 2° or 3° of frost will do no harm to the Peas. When the plants have just got through the soil, let them be placed in a three-light frame, the lights to be constantly kept off in mild weather, and tilted at night, so that a slow and hardy growth may be obtained. If severe frosty weather sets in, cover up night and day, and be particular not to expose them to the sun if frosted. The careful gardener will take care that neither sparrows nor mice have access to the Peas.

In the mean time the ground in which they are to be planted should be well limed and ridged up until such time as they are ready to plant out, which in favourable weather will be towards the latter end of February. Let the ridges be levelled down, and rows 4 feet apart marked off. Stretch the line and cut out trenches from 7 to 9 inches deep, turn the Peas out of the pot, and separate them, leaving two or three together; have a barrowful of the same soil in which they were sown ready, place the Peas in the ridge as if planting box, fill up with the fresh soil, press it gently against the roots, let one inch of the top of the Pea be above the soil, make a ridge of the spare soil on either side of the row, and point over the soil between the rows to give a workmanlike finish; when the Peas have grown 4 or 5 inches high, let earth be drawn to their stems, and stake them—they will require little more attention than an occasional survey to see if the slugs or sparrows molest them. These transplanted Peas are the forlorn hope of the season, but if well managed, they rarely fail or disappoint the cultivator.

The next or succession crop is managed thus, an open, airy quarter being selected, it is limed and ridged up in the autumn; the first fine, dry weather the following February the ridges are levelled down. If the ground is light it is trod over and raked evenly; drills are drawn from 4 to 6 feet apart, according to the height of the variety sown. I then sow 1 or 2 quarts (the quantity sown at one time will depend entirely on the demands of the family) of the same sort as was sown in pots, a quart of the best second early, a quart of Dwarf Imperials, a quart of Champion of England, 2 quarts of tall Marrows, the best variety according to taste of consumer; these if all sown on the same day will come in succession, care being taken to keep up the supply by sowing Imperials, Champion of England, and the Marrows as each previous sowing respectively comes up; the early sorts will now be discontinued, as it will in general be found that the tall Marrows give the latest supply. If dry weather sets in a trench about 1 foot from either side, and along the row, should be made and saturated with water to keep the tall Peas in a healthy state; every one knows the utility of having the Peas well staked, so that a free circulation of air may be maintained among them. *James Falconer.*

MANAGEMENT OF SEEDLING PEAR TREES, UP TO THE PERIOD OF THEIR FRUITING.

The seed of a Pear, taken from a well-formed fruit of first-rate quality, produced by a naturally vigorous tree belonging to a good race, being sown at the end of September, with all the precautions already pointed out, in light deep soil, remains fixed in this by its strong radicle for the first year. The shoot gradually acquires firmness and strength, and commences to throw out some branches. Each seedling plant exhibits peculiar characters which, in the course of the summer, are subjects of observation for those that are in the habit of experimenting. The young plants should be frequently weeded, and the surface of the ground kept loose by stirring. The young shoots that are too near each other along the stem, should be thinned by cutting them close to their bases with a sharp, narrow-bladed knife. These are all the attentions which the seedlings require in the first year of their growth.

In the following spring the seedlings should be taken up, and their tap-roots shortened. The plants should then be replanted in a quarter of rich deep soil, in rows 2½ feet asunder, and 1 foot apart in the rows. In order to encourage fresh roots, about half a shovelful of well decomposed dung is put under the tap-root of each. During the growth resulting from the first flow of sap, and especially towards Midsummer, all branches or shoots that are too close, or badly placed, are cut off closely, without, however, touching the upright leading shoot, which is allowed to grow till it attains the height of 10 feet. Some of the weak or slender-growing seedlings may require the support of a small stick to keep them upright. The stick should be placed so as to best resist the effects of the south-west winds. The young stem is tied to it with matting; but at the fall of the leaf the stick should be immediately removed. We have a great antipathy to all supports; for these, by being driven into the ground, injure the roots, whilst the ties impede the free circulation of sap in the plant, and serve as a harbour for insects. The stakes, moreover, by the action of the wind, are apt to fret and wound the young bark. For these reasons, stakes should never be employed, except where they are absolutely indispensable. The young seedlings ought to be induced to take an upright direction by means of disbudding and shortening the laterals. If it should be found necessary to shorten the central leading shoot, a slight rod should be attached to it in order that the upright direction of the shoot may be thereby insured. This remark, which is here necessarily introduced, is of general application, and need not be repeated.

In the autumn, or rather towards the end of February, if the soil in which the seedlings are planted does not appear sufficiently rich, the surface should be stirred, and enriched with liquid manure, made with cow-dung steeped in water. This will start the plants into vigorous growth, which must be regulated by thinning the laterals with the view of encouraging the upright shoot. In the autumn of the second year after planting out, all the seedlings noted as possessing the most promising characters should be taken up and planted in a soil more rich in humus, in rows 3½ feet apart, and 3 feet from plant to plant in the row. The others less promising, are planted in a compartment by themselves. The seedling must be pruned, disbudded, and pinched according to the principles applicable to the pruning of standard pyramids, with this difference, however, that in the second and third year after planting, the shoots of the seedlings are left at greater length. It will be understood that tall-stemmed pyramids are preferable to dwarf-stemmed ones, because vigorous seedlings show their first fruits on the upper part of the tree, and therefore it would be perfectly useless to form a dwarf pyramid at an additional expense of labour. There are however exceptions as regards some seedlings, which show a disposition to form dwarf pyramids, and should

* I have heard of considerable annoyance being experienced in the neighbourhood of London from this cause. The roots of trees, however, are so often injured by noxious exhalations from the soil in such situations, that there may possibly be good reasons for chemical change which may not be immediately apparent.

be managed accordingly. Successive transplantations effected in the first instance at the end of winter but afterwards at the fall of the leaf, induce the production of lateral roots, and accelerate the formation of fruit buds. The roots, divided in proportion to the above ground ramifications of the seedling, maintain these in due proportion; but it has been remarked that the case is quite the contrary with seedlings not removed.

The trees should be removed every two years, and replanted at wider distances, according to their growth, until fruit spurs begin to form on the upper part of the leader, or on the principal branches of the stem; the leading shoots are then left at greater length, and transplanting is no longer practised. In pruning off the branches of the stem up to six feet from the ground, the spurs and some small branchlets only are left. The crown is not allowed to commence below the height of six feet, because, as has been frequently stated, a vigorous seedling only commences to bear above that height. It is desirable that seedlings should be in a bearing state as quickly as possible. At the present time it is not unusual to see Pear trees bearing fruit in the eighth or ninth year of their existence from seed. This early bearing is ascribed to various causes. The late Van Mons attributed it chiefly to successive sowings, in consequence of which the last generation of Pear trees has arrived at a more civilised state. This opinion is generally adopted, and appears to be supported by the results obtained.

Others partly attribute this precocity to good management, according to which the seedlings are raised agreeably to the principles above pointed out. One of the principal causes is the biennial removal of the trees, and a good system of pruning, whereby the useless wood is removed, and the force of vegetation concentrated in the part of the tree where fruit is most likely to be first produced.

After a seedling begins to show for fruit, it should not be removed until we can form a definite opinion of its productions.

In a special article connected with this subject we shall point out the means to be taken for fixing the character of a new and good variety, so as to prevent any future change of name. But it is necessary, in the first place, to state the characters by which promising seedlings may be distinguished from such as are unpromising. *J. de Jonghe, Brussels, Jan.* 21.

COMMON THINGS.

Pruning Currants and Gooseberries.—The pruning of Currant and Gooseberry bushes is seldom performed in cottage gardens, the consequence of which is that every bush in time becomes a mass of wood, producing a quantity of worthless fruit, without either size or flavour. This is to be easily remedied by a little attention to pruning the bushes in winter, and never allowing the branches to be too crowded, or to interfere with one another. The shoots which spring up in the centre should be cut away very closely, as well as the small shoots on the main branches, leaving only one at their points, which must be shortened for about a third of its length. If this is done, the bush will have the form of a cup, with the branches ranged regularly round the stem,

as in the accompanying woodcut. Red and white Currants require the same treatment, as they produce their fruit on spurs in the way of the Gooseberry. The black Currant must be managed differently, as it bears chiefly on the shoots of the preceding year; instead, therefore, of spurring and otherwise shortening the branches, all that is necessary is to thin them, and keep the bushes compact.

GRAFTED RHODODENDRONS.

The health and vigour of a grafted Rhododendron, like those of every other grafted plant, will, of course, depend very much upon the condition of the stock. It will be useless to expect a luxuriant head of foliage if the stock is unhealthy and "hide-bound;" and all care and attention in inducing it to become otherwise will be thrown away. Large plants, not grafted, have frequently some of their principal shoots in a stunted and inert condition. The only remedy is to cut away all such shoots, and, by encouraging those remaining, as well as by inducing new wood, to form a new plant. This cannot of course be done where the stock of a grafted plant is the source of the evil. It is, however, very rarely that such a contingency arises in a grafted plant, when the stock has been well chosen, and the treatment has been liberal. And as to the stock of a grafted plant throwing up suckers, we can only say that among the many thousands grafted by us every year, we do not experience any inconvenience from that cause at all worth speaking of. A few suckers are certainly found occasionally upon recently grafted plants; but, these being removed, after two or three years' growth, and if in good health, the head, absorbing all available nourishment, wholly checks any tendency to produce them. The condition which "J. R." describes as being a natural and invariable contingent to a bed of grafted Rhododendrons, could only exist under the most slovenly gardening, if indeed, such could be termed gardening at all; and would never be permitted by any one having the least love for his garden, or the shadow of a claim to the qualifications of a gardener. One might just as well argue that, because some particular man, who happens to be a gardener, is a dirty untidy fellow, that filthiness is a natural result of his calling.

It has been urged by "J. R." that because grafted plants in a nursery, a certain number of years old, are not so large as others of the same age not grafted in some private grounds with which he is acquainted, it must follow that grafted plants will not grow so luxuriantly, or attain so large a size, as plants raised from seeds or layers. With a limited knowledge of the facts of the case there certainly appears a show of truth in this mode of reasoning. But "J. R." ought to know that the object of a nurseryman is not merely to grow large plants, but also to keep them ready for removal without risk; and that to effect this he frequently transplants his saleable stock, thereby checking, of course, the growth of such plants, and preventing them from keeping pace with others not so removed. The difference in the amount of a year's growth between two plants, the one thoroughly established, and the other subject to frequent removals is, of course, great—in an aggregate of years it is still more perceptible. Then as to "J. R.'s" presumed advantages of layered plants over grafted ones, they are equally untenable with those which he argues in favour of seedlings; and besides, layering as a mode of propagating the rarer and better kinds of Rhododendrons has many practical disadvantages. In the first place you must have a tolerably large plant to operate upon, and, secondly, the system admits only of very limited powers of increase. Suppose a handsome seedling variety is raised, from which it is desired to propagate, by layering you sacrifice the original plant for the sake of obtaining, perhaps, half-a-dozen small ones; by grafting you secure a numerous progeny without materially injuring the parent;—for a layer you require a branch, for a graft a bud with an inch of wood to it. In truth, layering the Rhododendron as a means of propagation, when compared with grafting, is very limited in its application, and possesses few advantages. It is principally of use to private growers, in cases where it is wished to secure tolerably large plants of a particular kind; for the purposes of trade, or for effecting an extensive and ready circulation of a given plant, it is all but useless.

A branch, the size of a moderate plant, and with many flower buds, may be taken off as a layer, and such is often done by others than private growers, with shy-blooming kinds, such as many of the first hybrids from the scarlet arboreum, and which "J. R." so warmly eulogises. Nice compact plants of these, with flower buds, are frequently and eagerly purchased, and chiefly in consequence of their having such flower buds. In the blooming season following, the purchaser has of course a display of flower, not so, however, always in the succeeding one. There are many very richly coloured Rhododendrons, which are worthy of all praise when they do condescend to exhibit a head of flower; but, from the rarity of such, they are not desirable for introduction into general collections.

Next week we shall have something to say on the subject of seedling Rhododendrons. But in concluding this paper we reiterate that for the general purposes of propagating the finer or new kinds, grafting is in every respect superior to layering. The former has many advantages with scarcely a disadvantage; the converse of this applied to layering is the truth. Nor does grafting, as "J. R." insists, dwarf the Rhododendron in any appreciable degree, if the operation is well performed, and the stock judiciously chosen. *Standish and Noble.*

Home Correspondence.

Consumption of Fuel in the Royal Botanic Gardens, Kew.—Messrs. John Weeks and Co. having written to inform me that I have, though they candidly allow unintentionally, misquoted their words in my communication to the last number of the *Chronicle*, I find, to my regret, that I have so done: or, rather, I misunderstood the drift of the sentence in question. My words were, that Messrs. Weeks's object is to prove "the extraordinary efficiency and economy of their heating apparatus," and that "in their establishment at Chelsea it does more work with one boiler than is done by 12 boilers in the Great Palm-house at the Royal Gardens of Kew." Messrs. Weeks' expression is "The extraordinary efficiency and economy of the heating apparatus will perhaps be better understood by the following comparison of the work it does in Messrs. Weeks' establishment by one boiler, and the work done by 12 boilers at the Great Palm-house at the Royal Gardens of Kew." This error, however, on my part does not in the slightest degree affect the rest of, and indeed the main, statements. *W. J. Hooker, R. B. G. Kew, Feb.* 13.

Winter Figs.—If Mr. Barron will kindly state what kind of Fig it is which has proved so productive with him through the winter months in a Pine stove, as is mentioned at p. 86, he will greatly oblige *A Subscriber.*

Water Filter.—An effectual yet simple filter may be made in a cistern of slate, or brick and cement having two slate partitions across it, one of them, near the end where the water enters, being fixed with an aperture of a few inches between its lower edge and the bottom of the box, so that the water in filtering shall pass under it. The other partition should fit close to the bottom of the box, but its upper edge should be a few inches lower than the top, in order that the water may flow over it. The box will thus be divided into three compartments—into the first the water should enter by means of a ball tap, and stand high enough to flow through the second compartment into the third, from which the clear water may be drawn off by means of a tap near the bottom. The first and second compartments should be filled about half-full with coarse charcoal, and over it a few inches of a finer size, and afterwards surfaced in the first compartment with some clean shingle, always leaving depth enough for the ball of the tap to work in. Over the charcoal in the second compartment some perfectly clean sand should be laid nearly as high as the top of the division. This filter will occasionally require cleaning out and refilling with fresh materials, the period for which will be indicated by the water passing more slowly through it than usual. If cheapness is more an object than durability a water-tight wooden cistern may be used; but avoid lead linings, which are dangerous. *W. Davidson, Landscape Gardener and Garden Architect, 37, Bloomsbury Street.*

Wash for Fruit Trees.—I have found the following a certain antidote for insects, or fungus, on Vines and fruit trees:—1 lb. sulphur, 2 lbs. soft soap, 1 gallon tobacco water, and 2 gallons lime water; mix. To paint over all the wood. *W. Collins, M.R.C.S., Drewsteington.*

Consumption of Fuel in the Royal Botanic Gardens, Kew.—Under the above head there appeared in your columns of last week a statement by Sir William J. Hooker contradicting those contained in our advertisements of the 29th December and 7th January last. Speaking of our advertisement, Sir William Hooker says it "is calculated to convey very erroneous notions of the consumption of fuel in our Palm-house; and, if true, showing us to be guilty of a most extravagant and unjustifiable use of the public money." In reply to this passage we shall merely observe that on seeing the *Gardeners' Chronicle* of the 10th inst., we immediately wrote to Sir William Hooker, saying—"Whatever inaccuracies we may have been led into by incorrect information, we shall feel it our duty to set right in the next publication of the *Gardeners' Chronicle;* and we lose not a moment in expressing our sincere regret that any statement of ours could be considered as conveying a charge against the management of the Royal Gardens at Kew, or the administration of the funds devoted to its support by the country," and that, had we done so, or "intended anything of the kind, we knew well the attempt could only recoil upon ourselves." It now rests with us to show upon what grounds our statement of the consumption of fuel at the Palm-house at Kew was made. With the view of avoiding "enormous errors and miscalculations," with which Sir William Hooker charges us, we proceeded to the Palm-house at Kew in December last, and there received from the two men who attend to the fires the items of the consumption of fuel as given in our advertisement. Our Mr. Weeks, as a practical man, went into the whole question of the heating of the Palm-house with both of the men, and saw no reason for supposing the information they gave him to be incorrect. Upon that information our calculation of the expense attending the consumption of fuel was based. Our advertisement containing that calculation having appeared first in the *Gardeners' Chronicle* so far back as the 29th December, and otherwise having been pretty extensively circulated without its accuracy having been called in question until the 10th inst., we had till then believed that our statement was at least free from exaggeration, more particularly as the information given us in December would have warranted us in making out a larger expenditure of fuel than we put down. Sir William Hooker's contradictions of our statements made it necessary that we should revisit the Palm-house, and therefore our Mr. Weeks, accompanied by another practical man, went there on the 12th inst., when they obtained the following information from the men who attend to the boilers in the Palm-house. The men said—"The house is heated by 12 boilers, six on each side; we bring every day from the depôt eight truck or cart loads of fuel, each cart load contains nine sacks, all of which is consumed during the 24 hours. The fuel consists of one half good coke, the other half good coals." This statement is corroborative of that made to Mr. Weeks, in December last, and it requires but a very simple calculation to see that, according to it, there are 72 sacks of the mixed fuel consumed every 24 hours. We estimate the coke at about 1*s.* 2*d.* per sack, and the coals at about 2*s.* 6*d.* per sack, and at these prices, the mixed fuel would cost about 1*s.* 10*d.* per sack, which would make the daily consumption of fuel to heat the Palm-house amount to about 6*l.* 12*s.* per day. We were further told on the spot that this quantity of fuel was required for nearly six months each year; but, in our calculations, we estimated the largest expenditure of fuel for four months only, and if we now assume that 72 sacks of mixed fuel, as stated to us by the men attending the boilers, is correct, but that that consumption is limited to four months instead of six, or nearly so, it would amount to £792 0 0

If we then reduce the consumption for the next four months, say by one-third, we find the expenditure amounts to 528 0 0

And say half that again for the four summer months 264 0 0

Making the annual consumption of fuel for heating the Palm-house amount to 1584 0 0

We have now stated where we obtained our information, and how we have made our calculations, and can only say, that if we are guilty of "enormous errors and miscalculations," we hope Sir William Hooker will think as we did, that it was very natural we should have placed credence in the statements made to us on the spot by the very men who supply the furnaces daily with fuel, who being perfect strangers to us, had, we imagine, no reason whatever in deceiving us with false information on two separate occasions. Sir William in his statement observes, "that the object of Messrs. Weeks (referring to our advertisement) is to prove the extraordinary efficiency and economy of their heating apparatus," and that, at our establishment at Chelsea, "it does more work with one boiler than is done by 12 boilers in the great Palm-house at the Royal Gardens of Kew." This, we must respectfully observe, is a misquotation: our statement was, and we see no reason whatever for altering it, that "the apparatus of Messrs. Weeks with one boiler is doing about as much work as *four* boilers do in the Kew Palm-house;" and that "the great Palm-house at Kew could be heated at a cost in labour and fuel of 14*s.* 8*d.* per day," and we are still of opinion that we are not far wrong. Again, Sir William Hooker says, "we will grant that they (meaning Messrs. Weeks) expend only 14*s.* 8*d.* per day during the winter months in their nursery establishment for fuel and labour." Now, we made no such statement. We repeat that we heat the whole of our nursery with one boiler, and that, in fuel and labour, we do not expend more than 3*s.* 8*d.* per day. During our visit to the Palm-house on the 12th inst., we perceived that the 12 boilers, and they certainly were well supplied with fuel, only got the temperature up to 60°; now, our one boiler, circulating the water through 5000 feet of pipe, will give us not less than 60° in any of our houses and pits, whilst the hothouses will have a temperature of between 70° and 80°. Sir William Hooker, in his concluding observations, asks, "How a business man like Mr. Weeks could have fallen into such enormous errors and miscalculations," and "how he (Mr. Weeks) can

[illegible] us with such a gross misapplication of public money, I must leave that gentleman to settle in his own mind." On this we must remark that we sincerely hope Sir William Hooker is the only person who has so interpreted any passage in our advertisement, [illegible] we are unable ourselves to put that construction upon [illegible] we have written. No doubt it was intended to be as [illegible] possible in heating the great Palm-house; and, no [illegible] fuel more than necessary is or has ever been [illegible]: but still it may be quite possible that, with [illegible] boilers than those in use in the Kew Palm-[illegible] a far greater economy of fuel might be obtained than Sir William Hooker has any idea of. This is all we ever said or [illegible], and we fully trust this explanation may be satisfactory to Sir William Hooker as respects the true meaning of our previous statement, although we must confess that our [illegible] to discover, from the firemen at the Palm-house, where or how we had been led into error by what they told us in [illegible] have been unavailing; and how to explain the great difference between the statement of Sir William Hooker that the cost of heating the Palm-house "can in no way be calculated to average more than 300*l.* a year," and the statement of the firemen that "the 12 boilers consume 72 sacks of mixed fuel each 24 hours," is certainly more than we can pretend to do. *John Weeks & Co. King's Road, Chelsea.*

Societies.

Linnean, *Feb.* 6.—The President in the chair. W. F. Daniell, M.D., and W. Gourlie, Esq., jun., were elected Fellows. Mr. J. O. Westwood made some observations on the Eria silkworm, and on the attempts which have been recently made to introduce it into Malta, Algeria, and the South of Europe. Read:—The commencement of an elaborate memoir "on the structure and affinities of the natural order Balanophoreæ," by Dr. J. D. Hooker. This memoir was illustrated by an extensive series of admirable drawings. The author stated he had examined about 30 species of the order from various sources, and of 26 of these, both sexes. The simplest and most frequent form assumed by the rhizome or axis of these curious plants was stated to be that of a simple or branched tuber, sessile on the root from which it derives its nourishment, and giving off one or more flower-bearing peduncles. "In the earliest stage," the author observes, "at which I have examined any of the Helosidæ or Balanophoreæ, the young plants appear as a cellular mass, nidulating in the bark of the root (but partially exposed) with whose cellular tissue its own is in organic adhesion, though easily distinguishable. It offers at first no trace of a vascular system, nor any distinction of parts; but before it has reached the cambium layer of the bark, and before its upper extremity has attained any considerable size, an opaque line of white cellular tissue, different from the red, may be found beneath each lobe, or in the centre of the mass, in which vascular tissue makes its appearance. Shortly afterwards, the wood of the root upon which the parasite grows appears to become affected; its annual layers are displaced, and, at a still later period, vascular bundles enclosed in a cellular sheath appear to have ascended into the axis of the rhizome, and to have become continuous with those already found in it. Some genera do not present the appearance of receiving any vascular bundles directly from the root-stock, but their own vascular bundles may be traced descending to the line of union between the root and the parasite, where they become closely applied to the vascular system of the former without, however, forming any interlacement or organic union."—"The rhizomes in many species attain a considerable age. Helosis seems to be capable of indefinite increase, the individual patches of the plant flowering at all or most seasons of the year, and the old branches of the rhizome dying away as new ones are formed." Phyllocoryne also, as well as Rhopalocnemis, several species of Balanophora, Lepidophyton, Langsdorffia, and Sarcophyte, are perennial; Cynomorium, it was observed, seems decidedly annual. In no case is the vegetation of the rhizome very rapid in comparison with that of many plants, especially of fungi, with which some persons have compared the Balanophoreæ. On the contrary, Dr. Hooker believes that the growth of all the parts is very slow; and, with regard to Rhopalocnemis and Balanophora especially, many opportunities had been afforded him of observing that the peduncle did not flower for several weeks after its protusion from the rhizome. The memoir, which scarcely admits of abstract, goes on to detail minutely the peculiarities which were observed in an examination of the tissues of the plants; and the author then traces the development of their foliar organs, their inflorescence, their flowers, stamens, ovaries, and ovules, and their seeds; passing under review the various opinions which have been published by other observers, as to the nature of the parts composing these several organs.

Notices of Books.

Mountains and Molehills, or Recollections of a Burnt Journal. By Frank Marryat. 8vo, Longmans.

Mr. Marryat is a great draughtsman—not with the pencil, we own—but with the pen. His sketches of Californian society and scenery, his own adventures and the adventures of his friends, are told in a joyous spirit and a Saxon style which captivates the idle and arrests the attention of the earnest reader. Those who think of going to California may here learn the truth of what they must expect; those who have friends there will learn the way in which their lives are spent; those who have an itching for speculation there may judge of their chances by the author's opinion as to the value of Californian evidence manufactured for the European market. Through the dashing style of the writer we have no difficulty in discovering him to be a science-hater; but we like him none the less for that, though we should like him better were he otherwise. The charm of his book is its freedom from all conventionality; the author wears neither white kid gloves nor glazed boots—at least in California—but appears in the rough dress of a trapper or squatter, or wild hunter, of which his book is but the reflection. Can we say more in his favour? The following extracts will show the reader what he has to expect in Mr. Frank Marryat's burnt journal.

"There are few after all to whom either roughness or adventurous life comes aptly, although the proud man scorns to own he feels the privation he has sought as it were; but few of those who have sacrified position, comforts, and friends elsewhere, for the pursuit of freedom and adventure, with wealth of course appearing in the distance, have realised their dreams, or have done otherwise in the long run than own their folly, and mourn it secretly. Some men are born for a wild and careless life—a happy liveliness of disposition, knowledge of the world, physical health, recklessness of personal safety, indifference to social position and home comfort, all fit them for it; their creed is to do as no one else does (and they do none the worse for this); these men are few in number, and they can live when others starve. Observe the man in a hunting-field, who strikes out his own line of country, and that a new one to him; each fence may conceal a marl-pit, but he faces bravely all obstacles, and comes in right at last. Rash fool! says Jones as he opens a gate. Stupid ass! echoes Brown as he creeps through a gap. But no! Brown and Jones would be both fools and asses if they tried to do it, but to this man such work comes naturally.

"As a rule the fate of the minnows who will pursue an unbeaten track is certain enough. It is generally a great mistake when men throw up on their own account a certain means of livelihood, to seek adventure and fortune in new gold countries. It is generally a great mistake when fathers with spendthrift sons, stupid sons, or lazy sons, say, 'John, you are doing no good for yourself; here are 500*l.*; go and try your luck in the diggings.' It was a great mistake when a party of gentlemen left England in 1849 for California in a yacht of their own, and having arrived at the diggings got disgusted, and returned very much out at elbows, with most melancholy reports respecting the gold-fields. And these are great mistakes, for this reason, that patience under disappointment, and a disposition that can ever look sanguinely into the future, are as requisite for 'rough life,' as strong hands, willing hearts, and sound health.

"Our entertainers occupied themselves in market-gardening, which is a peaceful and unexciting profession; and as the whole party were animated with a strong love of adventure, and were anxious for something more soul-stirring than weeding and watering beds of Cabbages, soon after I last saw them they disbanded and dispersed, nor have I heard of them since. Vegetables attain an unusual size in California, owing to the rich qualities of the maiden soil; but I have observed an insipidity in everything that has thus rapidly matured, and size is attained at the expense of loss of flavour. Onions and Tomatas as large as cheese plates are common. Melons have attained the weight of 50 pounds. Wheat and Oats grow to the height of 8 and 10 feet, and are very prolific in the ear; Potatoes reach dimensions unheard of elsewhere, and the diameter of a Cabbage is sometimes so large that the Cabbage has to be seen to be believed in."

"We stopped to breakfast at a house of entertainment kept by one Crockett, who had a very pretty wife; but the possession of this luxury, so far from humanising Crockett, appeared to keep him in a continual fever of irritation; for he was jealous, poor fellow, and used to worry himself because there was ever a dozen or two of hairy miners gazing in a bewildered manner at Mrs. C.; but, if report speaks truly, the bonnet and boots of a 'female' had been successfully exhibited in this region at a dollar a head (a glimpse of them being thought cheap even at that price): surely therefore Crockett might have excused the poor miners for regarding attentively the original article when presented gratis in the shape of a pretty woman.

"Crockett carried a revolver of disproportionate size, he not being a large man, and this instrument he occasionally used upon provocation. A great number of miners had looked at Mrs. Crockett on the morning of our arrival, and her husband had not quite finished foaming at the mouth in consequence, when we entered the house. It was some time before he condescended to be civil; but having at length informed us that he was 'so riled that his skin cracked,' he added that he was a 'devilish good fellow when he was right side up,' and commanded us to drink with him. After this he procured us a most excellent breakfast, and, on the strength of our respectable appearance, allowed Mrs. Crockett to preside at this repast, which she did in a nervous manner, as if momentarily under the expectation of being shot.

"We left our host 'right side up,' and proceeding on our way, we soon lost sight of the cultivated country, and began to traverse undulating plains studded with the dwarf Oak. The road now gradually becomes worse, and has long ceased to be level; we pass road-side houses, whose names indicate the localities in which they are placed: 'Rolling Hills,' 'Willow Springs,' 'Red Mountain,' and so forth. After travelling 20 miles we ascend the first range of hills; the Pine-tree appears, and here and there we catch glimpses of the American Fork river. As we leave the plain and ascend the wooded hills, trails may be observed indicated by blazed trees, leading to mountain gorges, where diggers are at work. Flowers clothe the hills in the richest profusion, and most conspicuous is the yellow Poppy, which lightens up these desolate red hills for a few weeks each spring; growing in rich masses that, in contrast to the bleak and stunted herbage, are like sunbeams, and like sunbeams leave every spot they cheer more gloomy, when, under the influence of the first hot summer wind, they droop in a night and pass away."

Miss Corner's Familiar Fables (Dean & Son) is a handsome volume, beautifully printed and profusely illustrated by clever woodcuts. It is a charming present for little folks.

Garden Memoranda.

Messrs. Fraser's, Lea Bridge Road, Essex.—Since we last visited this nursery several new glass-houses have been erected, and among them a span-roofed show-house, about 65 feet in length, and 21 feet in width. This, even thus early in the season, is as gay as it well could be with forced flowers, more especially with Azaleas, which, when well bloomed, as these were, could not possibly be surpassed in brilliancy. Among them were Old White and Fielder's White, the latter doubtless a variety of the former, but an improvement on it, especially in regard to foliage, which it keeps better in winter than the Old White. Associated with these were also Smith's coccinea, which is one of the best red Azaleas for early work, exquisita and one or two semi-double sorts. It has been found that the latter keep much longer in blossom than the single kinds, a fact worth remembering by all who are desirous of having a long continuance of gay flowers. Some Camellias and a rose-coloured Rhododendron, called Cunninghami, also helped to decorate this house. This variety of Rhododendron comes regularly into flower at this season without any forcing. On the side shelves were Crocuses, Hyacinths, early Tulips, Narcissi, and Chinese Primulas, arranged in rows, and so placed in regard to colour as to render them very effective. It may not be out of place here to remark that bulbs generally are blooming unusually well this year—scarcely a single failure occurring among them. The Primulas mentioned above were single kinds, and were all raised from seeds sown in June last.

In another house was a collection of all the finer varieties of tree Carnations, which, if assisted with a little heat, keep on blooming all through the winter and spring. We need not say that they are invaluable for cutting from, which does them more good than harm, for whenever they are cut they throw out new shoots, and thus keep up a continuous supply of flowers.

In the Heath house some of the early kinds, as Grandinosa, Vernix coccinea, which produces pretty little round orange globular flowers, ardens, and others were in blossom. The two latter do not strike readily from cuttings; but this is little to be regretted as they come plentifully from seeds, which they ripen in abundance. Among Leschenaultias in another division of the same house, were Baxteri and its large variety, which is perhaps the best of all of them for making a good display in winter; also a kind called intermedia, which has the good quality of keeping well in winter, which formosa, which is one of its parents (the other being Baxteri), does not.

It may interest some to know that the Messrs. Fraser have commenced to grow Pelargoniums on an extensive scale. They have already several houses full of young plants, both fancies and others, and a large span-roofed show-house has been erected for specimen plants. We may, therefore, look forward to seeing our metropolitan exhibitions enriched next season by collections of well-grown Pelargoniums from Lea Bridge.

In stoves some of the best specimens of Ixoras, Allamandas, and Dipladenias were being trained, and put in good condition for summer; and, in order to assist them to make fine growth, their pots were being plunged in tan. In one of these houses we noticed some tops of Poinsettia pulcherrima in 3-inch pots with noble heads of scarlet leaves, though the plants themselves were not more than 6 inches in height. These were struck last autumn, and it has been found here, as elsewhere, that plants got up annually in that way are greatly to be preferred to older ones, the floral leaves on the latter not being nearly so large as those on young plants.

In the specimen houses there was a great number of the best kinds of Azaleas, Ericas, and other hard-wooded plants, varying in size from 1 to 6 feet in height, and all beautifully furnished with flower-buds. Among them was a Franciscea, not a very common plant in a cool-house in winter; but Messrs. Fraser have found that Francisceas wintered in greenhouse temperature flower better than those kept in a stove, provided the wood has been well ripened early the previous autumn.

In an intermediate house some of Mr. Fortune's Azaleas were in flower, among which were the pretty little purple-blossomed amœna, the striped variety called Fortuni, vittata punctata, and one or two others. Here were also several pots of fringed double white Primulas and some Hollyhocks, which, when potted and encouraged with a little heat as these were, throw up young shoots, which make good cuttings. This, therefore, is a quick

way of increasing these plants, of which one can scarcely have too many.

Of Camellias, of which there is a large houseful here, some of the early kinds were in blossom, and among them were Donckelaari in fine condition, the blooms being large and beautifully mottled; Lady Hume's Blush, the Double Striped, Marchioness of Exeter, and Chandleri, which is still one of the best reds. Out of doors, we need scarcely say there was nothing in blossom except Jasminum nudiflorum, which struggles hard to open its flowers, even amongst the frost and snow; it is only, however, on a very sheltered wall or under glass that they can be seen to advantage.

FLORICULTURE.

Brompton and other Stocks.—In many cases the most beautiful of all the kinds of Stocks, the Bromptons, get killed by the severity of the winter; but this is often avoided, in a portion at least of the quantity grown, by taking up the plants before winter and potting them, or by planting them in a spare Melon pit or cold frame, and afterwards replanting them in the open ground in spring, but they never flower so well, or grow so large as when they survive the winter in the open border. When they have been planted under a wall or other shelter, and sufficiently protected by straw, fern, or similar material, they must be gradually uncovered as soon as this severe weather changes; and when it is judged safe to uncover them entirely, the ground about them may be stirred over, and top-dressed with some rich mould if necessary; watering freely with liquid manure if the weather admits of it. The plants in frames also, as soon as they begin to grow, should have plenty of air, and on very fine days the lights may be entirely removed, watering frequently with manure water or surfacing with rotten dung. When the plants begin to show for bloom the single ones may as well be pulled out, leaving only those that are double; these plants will flower in April and May. For a succession to flower from the middle of July until September, sow the various kinds of 10 weeks in the open border in very rich soil, about the middle of March, and thin out the strongest plants at first, and afterwards all the single ones as they show bloom (unless you want them for seed), and by the end of July you may have nothing but a bed of double Stocks. By transplanting some of the smaller plants about the end of May into very rich soil, a later succession of bloom may be obtained; if some purple and white Queen Stocks are sown at the same time and similarly treated they will commence flowering in August, and remain in beauty until they are destroyed by winter weather. If the winter should be mild, however, these plants will often keep on blooming until the Brompton Stocks sown in July take their place, thus producing a succession of bloom all the year round. In saving the seed of Stocks, as well as of all highly improved plants annually reproduced in this way, much depends on the care taken in selecting the plants from which to save seed. Choose always those with brightest and clearest colours, broadest petals, closest flower-spike, most numerous side branches, and dwarfest habit, and avoid all those plants with few lateral branches, robust habit, thinly set flower-spikes, and broken colours. Much also depends on the season, for if the summer should prove a very dry and warm one, the seeds will be much better as regards the production of double flowers; while, on the contrary, if the summer should prove to be cold and wet, a greater proportion of the plants will be single, and this accounts for the German seed being always superior to that saved in England. The bottom flowers on the spike only should be allowed to produce seed; and it is also a received fact that those blossoms of the single Stock which are strictly cruciform—that is, having only four petals—produce a much larger proportion of single blooming plants than those which have five, six, or more petals. Now most single Stock plants produce some flowers in this way, and the more in consequence of good treatment. It is advisable therefore to pinch off all the four-petalled blossoms as soon as they open, not only that no seed may be saved from them, but also that their pollen may not be scattered upon the slightly semi-double flowers. Finally, the best seed is obtained where large quantities are grown, and where the plants are allowed to remain when grown, and treated as above stated. It should also be observed that the seed of each colour and kind of Stock should be saved at as great a distance from the other as possible; in fact they should not be grown in the same parish. It is an antiquated notion that a plant with single flowers surrounded by double ones must produce seed from which nearly all the produce will be double, but such is not the case, for the perfectly double flowers have no effect upon the single ones, but merely indicate that the breed is a good one. *D.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—In houses where an average temperature of 45° is maintained, many of the planted out things will soon be showing indications of growth, and the soil should be examined, giving a good soaking or two, as may be found necessary, of tepid water where the border is found dry. It is advisable, however, to retard the growth of most things for some time yet, especially while the weather does not admit of giving air freely; but where this cannot be done, see that the soil about the roots is in a moist healthy state; for except this is attended to, anything like close vigorous growth need hardly be expected. Also remove as much of the surface soil from about old specimens as can be done without injuring the roots, and replace it with some good rich fresh material. See that every plant is clear of insects before growth commences; for success need hardly be expected unless these pests are kept under, and they are much more easily eradicated, and with less risk of injuring the plants before growth commences than after. Use fire-heat as sparingly as the state of the weather will admit, and moisten the surface of the borders occasionally, so as to counteract its drying effects; for the long continuance of frosty weather, and the consequent large use of fire-heat will be injurious to many things unless great care is exercised to keep the atmosphere in a soft moist state. Get a good stock of all requisites for potting prepared, and see to having plenty of peat and loam under cover, where it will be dry and fit for use at any time when it may be wanted.

FORCING DEPARTMENT.

Vineries.—Very careful management will be necessary in the present state of the weather, where the Vines are in an advanced state or fairly started, and care must be exercised to counteract the drying effects of so much fire-heat by means of the evaporating pans, and sprinkling the floors, &c. See that inside borders are not allowed to become too dry, and give a good soaking of tepid manure water in a weak state where it is found necessary. Look at last week's directions, and use fire-heat as sparingly as may be safe under the state of the Vines, &c. Figs.—Stop the young shoots regularly before the fourth or fifth leaf, and keep them regular and sufficiently thin to admit light and air, so as to get the wood matured, and secure a second crop. Where the trees incline to grow too luxuriantly, keep them rather sparingly supplied with water at the root, giving no more than may be absolutely necessary for the present crop, for unless short-jointed firm wood can be obtained, there will be little chance of obtaining an abundant second crop. Cucumbers.—There is no doing any good with these without the command of a brisk, moist, temperature, which should average 70° at night, and 75° to 85° by day, according to the state of the weather. Sprinkle the foliage frequently with the syringe, and keep the soil in a nice healthy state as to moisture, giving clear tepid weak manure water, also keep the shoots thin and regular, and trained near the glass, so as to expose every part to all the light possible. Take every opportunity of admitting fresh air, but do this very cautiously, for cold draughts would ruin the foliage. Where Melons are wanted early in June, seed of some known good early sort should be got in without further delay, and the young plants should be kept near the glass from the moment they appear above the soil, admitting a little fresh air on every favourable opportunity, with the view of getting strong short-jointed plants, which afford a much better chance of success than long-jointed weakly plants. Ridge out early plants as soon as they are sufficiently strong, and before they sustain any check by being confined in pots; but see that there is a nice regular bottom-heat of about 85° before committing the plants to the hills, and that the soil is in a healthy state as to moisture.

FLOWER GARDEN AND SHRUBBERIES.

The arrangement of the beds for the coming season should be decided upon at once if not already done, and gardeners who may not be thoroughly acquainted with the taste of their employers in this matter should provide a plan coloured as it may be intended to plant the beds, making whatever alterations may be suggested until the arrangement is as satisfactory to the family as the stock of plants at his command will admit of making it. This done it will be possible to concentrate attention upon the propagation of the stock which will be wanted, and to avoid occupying space, &c., in getting up useless things. And it is hardly of less importance that should the arrangement of the colours not prove quite satisfactory the blame will not fall altogether upon the gardener, and this will fully compensate for the trouble of preparing a plan, &c. Those who have to contend with a stiff soil will do well to dig spare beds lightly when the surface is frozen two or three inches deep, which will bring up and expose a further portion of the soil to the action of the atmosphere. The work of propagation will now demand constant attention, for it is of the utmost importance to forward this work as speedily as possible. Having ascertained what plants will be wanted, every cutting which can be procured should be got in at once, giving primary attention to such things as are known to be longest in becoming established plants; and if cuttings can be obtained put in sufficient to allow for failures, and having a small surplus stock at turning out time. It is quite possible to root cuttings of most bedding-out things, and to have them ready by planting out time if they are not put in for some time yet; but plants hastily got up and suddenly checked in their growth, as is necessarily the case when propagation is deferred till late in spring, make a poor figure in the beds for a long time after planting out, and are sometimes hardly got round in time to cover the ground before being cut off by the autumn frosts. It is therefore of the greatest importance to get the cuttings rooted early, so as to allow of having them strong plants without having occasion to grow them up to planting out time in a high moist temperature.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON
For the week ending Feb. 15, 1855, as observed at the Horticultural Gardens.

Feb.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep	Wind
Friday 9	22	29.883	29.871	30	15	22.5	36½	39	N.
Satur. 10	[illegible]	29.867	29.635	30	1	15.5	36½	38½	N.
Sunday 11	24	29.534	29.472	35	20	27.5	36½	38½	N.
Mon.. 12	25	29.481	29.465	36	23	29.5	36	38	N.
Tues. 13	26	29.443	29.356	29	0	14.5	35½	38	N.
Wed. 14	27	29.400	29.322	36	17	26.5	35	37½	N.
Thurs. 15	28	29.925	29.699	34	10	22.0	35	37½	N.
Average.		29.646	29.545	32.8	12.3	22.5	35.8	38.2	

Feb. 9—Boisterous; uniformly overcast; cold north-east wind.
— 10—Clear and frosty; severe frost at night; therm. at 20 deg. below 2 inches of snow; at 1 deg. in the air.
— 11—Intense frost; clear and cold; slightly overcast at night.
— 12—Overcast; clear, cold, and dry air; partially overcast.
— 13—Slight snow; cloudy; clear at night; towards morning therm. at zero.
— 14—Uniformly overcast; clear and cold; sharp frost.
— 15—A few snow-flakes; bright sunshine; clear and frosty; Thames frozen.

Mean temperature of the week 15¾ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Feb. 24, 1855

Feb.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 18	45.0	32.0	38.5	12	0.30 in	4	1	3	1	4	[illegible]	[illegible]	[illegible]
Mon. 19	45.0	31.4	38.2	11	0.64	5	1	3	5	1	[illegible]	[illegible]	[illegible]
Tues. 20	45.5	31.6	38.6	16	0.51	3	3	2	4	1	[illegible]	[illegible]	[illegible]
Wed. 21	46.8	32.8	39.8	16	0.20	2	5	3	5	—	[illegible]	[illegible]	[illegible]
Thurs. 22	46.1	33.6	39.8	13	0.29	3	5	6	—	2	[illegible]	[illegible]	[illegible]
Friday 23	47.2	32.5	39.8	11	0.44	4	4	1	3	—	[illegible]	[illegible]	[illegible]
Satur. 24	46.9	34.4	40.7	15	0.29	3	2	2	3	4	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the [illegible] 1846—therm. 59 deg.; and the lowest on the 20th, 1852—therm 15 deg.

Notices to Correspondents.

Anacharis: *Hydrocharad.* We believe there is a paper, pamphlet, or a communication to some Botanical Society, in addition to the notices you mention. We have not heard of it in American papers. In fact, in the rapid rivers of that country it is unimportant. It is in our sluggish streams that it is so formidable.

Books: *Diss.* You see how seldom we can meet your wishes. Booksellers do not mark the price on their publications, and therefore we cannot give it. We always do, when we are enabled.

Cucumbers, &c. *J W R.* Hot-water is better than dung-heat for growing these during winter and early spring. Your other question next week. ‡

Figs: *J R.* Such a letter is inadmissible, and ought not to have been written.

Garden Memoranda: *T G, Sheffield.* We are obliged to you for your letter, but we never publish matter of the kind without knowledge of the writer.

Gardeners Arms: *J S T.* Apply to the Secretary of the Society of Gardeners in Moorgate.

Grapes: *Z L* will be obliged by some of our correspondents informing him whether the Barbarossa has been tried as an early Grape, *i. e.*, whether it will force with the Black Hamburgh, and is equal to that variety as a cropper? He also adds, "Will what appears to be its greatest recommendation, viz., to hang without shrivelling, hold good in the summer months?"

Heather: *Mc H.* It is difficult to manage. Transplant small young plants in the beginning of September, watering the ground well, and shading them by throwing straw or fern, or some such substance lightly over them.

Heating: *W.* It does not answer to use steam for heating garden buildings. Water somewhere below the boiling point is universally preferred. Our opinion of the other method is unchanged: but there are *great* practical difficulties to overcome, and this has caused it to be laid aside. Your connecting pipes should be larger, not smaller, than the others. Until your 7-8th connecting pipes are altered, you cannot succeed. —*W P H.* Nothing is easier; only keep your boiler below the level of the lowest pipes. Zinc pipes don't answer. Use 4-inch iron spigot and fosset pipes; the others buckle, collapse, and break.

Names of Fruits: *H G B.* Your Apple appears to be Dumelow's Seedling. ‖

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*D O.* Lycaste fulvescens.

Paint for Iron Hurdles. We know of no better paint for these than that recommended by Mr. Fleming, of Trentham. It consists of two-thirds of Stockholm tar and one-third gas-tar mixed, and applied hot. A little fresh slaked quick-lime added to the boiling tar gives it greater consistency. ‡

Pinus: *Conifer.* It appears to be Pinus picea.

Quercus: *Diss.* When the frost goes you shall have from the garden of the Horticultural Society some plants of the real species, to which as F.H.S. you are entitled. If you send us full grown *leaves* of your Oaks next summer we will name them. That will be better than describing differences. The Black Italian Poplar is *monilifera;* how it came to be called Italian we do not know. It is a Canadian tree. What makes it valuable with you? To what purpose, except the flooring cottages and lofts, or fuel, do you apply it? Have you any demand for white wood for turners?

Stephanotis floribunda: *C C.* It will succeed tolerably well in the warmest part of the house you describe, if kept moderately dry in winter; but you must not expect it to flower so early as it would under stove treatment. A stout wooden box would be preferable to a pot in the position in which you propose placing it, viz., over the boiler; as the roots of the plant will be less exposed to change and extremes of temperature if the case containing them is formed of non-conducting material. The box should be raised sufficiently above the surface of the brick or stonework over the boiler to allow of the air passing freely underneath it. The best soil for the Stephanotis is fibrous loam and peat, enriched with leaf mould and well rotted manure. The box must be well drained, and the soil rendered sufficiently porous by mixing with it silver-sand and charcoal. ‡

Water Filter: *Sub.* You will find a description of one in another column, which may possibly answer your purpose. ‡

Wellingtonia gigantea: *The Big Un.* Seeds of this tree are scarce in England. If *you* have any, sow them at once in a mixture of loam and peat, in pans or shallow boxes, and place them in a mild greenhouse temperature. ‡

Misc.: *E. C.* Not oftener than once a fortnight or three weeks. We cannot find room. It seems to be Linum trigynum.—*Lover of Flowers.* Cold and damp have doubtless caused the flower buds of your Gardenias to drop off. Cuttings of Pimelea, if properly treated, ought to strike under the conditions you mention. The best cure for mildew is sulphur, which should be applied the moment the fungus makes its appearance. The question about the Daphne leaves will be answered next week.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
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PERUVIAN GUANO, of the finest description, on sale from a vessel now due, without any restrictions.—Apply to JOHN and THOMAS JOHNSON, Walmer Buildings, Water Street, Liverpool.

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N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE LONDON MANURE COMPANY beg to call the attention of Agriculturists to their WHEAT and CLOVER MANURES for present use. The London Manure Company also offer Genuine Peruvian Guano, Nitrate of Soda, Concentrated Urate, Superphosphate of Lime, Fishery and other Salts, and all Artificial Manures of value. The London Manure Company guarantee Peruvian Guano and every Manure they supply to be strictly genuine. EDWARD PURSER, Sec.
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WHEAT AND OTHER MANURES ON SALE.—The success attending the application of the manure especially adapted for Wheat during the last two years, induces the undersigned to again offer it to the Agriculturists with confidence. Also Superphosphate of Lime, Blood Manure, Guano, Nitrate of Soda, Gypsum, Salt, Peat Charcoal, and all other Manures of known value.—Apply for Prices Current to MARK FOTHERGILL & CO., 204A, Upper Thames Street, London.

THE MANCHESTER SEWAGE GUANO COMPANY respectfully inform Agriculturists that they have made arrangements which will enable them to meet the increasing demand for their Manures. The MANCHESTER SEWAGE GUANO is a compost of Blood, Bones, Urine, Nightsoil, and other Animal Matters, and highly fertilising Chemical Ingredients, which are in a concentrated state incorporated with Animal and Vegetable Charcoal, ground to a fine powder, *the whole forming a dry portable Manure.* It is free from all kinds of Seeds, Weeds, &c., and enriches the land to a considerable degree for several years after it is used. Price 5*l.* 5*s.* per ton. Net cash on delivery. Testimonials forwarded on application. Carriage free to any Railway or Canal Wharf in Manchester.—JOHN THOMPSON, Secretary, 3, Watling Street, Shudehill, Manchester.

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THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
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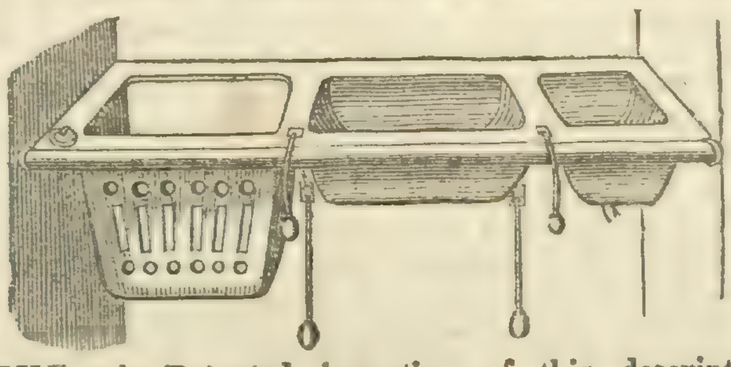
"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
"FRIGI DOMO," a Canvass made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey, and of all Nurserymen and Seedsmen throughout the kingdom.
"It is much cheaper than mats as a covering."

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THE only Patented invention of this description constructed so as to prevent considerable waste of Hay and Corn, together with all the newest improvements.
NEWLY IMPROVED ECONOMIC STABLE FITTINGS, FORTY SHILLINGS PER SET, to fill up the whole width of Stalls, and can be had enamelled or galvanised. Every description of Mangers, Racks, and Stable Furniture in stock; Iron Hurdles, Gates, Fencing, &c.
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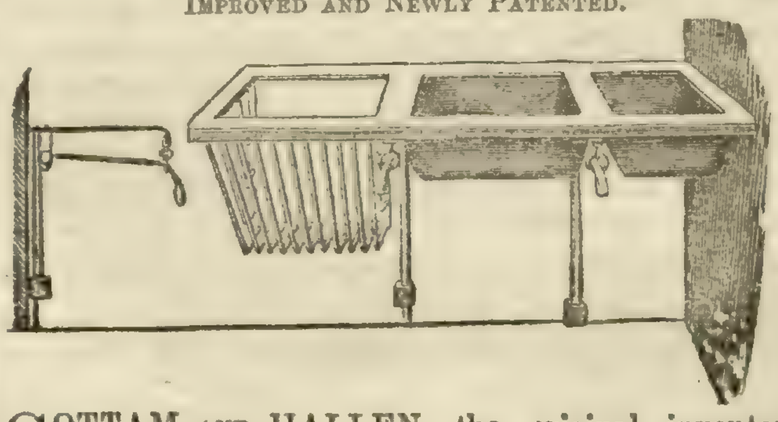
MANGER, RACK, & WATER-TROUGH AS ONE FIXTURE.
IMPROVED AND NEWLY PATENTED.



COTTAM AND HALLEN, the original inventors, obtained the Great Exhibition Prize Medal for this arrangement, to which all the latest improvements are adapted, secured by Patent, including a method entirely new of attaching the halter-weight and rein from the back of the manger to the under front of the plate, allowing the horse greater freedom, and being noiseless in operation, add much to its comfort whilst feeding and convenience when at rest, as likewise, from their position, avoiding the liability of the most restive horse getting cast. No well-managed stable should be without these fittings.
COTTAM'S ENAMELLED MANGERS are constructed in the best possible manner, both as to form and utility; are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, and Enamelled. Improved Surface Drain, with Safety Covers, Sanitary Traps, Stable Pumps, Loose Box, Fittings, Gutta Percha Preserving Saddle and Harness Brackets, and every article in Stable Furniture, in stock. An extensive assortment of Patterns for both Plain and Ornamental Castings, and every description of Wrought and Cast Iron Work for building and other purposes. Agricultural and Horticultural Implements, Iron Gates, both plain and ornamental, Hurdles, Strain Fencing, &c.
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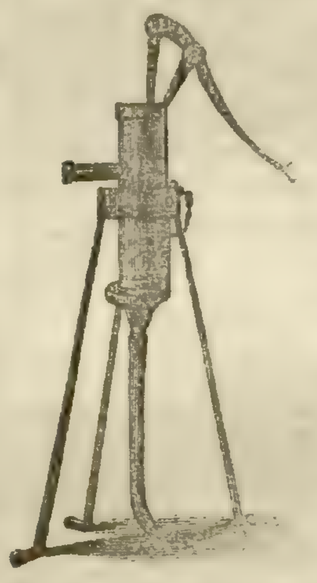
WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.
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May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

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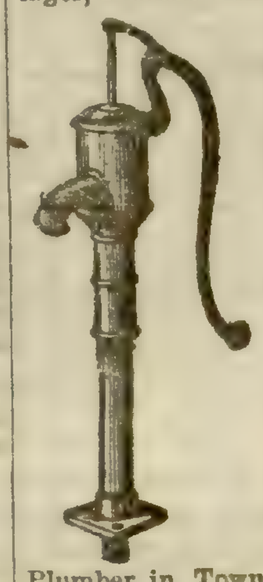

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ „	long 3 „ 3 „		1	15	0
3 „	ditto 3 „ 6 „		2	12	0
3½ „	ditto 3 „ 6 „		2	18	0
4 „	ditto 3 „ 6 „		3	5	0
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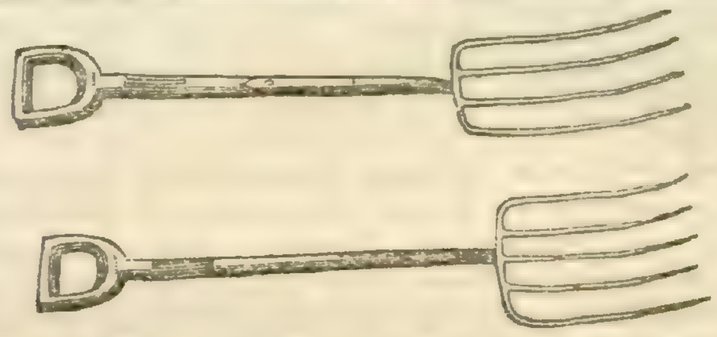

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The Agricultural Gazette.

SATURDAY, FEBRUARY 17, 1855.

MEETINGS FOR THE ENSUING WEEK.
WEDNESDAY, Feb. 21—Agricultural Society of England.

WE referred at page 60 to Mr. DENTON's pamphlet on LAND DRAINAGE * in terms characteristic of it generally as a valuable contribution to the literature of its important subject: and at the time last year when the greater part of it was read before the London Farmers' Club, a large portion of it was extracted and published in our columns.

Our present object in returning to the work is, therefore, merely to call attention to the facts which it relates in reference to the several Land Drainage Companies which are in operation. The usefulness of such associations is almost universally admitted. We say *almost*, because in Scotland, where one—the Lands Improvement Company—has power to operate, objections have been taken to loans for the improvement of land to be secured by a rent-charge preferable to all other burdens previously affecting the inheritance. Any measure, it is said,

* "Land Drainage and Drainage Systems," by J. BAILEY DENTON, F.G.S., &c. J. Ridgway, Piccadilly.

"calculated to interfere with the high character of Scottish heritable securities consequent on the system of record which there obtains, and the perfect security it affords, is to be condemned." The only question is whether a preferable claim for the return of advances for land drainage and, under judicious supervision, for the erection of farm buildings, will interfere with the security of other claims upon the property. We have confidence enough in the profitableness of agricultural improvements to believe that so far from this, they would increase the security of other creditors. The powers whose usefulness has been doubted, do, however, exist—happily so, as we believe—and it has been with great satisfaction, therefore, that we have pointed out in previous papers that these powers as possessed by the Lands Improvement Company are practically unlimited, as to the extent of such improvements, and the amount of capital required for their proper execution.

This, however, is the national aspect, rather than the individual, which the subject presents. When an individual proprietor looks round him for assistance from these companies, it is nothing to him that the powers of some among them are inexhaustible so long as he knows that the powers of none of them are, in point of fact, exhausted. It then becomes his business to compare them, and ascertain with which he can most cheaply and efficiently do business. This, of course, is a decision he must make himself. We shall not undertake the invidious task of determining the matter for him; but we can, perhaps, assist him by extracting from Mr. Denton's pamphlet the following information on the subject. We may mention, though it is unnecessary to do so, for his statement is purely historical—an impartial relation of mere matters of fact—that Mr. Denton is an office bearer in the General Land Drainage and Improvement Company.

"Owners of settled properties have the choice of several means of charging the cost of draining upon the inheritance, and through each medium they can either borrow the money to be expended, or they can apply their own private funds to the object, and take a rent-charge on their estates for the repayment, in which latter instance they will retain personal power over the disposal of money expended, and can leave to whom they please the rent-charge payable by their successor.

"The means referred to are the *Private Moneys Drainage Act* (12 & 13 Vict. cap. c.) limited to draining only.

"The West of England or South West Land Draining Company's Act (11 & 12 Vict. cap. cxlii.), for the purposes of

Draining	Embanking, reclaiming, and enclosing.
Irrigation and warping.	Road-making.

"The General Land Drainage and Improvement Company's Act (12 & 13 Vict. cap. xci.), for the purposes of

Draining	Embanking, reclaiming, and enclosing.
Irrigating and warping.	Road-making.
Erecting farm buildings.	

"And the Lands Improvement Company's Act (16 & 17 Vict. cap. clv.), for the purposes of

Draining.	Clearing lands.
Irrigating and warping	Erecting farm buildings.
Embanking, reclaiming, and enclosing.	Road-making, and planting for shelter.

"The terms of years over which these several Acts of Parliament enable landowners to extend the repayment by equal annual instalments of the amount expended, as well as the annual amount by which the repayment is effected, may be thus compared:—

	Period over which the Repayment may extend.	Proportion of Amount expended to be charged.	Annual Instalment or Rent-charge.
Private Moneys Drainage Act. Draining	22 years	All	From 6*l.* 10*s.* 1*d.* to 7*l.* 10*s.* 11*d.* Present charge, 7*l.* 5*s.* 1*d.*
West of England Company's Act. Draining, Irrigation and Warping, Embanking, Reclaiming, and Enclosing, Road-making	In perpetuity	All	According to the prevailing value of money. Present value, 4½ to 5 p. ct.
General Land Drainage and Improvement Company's Act. Draining, Irrigation and Warping, Embanking, Reclaiming, and Enclosing, Road-making, Farm-buildings	50 years	All	£5 2 10
The Lands Improvement Company's Act. Draining	31 years	All	£6 3 2
Irrigation and Warping, Embanking, Reclaiming, and Enclosing, Clearing Lands	25 years	All	From £6 10 8 minim. to £7 11 0 max.
Farm-buildings	...	¾ of Cost	£6 15 0 is the present charge
Road-making, Planting for Shelter	...	½ of Cost	

"Under either of these acts a landowner may charge his estate; but it is by arrangement with either of the moneyed companies that he can borrow capital for the work, unless he calls to his aid a third party (a banker or an insurance office, for instance), and then he can put in motion the Private Moneys Drainage Act, and avoid the commission charged by the companies.

"From experience, however, already gained in the working of these several acts, it is found that the legal expenses attending the Private Moneys Act, and the higher rate of interest required by private bankers on single transactions of the kind, together with the risk and responsibility attached to the works, and of charging the estate, far outbalances the commission required by the trading companies, who are enabled by extensive dealings to effect the monetary arrangements much more easily and cheaply than an individual landowner, and without any examination of titles, and notice to mortgagees, except in the case of the Lands Improvement Company."

In addition to this, we may remark that the West of England Drainage Company is stated to be an *operative* company only. The General Land Drainage Company is not only this, but it provides money to the landowner who has executed approved works. The Lands Improvement Company, again, though it employs a staff of superintending officers, has not hitherto acted as an operative company directly, but provides money to landowners who have executed authorised and approved works.

There is ample room for all these companies, and all of them are in efficient operation. The smallest of them, as we must suppose, from its provincial character, the West of England Company to be, has drained during the following years the following acres:—

1849	...	1266 acres.	1852	...	3910 acres.
1850	...	1649 „	1853	...	4234 „
1851	...	3365 „	1854	...	5921 „

It has drained in almost every county in England, and is at present at work in 15 counties. It has now, remaining to be done under contracts entered into, 26,800 acres, and the number of hands in daily employment is above 950. It has the exclusive power of charging its improvements in perpetuity upon the land, so that the owners of a limited interest in the land are able, for the mere interest of money spent, to effect its permanent improvement.

The General Land Drainage Company drained 6300 acres in 1854, and executed roads and buildings of the value of 35,000*l.* During the draining season they have had a permanent staff of 1500 men in their employment, and have large works now on hand; one contract alone being for 42,000*l.*

The Lands Improvement Company is the youngest of the number, and in some respects, as we have shown, exceeds them all in the unlimited character of its powers. It too is, as might be expected, already in extensive connection with landed improvements throughout the country—indeed we have been told that already during the short period of its existence it has transacted business to the extent of 200,000*l.*; and that there is scope for it and for many other agencies, whether for providing capital or seeing to its efficient application to the land, no man can doubt.

In acknowledging the receipt of THE AGRICULTURAL RETURNS FROM SCOTLAND, given by the public spirit of Scottish agriculturists, and gathered by the energy of Mr. MAXWELL, the Board of Trade paid a well-merited compliment to the Highland Society and its secretary, for their services in conducting "this interesting but most laborious experiment to its successful issue." Their letter proceeds as follow:—

"At the same time, my lords feel that had it not been for the cordial co-operation of the whole body of Scotch farmers, even the energy displayed in the conduct of the experiment by the Highland Society would necessarily have been unrewarded by success, and they are anxious to place on record their testimony to the intelligence and public spirit of the agriculturists of Scotland, in thus coming forward to promote a great national undertaking."

At the meeting of the Highland Society last week, Mr. FINNIE, tenant of Swanstone, near Edinburgh, acknowledged this compliment in the following terms, which we publish here, as being in striking contrast to the spirit in which the subject has been regarded by many in the south. Mr. FINNIE is well known in Scotland as one of the most intelligent and enterprising of his class; and that he was qualified really, as well as by position, to be their spokesman, the following proves. He spoke as follows:—

"Having acted as one of the enumerators for the county of Edinburgh, I will, with your permission, embrace this opportunity of expressing, on behalf of the farmers of Scotland, our sincere gratification that the information obtained from our body is so likely to serve the purposes for which the agricultural statistics inquiry was instituted, and also that the hearty co-operation we gave, in the absence of all legal pressure, throughout the prosecution of this important experiment, has been so fully appreciated. I may, at the same time, on the part of my brother farmers, with confidence assure Government, through Mr. Hall Maxwell, that if, hitherto, we have contributed in bringing to a successful issue an inquiry which embraced the whole of Scotland, within the limited period of one year, such may be a sufficient guarantee that, hereafter, in connection with agricultural statistics, our endeavours shall be to afford a still more perfect knowledge of whatever the Legislature may consider advantageous, in order to meet the requirements of the general community. Much has been said and written about the state of agriculture throughout the world, and it would ill become me, a Scotch farmer, to stand here and eulogise that class to which I belong; but this I may say, without the fear of contradiction, that, with all our defects, the art we practise has been progressing, and not remaining stationary in our hands, as some authorities would have it to be believed; and if, therefore, we have been successful in developing the resources of the soil, I hope that the satisfactory conclusion to which the statistical inquiry has been brought, and the compliment paid to us by the Lords of the Committee of Privy Council for Trade, tend to show that our intellectual improvement has not been altogether dormant. But in thus admitting that credit is due to the agriculturists of Scotland for intelligence and public spirit, in the manner they so readily responded to the call made to forward a great national undertaking, I would be guilty of an unpardonable injustice to Mr. Hall Maxwell were I not also, upon this occasion, to say that I represent the unanimous feeling of that body in ascribing the success of the statistical inquiry to be mainly dependent on the great ability, energy, prudence, and tact which he brought to bear, not only on the difficulties he had to encounter, but also the vast amount of labour he had to contend with; and last, but not least, the perfect confidence he secured by the strictly confidential manner in which he treated all communications made to him. If this inquiry proves important in a national point of view—and who can doubt but such must be the case?—it is our opinion that Mr. Hall Maxwell has well earned the complimentary reference made to his 'indefatigable exertions' in the official document just read, and also the gratitude of the general community."

We have not space this week to present the facts which appear upon the face of the statistical report of the agricultural condition of Scotland during the past year, or the truths which those facts teach us. The main points, as regards extent and quantity of produce, were given last week. And it is curious to note, as is done in the *Edinburgh Evening Courant*, how absurdly at fault they prove the best existing agricultural estimates to be. M'CULLOCH's estimate—the one which, from the rank of this statist, we should have been most inclined to trust, is compared with the actual fact in the following figures:—

CROPS.	MR. M'CULLOCH'S ESTIMATES. Acres.	AUTHENTIC RETURN. Acres.
Wheat	... 350,000	168,216
Barley	... 450,000	207,507
Oats	... 1,300,000	932,994
Beans and Peas	... 50,000	43,871
Potatoes ...	... 200,000	143,032
Turnips ...	... 450,000	433,915
Flax	... 20,000	6,670

Out of seven particulars in this table, it will be seen that two are over estimated in the proportion of 2 to 1, one in that of 3 to 1, Oats and Potatoes are over estimated in the ratio of 3 to 2, and Beans, and Peas, and Turnips alone are anything near accuracy. This is in the case of a country which more than any other in the world is systematic in its agriculture. What the much less perfect data on which alone an estimate in England rests have led to as compared with the actual truth, cannot yet be told. We shall know it in a year or two, however. Of that we are sure, for the success of this experiment in Scotland must ultimately ensure success throughout the country.

AGRICULTURE IN THE WEST OF FRANCE.

M. BAJAULT, an eccentric but clever cultivator of his property in the department of Deux Sèvres, left at his death, a few years ago, some humorous essays abounding in quaint and pithy proverbs, which have been collected and published by M. Rinffel, the director of the model farm at Grand Jouan. The author himself had been very well educated, and was formerly a deputy of the general council of his department. He lived to the age of 70, and was greatly in advance of his contemporaries and neighbours in practical husbandry. During many years he had circulated an enormous number of copies of an almanack abounding in pointed aphorisms, and containing excellent instructions for social and agricultural improvement. He popularised husbandry with a degree of humour and talent which his lively countrymen fully appreciated.

Many of his suggestions addressed to the *comices* (agricultural assemblies) abound in valuable matter. I shall adduce a few illustrations of his graver style and matter, avoiding the burlesque passages in which he so frequently indulges. Having defined a *comice* as a congress of proprietors, farmers, and cultivators, and assumed that its first duty is to study the agricultural circumstances of its own arrondissement, and eulogised its usefulness if it acts upon right principles and a good system, he asserts that rather more than half of France consists of *boccage* (woodland), in which semi-pastoral husbandry leaves most of the land uncultivated. And he points out the absolute necessity of increasing the productiveness of the native soil, since the increasing population cannot be driven onwards to fresh land, as in the steppes of Russia and the back woods of America. That the productiveness of even the worst soils may be increased by labour and manuring, he illustrates by the fact that cottage gardens, and small fertile fields adjoin tracts of barren moors from which the industry of man, with the aid of enriching farmyard dung, has reclaimed them; and it is to the modes of accumulating fermenting or mixed manures that he consequently directs the main current of all his reasonings. With this preliminary aphorism that "agriculture is a science of locality but of general principles," he informs that (12 or 14 years ago at least) in the department du Nord, which annually expends 1,200,000 francs in marl, lime, and ashes,

besides fecal substances and farmyard manures, there was, when he wrote on the subject, one-sixth of the land under fallow. He complains also of the exhausting system of corn-growing in the west of France whenever the soil admits of it, and of the miserable products, so frequently diminished still more by unfavourable seasons—the result being an impoverished population without energy, and tortured by bitter want. One-eighth of the land only is cultivated in the wood-land localities, and the only food for cattle that are never housed is according to the statement miserable natural pasture, on which they starve during 7 months of the year. The farms are of 50 hectares, with one plough and very few labourers—because there is no employment for them. He urges then most strongly the extended introduction of artificial Grasses and root crops for cattle feeding, through the agencies of *comices*, and of individual proprietors, imitating the exertions of such benefactors to the country as the late M. Dombasle, at Roville, and of M. Bella, at Grignon. Yet he would not innovate too suddenly or harshly, demanding unreasonable concessions from the prejudices of the peasantry; but make changes by convincing their minds, by example and agricultural education, so necessary to second the efforts at amelioration, and he emphatically warns improvers to test their new practices fully, lest any failure of success in them should weaken their local influence, and give strength to the ignorant prejudices which it is their object to overcome. Without a previous knowledge of the peculiarities of soil and climate an agriculturist, however right in his general principles, may commit blunders in practice which he would have avoided by modifying his practice, according to local peculiarities, if he had been acquainted with them. In short, M. Bajault, in such case advises modern improvers not to force a system on any of the old-fashioned local cultivators, but rather to trust to time and example for the establishment of it.

It appears that British farmers are not the only victims to the frauds of manufacturers of manures. The *noir animal* (produced from bones reduced by fire to dust, and saturated with the dregs of sugar in the refining houses) is mixed by French rogues with peat soil, ground into powder for the purpose.

M. Bajault goes largely into the subject of manures and alteratives for the soil; but the only portion which I think worth noticing under this head is that which relates to gypsum, the value and use of which have been vexed questions among ourselves.

After 30 years' experience he came to the decision that gypsum (*plâtre*) is one of the best applications to Grass land, and a mine of wealth wherever found, notwithstanding the objections that have been urged against its efficiency—objections arising from ignorance. He admits, however, that on cold wet clay soils its utility is very questionable, and suggests the expediency of trying its effects on different soils on a small scale before it is largely used. Its application to cereal crops he pronounces to be utterly useless, but on Clover, Lucern, Saintfoin, Vetches, and the leguminous plants generally, as upon all the artificial Grasses, it has unquestionable efficacy; and, contrary to the opinion of the scientific Boussingault, that (since lime is the valuable component part of it) the application of gypsum is of no value on calcareous soil, or in the precise phraseology of this great chemist, that gypsum acts only on those soils which do not contain a sufficient amount of lime in the state of carbonate, the practical man under notice asserts that on such soil and especially where limestone exists, it does wonders and is more efficacious than dung! In dry summers it will not however, he admits, be active, nor will its effects in such case appear until the ensuing season; but in a moist summer the blades and foliage generally of the tribes of plants to which it is congenial, will have more freshness and verdure than atmospheric moisture produces on them without the intervention of gypsum. As an agent on the light soils of his department, he considered it to be a chief agent in promoting the increase of green and dry fodder for cattle, and consequently of manure for cereal crops.

Whether gypsum ought to be calcined, or merely ground into dust before spreading, has been discussed in some of the interesting papers which have appeared in the *Agricultural Gazette*, upon the quality and uses of gypsum.* Professor Way stated in a lecture before the Royal Agricultural Society of England, that "there was no difference between burnt and unburnt gypsum as an absorbent, but that gypsum in a dry state could not absorb ammonia—that burning made it easier to pound, but by thus rendering it a cementitious powder it was more liable to cake when used." In America, and on the continent of Europe, where it is found, we believe the universal practice is to apply gypsum in the unburnt state after it has been ground to a very fine powder, and to scatter it during the morning dew of a spring day, or in foggy weather, at that season. The French gentleman whom I have been quoting used to give a dressing of it to perennial Grasses three years out of four. He entreats farmers to apply gypsum to a portion of Lucern, &c., leaving the remainder without it, and then perceiving the marked difference in the productiveness, so favourable to the character of gypsum, to apply it systematically, though the Englishman abuses it. The German, however, comes in for his approbation, as he (the German) declares that "without gypsum and Potatoes, we might give up our land." Though gypsum is frequently found in England, it is very partially found in Ireland, where the new red sand-stone is of rare occurrence. I believe that gypsum is discoverable only in parts of Ulster, and until within a comparatively recent period its use in agriculture was not known. Professor Kane gives this analysis of it:—

Sulphuric acid... ...	46.5
Lime	32.6
Water	20.9
	100.0 of gypsum or sulphate of lime,

and pronounces that "the practical value as a manure is undisputed, although difference of opinion exists as to the mode of its action;" and "its peculiar value consists in supplying lime for the rapid growth of Clover and other papilionaceous crops, which its moderate solubility in water enables it to effect better than any other compound of that earth." *D.*

* See *Agricultural Gazette*, June 28th, 1851.

STATISTICS OF CATTLE FEEDING.

(*Concluded from p. 91*).

As a feeder of cattle for the butcher I am differently circumstanced to other of your readers; having a great proportion of my holding in permanent Grass, the great bulk of my fodder consists of pasture and meadow Grass, to which my root crops are an adjunct. I usually finish off two sets during the year—one in the early winter months, for sale in December and January; the other in July and August. I prefer purchasing for feeding cows which are sold by dairy-keepers giving too little milk for their purposes. I have shown that with a yield of 6 to 8 quarts per day, which will pay for their food, they gain on the average 7 to 9 lbs. per week.

I make up 15 to 20 heifers during the season; these are usually bought on during the spring, and turned upon the more distant feeding pastures till October, when they are finished off with Turnips and other winter food; these are scarcely sufficiently long on winter food to admit of a fair estimate of their gain. I have occasionally had animals of this class under treatment from 16 to 18 weeks, when I have found their weekly gain to average about 14 lbs. In your *Gazette* (Dec. 24, 1853) I described the result of two sets, each of eight heifers, on very similar treatment to that I am now using; the gain of each lot will be seen to have averaged 14 lbs. per week, one lot being under treatment 16 weeks, the other 12 weeks. On one lot, and towards the close of feeding, I nearly doubled the quantity of extra food during six weeks without increasing in any degree the gain of weight. My heifers of the present season (18 in number) are doing remarkably well; owing to the fine weather of October they were left on pasture till late in that month, and sold off chiefly in December and January, being scarcely two months in-doors; I refrain from giving their weighing. I may here state that by keeping my cattle over from October to November, I enjoy usually a gain beyond what is strictly due to the gain of weight, by a rise in price after November—a month in which the Grass-feeders throughout the country, who do not tie up, bring their stock to market in whatever condition they may be. Leaving this rise of price out of question, and assuming a gain at the rate of 14 lbs. per week each, which is the general rate I am able to effect—like other cattle buyers I occasionally meet with animals which do not gain their share; if, however, the gain be very materially under the average, I sell them off at a much earlier period as soon as I can find a purchaser; my proximity to the towns where they are killed gives me frequently an opportunity of ascertaining the cause; I usually learn that it is owing to some defective or diseased organ, adhesion of the lungs to the side being the most common explanation—assuming, then, a gain of 14 lbs. per week, and taking the same data for computation given in a former part of this, which, with this gain, shows a return of 6*s.* at the uniform rate of 6*d.* per lb.; and leaving out of consideration the fluctuation in price, or increase of value consequent on improved quality, it will be seen that I calculate the carcase of the fat and store animal at the like rate, though their value to the butcher is very different. The computation will be as follows:—

	Per week.
Gain in feeding a light heifer	6*s.* 0*d.*
Yield of excrement, solid and liquid, per day (60 lbs.)	2 0
Total	8 0

To ascertain the quantity of excrement, the yield from 11 heifers made during 14 days was weighed from the tank, and found to be 9220 lbs.—60 lbs. each day or 420 lbs. per week. The construction of my stalls, in which a channel of 2 feet 6 inches in depth by 2 feet 6 inches in width, under the tails of the animals, and covered by an open grating of wood, receives the whole of the liquid and solid excrement which is drawn from under the cattle when the tank is filled, gives me peculiar advantages of ascertaining the weight of the excrement, and I note this in my book of registry. The following may be reckoned on as sufficiently accurate (liquid and solid together):—

For heifers of 7 to 9 cwt.,	60 lbs. per day,	or 420 lbs. per week.
Cows and heifers of 11 to 12 cwt.,	72 lbs. „	or 500 lbs. „
Milch cows of 9 to 12 cwt.,	80 lbs. „	or 560 lbs. „

The milch cow eats and drinks more than the feeder, and with more of excrement, is by far the greatest producer of food adapted to the use of man. My cattle are supplied with water only to the extent of their wants; with a full feed of Turnips or other succulent food, which supply nearly double the quantity of water necessary, their excrement will be proportionably increased in quantity without any addition to its value. From analysis by Professor Way, made of the excrement of my feeding stock on similar treatment, the per centage of nitrogen was found to have increased during the course of feeding described in your journal, Dec. 24, 1853, from 52 nitrogen=62 ammonia to .94 nitrogen=1.14 ammonia; the value in the first being computed at 8*s.* 6*d.*, in the second 15*s.* per ton. I therefore assume a value in the present instance of 10*s.* per ton. I compute the cost of food:—

		Per week.
Rape-cake 4 lbs., bran 2 lbs. per day		2*s.* 2½*d.*
Half a pound Bean meal per day		0 3½
		2 5¾
14 lbs. Bean and Oat straw with rough seeds ...	1*s.* 2*d.*	
56 Swedish Turnips, at 10*s.* per ton	1 9	
		2 11
Attendance, 6*d.*, coals, 1½*d.*, cooking, 1½*d.*		0 9
		6 1¾

The Rape-cake and bran are computed at the rate I have paid for them this season 5*l.* 15*s.* per ton, the straw at 35*s.* 4*d.* per ton; this is reduced by an admixture of rough seeds or shells of Oats which I obtain at a lower price; my Turnips at 10*s.* per ton. Since I procured my weighing machine I have weighed portions of this crop with a view to form an accurate estimate of their yield per acre. I find them to average 24 to 25 tons of bulbs, with several tons of tops, which latter are given to sheep on depasture. I am about 60 to 70 miles distant from the coast; the nearest observations of the rain gauge 12 miles eastward show an average fall of rain of about 30 inches in the year. In 1854 it was much lower, being scarcely 24 inches, yet my crop of Swedes is more than an average, being nearly 20 tons of bulbs to the acre. My mode of cultivation is the same I have already described for Cabbages and Kohl Rabi, but without intervention of Potatoes. After autumn cleaning I plough in the fresh excrement as deep as I can, when it is left till sowing time, and then worked with the cultivator and harrow, and finished with the Cumberland clod-crusher, an implement to the use of which I am very partial. Before sowing on a slight ridge I strew broadcast 2 cwt. per acre of Gibbs' guano, which is worked in with a light harrow prior to ridging and sowing. My land under the plough is strong retentive loam on clay, and in high condition. I have been thus particular in describing my Turnip crop and its treatment, with a view of conveying to your readers an idea of my ability to grow them at the rate I have mentioned—10*s.* per ton.

From the foregoing statement, it will be shown that I am opposed to the teaching that live stock are necessary evils, mere manufacturers of manure, and consumers of a large amount of produce without attendant profit. I look upon them and treat them as manufacturers of food for man in milk and beef. I regard the excrement or manure as the best means of resuscitating and nourishing those plants which served as food, and from which this excrement is derived.

From the windows of my dwelling I look upon an extent of rich pastures, which, from time immemorial, have been browsed upon by fattening stock, from each acre of which there will probably have been carried off an increase of fat and flesh of 2 to 2½ cwt. per year. These animals being well grown, the increase of bone will have been nil or trifling, the nitrogen abstracted by the increase of fibrine or flesh will have been restored by the atmosphere, the phosphates and other minerals will have been given back in the dung; the nitrogen applied to the maintenance and replenishment of the waste of the animal will have been safely conveyed to the soil in a torrent of water 100 times its own weight, in the non-volatile form of urea. With this treatment, and probably without ever having received a spoonful of extra manure, these pastures maintain the repute of carrying the same stocks and of preserving their fertility, without (as far as observation goes), any change in the character or properties of their Grasses. In an adjacent meadow, from which the produce is carried to the homestead for soiling and hay, the manure from this produce is conveyed back to replenish the same ground for the production of future plants. If we omit this, impoverishment with decreased produce is the sure result.

It is remarkable that if we apply other manures a change of plants is the consequence. After a dressing of lime, bones, or phosphates, we observe a greater comparative increase of the Clovers and under Grasses, whilst from an application of guano, soot, or other ammoniacal manures, we find an increase of Cocksfoot, Dogstail, Oat, Rye, and other stronger natural Grasses. Even if we add to the Grass and hay cake or other highly nitrogenous food, we observe a like effect in the change of plants. I adduce this as strongly corroborative of the soundness of Liebig's teaching, that the excrements from plants used for food are the best manure for those very plants from which it is derived.

In the vicinity of a large town, and at no great distance, the land is principally held by small dairy farmers, who occupy from 16 to 25 acres, and seldom more than 30. I happen to enjoy such relations with a number of them as enables me to acquire information of their procedure. Their holdings are in permanent Grass, meadow, and pasture. Some of them have recently obtained leave to break up a single field of 2 to 4 acres, which they alternate with Oats and Swede Turnips, half the field being cropped with a white, and half with a green crop. On a farm of 16 acres 3 milch cows are kept in summer on depasture; in winter, on hay with Bean-meal, mixed with chaff or rough seeds, the mess called lick (being moistened with water), and a sparing allowance of roots. The extra food enables them to maintain

the fertility of their land, which they find it their interest to do. Though within two miles of the town, they purchase little town manure, and they scarcely know the use of guano. The rent of their land, which is of fair quality, will average nearly 4*l.* per acre, being in rent alone a charge of nearly 8*l* per cow. Their produce, new milk, fetches 2*d.* per quart. On their small holdings the farmers maintain themselves (observing strict frugality) in decency and comfort. I have the means of knowing that they pay their rents promptly and without murmur; they grumble at the borough rates, which have been recently imposed, the neighbouring town having not long been incorporated. They are so sore about these new borough rates, that if they had the chance I should not be surprised if they would relinquish the right of voting for their council, and perhaps even their member, if at the same time they could relieve themselves of their new burdens.

On the other hand, and at a greater distance from the town, the land is in much larger holdings farmed by tenants, some of whom pay 400*l.*, 600*l.*, and 800*l.* a-year. A considerable proportion of these is in permanent Grass, some with more, others with less under the plough or in tillage, on which they cultivate corn and root crops; the latter are used as adjuncts to feeding. Being more remote from population, they pay little attention to dairy produce; their cattle, of which they maintain large numbers, are chiefly employed in fattening. I am personally acquainted with a number of these tenant farmers; I meet them at fairs and markets. They use great care in selecting, and bargain hard for their stock. Sometimes, after hours of contention, they will insist that the odd shilling to which the difference between the ask and the bid is reduced, shall be split, or otherwise relinquish their bargain. They have the repute of being well to do, of discharging all their obligations, including their rent, though I am not so particularly informed as with respect to the small dairy farms. I am sufficiently so to know that they could not do this without a handsome profit from fattening their cattle. *Y., January*, 1855.

Erratum.—At page 91, column first, the food supplied to milch cows should have been stated as consisting of—

		Per week.
5 lbs. of Rape-cake and 2 lbs. *bran* per day		2*s.* 7½*d.*
½ lb. of Bean-meal, per day		0 3½
Cost per week in extra food		2 11
	Per week.	
12 lbs. meadow hay, at 3*s.* 6*d.* per cwt.	2*s.* 7½*d.*	
10 lbs. Bean and Oat straw and shells of Oats	1 0	
32 lbs. green food, 10*s.* per ton	1 0	
		4 7½
Attendance, 1*s.*; coals, 1½*d.*; cooking, 1½*d.*		1 3
		8 9½

Home Correspondence.

Distribution of Horse Labour.—Under this head a communication appears in your last week's paper, which, in one or two particulars, requires some qualification, if not explanation. I refer to the amount of daily labour supposed to be done by a pair of horses—1st, in carting manure, which is uniformly set down at 50 loads per diem: we must hence infer that each field is at an equal distance from the manure heap, and that a very short one, for if the manure is at all heavy, 50 loads is a large number to fill, to lead, and to empty in a day, far more than I am inclined to think can be generally done. [100 loads can easily be carried half a mile by 4 horses in as many carts—filled by 3 men, led by 3 lads, and emptied by one man.] 2dly, in ploughing: if the land be light, and the depth not much, a man may go over 1¼ acre in a day, with a large slice; but if the soil is at all heavy, and a depth of more than 4 inches wanted, both horses and man must walk a good pace to get over the ground, supposing the furrow slice to be laid evenly so as to present everywhere a new surface to the air, *i. e.*, fairly stirring the whole field. My experience is somewhat limited, but it leads me to the conclusion that 1 acre a day well done is as much as an ordinary pair of horses with average weather, soil, and state of health can reasonably be expected to manage continuously day after day. [Remember that weather is accounted for in the number of days allotted per month.] 3dly, in harrowing: this operation may be supposed to include scuffling, for which the labour of two horses is inadequate, whereas on the other hand, with light harrows, a pair of horses may be expected to go over more than 10 acres a day, and I think the number of times mentioned for harrows being used is not sufficient where the land has any adhesive property about it, or is not wonderfully clean. [Harrowing is not supposed to include scuffling—that is included in the term "cultivating."] *J. W., Peterborough.*

Is Wilkins's Plan for Applying Liquid Manure to the Roots of Plants a Novelty?—Having observed a letter by Sir J. T. Tyrrell, Boreham House, in your Paper of the 3d inst., in respect to my mode of applying liquid manure to the roots of plants, and assuming that a plan introduced by the late Mr. Wix, in the neighbourhood of Chelmsford, for the growth of Celery 10 years ago, is identical with my system, and therefore, on such assumption, concluding that my plan is not novel; allow me to tell your correspondent, that from his description of Mr. Wix's plan and his own practice, there is no likeness whatever between my system of applying liquid manure and air to the roots of plants, &c., and the mode which he advocates—which must be quite apparent to every one who has visited my experimental garden at Reading, or heard me describe it. So that Sir J. Tyrell need not be under any apprehension that a toll is to be levied on his neighbours for continuing their old practice. I feel obliged to your correspondent for his evidence in behalf of the practical results of my system, by his saying that "I have no doubt of the truth of all the circumstances stated by Mr. Wilkins," and I beg to assure him that if he will attend my next lecture on the evening of the 16th inst, at the City of London Tavern, I will undertake to satisfy him or any of his friends that my plan is not that of Mr. Wix's or any one else; that the objections which he urges about the Mangold Wurzel sending their roots far for food and choking up the pipes are not applicable to my system, and therefore can be no objection. *Edward Wilkins, Walworth, London, Feb. 7.* [We have received the following from Sir J. Tyrell, since the publication of his former letter:—In my letter of last week, written in haste, I omitted to say that the patent plan of growing plants and corn in a pan appears to me liable to this objection:—that there is no contrivance for the escape of over moisture by rain in a wet season. All the money hitherto expended in draining land would thus be thrown away. *Boreham House.*]

Underground Manuring.—I am very glad to see Sir John Tyrell has protested against Mr. Wilkins's plan being a new one. I beg to say so far back as 1840 Mr. King, the then landlord of the Plough, in Chelmsford, adopted the plan by putting two rows of tiles under each row of Celery, and conducting the liquid manure from the yard into them, by which means, if I mistake not, he took the first prize for Celery in 1841. Therefore I trust Mr. Wilkins will not put a tax upon us for following the plan which has been working well for 15 years. *Thos. Cope, Llangedrum Hall, Feb. 7.*

Effects on the Turnip Crop of various kinds of Manure.—In the extract from Mr. Hunt's paper on this subject, (read to the Wakefield Farmers' Club), given in last week's *Agricultural Gazette*, there is no mention of the kind of the Turnips grown—the kind of soil on which they were grown—or the weight of the different crops per acre. This, I think, is an omission to be regretted; for without such information, especially the weight of the Turnips grown, the results of the experiments, though so far useful and interesting, are but vague and indefinite. If you think the subject worth further notice in the columns of the *Gazette*, perhaps you will allow me to ask the writer of the paper to give you, if he can, this desirable (as I think) information. The price per ton paid for the guano might be stated at the same time. *T. B. R., Liverpool, Feb. 7*, 1855. [Perhaps Mr. Hunt will be kind enough to supply the missing information.]

Beans v. Roots.—Will you or any of your correspondents kindly enlighten us on the comparative value in feeding of a crop of Beans, 40 bushels per acre, and a crop of Swedes, 20 tons ditto. A tenant of mine tells me that the Beans will produce the most beef and mutton; if this be so, we are wrong, on heavy lands, in growing roots, as the Bean crop is considered much cheaper in cultivation. I have left off for some years growing Beans, as I found them so often blighted, or stunted, through drought. I always grew them on the Scotch system, 27 inches apart, using the horse hoe between. *Anti Faba.* [We believe that 20 tons of Swedes will make more beef than 40 bushels of Beans; but it is easier to grow the latter than the former on an acre of clay land. It is impossible to compare them directly in their feeding powers, because each requires other food to be given with it, and the supplementary food in the two cases would be different.]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Weekly Council, *Feb.* 15.—Mr. Fisher Hobbs in the Chair.

Veterinary College.—The Annual Report made by the Governors of the Royal Veterinary College to the Council, was read. The following portions are selected on account of their general interest:—

1. Pleuro-pneumonia.—Although the cattle throughout the country suffered in this as in previous years from the epizootic affection, pleuro-pneumonia, still the losses have been by no means so great as on former occasions. The nature of this disease, when it becomes fully established in the system, is such that it will ever render ineffective the best curative measures which science can devise, but, notwithstanding this, there are many reasons for believing that preventive means may be had recourse to with decided benefit. From investigations made by their Professor, during the past year, the Governors have no reason to alter the opinion expressed in a former report, that the inoculation of cattle will prove either a safe or an effectual preventive of pleuro-pneumonia. This system of inoculation is not based upon any known principle of medical science which regulates the *artificial* production of a disease to give immunity to an animal against a *natural* attack of the same malady. The Governors are induced to make these remarks from observing that attempts are again being made to introduce the system of inoculation, under the plea that it has proved highly advantageous in numerous instances on the Continent, and therefore it continues to be practised in France, Belgium, and Germany. With regard to the true principles of preventing the extension of pleuro-pneumonia, it cannot be doubted that these will be found in removing the diseased animals from the healthy, in altering the system of management and feeding which was in use when the malady first appeared, and in exhibiting to the animals which had been exposed to the contagion mild aperient, diuretic and diaphoretic medicine, in succession, to rouse the emunctories of the body, and following up these remedies by tonic and stimulating agents to invigorate the vital forces. This plan has been adopted in numerous instances with the best results, many animals being thereby saved which otherwise would have been sacrificed to the disease.

2. Disease in Lambs.—On the subject of epizootics the Governors have to remark that in the spring of last year a malignant form of aptha appeared in several districts among the lambs and destroyed very many of these animals. From this affection having been observed in a comparatively mild form the year before, in a few isolated cases only, and from its great prevalence as well as malignancy in 1854, it is to be feared that it may take on the character of an epizootic and thus add another to the list of these diseases which have been so destructive of late to our cattle and sheep. Numerous letters have been received from the members of the Society detailing the progress of this disease, and the great losses which they had sustained thereby. Professor Simonds has also personally investigated the causes which appear to favour the production of the malady; but much still remains to be done, as in consequence of the disease having shown itself under the most opposite circumstances of breed, age, vicissitudes of weather, locality, plan of management, &c., the evidence obtained is most conflicting. The Governors, have, however, every reason to believe that the mystery which envelopes the secondary causes of this affection will vanish before a rigid and scientific research. In the meantime they have much pleasure in stating that the recommendations of their Professor with regard to the treatment of the animals, and which were necessarily varied in many cases from the differences in the predisposing causes, have been attended with a satisfactory result.

3. Poisonous Oilcake.—Attention has recently been called to the injury done to the feeders of cattle by the manufactory of an impure oil-cake by which the lives of their cattle were often placed in jeopardy. This important matter, it will be remembered, was brought before the Council in consequence of some cows having been poisoned in the county of Yorkshire from being fed with cake made from Mustard seed, and sold as a cheap feeding material, as well as an energetic manure when applied to the land. The publicity given to the subject excited the most lively interest, and there is every reason to believe that the pernicious practice has received a well-timed check.

4. Dentition of Ox, Sheep, and Pigs.—The Governors would next call attention to the labours of their Professor, as Veterinary Inspector to the Society, in investigating the progress of dentition of the ox, sheep, and pig, with a view to a correct understanding of the ages of these animals as shown by their teeth. The facts arrived at from a careful examination of the animals exhibited at the Windsor, Lewes, and Gloucester meetings, were brought before the Society in two lectures delivered by the Professor in May last. So highly were these lectures appreciated, that the Council at its first meeting in June unanimously resolved, on the motion of Mr. Fisher Hobbs, "that on account of the immediate practical importance of the two lectures recently delivered before the Society by Professor Simonds on the age of animals as shown by their teeth, these lectures be at once prepared for publication in the second part of the Journal for this year; but as that number will not be due till the 1st of January next, that Professor Simonds be allowed to print off from the type and woodcuts as many copies as he may require for the purpose of publishing the lectures in the form of a pamphlet, at a cheap rate, in time for purchase by the public at the Lincoln meeting." In accordance with this resolution the matter was prepared for the press, and was in the hands of the members by the time appointed. The Governors have the pleasure of adding that, although the sale of the work has as yet been limited, owing to the fact of the matter it contains being about to appear in the forthcoming number of the journal, still it has been spoken in of high terms of commendation by those who have made themselves acquainted with its details. The facts arrived at with regard to the age of the pig, in particular, have already been of essential service, not only to the Royal Agricultural Society at its meeting at Lincoln, where many animals were detected as being much above the certified age, but also at the recent shows of the Smithfield Cattle Club, and the Birmingham Cattle Society. The reprehensible practice of sending animals of improper age, and which there are too many reasons to believe has prevailed to a great extent, with a view to carry off the prizes, has thus received a salutary check.

5. College Privileges and Promotion of Veterinary Science.—The consultations by letter on the diseases of cattle and sheep have been fully as numerous as in former years, and the recommendations for the treatment of the several cases have been duly appreciated by the members seeking the advice. With reference to the admission of cattle, sheep, and pigs into the College Infirmary when the subjects of disease, the Governors would be much gratified to find that the members of the Society availed themselves of their privileges to a far greater extent than at present. They cannot but think that the small number of animals sent from the country, arises from the supposition that the charge for their treatment is more than the proprietor feels justified in incurring. This impression the Governors believe will be at once removed when they state that the sum fixed upon for the keep, medical treatment, operations of every kind, and all other necessary things, is but 1*s.* 6*d.* a day for a bullock, and that sheep and pigs are charged for at a proportionate sum, which is fixed by the principal according to circumstances." The average number, however, of diseased cattle has been admitted into the infirmary during the year, but the Governors not finding among them any remarkable cases calling for especial description, have thought it unnecessary to add to the length of this report by a detail of particulars. They would, however, remark that these cases have afforded their Professor the opportunity of giving clinical instructions to the Class and of demonstrating several of the operations necessary to the success of the practice of Cattle Medicine. During the session the Lectures have been regularly delivered as heretofore, and the attendance of the pupils has been most satisfactory. The class has also been more numerous than in former years, and the progress of the pupils in their studies, as shown by the examinations to which they have been subjected from time to time, has been such as to merit the approbation of the Professors in general.

The Council having received at their last December meeting a communication from the French Government, requesting the aid of the Society in investigating the nature of a disease which had made its appearance in Turkey among the cattle intended for the Crimea—the Council at once instructed Prof. Simonds, as the Veterinary-Inspector of the Society, to place himself in immediate communication with M. Herbert, the Consul-General of France in London, and to furnish him with every information he possessed that might aid the French Government in their inquiry. The Report of the Governors of the Veterinary College contains the following reference to that circumstance:—

6. Contagious Typhus.—As a preliminary step, and with the sanction of the Consul-General, Prof. Simonds has prepared a list of questions to be forwarded to the several veterinary surgeons now with their regiments in the Crimea. These questions are annexed to this report, and the Governors trust that the Society will agree with them in the opinion that on answers being obtained such an amount of information will be possessed on this subject as cannot fail, when acted upon, to be of essential service in effecting the desired object. It is likewise to be remembered that the history of these epizootic affections shows that when once they have taken root in any of the countries of Europe, they have spread with greater or lesser rapidity over the whole Continent, destroying the cattle by thousands in their course. It is this circumstance, added to the fact of the existence of the disease in Turkey, which has created so much solicitude on the part of the French Government, and the Governors cannot but feel equally anxious in the matter, seeing that if the cattle in France or Germany should become affected, our own would ere long fall victims to the direful pest, from the free importations of animals which now exists.

The report is concluded with the following—

7. General Observation.—The Governors thus hope that,

without their calling attention to every circumstance which has transpired since their last report, they have said sufficient to show to the Society that they have endeavoured to promote the advancement of veterinary science in its application to those animals which constitute so essential a portion of the wealth of the agriculturists. These efforts they believe only require to be continued to accomplish all which the most sanguine minds could wish to arise from the firm union which now exists between the Royal Agricultural Society of England and the Royal Veterinary College.

On the motion of Mr. Brandreth Gibbs, the Council accepted this report with their best acknowledgments to the Royal Veterinary College, and their high sense of the value of Prof. Simonds' zealous exertions to carry out the objects of the Society in the application of veterinary science to the diseases of domesticated animals.—The Chairman considered Prof. Simond's work on the Dentition of Animals a valuable hand-book which ought to be in the possession of every farmer.—Prof. Simonds, in acknowledging the vote of thanks to the college, and the compliment paid to himself, expressed his regret that the members of the Society did not avail themselves to a greater extent of the privilege they possessed of sending diseased animals to the college. Such supply of living and dead animals would lead to investigations of the highest importance connected with the nature of the diseases affecting the live stock of the farmer, and perfect the pupils about to be sent out into different parts of the country in that branch of their instruction.

Miscellaneous Communications.—Mr. MacOwen on the Lung Disorder among Cattle.—Mr. Beddoes on the Nature of Fibres stopping Drain Pipes.—Mr. Graburn on the Value of Cock's-foot Grass.—Mr. Johnson, of New York, on President Jefferson's Communication to the Board of Agriculture on Mould-board.—Messrs. Dawe and Co., on Specimens of Wheat.—Mr. French on Employment of Guano and Super-phosphate.—Mr. Miallemiss on the low State of Agricultural Practice in South Australia, and the Formation of an Agricultural Society at Geelong.—M. Van Langenhove on Quincunx System of Cultivation.—Mr. Burcham on Circular System of Cultivation.—Mr. Cogan's Supply of Specimens of the original German Milk-pans from Mecklenburg.—Mr. Chandos Wren Hoskyns presented copies of his works, "Talpa, or Chronicles of a Clay Farm," and a "Short Inquiry into the History of Agriculture," for which the Council ordered their best thanks.—Mr. Caird expressed his opinion of the importance of the investigations and the course of progress by the Foreign Office in reference to the discovery of supplies of Guano and the nitrates. He remarked, that the bar-harbour of Tampico, as alluded to by the British Consul (in his despatch published in the Society's last journal) as unfit for the export of nitrates, was more so than that of Riga, Revel, and Archangel, which are also bar-harbours to an equal extent.

The Council adjourned to Feb. 21.

Highland, *February 7.—The Plough and its uses.*—Professor Wilson delivered an address on this subject at a meeting of the Highland Society this day, under the presidency of Professor Low, his predecessor in the chair of agriculture, Edinburgh University. His preliminary remarks related to the object of agriculture, stated, from a scientific point of view, as "the conversion of mineral into organised matter through the agency of plants." The history of the plough as the principal tool employed in this manufacture was given in great detail: and the maxims of Greek and Latin agricultural writers were quoted in illustration of those truths regarding its efficiency and uses, which, as they are independent of time, are as applicable now as when first penned. The English history of the implement was taken from Fitzherbert, Googe, Blythe, Markham, Tull, and latterly from Sir J. Sinclair. The present improved construction of the implement was described. And, in conclusion, the possibility of attaining the result, namely, *tilth*, in other ways than by the plough was discussed. "The plough does not cultivate; other implements are required—the roller, the harrows, the scarifier, to complete the work, which, after all, is not so well done as by one operation of the spade. What we want is, not ploughing, so much as cultivation, that process which the farmer by necessity performs in three, four, or five acts, not nearly so effectually as the gardener accomplishes in one." Professor Wilson concluded by a reference to the possibilities and probabilities arising out of the present state of the problem—how to cultivate by steam.

Notices to Correspondents.

Books: *Agricola.* "The Agriculturist's Calculator," by Blackie & Son, Glasgow, beyond a doubt.

Manures: *X.* Apply all manures of difficult solubility as early as possible in the spring, and of every solubility just before the plant needs them. That is the general rule. The instances are—bones—guano—nitrates—in February, March, and April, respectively on Grass land or young grain crop.

Potatoes: *S F.* The drills are thrown up as high as possible with a two-horse plough, then reduced by a double turn of the light harrows along drills, the sets dropped into the furrows, and the drills thrown up over them as before. Of hoeing, the aim and end is, a clean and loose soil, which can generally be attained by two hand-hoeings and two applications of the drill-harrow, followed of course by a final earthing up. If the spade is employed, the sets are dibbled in 6 inches deep, and the spaces between the rows kept loose and clean by forking. *S., Forfarshire.*

The Llama: *V Fontanier.* It is or was in the possession of Capt. Stirling, of Craigbarnet Place, Lennoxtown, near Glasgow; of Mr. Robert Bell, Listowell, co. Kerry, Ireland; of Mr. Bennett, Farringdon House, Berks; Mr. Thomas Stevenson, Oban, Argyleshire; Mr. Edwards, Pyenest, Halifax; and especially the Earl of Derby, at Knowsley, Lancashire. The late Earl of Derby was the largest owner of Alpacas in this country.

AMERICAN PLANTS.

JOHN WATERER begs to announce that he has published a new Catalogue of his Rhododendrons, &c., as exhibited by him in the Gardens of the Royal Botanic Society, Regent's Park, London. It describes the colours of all the Rhododendrons considered worthy of cultivation, with a Treatise on their successful management, and may be had by enclosing two postage stamps.

The American Nursery, Bagshot, Surrey, near Farnborough Station, South-Western Railway.

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G. B. begs to call attention to his fine stock of Weeping Hollies, Coniferous Plants, Ornamental Shrubs, &c.—American Nursery, Windlesham, near Bagshot, Surrey, near Staines Station, South-Western Railway, where conveyances may be obtained.

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The AUTUMN CATALOGUE contains lists of New and Select Stove and Greenhouse Plants, Geraniums, Cinerarias, Azaleas, Hollyhocks, Hardy Climbing Plants, Coniferæ, and other Select Trees and Shrubs, Roses, Herbaceous Plants, Fruits, &c.

Both Catalogues embrace a large amount of descriptive and useful information for the convenience of purchasers. Supplied free by post for three penny stamps each, or gratis to our customers who may not have received them.

GOODS (not under 20*s.*) CARRIAGE FREE to all the Stations in London, and all Stations on the Colchester Line, between London and Norwich.

The large number of letters of satisfaction and approval from persons receiving articles both of Seeds and Plants from our Establishment, and the annual increase of patronage of which we are every year in possession, is a certain proof that our care in providing the best of everything is appreciated by the public, to whom we desire to tender our best thanks.

BASS & BROWN'S ASSORTED COLLECTIONS OF VEGETABLE SEEDS

Contain everything which may be desired for superiority of sorts. The sorts and quantities of the collections are specified in the Catalogue. For any sorts not wished for, enlarged quantities of others sent to make up the amount.

No. 1. COLLECTION for a large garden, containing quantities sufficient for one year's supply	£3 0 0
No. 2. COLLECTION in smaller proportion	2 0 0
No. 3. COLLECTION ditto	1 5 0
No. 4. COLLECTION of choice kinds for a small garden	0 15 0

FLOWER SEEDS—BEST ASSORTMENTS.

These may be had pre-paid *by post at the prices affixed, with printed instructions for sowing and raising Seeds.*

100 varieties select showy Annuals, which will include the beautiful new Leptosiphons aureum and luteum, Escholtzia tenuifolia, Whitlavia grandiflora, and other choice novelties of the season, also splendid prize Asters, Stocks, Zinnia, &c.	15*s.* 0*d.*
50 varieties, including new, 8*s.* 6*d.*; 30 varieties do., 5*s.* 6*d.*; 20 varieties do.	4 0
20 varieties choice Greenhouse Annuals, including the new Gromphrena aurantiaca, Salpiglossis atrosanguinea, the new Portulaccas, Rhodanthe, Thunbergia, Phlox Drummondi, 7*s.* 6*d.*; 12 varieties do.	5 0
20 varieties best Dwarf Annuals, in large packets, for filling beds on lawns	7*s.* 6*d.*
12 varieties ditto ditto	5 0
20 varieties choice Greenhouse Perennials, including very fine and new Calceolaria, Cineraria, Fuchsia, Petunia, Verbena, Chorozema, Kennedias, Calendrinia umbellata, &c., 10*s.* 6*d.*; 12 varieties do. ...	7 6
20 varieties Hardy Biennials and Perennials, including very choice Antirrhinum, Gladioli, Heartsease, Mimulus, Polyanthus, Dianthus, Brompton, and Emperor Stock, &c., 7*s.* 6*d.*; 12 varieties do. ...	5 0

A FEW NEW AND CHOICE FLOWER SEEDS.

Any of the following not priced are 6d. per packet. Those marked thus (*) have been omitted in the Catalogue.

GREENHOUSE PERENNIALS. *s. d.*
Acacia, 3 varieties, each ... 0 6
Calceolaria, very choice ... 1 0
„ extra, from new ... 2 6
Calendrinia umbellata.
*Chorozema cordata ... 1 0
Cineraria, choice 1 0
„ extra, from new vars. of our superb collection 2 6
Cobæa scandens.
Coffræa Arabica (Arabian Coffee).
Erythrina crista galli ... 1 0
Geranium, choice 1 0
„ extra, from new vars.
„ of our superb collection 2 6
„ finest fancy varieties ... 1 6
Gloxinia, extra, from our superior collection of new and choice... ... ... 2 6
Heliotropium, choice.
Primula sinensis.
„ do. fimbriata ... 1 0
„ do. do. alba ... 1 0
„ denticulata ... 1 0
Tropæolum, 3 choice, 6*d.* to 1 0
Verbena, choice 1 0
„ extra new, of our superb collection 2 6

HARDY PERENNIALS.
Abronia umbellata.
Alstræmeria pulchella.
Antirrhinum, extra, from our superb collection ... 1 0
Aquilegia formosa.
„ glandulosa (true).
Carnation and Piccotee, extra, from collection of 400 varieties 2 6
Dactylis variegata, fine variegated new striped leaved Grass.

HARDY PERENNIALS. *s. d.*
Dianthus Dunnetti, very superb dark new Sweet William 1 0
* „ Burridgi, splendid new scarlet Sweet William 1 0
* „ maculata, very showy, red and white spotted.
Gladiolus, from choice named early varieties of our superb collection ... 1 0
Hollyhock, choice 1 0
* „ extra, from our fine collection 2 6
Iris anglica, from best vars. of our very choice collection 2 6
Lindheimara texana, new 1 0
Pansy, extra, from best collections 1 0
Potentilla, extra, selected from our finest named vars. 2 6
Ranunculus, from very choice of our superb collection 2 6
*Wallflower, beautiful, saved from imported vars.

GREENHOUSE ANNUALS.
Balsam, saved from choice imported varieties.
Gomphrena aurantiaca ... 1 0
Ipomœa quamoclit, new white.
„ rubra cærulea ... 1 0
Mesembrianthum tri. alba.
Phlox Leopoldi hybrid.
„ alba occulata.
Portulacca, six superior new varieties, each 0 6
„ fine mixed.
Rhodanthe Manglesi.
Salpiglossus atrosanguinea.
„ new yellow.
Schizanthus retusus albus.
„ Grahami carnea.

GREENHOUSE ANNUALS. *s. d.*
Thunbergia, six superior vars., each 0 6
„ mixed varieties.

HALF-HARDY ANNUALS.
Aster, Bishop's Prize, superb varieties.
Calceolaria chelidonioides, beautiful yellow.
* „ new Californian sp.
Grammanthes gentianoides.
„ gent. lutea.
Lobelia ramosus alba, major and roseus, each ... 0 6
Nomesia bicolor, new, beautiful, and very attractive 0 4
Perilla Nankinensis, new, very fine for bedding out, dark purple variety.
Pink, Imperial Indian, ex. 0 4
Podolepis rugata, new, large, bright yellow, fine.

HARDY ANNUALS.
Clary, white top, fine, new, and showy.

HARDY ANNUALS. *s. d.*
Eschscholtzia tenuifolia, new, delicate clean straw; very dwarf, neat, and attractive. A Certificate awarded at Chiswick ... 1 6
Gilia, Californian sp., habit of Capitata, flowers twice as large.
Iberis violacea superba, ex. deep purple 0
Leptosiphon aureum, very beautiful new bright golden, a Californian sp. Medal awarded at Chiswick 1 6
„ luteum, beautiful.
Limnanthes sulphurea odorata, new, yellow, edged with white and rose-col. stamens, very fragrant ... 1 0
Linum grandifl. rubrum ... 1 0
Lupinus Hartweggia rosea.
„ monogynia, fine light and deep purple.

CHOICE IMPORTED SEEDS.

	s.	d.
30 Superb varieties Dwarf German Stocks, 5*s.*; 15 varieties	3	0
Choice new Sulphur, pale yellow	1	0
Fine new white Hybrid	1	0
10 Superb varieties, new, large flowering	2	6
New large flowering Chamois, very fine	0	6
18 Superb varieties, new wall-leaved, or Prussian	3	6
15 Superb varieties, Brompton Stocks, 3*s.* 6*d.*; 8 varieties	1	6
6 Superb varieties, Perpetual Emperor Stocks, lasting more than four years, and flowering three or four times a year	2	0
4 Superb varieties, new large flowering Emperor	2	0
24 Splendid vars. quilled and striped Aster, 5*s.*; 12 vars. ...	3	0
12 „ Globe flowering Aster	2	6
12 „ Pyramidal Aster	2	0
10 „ Bouquet double dwarf	3	0
8 „ French Pæony, flowering, very fine	4	0

Also choice imported Balsam, Cockscomb, Larkspur, Indian Pink, Salpiglossus, Sweet William, Wallflower, and Zinnia.—See Catalogue.

The finest Lawn Grasses for Flower Gardens, 1*s.* per lb., or 4*s.* 6*d.* per peck.

ROOTS FOR EARLY SPRING PLANTING.

ANEMONES.

	s.	d.
50 vars. named, beautiful and distinct	12	6
Finest mixed double (1*s.* 6*d.* per doz.) per 100	10	0
Very fine ditto (1*s.* per doz.)	6	0
Double Scarlet vars. (1*s.* 9*d.* per doz.)	12	0
Beautiful mixed semi-double Russian, very showy, and flowering early... ... ... per lb....	6	0
Fine new Single	4	0
Nine beautiful Double vars. for clumping, 12 roots of each	20	0
Six roots of each	10	6

RANUNCULUSES.

	s.	d.
100 roots in 100 vars., very superb	45	0
100 „ 100 „ very fine	20	0
Extra choice, mixed from best named, per doz. 2*s.* 0*d.* per 100,	15	0
Very fine mixed ... ... „ 1 6 „	10	0
Fine border mixed ... ... „ 0 9 „	5	0

RANUNCULUSES.

					s.	d.
Early Scarlet Turban... ...	per doz.	0	6	per 100	3	0
„ New Orange ditto	„	1	6	„	10	0
„ Golden Turban...	„	0	8	„	4	0
„ Seraphique, clear yellow ...	„	0	8	„	4	0
„ Hercules, white	„	2	6	„	18	0
Oeil Noir, best black (1*s.* 6*d.* each)...	„	15	0			

IRIS GERMANICA.

	s.	d.
40 Vars., very superb and beautiful of the richest colours	45	0
20 Vars., ditto ditto, best selection	35	0
20 Vars., ditto, very fine...	15	0
Best Mixed, 5*s.* per doz.; per 100	30	0
Fine Mixed, 3*s.* per doz.; per 100	18	0

A choice stock of Gladiolus lilium lancifolium, Tritonea aurea, Tigridius, Oxalis, Achimenes, Gloxinias, and a large number of other roots for spring planting, for which see Spring Catalogue.

Remittances required from unknown correspondents. Post-office Orders payable to Bass & Brown, or Stephen Brown. Stamps received for small amounts.

BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growth, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and renewed orders from those who have tried the benefit of carefully saved seed; and as we have our Seeds Examined Free, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

DAWE, COTTRELL, AND BENHAM, beg to inform their friends and patrons that their Descriptive Retail LIST of FLOWER, GARDEN, and AGRICULTURAL SEEDS is now ready, and may be obtained, post free, on application.

D., C., & B. also beg to offer the following CHOICE ROOTS at very low prices.

Anemones, single purple, very fine ...	per dozen	...	3s.
" " scarlet, " ...	"	...	2s.
" " mixed, " ...	per lb.	...	3s.
Gladiolus Brenchleyensis, large ...	per dozen	...	2s.
" Grandiflorus, very fine ...	"	...	5s.
and many other choice varieties.			
Iris Germanica, splendid var., mixed,	per dozen	...	4s.
Ranunculus, mixed, double, very fine,	per 100	...	5s.
Tuberoses, fine double, Italian ...	per dozen	...	3s.

38, Moorgate Street; and 304, Lawrence Pountney Lane, Cannon Street, London.—Established at 28, Cornhill, 1720.

CAREY TYSO'S CATALOGUE OF FLORISTS' FLOWERS for 1855 may be had post free for two labels; TREATISE on RANUNCULUS for eight labels; ditto on ANEMONE for four labels.

RANUNCULUSES, 100 splendid named sorts, 40s. to £4	0	0	
" 25 superb seedling ditto ...	1	10	0
" 100 fine mixtures ... from 8s. to	1	0	0
DOUBLE ANEMONES, 50 fine named sorts, 10s. to	0	13	0

IMPORTED GERMAN SEEDS.—Asters, Balsams, Stocks, Larkspurs, Poppies, Zinnias, &c., in named assortments, 2s. 6d. each. Ranunculus and Anemone Seeds, 2s. 6d. per packet.

C. Tyso's sovereign assortments of 18 select Ranunculus, and 18 choice Anemones, postage free for 21s.—Wallingford, Berks.

AMERICAN PLANTS.—A Descriptive Priced CATALOGUE of HARDY AMERICAN PLANTS for the coming season is just published, and may be had by enclosing two stamps for postage. As everything in the way of American Plants is grown to an unequalled extent at this Nursery, intending purchasers would do well to provide themselves with this Catalogue.

WATERER AND GODFREY, Nephews and Successors to the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey.

W. DRUMMOND AND SONS' NEW DESCRIPTIVE CATALOGUE, containing select varieties only, of VEGETABLE and FLOWER SEEDS is now ready, and may be had post free on receipt of one postage stamp. This Catalogue will, at a glance, furnish the Gardener with all the necessary material for drawing out his Seed List correctly and without trouble. In reference to it the *Gardeners' Chronicle* remarks:—

"It is simple, short, and one of the best we have seen. They are pursuing the sensible course we have so often insisted upon for the sake of both buyer and seller;" and this opinion has been cordially responded to by all our old and many new customers.

W. Drummond & Sons' Seed and Implement Warehouse, Stirling.

NEW CINERARIAS.

C. H. GARDINER, of Fant Nursery, Maidstone, will commence sending out plants on the 1st of March next of the following first-class flowers, raised by Mr. Frost, gardener to E. L. Betts, Esq., of Preston Hall, and pronounced by competent judges to be equal if not superior to any in cultivation.

LADY JULIA CORNWALLIS—White, with great depth and width of petal, finely margined with porcelain blue, light blue disc, fine shape, extra size; first-class flower. 10s. 6d.

MISS BANNERMAN—Clear white, with well defined margin of rosy crimson, dark disc, large fine-shaped petals; habit good; one of the best. 10s. 6d.

MRS. R. RICKETTS—White ground colour, with broad margin of rich plum; good form and habit. 10s. 6d.

SIR W. MIDDLETON—Deep purple, with distinct ring of crimson round the disc; large fine-shaped petals of extra size and good habit; first-class flower. 10s. 6d.

MATILDA—White, with purple lilac edge; light disc; good shape and habit. 5s.

FORGET-ME-NOT—Fine shaped petals; colour crimson purple; good habit and fine form. 7s. 6d. If the set of six be taken, the price 2l. 10s.

IMPORTANT TO ALL PLANTERS WHO DESIRE IMMEDIATE EFFECT.

WM. JACKSON AND CO., Bedale, Yorkshire, will supply the following choice stock, of good quality, at the annexed low prices:—

	s.	d.
*12 Abies Menziesi, 2 to 3 feet		
12 " Morinda, 4 feet, fine specimens	20	0
*12 " Douglasi, 3 to 4 feet, do., from seed	20	0
*12 Pinus cembra, 4 feet, fine specimens, do.	70	0
*12 " excelsa, 2 to 3 feet, do. do.	35	0
*12 Cedrus Deodara, 2 to 3 feet, do. do.	20	0
*12 " " 3 to 4 feet, large, do. do	30	0
*12 Cedar of Lebanon, 2 to 3 feet, fine specimens, from seed	60	0
12 Best hardy Azaleas, with large and rich flowers, perfect shrubs, on their own roots, 2 feet high ...	18	0
*12 Hardy hybrid Rhododendrons, 1½ to 2 feet and 2 to 3 feet, perfect shrubs, on their own roots	18	0
*12 Rhododendron dauricum atrovirens, with flower-buds, 3 to 4 feet	6	0
*12 Handsome hardy Rhododendrons, 2 to 3 feet, scarlet, purple, white, and crimson, and all shades of colours, selected from above 100 kinds	18	0
12 Standard Berberis dulcis, with fine heads	20	0
*100 Evergreen and Flowering Shrubs, two of a sort ...	30	0
*100 Good showy Herbaceous Plants, two of a sort ...	30	0
100 " " Hollyhocks, 10s., and	20	0
*100 Portugal Laurels, 1½ to 2 feet	15	0
*100 Limes for avenues, 4 feet, 10s.; 6 to 8 feet	25	0
100 English Elms, well grown, 5 to 6 feet, 15s.; 6 to 8 ft.	30	0
*1000 Evergreen Privets, Myrtle-leaved, for fancy hedges, 25s. and	20	0
1000 " " strong, 3 feet, for field fences and coverts	30	0
*1000 Hollies, 1 to 1½ feet, very bushy	25	0
1000 Common Laurels, 1½ to 2 feet, 60s.; 2 to 3 feet ...	40	0
	80	0

* These have been several times transplanted, to ensure good roots.

FRUIT TREES.—Per dozen.

Apples, most approved kinds, good strong standards					...	6	0
Do.	do.	do.	do.	dwarfs ..	...	4	0
Pears	do.	do.	do.	standards	...	9	0
Do.	do.	do.	do.	dwarfs	..	6	0
Plums	do.	do.	do.	standards	...	9	0
Do.	do.	do.	do.	dwarfs...	...	6	0
Cherries, good strong standards					...	12	0
Apricots, Peaches, and Nectarines, trained, 42s. to					...	48	0

A reference or remittance is respectfully solicited from unknown correspondents.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY respectfully invite attention to their stock of the following very desirable HARDY PLANTS.

Araucaria imbricata, from 2 to 7 feet high; as handsome as plants can be.
Cedrus Deodara, in any quantity, from 1 to 3 feet high
Do. do., 4, 5, 6, 7, 8, and 10 feet high; splendid plants
Cedars of Lebanon, 3, 4, 6, and 10 feet high
Pinus Douglasi, 3 to 10 feet
" insignis, 2 to 7 feet
" Menziesi, 3 to 7 feet
" Pinsapo, fine plants, 3 to 6 feet
" Nordmanniana, 1½ to 3 ft., all from seed and remarkably handsome
" nobilis, 1½ to 2 feet; a few larger, 5 and 6 feet high, on their own roots, and with perfect leaders
" Montezumæ, 2 to 4 feet
Pinus canadensis, 3 to 8 feet
Cupressus macrocarpa or Lambertiana, 4 to 7 feet
" thyoides variegata, 3 to 4 feet (the variegated white Cedar)
Juniperus, Upright Irish, perfect columns, 3 to 7 feet
" chinensis, 2 to 8 feet
Yew, common English, 3 to 8 feet
" Irish, 4 to 10 feet
" gold-striped, 1½ to 3 feet
" do., tall standards, 4 to 7 ft.
" Dovaston, or Weeping, worked on tall straight stems
Thuja aurea, the finest plants in the country
Libocedrus chilensis, the finest plants in the country
Large variegated Hollies
" Standard Bays

Also an immense stock of large Evergreens, Standard Ornamental Trees, &c.

All the plants here offered may be seen growing in our Nursery; they are removed every year, and will travel any distance with perfect safety. Of some, such as Araucarias, Deodaras, Golden Yews, Thuja aurea, Pinus nobilis, Nordmanniana, we have any quantity; and the plants, for root and branch, are not to be surpassed. Priced Catalogues will be forwarded on application, enclosing two postage stamps, to WATERER and GODFREY, nephews and successors of the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey, near the Woking Station, South-Western Railway, where all trains stop, and where capital conveyances can be obtained.

The 2d. stamp will also include a descriptive Catalogue of their American Plants, Roses, and Nursery Stock in general.

MESSRS. E. G. HENDERSON AND SON, of the Wellington Road Nursery, St. John's Wood, London, beg to inform their Patrons and the Public that their NEW CATALOGUE OF SEEDS for 1855 is now ready, and will be forwarded post free on application.

E. G. H. & Son take this opportunity of stating that none but the most popular and improved kinds of Vegetable Seeds appear in their list; and among the Flower Seeds only those whose beauty and merit are universally acknowledged, together with a carefully selected stock of the principal new varieties.

E. G. H. & Son beg respectfully to call particular attention to the following choice seeds of Florists' Flowers, which have been saved from a fine collection of named plants, and also to the annexed New and Choice Flowers, which they can confidently recommend, and in their Catalogue will be found the names of 20 beautiful ornamental Grasses. Also 12 variegated and ornamental foliage plants, for decorating the flower garden during the summer months, with full descriptions and other information respecting the following

CHOICE FLORIST FLOWERS.

Per packet—	s.	d.
Antirrhinum, extra fine mixed	0	6
Auricula, fine mixed ...	1	6
Balsam, double Camellia flowered, in packets of 6 distinct colours separate	3	0
" double Rose flowered in packets of 6 distinct colours separate ...	3	0
" new double Camellia Rose, in packets of 10 distinct colours separate, extra fine ...	5	0
" Aurora, fine dbl. cr	1	0
" new dbl. pale yellow	1	0
Carnation, from stage flowers...	1	6
Calceolaria, from choice hybridized flowers 2s. 6d. and	5	0
Cineraria, from choicest varieties ... 1s. 6d. and	2	6
Chrysanthemum, Pompone, fine mixed	1	0
" large flowered, fine mixed	1	0
Geranium, choice show ...	2	6
" choice fancy ...	2	6
Hollyhock, first quality ...	2	6
" second quality	1	0
" in 12 distinct colours, each colour ...	0	6
Pansy, choice show, from named flowers ...	1	6
" choice fancy, from beautiful striped and spotted flowers ...	1	6
Petunia, from extra fine named varieties ...	1	0
" saved from crimson flowers with green edges	1	0
Verbena, choice mixed ...	1	0
Mimulus, beautifully blotched	0	6

NEW AND OTHER CHOICE FLOWERS.

Per packet—	s.	d.
Abronia umbellata ..	1	6
Anagallis azurea grandiflora	1	0
" rubra	1	0
Arctotis breviscapa ...	0	6
Aster, new Peony pyramid, in packets of 10 distinct colours separate	3	6
" new bouquet pyramidal, in packets of 12 distinct colours separate	3	6
Alonso Warscewiczi ...	5	0
Clintonia pulchella ...	0	6
Coreopsis coronata ...	0	6
" filifolia	0	6
" bicolor nana ...	0	6
" Drummondi grandiflora ...	0	6
Calendrina umbellata ...	0	6
Cyclamen persicum ...	1	0
" " rubrum	1	0
Centauridium Drummondi	0	6
Dianthus Dunnetti superba	1	0
" chinensis flore pleno, extra fine ...	0	6
Digitalis, new spotted ...	0	6
Eucnida bartonioides ...	0	6
Eschscholtzia tenuifolia...	1	6
Gramanthes gentianoides	0	6
Humea elegans	0	6
Ipomea rubra cærulea ...	1	0
" limbata	2	0
Leptosiphon luteum ...	0	6
" aureum ...	1	6
Linum grandiflorum rubrum 1s. 6d. and	2	6
Lobelia racemosioides ...	0	6
" erinus oculata ...	0	4
" Queen Victoria (scarlet)	0	6
" Roi Leopold (blue)	0	6
Larkspur, new double improved Hyacinth flowered, in packets of 6 distinct colours ...	2	6
Limnanthes sulphurea odorata	1	0
Lychnis fulgens (scarlet)	0	6
Lythrum roseum superbum	0	4
Mignonette, new large flowering	0	3
Oxalis rosea	0	6
Phlox decussata, from fine named varieties ...	1	0
" Drummondi coccinea	0	6
Portulacca, new orange ...	0	6
" rosea	0	6
Primula sinensis fimbriata, alba, and rubra, mixed	2	6
Poppy, new large Peony flowered, in 8 brilliant colours...	2	0
Rhodanthe Manglesi ...	0	6
Reseda myriophylla (new Mignonette)	1	0
Schizanthus Grahami carnea	0	4
" retusus ...	0	3
" retusus albus...	0	6
Salpiglossis, scarlet, blue, and sulphur, each ...	0	6
Stock, Scarlet Intermediate	0	6
" German, new large flowering, in packets of 6 distinct colours, separate	2	6
" Intermediate, or Autumn, in packets of 12 distinct colours separate	3	0
" Brompton, or Winter, in packets of 10 distinct colours, sep.	2	6
" Emperor, in pkts. of 5 distinct colours, separate	2	0
Sweet William, new dbl. mixed	0	6
Tropæolum, Triomphe de Gand	0	6
" Lille Schmidt	0	6
" tricolor ...	0	6
" Schewerianum	0	6
Vittadenia lobata... ...	1	0
Whitlavia grandiflora ...	1	6

HOLCUS SACCHARATUS (New Sugar Cane) 1s. and 2s. 6d.
DIOSCOREA BATATAS (Japanese Yam), 2s. 6d. each tuber.

February 17.

LYNCH'S STAR OF THE WEST CUCUMBER.—This might with propriety be called the Champion of the West, for it has won 11 prizes at different Horticultural Exhibitions. It is a seedling raised by Mr. Lynch, the well-known Gardener to the Right Hon. the Earl of St. Germans, Lord-lieutenant of Ireland. He has grown it for several years, and it has beaten everything that has been put in competition with it, including all the newest and most recently introduced varieties. We have purchased the whole stock, having given a very large sum for all the seeds in his possession, and it is now for the first time sent out; those who want a good flavoured, prolific, and prize Cucumber, we would recommend to obtain a packet of the seeds.

It is a first-rate winter fruit, and, with careful management, can be had in perfection all the year round. It is most prolific, and bears two fruit on every joint, and as many as 42 have been counted on a single plant in a row; from 5 to 22 inches in length. The fruit is quite round, like the barrel of a gun, and free from any ribs or roughness on the skin. It has a short handle, and is in every way calculated to beat any other sort in cultivation. The spines are white, and they stand out in the most prominent way. The stock is very limited.

Three seeds, per packet, 1s. 6d. | Five seeds, per packet, 2s. 6d.

The following is an official account of the number of Prizes won by Mr. Lynch, in competition with all the best Gardeners and the best varieties in the neighbourhood.—

"Royal Devon and Cornwall Horticultural Society, Nov. 11, 1854.

"DEAR SIR,—The prizes awarded you for your Cucumber are as follows:—

1851.—May 15th, First Prize
" July 17th, Extra Prize
" Sept. 4th, First Prize
1852.—May 27th, First Prize
" July 22d, First Prize
1852.—Sept. 9th, First Prize
1853.—June 8th, Second Prize
" Sept. 8th, First Prize
1854.—June 1st, First Prize
" Sept. 9th, First Prize

In all, 10 Prizes.

"I remain, dear sir, yours truly,
"NATHANIEL J. EASTON, Hon. Sec.

Mr. R. Lynch, Gardener to Earl of St. Germans, Port Eliot.

WM. E. RENDLE AND CO., SEED MERCHANTS, Plymouth.

GARDEN ORNAMENTS.—Several Hundreds of VASES, FIGURES, and SUN-DIAL PEDESTALS, which have stood wholly exposed to the late frosts, may now be inspected at

AUSTIN AND SEELEY'S SHOW YARD, Keppel Row, New Road.

☞ A few articles which have been standing as patterns for many years will be sold at reduced prices. Any gentleman unable to visit the yard may have sketches sent, if he will describe the object required, and the price.

CHEAP FUEL.

GAS COKE, as used in the Royal Conservatories, admirably adapted for Furnaces (as producing no smoke) and also well suited for Household Fires, to be had at 10s. per Chaldron in quantities of not less than 20 Chaldrons, cleared by barges or carts within a week, from the PHŒNIX GAS WORKS, Bankside, Southwark. Two Chaldrons delivered within a mile of the Works on the Surrey side of the Thames at an additional charge of 2s. per Chaldron. A smaller quantity, or delivery at a greater distance at a moderately increased rate.

SHEET GLASS (15 oz.) of good quality in 100 feet boxes.

10 in. by 8 in. and under	15s.	per box.
11 in. by 9 in. to 22 in. by 14 in.	17s.	"
Larger sizes to 28 in. by 18 in.	19s.	"

Also similar sizes in 21 oz. Sheet at 24s. per box. Boxes charged 2s. each, and returnable at the same price, if delivered free. CRYSTAL WHITE GLASS, Crown and Sheet Glass; Crates, British and Patent Plate, &c. &c. White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

HARTLEY'S PATENT ROUGH PLATE GLASS, 1-8th thick, or 2 lbs. to the foot; 3-16ths, or 3 lbs. and 1-4th, or 4 lbs. to the foot, for Ridge and Furrow Roofs, Greenhouses, Railway Stations, Engine Sheds, Mills, Markets, Halls, and Public Buildings generally.

Packed in Boxes of 50 feet each.

6 by 4 and 6½ by 4½	10s.	6d.	per box.
7 " 5 " 7½ " 5½	12	0	"
8 " 6 " 8½ " 6½	13	6	"
9 " 7 " 9½ " 7½ and 10 by 8 ...	15	0	"

For larger sizes a full List of Prices will be sent on application. Boxes are charged 2s. each extra, full price allowed if returned free of expense.—For further information apply to

JAMES PHILLIPS & Co.,
116, BISHOPSGATE STREET WITHOUT.

"Rough Plate has never been, and never can be, prejudicial to the colouring of Grapes; though we can easily believe that it has been charged with such a fault by persons who have not skill enough to manage Grapes under glass."—*Gardeners' Chronicle.*

"There *can be no question now* that Rough Plate Glass is the most beautiful as well as the most useful kind of glass that can be employed in horticulture. It is free from all the faults of transparent glass, and has many advantages peculiar to itself, without *a single disadvantage as a set off*"—*Gardeners' Chronicle.*

GLASS FOR CONSERVATORIES.

THOMAS MILLINGTON'S present prices for good 16 oz. sheet glass, boxes included.

6 in. by 4 in. to 6 in. by 5½ in. ...	13s. 3d.	per 100 feet.
7 by 5 to 8 by 6	13 6	
8½ by 6½ to 10 by 8 ...	14 0	
10½ by 8½ to 14½ by 10½ ...	16 0	
17 by 10 to 18 by 12 ...	18 0	

A great variety of sizes. Particulars had on application.

ORCHARD HOUSE SQUARES on Mr. RIVERS's plan, to whom I have sold some thousands of feet.

Large Sheets for cutting up, in cases, at 2½d. and 3d. per foot.

HARTLEY'S IMPROVED ROUGH PLATE GLASS, Sheet and Rough Plate, Tiles, Milk Pans, Bee and Propagating Glasses, Wasp Traps, Cucumber Tubes, Preserve Jars, with and without covers; Fern Glasses.

Plate, Sheet, Crown, and Ornamental Window Glass. Crystal Glass Shades for ornaments.

Greenhouses, erected in either wood or iron. Garden Lights and Frames.

87, Bishopsgate Street Without, London—same side as Eastern Counties Railway.

HOT-WATER PIPES at wholesale prices, with Elbows, Syphons, Tee Pipes, and every requisite connection. Cast Iron Boilers, 55s. each. Improved Soot Doors and Ash Doors. Builders' Castings of every description kept in stock.—Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street (near Blackfriars Bridge), London.

MOORE'S PATENT VENTILATORS FOR CONSERVATORIES, HOTHOUSES, ETC.

JAMES VEITCH, JUN., fully impressed with the correct principle of ventilation for Plant Houses, &c. adopted by MOORE'S PATENT VENTILATORS, has had a house fitted up with them at Chelsea, which it will be a pleasure to him to show to any persons visiting his Nursery.

For the admission of air, in upright sashes, he believes it to be the most complete and best plan at present in use. In appearance it is neat and elegant, easily worked, and not liable to get out of order: but what is of far more consequence than this, these Ventilators admit the air in such a manner that they can be used in all weathers, and with them the admission of air is under command and that plants cannot fail to be benefited by their adoption.

JAMES VEITCH, Jun., *desires it to be fully understood that he has no personal interest whatever in the adoption of the above Ventilators, but believing them to be a decided improvement on all other plans, he is desirous of giving the public an opportunity of seeing and judging for themselves.*—Exotic Nursery, Chelsea, Feb. 17.

PUBLIC INVITATION.

HEATING BY HOT WATER WITH ONE BOILER.

JOHN WEEKS AND CO., King's Road, Chelsea, HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, most respectfully invite the Nobility, Gentry, and Horticulturists to visit their Nursery Establishment DURING THIS SEVERE WEATHER, and witness the efficient working of their Hot-water Apparatus. The Establishment consists of Forcing Houses, Conservatories, &c., &c., many of which are of wide and lofty dimensions, and together measuring upwards of 1000 feet in length, the whole effectually heated by ONE BOILER at the small cost of 3s. 8d. per day for Fuel and Labour. The various Houses are divided into above 40 different compartments, either of which can be heated separately, and the whole regulated at pleasure with a greater command of heat than is required.

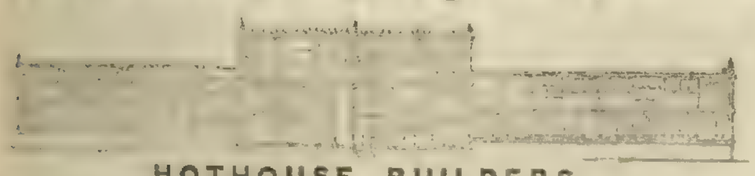
BOILERS of ALL SIZES, and Apparatuses both Plain and Ornamental, adapted for Warming Churches, Schools, Warehouses, and Buildings of every description. Also a great variety of Horticultural Buildings to be seen in full operation, so that a lady or gentleman can select the description of House best adapted for every required purpose.

Also, a SPLENDID COLLECTION of PLANTS.

JOHN WEEKS & Co., Horticultural Establishment, King's Road, Chelsea.

HORTICULTURE IN ALL ITS BRANCHES.

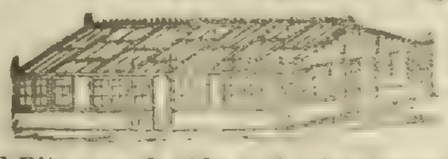
JOHN WEEKS & Co., King's Road, Chelsea,



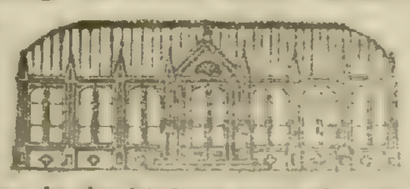
HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.

The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.

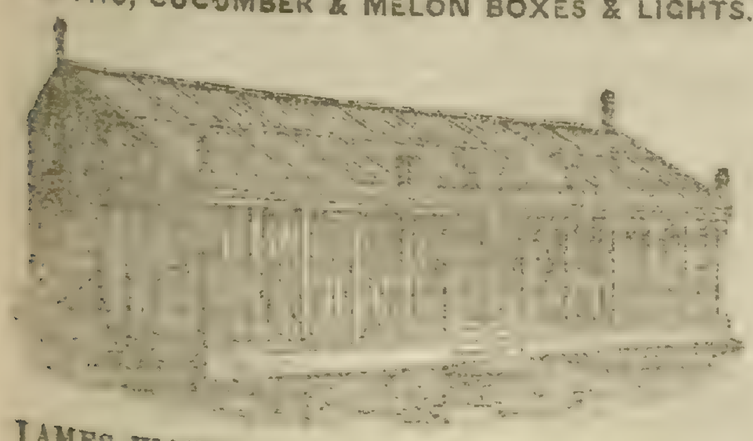


Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3s. 8d. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 36 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

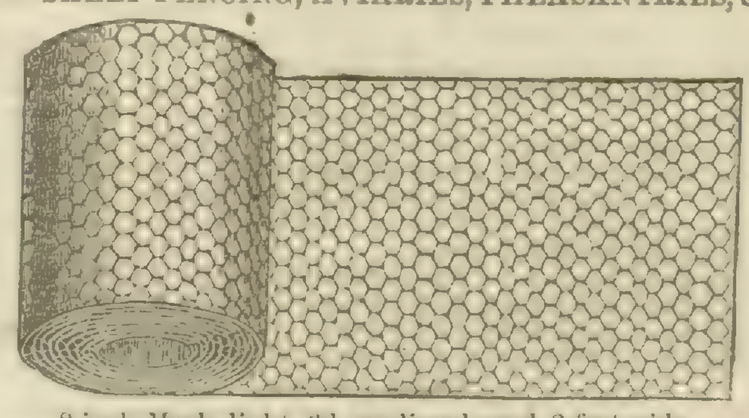
FURNISH YOUR HOUSE WITH THE BEST ARTICLES AT DEANE'S IRONMONGERY AND FURNISHING WAREHOUSES. Established A.D. 1700. A Priced Furnishing List, free by post.—DEANE, DRAY & Co. (Opening to the Monument,) London Bridge.

HALL'S GARDEN NETTINGS; the best and cheapest for all purposes of shelter and shade from Frost, Hail Storms, and Gales of Wind. No. 0, 5d.; No. 1, 5½d.; No. 2, 6d.; Nos. 3 and 4, 7d. All 56 inches wide, and in lengths of 10, 20, 30, and 60 yards.—Manchester.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1d. per square yard; 200 yards, 14s.; 500 yards, 30s.; 1000 yards, 50s. Scrim Canvass, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

BLOSSOM OF FRUIT TREES.—WORSTED NET to effectually protect the blossom of wall fruit trees from frost and blight, and the ripe fruit afterwards from wasps and flies, 7d. per square yard, in various widths. All kinds of garden, fishing, and sheep nets, made by machinery, and at very low prices.—R. RICHARDSON, 21, Tonbridge Place, New Road, King's Cross, London.

GALVANISED WIRE NETTING FOR GAME AND SHEEP FENCING, AVIARIES, PHEASANTRIES, &c.

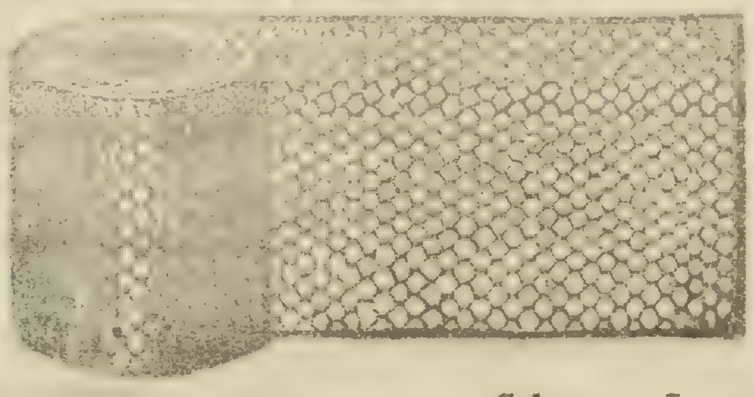


2 inch Mesh, light, 6d. per lineal yard, 2 feet wide.
" strong, 8d. " "

Netting of any size or quantity, and Fencing of all kinds, supplied on the shortest notice.

WILLIAM DRAY & Co., Manufacturers, Swan Lane, Upper Thames Street, near London Bridge.

GALVANISED WIRE GAME NETTING.—7d. PER YARD, 2 FEET WIDE.



	Galvanised.	Japanned iron.
2-inch mesh, light, 24 inches wide ...	7d. per yd.	5d. per yd.
2-inch " strong " ...	9 "	6½ "
2-inch " extra strong " ...	12 "	9 "
1⅝-inch " light " ...	8 "	6 "
1⅝-inch " strong " ...	10 "	8 "
1⅝-inch " extra strong " ...	14 "	11 "

All the above can be made any width at proportionate prices. If the upper half is a coarse mesh, it will reduce the prices one-fourth. Galvanised Sparrow-proof Netting for Pheasantries, 3d. per square foot. Patterns forwarded post free.

Manufactured by BARNARD & BISHOP, Market Place, Norwich, and delivered free of expense in London, Peterborough, Hull, or Newcastle.

NEW WINTER SOAP.

METCALFE, BINGLEY, AND CO.'S OATMEAL and CAMPHOR SOAP, in tablets (registered Nov. 3, 1854). Price 6d. each. This soap will be found the purest and most perfect winter soap ever introduced to the public. It preserves the hands from chapping, and renders the skin soft and agreeable.—Sold wholesale and retail by the inventors and sole manufacturers, METCALFE, BINGLEY, & Co., Brushmakers and Perfumers to H R H Prince Albert, 130B and 131, Oxford Street.

CAUTION.—To prevent fraud, each tablet bears the registered mark and the names and address of the inventors, as above.

METCALFE'S ALKALINE TOOTH POWDER, 2s. per box.—The above may be obtained of most respectable Chemists, Perfumers, &c.

DO YOU WANT BEAUTIFUL HAIR, WHISKERS, &c.?—COUPELLE'S CRINUTRIAR, though extensively imitated, is universally acknowledged as the only preparation to be really depended upon for the unfailing production of Hair and Whiskers in two or three weeks; as also checking Greyness, Baldness, &c., and rendering the Hair beautifully luxuriant, curly and glossy. Mr. WILLIAMS, 8, Lowther Street, Liverpool.—"I can now show as fine a head of hair as any person, solely from using your Crinutriar." Sergeant CRAVEN, Longford Barracks, Ireland.—"Through using your Crinutriar, I have an excellent Moustache, which I had before despaired of." Mrs. CARTER, Pangbourne, Berks.—"My head which was quite bald, is now covered with new hair." Price 2s. per package, through all Druggists and Perfumers, or sent post free on receipt of 24 penny stamps by ROSALIE COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.?—No other compound for the Hair has maintained such an enduring celebrity as EMILY DEAN'S CRINILINE. It is guaranteed to produce Whiskers, Moustachios, Eyebrows, &c., in a few weeks, and restore the Hair in Baldness, from whatever cause, strengthen it when weak, prevent its falling off, and effectually check Greyness in all its stages. For the nursery, Dr. Wilson says it is unrivalled.—Price 2s. per Package (elegantly perfumed); sent post free, on receipt of 24 penny postage stamps, by Miss DEAN, 37A, Manchester Street, Gray's Inn Road, London. Sold by every Chemist in the Kingdom.—"In one fortnight it produced a beautiful set of moustachios." H. ADAMS.—"It has prevented my hair falling off." J. HICKSON.—"It has quite checked the greyness that was coming on." Mrs. ELDER.

HOLLOWAY'S OINTMENT AND PILLS THE MOST EFFECTIVE REMEDIES FOR WOUNDS.—Mr. Rutherford, of Ballinamone, county of Leitrim, states in a letter to Professor Holloway, dated Feb. 8, 1855, "that Mr. J. Moran, farmer, in the parish of Cloone, was nearly gored to death by his own bull, whereby he received some very severe wounds, and from their awkward appearance there was no disposition in them to heal, notwithstanding he had the best medical attention, who tried various remedies without any good effect; however, at his suggestion, Holloway's Ointment and Pills were used, which in a very short time soundly healed every wound." Sold by all vendors of Medicine, and at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York.

MR. MECHI has made arrangements with the Crystal Palace Company for a considerable additional space in the North East Gallery overlooking the Transept. In due time the necessary cases, &c., will be placed there ready for the season.—4, Leadenhall Street, Feb. 17.

AT MR. MECHI'S ESTABLISHMENT, 4, Leadenhall Street, London, are exhibited the finest specimens of British Manufactures in Dressing Cases, Work-boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury suitable for presentation. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c., as usual. Shipping orders executed for merchants and captains. An extensive assortment of superior Hair and other Brushes for the Toilet.

MR. MECHI respectfully informs his customers and the public that he has PURCHASED the CUTLERY BUSINESS of the late Mr. VINING, 125, Regent Street, and also leased the whole of the upper part of the adjoining house from Mr. Locke. The two houses will be altered, embellished, and converted into show rooms, forming a WEST-END BRANCH of Mr. Mechi's Establishment in Leadenhall Street, for the convenience of his West-end customers. It is hoped that the alterations may be completed by the middle of March, of which due notice will be given.—4, Leadenhall Street, Feb. 17.

BUY OF THE MAKERS.—BRUSHES, COMBS, and BROOMS of every description, whether for the dressing table, household, or stable use, 30 per cent. lower than any other house in the trade, at the manufacturers, J. and J. WITHERS, 36, Tottenham Court Road (opposite Bedford Street, Bedford Square).—Warranted Tooth Brushes, 3d.; superior ditto, 4d.; the best that can be made, 6d. each.—N.B. The lowest price asked and no abatement.

MESSRS. SHOOLBRED & BRADSHAW, TAILORS, 34, Jermyn Street, PATENTEES. Manufacturers of every description of ELASTICAL SURGICAL BANDAGES, as recommended by all the most eminent surgeons, in acknowledging the very extensive support they have received, beg to call attention to the various improvements they are making in patent Elastic Stockings, Knee Caps, Socks, and Ladies and Gentlemen's Spine Supporters. A new description of Belt, invaluable for prevention of Cholera and the cure of Rheumatism, Lumbago, &c. N.B. Every description of India-rubber Bandages vulcanised on the newest principle.

BASS'S EAST INDIA PALE ALE. BARCLAY'S PORTER AND STOUT, in 18 Gallon Casks, Bottles, Half-Bottles, and Imperial Pints.

BERRY, BROTHERS, & Co., 3, St. James's Street, London.

NURSERY AND SEED BUSINESS, ESTABLISHED IN THE YEAR 1819.

TO BE LET, with immediate possession, the NURSERY and SEED SHOP at Taunton, for some time past in the occupation of Messrs. M'Intyre and M'Intosh. The Grounds and Stock are in excellent condition, moderately rented, and are well worthy the attention of any person wishing to carry on the business. If required the quantity of ground may be reduced. The Nursery is about 5 minutes' walk from the Railway Station.—Apply to Mr. YOUNG, the Proprietor, Elm Cottage, Taunton.

WANTED TO RENT, with possession at Lady-day next, a small DAIRY FARM of about 120 acres of Pasture Land, with Dwelling House and suitable buildings, the counties of Gloucester, Wiltshire, or Berkshire preferred.—Apply by letter, stating particulars, to E. W. B., Post Office, Swindon, Wilts.

DORKING FOWLS.—Eggs, from remarkably large and weighty birds, of the best coloured breed, will be disposed of at 15s. the dozen, box included.—Address W. G., Railway Inn, Holme, Stilton, Hunts.

EGGS.—To be Sold, first and best breeds of the following POULTRY:—Buff Cochin China, feathered to the claws; Fine white-faced Spanish; A beautiful breed of Sebright Bantams; White silky negro Bantams, with blue ear belts.—For particulars direct to A. B. C., Northleigh, near Oxford.

TO POULTRY BREEDERS.

TO BE SOLD, cheap, a Splendid TURKEY COCK, age 20 months, winner of two prizes, weight about 25 lbs. Also some beautiful GREY DORKINGS, from Prize Stock, in sets of Cock and two Pullets, very first rate birds.—Apply to DANIEL HARRISON, Singleton Park, Kendal.

TO BE SOLD, BUFF COCHIN CHICKENS, from first class Prize Birds, Brahma Pootra Chickens, from imported American Prize Birds, and Spanish Chickens. Also some very good one-year-old Birds of the above descriptions. Wire, Game, and Poultry Netting, Poultry Hurdles, Hen-houses, Chicken Coops, Flower Stands, and Trainers, Garden Arches, and every kind of Wire Work, useful and ornamental.—T. H. Fox's, City of London Wire Works, 44, Skinner Street, and 6 & 8, Snow Hill. Illustrated Catalogues forwarded post free.

PEAR AND APPLE TREES AND CAMELLIAS.

FROM THE CLARENDON NURSERIES, JERSEY.

MR. J. C. STEVENS is instructed by Mr. René Langelier to announce for Sale by Auction, at his Great Room, 38, King Street, Covent Garden, on FRIDAY, 23d Feb. and following day, at 12 o'clock, without reserve, 1000 PEAR TREES of the most approved melting sorts, including Queen Victoria (not yet out) and others new to this country, all of which Mr. Langelier can warrant true to name and worthy of cultivation; 100 fine Apple Trees (Hammond's Pippin) raised in the island of Jersey by James Hammond, Esq., the fruit of first-rate quality, keeping till June; also a collection of Double Camellias with flower-buds and some in bloom, all of good sorts, and some bulbs.—Catalogues one week before the Sale of Mr. J. C. STEVENS, 38, King Street, Covent Garden, London.

N.B. Specimens of the Fruit of many of the new sorts of Pears will be included in the Sale.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Halley to Sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY, Feb. 22, at 12 o'clock, about 200 Choice Double CAMELLIAS, from 18 inches to 5 feet, comprising all the approved kinds, beautifully furnished with bloom buds; also a fine Collection of American Plants, comprising Ghent, and other Azaleas, Hybrid Rhododendrons, Kalmias, Magnolias, Andromeda floribunda, together with choice Ericas and Epacris of sorts, Roses, Dahlias in dry roots, &c.—On view the morning of Sale. Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

CONSIGNMENT FROM GHENT FOR ABSOLUTE SALE.

MESSRS. PROTHEROE AND MORRIS are instructed by Monsieur A. Van Geert to Sell by Auction, at the Mart, Bartholomew Lane, on TUESDAY, 20th February, at 12 o'clock, about 500 fine DOUBLE CAMELLIAS and 500 INDIAN and GHENT AZALEAS consisting of all the approved kinds, well set with bloom buds; also an assortment of New Ghent Hardy Free Blooming Rhododendrons, of the finest colours, from the deepest red to the purest white. About 400 Standard Roses, including all the leading kinds, with four magnificent Standard Sweet Bays.—May be viewed the morning of sale; Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

4, Great Russell Street, Covent Garden, 1855.

JOHN KERNAN,

IN OFFERING TO HIS FRIENDS AND THE PUBLIC THE ANNEXED

LIST OF VEGETABLE AND FLOWER SEEDS,

WHICH INCLUDES EVERY NOVELTY INTRODUCED UP TO THE PRESENT SEASON,

Begs to assure his Customers that he has spared no trouble in securing every Article as good as it could possibly be procured.

PEAS. Per qt.—*s. d.*

Early Emperor ... 1 0
Shilling's Early Grotto ... 1 0 (early and large, and a fine late Pea.)
Bishop's new long podded 1 0
Fairbeard's Champion of England 1 0
Fairbeard's Surprise ... 1 0
British Queen 1 0
Knight's dwarf green and tall 1 0
Scimetar 0 9
Woodford or Nonsuch ... 1 0
Victoria Marrow ... 1 0
Dwarf green Mammoth ... 1 6
Tall white do. ... 1 6
With all other varieties worth cultivating.

BEANS Per qt.

Early Mazagan 0 6
Sword Longpod ... 0 8
Hangdown ... 0 6
Taylor's Windsor ... 0 8
Johnson's Wonderful ... 0 8
Green Gemon ... 0 8
Dwarf French, of sorts ... 1 6
Scarlet Runners ... 1 6
Painted Lady do. ... 1 6

Per oz

Beet, fine London Red ... 0 6
" Silver, or seakale ... 0 6
" Whyte's black ... 0 6
Borecole, new heading, per paper ... 0 6
" red and white variegated, for garnishing ... 0 6
" dwarf curled, per oz. 0 6
Brussels Sprouts (foreign seed, fine), per oz. 0 9
" English do. 0 6
Kohl Rabi, per paper ... 0 6
Savoy, green curled, per oz 0 6

BROCCOLI. Per oz.

Myatt's Early Purple Cape 1 0
Miller's Dwarf ... 1 0
Chappell's Cream ... 1 0
Dancer's Early White ... 1 0
Sumner's Late White ... 1 0
Williams' White late ... 1 0
Grange's Early White—from the original raiser 1 0
Invisible White ... 1 0
Purple Sprouting ... 1 0
Walcheren ... 1 6
Imperial Winter ... 1 0
Dwarf Siberian ... 1 0
Purple Syrian ... 1 0

CABBAGE. Per oz.

Nonpareil ... 0 6
Shilling's Queen ... 0 6
Atkin's Matchless ... 0 6
Early Venus ... 0 6
Knight's Early Dwarf ... 0 6
Early York ... 0 6
Large York ... 0 6
Early Battersea ... 0 6
True Cornish ... 0 6
Couve Tronchuda, p. paper 0 6
Red Dutch ... 0 6
And all other kinds in cultivation.

CARROT. Per oz.

Early Scarlet Horn ... 0 4
Long Orange ... 0 3
Fine Surrey ... 0 3
Altringham, per lb. ... 2 0
White (for Agriculture), per lb. ... 2 0
Parsnip, Hollow-crown, per oz. ... 0 3

CAULIFLOWER. Per oz.

Mercer's fine Pearly ... 1 0
London Particular ... 1 0
Large Asiatic ... 1 0
Walcheren ... 1 6

PARSLEY Per bush.

Plain, for sheepwalks and early lambs ... 14 0
Extra curled, per oz. ... 0 3

CRESS. *s. d.*

Plain, per pint ... 0 6
Curled ... 1 0
American, per oz. ... 0 3

CRESS. *s. d.*

Water, per paper ... 0 6
Mustard, per pint ... 0 6

CELERY. Per oz.

Cole's Superb Red ... 0 6
" White ... 0 6
Seymour's Superb White 0 6
" Superb Red ... 0 6
New Rose, solid ... 0 6
New Giant ... 0 6

CUCUMBER. Per paper.

Crawshay's Ne Plus Ultra 1 0
Victory of Bath ... 0 6
Acme of Perfection ... 0 6
Syon House ... 0 6
Weston's Free Bearer ... 0 6
Early Frame ... 0 3
Kerrison's ... 0 6
Walker's Rambler ... 0 6
Windsor Prize ... 0 6
Early Handglass ... 0 3
Early Ridge ... 0 3

MELONS.

Seymour's Golden Perfection ... 0 6
True Syon House ... 0 6
Snow's Hybrid Green-flesh 0 6
Beechwood ... 0 6
And all the better sorts grown for this market.

ENDIVE.

New Imperial, per packet 0 6
Batavian, per oz. ... 0 6
Green curled ... 0 6
White curled ... 0 6

Herbs, all the kinds, p.pkt. 0 6

LETTUCE.

Brighton Cos, per oz. ... 1 0
Imperial Cos ... 1 0
Victoria Cabbage ... 1 0
Green Paris Cos ... 1 0
White Summer Cabbage 1 0
Fine London White Cos 1 0
Paris Cos ... 1 0
Ady's Cos ... 1 0
Drumhead ... 1 0
Bath Cos, and others ... 1 0

ONION. Per oz.

James's Long Keeping ... 0 6
Fine White Spanish ... 0 6
Globe ... 0 6
Strasburgh ... 0 6
Deptford ... 0 6
Silver-skin ... 0 9
Tripoli ... 0 9
Blood red ... 0 6
Two-bladed, for pickling 0 6

RADISH. Per oz.

New Scarlet Olive-shaped, a delicious new variety 0 3
New Rose ... 0 3
Early Frame, per pint ... 1 6
Long Scarlet ... 1 6
Red and White Turnip ... 1 6
Black Spanish, per oz. ... 0 3

SPINACH.

New Flanders, per pint ... 0 6
Round, or Summer ... 0 6
Lettuce-leaved (new) ... 0 6
New Zealand, per oz. ... 0 3

TURNIPS. Per oz.

Early Snowball ... 0 3
Red American Stone ... 0 3
Teltow, for stewing ... 0 3
Early Dutch ... 0 3
Yellow Maltese ... 0 3
" Stone ... 0 3
Early Snowball, per lb. ... 2 0
Early Dutch (earliest), true imported ... 2 0

AGRICULTURAL TURNIPS

Yellow Bullock per lb.—1 0
Skirving's Swede ... 1 6
Laing's ditto ... 1 6
Ashcroft ditto ... 1 6
Dale's Hybrid ... 1 0
Red Round ... 1 0
White Round ... 1 0
White Globe ... 1 0
Ox heart ... 1 0

per lb.

Drumhead Cabbage ... 2 0
Thousand Headed ... 1 6

Furze, per lb. 1*s.* Broom, 1*s.*
Coarse Grasses for Game Covers, 8*s.* per bushel.
Yellow Globe and Long Red Mangold Wurzel, per lb., 1*s.*
White Silesian or Sugar Beet, per lb., 1*s.*
Chevalier Barley; Hopetoun, Tartarian, Sandy, and other Oats.
Flax, from Riga seed, one year grown in this country.
A fine collection of all the best Permanent Grasses (hand picked), separate or mixed. If mixed, per bushel, 8*s.*
Sweet Vernal, the earliest and most suitable Grass for early Lambs, 2*s.* per lb.
White, 1*s.*, and Red Clover, 9*d.*; Lucerne, 1*s.*; and Trefoil, 6*d.*
Kohl Rabi, for Agriculture, per lb., 2*s.*
Italian Rye-grass. Spring and Winter Tares.
A few of the very finest Grasses for Lawns, per lb., 1*s.* 6*d.*
24 papers of Hardy Annuals, 5*s.*
Myatt's fine new Strawberries.
Asparagus plants, according to age, per 100, 2*s.* 6*d.* to 5*s.*
Seakale plants, according to age, per 100, 5*s.*; do. for forcing, 10*s.*
Dilley's Early Scarlet Admirable Rhubarb, per root, 1*s.*
Myatt's Victoria do. (the largest in cultivation), 1*s.*
Mushroom Spawn, per bushel, 5*s.*
Cornwell's Victoria Raspberry, per dozen, 2*s.* 6*d.*
All the fine new Raspberries, 2*s.* 6*d.* to 3*s.* per dozen.
Seeds of all the new Strawberries, Raspberries, Gooseberries, and Currants, per paper, 6*d.*; with Tree Seeds recommended to Emigrants.

POTATOES.

Per bushel.—	*s.*	*d.*	Per bushel.—	*s.*	*d.*
Soden's Early Oxford ...	10	0	Ash-leaved Kidney ...	10	0
Barnard's Early Frame	10	0	Fluke Kidneys ...	8	0
Shilling's Early Prolific	10	0	Forty-fold ...	6	0
Kirke's True Ash-leaved Kidney ...	10	0	Early Hen's Nest ...	6	0
Walnut-leaved Kidney ...	10	0	Early Shaw ...	6	0
			Prince Regent's ...	6	0

And many other most productive late kinds; also seed saved from the best varieties, 6*d.* per packet.

Garlic, per lb., 6*d.* Shallots, per lb., 8*d.*
Budding and Pruning Knives.
Russia Mats, 2*s.* each. Cuba Bass, per lb., 2*s.*
Buckwheat, Indian Corn, Rape, Hemp, &c., for Aviaries.
The trade supplied on moderate terms with every article true to its kind. Catalogues may be had on application.

FLOWER SEEDS.

The following are the most recent introduced Flower Seeds:—
Per packet, 1*s.*

Calceolaria, new annual species from California
Clary, white-topped
Collinsia multicolor
Dianthus Dunnetti superbus
" imperialis, very double
Leptosiphon luteum
Linum grandiflorum rubrum
Lupinus Hartwegi roseus
Madaria corymbosa
Maurandya grandiflora
" elegans superba
" alba
Mimulus, new seedling

Asters, 24 distinct German varieties, in sealed packets, suitable for exhibition, the collection, 8*s.*
A mixture, including all the colours of the above, per paper, 6*d.*
Do. in 12 distinct colours, the collection, 4*s.*
A mixture of the best varieties of late Asters, 6*d.*
Superb German and Prussian Stocks, 24 distinct varieties, for exhibition, the collection, 8*s.*
12 varieties of do., distinct in colours, 4*s.*
12 autumn flowering do., in distinct colours, 4*s.*
A mixture of all the finest varieties of Ten-week, per paper, 6*d.*
12 varieties of Brompton Stocks, 4*s.*
A mixture of Brompton do., per packet, 6*d.*
12 named varieties of Hollyhocks, 3*s.*
8 named varieties of Marvel of Peru, 2*s.* 6*d.*, fine, for the front of Shrubberies.

Per packet—	*s.*	*d.*	Per packet.—	*s.*	*d.*
Abronia umbellata ...	0	6	Convolvulus major ...	0	3
Achimenes, seeds & bulbs			" minor ...	0	3
Ageratum albiflorum ...	0	6	" do. new dark	0	3
Alstrœmeria of sorts ...	0	6	" minor, striped	0	3
Anagallis, of sorts ...	0	6	CLIMBERS.		
Amethystea cærulea ...	0	3	Cobœa scandens ...	0	6
Anemone, fine mixed ...	0	6	Calampelis scaber ...	0	6
Antirrhinum (all the new kinds) ...	0	3	Lophospermum erubescens	0	6
Argemone grandiflora ...	0	3	" Hendersoni	0	6
" Barclayana ...	0	3	Loasa aurantiaca ...	0	6
" speciosa ...	0	3	Maurandya Barclayana ...	0	6
Aquilegia glandulosa, fine	0	6	" new scarlet ...	0	6
" fine mixed German varieties	0	6	Tropæolum peregrinum ...	0	6
Auricula, from fine named flowers ...	1	0	" pentaphyllum	0	6
" alpine ...	0	6	" tricolorum grandiflorum	1	0
Brachycome iberidifolia ...	0	6	" trimaculatum	0	6
" alba, new ...	0	6	" minor coccineum	0	6
Balsams, 12 very fine distinct colours, all double ...	5	0	Ipomœa rubra cærulea ...	0	6
" mixture of above	0	6	" punctata ...	0	6
Bartonia aurea ...	0	3	" nil ...	0	6
Blumenbachia insignis ...	0	6	" rosea ...	0	6
Browallia, of sorts ...	0	6	" striata and others	0	6
Calceolarias, from a collection of named shrubby kinds ...	1	0	Thunbergia alata ...	0	6
Calceolarias, from Herbaceous do. ...	1	0	" " alba ...	0	6
Calendrinia discolor ...	0	3	" aurantiaca ...	0	6
" grandiflora ...	0	3	" new yellow ...	0	6
" umbellata ...	0	6	Collinsia grandiflora ...	0	3
Campanula pulcherrima .	0	3	" bicolor ...	0	3
" Lorei, blue ...	0	3	" Bartsiæfolia ...	0	6
" " white .	0	3	Dahlia scabigera, dwf. lilac	0	6
" stricta ...	0	3	" fine mixed ...	0	6
" sylvatica ...	0	3	Datura fastuosa, purple ...	0	6
Catananche bicolor ...	0	3	" " white ...	0	6
Chænostoma fastigiata ...	0	6	Delphinium or Larkspurs, distinct or mixed ...	0	3
Cistus guttatus, very dwf.	0	6	Ditto, biennial and perennial varieties ...	0	3
Clintonia pulchella ...	0	6	Digitalis or Foxglove ...	0	3
" elegans ...	0	3	Dianthus, double white Indian pink	0	6
Cockscomb, Dwarf Scarlet	0	6	" Knight's new hybrid ...	0	6
Cuphea, all the kinds ...	0	6	" double Indian	0	3
Cineraria, selected from the latest new kinds ...	1	0	" Cherii ...	0	3
Commelina alba ...	0	3	And others.		
" cœlestis ...	0	3	Didiscus cæruleus ...	0	6
Carnation, from named flowers ...	1	0	Eucharidium grandiflorum	0	3
Clarkias, all the varieties	0	3	Eutoca viscida ...	0	3
Coreopsis, new marbled ...	0	6	Egg plant, white ...	0	3
" tinctoria ...	0	3	" purple...	0	3
" Drummondi ...	0	3	Eschscholtzia, 3 sorts ...	0	3
" nigra (new) ...	0	3	" new, white	0	6
Candytuft, new crimson ...	0	3	Erysimum Perofskianum	0	3
" purple... ...	0	3	Fuchsia from named sorts	0	6
" white	0	3	Gaillardia picta ...	0	6
" sweet-scented .	0	3	" bicolor ...	0	3
			Gaillardia Richardsoni ...	0	3
			" aristata ...	0	3
			Gaura Lindemani ...	0	6
			Globe Amaranthus, of sorts ...	0	3

Per packet.—	*s.*	*d.*
Geum splendens ...	0	6
" Wicei ...	0	3
Geranium, from fine sorts	1	0
Gilia, of sorts ...	0	3
Grahamia aromatica ...	0	6
Grammanthes gentianoides, new ...	0	6
Godetia, all the new sorts	0	3
Heartsease, from first-rate prize flowers ...	0	6
Humea elegans ...	0	6
Helichrysum macranthum	0	6
" bracteatum album	0	3
Heliotropium peruvianum	0	6
" Voltaireanum	0	6
Hibiscus, of sorts ...	0	3
Heliophila araboides ...	0	3
Helianthemum, Rock Cistus ...	0	3
Hollyhock, Chinese ...	0	6
" fine mixed ...	0	3
Ipomœa Burridgi ...	0	6
" quamoclit ...	0	6
And others ...	0	6
Ipomopsis elegans ...	0	6
Isotoma axillaris ...	0	6
Jacobæa, double crimson ...	0	3
" " purple ...	0	3
" new lilac ...	0	3
Kaulfussia ameloides, for edging ...	0	3
Handsome Ornamental Grasses..... per paper, 6*d.*		
Per packet—	*s.*	*d.*
Larkspurs, 12 distinct German vars.	2	6
" mixed dwarf Rocket ...	0	3
Leptosiphon densiflores ..	0	3
" androsaceus	0	3
Loasa aurantiaca ...	0	6
Lymnanthus grandiflora	0	6
" Douglasi ...	0	3
" roseus ...	0	6
Lobelia heterophylla major	0	6
" ramosus alba ...	0	6
And others ...	0	6
Lotus Jacobæus ...	0	3
" nova sp. ...	0	6
Lupinus Hartwegi ...	0	3
" nanus ...	0	3
" Cruikshanki ...	0	3
" affinis ...	0	3
" monogynia ...	0	6
Lychnis, of sorts ...	0	3
Malope grandiflora ...	0	3
Mallow, new zebra ...	0	3
Malva miniata ...	0	3
Marvel of Peru ...	0	3
Marigold, dwarf pigmy French ...	0	6
Other varieties ...	0	3
Mesembryanthemum tricolor ...	0	6
Mignonette, per oz. ...	0	6
" Reseda odorata grandiflora, new ...	0	6
Mimosa sensitiva (Sensitive plant), per packet	0	6
Mimulus, from 12 distinct named varieties ...	0	6
" moschatus ...	0	3
Martynia fragrans ...	0	6
Nasturtiums, of all sorts	0	3
Nemesia floribunda ...	0	6
" vesicolor, new ...	0	6
Nemophila insignis major	0	3
" insignis alba	0	6
" discoidalis ...	0	3
" maculata ...	0	3
" aurita alba ...	0	6
Neirembergia splendens ...	0	6
" violacea ...	0	3
" fine mixed	0	6
Nolana atriplicifolia ...	0	3
" paradoxa ...	0	3
" grandiflora alba ...	0	6
Nycterinia selaginoides ...	0	6
Nycterinia capensis ...	0	6
Œnothera Sellowi		
" Drummondi		
" densiflora		
" macrocarpa		
And others...		
Papaver marcelli		
" nudicaulis		
Poppy, carnation, mixed		
Peas, sweet, all the colours, separate or mixed		
Pentstemon, of sorts		
Perilla nankinensis		
Phlox Drummondi, various shades ...		
" Drummondi, white		
" Leopoldi (new)		
" new, scarlet...		
" oculata		
Picotee, from named flowers		
Platystemon californicus		
Potentilla Garnieriana		
" Russelliana		
" Thomasi		
Polyanthus, fine mixed		
Portulacca splendens		
" Thellusoni		
" grandiflora		
" striata alba		
" Gilliesi		
" yellow		
Primula sinensis (white fringed)		
" lilac		
" large crimson		
" cortusoides		
Rhodanthe Manglesi		
Salpiglossis, new scarlet		
" fine mixed		
" new yellow		
Salvia, of sorts ...		
Sanvitalia procumbens		
Saponaria calabrica		
" ocymoides		
" multiflora		
Schizanthus Hookeri		
" Grahami		
" retusus alba		
" humilis		
" Priesti		
" venustus		
Schizopetalon Walkeri, very sweet ...		
Sphænogyne speciosa		
Streptocarpus Rexi		
Silene Schafta ...		
" compacta ...		
Stock, white pyramidal		
" Buck's Intermediate, 16 out of 20 will come double ...		
" Chapman's Scarlet Ten-week ...		
" Shepherd's White		
" " Purple...		
Sedum cæruleum, for rockwork ...		
Sultan, yellow ...		
" white and purple		
Tagetes signata ...		
" lucida ...		
Thunbergia (*see* Climbers).		
Tropæolum (*see* Climbers).		
Tropæolum speciosum ...	1	
Viscaria oculata ...		
" new dwarf		
" white ...		
Violet Russian (ever-flowering) ...		
Verbena, a mixture of best sorts ...		
Wallflower, blood red ...		
" Double German		
" changeable ...		
" 8 vars. of imported German		
Zinnia elegans coccinea ...		
" purpurea ...		
" aurea ...		
" mixed from 20 separate varieties		

Ornamental Trees and Shrubs of all descriptions.
Cedrus Deodara. Cryptomeria japonica, Taxodium sempervirens, 2*s.* 6*d.* to 10*s.* 6*d.* each; all the new Pinus.
Named Double Anemones and Ranunculuses; Gladiolus Brenchleyensis and gandavensis; Tigridia pavonia and conchiflora, with many other flowering Bulbs, and Herbaceous Plants, which may be planted out till the middle of May.
Carnations, Picotees, and Pinks, per pair, from 1*s.* to 3*s.* 6*d.*
All the better named Heartsease from 6*s.* to 30*s.* per dozen.
Fine named Dahlias, per dozen, 12*s.*
" Chrysanthemums, new kinds, 12*s.*
Standard Dwarf and Climbing Roses, 1*s.* to 2*s.* 6*d.* each.
Rivers' Miniature Fruit Garden, with directions for culture and root pruning, 2*s.* Rivers' Orchard House, 2*s.*
Rivers' new edition of the "Rose Amateur's Guide," 6*s.*
River's new Fruit Catalogue, 6*d.* [should distribute to cottagers
Paxton's "Cottage Calendar," 3*d.*, which ladies and gentlemen
Collections of 24 Annuals, mixed, recommended by Dr. Lindley as suitable for Shrubberies, 5*s.* [on the most liberal terms
Seeds for distribution by gentlemen to their tenants and cottagers
Seeds selected and carefully packed for Australia, North and South America, India, and New Zealand, in the most secure way to arrive safe at any of the above places.

Ladies and gentlemen relying upon the judgment and experience of John Kernan, instead of being supplied (as is often the case) with what is neither useful nor ornamental, may depend upon having a selection of the most useful and indispensable Vegetables to any amount named, by the parties forwarding him their orders. The same economy will be observed in the choice of Flower Seeds. J. K. feels it almost needless to observe that the liberality of discount will be with the amount.

Old Meadow Turf, which will take a considerable time to decompose and char by the regular or natural means, may be produced by the following simple and short process:—Place four bricks raised two on two above 3 feet distance from four others similarly arranged, upon which place a sheet of iron large enough to rest fully on the bricks. By making a fire under this simple machine and allowing your Turf to remain until charred it will, when bruised, make an excellent stimulant for Annuals, Herbaceous and Pot Plants of all sorts. If the vermin or the season do not disturb them, you will not require more than one plant in a hundred of those that come up. Be careful to begin thinning when the plants are quite young. Do not sow delicate Annuals in the open borders until the end of April, or (what is better, make two sowings, one in the middle of April, and the other the beginning of May. These will succeed each other *until October*.

SEEDS SELECTED AND CAREFULLY PACKED FOR ALL CLIMATES.

Printed by William Bradbury, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and Frederick Mullett Evans, of No. 27, Victoria Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, February 17, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 8.—1855.] SATURDAY, FEBRUARY 24. [PRICE 6*d*.

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ERRATUM.—In the Scottish Arboricultural Society's Advertisement (*Gardeners' Chronicle*, Feb. 17), the address of the Treasurer is erroneously stated to be at *Bath* in place of PERTH.

HORTICULTURAL SOCIETY OF LONDON.—THE FIRST SPRING MEETING will take place at the Society's House, 21, Regent Street, on TUESDAY, March 6, from 1 to 4 P.M.

THE FIRST EXTRAORDINARY MEETING OF THE BRITISH POMOLOGICAL SOCIETY FOR 1855 will be held at the Rooms, 20, Bedford Street, Covent Garden, London, on MONDAY, March 5th, at 1 o'clock.

All packages containing Collections of Fruit should be forwarded so as to arrive on the 3d, and addressed to

ROBERT HOGG, Secretary.

WANTED, 5000 SPANISH CHESNUT PLANTS, 5 feet to 6 feet; 5000 ASH PLANTS, 5 feet to 6 feet; and 30,000 LARCH PLANTS, 3 feet. Whoever has the same to dispose of, and can deliver them at Merpham Court, near Gravesend, may hear of a purchaser by stating the price, &c., to ROBERT BARNETT, Esq., of that place.

WANTED TO PURCHASE, a quantity of FRUIT TREE STOCKS and MAIDEN TREES.—Address, stating sorts and price, JAMES LAKE, Nurseryman, Bridgewater.

PYRAMIDAL PEAR TREES,
GRAFTED ON THE QUINCE STOCKS.

J. AND J. FRASER have still to offer strong trees of the above PEARS; a Descriptive Catalogue of the sorts may be had on application. To prevent disappointment early orders are requested, as the Stock of some of the varieties is getting low.—The Nurseries, Lea Bridge Road, Essex.

FRUIT TREES, FOREST TREES, AND SHRUBS, GARDEN AND FLOWER SEEDS, PERMANENT PASTURE GRASSES, and FINE DWARF LAWN GRASSES.—Catalogues of the above may be had on application to WILLIAM BARRATT, Saint John's Nursery, Wakefield.

STRONG OAKS.

I. AND J. GAITSKILL have on hand a fine healthy stock of the above, 1½ to 2 feet and 2 to 3 feet, which will be sold cheap. Price on application.
Hall Santon Nurseries, Whitehaven.—Feb. 24.

FOWLER AND WRIGHT, SEEDSMEN and NURSERYMEN, Glasgow, have for sale 1 year Seedling LARCH, 2 year Seedling LARCH, 1 year Seedling BEECH, and 1 year Seedling ALDER. Price forwarded on application.—Feb. 24.

LIQUIDAMBAR.—The undernamed is a buyer of either a large or small quantity of the above. Send cash price and height, to Mr. JEYES, Nurseries, Northampton.

MANGOLD WURZEL SEED, LONG RED, and YELLOW GLOBE, warranted genuine, and the growth of 1854. Price 45*l*. per ton.—Apply to R. S. HEWS, Kelvedon, Essex.

TO BE SOLD, at Prices that will be sure to give satisfaction, 10,000 STRONG CURRANTS of the following sorts, viz:—Red and White Dutch, common Black and Black Naples, Wilmot's Superb Red, Champaign and Raby Castle. Also a quantity of strong dwarf-trained Pears and Plums of the best sorts, Fastolff and other Raspberries, strong standard Pears, and a quantity of prime Seed Potatoes, well kept, of the best sorts.—For further particulars apply to JAMES LAKE, Nurseryman, Bridgewater.

TO BE SOLD, Bishop's last and best PEA, 10 to 15 quarters at 56*s*. per quarter, and 7 to 8 quarters of a superior BLUE PEA, capital boiler, or an abundant bearer for podding, 56*s*. per quarter; also a quantity of genuine Skirving's Swede Seed of last year's growth, grown from large roots; transplanted and other sorts of Turnips and Mangold Seeds, &c.—Apply to Mr. GEORGE TABER, Seed Grower, Rivenhall, Witham, Essex. Delivered carriage free. Terms cash.

CHEAP AND GOOD CINERARIAS.—Fine flowering plants from Turner's best seed in large 48 and 48 pots, just coming into bloom, at from 4*s*. to 6*s*. per dozen. Also fine plants of named varieties, consisting of Mr. and Mrs. Herbert, Adela Villiers, Garland, Constellation, Lady H. Campbell, Kate Kearney, Flora M'Ivor, Étoile de Venus, &c., at 9*s*. per dozen.—WOOD & INGRAM, Nurseries, Huntingdon.

PRIMULAS! PRIMULAS! PRIMULAS!—The true and original stock of the semi-double Primula sinensis, so highly commended in the last week's "Cottage Gardener," is now being sent out by Mr. THOS. WILD, of Ipswich, in sealed, numbered, and signed packets, at 2*s*. 6*d*. each; no other are genuine. Also the unrivalled "IPSWICH STANDARD CUCUMBER," 1*s*. per packet. Order without delay; this is the season to sow. The stock is small, and the price will increase.—THOMAS WILD, Ipswich. Agents: Turner, of Slough; Fisher, Holmes, and Co., Sheffield; Veitch and Son, Exeter.

SUTTON'S SHORT SEED LIST.

SUTTON'S SHORT SEED LIST, *containing only the most desirable sorts, will be sent post free, in return for one penny postage draft or receipt stamp.*
SUTTON & SONS, Seed Growers, Reading, Berks.

PRICES OF AGRICULTURAL SEEDS.

SUTTON'S DESCRIPTIVE LIST OF FARM SEEDS *will shortly be sent to each of* Messrs. SUTTON'S *regular customers, and should any not receive it in the course of the ensuing week, they are requested to apply for it, when it will be forwarded gratis and post free.*—JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

MESSRS. J. AND H. BROWN'S NEW PRICED CATALOGUE, post free, of American Plants, Coniferæ, Roses, Geraniums, Fuchsias, Orchidea, Stove and Greenhouse Plants, Fruit Trees, &c. A separate List of Garden Seeds, Choice Flower Seeds, 20 papers, 5*s*.; 40 do., 10*s*. free by post.
Albion Nursery, Stoke Newington, London.

T. F. WINSTANLEY'S Descriptive Catalogue of GARDEN and FLOWER SEEDS is now ready, and can be had on application, or sent free by post.
28, Market Place, Manchester.

T. F. WINSTANLEY'S Descriptive AGRICULTURAL SEED LIST will shortly be ready, and may be had on application, or sent free by post. The above List contains much useful information.—28, Market Place, Manchester.

PRICED NURSERY CATALOGUES.

A. PAUL AND SON will be happy to forward the following priced Nursery CATALOGUES in return for one postage stamp each:—A, ROSES; B, ORNAMENTAL TREES AND CONIFERS; C, FRUIT TREES; D, HERBACEOUS PLANTS; F, GREENHOUSE PLANTS, &c.; G, SEEDS; H, HOLLYHOCKS; I, BULBS.—Nurseries, Cheshunt, Herts.

ROBERT KENNEDY, Agent for Messrs. Platz and Son, Seed Growers, Erfurt, has much pleasure in announcing he has received their Catalogue of Flower and Vegetable Seeds for the trade for 1855, which abounds with new articles of great interest, and will be forwarded, per post, on application to R. KENNEDY, Bedford Conservatory, Covent Garden, London.

P.S. Also, R. Kennedy's General Catalogue of British and Foreign Ferns forwarded on receipt of six postage stamps.

CHARLES TURNER begs to intimate that his New SPRING CATALOGUE is now ready, and contains descriptive lists of—

Dahlias,	Carnations,	Scarlet and Horse-shoe Geraniums,
Fancy Dahlias,	Picotees,	Delphiniums,
Cinerarias,	Pinks,	Mimulus,
Verbenas,	Pansies,	Pentstemons,
Fuchsias,	Auriculas,	Petunias,
Hollyhocks,	Shrubby Calceolarias,	Bedding Plants, &c.,
Chrysanthemums,		

including several new Dahlias, new Verbenas, new White Bedding Calceolaria, &c., offered for the first time. Can be had on application.—Royal Nursery, Slough.

ROBERT M. STARK begs to intimate that his spring Catalogue of FLORISTS' FLOWERS, BEDDING, and select HERBACEOUS PLANTS (comprising every novelty of merit) is now ready, and may be had on application. Choice assortments of GARDEN, FARM, and FLOWER SEEDS, to which he has added several new and deserving varieties. Every other article connected with the Nursery and Seed trade.
Edgehill Nursery; and 145, Princes Street, Edinburgh.—Feb. 24

RHUBARB ROOTS for FORCING or PLANTING.—Strong one-year planted roots of MYATT'S VICTORIA and LINNÆUS, MITCHELL'S ROYAL ALBERT, at 6*s*. per doz.; HOWARD'S PRINCE ALBERT, 12*s*. per dozen. This is a larger variety than the Victoria, and is extensively cultivated about Manchester. Price to the trade of the above, per 100 or 1000, on application to MESSRS. J. MYATT AND SONS.
Manor Farm, Deptford. Feb. 24.

GENUINE SEEDS.

THE MEMBERS OF THE "SEED GROWERS SOCIETY," continue to supply genuine AGRICULTURAL, VEGETABLE and FLOWER SEEDS at Growers' prices. Lists with price and terms of business may be had on application to the Secretary, JOHN MOSS, Jun., Feering, Kelvedon, Essex.

NEW CHINESE POTATO—
DIOSCOREA (JAPONICA) BATATAS.

T. F. WINSTANLEY has received a limited quantity of the above new Potato. For description and method of planting see his Garden Seed List, where full particulars are given. T. F. W. has also a few Plants left of the Kaisha or Sweet-kernelled Apricot, a fortnight earlier than the Moor Park. Prices on application.—28, Market Place, Manchester.

NEW ASHLEAF—THE "EARLY CHAMPION."

JOSEPH WILSON, SEEDSMAN, Ipswich, offers the following varieties, which for quality and yield cannot be excelled, viz.:—

	Per bushel.—£	*s*.	*d*.
THE CHAMPION ASHLEAF...	0	12	0
JACKSON'S IMPROVED ASHLEAF	0	9	0
The SHORT TOPS	0	7	6
LORD RAGLAN, new Mammoth Round var., per sack	2	2	0
EARLY FRAME AND ASHLEAF SEEDLINGS	0	8	0

Free to London; no charge for sacks. Orders must be accompanied with a remittance.

THE FLUKE KIDNEY POTATO.—This excellent variety is now planted here as the principal crop, being more free from disease and more prolific than any other in cultivation. It was raised in Middleton, and may be had genuine in any quantity at 5*s*. per bushel of 56 lbs.—Apply to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

Post-office Orders to be made payable at Middleton, Lancashire.

THE FLUKE POTATO.—A new second early variety, surpassing every other in its capability of resisting the Potato disease, and without exception the finest and most prolific Potato in cultivation. Price per cwt., 15*s*., bags included.

To be had genuine of THORNHILL & DICKSON, Lawrence Hill Nurseries; and No. 1, Wine Street, Bristol.

NEW CAULIFLOWER.

WAITE'S "ALMA," far superior to Walcheren very large and firm heads. Price to the trade 24*s*. per lb., smaller quantities 2*s*. 6*d*. per oz. No orders attended to for less quantities than one ounce.—Seed Establishment, 181, High Holborn, London.

EARLY DANIEL O'ROURKE PEAS.

J. G. WAITE begs to inform the Trade that he is now ready to execute orders for this valuable early Pea. Price can be had on application.
Seed Establishment, 181, High Holborn, London.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks, at 5*s*.; 12 varieties, 2*s*. 6*d*.; and from good double sorts, 1*s*.

Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s*. per packet; separate, 2*s*. Fine Quilled African Marigolds, 6*d*. per packet.—Saffron Walden Nurseries.

COLE'S CRYSTAL WHITE, & COLE'S DWARF RED CELERY.

J. THORNELEY, COLE, & Co., NURSERYMEN, SEEDSMEN, and FLORISTS, Withington, near Manchester, beg to announce that they are now prepared to supply these two well-known varieties, raised by Mr. W. Cole (late of Dartford).

CRYSTAL WHITE, ½ oz. packets, free by post, for 12 stamps.
SUPERB DWARF RED, ½ oz. pkts., free by post, for 9 stamps.
Price per lb. to the Trade on application.

ROSES.

GEORGE CLARKE begs to announce that he can still supply fine Standards of all the leading varieties, his own selection, at 18*s*. per dozen. Also, fine strong dwarfs of Perpetuals, Bourbons, Tea scented, &c., 12*s*. per dozen. Well varied collections of Evergreens, Fruit Trees, Coniferæ, and every article connected with the trade, at most moderate prices. Catalogues may be had on receipt of two postage stamps.—Nursery, Brixton Hill, near London.

VINES FROM EYES.—THE CHAMPION.

JOHN BUTCHER can with the greatest confidence recommend this truly noble Grape (but little known); it was raised at Warwick by the late Mr. W. Canning. Berries, extra large and globular; skin, thin; flavour, superior to the Hambro, and 9 days earlier. Plants 5*s*. 6*d*. and 7*s*. 6*d*. each. Stock limited.
Stratford-on-Avon, Feb. 24.

IMPORTED GERMAN FLOWER SEEDS.

T. F. WINSTANLEY, has received his annual importation (direct from Frankfort) of unrivalled Collections of German Seeds, including Double Ten-Week Stocks, Asters, Zinnia elegans, Truffeaus, new Pæony-flowered Aster, very beautiful, and many other varieties too numerous for insertion. Prices on application; lists free by post.
28, Market Place, Manchester.

GRASS SEEDS, CLOVERS, ETC.

T. F. WINSTANLEY is now ready to send out his Mixture of New Grass Seeds, for Laying down New or for Renovating Old Pasture; finest Mixtures for Lawns, &c. For list of sorts and quantities, &c., see his Garden and Agricultural Seed List, to be had on application.
28, Market Place, Manchester.

CHEAP NURSERY STOCK.

IMPORTANT TO ALL PLANTERS WHO DESIRE IMMEDIATE EFFECT.

WILLIAM JACKSON & Co., Bedale, Yorkshire, beg to refer to their advertisement in the *Gardeners' Chronicle and Agricultural Gazette* of the 17th February, page 110.

IPOMŒA RUBRO CÆRULEA.—Seed of this exceedingly beautiful Climbing Annual being now obtainable at a moderate price, all cultivators of flowers having a greenhouse or wall with warm aspect are advised to include it in their spring selection.—Seed supplied to Seedsmen and Nurserymen only, by GEORGE ROBERTS, 32, Moorgate Street, London.

CORNISH EARLY WHITE BROCCOLI,
1*s*. per packet, or 6*s*. per oz.
CONQUEROR OF THE WEST CUCUMBER,
1*s*. per packet, containing 12 good seeds.

The above can be had, warranted genuine, by forwarding postage stamps for the amount to

JAMES LAKE, Seedsman, &c., Bridgewater.

MAY'S MAGNUM BONUM LETTUCE.—Parties who were disappointed last season in receiving the above, can now have it by early application, in Packets 1*s*. each, free by post. We have numerous letters to show, received from parties who had it last season, to say that it is the most magnificent Lettuce they ever saw.—Address, HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

DOUBLE ITALIAN TUBEROSE ROOTS 4*s*. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived very moist and open Parmasan Cheeses.

R. M. STARK begs to intimate that he can supply botanists and others with the undermentioned articles:—Sets of Labels for Families, Genera, and Species of British Plants. Catalogues of Mosses, with the additions made in the recently published "Bryologia Britannica;" ditto of Marine Algæ; ditto of Zoophytes and Radiata. Seaweed Paper, Blank Books, Microscopic Specimens, and various other requisites.

Seeds or Roots of many New or Rare Plants of horticultural or botanical interest, of which lists may be had.
145, Princes Street, Edinburgh.—February 24.

GENERAL SEED ESTABLISHMENT, NORTHAMPTON.

JOHN JEYES begs leave to inform his Patrons and Friends that his general stock of Seeds is now complete, and that he shall feel obliged by their early orders. He has a good supply of all those varieties Seeds his Establishment has long been celebrated for, such as Matchless Cabbage, Imperial Cos Lettuce, Conqueror Pea, Blood Red Beet, Dwarf Prolific Bean, Snow's Green Cos Lettuce, do. Broccoli, Northampton Market Broccoli, Giant Asparagus, &c. &c.

VINES FROM EYES.—THE BLACK BARBAROSSA,
THE CHEAPEST GRAPE IN COVENT GARDEN MARKET.

JOHN BUTCHER can supply fine Plants of the above splendid late Grape. Plants with well ripened wood, stopped at from 6 to 7 feet. J. B. has been awarded Prizes for the above Grape by the Horticultural Society at Regent Street, on the following occasions:—Oct. 13, 1852; Feb. 18, 1853; Feb. 21, 1854; and Feb. 6, 1855.

All the following varieties can be had:—Black Hamburgh, Black Morocco, Black Tripoli, Black Alicant, Black West's St. Peter's, Cornichon, Black Prince, White Muscat of Alexandria, White Frontignan, White Syrian, White Malvoisie or Grove-end Sweetwater, and Red or Grizzly Frontignan.

Stratford-on-Avon, Feb. 24.

SHILLING'S SELECTED LIST OF SEEDS.
NORTH WARNBOROUGH NURSERY, ODIHAM, HANTS.

STEPHEN SHILLING will send on application his List of Seeds and Prices for the season. Those who have tried his seeds in past years can vouch for their good quality. He will also send free of carriage to the principal railway stations in Hants, Berks, and Surrey, a Dinner selection for 1 l. 10s.; a smaller selection, the contents of which will be a suitable choice of quantities for gentlemen where professional gardeners are not kept. Collections of Flower Seeds containing from 24 to 48 varieties from 5s. 6d. to 12s. free per post. Trees, Forest and Fruit; and Evergreens. Potatoes, Walnut-leaved, Shilling's Frame, &c., and all other Kitchen Garden Plants, &c.

GEORGE SMITH'S PRICED AND DESCRIPTIVE CATALOGUE of fine choice Verbenas, Fuchsias, Geraniums (Show, Fancy, Variegated, and Scarlet), Dahlias, Chrysanthemums, splendid new Hollyhocks, very choice Petunias, &c., will be forwarded in return for one postage stamp.

The Geraniums are in extra fine condition, and require repotting. Parties giving orders immediately will save much in carriage with less liability to damage by having them before they are spotted. Choice Verbena seed from the finest show flowers.—Islington Nursery, Hornsey Road, Islington, London.

NEW PLANTS FOR 1855.

AUSTEN AND MASLAN beg to recommend the following PANSIES.—1. LORD RAGLAN.—White ground, broad belting and top petals of deep glossy purple, smooth outline, texture unequalled, and fine form. This Pansy, which is a seedling of Mr. Campbell's, who raised "Robert Burns," is of the style of "France Creole," and a decided improvement on that favourite flower. 3s. 6d. per plant.

2. BLACK DOUGLAS (Turnbull's).—Dark self, nearly black; rich and fine form, as large as the "Duke of Perth," petals stiff, and for perfectly flat, good exhibition, extra fine. 3s. 6d. per plant.

ERICA FERGUSONI (Turnbull's).—A very desirable new Heath in the way of E. Marnockiana (see figured, "Gardeners' Magazine of Botany," Part 13, January, 1851), but its flowers are glorious. The tube of the corolla deep rose colour, large, and much inflated; the limb white blooming, after E. retorta, to which it is related, although of much freer growth. Well furnished Plants 15s. each; if more than three are taken, 12s. 6d. each.

The Subscribers, having purchased the entire stock of the above new Flowers, are prepared to send out good strong Plants by the first week in March. The usual discount to the trade.

Nursery and Seed Warehouse, Glasgow.—February 24.

SUPERIOR EARLY BROCCOLI.

MITCHINSON'S PENZANCE OR EARLY WHITE CORNISH BROCCOLI.—*Cultivated and invaluable for its earliness, coming into use early in February, a full-sized handsome head of excellent quality, but a shy seeder.* 1s. 6d. *per packet, or* 12s. *per ounce.* New Seed can be had in sealed packets of the following Agents in London:—NASH, MINTER, and Co., Strand; DAWE, COTTRELL, and BUNHAM, Moorgate Street; HURST and MCMULLEN, Leadenhall Street; FLANAGAN and SON, Mansion House Street; or from MITCHINSON'S Seed Establishment, Truro, Cornwall.—December 2.

From numerous unsolicited Testimonials we select the following:—

To Messrs. Mitchinson and Co., Seed Merchants, Truro, Cornwall.

"Sirs, I have enclosed 18 postage stamps for a packet of your Penzance Broccoli Seed, the same kind as you sent me last year. I hope I am not too late, for I am anxious to procure it, if possible, for I can bear testimony to its value as a new, early, and a superior Broccoli, for I have been cutting upwards of 30 heads every week from the beginning of February.

"Dorking, Surrey, April 6, 1854. "W. UNDERWOOD."

To Messrs. Mitchinson and Son, Seedsmen, Truro, Cornwall.

"Sirs,—I enclose you 1s. 6d. worth of stamps, and hope you will send me a small packet of the Early Broccoli you advertised last year. I have beat all my neighbours this year with your Broccoli, which has been very fine and true, and stood the winter well. "GEORGE PENDER."

"Sandgate, Kent, April 10, 1854."

To Mr. Mitchinson, Seedsman, Truro.
Enclosed with Specimens.

"Sir,—I beg to forward you this Broccoli, one of the sort after your own name. I have had a splendid crop of them this season, many of which measured three feet in circumference, and quality excellent. Cut the first on the 11th of February. If seed is scarce, be kind enough to save two packets.—T. BICE, Gardener. Grampound, Cornwall. April 7, 1854."

NEW PLUMS.

MR. H. DOWLING, FRUIT GROWER, Woolston Lawn, Southampton, begs most respectfully to return his sincere thanks to the Nobility, Gentry, and Public generally, for the liberal patronage he has received, and informs them that owing to his Garden being about to be cleared for building, he has to offer the above at unusually low prices. Fruit Growers and the Trade will find this a rare opportunity to supply themselves with them. H. D. has received Testimonials from those that planted them this season. He can with confidence recommend the Black Gage and Angelina Burdett as superior to any other Plum for prolificness and flavour; good strong Trees, and the prices can be obtained at Mr. CHVATE'S TURNER'S Royal Nursery, Slough; of Mr. HENDERSON, Pine Apple Place, London; or the Grower, at Woolston Lawn, Southampton.

POLYANTHUS SEED.

JAMES WOODS has again this year to offer a quantity of POLYANTHUS SEED, saved with more than ordinary care, from named and good laced flowers, which he can recommend with confidence, having had numerous Testimonials from different parts of the Kingdom of good and valuable flowers being raised from his seed. He will be able to send seed to grow 300 plants, with directions for sowing. Price 1s. per packet, or sent free, on receipt of 13 postage stamps to JAMES WOODS, Florist, Harwich, Essex.

P.S. Plants of Polyanthus will be sent out in April, with blooms on each plant, with name or otherwise, from 6d. to 3s. 6d. per plant.

J. W. has a small quantity of Auricula Seed, saved from a fine collection of Alpines, at 1s. per packet as above.

HOPS SUPERSEDED BY THE BAVARIAN BITTER, a perfect substitute for Hops, of an agreeable flavour, quite soluble in wort or beer, saving the trouble of straining through a Hop-back, and giving to Beer the well-known keeping properties of the Bavarian Beer. Price of 1 packet, 2s. 8d., which is equal to 5 lbs. of best Hops.—Prepared only by THOMAS PRATT WILLS, St. George's Square, Portsea. Free per post.

NEW AND CHOICE SEEDS
FREE BY POST OR CARRIAGE PAID.

	s.	d.
Holcus saccharatus, per packet of 500 seeds ...	1	0
Holcus saccharatus, per packet of 1200 seeds ...	2	0
Danvers' new yellow Onion very early, half oz. ...	1	0
Picridium vulgare, for salad, per packet ...	0	6
Olive-shaped white Radish, 1 oz.	1	0
Rose China do., winter, per packet	1	0
Yellow Turnip do., very early, 1 oz.	1	0
Abronia umbellata, p. pkt.	1	0
Alonsoa Warczewicsi, splendid half-hardy annual for pots or bedding, orange and scarlet, 12 seeds	1	0
Arctotus breviscapa, per packet	1	0
Browallia abbreviata, very showy for pots or bedding, 12 seeds	1	6
Calandrinia umbellata, per packet	1	0
Clintonia pulchella, p. pkt.	1	0
Coreopsis Drummondi grandiflora, per packet	0	6
Delphinium chinense, per packet	0	6
Double Convolvolus minor, per packet	1	0
Double dark Dianthus, extra, per packet ...	0	6
Gomphrena Haageana, orange, per packet ...	0	6
Gypsophila muralis, red, dwarf, suited for bordering, very pretty, 25 seeds	1	0
Helianthus californicus, fl. pl., 10 seeds	1	0
Helianthus argophyllus, silvery foliage and yellow blossoms, 12 seeds	1	0
Helichrysum brachyrhynchum, 50 seeds	1	0
Helichrysum compositum maximum, large double flowers from yellow to scarlet, fine, per packet	1	0
Heliophila trifida „	1	0
Hibiscus Thunbergi, yellow, per packet	0	6
Iberis umbellata violacea superba, per packet ...	0	6
Ipomœa limbata, purple, with clear white border, most beautiful climber, 6 seeds	1	6
Ipomœa rubro cærulea, 6 seeds	1	0
Lamarkia aurea, per pckt.	0	6
Linum decumbens, red, per packet	0	6
Lisianthus Russellianus, 100 seeds...	1	0
Lobelia ramosa, per pckt.	0	6
Lupinus guatemalensis, per packet	0	6
Mesembryanthemum tricolor, per packet ...	0	6
Phlox Drummondi, fine, per packet	0	6
Phlox Leopoldi, per pckt.	0	1
Portulaca aurea, „	0	6
„ splendens „	0	6
„ Thellusoni „	0	6
Rhodanthe Manglesi, per packet	0	6
Salpiglossis variabilis, per packet	0	6
Salvatia campestris, very handsome half-hardy annual for pots or bedding, pink with yellow eye, 50 seeds	1	0
Saponaria multiflora, p. pkt.	0	6
Schizopetalum Walkeri, per packet	0	6
Zinnia elegans coccinea, per packet	0	6

Collections suited for competition of the finest imported German Asters, German Stocks, Balsams, Larkspurs, Mangolds, Scabios, and Zinnias, from 2s. 6d. to 7s. 6d.

Dioscorea Batatas, 2s. 6d.; or five sets for 10s. 6d.

THOMAS JACKSON AND SON, Kingston-on-Thames.

THE LARGEST STOCK AND LOWEST PRICES IN ENGLAND.

JOHN WESTWOOD, the FLORAL NURSERY, Acton Road, Turnham Green, near London, having an enormous and well selected stock of SOFT-WOODED PLANTS, and most extensive premises (the glass covering 3 acres of land), is enabled to offer it to the public and the Trade at prices far lower than any hitherto heard of, but as it is impossible to convey by advertisement anything like detailed or sufficient information of the advantages or resources of his establishment, he respectfully requests all who desire to purchase plants to apply for his Catalogue for 1855 (which is now ready), and he will immediately forward it postage free.

DR. SYNTAX CUCUMBER.—The above celebrated variety has been nearly lost to gardeners for several years past. It is known by all experienced growers of Cucumbers to be the very best sort in existence for early work.

A paper sent free per post on receipt of 13 stamps.

SNOW'S HORTICULTURAL BROCCOLI.—Half-ounce Packet sent free per post on receipt of 24 stamps.

NORTHAMPTON MARKET BROCCOLI.—This variety is grown by the market gardeners here, and excites the admiration of all who see it. Visitors say "they never saw such Broccoli anywhere else." Half-ounce Packets sent free per post for 14 stamps.—JOHN JEYES, Nurseries, Northampton.

MESSRS. E. G. HENDERSON AND SON, of the Wellington Nursery, St. John's Wood, London, will commence sending out April 30, 1855, the following new Seedling FUCHSIAS, raised by Messrs. Story and Banks.

Queen Victoria (Story's), scarlet, with white corolla. 10s. 6d.
Prince Albert (Banks's), fine violet corolla. 10s. 6d.
Perrugino (Story's), fine striped corolla. 10s. 6d.
Empress Eugenie (Story's), rosy crimson, white corolla. 10s. 6d.
Ranunculæflora (Story's), fine double white corolla, 21s.
Lady of the Lake (Story's), blush, white corolla. 10s. 6d.
Water Nymph (Story's), globe-flowered, fine white corolla, 10s. 6d.
Raffaelle (Story's), beautiful variegated corolla. 10s. 6d.
Mrs. Story (Story's), fine white corolla. (In accordance with Mr. Story's wish, this was named after Mrs. Story, as it was in his opinion the finest). 10s. 6d.

Or if the set of Nine are taken, the price 4l. 4s., including SNOWDROP (STORY'S). This was received from Mr. Story as possessing a double white corolla, and described by himself and others who saw it in flower as a very beautiful variety. It was the first double white raised by him; but the plant did not flower in the Wellington Nursery after it was received by Messrs. HENDERSON; and through three stout branches having been broken off it it did not quite correspond with the description given by Mr. Story and others a few months after to Mr. A. Henderson when at Newton making inquiries respecting the Plants. Consequently no charge will be made for it, but one will be presented with every set ordered.

FUCHSIA, BANKS'S FAVOURITE (BANKS), considered the finest of the blue violet corollas. 10s. 6d.

For further particulars see page 62 of the *Gardeners' Chronicle* for Jan. 27; or a list will be sent post free on application.

MESSRS. E. G. HENDERSON & SON having purchased of the late W. Story, Esq., of Newton, in the county of Devon for ONE HUNDRED GUINEAS, all Seedling Fuchsias with white Corollas, which new feature in this tribe he succeeded in introducing, and in consequence of an advertisement which appeared in the *Gardeners' Chronicle* some few weeks back from Messrs. Lucombe, Pince, & Co., of Exeter, offering two new Fuchsias similar in character to those purchased of the late Mr. Story, and after a written communication with that gentleman it was thought necessary for one of the firm to make further inquiries about them, and in consequence Mr. ANDREW HENDERSON went to Exeter and Newton, where he was informed by a jobbing gardener at Newton that he had received Seven Pounds for them after (as the said jobbing gardener stated) he had been offered £20 for them by a nurseryman in London, but whose name or address he did not know.

Messrs. E. G. H. & Son give the above explanation in consequence of a great number of their customers throughout the autumn having ordered plants of them at higher prices than are above quoted. This reduction is made in consequence of information which they have received that leaves no doubt on their minds but that those to be sent out by Messrs. Lucombe, Pince, & Co. are similar in character to the above.

Messrs. E. G. HENDERSON & SON, of the Wellington Road Nursery, St. John's Wood, London, beg to inform their patrons and the public that their New Catalogue of Seeds for 1855 is now ready, with full descriptions and other information, and will be forwarded post free on application.

E. G. HENDERSON & SON take this opportunity of stating that none but the most popular and improved kinds of Vegetable Seeds appear in their list, and among the Flower Seeds only those whose beauty and merit are univerally acknowledged, together with a carefully selected stock of the principal new varieties. They would call particular attention to the following new and choice seeds, which they can confidently recommend:—

Per packet—	s.	d.
Antirrhinum, extra fine ...	0	6
Auricula, fine mixed ...	1	6
Abronia umbellata	1	6
Anagallis azurea grandiflora	1	0
„ rubra „	1	0
Arctotis breviscapa ...	0	6
Aster, new Peony pyramid, in packets of 10 distinct colours, separate ...	3	6
„ new bouquet pyramidal, in packets of 12 distinct colours	3	6
Balsam, double Camellia-flowered, in packets of 6 distinct colours, separate	3	0
„ new double Camellia Rose, in packets of 10 distinct colours, separate, extra fine	5	0
„ Aurora, new double crimson	1	0
„ new dble. pale yellow	1	0
Carnation, stage flowers...	1	6
Calceolaria, ex. ex. 2s. 6d. & 5s.		
Cineraria, ex. ex. 1s. 6d. & 2s. 6d.		
Chrysanthemum pompone	1	0
„ large flowered	1	0
Calendrinia umbellata ...	0	6
Dianthus Dunnetti, suprb.	1	0
„ Chinensis flora pleno, extra fine...	0	6
Eschscholtzia tenuifolia...	1	6
Geranium, choice show ...	2	6
„ choice fancy	2	6
Hollyhock, first quality ...	2	6
„ second quality ...	1	0
Ipomœa rubro cærulea ...	1	0

Per packet—	s.	d.
Ipomœa limbata	2	6
Leptosiphon luteum ...	0	6
„ aureum	1	6
Linum grandiflora rubrum 1s. 6d., and	2	6
Lobelia Queen Victoria (scarlet)	0	6
Lobelia Roi Leopold ...	0	6
Larkspur, new double improved Hyacinth flowered, in packets of 6 distinct colours ...	2	6
Limnanthes sulphurea odorata	1	0
Mignonette, new, large ...	0	3
Mimulus, beautiful ...	0	6
Pansy, choice show ...	1	6
„ choice fancy	1	6
Petunia, extra fine ...	1	0
Phlox Drummondi coccinea	0	6
Portulaca, new orange ...	0	6
„ new rose	0	6
Primula sinensis fimbriata, alba and rubra mixed ...	2	6
Poppy, new large Peony, in 8 brilliant colours ...	2	0
Reseda myriophylla, new Mignonette	1	0
Salpiglossis, scarlet, blue, and sulphur	0	6
Stock, German, new large flowering, in packets of six distinct colours ...	2	6
Verbena, choice mixed ...	1	0
Sweet William, new double	0	6
Whitlavia grandiflora ...	1	6

Lilium giganteum seed, 2s. 6d. and 5s. per packet.
Holcus saccharatus (new Sugar-cane), 1s. to 2s. 6d. do.
Dioscorea Batatas (Japanese Yam), 2s. 6d. each tuber.
20 Ornamental Grasses (see Catalogue).
12 Ornamental foliage Annuals.—February, 1855.

To Farmers, Potato Growers, and Others.

JACKSON'S PATENT PREPARATION
FOR
PRESERVING POTATOES, WHEAT, AND OTHER SEEDS

From DISEASE, the RAVAGES of the SLUG, GRUB, and WIREWORM, in addition to which the CROPS are brought forward in HEALTH AND VIGOUR, and the yield is greatly increased, in proof of which the following extracts are given from numerous letters received by Mr. JACKSON.

EXTRACTS:—

"One of the fields of this farm, the property of MRS. STANBURY, was planted with Regents Potatoes in April last, some of which were prepared by you. The result now is, that the whole of the crop from the unprepared sets is thoroughly diseased, and hardly worth the trouble of taking up; while those raised by the side of them from the prepared sets are not only in a beautiful state of preservation from the disease, but the produce is much greater,—the Potatoes are more numerous than the others; indeed, if there were no such thing as the disease to be feared, it would be worth the trouble and expense of preparing the sets by your process, even for the sake of the improved crops. I shall certainly, for the future, prepare all my Potatoes for seed by your process; and I intend to adopt it for preserving my Wheat from the Smut.

"G. B. BAXTER.

"Pelment Farm, Eltham, Kent, August 28, 1854."

"Admiral Sir J. A. GORDON, K.C.B., Marlee House, Blairgowrie.

"SIR,—I have received your note of the 16th. The Potatoes that came here from England, prepared by Mr. JACKSON, were planted in a piece of new ground, and according to the directions sent by him along with them as to distance between the plants, &c. They came up well, with strong healthy stems; I have now taken the whole crop up, and there is not the slightest appearance of any disease amongst them. They are of large equal size and very prolific. There were long black unprepared Kidneys planted in the same patch, and a great deal of them are not fit for use, at least a third part are diseased. I hope Mr. JACKSON'S process may be widely known, as it is a great boon.—I am, &c., JOHN SHANKS,

"Forester, Kildrummy Castle.

"Kildrummy Castle, Aberdeenshire, November 17, 1854."

"I am very much pleased with the result of the experiments I have made with your Prepared Potatoes; for I planted them, without any manure, in ground where for several years I have hardly had a sound Potato, and I now find the crop perfectly free from disease, and in a very fine condition; while those of the same sort, unprepared, which were planted at the same time, and next to them, are diseased and eaten by worms.

"The Potatoes from the Prepared Seed were so remarkably good that I was induced to weigh them, and I found, to my great astonishment, that they were as 200 to 150 of the others, or about 25 per cent. in favour of your preparation.

"T. AUSTEN, Nurseryman and Seedsman.

"Blackheath, Kent, 24th August, 1854."

Sold by Messrs. CHARLWOOD & COWPERS, Seedsmen, Covent Garden; and JOHN KERNAN, Seedsman, 4, Great Russell Street, Covent Garden; all Seedsmen and Chemists; and at the Patentee's, 18, Cannon Street, London Bridge, in Packets of One, Two, Three or Four Pounds, or in Bulk for the use of Farmers and Potato Growers.

GREAT NOVELTIES FOR THE ENSUING SEASON,
FUCHSIAS WITH WHITE COROLLAS.

LUCOMBE, PINCE AND CO. beg leave to announce that they shall be prepared to send out two splendid and entirely novel Seedling Fuchsias, early in May next, viz.:—

FLORENCE NIGHTINGALE.

Pure white corolla, with brilliant scarlet sepals, finely reflexed; an extremely lovely and novel variety.

CALANTHIFLORA-PLENA

(The DOUBLE Snowdrop Corolla'd Fuchsia.)

Pure double white corolla, resembling a fine large double Snowdrop, with rich scarlet sepals; altogether distinct from anything of the kind ever yet produced. Price 10s. 6d. each.

The usual discount to the Trade when three or more are taken.

Exeter Nursery, Exeter.—ESTABLISHED 1720.

NEW PLANTS.

A. VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer to Amateurs and to the trade his following new plants:—

ACHIMENES (TREVIRANIA), AMBROISE VERSCHAFFELT. This is the finest Achimenes of all; a correct drawing is figured in L'ILLUSTRATION HORTICOLE, Number 1, 1855. Nice plants will be sent out next May, each 8s.—N.B. One over if three plants are taken.

TYDŒA WARSCEWICZII; magnificent plant for foliage, and particularly for the flowers. It is the finest gesneriaceous plant of all: a correct drawing is figured in L'ILLUSTRATION HORTICOLE, Number 1, 1855. Strong plants are now ready for sale, each 15s.—N.B. One over if two plants are taken.

RHODODENDRON (HARDY) PRINCE CAMILLE DE ROHAN. This is the finest hardy variety raised; a correct drawing is figured in L'ILLUSTRATION HORTICOLE, Number 2, 1855. This variety is warranted to be quite hardy, and very free bloomer. Nice plants will be sent out next May, each 15s. N.B. One over if three plants are taken.

Agent in London: Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street.

CHARLES SHARP begs to call the attention of the Nobility, Gentry, and the Trade to his unrivalled collection of SEED POTATOES, which have been grown and selected with great care, and perfectly free from disease. The undermentioned prices include hampers and package. Terms to the Trade known on application.

POTATOES:—

	Per bush. of 4 st.		Per bush. of 4 st.
Ash-leaf Kidney (Jackson's)	10s.	American Early	7s.
Ash-leafed Kidney (Walnut-leafed)	10s.	Forty-Fold	8s.
Early Emperor	10s.	Kentish Kidney	8s.
" Shilling's	10s.	York Regent's	6s.
" Martin's Globe ...	10s.	White Rough	6s.
" Oxford Large ...	8s.	French Blues	7s.
" Round Frame (for Forcing)	8s.	White Kidney	8s.
Early (Fox's Seedling) ...	8s.	British Queen, the largest and best produce in cultivation	8s.

Seed Establishment, Wisbeach, Cambridgeshire.

CHARLES SHARPE AND CO. beg to call the attention of the public to their superior collection of POTATOES FOR SEED, as under, which they can recommend as being the best in cultivation. Price per bushel of 4 stones:—

Early Ash-leaved Kidney	9s.	Early Emperor	9s.
" " Jackson's	9s.	" Cockney	9s.
" Round Frame	9s.	" Oxford	8s.
" Martin's Globe.....	9s.	" White Rough	6s.
" King	8s.	" Foxe's Seedling	9s.
" Hen's Nest	10s.	" American	7s.

FOR SECOND EARLY AND LATE PLANTING:—
Yorkshire Regent, 6s.; Prince Regent, 6s.; Fluke Kidney, 8s.

DIOSCOREA JAPONICA, HOLCUS SACCHARATUS.—Price on application.

Nursery and Seed Establishment, Sleaford.

MYATT'S NEW SEEDLING POTATO.
BROCKLEY KIDNEY.

W. AND J. MYATT can dispose of a limited quantity of the above excellent new Potato, which they have proved to be a first-rate variety, and has been selected as the best out of many thousand seedlings raised at Manor Farm.

In flavour it is quite equal to the Ash-leaf, and for produce very far superior; it is a compact strong grower, and ripens off quickly, making it an invaluable summer variety. To be sent out in peck bags, 3s.: bushel, 56 lbs., 10s.

Also, EARLY MAY or BRITISH QUEEN, the earliest round Potato, middling size, suitable for planting whole, 5s.; Early Shaw, 5s.; York Regent's, 5s.; Hen's Nest, a good field Potato, 5s. per bushel; Red Ash-leaf, 2s. 6d. per peck. These are all one year's growth, from Yorkshire or Scotch sets, and will be delivered free to any railway terminus in London.

Post Office Orders are requested from unknown correspondents, payable at Deptford, to WILLIAM MYATT.

Manor Farm, Feb. 24.

OLD NURSERY AND SEED ESTABLISHMENT, NORTHAMPTON.

JOHN PERKINS, SEED-MERCHANT & GROWER, begs to call the attention of his Patrons and the Public to his General Stock of GARDEN and AGRICULTURAL SEEDS, &c., the greater portion of which have been grown by himself, and which he can with confidence recommend. Also the following kinds of Seed Potatoes, true to name:—Ashleaf, or Albion Kidney, Jackson's Improved Albion do., Golden Multiplier do., Fluke Kidney, Lapstone Kidney, Thurston's Conqueror, Rounds, Ready Penny, Early King, Hicks' Early, Soden's Early Oxford, Early Shaws, Rillet's Flourball, American Seedling, Holland's Red.

The above may be obtained as cheap or cheaper than any other house in the trade, prices of which may be had on application. Also 100,000 one to two years' Seedling Oak, 50,000 Scotch Firs, 2 ft., 20,000 to 30,000 Beech, 3 to 4 ft. In addition to the above, J. P. has a very extensive stock of Fruit and Forest Trees, Flowering Shrubs, Evergreens, &c., &c., priced catalogues of which will be forwarded on application.

Nurseries about a quarter of a mile on the Bedford Road, also on the Billing Road, and at Wootton.

Seed Warehouse, Market Square, Northampton.

LATE WHITE SUPERB BROCCOLI—"EMPEROR."

E. P. DIXON having purchased the entire stock of the above Broccoli of Messrs. Elletsons, Market Gardeners, Thorngumbald, near Hull, begs to announce that he is prepared to send it out in sealed packets at 2s. 6d. each. This Broccoli has been raised by the Messrs Elletsons, the raisers of the Mammoth, sent out some time ago, who state that the EMPEROR, if sown at the same time, will come into use before it. Is of very dwarf growth, perfectly hardy, with heads from 15 lbs. to 20 lbs. weight; keeps its colour, and stands firm three weeks after it is ready to cut. A noble flower, and commands the best price of any other in the Hull market, where it is well known, and will be a great acquisition to the market gardeners around London, as well as those who wish for a first-rate Broccoli.

PURE MAMMOTH BROCCOLI.—Numerous applications having been made to Messrs. Elletsons last season for Seed of the Pure Mammoth Broccoli, they determined to allow a flat to stand for Seed, carefully selected from the original stock, producing heads from 18 lbs. to 25 lbs. each. E. P. D. having purchased the stock of this celebrated Broccoli, is prepared to send it out in packets at 2s. 6d. each.

Each may be had of Messrs. NOBLE, COOPER, & BOLTON, 152, Fleet Street; and Messrs. HURST & M'MULLEN, 6, Leadenhall Street, London. Also of the Advertiser, 57, Queen Street, Hull.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their Mixtures of Grass Seeds are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre ... ... 30s. per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32s. per acre.
Mixtures for improving and renovating old Grass Land, 1s. per lb.
Mixtures (finest sorts) for forming Lawns... ... 1s. 3d. per lb.

These Seeds are are all new, and have all been properly cleaned and their growing properties fully tested. Directions for sowing accompany the seed.

G. G. and Co.'s New Priced AGRICULTURAL CATALOGUE will shortly be ready, and will be forwarded free on application.

GEORGE GIBBS & CO., SEEDSMEN,
26, Down Street, Piccadilly, London.

DAWE, COTTRELL, AND BENHAM, beg to inform their friends and patrons that their Descriptive Retail LIST of FLOWER, GARDEN, and AGRICULTURAL SEEDS is now ready, and may be obtained, post free, on application.

D., C., & B. also beg to offer the following CHOICE ROOTS at very low prices.

Anemones, single purple, very fine ...	per dozen ...	3s.
" " scarlet, " ...	" ...	2s.
" " mixed, " ...	per lb. ...	3s.
Gladiolis florabundus, large	per dozen ...	2s.
" Gandavensis, very fine ...	" ...	5s.
and many other choice varieties.		
Iris Germanica, splendid var., mixed,	per dozen ...	4s.
Ranunculus, mixed, double, very fine,	per 100 ...	5s.
Tuberoses, fine double, Italian ...	per dozen ...	3s.

36, Moorgate Street; and 304, Laurence Pountney Lane, Cannon Street, London.—Established at 28, Cornhill, 1720.

ARTHUR HENDERSON AND CO. beg leave to inform their patrons and friends that their stock of VEGETABLE and FLOWER SEEDS (containing many choice and new kinds) is now ready for sending out. Catalogues may be had on application.

Lilium giganteum Seed	per 100 seeds ...	5s.	0d.
White-topped Clary	per packet ...	1	6
Limnanthus sulphurea odorata...	" ...	1	6
Dianthus Dunnetti superbus ...	" ...	1	6
Escholtzia tenuifolia	" ...	1	0
Leptosiphon aureum	" ...	1	6
Whitlavia grandiflora	" ...	1	6

Pine Apple Place, Edgeware Road, London.

CLOCK-HOUSE SEED DEPOT AND GARDENERS' REGISTRY OFFICE, KING'S ROAD, CHELSEA.

J. ROGERS beg most respectfully to announce to the Nobility, Clergy, Gentry, his numerous Friends, and the Public generally, that he has commenced business as a SEEDSMAN; and trusts by INTEGRITY, ASSIDUITY, and ATTENTION to merit their patronage and support.

J. R. can supply the "Empress of the French" Cucumber, which for beauty and every good quality is a type of the illustrious personage after whom it is named. Price 2s. 6d. per packet.

Catalogues forwarded on application.—February 24.

ACHIMENES, GLOXINIAS, ETC.

BASS AND BROWN have a large stock of fine Tubers of the following, which they can supply to the trade in quantities. Prices on application.

Achimenes Cherita.
" Mr. Aparpart.
" Louis Van Houtte.
" Margaretta (best white).
" Magnifica purpurea.
" Sir Traherne Thomas.

Gloxinea Leonie Van Houtte.
" Hogoveen.
" Willsoni.
" Duke of Wellington.

Verbenas, 60 new varieties of 1854, of the first raisers.

☞ A quantity of Corræa and Pimelea Stocks Wanted.

Sudbury, Suffolk.

TO THE TRADE.

JOHN HARRISON begs to offer to the Trade the undermentioned plants, of which he has a large stock.

Rose Manetti, strong cutting	25s.	0d.	p. 1000
Raspberry, Northumberland Fillbasket, the best variety in cultivation, 20s. per 100 ...	160	0	"
Do. Fastolff, 8s. per 100, or	60	0	"
Do. Wilsher Red Globe, ...	10	0	per 100
Do. Magnum Bonum	10	0	"
Rhubarb, Victoria, strong	25	0	"
Do. Royal Albert, do.	30	0	"
Currants, Victoria, 1 year old...	6	0	"
Do. do. 2 years old, strong ...	12	0	"
Do. Black Naples, 1 year	6	0	"
Do. do. do. 2 years	10	0	"
Do, do. Bang-up, extra fine	12	0	"
Arbor-Vitæ, 1½ to 2 feet	15	0	"
Juniper, Swedish, 1½ feet	25	0	"
Cupressus Funebris, 1½ feet	100	0	"
Delphinium Barlowi, strong	40	0	"

Roses of all the best varieties in cultivation, of which J. H. has a stock of many thousands, one year established in pots, and fit for immediate forcing.—Nursery, Darlington, Feb. 24.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY respectfully invite attention to their stock of the following very desirable HARDY PLANTS.

Araucaria imbricata, from 2 to 7 feet high; as handsome as plants can be.
Cedrus Deodara, in any quantity, from 1 to 3 feet high
Do. do., 4, 5, 6, 7, 8, and 10 feet high; splendid plants
Cedars of Lebanon, 3, 4, 6, and 10 feet high
Pinus Douglasi, 3 to 10 feet
" insignis, 2 to 7 feet
" Menziesi, 3 to 7 feet
" Pinsapo, fine plants, 3 to 6 feet
" Nordmanniana, 1½ to 3 ft., all from seed and remarkably handsome
" nobilis, 1½ to 2 feet; a few larger, 5 and 6 feet high, on their own roots, and with perfect leaders
" Montezumæ, 2 to 4 feet
Pinus canadensis, 3 to 8 feet
Cupressus macrocarpa or Lambertiana, 4 to 7 feet
" thyoides variegata, 3 to 4 feet (the variegated white Cedar)
Juniperus, Upright Irish, perfect columns, 3 to 7 feet
" chinensis, 2 to 8 feet
Yew, common English, 3 to 8 feet
" Irish, 4 to 10 feet
" gold-striped, 1½ to 3 feet
" do., tall standards, 4 to 7 ft.
" Dovaston, or Weeping, worked on tall straight stems
Thuja aurea, the finest plants in the country
Libocedrus chilensis, the finest plants in the country
Large variegated Hollies
" Standard Bays

Also an immense stock of large Evergreens, Standard Ornamental Trees, &c.

All the plants here offered may be seen growing in our Nursery; they are removed every year, and will travel any distance with perfect safety. Of some, such as Araucarias, Deodaras, Golden Yews, Thuja aurea, Pinus nobilis, Nordmanniana, we have any quantity; and the plants, for root and branch, are not to be surpassed. Priced Catalogues will be forwarded on application, enclosing two postage stamps, to WATERER and GODFREY, nephews and successors of the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey, near the Woking Station, South-Western Railway, where all trains stop, and where capital conveyances can be obtained.

The 2d. stamp will also include a descriptive Catalogue of their American Plants, Roses, and Nursery Stock in general.

GOLDEN DROP GREEN-FLESHED MELON.

J. CHARTRES AND Co. have a limited quantity of Seed of this splendid variety, which they can with confidence recommend; it is of moderate size, oval shape, and beautiful gold colour. Six seeds, 1s.

J. C. and Co. beg further to state that their unrivalled Stock of Seeds is now arranged, of which a Descriptive and Priced Catalogue may be had on application.

York Nursery, Hanger Lane, Stamford Hill; and 74, King William Street, City, London.—Feb. 24.

NOW READY.

WILLIAM AND GEORGE DAVISON can supply complete collections of KITCHEN GARDEN SEEDS, to suit the various sized Gardens, at the following prices:—

No. 1 Collection ...	£3 0 0	No. 3 Collection ...	£1 2 6
No. 2 " ...	1 16 0	No. 4 " ...	0 12 6

FLOWER SEEDS: 50 packets, including the best hardy, half hardy, and tender Annuals and Biennials, with printed instructions, 10s 6d.; 25 ditto ditto, 6s.; 12 ditto ditto, 3s.

GRASS SEEDS: Fine Lawn Grass Seed 1s. per lb.; Grass Seeds for laying down permanent pasture mixed to suit any soil, 30s. per acre. Every variety of agricultural Seeds of the finest quality. Priced Catalogues may be had on application to W. & G. DAVISON, Seed Warehouse, St. Peter's Street, Hereford.

NOW READY.

SUTTON'S COMPLETE COLLECTIONS OF KITCHEN GARDEN SEEDS *are now ready, and should be ordered forthwith, by which a full supply of every kind of Vegetable Seed required during the whole year will be secured (including the best sorts yet introduced), and at a very small cost, viz.:—*

No. 1 Collection ...	£3 0 0	No. 3 Collection ...	£1 5 0
No. 2 do. ...	2 0 0	No. 4 do. ...	0 15 0

The quantities in each collection being apportioned to the size of the garden, INSTRUCTIONS ON CULTIVATION will be enclosed with Nos. 1, 2, and 3. To secure the best sorts, orders should be given immediately, addressed

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

GRASS SEEDS, SEPARATE OR MIXED.—*Gentlemen intending to lay down land to Permanent Pasture, or for one or two years' lay, are recommended to communicate with us, stating the nature of the soil and situation, that we may advise as to sorts of Grass Seeds most suitable.* Price 24s. to 32s. per acre for Permanent Pasture.

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 24, 1855.

IN adverting last week to the SEVERITY OF THE WEATHER, it was remarked that the minimum thermometer on the 10th inst. was only 1° above zero, and that on the night of the 13th it indicated as low as that point, or 32° FAHR. below freezing. Since then the temperature has been nearly as low on two successive nights; on the 17th it was only 2°, and on the 18th but 3° above zero. The following are the minimum temperatures from the 12th to the 22d inclusive:—

1855, Feb.	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st	22d
Min. tem.	23°	0°	17°	10°	19°	2°	3°	20°	8°	10°	23°
Radiator	20	−6	13	5	17	−6	−3	15	2	5	20

From the above it will be observed that when the ordinary thermometer indicated zero on the 13th, a thermometer in the focus of a polished metallic basin, and thus cut off from radiation of heat from the earth, and exposed to the actual temperature of the air, showed 6° below zero; and it was equally low on the night of the 17th, when the ordinary minimum thermometer stood at 2° above zero.

The whole of the last four weeks has been unusually severe;—indeed, since the 9th of January the temperature of the nights has been for the most part considerably below freezing. The effects on vegetation of this long-continued and intense cold remain to be seen. In the meantime the following table may be interesting, affording as it does an analysis of the temperature of the 31 days, from the 19th of January last to the 18th of February inclusive, comparatively with that of the same number of consecutive days in other very cold periods that have occurred since 1800.

Table of the mean maximum, mean minimum, mean, and extreme lowest temperature of the coldest periods since the commencement of the present century.

YEARS.	Mean Maximum	Mean Minimum.	Mean.	Extreme lowest.
1855 Jan. 19 to Feb. 18...	33.77	18.19	26.33	Feb. 13 ... 0
1845 Jan. 26 to Feb. 25...	40.93	24.51	32.72	Feb. 11 — 3
1838 Jan. 7 to Feb. 6 ...	31.10	21.29	26.19	Jan. 19 — 4½
1822, 1823 Dec. 26 to Jan. 25...	33.61	22.64	28.12	Jan. 19 ... 4
1819, 1820 Dec. 23 to Jan. 22...	33.71	19.45	26.58	Jan. 14 ... 0
1816 Jan. 29 to Feb. 27...	38.80	25.13	31.96	Feb. 9 — 5
1813, 1814 Dec. 27 to Jan. 26...	31.26	19.84	25.55	Jan. 9 & 22 8

From this it appears that the mean minimum of the above period, 31 days, of the present year is lower than that of any other remarkably cold period, comprising the same number of days, in the present century; and that its mean of day and night temperatures is only exceeded by those of 1838 and 1813-14; whilst its lowest extreme is not so cold as those which occurred in 1845, 1838, and 1816. In general severity, 1813-14 exceeded all the others, but its extreme lowest point of cold appears, according to the tables in "Howard's Climate of

London," to have only reached within 8° of zero, or not so low by 12½° as was experienced on the 19th of January, 1838, which proved so destructive to vegetation. Of the effects of the cold of the former period on plants there is probably no good record, but it is certain that many things which then survived were killed in 1838. The frost which set in about the 27th of December, 1813, continued with scarcely any interruption till the 7th of February, 1814. A fair was held on the Thames between London and Blackfriars bridges, and the whole space was covered with people; but on the 11th of February the river had been again navigable, for on that day Howard states, "The busy oar is now plied with its wonted alacrity, and the sons of commerce are pursuing their avocations with redoubled energy."

The present severe frost set in when the ground was remarkably dry for the period of the season. The springs were probably never known to be so low in winter. In some cases where wells have afforded a supply for many years, the pipes have had to be lengthened to reach the water. In an open well at Chiswick the water is now 6 feet lower than it was in 1852. The average annual amount of rain near London is 24 inches; but last year the depth of rain scarcely amounted to 19 inches. In February, March, and April, 1854, the total depth of rain was only 1½ inch, instead of the average of 6 inches. In September there was little more than half an inch. This circumstance, together with a higher temperature than usual in September during the day, contributed greatly to render the summer growth of trees and shrubs riper and firmer than would have otherwise been the case; and hence there is a probability that the present frost will have less effect than under opposite circumstances. The dryness of the ground must likewise be favourable for vegetation.

The temperature of the fortnight preceding this period of severe frost was considerably higher than usual. This is frequently the case before unusually cold periods, but rarely unaccompanied with so little rain as in the present instance; for scarcely any fell up to the middle of January of the present year; and the total amount was only one-tenth of an inch during the last month.

Notwithstanding the perils and hardships which our brave countrymen have endured in the Crimea, the arts and sciences have not been neglected, as the numerous admirable sketches from the pencils of our military men daily testify; and we are indebted to the zeal and kindness of an officer (Capt. George Elliot, R.M.) for some very remarkable productions.

We have already published several essays upon various Oak-galls, some of which are not uncommon in this country, whilst others have been transmitted from the south of Europe.

We may here remind our readers of a very singular feature regarding these vegetable excrescences, namely, that they are produced by four distinct orders of insects—the Diptera, Omoptera, Lepidoptera, and Hymenoptera. These last produce the galls of commerce as well as other kinds, which vary most singularly in form, notwithstanding the perfect flies (Cynipides) are often very similar.

It is now well known that the female Cynips when it punctures the plant to deposit its egg introduces with it some virulent or poisonous fluid which acts upon the sap, and by deranging the circulation causes the bud, leaf, or stem to produce spongy or woody excrescences. These are often modifications of the leaf-bud or flower-bud, or enlargements of the nervures or tissues of the developed leaves; and thus one sees the flowers of the Oak transformed into globules like bunches of Currants, the buds into shoots resembling Hops, and the cups of the acorns assuming the most grotesque forms. The leaves are ornamented with a variety of galls, some as round and large as marbles, others not bigger than Peas, whilst the undersides are frequently spangled with rosy caps and turbans. The Oak Apples, our acquaintances from childhood, are spongy; there are woolly, tasselled, and prickly masses of a like nature, the creations of similar species of gall-flies, and now and then we find on the bark clusters of objects like little multivalve shells called Barnacles.

Hitherto it has not been possible to account for these variations of structure in the galls, nor is this the place to discuss so difficult a subject. We shall prefer giving figures of the different galls from the East, which seems to be particularly rich in these extraordinary productions of Oak-trees.

1. The gall now figured is similar in character to one which we once found in the park and plantations, called the Reali Cascine, near Florence, and was published in this Journal, Vol. IV., p. 212, under the name of "the Chestnut-fruited Oak-gall," from its resemblance to the fruit of the Sweet Chestnut. The fly produced from the Florence gall is similar to many others of the genus Cynips, but we are at present unacquainted with that which causes the excrescenses, one of which is represented in the cut.

1. Chestnut-fruited Oak-gall, *var.*

2. This oriental Gall so greatly resembles some of the Sea-urchins (Echini), which inhabit our rocky coasts, that we would distinguish it by the name of *Echiniformis*. It is, however, not improbable that it may be only a modification of one we have already published from the same country,

2. Echiniform Gall.

and it is questionable whether they may not be formed by the same species of fly of which we know nothing at present.

3. This is another remarkable variety of Galls from Capt. Elliot, and being exceedingly like the clusters of Barnacles (Balanus) attached to oyster shells and rocks below high-water mark, we would call it *Balaniformis*. Similar groups of Galls have been

3. Balaniform Gall.

found in England by a lady and also by Dr. Badham, but the individuals composing the bundles are much smaller than those from the East. They are all found on the bark.

It must be observed that the flies which are the authors of these excrescences have not yet been discovered, but it may be fairly assumed from those we do know, that they are related to the Cynips Quercus-ramuli of Linnæus and its congeners.

4. *Mala Sodomea* (the Bitter Apples of the Dead Sea).—This remarkable gall, called also the *Malum insanum*, appears to be widely distributed over the East—in Syria, the Crimea, and probably wherever certain dwarf Oaks will grow.

These galls are as large as small Figs, and somewhat the same shape, with tubercles scattered over the shining surface, which is of a greenish colour when young, and spongy inside, but becomes of a rich purple colour when matured, at which time the interior is reduced to a snuff-coloured light substance, which crumbles into dust when crushed, and is bitter to the taste.

> "The Dead Sea fruits that tempt the eye
> But turn to ashes on the lips,"

attracted the notice of Strabo, Josephus, and Tacitus, and are apparently alluded to in the Book of Wisdom: "the plants bearing fruit that never come to ripeness." By more recent writers, the origin of these galls has been attributed to various causes, all of them erroneous, until it was suggested by Mr. Conder that they were possibly the work of some insect, and this was verified by specimens collected on mountains east of the Dead Sea by the Hon. Robert Curzon, and also by others sent home by Walter Elliott, Esq., from the Troad.

The attachment of these galls is very peculiar; they seem to embrace the twig at its extremity and not to arise out of it, being more like the nest of an insect than a gall in this particular; and large as the galls are, they seem to be destined for the habitation of one maggot only, for they contain but one cell in the centre, from which the perfect Cynips is hatched, and escapes through a gallery or tube, and perforates the outer skin when it becomes a fly, so that the old galls have a hole on one side the size of a shot.

4. Bitter Apple.

The fly from the Bitter Apple is known and figured,* and is similar to that produced from the galls of commerce, Cynips Quercus-infectoria. An ichneumon fly has also been hatched from the galls, which is described as being a parasite of the Cynips.

Mr. Curzon informed Mr. Lambert, that "the tree that produces them (the galls) grows in abundance on the mountains in the neighbourhood of the Dead Sea, and is about the size of our Apple trees." They were produced upon the Quercus infectoria, but the specimens, one of which is represented in the cut, are possibly from a different species of Oak. *J. C.*

New Plants.

113. Lychnis Sieboldi, *Van Houtte Fl. des Serres, t.* 980; *aliàs* L. grandiflora alba *Siebold.*

This is very like the old orange-coloured L. grandiflora; but its flowers are pure white. It differs further in having downy stems, but little swollen at the joints, and no bracts at the base of the calyx. For a plant with white flowers it is very handsome. In the summer it will be a hardy border perennial; but in winter it must be treated like a Scarlet Pelargonium.

114. Aphelandra variegata, *Morel in Van Houtte Fl. des Serres, t.* 981.

115. Aphelandra Porteana. *Id., t.* 984.

Two magnificent stove plants, equal in magnitude to the old Aphelandra cristata, but much more handsome, according to the published figures. The great bracts

* Trans. Ent. Soc., vol. ii., pl. 3, fig. 4.
† Trans. Linn. Soc., vol. xvii., p. 445, with coloured plate.

are brilliant orange, and the flowers yellow in both, and the leaves are large, thick, undulated, and variegated. They differ chiefly in the inflorescence, which in the first is long and narrow, with close pressed bracts; and in the second short and broad, with great spreading (squarrose) bracts. Both are Brazilian, from Bahia, introduced by M. Morel, of Paris.

VEGETABLE PATHOLOGY.—No. LX.

268. Apostaxis. — *Constitutional and Organic* or Accidental.*—2. Gumming. — The fluid contents of the cells in a vast variety of plants hold either in solution or suspension a variety of matters differing from each other in more or less important characters, known under the general name of gum. Some of these, like arabine, are perfectly soluble; others, like bassorine and pectine, not truly soluble; while others, like the gum of Cherries, consist of two parts, one of which is soluble, the other merely capable of swelling up and becoming soft under the presence of water. The formula of pure gum is C_{12} H_{11} O_{11}, or identical with that of Cane Sugar, and in consequence its transition into starch C_{12} H_{10} O_{10}, or the contrary, is a simple subtraction or addition of water, while its conversion into cellulose whose formula is identical, is a matter of equal facility, provided there be light and heat enough for the purpose. In due proportion, gum is, in fact, one of the most indispensable vegetable constituents. Besides these gums, or their allies, which become hard when dry, another substance called mucilage, differing in being less hard when dry may be contained in the fluid of the cells, and in the course of fermentation a viscid matter often arises, producing the appearance which is called ropiness, which when dry approaches very closely to the characters of arabine. Both in health, therefore, and disease, the cells may be gorged to a greater or less extent with these matters; and it is obvious that in many cases where they are formed in great abundance it may be necessary for health to eliminate a portion, or the rupture or decomposition of cell walls may set a portion free which might otherwise have been retained without inconvenience. A portion of these gummy matters finds a receptacle in the intercellular passages which, in some cases of disease, are in consequence greatly distended. A portion, again, is poured out into especial reservoirs or ducts, as in the gum ducts of the shoots of the Lime, or the bassorin bags of salep, where they are ready for any exigency without being present in the general fluid to such an extent as to impede its motion; but even where there is no especial deposit of gummy matters in particular cavities, the sap is often so highly charged as when emitted to dry in a few minutes into a gelatinous globule.

269. To a small extent, again, elimination may take place through the stomates without any lesion of the cell walls. The little transparent free globules which occasionally occur, hardening on prolonged exposure to the air on young shoots, as in the Vine, when vegetation is active, are probably due to such a cause, and the sebaceous matter which occurs on the leaves of several plants may sometimes have a similar origin, as is certainly the case with some other substances, as for instance manna. The quantity of gummy matter, however, which escapes in this way is comparatively small. In the Acacias, which yield gum Arabic, and the Goat Thorns from which the gum tragacanth or bassorine oozes, in Anacardium and many other plants, the production amounts to something very considerable in the course of the year. It seems quite impossible in these cases that the process should take place without the rupture of the cells, whether proceeding from the general tissue or gum sacs in the bark, and indeed whatever may be the mode in which it is first given out, whether by simple percolation through the walls of the cells or other cavities, or in consequence of their rupture, the accumulated matter could never find an outlet without a rupture of the superincumbent bark. The consequences of this exusion, which seems to be normal in the cases mentioned, have not, as far as I am aware, been studied minutely. Those species which are subject to the phenomenon in their own warm climate, when cultivated in our conservatories do not exhibit it, or in other words they do not form more gum than is absolutely necessary for their exigencies. Whatever be the case, however, with the exotic plants which yield such enormous quantities of gum,† the evils which result from the similar process in our Plums and other stone fruit are unhappily notorious to every cultivator. The first overflow of gum from the cells or ducts may arise in various ways. It may be the consequence of too great a concentration of the sap, as where branches are trained horizontally, or, far more, where they are deflected; the cells or ducts may be ruptured either in consequence of excessive heat or cold; the cell walls may be weak and diseased by reason of ungenial temperature or bad drainage; or the gum may be deposited in such quantities as to force a passage; but in every case where gum has once protruded from the cells there is seldom any natural cessation of the process. As the cavities in which the gum was contained are emptied, a fresh supply is constantly poured in from behind, the original superabundance being kept up from the continuance of the same causes which first produced an overflow. In the first instance, the point of issue, which may be traceable either to the wood or bark, may be almost microscopic, but if it is watched it will be seen to extend gradually, and as gum alters in consistence with every alteration of the hygrometer or with every shower of rain, there is a constant action of external moisture on the cells—a circumstance which very rarely takes place without producing decomposition. The gum in consequence alters in colour, being impregnated with ulmine or allied substances, and disease and decomposition gradually extend till the whole circumference of the branch or trunk is corroded, and the tree, wholly or in part, perishes. From the very nature of the case it is difficult to apply a remedy. The first indication is to avoid every circumstance of climate or of treatment which may induce the condition, to prevent the effect of sudden changes from drought to excessive moisture by keeping the ground properly moist by watering or mulching in very dry seasons, to keep the branches thin and properly pruned, so that the gum which is contained in the general current of sap may be fully elaborated and not poured out too fast into the gum ducts, on account of its superabundance, and when the disease condition has once been set up, to cut out with a very sharp knife as cleanly as possible the affected parts. When collodium can be obtained at an easy rate, it may probably become a useful item in such processes, as it will exclude the outward air, and possibly prevent the first flow of gummy matter from the wound made by the knife, which might afterwards lead to a renewal of the evil.

270. The exusion of gum is sometimes a mere symptom of disease, as in many of the cases just mentioned and in the affection which has of late years been so prevalent amongst Cucumbers and Melons. The walls of the cells are in parts unable to resist the pressure upon them, and their fluid contents in consequence ooze out. This is equally the case in the Cucumber disease in the fruit and branches, and it is I believe one reason of the distortion, especially at the upper part of the fruit, which is so common a feature of the disease.

271. An interesting case is mentioned by Meyen, in which large masses of gum were deposited in the pith of a Cycad, so as in great measure to replace it. A large and very old stem of an Encephalartos, in the royal garden at Potsdam, refused under any mode of treatment to send out roots. It was at length divided, and many large cavities, one alone attaining the dimensions of 4-5 cubic inches, were found in the pith filled with brown gum, whether by some decomposition of the juices intended to supply the fecula of the pith or of the fecula itself‡, or by immediate exusion from the woody cylinder did not appear. The excessive formation of pectic acid in certain roots which are known by the Indians of North America under the name of Tuckahoo, will be considered under a future Number. *M. J. B.*

* Where the exusion of gum is purely functional, it hardly partakes of the character of disease, except so far as it may be symptomatic of other affections.

† De Candolle mentions a piece of gum from the trunk of Anacardium occidentale, which weighed 42 lbs.

‡ Morren believes that the gum ducts of Cycads are certainly supplied by the abundant fecula, acted on by an acid produced in the leaves, and he is inclined to generalise on the production of gum in other cases. Certain it is at least that in the gum-bearing Acacia fecula is deposited in great quantities in the ducts of the stem.

DIPLADENIA CRASSINODA.

Under good management this is one of the most useful of stove twiners, but to have it in anything like perfection, a warm moist atmosphere and careful treatment are indispensable. It is easily propagated; cuttings selected of rather weak young shoots when about 3 inches long, slipping them off with a heel, root readily if properly treated. The cuttings should be planted in a well-drained pot in sandy peaty soil, covered with a bell-glass, and plunged in a brisk bottom-heat, taking care not to overwater them, as any excess of this element would be apt to rot the tender cuttings. As soon as they are perceived to be moderately rooted, pot them singly in small pots in a mixture of good strong rich peat and decayed leaf-soil, well incorporated with plenty of silver sand. After potting, the young plants must be placed in a warm moist situation, kept close, and shaded from bright sunshine until they get established. There is no situation so suitable for the plants after potting off, or indeed while vigorous growth is wished, as a properly worked dung-pit.

As soon as the pots get filled with roots attend to shifting into larger ones, and do not allow the plants to receive any check for the want of pot room, until they are well-rooted in 6 or 7-inch pots. The cuttings should be put in as early in spring as they can conveniently be obtained, in order to allow of having them good strong plants before winter. I will suppose, however, that a good vigorous healthy plant in a 6-inch pot is in stock, and intended to be grown into a good specimen for blooming this summer. Turn the plant out of the pot at once, and if the ball is covered with healthy active roots, shift into an 11-inch pot, using the same soil as recommended for young plants with the addition of a small proportion of thoroughly-decayed cow or sheep dung, and some clean small potsherds or lumpy bits of charcoal. Let the compost be broken up into nice lumpy pieces, selecting only the very prime; and have the mould when used in a proper state as to moisture, and also at about the same temperature as the ball of the plant; and in potting make the fresh soil rather firm about the old ball. Apply a trellis, and train the shoots thinly and regularly to it; and keep them regularly tied in as they advance in growth, bearing in mind that a larger trellis will have to be applied, and that, if the shoots are allowed to get entangled or twisted around the wires, they will be troublesome to take off the trellis. After shifting, plunge in a brisk bottom heat of 85° or 90°, and maintain a temperature of 75° to 85°, syringing the plant over head frequently in bright weather, but be very careful in the application of water at the root for some time after potting, and use means to ascertain the exact state of the soil before watering at all, giving enough at each application to thoroughly moisten the ball, and no more until it is absolutely wanted. When the sun becomes powerful, a thin shade for a few hours on the forenoons of bright days will be useful, and will obviate the necessity for giving much air, and allow of keeping the atmosphere moist; but shading must be used sparingly. If all goes on well the plant will make very rapid growth, and soon fill its pot with roots; and when this is the case, shift into a 15-inch pot, using the same compost, &c., as for the last shift. Apply the trellis at once on which it is to be flowered, and train the shoots neatly and regularly to it, taking care to well cover the bottom, and return the plant to bottom heat, and where it can be liberally supplied with warmth and moisture. The same caution in watering will be necessary until the roots get hold of the fresh soil as after the former shift. It is astonishing how vigorously this plant will grow when kept in a warm and properly moist atmosphere, and carefully attended to; and with good management it should cover a large trellis, and be in full beauty, by the middle or end of June.

When the specimen is fairly set with flower, an occasional watering with manure water made from sheep dung will be of great service in maintaining the vigour of the plant, and will also increase the size and colour of the flowers. Where it can be avoided this Dipladenia should never be removed to the conservatory, or to a cool-house while in bloom, for although with care in preparing it for the change it may be placed in a cool-house for a few weeks when in full bloom, its beauty is soon over, and its flowers soon become smaller and much paler when removed from heat, and it should be allowed to remain in the stove in bottom heat all the summer, where it will bloom for months in succession. Towards autumn the supply of water to the soil should be limited in order to get the wood well ripened, and it will require very little in winter, when it should be kept comparatively inactive for some two months. Although I greatly prefer young plants to old specimens that have bloomed, having always found them to grow more vigorously and produce finer foliage and larger higher coloured flowers, the latter are not to be disregarded where proper young plants are not at command. The present is the proper time for starting old plants into growth, particularly if they are wanted for the June and July exhibitions. The shoots should be removed from the trellis, turning the plant out of the pot, reducing the ball as much as can be done without injuring the stronger roots, and carefully cutting away any bits of the tubers or roots that are found to be diseased. Repot in the same sized pot, and plunge in a brisk bottom heat, but give no water to the soil until active growth commences. Only maintain a moist atmosphere, and syringe the plant lightly morning and evening. Let the trellis be applied at once, and after cutting out all weakly shoots, and shortening the others to strong well ripened wood, train the shoots thinly and regularly over the trellis, and otherwise attend to the plant as directed above. *Alpha.*

OAK PLANTATIONS.

The writer of the following lines, believing that he has for many years past adopted and carried out a system most conducive to the growth of Oak timber, and which may be seen in its various stages from the seedling to the large tree in the near neighbourhood of the New Forest, desires to call the attention of those taking an interest in the present questions of what is right and what is wrong in the management of the Royal Forests to the simple method adopted by him, to keep the woods at —— in full crop, robust health, and luxuriant growth. This has been accomplished after much observation of, and comparison between, kindly growing woods and those of a contrary nature, by endeavouring to secure to the latter, as far as possible by artificial means, the advantages which soil and situation have supplied to the former, the most important of these being complete drainage and necessary shelter, the first by open ditches, the second by planting Larch or Scotch Fir, the first as the best nurse in old neglected woods, the last in newly enclosed moors or heathy ground—thick planting in each case being essential, but in the last the young Oaks are not introduced until the Firs have become of sufficient size to thin, by which time they will have so prepared the ground by shading, and the decay of their leaves and other woody and vegetable substances, that the Oak will soon overtake them in growth, and require especial attention. Here the care and judgment of the forester become of the most vital importance to the future welldoing of the plantation, which if properly and timely thinned, so as to give headroom and yet shelter to the now growing Oaks, they will, in a few years, begin to overtop the nurses, and may by degrees be so inured as to bear exposure to every wind except the south-western, which in Hampshire is the prevailing one, and against the effects of which great care should be taken, by having some old Fir nurse trees intermixed with the Oaks for shelter; indeed this would be found beneficial on all exposed sides of the plantation, and ought never to be overlooked.

Whether in old natural woods or in new plantations, the writer has found it of the utmost importance to rear the Oaks thickly, and thin them out gradually, thus causing rapid growth, and by keeping up the shelter

containing it, also giving time for the forester to choose the finest trees from which to select hereafter the future crop. For from the earliest stages of growth certain plants will take the lead, and are distinguished by their vigorous growth, regular supply of branches, and one leading shoot. If care be taken when thinning to select these at proper distances, all the others may be weeded away by degrees; enough being, however, left to give sufficient choice at the final thinning, which should not take place until the trees intended for the crop are beginning to form their lofty, broad, and well-balanced heads.

Having thus secured a sufficient crop, it will rarely be necessary to cut a branch from any tree intended to stand for timber; but should it be found so, by either the too vigorous growth of a branch or the interference of a rival leader, it will be best to subdue them by shortening back to a subordinate lateral shoot. A wood managed as here described will become matured and ready to cut at a much earlier period than under the management generally pursued.

In large estates the cuttings can be so periodically arranged as to secure the shelter and give effect to appearance also, by allowing a considerable distance to intervene between them. This would apply to small estates as well, when by the same management the beauty and utility will be maintained throughout.

Having above endeavoured to point out the plan begun by the writer about 40 years since to renovate and improve the woodlands under his care, and having, he hopes, succeeded in showing that his system is rational, simple, and based upon true principles, he will now proceed with some diffidence to make a few remarks on the management of the New Forest, with which he has been acquainted for a long period.

The late Lord Glenbervie, it is believed, was the first to attempt to grow the Oak under the shelter of the Scotch Fir, and he began by planting Acorns amongst them in the then new enclosures, but this proved a slow and uncertain method, and was abandoned by the late Mr. Turner, the deputy-surveyor, who raised the Acorns in seed-beds, and after planting them out in the nurseries for two or three years replanted them between the rows of Scotch Fir, a row of which was cut to make room for them, and which space was gradually widened as they required it; this they did very often, being greatly encouraged by the shelter, &c., and the writer remembers with the greatest pleasure to this hour the treat he had in a long day's ride through these plantations, which were then in full luxuriance; at the same time it was seen and remarked that a careful hand and an intelligent head would be required to carry on this amazing growth to maturity. Mr. Turner did not live many years after this, and, consequently, did not see the evils that were so soon to paralyse the work so well begun, and these flourishing plantations previously so tenderly dealt with were all able to withstand the fearful exposure they were now about to be subjected to.

The cry of economy had now gone forth, and the forest woodland (never long fairly dealt by from being always subject to the depredations of man and beast) began to be talked of as a source of wealth, and to make money everything saleable was pressed into the market, and instead of cutting the nurse Firs away gradually as the Oaks required the room (still keeping up sufficient shelter, as stated above), whole plantations were divested of their shelter, and in some instances the fences allowed to be carried away long before the young Oaks were sufficiently furnished to withstand the ruthless south-western gales or the inroads of the forest cattle. The demand for railway fencing having begun about this time helped on the devastation, and about four years since, in driving through the forest, the writer was quite shocked at seeing the desolation which had been made, and which nothing, he believes, but replanting with Larch to some extent among the Oaks, and keeping up the fence for some time, will retrieve.

Fencing in the New Forest, now the deer are gone, is not a question of great expense, as formerly. A good bank with a quick hedge planted thereon, and a single rail (if of sawed Larch) outside, would last until it had grown sufficiently to fence itself. But the most important subject for the weal of the forest remains to be considered, viz., the enclosing of the present woods. Were these treated as large woods have been at ——, since it was finally reclaimed from being common (as the forest may now be to a considerable extent, and ought to be for the good of the country and the timber hereafter grown therein), one acre would bear as much as two, and even more, and the timber produced of infinitely superior quality than heretofore.

The way to set about this, is to at once enclose as much of the old woods where there is timber fit to cut, or where it has been partially and recently cut, as far as the right of the Crown will allow, and clear them effectually of decayed, stagheaded, and other trees, not likely to become valuable as timber; and as often hereafter as any large timber is required, it should be cut in masses, that is to say, the ground should be entirely cleared and replanted with Larch, and in a few years it will be full of self-sowed thriving Oaks, at least such has been invariably the case for 35 years past. Should, however, there be found in these enclosures clumps of young growing Oaks, they should be allowed to remain without thinning until they begin to feel the influence of the Larch nurses, when they may be set out at proper distances to become timber. The effect of these and the undulations of the ground will still keep up the picturesque appearance and beauty of the forest.

CLIMATES OF FOREIGN COUNTRIES.—No. IV.

Nice, *Feb.* 9, 1855.—During the last week the weather here has regained its customary temperature, though there has been an excess of rain and clouds. General vegetation has made considerable progress, the Olive grounds are becoming covered with verdure. In some of them the wild Iris is making its appearance in great numbers; Almond trees, both pink and white, of a larger and more robust kind than those in England are in blossom, and also Strawberries in several of the gardens. The wild Anemone appennina is also in flower, and an entirely white Narcissus, rather small, both very pretty. Swallows have been continually observed on the wing, but owing to the great number of persons who shoot, either for sport or profit, and various descriptions of nets used, singing and other birds are rather scarce. A fine-looking plant, which has been in bloom for some time past, under slight protection, is the Sparmannia, which with its large green foliage and white flowers forms a striking object. Some Scarlet Geraniums are from 8 to 10 feet high against the walls, and in sheltered situations they have escaped the late frost; a plant of the large Oak-leaf variety 10 feet high, has also escaped. The upper parts of the Plumbago capensis, which attains about the same height, have suffered, and also the Lemon and Orange trees in many places, as well as the Cineraria grandiflora, whose leaves, very much resembling the Gesneria zebrina, until recently looked splendid. Banksian Roses grow very luxuriantly here, completely overrunning the garden walls—some of the white ones are in flower now. On the hills there are many bushy plants of the Coronilla coronata, which have continued flowering through the winter, and are now coming out more fully in yellow bunches.

On Monday last, the 5th inst., another earthquake was felt here, but not nearly so severe as the former shock, which took place on the 29th December.

At Brussels the temperature has been again very low. On the 1st inst. the min. was 15°, max. 28°; on the 2d it was 29° below freezing; it then became gradually warmer, and on the 5th the min. was 37°, max. 41°. At Lyons, on the 31st ult., it was 32° below freezing, and 29° below at Paris on the 29th. On the 3d inst. it had risen considerably above freezing.

Nice Temperature.

1855.	7 A.M.	12 P.M.	10½ P.M.
February 2	47	58	52
" 3	51	56	52
" 4	52	54	47
" 5	44	56	40
" 6	43	48	42
" 7	39	53	41
" 8	45	47	46
Mean	45½	53	45½

—*E. C.*

COMMON THINGS.

Plants in Dwelling Houses.—This is a critical time for window plants in rooms, where fires are kept during the day, raising the temperature to 50° or 60°, but where it falls often 20° or 30° during severe weather, especially near the windows, after the fires go out and before they are relit. The consequences of such variations is seen in Camellias losing their buds, in the leaves and young shoots of other plants withering or shrivelling, and frequently in hard-wooded plants dying altogether. Almost the only precaution possible is to remove the plants, during such times as the fires are not kept up, to positions at the greatest distance from the windows. Camellias are general favourites, and had better be kept in a room where no fire is used, than where they are subject to great variations, as they will endure several degrees of frost without injury.

Management of Bulbs after Flowering.—Important points in the art of cultivating bulbs well are putting them to rest at the proper time, and while they are still in a growing state to place them so near the light, and to afford such a supply of air and water, as will enable them to bring their leaves to perfection, and elaborate the greatest amount of sap. The management of bulbs is, in general, but imperfect; and the importance of attending to these points, viz., the perfecting the leaves, and the putting the bulbs into and keeping them during a proper time in a state of rest, cannot be too much insisted upon. Bulbous-rooted plants associate almost as ill with all others as succulents do; and therefore wherever a good collection is kept, they are worthy of a house being entirely devoted to their culture. When dormant, they like nearly the same degree of heat, provided they are kept dry, as they do when they are growing.

Conservatory Borders.—During the winter months the moisture of the atmosphere in a conservatory will sometimes occasion Mosses, &c., to vegetate, especially if the surface of the mould has had time to become close and settled, thereby giving the house an untidy appearance. This should now be remedied by stirring the whole of the borders to the depth of 2 or 3 inches with a small fork, and raking it over smoothly with a close toothed rake. These tools should be furnished with short handles, so as to enable the operator to use them with freedom under the plants, by which means many branches and flowers will escape being broken off, which cannot be well avoided when awkward tools are used. As soon as they are raked let a coating of fresh mould be neatly spread over the surface, which will tend very much to give the whole a more agreeable appearance.

Home Correspondence.

Grafted Rhododendrons.—Messrs. Standish and Noble have addressed themselves to the defence of grafted Rhododendrons upon their real merits, and as they appear to bring to the discussion a real knowledge of the subject, we may hope for some better data than we have hitherto had upon which to form our decision. Their first proposition is that many years experience enables them to assert confidently "that there is no species or variety which might not be advantageously grafted, supposing that a suitable stock can be found." Before I can assent to this proposition, I must seek or request a definition of the word advantageously, which is somewhat ambiguous. If their assertion be that the plants will, altogether, and under all circumstances, flourish better for being grafted, I am compelled to join issue with them, and dispute this point. If the assertion be that there are certain circumstances and certain purposes, with reference to which the plants will be benefited by grafting, I am prepared to admit their statement. Their reasoning, however, on the subject, which consists in an induction instancing several species or varieties which do flourish better when grafted than self-grown, seems to point to the former proposition as the one which they wish to establish, and I am therefore justified in supposing that the general inference is the one which they wish their readers to draw from their remarks. The instances they allege are of two kinds, 1st, that of native species benefited by grafting, viz., certain Sikkim Rhododendrons. Now it happens that the species they cite, viz., R. Dalhousiæ and R. Edgworthiæ, are plants of most exceptional and peculiar habits—epiphytal shrubs—natives of a climate of extrordinary humidity, which it is almost impossible to imitate, and from the delicacy of their roots very much more difficult to cultivate than epiphytal Orchideæ. They are epiphytal Ericaceæ, and if Ericaceæ in pots are liable to suffer from extremes of moisture and drought how much more epiphytal Ericaceæ. Our only resource is to grow them in pots, where occasional excess of moisture and absence of air cannot fail to be injurious, if not fatal to them. They are, in fact, very difficult to manage. The discovery therefore that they can be transferred to other roots is a great boon to gardeners, which I thankfully acknowledge. It is found that a species, not fastidious as to soil or moisture, at its roots, will afford nourishment and support to one which is most fastidious, and I have no doubt these species do flourish better in cultivation when grafted than on their own roots. Nay, I am prepared to admit that they may flourish better and form handsomer plants when grafted than they can do on their own roots in their native woods, for their nurses are much more robust than themselves. But another class are instanced as improved by grafting; viz., cross-bred seedlings; and here I must beg leave to demur not to the facts but to the inferences. No doubt the shoot of a seedling transferred by grafting to a well-rooted plant may attain an earlier maturity than the seedling itself. It is supplied with roots, and has not to make them. It attains vigour quickly, and maturity soon follows. Mr. Knight was in the habit of thus inducing early maturity to his seedling fruit trees, and enabling himself to test their merits at an early age. But the question of duration and ultimate vigour is totally different, and the very fact of early maturity would, I think, induce all persons conversant with the analogies of vegetable life to decide against such plants. They are advantageous, inasmuch as they enable the cultivator to ascertain the value of his produce easily, and they may be advantageous in enabling him to realise an early profit on it by sale to those who are not particular as to duration, and they may be advantageous to those who wish for compact bouquet-like plants which will afford them flowers, and who wish to have many varieties in small compass, but they cannot be advantageous in exhibiting the ultimate stature and natural growth of the plant to those who admire it for its habit and colour of foliage, and who are content to wait some years for its full and mature perfection, and to look forward to others enjoying and admiring it after them. In their remarks upon suitable stocks Messrs. S. and N. make one observation which tends strongly to confirm my views:—"All the hybrids in cultivation grow well upon hybrid catawbiense, especially if the hybrids so grafted are strongly crossed with catawbiense." That is to say that luxuriance of growth is precisely in proportion to the hereditary affinity between the graft and the stock: if such be the case, the closer the affinity approaches to identity the greater the luxuriance. Now a further confirmation of this view is the fact that hybrids on their own roots do not flower readily; they grow so luxuriantly that they require some years to attain maturity; but when they do flower nothing can equal their splendour. I have waited patiently many years for the flowering of some of my own plants, but when once they began to bloom they had left me nothing to desire. I do not profess to enter on the subject of various stocks. I know that many which I have seen have been grafted on R. ponticum, the growth of the stocks affording unmistakeable evidence of this. I suggested R. maximum arboreum simply from its luxuriant growth. It is, however, singularly shrub-like in its habit, and this may be the reason it proves unsuitable to arboreous species. I am glad to find from Messrs. S. and N.'s remarks that attention has been paid to the stocks, and the most suitable kinds ascertained and employed by them. Perhaps if I had only met with such plants I should have found less reason to complain; but it is evident from the

remarks of other nurserymen that all are not so particular as to the stocks employed. The subject appears now to have received all the elucidation it is likely to attain, and its discussion has not, I think, been unprofitable. I think I am justified in drawing the conclusion with which I started, that although for certain purposes grafting may be advantageous, the full splendour and perfection of cross-bred Rhododendrons is only to be looked for from self-rooted plants. *J. R.*

Winter Figs at Singleton and Welsh Gardening.—A residence of several months prior to Christmas, and a visit sometimes thrice a week to Mr. Barron enable me to confirm all that he has said at p. 86 on this interesting subject. On three different occasions in December I had an opportunity of tasting the fruit, and on Christmas day I ate one in every respect excellent, perfectly ripened, and I may say quite equal to many which I have tasted in May and June, though I am quite certain by no means so good as it would have been in a drier atmosphere and under more direct light. The kind I am inclined to think is quite distinct and new, and I believe was brought from Italy by the late J. H. Vivian, Esq. It is white, much smaller than the Marseilles, and prolific as an Orleans Plum, every joint of every branch of proper growth being studded with a fruit. I suggested to Mr. Barron to call it the "Singleton Perpetual," which name I think it is entitled to bear until we find some prior claim to its introduction. [Mr. Barron, in a letter just received, entirely confirms this statement.] With a score of plants of this Fig, I should have no fear of producing a dish every month in the year. Mr. James, at Pontypool Park, speaks of having Strawberries "ten months in the twelve," but this Fig I have no doubt will beat his. Ripe Figs at Christmas are certainly a novelty—ripe Strawberries not quite so unheard-of a circumstance. I may, however, as well place a Laurel branch on the brow of another Welsh gardener, Mr. Floud, gr. to R. Fothergill, Esq., at Abernant, near Aberdare. I there saw in the middle of October one of the finest houses of Melons I ever beheld at any season, the third crop from the same plants. Mr. Floud, in sending me some seed of one of the kind, remarks:—"The green flesh is small, but excellent in flavour. Mr. Fothergill told me that the fruit of it was delicious in December. I sent my last Melon to table on Christmas day!" These Melons were growing in a recently erected house (indeed the glass at Abernant is all new) in a bed heated by hot water, and the plants and foliage were as clean, free from insects, and full of health in October, as they are generally seen in April or May. *W. P. Ayres, Whittlebury Lodge.*

The Weather.—Allow me to call attention to the temperature of the night of Saturday, the 10th and 11th, the coldest, I believe, for the last 20 years by 3°. It was as follows:—Wallingford, 0°; Croydon, 9½°; Highfield House, Notts, 11° 5′; Hyde Park, 16°; Truro, 13°. *T. P., Porthgwidden, Truro, Feb.* 17.——This place is six miles from the sea, six miles from the purlieus of Dartmoor, nearly equidistant from Newton Abbot and Totness, and forms the watershed between the rivers Dart and Teign. Here the thermometer, during all this cold, has not been under 28°; and only on one day, Friday the 16th, has it fallen below 30°. The snow, which fell thickly three and four weeks since between this and the sea, has dried out, whilst clouds of dust, urged on by the fierce easterly wind, are passing without intermission before the windows, covering everything, and have so done for the last eight days. The rills in which water is flowing, few in number, are not frozen over. Our great want is water; and so it has been for many months past. I have three men levelling a bank of earth, 60 yards long, about 2 wide, and 4 feet high. The crust is frozen 2½ inches in depth; then follows 8 to 9 inches of moderately damp earth; but all underneath is quite dry. Your readers may remember that in the third week of December 1853, all the kingdom suffered much from a heavy storm of wind and rain. Here it was very violent; more than 3 inches of rain fell in 18 hours, and the damage done was very considerable. Houses were flooded, ponds had their buttresses washed away, hedges were overturned, and many fence walls, overthrown by the waters, were washed in large masses away some distance from their foundations. From that time, fully 60 weeks, we have had no rain worth speaking of. In January, 1854, we had a smart snow shower, which dried away; but no rain to swell the waters followed. In February, early in the month, 5 inches of snow fell, and again dried away; and now a curious phenomenon, which has continued to this time, might be remarked. If the rain was apparently about to fall copiously, the wind at south-west driving up enormous masses of clouds, and everything portending a heavy rain, the rain fell, the wind quickly abated, became westwardly, and in a short time north-west, with a clear sky; and generally in two or three days no vestige of rain remained. In no case whatever here in 1854 did it rain, at any one time, 4½ hours. Our annual fall of rain is from 20 to 21 inches. Last year it barely amounted to 14 inches. As might be expected, seeds vegetated badly; hay was short; Turnips a failure; and numerous Apple, fruit, and other trees died from the drought. In this parish there are nearly 150 acres of watered meadow; on this day (Feb. 20) they ought to have a foot in depth of Grass all over them, and be of a most brilliant emerald green. They are bare, brown, and desolate. Wells are dried up; springs in the fields have failed; and the universal scarcity of water causes much complaint, in February be it remembered. But if there be so great a lack of water, there is no lack of this fierce, arid easterly wind, burning up everything, and overwhelming us with dust. Φ.

Pentstemon.—A fine plant of Pentstemon azureum in a south wall border seems to be killed. I believe the majority of this genus, so numerous in its species and varieties, is hardy; but I should be glad if any one would furnish me with a list of those which are not so. I ask it in the negative, merely under the impression that the affirmative applies to the greater number. They are tall plants for frames, but excellent for the border; but one does not like getting things to have them killed. In all cases where the sorts of an ornamental genus vary in that respect, such lists as I have asked for, furnished by general cultivators, would be most desirable matter for many of your readers, always giving the list (as above suggested) which is shortest. *A.H.*

The Winter of 1813-14.—The duration and severity of the present winter having brought to my recollection the long frost of 1813-14, I have looked up some notes I made at the time, which may be interesting to your readers. Thermometers to register the greatest cold were not made at the time, or were very rare, so that I can only give the degree of cold shown at 8.30 A.M., and that not for every day; perhaps some correspondent can supply this deficiency. "The long frost commenced on the 26th December, 1813. The thermometer stood between 12° and 22° for the first three weeks, taken in the morning at half-past eight; during this period there were two inconsiderable falls of snow. The days were generally sunny and serene, with moonlight nights, the wind N. and E. At the beginning of the fourth week there was a considerable fall of snow, with high winds, which continued several days. The snow drifted to such a degree that all communication was cut off with distant places and with the villages near Cirencester, until a passage was opened, the drifts being from 4 to 10 feet deep; the average depth of snow was 15 inches. An invariably hard frost, with occasional snow, completed the fourth week. At the beginning of the fifth week, the wind being steady to the N., the frost was very severe; on the morning of the 25th January the thermometer was 10°. In the course of that day the wind changed to the S., and a thaw of short duration took place during the day, freezing at night. Rain at first accompanied the thaw, with variable winds, which completed the 5th week. The wind again went to the N., producing clear frosty weather, the powerful effect of the sun occasioning a partial thaw during the day. On the night of the 3d February, two dim concentric circles appeared round the moon; these were followed by a cloudy atmosphere, and on the 5th by a S. wind with snow, after which a rapid thaw took place, and only the drifts of snow remained, but it soon changed to frost with keen winds, which continued to the end of February. A slight tendency to thaw marked the beginning of March, followed by steady frost for a week with N. wind, which, with a little snow, continued to the 12th. The snow assumed very regular crystalline forms at this time, sometimes falling slowly, when no clouds were to be seen, the wind being still. A week of E. wind with severe frost preceded an appearance of mist, which rather increased until the 20th March, when the wind changed to the S., and brought mild weather and rain, making altogether 12 weeks winter." *Thos. C. Brown, Cirencester, Feb.* 17.

Black Barbarossa Grape.—A correspondent inquires whether this Grape will force with the Black Hamburgh, and be equal to that variety as a cropper. I can answer his inquiry in the affirmative, having some plants in pots which have shown, set, and grown as freely as a Muscadine or Miller's Burgundy. To its "non-shrivelling" qualities under a summer's sun I cannot speak. *W. P. Ayres, Whittlebury Lodge.*

Underground Manuring.—The system of tilling Celery with liquid manure by means of underground drains was practised successfully at Carr House, near Doncaster, upwards of 10 years ago, by James Stevens, gardener. Those who sneer at this mode of manuring, and say that it is folly to drain, if it is proved to answer, should bear in mind that the liquid is not intended to remain stagnant in the drain, and that Celery grows spontaneously in ditches and watercourses. *D. S., Gardener, Campsall Hall, near Doncaster, Feb.* 20.

Gardening News from Australia.—The following extract from a letter just received from a gardener now residing in the neighbourhood of Adelaide may be interesting to your readers. He says:—"I am very comfortable here, at least as far as circumstances will allow me, being apart from my family. I have been for six weeks past grafting fruit trees, and have been getting 20*s.* per day, or 6*l.* per week. The garden or nursery contains 80 acres, all of which are planted with Plums, Apples, Pears, Cherries, Apricots, Peaches, Figs, Oranges, Lemons, Grapes, and all kinds of Nuts and other varieties of fruit trees. They tell me that the trees bear exceedingly well—indeed I should say so from the appearance of the blossom. The proprietor during the past year made 42*l.* from one Apple tree in ready cash. They sell from 1*s.* to 1*s.* 6*d.* per lb. They have very few of the best English fruits here. I am collecting together all the native plants, and intend forming an herbarium; some of them are very beautiful, with brilliant colours and excellent form, and are quite new in England." We should say that 20*s.* per day is an excellent wage for grafting, and 42*l.* is a large sum to be made from one Apple tree. It must have been most assuredly the true Golden Pippin. We know that we have about 8 acres of Apple trees in Devonshire, and did not make so much from the whole lot during the past year. The letter is dated Sept. 26, 1854, only six days after the Battle of the Alma, so that your readers will have the latest gardening news from our distant colony. *William E. Rendle and Co.* [This corresponds with the statement lately made concerning Mr. Carton. But unless we are much misinformed, the cost of all articles of food and clothing is so enormously high that, after all, 20*s.* a day in South Australia are not much better than 3*s.* here.]

Rhododendron glaucum.—The magnificence that we are taught to expect, and which we shall doubtless find in the flowers of some of the species of Sikkim Rhododendrons, will, I fear, induce many to overlook the claims of other humbler, but nevertheless useful and interesting kinds. Among the latter is glaucum, a neat, compact plant, growing, Dr. Hooker tells us, on its native ridges, about 2 feet high. Its leaves are small, pale-green above, but beautifully glaucous beneath—so much so, that they appear coated with a film of silver leaf. The plant is very hardy in our climate, and blooms freely in the open ground early in May. Its flowers are rose-coloured. Ladies, if you would have a little hardy plant, worthy of all the care and admiration you so well know how to bestow on a favourite, and have a square foot of a cool peat border to grow it in, lose no time in ordering a plant of Rhododendron glaucum *G. W. L.*

Societies.

Entomological, *Feb.* 5.—The president in the chair. The secretary read the minutes of the anniversary meeting held on the 22d January, at which Mr. Curtis was elected president in lieu of Mr. Newman, whose period of office had expired, and Mr. Edwin Shepherd was elected joint-secretary with Mr. Douglas, in the place of the late Mr. W. Wing. After the list of donations received since the last meeting had been read, the newly-elected president read an address, thanking the society for his election as president, and nominating the three vice-presidents for the following year, namely, Messrs. Westwood, Newman, and Stainton; and which, upon the motion of Mr. Spence, was requested to be published in the proceedings. Mr. Newman presented a drawing exhibiting the transformations of Saturnia Spini, with specimens of the silk spun by its larva, in the manner suggested by Herr Pretsch, of Vienna, and described at the last meeting of the society. Brigadier Hearsey communicated an extract from the "Bengal Journal of the Asiatic Society," Vol. VI., 1837, relative to the mode of spinning off, instead of reeling the thread from the cocoons of the Eria silk-worm in India, this being the species now attempted to be raised, with every prospect of success, in Malta and the South of Europe. Mr. Stainton exhibited some of the galls of the Cynips Quercus-petioli from Devonshire, Mr. Curtis having doubted its occurrence in that county at a former meeting. Mr. Stainton's correspondent gave some particulars relative to the habits of the species, which is only found on the lower sprays of the Oak. Mr. S. Stevens exhibited several splendid specimens of the remarkable and rare Cheirotonus MacLeaii from India. Mr. Newman read a note entitled a "Plea for the cockroach or black beetle," stating that it had been observed to feed upon the bed bug, and this habit on board ship had been noticed in Webster's "Narrative of a Voyage to St. Helena," and in Foster's voyage. Brigadier Hearsey stated that the cockroaches on board the vessel in which he last returned from India were so numerous that they gnawed the nails of some of the passengers down to the quick whilst asleep. Mr. Curtis communicated a notice by Dr. Asa Fitch on a species of scale insect which infests the fruit trees in the State of New York, adding that the authorities of that state had commissioned Dr. Fitch to draw up a memoir on the insects injurious to fruit trees. He also read a note from M. Candeze requesting the loan of species of Elateridæ for his monograph on that family. Mr. Douglas read a note on Psyche helicinella, and Mr. Westwood descriptions of a number of new exotic Lucanidæ. Brigadier Hearsey exhibited several cases of beautiful insects from Sylhet, some of the greatest rarity.

Notices of Books.

Le Chili; par B. Vicuña Mackenna (Paris, Bouchard-Huzard), is a small 12mo. treatise upon the natural resources of Chili. It is in reality an eulogium of the inexhaustible wealth of that country, and is intended to promote emigration thither. The information it conveys, notwithstanding the author's grandiose manner, is abundant; but it must never be forgotten that the statements are those of an advocate. Mr. Mackenna's accounts of mineral wealth are quite dazzling, and yet English enterprise has not hitherto found it profitable to work it. In fact, the difficulties of Chili are understood to consist in the scarcity of good labour and the dearness of provisions; and till both become abundant we fear that the treasures of the country must be gathered by natives rather than by strangers. Making allowance for matters like these the reader will gather a good deal of information concerning the climate and natural productions of the country. In what manner it is conveyed the following short extract will show:—

"Go where you will on this American soil, misunderstood and calumniated as it is, you will be received like a brother. Go to Peru, La Plata, New Grenada—where you will—one single family is found everywhere. No

petty pride is there. Let South America only unite, as the great Bolivar would have had it, and its misfortunes will disappear; it will have conquered its true place in the world, and once more rejoice in the name of America. Prejudices there are, no doubt, but they will disappear in the presence of the worthy and enlightened men who entertain no extreme ideas, and are far from thinking emigration (immigration!) an evil. To be sure we have earthquakes; but you need not be afraid—earthquakes hurt nobody. More people perish on board the steamers and in the rivers of the United States in a month than in Chili in a century. In fact, I give you my honour that in the somewhat monotonous life of the country, these shocks are perfectly harmless, and rather entertaining. In fact, they serve instead of the opera, and when they happen they give us something to gossip and laugh about in the evening."

A new edition (the fifth) has appeared of *Fenn's Compendium of English and Foreign Funds*, by Mr. Ayres, the editor of the "Banker's Circular" (Effingham, Wilson, 7*s.* 6*d.*) The work is doubtless of great value to money dealers and share dealers of all classes; and we suppose that good reasons can be given for the omissions which we remark, as, for instance, that of the Crystal Palace Company.

Literary Papers, by the late Prof. Edward Forbes (Reeve, 6*s.*), form a neat 12mo of 300 pages, and consist wholly of communications by the late lamented author to the "Literary Gazette." They are very characteristic of his lively unaffected manner and rich stores of accurate knowledge.

Curiosities of London, by John Timbs, F.S.A. (12mo, Bogue), is a massive volume of 800 pages in very small type, giving an account of whatever the author knows of the curiosities of London, among which by the way are included many things, the curiosity of which we fail to discover. In the opinion of antiquaries this is a perfect mine of information, and they are the proper judges of its merit. It undoubtedly forms a good appendix to Cunningham's "Handbook of London."

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Orange trees in tubs and pots should be examined in order to ascertain the state of their roots, shifting such as are found to have their balls moderately matted with healthy roots, and in the case of such as may be too large to be conveniently shifted, remove as much of the surface soil as can be done without seriously injuring the roots, and top dress with some rich compost, as turfy loam, thoroughly decayed cow dung, and a little sand. Be particular to have the balls of large specimens in a moist state at the time of shifting, and use a rather strong rich compost. Plants of the mandarin, blood, and egg varieties, grown for the sake of the fruit, should now be encouraged with a temperature of about 55° at night, allowing it to rise to 65° with sun-heat during the day, for our summers are too short to properly mature the fruit, unless the plants are started early in the spring. See that the foliage is perfectly clean before placing the plants in growing circumstances, and afford them a moist atmosphere to prevent the attacks of red spider, with which and brown scale they are great favourites. Young plants of Fuchsias intended to form fine specimens for summer decoration, must be encouraged with plenty of pot room, and as high a temperature as they will bear without making weakly growth, keeping them near the glass, and affording them a moist atmosphere. Old plants for flowering later in the season may also be placed at the warmest end of the greenhouse, giving a little water to the soil to induce them to start into growth. We generally disroot and pot these in smaller pots before winter, but where this has not been done it should be attended to before starting the plants into growth, trimming the roots freely and repotting in light rich compost in as small pots as will hold the roots, and giving very little water until the plants get into free growth. Take every possible opportunity of admitting a little fresh air to soft wooded plants, as Cinerarias, Calceolarias, Pelargoniums, &c., for these, save in very favourable situations, are feeling the effects of fire-heat and confinement. Do not allow them to suffer for the want of pot room, and fumigate occasionally to prevent green-fly; also remove decaying leaves from Calceolarias, &c., immediately they are perceived. Look over Heaths and other hard-wooded plants very carefully, to see that they are not too dry towards the bottom of the ball, which sometimes happens with plants standing near the pipes when much fire heat has to be applied, and if this is found to be the case to any serious extent, place the specimen for a few hours in a saucer of water, letting the water stand a little higher than the drainage; also keep a sharp eye upon specimens liable to the attacks of mildew, and apply sulphur the moment it is perceived. Counteract the drying effects of fire heat by sprinkling the floors, &c., every morning, and lose no favourable opportunity of admitting fresh air, but do this carefully, and guard against cold currents or frosty winds.

FORCING DEPARTMENT.

Pineries.—The long continuance of cold frosty weather will, where there is not ample heating power, render it somewhat difficult to maintain a sufficiently high temperature for plants which it may be desirable to get to show fruit at once, for it generally happens that a brisk temperature is necessary to move the plants at this season. Where such is the case, fires should be kept going briskly during the day, keeping close and securing a moist atmosphere by sprinkling the floors, &c. It is nearly hopeless, however, to attempt to get plants to show fruit that have not previously well matured their growth, and been afforded a period of comparative rest. Therefore see to preparing plants for maintaining the succession, by keeping them rather dry at the root, and effectually checking their growth as soon as they are considered sufficiently large for fruiting. Do not allow young stock in pots to become too much pot-bound before shifting, and see that the balls are in a moist state at the time of potting. Aim at keeping these growing slowly, afford them a thoroughly moist atmosphere, and keep them near the glass in order to secure compact strong plants. Let the temperature range from 60° to 70° with fire-heat, allowing it to rise some 10° with the assistance of sunshine, and a gentle circulation of air. Plants swelling their fruit must be afforded a moist warm temperature of 70° at night, taking advantage of bright days to raise it to 80° or 85°, but see that the atmosphere is kept thoroughly moist, and if this cannot be done a lower temperature will be safer until the weather becomes more favourable. Vineries.—The last fortnight will doubtless be long remembered by those who have had the care of much early forcing, and it will be well if the remembrance be not in some cases accompanied with recollections of mishaps and failures which might have been guarded against. Certainly such a trial as that through which we have just passed has been new to many of us, and it may also have served to prove the inefficiency of heating arrangements, which hitherto had answered the purpose perfectly; and where failures occur it will be but fair that all things be taken into consideration. Give every possible attention to the border where the Vines are fairly started, and see that it is protected from the frost by a substantial coat of dry litter. Where fermenting materials are used for warming the border this must also be well covered from the frost, and a gentle fermentation secured by turning it on a sunny forenoon, and adding a rather liberal quantity of fresh materials in a warm state; for unless a steady heat can be maintained the use of fermenting materials is much more likely to be injurious than otherwise. Proceed with thinning the bunches and berries as soon as the crop is sufficiently advanced. Stop laterals, regulate and tie in the shoots, taking care not to leave too many for the space, and keep everything neat and orderly. Take every opportunity which the weather may offer of admitting a little fresh air, and maintain a moist atmosphere by frequently sprinkling the paths, &c. Injury is sometimes done to the young tender foliage of Vines by the vapour arising from the evaporating pans when the state of the weather necessitates overheating the pipes, and if there is any danger to be apprehended from this, a board should be suspended over the pans so as to diffuse the heated vapour, and prevent its striking the foliage too much in one place. Examine the leaves in the early house narrowly for red spider, particularly those near the pipes, and if the least vestige of this pest is perceived, wash every affected leaf carefully and at once, using a soft sponge and soapy water. This may appear a tedious plan to those who have not been accustomed to spend much time upon plant washing, &c.; but an active handy man will soon go over a good part of a house, and if the enemy is taken in time it will be easily eradicated by these means. Peaches.—Where the trees are not so far advanced as blooming, proceed very quietly under the present state of the weather; for it is not desirable to have them in this state until air can be admitted more freely than would be possible under the most favourable arrangements at present. In houses where the trees are in bloom, a little extra fire-heat should be used, so as to allow of the admission of fresh air whenever the external temperature is not very severe; but this should be effected by small openings near the pipes, so that the air may get warmed before coming into contact with the trees. Maintain a soft humid atmosphere where the fruit is fairly set, syringe the trees lightly after shutting up early on bright afternoons, and proceed gradually with disbudding the trees, and where the fruit is thick a portion should be removed as soon as it is safely set, but then so as to allow for a few falling, to which the Peach is liable until after stoning. See that the trees are properly moist at the root, giving tepid water where it is wanted. Strawberries.—These are somewhat liable to the attacks of green-fly when the weather necessitates keeping them rather close, and they should be very carefully looked over, and lightly fumigated once or twice if they are found to be at all infested with this pest. Do not exceed 50° at night until the fruit is set, and keep the plants near the glass, giving as much fresh air as can be safely done, and maintain a moist atmosphere except while the plants are in blossom, when every care should be taken to keep it rather dry.

FLOWER GARDEN AND SHRUBBERIES.

The principal thing demanding attention here at the present time is the providing of a sufficient stock of plants against bedding-out time. The stock of plants in cold pits and frames will doubtless, in many instances, have been considerably lessened during the last fortnight, and as the season is far advanced no time should be lost in getting those wanted for propagation placed in a moist warm atmosphere, to induce them to make free growth, with the view of obtaining plenty of cuttings. Except under favourable circumstances, it is very difficult to induce the general order of bedding plants to make anything like free stocky growth by means of artificial heat. If a pit heated by pipes is at command, where a little bottom heat can be obtained from a bed of leaves, mixed with a small proportion of well-worked stable manure, this, with proper management, will afford the best possible combination of circumstances for inducing such things to make free and strong growth; and strong short-jointed cuttings form established plants so much sooner, and at an expense of attention so small compared with long-jointed weakly cuttings that they are worth any care which may be necessary to obtain them. The command of a proper place for rooting cuttings is also a matter of great importance where a large number has to be got up. What is wanted is a brisk bottom-heat where the cuttings can be kept near the glass, and cool. It is very true that young wood of most bedding-out plants will root almost anywhere, but it is desirable to keep the cuttings strong and vigorous, which is a difficult matter when they have to be rooted in a warm close atmosphere. See to having plenty of light, rich, sandy compost ready for potting-off with, and, of course, cuttings must not be inserted in cold wet soil. Look over the stock of Dahlia roots, and place those wanted to afford many cuttings in heat at once, as also any that may not appear to be keeping well. Any Hollyhock cuttings which can be obtained should be put in at once, for unless these are got moderately strong before planting-out time, there is very little chance of their flowering at all strongly this season.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Feb. 22, 1855, as observed at the Horticultural Gardens.

Feb.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain
Friday 16	[illegible]	29.954	29.811	32	19	25.5	35	38	N.E.	[illegible]
Satur. 17	1	29.897	29.869	27	2	14.5	35	38	N.E.	[illegible]
Sunday 18	2	30.010	29.980	29	3	16.0	35	38	N.E.	[illegible]
Mon.. 19	3	29.966	29.883	33	20	26.5	35	37	E.	[illegible]
Tues. 20	4	29.732	29.691	35	8	21.5	34½	36½	E.	[illegible]
Wed. 21	5	29.855	29.837	30	10	20.0	34	37	N.E.	[illegible]
Thurs. 22	6	29.934	29.877	34	23	28.5	34	36½	E.	[illegible]
Average.		29.905	29.849	31.4	12.1	21.7	34.6	37.3		[illegible]

Feb. 16—Snowing; slight snow-shower occasionally; overcast.
— 17—Cold and windy; slight snow; clear; severe frost.
— 18—Intense frost; hazy; clear, with severe frost.
— 19—Hazy; clear and frosty at night.
— 20—Clear and frosty, with brisk east wind; overcast; clear.
— 21—Severe frost; partially overcast; hazy clouds; overcast.
— 22—Hazy; dry air and uniform haze; slight snow in the night.

Mean temperature of the week 17¼ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 29 years, for the ensuing week, ending March 3, 1855.

Feb. and March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 25	48.1	33.1	40.6	15	0.92 in	4	1	5	1	4	6	6	[illegible]
Mon. 26	47.3	33.2	40.3	16	0.48	5	2	3	4	1	8	4	[illegible]
Tues. 27	47.8	34.3	41.0	15	0.40	3	5	3	2	5	6	4	[illegible]
Wed. 28	48.7	34.0	41.4	11	0.81	—	6	5	—	2	5	3	[illegible]
Thurs. 1	47.4	34.4	40.9	12	0.62	—	5	2	—	5	10	4	[illegible]
Friday 2	49.1	36.0	42.5	10	0.45	2	5	2	1	4	7	6	[illegible]
Satur. 3	49.5	33.1	41.3	13	0.28	3	8	1	3	3	5	5	[illegible]

The highest temperature during the above period occurred on the 28th 1846—therm. 64 deg.; and the lowest on the 1st, 2d, and 3d, 1854—therm. 18 deg.

Notices to Correspondents.

Books: *J D.* Glendinning on the Pine, and Hamilton on the same subject, will give you all the information to be obtained from books.—*A Young Forester.* No single volume will give you the information you seek. That of Brown is the best practical work in this country, but if you wish to understand the subject, you must read many books, and especially the greatest of all, that of Nature. Duhamel's "Physique des Arbres" contains a vast quantity of valuable information.

Glazing: *P Q.* If you glaze your roof with great squares placed lengthways across from rafter to rafter, you must submit to the drip that must attend the plan, unless your squares overlap as usual. That fault cured, the next is that if your sashes are moveable, great breakage will follow, and if fixed, it is still to be feared where glass has a 3 feet bearing. Pyramids planted a year ought not to require stakes, for their roots should be in that time sufficient to keep them securely upright.

Heating: *M W K.* Unfortunately your sketch is made by some one who cannot draw, and we do not understand it. Perhaps the narrow junctions are choked up by incrustations; perhaps the flow-pipe comes from the bottom of the boiler instead of the top (such indeed would seem to be the case according to the sketch). Junctions should be of greater, not less diameter, than the pipes themselves if there is any difference.

Manures: *L S W.* We know nothing of it, and we advise you to take care how you become acquainted with it.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—1, Pteris serrulata; 2, Cyrtomium falcatum; Lycopodium sulcatum, usually called Lycopodium cæsium in gardens. *S.—Reader.* 1, Oncidium maculatum; 2, O. graminifolium; 3, Dendrobium Pierardi; 4, Justicia picta.

Rhododendron alta-clerense: *Old Sub.* Have you not lifted the wrong plant? We never heard of this Rhododendron varying so much in colour as to be "a good scarlet" one year and "pale pink" the next.‡

Rosa odorata: *H.* Your plant is probably too luxuriant to flower. Try what effect a slight root pruning has on it.‡

Pomegranate: *H.* Give it a little protection in spring if you can, so as to enable it to make its wood early, and thus get it better ripened before winter. You need not expect it to flower well, however, except after a roasting summer.‡

The Red Moon: *E B.* This, the Lune rousse of the French, is an expression indicating the presence of ground frosts at certain times when the moon shines brightly. The effect of cold, which scorches tender herbage, is imagined to be owing to the influence of the moon.

Woods and Forests: *J K.* The report of the surveyors who have inspected the forests may be obtained through the booksellers from the Parliamentary Paper Office. It is printed by Eyre and Spottiswoode, and is dated 1854. The cost is trifling.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
WM. INGLIS CARNE, 10, Mark Lane, London.

PERUVIAN GUANO, of the finest description, on sale, from several Cargoes now due, without any restriction.—Apply to JOHN and THOMAS JOHNSON, 6, Walmer Buildings, Water Street, Liverpool.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7l. per ton; Superphosphate of Lime, 7l.; Sulphuric Acid and Coprolites, 6l.
Office, 69, King William Street, City, London.
N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

CORN MANURE FOR SPRING SOWING.
CONCENTRATED URATE FOR GRASS, RAPE, AND ALL ROOT CROPS.
SUPERPHOSPHATE OF LIME.
THE LONDON MANURE COMPANY continue to manufacture the above Manures, which have been used with so much success for the last 14 years.
The London Manure Company also supply PERUVIAN GUANO (direct from importers' warehouses), Nitrate of Soda, Sulphate of Ammonia, Fishery and other Salts, Bone Dust, and every artificial manure of known value. EDWARD PURSER, sec.
Office—40, Bridge Street, Blackfriars.

WHEAT AND OTHER MANURES ON SALE.—The success attending the application of the manure specially adapted for Wheat during the last two years, induces the undersigned to again offer it to the Agriculturists with confidence. Also Superphosphate of Lime, Blood Manure, Guano, Nitrate of Soda, Gypsum, Salt, Peat Charcoal, and all other Manures of known value.—Apply for Prices Current to MARK FOTHERGILL & CO., 204A, Upper Thames Street, London.

SEWAGE CHARCOAL MANURE.—This highly fertilising Manure, which is Peat Charcoal completely saturated with London Sewage, will be found most efficient for every species of crop; more especially for Peas, Beans, Turnips, Mangold Wurzel, and other root crops. It will produce a greater return for the outlay than Guano or any other Manure at an equivalent value: it also possesses the property of retaining its fertilising power longer than other Manures now in use. It may be obtained at the SEWAGE MANURE WORKS, Stanley Bridge, Fulham, at 4l. per ton, and in quantities less than half a ton, at 5s. per cwt., for ready money only; and in quantiies not less than a ton, will be delivered at the London Termini of the Railroads free of charge for cartage. No charge for sacks.
It may also be had from Messrs. G. GIBBS & Co., 26, Down Street, Piccadilly, Agricultural Seedsmen, Agents for London; Mr. H. Campbell, 87, Dale Street, Glasgow; and from all the other Agents of the Company.

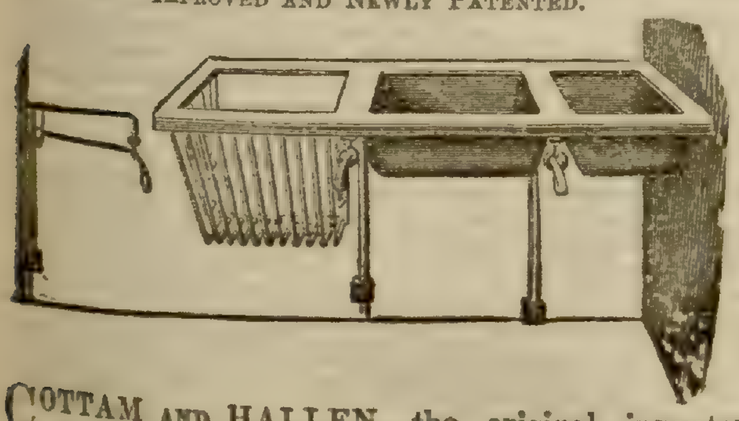
THE MANCHESTER SEWAGE GUANO COMPANY respectfully inform Agriculturists that they have made arrangements which will enable them to meet the increasing demand for their Manures. The MANCHESTER SEWAGE GUANO is a compost of Blood, Bones, Urine, Nightsoil, and other Animal Matters, and highly fertilising Chemical Ingredients, which are in a concentrated state incorporated with Animal and Vegetable Charcoal, ground to a fine powder, *the whole forming a dry portable Manure.* It is free from all kinds of Seeds, Weeds, &c., and enriches the land to a considerable degree for several years after it is used. Price 5l. 5s. per ton. Net cash on delivery. Testimonials forwarded on application. Carriage free to any Railway or Canal Wharf in Manchester.—JOHN THOMPSON, Secretary, 3, Watling Street, Shudehill, Manchester.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch.
Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

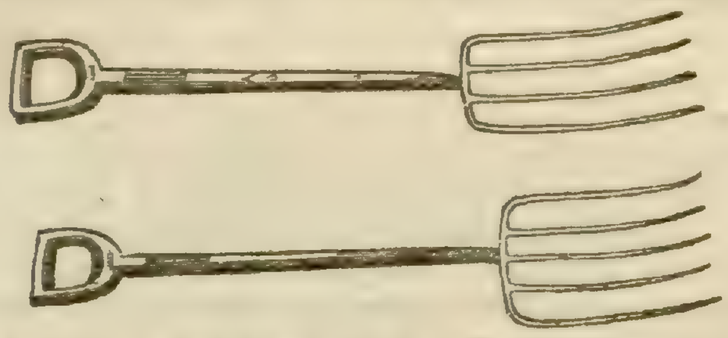
TREE TRANSPLANTING BY M'GLASHEN'S PATENT.
MR. M'GLASHEN is now prepared to supply Apparatus or give Estimates as to the rate at which he will safely and expeditiously transplant Trees or Shrubs of any dimensions in any part of the United Kingdom.
Canonmills Bridge, Edinburgh.

CHAFF-MACHINES AND CORN-CRUSHERS.—All these Machines exemplify, in the most satisfactory manner, the high degree of perfection to which RICHMOND AND CHANDLER have attained in the manufacture of Agricultural Implements; and the recent improvements made upon their various Chaff-Machines and Corn-Crushers (articles for the production of which this firm has long been justly celebrated) are of the highest value in the economical preparation of food for cattle.—Address RICHMOND & CHANDLER, Salford, Manchester and South John Street, Liverpool. Catalogues gratis.

MANGER, RACK, & WATER-TROUGH AS ONE FIXTURE.
IMPROVED AND NEWLY PATENTED.



COTTAM AND HALLEN, the original inventors, obtained the Great Exhibition Prize Medal for this arrangement, to which all the latest improvements are adapted, secured by Patent, including a method entirely new of attaching the halter-weight and rein from the back of the manger to the under front of the plate, allowing the horse greater freedom, and being noiseless in operation, add much to its comfort whilst feeding and convenience when at rest, as likewise, from their position, avoiding the liability of the most restive horse getting cast. No well-managed stable should be without these fittings.
COTTAM'S ENAMELLED MANGERS are constructed in the best possible manner, both as to form and utility; are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, and Enamelled. Improved Surface Drain, with Safety Covers, Sanitary Traps, Stable Pumps, Loose Box, Fittings, Gutta Percha Preserving Saddle and Harness Brackets, and every article in Stable Furniture, in stock. An extensive assortment of Patterns for both Plain and Ornamental Castings, and every description of Wrought and Cast Iron Work for building and other purposes. Agricultural and Horticultural Implements, Iron Gates, both plain and ornamental, Hurdles, Strain Fencing, &c.
Estimates and Catalogues on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.
WARMING AND VENTILATING



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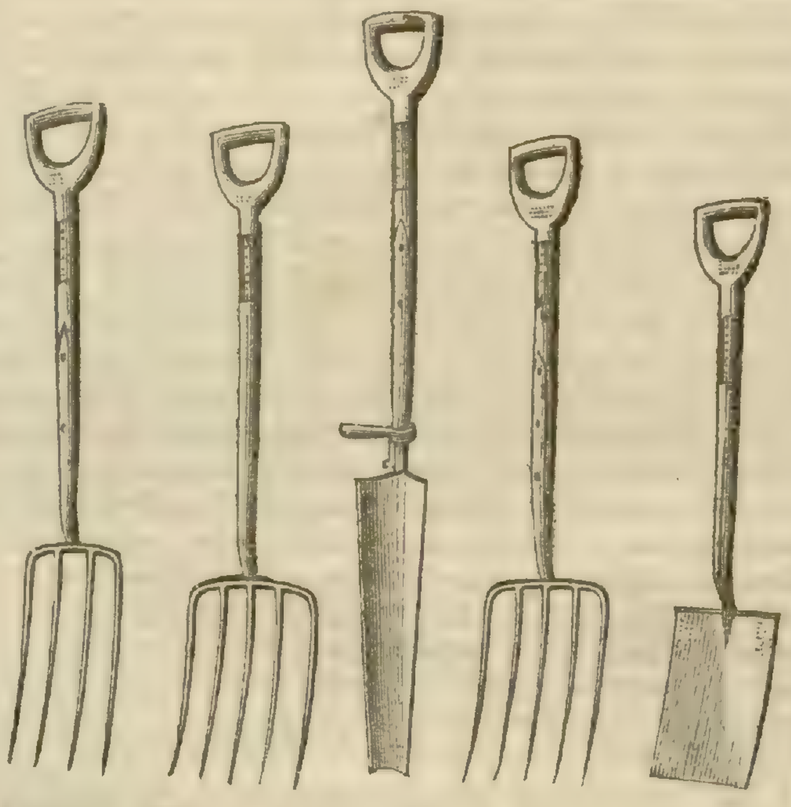
WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.



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MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.
103, Newgate Street, and 52, Little Britain, London.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3l. 3s. The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe, 1s. 6d. per foot.
1½ inch Flexible Rubber and Canvas Suction Pipe, 3s. 6d. per foot.
May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 12 0
2½ „	long 3 „ 3 „		1 15 0
3 „	ditto 3 „ 6 „		2 12 0
3½ „	ditto 3 „ 6 „		2 18 0
4 „	ditto 3 „ 6 „		3 5 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 12 0
2½ in.	long ditto	ditto ditto	2 15 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
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CLAYTON, SHUTTLEWORTH, AND CO.'S PRIZE PORTABLE STEAM ENGINES, AND COMBINED THRESHING, STRAW SHAKING, RIDDLING AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c, as threshed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.
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NEW FEEDING SYSTEM.—NO OTHER MACHINE BUT KEALY'S PATENT PRIZE ROOT PULPER prepares the Turnip or Root for Lambs, Mash-feeding, or Fermented Food, which method is attended with an immense saving in time and money. Its exposition at the Cattle Show has created an unprecedented demand.
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FOWLER'S PATENT STEAM DRAINING PLOUGH may be seen in constant operation from this day until the 10th March, at WORMLEYBURY FARM, near Broxbourne, which is 40 minutes' ride from London by the Eastern Counties Railway. Gentlemen interested in Land Drainage are respectfully invited to make an early inspection of its operation. Thorough Drainage executed at from 3l. to 5l. per acre, including Pipes.
Apply to THOS. SCOTT, 5, Charing Cross, London; or to JOHN FOWLER, jun., Temple Gate, Bristol.—Feb. 24.

LAND DRAINAGE undertaken to any extent by Contract or Commission, to be executed by Hand or by Fowler's Patent Draining Plough.—Apply to THOS. SCOTT, Land Agent, 5, Charing Cross, London.—Feb. 24.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY.
INCORPORATED BY SPECIAL ACT OF PARLIAMENT.
Offices, 52, Parliament Street, London.
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HENRY KER SEYMER, Esq., M.P., *Chairman.*
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Empowered to execute Drainage, Road-making, and other Land Improvements, and to Erect Farm Buildings upon Estates under Settlement, Mortgage, or otherwise; or Church property, and without investigation of Title to charge the whole outlay and expenses upon the Estate, to be repaid by instalments spread over any period determined by Landowners within the limits of 50 years for Drainage and Roads, and 31 years for Farm Buildings.
Landowners may arrange with the Company for the execution of the works by their own agents, with the use of their own or the Company's Capital. WILLIAM CLIFFORD, Sec.

THE LANDS IMPROVEMENT COMPANY, INCORPORATED BY SPECIAL ACT OF PARLIAMENT FOR ENGLAND AND SCOTLAND.—To Landowners, the Clergy, Solicitors, Surveyors, Estate Agents, &c.—Loans may be contracted for the execution by the proprietor or by the Company of every landed improvement, especially Drainage, Building, Clearing, Enclosing, Warping, Irrigation, Embanking, Reclamation, Roads, Planting, Machinery, &c. The plans (of buildings), specifications, and estimates are prepared by the proprietors, and are submitted to the approval of the Enclosure Commissioners. Proprietors may avail themselves of the powers of the Act to recover from the inheritance their own funds to be expended on improvements. They may also apply jointly for the execution of a mutual improvement, such as a common outfall, &c. For forms of application, &c., apply to the Hon. WM. NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

The Agricultural Gazette.
SATURDAY, FEBRUARY 24, 1855.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY,	Feb. 28	—Agricultural Society of England.
MONDAY,	March 5	—Central Farmers' Club.
TUESDAY,	— 6	—Agricultural Imp. Soc of Ireland.
WEDNESDAY,	— 7	—Agricultural Society of England.

IN a recent Number when giving an account of MARLS and MARLING we endeavoured to inculcate the important lesson that while mere theories were often at variance with practical truth, yet that true science will ever be the best guide to correct practice. Our readers will recollect that in the article referred to, we endeavoured to show that 50 years ago the then best practical and scientific writers on agricultural matters advocated marl as almost, if not quite, the only manure that all crops required, but none at that time spoke of the principles (the science) of its action and none cared to acquaint himself with even the chemical constitution of the different kinds of marls employed; in fact, why marls should under any circumstances be useful as a food or manure for plants was not understood, and hence for years different kinds of marls were used, and now that we know that some contain alkalies and phosphates which are entirely absent in others, it is not to be wondered at that a marl from one locality may be of great use, while another from a different one may be worse than useless.

We have, then, in this case an instance of the assistance which the sciences of chemistry and geology may be made to afford in the practice of agriculture: the one informing us of the constitution of the marl, and thus pointing out to us whether or not it contains those ingredients which the same science has taught us plants require for their food and growth; the other enabling us to determine the geological position of the material analysed, so that we can at all times point out its presence or absence, and thus not expect valuable marls in such sterile formations as Wenlock shales, the blue lias, or the Oxford clay.

Nor is it alone in marls that the same scientific

principles will help us, for if we turn to an examination of *Stonebrash* (also a generic term with the farmer) we shall irresistibly be led to the same general conclusions.

How often it has been our lot, along the line of the Cotteswold hills, to hear a farmer congratulating himself that he has grown so many bushels of Wheat on "only a brash." Now, his neighbour, who has only been enabled to accomplish perhaps half this, is inclined to the belief that his successful friend has been only *lucky*, whilst he, on the other hand, claims his good fortune as the result of *better management*. Let these, therefore, pass as the conclusions of not very intelligent practical men, while we interrogate science upon the matter. The geologist tells us that stonebrashes are of several kinds, belonging to different formations, have been deposited at different ages of the world, are very diverse in mechanical structure, and include some few, and others many of very different fossil remains, and he can at a glance distinguish them wherever he may meet with them; is it, therefore, surprising that, with the differences enumerated, the chemist should find brashes from differing geological positions to vary in their chemical constituents? Now, to put this part of our argument in the clearest light, we have great pleasure in quoting the following analyses made by our friend Professor Voelcker, of the Royal Agricultural College, of brashes from three distinct rocks, to be presently more fully described:—

Table I.

Analyses of Stonebrashes by Professor A. Voelcker.

	1. Brash of Inferior oolite.	2. Brash Great oolite.	3. Cornbrash.
Carbonate of lime	89.20	95.346	89.195
Magnesia	.34	.739	.771
Iphate of lime	.09	.204	.241
Oxide of iron	...	...	...
Alumina	4.14	1.422	2.978
Phosphoric acid	.08	.124	.177
Soluble silica	2.75	1.016	1.231
Insoluble siliceous matter	3.27	.533	4.827
Alkaline salts	undetermined	undetermined.	undetermined.
	99.85	99.384	99.420

These three stonebrashes represent as nearly as may be a large tract of country which, occupying the middle of England, and rising more or less abruptly from the vales of Berkeley, Gloucester, and Evesham, forms the Cotteswold range of hills.

Of this range, about one-half is composed of the inferior oolite, which is, for the most part, but a poor sheep farming district. Towards Cirencester, or the more southern part of the Cotteswolds, the great oolite sets in, and there is at once a visible improvement in the land and an increase of produce; but even this improved state of things meets with still greater improvement south of Cirencester, where will be found here and there districts of limited extent, covered with cornbrash—the cornbrash of all the brashes being good natural corn lands, and hence the name—whilst the other brashes only yield corn that is, as it were, wrung from them with great labour and expense.

The great cause of expense is the obtaining manure, and much of the recent improvement which may everywhere be noticed may be traced to the extended use of bones, which have enabled the Cotteswold farmer to increase his Turnip crop.

Now inasmuch as bones consist of phosphoric acid and lime, a glance at the three analyses just quoted will show how one rock makes a soil naturally better than another, for No. 1 yields .07, No. 2 .124, and No. 3 .177 of phosphoric acid, the important element of bones. The plain conclusion, therefore, is that cornbrash affords the best corn-growing land because it has the most bones in it.

If we look to the average yield of grain for the three brashes here commented upon, we shall see the same facts illustrated in what may be termed the practical way. The following table represents the average of grain in bushels per acre:—

Table II.

Crop.	1. Stonebrash Inferior oolite.	2. Stonebrash Great oolite.	3. Cornbrash.
Wheat	15 to 20	20 to 25	25 to 30
Barley	25 to 30	30 to 35	40 to 45
Oats	25 to 30	35 to 40	45 to 50

This table illustrates facts and principles which will be readily understood by the cultivator of the soil, and we therefore now offer the landlord's touchstone of value in the following table, representing the average rent:—

III. Formation.	Rent the acre.
1. Stonebrash—inferior oolite	7*s.* to 20*s.*
2. Stonebrash—great oolite	14*s.* to 25*s.*
3. Cornbrash	20*s.* to 40*s.*

These facts tend to show that the reasons for practical results may be clearly made out by the scientific inquirer, and from these he is enabled to illustrate great principles, a right understanding of which would, as true knowledge always does, lead us to think more modestly of ourselves; for if we are fortunate enough to live in a district where everything looks prosperous, the crops good, and farmers rich and, consequently, as the term goes, respectable, we are not always to conclude that this has arisen altogether from our superior knowledge and intelligence; it may be only, after all, that *there are more bones in the soil.*

We direct attention to the remarks of the Hon. W. Napier upon those powers possessed by the Land Improvement Company, to which we referred last week. It appears that Mr. Bailey Denton's table, which we quoted, is wrong in one point and deficient in another; and in both particulars the requisite corrections will be found given in Mr. Napier's letter. Our own account of the mode in which this company acts is, it seems, liable to misconstruction; and therefore we repeat here, what will be found elsewhere, that the staff of superintending officers which the company employs in order to see that the money spent, which they repay, has been properly and efficiently invested, are not, except in this way, connected with the company. They are Government Inspectors appointed by the Inclosure Commissioners; and their official sanction is the security on which alone the company relies. This company acts simply as a bridge over which the floating capital in the money market may find its way to the land; and it has no permanent paid officer whose salary would merely increase the cost of the service which it renders, because without him the security of the company is perfectly ensured.

We have also to add in reference to the General Land Drainage Company, that it is a mistake to suppose that it only undertakes works superintended and undertaken by its own officers. It is willing to take all the responsibility of works executed by the tenant himself, or under his direction, when satisfied of the competency of the men employed.

The whole country has now for several weeks been locked up in frost; where fully exposed, the soil has been frozen to the full depth of its staple. There is every reason in this for congratulation. There is no implement of tillage like a good winter's frost, and all our fallow crops on which fertility for a course of years so much depends, will this year be easily and effectually cultivated. The land, too, has been pretty generally covered with snow, so that little injury of the young Wheat is to be anticipated. The dry autumn is a preservative against injury by frost rather in the case of perennials than in that of the plants which the farmer cultivates, but in the case of these, too, succulence of foliage renders frost more easily mischievous. We saw this week at Mr. Telfer's farm, near Ayr, the bulky succulent growth of Italian Rye-grass—the last effort of the plant before the winter of the past few weeks—lying dead, almost as white as bleached Flax. The leaf gorged with juice, as under his system of management it is, was killed at once. And this liability to injury prevails, no doubt, throughout, more generally on the western side of the island than upon its eastern shore. The moister climate has induced a more forward growth, which is more likely to be hurt—and unfortunately it is the eastern side of the island which is best covered in with the snow. Ayrshire and Lancashire are hardly white, while Berwickshire and counties south of it are deep in snow.

It is on our eastern side, however, that the principal Wheat-growing districts lie, and on the whole, as we have said, the present condition of the land and its history during the past few weeks are reasons for congratulation rather than alarm.

ECONOMY OF FOOD.

It is of the utmost importance to make a proper selection of such food as is best fitted to the age of the animal, remembering that the true principle of rearing young stock for the butcher is to give them such food daily as will daily increase their weight. The food which will promote the formation and growth of bone and muscles, should contain a large supply of the phosphates from which bone is formed, and gluten or fibrine by which muscles grow, such as Red Clover, Vetches, and other leguminous plants among our green crops, and Beans, Peas, oilcake, and Poppy-cake.

Linseed-cake contains of earthy phosphates ... 2.86 per cent.
Poppy-cake contains of phosphates ... ... 5.07 „

Thus Poppy-cake is of more value as food to young growing animals as it produces bone, as oilcake produces fat. When an animal has to take much exercise in gathering its food it consumes more of it to supply the waste of carbon; it breathes more frequently and more carbon is thrown off from its lungs; its food must therefore have more starch or sugar, for if more be not given the fat and other parts of its body must supply it—hence the less exercise the animal has, the less waste takes place.

In the box system of feeding, the animal rises to his food three or four times a day, then lies down to sleep the rest of his time, and being kept warm in the box the quantity of food to supply the waste is greatly diminished, and a large portion of it is left for the production of fat.

If an ox be fed on green Clover it is said that he will consume 150 lbs. daily and increase 14 lbs. weekly. The substances which produce this result, contained in the 150 lbs. of Clover, are as follows:—

	lbs.	Water.	Ashes.	Fibre.	Starch, Sugar.	Casein, Gluten.	Fatty and oily Matter.	Elements of Respiration.	Elements of Nutrition.
Clover	150	112.0	1.35	19.0	9.6	2.7	.22	28.6	3.0

The following is the composition of a winter food for a fatting ox upon another system:—

	lbs.	Water.	Ashes.	Fibre.	Starch, Sugar.	Casein, Gluten.	Fatty and oily Matters.	Elements of Respiration.	Elements of Nutrition.
Mangold	75	62.0	1.0	1.5	6.3	1.5	0.37	...	...
Oilcake	10	1.	0.72	1.0	4.0	2.0	0.1	...	...
Wheat straw	10	1.2	0.5	5.0	3.0	0.15	0.05	...	...
Oat straw	10	1.2	0.5	4.5	3.5	0.13	0. 7	...	...
	105	65.4	2.72	12.0	16.8	3.78	0.59	28.8	4.37

The following is an experiment by Mr. Hope, of Fenton Barns, on 18 oxen, and on this compound they increased 14 lbs weekly in weight:—

	lbs.	Water.	Ashes.	Fibre.	Starch, Sugar.	Casein, Gluten.	Fatty and oily Matters.	Elements of Respiration.	Elements of Nutrition.
Turnips	150	127.5	1.5	3.0	14.25	3.0	1.0	17.25	3.0
Potatoes	10	7.4	0.1	0.4	1.8	0.2	0.0	2.2	0.3
Hay	5	0.7	0.4	1.5	2.0	0.3	0.1	3.5	0.4
	165	135.6	2.0	5.0	18.0	3.5	1.1	23.0	4.4

The following is the composition of food for fattening cattle which I have used for years:—

	lbs.	Water.	Ashes.	Fibre.	Starch, Sugar.	Casein, Gluten.	Fatty and oily Matters.	Elements of Respiration.	Elements of Nutrition.
Swedish Turnips	100	85.0	1.0	2.0	9.0	2.0	0.5	11.0	25
Bean-meal	5	0.7	0.01	0.5	2.2	1.3	0.1	2.7	1.4
Linseed-meal	3	0.0	0.01	1.5	0.6	0.6	0.5	2.1	1.1
Straw	12	1.5	0.7	5.5	4.5	0.1	0.1	10.0	0.2
Water	10	10.	...	...	...	...	...	...	...
	130	97.2	1.72	9.5	16.3	4.0	1.2	25.8	5.2

The following is the account of an experiment made by me on the feeding of sheep, which shows the effect of shelter, of quiet, and the absence of light upon the quantity of food eaten, and of the mutton produced from it. Five lots of five sheep, each lot of nearly the same weights, were fed each with a pound of Oats a-day, and as much Swedes as each lot choose to eat. Lot 1 of 5 sheep was folded in a pen made with hurdles in the open air, close by the yards, and littered with straw. Lot 2 of 5 sheep were in one pen under a shed, so that they had light but no rain came to them. Lot 3 of 5 sheep were under the same shed, but each of them was confined in a space so narrow that they could not turn round in. Lot 4 of 5 sheep were confined in a close house, in one pen, but all was dark and warm; they had the same size of a pen as lot 1 and lot 2. Lot 5 of 5 sheep was confined in the same house as lot 4, but each of them was confined in a crib, the same as lot 3. The increase of live weight in each of the individuals of the five lots, and the average quantity of food which each respectively consumed appear in the following table:—

	Average live weight of each individual.		Average increase of each sheep.	Average Turnips eaten by each sheep.	Increase for each 100 lbs. of Turnips
	Nov. 18. lbs.	March 9. lbs.	lbs.	lbs.	lbs.
Lot 1, unsheltered	108	131.7	23.8	1912	1.2
Lot 2, in open sheds	102	129.8	27.8	1394	2.0
Lot 3, ditto in cribs	108	130.2	22.2	1238	1.8
Lot 4, in a close dark shed	104	132.4	28.4	886	3.1
Lot 5, ditto, each in a crib	111	131.3	20.3	886	2.4

From this table we find that one-third less Swedes were eaten by the animals which were in the pen under the shed than by the lot which was in the open air, while in live weight they gained 4 lbs. more each.

That those in the dark, however, did not consume half the quantity of Turnips, while they increased 5 lbs. more each.

The animals which were confined solitary in the house cribs were fretful and restless in this confinement, which retarded the fattening process; therefore the most profitable way of feeding animals is to keep them in a dry warm place, and in as dark a place as you can command. *J. M.*

THE DRAINAGE COMPANIES.

With reference to the able and impartial leading article in the *Gardeners' Chronicle* of Saturday last, reviewing the parliamentary powers and the *modus operandi* of each of the companies incorporated for the purposes of lands improvement, will you permit me to

point out an error in the tabular statement of Mr. Bailey Denton, which if not corrected may be injurious to one of the companies in question.

I allude to that part of the table respecting the Lands' Improvement Company, where the rate of rent-charge to repay a loan, principal and interest, in 25 years, is stated at from a minimum of 6*l.* 10*s.* 8*d.* to a maximum of 7*l.* 1*s.* It should have stood thus—"Minimum 6*l.* 10*s.* 8*d.* and maximum 7*l.* 1*s.*; according to the rate of interest in the money market at the date of the contract."

It is likewise stated in the table that only three-fourths of the cost of "clearing" lands may be charged on the lands improved, whereas the company's act permits the *entire* cost to be charged.

Again in the editorial comment there is a mistake, which I may, perhaps, be permitted to rectify. It is observed, "The Lands' Improvement Company again, although it employs a staff of superintending officers," &c. As this, sir, might naturally be interpreted to mean that the company employ a staff of officers, or surveyors who have the supervision of the improvement works executed by landowners by means of the company's powers, it is right to explain that the company do not employ any such officers.

The Inclosure Commissioners for England and Wales, whose jurisdiction extends also into Scotland, appoint one of the Government Inspectors to report, in the first instance, as to the increased annual value to be effected by the proposed outlay; further, occasionally to inspect the improvements while in progress, under the landowner's own agents; and lastly, to report whether the works have been duly executed with good materials and workmanship, and according to the plan, specification, and estimate previously authorised by the Commissioners.

This company having decided, as was lately and most admirably set forth in your columns, to act simply as a bridge over which the floating capital in the money market seeking investment may be passed for the purposes of lands improvement; and considering that Parliament had vested the highly important trust as regards the efficiency of the improvements in the hands of the Government Inclosure Commissioners; and that the gentlemen holding the position of "assistant commissioners" had become well known to the country under the Government drainage acts, and entitled to complete confidence as eminently practical and scientific agriculturists and engineers;—the directors of the company, after long and serious consideration, determined that it would be vexatious to charge the works with the costs of any further supervision, and which could not, according to the evidence before them, lead to any possible advantage to the landowner or to the lands charged. *William Napier, Lands Improvement Company, 2, Old Palace Yard, Westminster, Feb. 20.*

ON FALLOWS WITH GRAIN.

One might well suppose that the promulgation of such a plan of Wheat production as that set forth by the incumbent of Lois-Weedon, and sustained by such sound reasoning, would not only have produced innumerable imitators, but a revolution in all our systems of tillage, in all our field management, that at least it would have set every one a thinking, even down to those least accustomed to this exercise of their mental faculties. But there is much that stands in the way of rational progress in agriculture and, perhaps, in nothing more than the want of a just appreciation of the advantages and effects of fallowing; yet Mr. Smith has pointed all these out sufficiently for practical purposes.

Through drainage and with the aid of manures, especially artificial ones, cropped fallows have now very generally superseded in Great Britain the worked naked fallows, once so general. In Ireland, I believe I may almost say from time immemorial, the naked worked fallow has been and is still but little practised, the chief dependence for the renovation of land being on the unproductive, unworked fallow, that is, in the land being left uncultivated to riot in all the wasteful (properly termed waste by the Irish) luxuriance of the weeds of many years accumulation, trusting entirely to slow, unassisted, natural disintegration of the soil, and to such limited absorption of the fertilising influences of the air as a hardened and repellent surface would admit for the future fertilisation of the land. The only fallow crop, with very few exceptions, has been, and will be again, the Potato crop,—possibly, however, a more efficient one in the way it has been tilled, than has been supposed—the despised and affectedly contemned lazy bed—by which successive surfaces have been exposed to atmospheric influences to the full depth of, at least, the surface soil, while strips of the subsoil have been exposed for several months to direct atmospheric action, drinking in at the same time the drainage of the beds, and drawing from them their surplus water.

There is a simple fact established by the Lois-Weedon system, that—for an average production of cereals during, we may say, an unlimited number of years—a good and perfect tillage (fallowing) of the land is all sufficient; of Wheat in proper Wheat soils, and, without doubt, of other cereals in other soils adapted to them. And these are said to be our exhausting crops. Does not this simple fact very clearly indicate that much of the heavy expenses in the tillage of green crops, and in the outlay on artificial manures for their production may be saved, and, indeed, make it probable that the manure raised on the farm and by the farm produce alone may be enough to maintain the land in a high state of fertility? No system of farming is perfect, or can become general that requires the robbing of one farm or one territory to maintain a high fertility in another. In order to constitute a general system, each farm must be self-supporting. For if this more perfect tillage so cleans, disintegrates, and fertilises the soil as to fit it, after Wheat, to produce an average crop of Wheat on the succeeding year, will it not fit it to produce a green or root crop with much less of tillage and manure than is now applied?

Were we to follow out the system of Tull in its integrity—were our grain crops fallow crops as well as our green and root ones—could we question that the fertility produced in the soil by continuous natural causes would, with our ordinary supplies of farm-yard manure, give us as good crops as we now obtain at very great cost?

We have adopted Tull's views in the tillage of root and green crops—why have we refused to adopt them in our cereal ones? Simply because they were not so obvious. In the spreading tops of those plants we saw a necessity for allowing them room to expand; this was plain to the physical vision, the mental one we did not employ, and we forgot to search beneath the soil, where we might have found the roots of the latter demanding as large a field for the collection of their food as the former; and yet we call them exhausting crops, and say, from the size of their leaves, they are more severe on the ground. Is it so? When we contemplated the upright growth, the narrow unexpanded leaves of our cereals, we never gave a thought that they might, for the indrawing of their proper aerial food, require as wide an expanse as the more spreading leaves of our green crops. We did not consider that in their more lofty growth the air was more likely to stagnate in their close proximity than when it swept over the lower growing plants.

Can we wonder that under the Norfolk system the land should become Clover sick?—one twelvemonth of fallow in four years; from the sowing of the Barley crop to the ploughing up of the Clover for Wheat, an untouched induration of the soil, a light single ploughing, and then 12 months more of induration. During the Barley summer the surface is baked, and its interstices choked up by the finer particles of the soil; the dews and light rains that fall on it cannot enter it, but return again to the heavens from whence they fell. So, in a great degree, is the case in the Clover year. No one supposes that the dews which lie on its leaves in the morning, or the light showers that rest on them, are absorbed by the soil; even the portion of them that may be drunk in by the leaves of the plants soon again perspires and is lost in the air. The same events even more fully occur in the Wheat year. The surface has been right well puddled by the winter rains—what, then, has been the atmospheric inflow? What has been its action on the collapsed soil and its mineral contents? The wonder is, not that the land should become Clover sick, but that it should not be sick of everything but repletion. Preserving the evil, an improvement is proposed in extending the course; a better one would be to make the two grain crops fallow ones, and sowing the Clover on the Barley after a second hoeing—there would then be a fallow, either a worked one or a green one, every year.

An obstacle to the more general acceptation of the Lois-Weedon system lies in the novelty of its mode of operation, and in its requiring other implements than those in general use; the difficulties may be more apparent than real, but they shove people too much out of their old ways. These difficulties, however, may be easily got rid of altogether by applying to our fallow grain crops, with the implements in common use, a tillage precisely similar to that of our fallow green crops, laying, like them, our grain rows at equal hoeing distances; and, except for the purpose of admitting stolen crops in the wider intervals, I look upon those equally distant rows as preferable for fallow purposes to those of Lois-Weedon. The atmospheric action on the soil is equally effectual, the deep working of the soil equally practicable, the after-working as easy, while the food (both aerial and mineral) is more equally supplied to both sides of the plants, and again the preparation for a future crop is just as perfect.

The lands may be sown by a common corn drill as usual, suspending the actions of the intermediate deliverers, or drills may be opened (say 2 feet apart) with a double mould-board plough, and the seed dropped in by a barrow-drill, and covered by a harrow. When the rows appear, if not prepared then to dig, hand-hoe and dig where it is proposed to be done afterwards; I consider the stirring of the soil immediately after the appearance of the germs above ground as very desirable, to admit air to the roots of the young plants at the moment when, having exhausted the pabulum contained in the seed, they become so much more dependent on the soil. The after stirrings may be made by any of the usual drill-hoeing implements. The last operation should be with the double mould-board plough, drawn by one horse, to lay the earth neatly against the rows, with the view of supporting them and rendering them less liable to lodge. This will also leave a furrow for the succeeding sowing, which may be cleaned out after the reaping, and sown without more ado; and the seed covered with a cross harrowing, the stubbles dug or cut up with a skeleton plough towards Christmas, the rows having been previously hand-hoed. In this way the fallowing, as well as the succession of grain crops, will be as easy and as inexpensive, if not more so, than green crops. *J. M. Goodiff.*

Home Correspondence.

Pigeons.—From some notice which appeared in your columns I am induced to address you. I have some laughing pigeons, and besides the novel cry they make they possess merits of great importance, for as breeders they surpass all other kinds I ever kept, and may be called the Hamburghs or everlasting layers among pigeons. As a friend of mine remarked, he never saw any birds like them for laying, and they are the best of nurses. They will sit on three eggs, hatch, and rear them. Four young ones I find are too many for two pigeons to rear, and what surprises sundry friends is that during all this cold weather they have been breeding and have reared their young, as I have now a pair all feathered and another pair next to just commencing being feathered. This I think is something in their favour, and I am sure that your readers who are pigeon fanciers would, like me, if they only knew them, be glad to keep them. I also find that as soon as they see any light they immediately begin to cry, thus making them as good as a dog. *An Old Subscriber, Durham.*

Bricked Arches v. *Tiled Roofs.*—A "Northern Subscriber" will find roofs of common brick arched and made waterproof to be cheaper and more durable than timber and slate for buildings not requiring a loft. They must of course have proper ties and ventilation. They have been largely adopted by E. W. Wilmot, Esq., of Congleton, who will be very glad to show his and furnish plans, &c., if wished for. The saving in cost is, he tells me, about 25 per cent. I shall certainly adopt the plan here for any new sheds I may require. *C. P. S.* [In reference to this we have received the following:—It is quite impossible without further information to compare the cost of a brick with that of a slate or iron roof. Your correspondent does not mention the span, nor whether the roof is half brick, whole brick, or brick and a half thick. He says it requires ties, but of what kind or how applied there is no mention made, nor does he say what the abutments consist of. Lastly, there is no description of the manner in which it is made waterproof. I have used half brick arches for floors. The arches are 16 feet span, and abut upon iron girders tied together by wrought iron rods. The haunches are made up level with brick bats and broken stones, and the floor is formed of asphalte. They stand well. If your correspondent means arches such as these, I dare say their cost where bricks and labour are cheap may be somewhat under that of a good timber and slate roof, but the latter is infinitely preferable in regard to lightness and durability. *J. N.*]——A "Northern Subscriber," who inquires about a better kind of roofing than at present used, will find, I fancy, a very useful proposal in what is suggested by Mr. James Barrett, Assoc. Inst. C.E., on Fire proof Buildings, 1853. It is flat, with iron or wood girders, and particularly suitable for farming buildings. It is far superior to the flat brick work and very cheap.——When speaking of timber trimming and general foresting—an employment I am very fond of—I merely wish to offer one remark. Taking by observation and experience that it is always wrong to cut off a large member from a tree, yet sometimes it must be done. When it is required, I like the plan of cutting the arm (exactly into its kind of collar) first on one side and then on the other, rectangular to the earth, so as to form a wedge-shaped end to the cut off arm, leaving a kind of sunk double cut on the tree, thereby enabling the bark more quickly to gather together and unite over the wound. In small trees, which alone should be trimmed—*i. e.*, from 1 inch to 2 inches—I find it an excellent plan. *Constant Reader, Norfolk.*

Ploughing in Snow.—Do this on heavy clay land, and you will render your soil so unmanageable that you will have no chance of "a season." Such is the doctrine in the locality of Sussex and Surrey, founded upon the result of the experience of the last generation, so that the present never dare to try the experiment. Is it founded on fact, or not? because it is not easy to comprehend why snow should, during the process of a thaw, render the soil more adhesive when the thaw is underground than when above. Gardeners are equally fearful. Trench in snow, and you will never grow anything all the summer: so that the clay lands are inevitably behindhand. Spring will probably steal upon winter with fine bright sunshiny days and bitterly cold nights. Snow may remain on the ground till April. All this time the plough and the trenching fork are to be idle, and the labourer out of employ. If the Lois-Weedon system or any other can satisfy the farmer that this is a mere antiquated notion, let it explode it at once. *Simplex.*

Draining.—If not taking up too much space in your columns may I be allowed to submit the following drainage question for your own and your correspondents' opinions? The land to be drained is a very flat valley about 2½ feet higher than a brook running through it, and this is the only outlet, so that the drains over the greater part of it cannot be put deeper 30 inches. Both on the north and south sides the ground rises considerably (belonging to other proprietors) especially on the south side; the extreme south end of the drains can be thus laid five feet deep. The land is now in Grass or I might rather say in Rushes. I have drained about one acre of it 2½ feet deep, and 16 feet apart, but have stopped further operations in consequence of having had

holes dug in different parts, some 6, some 7, and some 8 feet deep. In the lowest part a hole dug 6 feet deep shows the subsoil to be a very hungry blue slatey marl (it is in the Weald of Sussex), and at 5½ feet there is mixed with this a great quantity of decaying timber, there being quite a layer filled with it, as though a quantity of earth had been at some time washed or driven over a young forest—the wood being very small, the largest being about as large as a man's arm. Upon digging to the depth of 6 feet you come suddenly to a bed of gravel exactly resembling the bottom of the brooks in the district. Upon reaching this—but not till then—the water rises very fast, and in the course of six hours the hole, 6 feet across at top, and 2 at bottom, was full up to within 3 inches of the top of the ground; where the ground rises in the field, the holes upon being sunk deeper in proportion to the rise, there appears the same bed of gravel and the same subsoil as before, no water being seen until the gravel is reached: in a hole 8 feet deep the water did not rise so fast, but yet the hole was soon filled. Now what I wish to know is, whether drains 2½ feet deep and 16 feet apart, will be likely to effect a complete draining of such land (the upper soil is a stiff loam); if not would it be of any use to have an upright drain from the bed of gravel mentioned, to communicate with the 2½ feet drains. Suppose a shaft sunk in every third drain in the lowest part of the field throughout, would the water from the gravel bed rise up these shafts (and so pass off in the drains) as it does in the holes. Will not the land be wet until this bed of water is removed? I have had no means of testing the use of the draining done, as it was only finished just before this frost set in. I shall feel very much obliged for any information with which you or your correspondents would favour me upon this question. *Leasurely.* [You say that a maximum of 30 in. deep is a necessity laid upon you. Then you must make the best of your case at that depth. The policy of letting off the water from below depends upon the character of the clay. Unless it be a remarkably stiff clay we should be inclined to bore to the gravel, and connect the bore with one of the drains.]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Weekly Council, *Feb.* 21.—Mr. Miles, M.P., President, in the chair.

Oil for Machinery.—Mr. Brotherton, of Wandsworth, called the attention of the Council to the economy and value of Rape oil, as a substitute for Olive oil, for the purpose of lubricating the moveable parts of machinery; and to the consequent importance of the cultivation of Rape in this country as an agricultural crop.—Prof. Way suspected that the sulphur contained in the seeds of that plant might have an injurious effect on the metallic surfaces under friction to which the oil was applied.—Dr. Calvert had understood that some of the animal oils had been employed with success for the purpose stated by Mr. Brotherton.—Colonel Challoner referred to the freezing process practised by the Geneva watchmakers, by which the solid and impure matters of vegetable oil were separated from the pure oil which resisted the effect of cold even at very low temperatures, and which was accordingly highly valued by them for the delicate purposes of their watch machinery.—Prof. Way referred to the separation of paraffine in the distillation of coal-tar, and to the separation of solid stearine from vegetable oils, and the thin oily matter left behind in a liquid state. The great object was to obtain a pure oil least subject to oxidation by friction.—Mr. Girdwood thought that the difference in price between Rape-oil and sperm-oil was so great that any successful substitution of the former for the latter was well worth attention.

Planting of Grain.—Messrs. Hardy and Son, of Maldon, transmitted a tabulated statement of their experience in the sowing of Wheat and other grain, with the following conclusion deduced by themselves:—

"We are fully persuaded, from repeated experiments, that the greatest possible amount of grain can only be attained from the standard of 1 foot apart square, from plant to plant; and that the surest and best plan to effect that object is by sowing it early, and transplanting it in autumn."

Nitrates.—The Board of Agriculture at Berlin applied, through the Prussian Consul-General in London, for detailed information on the locality, occurrence, preparation, freight, price in comparison with other manures, probability of reduction in price, and other facts connected with the commercial value and agricultural use of the Nitrates of Soda and Potash; requesting the favour of the Council's transmitting to the Board those volumes of the Journal of the Society containing information on the subject.—The Council ordered the Journals to be presented to the Board as requested, and an intimation to be given of the sources of commercial information referring to the nitrates; but the President regretted that until the present investigations so kindly undertaken for the Society by the Earl of Clarendon were completed, the detailed information required by the Prussian Board of Agriculture could not be supplied in a complete state. At the previous meeting, Mr. Caird alluded to the bar-harbour at Tampico, as *not* being an insurmountable obstacle to the exports of the nitrates from that place. In our report of that meeting, the negative was unfortunately omitted, and a different character, consequently, given to his remark—a correction which we are glad to avail ourselves of this opportunity of rectifying. Mr. Cair had been informed, by an officer who had surveyed the harbours of Archangel, Revel, and Riga, that those harbours were likewise bar-harbours, with not a greater depth of water than that of Tampico, namely, 9 feet; and that large ships were constantly loaded there out-side by the aid of lighters drawn out by steam-tugs. The President having summoned the special committee on Guano and Nitrate Supply to meet on the day of the next Monthly Council, that question and others connected with the subject generally had been referred to that committee for consideration.—The President gave notice, that at the next meeting, Mr. Jonathan Gray's model of a great improvement in the construction of shedding (on the span-tension and tent principle), both for implements and cattle, would be exhibited to the members.—Mr. Scott, of 5, Charing Cross, transmitted information on Fowler's Steam-draining Plough, with a statement that the present weather had not been found in the slightest degree to interrupt the operation of that plough.—The Bavarian Agricultural Society transmitted an account of their latest proceedings.—Mr. Cox, of 68, New Bond Street, presented a copy of his "Landlords' and Tenants' Guide."

Adjourned to Wednesday, Feb. 28th, at 12 o'clock.

Farmers' Clubs.

Botley and South Hants.—*On Agricultural Leases.*—Mr. Gale, County Court Judge, delivered an address on this subject at the meeting of this Club recently, from which we make the following extracts:—

"It has, indeed, been said that there are many instances in which, for one or more centuries, the same family have tilled particular land, without a lease; but, I believe, the answer has been truly given, that those instances often present examples of as bad farming as any to be found in England. Supposing, however, that the high character of a landlord may be a sufficient security that he will deal fairly by his tenants, who can guarantee the latter against the conduct of the successor to the estate, who may be a grinding man, or, from his extravagance or other causes, may think proper to sell it? I could advance, were it necessary, instances of the truth of this: but I think I may assume that no man in his senses would invest his capital in the land of another without the protection of a lease. There is a matter bearing on this subject which I desire to allude to, only to prevent any misconception of our views upon it. I mean Tenant-right. As it is demanded in Ireland, I understand it to mean a right to call upon a landlord, at the expiration of a tenancy, for compensation to the tenant for such improvements as he may have made upon the land, the effect of which is wholly or partially exhausted. This is sought for, not by a provision introduced in the demise, by the consent of both parties, to which it is obvious there could be no objection, but by the forcible interference of the legislature altering the effect of the contract they have entered into. I hope I express the general sense of the farmers of England in utterly repudiating such a doctrine, which tends manifestly to the subversion of the rights of property. If the legislature were to do this, it would be impossible to say where it would stop. Many Utopians might, with just as much reason, urge that it should fix the price of labour, or of bread, or of the course of cultivation, or, in fact, anything which benevolent but irreflective persons might think would conduce to the general good. If a proprietor wished to sell his land, no one would contend that the legislature should dictate the terms of sale, any more than if he had a load of Wheat to sell; and, if so, with what colour of justice can it fix the conditions on which he should let the possession and use of it to a tenant, which is in fact nothing more than selling to the tenant a partial interest in the land. The objects to be sought for in a lease are, security to the landlord and freedom of action to the tenant. The landlord seeks to secure himself by prescribing in the lease the course of cultivation to be followed either in express terms, or by compelling the tenant to follow the custom of the country, either by express allusion to it, or by calling in aid the law which commonly binds the tenant to observe it, on points upon which the lease is silent. I have the authority of a practical man of very large experience, Mr. Robert Stares, of Droxford, for saying that numerous existing leases prescribe a course of cultivation which is simply absurd. By a tacit consent these are commonly disregarded, and the consequence is that the tenant would be better off without a lease at all, as such a lease puts him at all times at the mercy of the landlord, and indeed is of no use but to put a fee into an attorney's pocket for copying upon stamped paper, or parchment, a senseless document originally prepared in the dark ages of agriculture. Usually a lease contains a clause of forfeiture for breach of covenant. The landlord in such case might bring an action to recover damages for the breach of covenant, and also an action of ejectment to recover possession of the land. The fear of the consequences of such actions might have an effect upon a good and respectable tenant, and induce him to observe the terms of the lease; but it is the case of the dishonest tenant that we have principally to do with, and he it is whom it is necessary to bind, if possible, by the firm hand of the law. The landlord commences his actions; the damages and costs ruin the defendant, and he usually pays them by passing through the Insolvent Court. This is so well known, that few landlords appeal to the law, because they do not wish to purchase, at a great price, a barren verdict. There was a case in this neighbourhood where a farmer, after holding a farm a year or two, which were not very good ones, would neither pay rent, cultivate, or give up possession. Possession was ultimately obtained from him by a compromise, and the land was then in such a state that the landlord was obliged to cultivate it himself at a heavy loss, to get it into a lettable condition. Such instances are numerous. I think it tolerably clear that at present a lease gives to the landlord but little security; let us now see how the tenant is affected by the covenant. His numerous advisers are perpetually urging him to spend more money, to exert himself vigorously to effect improvement, while he is bound by the conditions of his tenancy to follow a particular course of cultivation. This seems to me to be about as reasonable as to put a man in fetters, and then invite him to run a race. It seems to me that nothing can be a greater bar to improvement than binding any tenant to the same course of cultivation, whatever his style of agriculture may be—the man who sells everything off his land that his covenants will permit, who keeps little or no stock, and the man who expends a large amount of capital in artificial manure, or in supporting a large live stock. These routine covenants set nature at defiance. We all know how the seasons vary, and yet wet or dry, hot or cold, the farmer must take the same course. It thus becomes so difficult to observe the conditions of a holding, that probably few farmers have not sometimes deviated from them, and thus nullified their leases. They know that they have done, or probably may do so, and thus the sense of security of tenure, without which improvement is discouraged, is lost. To provide a remedy for this state of things some assistance from the legislature must be invoked. I suggest that the tenant should be left quite free to cultivate as he pleases during the whole term, except the last year, or perhaps the last two years. The only covenant should be that the land should be kept in a state of good cultivation, and proper tenantable condition. For the security of the landlord it should be provided that if the land be not so kept, he should have a right to institute a suit for damages, and also to recover immediate possession of the land. But as the present remedies at law are too expensive and not sufficiently expeditious to prevent the mischief of bad farming, a cheaper and prompter tribunal must be provided than the Courts at Westminster, with their spring and summer assizes, can give. I am afraid the only tribunal in existence that can be appealed to is the County Court. It cannot be expected that the judges of these courts should be practically acquainted with agriculture; they should be, therefore, at liberty to take the assistance of some practical man, who might aid them, as the Trinity-house brethren now do the judges of the Admiralty Courts. It should be the duty of such practical man to sit with the judge when hearing the evidence, and also himself to view over the land in question. The court should have power to award damages and immediate possession. It should also have power in assessing the damages to take into consideration any tillage that a successor to the land would have the benefit of, and also an equitable power to suspend the judgment for possession if the defendant could show a reasonable probability of his being able in a moderate time, by manure or otherwise, to restore the land to its proper fertile condition. The tenant should be bound during the last year, or perhaps two, of his lease to leave the land in certain crops, *ex. gr.* in the four course, otherwise, in case the lease was not renewed, the successor would be in a difficulty. It may be objected that the powers proposed to be given would be too large and arbitrary. With regard to one point, *i. e.* to claim for damages, there would be no more power given than an arbitrator has at present, but the remedy would be cheaper and more expeditious. With regard to the power of giving possession, though it may appear dangerous that the landlord should have a right to it, for the breach of a covenant which cannot give the required freedom to a tenant without being vague in its terms, I think a good tenant would have nothing to fear, and I cannot think it likely that the landlord would or could safely dispense with such a protection if he abstained from all dictation as to the course of cropping. To remove every objection on this score, it might be required that in order to give the plenary jurisdiction suggested, it should be necessary that the lease should contain a provision by which both parties should agree to submit to it."

Reviews.

A Diary for the Poultry-yard, Dairy and Piggery, for 1855. By an Essex Amateur. *Essex Gazette* office, Colchester.

This seems just the thing for which we are often asked. It contains a calendar in which to enter when fowls and pigs and cows should bring forth; pages for recording the eggs laid and sold; and corresponding diaries for the other items of poultry and of dairy produce. It seems to present the complete and useful diary which it professes to be, and which numbers now-a-days are asking for.

Hints on Fishing and Shooting, by C. Idle, Esq., Longmans.

Horses and Hounds, by Scrutator. Routledge.

These volumes contain full and detailed instructions, illustrations, and general and particular disquisitions on their respective subjects. Mr. Idle seems to be an agreeable and sociable companion, as intelligent men of his name generally are: and "Scrutator" is as full of anecdote in reference to his subject as any veteran in another field when discussing his feats in the past.

Fourteenth Annual Report and Transactions of the Royal Society for the Promotion and Improvement of the Growth of Flax in Ireland. Belfast.

We refer to this pamphlet containing the history for the year of a most useful Society, merely for the purpose of extracting from it the account by Mr. Andrews, of Comber, of the cultivation of a small farm which he had cultivated as a model for landholders—Flax being introduced as one item of its rotation. It is proper to explain that the Cunningham acre contains 6250 square yards, 10 Cunningham acres being nearly 13 acres imperial.

"The leading object being to keep the largest possible stock of black cattle and swine, Flax, before its independent value had been ascertained, was introduced very much because, from the early period at which it is taken from the ground, it affords the facility for sowing Rape for spring feeding. The Flax being pulled in the end of July, or very early in August, the one-half of the ground which had been occupied by it is moderately manured and sown broadcast with Rape in two or three divisions from the earliest period possible in August to the 1st of September. Such Rape comes into use soon after the middle of April, and affords an abundant supply of food for cows till about the 21st of May, when the first cutting of Clover is ready for use. The ground which has been so occupied by Rape is sown with spring Vetches late in the month of May, from which in the end of September and during October, when the second crop of Clover is exhausted, a supply of fine succulent herbage is most opportunely afforded. The other half of the Flax ground is, about the 1st of October, sown with winter Vetches mixed with a little Rye. These Vetches, by the 20th June, when the first crop of Clover has been consumed, have attained considerable strength and firmness, and supply the cows with excellent food till nearly the 1st August, when the second crop of Clover is ready. It continues in use till far on in September, when, as before stated, the spring-sown Vetches is succeed. The ground yielding the winter Vetches is prepared and manured for transplanted Swedes, fine strong plants of which, in the end of July and beginning of August, are taken from the drills in which twice the number of plants which is required for the crop have been permitted to remain, in order that alternate plants may thus be removed; and such plants having formed bulbs of the size of small eggs, and with largely developed leaves, are never found to fail, even though transplanted in a dry season, if the manure is placed in the drills in a moist state. The Swedes so transplanted continue to grow during the winter till checked by severe frost, and afford a valuable addition to the root crops for winter use. It will thus be seen that from the portion occupied by Flax, owing to its early separation

from the ground, facility is afforded for raising two green crops of distinct varieties in the succeeding year, and by no other means could such an advantage be so satisfactorily secured. Here, then, is a great benefit indirectly resulting from Flax culture.

"The rotation of the small farm, consisting of 10 Cunningham acres, of which I have been speaking, is so arranged that exactly one-half is devoted to the raising of cattle food, and one-half to cereal crops, Flax, and Potatoes—the latter, since that crop became so precarious, occupying only a twenty-second part of the whole. The farm is dispersed in 11 divisions, one of which is in permanent pasture, being enclosed separately by a fence, all internal fences having been removed from the remainder of the farm. The green crops for cattle food include Clover and Italian Rye-grass, Vetches, Beans, Turnips, Mangolds, and Cabbages. The succession of feeding, of which a fresh supply is provided for every month of the year, commences in spring, soon after the middle of April, with Rape; from about the 20th May, till the 20th June, Clover and Italian Rye-grass; thence till about the 1st August, winter Vetches; from the 1st August till late in September, second growth of Clover; in October and beginning of November, some Cabbages, Mangold Wurzel leaves, mixed with dry old straw, to correct their succulence, and a portion of Clover and Rye-grass of third growth. During the summer each cow is also allowed 2 lbs. of Bean-meal daily on her drink. I have never been obliged to resort to my root crops till about the 12th November, from which date till the return of the season for Rape in Spring, Turnips with chaff and cut straw, and such portions of hay from the first growth of Clover and Italian Rye-grass as could be spared, enriched with Bean-meal, boiled into gruel with distiller's wash, form the winter food. The greater part of the Mangold Wurzel is reserved for pigs, which are found to thrive much better on it than on Turnips. The pigs receive besides a little buttermilk and the refuse of the house, and some Bean-meal; and the Mangold Wurzel is available for them till August in the succeeding year, when early Cabbages come into use, and after them a succession of Drumhead Cabbages provides for the pigs till the middle of November, when the Mangolds are again ready.

"In the rotation, the white and green crops alternate, and the large number of cattle fed constantly in the house, except during two or three hours daily in summer, when they are admitted to the small pasture field, afford manure sufficient to give light dressings to the green crops in each alternate year. The stock of cattle, including an ox for draught, is never less, and is sometimes more than four in summer and six in winter, and the number of pigs is three on the average. The milch cows, highly fed as described, being kept for the supply of the family, are credited to the farm at 10*l.* each per annum, being certainly less than they would yield if their produce were sold; and the result of accounts of the farm, of 10 Cunningham acres, which are accurately kept, exhibited in the year ending 30th September, 1852, a gross product of 114*l.* 11*s.* 10*d.*, and a net profit of 43*l.* 5*s.* 6*d.*, the rent charges being at 2*l.* per Cunningham acre, and the sum paid for wages 33*l.* 11*s.* 6*d.*, and in the year ending 30th September, 1853, a gross produce of 128*l.* 6*s.* 4*d.*, and a net profit of 56*l.* 2*s.* 3*d.*, the rent at 2*l.* per acre, and the amount of wages, 34*l.* 6*s.* 3*d.*"

The balance-sheet of each year is appended to this statement:—

To this very satisfactory result Flax culture has directly, as well as indirectly contributed. The sum received for the produce of 3A. 23P. Cunningham measure of Flax, in the first year was for Flax, 5 cwt. 3 qrs. 2 lbs., at 52*s.* 6*d* per lb.	£15	2	8
For seed 10 1-16 bushels	5	1	0
	£20	4	2
From which, deducting 7*l.*, the estimated cost of an acre, including rent, taxes, seed, manure, and labour in all stages, the balance, 13*l.* 4*s.* 2*d.*, forms a handsome item in the profit account.			
In the second year the produce was:—			
Flax, 5 cwt. 3 qrs. 12 lbs., at 65*s.* 4*d.* per cwt.	£19	2	8
Seed, 10¾ bushels, at 12*s.* per bushel	6	9	0
	£25	11	8
Deducting	7	0	0
Nett profit	18	11	8

"The crop in both years was treated on the Courtrai system, winning and stacking it till the following spring, when the seed was taken off and sold for sowing, and the straw watered during the summer. I am not prepared to offer a decided opinion whether that mode of treatment will, on the whole, be found most profitable. If home-saved seed should continue in demand for sowing, I am satisfied it would be so, as the gain by the seed is so important an item. If a prejudice against home saved seed which has been encouraged in the present year, contrary to the experience of the writer, shall prevail, it is probable that more profit would result from rippling of the seed, and watering the straw immediately, as there can be no doubt that a finer fibre is thereby secured than can be obtained by any process yet known to us in connexion with winning and stacking. By one process or the other the seed should unquestionably be preserved. A much less sum than has been realised by the writer would materially increase the profit from the crop. Ten bushels of seed per statute acre is a moderate produce, and at 5*s.* or 6*s.* per bushel, which it is certainly worth as cattle food, the preservation of it would be sufficiently remunerative. It may be observed that to a large grower the winnowing and stacking of the crop is by much the more convenient plan, as the attention and labour required by the treatment in the water and on the Grass are thus transferred from the hurried season of harvest to the following summer, when a time can be chosen which shall not interfere with the other business of the farm.

TEN ACRE FARM—SEASON 1851-52.

Dr.

		£	s.	d.
1851.				
Sep. 30.—To Stock, valued at		52	2	6
Stock bought from 30th Sept., 1851, to 30th Sept., 1852		24	2	6
Wages paid		33	11	6
County cess		1	9	10
Manure and seeds		7	0	10
Cattle food bought		9	9	5
Rent, 2*l.* per acre		20	0	0
Sundry small expenses and horse work...		5	0	0
Repairs of tools		2	0	0
Scutching Flax		2	4	2
Buttermilk and scraps		3	0	0
Profit and loss for gain		43	5	6
		£203	6	3

Cr.

Dec. 26.—By 1 cow, fat, sold					£13	12	10
1852.							
Jan. 14.	Proceeds, 2 pigs				8	2	1
April 2.	Oats, 18 cwt.	£6	6	8			
	Oatmeal	2	6	8			
					8	13	4
May 5.	Wheat 45 cwt. 0 qrs. 23 lbs.				19	13	5
12.	Proceeds, 3 pigs				9	14	5
June 17.	1 cow, fat				11	19	0
28.	1 cow, do.				15	18	0
July 24.	1 calf				0	4	0
Aug. 25.	1 pig				1	10	0
Sept. 30.	Flax, 5 cwt. 3 qrs. 2 lbs., at 52*s.* 6*d.*	£15	2	8			
	Flaxseed, 10 1-14 bush., at 10*s.*	5	1	6			
					20	4	2
	Potatoes for house				7	0	0
	Keep of 2 milch cows for a year, and 1 cow for a half-year				25	0	0
	Feeding for fowl, and fowl reared ...				5	0	0
	Stock valued at				56	15	0
					£203	6	3
	Gross produce, deducting food purchased ...				£114	11	10

Miscellaneous.

How Prize Cattle are Fed.—Mr. J. P. Phillips, of Broomborough, near Totness, in Devonshire, had a fine animal which was much admired for its size and symmetry. On the 19th of June last it weighed 13 cwt. 1 qr. 14 lbs., and was fed on Grass till the 18th of September, when it weighed 15 cwt. 1 qr. 18 lbs.; it was then put on common Turnips till the 30th of October, when it weighed 16 cwt. 1 qr. 8 lbs.; from that time it was fed with Mangold, meal, and hay till December 18, when it weighed 17 cwt. 3 qrs. 18 lbs. The general results were these:—When on Grass, it gained in 13 weeks 228 lbs., being rather more than 17 lbs. per week; on Turnips and meal, in six weeks it gained 102 lbs., being about 17 lbs. per week; and on Mangold and meal, in seven weeks 178 lbs., being about 25 lbs. per week.

Calendar of Operations.

FEBRUARY.

WEST SUSSEX, *Feb.* 20.—Since our last we have but little to report, except what every one reports, that the weather has been very severe, not so much snow, but a piercing wind and the dust flying on the roads they are so dry. It has not suited us so well for our Sheep, for the Turnips are hard to get up and then do them but little good, although they disappear very fast, and make us fear that we shall be hard up before the Grass comes. We have not at present any prospect of an early spring; everything has been put back with a vengeance, and now we must trust to hay and cake to eke out our other food. But though it has been so cold the ewes and lambs have not done so badly; we could hardly have expected them to do so well. The Wheat now looks very much cut down, but there has yet no harm happened to it. But how it may be with the young Clover we can hardly say; it was so wet before, that I fear it will be almost cut up; the Trifolium appears lifted out of the ground. Fat cattle must now turn out though they are not in first-rate order; the supply of food will not admit of any extra fatting, so that we are likely to see markets rather declining, but more from under-fat ones coming out than from any real fall in their value. Sheep have lately sold heavy, and pork has fallen from the high figure it was at in December—that is, from 4*s.* 8*d.* to 4*s.* 4*d.* per stone. The rick-yards are getting very much reduced, but the corn is not by any means all consumed, but stored up in various ways, as few think that under present circumstances we can have prices low, so they are not disposed to give way to any little depression very readily, and it is seldom that there is so little left in hand at this time of the year. Of course we are shut out of the ground at present, but must at the first opportunity turn the ploughs in where the sheep have finished eating off so as to get in Oats. At present carrying chalk and dung is all that we can do, but enough of this would be a great acquisition to hungry heavy land. *G. S.*

Notices to Correspondents.

GILLETT'S SUBSOIL COMPANION: *Peter* asks for information about this. It was spoken of favourably at a meeting of the Stow Agricultural Society. Can any one give information of its further use, successful or otherwise?

OXALIS TUBEROSA: *H H.* At page 423 of the *Gardeners' Chronicle* for 1854, it is said that some small tubers of this plant were raised in the spring in a Melon pit, and transferred to a glass-wall, where they continued growing till killed by frost in November, when their stems were five feet high, and numerous tubers had been found fully an inch in diameter. You will find further particulars on referring to the page named.

POULTRY: *A B.* The head of a full-grown turkey is at all times the "tender point;" but as we have never known or even heard of such a disease as our correspondent complains of, we can only attribute it to the "frost." To all young poultry keepers we would say a "word in season;" do not attempt to obtain any chickens until the present cold weather is at an end. Those hatched in the early part of April will be sufficiently early for all purposes, even for obtaining prizes.

STATISTICS OF CATTLE FEEDING: *Erratum.* At page 107, instead of nearly "20" tons read "26" tons to the acre. Our valued correspondent "Y." states that when the Turnip crop is lifted as late in December as the weather permits, he applies the following method for testing the weight of his crop. He says—"I pull first single rows at intervals of 20 yards through the field and weigh them; when dressed 150 yards of ridge were found to give on the average near 14 cwt., or 13 cwt. 3 qrs. 14 lbs., the ridges being 2 ft. 6 in. apart; the result appears near 27 tons per acre. I also mentioned a load which had been weighed; the Turnips averaged 3½ lbs. each, being 1 foot apart; the result appears near 26 tons per acre.

*** We have to apologise for the delay of several answers, owing to the absence of the Editor in Scotland.

RENDLE'S AGRICULTURAL PRICE CURRENT AND FARM DIRECTORY FOR 1855, *with Newspaper Stamp to go free by post, is now published, and can be had in exchange for six penny stamps.*

The proprietors of this well-known and widely circulated publication have much pleasure in announcing another edition for the present year. They have spared no expense nor trouble in making it a most useful and serviceable guide to all who take an interest in the cultivation of the soil. It contains a valuable Descriptive List of all the best AGRICULTURAL SEEDS, with prices affixed to every article, with cultural remarks and general information as to the best varieties for various crops.

The List of TURNIP SEEDS is very comprehensive, and is embellished with an ENGRAVING of RENDLE'S IMPROVED SWEDE TURNIP—a variety in great favour in the West of England.

The descriptive Lists and Tables of the best selected GRASSES are very complete, and will be found eminently useful to all who intend laying down land for Permanent Pasture, Ornamental Parks, Pleasure Grounds, &c.

There is a very useful ALMANACK, which has been compiled with much care.

In the MANURE DEPARTMENT there is a general Price Current of all the leading Manures, including Peruvian Guano, Lawes' Patent Superphosphate, Nitrate of Soda, &c.

The ORIGIN AND HISTORY OF PERUVIAN GUANO will be found amongst its contents, as well as some excellent advice for detecting the spurious from the genuine article. The proprietors have been favoured with some good sound advice to Farmers on this point by J. C. NESBIT, Esq., the celebrated Agricultural Chemist. They have also reprinted PROFESSOR WAY'S LECTURE on the same subject, from the *Gardeners' Chronicle*, read to the Members of the Royal Agricultural Society.

Descriptive articles relating to Lawes' Patent Superphosphate, Nitrate of Soda, the new Mexican Guano, and other manures will also be found very useful and interesting.

The "SUPERPHOSPHATE CONTROVERSY" in the Plymouth Papers is also given at length. The whole of the letters are reprinted from the *Plymouth Herald*. In this Controversy the "*Gypsum mixers*" are fully exposed by Mr. J. PRIDEAUX, the eminent Agricultural Chemist.

A valuable Paper has also been written expressly for this Edition by Mr. R. ERRINGTON on the "*Cultivation of the Potato*," as well as an article on "*Liquid Manure*" by the same gentleman.

The Proprietors have also much pleasure in stating that they have been favoured with two Original Articles, by J. B. LAWES, Esq., Rothamsted, the celebrated Agricultural Chemist, on "*The Artificial Manures most suitable for the Growth of Barley*" and "*The Cultivation of one Grain Crop after another on heavy land.*"

There will be a good Engraving of the CEDRUS DEODARA, one of the hardiest and best varieties of Cedars ever introduced, and prices of various Forest Trees, Shrubs, and Fruit Trees.

Engravings and descriptions of a great many Agricultural Implements are also added in the present Edition, and amongst them will be found M'CORMICK'S AMERICAN REAPER, GARDNER'S TURNIP CUTTER, SAMUELSON'S REGISTERED LAWN MOWER, PATENT LIQUID MANURE DISTRIBUTOR, WARNER'S GARDEN ENGINES, PUMPS, SYRINGES, &c.; FOWLER AND FRY'S CHAFF CUTTING MACHINE AND ONE ROW TURNIP DRILL, ANTHONY'S PATENT AMERICAN CHURN, AND PARKES' STEEL DIGGING FORKS.

Descriptions are also given of the New CHINESE POTATO (Dioscorea Batatas) and the FLUKE KIDNEY POTATO, a sort highly recommended in the Midland Counties.

At the request of several correspondents the Publishers have printed the present Edition the size of the "Gardeners' Chronicle," so that those who wish it can bind it with the present volume of that valuable Paper. It contains 28 folio pages, "Chronicle" size.

Copies can be procured, price 6*d.* each, or free to purchasers of seeds; and can be obtained through the medium of any bookseller in the United Kingdom, from the

LONDON PUBLISHING OFFICE, 294, STRAND;

Or from the Proprietors, WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

MAW'S ENCAUSTIC TILE PAVEMENTS form an indestructible and highly decorative substitute for ordinary flooring, and their imperishable Oil Cloth Coverings for Entrance Halls, Passages, Verandahs, Conservatories, &c.—MAW & Co. send free of expense their Book of Designs, suitable in price and style for every description of Building.—Benthall Works, Broseley, Salop.

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Light Telescope, 10*s.* 6*d.* extra.

TESTIMONIALS.

From Mr. James Gentles, Contractor.—"I have for a considerable time past used Gillespie's Patent Inclinometer in extensive drainage operations carried on by me, and I have found it to be of the greatest service, in showing the minutest slope in the ground, and in saving of labour; and I could not have constructed many of the drains with any degree of accuracy without its assistance"—James Gentles, Hart Hill, by Whitburn.

Extract of a letter from John Mitchell, Esq., Stand Hill, Bathgate.—"I highly appreciate its capabilities as a levelling instrument. In level lands, where there is a difficulty in detecting in which direction the land slopes, it is invaluable."

Extract of a letter from Mr. John Turner, Surveyor, Whitburn.—"The more I have tested it the more have I appreciated its value. By this invention the power of levelling is brought within the reach of all men of ordinary capacity."

Sold by WILLIAM DRAY & Co., Engineers, &c., Swan Lane, London. Specimens and Models may be seen at their Warerooms. Also a Descriptive Treatise on the nature and uses of the Patent Inclinometer, and copies of Recommendations of its efficiency and value to be had on application.

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10 in. by 8 in. and under	... ...	15s. per box.
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See *Gardeners' Chronicle* first Saturday in each month.

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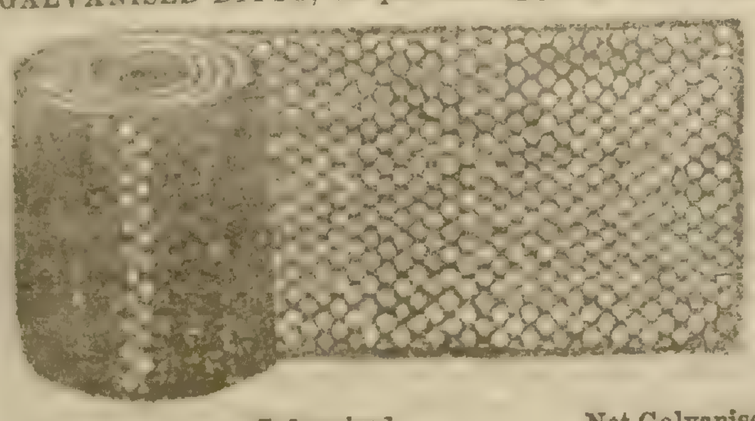

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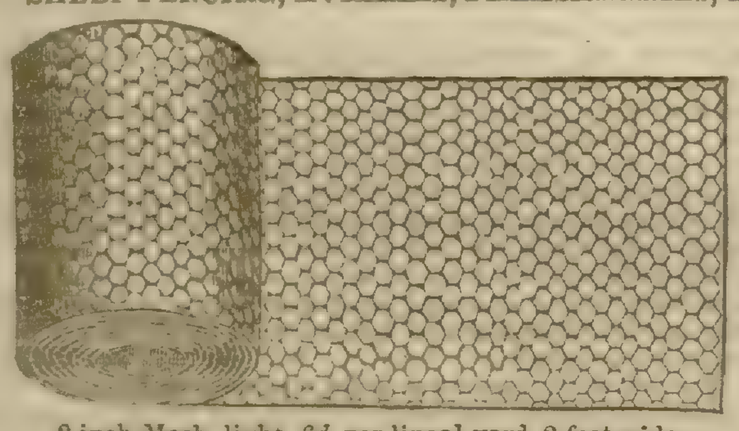

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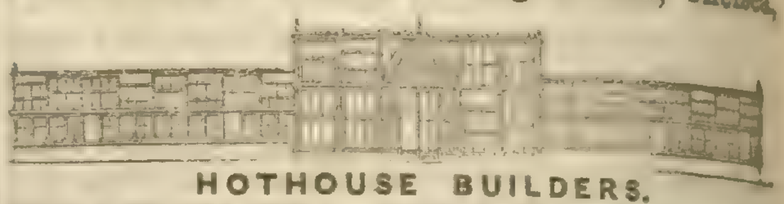

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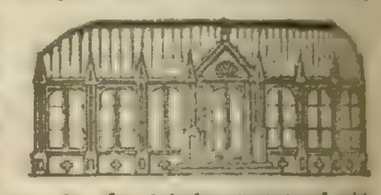

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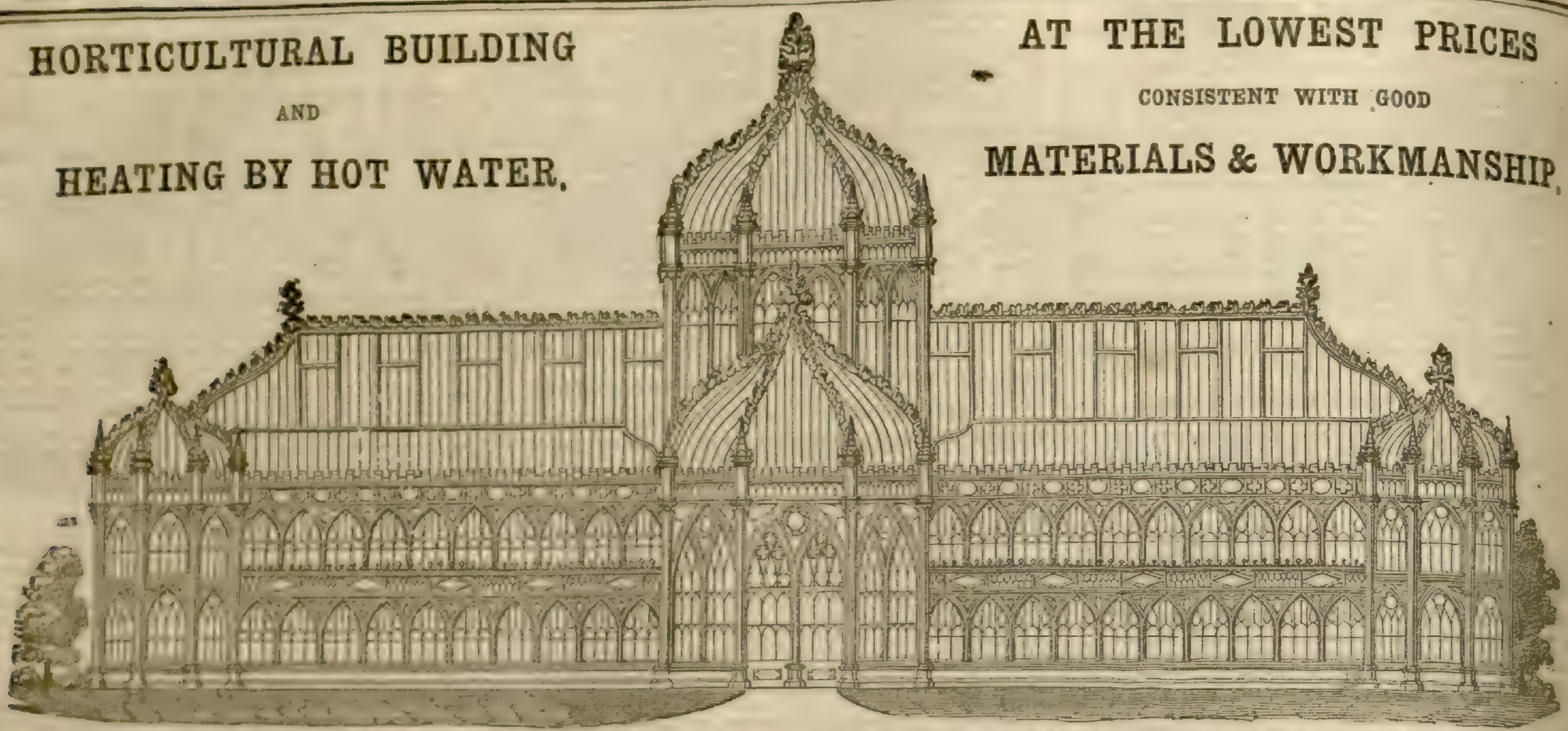

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EDWARD TILEY having purchased the whole of Messrs Wood & Son's stock of Seeds of the above-named Melon, can with confidence recommend it to all growers of that splendid fruit. It has been thoroughly proved by an eminent Melon grower, and declared by all who have seen and tasted it to be one of the finest-flavoured Melons yet grown. It is a very beautiful colour when ripe, skin very thin, flesh firm and solid, and of a most superior melting and delicious flavour. Free setter and prolific bearer. It possesses a great advantage over others in its exceedingly handsome appearance when placed upon a table or on the stall of a fruit salesman, and for exhibition this Melon will be the favourite.

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Camerton Court	1s.	Gordon Castle	1s.
Chichester Prize	1s.		

A packet of the Golden Drop and one of the King Melon, and one packet of any other variety mentioned will be forwarded, post free, on receipt of 3s. 6d. in cash or penny postage stamps.

NOTICE.

EDWARD TILEY having received several letters wishing to know if his new seedling "Champion Kidney" Potato is the same as the one advertised by Mr. Joseph Wilson, of Ipswich, under the name of "The Early Champion Ashleaf," begs to say that it is not, for he purchased the whole stock from the Grower, who obtained it in the first instance from the seed of the Potato Apple, and has never parted with any of the produce but to him. E. T. feels confident that it will give the greatest satisfaction to all purchasers who may favour him with orders for the same.

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THE CHAMPION KIDNEY.—Never before sent out.

This Potato bears a great resemblance to that fine old Potato, the Ashleaf Kidney; it possesses the following good qualities over the Ashleaf. If planted at the same time it will be ten days earlier, all the sets always vegetate well, and do not die off in the ground as the Ashleaf does; 2 pecks of seed will produce a greater weight of Potatoes than 3 pecks of the Ashleaf. It is quite equal to that in flavour, and is eatable during the whole winter. Sets that have had the shoots broken off five or six times during the spring will vegetate again as if it had been the first shoot. About twenty Gentlemen and Gardeners who had seed to plant last season have assured me that they never before grew any Potato to equal it, and should continue to grow it as a first early Potato. Numerous orders have been already received from persons who saw it growing during the last summer. It has been grown and thoroughly proved for the last four years, and found to be less liable to disease than any other Potato that has been grown. Out of 25 sacks grown this season there was not a single diseased Potato among them.

Sold in quantities of not less than 1 peck; they will be sent Hamper and Package free, at 5s. 6d. per peck, or 4 pecks for 1l., hamper free. A remittance in cash must accompany all orders, or small amounts in penny postage stamps. Purchasers would do well to name the nearest railway station to their residence.

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W. & I. will be happy to refer any persons wishing further information respecting the variety to three or four Noblemen and Gentlemens' Gardeners who have grown it, and prefer it to any other.

London Agents: Messrs. HURST & M'MULLEN, 6, Leadenhall Street.

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Sion House	Sagg's Royal Exhibition
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Constantine's Incomparable.	Manchester Hero.

Huntingdon Nurseries, February 24.

CONTENTS OF SUTTON'S COLLECTIONS OF GARDEN SEEDS,

—In consequence of the numerous applications for the particulars of sorts and quantities contained in these Collections, Messrs. SUTTON have prepared a List of the CONTENTS of the COLLECTIONS, which they have no doubt will be generally and highly approved. This List may be had for one penny stamp, post free.

Gardeners and others who may prefer making their own selection are recommended to apply for our GENERAL PRICED CATALOGUE.

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year; and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

CEMETERIES.

WILLIAM MASTERS AND SON having been engaged upon extensive Cemetery works, are prepared to undertake the LAYING OUT and PLANTING NEW GROUNDS, as well as the Ornamenting such as are closed by the recent Act of Parliament, by contract or otherwise.—WILLIAM MASTERS & SON, Landscape Gardeners, Canterbury.

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MR. W. DAVIDSON having lately concluded his engagement with Sir William F. F. Middleton, Bart., Shrubland Park, in consequence of the completion of extensive alterations on which he has been there employed, respectfully tenders his services in the above capacities to noblemen, gentlemen, and the public generally, in laying out or improving Gardens, Grounds, Parks, Cemeteries, Arboretums, &c.; designing Conservatories and other garden structures.

Mr. D. feels strongly the importance of the opportunities he has had of maturing his taste for natural arrangement and artistic design under Sir William and Lady Middleton, and appeals with confidence to Shrubland for examples of his practical and scientific knowledge as a civil engineer, in directing the satisfactory and economical execution of works in general.

Mr. D. begs to mention further that his practical experience enables him to offer advice upon all subjects connected with a garden, both structural and cultural, and he will give careful attention to every matter, extensive or otherwise, in which his advice may be required; and will regulate his professional charges in proportion to the nature and extent of each particular case. Mr. D. is kindly permitted to refer to Sir William Middleton, Sir Charles Barry, Westminster, Dr. Lindley, and many others who are pleased to consider him worthy of their recommendation.—37, Bloomsbury Street, Bedford Square, London.

FLOWER POTS and STANDS of all kinds, including Suspension and Bracket, of the most approved shape, Classical, Italian, and Grecian Vases, Pedestals, Fountains, &c. in stock. Prices for 1855 forwarded on application to WILLIAM MAULE & SONS, Horticultural Potteries, Bristol.

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REIGATE SILVER SAND, 16s. per ton, delivered to any of the London Wharfs or Railways, or within a circuit of five miles. Peat and loam at moderate prices.—KENNARD, BROTHERS, Swan Place, Old Kent Road.

INSTRUCTION IN ART, GENERAL AND SPECIAL, as afforded at the Central School of the Department of Science and Art, Marlborough House, Pall Mall; the School for Female Students, 37, Gower Street, and at the District Schools in connection with the department. The Spring Session will commence on the 1st March.—For information and prospectus, apply at Marlborough House, Pall Mall.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MILLETT EVANS, of No. 37, Virginia Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, February 24, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 9.—1855.] SATURDAY, MARCH 3. [PRICE 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—THE FIRST SPRING MEETING will take place at the Society's House, 21, Regent Street, on TUESDAY, March 6, from 12 to 4 P.M.

CRYSTAL PALACE.—HORTICULTURAL FETE.—It is intended to hold a grand Horticultural Exhibition at the Palace on SATURDAY, the 2d June next. The Rules and Schedules of Prizes will be immediately issued, and early notice will be given when they are ready for distribution.

Feb. 24. By order. G. GROVE, Secretary.

THE NATIONAL FLORICULTURAL SOCIETY.—The Anniversary Meeting, by adjournment, will be held on THURSDAY next, the 8th instant, at 1 o'clock precisely, for the Election of Officers and other business.

21, Regent Street. J. EDWARDS, Hon. Sec.

NORTH OF ENGLAND SEEDLING SOCIETY.
ESTABLISHED AUGUST, 1854.

Gentlemen, Professionals, Amateurs, and others desirous of joining the above Society are requested to observe that the annual Entrance Fee, viz. 5*s*., will become due on March 7, 1855. Meetings for the Exhibition of Seedlings will take place at the Commercial Inn, Bolton, on the following days, viz. May 30, July 18, September 19, 1855. Prospectuses of Society, &c., with any other information, on application to the Secretary.

R. DUNDERDALE, President.
P. CHARLTON, Secretary.

ENROLLED AGREEABLY TO ACT OF PARLIAMENT.
UNITED GARDENERS' BENEFIT SOCIETY
Waterloo Arms, Camberwell, Surrey. Instituted 1839.

This Society (established for Gardeners only under 35 years of age), has proved for 16 years the accuracy and soundness of principle upon which it is founded, namely, the highest amount of benefits to be received by its Members in Sickness, Superannuation, and Mortality, for the smallest amount of contribution consistent with stability and permanence. The accounts are always open to the inspection of all the members, who have also the control of the expenditure of its funds; it is therefore incumbent on all, by a small monthly contribution, to provide against the casualties of life, from which none are exempt, by enrolling themselves in a Society of this nature, which guarantees 12*s*. per week in sickness; 3*s*. and 4*s*. per week superannuation; 10*l*. at the death of a member, and 8*l*. member's wife, for the small contribution of 2*s*. 3*d*. per month.

Camberwell Green, Surrey. CHARLES STUNELL, Secretary.

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Long Yellow	0 10	Large Guernsey Cattle Parsnip	1 6

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MANGOLD WURZEL SEED, LONG RED, and YELLOW GLOBE, warranted genuine, and the growth of 1854. Price 45*l*. per ton.—Apply to R. S. HEWS, Kelvedon, Essex.

MANGOLD WURZEL SEED.
PURCHASERS OF LARGE QUANTITIES will be treated liberally.—For prices apply (stating the quantity required) to SUTTON & SONS, Seed Growers, Reading.

SEED POTATOES.
SUTTON AND SONS, SEED GROWERS, Reading, have a large STOCK of the best early kinds of POTATOES, very fine and free from disease. Prices, &c., will be sent post free.
SUTTON & SONS, Seed Growers, &c., Reading.

THE FLUKE KIDNEY POTATO.—This excellent variety is now planted here as the principal crop, being free from disease and more prolific than any other in cultivation. It was raised in Middleton, and may be had genuine in quantity at 5*s*. per bushel of 56 lbs.—Apply to JOHN HOLLAND, Middleton Gardens, Middleton, near Manchester.
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THE FLUKE POTATO.—A new second early variety, surpassing every other in its capability of resisting the potato disease, and without exception the finest and most prolific Potato in cultivation. Price per cwt., 15*s*., bags included. To be had genuine of THORNHILL & DICKSON, Lawrence Hill Nurseries; and No. 1, Wine Street, Bristol.

SUTTON'S SHORT SEED LIST.
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SUTTON & SONS, Seed Growers, Reading, Berks.

SUTTON'S FARM SEED LIST, WITH PRICES, may be had gratis and post-free on application. Goods delivered Carriage Free, as see second page of Catalogue.
Reading, Berks, March 3.

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A. PAUL AND SON will be happy to forward the following priced Nursery CATALOGUES in return for one postage stamp each:—A, ROSES; B, ORNAMENTAL TREES AND CONIFERS; C, FRUIT TREES; D, HERBACEOUS PLANTS; F, GREENHOUSE PLANTS, &c.; G, SEEDS; H, HOLLYHOCKS; I, BULBS.—Nurseries, Cheshunt, Herts.

ROBERT KENNEDY, Agent for Messrs. Platz and Son, Seed Growers, Erfurt, has much pleasure in announcing he has received their Catalogue of Flower and Vegetable Seeds for the trade for 1855, which abounds with new articles of great interest, and will be forwarded, per post, on application to R. KENNEDY, Bedford Conservatory, Covent Garden, London.
P.S. Also, R. Kennedy's General Catalogue of British and Foreign Ferns forwarded on receipt of six postage stamps.

FIRST-RATE NEW FUCHSIAS, VERBENAS, GERANIUMS, CINERARIAS, DAHLIAS, PANSIES, PETUNIAS, CARNATIONS, PICOTEES, GREENHOUSE BEDDING PLANTS, &c., UNSURPASSED FOR CHEAPNESS AND QUALITY.

WILLIAM RUMLEY AND SONS' NEW DESCRIPTIVE SPRING CATALOGUE, containing first-rate collections of the above is now ready, and may be had on application.—Gilling, Richmond, Yorkshire.

VICTORY OF BATH MELON SEEDS.—A packet sent free on receipt of 13 Postage Stamps.—J. SALTER, Ampthill Nursery, Hampstead Road, London.

MAY'S MAGNUM BONUM LETTUCE.—Parties who were disappointed last season in receiving the above, can now have it by early application, in Packets 1*s*. each, free by post. We have numerous letters to show, received from parties who had it last season, to say that it is the most magnificent Lettuce they ever saw.—Address, HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

GENUINE SEEDS.
THE MEMBERS OF THE "SEED GROWERS SOCIETY," continue to supply genuine AGRICULTURAL, VEGETABLE and FLOWER SEEDS at Growers' prices. Lists with price and terms of business may be had on application to the Secretary, JOHN MOSS, Jun., Feering, Kelvedon, Essex.

ITALIAN RYE-GRASS.
DICKENSON'S ITALIAN RYE-GRASS *may be obtained true of* Messrs. SUTTON & SONS, *Reading. Priced Lists post free.*

CLOVER SEEDS.
GENUINE NEW CLOVER SEEDS *can be had at the lowest market prices of* JOHN SUTTON & SONS, SEED GROWERS, READING, BERKS.

WHITE BELGIAN CARROT SEED.—PURCHASERS OF LARGE QUANTITIES will be treated liberally.
For prices apply to SUTTON & SONS, Seed Growers, stating the quantity required.

SKIRVING'S SWEDE SEED.—PURCHASERS OF LARGE QUANTITIES will be treated liberally.—For prices, apply to SUTTON & SONS, Seed Growers, Reading, stating the quantity required.

TURNIP SEEDS DIRECT FROM THE GROWERS CARRIAGE FREE.
PAGE AND Co. can supply from the finest Transplanted Stocks

		s. *d*.		
Skirving's Improved Swede	per lb.	1 9	White Tankard	per lb. 10*d*.
Matson's Purple-top do.	„	1 9	Purple-top Bullock	„ 10*d*.
Green Gold Turnip	„	0 8	Red Globe	„ 8*d*.
White	„	0 8	And every other variety worth growing.	

PAGE & Co. having a large Agricultural connection, their prices are, strictly speaking, *Farmers' Market Prices*.
Seed Stores, Oxford Street, and Above Bar, Southampton.

RHUBARB ROOTS for FORCING or PLANTING.—Strong one-year planted roots of MYATT'S VICTORIA and LINNÆUS, MITCHELL'S ROYAL ALBERT, at 6*s*. per doz.; HOWARD'S PRINCE ALBERT, 12*s*. per dozen. This is a larger variety than the Victoria, and is extensively cultivated about Manchester. Price to the trade of the above, per 100 or 1000, on application to MESSRS. J. MYATT AND SONS.
Manor Farm, Deptford, March 3.

CHEAP AND GOOD CINERARIAS.—Fine flowering plants from Turner's best seed in large 60 and 48 pots, just coming into bloom, at from 4*s*. to 6*s*. per dozen. Also fine plants of named varieties, consisting of Mr. and Mrs. S. Herbert, Adela Villiers, Garland, Constellation, Lady H. Campbell, Kate Kearney, Flora M'Ivor, Étoile de Venus, &c., at 9*s*. per dozen.—WOOD & INGRAM, Nurseries, Huntingdon.

GENERAL SEED ESTABLISHMENT, NORTHAMPTON.
JOHN JEYES begs leave to inform his Patrons and Friends that his general stock of Seeds is now complete, and that he shall feel obliged by their early orders. He has a good supply of all those various Seeds his Establishment has long been celebrated for, such as Matchless Cabbage, Imperial Cos Lettuce, Conqueror Pea, Blood Red Beet, Dwarf Prolific Bean, Snow's Green Cos Lettuce, do. Broccoli, Northampton Market Broccoli, Giant Asparagus, &c. &c.

CHEAP NURSERY STOCK.
IMPORTANT TO ALL PLANTERS WHO DESIRE IMMEDIATE EFFECT.
WILLIAM JACKSON & Co., Bedale, Yorkshire, beg to refer to their advertisement in the *Gardeners' Chronicle and Agricultural Gazette* of the 17th February, page 110.

NEW CAULIFLOWER.
WAITE'S "ALMA," far superior to Walcheren; very large and firm heads. Price to the trade 24*s*. per lb., smaller quantities 2*s*. 6*d*. per oz. No orders attended to for less quantities than one ounce.—Seed Establishment, 181, High Holborn, London.

EARLY DANIEL O'ROURKE PEAS.
J. G. WAITE begs to inform the Trade that he is now ready to execute orders for this valuable early Pea. Price can be had on application
Seed Establishment, 181, High Holborn, London.

EARLY WHITE FIELD PEA.—NEW EARLY RACEHORSE—comes off early in July in time for Turnips and is a good cropper. Price 12*s*. per bushel.
SUTTON & SONS, Seed Growers, Reading.

NEW DWARF FIELD PEA.—"BISHOP'S LAST AND BEST," a large grey Pea, only 1 foot in height, very prolific, and comes off very early. Adapted for growing between the rows of Mangold Wurzel and Swedes. To be dibbled in rows 3 feet apart, and the root crop to be subsequently drilled between them. One bushel of Peas sufficient for an acre. Priced Lists sent post free.
SUTTON & SONS, Seed Growers, Reading, Berks.

TO BE SOLD, Bishop's last and best PEA, 10 to 15 quarters at 56*s*. per quarter, and 7 to 8 quarters of a superior BLUE PEA, capital boiler, or an abundant bearer for podding, 56*s*. per quarter; also a quantity of genuine Skirving's Swede Seed of last year's growth, grown from large roots; transplanted and other sorts of Turnips and Mangold Seeds, &c. —Apply to Mr. GEORGE TABER, Seed Grower, Rivenhall, Witham, Essex. Delivered carriage free. Terms cash.

ITALIAN RYE-GRASS, &c.

	Per bushel.—*s*. *d*.		*s*. *d*.
Dickinson's True	6 6	Pacey's Perennial Rye-grass, per bush., 3*s*. 6*d*. to	5 0
Fine imported	5 6	Summer Tares, per bushel	8 6
True, home grown, 3*s*. 9*d*. to	4 6	Giant Saintfoin „	9 0

Finest mixed Permanent Pasture and Lawn Grasses.
PAGE & Co. having a large Agricultural connection, their prices are, strictly speaking, *Farmers' Market Prices*.
Seed Stores, Oxford Street, and Above Bar, Southampton.

CABBAGE PLANTS.
THOMAS WELLAND, GARDEN AND CATTLE CABBAGE NURSERYMAN, offers true and strong Drumheads, Early Battersea, Early York, Early Imperial, &c., safely packed for any part of England, Scotland, Ireland, and Wales, for 3*s*. 6*d*. per 1000; crates included.
Surrey Gardens, near Godalming, Surrey.

WANTED TO PURCHASE, a quantity of FRUIT TREE STOCKS and MAIDEN TREES.—Address, stating sorts and price, JAMES LAKE, Nurseryman, Bridgewater.

LIQUIDAMBAR.—The undernamed is a buyer of either a large or small quantity of the above. Send cash price, and height, to Mr. JEYES, Nurseries, Northampton.

IPOMŒA RUBRO CÆRULEA.—Seed of this exceedingly beautiful Climbing Annual being now obtainable at a moderate price, all cultivators of flowers having a greenhouse or wall with warm aspect are advised to include it in their spring selection.—Seed supplied to Seedsmen and Nurserymen only, by GEORGE ROBERTS, 32, Moorgate Street, London.

FOWLER AND WRIGHT, SEEDSMEN and NURSERYMEN, Glasgow, have for sale 1 year Seedling LARCH, 2 year Seedling LARCH, 1 year Seedling BEECH, and 1 year Seedling ALDER. Price forwarded on application.—March 3.

PYRAMIDAL PEAR TREES,
GRAFTED ON THE QUINCE STOCKS.
J. AND J. FRASER have still to offer strong trees of the above PEARS; a Descriptive Catalogue of the sorts may be had on application. To prevent disappointment early orders are requested, as the Stock of some of the varieties is getting low.—The Nurseries, Lea Bridge Road, Essex.

FRUIT TREES, FOREST TREES, AND SHRUBS, GARDEN AND FLOWER SEEDS, PERMANENT PASTURE GRASSES, and FINE DWARF LAWN GRASSES. —Catalogues of the above may be had on application to WILLIAM BARRATT, Saint John's Nursery, Wakefield.

TO PLANTERS.
HAY, SANGSTER, AND CO., have for sale the following;—600 to 700 strong Standard PEARS, 500 Dwarf do., and 100 Dwarf-trained do. Any reasonable offer will not be refused, as the ground must be cleared by the 25th March.
Apply to HAY, SANGSTER, & Co., Newington Butts, London; of whom also may be had for seed York Regent Potatoes, 6*s*., and Early American, 8*s*. per bushel of 56 lbs., the produce of their prepared Cuttings. Terms cash.

JOHN GREGOR AND CO., NURSERIES, Forres, N.B., have for sale several millions of Seedling and Transplanted TRUE HIGHLAND SCOTCH PINE PLANTS, raised from Seeds collected in the celebrated native Forests of Strathspey. They have received the numerous premiums hitherto awarded by the Highland and Agricultural Society of Scotland for the propagation of the true native Pine. The superiority of such plants compared with the produce of planted woods, degenerated by cultivation, will be seen on referring to the article "PINE TREE" in *Morton's Agricultural Cyclopædia*, published by Blackie and Son.

TO BE SOLD, at Prices that will be sure to give satisfaction, 10,000 STRONG CURRANTS of the following sorts, viz.:—Red and White Dutch, common Black and Black Naples, Wilmot's Superb Red, Champaign and Raby Castle. Also a quantity of strong dwarf-trained Pears and Plums of the best sorts, Fastolff and other Raspberries, strong standard Pears, and a quantity of prime Seed Potatoes, well kept, of the best sorts.—For further particulars apply to JAMES LAKE, Nurseryman, Bridgewater.

STRAWBERRY PLANTS.

WILLIAM NICHOLSON is now sending out fine strong plants of his four New and excellent varieties, viz., AJAX, the finest dessert fruit; RUBY, do.; CAPTAIN COOK, dessert and market; FILLBASKET, do., tremendous bearers, at 5s. per 100. The plants have been kept in frames under glass, and are in good condition for planting. Post-office orders payable at Yarm, Yorkshire, which are in all cases required with the order.

Egglescliffe, near Yarm, Yorkshire, March 3.

POLYANTHUS SEED.

JAMES WOODS has again this year to offer a quantity of POLYANTHUS SEED, saved with more than ordinary care, from named and good laced flowers, which he can recommend with confidence, having had numerous Testimonials from different parts of the Kingdom of good and valuable flowers being raised from his seed. He will be able to send seed to grow 300 plants, with directions for sowing. Price 1s. per packet, or sent free on receipt of 13 postage stamps to JAMES WOODS, Florist, Harwich, Essex.

P.S. Plants of Polyanthus will be sent out in April, with blooms on each plant, with name or otherwise, from 6d. to 3s. 6d. per plant.

J. W. has a small quantity of Auricula Seed, saved from a fine collection of Alpines, at 1s. per packet as above.

SHILLING'S SELECTED LIST OF SEEDS.

North Warnborough Nursery, Odiham, Hants.

STEPHEN SHILLING will send on application his List of Seeds and Prices for the season. Those who have tried his seeds in past years can vouch for their good quality. He will also send free of carriage to the principal railway stations in Hants, Berks, and Surrey a liberal selection for 1l. 10s.; a smaller selection, 15s.; either of which will be a suitable choice of quantities for gentlemen where professional gardeners are not kept. Collections of Flower Seeds, containing from 24 to 48 varieties, from 3s. 6d. to 12s., free per post. Trees, Forest and Fruit; and Evergreens. Potatoes, Walnut-leaved, Shilling's Frame, &c., and all other Kitchen Garden Plants, &c.

THE LARGEST STOCK AND LOWEST PRICES IN ENGLAND.

JOHN WESTWOOD, the Floral Nursery, Acton Road, Turnham Green, near London, having an enormous and well selected stock of SOFT-WOODED PLANTS, and most extensive premises (the glass covering 3 acres of land), is enabled to offer it to the public and the Trade at prices far lower than any hitherto heard of, but as it is impossible to convey by advertisement anything like detailed or sufficient information of the advantages or resources of his establishment, he respectfully requests all who desire to purchase plants to apply for his Catalogue for 1865 (which is now ready), and he will immediately forward it postage free.

SUTTON'S COMPLETE COLLECTIONS, CARRIAGE FREE.

PARTICULARS OF THE SORTS AND QUANTITIES CONTAINED IN SUTTON'S COLLECTIONS OF SEEDS will be SEEN AT PAGE 50 OF "GARDENERS' CHRONICLE" FOR JANUARY 27.

By the perusal of this List, it will be seen that the very best kinds of Vegetable Seeds may be obtained in full quantities, and proper proportions for one year's supply of a large garden for the sum of 3l., and other complete Collections of equally choice sorts for smaller Gardens at 2l., 1l. 5s., and 15s. The economy of cost is by no means the only advantage gained by ordering one of these Collections.

Address, JOHN SUTTON & SONS, Seed Growers, Reading.

SPLENDID IMPORTED GERMAN FLOWER SEEDS.

CHARLES PENNELL begs to offer to his patrons and the public, at reasonable prices, very superior and unrivalled collections of GERMAN SEEDS, comprising extra double German Bouquet Stocks, new large flowered; New Yellow and New Hybrid ditto, German Emperor, and the fine Autumnal and Winter Flowering varieties, &c. Extra double German Larkspurs, Salpiglossis, German Zinnias, in several fine varieties, Phlox Drummondi, and many other varieties too numerous to insert here, prices of which may be had on application.

C. P. takes this opportunity of announcing that owing to a three years' residence in different parts of Germany, including Prussia and Austria, he has been enabled by dint of great attention, to make one of the most superior selections of German Seeds ever before offered in England. He feels therefore the most unbounded confidence in offering the above to the public, being assured that they will afford the most ample satisfaction to all honouring him with their purchases.—Nurseries, Lincoln. Mar. 3.

DWARF-BUDDED ROSES,

Adapted either for Potting or Planting in Groups.

WILLIAM WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, have the pleasure of offering fine strong Plants of the following DWARF HYBRID PERPETUAL ROSES, at 15s. per dozen:—Baronne Prevost, Duchess of Sutherland, Jacques Lafitte, La Reine, Madame Trudeaux, Pius the Ninth (pillar Rose), Robin Hood.

The following at 10s. per dozen:—Madame Laffay, Marquise Boccella, Marquis of Ailsa, William Jesse.

N.B. A very liberal allowance to the trade on the above.

NEW ROSES.

WOOD'S DUCHESS OF NORFOLK, a superb bright crimson Hybrid Perpetual Pillar Rose, 10s. 6d. per plant. Usual discount to the trade, and a further reduction if six or more plants are ordered at once.

WILLIAMS' EVERGREEN CLIMBING ROSE, 3s. 6d. each. Usual discount to the trade.

NEW EVERGREEN CLIMBING ROSE.

WILLIAM WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, beg to intimate to their friends that they ARE NOW prepared to send out AT ONCE good strong plants of WILLIAMS' EVERGREEN CLIMBING ROSE, at 3s. 6d. each, with the usual allowance to the trade, and a still further reduction if one dozen or more are ordered at once. Price may be had on application.

N.B.—Single Plants will be sent free per post on receipt of six penny postage stamps EXTRA to defray postage. Strong Plants of the above may also be obtained at the same price from Mr. CHARLES TURNER, of the Royal Nursery, Slough.

WILLIAMS' EVERGREEN CLIMBING ROSE.

WILLIAM WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, have strong Plants of the above now ready for delivery. This highly interesting and valuable addition to the class of Evergreen Climbing Roses was raised by the late John Williams, Esq., of Pitmaston. It is a Seedling from Ayrshire Splendens, fertilised with Yellow Tea. Its rapid growth and elegant habit is precisely like the Ayrshire Splendens, while its glossy foliage and long lemon-coloured buds partake of the character of the Yellow Tea. Its flowers are creamy white, deliciously sweet-scented, and are borne in long racemes of 12 to 20 on a single shoot, being produced from every axil. It is highly desirable for covering walls, lattice work, verandahs, or buildings of any kind, and, as a pillar Rose, is unequalled, being of an extremely elegant habit for forming festoons or arches, and is also very hardy. For Bouquets it is a most beautiful variety, producing an immense number of its finely formed buds. It only requires to be grown to be pronounced the best Climbing Rose for all purposes in cultivation.

Good established Plants at 3s. 6d. each, with the usual allowance to the trade, and a further reduction when one dozen or more are ordered at once.

MYATT'S NEW SEEDLING POTATO. BROCKLEY KIDNEY.

W. AND J. MYATT can dispose of a limited quantity of the above excellent new Potato, which they have proved to be a first-rate variety, and has been selected as the best out of many thousand seedlings raised at Manor Farm.

In flavour it is quite equal to the Ash-leaf, and for produce very far superior: it is a compact strong grower, and ripens off quickly, making it an invaluable summer variety. To be sent out in peck bags, 3s.; bushel, 56 lbs., 10s.

Also, EARLY MAY or BRITISH QUEEN, the earliest round Potato, middling size, suitable for planting whole, 5s.; Early Shaw, 5s.; York Regent's, 5s.; Hen's Nest, a good field Potato, 5s per bushel; Red Ash-leaf, 2s. 6d. per peck. These are all one year's growth, from Yorkshire or Scotch sets, and will be delivered free to any railway terminus in London.

Post Office Orders are requested from unknown correspondents, payable at Deptford, to WILLIAM MYATT.—Manor Farm, March 3.

NOTICE.—For full particulars of EDWARD TILEY'S two unequalled new Cucumbers, Melons, and Seedling Potato, see advertisement in *Gardeners' Chronicle* of 24th February, 1855, page 128, together with an exact representation of the Cucumber, Sir Colin Campbell.

TWO NEW CUCUMBERS, SIR COLIN CAMPBELL and GENERAL CANROBERT, 3s. 6d. per packet, or a packet of each and a packet of either of the Melons mentioned in the advertisement of the above date (except Golden Drop and Scarlet King), for 6s.

TILEY'S SEEDLING POTATO, THE CHAMPION KIDNEY, the best and earliest in the world, price 5s. 6d. per peck, hamper and package included, or 1l. per bushel.

UNEQUALLED NEW MELON, GOLDEN DROP (Green Flesh), price 1s. 6d. per packet.

THE KING, a superb Scarlet Flesh Melon, 1s. 6d. per packet. A packet of Golden Drop, one of the King Melon, together with a packet of any other variety mentioned in the former advertisement, will be forwarded post free on receipt of 3s. 6d. in cash or penny postage stamps.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somersetshire.

DILLISTONE AND CO., STURMER NURSERY, near Halstead, Essex, will supply the following at the annexed low prices:—

	s.	d.
12 fine perpetual blooming Roses, 1½ to 2 feet stems ...	12	0
12 " " dwarf Roses	9	0
Climbing Banksia Fortuniana, Jaune Serins, Cloth of Gold, Solfaterre, &c., each	1	6
100 good dwarf Roses, two of a sort	30	0
12 fine named Hollyhocks, including Pourpre de Tyre, &c.	9	0
100 unbloomed seedlings, strong from the best seed ...	15	0
Packets of seed from 20 best kinds, each packet	1	6
100 double French white Rockets, very showy and fragrant	15	0
12 hardy Climbers, including fine Clematis, Honeysuckles, &c.	9	0
12 showy mixed Carnations and Picotees for borders ...	6	0
100 evergreen and flowering shrubs, two of a sort	30	0
100 fine showy Herbaceous plants, two of a sort	20	0
12 double white and yellow Primroses	6	0
12 Hepaticas, in four sorts, fine	6	0
20 of the most popular and profitable Strawberries, 100	2s. 6d. to 5	0

Remittances respectfully requested from unknown correspondents. Carriage of all orders above 20s. paid to London. Fine collection of Fruit trees, Seeds, &c.—March 3.

SUPERIOR GERMAN SEEDS WARRANTED.

JOHN WEEKS AND CO., King's Road, Chelsea, London, beg most respectfully to call the attention of their patrons to their very superior collection of German Seeds, Asters, Stocks, &c., which, having been grown, ripened, and selected under their own immediate care at their Branch Establishment in Germany, they can guarantee to be of the finest sorts and best quality. In order that ladies and gentlemen not possessing them from Messrs. WEEKS this season may be enabled to judge of the rare beauty of the different sorts in their splendid collection, they will be grown at Messrs. WEEKS' Horticultural Establishment, King's Road, Chelsea, where their patrons may make a personal selection for a future season.

For the general List of all other Seeds, see J. W. & Co.'s Seed Catalogue, and also their various Catalogues of Stove and Greenhouse Plants, Vines, &c. Also their Illustrated Catalogues on Horticultural Buildings and Heating by Hot Water.

EXTRA SELECT GERMAN SEEDS.

	s.	d.
GERMAN ASTERS.		
A Collection of 24 distinct and fine varieties of tall double quilled	8	0
Do. do. 12 finest and most distinct double Dwarf	6	0
Do. do. 12 do. do. Globe-flowered double	4	0
Do. do. 20 do. do. Pyramidal do.	7	0
Do. do. 12 do. do. Globe-flowered Pyramidal do.	8	0
Do. do. 10 do. do. Anemone-flowered Pyramidal do. ...	7	0
Do. do. 6 do. do Dwarf Bouquet Pyramidal do.	7	0
Do. do. 16 do. do. Truffant's Pæony-flowered do.	10	0
GERMAN BALSAMS.		
A Collection of 20 fine and distinct varieties of Tall double	7	0
Do. do. 10 do. do. Dwarf double	5	0
Do. do. 10 do. do. Double Camellia-flowered	5	0
Do. do. 10 do. do. Double Rose flowered	5	0
Do. do. 10 do. do. Double Camellia Rose-flowered	7	0
GERMAN COCKSCOMB.		
A Collection of 12 fine distinct varieties	7	0
GERMAN LARKSPUR.		
A Collection of 8 fine and distinct Tall double	3	6
Do. do. 12 do. do. Dwarf double	5	0
GERMAN STOCKS.		
A Collection of 36 distinct and beautiful varieties of Dwarf 10 weeks	10	0
Do. do. 18 do. do. do. Dwarf-branching do.	7	0
Do. do. 18 do. do. do. Wallflower-leaved do.	7	0
Do. do. 10 do. do. do. new large-flowered Dwarf do. ...	7	0
Do. do. 4 new hybrid perpetual-flowering 10 weeks ...	3	0
Do. do. 18 new and distinct vars. of new autumn-flowering	7	0
Do. do. 16 do. do. do. branching autumn-flowering	7	0
Do. do. 10 do. do. do. Emperor, or Perpetual-flowering ...	7	0
Do. do. 20 do. do. do. Winter or Brompton	10	0
GERMAN POPPIES.		
A Collection of 10 beautiful and distinct varieties of Carnation Poppies	4	0
GERMAN ZINNIA ELEGANS.		
A Collection of 12 beautiful and distinct varieties	7	0
FLOWER SEEDS.		
A Collection of 100 beautiful and distinct hardy and half-hardy Annuals, selected by J. W. & Co.	20	0
Do. do. 50 do. do. do. do.	10	6
Do. do. 25 do. do. do. do.	6	0
Do. do. 50 beautiful and distinct hardy Biennials and Perennials, selected by J. W. & Co.	10	6
Do. do. 25 do. do. do. do.	6	0
Do. do. 36 beautiful and distinct tender Annuals and Biennials, selected by J. W. & Co.	15	0
Do. do. 24 do. do. do. do.	10	6
Do. do. 12 do. do. do. do.	6	0

JOHN WEEKS & Co., Horticultural Builders and Hot-Water Apparatus Manufacturers, Nurserymen, Seedsmen, &c. &c.

The Horticultural Building and Engineering Department is near Sloane Square, Chelsea. The Nursery Establishment is near the Cremorne Gardens.

SUTTON'S LAWN GRASS SEEDS,

At the Crystal Palace, Sydenham.

SUTTON AND SONS *have had the honour of supplying to the Crystal Palace Company the Grass Seeds by which so many acres of Arable Land have been converted into the beautiful Park and Lawns, now so much admired at Sydenham.*

The following letter has been received, besides many others:—*From Professor Lindley, Horticultural Society, 21, Regent Street, London.*—"We have already made trial of your Lawn Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

Price 1s. per lb.; 2s. 6d. per gallon; or 20s. per bushel. Quantity required for forming new Garden Lawns, 2½ bushels, or 50 lbs.

Address JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS FOR IMPROVING OLD PASTURES.—Great improvement may be effected by sowing 8 to 12 lbs. per acre of SUTTON'S Renovating Seeds, which consist of Perennial Clovers and Grasses of the finer kinds for improving the bottom.

An increase of several Tons of Hay per acre has been thus effected on many Meadows and Upland Pastures. The Seeds should be sown early.

The drought of last summer having caused partial failures in the ordinary Grass and Clover Leys, SUTTON'S Renovating Grass Seeds may be sown with great advantage *in all such cases.* PRICE REDUCED TO 9d. PER POUND.

SUTTON & SONS also supply Grass Seeds for laying down Land to Permanent Pasture at a moderate expense, the sorts being selected in accordance with the nature of the soil to be laid down, particulars of which may be obtained by post.

Goods delivered Carriage Free by Rail.

Address JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

CORNISH EARLY WHITE BROCCOLI, 1s. per packet, or 6s. per oz.

CONQUEROR OF THE WEST CUCUMBER, 1s. per packet, containing 12 good seeds.

The above can be had, warranted genuine, by forwarding postage stamps for the amount to

JAMES LAKE, Seedsman, &c., Bridgewater.

PELARGONIUMS OR GERANIUMS.

JOHN DOBSON AND SON beg to offer the following, and feel sure that the plants and varieties will give the greatest satisfaction. Any 12 of the following (purchaser's selection) for 63s., Zampa, &c., included: Attraction, Bride of Abydos, Carlos, Sunrise, Eliza, Glowworm, Leah, Optimum, Pashe, Harriet, Vulcan, Rosa (Foster's), Lucy, and Ambassador.

The following 12 for 42s.: Neatness, Colonel of the Buffs, Virginia, Leonora, Gertrude, Enchantress, Rosa (Beck's), Arethusa, Jupiter, Spot, Purple Perfection, and Picta.

Any 12 of the following, 21s.: Mochanna, Arethusa, Magnet, Astrea, Amazon, Purpurea, Magnificent, Chloe, Capella, Exhibitor, Leader, Generallissimo, Prince Arthur, Virgin Queen, Galatea.

FANCY PELARGONIUMS.—Any 12 of the following, 24s.: Advancer, Annette, Caliban, Captivation, Carlotta Grisi, Fascination, Fleur de Marie, Nerea, Formosissima, Gipsy Queen, Lady Downes, Picturata, Prima Donna, Perfection, and Prince Albert.

Catalogues with full descriptions on application, Woodlands Nursery, Isleworth.

JOHN HARRISON begs to offer to the Trade the undermentioned plants, of which he has a large stock.

Rose Manetti, strong cutting	25s. 0d. p. 1000		
Raspberry, Northumberland Fillbasket, the best variety in cultivation, 20s. per 100 ...	160	0	"
Do. Fastolff, 8s. per 100, or	60	0	"
Do. Wilsher Red Globe, ...	10	0	per 100
Do. Magnum Bonum	10	0	"
Rhubarb, Victoria, strong	25	0	"
Do. Royal Albert, do.	30	0	"
Currants, Victoria, 1 year old...	6	0	"
Do. do. 2 years old, strong ...	12	0	"
Do. Black Naples, 1 year	6	0	"
Do. do. do. 2 years	10	0	"
Do, do. Bang-up, extra fine	12	0	"
Arbor-Vitæ, 1½ to 2 feet	15	0	"
Juniper, Swedish, 1½ feet	25	0	"
Cupressus Funebris, 1½ feet	100	0	"
Delphinium Barlowi, strong	40	0	"

Roses of all the best varieties in cultivation, of which J. H. has a stock of many thousands, one year established in pots, and fit for immediate forcing.—Nursery, Darlington, March 3.

NEW AND CHOICE SEEDS.

Free by Post or Carriage Paid.

	s.	d.
Holcus saccharatus, per packet of 500 seeds ...	1	0
Holcus saccharatus, per packet of 1200 seeds ...	2	0
Danvers' new yellow Onion very early, half oz. ...	1	0
Picridium vulgare, for salad, per packet ...	0	6
Olive-shaped white Radish, 1 oz.	1	0
Rose China do., winter, per packet	1	0
Yellow Turnip do., very early, 1 oz.	1	0
Abronia umbellata, p. pkt.	1	0
Alonsoa Warczewicsi, splendid half-hardy annual for pots or bedding, orange and scarlet, 12 seeds	1	0
Arctotus breviscapa, per packet	1	0
Browallia abbreviata, very showy for pots or bedding, 12 seeds	1	6
Calandrinia umbellata, per packet	1	0
Clintonia pulchella, p. pkt.	1	0
Coreopsis Drummondi grandiflora, per packet	0	6
Delphinium chinense, per packet	0	6
Double Convolvolus minor, per packet	1	0
Double dark Dianthus, extra, per packet ...	0	6
Gomphrena Haageana, orange, per packet ...	0	6
Gypsophila muralis, red, dwarf, suited for bordering, very pretty, 25 seeds	1	0
Helianthus californicus, fl. pl., 10 seeds	1	0
Helianthus argophyllus, silvery foliage and yellow blossoms, 12 seeds	1	0
Helichrysum brachyrhynchum, 50 seeds	1	0
Helichrysum compositum maximum, large double flowers from yellow to scarlet, fine, per packet	1	0
Heliophila trifida "	1	0
Hibiscus Thunbergi, yellow, per packet	0	6
Iberis umbellata violacea superba, per packet ...	0	6
Impomœa limbata, purple, with clear white border, most beautiful climber, 6 seeds	1	6
Impomœa rubro cærulea, 6 seeds	1	0
Lamarkia aurea, per pckt.	0	6
Linum decumbens, red, per packet	0	6
Lisianthus Russellianus, 100 seeds...	1	0
Lobelia ramosa, per pckt.	0	6
Lupinus guatemalensis, per packet	0	6
Mesembryanthemum tricolor, per packet ...	0	6
Phlox Drummondi, fine, per packet	0	6
Phlox Leopoldi, per pckt.	1	0
Portulaca aurea, "	0	6
" splendens "	0	6
" Thellusoni "		
Rhodanthe Manglesi, per packet	0	6
Salpiglossis variabilis, per packet	0	6
Sabbatia campestris, very handsome half-hardy annual for pots or bedding, pink with yellow eye, 50 seeds	1	0
Saponaria multiflora, p. pkt.	0	6
Schizopetalum Walkeri, per packet	0	6
Zinnia elegans coccinea, per packet	0	6

Collections suited for competition of the finest imported German Asters, German Stocks, Balsams, Larkspurs, Marigolds, Scabious, and Zinnias, from 2s. 6d. to 7s. 6d.

Dioscorea Batatas, 2s. 6d.; or five sets for 10s. 6d.

THOMAS JACKSON AND SON, Kingston-on-Thames.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks, at 5s., 12 varieties, 2s. 6d.; and from good double sorts, 1s. Superior Quilled German and French Asters, in 12 varieties, mixed, 1s. per packet; separate, 2s. Fine Quilled African Marigolds, 6d. per packet.—Saffron Walden Nurseries.

DOUBLE ITALIAN TUBEROSE ROOTS 4s. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT's Foreign Warehouse, 18, Pall Mall. N.B. Printed regulations for treatment sent; also, just arrived very moist and open Parmasan Cheeses.

CUTHILL'S BLACK SPINE CUCUMBER, the best for all uses, 1s. per packet; SNOW'S WHITE SPINE, 1s. per packet.

J. C.'s PAMPHLET on the POTATO, with 20 more Articles on Fruits and Vegetables. Third Edition, 2s.; or by post, 2s. 4d. J. C.'s Second Edition of MARKET GARDENING, 1s. 6d.; by post, 1s. 8d.—JAMES CUTHILL, Camberwell, London.

THOMAS WILD, Ipswich, has beautiful semi-double PRIMULAS, saved from large flowers, of fine form, and great substance. This is the GENUINE STOCK noticed in the "Cottage Gardener" of Feb. 13th. 2s. 6d. per packet.

Also the best CUCUMBER in the world, the IPSWICH STANDARD, for table market, or exhibition. It is unrivalled, as proved by the numerous testimonials lately received. 2s. 6d. per packet.—Agents: the principal Nurserymen in England, Ireland, and Scotland.

VINES FROM EYES.—THE CHAMPION.

JOHN BUTCHER can with the greatest confidence recommend this truly noble Grape (but little known); it was raised at Warwick by the late Mr. W. Canning. Berries, extra large and globular; skin, thin; flavour, superior to the Hambro, and 9 days earlier. Plants 5s. 6d. and 7s. 6d. each Stock limited. Stratford-on-Avon, March 3.

VINES FROM EYES.—THE BLACK BARBAROSSA, THE LAST LATE GRAPE IN COVENT GARDEN MARKET.

JOHN BUTCHER can supply fine Plants of the above splendid late Grape. Plants, with well-ripened wood, stopped at from 5 to 7 feet. J. B. has been awarded Prizes for the above Grape by the Floricultural Society of London, at Regent Street, on the following occasions:—Oct. 19, 1852; Feb. 18, 1853; Feb. 21, 1854; and Feb. 6, 1855.

All the following varieties true to name:—Black Hamburgh, Black Muscadel, Black Tripoli, Black Alicant, Black West's St. Peter's (Oldaker's), Black Raisin, White Muscat of Alexandria, White Frontignan, White Syrian, White Malvaise or Grove-end Sweetwater, and Red or Grisly Frontignan.
Stratford-on-Avon, March 3.

COLE'S CRYSTAL WHITE, & COLE'S DWARF RED CELERY.

J. THORNELEY, COLE, & Co., NURSERYMEN, SEEDSMEN, and FLORISTS, Withington, near Manchester, beg to announce that they are now prepared to supply these two well-known varieties, raised by Mr. W. Cole (late of Dartford).

CRYSTAL WHITE, ½ oz. packets, free by post, for 12 stamps.
SUPERB DWARF RED, ½ oz. pkts., free by post, for 9 stamps.
Price per lb. to the Trade on application.

FIRST-RATE PELARGONIUMS AT LOW PRICES.

W. H. WHEELER, FLORIST, &c., Hendon, Middlesex, offers a choice of 12 from the following, at 21s. per dozen:—Carlos, Magnet, Medora, Optimum, Pilot, Enchantress, Mochanna, Sanspareil, Colonel of the Buffs, Governor-General, Magnificent, Sunrise, Village Maid, Supreme, May Queen, Virgin Queen, Basilisk.

SEEDLING CALCEOLARIAS (3000), from the collection of a first-rate grower, out of pots, at 2s. 6d. per dozen; in 4-inch do. at 3s. per dozen, good and strong plants.

CINERARIAS, just coming into flower, 3s. to 6s. per dozen.

HOPS SUPERSEDED BY THE BAVARIAN BITTER, a perfect substitute for Hops, of an agreeable flavour, quite soluble in wort or beer, saving the trouble of straining through a Hop-back, and giving to Beer the well-known keeping properties of the Bavarian Beer. Price of 1 packet, 2s. 8d., which is equal to 5 lbs. of best Hops.—Prepared only by THOMAS PRATT WILLS, St. George's Square, Portsea. Free per post.

BEDDING AND OTHER PLANTS.

F. AND A. SMITH'S Descriptive LIST of the undermentioned is now ready, and may be had, post free, on application:—Antirrhinums, Verbenas, Fuchsias, Scarlet Geraniums, Calceolarias, Petunias, Heliotropes, Pentstemons, Chrysanthemums, &c. Climbers in variety, also a miscellaneous Collection of Greenhouse Plants. They have now in bloom Cytisus racemosus, Cinerarias in variety, Primula sinensis, Acacia armata, Deutzia gracilis, Erica Willmorea, &c. &c. The Trade supplied.—Dulwich, Surrey. March 3.

AMERICAN NURSERY.

GEORGE BAKER'S DESCRIPTIVE CATALOGUE OF AMERICAN PLANTS, &c., as exhibited by him in the Royal Botanic Gardens, Regent's Park, may be had by inclosing two postage stamps.

G. B. begs to call attention to his fine stock of Weeping Hollies, Coniferous Plants, Ornamental Shrubs, &c.—American Nursery, Windlesham, near Bagshot, Surrey, near Staines Station, South-Western Railway, where conveyances may be obtained.

AMERICAN PLANTS.—A Descriptive Priced CATALOGUE of HARDY AMERICAN PLANTS for the coming season is just published, and may be had by enclosing two stamps for postage. As everything in the way of American Plants is grown to an unequalled extent at this Nursery, intending purchasers would do well to provide themselves with this Catalogue.

WATERER AND GODFREY, Nephews and Successors to the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey.

GEORGE SMITH'S PRICED AND DESCRIPTIVE CATALOGUE of first-class Verbenas, Fuchsias, Geraniums (Show, Fancy, Variegated, and Scarlet), Dahlias, Chrysanthemums, splendid new Hollyhocks, very choice Petunias, &c., will be forwarded in return for one postage stamp.

The Geraniums are in extra fine condition, and require repotting. Parties giving orders immediately will save much in carriage, with less liability to damage by having them before they are repotted. Choice Verbena Seed from the finest show flowers.—Tollington Nursery, Hornsey Road, Islington, London.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year; and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

GREAT NOVELTIES FOR THE ENSUING SEASON,
FUCHSIAS WITH WHITE COROLLAS.

LUCOMBE, PINCE AND CO. beg leave to announce that they shall be prepared to send out two splendid and entirely novel Seedling Fuchsias, early in May next, viz.:—

FLORENCE NIGHTINGALE.

Pure white corolla, with brilliant scarlet sepals, finely reflexed; an extremely lovely and novel variety.

GALANTHIFLORA-PLENA

(The DOUBLE Snowdrop Corolla'd Fuchsia.)

Pure double white corolla, resembling a fine large double Snowdrop, with rich scarlet sepals; altogether distinct from anything of the kind ever yet produced. Price 10s. 6d. each.

The usual discount to the Trade when three or more are taken.
Exeter Nursery, Exeter.—ESTABLISHED 1720.

BEGONIA OPULIFLORA.
GUELDER ROSE BEGONIA.

C. H. GARDINER begs to offer strong Plants of the following:—BEGONIA OPULIFLORA; flowers pure white, with golden stamens in large heads resembling the Guelder Rose, and flowers profusely throughout the season. Strong plants each 10s. 6d.

	Each—s.	d.
BEGONIA PRESTONIENSIS, strong plants	2	6
" SUPERBA	5	0
" SEMPERFLORENS	2	6
" INSIGNIS	2	6
" HYDROCOTYLIFOLIA MANICATA ...	2	6
Also the following choice Seeds free by post:— Per pckt.—	s.	d.
CALCEOLARIA, from spotted and striped varieties ...	2	6
CINERARIA, from the best flowers	2	6
PRIMULA, fine fringed extra fine	2	6
PHLOX DRUMMONDI, fine mixed	1	0
MYOSOTIS AZORICUS (Forget-Me-Not)	1	0
ABRONIA UMBELLATA	1	0

Fant Nursery, Maidstone.

NEW SORTS OF PEAS.
CARRIAGE FREE, EXCEPT PARCELS UNDER 20s. VALUE.

SUTTON AND SONS *have much confidence in recommending the undermentioned* PEAS, *as being not only new and distinct from others, but also as possessing superior properties.*

Prices per peck or bushel may be had on application.

	s.	d.
PRIZETAKER.—New, fine long green pods, which hang so closely as almost to cover the haulm from top to bottom. Numerous prizes were awarded to the Prizetaker last summer. This is the first season we have offered it for sale. Height 5 feet	2	6
BECK'S EARLY GEM.—New, prolific, and fine flavour; particularly adapted for narrow borders and for small gardens. Height 1½ foot	1	6
FAIRBEARD'S NONPAREIL.—New wrinkled marrowfat, very sweet, juicy, and prolific; 9 or 10 will be found in every pod, and the pods extremely numerous; 4 ft. high	2	0

SUTTON & SONS have a large stock of good old kinds at low prices, as see their Priced List, just published.

GODFREY'S BLACK SPINE.
SPLENDID AND PROLIFIC FRAME CUCUMBER.

WOOD AND INGRAM beg to offer seeds of the above beautiful variety. Colour, magnificent dark green, with a very fine bloom; average length, 18 to 21 inches, and produces in great abundance through an entire season. Packets, containing 12 seeds, 2s. 6d.; 6 ditto, 1s. 6d.

W. & I. will be happy to refer any persons wishing further information respecting the variety to three or four Noblemen and Gentlemens' Gardeners who have grown it, and prefer it to any other.

London Agents: Messrs. HURST & M'MULLEN, 6, Leadenhall Street.

W. & I. have also the following esteemed varieties to offer, in packets, 1s. each, containing 12 seeds:—

Sion House	Sagg's Royal Exhibition
Barnes's Fearnought	Conqueror of the West
Walker's Prolific	Improved Sion House
Constantine's Incomparable.	Manchester Hero.

Huntingdon Nurseries, March 3.

ACHIMENES, GLOXINIAS, ETC.

BASS AND BROWN have a large stock of fine Tubers of the following, which they can supply to the trade in quantities. Prices on application.

Achimenes Cherita.	Gloxinea Leonie Van Houtte.
" Mr. Aparpart.	" Hogoveen.
" Louis Van Houtte.	" Willsoni.
" Margaretta (best white).	" Duke of Wellington.
" Magnifica purpurea.	Verbenas, 60 new varieties of 1854, of the first raisers.
" Sir Traherne Thomas.	

☞ A quantity of Corræa and Pimelea Stocks Wanted.
Sudbury, Suffolk.

ROSES! ROSES! A SUPERB AND VIGOROUS STOCK.

12 Dwarf perpetuals in 12 superb, all new vars. of last season, for 42s., including Alexander Bachmety, Comte de Neuchatel, General Jacquiminot, Adam Paul, Glorie de France, Madame Domage, Glorie de Dijon, &c.

Any of the following dwarfs, best hybrid perpetuals, 12s. per dozen: Augustine Mouchelet, Baron Provost, Clementine Syringe, Cymedor, Dr. Marx, Duc d'Aumale, Earl Talbot, Géant de Batailles, Jacques Lafitte, La Reine, Louis Bonaparte, Madame Laffay, Madame Prideaux, Marquis of Ailsa, Mrs. Elliott, Prince Albert, Prince of Wales, Prudence Rosea, Queen Victoria (Paul's), Reine Mathilde, Robin Hood, Standard of Marengo, Reine de Fleurs.

	£.	s.	d.
50 Dwarfs, all perpetuals, in 50 best vars., including the above	3	0	0
100 Dwarf Roses—100 best sorts	4	0	0
100 Dwarf " 50 best sorts	3	10	0
100 Standards, 100 best vars.	7	10	0
100 " 50 "	6	10	0
50 " 50 " all selected from perpetuals	4	0	0

Carriage free to all the London Termini with orders not under 20s., and plants gratis with 40s. and upwards.
BASS & BROWN, Sudbury, Suffolk.

LATE WHITE SUPERB BROCCOLI—"EMPEROR."

E. P. DIXON having purchased the entire stock of the above Broccoli of Messrs. Elletsons, Market Gardeners, Thorngumbald, near Hull, begs to announce that he is prepared to send it out in sealed packets at 2s. 6d. each. This Broccoli has been raised by the Messrs Elletsons, the raisers of the Mammoth, sent out some time ago, who state that the EMPEROR, if sown at the same time, will come into use before it. Is of very dwarf growth, perfectly hardy, with heads from 15 lbs. to 20 lbs. weight; keeps its colour, and stands firm three weeks after it is ready to cut. A noble flower, and commands the best price of any other in the Hull market, where it is well known, and will be a great acquisition to the market gardeners around London, as well as those who wish for a first-rate Broccoli.

PURE MAMMOTH BROCCOLI.—Numerous applications having been made to Messrs. Elletsons last season for Seed of the Pure Mammoth Broccoli, they determined to allow a flat to stand for Seed, carefully selected from the original stock, producing heads from 18 lbs. to 25 lbs. each. E. P. D. having purchased the stock of this celebrated Broccoli, is prepared to send it out in packets at 2s. 6d. each.

Each may be had of Messrs. NOBLE, COOPER, & BOLTON, 152, Fleet Street; and Messrs. HURST & M'MULLEN, 6, Leadenhall Street, London. Also of the Advertiser, 57, Queen Street, Hull.

SEED FLAX.

PAGE AND CO. have a splendid sample of about 150 Bushels (one year's growth from imported), saved with great care by GOVERNMENT AUTHORITIES. Sample and price upon application.

Seed Stores, Oxford Street, and Above Bar, Southampton.

ROSES.

GEORGE CLARKE begs to announce that he can still supply fine Standards of all the leading varieties, his own selection, at 18s. per dozen. Also, fine strong dwarfs of Perpetuals, Bourbons, Tea scented, &c., 12s. per dozen. Well varied collections of Evergreens, Fruit Trees, Coniferæ, and every article connected with the trade, at most moderate prices. Catalogues may be had on receipt of two postage stamps.—Nursery, Brixton Hill, near London.

NOW READY.

WILLIAM AND GEORGE DAVISON can supply complete collections of KITCHEN GARDEN SEEDS, to suit the various sized Gardens, at the following prices:—

No. 1 Collection ...	£3 0 0	No. 3 Collection ...	£1 2 6
No. 2 " ...	1 16 0	No. 4 " ...	0 12 6

FLOWER SEEDS: 50 packets, including the best hardy, half hardy, and tender Annuals and Biennials, with printed instructions, 10s. 6d.; 25 ditto ditto, 6s.; 12 ditto ditto, 3s.

GRASS SEEDS: Fine Lawn Grass Seed 1s. per lb.; Grass Seeds for laying down permanent pasture mixed to suit any soil, 30s. per acre. Every variety of agricultural Seeds of the finest quality. Priced Catalogues may be had on application to W. & G. DAVISON, Seed Warehouse, St. Peter's Street, Hereford.

"THE CATALOGUE OF SEEDS *sold by* J. C. WHEELER AND SON, of Gloucester, *appears to us to deserve notice, because of the stand which its authors make, in common with ourselves and others, against the useless incomprehensible Seed Lists of the day. In this, as in all matters of taste, there will be a difference of opinion as to the relative qualities of varieties; yet the mass of buyers who have no fancies, but who dislike being perplexed, and are satisfied with what is excellent, will greatly prefer a short, select Seed List, to an interminable labyrinth of names, which, for the most part, represent nonentities or rubbish.* Messrs. WHEELER'S *little book will do something to satisfy their expectations.*"—Gardeners' Chronicle.

J. C. WHEELER & SON will forward a copy of their Catalogue post free on receipt of two postage stamps. They can most confidently recommend the following collections of Garden Seeds, as comprising the most select sorts, and such that they feel sure will give entire satisfaction.

No. 1. A complete Collection, suitable for a large Garden	£3 0 0
No. 2. A Collection of equally choice varieties, but smaller quantities	1 10 0
No. 3. A Collection suitable for a small Garden	0 15 0

These Collections will be sent Carriage Free to any Railway Station within 200 miles of Gloucester.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester.

SEEDS CARRIAGE FREE.

SUTTON'S COLLECTIONS OF SEEDS.—A Clergyman, whom we have had the honour of supplying many years, writes us:—"*I have much satisfaction in recommending your Seeds to various friends, as I find they are much pleased with them;*" and another purchaser says, "*I never received so numerous a Collection, so good in quality, from any house.*"

We therefore confidently recommend those gentlemen who are not themselves acquainted with the best sorts of Vegetables, to order immediately (while we have a large Stock), one of the undermentioned complete Collections:—

KITCHEN GARDEN SEEDS.	£	s.	d.
No. 1. A complete Collection, for one year's supply ...	3	0	0
No. 2. A complete Collection, in reduced quantities ...	2	0	0
No. 3. Ditto Ditto Ditto	1	5	0
No. 4. Ditto Ditto Ditto	0	15	0
HARDY AND SHOWY FLOWER SEEDS (POST FREE).			
No. 5. A Collection of the best 50 sorts known	0	10	6
No. 6. A Collection of the best 36 sorts known	0	7	6
No. 7. A Collection of the best 24 sorts known	0	5	0

SUTTON'S CATALOGUE OF SEEDS will be sent post free
JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

HOLCUS SACCHARATUS, OR CHINESE SUGAR CANE.

SUTTON AND SONS *can supply this Seed genuine as imported in sealed packets at 1s. or 2s. 6d. each, Post Free.*

For description and uses, see *Gardeners' Chronicle*, Dec. 30th 1854, p. 835.—SUTTON & SONS, Seed Growers, Reading.

SEEDS FOR IRELAND, SCOTLAND, AND WALES.

SUTTON AND SONS having many customers in North and South Wales, Scotland and Ireland, whom they have supplied with Agricultural and Horticultural Seeds for many years, are well acquainted with the sorts which thrive best in each locality.

SUTTON & SONS *deliver their Goods Free of Carriage to the Seaports, and many other parts of Ireland, Scotland, and Wales. For particulars, address*
JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, MARCH 3, 1855.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, March 6—Horticultural ..... 2 P.M.

PAPERS relating to the REORGANISATION of the CIVIL SERVICE have been just laid before Parliament. The territory belonging to the *Gardeners' Chronicle* may be said to include the Woods and Forests only; but in our complicated system of government all branches of the service are so nearly connected that it is difficult for a critic to confine his comments within very narrow limits. If, therefore, the following remarks shall be found to bear upon matters not immediately within our scope, we must ask for the indulgence of our readers.

In the year 1853 Sir CHARLES TREVELYAN and Sir STAFFORD NORTHCOTE, two most able and experienced civil servants, were directed to report in what manner admission to the Civil Service could be regulated so as to secure a more universally good class of public officers than is provided by the existing system. We presume that the report was called for with a view to the extinction of that *improper* exercise of parliamentary and

family influence, which is universally known among us by the name of jobbing, and which under our present vicious arrangements seems to be inevitable. These gentlemen avow that the public service suffers both in internal efficiency and in public estimation from the existing system of admission by favour, and they do not hesitate to ascribe to it the complaints that are made of "official delays, official evasions of difficulty and official indisposition to improvement." How far this opinion is supported by facts known to all men we need not say. The Woods and Forests afford as much evidence as to the truth of the allegation as any reasonable person can require; and Sir James Stephen, who was so long in a high position in the Colonial Office, entirely confirms the statement. He declares that when he quitted office seven years ago, the gentlemen employed under him "were clearly distinguishable into three classes; the first, a very small minority; the second being more numerous than the first; and the third *exceeding the number of the others united.*" Of these the first were men of the greatest ability and energy, the second were meritorious, while the third was "made up of persons of whose official characters nothing but the obligation which you have imposed upon me would induce me to speak at all." These last were "without exception, men who had been appointed to gratify the political, the domestic, or the personal feelings of their patrons; that is, of successive Secretaries of State." When we are told by men of such standing as Sir Charles Trevelyan, Sir Stafford Northcote, Sir James Stephen, and others, that the Civil Service of the country is in such hands, it is impossible not to feel that honourable exceptions, however numerous, can have little effect upon a body of between 50,000 and 60,000 persons, and we see at once the history of our bungling blundering Civil Service in the Crimea.

It is right to say that Mr. George Arbuthnot, also a high civil officer, does not admit the existence of such a state of things, and without much regard to official courtesy gives it a flat denial. But it will be seen by readers of the "Papers" that every point upon which he has ventured to make a stand is shown by positive evidence to be untenable, and that the assertions of the Government Court of Inquiry, if it may be so called, remain unshaken. This will surprise no one who recollects that it was this very Mr. Arbuthnot who maintained before Mr. Drummond's Committee, that he saw nothing wrong in the management of the Woods and Forests, and who from anger dropped to pathos when he adverted to the facility with which any public department might be run down; another opinion from which we presume to differ:—the truth being that no public department can be "run down" until its mismanagement becomes utterly indefensible. The *Times* has plainly declared, as the result of its own experience, that—

"The officials of our public establishments seem to think not only that they may do wrong, but that it is an unwarrantable presumption in any one to set them right. The same spirit has been visible through the whole period of the war, nor is there, we believe, a single one of the examples of mismanagement, now flagrant and confirmed, which was not denied or disputed as long as dispute was possible."

In order to meet difficulties of so great a magnitude, it is proposed that no person whatever shall be admitted hereafter into the Civil Service unless he shall have passed certain examinations, and a period of official probation. To this principle there is nothing to object. If honestly and skilfully worked out it should extinguish the whole system of improper appointments; by which we mean appointments without qualification, or in spite of disqualification. It is not patronage, it is not nepotism, it is not influence that reasonable men object to, provided they are honestly exercised. In a country like this wealth, political power, or high rank, will, we trust, always have their legitimate weight. It is only when they are executed improperly that they require to be checked. The world does not object to Mr. Fitzburgh, an idle young scamp, because he is placed in office by the Duke of Hereford; the objection is taken to his unfitness; the appointment would have been none the better had he been the nominee of a tailor. Why have we objected to the appointments of Forest officers? Certainly not because their places were procured for them by Lords and Earls, and members of Parliament, but because they were wholly ignorant of the duties they had to perform. A sufficient previous examination would have prevented such reckless sacrifices of public interest.

Previous examination and probation are sound in principle, but they must be suited to the occasion. And this leads us to inquire whether the plans suggested by Sir Charles Trevelyan and Sir Stafford Northcote will really answer the end proposed. Upon this some differences of opinion are certain to be entertained.

Of what is the proposed examination to consist? It is to be "in all cases a competing literary examination," and this is elsewhere explained to signify an extensive range of acquirements in history, jurisprudence, political economy, modern languages, political and physical geography, and other matters, *besides the staple of classics and mathematics*:—rather a tough affair for a gentleman aspiring to become a clerk with such miserable pay as the Civil Service offers to the mass of its officers. The examination is, however, to be modified to suit the exigencies of special departments. We own that we agree with those who think such a system not likely to work satisfactorily. What we want in our public offices are well-educated, active, intelligent men of business, and it is questionable whether success in any competing literary examination will secure such a class. We should say the contrary. Let us take the case of a man who has gained the highest honours at an University; he would doubtless stand high in the proposed official examination; but it by no means follows that he would make a good public officer. He might want method, good business habits, knowledge of the world, and a practical acquaintance with the subjects with which he would have to deal officially. Place such a man in a situation commensurate with the literary attainments he shall be found to possess, and the chances are that he will break down. Examples of officers of state, and high officials, possessing, no doubt, far more literature than any board of examiners could require, being totally unfit to conduct the business of a public department, are unfortunately too recent as well as flagrant to leave any doubt upon the point. Such men fail, not for want of literary attainments, but because they want clear heads, business habits, and a knowledge of common things, as well as the decision, firmness, and moral courage necessary to render the other qualities effective. Nelson would have broken down in the presence of a literary examination, and yet what a war minister would he have made! Or if we look at what is, instead of what might have been, we shall find some of the very best of our civil officers by no means distinguished for literary attainments. Or let us take the case of a deputy-surveyor in a Royal forest; would proficiency in Greek and Latin stand him in any stead? He would not learn either the art or science of forestry from the Georgics or the Geoponic writers; though he might from English, French, and German books, the very names of which would be to a board of examiners unknown.

Possibly such a modification as is suggested by the Chairman of Inland Revenue might meet these objections; indeed, it is evident that without some such change as Mr. Wood suggests, the system of examination would lead to no useful result; for if it killed the inefficiency which comes of patronage, it might revive inefficiency by erroneous education.

We think that the head of each department should have absolute control over the appointment, discipline, promotion, and dismissal of the persons employed under it, subject to certain rules of universal application, exactly as is the case in a great public company. The head of the department should settle the kind of examination and probation which its peculiar nature may require; and a general board of examiners should be called upon to examine candidates in the subjects prescribed by the head of the department, and in no other. But the head of the department should not be the removable political head; he should be the permanent working chief. The Treasury should be itself deprived of all patronage except that which it could claim in common with any other department; and its permanent chief should be the only officer with power even to settle the line of examination to which candidates for appointments in the Treasury should be subject. The permanent head of a department knows what is required; he should be made heavily responsible for the good working of his office; and if he were able to promote good men, remove bad ones, and settle what qualifications his rank and file should possess he would, we think, soon take as great a pride in the excellence of his office as a good Lieut.-Colonel does in the discipline of his regiment. The system would require to be surrounded by certain precautions, no doubt, but men who have the conspicuous talent shown in drawing up the papers which have led to the present remarks, would have no difficulty in guarding the system against abuse. We should have an end to scandalous appointments, and obtain fair security against their recurrence. The clamour which has been raised against what are not very fairly called aristocratic influences, by which is really meant Parliamentary jobbing of all kinds, would be at once put down; the aristocracy would contend in honourable rivalry with the democracy, and if the former fairly won, the latter would no longer complain.

We see with amazement that a minute portion of the newspaper press is protesting against men being dismissed for inefficiency, and crying out upon the hardship which individuals must suffer. Those who write thus can have no real wish for the reform of the Civil Service. Others, however, who, like ourselves, represent the public interest, will listen with little sympathy to such appeals, and deny that any one would be used unjustly if deprived of duties which he cannot fulfil, and for not doing which he has already been allowed to plunder the public purse. It is because official dismissals are so rare that official incompetency is so common. We engage to say that as the former increase the latter will diminish, but in an accelerated ratio. Under circumstances thus altered, it would not be possible for any future board of inquiry to introduce into their report such a paragraph as the following:—"We have before us," say Sir Charles Trevelyan and Sir Stafford Northcote, "the testimony of an eminent public officer who was for many years connected with one of the chief departments of the State. He writes thus:—During my long acquaintance with the —— office I remember four, *and only four* instances of young men being introduced to it on the ground of well ascertained fitness. I do not venture to mention any names, but I confidently affirm that the superiority of those four gentlemen to all the rest was such as to extort the acknowledgment of it from their rivals, and to win the high applause of each successive Secretary of State." After such an avowal who can wonder at the calamities that have of late befallen us, or expect them to be averted for the future until jobbing is crushed, and the whole race of worthless nominees returned upon the hands of their patrons as discarded public servants?

Last Tuesday Sir John Shelley brought on in the House of Commons his motion for a select committee to inquire into the grounds upon which the Right Hon. T. F. Kennedy was dismissed from his office of Commissioner of H. M. Woods and Forests. The ex-Chancellor of the Exchequer, from whom the dismissal came, defended his act in a speech, the precise meaning of which we fail to discover, and in which the statements of most public interest were two—the first that he, Mr. Gladstone, was the only person responsible to the House for the management of the Crown estates, and the second that "not one word or syllable had ever been said by members of the Government which Mr. Kennedy could imagine to touch his honour, his veracity, or his integrity." Mr. Wilson also disavowed, on the part of the Government, "in the most ample manner" that any such imputation had been ever made. And yet unless our memory deceives us strangely, the ground of the Right Hon. gentleman's dismissal was declared to be that a Treasury tribunal had reported unfavourably upon a question, relating to Mr. Brown and Mr. Kennedy, in which, as the Treasury then asserted, were involved the veracity, honour, and character of the parties.* Upon this mode of meeting complaints comment is superfluous.

The temper of the House was, however, so obviously hostile to Mr. Gladstone, and speeches by Lord Stanley, Mr. Malins and others told with such force upon the act of dismissal, that a Committee would have been inevitable had not Lord Palmerston come to the rescue, and undertaken that there should be placed on the records of the Treasury a full acknowledgment that Mr. Kennedy stood fully unimpeached. And so the matter ended.

New Plants.

116. Thyrsacanthus barlerioides, *Nees ab Esenb. in DC. Prodr.* xi. 323. *Planchon in Van Houtte, Fl. des Serres, t.* 986.

Why this is called Barleria-like we are unable to comprehend, unless upon the principle of *lucus a non lucendo*. It is a broad-leaved Brazilian shrub, with a close thyrse of long, slender, deep crimson flowers, which are very handsome. Dr. Planchon says it has the appearance of a herbaceous plant, scarcely woody at the base, with an

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* The words of the Treasury minute of March 31, 1854, are these:—"In the case, however, of the controversy which has arisen between Mr. Higginbothom and Mr. Brown, and also between the former gentleman and Mr. Kennedy on the subject of Mr. Brown's reports on Alice Holt and Woolmer Forests, the questions at issue are reduced to matters of simple fact, but which, from the spirit in which the discussion has been conducted, have assumed a character involving the veracity, integrity and honour of the parties." If there is any meaning in Treasury minutes we have here an assertion that the veracity, &c., of Mr. Kennedy, as well as of Messrs. Brown and Higginbothom, for all were parties to the controversy, are involved. Yet this is what Mr. Gladstone and Mr. Wilson assured the House of Commons was never said!!! We observe in the *Times* that late in the evening Mr. Wilson attempted to reconcile the fact and his assertion; but we are unable to discover by what process it was proposed to effect this desirable object.

upright simple or forked stem, 1½ to 3 feet high, clothed to the base with great, light green, membranous leaves. It was first seen in the garden of San Donato, at Florence, in the collection of Prince Demidoff. Mr. Van Houtte now possesses it. Its native country is said to be the province of Minas Geräes in Brazil. In the hands of English gardeners we have no doubt that it would prove a species of much beauty.

A ROYAL FOREST.

In passing through Whittlewood forest the other week, I found by the auctioneer's mark apparently on every tree worth a shilling, that it is going to be disforested in earnest. So far, so good, and though now too late to retrieve the past as regards the trees, it is not too late to let the country know the disgraceful manner in which its property has been managed for nearly two centuries. Including Silsoe, I believe there are about 6000 acres of excellent land under forest in the county of Northamptonshire, and according to the account published in your columns, they have been costing the country within the last twenty years some 10,000*l.* above the returns, for mismanaging it. But how can it be otherwise ?—the Duke of Grafton claims all the underwood, and I believe up to his time his forefathers claimed all but the Oak timber ; it was, therefore, their interest to grow underwood and not Oak, and they have not lost the chance of doing so.

I send you a rough sketch of the forester's system of pruning, practised for I believe nearly two centuries, apparently to the satisfaction of John Bull. You will see by it, that even the few straggling Oaks (many of which must have stood there in Charles II.'s time, and are 12 feet and upwards in circumference containing upwards of 200 feet of timber) are completely mutilated to afford pasturage for the deer and allow the underwood to grow. Had this race of managers for the public done their duty, these Oaks (a century past their best, and now of no use for ship-building) would have been cut down long since, and the ground properly prepared and replanted with Oak (and Larch, the latter as nurses) and might have been bringing in the country at least 6000*l.* annually. Since many thousand acres of forests are still in the hands of the country, and are, generally speaking, not much better than the above, I trust they will not be allowed to remain so. I think it is quite time to put aside the razor, and lay the more powerful weapon the axe to the roots of this much-abused branch of the public property. As the trees in Whittlewood Forest will not be cut down till May, any one who imagines that my sketch is in any way exaggerated has still an opportunity of satisfying himself in the matter. *David Ferguson, Stowe, Buckinghamshire.*

VEGETABLE PATHOLOGY.—No. LXI.

272. Apostaxis. *Constitutional and Organic or Accidental.* 3. Discharge of resinous fluids.—Like gum, resinous fluids are deposited in particular cavities, or are to a greater or less extent mixed up with the general circulating medium, from which it is necessary that they should be eliminated when present in greater abundance than is consistent with health. In some cases, as in the Silver Fir, the Cowdie and Kauri Pine, &c., the resinous matter flows naturally, hardening on exposure to the air ; and to a small extent the same may be said of most resiniferous plants ; but in other instances no great discharge takes place without accident or artificial incision. The quantity of matter discharged varies immensely ; while in Pistacia Terebinthus (the Chian Turpentine Tree) it amounts to only 10 or 12 oz. in the course of the year, in some of the Indian Varnish plants, as Dipterocarpus, Shorea, Melanorrhea, &c, the quantity is prodigious,* without affecting in any sensible degree the health of the plant. There are, however, in some cases limits to the demand which can safely be made on the plant: "A strong and vigorous Spruce Fir," says Loudon, "will yield every second year from 40 to 50 lbs. of congealed resin ; and this may be collected for from 20 to 25 years, if no other value is set upon the tree ; but if the collection of the sap be continued for this length of time the tree becomes rotten and decays, giving birth to myriads of insects, which seriously injure the surrounding trees. It is therefore better to cut the trees down after extracting the sap for 10 or 12 years, because the wood may then probably be used for packing boxes, and at any rate will be good for fuel and charcoal." Similar cautions are given by Hartig. In Thuringia and Franconia the disastrous consequences of an over-greedy demand for resin are notorious. The trunks from 8 to 10 feet high are so bad that they can scarcely be sold at the price of firewood. Moderate bleeding is attended by no evil consequences, especially if the trees are allowed to rest every alternate year. If such precaution be not taken, they soon assume a sickly aspect, the growth becomes dwindled, the seeds do not come to perfection, and death ultimately ensues.

* In Oreodaphne opifera a volatile oil is produced in immense quantities by merely making an incision into the bark with an axe as deep as the liber. It gushes out in such quantities that several quarts may be obtained from a single incision. In the Shoreas and other allied trees several feet of the trunk from the ground are often covered with a crust of resin.

273. A discharge of resinous matter is not so likely to be injurious to a tree by inducing decay as gumming, because it has a tendency rather to exclude than admit outward atmospheric agencies which might prove injurious to the ruptured tissues. It may, however, be complicated with gangrenous disease. In shallow ill-drained soils, with an impervious substratum, where the ground is alternately water-logged or extremely dry, extensive disease sometimes prevails amongst Conifers, the bark cracking in the first instance from drought, and then affording a perennial outlet for the resinous sap ; or in case the discharged sap hardens into a compact mass of resin, through which nothing can pass, the circulation is impeded, and the tissues swell around the original wound, producing unsightly tumours. In these cases where the disease is very aggravated, decay is the sure consequence, but where the injury is but slight, genial seasons may effect a cure, or what is far more effectual, the roots may at length penetrate the barrier, and convey a more regular and better supply of nutriment, under the influence of which the more healthy tissues may overgrow and ultimately obliterate the diseased patches. Where the subsoil is absolutely impervious the plantations will never recover, and the profitable growth of timber is altogether hopeless. In some cases, as in Liquidambar styraciflua, the liquid balsam is collected principally from fissures in the bark, through which it exudes from accumulations between the bark and wood. Occasionally the flow of resinous matter in Conifers is so great that the stream extends from the trunk to the roots, where it at length finds an exit, and in consequence protrudes into the surrounding soil large amber-like masses of resin.

274. Besides the cysts in which resinous matters are usually contained, which themselves vary considerably in size and form, and though having no proper tissue of their own are closed with a wall built up of regular cellular tissue, more or less distinct from that which surrounds it, there are in some cases irregular cavities which contain large quantities of such production, comparable to the accumulations of gum in the trunks of Cycads. In the trunk of Dryobælanops Camphora, for instance, vast cavities or fissures sometimes exist, as in a case from Labuan, described by Mr. Motley (see Hook. Journ., 1852, p. 201), in which five gallons were saved from one cavity, though much was lost. From this the camphor itself is deposited in crystals on the walls.

275. Sometimes on the contrary, the turpentine penetrates by infiltration into every part of the wood, even those which in general are free from resinous matter. Wood in this condition is called by the Germans Kienholz. It is probable that in such cases there is a defect of vitality in the cell walls, in consequence of which the turpentine is distributed according to mere dynamic laws. It is well known that dead branches of Pines inclosed in living wood are strongly impregnated with turpentine, and acquire, in consequence, an extreme degree of hardness ; and such is more or less the case with all the other portions of the wood. The punctate woody tissue and the medullary rays are equally affected ; their membrane itself is saturated, and the intercellular passages are gorged with resin. The affection is either general or partial, and is sometimes confined to the tops of the branches, which are then known in Germany by the name of Kienzöpfe. The wood, however, for many purposes, is not deteriorated by this process, but acquires a high degree of durability, and in consequence is much valued by mechanists. The roots of Fir trees gradually acquire a similar condition, and are dug up in ancient forests after the expiration of hundreds of years and used as torches, from the immense quantity of resin which they contain. *M. J. B.*

DRACOPHYLLUM GRACILE.

This is a remarkably useful plant, and, under good management, it soon forms a pretty specimen. Its little heads of white flowers, with which every shoot is crowned, have a very pleasing effect and last a considerable time in beauty. Although not very difficult to propagate, this part of its culture had better be left to nurserymen; for the propagation of any hard-wooded plant is a work which requires time and careful attention, and good, strong, well got up, young plants may be procured for a trifle.

To begin, let us suppose that a couple of nice bushy, healthy young plants are procured at once with which to commence. Those that are dwarf, bushy, and strong, and neither under nor over-potted, should be selected. When received let them be placed in a close part of the greenhouse, where they will be near the glass and out of the way of cold draughts, giving water to the soil very carefully for the present. About the beginning of March, see to the state of the roots, and if these are found to require more pot-room, shift at once into pots a good size larger, using prime rich turfy peat broken up rather small, and well intermixed with plenty of sharp silver sand and some lumpy bits of charcoal, to ensure the soil being permeable by water. Secure perfect drainage by placing plenty of potsherds in the bottom of the pot, and in potting make the fresh soil rather firm about the ball. Place the plants after potting in the warmest part of the greenhouse close to the glass, or in a pit where the night temperature may be kept at about 45°, keeping them rather close during the day, to encourage the roots to strike into the fresh soil. With proper care to have the ball and soil used in a healthy state at the time of potting, very little water will be necessary for some time after potting, but the plants should be dewed over head with the syringe on the afternoons of clear days, taking care also to secure a moist state of the atmosphere by frequently sprinkling any available surface. But, although over-watering must be avoided, the opposite extreme would be nearly as injurious, therefore when the soil requires water, and only then, give a good soaking, avoiding dribblings, or waterings when it is not absolutely required. In course of a month or so after potting, the roots will probably have got hold of the fresh soil, and as soon as this is apparent, cut back any straggling shoot, stop the others, and train them nicely, bringing them well down to the pot, and keeping them thin. The object after this should be to get the plants to break as thickly and strong as possible, and this will be best secured by keeping them near the glass, giving air freely on fine days, keeping close when the weather is cold, and the atmosphere can hardly be kept too moist. When the weather becomes mild, remove them to a cold frame, which is the best situation for them in summer, and use a thin shade on the forenoons of bright days, but not until it is wanted, for too much shading is productive only of long-jointed weakly wood. As the young shoots advance in length train them out to neat thin made stakes.

A second shift will probably be wanted towards June, and this should be attended to as soon as the pots are full of roots, in order to avoid checking the plants, and also to get them well rooted into the fresh soil before winter. Use similar soil, &c., to that recommended for the last shift, and keep the plants rather close for a fortnight or so after repotting. In summer every precaution must be used to secure a moist state of the atmosphere, for except this is attended to strong rapid growth will not be obtained; and, perhaps, the best way of effecting this is to place the plants on a bed of coal ashes, which, by sprinkling in fine weather, can be kept continually moist. Give air freely on fine days, but guard against drying winds by giving air sparingly, and on the sheltered side of the light keeping down the temperature by shading. Sprinkle the plants over head early in the afternoon, and keep them close for the evening, but air should be given freely for the night; and after the middle of July the lights may be thrown off in the evening, so as to expose the plants to the night dews, replacing them in the morning before the sun becomes powerful.

A drier system of treatment must be pursued in autumn, in order to get the wood well ripened for winter, and the plants should be removed to a light airy part of the greenhouse for the winter. The same treatment pursued a second season will produce nice little specimens, which will be useful for flowering, and in this case they should receive the ordinary greenhouse treatment until they come into bloom, when they should be slightly shaded, to prolong the beauty of the flowers. As soon as their beauty is over, cut back the shoots sufficiently to ensure a compact growth, and remove the plants to where they can be afforded a moist atmosphere, keeping them close to the glass, but not too warm, in order to induce them to break close and strong. As soon as they fairly start into growth, give a shift if the roots are found to be in want of more space, which will be the case if all is right. Attend to training the shoots as may be necessary, and treat them during the remainder of the season as already recommended. With care in watering, &c., the plants may be expected to last many seasons, and form fine large bushes; but it will be safe to be prepared for the loss of a specimen occasionally by having a succession of young plants. The compact heads of white flowers are very suitable for bouquets, in which they are much valued, and their removal for this purpose improves rather than injures the plant. *Alpha.*

COMMON THINGS.

Asparagus.—Now that the weather has changed Asparagus beds will require early attention, as the plants will soon commence growing. Presuming of course that they have been top-dressed with rotten manure or some light rich compost before winter set in, this should now be mixed with the surface soil by forking it lightly over, taking care of course not to go deep enough to injure the crowns of the plants. After the operation of forking, a moderate dressing of salt may be given, and when the newly broken up soil has been acted upon by the atmosphere sufficiently to allow of its being neatly raked, this operation may be performed, first shovelling up the loose soil out of the alleys and spreading it over the surface of the bed. The beds being neatly edged another dose of salt will ensure the beds in a great measure against weeds. Before these matters are attended to it is advisable to take up as many plants as will be required for forcing, and cover them with old tan or something similar, which will preserve them from frost without exciting them.

Seakale.—It is a common practice to throw away the old roots of Seakale that have been taken up and forced; but it is a pity this should be the case, as if taken care of they will produce fine plants for another year with very little trouble. After the "Grass" has been cut, which should be done without injuring the crown, the plants may be laid in carefully in some sheltered out-of-the-way spot, until a half spent hot-bed frame is at liberty, with a surface soil of leaf and sand. The roots may now be cut into pieces 2 or 3 inches long, and after dusting them over with quick lime they may be planted all over the frame 3 or 4 inches asunder. The frame should be kept rather close for a few weeks, and by the time the season will admit of it the plants will be in a nice condition for removing to some rich well trenched ground, and having all the summer before them will make fine strong plants by autumn quite equal to what two-year-old seedlings generally are.

Home Correspondence.

Grafted Rhododendrons.—Being one of the advocates for grafted Rhododendrons, I think it right to observe that I have had no desire to adopt that "Irish" species of defence which "J. R." attributes to them. My object from the commencement has been to state in a straightforward manner my reasons for considering some of his statements erroneous, and I have advanced nothing but what my own observation and practical experience prove to be correct. I have recommended grafted Rhododendrons for standards, as I consider them better calculated to make handsome specimens than plants propagated from layers, and this in a much shorter time; I only stated the fact of its being possible by deep planting to induce the scion to emit roots, and become independent of the stock, as a secondary argument, and with the view of helping "J. R." out of his supposed difficulties. I do not wish to deny that stocks, even though weaker than the scion, will not occasionally throw up suckers, but I hold that even when this does happen to its greatest extent, it is but a small evil, and easily remedied by common attention; it is an evil too which gets less every year, and when the scion has gathered strength will disappear altogether. I am, however, perfectly aware that some skill is required in the selection of proper stocks for different varieties, but this is never overlooked in an establishment where the proprietor has an eye to his own interest. In endeavouring to refute my assertion that Rhododendron ponticum and maximum are more luxuriant than their hybrids crossed with arboreum, "J. R." seems to be unacquainted with the parentage of the hybrids, which he names as examples; R. Russelianum is not from caucasicum, but from some of the varieties of catawbiense crossed with arboreum, and it illustrates very well the truth of my statement that hybrid Rhododendrons almost invariably assume the habit of the female parent; but the hybrid obtained from caucasicum crossed with arboreum, and known as Nobeanum, furnishes a more perfect illustration; here we have the dwarf habit of caucasicum, and the foliage far more like that variety than arboreum, and many more examples could be named in support of this point. As regards my assertion that hybrids raised between hardy and tender sorts will not be hardy unless the seed is saved from the hardy sort, I may state that, before trying the experiment myself, I had the testimony of two or three practical hybridisers of extensive experience. And I have since proved it for myself in the case of a batch of hybrids, in which the seed was saved from a tender sort, all of which suffered from frost, while those from the same parents crossed *vice-versâ* have stood uninjured. *Hugh Fraser, Stanwell Nurseries, Edinburgh.*

Snow a Protector of Vegetation.—Your observations at p. 99 remind me of the protection afforded by snow to vegetation in the neighbourhood of St. Petersburgh. On the melting of snow there I noticed in a large field that the last year's Grass, and many weeds mixed with it, remained green, excepting that the ends of the leaves were frost-bitten; young shoots were even sprouting out between the old stems. The preceding winter had been unusually long and severe; on one occasion Réaumur's thermometer marked 25° of cold about noon; it had been as low as 36° the preceding night, being equal to 35½° below zero of Fahrenheit. Market gardeners seemed to avail themselves of the protection snow affords, for at Ochta, near St. Petersburgh, I saw a man sowing Peas on prepared ridges whilst snow was still on the ground around them; after drawing earth over the seeds, he covered the ridges with a thick coat of snow. Rarely in this country is there enough of it to protect the soil beneath from frost; but might not this practice serve as a hint to our gardeners? Might not they spread some waterproof material over tender plants or seeds? Old nets have long been sold for nailing against walls, old carpets would form excellent protection if previously coated on one side, with tar for instance. *B.*

Rain at Rothamsted, Herts, in 1854:—

—	Large gauge 1.1000th of Acre. Actual weight of Rain in lbs.	oz.	10th	Inches of Rain calculated from weight. In. 10. 100th	Small Gauge. In. 10. 100th	Large Gauge exceeds Small. In. 10. 100th
Jan.	456	2	1	2.0205	1.6450	0.3755
Feb.	214	12	7	0.9512	0.6650	0.2862
March	116	2	6	0.5121	0.3150	0.1971
April	112	8	8	0.4960	0.3425	0.1535
May	991	15	5	4.3823	3.7625	0.6198
June	172	10	8	0.7656	0.5250	0.2406
July	193	14	6	0.8560	0.6800	0.1760
Aug.	609	3	6	2.6910	2.5650	0.1260
Sept.	176	3	9	0.7776	0.4975	0.2801
Oct.	517	13	0	2 2869	1.8575	0.4294
Nov.	346	7	7	1.5297	1.1350	0.3947
Dec.	357	5	5	1.5783	1.3050	0.2733
Total	4265	4	8	18.8472	15.2950	3.5522

—*J. B. Lawes.*

Temperature.—In your Paper of Feb. 24, p. 115, you give a table of the extremes of cold since the year 1813 or 1814, but in the column Extreme Lowest against the years 1819 and 1820 are three dots, thus ...; also in 1822 and 1823, and again in 1855. May I ask whether this means above zero? [Yes; the dots have been put in merely to fill up the space.] All the other years have the minus sign —, meaning, I suppose, below zero. [Yes, in the usual way.] The following table, copied last year from one of the leading journals, may perhaps be useful. It is by Mr. Lowe, of the Highfield Observatory:—

1810—February 21...	12°	above zero.	1826—January 15...	11° above zero.
1814—January 9...	4	"	1830 " 19...	10 "
" " 13...	3	"	1836 " 20...	7 "
" " 14...	5	"	1841 " ...	4 "
1815 " 33 ...	11	"	1845—March 14...	13 "
1816—February 9...	2	"	1854—January 3...	4 below zero.
1820—January 1...	6	"		
1823 " 19...	6	"		

On 14th March, 1845, temperature fell to 1° below zero on the Grass.

On the 3d January, 1854, the thermometer on the Grass was 6° below zero by several thermometers; at 4 feet above the ground it was 2° below zero.

The year 1829-30 was a very severe winter, but none of the tables I have seen seem to notice it. The river Medway was then full of ice. [In that winter the thermometer gave the following results for the 31 coldest days:—

1829—1830	Mean max.	Mean min.	Mean.	Lowest extreme
Dec. 20 to Jan. 19	34·12	25·80	29·99	Jan. 18th 10°.

The period was remarkable for continued low, but not extremely low temperature.] On Feb. the 10th inst. we had the thermometer at 5° above zero here. *Fred. B. Hankey, Fetcham Park, Surrey, Feb.* 25.

Discrepancies between Thermometers at different Elevations.—At p. 115 you make a comparison between the observations at Chiswick, during the late severe frost, and those of Howard, for the frost of 1813-14, as given in his "Climate of London." Now, a comparison between two instruments can only be strictly true when the elevation of those instruments is identical; and I can prove that there was a difference between the elevation of Howard's instruments and those at Chiswick amounting to no less than 9 feet, as regards the minimum thermometer. When I wrote to you on this subject in March, 1852, you inserted a sketch of the positions of the instruments at Chiswick in your Paper of March 13, which I have now by me. In the explanation of the diagram you say, "The minimum thermometer is about a foot above the surface of the ground," consequently within the influence of radiation, and indicating with precision the temperature to which vegetation is exposed. But Howard's observations seem to have had no reference to the science of horticulture. If you refer to the "Climate of London," vol. i., page 4, in the article on temperature, you will see that Howard's instruments during the frost of 1813-14 were suspended no less than "10 feet from the general level of the garden." Now it is a known fact that the temperature, 1 foot above the ground, is always lower than at 10 feet elevation, so that observations conducted at this height, though valuable as a record of weather, are worthless as regards the effect of frost on vegetation. As a proof of the discrepancy between two instruments of different elevations I may mention that on January 10 of this year, one of my thermometers (a), 6 feet above the ground indicated at 8 A.M. 24°, while another (b), 20 feet above the ground, registered 29°. On the 19th (a) was 1°, while (b) was at 17°. Here, 8° has been the lowest point reached by (a), 9° by (b) on Feb. 18. If observers would make it a rule to give the elevations of their instruments as well as their readings, a comparison might be instituted on strict principles, and the cause of meteorology and horticulture be much benefited. *C. B. N. P., Stevenage, Herts, Feb.* 26.

"Dommiska" Apple.—Mr. Hogg mentions, in his work on "British Pomology," a foreign Apple under the name of "Dommiska," amongst the list of those with which he is imperfectly acquainted. Can your correspondents give me any certain information respecting the Apple so called? From the description given of it, I suspect it is the same as an Apple which I met with in Wallachia, where it was called the "Domm-

neshti" Apple (this difference in name would be merely the natural change into the common form of names in the Wallachian language). If it be the same, I can answer for its quality being of the very finest in Wallachia, where I have eaten it in the latter part of October. It was then fully equal, if not superior to any Apple I have ever tasted, somewhat similar in appearance and quality to a very large and well-ripened Ribston Pippin. *C. W. Strickland, Wassand.*

Scottish Arboricultural Society.—In your notice of this new Society, at p. 100, you say that "it is but just to the veteran Billington to state that this (formation of such a Society) is a measure of which he has been the advocate ever since you remember his name." Now, if your knowledge of Mr. Billington only began with the advent of the *Gardeners' Chronicle* in 1841, I take it for granted that another has a prior claim to the merit of suggesting the propriety of establishing an association for the improvement of Forestry; for those who possess copies of the "Gardeners' Magazine" will find, in the October Number of 1833 of that work, that the utility of forming such an association is insisted on at considerable length. *A Forester, Easton Maudet.* [What then?]

The Winter in the North; at Jedburgh, N. B.—On the morning of the 15th ult. we had the thermometer down to zero, and on that of the 17th 4½° below that point. This was at 5 o'clock A.M. At 8 o'clock on that morning it was 3°, and at 2 o'clock 2° below zero. The snow around the town has been a foot deep. Jedburgh is situated in a finely sheltered valley, so that in some localities near us the temperature would doubtless be more than 4½° below zero. In a place not a mile and a half off the thermometer indicated 9° below zero on the 17th at 8 o'clock, A.M.; and I believe it would be perfectly correct, as it was the standard instrument by which the owner, one of the most eminent makers in the north, used to regulate all his thermometers. We shall experience a fearful loss of plants; bushes of Aucuba japonica are as black as coal, all my Noisette Roses, the very hardiest of them, and plants covering a great space of wall are killed to the ground. The loss in standard Roses will be considerable, and I should think the whin (Furze) fences, unless saved to some extent by the snow, must be ruined. *William Deans, Anna Nursery, Jedburgh.*——An ordinary registering thermometer fell here as follows:—Feb. 15, 11° below zero; Feb. 16, 16½° ditto; Feb. 17, 20° ditto; and on the 19th 4° below zero. The above occurred between 6 and 7 o'clock in the mornings. *Charles Kay, Blackadder, Dunse, Berwickshire.* [What is here meant by the expression below zero! or has the writer a thermometer that misleads him!]

Water Rats.—Having been rather an extensive planter, on low ground and near a running stream, and having been much annoyed by water rats barking the young trees (about six inches from the ground) quite round the stems, and completely destroying them, I am induced to ask whether you can point out any effectual plan for killing these animals, except by shooting them, which is a very tedious operation; the professed rat-catchers will not undertake to extirpate these aquatic pests. *A Subscriber.* [We destroyed or drove away all ours, in 1838, by laying phosphoric rat poison in their runs.]

Societies.

LINNEAN, *Feb.* 20.—The President in the chair. Among the objects before the meeting were three varieties of Rice from the kingdom of Nyami, Upper Gambia, together with the fruits of Amomum Danielli, cereum, latifolium, exscapum, and grana-paradisi, from Western Africa, presented by W. F. Daniell, M.D. The following communications were read:—1. A letter from Mr. E. D. Lockwood, of Haileybury College, Hertford, recording the occurrence in that neighbourhood during the late severe weather, of the red-throated diver, and the little auk, both killed between Ware and Hertford. 2. A continuation of Dr. Hooker's memoir on the Balanophoreæ. Polymorphism and extreme simplicity in every organ were stated to be the prominent features of this order, when surveyed in a structural point of view; and, it was remarked, were value to be attached to the fact of every organ appearing in a most degraded state in one or more of the species, Balanophoreæ would rank low in the system of phænogamic plants. Disregarding imperfection, however, all the organs are present which are necessary to warrant their being placed among phænogams, with the exception of terrestrial roots. The arguments used to exclude these plants from the Phanerogamia were summed up by the author, as coming within the following category: (*a*) erroneous views of the nature of the seeds (Endlicher, Martius, Blume, and others); (*b*) of their origin being in a diseased state of the plants they grow on (Junghuhn and Trattinick); (*c*) a supposed similarity to fungi, and an erroneous idea that their appearance is meteoric and their growth rapid (Endlicher); (*d*) the resemblance between the articulated filaments on the capitula of the Helosideæ, and the paraphyses of Musci, and between the pistilla of Balanophora, and the pistillidia of Musci (Griffith and Lindley); (*e*) the resemblance of the cellular and vascular tissues in some of their characters to those of Ferns (Unger and Goeppert); (*f*) a very peculiar view of the nature and relations of the parts of the female flower (Weddell, who hence refers Balanophoreæ with Rafflesiaceæ to Gymnosperms). These views, Dr. Hooker observes, their several authors would never have entertained had they been sufficiently furnished with specimens. After discussing further some of the opinions entertained by botanists as to their affinities, Dr. Hooker goes on to state his own view, which is, briefly, that the vascular bundles in the rhizomes of Helosis and Langsdorffia are sufficient evidence of their being dicotyledonous, these being altogether exogenous, and not differing from the stems of Menispermaceæ and other anomalous but undoubted dicotyledons. "The Balanophoreæ," he continues, "have an adherent perianth in all the genera where this organ is developed, and an epigynous stamen in Cynomorium, the only species in which hermaphrodite flowers occur. These characters indicate a position amongst the epigynous Calycifloræ, a group which, though far from being well limited as a natural class, is in our present state of knowledge one of considerable value, as comprehending many nearly allied natural families. Amongst them, the most direct relation of the Balanophoreæ is certainly with Halorageæ and Gunnera, with both of which it presents many important characters in common, and between which I would place it in the linear series." This view Dr. Hooker proceeds to illustrate by a detailed comparison of individual organs, and to meet such objections as may probably be urged against it. In the classification of the genera and species, Dr. Hooker prefers Griffith's primary divisions, monostyles and distyles, which are perfectly natural. The greater number of these plants belong to the tropical and subtropical mountains of Asia and South America; in both hemispheres certain species ascend to 10,000 feet. A considerable number are extra-tropical, as Cynomorium, which attains lat. 41° N. in Europe; the two Mystropetala and Sarcophyte, which inhabit South Africa; an Helosis from the Plata district, and the North Indian species of Balanophora and Rhopalocnemis. The individual species have often exceedingly wide ranges, though some are extremely local. The most conspicuous examples of extensive distribution are Cynomorium coccineum, which ranges from the Canary Isles to the mouths of the Nile, namely, through 3000 miles of longitude; Rhopalocnemis, which is found in lat. 27° N. in East Nepal and Sikkim, in the Khasiya mountains of East Bengal, and in Java under the line, places no less than 3000 miles apart; Balanophora fungosa, which is found both in East Australia and in Tanna, places separated by 1500 miles of ocean; and in the New World, Langsdorffia hypogæa has been found in the province of Oaxaca, in Mexico, in the mountains of New Grenada, and at Rio de Janeiro, having thus a range of 4000 miles in a straight line. The widely distributed species, it is remarked, do not vary much according to the distance they spread.

Notices of Books.

The Art of Travel, by Francis Galton, (Murray, post 8vo, 12s,) will be found as indispensable to the traveller in wild countries as "the Handbooks" are to mere tourists. It is evident that the author is a man of experience; he knows what the traveller wants and what he has to encounter; upon both points he gives advice, which is as judicious as it is abundant. Water, fire, bivouac, clothes, food, discipline, defence, hiding places, boats, ponds, &c.; roads, carriage, carpentry, skins, writing materials, cattle, horse furniture, fire-arms, trapping, fishing, medicines, presents for barter, expenses, philosophical instruments, form so many distinct subjects, each of which is carefully worked out and well illustrated with woodcuts. Such a quartermaster-general or commissary-general would have secured us against the disgraceful mismanagement in the Crimea; it is of men like Mr. Galton that such officers should alone be made, carpet knights and gentlemen in uniforms with red tape facings are only fit for the atmosphere of St. James's. The author's advice as concerns water enables us to make an extract illustrative of the manner in which his very useful little volume is written:—

"*To purify water that is muddy, putrid, or salt.*—With muddy water, the remedy is to filter, and to use alum, if you have it. With putrid, to boil, to mix with charcoal, or expose to the sun and air; or, what is best, to use all three methods at the same time. With salt water, nothing avails but distillation.

"*Muddy Water.*—When at the watering-place there is nothing but liquid mud, take a good handful of Grass, and tie it roughly together in the form of a cone, 6 or 8 inches long; then dipping the broad end into the puddle, and turning it up, a streamlet of partly-filtered water will trickle down through the small end. This excellent plan is used by the northern bushmen—at their wells quantities of these bundles are found lying about (Andersson). Otherwise, drink through your handkerchief—either put it over the mouth of your mug, or else throw it on the liquid mess as it lies in the puddle, and suck through. For a copious supply, the most perfect plan, if you have means, is to bore a cask full of auger-holes, and put another small one, that has had the bottom knocked out, inside it, then fill up the space between the two with Grass, Moss, &c. Now sinking the whole in the midst of the mud, the water will filter through the auger-holes and Moss, and rise up clear in the inner cask, whence it can be ladled. With a single cask, the lower parts of the sides may be bored, and alternate layers of sand and Grass thrown in, till they reach up above the holes; through these layers the water will strain. Or a canvass-bag that is kept open with hoops, made on the spot, may be moored in the muddy pool, by having a heavy stone put inside it, and will act on the same principle, but less efficiently than the casks. Turbid water is also, in some way as yet unexplained, made clear by putting a piece of alum into it. Three thimblesfull of finely-pounded alum will clarify a bucketful of turbid water. It is generally used in India. I cannot say if alum will clear every kind of turbid water, but it is certainly met with in very general use.

Putrid Water should always be, at least, boiled before drinking it, as low fevers and dysenteries too often are the consequences of its being used; bitter herbs, if steeped in it, or even rubbed well about the cup, are said to render it less unwholesome."

Tintern Abbey: a Poem (by F. B. Ribbans, F.A.S. 4to, Hall and Virtue), contains three extremely good representations of this fine old ruin, introduced by some agreeably written stanzas, and a few antiquarian notes. The volume is one for the drawing-room.

Every Man his own Printer, or Lithography Made Easy (4to, Waterlow, 5s), is an explanation of the manner of preparing lithography for the printer, and of using the "patent autographic press," now a good deal employed in large offices for the rapid multiplication of copies of letters, &c. Private persons will, we suspect, prefer to send their drawings to a printer for working off, rather than trouble themselves with a press of their own.

Garden Memoranda.

HORTICULTURAL SOCIETY'S GARDEN, TURNHAM GREEN.—The stoves here are now becoming gay with Begonias which are well known to be most useful plants for winter decoration; but in addition to these some other plants at present in flower require especial notice. One of the most ornamental of these is Thyrsacanthus rutilans, a stove plant as yet scarcely known, but which should be in every collection, as it is really one of the handsomest things that has been introduced for years. It produces great quantities of brilliant crimson tubular flowers attached near the ends of long branched drooping flower stems, which when tied out a little, so as to fully expose the blossoms to view, render the plant very effective. The flowers also keep a long time in perfection, a desirable property at all times, and especially at this season of the year. Another plant, which cannot be too highly spoken of, is the Flax called Linum trigynum, a hardy greenhouse plant, whose numerous bright yellow blossoms, each as large as a half-crown piece, are extremely showy, and they continue to be developed in succession for several weeks. Sciadocalyx Warscewiczi, a Gesnerad resembling Achimenes picta, is a tolerably handsome stove plant at this season, as is also a Clerodendron, with pale yellow flowers, called C. splendens Hugeli.

Among Orchids in bloom the most important was Dendrobium speciosum, a noble plant, which, however, is scarcely yet in perfection. It has upwards of 12 flower spikes on it, many of them quite 15 inches in length, and when fully out must produce a glorious effect. This plant has been kept comparatively cool, and we are thus led to believe that the reason it so seldom flowers is because it is kept all the year round in too warm a temperature.

In the great Conservatory several kinds of Habrothamnus were in bloom, among which one called scaber promises to be an improvement on elegans, to which it bears considerable resemblance. A mass of H. fascicularis was also in blossom, and when large and well flowered as this was few winter flowering plants are handsomer. The Camellias in this house are coming finely into flower; elegans in particular is literally loaded with its large showy blossoms, notwithstanding that its flower-buds had been previously very much thinned. The sweet-smelling Luculia gratissima is also still in fine condition, although it was in full flower when we saw it a month ago, and even long before then. On the side shelves plants of Selago distans were in flower, together with Heaths, early Tulips, Hyacinths, and other spring bulbs, Primroses, and Acacias, all of which serve to produce a large amount of gaiety, even thus early in the year.

The Orchard-house has been re-arranged and put in order; it is well stocked with fruit trees of new or little known kinds in pots; even Raspberries, Gooseberries, and Currants (red, white, and black), have been potted and put in it for trial. Round the sides of the beds are Strawberries in pots, a situation well adapted for them in winter, and from which they may either be removed to warmer quarters if it be desired to have them early, or if allowed to remain where they are they will come in a little before those in the open air.

Protections for pits, &c., have been in great requisition during this winter, and in addition to frigi domo, several contrivances made of straw have been tried. The best of the latter has been made of long Wheat straw laid crosswise on three pieces of tar twine (at equal distances apart), on which the straw is worked with common twine, in the manner recommended by Mr. Brewer, of Pine Apple Place. These protections when completed are about 10 feet in length, and nearly 4 feet in width; they are light, and have the advantage of being capable of being speedily rolled up and set on end in any corner out of the way. Another description of covering is straw fastened on a skeleton sash; this answers very well, but when they are pulled off they cannot conveniently be put out of the way. The third kind of new covering tried has been straw placed be-

tween wire screens made of zinc, but these are said to have the faults of being too heavy and apt to break the glass.

Out of doors the thaw had only two days set in, and although the snow had nearly disappeared, little if anything certain can as yet be said of the effects on vegetation of the late severe weather. It may be mentioned, however, that Berberis nepalensis, tinctoria and other species appear to be much injured, as are also several of the Mexican Pinus, except Lindleyana, which has not been hurt in the least. Ribes speciosum is apparently injured considerably, and so are plants of Daphne pontica and laureola. A small plant of Assam Tea has only had a leaf or two browned. Rhododendrons appear to be safe, and Laurustinus do not seem to be hurt, nor even the young shoots of the common Bay. The Chusan Palm has unfortunately suffered in the outer leaves, but the centre looks green and healthy. The Pampas Grass is quite blanched, but whether or not it is killed remains to be seen. In the kitchen garden young Cabbages and Broccoli are greatly blanched, but we think not killed, although it is reported they are so in some of the market gardens in the neighbourhood. In a short time it will be better known what has been killed and what has not. When the thermometer has been down to zero, as it has been here, and the frost a foot deep in the ground, the effects on vegetation must be expected to be great, and these it will be our business to report next month.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Such of the twiners as were closely pruned in autumn will, under the influence of sunny days, soon be starting into free growth, and it is of the utmost importance to get them as thoroughly cleared of insects as can be done while they are in a dormant state. The flowering plants should be removed to one end of the house, so as to allow of giving the twiners a good washing with the engine, which will have the desired effect on most things, and will also be useful in cleaning the glass, &c. But such things as Acacias and Jasmines, if affected with white scale, to which they are very liable, will be but little benefited by this operation, for these are more difficult to eradicate when allowed to get fairly established than red spider, and we know no other way of destroying these pests, than by taking them in time, and painting the affected parts with a mixture similar to that recommended a few weeks ago for fruit trees. This, like all other insects, is particularly troublesome only when the plants liable to its attacks are grown under circumstances unfavourable to its habits, and in this case the affected plants should be taken up and replaced with others of a more suitable character for the position, for it is nearly impossible to keep plants clean, unless they can be kept in vigorous health. Take every opportunity of admitting fresh air; but after the confinement to which the plants have necessarily been subjected, cold currents will be dangerous and should be avoided. Be satisfied with a rather low temperature at present, and use only sufficient fire-heat to secure this and prevent damp in the atmosphere.

Stove.—Plants of Dipladenias, Echites, and other twiners in active growth will require frequent attention in order to properly direct their growth and prevent the shoots getting entangled. Get such things into the pots in which they are to bloom as soon as this can be done with due regard to the state of the roots, so as to allow of the shoots being properly trained to the trellises before there is risk of their being broken in the operation. Look sharply after insects of all kinds, particularly mealy bug, which will be emerging from its winter quarters, and will soon be sufficiently numerous to afford any amount of work unless every means is used to eradicate it at present.

FORCING DEPARTMENT.

Pineries.—The large use of fire-heat which has been necessary for a considerable time, will, except where great care has been used to counteract its effects, have been injurious to plants swelling fruit. Now that the weather is such that the requisite temperature can be maintained by a very moderate use of the fires every care should be exercised to keep the atmosphere saturated with moisture until the fruit begins to change colour, giving manure water to the soil as often as it may be wanted, letting the temperature range between 80° and 90° with the assistance of sun-heat; also see that the bottom-heat does not fall below 85°, nor rise above 90°. Young plants growing in the open bed that have been some time planted will be benefited by having the soil loosened up as deeply as can be done without injuring the roots, giving it a liberal soaking of tepid water if it is found to be too dry. The water should be applied by means of a rose-pot, and not so fast as to flood the surface, for if this is done the soil will be rendered almost as close as before forking up; indeed, careless watering is the great cause of the surface of the soil becoming close and hard, and should be carefully avoided. Endeavour to afford these a nice regular bottom heat, with a thoroughly moist atmosphere, and keep them growing as freely as may be consistent with keeping them dwarf and stocky. Have a constant eye to maintaining a succession of fruit, or securing a supply at the season when it may be most wanted, and let the treatment of the plants be regulated in time by your circumstances; for this is a matter which demands considerable forethought, and which can be successfully managed only by careful observation and attention.

Vineries.—The unusual amount of fire-heat which the long-continued severe weather has rendered necessary has been anything but favourable to Vines fairly started, and this, combined with the absence of sunshine and the difficulty of admitting fresh air, has had a tendency to induce weak long-jointed wood and thin foliage, and where this has occurred the greatest care should be exercised to get the wood and foliage strengthened. Take advantage of every favourable opportunity to admit fresh air as freely as can be done with safety, and be satisfied with as low a temperature from fire heat as may be considered safe under the state of the Vines, but shut up early on sunny days, allowing the glass to rise considerably. This will to some extent economise fuel, and will be much more congenial to the Vines than so much fire-heat. Except where the Vines are in flower keep the atmosphere moist, but the foliage should always be allowed to become dry in course of the day. Look carefully for red spider in the early houses, for the amount of fire-heat which has lately been necessary will have been very favourable to the increase of this pest, and it will probably be making its appearance upon Vines that have been at all liable to it formerly. Attend carefully to the state of the borders, and where fermenting materials are used do not allow the heat to decline because the frost is gone, but aim at securing a steady warmth of about 70°, at a foot below the surface.

Peaches.—Where the trees are in bloom admit air freely whenever the weather is mild, and keep the atmosphere rather dry, maintaining a steady night temperature of about 50°. Trees on which the fruit is fairly set should be afforded a moist temperature, syringing them liberally in the afternoon to prevent red spider, and keeping the border in a healthy state as to moisture, &c., to secure a vigorous root action.

Cucumbers.—These may now be kept at from 65° to 70° by night, and 70° to 80° by day, with a steady bottom-heat of about 85°, which, combined with a thoroughly moist atmosphere, will induce free growth. Keep the shoots thin near the glass, and attend to stopping, &c., as may be necessary. Attend carefully to the early Melon plants, and regulate the temperature according to the state of the plants and the amount of sunshine, taking care not to get the Vines weak and long-jointed through a high close temperature, for a fair crop of fruit need hardly be expected unless the Vines are kept strong and short-jointed. Do not omit putting in seeds of the favourite summer kinds.

FLOWER GARDEN AND SHRUBBERIES.

In the present state of the ground but little can be profitably done in these departments; it may be reasonably hoped, however, that the ground will be in a fit state for work of all kinds before this appears; meantime walks and lawns will require frequent rollings, to properly consolidate them after the frost, and this should be attended to at once, for if dry weather should set in the roller will be less effective than now, and the walks and lawns will not be easily put into proper spring order. Where any alterations are in hand, these will of course demand attention as soon as ever the frost is out of the ground, and the removal of shrubs or planting, where such has been unfortunately delayed thus far, should be finished with the least possible delay; and no unnecessary time should be lost in getting alterations involving the relaying or putting down of fresh turf completed, for it is a great saving of after labour and attention to get this kind of work finished before the drying March winds set in. If not previously done, get Pillar Roses pruned and tied; and where wood stakes are used examine these carefully, and renew such as are not likely to last the season, for they are troublesome to replace after the plants begin to ramble about. It is an excellent practice on most soils to give these a liberal dressing of manure water in a very strong state in the winter; or, where it can be obtained, night soil mixed with water, so as to reduce it to the consistence of thick paint. The surface soil should be removed for about two feet from the stem of the plant, placing it so as to form a basin, and the under soil stirred as deeply as can be done without injuring the roots, giving from four to eight gallons to each, according to the strength of the plant, and replacing the soil. This will be much more efficient in inducing a vigorous growth, and in the case of the autumn blooming kinds securing a fine display of late flowers, than all the manure that could be applied. Push forward the work of propagation with the least possible delay, and endeavour to keep the young stock strong and stocky.

HARDY FRUIT AND KITCHEN GARDEN.

There will be no want of work whenever the state of the ground will admit of its being done. A small sowing of Radishes, to succeed those in frames, should be made on a warm dry border; also Early Horn Carrots, Turnips, and a moderate breadth of Parsley should be got in where there is any danger of a scarcity of this much used plant. Where the Lettuce and Cauliflower plants have been injured by the late frost, there will of course be a supply coming on under glass. These and the early Celery are best raised on a slight hot-bed, where they can be kept close to the glass, and afforded plenty of air; but where this convenience cannot be commanded, they may be raised in pans or boxes in the forcing-houses, taking every possible care to keep them stocky, and carefully inuring them to exposure to the open air before planting out. Onions and Parsnips may also be sown at once, where the ground is clear of frost, and in a fit state for working, but until this is the case all seeds will be better in their papers. Peas that were sown before the frost should be carefully examined, in order to ascertain what amount of injury they have sustained, and fresh seed put in as may be necessary to make good the lines. See to providing for a succession of this much esteemed vegetable, and get those raised under glass prepared for planting out by full exposure on mild days. Of course every advantage will be taken of favourable weather for nailing, &c., in order to get this work done so as to have the hands at liberty for other work.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending March 1, 1855, as observed at the Horticultural Gardens.

Feb. and March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain.
Friday 23	[illegible]	29.986	29.853	37	18	27.5	34	36½	N.E.	[illegible]
Satur. 24	8	30.007	29.391	44	33	38.5	34	37	S.W.	[illegible]
Sunday 25	9	29.354	29.314	49	37	43.0	34	37	S.W.	[illegible]
Mon.. 26	10	29.532	29.469	40	32	36.0	34	37	N.W.	[illegible]
Tues. 27	11	29.811	29.602	42	37	39.5	34	37	S.	[illegible]
Wed. 28	12	29.777	29.737	50	29	39.5	34½	37½	S.W.	[illegible]
Thurs. 1	13	29.625	29.527	53	39	46.0	35	37½	S.W.	[illegible]
Average.		29.7[illegible]7	29.556	45.0	32.1	38.5	34.2	37.1		[illegible]

Feb. 23—Uniformly overcast; snow, in broad flakes, to the depth of an inch; overcast.
— 24—Overcast; thaw commenced; fine; heavy rain at night.
— 25—Uniformly overcast; rain at night.
— 26—Rain; drizzly; overcast.
— 27—Foggy; drizzly; overcast.
— 28—Foggy; drizzly; cloudy; halo round the moon; slight frost.
March 1—Heavy rain; very fine.

Mean temperature of the week 2¼ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 29 years, for the ensuing week, ending March 10, 1855.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 4	49.1	32.1	40.6	10	0.48 in.	3	8	1	3	2	5	[illegible]	[illegible]
Mon. 5	48.0	31.1	39.6	9	0.40	2	6	3	1	4	7	4	[illegible]
Tues. 6	47.9	32.3	40.1	10	0.26	1	7	3	1	2	[illegible]	[illegible]	[illegible]
Wed. 7	49.2	32.8	41.1	11	0.11	3	5	3	1	4	5	[illegible]	[illegible]
Thurs. 8	49.8	33.0	41.4	10	0.17	3	6	3	—	5	5	3	5
Friday 9	50.9	32.7	41.8	8	0.47	2	4	2	2	4	5	[illegible]	[illegible]
Satur. 10	50.8	32.4	41.6	12	0.69	3	4	1	3	3	7	3	[illegible]

The highest temperature during the above period occurred on the 9th, 1826—therm. 68 deg.; and the lowest on the 10th, 1847—therm. 7 deg.

Notices to Correspondents.

Bell Glasses: *Milo.* They may be had of any large glass dealer.‡

Books: *F H G.* Endlicher's "Synopsis Coniferarum" is the best modern work on Conifers, but it is quite technical and abounds in errors or omissions. The most accurate list is that published in the Journal of the Horticultural Society, Vol. V., p. 148. A good work is much wanted; but there is no chance of its being undertaken until a sufficient fund is subscribed to secure author and publisher against loss.—*A. N.* There is a Flora Melitensis; but it can only be procured in Malta, even if there. There is no other.

Crickets: *Manchester.* The best trap for crickets is *thick treacle* in soup plates, preserving jars, or wide-mouthed bottles, placing in each just sufficient to cover the bottom. They should be plunged to the rim in the ordinary plunging material of the house, in order that the crickets may experience no difficulty in entering, though if soup plates are used they will jump in freely. When the surface of the treacle is covered they must be emptied into hot water, and the traps baited again.‡

Dioscorea japonica: Buyers of this are recommended to take care what is sold them before they pay. We have seen lately what are called plants, for which the mere postage would be too great a price. They ought to be tubers, and not smaller than a sparrow's egg.

Guano: *P Y.* The purity of guano can only be ascertained with certainty by means of chemical analysis. If, however, you fill with it the bowl of a clay pipe and put it into a fierce fire, if there is any red colour communicated to the clay you may be certain that the sample is adulterated. Cover such a bank with Ivy, the larger Tutsan, Privet, Holly-leaved Berberries, Savin bushes, and plant among them any coarse herbaceous plants.

Laburnums: *An Old Sub.* We presume you have before you what is called *Cytisus Adami*, a curious production, sometimes putting out branches of the common Laburnum, sometimes of *C. purpureus*, sometimes of a plant intermediate between the two. The exact cause of the appearances has never been satisfactorily explained; but they are probably owing to a plant of the common Laburnum having been budded with the purple Cytisus, which having failed to develope its own bud, tainted the stock on which it was worked.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Ditton.* A very bad specimen of some Crassula, probably Cr. lactea.—*Rusticus.* We do not know.

Orange Boxes: *W H.* Orange trees or other plants grown in boxes coated over inside with Stockholm tar, are not injured thereby.‡

Portulacas: *Buxton.* They require an open soil, such as very sandy loam, moderately enriched with leaf mould, or other light manure. They do best in pans about four inches deep, well drained, or if pots are used, they should be filled half full of potsherds. The damping off has been caused most probably by the plants growing too thickly together, and the soil being too rich ‡

Roses: *A Lady.* The following selection of three dozen Hybrid Perpetuals may possibly suit your purpose. Blush:—Jeanne d'Arc, Madame Aimée, Marquis of Boccella, Queen Victoria, Mrs. Rivers, Madame de Manoel, Mère de St. Louis, Lady Steward, and Blanche de Beaulieu. Pink and light Rose:—Caroline de Sansal, Auguste Mie, Duchess of Sutherland, Madame Aline Gibbon, Louis Peyronny, Madame Lamoricière, Reine des Fleurs, and Duchesse d'Orleans. Rose:—Augustine Mouchelet, Baron Prevost, William Jesse, Dr. Marx, Madame Laffay, Comtesse Duchatel, Louis Odier, James Veitch, and Jacques Lafitte. Crimson:—Géant des Batailles, Beranger, Robin Hood, Comte d'Egmont, Louis Buonaparte, Triomphe de Paris, President Pierce, Apollo, Baronne Hallez, and Melanie Cornu.‡

Stephanotis floribunda: *W N.* The fruit of this, when ripe, is greenish Apricot coloured and poisonous.‡

Misc.: *Sub.* We doubt whether Lapageria rosea is a sufficiently free-blooming plant to be really ornamental under the conditions you mention. It is, however, well spoken of by some. See our vol. for last year, p. 725. It likes a light situation and peaty soil; a place against a wire-work pillar exposed to the sun would suit it better than the back wall. Passiflora Buonapartia will not flourish in the temperature of 40° by night. Pleroma elegans will do so; Dipteracanthus spectabilis will not. ‡—*O B.* 2*s.* 6*d.* first four lines, 6*d.* a line after.

CORN MANURE FOR SPRING SOWING.
CONCENTRATED URATE FOR GRASS, RAPE, AND ALL ROOT CROPS.
SUPERPHOSPHATE OF LIME.

THE LONDON MANURE COMPANY continue to manufacture the above Manures, which have been used with so much success for the last 14 years.

The London Manure Company also supply PERUVIAN GUANO (direct from importers' warehouses), Nitrate of Soda, Sulphate of Ammonia, Fishery and other Salts, Bone Dust, and every artificial manure of known value. EDWARD PURSER, sec.

Office—40, Bridge Street, Blackfriars.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*

Office, 69, King William Street, City, London.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

WHEAT AND OTHER MANURES ON SALE.—The success attending the application of the manure specially adapted for Wheat during the last two years, induces the undersigned to again offer it to the Agriculturists with confidence. Also Superphosphate of Lime, Blood Manure, Guano, Nitrate of Soda, Gypsum, Salt, Peat Charcoal, and all other Manures of known value.—Apply for Prices Current to MARK FOTHERGILL & CO., 204A, Upper Thames Street, London.

THE MANCHESTER SEWAGE GUANO COMPANY respectfully inform Agriculturists that they have made arrangements which will enable them to meet the increasing demand for their Manures. The MANCHESTER SEWAGE GUANO is a compost of Blood, Bones, Urine, Nightsoil, and other Animal Matters, and highly fertilising Chemical Ingredients, which are in a concentrated state incorporated with Animal and Vegetable Charcoal, ground to a fine powder, *the whole forming a dry portable Manure.* It is free from all kinds of Seeds, Weeds, &c., and enriches the land to a considerable degree for several years after it is used. Price 5*l.* 5*s.* per ton. Net cash on delivery. Testimonials forwarded on application. Carriage free to any Railway or Canal Wharf in Manchester.—JOHN THOMPSON, Secretary, 3, Watling Street, Shudehill, Manchester.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch.

Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

RENDLE'S AGRICULTURAL PRICE CURRENT AND FARM DIRECTORY FOR 1855, *with Newspaper Stamp to go free by post, is now published, and can be had in exchange for six penny stamps.*

The proprietors of this well-known and widely circulated publication have much pleasure in announcing another edition for the present year. They have spared no expense nor trouble in making it a most useful and serviceable guide to all who take an interest in the cultivation of the soil. It contains a valuable Descriptive List of all the best AGRICULTURAL SEEDS, with prices affixed to every article, with cultural remarks and general information as to the best varieties for various crops.

The List of TURNIP SEEDS is very comprehensive, and is embellished with an ENGRAVING of RENDLE'S IMPROVED SWEDE TURNIP—a variety in great favour in the West of England.

The descriptive Lists and Tables of the best selected GRASSES are very complete, and will be found eminently useful to all who intend laying down land for Permanent Pasture, Ornamental Parks, Pleasure Grounds, &c.

There is a very useful ALMANACK, which has been compiled with much care.

In the MANURE DEPARTMENT there is a general Price Current of all the leading Manures, including Peruvian Guano, Lawes' Patent Superphosphate, Nitrate of Soda, &c.

The ORIGIN AND HISTORY OF PERUVIAN GUANO will be found amongst its contents, as well as some excellent advice for detecting the spurious from the genuine article. The proprietors have been favoured with some good sound advice to Farmers on this point by J. C. NESBIT, Esq., the celebrated Agricultural Chemist. They have also reprinted PROFESSOR WAY'S LECTURE on the same subject, from the *Gardeners' Chronicle*, read to the Members of the Royal Agricultural Society.

Descriptive articles relating to Lawes' Patent Superphosphate, Nitrate of Soda, the new Mexican Guano, and other manures will also be found very useful and interesting.

The "SUPERPHOSPHATE CONTROVERSY" in the Plymouth Papers is also given at length. The whole of the letters are reprinted from the *Plymouth Herald.* In this Controversy the "*Gypsum mixers*" are fully exposed by Mr. J. PRIDEAUX, the eminent Agricultural Chemist.

A valuable Paper has also been written expressly for this Edition by Mr. R. ERRINGTON on the "*Cultivation of the Potato,*" as well as an article on "*Liquid Manure*" by the same gentleman.

The Proprietors have also much pleasure in stating that they have been favoured with two Original Articles, by J. B. LAWES, Esq., Rothamsted, the celebrated Agricultural Chemist, on "*The Artificial Manures most suitable for the Growth of Barley*" and "*The Cultivation of one Grain Crop after another on heavy land.*"

There will be a good Engraving of the CEDRUS DEODARA, one of the hardiest and best varieties of Cedars ever introduced, and prices of various Forest Trees, Shrubs, and Fruit Trees.

Engravings and descriptions of a great many Agricultural Implements are also added in the present Edition, and amongst them will be found M'CORMICK'S AMERICAN REAPER, GARDNER'S TURNIP CUTTER, SAMUELSON'S REGISTERED LAWN MOWER, PATENT LIQUID MANURE DISTRIBUTOR, WARNER'S GARDEN ENGINES, PUMPS, SYRINGES, &c.; FOWLER AND FRY'S CHAFF CUTTING MACHINE AND ONE ROW TURNIP DRILL, ANTHONY'S PATENT AMERICAN CHURN, AND PARKES' STEEL DIGGING FORKS.

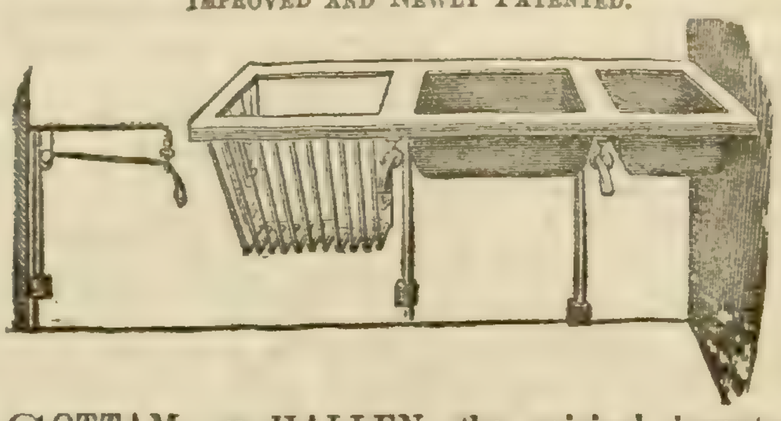
Descriptions are also given of the New CHINESE POTATO (Dioscorea Batatas) and the FLUKE KIDNEY POTATO, a sort highly recommended in the Midland Counties.

At the request of several correspondents the Publishers have printed the present Edition the size of the "Gardeners' Chronicle," so that those who wish it can bind it with the present volume of that valuable Paper. It contains 28 *folio pages, "Chronicle" size.*

Copies can be procured, price 6*d.* each, or free to purchasers of seeds; and can be obtained through the medium of any bookseller in the United Kingdom, from the

LONDON PUBLISHING OFFICE, 294, STRAND;
Or from the Proprietors, WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

MANGER, RACK, & WATER-TROUGH AS ONE FIXTURE.
IMPROVED AND NEWLY PATENTED.



COTTAM AND HALLEN, the original inventors, obtained the Great Exhibition Prize Medal for this arrangement, to which all the latest improvements are adapted, secured by Patent, including a method entirely new of attaching the halter-weight and rein from the back of the manger to the under front of the plate, allowing the horse greater freedom, and being noiseless in operation, add much to its comfort whilst feeding and convenience when at rest, as likewise, from their position, avoiding the liability of the most restive horse getting cast. No well-managed stable should be without these fittings.

COTTAM'S ENAMELLED MANGERS are constructed in the best possible manner, both as to form and utility; are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, and Enamelled. Improved Surface Drain, with Safety Covers, Sanitary Traps, Stable Pumps, Loose Box, Fittings, Gutta Percha Preserving Saddle and Harness Brackets, and every article in Stable Furniture, in stock. An extensive assortment of Patterns for both Plain and Ornamental Castings, and every description of Wrought and Cast Iron Work for building and other purposes. Agricultural and Horticultural Implements, Iron Gates, both plain and ornamental, Hurdles, Strain Fencing, &c.

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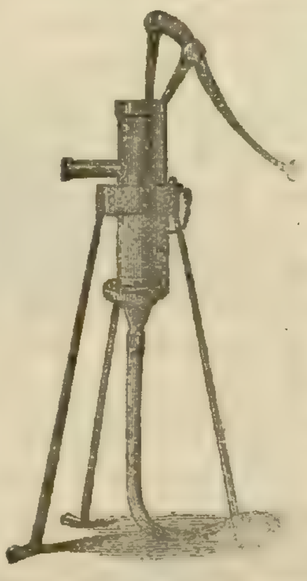
WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

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PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ „	long 3 „ 3 „		1	15	0
3 „	ditto 3 „ 6 „		2	12	0
3½ „	ditto 3 „ 6 „		2	18	0
4 „	ditto 3 „ 6 „		3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto	ditto ditto	2	15	0

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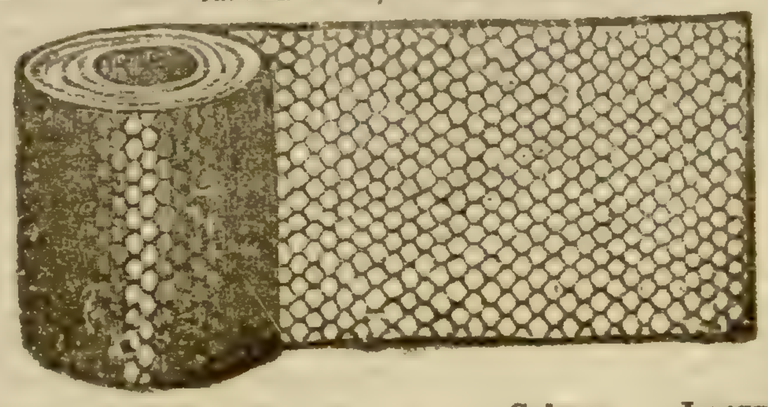
GALVANISED WIRE GAME NETTING.—7*d.* PER YARD, 2 FEET WIDE.



		Galvanised.	Japanned iron.
2-inch mesh,	light, 24 inches wide ...	7*d.* per yd.	5*d.* per yd.
2-inch „	strong „ ...	9 „	6½ „
2-inch „	extra strong „ ...	12 „	9 „
1⅝-inch „	light „ ...	8 „	6 „
1⅝-inch „	strong „ ...	10 „	8 „
1⅝-inch „	extra strong „ ...	14 „	11 „

All the above can be made any width at proportionate prices. If the upper half is a coarse mesh, it will reduce the prices one-fourth. Galvanised Sparrow-proof Netting for Pheasantries, 3*d.* per square foot. Patterns forwarded post free.

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CLAYTON, SHUTTLEWORTH, AND CO.'S PRIZE PORTABLE STEAM ENGINES, AND COMBINED THRESHING, STRAW SHAKING, RIDDLING AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as threshed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.

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The Agricultural Gazette.

SATURDAY, MARCH 3, 1855.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

MONDAY,	March 5	—Central Farmers' Club.
TUESDAY,	— 6	—Agricultural Imp. Soc. of Ireland.
WEDNESDAY,	— 7	—Agricultural Society of England.
WEDNESDAY,	— 14	—Agricultural Society of England.

IN reference to the article on TURNIP-GRATING in another column, we may just mention that we saw at Mr. TELFER'S, last week, a Turnip-grater which made a very near approach to pulp—a thing we had never seen before. Any previous so-called Turnip-grater has turned out the Turnip merely in thinner, narrower slices than is done by the common Banbury machine. And this is done by the acting cylinder

presenting to the direction in which it revolves a number of raised edges over holes, which the ribbon-like pieces, cut or grated off the root by these edges, pass through. Mr. TELFER's grater is a solid cylinder of wood covered with sheet iron, which has been pierced all over from the inside outwards, with a solid pyramidal-pointed punch. At each of these points the sheet is torn open, presenting three torn teeth, and over the whole surface so punctured these teeth point promiscuously in every direction. The cylinder revolves several hundred times in a minute, and 18 cwt. of roots are torn down by it in the hour. This grated Mangold is not allowed to ferment as in the plan described in another column: 3 cwt. of it are steamed and mingled with 25 lbs. of Bean-meal and 84 lbs. of Linseed and 70 or 80 lbs. of the Oat-husk from the Oatmeal mill—each steamed separately, and the whole then mingled together, and these quantities make one of the feeds which are given daily to 48 cattle in the byres. It is in the adaptability which they thus acquire for intimate commixture with other food that the advantage of grating or pulping roots is chiefly found.

THE present is the season during which purchases of artificial manures are generally made, whether for top-dressing the young Wheat—and its present appearance after the frost will be a temptation to the more general use of top-dressings than has hitherto prevailed—or for use as auxiliaries to the ordinary dressings of farm dung for Turnip and other green crops. Mr. PUSEY's confident recommendation of nitrate of soda will occur to many a purchaser about to enter the guano market; and salts of ammonia, whether obtained by direct distillation from coal, as in the sulphates, &c., prepared from gas water, or made in a roundabout way out of various preparations of animal offal, blood, &c., which are now coming into more general use—anything, in short, as well as nitrates and ammoniacal salts, which shall in any degree lessen the demand upon our limited supplies of guano, is of great agricultural and national value. We hope next week, or very soon, to give what information we can obtain of the London Manure Company's supplies and methods of supply—of the Nitrophosphate Manure Company's proceedings also, where blood comes into direct use—of the Cyanic Manure Company too, all of whom advertise in our columns: but before giving in this way the actual quantities and qualities of the material on which the annual fertility of the land is to depend so much, it may be well just to direct attention to the principle on which all these fertilisers act. And no way of doing this can be more appropriate than that afforded by a short review of an interesting lecture lately delivered to the members of the West Cambridgeshire Agricultural Club, "On the connection of chemistry with agriculture—its uses and abuses,*" by the Hon. and Rev. L. VERNON HARCOURT, to whom the readers of the *Agricultural Gazette* have in past years been indebted for some of the most valuable papers which have appeared in its columns.

The first few pages of this pamphlet are occupied by a parallel between the arts of agriculture and medicine—showing how, in both, chemistry has reformed practice, and how experiment, under its guidance no longer groping in the dark, is likely to improve experience. The larger and more important portion of this publication is, however, devoted to a critique upon Mr. PUSEY's late paper on "the Nitrate of Soda as a Manure," and it is to this that our remarks must at present be confined. We believe that in this matter Mr. HARCOURT is right and Mr. PUSEY is wrong; and as the subject on which they differ is of real and, at the present time, of seasonable importance, we shall reproduce the statement of the former, avoiding however the character which he has unnecessarily given to it of a personal attack upon the then President of the Royal Agricultural Society of England.

Mr. PUSEY, it will be remembered, attributed the whole effect of the nitrate of soda to the nitrogen which it contains.

Mr. HARCOURT shows that the experiments on which he depends for this conclusion do not necessarily lead to it. He also says that the idea of the nitrates being the only fertilisers is opposed to the experience of every other observer. For himself he says:—"For eight years together I tried nitrate of potash on Wheat against sulphate of soda, and invariably found the latter yield a better crop than the nitrate, though during all that time not a particle of nitrogen was added artificially to the soil." And Professor JOHNSTON says in his "Experimental Agriculture" that though the nitrates "usually, but not invariably, increase the quantity of corn crops, yet they impair the quality of the grain, or market value per bushel: this is said to be especially the case in regard to Wheat; and Mr. HOPE found 90 lbs. of nitrate with 180 of guano give a heavier crop of Clover and Grass at less expense than 180 of nitrate alone."

Now Mr. HARCOURT says truly that nobody will contest any moderate praise of nitrogen in its forms of the various nitrates and of the several ammoniacal salts. "Its value is well known, especially since the publication of Mr. LAWES's experiments. It is a constant subject of advice to farmers to prevent the escape of ammonia from their dunghills; and nitrate of soda and sulphate of ammonia have long been used as valuable manures." But to speak of nitrogen as "the main strength of vegetation by a law of nature" is not only mistaken in itself—it is calculated to mislead with regard to the whole scope and philosophy of manuring.

We prefer guano to nitrate of soda as a manure, because the former supplies nearly all the building material needed by the plant; while the latter at most supplies but three, and in effect but two, of these essential substances. Doubtless the most economical manuring is that which supplements deficiencies in the natural supplies of food for plants; but seeing that generally we do not know wherein a soil may be deficient, it is well to employ manures which are more compound in their nature than a single mineral salt can be. Hence it is that farm-yard manure is the best of all as to its character, though no doubt there are many forms of fertiliser more intense and energetic in their action.

If a soil does contain abundant store of mineral and other food, then some nitrogenous manure, such as nitrate of soda, will no doubt excite most vigorous growth and produce, and experiments with nitrate of soda performed under such circumstances will corroborate all that Mr. PUSEY has said in its favour. But such soils are the exception, and we believe that top-dressings of the young Wheat plant will be safer and more profitable if they are more mixed and compound in their character. We recommend, therefore, in preference to 1½ cwt. of nitrate of soda per acre for the Wheat plant an equal value of genuine Peruvian guano.

* Published by JOHN WARREN, Royston.

LAND IMPROVEMENT COMPANIES.

I have to beg you will favour me with space for a few words of explanation on the points referred to by Mr. Napier in last week's *Agricultural Gazette*.

Mr. Napier alleges that there are two inaccuracies in the passages you did me the honour to quote from my recently published paper on "Land Drainage and Drainage Systems," which might injuriously affect the Lands' Improvement Company; and to a certain extent the allegation is true, but not wholly so. I admit the error respecting the clearing of lands—it was unintentional, and shall be rectified in the second edition of my pamphlet, which is now preparing. But with respect to the maximum amount of annual instalment chargeable by that company, the question of what rate of interest shall represent the future value of money is so entirely problematical that the Lands' Improvement Company are in fact rather benefited than injured by widening the latitude of possibilities. I am informed by persons conversant with money matters that, if the present war continues, there is great probability that the rate of instalment of 7*l.* 11*s.*, which is the rate complained of, will not only be reached but will be exceeded; and as some proof of this the Lands' Improvement Company have, I believe, already increased their annual rate of instalment to 6*l.* 17*s.* 6*d.*, which is within 3*s.* 6*d.* of Mr. Napier's maximum. I tender this explanation merely to justify your observation that the account I gave in my paper of the different companies was "historical," and not ex-parte.

But the concluding observations by which Mr. Napier supports the practice of the Lands' Improvement Company of advancing money to landowners who have executed works of improvement by "their own agents," require a few remarks to show in what way the General Land Drainage Company does the same thing. The fact is this: the General Land Drainage Company has two branches of business, the execution of works (which the Lands' Improvement Company does not undertake) and the advance of money on works approved and executed, which is simply and singly what the Lands' Improvement Company does undertake. That the two branches of business do not militate against each other is proved by the fact that the General Land Drainage Company has been selected by many leading landowners, to execute works of improvement on commission, while their system of advancing money on approved works has been gradually gaining a position to which it would appear there will be no limit when it is properly understood and appreciated. If we compare the mode of working this money advancing system adopted by the two companies, we shall find a somewhat different but equally simple means of effecting the object. The Lands' Improvement Company requires simply that the "Assistant Inclosure Commissioners" or inspectors shall be satisfied, whereas the Directors of the General Land Drainage Company having greater powers to protect as well as a practical character to maintain, require to be *self* assured that the powers entrusted to them are not abused, nor the character of their company prejudiced by bad work.

I observe the compliments bestowed by Mr. Napier on the Government Inspectors, and I do not desire to lessen the influence of his good opinion, but I venture, nevertheless, to assert that there is not one of those officers who has not seen reason to regret the very imperfect manner in which much of the drainage has been done under the Public Drainage and Private Money Drainage Acts.

No one has ever thought of holding the Inspectors responsible for details committed to the superintendence of ignorant and unpractised men, and as long as ignorant and unpractised men are intrusted (as they continue to be) with such important works as drainage so long will the mode of carrying out the several Drainage Acts be liable to abuse. Now, it is just this abuse of the powers delegated to them that it becomes the duty of all companies to use their utmost vigilance to prevent. It is not assumed that everything a draining company may undertake must itself be perfect; all that is insisted upon is—that knowing the liability to defects which all works of drainage are subject to, the directors acting as trustees for capitalists, and as sureties for the "advance of agriculture" are bound to use every precaution against abuse. The amount of vigilance to effect this security practised by the Directors of the General Land Drainage Company in cases where the works are performed by the landowner's own agents, is simply, in the first instance, to satisfy themselves that the proposed works are creditably designed, and, in the next, that they will be fully carried out by competent hands. And when landowners become cognisant of the fact that whereas the Lands' Improvement Company have the power to charge estate for a term of 25 years only, the General Land Drainage Company can charge for 50 years, the necessity for vigilance will not fail to be manifest to them, particularly when the explanation is accompanied by a tangible proof of the advantages attending the extended term, in the truth that it takes 6*l.* 17*s.* 6*d.* to repay 100*l.* to the Lands' Improvement Company, while it only requires 5*l.* 2*s.* 10*d.* to satisfy the General Land Drainage Company—a very sensible difference when landowners are arranging with their tenants for the payment of interest.

And what is the cost to landowners of this vigilance on the part of the General Land Drainage Company? It will be found to depend entirely upon the capability of the "landowner's own agent" to design and carry out the improvements. I need not say there are many agents quite as competent for the work as any officer connected with the Government or with the companies. In instances where the landowner is represented by such agents, the cost of the company's vigilance will be minimum, but cases may happen in which the qualifications of the agents may be so small as to raise it to a maximum. Now the maximum cost cannot exceed two per cent. on the outlay in drainage, road making, and the erection of farm buildings. And what does this practically amount to? One penny farthing per acre per annum on drainage works charged for the term of 50 years!

However gratifying or politic it may be to compliment the Drainage Inspectors and to treat with the agents of landowners without distinction of character, I fearlessly submit that such a mode of proceeding does nothing to prevent the abuses of the present system, nor to advance the character of agricultural improvements.

It would be easy to prove that in every instance where a land agent has presented a creditable work of improvement, the General Land Drainage Company have not only given him every facility of carrying it out without any objectionable interference of its own officers, but the advantages on the score of cost which they have offered will bear a favourable comparison with any other method of effecting the only legitimate object in view—effective work at the least cost.

In estimating the actual cost and charges to the landowner when treating with the Lands Improvement Company, it must be borne in mind that with an increase of responsibility the Government Inspectors must, in justice to themselves, increase their inspections. They will have, in fact, to satisfy the three parties—the landowner, the company, and the Inclosure Commissioners. *J. Bailey Denton, 52, Parliament Street, London, Feb.* 28.

AGRICULTURAL STATISTICS.

THE total Wheat crop in Scotland last year is estimated to have yielded 606,000 quarters, or about 1-30th only of the annual consumption of Great Britain. So very small is the proportion in which Scotland contributes to the staple food of her southern neighbours that, in so far as the supply of Wheat is concerned, we should miss her less than if the ports of Denmark and the Hanse towns were closed against us. Prussia alone sent us last year twice as much Wheat as all Scotland produced; and the shutting of the Russian ports is attended with much the same effect on the bread consumers of England as if the northern half of this kingdom had for two years yielded no Wheat harvest. Such facts are, doubtless, painful at the present moment, for they press upon us the extent to which this country of manufacturing industry is dependent for its food on foreign supply; but it would be as senseless to try to ignore that as to attribute its existence to free trade. The breadth of Wheat sown in this country was probably never greater than last year, under the stimulus of high prices and the prospects of war, and yet, with

all the farmer's exertions, aided by a propitious season, Scotland has yielded us only 12 days' consumption of Wheat!

The returns of land under crop in Ireland show the increase of Wheat last year, as compared with 1853, to have been very considerable; and, if the yield has been in the same proportion, Ireland will this year give us about 1,400,000 quarters of Wheat, or nearly one month's consumption. Scotland and Ireland together thus furnish us with about six weeks' consumption of the United Kingdom. So far we have something like trustworthy data on which to rest an estimate of the last crop; and, when the returns from those English counties where the experiment has been tried come in, we shall have the means of still further verifying current estimates. England is the great Wheat-growing quarter of Great Britain, and, with the favourable weather of last year, and the increased breadth sown, will probably yield not less than 14,000,000 quarters of Wheat.

Of Barley, Scotland gives about one-seventh part of the annual consumption, and of Oats nearly one-fourth. Compared with Ireland the two countries are nearly equal in Barley, while Ireland grows more than double the quantity of Oats which are produced in Scotland. The total corn produce of Ireland in 1853 was 13,500,000 quarters, and that of Scotland in 1854 about 6,000,000 quarters, Ireland thus yielding considerably more than twice as much corn as Scotland, which may be a useful hint to the Chancellor of the Exchequer, if any future claim for exemption from taxation should be made from Ireland. The crop of Potatoes in Ireland in 1853 was upwards of 5,500,000 tons; that of Scotland in 1854 about 500,000 tons, or not quite one-tenth of that of Ireland. The total money value of the corn and Potato crop of Ireland for 1853, at average prices (50*s.* for Wheat, and corresponding rates for other produce, and 30*s.* per ton for Potatoes), was upwards of 24,000,000*l.* sterling, while that of Scotland for 1854, at the same rates, is little more than 8,000,000*l.* sterling. We know not whether the revenue raised in each country bears the same proportion to the produce of their soil, but the facts stated above form a sound basis for the consideration of questions of revenue hereafter.

We have not space, amid the more stirring matters that absorb public attention, to enter in detail into these returns; but we have been struck with the comparative produce shown by them when placed beside those of Ireland for 1853. For instance, the following figures show the average produce per acre in bushels of corn and tons of Turnips and Potatoes:—

	Wheat.	Barley.	Oats.	Turnips.	Potatoes.
Ireland.....	27	40	38	16	6¼
Scotland	28	36	36	14¾	3½

Now, this indicates an inferior style of agriculture in Scotland when contrasted with Ireland, as in every kind of produce but one the latter appears to excel. But every one who has travelled in both countries must feel that this is not the fact, but that very much the contrary is the fact. If the Scotch returns, therefore, are in any degree accurate, the Irish ones must be most erroneous, and in extending this inquiry to England we should do well to follow the Scotch mode rather than that of Ireland. It is worthy of note that the two most northerly counties of Scotland, Caithness and Sutherland, show the highest average produce of Wheat and Turnips per acre, a fact which we cannot help attributing in a great degree to the spirit of agricultural improvement early introduced into that remote district by the late Sir John Sinclair, formerly President of the Board of Agriculture.—*Times.*

[The average produce of Wheat in the northern counties being so large is owing to the very small extents to which those returns refer—extents confined exclusively to the best soils in the several counties. And as to the comparison between Irish and Scottish agriculture here instituted, we have no doubt that the explanation suggested is the true one. The Scottish estimate is, no doubt, near the truth—and the Irish *is* "most erroneous."]

DUCHESS 67 AND HER CALF.

In your interesting article on short-horns of the 10th Feb. you allude to the calf of Duchess the 67th as "one of the most vigorous young quadrupeds that ever puzzled those who condemn in-and-in breeding." If, however, you examine her pedigree, you will find that although it contains a good deal of close breeding, it can scarcely be cited as an instance of strict in-and-in breeding. In the first place, the sire of Duchess 67 was Usurer, whose blood is totally different from that of Mr. Bates' herd. It certainly was a bold innovation to introduce this strain into the Duchess family; whether it was a judicious move or not, time alone can show. At any rate, there is no affinity between the sire of the calf and the sire of its dam. The dam of Duchess 67 was by second Duke of Oxford, grandam by second Duke of Northumberland.

Fourth Duke of Oxford, the calf's sire, is by Grand Duke, his dam by second Duke of Northumberland, granddam by Short Tail. Every one who is conversant with the pedigrees of these celebrated animals will perceive a considerable closeness of affinity so far. On the other hand there is also considerable diversity of individuals, no actual identity occurring until we arrive at the gr. gr. g. sire of the calf in the female line, and her gr. g. sire in the male line, both being the second Duke of Northumberland. We find then in the maternal line Cleveland Lad as the sire of Duchess 51, and he was own brother to the sire of Grand Duke. After this the maternal line continues steadily among the members of the Duchess family, while the remainder of the ancestors in the male line belong to the Oxford family.

On the abstract question of breeding in-and-in I shall say nothing, as I believe no one defends it for its own sake. The difficulty is for those who have animals of superlative merit to continue their herd without either risking the loss of some of their most valuable qualities, or resorting to near degrees of affinity. My belief is, that no man of our day has possessed such a herd as the late Mr. Bates. That he scrupled not to combine very near relations is undoubted; but it must be remembered in the first place, that the animals he began with were of most excellent quality, and in the next, that his tribes were so numerous that he was able to produce much variety, even while apparently urging the changes within a limited circle. You have yourself pointed out on the other hand, that when he saw occasion, he would freely resort to new blood. He has been condemned for both courses; but his success, now tested by time, is the best answer to his censors. The fact is, that he possessed that intuitive genius, without which no man can hope to rise above a bungler in the difficult art of breeding. With this he united long experience, and a degree of enthusiasm which no difficulties could repress, no failures could daunt. He loved his cattle for their own sake, not for the money he might happen to make by them: above all, he never forgot the character of the animal he was dealing with. He insisted on a cow being a cow, and not a mere oblong box of fat. Hence the charm of his herd, of which every individual has a character which when once studied will never be forgotten. Hence he did not, as some breeders do, neglect the milking qualities of his favourites, for he well knew that a first-rate animal may both milk and feed.

From my own experience I find the cows of Mr. Bates' blood the best thrivers on hard keep and in an exposed situation I ever possessed. The popular notion that high-bred animals are tenderer than mongrels is a mistake, arising in great measure from the injudicious nursing they too frequently receive. I never pamper my short-horns, and, therefore, when removed from my farm it would be difficult to find a situation on which they would not thrive, or food on which they would not keep their condition. *Willoughby Wood, Holly Bank, Burton-on-Trent.*

TURNIP GRATING.

[The following is the abridgment of a letter to the *Dublin Farmers' Gazette*, giving the results of experiments on grated food; the report alluded to seems to have been an opinion adverse to the practice, by Dr. Hodges of Belfast. Our opinion is, that the real use of grating is to enable the thorough mixture of different sorts of food, and not to enable or facilitate fermentation.]

The trial which Dr. Hodges reports upon took place under his auspices near Belfast, with animals the property of members of the society, who kindly offered any selection, amongst 140 tied up, and also with pigs.

At the request of some of the members of the society to my brother (the inventor of the system, and upon his request to me), I sent my steward to Belfast for one week, to show them how to go to work, and to superintend the proceedings for that time; at the termination of the week I went myself out of curiosity, and found it, not only all, but quite beyond my expectations. Also, the professor expressed himself to me—"That it was the greatest discovery of the age." The results at the end of the first week were as follows:—

	Increase—qrs.	lbs.
2 heifers on their feeding	2	0
2 " on fermented food	3	14
3 pigs on steamed food	1	7
3 " on fermented food	2	4

In the pamphlet is brought forward a trial made by another steward of mine, and carried out with the greatest precision for 30 days, and which is borne out by subsequent experiments, and which, at a low calculation, makes about 4d. per diem, saved on each pig fed on Turnips and Barley-meal, and still returning a larger and harder quantity of meat by fermenting instead of cooking.

At the termination of the first week, and after the weighing, I ordered my steward to return home, as agreed upon; but there was so great a desire amongst the members that he should be present at the second weighing that, with extreme reluctance, I so far yielded the point as that he should return for it. As he was, therefore, at the second weighing, he must stand godfather to the results, although he did not superintend the proceedings.

A chemical friend of mine stated, that the professor over fermented, and that, according to his calculation, his pigs had swallowed several gallons of brandy. The fact is, the food at first is apt to scour the animals and when this happened I suppose the professor's staff went on with the regular dose, instead of correcting it by increasing the quantity of dry food, and diminishing the other.

English hay is notoriously superior to Irish, merely because there great care is taken that it goes through but the one fermentation, and this sweet hay is again the reason why Englishmen say that Irish horses show such wonderful improvement, when they have been one year in their country. The Frenchman says, his sheep prefer the refuse of Beetroot to young Grass—as the object of their manufacture is sugar, their Beetroot must have arrived only at the first fermentation.

Why should not the pigs have sugar in their grub, when giving them a dinner to their taste—saves half our Turnips and all our fuel. *Jervase Bushe, Glencairn Abbey, Lismore.*

Home Correspondence.

Manures. With the rotation or routine of crops is connected the judicious application of manure, of which I now venture to offer the following suggestions. Many years have not elapsed since it was received as an established fact, worthy of all acceptation, that farm or fold-yard dung formed the basis of manure; but that before it could act as a fertiliser, it must be dissolved in the soil, converted into a liquid, to be then absorbed by the sponge-like processes of the rootlets, and thence carried up, as raw sap, through the ascending vessels and cells of the growing plant. About the commencement of the present century the discovery of a new substance was announced. This was analysed by Fourcroy, Davy, and other eminent chemists of the day; it was then termed vegetable mould; but subsequently, on the authority of Thaer, it received the name of humus. By some persons, zealous supporters of the humic theory, it was fancifully denominated "the cooked food of plants." Humus was described as "a dark, unctuous, friable substance, a compound of oxygen, hydrogen, carbon, and nitrogen; the result of the slow decomposition of organic matters in the earth, and found in greatest abundance in rich garden mould, or in old neglected dunghills." Thus viewed, its components constitute the elements of all animal and vegetable substances. To the theory of humus succeeded that of humine and humic acid; and here I might refer to the fourth edition of Liebig's "Agricultural Chemistry," chapters i., ii., and iii.: but considering the principles therein advocated as purely hypothetical, I prefer to return now to the agency of farm-yard manure. It is curious to observe the different opinions that have been entertained concerning the action of this manure within the soil, although not one particle of it can be taken up by the roots of plants. Some persons contend that the dung must be dissolved, and thus presented in the form of a watery solution. Liebig believed that the humus or vegetable mould (and by parity of reason the dung when reduced to carbonaceous matter within the soil,) becomes carbonic acid by absorption of oxygen, and thus yields an atmosphere of carbonic acid gas, which being taken up by the green parts of a plant nourish the organism, and thus furnish its entire system of woody matter. The specific action of manure of any kind, organic or mineral, depends mainly upon the constitution of the land. If the staple be clayey, it must be thoroughly broken up and drained to the depth of 3 or 4 feet, by tiles or pipes laid with all the accuracy that a spirit level can effect, so as to provide a gradual fall from end to end, without one single depression. Drains so made, as "Talpa" has practically shown, constitute underground furrows, which effectually carry off every drop of superfluous rain-water, be the amount of the fall what it may. I do not attempt to inquire into the varieties of soils; it must suffice to urge the absolute necessity of deep intermixture and comminution, being convinced that if adequate labour is actually bestowed upon those fundamental operations, the required manure will be placed in a position wherein it cannot fail to produce its greatest effects. We will select farm-yard manure, by way of example, as containing every fertilising element, provided the dunghills have been formed upon the principles of the one termed "Norfolk-pie." This consists of a vast heap compressed to the utmost by carting over it, and then covering it with a thick stratum of earth, by which the ammonia developed is absorbed and permanently fixed. When a manure so prepared is duly blended with deeply pulverised land decomposition of its organic elements commences, and electricity, or electro-magnetic action is set up, particularly when the ground is under crop and roots advance in growth; thus by the play of affinities sap is prepared, and propelled into the spongelets of the roots; it then ascends through the cellular system, is laborated by the leaves, and finally certain portions of it are returned to the soil through the channels of the reducent vessels. Such is the general routine of vegetable growth, the whole being effected by a reciprocating agency between terrestrial and atmospheric electricity. *J. T., Croydon.*

Horse Food.—They have Clover and a pint of corn in the morning before they go to work; they leave the stable at 6 o'clock and return to it by 11, being five hours out of the stable at their work; when they come in they have Clover as much as they can eat, and after 12 they have their feed of corn, and leave the stable at 1 o'clock for their work, and return to it from their work at 6, being five hours from their stable. They then have as much Clover as they can eat; at 8 o'clock they have their supper, which is a mash of cut straw, Linseed, bran, or Beans mixed up in this way—2 lbs. of Linseed meal is boiled in 8 gallons of water for about 15 minutes, and 6 lbs. of straw chaff is spread on the barn floor, the liquid is spread over it and well mixed, and the chaff imbibes all the liquid; it is again spread out, and then 5 lbs. of Bean-meal and bran are sifted through a sieve on the chaff, and the whole being well mixed together is given to each horse for his supper. During the winter the horse is fed in the morning—he gets first his feed of corn, and when this is done some Carrots are put before him to eat till he leaves the stable for his work; when he comes in at 12 o'clock he then gets his feed of corn and Carrots till he is taken out to his work, and when he comes in at night he gets some more Carrots, and has the same as above for his supper. We do not make any hay, and the horse has no dry fodder but straw, which he has in his mash, as we think Carrots are not only superior to hay but much cheaper.

We can easily raise 20 tons of Carrots per acre on the land which never, before it was broken up, produced 1 ton of hay. Now if one horse daily consume 56 lbs. of Carrots instead of 26 lbs. of hay—which they did consume the first winter, as we had not any roots to give them then—an acre of Carrots will last a horse 800 days, while an acre of hay at 28 lbs. per horse per day will only last him 80 days, but the cost attending the acre of Carrots may be double of that attending the crop of hay. *M.*

Administration of a Charity.—Below are the statistics of a Rice fund which I originated last year in an agricultural parish in Herts, with a population of about 700, consisting chiefly of labourers. The same plan has been adopted this year with success, though the Rice sold weekly has not amounted quite to the same quantity as last year, which is to be accounted for from the fact that bread has not ranged quite so high this year as last, and also that there has been more employment for labour. The conditions on which the Rice is sold, which is done by the wife of one of our farmers, are these:—1, No person in the receipt of parish relief to buy any; 2, No married couple, with either one or two children, to buy any; 3, Man and wife with three children under 16 years, to buy 7 lbs. a week; 4, Man and wife with four children under 16 years, to buy 9 lbs. a week; 5, Man and wife with five children under 16 years, to buy 11 lbs. a week; 6, Man and wife with six children under 16 years, to buy 13 lbs., and so on, increasing 2 lbs. a week for every child over 6 and under 16 years of age. The reason for prohibiting a person in receipt of parish relief from purchasing any Rice is, that as in this union the relief is given partly in kind, bread and flour, the price of these articles to the recipient is a matter of indifference, as whether the bread is 6*d.* or 10*d.* a loaf he has his bread. The reason for the second rule is obvious, that with only two children, and the present rate of wages, the aid of charity is not so much needed. If these statistics in your estimation are like to be of use, you will perhaps give them publicity. One advantage I think in this way of administering relief is, that the Rice being sold and not given away, the feeling of self-dependence is not materially weakened in the poor man; and another advantage is that children, who are the great sufferers in these dear times, need not, and do not, go without a daily supply of food well suited to them.

Farmer Pelham's Rice Fund Account, 1853-4.

Dr.				£	s.	d.
7 cwt. of Rice bought at 17*s.* 3*d.* per cwt.			... ...	6	0	9
10½ " "	17*s.*	"	... ...	8	18	6
21 " "	18*s.*	"	... ...	18	18	0
Carriage of the above	...	...	... ...	0	14	7½
				£34	11	10½

Cr.				£	s.	d.
Rice sold to the Poor at 1¼*d.* per lb.						
November 26	...	181 lbs.	... ...	0	18	10¼
December 3	...	319 "	... ...	1	13	2¼
" 10	...	281 "	... ...	1	9	3¼
" 17	...	257 "	... ...	1	6	9¼
" 24	...	224 "	... ...	1	3	4
" 31	...	238 "	... ...	1	4	9½
January 7	...	252 "	... ...	1	6	3
" 14	...	136 "	... ...	0	14	2
" 21	...	232 " at 1*d.* per lb.		0	19	4
" 28	...	234 "	" ...	0	19	6
February 4	...	230 "	" ...	0	19	2
" 11	...	220 "	" ...	0	18	4
" 18	...	246 "	" ...	1	0	6
" 25	...	251 "	" ...	1	0	11
March 4	...	241 "	" ...	1	0	1
" 11	...	249 "	" ...	1	0	9
" 18	...	255 "	" ...	1	1	3
" 26	...	175 "	" ...	0	14	7
				19	11	1
Deficiency made up by Subscriptions in the Parish ...				15	0	9½
				£34	11	10½

—*A Country Curate.*

Backward Agriculture.—Excuse me taking the liberty to ask you through the medium of your widely-circulated paper, how it is that we see in travelling through almost every county in England so much land wretchedly cultivated in the middle of the 19th century, and in this boasted age of agricultural improvements. I will thank you to tell me who are to blame, whether the landlords or the tenants, and what remedy you would propose for that great national evil. *A Correspondent.* [You must study Mr. Mechi's writings on the subject!]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Weekly Council, *Feb.* 28.—Mr. Miles, M.P., President, in the chair.

Shedding.—Mr. Jonathan Gray's model of an economical mode of constructing shedding for agricultural and other purposes was submitted to the Council; and, in the absence of the inventor (through illness) explained to the members by the President. The framework consisted of rows of upright posts, consisting of barked larch poles, let into holes in the ground made by an auger, and held securely in their upright position by longitudinal and transverse metallic wires, ropes, or rods passing over their tops, and carried, like the chains of a suspension-bridge, on each side into the ground, where they were firmly moored and kept at their full stretch. The canvas awnings, by which the frame-work was covered, were secured in their position on each side of the shedding by elastic holders, which accommodated themselves to the varying strain and dimensions of the canvas, keeping it constantly at even tension. Though intended in the first instance only for agricultural purposes, especially as a convenient awning for the exhibition of live-stock and implements at agricultural societies, the principle of arrangement proposed by Mr. Gray would be equally applicable to the construction of tents, field hospitals, or other portable and temporary coverings for out-door purposes.—The President also explained to the members the ingenious minor contrivances adopted by the inventor in the details of his plan for rendering his arrangements complete.—The thanks of the Council were ordered to Mr. Gray, for the trouble he had himself taken in submitting his invention to the notice of the Council.

Australian Wheat.—The South Australian Local Committee for the Great Exhibition of 1851 transmitted to the Council a portion of their sample bottles of Adelaide grain received back from the Royal Commissioners at the close of the Exhibition. Sir Matthew White Ridley, Bart., informed the Council (in a letter addressed to them in August last), that although the Australian seed-Wheat had not succeeded well with some of the members who had tried it, he was himself partial to it as a Wheat after Turnips in his district in Northumberland. He had previously had good crops of it and a good sample; and had that year (1854) again a superb crop of it, from the produce of the small quantity he had received at a Council meeting six or seven years ago. He had of course changed the land on which he had grown this particular Wheat.

Stoppage of Drains.—Mr. Frere, of Roydon Hall, Diss, Norfolk, having frequently had his improvements checked by the stoppage of drains on his property, occasioned by fibres from the roots of trees, had recently met with a plan which appeared to him as likely to prove a radical cure of the evil in question. It was contained in Mr. Brown's second edition of his work entitled "The Forester," in pages 132—4. Mr. Frere had adopted the plan proposed, to a small extent, as an experiment, the result of which he would in due course report to the Council. In the meantime, he thought that some other members of the Society might possibly be induced to join him in the trial during the ensuing spring. He suggested that Mr. Brown would, perhaps, on application to him, kindly supply the result of his own experience of the plan he had proposed, during the four years that had elapsed since the second edition of his work had appeared. Mr. Brown's shut drain among trees is 48 inches deep, 12 wide at the top and 9 at the bottom. In filling the drain, he recommends rough gravel to be put in for the first 8 inches from the bottom, on which a sole of slates is to be laid for the drain tiles to rest upon, leaving between each sole a vacancy, or chamber, of 1 inch deep. The tiles being laid, are to be surrounded with a puddle of good clay 3 inches thick on each side, and the same over the top of them. This covering of clay, he conceives, will prevent the fibres descending into the tiles, while the current of water filtering through the gravel will induce them to remain below them, the chamber between the soles being intended to receive any superabundant water that the bed of gravel might on any extraordinary flow be unable to contain. Mr. Brown considers that such a drain would keep good for 50 years.—Sir John Johnstone feared that such drains would be double the expense of those constructed in the ordinary way.—Mr. Paine had been in the habit of using double tiles for the purpose proposed, and these were found fully to answer the purpose.

Cock's-foot Grass.—Communications on the value of the *Dactylis glomerata* were received from Miss Banister, of Steyning, Mr. Graburn, and Mr. Scott. Miss Banister's paper referred to her own experience in the cultivation of that Grass, and to the various specimens she had forwarded from time to time to the Council; Mr. Graburn's, to his comparison of the Cock's-foot with the Italian Rye-grass, for forcing purposes, and to a regular series of experiments on the productive powers of various Grasses by means of irrigation, in which he was about to engage, and of which he would furnish to the Council the detailed result; Mr. Scott's, to information on the value of the Dactylis glomerata, given by Mr. Fulton in his prize essay in the Highland Society's Transactions for October, 1853, and to Mr. Lawson's work on Grasses.—Dr. Calvert remarked that the Cock's-foot Grass took the lead of the other Grasses after mowing until the frost set in, when it was destroyed. He preferred the Tall Fescue (Festuca elatior), which came in earlier, and continued later, being at the same time ravenously preferred to all other Grasses by the cattle and horses. He was sorry that the Fescue in question had not been one of the Grasses examined by Prof. Way in his valuable paper in the Journal. A full account of its merits would be found in Sinclair's well known work. Prof. Way's specimens had been supplied to him by Mr. Bravender, of Gloucestershire, who considered the Cock's-foot as one of those Grasses that indicated good land; and it had been found by Prof. Way's analysis to stand at the head of the list of the Grasses supposed to be nutritious chemically speaking, Professor Way not having ascertained practically how far its flesh-forming constituents were free or controlled by other circumstances in the actual feeding of animals. —Sir John Johnstone thought the Cock's-foot very good as a bite for the second year. Much of its value depended on its cultivation, the Grass being coarse under those circumstances in which its management was neglected.—Dr. Calvert has devoted a lengthened period to the selection and cultivation of the different Grasses, and he hoped in a few weeks to be able to draw up for the Society a report of his results.

Analyses of Manures.—Mr. Bethell having called the attention of the Council to the necessity of the Society's publishing a table showing the proportion of nitrogen and ammonia, and of the phosphates and alkalies in the different substances, whether natural or artificial, used as manures, the President, Professor Way, Mr. Slaney, Sir John Johnstone, Mr. Paine, the Rev. L. Vernon Harcourt, and Mr. Raymond Barker addressed the Council on the importance of the data which such a table would furnish to the farmers of the country, in their estimation of the market value of a manure, and of its adaptation to their particular soils; and the Council referred the recommendation to the Chemical Committee of the Society.—The Council having referred a paper by Mr. Templeton, on Turnip Feeding, to the Journal Committee, they adjourned to their monthly meeting on the 7th of March.

Notices of Books.

The Journal of the Royal Agricultural Society of England. Vol. XV., part 2. John Murray, Albemarle Street.

The current part of this work contains more than the usual quantity of veterinary matter. Professor Simonds' valuable lectures on the teeth of the ox, sheep, and pig as indicative of age are reprinted. This and an essay on parturient fever in ewes, by Mr. Seaman, occupy more than one third of the part. The other papers are by Mr. Read, on Oxfordshire farming; by Messrs. Hamond and Barnett, on the implement and live stock departments respectively of the Lincoln show; on Dorsetshire farming, by Mr. Ruegg; on the natural history of the Grasses, by Professor J. Buckman; on the growth of Beans and Peas, by Mr. Vallentine; on cattle feeding, by Mr. Lawrence; and on the influence of lime on soils, by Professor Way. There are two or three other shorter papers of less importance. There is thus the usual variety and fullness which past volumes have exhibited; and there is a great deal to which we shall hereafter direct the attention of our readers.

Probably the most important paper is that by Professor Way. If his further researches shall verify his speculation on the relations of lime to the ammonia-retaining and ammonia-attracting power of soils, they will have a very important influence on farm practice in this particular.

Bulky dressings of lime at lease-wide intervals will be abandoned for the more frequent smaller doses which the Professor recommends, and which are commoner in English than they are in Scottish agriculture.

Calendar of Operations.

FEBRUARY.

Border of the Fens, *Feb. 26th.*—After nearly six weeks of wintry weather, on Saturday the 24th, a welcome change took place in the advent of a gradual, and up to this evening, an uninterrupted thaw, accompanied yesterday and this morning by a moderate fall of rain; our first thoughts are naturally directed to the sheep, seeing that the ewes have a dry lair in the lambing-fold at night, and we have found it necessary to shift the lambhogs from the Turnip field (which is reduced by the effects of frost and rain to a perfect quagmire), and putting them for a day or two into a Grass field, where we shall continue to give them cut Turnips until the land is settled and again fit for their reception. Three or four lambs have already made their appearance, and in another week the shepherd will have his "hulks" full, and his hands full night and day in every variety of early life among the woolly multitude. The chief error to be avoided in this, as in other circumstances, is any tendency to officiousness, as too anxious a desire to render assistance, when not required, has frequently resulted in severe loss to the breeder; time and patience will work wonders; self-possession, care, and adroitness will generally meet those cases of exception which more frequently occur in a new or mixed flock and when in high condition, than where the ewes are natives of the farm and recruited from the owner's young stock; nor is it a light or easy matter to obtain a good flock of ewes of the right stamp, when by the misfortune of disease, accidents, or great mortality, a serious diminution of number should occur. A farmer may pick up a few at a sale, where he generally has to give a high price, or at market, where there is always a risk of getting culled or defective sheep: in short, any one having land suitable for ewes, who may have pursued the raising of sheep for some years, feels great pleasure in gradually modifying and improving his sheep by selecting the theaves that possess those qualities to which he attaches any importance, and it is a great chance if they do not become his favourites—nurtured, chosen, protected, and maintained, that he may in turn be rewarded by their length and weight of wool, early maturity, heavy carcase, and light losses, to compare with his neighbours' luck and help to pay the rent. If sheep breeding is not more practised than of yore, it is at least revived, seeing the good trade that ram-breeders have driven of late; and although it may be profitable for some artists by confinement upon boards and in dark places to make mutton rapidly, yet, to provide for these wholesale feeding gentlemen, it is quite evident that we must look to our pastures, which in pastoral tranquillity graze and will continue, let us hope, to graze the millions of ewes and lambs which are to replenish those arable and fat Turnipy districts made fertile by sheep, and by which our markets are supplied. The thaw and rain are extremely welcome to hundreds of farmers, on the somewhat singular account of a great scarcity of water; many have to fetch water four or five miles for every purpose of the house and yard. It is true that within this space there are many sources of water, but not available to the public, and therefore those who suffer from the scarcity provide themselves from the nearest river or brook, or other reservoir to which free access is attainable. We hear of a man paying 16*s.* a week to labourers for this one purpose of fetching water, besides the expenses of horses and vehicles; another tells you that, do as he will, he cannot get sufficient to keep his stock in health. When many men are unemployed in agricultural parts the farmers are charged as being to blame, whereas if inquiry was instituted it would, we think, be discovered that other callings contribute a larger portion of the people out of work, such as bricklayers, job carpenters, boatmen, and railway labourers, gardeners, porters, higglers, and excavators whether of gravel or stone; whilst work can be found to do on a farm we do not imagine any one who could pay a good labourer would select severe weather to discharge him; at the same time the high price of provisions, joined to deficient earnings, has produced all over the kingdom much privation and suffering; this reacts on trade generally, and a great stagnation is complained of in all departments of business. Would that the bitter experience of winter could make a permanent impression of the value of provident habits, but wherever great ignorance prevails, no matter how high the wages, they go all one way down the throat; but let a little light of a better system but beam upon an industrious

family, improvement, independence, and comfort go hand in hand, the cottager is then prepared to battle with ordinary reverses, and each year sees him increase in determination to be not merely a labourer but ready to avail himself of any opportunity to be an occupier and perchance an employer. Economy may be practised even in littering yards with straw, verily this is a year of consumption in the eastern counties; hay is scarce, Turnips are not plentiful, cake and corn are dear, and the straw—the very straw is disappearing with marvellous celerity; a dry lair is all that is required with as much straw for growing store stock to eat as the allowance of other food will render necessary. It certainly looks well to see horses and beasts up to their knees in a yard full of clean bright straw, but there is something extravagant in it; the only justification of such prodigality with us would be the assurance that more and better manure was made thereby; if not, there is just so much straw wasted, and some more profitable mode of employing it might be sought for. *J. W., Peterborough.*

Notices to Correspondents.

Alsike Clover: *R Robson* asks for any personal experience of Alsike Clover. It is spoken well of. Messrs. Drummond, of Stirling, tell us that 2 or 3 lbs. of it per acre are a great improvement to Italian Rye-grass. Perhaps some one will say whether it is useful as a suitable addition to mixtures for permanent Grass.

Australian Reaping Machine: *An Australian* knows of a machine in use at Adelaide for reaping Wheat, called there Ridley's machine. He wants to know where in England it can be had, with some idea of probable price. It may be as well to say that this machine, as described, not only gathers but threshes the Wheat at the same time. As the machine (propelled by six oxen), proceeds, the stalks of corn enter a large comb, when the ears only are immediately beaten off by a revolving cylinder-shaped apparatus. They then undergo a complete threshing, and the whole is thrown back into a box, which is emptied of its contents at every round made of the field. Any information relative to this subject will have our thanks. It is thought that Mr. Ridley is at present in London. If this should meet his eye, perhaps he will be good enough to communicate with us.

Ayrshire Cows: *Clericus.* We will try to obtain the name of some dealer in Ayrshire cows; but we imagine your plan must be to advertise.

Books: *Kent* says:—"Do, pray, get somebody to tell me what should be expected of a sow, I mean at what period after her pigging she may return to *wash alone*, and if at all?—the wash from a house where the inmates are six and the sow single? What amount of meal, again, the sow with a farrow, say of 10, should consume per week, till the little ones are weaned, and what should be their consumption thereafter? And pray, again, the best mode of managing the little ones, with regard to time of keeping them, and so forth, with some possible profit? You would indeed be doing us "little gentlemen" an inconceivable benefit in telling us something practically on this head. We get, in nine cases out of ten, a bad sort of hermaphrodite—amphibious half-gardener half-cowman sort of fellow—who knows nothing, and, finding we know less, does us to a great extent. *J H.* [Try Richardson's "Rural Handbook" on the Pig, price 1*s*.]

Diseases of Cattle, &c.: *W W.* "The Ox," by the Society for the Diffusion of Useful Knowledge, is still a very good book.——We would grow Rye-grass on a stiff soil. "*W W.*" asks for a receipt to pickle bacon as in Norfolk.

Fowler's Steam Draining Plough: *Mr Scott* informs us that this implement, much improved, is now at work daily on the farm of Mr. Grant, Wormleybury, near Broxbourne, Essex, and that gentlemen interested in drainage are invited to inspect its operation. There are now 13 horse ploughs and three steam ones at work in different parts of the country, and upwards of 10,000 acres have been drained by them.

Hereford Stock: *H Allington.* We do not know of any dealer to whom to direct you, nor are we personally acquainted with any breeder of Hereford stock to whom we could introduce you: we imagine your best plan is to go to one of the Hereford fairs, and you will easily learn to whom you had best apply for a fresh bull as a cross for your cows.

Italian Rye-grass: *Anon.* It will not do to sow it now among thin Wheat. The Wheat would be utterly choked long before it came to ear. We did that once and that was an experience. If you sow among Wheat at all sow it early in May, as the last time you dare go among this crop with the hoe and hoe it in. It is quite possible that your half germinated seed may have been killed; if so, just go over the ground with the tine seed harrow again, and follow it up with the brush harrow, and that will ensure a crop. There will be a full account of the crop given next week.

Manures: *S phosphate.* We do not know in what published work you will obtain instructions for making "all mineral manures." For making superphosphate consult past indices of the *Gardeners' Chronicle.* Professor Way, in England: Professor Anderson, in Scotland; the one the chemist to the English Agricultural Society—the other the chemist to that of Scotland. We must not name agricultural machine makers—there are numbers of firms able to give you satisfaction.

Pigeons: *Anon* and several others ask an "Old Subscriber, Durham," to state the origin of his "laughing pigeons," and what breed they resemble in plumage, size, &c. They would be glad to communicate with him on the subject

Radish: *Cor.* We do not know the Black Winter Radish at all as an agricultural plant, but will make inquiry.

Rape-cake: *F A.* If you cannot get it cheaper than Bean-meal [!] you should not use it. It is to be had for less than 5*l*. a ton at Hull. Rape-cake contains about one-third its weight of protein compounds corresponding to the fleshy part of animal matter, and one-tenth its weight of oil. Barley contains one-eighth its weight of the former, and two-thirds its weight of starchy matter, &c., corresponding somewhat to the latter. Beans, again, contain one-fourth their weight of the former, and more than half their weight of the latter. But Rape is probably not efficient up to the measure of its value theoretically, because it is generally distasteful to animals; and unless it can be had much cheaper than Beans we would not buy it.

Refuse from Brewery: *A Subscriber.* What is it? We last week saw the refuse "dreg" of a distillery—so much of it as the cows refused or lost—running into a tank, into which their urine also ran, whence it was pumped over Italian Rye-grass. This was at Hundred Acre Hill, near Glasgow, where Messrs. Harvey have 600 or 700 cows fed on grains and dreg, and steamed Turnips and hay. "Dreg" is the liquid remaining in the still after the whiskey ceases to come over.——We would not mix lime with manure containing ammonia.

Seeds: *H. Treacher.* You will find tables of the quantity of the different sorts of seeds needed per acre in many agricultural price lists, in the Agricultural Almanacks, &c.; or if you will name what you want we will give it you here.

Sundries: *E F.* Oyster shells contain but little phosphate of lime, and will be of little more value after being acted on by sulphuric acid than so much gypsum would. Sulphate of soda has been applied with usefulness, especially to Potatoes, and 60 or 80 lbs. per acre might well be added to any guano, soot, or other appropriate dressing for that crop. You cannot compare it with common salt. It may be of great value, or it may be valueless, according to the circumstances of the soil. Your case may be as that of a builder who cannot get on for want of window nails, or putty. It would be of little service to him in such a case to discuss whether freestone at 1*s*. per cube foot or Oak at 3*s*. 6*d*. were the dearer.

The Oat: *A Subscriber.* We do not believe the extraordinary account of which you have heard. To get a Rye crop you must sow Rye seed!

The Pig: *H J E.* The shilling hand-book on the Pig will, we dare say, serve your purpose.

GRASS SEEDS.

SUTTON'S GRASS SEEDS (Carriage Free). NATURAL GRASS SEEDS FOR PERMANENT PASTURES, separate or mixed, expressly to suit the soil.—Messrs. Sutton and Sons having for many years paid especial attention to the examination of Natural Pastures, and the collecting of the Grasses which thrive in the various soils of Great Britain and Ireland, are enabled to supply the sorts and quantities of Seeds, varied to suit the soil for which they are intended. The cost will vary from **24s.** to **30s.** per acre, according to the sorts and quantities the soil requires.

FINE LAWN GRASS SEEDS, for making New or improving Old Lawns, price **1s.** per pound, 2*s*. 6*d*. per gallon, or 20*s*. per bushel. For forming new Lawns, 2½ bushels, or 50 lbs., is the quantity required per acre.

FINE GRASS AND CLOVER SEEDS FOR IMPROVING OLD PASTURES (Sutton's Renovating Mixture). Quantity required per acre, 8 lbs. to 12 lbs. **price 9d.** per lb.

N.B. *It will be seen above that we have greatly reduced the prices of our Grass Seeds this season, especially the fine Lawn Seeds and* "Sutton's *Renovating Mixture" for improving Meadows and Pastures; and we doubt not that our liberal charges will induce a more general practice of sowing our superior kinds of Grass Seeds. Priced Lists sent post free.*

Sutton & Sons, Seed Growers, Reading, Berks.

MESSRS. E. G. HENDERSON and SON, of the Wellington Nursery, St. John's Wood, London, will commence sending out April 30, 1855, the following new Seedling FUCHSIAS, raised by Messrs. Story and Banks.

Queen Victoria (Story's), scarlet, with white corolla. 10*s*. 6*d*.
Prince Albert (Banks's), fine violet corolla. 10*s*. 6*d*.
Perrugino (Story's), fine striped corolla. 10*s*. 6*d*.
Empress Eugenie (Story's), rosy crimson, white corolla. 10*s*. 6*d*.
Ranunculæflora (Story's), fine double white corolla. 21*s*.
Lady of the Lake (Story's), blush, white corolla. 10*s*. 6*d*.
Water Nymph (Story's), globe-flowered, fine white corolla. 10*s*. 6*d*.
Raffaelle (Story's), beautiful variegated corolla. 10*s*. 6*d*.
Mrs. Story (Story's), fine white corolla. (In accordance with Mr. Story's wish, this was named after Mrs. Story, as it was in his opinion the finest.) 10*s*. 6*d*.

Or if the set of Nine are taken, the price 4*l*. 4*s*., including SNOWDROP (Story's). This was received from Mr. Story as possessing a double white corolla, and described by himself and others who saw it in flower as a very beautiful variety. It was the first double white raised by him; but the plant did not flower in the Wellington Nursery after it was received by Messrs. Henderson; and through three stout branches having been broken off it it did not quite correspond with the description given by Mr. Story and others a few months after to Mr. A. Henderson when at Newton making inquiries respecting the Plants. Consequently no charge will be made for it, but one will be presented with every set ordered.

FUCHSIA, BANKS'S FAVOURITE (BANKS), considered the finest of the blue violet corollas. 10*s*. 6*d*.

For further particulars see page 62 of the *Gardeners' Chronicle* for Jan. 27; or a list will be sent post free on application.

Messrs. E. G. HENDERSON & SON having purchased of the late W. Story, Esq., of Newton, in the county of Devon for ONE HUNDRED GUINEAS, all Seedling Fuchsias with white Corollas, which new feature in this tribe he succeeded in introducing, and in consequence of an advertisement which appeared in the *Gardeners' Chronicle* some few weeks back from Messrs. Lucombe, Pince, & Co., of Exeter, offering two new Fuchsias similar in character to those purchased of the late Mr. Story, and after a written communication with that gentleman it was thought necessary for one of the firm to make further inquiries about them, and in consequence Mr. Andrew Henderson went to Exeter and Newton, where he was informed by a jobbing gardener at Newton that he had received Seven Pounds for them after (as the said jobbing gardener stated) he had been offered £20 for them by a nurseryman in London, but whose name or address he did not know.

Messrs. E. G. H. & Son give the above explanation in consequence of a great number of their customers throughout the autumn having ordered plants of them at higher prices than are above quoted. This reduction is made in consequence of information which they have received that leaves no doubt on their minds but that those to be sent out by Messrs. Lucombe, Pince, & Co. are similar in character to the above.

Messrs. E. G. HENDERSON & SON, of the Wellington Road Nursery, St. John's Wood, London, beg to inform their patrons and the public that their New Catalogue of Seeds for 1855 is now ready, with full descriptions and other information, and will be forwarded post free on application.

E. G. HENDERSON & SON take this opportunity of stating that none but the most popular and improved kinds of Vegetable Seeds appear in their list, and among the Flower Seeds only those whose beauty and merit are univerally acknowledged, together with a carefully selected stock of the principal new varieties. They would call particular attention to the following new and choice seeds, which they can confidently recommend:—

Per packet—	s.	d.
Antirrhinum, extra fine ...	0	6
Auricula, fine mixed ...	1	6
Abronia umbellata	1	6
Anagallis azurea grandiflora	1	0
„ rubra „	1	0
Arctotis breviscapa ...	0	6
Aster, new Peony pyramid, in packets of 10 distinct colours, separate ...	3	6
„ new bouquet pyramidal, in packets of 12 distinct colours	3	6
Balsam, double Camellia-flowered, in packets of 6 distinct colours, separate	3	0
„ new double Camellia Rose, in packets of 10 distinct colours, separate, extra fine	5	0
„ Aurora, new double crimson	1	0
„ new dble. pale yellow	1	0
Carnation, stage flowers...	1	6
Calceolaria, ex. ex. 2*s*. 6*d*. & 5*s*.		
Cineraria, ex. ex. 1*s*. 6*d*. & 2*s*. 6*d*.		
Chrysanthemum pompone	1	0
„ large flowered	1	0
Calendrinia umbellata ...	0	6
Dianthus Dunnetti, suprb.	1	0
„ Chinensis flora pleno, extra fine...	0	6
Eschscholtzia tenuifolia...	1	6
Geranium, choice show ...	2	6
„ choice fancy	2	6
Hollyhock, first quality ...	2	6
„ second quality ...	1	0
Ipomœa rubro cærulea ...	1	0

Per packet—	s.	d.
Ipomœa limbata	2	6
Leptosiphon luteum ...	0	6
„ aureum	1	6
Linum grandiflora rubrum 1*s*. 6*d*., and	2	6
Lobelia Queen Victoria (scarlet)	0	6
Lobelia Roi Leopold ...	0	6
Larkspur, new double improved Hyacinth flowered, in packets of 6 distinct colours ...	2	6
Limnanthes sulphurea odorata	1	0
Mignonette, new, large ...	0	3
Mimulus, beautiful ...	0	6
Pansy, choice show ...	1	6
„ choice fancy	1	6
Petunia, extra fine ...	1	0
Phlox Drummondi coccinea	0	6
Portulaca, new orange ...	0	6
„ new rose	0	6
Primula sinensis fimbriata, alba and rubra mixed ...	2	6
Poppy, new large Pæony, in 8 brilliant colours ...	2	0
Reseda myriophylla, new Mignonette	1	0
Salpiglossis, scarlet, blue, and sulphur	0	6
Stock, German, new large flowering, in packets of six distinct colours ...	2	6
Verbena, choice mixed ...	1	0
Sweet William, new double	0	6
Whitlavia grandiflora ...	1	6

Lilium giganteum seed, 2*s*. 6*d*. and 5*s*. per packet.
Holcus saccharatus (new Sugar-cane), 1*s*. to 2*s*. 6*d*. do.
Dioscorea Batatas (Japanese Yam), 2*s*. 6*d*. each tuber.
20 Ornamental Grasses (see Catalogue).
12 Ornamental foliage Annuals.—March, 1855.

MESSRS. WILLIAM ROLLISSON and SONS beg to inform their Patrons and the Public that their NEW CATALOGUE OF SEEDS for 1855 is now ready, and will be forwarded post free on application.

W. R. & Sons embrace this medium of stating that many of the Seeds most difficult to obtain true, such as Beet, Lettuce, the Brassica tribe, &c., &c., are of their own saving, and the others have been procured from growers of the highest reputation; particular attention having been paid to secure the German Flower Seeds from eminent sources; are therefore able to state with confidence that the whole of their seeds are of very superior quality. W. R. & Sons respectfully invite attention to the following Choice Flower Seeds, selected from their Catalogue:—

	s.	d.
Alonsoa Warscewiczi, a beautiful half hardy annual, of graceful habit, with spikes of scarlet flowers	2	0
Arctotis breviscapa, a free flowering showy annual from the Cape	1	0
Aster, new Pæony pyramidal, in collections of 12 distinct colours	3	6
Aster, dwarf bouquet, or nosegay	3	6
Canna Warsewiczi, ornamental foliage plant	1	6
Centauridium Drummondi, orange coloured, very showy ...	0	6
Chenopodium atriplex, ornamental foliage plant	1	6
Clintonia pulchella, a lovely little blue flower	0	6
Coreopsis coronata, bright yellow, free flowering	0	6
Dianthus Dunnetti superbus, double Sweet William, of brilliant colour and dwarf habit	1	
Digitalis (Foxglove), extra choice, saved from a collection of splendid spotted flowers	1	6
Elichrysum compositum maximum, large double flowers of many colours	1	6
Eschscholtzia tenuifolia, straw coloured, very distinct ...	1	6
Eucnida bartonioides, yellow, very beautiful	0	6
Gypsophila muralis, red flowers, very neat	1	0
Helianthus angophyllus, silvery foliage, very ornamental ...	2	6
Hibiscus Thunbergi, yellow, showy	0	6
Ipomœa limbata, a tender climber, Tyrian purple, with white margin, beautiful...	2	0
Lilium giganteum	5	0
Limnanthus sulphurea odorata, yellow, edged with white ...	1	6
Linum grandiflorum rubrum, a large bright crimson Linum from Algiers, with brilliancy of colour and style of flower which surpass three-fourths of the usual pot plants used for decorating the conservatory	2	6
Pansy, extra choice, saved from superb flowers	2	6
Phlox Drummondi, extra fine, mixed	0	6
Primula sinensis fimbriata, alba, and rubra, saved from superb flowers, each	2	6
Reseda myriophylla, a very distinct new Mignonette ...	1	0
Sabbatia campestris, fine rose with yellow centre, really beautiful	1	0
Stock, dwarf double autumn flowering, in collections of 12 distinct colours	3	0
Stock, new large flowering German, in collections of 12 distinct colours	3	6
Tropæolum Lille Schmidt, good for winter blooming ...	0	6
Vittadinia lobata, pink, very compact and dwarf	1	0
Whitlavia grandiflora, large dark violet bell-shaped flowers	1	

Messrs. W. Rollisson & Sons are desirous of directing especial attention to their fine Collection of Fruits, which contains all the choicest varieties in cultivation. The rare Cymbidium eburneum is now in blossom and can be seen at the

Nursery, Tooting, London.—March 3.

WILLIAM BARRATT, Landscape Gardener, Wakefield.

*** Plans and Estimates furnished.

GARDEN ORNAMENTS.—Several Hundreds of VASES, FIGURES, and SUN-DIAL PEDESTALS, which have stood wholly exposed to the late frosts, may now be inspected at

AUSTIN and SEELEY'S Show Yard, Keppel Row, New Road.

☞ A few articles which have been standing as patterns for many years will be sold at reduced prices. Any gentleman unable to visit the yard may have sketches sent, if he will describe the object required, and the price.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 16*s*. per ton, delivered to any of the London Wharfs or Railways, or within a circuit of five miles. Peat and loam at moderate prices.—Kennard. Brothers, Swan Place, Old Kent Road.

THE CURVILINEAR FLOWER BASKET.

As Suspended in the Nave and Transepts of the Crystal Palace.

W. COGGER, ORNAMENTAL WIRE WORKER TO THE CRYSTAL PALACE, respectfully informs the Nobility and Gentry that he was the Only Manufacturer of those useful and ornamental appendages to the Conservatory under the direction of Sir Joseph Paxton, M.P., who has given him permission to take orders from the original designs. Sketches and Estimates furnished for Rose Temples, Aviaries, Verandahs, Garden Arches, Arbours, Flower Stands for the Conservatory or Drawing-room of first class workmanship, and at the lowest possible price. See specimens, Hardware Court, Crystal Palace.

Manufactory opposite the Church, Sydenham, Kent.

FLOWER POTS and STANDS of all kinds, including Suspension and Bracket, of the most approved shape. Classical, Italian, and Grecian Vases, Pedestals, Fountains, &c., in stock. Prices for 1855 forwarded on application to

William Maule & Sons, Horticultural Potteries, Bristol.

MAW'S ENCAUSTIC TILE PAVEMENTS form an indestructible and highly decorative substitute for ordinary flooring, and their imperishable Oil Cloth Coverings for Entrance Halls, Passages, Verandahs, Conservatories, &c.—Maw & Co. send free of expense their Book of Designs, suitable in price and style for every description of Building.—Benthall Works, Broseley, Salop.

WEEDS ON WALKS.

MR. FLEMING'S WEEDING or SALTING MACHINE for GRAVEL WALKS, COURT YARDS, &c., manufactured and sold by Alexander Shanks & Son, Arbroath, Forfarshire, from whom particulars with prices may be had

WATERPROOF PATHS.—BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. White & Brothers, Milbank Street, Westminster.

SHEET GLASS (15 oz.) of good quality in 100 feet boxes.

10 in. by 8 in. and under	... ...	15s. per box.
11 in. by 9 in. to 22 in. by 14 in.	... ...	17s. "
Larger sizes to 28 in. by 18 in.	... ...	19s. "

Also similar sizes in 21 oz. Sheet at 24s. per box. Boxes charged 2s. each, and returnable at the same price, if delivered free. CRYSTAL WHITE GLASS, Crown and Sheet Glass in Crates, British and Patent Plate, &c. &c. White Lead, Oils, Turpentine, Colours, &c.—G. Farmiloe & Son, 118, St. John Street, West Smithfield.

CLASS FOR CONSERVATORIES.

THOMAS MILLINGTON'S present prices for good 16 oz. sheet glass, boxes included.

6 in. by 4 in. to 6 in. by 5½ in.	... 13s. 3d.	per 100 feet.
7 by 5 to 8 by 6	... 13 6	
8½ by 6½ to 10 by 8 ...	... 14 0	
10½ by 8½ to 14½ by 10½ ...	... 16 0	
17 by 10 to 18 by 12 ...	... 18 0	

A great variety of sizes. Particulars had on application.

ORCHARD HOUSE SQUARES on Mr. Rivers's plan, to whom I have sold some thousands of feet.

Large Sheets for cutting up in cases, at 2½d. and 3d. per foot.

HARTLEY'S IMPROVED ROUGH PLATE GLASS, Sheet, and Rough Plate, Tiles, Milk Pans, Bee and Propagating Glasses, Wasp Traps, Cucumber Tubes, Preserve Jars, with and without covers; Fern Glasses.

Plate, Sheet, Crown, and Ornamental Window Glass. Crystal Glass Shades for ornaments.

Greenhouses, erected in either wood or iron. Garden Lights and Frames.

87, Bishopsgate Street Without, London—same side as Eastern Counties Railway.

HARTLEY'S PATENT ROUGH PLATE GLASS, 1-8th thick, or 2 lbs. to the foot; 3-16ths, or 3 lbs.; and 1-4th, or 4 lbs. to the foot, for Ridge and Furrow Roofs, Greenhouses, Railway Stations, Engine Sheds, Mills, Market Halls, and Public Buildings generally.

Packed in Boxes of 50 feet each.

6 by 4 and 6½ by 4½	... ...	10s. 6d. per box.
7 " 5 " 7½ " 5½	... ...	12 0 "
8 " 6 " 8½ " 6½	... ...	13 6 "
9 " 7 " 9½ " 7½ and 10 by 8	...	15 0 "

For larger sizes a full List of Prices will be sent on application. Boxes are charged 2s. each extra, full price allowed if returned free of expense.—For further information apply to

JAMES PHILLIPS & Co.,
116, Bishopsgate Street Without.

"Rough Plate has never been, and never can be, prejudicial to the colouring of Grapes; though we can easily believe that it has been charged with such a fault by persons who have not skill enough to manage Grapes under glass."—*Gardeners' Chronicle.*

"There *can be no question now* that Rough Plate Glass is the most beautiful as well as the most useful kind of glass that can be employed in horticulture. It is free from all the faults of transparent glass, and has many advantages peculiar to itself, *without a single disadvantage as a set off.*"—*Gardeners' Chronicle.*

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY and CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.		Inches.		Per foot.		Per 100 feet.
	Under	6 by 4	at	1¼d.	is	£0 12 6
From 6 by 4	"	7 " 5	"	2d.	"	0 16 8
7 " 5	"	8 " 6	"	2¼d.	"	0 18 9
8 " 6	"	10 " 8	"	2¾d.	"	1 0 10
10 " 8	"	12 " 9	"	3¼d.	"	1 2 11

Larger sizes, not exceeding 40 inches long.

16 oz. from 3d. to 3½d. per square foot, according to size.
21 oz. " 3¾d. to 5d. " " "
26 oz. " 3¾d. to 7½d. " " "

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to James Hetley & Co., 35, Soho Square, London

PRIZE MEDAL—1851.
AT A VERY ECONOMICAL RATE.

SAMUEL CUNDY, Mason and Builder, Pimlico Marble and Stone Works, Belgrave Wharf, Lower Belgrave Place, Pimlico, London.

Marble Chimney-pieces manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price. A good Marble Chimney-piece for 40s. Marble Work in all its branches at a remarkably cheap rate for Halls, Dairies, Larders, &c. Circulars sent on application.

N.B. The "Royal Blue" Omnibuses pass the Works every ten minutes from the Bank.

TO GARDENERS AND OTHERS.

THE BRIDGEWATER FIRE AND WATER-PROOF MINERAL PAINT.—An Important Discovery.

This substance is a vein of earth found only in one of the Bridgewater Mountains of New Jersey, in the United States. It is the most extraordinary paint offered to the public, possessing new and valuable properties, and applicable to a variety of purposes. Its colour is dark red, never fading or changing in the hottest climates. When mixed with any other paint, the colour produced by that mixture will be rendered unfading also. After it has been applied and exposed to the atmosphere a few months, it becomes fireproof, and as durable as stone. Wherever it is applied neither rain, sea-water, nor damp can penetrate; thus preserving iron from rusting, wood from rotting, and brickwork from damp. It will endure intense heat without cracking or blistering. It has also the property of flexibility; Canvas, Tents, &c., covered with it become waterproof, retain their previous flexibility, and are not liable to crack when they are rolled up. Coarse Wrappers, covered with two coats of it, are an excellent substitute for Russian mats, to cover gardeners' pits and frames, or to protect wall fruit trees, being cheaper and more durable. If two coats of it be applied to trees, above and below the ground, where the borer generally enters, it will prevent the attack of that destructive grub, or insects of any kind; a new bark will be formed under the paint and the trees kept in a healthy condition. It is spread out easily, and does not emit any unhealthy effluvium.

A specimen of the paint on coarse wrappers for Gardeners and others may be seen at J. Le Cren's, House-painter, 26, Moorgate Street, who undertakes to supply Gardeners and the public with any quantity of painted wrappers at moderate prices.

Sole Consignee for the United Kingdom, Joux Eives, 17, Cornhill, London. Sold by Agents in most of the principal towns of the United Kingdom. In London by L. Frank & Son, Oil Merchants, 14, Borough, London Bridge, of whom may be had Quick Drying Oil to mix with it, for use during the winter season, and also Testimonials in its favour from Shipowners, Builders, Painters, &c.

HOT-WATER PIPES at wholesale prices, with Elbows, Syphons, Tee Pipes, and every requisite connection. Cast Iron Boilers, 55s. each. Improved Soot Doors and Furnace Doors. Builders' Castings of every description kept in Stock at — Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street (near Blackfriars Bridge), London.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.

The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3s. 8d. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to John Weeks & Co., King's Road, Chelsea, London.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.

JAMES WATTS, Hothouse Builder, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

HALL'S GARDEN NETTINGS; the best and cheapest for all purposes of shelter and shade from Frost, Hail Storms, and Gales of Wind. No. 0, 5d.; No. 1, 5½d.; No. 2, 6d.; Nos. 3 and 4, 7d. All 56 inches wide, and in lengths of 10, 20, 30, and 60 yards.—Manchester.

SPADE FARM—WARWICKSHIRE.

Within Four Miles of Warwick and Six of Leamington, about a Mile and a Half from "Hatton Station" on the Great Western Railway, where 13 Trains stop Daily.

TO BE LET, unfurnished, or partially furnished, for the residue of a Lease terminating Michaelmas, 1859, and which can probably be renewed, NORTON LODGE, in the above most eligible situation, contains four Reception Rooms; Five best Bed Rooms, with Three Dressing Rooms; Bath Room; Five Servants' Bed Rooms, and Capital Offices. Stabling for Six Horses, Coach House, Gardens, and Pleasure Grounds, &c. In addition to the House and Grounds there are about thirty-five Acres of fine Land, of which half is arable, under the plough and fork, deeply tilled, and perfectly clean. Five acres are cultivated on the Lois-Weedon Wheat system. The House is on a good elevation, commanding an extensive view of the surrounding country, is in the most complete order, a large outlay having been made both by the proprietor and the present occupier. The Lease is on favourable terms.—Apply to Messrs. Cookes, Sons, and Meres, Estate and House Agents, Auctioneers, &c., 34, Warwick Street, Leamington.

TO BE SOLD, by private treaty, a NURSERY and PLANT BUSINESS, established nearly 70 years. The Proprietor of this old-established Nursery Business is willing to retire, and dispose of the Stock and Good-will. The nursery comprises about 20 acres of ground, and about 15 large and commodious Stove, Greenhouse, and Propagating Houses, with numerous Pits, frames, &c. *The business is in full working order, and is capable of being increased to almost any extent, and of being made one of the best provincial nurseries in the kingdom.* The stock is in a flourishing condition, being young, healthy, and in good saleable order, and comprises a general assortment of all the most saleable Forest Trees, Shrubs, Fruit Trees, Stove, Greenhouse, and Miscellaneous Plants. The Nurseries are situated close and adjoining one of the largest towns in the West of England, with a population of more than 100,000 inhabitants. The whole of the land, houses, &c., belongs to the proprietor, *who will have no objection to grant a long lease to his successor or successors, and at least one-half of the purchase money could remain on security at common interest.* The business has been carried on with great success by the present proprietor, which partly contributes to his retiring from the business. None but principals and *bonâ fide* purchasers will be treated with.—Address in the first instance, A. B. C., Office of this Paper.

NURSERY AND SEED BUSINESS,
Established in the Year 1819.

TO BE LET, with immediate possession, the NURSERY and SEED SHOP at Taunton, for some time past in the occupation of Messrs. M'Intyre and M'Intosh. The Growth and Stock are in excellent condition, moderately rented, and are well worthy the attention of any person wishing to carry on the business. If required the quantity of ground may be reduced. The Nursery is about 5 minutes' walk from the Railway Station.—Apply to Mr. Young, the Proprietor, Elm Cottage, Taunton.

TO BE SOLD, BUFF COCHIN CHICKENS, from first class Prize Birds, Brahma Pootra Chickens, from imported American Prize Birds, and Spanish Chickens. Also some very good one-year-old Birds of the above descriptions. Wire, Gauze, and Poultry Netting, Poultry Hurdles, Hen-houses, Chicken Coops, Flower Stands, and Trainers, Garden Arches, and every kind of Wire Work, useful and ornamental.—T. H. Fox's, City of London Wire Works, 44, Skinner Street, and 6 & 8, Snow Hill. Illustrated Catalogues forwarded post free.

DORKING FOWLS.—Eggs, from remarkably large and weighty birds, of the best coloured breed, will be disposed of at 15s. the dozen, box included.—Address W. G., Railway Inn, Holme, Stilton, Hunts.

COLOURED DORKINGS.—EGGS, from coloured Dorking Fowls, which have taken prizes and been commended at Reading, Cambridge, Norwich, and Colchester Shows at half a guinea the setting of 13; also Eggs from prize Buff Ayrean Ducks at the same price.—Apply to Rev. E. H. Kitton, Chadwell Rectory, Grays, Essex.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE & MORRIS will sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY, March 8th, at 12 o'Clock, about 200 choice double Camellias, from 18 inches to 5 feet, comprising all the approved kinds, beautifully furnished with bloom buds; 100 very strong Camellia Stocks; also a choice assortment of Standard and Dwarf Roses; a fine collection of American Plants; choice Dahlias in dry roots; Pœonias, Verbenas, Fuchsias, &c.—May be viewed the morning of Sale; Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHER PUBLIC COMPANIES ENGAGED IN PLANTING.
Clearing the Ground for the Woodford and Loughton Branch Railway.

MESSRS. PROTHEROE AND MORRIS beg to announce that they will Sell by Auction, on the premises, the American Nursery, Leytonstone, Essex, on MONDAY, March 12th, and following day, at 11 o'clock each day, in consequence of a portion of the land being required by the Eastern Counties Railway Company, for the Woodford and Loughton branch, the valuable NURSERY STOCK, consisting of the finest Evergreens of all sizes, Ornamental and Fruit Trees, Deciduous Shrubs and American Plants, amongst which may be mentioned 2000 Variegated and Green Hollies, from 3 to 8 feet; 2000 hybrid and other Rhododendrons, 1500 Fan Yews, 3 to 6 feet; 1000 Spruce Firs, 3 to 8 feet; 1500 Limes, from 6 to 12 feet; 1000 Laurels, 4 to 6 feet; 500 Bushy Andromeda floribunda, 2 feet; magnificent specimen Portugal Laurels, Sweet Bays, Arbor-vitæ, Weeping Ash, Mulberries, &c.—May be viewed prior to the Sale. Catalogues may be had of the principal Seedsmen in London; and of the Auctioneers, Leytonstone, Essex.

BROMPTON PARK.

To Noblemen, Gentlemen, Nurserymen, Builders, & Others.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the premises, Brompton Park Nursery, Park Lane, near the "Hoop and Toy," on MONDAY, March 19, at 11 o'clock, without reserve, by order of Mr. Adams (in consequence of the ground being taken by the Royal Commissioners for the Exhibition of 1851) the whole of the valuable NURSERY STOCK growing on the above celebrated Nursery, consisting of Evergreens and Fruit Trees, comprising large Cedar of Lebanon, variegated and green Hollies, Portugal and common Laurels, Irish and English Yews, Pinus sorts, Arbor-vitæ, Red Cedars, Laurestinus, Aucubas, Bays, Box, Berberries, a quantity of Irish Ives and Vines in pots, Weeping Limes, Elms, &c.; also standard-trained Peaches, Nectarines, Apricots, Pears, Apples, Plums, Cherries, Box Edging, &c.—May be viewed one week prior to the sale. Catalogues may be had on the premises; of the principal seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO MARKET GARDENERS, NURSERYMEN, & OTHERS.
Near the Blue Anchor Inn, Blue Anchor Road, Bermondsey.

MR. W. T. ATWOOD has received instructions to Sell by Auction, on MARCH 14th, at 11 o'clock, the interest in the unexpired term of Lease and the term in an agreement of TWO PIECES OF LAND containing about 1½ acres, together with certain Crops growing thereon; also all the STOCK of 80 3-light Boxes and Lights, 800 Bell and Hand-glasses, Horse, Cart, and Implements of Trade; a quantity of Moss Rose Stools, Cauliflowers, Seeds, Baskets, &c.; the Furniture in the House comprising Mahogany Bedsteads, good Beds, Mahogany Tables and Chairs, and other useful articles.—Particulars may be had on the Premises, the Inns in Covent Garden, Mr. Perry, Solicitor, 181, Tooley Street, London; and of Mr. Atwood, Auctioneer and Land Agent, Mortlake, Surrey.

SUNBURY.

To Gentlemen, Nurserymen, Builders, and Others.

MR. J. WILLMER will Sell by Auction, on the premises, Sunbury Nursery, on WEDNESDAY, March 17, and following day, at 12 o'clock each day, the STOCK of this well-known NURSERY, consisting of Green Hollies, 2 to 6 feet; Striped Hollies, 3 to 8 feet; Arbutus, 3 to 7 feet; Portugal Laurels, 3 to 5 feet; Laurels, 3 feet; Red Cedar, 2 to 6 feet; Yews, 4 to 10 feet; Siberian Arbor-vitæ, 2 to 3 feet; Cedrus deodara, 4 to 6 feet; Bays, 3 to 4 feet; Scarlet Rhododendrons; Rhododendron pontica, 3 feet; Laurestinus, 2 to 5 feet; Evergreen Privet, 2 feet; Phillyrea, 6 feet; Box Edging, Hornbeam Hedges, Standard and Dwarf Pears, large Dwarf Plums, Standard Quinces, Currants, Ivys in pots, Spruce Fir, Balm of Gilead do. 4 to 6 feet, Beech, Elm, Limes, Horse Chesnuts, Spanish Chesnuts, Ash, Acacia, Oak, &c., of large size.—May be viewed till time of sale, and Catalogues had on the premises, or by enclosing two postage stamps to the Auctioneer, Sunbury, Middlesex.

WANDSWORTH.

To Gentlemen, Nurserymen, Builders, and Others.

MR. J. WILLMER is instructed by Mr. Robert Neal to Sell by Auction on the Premises, Wandsworth Common, on MONDAY, March 12th, and five following days at 1 o'clock each day, the stock of this well-known Nursery, consisting of Green Box, 3 to 5 feet; Arbor-vitæ, 2 to 5 feet; Green Hollies, 3 to 12 feet; Yews, 2 to 6 feet; Cedrus deodora, 2 to 5 feet; Striped Box, 3 to 4 feet; Cedar of Lebanon, 3 to 4 feet; Scarlet ponticum and catawbiense Rhododendrons, 2 to 4 feet; Standard Rhododendrons of sorts, Kalmia latifolia, 2 to 4 feet; Buxus bellericus, 2 to 3 feet; Striped Hollies, 1 to 2 feet; Irish Yews, 3 to 4 feet; Arbutus, 1 to 3 feet; Juniperus Chinensis, 2 feet; Portugal Laurels, 4 to 6 feet; Spruce Fir, 5 feet; Evergreen Privet, 2 to 4 feet; Laurels, 2 to 4 feet; Aucuba, 2 feet; Standard and Dwarf Roses, large Standard Pears and Cherries, Maiden Pears, Dwarf-trained Pears, Weeping Ash, Weeping Willows, Gooseberries, Currants, Victoria Rhubarb, large Limes, Athena Poplar, Laburnums, Horse Chesnuts, Mountain Ash, Weymouth Pine, Fir, Standard Thorns, &c., may be viewed till time of Sale, and Catalogues had on the Premises: or by forwarding four postage stamps to the Auctioneer, Sunbury, Middlesex.

PAGE AND CO.'S

COMPOSITION FOR THE DESTRUCTION OF BLIGHT.

ADVERTISEMENT CONTINUED FROM PAGE 144.

From the Rev. E. T. Richard, Farlington Rectory.

As the season is now drawing to a close, I can assert that the Blight Composition I had from you in the summer has been of the greatest benefit to my trees; it seems to have perfectly stopped the spread of a parasitic fungus which had infested a large Vine for six or seven years; the infested leaves, although marked by the fungus, have become perfectly healthy; in short, the Vine presents a very different appearance from that of last year at this season. I have some Plum trees which were greatly infested with aphides, but the Composition has restored their appearance.—Oct. 11, 1852.

From J. Staples, Esq., Belmont House, Salisbury.

I have tried your Composition, and am very much pleased with the result, my fruit trees having quite recovered the excessive blight that affected them early in the season.—August 11, 1852.

From Mr. Wilkins, Gardener to H. F. K. Holloway, Esq., Marchwood Lodge.

I highly approve of your Composition, as it answers admirably, saving my wall trees from an untimely death, and quite recovering my Roses, killing every insect it touches in an instant. I intend to have a quantity of it this season for all my plants.—May 21, 1851.

From Mr. J. Allen, Gardener to the Right Hon. Sir Francis Thornhill Baring, Bart., Stratton Park.

My Peaches and Nectarines were sadly infected with blight, but after syringing them according to your directions, it quite disappeared, nor have they had a blighty leaf upon them since. I tried it on two large Orange trees which had the green-fly very bad, and it destroyed it immediately, nor has it been seen on them since, and the trees are now in a healthy flourishing state. I shall continue to be a customer, as I believe it to be a never-failing remedy.—Oct. 12, 1852.

From Mr. J. Thorn, Gardener to Sir Charles Taylor, Bart., Hollybrook.

I am satisfied of the efficacy of your Blight Composition.—Aug. 11, 1852.

From Mr. D. Forbes, Gardener to G. E. Eyres, Esq., Warrens.

I am happy to bear testimony to the great utility of your Blight Composition in the destruction of brown scale and red spider, in the hothouses and upon the open wall.—Oct. 6, 1852.

From Mr. W. Wilson, Nurseryman, Wimborne.

The gentlemen for whom I procured the Blight Composition have told me that it effectually killed the blight.—Aug. 9, 1852.

From Mr. F. Haslar, Gr. to the Rev. W. Fitzhugh, Bannister Lodge.

I beg to recommend your Composition for killing Insects and blight on wall trees; I have used it on the Peach and Nectarine, and found it of great service, as my trees had the blight last spring, but recovered and made some excellent wood.—Nov. 2, 1852.

From Mr. W. Robbins, Gardener to W. Beach, Esq., Oakley Hall.

I have used your Composition with one-third water, and it killed green-fly, and without water it destroyed thrip.—Nov. 4, 1852.

From Mr. J. Menzies, Gardener to J. Groves, Esq., Ferne Park.

I highly approve of your Composition, which is most destructive to all sorts of aphis. With one application I perfectly cleared my Cherry trees, and intend in future to avail myself of it.—Oct. 12, 1852.

From Mr. Pullinger, Gardener to Mrs. Watson, Brookfield Lodge.

I have given your Composition a fair trial upon Roses, fruit trees, and greenhouse plants, and am much pleased with the results: my fruit trees are perfect pictures.—Oct. 21, 1852.

From Mr. A. Hibbard, Gardener to T. Hill, Esq., Fir-grove.

Your Composition has completely killed the "Mealy Bug," which was very strong upon some imported Orchids, &c., without the least injuring flowers or leaves.—Feb. 10, 1853.

From Mr. Smith, Gardener to the late Mrs. Preston Hulton, Barnfield.

Your Composition has been tried by me, and I am glad it has proved so good for killing all insects, and making the trees healthy for bearing, which is a great point; it is excellent as well for Cucumbers."—Nov. 5, 1852.

From Mr. A. Menmuir, Gr. to Spencer Smith, Esq., Brooklands.

I have given your Blight Composition a trial, having had it applied to the fruit trees here (which were very much blighted), and I am happy to say with very good success, for although some of the trees are very old, they are very much improved by its application.—Nov. 8, 1852.

From Mr. J. E. Froud, Gardener to General Blunt, Barnfield.

After the first application of your valuable Composition to my Peach and Nectarine trees, I found every insect dead, and in a week the trees were healthy and growing vigorously. I also tried it upon Pelargoniums and Cactus in blossom, covered with green-fly, which were all killed instantly, and the blossoms remained as fresh as ever.—Oct. 19, 1852.

From Mr. W. Hocking, Gardener to J. J. Briscoe, Esq., Fox Hills.

I have great pleasure in bearing testimony to the efficacy of your Blight Composition; it has killed the blight in every instance, and the wall trees quickly regained a fine healthy foliage. For Roses and greenhouse plants it is equally efficacious, killing the blight without injuring the foliage.—Oct. 18, 1852.

From Mr. J. Bowen, Gr. to C. C. Codrington, Esq., Dean House.

My wall-fruit trees were dying from excessive blight, but after two syringings with your Composition they quite recovered, and made some excellent wood. For my Roses also it did the same, or I should not have had a blossom open; it is both a cheap and an effectual remedy, which no gardener should be without, and it is equally adapted for pot plants.—Oct. 22, 1852.

From Mr. J. Ratty, Gardener to G. L. Baker, Hartley Grange.

I have used your Blight Composition on wall trees, and find it an invaluable specific against blight.—Nov. 14, 1852.

From Mr. G. Lush, Gardener to W. Betts, Esq., Bevois Mount.

My Peach trees were attacked with brown scale, after the fruit was gathered, for which I applied your Composition, which perfectly destroyed it; I also tried it on some Stove Plants with the same effect.—Nov. 25, 1852.

From Mr. Thomas Bundey, Gardener to the Rev. F. Beadon, North Stoneham.

Your Composition is most destructive to all the insect tribe. With me it has proved itself very valuable, instantly removing all insects without the least injury to the plants.—Dec. 2, 1852.

From Major Munday, Hollybank.

Major Munday encloses Messrs. Page & Co. postage stamps in payment of a jar of Composition, which he has found highly efficacious.—May 26, 1853.

From Mr. E. Minnett, Gardener to General Gilbert, Tweed.

Your Composition has proved very effective upon Cucumbers, Melons, and Peaches. I consider its merits will bring it into general use.—Aug. 17, 1853.

From Mr. J. Taylor, late Gardener to Chas. Twynam, Esq., Portswood.

I am glad to bear testimony to the great utility of your Blight Composition for the destruction of mealy bug, brown scale, and red spider.—Aug. 19, 1853.

From Mr. Chas. Gosling, Gr. to W. Iremonger Esq., Wherwell Priory.

I have found your Composition have great effect upon red spider, green-fly, &c.; it also produces a luxuriant growth. For eight years I have suffered from blight, which could not be got rid of until this season, when one application of the Composition entirely destroyed it. For the future I hope to use it in all cases.—Aug. 21, 1853.

From Mr. H. Cull, Gardener to the Rev. H Brine, Boldre.

I have this season made use of your Blight Composition, and found it effective in extirpating green-fly from Cucumber Vines, without injury to the plants.—Sept. 13, 1853.

From Mr. G. Mitchell, Gardener to W. W. Whitmore, Esq., Dudmaston Hall.

I am very happy to inform you that your Composition has turned out quite satisfactory. I tried it on the Peach trees in the houses, and wherever it touched, every leaf became clean and healthy. You will please send me two gallons in the spring.—Sept. 17, 1853.

From Mr. W. White, Gr. to W. Hans Sloane Stanley, Esq., Paultons.

I consider your Composition valuable for the destruction of insects of all kinds.—Sept. 20, 1853.

From Mr. E. Spivey, Gr. to W. Hobloun, Esq., Hallingbury Gardens.

I was much pleased with your Blight Composition; I applied it to my Cucumbers for the thrip, and glad I am to say that it drove them completely out of the house, and the plants did well afterwards.—Sept. 24, 1853.

From Mr. G. Gaiger, Gardener to J. Corrie, Esq., Southington House.

The Blight Composition effectually destroyed the Bug. Should my Vines be again attacked, I should use your Composition above anything.—Sept. 27, 1853.

From Mr. James Moore, Gardener to Miss Garnier, Wickham.

I found your Composition answer perfectly well for the destruction of green-fly upon Roses, &c.; better than the strongest tobacco-water, and much more economical. I shall thank you to send me another supply in the spring.—Oct. 8, 1853.

From Mr. B. Smith, Gr. to R. Goslin, Esq., Botleys Park, Chertsey.

I have given your Composition a fair trial, and am perfectly satisfied of its efficacy.—Oct. 12, 1853.

From Mr. Atkins, Gardener to John Jenkyns, Esq., Botley Hill.

I used your Composition on young Peach and Nectarine trees, and found it of great service.—Jan. 5, 1854.

From Mr. A. Barnes, late Gardener to the Rev. Mr. Rashleigh, Hamble Rectory.

I highly approve of your Composition for destroying mealy bug and thrip on stove and greenhouse plants; for the bug I applied it three times before it was totally killed.—Jan. 1, 1854.

From Mr. G. Jones, late Gardener to Charles Seagrim, Esq., Southgate House.

Having used your Composition on Peach, Cherry, and Rose trees, greenhouse plants, Cucumbers and Melons, it speedily effected the desired purpose, without the least injury to the plants; it is the cheapest and best remedy ever offered to the public.—Jan. 11, 1854.

From Mr. S. Wraight, Gardener to J. Lake, Esq., Green Street, Sittingbourne.

It is with pleasure that I state your Composition has proved valuable to me, in the destruction of green-fly, red spider, &c., during the past season.—Jan. 12, 1854.

From Mr. Harris, Gr. to the Rev. E. Timson, Tatchbury Mount.

I have used your Composition most successfully upon Peach and Nectarine trees, and have seen it succeed equally well with my friends, and consider it is the remedy we must all have recourse to.—Jan. 18, 1854.

From Mr. Smithers, Gardener to Sir W. Milner, Bart., New Appleton, Tadcaster.

Your Blight Composition answered perfectly well.—Jan. 23, 1854.

From Mr. J. Daniels, Gardener to the Rev. C. E. Rush Keene, Swycombe House.

The Blight Composition I found most efficacious in the destruction of all kinds of insects, more particularly that troublesome pest the Cucumber thrip, which has hitherto resisted every means that have ever been recommended for its destruction. I find on being touched by the Composition it instantly dies, and I found it much more destructive to all the aphis family than tobacco water, without doing the least injury to the most tender plants.—Jan 24, 1854.

From Mr. Jno. Page, Gardener to A. Dixon, Esq., Birches Green.

I used your Composition upon Vines infested with mildew, which it instantly arrested; also on Cheries and Peaches, for the aphis and spider, with beneficial results; it also produces a fine, dark, healthy foliage wherever it is applied.—Jan. 31, 1854.

Your Composition will destroy mildew, as I have tried it several times.—Oct. 25, 1854.

From Mr. Jones, Gardener to J. M. Elwes, Esq., Bossington House.

My Vines were very much infested with scale and red spider, berries as well as leaves, and seeing the many testimonials by experienced men of the good effects produced by your Composition, I gave them two syringes all over, which effectually destroyed both pests. I think it the best remedy for green-fly, &c., that can be produced.—Feb. 28, 1854.

From the Hon. and Rev. F. Curzon, Vicarage, Mickleover.

It is the most efficacious remedy I have ever used.—July 11, 1854.

From the Rev. W. M. Frost, Tring Rectory.

I am indebted to your Composition for the preservation of a crop of Melons, which were attacked by the spider; but it soon disappeared, and the plants flourished vigorously. I intend using it again, as I know of nothing so effective.—Feb. 19, 1855.

No. 1. A COMPLETE COLLECTION OF GARDEN SEEDS	£3 0s. 0d.	No. 1. 100 PACKETS OF BEAUTIFUL FLOWER SEEDS	£1 5s. 0d.
„ 2. Do. do. do.	2 0 0	„ 2. 50 Do. do. do.	0 15 0
„ 3. Do. do. do.	1 5 0	„ 3. 25 Do. do. do.	0 8 0
„ 4. Do. do. do.	0 15 0	„ 4. 12 HARDY ANNUALS	0 1 0

FINEST MIXED PERMANENT PASTURE and LAWN GRASSES, not to be surpassed in the Trade, and it is with pleasure Her Majesty's beautiful Grounds at Osborne Palace, the Southampton Parks, &c., can be referred to.

AGENTS CAN NOW BE TREATED WITH.

Offices and Warehouses, 37 & 38, Oxford Street, (adjoining Radley's Hotel, one minute's walk from the Railway and Docks), and 58, Above Bar, Southampton.

NEW PLANTS.

A. VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to offer to Amateurs and to the trade his following new plants:—

ACHIMENES (TREVIRANIA), AMBROISE VERSCHAFFELT. This is the finest Achimenes of all; a correct drawing is figured in L'Illustration Horticole, Number 1, 1855. Nice plants will be sent out next May, each 8s.—N.B. One over if three plants are taken.

GESNERA WARSCEWICZII; magnificent plant for foliage, and particularly for the flowers. It is the finest gesneriaceous plant of all; a correct drawing is figured in L'Illustration Horticole, Number 1, 1855. Strong plants are now ready for sale, each 15s.—N.B. One over if two plants are taken.

RHODODENDRON (HARDY) PRINCE CAMILLE DE ROHAN. This is the finest hardy variety raised; a correct drawing is figured in L'Illustration Horticole, Number 2, 1855. This variety is warranted to be quite hardy, and very fine bloomer. Nice plants will be sent out next May, each 15s. N.B. One over if three plants are taken.

Agent in London: Mr. R. Silberrad, 5, Harp Lane, Great Tower Street.

DR. SYNTAX CUCUMBER.—The above celebrated variety has been nearly lost to gardeners for several years past. It is known by all experienced growers of Cucumbers to be the very best sort in existence for early work.

A paper sent free per post on receipt of 13 stamps.

NOW'S HORTICULTURAL BROCCOLI.—Half-ounce packets sent free per post on receipt of 24 stamps.

NORTHAMPTON MARKET BROCCOLI.—This variety is grown by the market gardeners here, and excites the admiration of all who see it. Visitors say "they never saw such Broccoli anywhere else." Half-ounce Packets sent free per post for 14 stamps.—John Jeyes, Nurseries, Northampton.

SUPERIOR EARLY BROCCOLI.

MITCHINSON'S PENZANCE OR EARLY WHITE CORNISH BROCCOLI.—*Celebrated and invaluable for its earliness, coming into use early in February, a full-sized handsome head of excellent quality, but a shy seeder,* 1s. 6d. *per packet, or* 12s. *per ounce.* New Seed can be had in sealed packets of the following Agents in London:—Nash, Minier, and Co., Strand; Dawe, Cottrell, and Benham, Moorgate Street; Hurst and McMullen, Leadenhall Street; Flanagan and Son, Mansion House Street; or from Mitchinson's Seed Establishment, Truro, Cornwall.—December 2.

From numerous unsolicited Testimonials we select the following:

To Messrs. Mitchinson and Co., Seed Merchants, Truro, Cornwall.

"Sirs, I have enclosed 18 postage stamps for a packet of your Penzance Broccoli Seed, the same kind as you sent me last year. I hope I am not too late, for I am anxious to procure it, if possible, for I can bear testimony to its value as a new, early, and a superior Broccoli, for I have been cutting upwards of 30 heads every week from the beginning of February.

"Dorking, Surrey, April 6, 1854. "W. Underwood."

To Messrs. Mitchinson and Son, Seedsmen, Truro, Cornwall.

"Sirs,—I enclose you 1s. 6d. worth of stamps, and hope you will send me a small packet of the Early Broccoli you advertised last year. I have beat all my neighbours this year with your Broccoli, which has been very fine and true, and stood the winter well. "George Pender."

"Sandgate, Kent, April 10, 1854."

To Mr. Mitchinson, Seedsman, Truro.

(Enclosed with Specimen).

"Sir,—I beg to forward you this Broccoli, one of the sort after your own name. I have had a splendid crop of them this season, many of which measured three feet in circumference, and quality excellent. Cut the first on the 11th of February. If seed is scarce, be kind enough to save two packets.—T. Bice Gardener, Grampound Cornwall. April 7 1854."

FIVE HUNDRED BUSHELS OF POTATOES TO THE ACRE.—This enormous crop was grown this year by a gentleman in Surrey, and out of which there were only 5 bushels diseased; nearly all the quantity were large sized, some weighing 2 lbs. and 1 oz., and not above 30 bushels of Chats out of the whole. This Potato was originally reared in Scotland, and is called by its grower the Scottish Champion. It is a good baker and boiler. Price 2*l.* 2*s.*, inclusive of the sack of 3 bushels, delivered free at the South Western Railway station in London. Early application is necessary, as only a few sacks are for sale, the party growing intending to plant largely next season. A reference as to the quantity and quality can be given in the neighbourhood—Apply by letter, post-paid, to B. S., 4, Crooked Lane, London Bridge, where samples may be seen, and the name of the grower given.

All orders must be accompanied by a remittance.

NOTICE IS HEREBY GIVEN, that the Partnership heretofore subsisting between us, the undersigned JOHN SCHOFIELD and CHARLES SCHOFIELD, carrying on business at Knostrop, in the Borough of Leeds, in the County of York, as Gardeners, Seedsmen, and Florists, under the style or firm of "J. Schofield & Son," was this day dissolved by mutual consent. All debts due to and owing by the said firm will be received and paid by the said Charles Schofield, by whom the business will in future be carried on.

Dated this 24th day of February, 1855,

John Schofield,
Charles Schofield.

Witness,
Wm. Clarke, Solicitor, Leeds.

CHARLES SCHOFIELD, in respectfully soliciting a continuance of the support so long accorded to the late Firm, begs to assure his Friends and the public that every exertion shall be used to merit their future patronage.

Knostrop, near Leeds, March 3.

PAGE AND CO.'S

COMPOSITION FOR THE DESTRUCTION OF BLIGHT

UPON

Roses, Wall-fruit Trees, Cucumbers, Melons, Vines, Stove and Greenhouse Plants.

Extra Strong, 4s. per gallon, sufficient to make four (Jars and Barrels extra).
In Bottles, 1s. 3d. and 2s. 6d. each. Directions for use forwarded.
10 Gallons and Upwards CARRIAGE FREE TO LONDON.

AFTER FOUR YEARS' EXTENSIVE USE, by the most eminent Gardeners in the kingdom, the superiority of PAGE & Co.'s BLIGHT COMPOSITION is unquestionable, requiring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage) and promoting a luxuriant growth.

From Andrew Tweed, Esq., Royal Gardens, Osborne Palace.
I have great pleasure to add my testimony to the efficacy of your Blight Composition, which has been used with great success upon Rose trees much affected with the green fly.—Nov., 1852.

From Frederick Mallison, Esq., Royal Gardens, Claremont.
I find it answers the purpose in all respects for walls, also for green fly and brown scale in the houses. I have no occasion to try it in any other way as yet.—May 10, 1854.

From J. Barker, Esq., his Grace the Duke of Bedford, Woburn Abbey.
I have much pleasure in bearing testimony to the valuable qualities of Messrs. Page & Co.'s Composition, which I have found very efficacious in destroying the green fly (or aphides), on the young shoots of Peach trees, as well as those of the Rose, when liberally syringed with the mixture.—To Mr. Freeman, Woburn, of whom the Composition can be had.—Dec. 14, 1854.

From Mr. E. Butcher, Gardener to the Right Hon. Lord Jersey, Middleton Park.
I am much pleased with the Composition; it far exceeded my expectations.—March 31, 1854.

From Mr. S. Snow, Gardener to Earl de Grey, Wrest Park.
Please forward me another 10 gallon cask of your Blight Composition. I have found it answer the purpose exceedingly well.—Jan. 25, 1854.

From Mr. A. Pearson, Gardener to the Right Hon. Lord Henry Chelmondeley, M.P., Holly Hill.
Your Composition is most destructive to all blight. My wall trees must have died had I not availed myself of it. I consider it applicable to all cases, as it is not the least injurious to the foliage of the most tender plants.—May 17, 1851.

From Mr. W. Farthing, Gardener to the Right Hon. Lord Ashburton, The Grange Park.
I consider your Composition valuable for the destruction of insects of all kinds.—Nov. 3, 1852.

From Mr. F. Wace, Gardener to the Right Hon. Earl Grey, Howick Hall.
After giving your Blight Composition a fair and impartial trial, I am glad to bear testimony to its efficacy in destroying those worst of all pests the thrip and red spider; two parts water to one composition, but the green fly quickly disappears if double that quantity of water be used. I have not found it to injure the most delicate plants.—Sept. 14, 1852.

From Mr. Lucas, Gardener to the Right Hon. Lord Palmerston, Broadlands.
I have used your Composition according to your instructions, and consider it valuable for the destruction of insects, &c. I am confident it will be much used when gardeners give it a trial.—January 5, 1854.

From Mr. F. Dawson, Gardener to the Right Hon. Earl Cowper, Panshanger.
I used it upon Peach and Nectarine trees to destroy the green fly; also upon Morello Cherries for the black bug, and found it effectual in both cases.—August 3, 1854.

From Mr. White, Gardener to the Right Hon. Earl Rivers, Rushmore.
I very much approve of your Blight Composition; my Peach trees were much infested, but one application so completely removed them that the set-off of the wall was covered. It also destroyed the black beetle on my Cherries, and the thrip upon my Cucumbers, a pest that I could not before get rid of by fumigation or sulphur.—August 30, 1854.

From Mr. R. Porter, Gardener to the Right Hon. and Rev. Lord C. H. Hervey, Chesterford.
I found it most destructive, especially to kill green fly and also the black aphis upon my Cherries. I am certain if properly used, it will give every satisfaction.—December 1, 1854.

From Mr. J. Brown, Gardener to the Right Hon. Sidney Herbert, Wilton House.
This summer has been a very blighty one, indeed more so than I ever remember, but am pleased to say our wall trees were never so well, which is owing to the use of your Blight Composition.—July 26.

From Mr. George Tillyard, Gardener to the Right Hon. C. S. Lefevre, Heckfield.
Your Blight Composition has given me every satisfaction, and when better known will be extensively used.—July 31, 1854.

From Mr. Packman, Gardener to J. Gadesden, Esq., Ewell Castle.
As I found your Composition very useful last year, I should like to have 10 gallons sent immediately.—April 1.

From R. J. Sprenger, Esq., Southend House.
The Composition is very effectual.—April 13.

From the Rev. F. Glossop, West Dean Rectory.
I will thank you to send me some Blight Composition, which my gardener found to answer very well last year.—April 18.

From Mr. F. Thorne, Gardener to the Hon. F. Baring, Melchet Park.
I am glad to have found so useful a Composition.—April 21.

From Mr. C. Robinson, Gardener to E. B. Tunno, Esq., Warnford Park.
I have used your Composition for two years, and found it very efficacious.—May 8.

From Thomas Higgs, Esq., Stapleton Road, Bristol.
The Composition gave such satisfaction to myself and friend that we wish you to send us a small cask.—May 11.

From Mr. James Robeson, Gardener to E. Currie, Esq., Vale Lodge.
I am glad to say your Composition has destroyed every living thing in shape of thrip, scale, or green fly, with one washing, after everything else had failed; without a doubt, it is the best thing ever introduced!—May 18.

From Mr. Thomas Challis, Gardener to Sir F. Bathurst, Bart., Clarendon Park.
It kills the blight dead, wherever it touches.—May 20, 1854.

From Charles Lane, Esq., Budgemore.
The effect of the Composition upon the trees and plants under the dreadful blight we have had remains the same, and it is surprising to see the healthy state to which it soon recovers them.—May 23, 1854.

From Mr. H. Robertson, Gardener to Sir M. G. Chelmely, Bart., Easton Hall.
I find it an excellent Composition; it entirely destroyed the black fly upon my Cherries. Please send me double the quantity.—June 2, 1854.

From Mr. F. Hamlett, Gardener to Miss M. Phillips, Lisle Villa.
I am much pleased with your Composition; the trials I have made have proved very satisfactory. I shall soon give you a larger order.—June 9, 1854.

From Mr. John McDonald, Gardener to the Rev. Thomas Hubbard, Sennicotts.
With three-quarters water your Composition was most effectual in destroying the black and green fly upon my wall trees. Please send two gallons more.—June 15, 1854.

From Mr. J. Steptoe, Gardener to Colonel Onslow, Upton House.
It surpasses everything I have ever tried. Please send another jar.—June 22, 1854.

From Miss Parry, Westbury House.
Miss Parry begs to inform Messrs. Page & Co. that her gardener has used the Composition with the greatest success upon Roses and Geraniums, and she has strongly recommended it to her friends.—July 5, 1854.

From Mr. J. Teal, Cambridge House Gardens.
I have used your Composition on walls, also on Melons and Cucumbers, and find it everything I could expect: it produces an instant effect, and in no way injures the plants.—July 11, 1854.

From Mr. R. Taylor, Gardener to C. Paget, Esq., Ruddington Grange.
It destroys all insects it comes in contact with.—July 14, 1854.

From Mr. G. Beagenie, Gardener to — Williams, Esq., Tring Park, Herts.
I have used your Composition upon wall trees, on Strawberries (when the fruit was nearly ripe), on Melons and Cucumbers covered with thrip and red spider, and on stove plants for mealy bug; and in no instance have I found it to fail. Before I had it I used from 1 lb. to 3 lbs. of tobacco per week: now I do not require 2 oz. It is efficacious and economical; every gardener should keep it by him.—July 14, 1854.

From Mr. W. Shakespear, Metallic Hot-house Manufactory, Birmingham.
It is thoroughly destructive to insects without injuring the foliage of the plants.—July 26, 1854.

From Mr. G. Lambert, Gardener to G. Baring, Esq., Oakwood.
I have found your Blight Composition to be good for the destruction of green fly, &c.—July 26, 1854.

From Mr. H. Dawes, Gardener to J. A. Sewell, Esq., Marelands.
It is truly the best remedy for green fly I have ever met with. It deals destruction to all the aphis tribe on the very first application.—July 26, 1854.

From Mrs. Gundry, Hyde.
The Blight Composition Mrs. Gundry found highly beneficial.—July 26, 1854.

From Mr. Jones, Gardener to R. D. Shafto, Esq., Hampworth Lodge.
I have found your Composition of great benefit to my fruit trees, as it quite destroyed the blight.—July 27, 1854.

From Mr. G. Olarenshaw, Gardener to G. Monckton, Esq., Somerford Hall.
I can highly recommend your Composition as the best remedy for the destruction of blight. In April my Peach and Nectarine trees were in a horrid state; I gave them one good washing and they have looked beautiful ever since. Some Melons, completely eaten up by thrip (thought beyond all recovery), it quite recovered, and I have some fine fruit.—July 27, 1854.

From Mr. W. Campbell, Gardener to W. C. Harland, Esq., Sutton Hall.
I find it a complete cure for every pest plants and fruit trees are alike subject to.—July 27, 1854.

From Mr. W. Underwood, Gardener to J. Labouchere, Esq., Stoke Park.
I am quite satisfied as its merits become known it will be considered the most excellent effectual remedy ever introduced, and highly appreciated by all gardeners; my Roses were nearly dead, but have since made clean healthy shoots.—July 27, 1854.

From Mr. W. Shephard, Gardener to A. Currie, Esq., High Elms.
My Peach trees were covered with black fly, which quickly disappeared. My Roses remain clean and healthy, and it is an effectual remedy.—July 27, 1854.

From Mrs. Fenwick, Field Green.
I found it destroy the blight completely.

From Thomas Hoskins, Esq., Haselbury.
I have much pleasure in bearing testimony to the efficacy of your Blight Composition, which I have used with perfect success.—July 27, 1854.

From Mr. T. Oliver, Gardener to Sir J. R. Reed, Bart., Ewell Grove.
I have used your Composition with Cucumbers, Melons, Pot Plants, and Wall Trees with perfect success in every instance, and consider it a most effectual remedy.—July 28, 1854.

From Mr. George Clayton, Gardener to J. W. Childers, Esq., Cantley Hall.
It has proved to be the best Composition I have ever applied to Plants for the destruction of blight.—July 31, 1854.

From Mr. J. Gregory, Gardener to Mrs. Singleton, Hazeley House.
I highly approve of your Blight Composition, having used it upon wall trees and Roses, and found it a valuable remedy.—Aug. 5, 1854.

From Mr. Jones, Gardener to R. D. Shafto, Esq., Hampworth Lodge.
I used your Composition upon Roses, Cherries, Peaches, Nectarines, &c., and found it excellent.—Aug. 21, 1854.

From Mr. Doswell, Gardener to Sir John Barker Mill, Bart., Mottisfont.
I have given your Blight Composition a fair trial, and am pleased to say that it has killed the green fly, red spider, mealy bug, and thrip in every instance.—Sept. 2, 1854.

From Mr. A. Campbell, Gardener to John Shelley, Esq., Avington Park.
I beg to recommend your Composition for killing insects of all kinds. I have used it on the Peach and Nectarine, and found it to be most valuable for all my plants.—Sept. 19, 1854.

From Mr. Martin, Gardener to Sir P. Hartdyke, Lullingstone Castle.
Your Blight Composition I find superior to anything I have used before; the first dressing, I believe, killed every insect. The Peaches and Nectarines, which were much infested, have since looked better than I ever saw them.—Oct. 5, 1854.

From Mr. Warren, Gardener to W. Pinney, Esq., Somerton.
I have used Composition upon Cucumbers, Melons, Roses, Pot Plants, and Wall Trees with perfect success; nor is it the least injurious to the foliage of the most tender plants.—Oct. 7, 1854.

From W. H. F. Cavendish, Esq., Agot, St. Lawrence.
I think your Wash for Blight the best thing I have seen. I am a great Rose grower, and in this bad season of blight I have not a Rose that has done badly, or even shown any sign of blight; it also helped me much with Fruit Trees, but the blight was too strong before I got any of it from you."—Oct. 6.

From Mr. W. Poole, Packington Hall Gardens.
I have given your Blight Composition a fair trial upon Peach and Nectarine Trees, and gladly bear testimony to its efficacy in destroying all insects without the least injury to the foliage.—Oct. 19, 1854.

From Mr. E. Cleeton, Gardener to Edward Holland, Esq., Dumbleton House.
I found your Composition kill thrip, red spider, green fly and mealy bug upon stove and greenhouse plants, Roses, Melons, Cucumbers, and everything it was tried upon; therefore please send me a further supply.—Nov. 22, 1854.

From Mr. John Cox, Gardener, Redleaf.
My opinion as to the merits of your Blight Composition is in the highest degree favourable. Last season my Cucumbers and Melons became infested with a peculiar kind of aphis, which was so tenacious of life that the fumigation requisite to kill it killed also the plants. I destroyed several frames, and left one large one of Cucumbers solely to try the effects of your Composition. I did so, and the effect, to my thinking, was little short of miraculous. The plants recovered immediately, and commenced growing again with the greatest vigour.—Nov. 28, 1854.

From Mr. John Perkins, Market Square, Northampton.
The Composition I am quite satisfied with, and shall require more.—October 3, 1854.

From Mr. G. Winzer, Gardener to Mrs. Pattison, Wrackleford House.
I have tried it for mealy bug and white scale, and found it effectual in destroying both pests.—December 6, 1854.

From Mr. John Jobson, Gardener to J. W. Scott, Esq., Rotherfield Park.
I shall not be without your Composition again.—Dec. 6, 1854.

From Mr. Reith, Gardener to C. E. Rumbold, Esq., Preston, Candover.
My Peach trees were much infested with green fly. I only used the Composition twice, and was perfectly satisfied with the result; the trees were very healthy all the season afterwards.—December 7, 1854.

From Mr. W. Buckland, Gardener to W. Smith, Esq., Little Houghton.
I much approve of Page & Co.'s Composition, as it does execution quickly; I shall be glad to have more of it.—Dec. 15, 1854. (To Mr. Freeman, Woburn.)

From Mr. G. Mackie, Gardener to E. Bouverie, Esq., Delapre Abbey.
I can certify with pleasure to its efficacy in destroying green fly, I also found two dressings of it destroy the mealy bug without injury to the plants.—Dec. 15, 2854. (To Mr. Freeman, Woburn).

From Mr. Thomas Bell, Gardener to E. L. Rudge, Esq., Abbey Manor, Evesham.
I quite approve of your Blight Composition.—Jan. 2, 1855.

From Mr. John Hunt, Market Gardener, Southampton.
I have used your Composition upon wall trees which I considered quite worthless, but which after two applications made a vigorous growth and have ripened some good wood.—January 2, 1855.

From W. Stride, Esq., Redbridge.
I have found it completely effective, when mixed with an equal part of water, in destroying at a single application every kind of enemy which attacks the Peach, the fly on the Rose, and better than all, so far as I am individually concerned, a black and small shiny beetle which appears on the tender shoots of young Cherries about Midsummer, and which on espaliers I never could annihilate till last summer, when one application effectually removed the whole community and enabled the trees to make satisfactory progress to the end of the season.—Nov. 5, 1852.

From Mr. J. Dummer, Gardener to the Very Rev. The Dean of Winchester, Bishopstoke.
I have used your Composition upon Cucumbers, Melons, Roses, pot plants, and wall trees, with perfect success in every instance, and consider it the most safe, speedy, and effectual remedy ever introduced.—Oct. 22, 1852.

FOR CONTINUATION OF PAGE & Co.'s ADVERTISEMENT SEE PRECEDING PAGE.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. 27, Victoria Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, March 3, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 10.—1855.] SATURDAY, MARCH 10. [PRICE 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The SECOND SPRING MEETING will take place at the Society's House, 21, Regent Street, on TUESDAY, April 3, from 12 to 5 P.M.

HORTICULTURAL SOCIETY OF LONDON.—FIRST SPRING MEETING, MARCH 6, 1855.

AWARD OF MEDALS.

FORCED BULBS	S B, Mr. Davies; C 1, Mr. Cutbush; C 2, Mr. Todman.
CYCLAMENS	S B, Messrs. Henderson, Wellington Road; C 1, Mr. Myatt.
CINERARIAS	C 1, Mr. Todman.
INDIAN AZALEAS	S K, Mr. Todman.
CALCEOLARIAS	L S, Messrs. Rollisson.
CHINESE PRIMULAS	S B, Mr. James Smith; C 1, Mr. Chilman; C 2, Mr. Green.
SINGLE SPECIMENS	S K, Messrs. Veitch; C 1, Messrs. Veitch; C 2, Mr. Forsyth.
STRAWBERRIES	C 1, Mr. McEwen; C 2, Mr. Brown.
NEW GRAPES	S K, Mr. Forbes; S B, Mr. Jennings.
PINE APPLES	S K, Mr. D. Davies; S B, Mr. Fleming; C 1, Mr. Dodd.
PEARS	S B, Mr. Tillyard; C 1, Mr. Snow; C 2, Mr. Robertson.
FORCED VEGETABLES	S B, Mr. McEwen: C 1, Mr. Fleming.
FORCED SALADS	C 1, Mr. Tillyard; C 2, Mr. Fleming.
MISCELLANEOUS	S B, Mr. Snow; C 1, Mr. McEwen; C 1, Messrs. Lee; C 1, Messrs. A. Henderson & Co; C 1, Mr. L. Solomon; C 2, Mr. Wood; C 2, Mrs. N. Compton; H. M., Mr. Fleming; H. M., Mr. C. Davies.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The EXHIBITIONS of PLANTS, FLOWERS, and FRUIT this season will take place on WEDNESDAYS, May 9, June 13, and July 4, and of American Plants, MONDAY, June 18.

Tickets of Admission are now being issued, and may be obtained at the Gardens only, by orders from Fellows or Members of the Society—price on or before May 5, 4*s*.; after that day, 5*s*. each.

CRYSTAL PALACE.—HORTICULTURAL FETE.—It is intended to hold a grand Horticultural Exhibition at the Palace on SATURDAY, the 2d of June next. The Rules and Schedules of Prizes are now ready, and can be obtained on application to the Secretary.

March 10. (By Order.) G. GROVE, Secretary.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—NOTICE is hereby given that an Election of Ten Pensioners on the Funds of this Charity will take place in June next. All persons desirous of becoming Candidates are requested to send in their certificates and testimonials to the Committee on or before the 31st inst., after which time they will not be received. Forms of petition may be had on application to

March 10. EDWARD ROGER CUTLER, Sec., 14, Tavistock Row, Covent Garden.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

CUTHILL'S BLACK SPINE CUCUMBER, the best for all uses, 1*s*. per packet; SNOW'S WHITE SPINE, 1*s*. per packet.

CUTHILL'S PAMPHLET on the POTATO, with 20 more Articles on Fruits and Vegetables. Third Edition, 2*s*.; or by post, 2*s*. 4*d*. CUTHILL'S Second Edition of MARKET GARDENING, 1*s*. 6*d*.; by post, 1*s*. 8*d*.—JAMES CUTHILL, Camberwell, London.

BROCCOLI IN SUCCESSION.—The importance of sowing at the proper season the proper sorts to succeed each other, has induced Messrs. SUTTON to furnish some instructions in this matter in their SEED AND PLANT LIST, which also contains many other useful hints on Horticulture and Agriculture. This publication may be obtained post free in return for postage, receipt, or draft stamps.

Address JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

THOMAS PERKINS has still on hand strong VINES from Eyes, 4 to 6 feet rods, namely:—Black Hamburgh, Black Prince, Black Frontignac, White do., Grizzly Frontignac, White Muscat, Chasselas Musque, West's St. Peter's, and Muscat of Alexandria.

In consequence of T. P. leaving the land by the 25th inst., the above will be sold at very low prices on application to the Nurseries, Atherstone, Warwickshire.

STRAWBERRY PLANTS.

WILLIAM NICHOLSON is now sending out fine strong plants of his four New and excellent varieties, viz., AJAX, the finest dessert fruit; RUBY, do.; CAPTAIN HOOD, dessert and market; FILLBASKET, do., tremendous cropper, at 8s. per 100. The plants have been kept in frames under glass, and are in good condition for planting. Post-office orders payable at Yarm, Yorkshire, which are in all cases required with the order.—Egglescliffe, near Yarm, Yorkshire.

SUTTON'S SHORT SEED LIST.

SUTTON'S SHORT SEED LIST, *containing only the most desirable sorts of Kitchen Garden Seeds, will be sent post free.*

SUTTON & SONS, Seed Growers, Reading, Berks.

SUTTON'S FARM SEED LIST, WITH PRICES, may be had gratis and post-free on application. Goods delivered Carriage Free, as see Catalogue.

Reading, Berks, March 10.

MESSRS. J. AND H. BROWN'S NEW PRICED CATALOGUE, post free, of American Plants, Coniferæ, Roses, Geraniums, Fuchsias, Orchidea, Stove and Greenhouse Plants, Fruit Trees, &c. A separate List of Garden Seeds, Choice Flower Seeds, 20 papers, 5*s*.; 40 do., 10*s*. free by post.

Albion Nursery, Stoke Newington, London.

T. F. WINSTANLEY'S Descriptive Catalogue of GARDEN and FLOWER SEEDS is now ready, and can be had on application, or sent free by post.

28, Market Place, Manchester.

T. F. WINSTANLEY'S Descriptive AGRICULTURAL SEED LIST will shortly be ready, and may be had on application, or sent free by post. The above List contains much useful information.—28, Market Place, Manchester.

PRICED NURSERY CATALOGUES.

A. PAUL AND SON will be happy to forward the following priced Nursery CATALOGUES in return for one postage stamp each:—A, ROSES; B, ORNAMENTAL TREES AND CONIFERS; C, FRUIT TREES; D, HERBACEOUS PLANTS; F, GREENHOUSE PLANTS, &c.; G, SEEDS; H, HOLLYHOCKS; I, BULBS.—Nurseries, Cheshunt, Herts.

VERBENAS AND PANSIES.

JOHN HAYES, FLORIST, Farnham, Surrey, begs to offer in good bedding varieties, strong stock Verbenas in 4-inch pots, at 4*s*. per dozen; 24 varieties of good Pansies, at 4*s*. per dozen; 40 seeds of a good useful Cucumber, sent for 12 postage stamps; and Polyanthus from named varieties, 1*s*. per dozen.

BRITISH QUEEN STRAWBERRIES.—Plants for Forcing, autumn raised, in 32 pots, at 2*l*. per hundred.—Mr. MANN, Market Gardener, Mogden Lane, Isleworth.

R. SMITH is now sending out his New Seedling Strawberry, SIR CHARLES NAPIER, the best forcing one of the day, admired by all who have seen its growth, and for colour not one to equal it. Price 3*l*. per 100; 50 for 30*s*.; 25 for 1*l*. Also, Sir Charles Napier, British Queen, and Keen's Seedling in pots for Forcing.—R. SMITH, Market Gardener, Richmond Road, Twickenham.

NOTICE.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, Edinburgh and London, beg to intimate to those who have transmitted orders for PLANTS, that they have made arrangements which will enable them to execute the same with the least possible delay after the breaking up of the protracted frost. As their grounds are for the most part dry and well drained, they are happy to say that their Nursery Stock has escaped material damage.—March 10.

CHEAP NURSERY STOCK.

IMPORTANT TO ALL PLANTERS WHO DESIRE IMMEDIATE EFFECT.

WILLIAM JACKSON & Co., Bedale, Yorkshire, beg to refer to their advertisement in the *Gardeners' Chronicle and Agricultural Gazette* of the 17th February, page 110.

ROGERS' AGRICULTURAL, CULINARY, AND FLOWER SEED DEPOT; REGISTRY OFFICE FOR GARDENERS, &c.—Clock House, Chelsea.

EMPRESS OF THE FRENCH CUCUMBER, and all the new things supplied. See CATALOGUE.

SEED POTATO, ETC.

THE BRITISH QUEEN, for productiveness, earliness, and quality unequalled:—First size, 7*s*. per bushel; second size, suitable for planting whole, 5*s*. per bushel, carriage paid to London. Also, a very superior Bath Cos Lettuce, in 1*s*. packets, free by post.—HART & NICKLIN, Florists and Seedsmen, Guildford.

SEED POTATOES.

C. FLITTON begs to call the attention of growers to his choice stock of SEEDS, which he can with confidence recommend, viz., Early Shaws, York Regents, York Reds, and Jersey Blues. Can be had in bags from 1 cwt. at 8*s*., or 15*s*. 6*d*. 2 cwt.; Fluke Kidneys, 9*s*. 6*d*. per 112 lbs., for cash.—Address C. FLITTON, Potato Factor, 21, York Road, King's Cross, London.

NEW CHINESE POTATO—
DIOSCOREA (JAPONICA) BATATAS.

T. F. WINSTANLEY has received a limited quantity of the above new Potato. For description and method of planting see his Garden Seed List, where full particulars are given. T. F. W. has also a few Plants left of the Kaisha or Sweet-kernelled Apricot, a fortnight earlier than the Moor Park. Prices on application.—28, Market Place, Manchester.

FLUKE KIDNEY POTATO.

T. F. WINSTANLEY has a very fine stock of the above unrivalled POTATO, selected small for SEED, as they do not bear cutting. Also Lapstone Kidney, Ashleaf, Flourball, and many other varieties. Prices on application. The Trade supplied.—28, Market Place, Manchester.

THE FLUKE KIDNEY POTATO.—This excellent variety is now planted here as the principal crop, being more free from disease and more prolific than any other in cultivation. It was raised in Middleton, and may be had genuine in any quantity at 5*s*. per bushel of 56 lbs.—Apply to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

Post-office Orders to be made payable at Middleton, Lancashire.

THE FLUKE POTATO.—A new second early variety, surpassing every other in its capability of resisting the Potato disease, and without exception the finest and most prolific Potato in cultivation. Price per cwt., 15*s*., bags included.

To be had genuine of THORNHILL & DICKSON, Lawrence Hill Nurseries; and No. 1, Wine Street, Bristol.

NEW CAULIFLOWER.

WAITE'S "ALMA," far superior to Walcheren; very large and firm heads. Price to the trade 24*s*. per lb., smaller quantities 2*s*. 6*d*. per oz. No orders attended to for less quantities than one ounce.—Seed Establishment, 181, High Holborn, London.

DWARF FRENCH BEANS can be had in any quantity.—Apply to J. G. WAITE, Seed Merchant, 181, High Holborn, London.

EARLY DANIEL O'ROURKE PEAS.

J. G. WAITE begs to inform the Trade that he is now ready to execute orders for this valuable early Pea. Price can be had on application.

Seed Establishment, 181, High Holborn, London.

SANGSTER'S EARLY No. 1 PEA.—To save trouble HAY, SANGSTER, & Co. beg to say they are now out of the above for this season, except in retail at 1*s*. 6*d*. per quart. (Not to be repeated.)—Newington Butts. March 10.

TO BE SOLD, 20 to 30 thousand LARCH, from 4 to 5 feet. Delivered free on board at Leith, or to the railway station, at 21*s*. per thousand.—Apply to Mr. HENRY CLARKE, 39, King Street, Covent Garden, London.

TO BE SOLD, very cheap, 20,000 Transplanted NORWAY SPRUCE, 2 to 2½ feet. Price on application.—SAMUEL FINNEY & Co., Gateshead Nursery, Newcastle-on-Tyne.

TO BE SOLD, a private collection of ORCHIDACEOUS PLANTS, choice species, the property of gentleman declining their cultivation.—Apply to Mr. KENNEDY, Bedford Conservatory, Covent Garden.

R. KENNEDY'S CATALOGUE of BRITISH and FOREIGN FERNS may be had on the receipt of six postage stamps.

TO BE SOLD, a first-rate Collection of ORCHIDS and other Stove and Greenhouse Plants, the property of a gentleman declining their cultivation.—For particulars apply to GARAWAY, MAYES, & Co., Durdham Down Nurseries, Bristol.

THE TRUE PERENNIAL RED CLOVER (TRIFOLIUM PRATENSE PERENNE), may be obtained from Messrs. SUTTON & SONS, Reading, at 9*d*. to 1*s*. per lb., according to sample and quantity required.

GERMAN FLOWER SEEDS FRESH IMPORTED.

SUTTON AND SONS *have imported a superior assortment of New German Flower Seeds, a Priced List of which may be had post free.*

SUTTON'S IMPROVED ITALIAN RYE-GRASS, AND DICKENSON'S ITALIAN RYE-GRASS, are both very superior to the Italian Rye-grass commonly cultivated.

At present Messrs. SUTTON *have a supply of true Seed of each sort, price 7s. 6d. per bushel.*

MANGOLD WURZEL SEED.

PURCHASERS OF LARGE QUANTITIES will be treated liberally.—For prices apply (stating the quantity required) to SUTTON & SONS, Seed Growers, Reading.

MANGOLD WURZEL SEED, LONG RED, and YELLOW GLOBE, warranted genuine, and the growth of 1854. Price 45*l*. per ton.—Apply to R. S. HEWS, Kelvedon, Essex.

ASPARAGUS PLANTS.—Best Quality, about 20,000, at the Nursery of JOHN WEEKS & Co., King's Road, Chelsea.

LIQUIDAMBAR.—The undernamed is a buyer of either a large or small quantity of the above. Send cash price, and height, to Mr. JEYES, Nurseries, Northampton.

IPOMŒA RUBRO CÆRULEA.—Seed of this exceedingly beautiful Climbing Annual being now obtainable at a moderate price, all cultivators of flowers having a greenhouse or wall with warm aspect are advised to include it in their spring selection.—Seed supplied to Seedsmen and Nurserymen only, by GEORGE ROBERTS, 32, Moorgate Street, London.

WANTED TO PURCHASE, a quantity of FRUIT TREE STOCKS and MAIDEN TREES.—Address, stating sorts and price, JAMES LAKE, Nurseryman, Bridgewater.

TIMBER.

WANTED, Old WALNUT TREES, SYCAMORE, CHESNUT, LIME TREES, &c. Send size and price, by letter, to Mr. E., 41, Fellows Street South, Pearson Street, Kingsland Road, London. Copy the address.

ENGLISH OAKS.

WANTED IMMEDIATELY, a considerable quantity of FINE TRANSPLANTED ENGLISH OAKS, from 4 to 6 feet high; STIFF, STRAIGHT, and WELL-ROOTED.

Any Party having such to offer may hear of a purchaser by addressing A. B. C., Office of this Paper.

WM. WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, will be happy to forward prices of a large quantity of very fine One-year Seedling LARCH, on application.

FOWLER AND WRIGHT, SEEDSMEN and NURSERYMEN, Glasgow, have for sale 1 year Seedling LARCH, 2 year Seedling LARCH, 1 year Seedling BEECH, and 1 year Seedling ALDER. Price forwarded on application.—March 10.

FRUIT TREES, FOREST TREES, AND SHRUBS, GARDEN AND FLOWER SEEDS, PERMANENT PASTURE GRASSES, and FINE DWARF LAWN GRASSES.—Catalogues of the above may be had on application to WILLIAM BARRATT, Saint John's Nursery, Wakefield.

TO PLANTERS.

HAY, SANGSTER, AND CO., have for sale the following;—600 to 700 strong Standard PEARS, 500 Dwarf do., and 100 Dwarf-trained do. Any reasonable offer will not be refused, as the ground must be cleared by the 25th March.

Apply to HAY, SANGSTER, & Co., Newington Butts, London; of whom also may be had for seed York Regent Potatoes, 6*s*. and Early American, 8*s*. per bushel of 56 lbs., the produce of their prepared Cuttings. Terms cash.

R. PARKER begs to offer the following, all of which are well established, and can be forwarded to any part of the Kingdom:—

	Per dozen.—s.	d.
Exotic Orchids, distinct and beautiful species	60	0
Exotic Ferns " "	18	0
Exotic Lycopodiums " "	12	0
Roses, consisting of the best varieties of Hybrid Perpetuals, Teas, and Bourbons, strong plants, established in pots	12	0
Cinerarias, choice named varieties, strong, established plants, in 4-inch pots	9	0
Cinerarias, seedlings, from the finest named varieties, including the best varieties sent out last season, strong, established plants, in 4-inch pots	4	0
Calceolarias, seedlings, from beautiful spotted varieties, strong, established plants	6	0

Lists of Names forwarded upon application.

The following choice Cucumbers and Melons, in packets of 12 seeds, at 1s. per packet:—

CUCUMBERS.	MELONS.
Phenomenon	Golden Perfection (extra fine)
Tyrolese Wonder	Bromham Hall
Superlative Improved	Green Gage
Walker's Rambler	Persian Green Flesh
Manchester Prize	Chichester Prize
Hunter's Paradise	Cuthill's Scarlet Flesh
Improved Patrick.	Victory of Bath.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Holloway.

MESSRS. E. G. HENDERSON AND SON, of the Wellington Nursery, St. John's Wood, London, will commence sending out April 10, 1855, the following new Seedling FUCHSIAS, raised by Messrs. Story and Banks.

Queen Victoria (Story's), scarlet, with white corolla. 10s. 6d.
Prince Albert (Banks's), fine violet corolla. 10s. 6d.
Ferrugina (Story's), fine striped corolla. 10s. 6d.
Empress Eugenie (Story's), rosy crimson, white corolla. 10s. 6d.
Ranunculiflora (Story's), fine double white corolla. 21s.
Lady of the Lake (Story's), blush, white corolla. 10s. 6d.
Water Nymph (Story's) globe-flowered, fine white corolla. 10s. 6d.
Rathalie (Story's), beautiful variegated corolla. 10s. 6d.
Mrs. Story (Story's), fine white corolla. (In accordance with Mr. Story's wish this was named after Mrs. Story, as it was in his opinion the finest.) 10s. 6d.

Or if the set of Nine are taken, the price 4l. 4s., including SNOWDROP (Story's). This was received from Mr. Story as possessing a double white corolla, and described by himself and others who saw it in flower as a very beautiful variety. It was the first double white raised by him; but the plant did not flower in the Wellington Nursery after it was received by Messrs. Henderson, and through three stout branches having been broken off it, it did not quite correspond with the description given by Mr. Story and others a few months after to Mr. A. Henderson when at Newton making inquiries respecting the Plants. Consequently no charge will be made for it, but one will be presented with every set ordered.

FUCHSIA, BANKS'S FAVOURITE (BANKS), considered the finest of the blue violet corollas. 10s. 6d.

For further particulars see page 62 of the *Gardeners' Chronicle* for Jan. 27; or a list will be sent post free on application.

Messrs. E. G. HENDERSON & SON having purchased of the late W. Story, Esq., of Newton, in the county of Devon, for ONE HUNDRED GUINEAS, all Seedling Fuchsias with white Corollas, which new feature in this tribe he succeeded in introducing, and in consequence of an advertisement which appeared in the *Gardeners' Chronicle* some few weeks back from Messrs. Lucombe, Pince, & Co., of Exeter, offering two new Fuchsias similar in character to those purchased of the late Mr. Story, and after a written communication with that gentleman, it was thought necessary for one of the firm to make further inquiries about them, and in consequence Mr. Andrew Henderson went to Exeter and Newton, where he was informed by a jobbing gardener at Newton that he had received Seven Pounds for them after (as the said jobbing gardener stated) he had been offered £20 for them by a nurseryman in London, but whose name or address he did not know.

Messrs. E. G. H. & Son give the above explanation in consequence of a great number of their customers throughout the autumn having ordered plants of them at higher prices than are above quoted. This reduction is made in consequence of information which they have received that leaves no doubt on their minds but that those to be sent out by Messrs. Lucombe, Pince, & Co. are similar in character to the above.

Messrs. E. G. HENDERSON & SON, of the Wellington Road Nursery, St. John's Wood, London, beg to inform their patrons and the public that their New Catalogue of Seeds for 1855 is now ready, with full descriptions and other information, and will be forwarded post free on application.

E. G. HENDERSON & SON take this opportunity of stating that none but the most popular and improved kinds of Vegetable Seeds appear in their list, and among the Flower Seeds only those whose beauty and merit are univerally acknowledged, together with a carefully selected stock of the principal new varieties. They would call particular attention to the following new and choice seeds, which they can confidently recommend:—

Per packet—	s.	d.	Per packet—	s.	d.
Antirrhinum, extra fine ...	0	6	Ipomœa limbata	2	6
Auricula, fine mixed ...	1	6	Leptosiphon luteum ...	0	6
Abronia umbellata	1	6	" aureum	1	6
Anagallis azurea grandiflora	1	0	Linum grandiflorum rubrum 1s. 6d., and	2	6
" rubra "	1	0	Lobelia Queen Victoria (scarlet)	0	6
Arctotis breviscapa ...	0	6	Lobelia Roi Leopold ...	0	6
Aster, new Peony pyramid, in packets of 10 distinct colours, separate ...	3	6	Larkspur, new double improved hyacinth flowered, in packets of 6 distinct colours ...	2	6
" new bouquet pyramidal, in packets of 12 distinct colours ...	3	6	Limnanthes sulphurea odorata	1	0
Balsam, double Camellia-flowered, in packets of 6 distinct colours, separate	3	0	Mignonette, new, large ...	0	3
" new double Camellia Rose, in packets of 10 distinct colours, separate, extra fine	5	0	Mimulus, beautiful ...	0	6
" Aurora, new double crimson	1	0	Pansy, choice show ...	1	6
" new dble. pale yellow	1	0	" choice fancy	1	6
Carnation, stage flowers .	1	6	Petunia, extra fine ...	1	0
Calceolaria, ex. ex. 2s. 6d. & 5s.			Phlox Drummondi coccinea	0	6
Cineraria, ex. ex. 1s. 6d. & 2s. 6d.			Portulaca, new orange ...	0	6
Chrysanthemum pompone	1	0	" new rose	0	6
" large flowered	1	0	Primula sinensis fimbriata, alba and rubra mixed ...	2	6
Calendrinia umbellata .	0	6	Poppy, new large Pæony, in 8 brilliant colours ...	2	0
Dianthus Dunnetti, suprb.	1	0	Reseda myriophylla, new Mignonette	1	0
" Chinensis flore-pleno, extra fine	0	6	Salpiglossis, scarlet, blue, and sulphur	0	6
Eschscholtzia tenuifolia...	1	6	Stock, German, new large flowering, in packets of six distinct colours ...	2	6
Geranium, choice show ...	2	6	Verbena, choice mixed ...	1	0
" choice fancy	2	6	Sweet William, new double	0	6
Hollyhock, first quality ...	2	6	Whitlavia grandiflora ...	1	6
" second quality ...	1	0			
Ipomœa rubro cærulea ...	1	6			

Lilium giganteum seed, 2s. 6d. and 5s. per packet.
Holcus saccharatus (new Sugar-cane), 1s. to 2s. 6d. do.
Dioscorea Batatas (Japanese Yam), 2s. 6d. each tuber.
20 Ornamental Grasses (see Catalogue).
12 Ornamental foliage Annuals.—March, 1855.

MESSRS. WILLIAM ROLLISSON AND SONS beg to inform their Patrons and the Public that their NEW CATALOGUE OF SEEDS for 1855 is now ready, and will be forwarded post free on application.

W. R. & Sons embrace this medium of stating that many of the Seeds most difficult to obtain true, such as Beet, Lettuce, the Brassica tribe, &c., &c., are of their own saving, and the others have been procured from growers of the highest reputation; particular attention having been paid to secure the German Flower Seeds from eminent sources; are therefore able to state with confidence that the whole of their seeds are of very superior quality. W. R. & Sons respectfully invite attention to the following Choice Flower Seeds, selected from their Catalogue:—

	s.	d.
Alonsoa Warscewiczi, a beautiful half hardy annual, of graceful habit, with spikes of scarlet flowers	2	6
Arctotis breviscapa, a free flowering showy annual from the Cape	1	0
Aster, new Pæony pyramidal, in collections of 12 distinct colours	3	6
Aster, dwarf bouquet, or nosegay, ditto ditto	3	6
Canna Warscewiczi, ornamental foliage plant	1	6
Centauridium Drummondi, orange coloured, very showy ...	0	6
Chenopodium atriplex, ornamental foliage plant	1	6
Clintonia pulchella, a lovely little blue flower	0	6
Coreopsis coronata, bright yellow, free flowering	0	6
Dianthus Dunnetti superbus, double Sweet William, of brilliant colour and dwarf habit	1	0
Digitalis (Foxglove), extra choice, saved from a collection of splendid spotted flowers	1	6
Elichrysum compositum maximum, large double flowers of many colours	1	6
Eschscholtzia tenuifolia, straw coloured, very distinct ...	1	6
Eucnida bartonioides, yellow, very beautiful	0	6
Gypsophila muralis, red flowers, very neat	1	0
Helianthus angophyllus, silvery foliage, very ornamental ...	2	6
Hibiscus Thunbergi, yellow, showy	0	6
Ipomœa limbata, a tender climber, Tyrian purple, with white margin, beautiful...	2	0
Lilium giganteum	5	0
Limnanthes sulphurea odorata, yellow, edged with white ...	1	6
Linum grandiflorum rubrum, a large bright crimson Linum from Algiers, with brilliancy of colour and style of flower which surpass three-fourths of the usual pot plants used for decorating the conservatory	2	6
Pansy, extra choice, saved from superb flowers	2	6
Phlox Drummondi, extra fine, mixed	0	6
Primula sinensis fimbriata, alba, and rubra, saved from superb flowers, each	2	6
Reseda myriophylla, a very distinct new Mignonette ...	1	0
Sabbatia campestris, fine rose with yellow centre, really beautiful	1	0
Stock, dwarf double autumn flowering, in collections of 12 distinct colours	3	0
Stock, new large flowering German, in collections of 12 distinct colours	3	6
Tropæolum Lille Schmidt, good for winter blooming ...	0	6
Vittadinia lobata, pink, very compact and dwarf	1	0
Whitlavia grandiflora, large dark violet bell-shaped flowers	1	6

Messrs. W. Rollisson & Sons are desirous of directing especial attention to their fine Collection of Fruits, which contains all the choicest varieties in cultivation. The rare Cymbidium eburneum is now in blossom and can be seen at the

Nursery, Tooting, London.—March 10.

SUPERIOR GERMAN SEEDS WARRANTED.

JOHN WEEKS AND CO., King's Road, Chelsea, London, beg most respectfully to call the attention of their patrons to their very superior collection of German Seeds, Asters, Stocks, &c., which, having been grown, ripened, and selected under their own immediate care at their Branch Establishment in Germany, they can guarantee to be of the finest sorts and best quality. In order that ladies and gentlemen not possessing them from Messrs. Weeks this season may be enabled to judge of the rare beauty of the different sorts in their splendid collection, they will be grown at Messrs. Weeks' Horticultural Establishment, King's Road, Chelsea, where their patrons may make a personal selection for a future season.

For the general List of all other Seeds, see J. W. & Co.'s Seed Catalogue, and also their various Catalogues of Stove and Greenhouse Plants, Vines, &c. Also their Illustrated Catalogues on Horticultural Buildings and Heating by Hot Water.

EXTRA SELECT GERMAN SEEDS.

	s.	d.
GERMAN ASTERS.		
A Collection of 24 distinct and fine varieties of tall double quilled	8	0
Do. do. 12 finest and most distinct double Dwarf	6	0
Do. do. 12 do. do. Globe-flowered double	4	0
Do. do. 20 do. do. Pyramidal do.	7	0
Do. do. 12 do. do. Globe-flowered Pyramidal do.	8	0
Do. do. 10 do. do. Anemone-flowered Pyramidal do. ...	7	0
Do. do. 6 do. do. Dwarf Bouquet Pyramidal do.	7	0
Do. do. 16 do. do. Truffant's Pæony-flowered do.	10	0
GERMAN BALSAMS.		
A Collection of 20 fine and distinct varieties of Tall double	7	0
Do. do. 10 do. do. Dwarf double	5	0
Do. do. 10 do. do. Double Camellia-flowered	5	0
Do. do. 10 do. do. Double Rose-flowered	5	0
Do. do. 10 do. do. Double Camellia Rose-flowered	7	0
GERMAN COCKSCOMB.		
A Collection of 12 fine distinct varieties	7	0
GERMAN LARKSPUR.		
A Collection of 8 fine and distinct Tall double	3	6
Do. do. 12 do. do. Dwarf double	5	0
GERMAN STOCKS.		
A Collection of 36 distinct and beautiful varieties of Dwarf 10 weeks	10	0
Do. do. 16 do. do. do. Dwarf-branching do.	7	0
Do. do. 18 do. do. do. Wallflower-leaved do.	7	0
Do. do. 10 do. do. do. new large-flowered Dwarf do. ...	7	0
Do. do. 4 new hybrid perpetual-flowering 10 weeks ...	3	0
Do. do. 18 new and distinct vars. of new autumn-flowering	7	0
Do. do. 16 do. do. do. branching autumn-flowering	7	0
Do. do. 10 do. do. do. Emperor, or Perpetual-flowering ...	7	0
Do. do. 20 do. do. do. Winter or Brompton	10	0
GERMAN POPPIES.		
A Collection of 10 beautiful and distinct varieties of Carnation Poppies	4	0
GERMAN ZINNIA ELEGANS.		
A Collection of 12 beautiful and distinct varieties	7	0
FLOWER SEEDS.		
A Collection of 100 beautiful and distinct hardy and half-hardy Annuals, selected by J. W. & Co.	20	0
Do. do. 50 do. do. do. do.	10	6
Do. do. 25 do. do. do. do.	6	0
Do. do 50 beautiful and distinct hardy Biennials and Perennials, selected by J. W. & Co.	10	6
Do. do. 25 do. do. do. do.	6	0
Do. do. 36 beautiful and distinct tender Annuals and Biennials, selected by J. W. & Co.	15	0
Do. do. 24 do. do. do. do.	10	6
Do. do. 12 do. do. do. do.	6	0

John Weeks & Co., Horticultural Builders and Hot-Water Apparatus Manufacturers, Nurserymen, Seedsmen, &c. &c.

The Horticultural Building and Engineering Department is near Sloane Square, Chelsea. The Nursery Establishment is near the Cremorne Gardens.

CORNISH EARLY WHITE BROCCOLI, 1s. per packet, or 6s. per oz.
CONQUEROR OF THE WEST CUCUMBER, 1s. per packet, containing 12 good seeds.

The above can be had, warranted genuine, by forwarding stamps for the amount to

James Lake, Seedsman, &c., Bridgewater.

"THE CATALOGUE OF SEEDS sold by J. WHEELER AND SON, of Gloucester, appears to us to deserve notice, because of the stand which its authors make, in common with ourselves and others, against the useless incomprehensible Seed Lists of the day. In this, as in all matters of taste, there will be a diversity of opinion as to the relative qualities of the various sorts; yet the mass of buyers who have no fancies, but who dislike being perplexed, and are satisfied with what is excellent, will greatly prefer a short, select Seed List, to an interminable labyrinth of names, which, for the most part, represent nonentities or rubbish. Messrs. Wheeler's little book will do something to satisfy their expectations."—Gardeners' Chronicle.

J. C. Wheeler & Son will forward a copy of their Catalogue post free on receipt of two postage stamps. They can most confidently recommend the following collections of Garden Seeds, as comprising the most select sorts, and such that they feel sure will give entire satisfaction.

No. 1. A complete Collection, suitable for a large Garden ... 21s.
No. 2. A Collection of equally choice varieties, but smaller quantities ... ... 12s.
No. 3. A Collection suitable for a small Garden ... ... 7s.

These Collections will be sent Carriage Free to any Railway Station within 200 miles of Gloucester.

J. C. WHEELER AND SON, Seed Growers, Gloucester.

FIRST-RATE NEW FUCHSIAS, VERBENAS, CINERARIAS, GERANIUMS, PANSIES, ETC.

WM. RUMLEY AND SONS are now sending out the under-named in fine healthy plants, hamper included, or free by post, at the prices affixed, viz.:—

FUCHSIAS.—The following best new varieties of 1854, strong plants, 10s. 6d. per dozen, or six for 6s; or smaller plants, 6s. per dozen, or six for 5s.:—Admiral, Clio, Duke of Wellington, Elegans, Grandissima, Globosa Splendens, Henry Monteith, J. C. Palmer, Miss Hawtrey, Macbeth, Madame Auberge, Perfection (Standish's), Queen of Hanover, Thorntoni Perfecta, Vanguard, &c.

VERBENAS.—The following best new varieties of 1854, 9s. per dozen, viz.:—Arethusa, Angelina, Ajax (Mockett's), Ajax (Smith's), Annette, Captivation, Cardinal Wiseman, Francis Rousseau, Hector, Madame Schmidt, Mrs. F. G. Caley, Nancy, Superb, Queen, Rouge et Noir, Triumph, &c.

CINERARIAS.—The following best new varieties of 1854, strong plants, 12s. per dozen, or six for 7s.; or smaller plants, 9s. per dozen, or six for 5s., viz.:—Advancer, Empress Eugenie, Estelle, Etoile de Kaise, Garland, John Bull, Lord Stanley, Lablache, Lady Camoys, National, Nimrod, Novelty, Oriental, Polyanthiflora, Scottish Chieftain, &c. Good show varieties, 6s. per dozen.

GERANIUMS.—Extra fine, 9s. to 42s. per dozen; choice show do., 9s. to 30s. per dozen.

PANSIES.—Extra fine, 4s. to 6s. per dozen.

CARNATIONS and PICOTEES.—First-rate varieties, 15s. to 20s. per dozen pairs.

The above will be forwarded immediately to any part on receipt of a post-office order, payable at Richmond, Yorkshire.

A New Descriptive Spring Catalogue of the above, containing choice collections of Dahlias, Petunias, Antirrhinums, Hollyhocks, Chrysanthemums, Stove, Greenhouse, Bedding, and Hardy Plants, is now ready, and may be had on application.

Gilling, Richmond. Yorkshire.

"FASTOLFF RASPBERRY."—It is with much satisfaction that we announce a third award made by the London Horticultural Society, for examples of the above excellent Raspberry, unequalled by any other variety for size of its fruit and richness of flavour. It is reported in the *Gardeners' Chronicle*, as follows:—"Messrs. Youell, of Great Yarmouth, sent a boxful of beautiful fruit of the Fastolff Raspberry; they were unusually fine, and well deserved the certificate of merit awarded them."

Strong well-rooted Canes, 15s. per 100; Large White Raspberry, 24s. per 100; New Monthly Fruiting, 24s. per 100.

CHOICE FRUITS. (Warranted true to name.)

	Per dozen
APPLES, standard, in best selections, good heads ...	9s.
" dwarf " " ...	6
" trained " " ...	30
PEARS, standard " " ...	12
" dwarf " " ...	9
" trained " " ...	30
PLUMS, dwarf " " ...	36
" trained " " ...	36s. to 60
PEACHES, dwarf trained, in fine strong plants,	36s. to 60
NECTARINES, dwarf trained "	36s. to 60
APRICOTS " "	12
CHERRIES, standard in fine variety	6
" dwarf " ...	36s. to 42
" trained " ...	

GOOSEBERRIES, 25 of the finest varieties (good bushes selected for size and flavour, 30s. per 100; 4s. per dozen.

CURRANTS, improved large white Dutch, Black Naples, Knight's Castle (red), and Large Red Grape, 4s. per dozen; Knight's Sweet Red, 6s. per dozen; these are the most desirable kinds in cultivation, and are highly recommended.

RHUBARB, Myatt's Victoria, 9s. per dozen; Royal Albert, 6s. per do.; Linnæus, 9s. per do.; Tobolsk, 6s. per do. (strong).

SEAKALE, extra strong, 2 years, 6s. per 100; 3 years, 9s.

ASPARAGUS, extra strong, for forcing, 5s. per 100; 3 years, 3s. 6d.; 2 years old, 2s. 6d.

Orders of 2l. and upwards are delivered Carriage Free in London or Hull, or to any Railway Station within 20 miles of the Nursery.

YOUELL AND CO., Royal Nursery, Great Yarmouth.

LATE WHITE SUPERB BROCCOLI—"EMPEROR."

E. P. DIXON having purchased the entire stock of the above Broccoli of Messrs. Elletsons, Market Gardeners, Thorngumbald, near Hull, begs to announce that he is prepared to send it out in sealed packets at 2s. 6d. each. This Broccoli has been raised by the Messrs. Elletsons, the raiser of the Mammoth, sent out some time ago, who state that the EMPEROR, if sown at the same time, will come into use with it. Is of very dwarf growth, perfectly hardy, with heads from 15 lbs. to 20 lbs. weight; keeps its colour, and stands some weeks after it is ready to cut. A noble flower, and commands the best price of any other in the Hull market, where it is well known, and will be a great acquisition to the market gardeners around London, as well as those who wish for a fine Broccoli.

PURE MAMMOTH BROCCOLI.—Numerous applications having been made to Messrs. Elletsons last season for seed of the Pure Mammoth Broccoli, they determined to allow a flat price for Seed, carefully selected from the original stock, producing heads from 18 lbs. to 25 lbs. each. E. P. D. having purchased the stock of this celebrated Broccoli, is prepared to send it out in packets at 2s. 6d. each.

Each may be had of Messrs. Noble, Cooper, & Bowman, 6, Leadenhall Street; and Messrs. Hurst & M'Mullen, 6, Leadenhall Street; and of the Advertiser, 57, Queen Street, Cheapside, London.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds we sell are our own growing, and are proved before sending out, we especially succeed in giving entire satisfaction to our customers.

We solicit a trial, feeling assured of the receipt of most gratifying letters and renewed orders from those we had the honour of serving last year; and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

NEW BEDDING CALCEOLARIAS.

MESSRS. WILLIAM ROLLISSON AND SONS beg to announce that they have purchased the entire stock from Mr Cole of the undermentioned Gems, and will commence sending them out the first week in May.

CALCEOLARIA VARIABILIS, 10*s.* 6*d.* each.—As a bedding plant this will make a charming variety, and in some measure supply the deficiency there has been for durable and effective varieties of a light colour for the parterre. It is an excellent grower of very compact, pretty habit, and produces in great profusion immense trusses of blossom, which open of a delicate primrose colour, and change to white. Altogether it is a most desirable acquisition, and a variety thoroughly distinct to any in cultivation.

CALCEOLARIA ECLIPSE. 10*s.* 6*d.* each.—This is the most showy and brilliant coloured variety ever raised, of nice compact habit, producing large trusses of glowing crimson flowers, which are somewhat remarkable for the length of time they last in bloom; as a bedding plant its value will be inestimable. It was awarded a first class certificate by the National Floricultural Society, June 15, 1854, also at the Royal Botanic Gardens, July 5, 1854, and has been repeatedly noticed in the *Gardeners' Chronicle* for its good qualities and matchless colour.

The above two Calceolarias produce such magnificent trusses of blossom, and are so extremely effective, that they will be admirably adapted for Greenhouse and Conservatory decoration.

Messrs. W. R. & Sons have an excellent stock of Rollisson's Unique Geranium, which can be supplied at 5*l.* per 100. Although not new, this is a very useful and showy plant for bedding and general decorative purposes.

Messrs. William Rollisson & Sons beg to draw attention to their extensive Collection of Specimen and Half-specimen Orchids, Ericas, Azaleas, Stove and Greenhouse Plants, &c.&c., which are this season in unusually fine condition.

The Nurseries, Tooting, near London.

MESSRS. E. G. HENDERSON AND SON beg to draw especial attention to the following SHRUBBY BEDDING CALCEOLARIAS, which they can recommend as possessing first-rate properties and unsurpassed by any in cultivation.

The Calceolaria, as a bedding plant, stands pre-eminently high, and for a brilliant effect is unequalled by any in the parterre. The following new varieties, now for the first time offered for sale, possess a free, robust, and bushy habit, with a healthy vigorous growth; they can also with confidence be recommended for pot culture, as the length of time the flowers continue in perfection, and their large compact trusses, render them one of the most attractive flowers in the conservatory, even when placed beside the beautiful spotted and blotched Herbaceous Calceolarias.

Messrs. E. G. H. & Son having noticed many flowers of this class very beautiful, with colours and habits unexceptionable, when cultivated in pots and protected with glass, but when the same plants were planted in the open garden, they have proved anything but what was expected, and totally failed as bedding plants, either from the colours fading, or the growth and habit becoming stunted and changed so much that the abundance and continuance of flowering natural to this class was entirely wanting; consequently they determined that all their immense batch of Seedlings should be planted out in the open garden, where they flowered the whole of the summer, and as every other named variety in cultivation, both old and new, were also planted out beside them, a sure proof was thus obtained of the superior qualities of those now offered, and the best adapted for the purpose as compared with all known varieties.

To be sent out in May:—

	s.	*d.*
BRUNETTIA—Bright rich crimson, with extra large fine formed flowers, a most profuse flowerer, with a fine bushy habit, extra	7	6
CORREGGIO—Orange buff, shaded, free, large, and very showy, a first-rate bedding variety	7	6
MAGGIORE—Rich ruby crimson, with a large yellow cap, possessing a fine free growth, a noble bedding variety	7	6
MINNIE—Rich bright dark crimson flowers, a beautiful neat bedding variety, and remarkable free flowering, extra	7	6
NORMA—Crimson orange, very conspicuous, and one of the largest flowers of this class, free, vigorous, and noble growth	7	6
RED ROVER—Bright crimson shaded with orange, large, and free bloomer, fine habit	7	6
VEZZOSA—Flowers large and fine formed, of a bright orange and crimson shaded, with large trusses, flowering abundantly, and a splendid habit, extra	7	6
WILDFIRE—Bright dazzling orange and crimson shaded, large and very showy, fine free growth, extra	7	6

The Set of Eight Varieties, 2*l.* 2*s.*—March 10.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY respectfully invite attention to their stock of the following very desirable HARDY PLANTS.

Araucaria imbricata, from 2 to 7 feet high: as handsome as plants can be.
Cedrus Deodara, in any quantity, from 1 to 3 feet high
Do. do., 4, 5, 6, 7, 8, and 10 feet high; splendid plants
Cedars of Lebanon, 3, 4, 6, and 7 feet high
Pinus Douglasi, 3 to 10 feet
" insignis, 2 to 7 feet
" Menziesi, 3 to 7 feet
" Pinsapo, fine plants, 3 to 6 feet
" Nordmanniana, 1½ to 3 ft., all from seed and remarkably handsome
" nobilis, 1½ to 2 feet: a few larger, 5 and 6 feet high, on their own roots, and with perfect leaders
" Montezumæ, 2 to 4 feet
Pinus canadensis, 3 to 8 feet
Cupressus macrocarpa or Lambertiana, 4 to 7 feet
" thyoides variegata, 3 to 4 feet (the variegated white Cedar)
Juniperus, Upright Irish, perfect columns, 3 to 7 feet
" chinensis, 2 to 8 feet
Yew, common English, 3 to 8 feet
" Irish, 4 to 10 feet
" gold-striped, 1½ to 3 feet
" do., tall standards, 4 to 7 ft.
" Dovaston, or Weeping, worked on tall straight stems
Thuja aurea, the finest plants in the country
Libocedrus chilensis, the finest plants in the country
Large variegated Hollies
" Standard Bays

Also an immense stock of large Evergreens, Standard Ornamental Trees, &c.

All the Plants here offered may be seen growing in our Nursery: they are removed every year, and will travel any distance with perfect safety. Of some, such as Araucarias, Cedars, Golden Yews, Thuja aurea, Pinus nobilis, Nordmanniana we have any quantity; and the plants, for root and branch, are not to be surpassed. Priced Catalogues will be forwarded on application, enclosing two postage stamps, to WATERER and GODFREY, nephews and successors of the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey, near the Woking Station, South-Western Railway, where all trains stop, and where capital conveyances can be obtained.

The 2*d.* stamp will also include a descriptive Catalogue of their American Plants, Roses, and Nursery Stock in general.

ROSES! ROSES! A SUPERB AND VIGOROUS STOCK.

12 Dwarf perpetuals in 12 superb, all new vars. of last season, for 42*s.*, including Alexander Bachmety, Comte de Neufchatel, General Jacquiminot, Adam Paul, Glorie de France, Madame Domage, Glorie de Dijon, &c.

Any of the following dwarfs, best hybrid perpetuals, 12*s.* per dozen: Augustine Mouchelet, Baron Pervost, Clementine Syringe, Cymedor, Dr. Marx, Duc d'Aumale, Earl Talbot, Géant de Batailles, Jacques Lafitte, La Reine, Louis Bonaparte, Madame Laffay, Madame Prideaux, Marquis of Ailsa, Mrs. Elliott, Prince Albert, Prince of Wales, Prudence Rosea, Queen Victoria (Paul's), Reine Mathilde, Robin Hood, Standard of Marengo, Reine de Fleurs.

	£.	*s.*	*d.*
50 Dwarfs, all perpetuals, in 50 best vars., including the above	3	0	0
100 Dwarf Roses—100 best sorts	4	0	0
100 Dwarf " 50 best sorts	3	10	0
100 Standards, 100 best vars.	7	10	0
100 " 50 "	6	10	0
50 " 50 " all selected from perpetuals	4	0	0

Carriage free to all the London Termini with orders not under 20*s.*, and plants gratis with 40*s.* and upwards.

BASS & BROWN, Sudbury, Suffolk.

DILLISTONE AND CO., STURMER NURSERY, near Halstead, Essex, will supply the following at the annexed low prices:—

	s.	*d.*
12 fine perpetual blooming Roses, 1½ to 2 feet stems ...	12	0
12 " " dwarf Roses	9	0
Climbing Banksia Fortuniana, Jaune Serins, Cloth of Gold, Solfaterre, &c., each	1	6
100 good dwarf Roses, two of a sort	30	0
12 fine named Hollyhocks, including Pourpre de Tyre, &c.	9	0
100 unbloomed seedlings, strong from the best seed ...	15	0
Packets of seed from 20 best kinds, each packet	1	6
100 double French white Rockets, very showy and fragrant	15	0
12 hardy Climbers, including fine Clematis, Honeysuckles, &c.	9	0
12 showy mixed Carnations and Picotees for borders ...	6	0
100 evergreen and flowering shrubs, two of a sort	30	0
100 fine showy Herbaceous plants, two of a sort	20	0
12 double white and yellow Primroses	6	0
12 Hepaticas, in four sorts, fine	6	0
20 of the most popular and profitable Strawberries, 100 ... ... 2*s.* 6*d.* to	5	0

Remittances respectfully requested from unknown correspondents. Carriage of all orders above 20*s.* paid to London. Fine collection of Fruit trees, Seeds, &c.—March 10.

FISHER, HOLMES, AND CO. beg to offer the following, all of which are good sized healthy plants, such as they feel assured cannot fail to give satisfaction:—

Each—	*s.*	*d.*
Begonia Prestoniensis ...	1	0
Æschinanthus splendidus	1	6
" speciosus ...	1	6
Rogeria amœna	1	6
Hoya bella	1	0
" campanulata ...	1	6
" " large plants	3	6
Allamanda neriifolia ...	1	6
Ixora coccinea	1	6
" " smaller ...	1	0
Burchellia capensis ...	1	6
Franciscea confertifolia, flowering plants 1*s.* 6*d.* to	2	6
1 ditto, ditto, large ...	5	0
Cypripedium insigne ...	2	6
Henfreya scandens ...	1	0
1 Dracæna Draco, fine large plant	7	6
" terminalis, 2*s.* 6*d.* to	5	0
Brugmansia Knighti, fine plants	2	6

Each—	*s.*	*d.*
Justicia coccinea	1	6
Hexacentris myosoriensis	1	6
Eranthemum leuconervum	1	0
Cyrtanthera magnifica ...	1	6
Cantua dependens ...	0	9
" bicolor	0	9
Mitraria coccinea ...	0	9
Lycopodium umbrosum ...	1	0
" viticulosum ...	1	0
" formosum ...	1	0
" apothecum ...	1	0
" braziliense ...	1	0
" lousianum ...	1	0
" Pœppigianum	1	0
" cæsia arborea	1	0
Doodia aspera	1	0
Humea elegans, strong plants for flowering this season ... ... 1*s.* to	1	6
Fuschia Duke of Wellington	0	9
White Fairy Rose ...	0	6

The following smaller but nice established plants:—

	s.	*d.*
1 Musa Cavendishi ...	3	6
Cyrtoceras reflexa ...	1	6
Pentas rosea	1	0
Ugenia Ugni	2	6
Hoya picta	2	6
Fuchsia Domminiana ...	1	6
Tacsonia molissima ...	1	0
Clianthus magnificus ...	1	6
Yucca aloefolia	1	6

Azalea indica Apollo, Amabilis, Aurantia superbe, Decora, Duke of Wellington, double white, Extrani, formosa, Frosti, fulgens, Gem, Glory of Sunning Hill, Hebe, Ignescens, Lucombe majesta, Murrayana, Optima, Prima Donna, refulgens, and splendens. The above 1*s.* to 1*s.* 6*d.* each, all strong healthy bushy plants. Remittances from unknown correspondents will oblige.

Handsworth Nursery, Sheffield, March 10.

NEW AND CHOICE SEEDS.

FREE BY POST OR CARRIAGE PAID.

	s.	*d.*
Holcus saccharatus, per packet of 500 seeds ...	1	0
Holcus saccharatus, per packet of 1200 seeds ...	2	0
Danvers' new yellow Onion very early, half oz. ...	1	0
Picridium vulgare, for salad, per packet ...	0	6
Olive-shaped white Radish, 1 oz.	1	0
Rose China do., winter, per packet	1	0
Yellow Turnip do., very early, 1 oz.	1	0
Abronia umbellata, p. pkt.	1	0
Alonsoa Warscewiczi, splendid half-hardy annual for pots or bedding, orange and scarlet, 12 seeds	1	0
Arctotus breviscapa, per packet	1	0
Browallia abbreviata, very showy for pots or bedding, 12 seeds	1	6
Calandrinia umbellata, per packet	1	0
Clintonia pulchella, p. pkt.	1	0
Coreopsis Drummondi grandiflora, per packet	0	6
Delphinium chinense, per packet	0	6
Double Convolvolus minor, per packet	1	0
Double dark Dianthus, extra, per packet ...	0	6
Gomphrena Haageana, orange, per packet ...	0	6
Gypsophila muralis, red, dwarf, suited for bordering, very pretty, 25 seeds	1	0
Helianthus californicus, fl. pl., 10 seeds	1	0
Helianthus argophyllus, silvery foliage and yellow blossoms, 12 seeds	1	0
Helichrysum brachyrhynchum, 50 seeds	1	0
Helichrysum compositum maximum, large double flowers from yellow to scarlet, fine, per packet	1	0
Heliophila trifida "	1	0
Hibiscus Thunbergi, yellow, per packet	0	6
Iberis umbellata violacea superba, per packet ...	0	6
Ipomœa limbata, purple, with clear white border, most beautiful climber, 6 seeds	1	6
Ipomœa rubro cærulea, 6 seeds	1	0
Lamarckia aurea, per pckt.	0	6
Linum decumbens, red, per packet	0	6
Lisianthus Russellianus, 100 seeds...	1	0
Lobelia ramosa, per pckt.	0	6
Lupinus guatemalensis, per packet	0	6
Mesembryanthemum tricolor, per packet ...	0	6
Phlox Drummondi, fine, per packet	0	6
Phlox Leopoldi, per pckt.	1	0
Portulaca aurea, "	0	6
" splendens "	0	6
" Thellusoni "	0	6
Rhodanthe Manglesi, per packet	0	6
Salpiglossis variabilis, per packet	0	6
Sabbatia campestris, very handsome half-hardy annual for pots or bedding, pink with yellow eye, 50 seeds	1	0
Saponaria multiflora, p. pkt.	0	6
Schizopetalum Walkeri, per packet	0	6
Zinnia elegans coccinea, per packet	0	6

Collections suited for competition of the finest imported German Asters, German Stocks, Balsams, Larkspurs, Marigolds, Scabios, and Zinnias, from 2*s.* 6*d.* to 7*s.* 6*d.*

Dioscorea Batatas, 2*s.* 6*d.*; or five sets for 10*s.* 6*d.*

THOMAS JACKSON AND SON, Kingston-on-Thames.

TO THE TRADE.

MESSRS. YOUELL AND CO. would call the attention of Nurserymen to the fact that they still hold a large number of flowering HEATHS and EPACRISES in 48's, whilst in small and large 60's they also possess a large stock of well grown healthy plants, many of the Heaths and most of the Epacrises well set for flower. They would particularly recommend this size to parties purchasing largely and living at a distance, as owing to the size of the pots the expense of carriage would be but trifling. The Heaths, though by no means pot-bound, would require a shift immediately on their arrival; while the Epacrises, cut down after flowering, would make extra fine plants by next autumn. Terms liberal when taken in quantity.

Of ERICAS in 48's, well set for flower, we abound in Ventricosa superba extra, V. breviflora, V. tenuiflora, V. hirsuta, V. tumida, V. coruscans, V. densa carnea, V. fasciculata rosea, V. fasciculata supertia; Cavendishi, Metulæflora bicolor, Pyriformis, denticulata, moschata, rubens Lindelyana, hyemalis, fascicularis, &c. List and prices on application.

Royal Nursery, Great Yarmouth.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS FOR IMPROVING OLD PASTURES.—Great improvement may be effected by sowing 8 to 12 lbs. per acre of SUTTON'S Renovating Seeds, which consist of Perennial Clovers and Grasses of the finer kinds for improving the bottom.

An increase of several Tons of Hay per acre has been thus effected on many Meadows and Upland Pastures. The Seeds should be sown early.

The drought of last summer having caused partial failures in the ordinary Grass and Clover Leys, SUTTON'S Renovating Grass Seeds may be sown with great advantage *in all such cases.* PRICE REDUCED TO **9d.** PER POUND.

SUTTON & SONS *also supply Grass Seeds for laying down Land to Permanent Pasture at a moderate expense, the sorts being selected in accordance with the nature of the soil to be laid down, particulars of which may be obtained by post.*

Goods delivered Carriage Free by Rail.

Address JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

NOTICE.—For full particulars of EDWARD TILEY'S two unequalled new Cucumbers, Melons, and Seedling Potato, see advertisement in *Gardeners' Chronicle* of 24th February, 1855, page 128, together with an exact representation of the Cucumber, Sir Colin Campbell.

TWO NEW CUCUMBERS, SIR COLIN CAMPBELL and GENERAL CANROBERT, 3*s.* 6*d.* per packet, or a packet of each and a packet of either of the Melons mentioned in the advertisement of the above date (except Golden Drop and Scarlet King), for 6*s.*

TILEY'S SEEDLING POTATO, THE CHAMPION KIDNEY, the best and earliest in the world, price 5*s.* 6*d.* per peck, hamper and package included, or 1*l.* per bushel.

UNEQUALLED NEW MELON, GOLDEN DROP (Green Flesh), price 1*s.* 6*d.* per packet.

THE KING, a superb Scarlet Flesh Melon, 1*s.* 6*d.* per packet. A packet of Golden Dróp, one of the King Melon, together with a packet of any other variety mentioned in the former advertisement, will be forwarded post free on receipt of 3*s.* 6*d.* in cash or penny postage stamps.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somersetshire.

TO NURSERYMEN.

TENDERS are required for the supply of the following TREES and SHRUBS, which are to be delivered during the month of March at the "Half Moon Inn," Godstone Road, in the Parish of Caterham, in the county of Surrey.—Tenders are to be addressed to ALFRED SMITH, Caterham, Croydon, Surrey.

All the following are to be 3 feet high:—

1000 Acacia Thorn.	1000 Scotch Firs.
5000 Ash.	1000 Weymouth Pine.
1000 Mountain Ash.	100 Cedrus deodara.
5000 Beech.	5000 Spruce.
1000 Weeping Beech.	1000 Lombardy Poplar.
5000 Weeping Birch.	5000 Larch.
1000 Horse Chesnuts.	1000 Silver Fir.
5000 Spanish Chesnuts.	1000 Walnut.
1000 Wych Elm.	500 Weeping Willow.
3000 Common Holly.	500 Broom, of sorts.
1000 Laburnum.	200 Cotoneaster.
1000 Lime.	100 Scarlet-flowering Currant.
1000 Maple.	1000 Laurel.
2000 Oak.	1000 Portugal Laurel.
1000 Corsican Firs.	5000 Privet.
1000 Mountain Firs.	100 Yew.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, &c., which they will forward to any part:—

	s.	*d.*
Andromeda floribunda, per dozen ... ... 12*s.* to	18	0
25 Azaleas, new hardy Belgian varieties, one of a sort, by name on their own roots	20	0
25 Azaleas, American varieties, do. do.	16	0
Hardy Heaths, Ledums, and Kalmias, per dozen	6	0
25 Hardy American Plants, one of a sort, by name ...	10	6
12 Rhododendrons, including scarlet, white and rose ...	12	0
Fine hardy Scarlet Rhododendrons, 1 to 2 feet, per dozen...	12	0
New Yellow Rhododendrons, in pots, each ... 3*s.* 6*d.* to	5	6
6 Fine hardy Magnolias, one of a sort	10	0
50 Dwarf Roses, two of a sort, on their own roots	15	0
Standard and half standard Roses, superb sorts, per dozen ... ... 12*s.* to	15	0
Fine climbing Roses, of sorts, per dozen	6	0
Bourbon Roses, budded, 1 foot, fine for beds or edgings, do.	10	0
Fitz-Roya, Saxe-Gotha, Cephalotaxus, and Libocedrus, each	5	0
Wellingtonia gigantea, and other choice and cheap hardy Coniferæ (see list).		
Cedar of Lebanon, 2 to 3 feet, well grown, per dozen, 12*s.* to	18	0
Greenhouse Azaleas, choice varieties, per dozen ... 12*s.* to	18	0
12 Camellias, with buds, fine sorts, for	30	0
50 choice Greenhouse plants, one of a sort	45	0
Orchidea Plants, beautiful species, by name, per dozen ...	40	0
24 choice Ericas, one of a sort	16	0
24 choice Fuchsias, fine proved varieties	12	0
6 Tree Carnations, choice sorts	6	0
Verbenas and Petunias, best new sorts, per dozen	6	0
First Class Carnations, Picotees, and Pinks, per dozen ...	10	0
25 choice Pansays, one of a sort—	10	0
12 Pæonias new white, pink and blush of sorts	8	0
25 choice hardy herbaceous plants named	7	6
Choice Flower Seeds, 20 papers, 5*s.*; 45 ditto, 10*s.* Free by post.		

FRUIT TREES.

	s.	*d.*
Fine standard and dwarf-trained Apples, Plums, Pears, and Cherries of the very best sorts, 2*s.* 6*d.* each, or per doz.	24	0
Fine Gooseberries, Currants, and Raspberries, per dozen	3	0
Figs, Medlars, Quinces, Walnuts, and Mulberries, each ...	2	0
Filberts, new thin shelled and red skinned, per dozen ...	3	0
Strong Vines, from eyes and layers, in pots, per dozen ...	18	0

A large stock of fine Transplanted Scotch Larch and Spruce Firs, cheap. Also Evergreen Shrubs of all kinds.

New Priced Catalogues of Plants and Seeds free by post.

Albion Nursery, Stoke Newington, London.—March 10.

NEW BEDDING GERANIUM.

GAINES' SCARLET UNIQUE.

N. GAINES begs to inform the nobility, gentry, and trade in general that he can supply strong healthy plants of the above beautiful variety. In habit it is like Rollisson's Unique, producing magnificent trusses of brilliant scarlet flowers. It was exhibited at the Chiswick and Royal Botanic Horticultural Shows, where it was considered a great novelty, and well adapted for bedding purposes. Price 5*s.* per plant; when three are taken, a fourth will be sent to compensate for carriage.

A Descriptive List of his large Collection of Pelargoniums, Dahlias, both Show and Fancy varieties, also Stove, Greenhouse, and Hardwooded Plants, may be had post free, by applying at the Nursery, Surrey Lane, Battersea, Surrey.

PELARGONIUMS,

FUCHSIAS, PANSIES, VERBENAS, ETC.

JOHN DOBSON AND SON having a large and healthy stock of the above, beg to offer them at the low prices affixed; the plants are all in the finest health and require immediate repotting.

PELARGONIUMS from named varieties, 12*s.*, 21*s.*, 30*s.*, 42*s.*, and 63*s.* per dozen.

PANSIES, a first-rate collection, 6*s.*, 12*s.*, and 18*s.* per dozen.

FUCHSIAS, 12 fine varieties, including Vanguard, Queen of Hanover, Duchess of Lancaster, Glory, Duke of Wellington, &c., 10*s.*; older varieties, 9*s.* and 12*s.* per dozen.

VERBENAS, the best of last season's English and French varieties, 6*s.* and 9*s.* per dozen. A general descriptive Catalogue of the above may be had for one postage stamp.

Woodlands Nursery, Isleworth.

FOR MORE THAN A HUNDRED YEARS the SEEDS grown by WHEELER, of Gloucester, have been held in high repute in the West of England, for genuiness, purity, and excellent quality. The 3*l.* collection contains all the Seeds necessary for the year's supply of a large garden; the 30*s.* collection contains Sangster's No. 1, and Fairbeard's Nonpareil Peas; Wheeler's Imperial Cabbage; Bicton Cos Lettuce; Newington Wonder Beans; with other choice sorts of Peas, Beans, and Seeds suitable for a moderate-sized garden; and the 15*s.* collection comprises the Seeds suitable for a small garden.

These collections will be forwarded carriage free, and every dependence may be placed on the Seeds contained in them.—J. C. Wheeler & Son, Seed Growers, Gloucester, Seedsmen to the Gloucestershire Agricultural Society. Established in the early part of the 18th century.

NEW PANSIES.

WILLIAM JAMIESON is prepared to send out fine healthy plants of the following, viz.:—

CAPTAIN BARCLAY (Jamieson), yellow ground, upper petals dark glossy maroon, lower petals margined with the same, lies flat and perfectly smooth on the edge, ground colour all one shade. This flower was submitted to the Editor of the *Gardeners' Chronicle* for opinion, who thus notices it in that Paper, July 1, 1854, page 423:—"*W J P.* Your yellow ground flower is distinct and well shaped, with a good bold eye; it is of medium size, and we should say, if we may judge from the number of blooms sent, that it is constant; all the blooms (four) are uniform and good." 5*s.*

TOPAZ (Jamieson), deep yellow, fine form and substance. The following is the opinion of Mr. Turner, Editor of the "Florist," in the October Number, 1853:—"*W J P.* A very good yellow self, rich dense eye, medium size;" it was also awarded a Certificate at the Glasgow and West of Scotland Horticultural Show, August 17th, 1853; 5*s.*

The allowance to the trade. All orders must be accompanied by a remittance.—Address, William Jamieson, 4, Wellmeadow Street, Paisley, N.B.

SUPERB NEW HYBRID HEATHS.

LUCOMBE, PINCE, AND CO., are now prepared to send out their beautiful well-known New Hybrid HEATHS; they were exhibited at the Horticultural Society's meeting in Regent Street, and obtained the large Silver Medal. The following is the description given by the Editor of the *Gardeners' Chronicle*, May 28, 1853:—

"Messrs. Lucombe, Pince, and Co. *received a Large Silver Medal for a collection of new Hybrid Cape Heaths consisting of Lindleyana, Exonienis, Insignis, Pulcherrima, Exquisita, and Metulæflora superba, all fine kinds possessing large bold flowers and bright clear colours; they were stated to have been raised from Massoni, Ampullacea, Sprengelli, Hartnelli, and Aristata, all it will be seen good parents.*"

L., P., and Co. can assure all cultivators of this beautiful tribe of Plants that these fine varieties cannot fail to give satisfaction, as they possess excellent habits and have large rich coloured flowers of much substance, which are produced in great profusion, properties that fully justify L., P., and Co. in very strongly recommending them to the public. Price, 3*l.* the set of six.

Exeter Nursery, Exeter. Established 1720.

NEW PLANTS.

A. VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to offer to Amateurs and to the trade his following new plants:—

ACHIMENES (TREVIRANIA), AMBROISE VERSCHAFFELT. This is the finest Achimenes of all; a correct drawing is figured in L'Illustration Horticole, Number 1, 1855. Nice plants will be sent out next May, each 8*s.*—N.B. One over if three plants are taken.

TYDÆA WARSCEWICZI; magnificent plant for foliage, and particularly for the flowers. It is the finest gesneriaceous plant of all; a correct drawing is figured in L'Illustration Horticole, Number 1, 1855. Strong plants are now ready for sale, each 15*s.*—N.B. One over if two plants are taken.

RHODODENDRON (HARDY) PRINCE CAMILLE DE ROHAN. This is the finest hardy variety raised; a correct drawing is figured in L'Illustration Horticole, Number 2, 1855. This variety is warranted to be quite hardy, and very free bloomer. Nice plants will be sent out next May, each 15*s.* N.B. One over if three plants are taken.

Agent in London: Mr. R. Silberrad, 5, Harp Lane, Great Tower Street.

WILLIAMS' EVERGREEN CLIMBING ROSE.

WILLIAM WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, have strong Plants of the above now ready for delivery. This highly interesting and valuable addition to the class of Evergreen Climbing Roses was raised by the late John Williams, Esq., of Pitmaston. It is a Seedling from Ayrshire Splendens, fertilised with Yellow Tea. Its rapid growth and elegant habit is precisely like the Ayrshire Splendens, while its glossy foliage and long lemon-coloured buds partake of the character of the Yellow Tea. Its flowers are creamy white, deliciously sweet-scented, and are borne in long racemes of 12 to 20 on a single shoot, being produced from every axil. It is highly desirable for covering walls, lattice work, verandahs, or buildings of any kind, and, as a pillar Rose, is unequalled, being of an extremely elegant habit for forming festoons or arches, and is also very hardy. For Bouquets it is a most beautiful variety, producing an immense number of its finely-formed buds. It only requires to be grown to be pronounced the best Climbing Rose for all purposes in cultivation.

Good established Plants at 3*s.* 6*d.* each, with the usual allowance to the trade, and a further reduction when one dozen or more are ordered at once.

AGRICULTURAL SEEDS,

MEADOW & PASTURE GRASSES, &C.

PETER LAWSON AND SON, of Edinburgh and London, the Queen's Seedsmen, Nurserymen, and Wood Foresters; and to the Highland and Agricultural Society of Scotland, beg to intimate to their English Customers and the Public that they are now sending out FARM SEEDS of every description, saved from genuine stocks, and for which they respectfully solicit orders.

Also Garden Seeds, Flower Seeds, Garden Implements, Draining Tools, and everything connected with their trade. Catalogues will be sent on application.

London Branch, 27, Great George Street, Westminster.

P. L. & S. are always able to recommend experienced Bailiffs, Gardeners, and Foresters.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their Mixtures of Grass Seeds are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre ... ... 30*s.* per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre.

Mixtures for improving and renovating old Grass Land, 1*s.* per lb.

Mixtures (finest sorts) for forming Lawns... ... 1*s.* 3*d.* per lb.

These Seeds are are all new, and have all been properly cleaned and their growing properties fully tested. Directions for sowing accompany the seed.

G. G. and Co.'s New Priced AGRICULTURAL CATALOGUE will shortly be ready, and will be forwarded free on application.

GEORGE GIBBS & CO., Seedsmen,

26, Down Street, Piccadilly, London.

CHARLES TURNER begs to intimate that his New SPRING CATALOGUE is now ready, and contains descriptive lists of—

Dahlias,	Carnations,	Scarlet and Horse-shoe Geraniums,
Fancy Dahlias,	Picotees,	Delphiniums,
Cinerarias,	Pinks,	Mimulus,
Verbenas,	Pansies,	Pentstemons,
Fuchsias,	Auriculas,	Petunias,
Hollyhocks,	Shrubby Calceolarias,	Bedding Plants, &c.,
Chrysanthemums,		

including several new Dahlias, new Verbenas, new White Bedding Calceolarias, &c., offered for the first time. Can be had on application.—Royal Nursery, Slough.

TO THE SEED TRADE.—

TURNIP SEEDS, &c.

Skirving's or Liverpool Swede	Orange Globe Wurzel
Laing's	Broccoli, of sorts
White Globe Turnip	Fairbeard's Nonpareil Peas
Green	Cole's Crystal White Celery.
Red Tankard	

W. J. Epps can with confidence offer the above (not large quantities), having been grown from the best selected stocks possible.—Prices sent on application.

Seed Establishment, High Street, Maidstone, March 10.

CHOICE FLOWER SEEDS,

FOR PRESENT SOWING. Per packet.—*s.* *d.*

Pansy,	saved from	100 of the best varieties, by name	...	2	6
Polyanthus,	do.	50 do. "	...	2	6
Verbena,	do.	50 do. "	...	2	6
Hollyhock,	do.	60 of the most superb kinds "	...	2	6
Calceolaria,	do.	24 do., spotted varieties	...	2	6
Gloxinia,	do.	30 newest varieties	...	2	6
Daisy,	do.	50 of the new Belgian do. do. ...	...	1	6
Antirrhinum,	do.	20 best named varieties ...	...	1	0
Anemone,	from the most showy and brilliant kinds		...	1	0
30 packets of new and choice Flower Seeds			...	5	0

The above, per post, free. Postage stamps received in payment.

YOUELL AND CO., Royal Nursery, Great Yarmouth.

BEGONIA OPULIFLORA.

Guelder Rose Begonia.

C. H. GARDINER begs to offer strong Plants of the following:—BEGONIA OPULIFLORA; flowers pure white, with golden stamens in large heads resembling the Guelder Rose, and flowers profusely throughout the season. Strong plants each 10*s.* 6*d.*

Each—	*s.*	*d.*
BEGONIA PRESTONIENSIS, strong plants	2	6
" SUPERBA	5	0
" SEMPERFLORENS	2	6
" INSIGNIS	2	6
" HYDROCOTYLIFOLIA MANICATA ...	2	6

Also the following choice Seeds free by post:—

Per pckt.—	*s.*	*d.*
CALCEOLARIA, from spotted and striped varieties ...	2	6
CINERARIA, from the best flowers	2	6
PRIMULA, fine fringed extra fine	2	6
PHLOX DRUMMONDI, fine mixed	1	0
MYOSOTIS AZORICUS (Forget-Me-Not)	1	0
ABRONIA UMBELLATA	1	0

Fant Nursery, Maidstone.

RHUBARB.

BASS AND BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk, offer the following:—

	s.	*d.*
Bailey's Early Monarch, a splendid early sort. Particulars see Bass & Brown's Seed and Plant List. Per root ...	2	6
Salt's Crimson Perfection, per root	7	6

Mitchell's Royal Albert, Myatt's Linnæus, and Myatt's Victoria Giant, each per dozen 7*s.* 6*d.*, or 1*s.* 6*d.* each.

STRAWBERRIES.

For Particulars see Seed and Plant List.

Admiral Dundas (Myatt's), per dozen	7	6
Scarlet Nonpareil (Patterson's), per dozen	12	0
Omar Pacha (Ward's), per dozen	10	0
Magnum Bonum (Barrett's), per dozen	6	0

Other best older sorts, 3*s.* to 10*s.* per 100.

POTATOES.

True and Free from Disease.

British Queen, per bushel of 56 lbs.	7	0
Soden's Early Oxford do.	9	0
Flour Ball do.	9	0
York Regents do.	6	0

For other sorts see Seed and Plant List.

Fine trained Apricots, Peaches, Nectarines, Plums, &c.

Goods (not under 20*s.*) Carriage Free to all the London Termini, or on the Eastern Counties, Colchester line.

WILLIAM MASTERS AND SON, Landscape Gardeners, Nurserymen and Seedsmen, Exotic Nursery, Canterbury, have assorted Collections of VEGETABLE and FLOWER SEEDS, containing the most desirable varieties in cultivation.

VEGETABLE SEEDS.

No. 1. Collection for a large garden, containing 20 quarts of Peas of the best sorts for succession, 10 best sorts of Broccoli, 8 do. of Lettuce, with all other Vegetables in proportion	£2	10	0
No. 2. The best new and other sorts in smaller quantities	1	10	0
No. 3. Ditto Ditto Ditto	1	0	0
No. 4. A collection of esteemed kinds for a small garden	0	10	6

FLOWER SEEDS, with printed directions for their culture, in collections of 12 for 2*s.*; 25 for 4*s.*; 50 for 8*s.*; 100 for 15*s.*

William Masters & Son respectfully solicit commissions, and beg to intimate to their kind patrons, that the varieties to be included in these Collections may be selected by their own Gardeners, from the newly printed Lists to be had on application.

Great Novelties for the Ensuing Season,

FUCHSIAS WITH WHITE COROLLAS.

LUCOMBE, PINCE AND CO. beg leave to announce that they shall be prepared to send out two splendid and entirely novel Seedling Fuchsias, early in May next, viz.:—

FLORENCE NIGHTINGALE.

Pure white corolla, with brilliant scarlet sepals, finely reflexed, an extremely lovely and novel variety.

GALANTHIFLORA-PLENA

(The Double Snowdrop Corolla'd Fuchsia.)

Pure double white corolla, resembling a fine large double Snowdrop, with rich scarlet sepals; altogether distinct from anything of the kind ever yet produced. Price 10*s.* 6*d.* each.

The usual discount to the Trade when three or more are taken.

Exeter Nursery, Exeter.—Established 1720.

SEEDS CARRIAGE FREE.

SUTTON'S COLLECTIONS OF SEEDS.—A Clergyman, whom we have had the honour of supplying many years, writes us:—"*I have much satisfaction in recommending your Seeds to various friends, as I find they are much pleased with them;*" and another purchaser says, "*I never received so numerous a Collection, so good in quality, from any house.*"

We therefore confidently recommend those gentlemen who are not themselves acquainted with the best sorts of Vegetables, to order immediately (while we have a large Stock), one of the undermentioned complete Collections:—

KITCHEN GARDEN SEEDS.

No. 1. A complete Collection, for one year's supply ...	£ 5	5	0
No. 2. A complete Collection, in reduced quantities ...	3	3	0
No. 3. Ditto Ditto Ditto	2	2	6
No. 4. Ditto Ditto Ditto	1	1	0
	0	15	0

HARDY AND SHOWY FLOWER SEEDS (post free.

No. 5. A Collection of the best 50 sorts known	0	10	6
No. 6. A Collection of the best 36 sorts known	0	7	6
No. 7. A Collection of the best 24 sorts known	0	5	0

SUTTON'S CATALOGUE OF SEEDS will be sent post free.

John Sutton & Sons, Seed Growers, Reading, Berks.

SUPERB DOUBLE HOLLYHOCKS.

JOSEPH BUTLER, Gardener to R. Hills, Esq., Colne Parke, Halstead, Essex, begs to inform the public that he has now ready to send out a large STOCK of new and the superb DOUBLE HOLLYHOCKS in cultivation named from 6*s.* to 25*s.* per doz. if left to J. B.'s selection. Catalogues sent on application, enclosing one penny postage stamp. Packets of seed saved from this superb collection on the receipt of 12 postage stamps post free. Post-office Orders on Halstead Post-office from unknown correspondents. A liberal allowance to the trade.—March 10.

GENUINE WHITE AND BROWN PORTUGAL ONION SEED, growth of 1854, 3*s.* 6*d.* per lb. Carriage paid to any railway station in England on all orders of notes to the value of 40*s.* value, and smaller quantities free a proportionate distance.

N.B. A Price List of Garden and Agricultural Seeds free by post on application.—Edward Taylor, Nurseryman and Seedsman, Malton, Yorkshire.

IMPORTED GERMAN FLOWER SEEDS.

T. F. WINSTANLEY has received his annual importation (direct from Frankfort) of unrivalled Collections of German Seeds, including Double Ten-Week Stocks, Asters, Zinnia elegans, Truffeaus, new Pæony-flowered Aster, very beautiful, and many other varieties too numerous for insertion. Prices on application; lists free by post.

28, Market Place, Manchester.

BEAUTIFUL FLOWERS.—Twelve packets, each packet containing 100 Seeds, 1*s.*; sent free per post, 1*s.* 3*d.* a 5*s.* packet sent free per rail. Abronia umbellata, Eccremocarpus scaber, choice Gloxinias, Lophospermum Hendersoni, Lisianthus Russellianus, and every other choice variety 6*d.* per packet. Dwarf German (10 week) Stocks, as imported, 36 varieties, each variety 3*d.* per packet.—Wm. Cullingford, 1, Edmund Terrace, Ball's Pond, Islington, London.

N.B. Elletson's superb new late Dwarf White Broccoli Seed ("Emperor"), 2*s.* 6*d.* per packet. The Broccoli raised from this seed weigh from 17 lbs. to 25 lbs. each.

RHUBARB ROOTS for FORCING or PLANTING.—Strong one-year planted roots of MYATT'S VICTORIA and LINNÆUS, MITCHELL'S ROYAL ALBERT, at 6*s.* per doz.; HOWARD'S PRINCE ALBERT, 12*s.* per dozen. This is a larger variety than the Victoria, and is extensively cultivated about Manchester. Price to the trade of the above, per 100 or 1000, on application to Messrs. J. MYATT AND SONS.

Manor Farm, Deptford, March 10.

CHEAP AND GOOD CINERARIAS.—Fine flowering plants from Turner's best seed in large 60 and 48 pots, just coming into bloom, at from 4*s.* to 6*s.* per dozen. Also fine plants of named varieties, consisting of Mr. and Mrs. S. Herbert, Adela Villiers, Garland, Constellation, Lady Campbell, Kate Kearney, Flora M'Ivor, Étoile de Vénus, at 9*s.* per dozen.—Wood & Ingram, Nurseries, Huntingdon.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The annual importation of the above named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. Corbett's Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmasan Cheeses.

MAY'S MAGNUM BONUM LETTUCE.—Parties who were disappointed last season in receiving the above can now have it by early application, in Packets 1*s.* each, free by post. We have numerous letters to show, received from parties who had it last season, asserting that it is the most magnificent Lettuce they ever saw.—Address, Henry May, The Hope Nurseries, near Bedale, Yorkshire.

JOHN GRIGOR AND CO., Nurseries, Forres, N.B., have for sale several millions of Seedling and Transplanted TRUE HIGHLAND SCOTCH PINE PLANTS, raised from Seeds collected in the celebrated native Forests of Strathspey. They have received the numerous premiums hitherto awarded by the Highland and Agricultural Society of Scotland for the propagation of the true native Pine. The superiority of these plants compared with the produce of planted woods, degenerated by cultivation, will be seen on referring to the article "Pine Tree" in *Morton's Agricultural Cyclopædia*, published by Blackie and Son. Priced Lists on application.

AMERICAN NURSERY.

GEORGE BAKER'S DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, &c., as exhibited by him in the Royal Botanic Gardens, Regent's Park, may be had by inclosing two postage stamps.

G. B. begs to call attention to his fine stock of Weeping Hollies, Coniferous Plants, Ornamental Shrubs, &c.—American Nursery, Windlesham, near Bagshot, Surrey, near Sunningdale Station, South-Western Railway, where conveyances may be obtained.

AMERICAN PLANTS.—A Descriptive Priced CATALOGUE of HARDY AMERICAN PLANTS for the coming season is just published, and may be had by inclosing two stamps for postage. As everything in the way of American Plants is grown to an unequalled extent at this Nursery, intending purchasers would do well to provide themselves with this Catalogue.

WATERER AND GODFREY, Nephews and Successors to the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey.

"NORFOLK HERO" CUCUMBER.—Without exception the very best Cucumber for open ground cultivation that has yet been offered. It is a most prolific bearer, as handsome as any frame variety, and is as delicate in point of texture the fruit measuring from 16 to 20 inches in length. It is in the sole possession of YOUELL & Co., who will forward per post free on receipt of postage stamps) packets containing six seeds, 1s.; 18 Seeds, 2s. 6d.—"To Market Gardeners the above will be found a great acquisition."

Royal Nursery, Great Yarmouth.

GEORGE SMITH'S PRICED AND DESCRIPTIVE CATALOGUE of first-class Verbenas, Fuchsias, Geraniums (Show, Fancy, Variegated, and Scarlet), Dahlias, Chrysanthemums, splendid new Hollyhocks, very choice Petunias, &c., will be forwarded in return for one postage stamp.

The Geraniums are in extra fine condition, and require repotting. Parties giving orders immediately will save much in carriage, with less liability to damage by having them before they are repotted. Choice Verbena Seed from the finest show flowers.—Tollington Nursery, Hornsey Road, Islington, London.

ESTABLISHED ABOUT HALF A CENTURY.

SEED AND HORTICULTURAL ESTABLISHMENT,

SUDBURY, SUFFOLK.

BASS AND BROWN'S

NEW SEED AND PLANT LIST FOR 1855 contains

THEIR very select and choice Assortments of VEGETABLE and FLOWER SEEDS; superior Mixtures of the best GRASSES for PERMANENT PASTURES, PARKS, LAWNS, BOWLING GREENS, &c.; also AGRICULTURAL SEEDS of the finest selected Stocks; a great variety of Flower Roots and Bulbs suited for Spring Planting; descriptive lists of very choice collections of Achimenes, Gloxinias, Fuchsias, Verbenas, Petunias, Dahlias, Bedding Calceolarias, Chrysanthemums, Bedding Plants, &c.

The AUTUMN CATALOGUE contains lists of New and Select Stove and Greenhouse Plants, Geraniums, Cinerarias, Azaleas, Hollyhocks, Hardy Climbing Plants, Coniferæ, and other Select Trees and Shrubs, Roses, Herbaceous Plants, Fruits, &c.

Both Catalogues embrace a large amount of descriptive and useful information for the convenience of purchasers. Supplied free by post for three penny stamps each, or gratis to our customers who may not have received them.

GOODS (not under 20s.) CARRIAGE FREE to all the Stations in London, and all Stations on the Colchester Line, between London and Norwich.

The large number of letters of satisfaction and approval from persons receiving articles both of Seeds and Plants from our Establishment, and the annual increase of patronage of which we are every year in possession, is a certain proof that our care in providing the best of everything is appreciated by the public, to whom we desire to tender our best thanks.

BASS & BROWN'S ASSORTED COLLECTIONS OF VEGETABLE SEEDS

Contain everything which may be desired for superiority of sorts. The sorts and quantities of the collections are specified in the Catalogue. For any sorts not wished for, enlarged quantities of others sent to make up the amount.

No. 1. COLLECTION for a large garden, containing quantities sufficient for one year's supply	£3	0	0
No. 2. COLLECTION in smaller proportion	2	0	0
No. 3. COLLECTION ditto	1	5	0
No. 4. COLLECTION of choice kinds for a small garden	0	15	0

FLOWER SEEDS—BEST ASSORTMENTS.

These may be had pre-paid *by post at the prices affixed, with printed instructions for sowing and raising Seeds.*

100 varieties select showy Annuals, which will include the beautiful new Leptosiphons aureum and luteum, Escholtzia tenuifolia, Whitlavia grandiflora, and other choice novelties of the season, also splendid prize Asters, Stocks, Zinnia, &c.	15s.	0d.
50 varieties, including new, 8s. 6d.; 30 varieties do., 5s. 6d.; 20 varieties do.	4	0
20 varieties choice Greenhouse Annuals, including the new Gomphrena aurantiaca, Salpiglossis atrosanguinea, the new Portulacas, Rhodanthe, Thunbergia, Phlox Drummondi, 7s. 6d.; 12 varieties do.	5	0
20 varieties best Dwarf Annuals, in large packets, for filling beds on lawns	7s.	6d.
12 varieties ditto ditto	5	0
20 varieties choice Greenhouse Perennials, including very fine and new Calceolaria, Cineraria, Fuchsia, Petunia, Verbena, Chorozema, Kennedyas, Calendrinia umbellata, &c., 10s. 6d.; 12 varieties do. ...	7	6
20 varieties Hardy Biennials and Perennials, including very choice Antirrhinum, Gladioli, Heartsease, Mimulus, Polyanthus, Dianthus, Brompton, and Emperor Stock, &c., 7s. 6d.; 12 varieties do. ...	5	0

A FEW NEW AND CHOICE FLOWER SEEDS.

Any of the following not priced are 6d. per packet. Those marked thus (*) have been omitted in the Catalogue.

GREENHOUSE PERENNIALS. s. d.
- Acacia, 3 varieties, each ... 0 6
- Calceolaria, very choice ... 1 0
- " extra, from new ... 2 6
- Calendrinia umbellata.
- *Chorozema cordata ... 1 0
- Cineraria, choice 1 0
- " extra, from new vars. of our superb collection 2 6
- Cobæa scandens.
- Coffræa Arabica (Arabian Coffee).
- Erythrina crista galli ... 1 0
- Geranium, choice 1 0
- " extra, from new vars.
- " of our superb collection 2 6
- " finest fancy varieties ... 1 6
- Gloxinia, extra, from our superior collection of new and choice... ... ... 2 6
- Heliotropium, choice.
- Primula sinensis.
- " do. fimbriata ... 1 0
- " do. do. alba ... 1 0
- " denticulata ... 1 0
- Tropæolum, 3 choice, 6d. to 1 0
- Verbena, choice 1 0
- " extra new, of our superb collection 2 6

HARDY PERENNIALS.
- Abronia umbellata.
- Alstrœmeria pulchella.
- Antirrhinum, extra, from our superb collection ... 1 0
- Aquilegia formosa.
- " glandulosa (true).
- Carnation and Picotee, extra, from collection of 400 varieties 2 6
- Dactylis variegata, fine variegated new striped leaved Grass.

HARDY PERENNIALS. s. d.
- Dianthus Dunnetti, very superb dark new Sweet William 1 0
- * " Burridgi, splendid new scarlet Sweet William 1 0
- * " maculata, very showy, red and white spotted.
- Gladiolus, from choice named early varieties of our superb collection ... 1 0
- Hollyhock, choice 1 0
- * " extra, from our fine collection 2 6
- Iris anglica, from best vars. of our very choice collection 2 6
- Lindheimara texana, new 1 0
- Pansy, extra, from best collections 1 0
- Potentilla, extra, selected from our finest named vars. 2 6
- Ranunculus, from very choice of our superb collection 2 6
- *Wallflower, beautiful, saved from imported vars.

GREENHOUSE ANNUALS.
- Balsam, saved from choice imported varieties.
- Gomphrena aurantiaca ... 1 0
- Ipomœa quamoclit, new white.
- " rubra cærulea ... 1 0
- Mesembryanthemum tri. alba.
- Phlox Leopoldi hybrid.
- " alba oculata.
- Portulaca, six superior new varieties, each 0 6
- " fine mixed.
- Rhodanthe Manglesi.
- Salpiglossus atrosanguinea.
- " new yellow.
- Schizanthus retusus albus.
- " Grahami carnea.

GREENHOUSE ANNUALS. s. d.
- Thunbergia, six superior vars., each 0 6
- " mixed varieties.

HALF-HARDY ANNUALS.
- Aster, Bishop's Prize, superb varieties.
- Calceolaria chelidonioides, beautiful yellow.
- * " new Californian sp.
- Grammanthes gentianoides.
- " gent. lutea.
- Lobelia ramosus alba, major and roseus, each ... 0 6
- Nomesia bicolor, new, beautiful, and very attractive 0 4
- Perilla Nankinensis, new, very fine for bedding out, dark purple variety.
- Pink, Imperial Indian, ex. 0 4
- Podolepis rugata, new, large, bright yellow, fine.

HARDY ANNUALS.
- Clary, white top, fine, new, and showy.

HARDY ANNUALS. s. d.
- Eschscholtzia tenuifolia, new, delicate clean straw; very dwarf, neat, and attractive. A Certificate awarded at Chiswick ... 1 6
- Gilia, Californian sp., habit of Capitata, flowers twice as large.
- Iberis violacea superba, ex. deep purple 0 4
- Leptosiphon aureum, very beautiful new bright golden, a Californian sp. Medal awarded at Chiswick 1 6
- " luteum, beautiful.
- Limnanthes sulphurea odorata, new, yellow, edged with white and rose-col. stamens, very fragrant ... 1 0
- Linum grandifl. rubrum ... 1 0
- Lupinus Hartwegi rosea.
- " monogynia, fine light and deep purple.

CHOICE IMPORTED SEEDS.

	s.	d.
30 Superb varieties Dwarf German Stocks, 5s.; 15 varieties	3	0
Choice new Sulphur, pale yellow	1	0
Fine new white Hybrid	1	0
10 Superb varieties, new, large flowering	2	6
New large flowering Chamois, very fine	0	6
18 Superb varieties, new wall-leaved, or Prussian	3	6
15 Superb varieties, Brompton Stocks, 3s. 6d.; 8 varieties	1	6
6 Superb varieties, Perpetual Emperor Stocks, lasting more than four years, and flowering three or four times a year	2	0
4 Superb varieties, new large flowering Emperor	2	0
24 Splendid vars. quilled and striped Aster, 5s.; 12 vars....	3	0
12 " Globe flowering Aster	2	6
12 " Pyramidal Aster	2	0
10 " Bouquet double dwarf	3	0
8 " French Pæony, flowering, very fine	4	0

Also choice imported Balsam, Cockscomb, Larkspur, Indian Pink, Salpiglossus, Sweet William, Wallflower, and Zinnia.—See Catalogue.

The finest Lawn Grasses for Flower Gardens, 1s. per lb., or 4s. 6d. per peck.

ROOTS FOR EARLY SPRING PLANTING.

ANEMONES.

	s.	d.
50 vars. named, beautiful and distinct	12	6
Finest mixed double (1s. 6d. per doz.) per 100	10	0
Very fine ditto (1s. per doz.)	6	0
Double Scarlet vars. (1s. 9d. per doz.)	12	0
Beautiful mixed semi-double Russian, very showy, and flowering early... ... ... per lb....	6	0
Fine new Single	4	0
Nine beautiful Double vars. for clumping, 12 roots of each	20	0
Six roots of each	10	6

RANUNCULUSES.

	s.	d.
100 roots in 100 vars., very superb	45	0
100 " 100 " very fine	20	0
Extra choice, mixed from best named, per doz. 2s. 0d. per 100.	15	0
Very fine mixed ... ... " 1 6 "	10	0
Fine border mixed ... ... " 0 9 "	5	0

RANUNCULUSES.

					s.	d.
Early Scarlet Turban... ...	per doz.	0	6	per 100	3	0
" New Orange ditto	"	1	6	"	10	0
" Golden Turban...	"	0	8	"	4	0
" Seraphique, clear yellow ...	"	0	8	"	4	0
" Hercules, white	"	2	6	"	18	0
Œil Noir, best black (1s 6d. each)...	"	15	0			

IRIS GERMANICA.

40 Vars., very superb and beautiful, of the richest colours	45	0
20 Vars., ditto ditto, best selection	35	0
20 Vars., ditto, very fine...	15	0
Best Mixed, 5s. per doz.; per 100	30	0
Fine Mixed, 3s. per doz.; per 100	18	0

A choice stock of Gladiolus lilium lancifolium, Tritonea aurea, Tigridius, Oxalis, Achimenes, Gloxinias, and a large number of other roots for spring planting, for which see Spring Catalogue.

Remittances required from unknown correspondents. Post-office Orders payable to BASS & BROWN, or STEPHEN BROWN. Stamps received for small amounts.

BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

SUTTON'S LAWN GRASS SEEDS,

AT THE CRYSTAL PALACE, SYDENHAM.

SUTTON AND SONS *have had the honour of supplying to the Crystal Palace Company the Grass Seeds by which so many acres of Arable Land have been converted into the beautiful Park and Lawns, now so much admired at Sydenham.*

The following letter has been received, besides many others:—*From Professor Lindley, Horticultural Society, 21, Regent Street, London.*—"We have already made trial of your Lawn Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

Price 1s. per lb.; 2s. 6d. per gallon; or 20s. per bushel. Quantity required for forming new Garden Lawns, 2½ bushels, or 50 lbs.

Address JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

NEW EVERGREEN CLIMBING ROSE.

WILLIAM WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, beg to intimate to their friends that they ARE NOW prepared to send out AT ONCE good strong plants of WILLIAMS' EVERGREEN CLIMBING ROSE, at 3s. 6d. each, with the usual allowance to the trade, and a still further reduction if one dozen or more are ordered at once. Price may be had on application.

N.B.—Single Plants will be sent free per post on receipt of six penny postage stamps EXTRA to defray postage. Strong Plants of the above may also be obtained at the same price from Mr. CHARLES TURNER, of the Royal Nursery, Slough.

DWARF-BUDDED ROSES,

ADAPTED EITHER FOR POTTING OR PLANTING IN GROUPS.

WILLIAM WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, have the pleasure of offering fine strong Plants of the following DWARF HYBRID PERPETUAL ROSES, at 15s. per dozen:—Baronne Prevost, Duchess of Sutherland, Jacques Lafitte, La Reine, Madame Trudeaux, Pius the Ninth (pillar Rose), Robin Hood.

The following at 10s. per dozen:—Madame Laffay, Marquise Boccella, Marquis of Ailsa, William Jesse.

N.B. A very liberal allowance to the trade on the above.

NEW ROSES.

WOOD'S DUCHESS OF NORFOLK, a superb bright crimson Hybrid Perpetual Pillar Rose, 10s. 6d. per plant. Usual discount to the trade, and a further reduction if six or more plants are ordered at once.

WILLIAMS' EVERGREEN CLIMBING ROSE, 3s. 6d. each. Usual discount to the trade.

NEW ASHLEAF—THE "EARLY CHAMPION."

JOSEPH WILSON, SEEDSMAN, Ipswich, offers the following splendid varieties:—

Per bushel.—	£	s.	d.
THE CHAMPION ASHLEAF, decidedly the finest and most prolific in cultivation	0	12	0
JACKSON'S IMPROVED ASHLEAF...	0	9	0
MOSS KIDNEYS (remarkably fine), per bushel of 56 lbs.	0	6	0
LORD RAGLAN, new Mammoth variety, per sack of 16 stones	2	2	0

All orders must be accompanied with a remittance. No charge for sacks or bags, and carriage paid to London for orders of 4 bushels and upwards.

NORTH CHINA SUGAR CANE—(HOLCUS SACCHARATUS). NEW CHINESE POTATO—(DIOSCOREA BATATAS).

MR. JOHN HENDERSON, of Kingskerswell, South Devon, is still prepared to supply and warrant genuine Seeds of the above Sugar Cane, and tubers of the New Chinese Potato, with description of the Chinese mode of culture at the following prices free, for cash:—

Holcus Saccharatus, in packets, at 1s., 2s. 6d., and 5s. each.
Dioscorea Batatas—four tubers, 10s.; ten ditto, 1l. 2s. 6d.

For further particulars as to culture, &c., see a pamphlet descriptive of the nature and progress of these plants, with directions for cultivation, by JOHN HENDERSON, price 1s., published by Mr. S. JOHNSON, St. Martin's Lane, and to be had of all booksellers. Post Office Orders are requested to be made payable at Newton Abbott, South Devon.

CHARLES SHARP begs to call the attention of the Nobility, Gentry, and the Trade to his unrivalled collection of SEED POTATOES, which have been grown and selected with great care, and perfectly free from disease. The undermentioned prices include hampers and package. Terms to the Trade known on application.

POTATOES:—

	Per bush. of 4 st.		Per bush. of 4 st.
Ash-leaf Kidney (Jackson's)	10s.	American Early	7s.
Ash-leafed Kidney (Walnut-leafed)	10s.	Forty-Fold	8s.
Early Emperor	10s.	Kentish Kidney	8s.
" Shilling's	10s.	York Regent's	6s.
" Martin's Globe ...	10s.	White Rough	6s.
" Oxford Large ...	8s.	French Blues	7s.
" Round Frame (for Forcing)	8s.	White Kidney	8s.
Early (Fox's Seedling) ...	8s.	British Queen, the largest and best produce in cultivation	8s.

Seed Establishment, Wisbeach, Cambridgeshire.

TO POTATO GROWERS.—ROSS'S AMERICAN EARLY, grown expressly for Seed on reclaimed Peat or Moor without manure. This well-known productive Potato cannot be equalled as a "second early;" price 21s. per sack of 2 cwt.

WALKER'S LARGE WHITE.—This variety is about two weeks later than the preceding, and for general crops cannot be surpassed. It grows to a large size, is an extraordinary cropper, and for table use is all that could be desired; price 24s. per sack of 2 cwt. *These prices include a strong sack, and carriage paid to London, Liverpool, and Hull.*

W. DRUMMOND AND SONS, SEEDSMEN, Stirling, N.B.

*** To prevent disappointment unknown correspondents will enclose a remittance with their order.

MYATT'S NEW SEEDLING POTATO. BROCKLEY KIDNEY.

W. AND J. MYATT can dispose of a limited quantity of the above excellent new Potato, which they have proved to be a first rate variety, and has been selected as the best out of many thousand seedlings raised at Manor Farm.

In flavour it is quite equal to the Ash-leaf, and for produce very far superior; it is a compact strong grower, and ripens off quickly, making it an invaluable summer variety. To be sent out in peck bags, 3s.; bushel, 56 lbs., 10s.

FIVE HUNDRED BUSHELS OF POTATOES TO THE ACRE.—This enormous crop was grown this year by a gentleman in Surrey, and out of which there were only 5 bushels diseased; nearly all the quantity were large sized, some weighing 2 lbs. and 1 oz., and not above 30 bushels of Chats out of the whole. This Potato was originally reared in Scotland, and is called by its grower the Scottish Champion. It is a good baker and boiler. Price 2l. 2s., inclusive of the sack of 3 bushels, delivered free at the South Western Railway station in London. Early application is necessary, as only a few sacks are for sale, the party growing intending to plant largely next season. A reference as to the quantity and quality can be given in the neighbourhood—Apply by letter, post-paid, to B. S., 4, Crooked Lane, London Bridge, where samples may be seen, and the name of the grower given.

All orders must be accompanied by a remittance.

GREAT YARMOUTH NURSERIES.

NOW THAT FROST HAS LOOSED HIS IRON HOLD, and the weather has again become propitious for the safe transmission of Plants, we beg to call the attention of our numerous Patrons and the Public at large to the very moderate prices at which we quote the following, merely premising that our Stock is this season very healthy and unusually large. CARRIAGE PAID on all Orders of 2*l.* and upwards, to any distance within 150 miles of the Nursery, and Good Plants added to compensate for this charge on packages of less value.

	s.	*d.*
Azaleas, in 50 fine varieties, good plants, principally in small tbs.; composed of such as the following—Amœna, obtusifolia, exquisite optima, Broughtoni, &c.—the collection	50	0
Ditto, per dozen, fine varieties	15	0
Aralia trifoliata, strong plants of this very unique shrub	5	0
Acacia grandis, 2*s.* 6*d.*; dealbata, 1*s.*; linearis, 1*s.*; virgata, 1*s.*; conspicua corticola, 1*s.*—the collection	6	6
Abutilon insigne (Lindenii), a new and fine species ...	2	0
Apheleia, in four fine varieties	4	0
Berberis aquifolium—the perfect hardihood of this plant is as yet somewhat doubtful, but its magnificent foliage and showy flowers recommend it to a place in every collection of choice plants, each	7	6
Boronia Drummondii, a fine new species, nice plants ...	2	6
Burchelina capensis rosea, a great improvement on an old favourite, strong plants	1	6
Cineraria—the following fine varieties, including novelties of last season, Vir, Etoile de Vase, John Bull, Marguerite d'Anjou, &c., per dozen	9	0
Chorozema flavum, 1*s.* 6*d.*; Lawrencianum, 1*s.*; Chandleri, 1*s.*; cordatum splendens, 1*s.* 6*d.*; rotundifolium, 1*s.*; Henchmanni, 1*s.* 6*d.*—the collection	6	0
Coleonema rubrum, strong plants	1	6
Correa brilliant, the finest variety	3	6
" Harrissi, strong plants	1	6
Daphne collina, 1*s.* 6*d.*; collina latifolia, 2*s.* 6*d.*; dauphin, 2*s.* 6*d.*; indica alba, 1*s.* 6*d.*; indica rubra, 2*s.* 6*d.*; japonica true, 2*s.* 6*d.*—the collection in fine blooming plants	10	6
Dillwynia cinnabarina and scabra, both new and fine species in small plants, 2*s.* each	4	0
" sulphurea, good plants	1	6
Diosma (divine fragrance). The sweetly-scented foliage of capitata and ericoides adapt them admirably for bouquets. Each	1	0
Dielytra spectabilis, strong plants from the open ground for forcing, to which purpose it is admirably adapted, per doz.	18	0
Camellias, in 100 varieties, comprised of the best of the old and new kinds, the plants on an average from 1 to 2½ feet, with and without buds, the collection	200	0
Camellias, in extra fine variety, same as above, per doz. ...	30	0
" all in bud, standard varieties, per doz.	21	0
" without buds, in good variety, per doz.	18	0
N.B.—Parties wishing to add to their collection of this beautiful flower, when favouring us with their orders, are requested to send a list of the varieties already in their possession.		
Ericas, in very choice selections of hard and soft-wooded kinds, nice healthy plants, per 100 varieties ...	100	0
" large bushy blooming plants, in choice varieties, per doz. varieties	12	0
" smaller plants, in 6's, nice bushy well grown stuff, many of the varieties set for flower, per 100 var.	75	0
" ditto per doz. varieties	9	0
Epacris, large bushy plants, full of flower-buds, in choice variety, per dozen	12	0
" smaller plants in 60's, well grown, comprising the finest varieties in cultivation, in 50 choice kinds	37	6
" smaller plants, in varieties, per dozen	9	0
Epiphyllum crenatum, the large white-flowering Cactus, a magnificent thing, strong plants, each ...	2	6
" Russellianum, truncatum, Bridgesi, Ruckeri, Snowi, and violaceum; all very pretty and distinct varieties; worked on some of the strong growing kinds, they form beautiful objects for winter decoration, small plants, each	1	6
Jasminum gracile and Poiteau, both remarkably fragrant species, each	1	6
Lilium lancifolium album, strong flowering bulbs, per dozen ... ... 9*s.* to	12	0
" rubrum do. do. ... 12 to	18	0
" japonicum, true do. do. ... 24 to	30	0
Kennedya Marryattæ, 2*s.* 6*d.*; monophylla, 1*s.*; monoph. variegata, 1*s.* 6*d.*; ovata alba, 3*s.* 6*d.*; rubicunda maxima, 1*s.* 6*d.*; the collection	8	0
Hardenbergia monophylla	1	6
Mandevillea suaveolens, in fine strong plants	1	6
This is probably the finest conservatory climber we possess; flowers white and fragrant.		
Olea fragrans, good plants of this fine old favourite ...	1	6
Pimelea Hendersoni, grafted on decussata, good bushy plants, 3*s.* 6*d.*; smaller do., 2*s.* 6*d.*; Nieppergiana, grafted, 2*s.* 6*d.*; macrocephala, a new variety with large heads of flowers, grafted, 2*s.* 6*d.*; decussata, 1*s.*; the above are fine healthy stuff, not imported.		
Pittosporum Tobira; this, one of the finest evergreens we possess, owing to the supposed difficulty of propagating it, is to be met with but seldom; it is hardy in most localities, yet its fine glossy foliage and sweet-scented flowers recommend it to a place in the conservatory, where it may not be found to exist out of doors; strong plants	1	6
Polygala acuminata, 2*s.* 6*d.*; cordata, 1*s.* 6*d.*; Dalmasiana, 1*s.* 6*d.*; grandiflora, 2*s.* 6*d.*; the collection	7	0
Sollya Drummondi, 1*s.* 6*d.*; heterophylla, 1*s.* 6*d.*; linearis, 1*s.* 6*d.*; these blue-flowering plants are well suited to run up the pillars of a conservatory, or to cover trellises in pots.		
Tacsonia manicata, 2*s.* 6*d.*; mollissima, 1*s.* 6*d.* These are both magnificent climbers; when planted out in conservatories and allowed to hang in festoons from the roofs they flower freely, and, as the flowers depend, look extremely beautiful.		
Statice Holfordi, extra strong plants of this beautiful species	3	6
Stigmaphyllon ciliare, strong plants of this fine yellow creeper	2	6
Tecoma capensis, 1*s.* 6*d.*; Jasminoides, 1*s.* 6*d.*; Jasminoides rosea	2	6
These are old favourite climbers.		

	s.	*d.*
Tetratheca ericæfolia (true). This was the gem of the new greenhouse plants exhibited the season before last at the Horticultural Society's shows, each...	3	6
Tetratheca verticillata, and older species, very handsome	1	6
Myrtus Ugni; the new Chilian Myrtle, bearing fruit, very much prized in its own country, and likely to become useful for the dessert in this; in small well established plants	2	6
It is a plant of the easiest culture, and of an excellent habit.		

CONIFERÆ.

	s.	*d.*
Abies morinda, the Weeping Himalayan Spruce:—		
6 to 9 inches, per dozen	6	0
9 to 12 inches, "	9	0
12 to 15 inches, "	12	0
2 to 3 feet, each	2	6
4 to 5 feet, each, fine specimen	3	6
" **Menziesi**, 1 to 1½ feet, each 1*s* 6*d.*; per doz.	12	0
1½ to 2 feet, each 2*s.*; per doz.	24	0
This last species is remarkable for the bright silvery appearance of the foliage on the under side, which gives the tree as you stand under it a very striking expression.		
Abies orientalis, a neat and dwarf species, with short dark green foliage, pressed closely to its slender shoots; this as well as the two following are of compact and symmetrical form, and well adapted for situations on close shaven lawns, where tall shrubs or trees are not admissible. Strong plants, each 2*s.*; per dozen...	18	0
Abies pygmæa, each	3	6
" **pumila** (Waterer's variety), very bushy, each 2*s.* 6*d.*; per dozen	24	0
" **Whitmanniana** (new), 3 to 4 ins., each 5*s.*; per dozen	42	0
Araucaria imbricata, 15 to 18 in., each 5*s.*; per dozen ...	42	0
" " 1½ to 2 feet, each 7*s.* 6*d.*; " ...	72	0
" " 2 to 2½ feet, each 15*s.*; " ...	150	0
" " a few fine specimens, each 3 to 5 gs.		
Cedrus atlantica, a species from Mount Atlas, very hardy and very ornamental, 9 to 12 in., each 2*s*; per doz.	18	0
" **atlantica**, 12 to 15 in., each 2*s.* 6*d.*; per doz. ...	24	0
" " 1½ to 2 ft., each 3*s.* 6*d.*; per doz.... ...	36	0
" **deodara**, 2 to 2½ ft., each 3*s.* 6*d.*; per doz.	36	0
" " 2½ to 3 ft., each 5*s.*; per doz.	42	0
" " 3 to 4 ft., each 7*s.* 6*d.*; per doz.	72	0
" " 4 to 5 ft., each 10*s.* 6*d.*; per doz.	120	0
We will remark that the Deodars above quoted are all seedlings, very bushy, many whose diameter is fully equal to the height; that they are all planted in the open ground, and will remove with fine balls. To parties wishing to buy largely, we shall be happy to quote prices per hundred. It cannot be too generally known that when placed among Scotch and Spruce in common plantations they surpass these hardy and quick growing Firs in rate of growth, &c.		
Cephalotaxus Fortuni, fine specimens, 2 ft., each	21	0
" " smaller plants, each	5	0
Cryptomeria japonica, fine seedling plants, 2 ft. high, raised from seeds matured in this country; they were grown in the open ground, potted last autumn, and are in fine health; per doz.	21	0
Cupressus sempervirens of India, one year, per doz. ...	12	0
" " " 9 to 12 in. " ...	30	0
Of this species a most flattering description was sent with the seed, to the effect that it forms a most magnificent tree in its native habitat.		
Cupressus elegans (same as Knighti we believe), a species singularly beautiful, and need only to be seen to be admired; strong plants, 1½ to 2 feet, each	5	0
Cupressus elegans, smaller ditto, each	2	6
" funebris; this species, here on the most eastern point of Britain, is perfectly hardy; in its young state it forms a beautiful little bush, 1 to 1½ feet, each 2*s.*; per doz.	18	0
Cupressus funebris, 1½ to 2 feet, each 2*s.* 6*d.*; per doz. ...	24	0
" Goveniana, 12 inches " 2*s.* 6*d.*; " ...	24	0
" " 2 to 3 feet, nice specimens, each ...	5	0
" Lambertiana, fine plants of this magnificent tree, 2 to 2½ feet (for it assumes all the appearance of a Cedar as it advances in growth), 5*s.* each; per doz. ...	50	0
Cupressus macrocarpa; this fine species is sometimes confounded with the last named, but is certainly quite distinct, 12 to 18 inches, each 2*s.* 6*d.*; per doz.	24	0
Cupressus Uhdiana, 1½ to 2 feet, 2*s.* 6*d.* each; per doz. ...	24	0
" Whitloeana, a new species, 1½ to 2 feet, each ...	5	0
Dacrydium Franklini, 6 to 9 inches, each 2*s.* 6*d.*; per doz.	24	0
Juniperus Bedfordiana, 9 to 12 inches, each 1*s.* 6*d.*; per doz.	12	0
" " 1 to 1½ feet, each 2*s.*; per doz. ...	21	0
" " 2 feet, each 2*s* 6*d.*; per doz. ...	24	0
(a very hardy, free growing, ornamental species).		
Juniperus excelsa, a noble species from India, 6 to 9 in., each 2*s.*; per doz.	21	0
Juniperus excelsa, 15 to 18 inches, each 3*s.* 6*d.*; per doz....	36	0
" echiniformis, or hedgehog Juniper, a very curious species, not inaptly named, each	3	6
Juniperus hibernica, or Irish, strong plants, 2 to 3 ft., p. doz.	18	0
" sinensis, 2 to 2½ feet, per doz.	42	0
Libocedrus chilensis, nice seedling plants of this magnificent Arbor-vitæ, 4 to 6 in., per doz.	30	0
Libocedrus chilensis, 6 to 9 inches, per doz.	42	0
Picea cephalonica, 1 to 12 feet, each	2	6
" 1½ to 2 feet	3	6
" Nordmanniana, a truly grand and beautiful tree, stout bushy seedlings, 9 inches, each	21	0
" Pinsapo, a very handsome Spanish Pine, remarkably striking in appearance, 6 to 9 inches, stout seedlings, each ... ... 3*s.* 6*d.* to	5	0
" Pinsapo, 2½ to 3 ft., fine specimens, ea. 3*s.* 6*d.*; p. doz.	42	0
" Pindrow, 9 to 12 inches, each 1*s.*; per dozen ...	9	0
" " 12 to 15 inches, 1*s.* 6*d.*; " ...	12	0
" Webbiana, true, 9 to 12 inches, each	2	6

	s.	*d.*
Pinus canariensis, 1½ foot, each ... ... 2*s.* 6*d.* to	5	0
" Cembra, a very hardy Tyrolese species, 15 to 18 inches, per dozen	12	0
" " 2 to 3 feet, "	24	0
" Edgariana, 2 feet, fine plants, each	10	6
" excelsa, 12 to 15 inches, in pots, per dozen	9	0
" " 18 inches to 2 feet " "	12	0
" " 18 inches to 2 feet, bedded, per 100... ...	60	0
" " 2 to 3 feet " "	75	0
" " 3 to 4 feet " "	100	0
This, the tall growing or Bhotan Pine, grows very fast, and is a very ornamental species; we possess a large stock, and quote it low.		
Pinus Gerardiana, another Himalayan species, slow growth, 9 to 12 inches, each 1*s.*; per doz. ...	9	0
" " 12 to 15 " " 1*s.* 6*d.*; per doz....	15	0
" " 1½ to 2 feet, " 3*s.* 6*d.*;		
" Hamiltoniana, 1 foot, 2*s.* 6*d.* to...	5	0
" insignis, 12 to 15 inches, each 3*s.* 6*d.*; per doz. ...	36	0
This Pine, once seen, will be always remembered from its beautiful sea-green colour.		
Pinus Lambertiana, grafted, 15 inches, each	5	0
" macrocarpa, seedlings, 1 foot, each	10	6
" ponderosa, 2 yards, each...	5	0
" " 1 foot, each	15	0
" Sabiniana, this fine Pine, in length of foliage resembling "macrocarpa," but glaucous, hitherto so scarce in the country, owing to an importation of seeds made last spring, is now become more plentiful; it ranks No. 1 in the genus; strong 1 yard seedlings, established in pots, per doz.	42	0
Taxus adpressa, 1 to 1½ foot each	1	6
" elegantissima, 4 to 9 inches, each 2*s.*; per doz. ...	24	0
" Dovastonii, or Weeping, 1½ to 2 feet, each 2*s.*; per doz.	21	0
" gold-striped, 4 to 9 inches, each 1*s.* 6*d.*; per doz....	12	0
" " 9 to 12 " " 2*s.* 6*d.*; " ...	25	0
" " 12 to 18 " extra, each	5	0
Thuja aurea, 6 to 9 inches, each	2	
" " 9 to 12 inches	3	6
" " 1 to 1½ foot	5	0
This, the golden Arbor-vitæ, cannot be too warmly recommended; the elegant form of the bush and the rich colour of its foliage contribute to render it a most beautiful object.		
Thuja flagelliformis, each	5	0
" sinensis, 2 to 3 feet, per dozen	12	0
Taxodium sempervirens, 1½ to 2 feet, each	2	6
" " 2 to 3 feet, do.	3	6
Salisburia adiantifolia; nice plants of this singular Conifer, each	2	6
Wellingtonia gigantea, nice seedling plants, each	25	
Everybody who can afford it should plant at least one of this extraordinary tree, to commemorate the hero whose name it bears.		

CHOICE HARDY ORNAMENTAL SHRUBS, CLIMBERS, ETC.

	s.	*d.*
Bignonia radicans major, strong plants, each	1	6
Berberis Fortuni, small, per doz.	12	0
" Darwini, per doz. ... ... 9*s.* to	20	0
" " extra strong, each	3	6
Ceanothus dentatus, strong, each	1	6
" rigidus, each	1	6
These Californian species are well adapted to cover walls, &c.; they are profuse bloomers, and very handsome.		
Cerasus ilicifolia; a fine hardy evergreen plant from California, the foliage resembling that of the Holly, each from ... ... 1*s.* 6*d.* to	3	6
Clematis azurea grandiflora, strong plants, each	1	6
" Sieboldi " " each	1	6
" flammula " " each	1	0
" montana " " each	9	0
Deutzia gracilis, nice plants, per dozen	1	6
" crenata, new, each		
Erica, Mediterranea, Ciliaris, Vagans, Vagans alba, Herbacea, Tetralix alba, &c., per doz. varieties	9	0
Escallonia macrantha, a plant unrivalled for the beauty of its foliage, while its rose-coloured flowers, produced freely in the spring and autumn, are very attractive; strong plants, each	1	6
Euonymus japonica variegata, a handsome old favourite, per dozen	9	
Forsythia viridissima, 2 to 3 feet, each	1	0
" " 3 to 4 feet, each		
An importation from China, producing its primrose-coloured flowers abundantly, early in spring.		
Ilex castaneæfolia (Chesnut-leaved Holly), strong, each	2	6
" latifolia, the Laurel-leaved, 2 to 3 feet, each	3	6
" " " 3 to 4 feet, fine, each ...	5	0
Ligustrum japonicum, a new and handsome evergreen shrub; it produces large panicles of cream coloured flowers in the autumn; good plants, each	1	
Pernettya speciosa, a new and very neat species, each ...	1	
Philadelphus Gordoniana, fine, each	1	6
" mexicana, good plants, each		
An exquisite free flowering little shrub, rivalling the Orange in fragrance.		
Philadelphus, new species from California, each	2	6
Quercus Fordi, undoubtedly one of the handsomest and hardiest of low evergreen trees, its habit is most compact and symmetrical, 9 to 12 in. each 1*s.* 6*d.*; 2 to 3 ft. each	3	6
Roses, named and choice varieties on their own roots, our selection, per 100	36	0
Roses, climbing ditto, in choice variety, per doz.	6	
" Fortuniana, new white Banksia, strong plants, each	2	6
" common white and yellow Banksias, strong plants "	1	6
Wistaria sinensis, strong plants, each from ... 1*s.* 6*d.* to	3	6
" " alba, this fine new variety from China in good plants, each	7	6
Weigelia amabilis, a great improvement on the older var. rosea, each	2	6
Weigelia rosea, strong plants, per doz.	12	
Yucca gloriosa superba, strong plants, each ... 3*s.* 6*d.* to	5	0

Post Office Orders to be made payable to YOUELL & Co.—A Remittance or Reference is requested from unknown Correspondents.

YOUELL & CO., ROYAL NURSERY, GREAT YARMOUTH.

ACHIMENES, GLOXINIAS, ETC.

BASS AND BROWN have a large stock of fine Tubers of the following, which they can supply to the trade in quantities. Prices on application.

Achimenes Cherita.
" Mr. Aparpart.
" Louis Van Houtte.
" Margaretta (best white).
" Magnifica purpurea.
" Sir Traherne Thomas.

Gloxinea Leonie Van Houtte.
" Hogoveen.
" Willsoni.
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Verbenas, 60 new varieties of 1854, of the first raisers.

☞ A quantity of Corræa and Pimelea Stocks Wanted.
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NEW AND RARE CONIFERÆ.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, Edinburgh and London, have still on hand a small quantity of the Seeds of the following RARE CONIFERÆ, &c.:

	£ s. d.		
Pinus Lambertiana, 50 Seeds	1 5 0	Taxus Lindleyana (quite new) 50 Seeds ...	2 2 0
P. tuberculata, entire cones	2 2 0	Club-headed Wheat (cultivated by the old Californians) 200 grains	1 0 0
P. monticola, 50 Seeds ...	2 2 0	Wheat (a variety of Triticum durum) do.	15 0
P. Jeffreyi do. ...	2 2 0		
P. Beardsleyi do. ...	2 2 0		
Libocedrus decurrens, do.	1 5 0		

Full descriptions will be found in the last page of the *Gardeners' Chronicle*, for Feb. 3.—Orders may be addressed to PETER LAWSON & SON, in Edinburgh; or to their London House, 27, Great George Street, Westminster.

BEAUTIFUL SEMI-DOUBLE PRIMULAS.—Only a few packets remain on hand. To prevent disappointment, order without delay.

The celebrated Ipswich Standard Cucumber is sold out, only 12 seeds left.—THOMAS WILD, Ipswich.

BANKS' SEEDLING FUCHSIAS.—1855.

(FOR FULL DESCRIPTION SEE FORMER ADVERTISEMENTS, AND ON APPLICATION).

W. J. EPPS has much pleasure in stating that the above Fuchsias have been proved to be the finest that have been raised by that celebrated grower E. Banks, Esq., Deal. Early orders are solicited. The set of six 2*l.* 2*s.* The usual discount to the trade.—Bower Nurseries, Maidstone.

THE ANNUAL SPRING EXHIBITION OF PLANTS IN THE EXETER NURSERY.

LUCOMBE, PINCE AND Co. very respectfully beg leave to announce that their superb specimens of CAMELLIAS are now in flower; they are particularly fine this season, and great additions have been made to their collection. Their New Show House is also filled with an extensive assortment of various Fine Plants, which cannot fail to gratify those who pay their Nursery a visit, as it is now, and will continue for a long time to be exceedingly brilliant and attractive with all the gayest Spring and other Choice Flowers.

L., P., & Co. have now several experienced Gardeners whom they can strongly recommend.—Exeter Nursery, Exeter. Mar. 10.

The Gardeners' Chronicle.

SATURDAY, MARCH 10, 1855.

SOME years ago M. MASSON, an ingenious French gardener, conceived the possibility of so preserving esculent vegetables that while their bulk was reduced to a minimum, and their quality remained unimpaired, they should be secured against decomposition for a very long time. It is well known that the large space occupied by vegetables is owing in part to the water they contain, and in part to the looseness of their tissue; it is also known that the decay which ensues when they pass into a state of fermentation is rapid or the contrary, in proportion to the water lodged in their substance; if absolutely dry they undergo no putrefactive change whatever. M. MASSON proposed in the first place to deprive them of the greater part of their mere water, by exposing them to a current of warm dry air till about 90 per cent. was removed, when they become tough leathery bodies, with little tendency to decay. In the second place they were to be subjected to violent pressure, so as to expel the air and convert them into solid masses. These objects have been so skilfully carried out that the compressed vegetables can scarcely be said to differ from the fresh; and certainly lose in the operation no part whatever of their nutritive or sanitary qualities. In reality they part with nothing but water; not even aroma disappearing, nor any burnt or other unnatural taste being communicated by the process of drying. The invention became the subject of a patent, and soon attracted the attention of the French.

In 1851 specimens of the preparation were shown in the Great Exhibition in Hyde Park, and received a Council Medal, the highest honour which the judges could confer. In the report of the juries the preparation is spoken of in the following words:—

"MASSON's dried compressed vegetables demand especial notice, as showing one of the most remarkable discoveries of modern times in this branch of manufacture. By MASSON's process the most bulky, soft, and succulent vegetables are reduced to a fraction of their volume, and are preserved in a dry, indestructible state. After boiling for a rather longer time than usual, they are restored to something of their original form and consistence, retaining all their nutritious principles, and much of their flavour. CHOLLET and Co., the manufacturers of these preserved vegetables, use only desiccation and compression in the process, which is MASSON's invention. According to a statement published in the 'Comptes Rendus,' as read before the Paris Academy, the vegetables are reduced seven-eighths in weight, and proportionally in bulk. They require to be boiled for one hour and a half to one hour and three quarters, and on cooling, are found to have regained nearly all their evaporated juices. If, as the jurors have reason to believe, these preparations retain their good qualities for several years, they cannot be too strongly recommended to public attention. It would probably be necessary for long voyages that these square cakes be packed in perfectly dry casks or tanks, as biscuits are."

In November, 1851, a commission consisting of French naval and victualling officers strongly recommended their introduction into the stores provided for sailors, and ordered a supply for nine vessels of war. In August, 1852, a French medical commission adopted the views of the naval board, and recommended them to be introduced largely into the commissariat of the army of Algiers. We understand that since that time they have formed a most important part of the supplies provided for the service of all French armaments.

Last Tuesday a cake of this substance, as provided for the French service by Messrs. CHOLLET & Co., who work the patent, was exhibited to the Horticultural Society. It weighed 6 lbs., cost 7*s.* 6*d.*, and was sufficient for 120 rations. Nothing could surpass the freshness and fragrance of the preparation; so that for three farthings a head a meal of valuable nutritious anti-scorbutic food is at the command of any commissariat. The value attached by the French navy to this important preparation will be seen by the following extract from a letter addressed to the Minister of Marine by Admiral HAMELIN, dated from on board the Ville de Paris, lying off the Katcha, October 8, 1854, while acknowledging the arrival of 17,000 kilos or more than 37,000 lbs. "These vegetables have been received with the greatest satisfaction, and their effect upon the health of the men is already manifest. We were threatened by epidemic scurvy; but from the time that the vegetables have been served out an improvement has taken place, swellings and ulcerations of the gums begin to disappear, and the condition of the men is sensibly better. As the season advances we shall have no fresh vegetables, which can never be obtained on an enemy's coast without extreme difficulty; and therefore another supply of these preserved vegetables would be most welcome. The health of the men, which has become a good deal impaired, will be preserved, and your name will be identified with one of the greatest improvements which have been introduced into victualling the fleet."

Considering the length of time that this preparation has been known, its cheapness, its portability, its durability, and its unquestionable excellence, it might have been expected to have found its way into the English service, and that some means would have been taken in our own victualling yards to secure the right of working MASSON's patent, or that our own market-gardeners might have derived some advantage from the increased demand which would have followed its adoption. But with the exception of a small order sent to Paris by the Admiralty, nothing had been done about it when the late Minister of War quitted office: we hear, indeed, that some prepared vegetables had been purchased by him for the Crimea; but they were not such as the experience of the French has taught them to prefer, and would seem to have rotted in the Balaklava limbo if they ever reached it.

But it is not merely because of the importance of MASSON's vegetables in time of war that we have thought it desirable to bring them thus into notice; on the contrary, it is for the sake of ourselves at home, of our great mercantile marine, and of our numerous market gardens, that we wish them to be better known. For surely in a country like this, in which all hopes of fresh vegetables at moderate prices are effectually dispelled for weeks to come by the severity of any hard winter, it is a matter of the first necessity that such a method as that of MASSON should come into common use. Thousands of pounds' worth of Cabbages have utterly perished round London, all which might have been saved had there been a London CHOLLET to buy them up and secure them by the simple process before us. And the poor, instead of being left without a chance of fresh vegetable diet until the end of March, at the soonest, might have bought in any grocer's shop an abundant supply at even a less cost than in the summer. It is to be hoped, then, that enterprising persons will be found to secure the right of working in this country the patent by which such important results are obtained, and that in future we may be placed beyond the reach of a scarcity of fresh vegetables, whether arising from season, mildew, or other causes.

THE experiments of M. FABRE on the ORIGIN OF WHEAT, and the consequent conclusions adopted by several distinguished naturalists that most of our cultivated Wheats were derived from species of Ægilops, have excited great interest on the continent of Europe. Botanists, whose ideas on the specific distinction of plants marked by slight differences have been carried very far, have felt that their principles would be much shaken if it were admitted that two plants in their opinion so totally different had a common origin, and several refutations of M. DUNAL's arguments have been attempted, although hitherto without much success.

M. GODRON, of Besançon, one of the authors of the "Flore de France," now in course of publication, has just, however, communicated to the "Annales des Sciences Naturelles" the result of his observations and experiments, which he considers as removing all weight from the arguments of MM. FABRE and DUNAL by accounting otherwise for the phenomena on which they were founded.

The Ægilops triticoides, the intermediate form or transitionary state between Æ. ovata and Wheat, is, according to M. GODRON, when growing wild, found on the edges of Wheat fields in a country where Æ. ovata is a common weed, and under other circumstances of growth, which suggested to him the idea that it was a natural hybrid between those two plants. He has confirmed this view by actual experiment, fertilising Æ. ovata with the pollen of Wheat, and thus producing artificially the Æ. triticoides.

M. GODRON concludes, therefore, that "the observations made by M. FABRE on the Æ. triticoides do not in any manner prove that our cultivated Wheat has for its origin the Æ. ovata, nor that one species can transform itself into another." Some friends of his in German journals go further, and assert that he has positively disproved M. DUNAL's conclusions.

We have nothing to say as to the transformation of one "species" into another, for according to our notion of the meaning of the word, this circumstance would but prove that the two supposed species were in fact only varieties or races more or less permanent of one species. We would, however, make some observations on the remainder of M. GODRON's paper.

It is admitted that Triticum sativum and Ægilops ovata are strictly congeners, as confirmed by the form of the caryopsis; that Æ. triticoides is the first known instance of a hybrid among Grasses; that M. FABRE raised from seeds of a wild Æ. triticoides plants which produced perfect seed, which he again sowed and continued the operation during 12 successive generations, and that during these 12 years' careful cultivation the plants gradually acquired more and more the character of Wheat; that Æ. triticoides is occasionally, though rarely, found in sterile places surrounded by vineyards.

But M. GODRON observes that there were abundance of Wheat fields in the neighbourhood of the spot where M. FABRE carried on his experiments, from whence the pollen might have been wafted so as to fecundate his plants and produce that gradual assimilation according to the laws of hybrids. So also in the case of the Æ. triticoides in the midst of vineyards, there was quite Wheat enough cultivated in the surrounding country for some of the pollen to have found its way over to the parent plant of Æ. ovata.

Even admitting this extraordinary dispersive power of the pollen of Wheat, and that Æ. triticoides as now produced is always of hybrid origin, it appears to us that this very great facility of natural hybridisation in a family where it is so rare as to have been hitherto unobserved, would appear to prove much rather that the two plants had a common origin, than that they are really distinct species.

Another point much relied on by M. GODRON is that the first start from Æ. ovata to Æ. triticoides is very great, and that there are no intermediates between two plants so distinct as to be universally admitted as species. That such should be the case with M. GODRON's artificial crops would naturally be expected, but that it is so in the wild plant remains to be proved. Most of the supposed species of Ægilops, in the South of Europe, are very variable, and run so much one into another, that few botanists can agree as to what are or are not species amongst them.

With regard to the rarity of Æ. triticoides in a wild state, we may observe as a well-known fact, that when aberrant forms of natural species are produced from causes unknown to us, and therefore termed *accidental varieties*, various circumstances tend in a wild state to restrict the number of individuals, or cause the varieties to disappear altogether, whilst they may be rendered permanent by cultivation.

In our opinion, therefore, all that M. GODRON has proved is, that Triticum sativum and Ægilops ovata are species so nearly allied that they hybridise with a facility very unusual amongst Grasses; but

we re-assert that this is no proof that the two plants are distinct species. *B.*

To this we would add that neither M. Godron nor M. Alexis Jordan, who has filled 100 pages of the Memoirs of the Academy of Sciences of Lyons with speculations upon the origin of domesticated plants, have attempted to explain what the origin of Wheat has been, if it is not a domesticated condition of Ægilops, as M. Fabre's experiments, in our opinion, prove it to be.

New Plants.

117. Viola capillaris. *Persoon. Van Houtte, Fl. des serres t.* 983.

A little greenhouse violet from Chili, with entangled erect stems, small rugose leaves, and flowers the colour of the Neapolitan. It is a pretty little thing, thriving in equal parts of leaf-mould, sand, and loam, and flowering from May or June to August, but it is not fragant.

116. Tydæa gigantea. *Planchon in Van Houtte, Fl. des serres tt.* 975-6.

A stately stove plant, obtained by crossing Sciadocalyx Warczewiczii with Achimenes picta. It seems to have the noble aspect of the former and the gay yellow and scarlet spotted flowers of the latter. It was raised in the garden of M. Van Houtte by Mr. Roezl, and is no doubt one of the finest of its brilliant race. M. Planchon assures us that the flowers hang on much better than usual, a circumstance which he attributes to their being sterile.

VEGETABLE PATHOLOGY.—No. LXII.

276. Apostaxis. *Accidental and Functional.*—1. Honey Dew.—The leaves of plants during hot and sultry weather, or occasionally when the temperature is lower, are covered, as with a varnish, with a sweet sticky coat, which is popularly known under the name of honey dew. It is commonly believed that this substance falls from the clouds, and it is in consequence said in cold damp seasons, there will be no honey this year, because there has been no honey fall. In this, as in most popular opinions, there is some shade of truth mixed up with error, inasmuch as the same seasons which are favourable to honey dew are also productive of honey. Apart, however, from popular opinion, several notions have prevailed amongst those who profess to have examined matters more accurately; but till a correct chemical analysis has been made of these sweet deposits under different circumstances, the question must still remain in a certain degree of obscurity. The probability is that the deposits are not always of precisely the same chemical nature, and it is certain that they arise from at least two sources totally distinct. In all cases the appearance is in great measure confined to the upper surface of the leaf—a fact which has had no small part in the arguments to which the subject has given rise.

277. The most ancient notion, and that which, as said above, is still most popular, is that it arises from the deposits on the leaves of a sweet substance falling from the air. It is in general scarcely attempted to show whence this sugary vapour or rain may be derived, except so far as the indication may go that it usually takes place when the larger number of plants are in bloom, from which it may possibly be an emanation. If such were the case it ought not to be confined to individual trees or species, but every plant alike should be covered, and not only so, but every surrounding object should equally be coated with the sweet varnish. Instances indeed are sometimes alleged in which this has been the case, but such supposed facts require close investigation, and the report seldom comes from persons of scientific habits, who are sufficiently accustomed to observation to insure the absence of error. Wiegmann* in his little treatise on the diseases of plants assures us that such deposits do take place, accompanied by fine rain. He says that he has himself seen in an afternoon in the beginning of June nearly half an acre in his garden completely covered with honey dew. Not only bitter plants, such as Wormwood and the bitter Thistle (Cnicus Benedictus), but the garden benches, tools, plant markers, &c., were equally varnished, while beyond a strictly defined limit not a trace of the phenomenon was visible. In this case till after the deposit there was no personal inspection, and a subsequent storm prevented the collection of the sugary matter for examination. He relates also a case reported to him by Dr. Ritz, of Mayence, in which a sweet substance was seen to fall in little drops between the branches of the trees while the sun was shining, and, as in the former case, covering every object which was exposed to it. The air was at the time filled with dipterous insects, from which the matter might have fallen. Allowing, however, that such observations are correct, they are at least exceptional, and capable, as will be seen presently, of explanation, and will only help to show that honey dew may arise in more ways than one.

278. Some authors are inclined to refer every case of honey dew to the agency of the different species of aphis. It is quite certain that a sweet substance is squirted from the processes on their body, and that many cases of honey dew arise from it, though it is as certain that cases occur where no aphis is present. They occupy principally the under side of leaves, though not exclusively, which would account for the deposits being almost wholly confined to the upper surface of the leaves. It is clear that in this case, as well as the last, though mischief may ultimately arise to the plant from the deposit, there is no question of Vegetable Pathology.

279. There are, however, undoubtedly cases, and those of great frequency, in which the honey arises either immediately from an exusion of sugary matter from the upper surface of the leaves, commencing at distinct points and gradually spreading and becoming confluent, or by the deposit of similar sugary matter, dropping from the stomata of the lower surface. In such cases we have real apostaxis, which is due to peculiar conditions of the atmosphere, which have not at present been fully examined, and is no less observable in healthy than unhealthy individuals. In such cases we have ourselves observed objects like garden seats placed under the trees covered with honey dew, but we have never seen such a phenomenon in situations which were not in the immediate neighbourhood of trees. And such cases as those mentioned under the last section may really be due to matter descending from trees and carried by currents to particular spots, exactly as in the case of the yellow rain which is due to pollen. It is very possible that immense secretion of honey dew may be exhausting to plants, though it probably acts as a natural relief in many cases. Hartig reports a case of a Rose tree, in which, after a copious discharge of sugary matter, the leaves lost their green colour, the cells collapsed, and the chlorophyll was exhausted. Loudon asserts that diseased plants, such as Hops that have been injured by the larva of the Hepialus, are most subject to honey dew, but we have not observed such to be the case.

280. Besides any direct injury which may arise from the copious excretion of honey dew, the respiratory functions may be impeded, though not to such an extent as if the deposit was on the lower surface of the leaf. If, however, rain does not wash off the sugar, moulds like Cladosporium, Antennaria, and Capnodium are soon developed, and the dark velvety coat which arises from them not merely impedes respiration, but prevents the due action of light upon the tissues, obstructing one of the most important functions of vegetation.

281. The sweet substance like honey which appears in the inflorescence of Grasses attacked by ergot is probably a species of honey dew arising from disease. Oidium abortifaciens, which before the recent observations of Tulasne, was supposed to be the fungus which produces ergot, may possibly be a condition of some yeast fungus developed in the sweet matter; but this is merely thrown out for the present by way of suggestion. *M. J. B.*

* Wiegmann, Die Krankheiten und krankhaften Mißbildungen der Gewächse. 1839, p. 102.

RECLAIMING UMBRELLA-HEADED TREES.

The following is my method of reclaiming stunted umbrella-headed trees, such as are alluded to in my remarks on Delamere Forest and the Chopwell woods, in your volume for 1854, page 709. Permit me to premise, however, that I could give in the woods a more convincing illustration of the method in question in 10 minutes than any written description could possibly convey, but as it is unlikely I can have many opportunities of giving such lessons, I will endeavour to furnish as plain directions as I possibly can, how to proceed with the operations for the renovation of such trees.

Let us begin with a bushy-headed Oak from 4 to 8 feet in height, say of 14 or 15 years' growth more or less. Take, for example, such a one as is represented in fig. 1; looking at it, can anything be imagined more likely to remain a cumberer of the ground? I commence by taking off most of the strongest side branches close to the stem, shortening the other small ones so as to bring them within a reasonable compass. I then ring the bark about half an inch wide on the upper strong branches close to the stem, leaving about an inch (more or less, according to circumstances) in the centre or fork of the tree, to produce a central shoot for a future leader, by which process I force the space left in the centre to throw out several shoots — the strongest and best-placed I select for the leader. At the end of the first year I thin and shorten the other shoots, thereby throwing the main force of the sap into the leader; the other shoots left should be removed at the beginning of the second year's growth, before they have time to compete with or injure the permanent leader. If this operation is attended to in the second year, the tree will have the appearance represented by fig. 2.

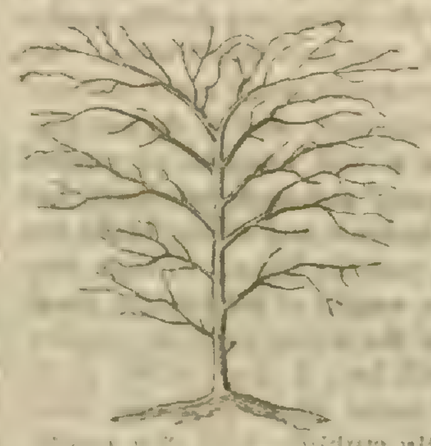


Fig. 1.—Stunted Tree.

Fig. 2.—Second Year.

In all cases of hide-bound and unhealthy trees, I slit the bark along the stem from the ground to where the new leader is to be produced. By this operation the sap flows more freely, to the manifest benefit of the new growth, viz, the leader. Any small spray from the upper old branches that inclines inwards where the young leader springs from should be shortened, so as not to encroach or injure it; while, at the same time, they would form a shelter which would prevent it from being broken or blown on one side by the wind till it has acquired sufficient strength to brave the storm itself. In the autumn of the third year all the old side branches of the old stem should be sawn close off, when the previously stunted tree will have the promising appearance represented by fig. 3. It is a remarkable fact that the bark heals over a wound as well after the saw as the knife, so that smoothing with the knife after the saw is, in most cases, unnecessary.

Fig. 3.—Third Year.

By the end of the third or fourth year the renovated tree will have acquired great vigour, and may be trained to any required height before it is finally left to itself; and thus I could have renovated and reclaimed, I believe I may say, all those decrepid, dwarf, bushy-headed trees in Delamere Forest, and unfortunately in too many other places.

When operating on crooked, ill-formed, scraggy trees, not bushy-headed, I head them off at the place most suitable for producing a new leader; but this is rather a nice operation, requiring both experience and judgment, and they demand careful looking after for two or three years. Heading off without after training—like planting without early care afterwards—the result will only be disappointment and loss of both time and money.

In hedge rows and parks single trees naturally throw out numerous strong side branches near the ground; such trees require training to acquire a clean straight stem to any desirable height before they are permitted to assume their beautiful natural habits of growth. By this process of training when young they advance much faster in height, and there are no thick branches to be removed to make the stem unsightly where no branches are required.

In enclosed plantations and groups in parks and lawns the outside trees should be trained with shorter stems than those in the interior, as being more natural and beautiful. The interior trees will naturally draw themselves up straight and tall with but little training. But to produce valuable and at the same time ornamental timber, great care must be taken to give plenty of head-room as soon as the tops begin to encroach on each other, or to a great extent it will be labour in vain. But after all I am fully convinced that until experimental plantations are provided near the metropolis where landed proprietors and planters occasionally resort either for pleasure or business, and where they could see living examples of the value and convincing utility of the process, until, I say, something of this kind is established, or a Royal English Arboricultural Society is formed, I am confident, from a very lengthened experience, that little progress will be made in the true system of forest management. No written description, as I have already said, will effect the object in view. Some never read, and others soon forget what they do read on such subjects. Then why not try the system upon a small scale at first in some of the Royal forests, where there are some young plantations—say Dean, Delamere, and the New Forest—till the Lords of the Treasury and the Commissioners of Woods, &c. &c., are convinced by examples of the paramount utility of my plan. *W. Billington, Roy, Belmullet, Mayo, Ireland.*

EXTRACTS FROM ANNUAL REPORT

FROM THE

CURATOR OF THE BOTANIC GARDEN, GLASNEVIN

January, 1855.

The Museum of Economic Botany has proved a great source of additional interest to the public during the past summer, though it still is in a very imperfect state. Whether this may have arisen more from its novelty, or from its real importance, I am unable to state, but certainly no other department of the Garden has been so much frequented by visitors as the Museum. It is consequently to be desired that its true value, both in an economic and educational point of view, may be fully understood, and lead to its being supported in the same respectable manner as the Museums of Economic Botany which are attached to the Kew and Edinburgh Gardens.

In the experimental portions of the Garden, trials have been again made on the growing of root crops at different distances. I reported on this subject last year, when the results were in favour of sowing moderately thick, which is also the case in the present instance. Plots of ground 18 yards wide, by 12 long, were sown with Mangold Wurzel. On one, the drills were 18 inches apart, and the plants stood 9 inches apart in the drills. The produce of this weighed 1 ton, 2 cwt. 1 qr. Another of same dimensions, on which the drills were 3 feet apart, and the plants 18 inches in the drills, only produced 16 cwt. Both spaces were manured alike, and

side by side. Some experiments were tried with manures. A plot 18 yards wide, by 12 long, manured with bog-mould and salt mixed, produced 14 cwt. of Mangold roots. Another of same dimensions, manured with equal parts of bog-mould, salt, and stable manure, produced 17 cwt.; and a third, with stable-yard manure alone, produced 1 ton 4 cwt. The weights of manures put on each division were equal. Further trials with other fertilising materials supplied by a gentleman who takes much interest in those matters have been made, but owing to the lateness of the season when they were sent, the experiments did not get a fair trial. I shall, therefore, reserve making any special report on them at present, and only state that they afforded proof of having considerable stimulating qualities.

The growing of seedling Potatoes has been particularly attended to this year. Last April the Assistant Secretary sent to me 115 kinds of those seedlings, raised by Mr. Anderson of Fermoy, at ages varying from two to four years, all of which had either names attached, or notes describing their merits. It was stated, that Mr. Anderson desired to have them tried and proved in the Botanic Garden. They were accordingly planted with much care, and samples of the produce of 109 of the kinds are now in the Exhibition of Farm Produce, at the Agricultural Museum of the Society. It affords me pleasure to report that there are some first-rate kinds among them, both as regards quality and prolific yield; and I have no doubt but they will soon take their places as standard varieties for general cultivation; but, so far as their being proof against blight, such is not the case. The haulm of every one of them was cut down in common with the ordinary varieties, when the blight prevailed in August, but when dug in October the tubers of a good many of the kinds were quite sound, whilst others had about one-half diseased. The remarks attached to the samples sent to the Exhibition will show the effects as they occurred.

Supplies of plants and flowers have been regularly sent twice in each week to the School of Art; 750 examples from the Conservatories, and 2533 from the outside grounds, besides private supplies to pupils who came to the Garden and selected for themselves.

The Professors of the Royal College of Surgeons, and Peter Street School of Medicine, have been supplied with specimens for illustrating their lectures; and plants and flowers were freely sent to the Museum of Industry, Stephen's Green, for Dr. Allman's lectures in that institution.

Although no official order was issued until lately for affording the public access more freely to the Garden, I acted in some degree on my own responsibility, and admitted them (strangers especially) throughout the summer, knowing it to be the desire of the Committee of Botany, and members of the Society, to make the institution as useful as possible. From 31st December, 1853, to 31st December, 1854, thirty-seven thousand six hundred and thirty-eight persons visited the Garden, exclusive of nearly three thousand who attended the horticultural fête.

I have again reluctantly to call your attention to the state of the dwelling-house, trusting that for the beautifying of your Garden, the comfort of your officer, and for economic considerations, special information may be called for on this subject. *D. Moore, Dec.* 30, 1854.

COMMON THINGS.

Pruning and Training Nut-bushes.—As soon as young plants are established, some pains should be taken to give their heads a proper form, which may be done in a similar manner to that recommended for Gooseberries and Currants. If it is intended to keep the plants under a regular system of pruning, they must be kept low, so that their upper portions may be reached standing on the ground, both for the purposes of pruning and of gathering the fruit. Their heads must be kept thin, shortening the leading shoots to 9 or 12 inches, and cutting out such other strong ones as would if left encumber the head. Besides these, there will be also produced from the two or three years' branches, annually, short twigs of 6 or 9 inches in length, which generally bear a great many Nuts the following year; these should be thinned out, but not shortened, leaving them in tolerable quantity wherever they are produced, cutting them clean out the following winter, and leaving others in the same manner as those had been left the previous season. In Kent, Nuts are better managed than in most other parts of England. The bushes there are pruned much in the manner just described, their branches being wide apart, and the middle of the bushes very open. Some may, however, deem it too much trouble to prune Nut trees in a regular way; should this be the case, something still may be done to prevent their running into a wild state in which they generally are. They may be looked over for the first two or three years after planting, till their heads have been formed into a kind of regular shape; but even then, it would take but little time to have them looked over once a year about this time, to clear away suckers and thin out their heads, remembering that where the latter are crowded with wood the crop is always defective, except, perhaps, near the extremity of the branches; on the contrary, where the bushes are thin, Nuts are generally good and abundant.

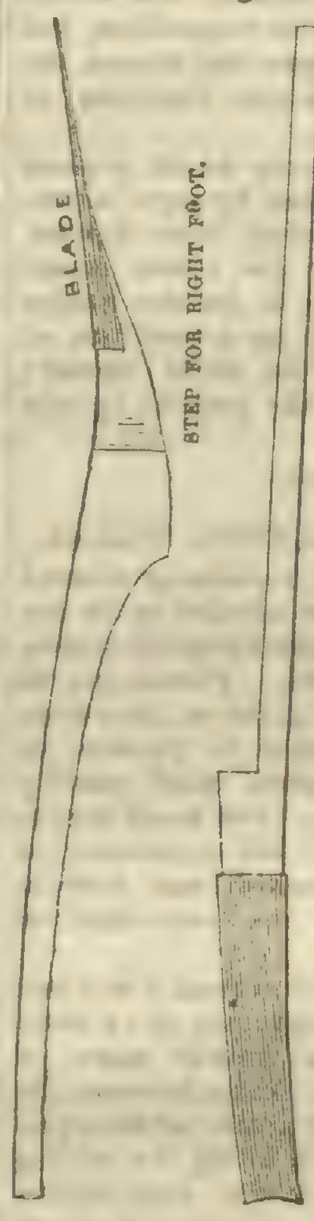
Propagation of Currants.—These are increased by cuttings only where good and handsome bushes are required. For this purpose strong young shoots should be selected which are straight, and about 12 inches of the lowest part of each should be made use of. The eyes from 6 or 8 inches of each cutting should be cut out previously to planting, which prevents suckers from being thrown out about the roots. When they have been two years in the nursery bed, and have formed heads of four or five shoots, they may be planted where they are intended to remain, taking care to have a stem of 8 inches clear above ground to each plant.

TRADE MEMORANDA.

Beware of a man who is representing himself as gardener to a merchant, and who purchases plants and greenhouse work upon false representations. His aim seems to be to live on his dupes a few days, and if he can to borrow cash, and give them the slip without notice. His height is about 5 feet 4 inches, black hair and whiskers, black coat and trousers, black figured waistcoat. Answers to different names.

Home Correspondence.

An Irish Loy and the Price of Digging.—You have invited from your friends accounts of rates paid, &c., for digging. By statements published by the Society of Friends, in the *Irish Farmers' Gazette* of 1849, of their farms in Connaught, it appears that they got their land dug 9 inches deep for 9*s.* 6*d.* an acre (statute). At the same period other accounts stated that Connaught men would dig an acre of stubble land when light 9 inches deep for 6*s.* 8*d.*, and when heavy for 10*s.* But 1849 was a period of labour deterioration, when men were found glad to work even in Leinster for 4*d.* or 6*d.* a day, or merely for their own food, their families being half starved and wandering beggars through the country. In ordinary years a very general rate for turning land (as No. 1, see p. 68) by the loy in the mountainous districts of Ireland, where it is chiefly practised, is for stubbles about 10*s*, and for lea 12*s.* or 13*s.*; in these cases, however, the land is not all turned, the ridges or beds are generally narrow, that is, including furrows, about 6 feet wide, the furrow then is not stirred, but the edge of the bed turned down upon it as by the plough; indeed, this turning is a close imitation of ploughing at about 4 inches deep, and rates most commonly about the same price as ploughing would. For this purpose the loy in the hands of an Irishman is a most efficient instrument, it gives him a great lever power in raising and turning the sod; indeed, so well is it fitted for it, that I think a man with less fatigue would turn one half more ground in the day than he would with the spade. I had one in my hands a few minutes ago: its dimensions are, handle and blade, 5 feet 6 inches long, the blade 1½ foot long, and 3½ inches wide, and about ½ inch wider at its junction with the handle, the step 6 inches above the blade, and 6 inches higher is the fulcrum 5 inches deep; the blade fits on to the handle by a lapping of the sides for about 7 inches, and the handle is set into the blade in a double wedge form, side and lengthways. An Englishman could make no hand of this tool, and I do not consider it well adapted to general digging, although so used, but the narrow and strong blade fits it well for hard, stony land, and the broad, wooden step makes it easy to the foot; the weight of the blade is about 5 or 6 lbs., and the weight of the whole is about 10½ lbs. In 1850, when labour was still low, I dug (as No. 2) in the county of Longford 12 acres of strong clay land (locally called gollagh), mostly stubble, with the spade, forcing it into the ground nearly perpendicularly to 9 or 10 inches, but turning the sod over sideways, in the nature of a deep ploughing; the whole ground was dug, the men were employed at constant wages, work or no work, wet or dry, at 8*d.* a day; and in this way one acre with another cost me 1*l.* and a few pence. This might have been done for something less, either by task work, or by only paying the labourer for good working days, and for which plenty of labourers might have been got; but as a man must eat, though he might not be able to work, and as he would be better able to do a fair day's work when he did not fast on the day he could not work, I thought it only just and reasonable, as well as wise, to have him in attendance at all times, though at a little more nominal cost. *J. M. Goodiff, Scrabby, Co. Cavan.*



AN IRISH LOY.

The Winter and its Effects in Scotland.—I was anxious to learn from Mr. Graham, of Belstane, who grows Coniferæ largely, how a plant I had given him some years ago, of the Coniferous tribe, which I supposed might be an Athrotaxis, but which you suggested might be a Microcachrys on examining a sprig which I sent you, and the seeds of which I had received from South Australia, had withstood the recent severe frost. Mr. Graham writes me about that and some other of the numerous tribes of Coniferæ which he grows, as follows:—"I wrote to ask about the Microcachrys, and to-day (26th Feb.) have a report that it is as fresh as it was last summer. Greatest cold out there (*i.e.*, at Belstane, which is 800 feet above the sea) on the 15th inst., 3° above zero. Three other nights 8°, others 10° and upwards, so the trial has been pretty severe." Mr. Graham then notices the following:—Cupressus Goveniana, as unhurt; C. Lambertiana, ditto; Sequoia gigantea, ditto; Cryptomeria, ditto; Pinus insignis, all safe; Abies Menziesi, out of 300 only one injured; A. Douglasi, out of near 200 none injured; and all other Pines unscathed; all the above being in the open ground, without protection of any kind. At my place here, where I am, certainly favourably located as to climate, never having observed my outside thermometer lower than 17°, though it must have gone down lower during night sometimes, I have had about a dozen of Sikkim Rhododendrons out unininjured. Among these were: Rhododendron Falconeri, R. argenteum—a form of it at least—as if intermediate between the true R. argenteum, which is very scarce in Scotland, and R. Falconeri, but having the bud (like a small cone) of the true argenteum; R. Thomsoni, æruginosum, Wallichi, fulgens, niveum, glaucum, campylocarpum; and the following in a cold frame wholly unprotected by covering of any kind except the glazed sashes: R. Wighti, cinnabarinum, lancifolium, barbatum (several of which I had in the open border all uninjured); R. anthopogon (Hook. pl), &c. All these stood admirably. Besides these Rhododendrons I had other things of a more questionable character, which stood out all this severe season, viz.: Berberis, sp. at 10,000 to 11,000 feet on the Andes; Neillia thyrsiflora; Escallonia macrantha, foliage browned, but appears sound otherwise; Cerasus ilicifolia, slightly touched in the foliage, appears quite sound; Acacia, sp. from South Australia, scathed in foliage. The following in greenhouse or pots, often frozen as hard as bricks—Pourretia pyramidata, a bromeliacious plant from Andes of Quito, at 10,000 and 11,000 feet; Arabis species, with fine Fern-like foliage, at 13,000 feet on the Andes; Draba alyssoides, a shrubby species, at from 14,000 to 15,000 feet, on Andes; Cremolobus peruvianus at 12,000 feet, on Andes; Melastomaceæ, several species, at from 9000 to 11,000 feet, Andes; Ribes, species, at 13,000 feet, Andes; Margaricarpus setosus, at 10,000 feet, Andes—in open ground till middle of December; Berberis, dwarf species, at 14,000 feet on Pichincha, said to be very pretty; Alstromeria Caldasi, from 10,000 to 12,000 feet on Andes; besides many other things from the same elevations. *Isaac Anderson, Maryfield, near Edinburgh.*

Subterranean Application of Liquid Manure.—Since my return from the continent I have received several letters from gardeners informing me that a Mr. Wilkins had taken out a patent for my invention for growing Celery, and requesting me to inform the public of the number of years I have grown Celery, &c., on that system. In the year 1828 I used pipes for watering the interior of Melon and Cucumber pits and frames, and had excellent crops of Melons of large size and rich saccharine quality; in proof of which I took the first prize for Melons at the Doncaster Horticultural Society's Exhibition seven consecutive years, and was never beaten. If Mr. Wilkins will refer to the "Gardeners' Magazine" of 1829, he will find something said about my system of watering the interior of pits or frames. After being so successful with my pipes in conveying water to the roots of Melons and Cucumbers I employed the same system for supplying liquid manure to the roots of Celery and other horticultural produce with the same success, and I have continued it ever since. Surely, therefore, my using pipes for applying liquid manure to the subsoil under the roots of Celery, &c., for 26 years ought to convince Mr. Wilkins that his system is not novel; and I should like to know why Mr. Wilkins should wish to levy a toll from the public for that which is not his own. *James Stephens, 28 years' Gardener and Steward, Carr House, Doncaster, Yorkshire, March* 6.

Tepid Water for Watering Plants.—"Be sure you have some water in your houses for watering plants in winter," is a general cry with gardeners; and although it may be, and doubtless is, a good plan to adopt in the case of stove plants, it is quite unnecessary for those which usually occupy a greenhouse, *i. e.*, provided you have access to a well of any depth. During the late frost, I found by experiment that the temperature of the water from a well 16 feet in depth was 46° Fahr., while some water that had been standing all night on the flue of a greenhouse had a temperature of only 42°, the temperature of the greenhouse being 40°. This proves that even during the most severe weather the temperature of the earth undergoes but very little change, and I have seen it stated that the heat increases gradually the further we go below the surface, though I do not remember in what proportion. *A. A.*

The Late Frost.—The following observations were taken with a Six's thermometer, in exposed N. E. aspect, at 2 feet from the ground. The lowest points registered were:—Jan. 19th, 5°; 21st, 9°. Feb. 11th, 1°; 14th, 7°; 18th, 5°; 19th, 3°; 22d, 8°. The highest points registered were:—Jan. 24th, 36°; 25th, 36°; Feb. 3d, 36°; 5th, 39°. These returns are from Jan. 19th to Feb. 19th inclusive, the minima representing the lowest temperatures of the preceding nights. The following are the means for the same dates:

Mean.	Max.	Min.	Mean.	Lowest.
	29.78	17.28	23.53	1°

But the frost began some days before Jan. 19th, and I think an additional table or two is necessary. The first frost of any strength was on Jan. 11th, thermometer at

16°; from that till the 26th of February we had a frost every morning without a single exception, though on the mornings of Feb. 4 and 5 there was only 2° and 1° of frost respectively. Dividing the month of January, I find the following are the averages for the first 15 days: max., 30.8; min., 33.9. For the last 16 days: max., 29.8; min., 17.4. For the month of February: max., 30.69; min., 19.40. And from the 6th to the 22d of Feb. my thermometer never touched the freezing point at all. I attribute this rather to the exposure of the thermometer to the wind, as another on the ground close by indicated almost throughout the day the same temperatures, and in one or two instances, when the wind was high, two or three degrees warmer. All greens are destroyed, except Cabbages, Brussels Sprouts and Kale. *A. R., Bromley Common, Kent, March 7.*—The thermometers at Lilburn Tower, in the north of Northumberland, are fixed about 4 feet from the ground. The observations were taken at 9 A.M., and show the lowest temperature in the preceding 24 hours:—February 15th, + 5°; ditto 16th, — 7°; ditto 17th, — 9°; the mean of the maximum and minimum on the morning of the 17th was — 7°. We had frost and snow for seven weeks. Evergreens look as if they had been set fire to. Peach and Apricot trees appear to be destroyed; a handsome specimen Araucaria on our terrace, if not killed, is very much injured. *J. Deas.*—The following are the coldest nights that have occurred here during the late severe weather. The data are taken "from a registering thermometer in the middle of a garden, 3 feet from the ground:"—Feb. 10th, lowest, 8°; 13th, do., 9°; 14th, do., 9°; 15th, do., 11°; 16th, do., 9°; 17th, do., zero; 18th, do., 6°; 21st, do., 10°. We have had frost here, more or less, from Jan. 12th to Feb. 28th, or 48 days. Ice in small ponds was 12 inches thick. Vegetables have suffered very much, but, from present appearances, evergreens have not suffered near so much as in 1838. *D——, Amington Hall, near Tamworth, March 5.*—On Feb. 16, at 12 p.m., an ordinary thermometer here stood at 2°; on Saturday, the 17th, at 7½ a.m., it was 1° below zero, being 9° lower than in January, 1838, as registered by me in North Wales. Judging from present appearances, Wallflowers, Sweet Williams, &c., seem dead or dying. In the kitchen garden the Brassica tribe is much cut up. With a flue, the thermometer being 1° below zero, I was able to keep a heat of 65° in the Pine stove; having pot Grapes setting and swelling at the time, I was obliged to keep up a brisk temperature. *E., Gardener to J. E. Bealey, Esq., Hill House, Walsall, Staffordshire.*—The lowest night temperature at Oulton Park, Cheshire, I can state was as follows:—February 9th, 11°; 10th, 10°; 14th, 8½°; 15th, 12°; 16th, 7°; 17th, 6°; 18th, 11°; 19th, 14°; 20th, 10°; 21st, 8°. The register of Dixie placed against the north wall of the house 10 feet from the ground. *E.*

Yellow Raspberry.—This fruit, vulgarly called white Raspberry, is, I think, very generally preferred for its delicious flavour to the red. It also possesses one considerable advantage—that it is very little molested by birds, who evidently are not fond of it; and therefore it can dispense with nets in places where nothing else will protect the red fruit. But its produce seems to be very unsatisfactory; and it yields but scanty dishes even to the dessert table, while the red sorts are preserved by the bushel. Nor are the individual berries as generally filled out, rounded, and well-formed as the others. There is something defective about the plant. Can any of your correspondents inform me whether any artificial treatment, such as manuring or watering in the dry parts of the spring, will impart to this variety the luxuriance and productiveness of the red Raspberries? *A. H.*

Pregussata Fig.—In the select list of Figs which you give your correspondents, you often name Pregussata; Loudon I see does the same. I tried the sort for several years under glass, but it never even showed a fruit, and I gave it up in despair. Do others find it a good bearer? *S. B., March 5.*

Healing Paint for decayed Branches, or Snags, in Forest and other Trees.—Dissolve 2 oz. of corrosive sublimate in spirits of wine, and mix with 3 pints of best tar. The decayed parts to be pared off or gouged out below the level of the surrounding sound bark, and the wound well painted over with the above. All limbs that require removal should be cut off close to the trunk, or larger branch, and treated in the same way. *Wm. Collyns, M.R.C.S., Dreuxstrington.*

The Winter in Ireland.—The effects of the late frosts on some of the half hardy plants at Woodstock, near Inistioge, are as follows:—Eucalyptus perfoliata quite healthy, whilst E. obliqua is killed, and E. robusta very much injured. Correa rufa not at all injured; C. alba dead. Mimosa prostrata quite healthy at the west wall, dead at south wall. Acacia affinis very much injured; A. verticillata dead. Ceanothus divaricatus and azureus killed, C. rigidus and several others healthy. Spiræa Reevesiana killed, S. flore-pleno and all the others uninjured. Olea fragrans quite healthy at the west wall, killed at south wall. Colletia ferox slightly injured. Berberis empetrifolia and asiatica killed, B. dulcis and several other kinds not injured. It may be remarked that most of the above are established plants, being more than ten years planted. Amongst the exotic Coniferæ which stood well here may be mentioned Pinus Hartwegi, excelsa, apulcensis, and devoniana. Cunninghamia sinensis looks remarkably well. Cupressus Lambertiana and macrocarpa could not be more healthy; C. lusitanica (Goa Cedar, 50 years old), greatly injured; whilst C. Goveniana in an exposed situation, in flower and full of cones, not the least injured. Juniperus bermudiana, browned other seasons, quite green and healthy now. Cryptomeria japonica, 20 feet high, never looked better. Araucaria imbricata, 30 feet high, in rude health. Abies morinda and Douglasi, as well as Picea Webbiana and Pinus insignis, it is well to know, will stand the lowest temperature. *March 1.*

Rain at Cirencester in 1854:—

	Inches.		Inches.
January	2.28	Brought forward ...	9.45
February	0.96	July	3.15
March	0.63	August	0.90
April	0.25	September...	0.70
May	2.90	October	2.72
June	1.73	November...	1.52
		December	1.48
Carried forward ...	9.45		19.92

Comparison of Ten Years with Chiswick.

	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854
Cirencester ..	29.9	32.1	30.9	38.6	25.9	31.2	24.8	48.8	32.7	19.9
Chiswick ..	23.3	27.7	16.6	28.8	22.8	18.2	20.7	32.6	24.3	18.9
	6.6	4.4	14.3	9.8	3.1	13.0	4.1	16.2	8.4	1.0

Average—Cirencester, 31.1; Chiswick, 23.3. *Thos. C. Brown.*

Grafted Rhododendrons and Hardiness of Hybrids.—The discussion now going on in your columns as to the merits or demerits of grafted Rhododendrons will not fail to elicit some useful facts concerning that valuable plant, which I think might justly be called the most ornamental hardy evergreen shrub we possess, and therefore deserving of having everything said about it which is in any way likely to facilitate its general culture. I have had some experience among Rhododendrons, which leads me to differ from "J. R.'s" assumption that grafting is necessarily a dwarfing process. Many seedling plants of R. ponticum will grow quite as strongly as any hybrid that has ever come under my notice, and if such stocks are chosen for grafting upon, and that operation be skilfully performed, there can be no reason why a plant resulting from such an union should be less robust than another of the same variety raised from a layer; I must admit, however, that I have never seen any hybrids possessing that laurel-like luxuriance described by "J. R." As regards another point in dispute, as to whether the hardihood of a hybrid is determined by the male or the female parent, I agree with "J. R." and the authorities he quotes, that the male exercises the strongest influence in this matter upon the offspring; but as my opinion is founded upon the following single experiment, it may not be worth much. Some eight or ten years ago a plant of R. arboreum grew in the border of a conservatory here, and yet notwithstanding its favourable situation, it refused to produce its magnificent flowers oftener than once in two years. On one occasion I fertilised some of its blossoms with pollen from common hardy kinds which had been forced into early bloom, and plants the produce of this cross have been growing out in the common soil of the pleasure-ground ever since, some of them being now from 5 to 6 feet high, and as much through; consequently they are perfectly hardy. In habit and appearance they differ altogether from arboreum, being dense spreading bushes, with nothing tree-like about them. One peculiarity of the female parent, its shy blooming, has however been inherited by the offspring, for some of these large bushes have never yet produced a single flower; others have flowered sparingly, the colour in all cases being some shade of crimson. I have also raised some very distinct varieties by crossing alta-clerense and other red hybrids with the common sorts of ponticum and catawbiense. These commence blooming after their female parents, coming out in succession till the common kinds begin to open, and thus stopping a gap in the flowering season of Rhododendrons; they have also the desirable properties of bright and various colours, and a compact dwarf habit, but the value of them is unfortunately lessened by their liability to disfigurement by late spring frosts. A new class of late-blooming, high-coloured kinds, not liable to this last objection, is now in the hands of the principal growers, but being at present high in price, these are not much known to general cultivators. It would help to make them more so if Messrs. Standish and Noble would favour our readers with the names and colours of the best and most distinct of them. Hybrids raised from seeds of R. campanulatum, I find, inherit in a striking degree its peculiarities. In foliage and manner of growth there is a strong family likeness between that species and my seedlings from it, and unfortunately they promise to be quite as shy as the mother in producing flowers. Judging from what we know of the Indian species, it is to be feared that none of the large growing kinds from that country will be free bloomers. *J. B. W.*

Societies.

Horticultural, *March 6.*—J. M. Strachan, Esq., in the chair. The Hon. Lord Murray, J. Boord, Esq., and Mr. Videon were elected Fellows. Notwithstanding the very severe weather we have lately experienced, there was an excellent exhibition on this occasion, not only of plants and fruits, but also of forced vegetables. Of Forced Bulbs there were some charming collections, chiefly of Hyacinths; of these the best came from Mr. Davies, gr. to E. Rosher, Esq., of Hamilton Terrace, St. John's Wood. The most striking varieties contained in it were Laurens Koster, Charles Dickens, Nimrod, Sutton's Favourite, and Queen Victoria. Mr. Cutbush, of Highgate, furnished a group in which were two some particularly worthy of notice; they were William the First, a very deep bluish purple with a large compact head of single flowers, and Baron Rothschild, a bright red, and also single. Mr. Todman, gr. to Mrs. Buckmaster, contributed a mixed collection of bulbs, consisting of Tournesol Tulips, Jonquils, Lachenalias, and four kinds of Hyacinths. Cyclamens were furnished by Messrs. E. G. Henderson, of the Wellington Road Nursery, and Mr. Myatt, of Deptford. The latter sent C. persicum; the former red, white, rose and flesh coloured varieties of that kind, together with the dwarf and pretty C. Atkinsi, a comparatively new hybrid raised by Mr. Atkins, of Painswick, from seed of C. coum crossed with persicum. Cinerarias were confined to one collection, which was contributed by Mr. Todman. The most striking varieties were Beauty of Clapham, Queen, and Delight. The last named exhibitor also showed finely flowered medium sized plants of Indian Azaleas, consisting of Præstans, Trotteriana, a variety in the way of lateritia, and purpurea elegans. Mr. Fleming again showed a plant of his purple striped and mottled white seedling called Duchess of Sutherland.

Among Orchids were some noble specimens. Of these the most remarkable was Dendrobium speciosum, a large plant well furnished with flower spikes, from Messrs. Rollisson, of Tooting. This was unfortunately, however, the spotless variety of it, which is not nearly so handsome as the other. It was stated that the magnificent plant of this Dendrobe which the Society is well known to possess, is now in full flower in the garden at Chiswick, but that owing to its great size it could not be got out of the door of the house in which it is growing to bring to the meeting. The other Orchids in Messrs. Rollisson's collection were the White Butterfly plant (Phalænopsis amabilis), the ivory white flowered Cymbidium eburneum, Schomburgkia violacea, Vanda tricolor, and a handsome variety of Dendrobium nobile called pulcherrimum. Messrs. Veitch sent the singular-looking Lady's Slipper, Cypripedium villosum, so called on account of the long hairs with which the flowers are furnished. Mr. Forsyth, gr. to Baron Rothschild, had a well flowered Phaius grandifolius, and a large and fine Dendrobium nobile came from Mr. Hammerton, gr. to J. Lovick, Esq., of Stamford Hill. Flowers of Mormodes igneum and of two Vandas were contributed by Mr. Pass, gr. to T. Brocklehurst, Esq., of the Fence, Macclesfield.

Of Stove and Greenhouse plants there were several. Mr. Davies, gr. to E. Rosher, Esq., showed Franciscea confertiflora, certainly the most ornamental of the genus. A plant of this and another species of Franciscea were also exhibited by Messrs. Veitch, who showed, moreover, a charmingly blossomed specimen of the Jasmine-flowered Rhododendron, pronounced by many to be the gem of the exhibition; also a fragrant white flowered Posoqueria, and some of the better kinds of Epacrises. Messrs. Lee had well grown plants of Styphelia tubiflora, Eriostemon linifolium, Imatophyllum miniatum; an Epacris and a Camellia. Mr. Todman sent Eriostemon myoporoides, and from Messrs. Henderson, of Pine Apple Place, came Hebeclinium ianthemum, in the shape of a handsome bush covered with blue Ageratum-like flowers, a Begonia, some Acacias, and other plants.

A small boxful of Neapolitan Violets was shown by Mr. Boyd, gr. to Viscount Dillon, at Dytchley Park, Oxon.

Of Chinese Primroses there were four collections, all of them good specimens, and well flowered. They came from Mr. Smith, gr. to Mrs. Reay, of Wanstead; Mr. Chilman, gr. to Mrs. Smith, of Epsom; Mr. Green, gr. to Sir E. Antrobus; and Messrs. Henderson, of Wellington Road. Mr. Hayes, of Edmonton, had a pretty blush kind called Bride, whose blooms measured 1¾ inch across. A good specimen of Double White was shown by Mr. Keele, gr. to J. Butler, Esq., of Woolwich.

Some good Pine Apples were produced. Mr. Fleming sent from Trentham two fruit of the smooth-leaved Cayenne; one a little too far gone, weighing 5 lbs. 4 oz., the other 4 lbs. 12 oz. From Mr. Davies, gr. to Lady Bridport, came a Black Prince, finely shaped, weighing 6 lbs. 4 oz., and a smooth-leaved Cayenne, weighing 4 lbs. 3 oz. These were stated to be both from old stools; one of which (the Cayenne) yielded in July last a fruit 6½ lbs. weight, and the other (the Black Prince) one in August last 10 lbs. in weight. Mr. Dodds, gr. to Colonel Baker, showed a smooth-leaved Cayenne, weighing 4 lbs. Mr. M'Ewen, gr. to the Duke of Norfolk, sent both smooth and prickly leaved Cayennes, the former weighing 2 lbs. 5 oz., and the latter 3 lbs. 10 oz. Mr. Page, gr. to W. Leaf, Esq., had a Providence, weighing 4 lbs. 15 oz.; and Messrs. Bray and Henderson had each a Queen, weighing respectively 3 lbs. 1 oz.

New Grapes, quite ripe and beautifully coloured, came from Mr. Forbes, gr. to the Duke of Bedford, at Woburn; and Mr. Jennings, gr. to the Earl of Derby, at Knowsley. These both consisted of Black Hamburgh.

Pears, unrivalled for their beauty and freshness thus late in the season, were shown by Mr. Tillyard, gr. to the Right Hon. the Speaker. Fine examples of this kind of fruit were also furnished by Mr. Snow, gr. to Earl de Grey; Mr. Robertson, gr. to Lady Emily Foley; and Mr. Smith, gr. to Mrs. Reay. Among the varieties shown were Easter Beurré, Beurré Rance, Ne Plus Meuris, Knight's Monarch, Glou Morceau, Old Colmar, Winter Crassane, Chaumontel, Beurré de la Motte, Catillac, and large and fine specimens of Uvedale's St. Germain. The latter came from Mr. Snow.

A most beautiful collection of Apples was shown by

Mr. Snow, their skins being bright and clear without the slightest symptoms of shrivelling. Among them were Blenheim Pippin, Golden Noble, a large pale yellow Apple, Bull's Golden Reinette, Kirk's ditto, Court Pendu Plat, Robinson's Pippin, Bedfordshire Foundling, Selene (reported to be a useful Apple), Old Golden Pippin (from an east wall), Scarlet Nonpareil, and one or two others. Mr. McEwen also sent a trayful of well-preserved varieties of Apples from the Duke of Norfolk's garden at Arundel.

Strawberries were exhibited but they were not good. Mr. M'Ewen sent Black Prince and Keens' Seedling; and Mr. Brown, of Waltham Abbey, the last named variety.

Forced Vegetables, considering the bad weather we have had for such things, were very satisfactory: Mr. M'Ewen produced examples of Mitchell's Royal Albert Rhubarb, Fulmer's Early Kidney Bean, Asparagus, Potatoes (very small), Seakale, and Mushrooms. Mr. Fleming sent from Trentham Rhubarb, Kidney Beans, Seakale, leaves of Silver Beet, a brace of good Cucumbers, and some Mushrooms.

Of Salad Vegetables, Mr. Tillyard sent Beck's short-topped Radish, Celery, Batavian and green-curled Endive, Mustard and Cress, and a brace of Sion House Cucumbers. Mr. Fleming had Lettuces, blanched Chicory leaves, Celery, Beet, Mustard and Cress, and Cucumbers, the latter a long kind, a hybrid from a White spine crossed with Sion House. Mr. M'Ewen produced Lettuces, Endive, Celery, young Onions, Mustard and Cress, and Sion House Cucumber. Some Cucumbers, Mushrooms, and Asparagus, were also exhibited by Mr. Taylor, gr. to J. Coster, Esq., and Mr. Tivey, gr. to J. H. Elwes, Esq., of Cheltenham. Of French produce, Mr. Lewis Solomon, of Covent Garden, showed Lettuces, Endive, Globe Artichokes, very large, White Asparagus, and Green "Sprue," and Barbe du Capucin.

Variegated Scotch Kail was contributed by Mr. Fleming, in order to show how well it had withstood the severity of the winter. It was stated that the frost had had no effect on it whatever, while it had left nearly all other winter Coleworts quite blanched. The variety in question is red coloured, and is much grown in the Highlands of Scotland, where it is called Cow Kail. It is, however, a good garden vegetable, especially in severe winters.

Among Miscellaneous Articles was a new kind of hoe from Mr. Wood, gr. to C. R. Scott Murray, Esq. It may be described as a common draw hoe with a pick in the centre of the hoe about 6 inches or so long. It may thus be said to be a combination of the Vernon and common draw hoe. It was stated to be a useful implement both for stirring the ground and killing weeds.

A very pretty Basket made of wicker, and covered on the outside with leather stamped so as to resemble leaves and fruit, and also a smaller basket covered with leather leaves, were exhibited. These are intended for setting pot plants in in sitting rooms, and are doubtless well adapted for the purpose, being much more ornamental than a bare garden pot. They are made by Mrs. Compton, of Blackheath Hill.

Three Watering Pots made of zinc were shown by Mr. T. B. Lawrence. A model and plan of a Hot-water Pipe were produced by Mr. Munro, gr. to Mrs. Oddie; they were intended to show that by pressing, as it were, a 4-inch circular pipe into a kind of square, with deep indentations in its sides, it would still have as much heating surface as a round 4-inch pipe, and at the same time require less water. How this kind of pipe may answer can only be determined by experiment.

Samples of Vegetables preserved by Messrs. Chollet & Co., of Paris, under Masson's patent, were exhibited; a full account of these will be found in another page.

An extensive and valuable assortment of Fibrous Materials: Cordage and Paper prepared from them was furnished by the secretary of the Society, Dr. Royle. Among them were Plantain fibre and tow, plain and dyed, showing that it takes colour well; also fibre from Yuccas, Pitu or Agave (Madras), Sanseviera or Moorva, Moonja (Saccharum Munja), a kind of Sugar Cane, Pine Apple, and Jute (Corchorus olitorius). There were likewise leaves of Bhabhur (Eriophorum cannabinum), and Cyperus (C. tegetum), together with examples of a kind of Bark-cloth from the Paper Mulberry and Flam tree of Borneo. These natural cloths and fibres, together with the papers made from Lace-bark, Plaintain, &c., excited, as might be expected, much interest, showing, as they did, the richness of our Indian empire in textile materials, which are at present so scarce with us. They were sent partly to show the great numbers which we have in India, and of which paper is made in the far East; in opposition to some here, who say paper cannot be well made from fibres, but that you require a *woven* fabric. Another object was to show that you need not take the trouble of separating the fibres individually, but that the Chinese, &c., strip off the bark of the Paper Mulberry and pound it into half stuff, and water it down into pulp; so in the Himalayas do they treat the Daphne, of which enormous sheets of tough paper are made, and which, when carefully made, will take the finest impressions, as the so-called Indian paper for proofs. They strip off the bark of species of Mulberry, Artocarpus, &c., which we know grow large and quickly and are abundant, and pound the bark into half stuff; so with many other trees now yielding bast, bark, cloth, &c. In India, moreover, they make paper from endogenous fibres, as of Agave, Sanseviera, and Plantain. The latter of every variety of quality; that is, both thick for drawing paper, and tough for packing paper: and here it has been made fine enough for the Queen's note paper. In India, they also make paper from the so-called Hemps and Jute, as well as from Cotton; that is, from species of Corchorus, Crotalaria, Hibiscus, and Gossypium: thus they can show an abundant, never-failing source of supply of cheap materials. The basts made into rope even sell on the Arracan coast for about 3*s.* a cwt.; Jute and Sunn are sold in the state of fibre from 3*s.* to 5*s.* a cwt. Why may not other fibres be produced as cheaply on such coasts as those of Malabar and the Malayan peninsula, or the luxuriant and well-watered Bengal? Mr. Henley, quoted in Dr. Royle's new work, where all these things are fully detailed, states that good half stuff may be landed in London at from 13*l.* to 16*l.* per ton; the latter equal to that from good linen rags, from which there would be little loss in preparation, and which would, moreover, be useful for "filling up." Samples of paper prepared from Holcus saccharatus were also exhibited from Mr. Henderson, of Kingskerswell. They were strong, and of tolerably good colour. It was mentioned that fibre of this plant was some time ago submitted to the Treasury for the purpose of instituting experiments with it, in order to ascertain its value, and that the result of the Government investigations was, that it was inferior in strength to Hemp, but very nearly as strong as Flax.

Among plants from the garden of the Society, the most remarkable was Thyrsacanthus rutilans, a scarlet-flowered stove plant, of which some account was given last week. There were also cut flowers of Chimonanthus, from plants on the conservative wall, protected only by mats, which have had the effect of preserving them perfectly from the frost.

Cuttings of four kinds of new Pears were distributed to such Fellows as wished to receive them.

The Medals, &c., awarded on this occasion, will be found in our advertising columns.

Notices of Books.

The Book of the Garden. By Charles M'Intosh. Blackwood. Edinburgh and London. 2 vols. 8vo. 4*l.* 7*s.* 6*d.*

Every one interested in gardening or who has devoted any portion of time either to the perusal of its literature or to the pursuit of it as a delightful and intellectual occupation, must have noted the extraordinary and almost incredible strides which have marked its progress during the last 30 years. It is the purpose of the work before us to describe that progress. Thirty years since little inroad had been made upon the ancient principles of its architecture or its every-day operations; hence, any innovation upon long established practices was received with suspicion and distrust. To have erected a greenhouse upon any other plan than with front sashes, like a pastrycook's shop, and a semi-opaque roof, would have been considered absurd. Houses for the production of fruits had also one stereotyped plan, viz., the lean-to. The timbers employed were such as are used in the construction of cathedrals; the glass, the dingiest that could be found, with small squares, half of them lap, and usually embedded in putty. These principles we modern innovators presume were adopted to keep in heat and shut out light, and yet our author says,* "Improvements in hothouse building appear to bear no comparison with the improvements that have taken place of late years in other departments of horticulture." We think it must, however, be admitted that progress has been made in the "structural" department of gardening. Sir George M'Kenzie and the late Thomas Andrew Knight were among the first to dispel the cloud that hung over us, and let in the rays of light. Mr. Loudon, by means of his numerous publications, helped to enlist and enlighten the public mind. Then came forward Sir Joseph Paxton, who produced the great conservatory at Chatsworth (at that time unequalled as a glass structure) on a new principle termed "the ridge and furrow." This has been followed by the Crystal Palace at Sydenham, which a celebrated writer terms, and justly, "the eighth wonder of the world." We cannot, therefore, at all agree with our author in his opinion on the progress of "structural" gardening, and in support of our case we appeal to plates 6 and 7, which illustrate his own designs at Poltalloch and also at Panmure, where he has succeeded in producing a new system of arrangement and ventilation of an admirable description.

For the construction of garden walls Mr. M'Intosh has given various plans; but we are glad to find that when built of brick he approves of and adopts hollow walls, which are equally strong as solid ones, and less expensive, the cavity within containing a large body of air, which from its nonconductive properties renders them drier and warmer; and he adds,† "to ensure durability all walls when first built ought to be furnished with either cast-iron eyed or headed nails pushed into the joints before the mortar or cement is set, 9 inches as a minimum and 15 inches the maximum distance apart. To these the trees should be secured by soft twine previously steeped in pyroligneous ether. This will not only be found an immense saving of material ever after, but will secure the wall against those annual defacements which arise from driving in and pulling out thousands of nails both in joints and in the bricks." In this excellent advice we entirely concur, for what can be more unsightly than a garden wall freckled all over as if it had had an attack of the small pox, affording thousands of hiding places for insects, and ornamented with the fragments of the tailor's shop.

The subject of heating is elaborately treated and discussed. Every kind of appliance, from the Dutch stove down to the most recent invention, is described and illustrated, showing clearly the improvements that have progressively taken place up to the present time. For ourselves we consider that little, if any advance has been made, either theoretically or practically, in heating appliances for horticultural purposes during the last 20 years.

As regards ventilation, however, we entertain a very different opinion. Recent experiments have shown that many of the really magnificent structures, especially of iron, were defective in this particular. Some plants existed in them, others died, but none luxuriated as they ought to have done under the amount of light which they received. This, as was afterwards discovered, arose from defective ventilation, a subject which is treated of fully in "The Book of the Garden," and we would strongly recommend every person, especially garden architects and gardeners themselves, to peruse and thoroughly comprehend it, for in this lies the very soul and success of plant culture. Perfect ventilation is as essential to the full and perfect development of plants as healthy lungs are to the vigorous expansion of the human body.

In the construction of every kind of building required in a garden, the "structural" section of the work will be found to contain a large amount of information suitable alike for buildings and gardens. Mr. M'Intosh being himself one of the most experienced garden architects of our time, minute details are given, so that the expense of even a pit, up to a garden replete with every necessary erection, may be at once ascertained, a matter of no small importance to gentlemen about either to form new gardens or improve such as already exist. The details are copious and exact, and the estimates, as far as these can be given, owing to the fluctuation of prices of labour and materials in different parts of the country, are such as may be relied upon as a close approximation to accuracy.

We shall conclude our notice of the first volume of this work, which is devoted to structural gardening, matter wholly different from that contained in the second volume, with a few observations on the execution of the work before us. It contains nearly 800 pages and about 1100 illustrations, and it will, we think, be admitted that artistically no former work on gardening has yet equalled it; the engravings are selected from the best subjects, such as the Royal Gardens, Frogmore, Royal Botanic Garden, Kew, Syon House, Chiswick House, Holland House, Dalkeith Palace, &c., &c., besides some excellent examples of flower gardens. The coloured plates deserve the attentive consideration of the young gardener, exhibiting as they do the principles by which the various colours to produce harmonious effect are arranged. On the whole, this volume on structural gardening, both in compilation and artistical execution, deserves our warmest commendation.

The second volume of this work is of a cultural character, and has been got up with great care and research. It embodies the opinions and practice of the older writers on Horticulture, and also what is of more importance, the experience of our eminent modern gardeners on the subject, together with the opinions of our author, who has studied and practised the art for upwards of half a century, both in this country and on the Continent. If we were called upon to show the value such a book possesses when in the hands of a gentleman or his gardener, we might point to page 10 of the volume under notice, where Mr. M'Intosh gives the quantities of seeds necessary for a kitchen garden of an acre. How such quantities may agree with those recommended by our advertising friends, we know not; we should, however, feel ourselves safe in being guided by the great experience of our author in a matter of this kind. With regard to the varieties of seeds, which are now becoming a nuisance, and a puzzle to every possessor of a garden, Mr. M'Intosh's book will be found a good guide, pointing out as it does the best kinds to form a selection, a matter which every one must admit to be most important. The same in fact may be said in respect to fruit trees. The cumbrous lists which are issued from the various nursery establishments, both in this country and on the Continent, are enough to perplex and confuse our very best cultivators. "The Book of the Garden" will relieve us of much of this difficulty. It will also place before the reading gardener—and who are not reading gardeners now-a-days?—the principles of the art explained and discussed in a manner diffuse and instructive. Such plants as are introduced, whether tree, shrub, herb, or vegetable, are fully described, both as to culture and use, and we doubt whether in any other work the enemies of gardeners have been more fully illustrated. The insects which inflict an injury on vegetation are not overlooked, and the readiest means of their destruction pointed out. We therefore feel justified in recommending Mr. M'Intosh's two excellent volumes to the notice of the public.

* Vol. I., page 108. † Vol. I., page 106.

FLORICULTURE.

The Hollyhock.—This is now becoming a favourite both in the gardens of the rich and poor. It is a plant of easy culture, and may be propagated either by seed division of the roots, or by cuttings. The seed should be gathered from the best coloured double varieties, and when cleaned from the husk it should be stored in a dry

situation until March or April, when it should be sown broadcast, either on a gentle hotbed or on a warm sheltered border prepared for the purpose. As soon as the young seedlings will bear handling they should be transplanted into a rich soil in rows 2 feet apart, and the plants should stand 1 foot asunder in the rows, in order that they may not be spoiled by being too crowded. The following season they will bloom, when a selection should be made, and all the best varieties marked; such as are finely shaped and brightly coloured should be cut down, and planted where they are to remain and bloom; the others may be thrown away. Fine varieties are readily increased and perpetuated by division: good strong plants with plenty of shoots may be taken up when they have done blooming, and divided either with a spade or a sharp knife, taking care that each part has a good supply of roots, and then they may be planted where they are to remain and bloom. When they are propagated by cuttings they should be made from the laterals or side shoots which push from the base of the main stems. When the cuttings are prepared they should be planted round the edge of pots, filled with a compost of sandy loam, pressing the earth close to each cutting as you proceed. At first the pots should be placed in artificial heat, keeping the lights close down, and allowing very little air until the cuttings have taken root. They should not be allowed much water, as they are liable to damp off, and should be securely shaded from the scorching heat of the sun. When they have emitted roots they should be potted off into small pots, and then placed in a shady situation, where they may receive regular supplies of water, and be gradually inured to bear the full force of the sun. They will then be ready for planting out, which may be done early in September, by which means they will get established before winter. Early in spring, when they begin to grow, they should have strong tall stakes placed to them, the size of the stake corresponding with the strength of the plant. As they advance in growth the shoots should be regularly tied to the stakes, and during dry weather a dose of liquid manure water would be useful. When the blooming season is over and the seed gathered, where seed is required the old flower stems should be cut down. Dig the ground among the plants, and give them a good quantity of rotten manure. To some this attention may appear tedious, but it will be amply repaid; for, as a back row plant extending along a flower border, or intermixed with Dahlias, the Hollyhock stands unrivalled. *F. S.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—The large amount of fire heat which has been necessary in all plant houses this season will have been very favourable to the increase of red spider, and this pest should be carefully looked for upon any plant likely to be infested with it. Plants that may have occasionally been allowed to get too dry at the root, and those standing near the pipes or heat giving surface, or such as may be in a weakly state, are likely to be attacked first, and all such should be very minutely examined, and if they are found to be at all infested with this enemy, lay them upon their sides on a clean mat, and give them a thorough washing with the syringe or engine, using tepid water, and taking care not to injure the foliage by dashing the water against it too strongly. If taken in time, red spider is very easily eradicated, but if once allowed to get thoroughly established, it is the most destructive insect with which we have to contend, and perhaps the most difficult to eradicate. Recently potted plants will require to be very carefully supplied with water until they get into free growth, for although they will not require a very liberal supply, any neglect, or oversight, will be more likely to be injurious to such than in the case of plants that have not been recently shifted. If the well-known rule, "never water a plant until the pot rings clear, and then give it a thorough soaking," was regularly observed by persons entrusted with this work, plant growing would be an easier and simpler matter than it has hitherto proved, save in the hands of those who respect this good old advice. Things that have been lately repotted should be kept as much together as circumstances will allow, affording them a rather humid atmosphere, syringing them lightly early on the afternoons of fine days, and keeping them rather close. Lucullas in pots should be encouraged to make their growth, in order to get the wood well matured early in autumn, so as to have them in flower before those planted out; for it is desirable to lengthen the blooming season of these splendid plants as much as possible. Should we be favoured with bright weather, shading will soon be necessary for show-houses that are much exposed to the sun, and also for some of the Orchids. At all events, see that it is ready for being put up, so that it may be fixed at any time when it is deemed advisable to do so, but it should be dispensed with as long as can be safely done. Young stock of all kinds should now be encouraged by every possible means to make vigorous growth, especially Fuchsias; for these will soon be more disposed to bloom than make wood. See that they do not suffer for want of pot room, and keep them near the glass to induce a close habit with strong short-jointed wood. Stove.—Use every means to secure a moist atmosphere here, and shut up early on fine days after giving the plants a gentle syringing. Encourge the growth of Clerodendrons and other gross feeders by giving weak liquid manure water to such as may have filled their pots with roots. Pot off Achimenes before they get so strong as to be likely to suffer by the operation. Look sharply after insects here, particularly mealy bug, which, wherever it exists, will be escaping from its winter quarters, and unless destroyed with a diligent hand will soon spread and become very troublesome.

FORCING DEPARTMENT.

Pineries.—The increased amount of sunshine which we are now experiencing will be highly beneficial to these, especially to plants swelling their fruit. Give these as much tepid manure water as the soil will bear without becoming too wet, and afford them a thoroughly moist atmosphere with a warm temperature; but obtain this as far as possible by economising the solar heat, giving air sparingly when the glass rises towards 80° or 85°, but do this by opening the ventilators on the sheltered side of the house, so as to avoid currents of dry air blowing through the house, and robbing the atmosphere of its moisture, and shut up early in the afternoon. Do not hurry young stock, but aim at obtaining a stocky habit, and proportion the temperature to the state of the plants and the amount of light. Do not exceed 60° or 65° by night, and give a little air when the glass rises to 75°, but with a moderate circulation of air, 85° by sunshine will not be too high. See that all is right at the root, for the sun will soon tell upon badly rooted plants, discolouring the leaves, &c. Aim at keeping the soil light and open, and in a nice healthy state as to moisture, and do not syringe heavily, but give the soil a liberal soaking whenever it may be necessary, using the syringe merely to moisten the plants on the afternoons of bright days, or after much fire heat has been used. Vineries.—As the berries swell in the early house it will be readily perceived whether the bunches have been sufficiently thinned; and such as may appear to have been left too thick should be gone over a second time at once, for it is folly to allow the energies of the Vine to be wasted upon fruit that is not to be left to come to perfection. Also reduce the number of bunches on Vines that appear to be overcropped, for with the most favourable seasons there is no chance of securing first-rate fruit from Vines that are allowed to carry too heavy a crop; and overcropping is, moreover, injurious to the Vines and to future prospects; keep the night temperature at about 65° where the fruit is swelling, and use no more fire-heat than may be indispensable to secure this, shutting up early and economising the sun's influences as much as possible. Also keep up a moist atmosphere until the fruit begins to change colour, giving air very cautiously, especially on stormy gloomy days. Attend to stopping laterals, &c., and keep everything trim and orderly. Peaches.—Keep the young shoots regularly and neatly tied in so as to admit all the light and air possible to the foliage, and give the trees a good washing with the syringe or engine on the afternoons of fine days, to prevent red spider making its appearance. If green-fly makes its appearance, which often happens when the weather has not admitted of giving air freely, or where the trees are at all unhealthy from any cause fumigate, and if mildew makes its appearance dust the affected parts with sulphur immediately it is perceived. Be careful not to push succession houses too fast, and secure a moist state of the atmosphere, using the syringe freely except where the trees are in bloom.

FLOWER GARDEN AND SHRUBBERIES.

Now that the ground is in a fit state for work, and the weather favourable, every possible exertion should be made to get alterations completed, for planting cannot be done too soon after this season, and if drying winds should set in watering will be necessary in the case of shrubs of any size that have not been long enough removed to have made a few fresh roots. Also attend to having everything well secured against wind, for nothing is more injurious to plants than allowing them to be rocked about by the wind, loosening and breaking their roots. Bourbon, Tea, and other tender Roses may now be pruned, and the beds manured and lightly forked. Roses do not object however, to a rather firm soil, and the roots should not be injured by forking or digging too deeply. The best manure for these, after they get fairly established, is diluted night soil, which should be applied after loosening the surface soil, and an inch or two of fresh soil sprinkled over the surface to prevent any unpleasant smell, &c. In the case of plants growing in badly-drained heavy soils, a good coat of well decayed farmyard manure will be more suitable, and will assist in keeping the ground moderately open. Get walks, &c., edged, and keep gravel and lawns well rolled. Also see that a sufficient quantity of plants for bedding out is in a fair way to be ready when wanted in May. Sow seeds of tender annuals on a gentle hot-bed, where they can be freely exposed to air when up, to keep them stocky. Hardy annuals for early blooming may also be sown in the borders.

HARDY FRUIT AND KITCHEN GARDEN.

Where any nailing remains undone every advantage should be taken of fine days to get this finished. Also be prepared with covering for Apricots, Peaches, &c., for the season is far advanced, and with bright warm days the blossoms will soon make their appearance. And wherever it can be done the covering should be put up at once to shade the trees, and retard their blooming as much as possible. Directly the nailing is finished the borders should be forked or lightly dug over, so as to give the ground a fresh neat appearance. Peas, Lettuce, and Cauliflowers that have been raised or wintered under glass should, save on frosty nights, be fully exposed to the air, so as to have them fit for planting out whenever the weather becomes such that they can be safely trusted; but it will be wise to keep all such things under the shelter of glass until the nights become warmer than they have lately been. Meantime, see that the ground for the reception of these is prepared, choosing a warm sheltered corner, and for Lettuce and Cauliflowers it can hardly be made too rich. The main crop of Potatoes should be planted at once; Onions and Parsnips should also be sown immediately, if not already done. Make a small sowing of Savoys, Brussels Sprouts, German Greens, Snow's and Early Sprouting Broccoli, and Leeks, and see to providing a succession of Lettuce, Radish, and other small salads, by frequent sowings.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending March 8, 1855, as observed at the Horticultural Gardens

March.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind.	[illegible]
Friday	2	13	29.355	29.001	53	38	45.5	38	38	S.W.	[illegible]
Satur.	3	○	29.434	28.898	50	30	40.0	40	39½	S.W.	[illegible]
Sunday	4	15	29.576	29.573	49	27	38.0	39	39	S.W.	[illegible]
Mon..	5	16	29.793	29.730	53	26	39.5	39	40	S.E.	[illegible]
Tues.	6	17	29.866	29.851	51	23	37.0	39	40	N.E.	[illegible]
Wed.	7	18	29.832	29.816	46	22	34.0	39	40	E.	[illegible]
Thurs.	8	19	30.086	30.066	45	18	31.5	39	40	N.E.	[illegible]
Average.			29.714	29.562	49.5	26.3	37.9	39.0	39.5		[illegible]

March 2—Heavy rain; cloudy; rain.
— 3—Boisterous; rain; clear and fine.
— 4—Clear; cloudy and fine; slight frost.
— 5—Slight fog; very fine; low fog, but clear above.
— 6—Very fine; cloudy; foggy; frosty.
— 7—Frosty; fine; frosty.
— 8—Very clear; fine; clear at night; sharp frost.

Mean temperature of the week 3 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 29 years, for the ensuing week, ending March 17, 1855.

March.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N	NE	E	SE	S	SW	W	NW
Sunday	11	50.5	32.9	41.7	9	0.20 in.	1	4	2	5	2	10	[illegible]	[illegible]
Mon.	12	51.4	32.2	41.8	12	0.23	5	3	5	2	3	7	[illegible]	[illegible]
Tues.	13	51.3	34.9	43.1	10	0.34	3	4	4	4	4	7	[illegible]	[illegible]
Wed.	14	51.6	35.1	43.3	12	0.70	—	5	3	—	4	10	[illegible]	[illegible]
Thurs.	15	51.0	34.4	42.7	14	0.57	4	5	—	3	4	[illegible]	[illegible]	[illegible]
Friday	16	51.2	34.5	42.9	11	0.26	—	8	6	—	4	8	[illegible]	[illegible]
Satur.	17	49.7	33.0	41.4	12	0.36	0	6	3	—	3	5	[illegible]	[illegible]

The highest temperature during the above period occurred on the 16th, 1828, and 17th, 1841—therm. 67 deg.; and the lowest on the 13th, 1837—therm. 13 deg.

Notices to Correspondents.

Barked Apple Trees: *G B.* We would advise you to give one the worst of them a trial. Apply to the wounds cow-dung mixed with clay and wood ashes, and tempered with water till of the consistence of thick paint.

Bedding Plants: *J Rogers* will be obliged by some of our correspondents informing him whether Whitlavia grandiflora, Escholtzia tenuifolia, and Leptosiphon aureum are really good bedding plants.

Cabbage: *Lady Farmer.* The "Thousand Heads" mentioned at p. 112 of Soyer's "Shilling Cookery," is Chou a mille tête, or Cow Cabbage.

Drainage: *S J W L.* A four feet drainage will do very well. The bore of the pipes is immaterial; take the size that the farmers use, and which you can most readily procure. Good 1½-inch pipes with collars will suffice, but you will probably find a larger size more procurable. Nothing is gained by a large bore.

Early Peas: *L M N.* It is doubtless a good plan to shelter early Peas when growing by placing a hedge of matting or of plaited Bean stalks or other protection between the rows, where they are much exposed to cold winds, provided the protection does not shade the plants too much.‡

Elm: *W M.* Remove the soil at Midsummer, not now.

Epacrises: *Yorkshire.* You will find the treatment of these fully given in an article by "Alpha" in our vol. for 1853, p. 67.‡

Forcing: *J R.* We really could do nothing with it. Such subjects are very difficult to manage.

Greenhouses: *Amateur Gardener.* The real objection to iron is that it is too expensive, except for large buildings. Gas may be used for heating, *provided*—1, it cannot escape into the house and 2, its drying action is counteracted by a sufficient evaporating surface.

Hartley's Rough Plate Glass: *J Q B.* It will suit your orchard house perfectly.‡

Heating: *R S.* You know as much as we do, and must judge for yourself.

Lettuces: *Old Sub.* They are blanched by tying up the outer leaves over the inner ones so as to exclude the latter as much as possible from light. They should not, however, be tied up when wet or they are apt to rot in the heart.‡

Mulberry Trees: *Silkworm.* The white Mulberry trees you speak of were bought for a company formed to grow silk in Ireland. It failed, and all the plants disappeared long ago. The speculation would not pay.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Erzeroum.* 1137, Anemone Bungeana; 1173, Hypericum crispum; 224, H. empetrifolium; [illegible] Fumaria pallida; 78, Ranunculus arvensis; 322, R. Kotschyi; 1234, R. flammula (?) var.; 2, Ceratocephalus falcatus.—[illegible] Yes; but it is not specifically distinct from Asplenium adiantum-nigrum. *S.*

Nut Bushes: *Amateur.* You will find some remarks on pruning and training these in another column of to-day's paper.‡

South Devon Grass: *J P.* Don't you think a mild damp climate an ample explanation of the circumstance you mention? It is the Continental summer that renders green turf unattainable. The sort of Grass has nothing to do with it.

Strawberries: *S B.* Do not remove the axillary crowns. They remove nothing, and add much.

Susquehanna Root: *J B D.* We can find no one who knows what this is; but inquiries are making, of which you shall know the result.

Tools: *Stanton.* We do not think you *can* buy in London a genuine American axe.

Weeds: *X Y Z.* If you don't mind colour, the readiest way of keeping them down is to "pay" the walks with gas lime. Boiling salt water also is effectual, but no "chemical substance" can be advantageously employed except corrosive sublimate, which is so poisonous that it is only to be used with very great care.

Woods and Forests: *R D.* Pooh!

Woodlice: *C J F.* See p. 54 of the present year's volume.

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RENDLE'S AGRICULTURAL PRICE CURRENT AND FARM DIRECTORY FOR 1855, *with Newspaper Stamp to go free by post, is now published, and can be had in exchange for six penny stamps.*

The proprietors of this well-known and widely circulated publication have much pleasure in announcing another edition for the present year. They have spared no expense nor trouble in making it a most useful and serviceable guide to all who take an interest in the cultivation of the soil. It contains a valuable Descriptive List of all the best AGRICULTURAL SEEDS, with prices affixed to every article, with cultural remarks and general information as to the best varieties for various crops.

The List of TURNIP SEEDS is very comprehensive, and is embellished with an ENGRAVING of RENDLE'S IMPROVED SWEDE TURNIP—a variety in great favour in the West of England.

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There is a very useful ALMANACK, which has been compiled with much care.

In the MANURE DEPARTMENT there is a general Price Current of all the leading Manures, including Peruvian Guano, Lawes' Patent Superphosphate, Nitrate of Soda, &c.

The ORIGIN AND HISTORY OF PERUVIAN GUANO will be found amongst its contents, as well as some excellent advice for detecting the spurious from the genuine article. The proprietors have been favoured with some good sound advice to Farmers on this point by J. C. Nesbit, Esq., the celebrated Agricultural Chemist. They have also reprinted Professor Way's Lecture on the same subject, from the *Gardeners' Chronicle*, read to the Members of the Royal Agricultural Society.

Descriptive articles relating to Lawes' Patent Superphosphate, Nitrate of Soda, the new Mexican Guano, and other manures will also be found very useful and interesting.

The "SUPERPHOSPHATE CONTROVERSY" in the Plymouth Papers is also given at length. The whole of the letters are reprinted from the *Plymouth Herald.* In this Controversy the "*Gypsum mixers*" are fully exposed by Mr. J. Pridreaux, the eminent Agricultural Chemist.

A valuable Paper has also been written expressly for this Edition by Mr. R. Errington on the "*Cultivation of the Potato,*" as well as an article on "*Liquid Manure*" by the same gentleman.

The Proprietors have also much pleasure in stating that they have been favoured with two Original Articles, by J. B. Lawes, Esq., Rothamsted, the celebrated Agricultural Chemist, on "*The Artificial Manures most suitable for the Growth of Barley*" and "*The Cultivation of one Grain Crop after another on heavy land.*"

There will be a good Engraving of the CEDRUS DEODARA, one of the hardiest and best varieties of Cedars ever introduced, and prices of various Forest Trees, Shrubs, and Fruit Trees.

Engravings and descriptions of a great many Agricultural Implements are also added in the present Edition, and amongst them will be found M'CORMICK'S AMERICAN REAPER, GARDNER'S TURNIP CUTTER, SAMUELSON'S REGISTERED LAWN MOWER, PATENT LIQUID MANURE DISTRIBUTOR, WARNER'S GARDEN ENGINES, PUMPS, SYRINGES, &c.; FOWLER AND FRY'S CHAFF CUTTING MACHINE AND ONE ROW TURNIP DRILL, ANTHONY'S PATENT AMERICAN CHURN, AND PARKES' STEEL DIGGING FORKS.

Descriptions are also given of the New CHINESE POTATO (Dioscorea Batatas) and the FLUKE KIDNEY POTATO, a sort highly recommended in the Midland Counties.

At the request of several correspondents the Publishers have printed the present Edition the size of the "Gardeners' Chronicle," so that those who wish it can bind it with the present volume of that valuable Paper. It contains 28 *folio pages, "Chronicle" size.*

Copies can be procured, price 6*d.* each, or free to purchasers of seeds; and can be obtained through the medium of any bookseller in the United Kingdom, from the
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THE CONSULTING CHEMIST OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND (Mr. Way) is about to REMOVE his LABORATORY from 23, Holles Street, to 15, Welbeck Street, Cavendish Square, where, after the 25th of March, all communications and substances for analysis should be addressed. Mr. Way receives pupils into his laboratory for the study of Agricultural Chemistry.

The Agricultural Gazette.

SATURDAY, MARCH 10, 1855.

MEETINGS FOR THE ENSUING WEEK.

Wednesday, March 14—Agricultural Society of England.

Last Wednesday Mr. Lawes read a very valuable paper on Town Sewage, in which an immense mass of experimental and other research was brought to bear upon that important subject. The main result at which he arrived was that something more than 10,000 tons of ammonia, and 5000 tons of phosphates are annually washed into the Thames. A quantity of manure equal to the production of 600,000 quarters of Wheat is thus annually wasted. We shall hereafter give the details of the most interesting investigation by which he arrives at these startling results; at present we must confine ourselves to the bare mention of them.

To the discussion which followed Mr. Lawes's paper the best contribution was that of Mr. Chadwick. He considered Mr. Lawes's estimates considerably under the truth, seeing that he had confined them simply to the question of excrementitious matter, whereas in every household there was a great deal of other waste which also found its way into the sewers. Referring to the experience of the great London Water Companies, Mr. Chadwick declared that it was possible to pump up and deliver water by pipe at a distance of 20 miles for

2½*d.* per ton; and assuming the truth of his statement it will, no doubt, appear to many that the sewage manure question is at once settled. Unfortunately it is not so:—the question still remains, not whether the sewage water is worth 2½*d.* per ton, but whether it is better by that amount than water that can be had for nothing. We doubt if it be. Adding the rain fall to the water supply, and deducting the evaporation, as the basis of the estimate, Mr. Lawes's 10,000 tons of ammonia are distributed in the contents of our sewers through 200,000,000 tons of water: the dilution of the ammonia is one in twenty thousand, or something like 1½ ounce per ton! No wonder Mr. Lawes, in speaking of irrigation with it, spoke of 10,000 tons per acre as the dose desirable—a dose which we fancy cannot be delivered by machinery 20 miles away with profit. The only plan, as it seems to us, by which town sewage can be made use of—is, first, to hinder all the comparatively inoffensive portions of it, such as blood (to whose use as a manure we shall soon direct attention), from finding their way into the sewers; and, as regards the remainder, to provide some plan by which it shall be delivered upon Grass lands lower down the river, having travelled thither by its own weight. If this were possible, then the experience of the irrigation system in Ayrshire would strengthen expectations of success.

This latter subject and the Italian Rye-grass farms of Ayrshire were brought under the notice of the London Farmers' Club on Monday, in a paper which we give entire in the following pages. The Club accepted all the conclusions to which that paper tended, and adopted a resolution affirming the profitableness and the fitness of the Ayrshire practice, and recommending its adoption here. We must postpone consideration of the discussion which resulted in this resolution, but the main facts on which it hinged do, we think, to some extent sanction the expectation that if town sewage could find its way without artificial force on to meadow land, or especially on to Italian Rye-grass, near the metropolis, it might yet be profitably converted into milk. For though heavy dressings of manure are applied to this crop at Cunning Park, yet they are washed in with such enormous floodings of water that they do form, in fact, a very dilute liquid manure; and in our climate a still more dilute liquid, such as town sewage undoubtedly is, might be even more suitable.

The fact, for so it is, that Mr. Telfer keeps 48 cattle on seven acres of Italian Rye-grass during five months and a half of the year—that, from 7 Scotch acres, five-and-a-half-twelfths of the whole annual produce of his dairy are in this way derived—that five-and-a-half-twelfths of the 30,660 gallons of milk which he obtains, *five-and-a-half-twelfths of the two thousand pounds and upwards* for which that quantity of milk would sell in London were obtained by these bulky dressings of dilute liquid manure from 7 Scotch acres of land—this fact does, we think, justify the expectation that some method of turning our sewage to a profitable account will yet be found.

We have received a most important communication from Mr. Lawrence, of Cirencester, on the Mustard Adulteration of Rape-cake, to the nature of which, as we are forced to postpone its publication for a week, we may in a single sentence here allude. It appears from Dr. Voelcker's experiments, that those ferments in Mustard seed which under certain circumstances, such as maceration in cold water, excite the formation of the poisonous irritant to which many losses from the use of adulterated Rape have been owing, lose their efficiency for this purpose, are, in fact, coagulated and rendered inert and powerless if the cake containing them be submitted to boiling water. Mr. Lawrence details his experience in confirmation of these laboratory results of Dr. Voelcker. We hope to give it next week; and in the mean time, as the earliest information of this kind may be useful, it is well to understand that liability to loss by adulterated Rape-cake will be diminished, if not destroyed, by breaking it down and putting it in boiling water before using it.

We have received several letters in connection with Mr. Bailey Denton's comparison last week of the several companies for the permanent improvement of land. As to the present rate of the rent-charge made by the Lands' Improvement Company to repay a loan, capital and interest, in 25 years, it is not 6*l.* 17*s.* 6*d.*, as stated by Mr. Denton, but 6*l.* 15*s.*, as stated by us in some articles on the subject published last autumn, since which time it has not varied. That is a mere matter of fact, which we give with perfect confidence on the authority of the Company itself, and it cannot therefore be disputed. For the amount of the charge quoted by Mr. Denton, nevertheless, he is not responsible, seeing that he took it from a printed circular obtained from the Company, in which, by some mistake, the blank left for the amount of the charge was filled up as he quoted it.

It would be easy to enter here into a detailed comparison of the two companies, the General Land Drainage Company and the Lands' Improvement Company, and attempt to justify any preference at which, after such a comparison, we might arrive, but we think that to do this would be beyond our province. Our duty is done when, on the one hand, the national advantages are pointed out of that unlimited source of ability provided by one of the companies for those who have but a limited interest in their land; and when, on the other, the main features of these companies have been, in somewhat general terms, compared, as was done the other day. If any *correspondents* shall be disposed to state their personal experience of any of these companies, we shall be very glad to hear them, and so no doubt will our readers. Communications of this kind from *them* would be most useful, and we hope they may be forthcoming. But it will be better, we think, after the immediate differences which we have unwittingly provoked shall have been allayed, that the merits or demerits of the rival companies be declared by their *bonâ fide* clients respectively, rather than by their office-bearers.

THE CULTIVATION OF ITALIAN RYE-GRASS.

[The following paper was read at the meeting, last Monday, of the London Farmers' Club, by Mr. John C. Morton.]

It may be right to state at the outset of this paper that my object in naming its subject for discussion, and in gathering all the information which I could upon it by correspondence with the principal growers of the plant, and by personal inspection of the farms in Ayrshire and elsewhere where it is grown, has not been to prove anything whatever with regard to *persons*. Of course this remark will be understood by those who have read the angry discussions that ensued upon the late Tiptree gathering. I shall avoid all personality, whether in the way of praise or censure. No reference to past statements on the subject shall be made—statements which have been disputed, defended, and condemned, with a good deal of unnecessary temper—no attempt to determine where the credit is due, if there be any doubt as to the originality of this, that, or the other in connection with the cultivation of Italian Rye-grass. In what degree Mr. Dickenson or Mr. Rodwell, Mr. Lawson, Mr. Kennedy, Mr. Telfer, Mr. Mechi, and Mr. Ralston are copyists or originators I have not tried to ascertain. There is an aspect presented by the subject more important surely than the personal: I hope every one will agree with me in that; and instead of trying to defend or to condemn what has been already said about Italian Rye-grass, especially about the extraordinary crops of it at Myremill and Cunning Park, I have tried to forget it all, and considering the cultivation of this plant simply as a subject of great agricultural importance on its own account, I have lately done my best to inform myself of the actual experience of its growers in order that I might be able, through the London Farmers' Club, to call the attention of agriculturists generally to what so many of them now already perfectly know, the extraordinary merits of the Italian Rye-grass as a forage plant.

(Late Rapid Extension of the Crop.)

This may be proved, first, by the rapidly increasing sale it is receiving. It has been known to British agriculture for nearly a quarter of a century. In 1831 Messrs. Lawson first imported it; 160 bushels were that year shipped from Hamburgh and sold at two guineas a bushel. The imports increased year by year; in 1840 they were 5000 bushels—in 1853 they were 40,000 bushels—by this one firm alone.

Mr. Lawson writes to me as follows:—

"The first importation took place 24 years ago, viz.:—

	Bushels.	Selling price.
In 1831	160 ...	... 42*s.* 0*d.* per bushel.
1832	320 ...	... 35 0 "
1836	1,000 ...	... 15 0 "
1840	5,000 ...	... 10 6 "
1841	6,000 ...	... 10 0 "
1850	25,000 ...	... 7 6 "
1851	28,500 ...	... 7 6 "
1852	30,000 ...	... 6 0 "
1853	40,000 ...	... 5 6 "
1854	32,900 ...	... 5 6 "

"The large increase in 1853 is attributable to a slight deviation in the usual channels of sale, our wholesale transactions having assumed an importance in that particular year, owing to trade arrangements, which it is not necessary to particularise. Our present year's importations are not yet completed, but we think they will not exceed 35,000 bushels. There is no doubt that the consumption of Italian Rye-grass is progressively increasing—for independently of our own sales, other parties in the trade have also become importers—to what extent we cannot exactly say, but we have every reason to believe that our own imports represent three-fourths of the foreign seed consumed in this kingdom. Of home-grown seed we have no means of judging, but our long experience in the trade warrants us in saying that the foreign seed is to be preferred even at a higher price. No complaints have been urged against it, which is more than can be said of the English seed. The factitious value of this seed is owing to its being better cleaned than the foreign. There is not the slightest difference in the plant. The arrangements now made by us with the growers in Italy ensure its being perfectly cleaned. There can be no question but that the fact of foreign seed being ill cleaned induced cultivation in this country, and many growers have bestowed pains in preparing it for the market under their own names. Farmers should, however, be cautious in estimating the quality of the seed by the luxuriantly-grown samples from which the seed is said to be and undoubtedly is produced. This luxuriant growth having been superinduced by liquid manure, a disappointment results if the crop with common manuring does not equal its parent. But we need not enlarge on this. As to the comparative breadth of Italian and common Rye-grass, no one can speak; for not a twentieth part passes through the hands of the seedsman. Our own transactions in the latter have been to the extent of 95,000 to 100,000 bushels, ranging over the past five years. But this must not be taken as bearing the exact proportion to the Italian, so far as consumption goes."

But wholesale dealings are not so satisfactory a proof as those which represent sales to actual cultivators of the soil; and on this point Messrs. Drummond, of Stirling, tell me that their retail sales alone in Stirling during the last six years have been 120, 130, 190, 220, 280, and 350 quarters respectively—an obvious testimony to the increasing reputation of the crop. In like manner Messrs. Gibbs, the seedsmen to the Agricultural Society of England, tell me "the quantity of Italian Rye-grass sent out by us increases every year, and the demand is at least double what it was seven or eight years since. The quantity, however, actually sown is no doubt much more than double, as it can now be obtained from nearly all the local seedsmen." Mr. Sutton, of Reading, tells me that their firm sold last year 1096 bushels retail, against 1161 bushels of other sorts of Rye-grass; this is of course independent of all wholesale dealings, and of sales of both in mixtures for permanent Grass. But perhaps the most curious evidence of the gradually but rapidly increasing estimation in which the plant is held is given by Mr. Rendle, of Plymouth, who has been kind enough to examine his books during the past 15 years for me, and his retail sales alone of the seed during that time have been year by year as follows—in 1840 only 25 bushels, and this followed in successive years by 30 bushels, 30, 50, 50, 60, 70, 90, 100, 180, 240, 400, 500, 600, and 700 bushels per annum. In fact, as Mr. Rendle says, the use of the seed is not now confined to a few of the more enterprising cultivators; it is general, and everybody sows it.

Well, then, seeing that the plant has already fully established its claims to cultivation, it is an easy task for me to advocate them. I wish, however, more especially to call attention to that method of cultivation which has been adopted on the liquid-manure farms in Ayrshire and elsewhere, and to the extraordinary results which have attended it. But before doing this, I must answer the questions of those who wish to commence its cultivation and its management in the ordinary manner.

(Ordinary Cultivation of Italian Rye-Grass.)

Italian Rye-grass prefers the adhesive class of soils—loams and clays. The quantity of seed recommended for growth by itself, is 3 to 4 bushels per acre. Mr. Dickenson recommends 4 bushels: Mr. Sutton, of Reading, and Mr. Drummond, of Stirling, recommend 2½ only; their seed is, however, probably above the average quality. I fancy the Ayrshire practice may be safest, which is to sow 3½ to 4 bushels per Scotch acre, corresponding to fully 3 bushels per imperial acre. This, I find, is Mr. Mechi's quantity. When sown with a mixture for permanent Grass, 8 lbs. or 10 lbs. per acre is an ample share. When sown with Clover 1 bushel per acre, with 12 lbs. of mixed Clover seeds, is sufficient. In that case it should be sown as late as possible along with the grain crop. If it could be hoed in early in May it would be best. If sown as early as usual it would by its rapid growth materially interfere with the harvesting of the crop. But for a full crop it is best sown by itself, *i. e.* without a grain crop; and then, as soon after harvest as possible is the proper seed time. Mr. Drummond recommends 2 or 3 lbs. of Alsike Clover to be sown along with 2½ bushels of Italian Rye-grass as early in autumn as possible. At the first cutting early in summer, this Alsike Clover was 18 inches high, and the whole was a very heavy crop. Mr. Sutton recommends to sow Italian Rye-grass by itself—making an exception, however, in favour of Trifolium incarnatum if it be sown in August—a very large crop of both is obtained, and the Trifolium is made surer and more abundant for its nursing by the earlier Rye-grass.

A great deal of the success of the crop depends upon the choice of seed. It may not be of a good sort, for there are varieties; it may be imperfectly ripened; it may be imperfectly winnowed; and it may be adulterated. Its weight varies from 15 lbs. per bushel up to as much as 28 lbs., which is the extraordinary weight named by Mr. Drummond. It is much adulterated with Hair Grass and common stable seeds; and its varying weight indicates how much mere husk is often mixed with it even if it be a genuine sample. Mr. Rodwell, of Alderton Hall, Suffolk, some years ago pointed out the necessity of selecting the right sort, showing that they differed very materially, and Mr. Sutton writes to me as follows:

"Much of the misapprehension and diversity of opinion respecting productiveness of Italian Rye-grass has, we believe, arisen from the assumption that there is but one kind of Italian Rye-grass, or that all varieties possess the same properties or nearly so; whereas we have repeatedly proved that there are probably as many varieties of Italian as of English or Scotch Rye-grasses, and that the productive and nutritive properties of some greatly exceed others. This we found to be the case with a kind we procured from Mr. Dickenson, then at May Fair a few years since, as also another very productive variety, which for distinction we have kept under the name of "Sutton's" and the other "Dickenson's." So great is the difference in the produce of these and that of other varieties of Italian Rye-grass which we have sown, that we are not surprised at the great weight per acre grown by Mr. Dickenson with a copious supply of liquid manure. To the above remarks I may add, that some years ago a rather distinct variety was brought before the Council of the Royal Agricultural Society of England by Mr. Rodwell, which was of a darker green than other kinds, and having a brown tint to ears of bloom or seed; it was a good variety, but not considering it superior in

quality to those above alluded to, we did not preserve the stock. Fresh imported seed always produces a large bulk of Grass the first year, but is generally foul with seeds."

On this subject, too, Mr. Drummond writes :—

"Seed from Lombardy we find upon the whole the best, as we are always sure of it growing an early and luxuriant crop. Much of the British saved seed is in its character and habit as late as common Rye-grass, that it is not one whit earlier. A great deal of it is sown on ordinary land, instead of common Rye-grass, among with the Barley crop, the seed of which, produced, it has been the direct produce of Lombardy seed, may be. But if this be again sown in the same way it will be greatly degenerated, and in a year or two valueless as Italian Rye-grass. When we do make use of home-saved seed we must have it from the direct produce of Lombardy, and saved the same year in which it is sown; i.e., sown alone in April and harvested the same season. We have proved dozens of times the inferiority of the general run of home-grown seed. Lombardy seed looks bad, and is slovenly 'cured,' and it does not vegetate equal to our own home growth, so that it requires to be sown rather thicker."

So much for the kind and quantity of seed and time of sowing. On the last point I may repeat, that it may be sown very late among corn; but is best sown by itself, either as early as possible after harvest, when a first cutting is to be had very early next spring, and it has been even known to yield a cutting in November, and certainly a good bite for sheep; or in March, April, or May, of the following year, (when if sown in March) there will be a cutting towards the end of June. The plan is to clean the land and roll it hard, and sow three bushels broadcast, and brush-harrow it in and leave it. The plant if properly manured, and that the liquid way is the proper one I cannot doubt, will keep down every other thing.

As to the produce under ordinary management, it will yield 3 good cuttings in the year if watered with the water-cart as industriously as possible, and if the land be in good heart to begin with. But if watered copiously—as it can be only by a system of pipes and tanks and force pump—you may have 4 up to 8 cuttings, according to the stage of growth at which you wish to take it. It will stand being cut later than ordinary Rye-grass, for it does not become so woody at as nearly ripe, and it will do to cut very young also, and Mr. Dickenson tells me that he has cut it even 10 times in one season. I do not refer at greater length to his experience, because he is soon to publish a pamphlet on the subject. If allowed to seed Italian Rye-grass yields a fair crop. I once sold 90 sacks, *i.e.*, 360 bushels, weighing 17 lbs. a bushel, off 19 acres, and this was not a good crop; it was a second cutting that year. The seed is difficult to save from its liability to shed. The swathe was tied up in small sheaves at once and stooked as Wheat is, and carried at once to the board upon a large sheet in the field, where a couple of men could thresh it out almost as fast as a horse and cart could fetch it; two or three blows upon each sheaf sufficed to knock the seed out. That then is all that need be said about the ordinary experience of this crop.

(Cultivation at Tiptree.)

Mr. Mechi, who, as we all know, adopts the liquid manure system, states his management and experience of it as follows :—

"We sow 3 bushels of Italian Rye-grass per imperial acre—broadcast with the seed-barrow on the Wheat crop—before the last horse-hoeing, which works it in. As soon as the Wheat is harvested, the Grass is irrigated at the rate of 10,000 gallons per acre, which gives us abundant autumnal feed. Before Christmas it is again irrigated once or twice, and about the 20th April to the 10th May it affords an abundant mow. Last year on 6 acres of poor, stony, rocky soil we kept 100 fattening sheep from the 20th April to the end of August, the sheep never having been removed from the land. They were folded, and had Rape-cake. This was the second year of the Grass which had been several times mowed in 1853. The land was ploughed in November, sown with white Peas, which will be picked for the London market, and followed by Turnips. I should say that the hose and jet followed the sheepfold. I prefer taking broad-leaf plants after Rye-grass, rather than cereals. As a general rule, our Rye-grass gives us abundant food in the spring, whilst our neighbours are sadly deficient. It also gives much late autumnal feed. When we mow, 10,000 gallons are applied after each cutting; without this *we have no crop* in the summer. More weight can be obtained by mowing than by folding; the latter interferes with the rapid growth of the plant."

(The Ayrshire Farms.)

I now come to the description of such of the farms in Ayrshire where Italian Rye-grass is cultivated as I have seen. You are all aware that at several places in that county the system of irrigation by underground pipes for the distribution of liquid manure has been applied especially to the cultivation of Italian Rye-grass. And such very extraordinary statements have been made about the results, both in the field and in the cattle stalls, of this mode of management, that I was sure, when this subject was named for discussion before the London Farmers' Club, that a great deal of its interest would hinge upon the truth or inaccuracy of the statements referred to. I went to see these farms, therefore, the week before last, in order to make personal inquiry into the subject, and so be able to speak this evening with the confidence of an eye-witness. There are five farms in Ayrshire where pumps and pipes are in operation for the distribution of liquid manure:—Myremill, about 8 miles east of Ayr, on the Maybole road, the property of Mr. Kennedy, a banker in Ayr, and occupied by Mr. Kennedy, his tenant; Cunning Park, a farm of 50 imperial acres, on the sea shore, one or two miles south of Ayr, occupied by Mr. Telfer; Enterkine, three or four miles S. W. from Ayr, occupied by Mr. Bell; Lagg, occupied by Mr. Ralston, a high-lying farm, nearly all arable however, some four miles from Ayr, on the south road which runs by Cunning Park; and a farm in the occupation of the Marquis of Ailsa, some 4 or 5 miles farther south. I saw Myremill, Cunning Park, and Lagg. Enterkine, I was told, was stiff clay land: those parts of Lagg and Myremill which I saw are what would probably be called a somewhat brashy loam, and Cunning Park is a light sand. Mr. Kennedy, the tenant of Myremill, has for many years had experience of the value of manure applied in the liquid form by watercart both on common Rye-grass and Italian; and it was out of a conversation with his landlord in which his own experience, along with Smith of Deanston's plan for distributing the liquid sewage of towns, was discussed, that the plan of underground piping for distributing the farm liquid was determined on. This was seven or eight years ago.

Myremill is a farm of 800 imperial acres, and of these 320 are furnished with underground piping, extending, some of it, to the distance of near a mile from four tanks on the farmery, which together hold 300,000 gallons. The farmery is placed on the summit of one of the knolls or undulations of the land, and its tanks are thus above most of the land of the farm—but when the pump is in operation its force, whenever more than sufficient for the work of distribution whether on the fields below it or above it, opens the way to a higher tank at a distance, in which, therefore, any surplus liquid is accumulated for use by gravitation at any future time. The supply for these tanks is as follows :—water *ad libitum*, pumped into them from a neighbouring stream—the liquid of some 150 cattle kept pretty constantly throughout the year in byres—the drainings of the open yards and sties—and the whole manure of 450 sheep kept in a house on boards, the spaces beneath being flooded out occasionnally, just as they are at Tiptree, as most of us have seen. Besides this stock of manure Mr. Kennedy purchases at 6*d.* a gallon the concentrated gas-water of the neighbouring gas-works of Ayr and Maybole, and of this he procures 800 to 1000 gallons in the year. All the liquid made during at least nine months of the year and all this gas-water is put on 84 imperial acres of Italian Rye-grass. The liquid made during about three months of winter is poured on the fields intended for Mangold Wurzel and other green crops. Those, then, are the means employed at Myremill.

Now for a word on Mr. Telfer's farm. As you approach Ayr by railway from the north, the sea upon your right is hidden by a waste of sandy hillocks but imperfectly bound together by the wiry roots of the scanty Grass with which in patches here and there they are covered. This is in fact, a district of blown sea-sand, in which rabbits burrow. On your right, again, the same sand has been levelled, and is cultivated, and by dint of manuring, is made to grow Turnips and other food for sheep, which there, as everywhere, at length impart fertility. Through this sand the water of Ayr finds its passage to the sea, and on its banks the town is built. South of the town the same kind of soil occurs, in a narrower line however, along the shore, and it is soon altogether stopped by the high lands, on the summit of which, close by the sea, lies the farm of Lagg—Mr. Ralston's occupation. Before you reach these high-lying lands—and before you leave the sandy tract—you come, as you travel southwards, upon Mr. Telfer's farm of Cunning Park. It is an old enclosure from the blown sand of the shore—50 acres in a rectangle lying between the south road and the sea—formerly, no doubt, a sandy waste, but at what date I do not know; and while the difference which *to the farmer* it exhibits from the wilderness it was is at least as great as that exhibited by the richest specimens of fertility I know, that difference is in this case wholly due to Art and not to Nature. The sand on some of its extent has been heavily clayed, and has yielded heavy crops of Wheat, but a great deal of it that I saw was as light a sand as was ever cultivated—a pure sand soil which the severe frosts of this winter have failed to make cohere. The manure applied to these acres consists of (1) an endless supply of water; (2) the whole liquid and solid excrement of 48 cattle in the byre, which are highly fed on food grown and purchased; (3) 10 cwt. per acre of artificial manure over the whole of the extent in Italian Rye-grass, 6½ cwt. of guano per acre over the Cabbage and Mangold Wurzel, and about 2½ cwt. per acre over the whole of the Wheat. All these are after the rate of imperial measure. There are only 21 Scotch acres, that is, rather more than 25 imperial acres, under the irrigation system; the other part of the farm is managed in the ordinary way.

I pass now to Lagg, some three miles further south, and probably between two and three hundred feet above the level of the sea. The farmery here is high above the land under irrigation—so high that the liquid from the cattle runs down some 40 or 50 feet, I should think, to the tanks, where it accumulates for use by gravitation on the fields still lower down. These fields, extending over 60 imperial acres, are on a slope; the upper part probably 70 or 80 feet above the lower, but all sufficiently below the tanks to give pressure enough for distribution of their contents through flexible pipes from the fixed hydrants. The soil here is much the same as at Myremill—a good but somewhat brashy loam, worth, I dare say, 35*s.* an acre. The manure used upon the land under irrigation is the liquid from 60 large cattle and 20 horses—with nearly 2 cwt. of artificial manure per acre washed into the land after each cutting of Italian Rye-grass. The extent under Italian Rye-grass at Lagg each year is 12 acres, and this receives all the liquid except during two or three months of winter, when the land for root crops gets a dressing. The extent sown each year at Myremill is 42 acres, and at Cunning Park 4⅓ acres. This, let me say, is sown in March or April, or late in autumn, and kept on through the following year and until the end of summer in the year after that. So that going in the summer time you would see at Myremill 42 acres of old Grass and 42 acres of new Grass, and at Cunning Park 4⅓ acres of old Grass, and 4⅓ acres of new Grass, *i. e.* 70 Scotch acres on the one farm, and 7 Scotch acres on the other.

As to the mode of sowing I will give Mr. Kennedy's practice. He ploughs up an Oat stubble in autumn, puts the grubber and the harrow through it, and gets it clean; then he rolls as hard as he can, sows 4 bushels of seed broadcast—that is 70 lbs. or 80 lbs. per Scotch acre—and brushes it in. That is the whole affair. It comes up—gets a flooding with the liquid (about 6000 gallons) as soon as well above ground—is cut, if sown early enough, the first time late in April, and yields three or four cuttings—and after each cutting gets soaked with the liquid manure. It yields again three cuttings, or perhaps four next year, and is then ploughed up and goes into the regular rotation of the farm. The five years' course prevails there—1 Wheat, 2 Turnips, 3 Oats, 4 seeds mown, and 5 seeds depastured; and the Italian Rye-grass occupies perfectly and without disturbance the place of the two years' seeds over 42 acres of the land; and that generally is the plan followed on the other farms. Mr. Telfer has, indeed, occasionally for several years grown Italian Rye-grass after Italian Rye-grass, and found it answer perfectly, but I understood him to say that he, too, grows it as a general rule in succession with other crops.

(Produce under the Irrigation System.)

And now as to the produce obtained from Italian Rye-grass under this cultivation. I will commence with Mr. Telfer's case; and let me here say, that I have never been on a farm where such a detailed record of every operation and its result is kept as is kept at Cunning Park. The result of this is, that the order and cleanliness apparent everywhere are most remarkable. I would rather finish the biscuit I had dropped in Mr. Telfer's cow-house than if I had to pick it off the floor of many a cottage I have visited. A record is kept of the daily food consumed, and of the daily produce of the four lots of cows in which the whole are arranged: 47 cows of the Ayrshire breed and one bull occupy the house. They receive, while on Italian Rye-grass fully, four feeds daily, amounting to from 2 tons to 56 cwt. of the Grass among the 48. The Grass is allowed to stand till on the point of putting forth its seed-stem; it is then more substantial food, containing less water and more starch and sugary matter. When younger it contains, along with more water, more of the substances corresponding to the gluten of Flour, and which chemists tell us resemble the fleshy part of animal matter. Those who wish to make flesh by their consumption of Italian Rye-grass may, therefore, be right in cutting frequently and having it younger. That is Mr. Dickinson's plan. Mr. Telfer makes butter, and is right in cutting it less frequently—often only three, sometimes four, or at most five times in the year. He has a drier food in consequence. His object is to have a food for his cows containing 20 to 25 per cent. of solid matter, and he mixes chaff and hay and meal with his Mangold Wurzel during winter in order to obtain this result. His opinion of the relative merits of the younger and the older Grass is founded on analyses by Dr. Anderson, of Glasgow, from which it appeared that the Italian Rye-grass 17 days old 17 or 18 inches high, and weighing about 9 or 10 tons per acre, contained 86 per cent. of water; and when five weeks old, or 3 to 3½ feet high, and weighing 20 tons an acre, only 74 per cent; in the former case three per cent. of the protein compounds corresponding to fleshy matter in the animal—in the latter only 2½; while the starch and sugar present in the former were only 5½, and in the latter 10½ per cent.

It is no part of my present business to state the winter feeding of this cow-house, or to do more than relate what share this 8⅔ acres of Italian Rye-grass have in the maintenance of the live stock. I may say, therefore, that the Italian Rye-grass is, as a general rule, the whole maintenance of the stock so far as green food goes during the months of May, June, July, August; that it is most of their maintenance in September; and that it is half their maintenance in April and October. This was the case last year, when 8⅔ acres of Italian Rye-grass, half of it sown in the spring of last year (for the seed was not got in in the autumn of 1853 as usual), yielded 270 tons of green food, besides a crop of hay off the old Grass, which was left for hay in the autumn, the younger crop being then in full bearing, and sufficient for the feeding of the cattle. Now it is very little to say that 48 cattle are maintained—that 30,660 gallons of milk (for that is the average year's produce from the 47 cows), that 30,660 gallons of milk were made upon 50 acres of land, half of it under this irrigation system—that a quantity of milk worth, at 2*d.* a quart, upwards of 1000*l.*, or at 1*s.* 4*d.* per gallon, 2044*l.*, was made upon so little land—because the question remains where their food came from; and there is many a London dairyman with no land at all that maintains a larger herd and makes a larger quantity of milk. I will therefore just add the cropping of the land last year. Of the 25 acres under irrigation there were 8⅔ acres in Italian Rye-grass yielding 270 tons of green food besides a crop of hay; there were 3⅔ acres in Cabbage yielding 150 tons of Cabbage, 10*l.* worth of which were sold; there were 7½ acres of Mangold Wurzel yielding 250

tons, 80 tons of which were sold at from 23s. to 30s. per ton, according to the season; and there were nearly 6 acres of Wheat, which yielded the extraordinary measured produce of 405 bushels. And it is an extraordinary thing to say that the 25 acres under irrigation wholly kept those 48 cattle, that is to say, that the grain, and Mangold, and Cabbage sold will pay the hay and Linseed, Bean, and manure accounts. That they will not do so another year is probable, seeing that the greater part of the Wheat sold at 10s. a bushel. Mr. Telfer writes me—"The food obtained for my cattle from the other 19 Scotch acres—that is, nearly 25 imperial—not under irrigation, is charged against them at the price it can be purchased in the market (sixty feeds, *i.e.*, 30 tons of Grass, and a quantity of hay, with Oats and Oat-straw); I expect my sales of Mangold, Cabbage, and Wheat to cover this as well as all other purchased food." And in another letter I have received from him he says—"My calculation at present is that the grain, Mangold, and Cabbage sold off this farm will pay for the hay and Linseed, &c., and manure accounts."

Let me give the history of an acre of Mr. Telfer's Rye-grass. It is sown in autumn, as I said of Mr. Kennedy's, about 4 bushels per acre, and brushed in and watered, and left till spring. Sometimes it is very late; and when I was at Cunning Park the week before last, it was barely up, and had been cut down by the frost, and might have to be sown again. In that case it would be as it was last year, a spring sowing; in that case its first flooding would be followed by a first cutting in perhaps June, when 10 or 12 tons per acre might be expected from it. Immediately after cutting, between 3 and 4 cwt. per acre of mixed Peruvian guano and sulphate of ammonia are sown upon it, and 1 inch, or 100 tons per acre of water are poured upon it through the pipes, containing such a share of the liquid excrement of these 48 cattle as belongs to the period since the last pumping took place. Mr. Telfer attaches immense importance to this immediate manuring and flooding with water: and he lets the water on direct from the pipes to the land; he does not send it flying in a shower through 40 or 50 yards of it may be dry air, which would run off with half its excellence, but he sends it directly to the roots of the plant. The flooding follows the cutting immediately, the Italian Rye-grass uses the ammoniacal manure especially during the early stage of its growth, and by applying the liquid at once it gets the start of all weeds. In five weeks the land will be covered 3 feet high with a thick luxuriant growth, weighing dry, *i. e.* without dew or rain upon it, at least 16 to 20 tons per acre. This is cut and followed by another manuring in a similar manner, and a third cut of 16 to 18 tons may be expected pretty early in September, and a further manuring will give you 10 or 12 tons per acre towards the end of October. In spring another dressing of the water gives a cutting towards the end of April, and a second and third cutting will be had, together weighing 45 to 50 tons per imperial acre, by the end of August. The land is then allowed to grow the crop unassisted, and a crop of hay or seed may be had in the early part of October, after which it is broken up. During the two years that acre will have yielded between 80 and 100 tons of green food per acre, in seven cuttings, by the use of a ton of guano, sulphate of ammonia, and nitrate of soda washed in with 700 tons of dilute liquid. I am not stating this produce as an actual history, but as what I believe to be a moderate estimate, founded on the information I have obtained, of what any one of us may get under favourable circumstances if we adopt Mr. Telfer's system. Mr. Telfer states the produce, as actual history for one year, of his 7 Scotch acres—that is of 3½ Scotch for the two years of their existence—at 270 tons of green food besides the hay—*i. e.*, less than 80 tons per Scotch acre for the two years. But it is right to give the following facts in connection with this 270 tons from 7 Scotch acres. Three and a half Scotch acres were sown in the spring of 1853, and 3½ Scotch acres were sown in the spring of 1854. The former yielded 3 cuttings in the former year and 2⅔ in the latter year, and it was then allowed to seed; and the 3½ acres which had been sown in the latter year yielded 3 cuttings: so that, taking the latter year alone, 5½ cuttings were obtained. The old Grass yielded 2⅔ cuttings; that is to say, during the third cutting in the beginning of July the scythe was stopped, and the liquid manure following it was also stopped—the mowers being sent in to the younger Grass sown that spring, as it would otherwise have gone to seed. It will be seen, then, that owing to the seeding in both cases being in the spring, and especially owing to the manure being stopped so early in the season, only 5⅔ cuttings in all were obtained in the year from the two plots of one-year-old and two-year-old Grass. In calculating what, under more favourable circumstances, might have been, I think that *that* ⅔ of a cutting only has to be deducted, as it alone of the older Grass can be called contemporaneous in its growth with the first cutting of the new, and thus 5 full cuttings might have been obtained from that 3½ acres of the two-year-old Grass in one year. It is, however, of little importance, and there is little need, to speculate on what might have been. The actual history of that produce, crippled as it was, is extraordinary enough. My version of what might have been is, nevertheless, corroborated by the following actual history of facts, which Mr. Kennedy gave me as the produce of 16 Scotch acres of Italian Rye-grass last year as follows:—On April 20, a cutting commenced and on each day a perch was measured and its produce—cut if possible dry—was weighed dry; and the weight per acre calculated by a perch weight ascertained each day was 16 tons; the 2d cutting, ascertained in like manner, was 25 tons; the 3d was 17½ tons; the 4th, in September, was 16 tons; and after that a foot high of Grass was eaten down by sheep, which if it had been cut would have been 8 or 10 tons per acre. This was 74 tons per Scotch acre in *one* year. That was the first year of a crop sown in September of the previous season. There must be added to it the two or three cuttings of the next season before we get the quantity that one acre will have yielded in the two years, corresponding to the two years' produce which I have estimated at 80 to 100 tons per imperial acre.

Mr. Telfer's farm is, as I have intimated, a dairy farm. He finds it his interest to grow food at this high pressure rate, although he is 400 miles from the market for his butter. His butter comes up to Jermyn Street, and I believe it fetches as high a price as any in the market; and I believe that, notwithstanding the expense of carriage and the high pressure under which it is made, it reaches Jermyn Street with as little on its head per lb. to answer for, with as large a balance, I mean, per lb. of profit to the maker of it, as any that is sold. We surely all agree with Mr. Telfer that the power through this Italian Rye-grass of producing a large quantity of vegetable matter where milk brings so high a price as it does in the neighbourhood of large towns, becomes a far more important consideration to persons situated near London, than it does to the tenant of an Ayrshire farm. And I quite expect, as the result of this day's meeting, to find that Mr. Telfer's practice is being copied in the neighbourhood of London.

I have yet to say a few words of Mr. Kennedy's farm, where Italian Rye-grass goes to the manufacture of meat. It is, as I have said, 750 Scotch acres, or 900 imperial acres, in extent: 180 acres are in Wheat, 180 acres in Turnips, Swedes, and Mangold Wurzel, 180 acres in Oats, 180 acres in one-year-old seeds, 180 acres in two-year-old seeds. Of these 180 acres kept two years in Grass, 42 are Italian Rye-grass; 420 of the 900 acres are under the system of irrigation by underground pipes for the distribution of the contents of the tanks. The green food of this farm, along with certain portions of Rape-cake and Bean-meal, and along with steamed straw keeps a herd of 250 large cattle fatting to 7 cwt. and upwards (a very even lot of cattle, under capital arrangements as to feeding and accommodation, I saw there the other day), 450 sheep (improved Cheviots), fatting to 16 or 18 lbs. a quarter, and selling for 42*s.* to 47*s.* a-piece; and from 150 to 200 pigs and 25 large Clydesdale cart horses. These are besides the sheep in the fields. Three such lots of sheep are passed through the hands in the year, the cattle may be kept longer—more nearly five months than four on average; but that stock, excluding the sheep in the fields, is the average quantity constantly on hand, and 42 acres of young Italian Rye-grass, and 42 acres of two-year old Italian Rye-grass keep them during about five months of summer. The cattle get about 6*s.* or 7*s.* worth of Rape-cake and Bean-meal per month a-piece. The sheep get half a pound of the mixed food a day, or not much more than 8d. or 10*d.* worth a-piece per month; and beside that from April till October they get only Italian Rye-grass. The sheep eat from 10 to 15 lbs. of this green food a day, and the cattle from 100 lbs. to a cwt. a-piece. It is the universal testimony there that the Italian Rye-grass never palls upon them. They get tired of Clover, but not of this Grass. The sheep are on open boards in pens, 12 feet by 6, holding 10; there are two rows in the width of a long L-shaped building, with a central passage. They looked healthy, comfortable, and prosperous. The labour of attendance on 450 sheep so kept is only 16*s.* a week, the wages of a man and woman who supply the food. The labour of providing the Italian Rye-grass for all the stock (cutting and carrying it from the field) is done by four horses constantly employed in carting, and two men constantly mowing during the season, besides women raking.

Mr. Kennedy states that he will undertake to keep 70 to 80 sheep per Scotch acre for five months of summer on Italian Rye-grass cultivated in this manner. This is 60 sheep per imperial acre. They fatten to 18 lbs. a quarter. Their consumption may be 16 lbs. a day on the average, besides the ¼ lb. of Rape-cake and Bean-meal. 960 lbs. of green food daily for five months is 64½ tons of green food per imperial acre; and that I do not in the least doubt is not only a possibility as an individual fact, but it is a possibility as an average experience. Besides the flock of sheep, viz. 450 in the house, some 7 sheep per acre are kept upon the Clover during summer, and 3000 sheep in all are sold off the farm to the butcher in the year. How great an auxiliary the Italian Rye-grass is to the general interests of the farm, appears in the quantity of manure which the great stock kept on it during summer enables to be made. Mr. Kennedy had 7000 cubic yards of manure in made and measured heaps upon his farm last spring. His plan is as I have said to apply gas-water with the liquid manure. At every dressing, and there are often two after each cutting, he puts 20 gallons of the concentrated water per acre into the tank from which the liquid manure is to be taken, and this with 5000 or 6000 gallons per acre is the usual dressing. That the liquid is of immense importance is proved by an experience of Mr. Ralston, at Lagg, where two dry top-dressings of guano were followed by but two cuttings in the year—while with the liquid—some 5000 or 6000 gallons per acre, repeated twice or thrice after each cutting, four cuttings were obtained; and, as Mr. Ralston put it, the Grass grew 12 feet in length during the season.

(General Conclusions.)

Now, I do not wish to hold up the practice of these Ayrshire farmers as a foil or contrast to that prevailing anywhere else. There is many an illustration of the enterprise and energy of our common Saxon blood to be found, not only on individual farms but over whole districts and even counties, both in England and in Scotland. These instances of successful cultivation of Italian Rye-grass are to be taken as independent histories; not for the purpose of putting any other practice in the shade—not for the purpose of comparison or contrast at all—but simply for consideration on their own merits. I have not given the cost of laying down the pipes, and pumps, and tanks—that varies with the cost of iron, and with fifty other things; and one man's experience is not necessarily another's in another place and at another time: and it is not likely that any person determining to enter on this plan will do so without personal inquiry into this aspect of the subject. All I have tried to do is to show that an enormous stock per acre is kept upon Italian Rye-grass cultivated in this manner—so large a stock that I think I have given good reasons why any tenant farmer with an interest in his land secured to him long enough to render an outlay of the kind required prudent, should go North and inquire into these facts for himself. I believe they may be parallelled in the neighbourhood of London with even greater profit than is reaped by Mr. Telfer in the neighbourhood of Ayr. The original character of the land seems to be of little importance. Mr. Bell, of Enterkine, has pipes under 40 acres of what is there called stiff clay land, and I was told that he believes he cut 100 tons of Rye-grass per Scotch acre last year. Mr. Telfer, on the other hand, grows his great produce on the lightest sand. The great advantage of the plant is this, as Mr. Telfer puts it: that you get a rapid certain growth when placed in favourable circumstances as to liquid manure: that there is a much longer time during which it is palateable for stock (for it is longer of getting dry and woody than any other Rye-grass); and that any soil with ammonia-and-water-retaining powers can be made to produce as large returns as the richest and most easily managed soils. If any one shall consider it worth his while to inquire further into the practice prevalent at Myremill, Lagg, and Cunning Park, it may be an encouragement to him to say that I found Mr. Kennedy, Mr. Ralston, and Mr. Telfer as cordially frank, and ready to meet my many questions as I could possibly have wished—as "ready to do good and to communicate" as any men I ever met.

It may be right to add a word or two on the hay made from this plant. It is of course, under its ordinary management, as proper for conversion into hay as any other Rye-grass—more proper if excellence for this purpose depends upon abundant produce of palateable food. But under the irrigation system, where the second cutting follows so quickly on the first—where such very heavy, almost unmanageable, produce is obtained, and, above all, where the success of the management depends upon the land being flooded with liquid immediately upon its being cut, it is not advisable to make hay. Hay is made from it, then, only in such cases as that described by Mr. Telfer, when a cutting of the old Grass remains unfinished, while the first cutting of the new is ready—or whenever the growth accidentally or by mismanagement overtakes the consumption. Then that which cannot be consumed at once is cut and made into hay—and very good hay it makes. You will perhaps expect that when speaking about hay, I should make some reference to Mr. Telfer's hay crop about which he spoke to Mr. Caird and me at Mr. Mechi's—and to the consequent statement which produced so much excitement then and subsequently. I am not, however, going to do anything of the kind. I submit that if any one shall insist upon investigating that, and ascertaining here and now what the exact nature of the statement was, and who is responsible for it, he will, for the sake of mere idle curiosity, be doing his best to destroy the usefulness of the discussion which may follow this paper; for the angry feeling which has thus been raised, and probably would be so again, is not the best in which to arrive at truth: and I hope that the London Farmers' Club will by their resolution this evening affirm the importance of the Italian Rye-grass as a forage plant, especially for use in the green state for feeding cattle. I hope too that they will recommend its cultivators to inquire, with a view to imitation, into the method of management adopted on the Ayrshire farms to which I have referred.

One further remark in conclusion:—It is but a century since men lived on salted meat alone during the winter months; the summer season was the only time when stock was fed or could be fattened; the introduction of the Turnip husbandry has changed all that, so that on many an arable farm more food is now provided during the winter months than there is for them during the summer, especially during the early part of it. The growth of Rye has been recommended as the remedy for this, and winter Vetches, Cabbage, Rape, and early Turnips are the crops which have been used to supplement the deficiency of the summer produce. I believe there is no plan so efficient for this purpose as the growth of a few acres of Italian Rye-grass, under irrigation, near the steading. Eight or ten acres of it, under the liquid manure system, will yield an enormous produce of it, and the manure that can be made by its consumption

will be a welcome addition to the powers of the farmer in the autumn cultivation of his stubbles for the green crop of the following year.

Home Correspondence.

Lands Improvement Companies.—Will you permit me to inform the readers of your widely-circulated Journal that the present rate of rent-charge of the Lands' Improvement Company, to repay a loan (capital and interest) in 25 years, is not 6*l.* 17*s.* 6*d.* per cent. per annum, as stated by Mr. Bailey Denton in his letter of the 28th February. The present rate of the company is 6*l.* 15*s.* per cent. per annum. With regard to Mr. Denton's remarks on the great advantages offered to landowners by the General Land Drainage Company, by a charge of 5*l.* 2*s.* 10*d.* per cent. per annum for 50 years, as compared with the charge of 6*l.* 15*s.* per cent. per annum for 25 years, by the Lands' Improvement Company, will you allow me to lay before your readers a very short calculation, showing the exact sum which would be paid by the inheritance or lands improved, for the outlay of 100*l.*, in improvements, in either case :—

	Years.	Rate.	
General Land Drainage Company,	50 ×	£5 2 10 =	£257 1 8
Lands Improvement Company,	25 ×	6 15 0 =	168 15 0
Difference			£ 88 6 8

It thus appears that there would be a saving to the landowner and the inheritance, by the Lands' Improvement Company's rate, of 88*l.* 6*s.* 8*d.* upon the outlay of every 100*l.* on improvements. These figures require no further comment on my part. *William Napier.* [It is only fair, however, to add a word of comment from ourselves. The real comparison is not to be effected by adding up, as if it were a payment now, all that each company demands every year during a course of years before its claim is satisfied; but by addding up now the *present value* of that claim in each year of the series during which the claim is standing. The question simply is, whether 100*l.* is procured on cheaper terms by paying for it an annuity of 6*l.* 15*s.* for 25 years, or by paying an annuity of 5*l.* 2*s.* 10*d.* for 50 years?—and it can be answered by a reference to the first ready reckoner that comes to hand.]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL, *March 7*; Mr. MILES, M.P., President, in the chair.

Edward Warner, Esq., M.P., of Grosvenor Place, London, and Higham Hall, Essex, was elected a Governor of the Society; twenty-nine new members were also elected.

FINANCES.—Mr. Raymond Barker, Chairman of the Finance Committee, presented the monthly report on the accounts, from which it appeared that the current cash balance in the hands of the Bankers was 3241*l.* He also laid before the Council the report of the House Committee.

JOURNAL.—Sir John Johnstone presented the report of the Journal Committee, detailing the advanced progress made in the preparation of the ensuing July number; their recommendation of remuneration for surveys and researches connected with some of the papers, and their suggestion, the names of Sir Stafford Northcote and Mr. Dyke Acland should be added to the list of the committee.

AGRICULTURAL CHEMISTRY.—Sir John Johnstone also laid before the Council the report of the Chemical Committee, which embraced the following subjects :—

The rapid increase in the number of analyses made, at a reduced charge, in the laboratory of Professor Way, the consulting chemist to the Society, for its members, the number in the last year being more than double that in the preceding one; Professor Way remarking on this point that the result was gratifying, both as an indication of the extending application of artificial manures, and as furnishing unmistakable evidence of the increased confidence of the agricultural public in the decisions of chemical analysis.

Prof. Way's statement that the high price and increased demand for guano, during the last year, had led to more than its usual amount of adulteration; also, that the use of superphosphate of lime was becoming year by year more general; and a greater amount of skill and capital devoted to its manufacture.

The progress made by Prof. Way in the examination of those conditions of soils, on which their peculiar management and adaptation for particular manures may eventually be found to depend.

Incidental investigations made by the consulting chemist: 1. Of samples of supposed alkaline specimens of Nitrate of Soda, and of the Salts from the Nitre-beds of Mexico, along with instructions for recognising the alkaline Nitrates made for the Foreign Office; 2. Specimens of genuine Guano, and simple rules for testing the value of deposits, prepared at the request of the Admiralty, for the use of Naval Officers in their research for Guano; 3. Examination of Stothert's Manure, made at the request of Viscount Palmerston, for his information as Secretary of State for the Home Department; 4. Analysis of Poisonous Oil-cake, made at the request of the Council of the Society.

The direction of the committee to Prof. Way, that he would, as the consulting chemist of the Society, investigate the nature and effects of the atmosphere upon soils, with a view to the publication of a paper on that subject in the Journal, if approved by the Journal Committee; and that on Wednesday, the 18th of April next, at 12 o'clock, he be prepared to deliver a lecture before the members in the Council-room of the Society, "On the recent researches on the composition of the atmosphere in relation to vegetation." Other lectures for the season will be announced, when their subjects and the arrangements for their delivery shall have been decided upon by the committee.

The removal of Prof. Way's Laboratory from Holles Street, No. 15, Welbeck Street, where greater facilities will be obtained for carrying out his operations as consulting chemist of the Society.

The Committee's consideration of Mr. Bethell's suggestion, as referred to them by the Weekly Council, held on the 28th of February; and their request to Prof. Way that he will draw up, for publication in the Journal, a tabulated statement of the analyses of the different manures, both natural and artificial, having regard to the normal and average composition, and value of the ingredients, taking as a standard the analysis of guano, published in the Society's Journal, vol. x., p. 224.

GUANO-SUPPLY.—The President reported the continued influx of communications from the Foreign-office, on the extensive researches undertaken by direction of the Earl of Clarendon for deposits of guano and the nitrates, and transmitted to the Society by Lord Wodehouse.

JUDGES' AWARDS.—On the motion of Mr. Fisher Hobbs, the following resolution, of which Mr. Milward had given notice, was carried; namely—"That a Reserve-number be given by the Judges in each class of Live Stock."

AGES OF PIGS.—On the motion of Mr. Fisher Hobbs, the following resolution, of which Mr. Brandreth Gibbs had given notice, was carried (and a committee appointed accordingly), namely :—"That a special committee be appointed, to recommend some conditions in order to ensure the ages of pigs exhibited at the Society's Shows being correctly returned in the entries."

ESSAYS AND REPORTS received in competition for the Prizes of the Society in that department for the current year, were referred to the Journal Committee for adjudication.

His Excellency the Baron de Cetto presented a collection of works on the part of the Royal Bavarian Agricultural Society at Munich. The New York State Agricultural Society transmitted the last volume of their transactions. The Count de Gourcy presented his agricultural "Promenades," "Itinéraire," and "Voyage," in England, Central France, and other continental districts. M. B. Vicuna Mackenna sent his agricultural account of Chili. The Association for Promoting Improvement in the Dwellings and Domestic Condition of Agricultural Labourers in Scotland presented copies of their first Annual Report. Prof. Simonds, on the part of himself and Prof. Morton, as the joint editors of the new series of the "Veterinarian," laid copies of that work before the Council. Mr. Cuthbert Johnson transmitted a copy of his paper on the Application of Sewage to Agricultural Purposes.—The Council ordered their usual acknowledgments for these and other presents made to the Society.

Adjourned to Wednesday, March 14.

SOCIETY OF ARTS, *March 7th.—On the Sewage of London.*—Mr. Lawes read a paper on this subject, which is fully reported in the Journal of the Society, from which we make the following extracts :—

Whoever undertakes to bring forward plans for the economical disposal of the sewage of the metropolis, is at once met by the difficulty arising from the enormous bulk of the material with which he has to deal. It is estimated, that between 100 and 200 million tons of fluid pass through the sewers annually; and it is said that solid matter, amounting to nearly 200,000 tons, is suspended or dissolved in this liquid. Those who advocate the employment of the sewage by irrigation, must therefore seek for an extensive tract of land at no great distance from London on which to deposit this fluid; whilst those who propose to separate from it a solid manure must produce a substance of sufficient productive value to bear the cost of carriage to all parts of Great Britain. Of late years much money has been uselessly expended in patents and inventions for converting the sewage into a portable manure, which might have been saved by a better knowledge of the true principles of manuring, and the wants of agriculture. It should never be forgotten that it is the cost of carriage which regulates in a great measure the distribution of manures, and assigns to each a limit of area, beyond which it cannot profitably be employed. No one doubts the value of stable manure; yet its use is confined to a range which does not exceed a few shillings per ton for carriage; and a farmer who would have to cart it beyond this range would not accept it as a gift; and it is for a similar reason, that even if the manufacture of a solid manure from the sewage of a small town could be carried on with profit, it might still be quite impracticable as applied to London.

[The first part of the paper, to which we shall hereafter refer, related to the nature of manure and the elements of *value* in connection with it. Mr. Lawes then went on to apply these principles to sewage].

Assuming as we may do for all practical purposes, that the great bulk of the excrements of horses, cows, &c., in the metropolis, will not find its way in the sewers—that the refuse of manufactures valuable as manure which will do so will be comparatively limited—and that the matter abraded from the street with their small admixture of the excrements of horses and other animals, will also be of comparatively little value—we recur to human excrements as the main items to be taken into calculation. The questions arise, then, upon what data can we fairly estimate the amount and the chemical composition of the excrements of the total population of London? In what condition of solidity or solubility will these constituents be found, and through what bulk of sewage will they be distributed? What would be the actual value of the constituents if separated from their admixture with water? And finally, what are the most promising means of turning these constituents to economical accounts in the state of solution and dilution in which we find them? It might, perhaps, appear at first sight, that the most feasible way of estimating what constituents enter the sewers would be to analyse the sewer water itself; but when we come to consider the very small average proportion which the valuable ingredients bear to the bulk of the water, and also the necessary irregularity of their admixture with it at different times and places, this is found to be by no means the case.

[An immense mass of facts on the ultimate purposes served by food, and on the dietaries of various ages and classes of people, was then given in a series of tables, and the following is the use made of them.]

In applying the results of these tables to elucidate our main question, namely, the composition of the excrements of the population of London, the latter is taken at 2½ millions; and this number is supposed to comprise males and females of various ages in the proportions given in the last census. It has next been assumed that all males under 15 years consume the amounts of carbon and nitrogen given in the dietary table for males under that age, in schools, in public establishments of boys, in prisons, in work-houses, &c., and in many cases of individual experiment. The various classes of males over 15 in the metropolis are supposed to be represented, so far as the carbon and nitrogen they consumed is concerned, by the average of sailors, of soldiers, and pensioners, of prisoners with labour, of prisoners without labour, of men in workhouses, in infirmaries, as well as of certain individual cases of direct experiment. And again, the average given in the table of children in workhouses under 16 years, and of girls in various asylums and public establishments, &c., is applied to the female inhabitants under 15 years. That, on the other hand, given of women in workhouses, in prisons with and without labour, with soldiers embarked, and of a case of individual experiment, is supposed to apply to the adult female population. There are also given the calculated dietaries of several families and other establishments, of mixed ages and sexes, of different grades of society, the results of which fully confirm the indications of those of the other classes, and at the same time justify the appropriation, for our present purpose, of the figures given for the various classes in the manner above-mentioned. The average thus taken of the amounts of carbon and nitrogen consumed per head per day for each of the divisions as to sex and age, is multiplied by the number of individuals of each such divisions, and the figures thus obtained for the several divisions being added together, we obtain, of course, the amounts of carbon and of nitrogen consumed by the total population in one day; and from this is easily ascertained the annual consumption. Before leaving the question of the amount of the constituents consumed in food, it may be well to notice a point of some national interest and importance, which the calculation of the various dietaries may help to elucidate, namely, the probable average consumption of Wheat by each individual of the population. This has been variously estimated at from 6 to 8 bushels per head per annum. The amounts of bread, flour, &c., registered in the dietaries, which have been calculated, lead to the conclusion that 6½ to 6¾ bushels is about the average amount so consumed. Another point illustrated by the calculations is, that the average quantity of the dry substance of food—that is, excluding the water it naturally contained—is, within a very small fraction, one pound per head per day, including both sexes and all ages.

[The waste by respiration, perspiration, growth, &c., ascertained in great detail is then deducted from the food consumed, and the remainder finds its way into the sewers. The main results are given as follows.]

After this full discussion of the nature of the evidence at command for the estimation of the composition of the excrements of a large mixed population, let us see what are the results to which it has brought us :—

Estimated Constituents of the Human Excrements of London.

Constituents.	Ounces per head per day. Average of both sexes and all ages.	Pounds per head per annum. Average of both sexes and all ages	Tons per Annum. Total for both sexes and all ages.
Total dry substance ...	2·01	45·95	51,286¾
Mineral matter	0·45	10·34	11,536¾
Carbon	0·74	16·85	18,809¼
Nitrogen	0·35	7·94	8,859¾
Nitrogen=ammonia ..	0·42	9·64	10,758¼
Phosphates	0·20	4·58	5,108

The average amount of real dry substance voided in the excrements of each individual of the population in 24 hours, is thus seen to be only 2 ounces; or equal to about 46 lbs. per annum. This 2 ounces of dry substance will contain rather less than half an ounce of mineral matters, and the annual amount of these per head will be about 10½ lbs.; and about two-fifths of the mineral matters voided, or about one-tenth of the total dry substance will be phosphates. Of carbon in the excrements, there is about three-quarters of an ounce per head per day, equal to about 17 lbs. per annum. Of the valuable constituent nitrogen, there is an average of rather more than one-third of an ounce per day, or about 8 lbs. per annum; and these amounts of nitrogen are equal to .42 of an ounce per day, and nearly 10 lbs. per annum of ammonia. The amount of the constituents voided by the total population in one year, if entirely freed from water, is seen to be 51,286¾ tons. Of this about one-fifth is mineral matter; and the nitrogen it contains amounts to about one-sixth of the whole, namely, 8859¾ tons, which is equal to 10,758¼ tons of ammonia. Now little more than ½ a cwt. of ammonia is the usual artificial dressing for an acre of cereal grain, and it might be calculated to yield an increase of crop

of 10 to 12 bushels of Wheat, or this 10,758½ tons of ammonia would afford a produce of about 600,000 qrs., if it could be conveniently applied for such a purpose. The intrinsic value of the sewage of London considered in this merely chemical point of view is therefore enormous. Indeed, according to the above supposition, it would return to the metropolis nearly one-third of the Wheat consumed by its population. If, however, it were thus devoted exclusively to the growth of corn, it would, at the rate above mentioned, extend over more than 400,000 acres of land. But this ammonia in the sewage of London is unfortunately distributed through an enormous bulk of water, and Mr. Wickstead has shown us how immense would be the cost of distributing this material over an enormous area of land in the liquid form.

[Mr. Wickstead's method of treating sewage manure and other methods of extracting its value in the solid form are then discussed. We shall refer to this hereafter.]

Considering the profitable manufacture of a solid sewage manure quite impracticable with our present knowledge, I now turn to the question of the employment of sewage in the liquid form by irrigation. With regard to what is, probably, the amount of fluid that would have to be disposed of, in dealing with London sewage, I will say a few words. By a return presented to the Houses of Parliament last July, it appears that the water delivered into the metropolis by the nine water companies gives an average of from 24 to 25 gallons per head per day on a population of 2½ millions. I find, also, that the average fall of rain over the area supplied by the water companies will give almost exactly a similar amount per head, namely, between 24 and 25 gallons. The supply of the companies and the rain-fall taken together, therefore, give a gross amount of nearly 50 gallons per head per day. But, from this a considerable portion must be deducted for evaporation. I am inclined to think that, by the time any comprehensive scheme for the disposal of the London sewage can be brought into operation it will not amount to much less than 50 gallons per day for each individual of the population. Fifty gallons per head per day would amount to 81½ tons per head per annum; and, as it has been seen that the dry substance of the excrements of one individual is 46 lbs. per annum, it follows that a ton of sewage would only contain 9 ounces of these excrementitious matters. In conclusion, there can be little doubt that if the sewage of London is to be turned to some useful purpose, it must be applied in the liquid form in such quantities as to yield the greatest possible growth that land and season are capable of. And, certainly the enormous amounts of produce of Rye grass which have lately been recorded as the produce of irrigation—and which there is no reason to doubt—were never obtained by such small amounts of liquid as the late Mr. Smith, of Deanston, supposed sufficient. For corn crops, an enormous supply of liquid manure is certainly not well suited, for the influence of season fixes an easily reached limit to the produce of grain, the gross value of which cannot much exceed 12*l.* or 14*l.* per acre. For market gardens, again, liquid sewage does not seem well adapted, as with its use the surface of the land is liable to become crusted, which is injurious in the growth of the vegetables. There is, however, another objection to any extensive application of sewage to this purpose, in the unlimited amount of good stable manure which is easily carried back by the carts which convey the produce to London. It could, moreover, be easily shown that the dung which was so comparatively inefficient a manure for the growth of Wheat is, nevertheless, peculiarly adapted for the production of vegetables. I return, therefore, to Grass, as the most suitable crop for the application of liquid sewage. But that its use, even for this purpose, should be attended with advantage, it must, as I said before, be employed in the most liberal quantities that the capabilities of land and season will admit of; and, in this way, it is not impossible that in the neighbourhood of a large city a rental of 20*l.* to 30*l.* per acre might be obtained. Experience alone can decide what is the minimum area of land which would yield the maximum produce and rental from the sewage of London, but there can be little doubt that it would require many thousand tons of sewage per acre to yield the rental I have supposed. I may mention, however, that if 10,000 tons of sewage were annually applied to each acre, it would take about 20,000 acres to absorb the whole sewage of London, upon the estimate of 50 gallons per head per day. But it is even possible that so far as the quantity of liquid is concerned the area might be reduced below that which is here assumed. It will be said, perhaps, that such an amount of sewage is much more than would be usefully applied in furthering growth, or even that it would be wasteful or injurious. The point, however, to which I wish particularly to call attention is, that up to the limit at which either the amount of liquid or of manurial constituents becomes positively injurious, an apparent extravagant supply of ingredients on a limited area of land will, there is little doubt, yield a more profitable result than a saving of manure with a more extended area. There would surely be no great difficulty in appropriating a few thousand acres at no great distance from the Thames to the purpose in question. And Grass being the produce grown, so milk and cream should be the chief products obtained in return. Irrigated Grass appears to supply food peculiarly adapted for the production of milk; and there are certainly few articles with which the inhabitants of the metropolis are so inadequately supplied. Whilst, therefore, they must be justly charged for the removal of the sewage on sanitary grounds, they might surely demand that the cost might be lessened by a proper application of the sewage; and it appears to me, that a liberal distribution of it on Grass is the most promising means of obtaining this result.

Notices of Books.

Farming Essays. (Third Series.) By Hewitt Davis, Land Agent, &c., 3, Frederick's Place, Old Jewry. Ridgway, London.

These essays, in this issue of them, reach No. 79, commencing with 53. Mr. Davis has here contributed 27 of his very lucid, useful, and interesting papers on agricultural subjects. A large agricultural experience, extensive general knowledge, and a plain and pleasant style in the relation of both, combine to make Mr. Davis one of the most attractive and instructive of our agricultural writers.

Calendar of Operations.

MARCH.

Berwickshire Merse Farm, *March* 5.—At length have we reached the close of a protracted snow storm. During six weeks but little progress has been made in agricultural operations. The spring like opening of the new year gave place, about the middle of January, to weather of a more seasonable character. Showers of soft snow and frosty nights were the forerunners of a storm, and on the 23d it lay white and hard. The ploughs being stopped, we embraced this opportunity for forming dung-heaps on the break intended for Turnips, an operation to which but little had been previously done, owing to the fine weather. This operation, so much (and, in theory, so justly) condemned by some writers, is practically found indispensable to progress at Turnip time; for how could one find carts to convey afield all the dung from a heap in the steading (as recommended), in that busy season, without retarding the drilling to a serious extent? Surely the loss of ammonia will be more than counterbalanced by the advantage of seasonable sowing. A sudden thaw, which permitted ploughing on the 5th, 6th, and 7th ult., was followed by a return of the storm from north-east, and it snowed pretty constantly for a week—quite a "feeding" storm. The snow having now reached a uniform depth of a foot all over the country, we were visited by the most intense frost known here for many years past. At 11 P.M., on the night of the 15th, Fahrenheit's thermometer stood at +3°; and at the same hour next night it descended to 2° below zero; while during the day it ranged from 6° to 15°. It was fortunately very calm, but with a heavy hoar frost. At this temperature the streams were converted into sheets of strong ice: and water-wheels frozen up, though (of course) under cover. The stores of Turnips in field for sheep began latterly to fail; for less attention is paid to early storing for sheep than for cattle. The bulbs were so deeply covered with snow that it required all hands to obtain a supply for ewes and cutting to hogs; and that, not without much unavoidable destruction in the process of "picking." About the end of February, the snow showers changed to rain; and the present month was ushered in by a fine, fresh south-west wind, that has speedily discovered "black ground," save where a white stripe lies under the lee of a plantation or thick fence. Ploughs are again at work, after a month's rest, and have much to do yet in preparation for seed-time. Some will yet venture the Wheat destined to have been sown a month ago. Lea is not yet dry enough for the Oat seed, but will soon be so under this strong wind. The young Wheat plant is indebted to the deep snow for protection against the past severe frosts, and looks fresh and healthy, though not yet quite risen up. Pastures have acquired a fresh green beneath the snow, but little more as yet. The deficiency in the Turnip crop has enhanced the value of Linseed-cake and other artificial feeding. The first quality of Beans, at less than 9*l.* per ton, are surely cheaper than oilcake at 18*l.* Sheep have not improved much lately; but cattle, being well housed, have thriven. Among lambs there are few twins; but the single ones will be the sooner fat. Our regular lambing time commences next week. *J. T.*

Notices to Correspondents.

Ayrshire Cows: *F H.* We do not know the address of our correspondent "Clericus," and you have not given us your own, so that we cannot exchange the two.

Frosted Potatoes: *A Y.* If all the Potato be "slightly" affected it is useless for seed. If by "slightly" affected you mean that a part only of a Potato is affected, the sound piece cut off, if it has an "eye" in it, may, of course, be used as a "set."

General Book on Farming: *O M.* The editor of this paper is the editor of one of the works you allude to, and is therefore incompetent to decide between them.

Name of Grass: *W. Newton.* It is Timothy Grass—Phleum pratense. Eat it down: you can do it if you take it early enough; the stock are fond of it. It would be a loss to you to get rid of it.

Pig Feeding: *R H.* If we had a steaming apparatus on the farm we would not give store or fatting pigs *raw* Swedes and Mangolds. The steamed roots are less loosening in their effect on the bowels, chiefly because of the power you have of thoroughly mixing them up with drier material.

Poultry: *An Old Subscriber.* Spanish fowls are good layers; Cochins both lay and sit well, and are moreover excellent mothers. If you are likely to have a dirty or smoky run by all means keep dark-feathered fowls; so much depends upon the size and nature of the place where they are to be confined, that we hesitate to advise you until satisfied on this point. Cochins bear confinement well, and a very low fence suffices to keep them within bounds; Hamburghs, on the contrary, are more wild, and will fly a considerable distance. About five hens to one cock is the usual number we allow, but here, again, "breed" must be consulted; ten hens may be put with one "game" cock, whereas five to a "Dorking" cock would be the outside number. Eggs could not be expected to hatch well during the severe weather; make another attempt, and the chances are considerably in your favour. The price of Hamburgh fowls varies from 7*s.* to 20*s.* each; they are neat, pretty, and good layers. Look over the advertising columns, or send your address.

Short-horns: *Ignoramus.* H. J. Strafford, Esq., 13, Euston Square, editor of the "Herd Book."

Short-horn Calf: *Ravenwood.* We would recommend you to discontinue the medicine you have been giving, and let the animal have some Linseed gruel twice a day, with the following tonic:—Gentian powdered 4 drachms, Cascarilla bark 4 drachms, Ginger 2 drachms; to be mixed and divided into eight powders. *W. C. S.*

Wheat: *D O N.* Mix the two loads of fowls' dung with an equal quantity of earth, and apply the whole to your acre of Wheat: it will not be too much. Do it, if you can, during wet weather.

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg for the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

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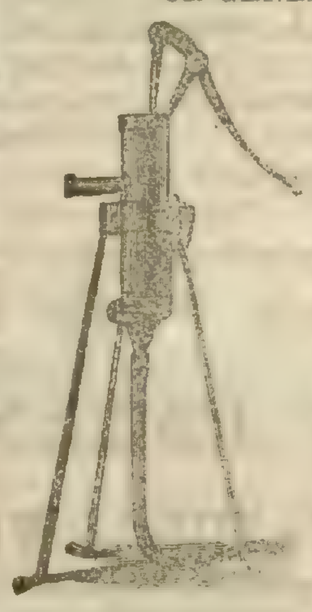

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Price of 4½ in. Pump, with legs, 8*l.* 8*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

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Diameter of Barrel	Length of Barrel under nose.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 18 0
2¾ „	long 3 „ 3 „		1 15 0
3 „	ditto 3 „ 6 „		2 12 0
3½ „	ditto 3 „ 6 „		2 18 0
4 „	ditto 3 „ 6 „		3 5 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 18
2½ in. long	ditto	ditto ditto	2 15

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The Right Rev. Lord Bishop of Ripon.
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Sir Massey Lopes, Bart., M.P.
L. J. Bland, Esq., M.P.
Colonel William Edward Powell, M.P.
The London Horticultural Society.
The Royal Agricultural Society, Prince Edward's Island.
The South Devon Agricultural Association.
The Hon. the East India Company.

And upwards of two thousand of the leading aristocracy and principal families in Great Britain and Ireland.

WILLIAM E. RENDLE & CO.,

SEED MERCHANTS, PLYMOUTH,

BY SPECIAL APPOINTMENT TO THE SOUTH DEVON AGRICULTURAL ASSOCIATION, AND THE ROYAL AGRICULTURAL SOCIETY, PRINCE EDWARD'S ISLAND, SUPPLY ALL KINDS OF

SEEDS FOR THE FARM AND THE GARDEN.

CARRIAGE FREE, AS PER FOLLOWING SCALE:—

All Orders for Seeds above £1 (excepting heavy articles, as Grain, Tares, Clover, Seed Potatoes, &c., will be delivered Free of Carriage to any Railway Station between Plymouth and Paddington.

All Orders above £2, with the above exceptions, Free to any Station on the Broad Gauge Railways, or to any Market Town in Devon and Cornwall, or to Cork, Dublin, and Liverpool, by Steamers.

All Orders for Seeds above £5, with the above exceptions, will be delivered, Free of Carriage, to any Railway Station in England and Wales, and to any Steam Port in England, Wales, Scotland, and Ireland.

To Farmers, Potato Growers, and Others.

JACKSON'S PATENT PREPARATION

FOR

PRESERVING POTATOES, WHEAT, AND OTHER SEEDS

From DISEASE, the RAVAGES of the SLUG, GRUB, and WIREWORM, in addition to which the CROPS are brought forward in HEALTH AND VIGOUR, and the yield is greatly increased, in proof of which the following extracts are given from numerous letters received by Mr. JACKSON.

EXTRACTS:—

"One of the fields of this farm, the property of MRS. STANBURY, was planted with Regents Potatoes in April last, some of which were prepared by you. The result now is, that the whole of the crop from the unprepared sets is thoroughly diseased, and hardly worth the trouble of taking up; while those raised by the side of them from the prepared sets are not only in a beautiful state of preservation from the disease, but the produce is much greater,—the Potatoes are more numerous than the others; indeed, if there were no such thing as the disease to be feared, it would be worth the trouble and expense of preparing the sets by your process, even for the sake of the improved crops. I shall certainly, for the future, prepare all my Potatoes for seed by your process; and intend to adopt it for preserving my Wheat from the Smut.

"G. B. BAXTER.

Pelmont Farm, Eltham, Kent, August 28, 1854."

Admiral Sir J. A. GORDON, K.C.B., Marlee House, Blairgowrie.

"SIR,—I have received your note of the 16th. The Potatoes that came here from England, prepared by Mr. JACKSON, were planted in a piece of new ground, and according to the directions sent by him along with them as to distance between the plants, &c. They came up well, with strong healthy stems; we have now taken the whole crop up, and there is not the slightest appearance of any disease amongst them. They are of large equal size and very prolific. There were long black unprepared Kidneys planted in the same patch, and a great deal of them are not fit for use, at least a third part are diseased. I hope Mr. JACKSON's process may be widely known, as it is a great boon.—I am, &c.,

JOHN SHANKS,
"Forester, Kildrummy Castle.

"Kildrummy Castle, Aberdeenshire, November 17, 1854."

"I am very much pleased with the result of the experiments I have made with your Prepared Potatoes; for I planted them, without any manure, in ground where for several years I have hardly had a sound Potato, and I now find the crop perfectly free from disease, and in a very fine condition; while those of the same sort, unprepared, which were planted at the same time, and next to them, are diseased and eaten by worms.

"The Potatoes from the Prepared Seed were so remarkably good that I was induced to weigh them, and I found, to my great astonishment, that they were as 200 to 150 of the others, or about 25 per cent. in favour of your preparation.

"T. AUSTEN, Nurseryman and Seedsman.

"Blackheath, Kent, 24th August, 1854."

Sold by Messrs. CHARLWOOD & CUMMINS, Seedsmen, Covent Garden; and JOHN KERNAN, Seedsman, 4, Great Russell Street, Covent Garden; all Seedsmen and Chemists; and at the Patentee's, 18, Cannon Street, London Bridge, in Packets of One, Two, Three or Four Pounds, or in Bulk for the use of Farmers and Potato Growers.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks, 12 varieties, 2s. 6d.; and from good double sorts, 1s. Superior Quilled German and French Asters, in 12 varieties, 1s. per packet; separate, 2s. Fine Quilled African Marigolds 6d. per packet.—Saffron Walden Nurseries.

COLE'S CRYSTAL WHITE, & COLE'S DWARF RED CELERY.

J. THORNELEY, COLE, & Co., NURSERYMEN, SEEDSMEN, and FLORISTS, Withington, near Manchester, beg to announce that they are now prepared to supply these two well-known varieties, raised by Mr. W. Cole (late of Dartford).

CRYSTAL WHITE, ½ oz. packets, free by post, for 12 stamps.
SUPERB DWARF RED, ½ oz. pkts., free by post, for 9 stamps.
Price per lb. to the Trade on application.

ROSES.

GEORGE CLARKE begs to announce that he can still supply fine Standards of all the leading varieties, his selection, at 18s. per dozen. Also, fine strong dwarfs of Centuais, Bourbons, Tea scented, &c., 12s. per dozen. Well assorted collections of Evergreens, Fruit Trees, Coniferæ, and every article connected with the trade, at most moderate prices. Catalogues may be had on receipt of two postage stamps.—Nursery, Brixton Hill, near London.

ROBERT KENNEDY, Agent for Messrs. Platz and Son, Seed Growers, Erfurt, has much pleasure in announcing that he has received their Catalogue of Flower and Vegetable Seeds for the trade for 1855, which abounds with new articles of great merit, and will be forwarded, per post, on application to R. KENNEDY, Bedford Conservatory, Covent Garden, London.

P.S. Also, R. Kennedy's General Catalogue of British and Foreign Ferns forwarded on receipt of six postage stamps.

BOSSOM'S CHAMPION OF ENGLAND CELERY.

THE finest Celery yet introduced, beautifully white, very crisp and solid, and withstands a greater amount of frost than any other known variety; it has been blanched in the ground 3 feet.—To be obtained of T. F. Winstanley, Seedsman, 28, Market Place, Manchester, price 2s. 6d. per packet; prices to the trade on application.

HOPS SUPERSEDED BY THE BAVARIAN BITTER, a perfect substitute for Hops, of an agreeable flavour, quite soluble in wort or beer, saving the trouble of straining through a Hop-back, and giving to Beer the well-known keeping properties of the Bavarian Beer. Price of 1 packet, 2s. 8d., which is equal to 5 lbs. of best Hops.—Prepared only by THOMAS PRATT WILLS, St. George's Square, Portsea. Free per post.

SPLENDID IMPORTED GERMAN FLOWER SEEDS.

CHARLES PENNELL begs to offer to his patrons and the public, at reasonable prices, very superior and unrivalled collections of GERMAN SEEDS, comprising extra double German Bouquet Stocks, new large flowered; New Yellow and New Hybrid ditto. German Emperor, and the fine Autumnal and Winter Flowering varieties, &c. Extra double German Larkspurs, Salpiglossis, German Zinnias, in several fine varieties, Phlox Drummondi, and many other varieties too numerous to insert here, prices of which may be had on application.

C. P. takes this opportunity of announcing that owing to a three years' residence in different parts of Germany, including Prussia and Austria, he has been enabled by dint of great attention, to make one of the most superior selections of German Seeds ever before offered in England. He feels therefore the most unbounded confidence in offering the above to the public, being assured that they will afford the most ample satisfaction to all honouring him with their purchases.—Nurseries, Lincoln. Mar. 10.

BOX TREES.

MESSRS. E. G. HENDERSON AND SON, of the WELLINGTON NURSERY, St. John's Wood, having on hand a large stock of FINE BOX and LILAC TREES, beg to call the attention of parties engaged in laying out Cemeteries and Ornamental Grounds to the same, which they are willing to dispose of at very reduced prices.—March 10.

GENUINE SEEDS.

THE MEMBERS OF THE "SEED GROWERS SOCIETY," continue to supply genuine AGRICULTURAL, VEGETABLE and FLOWER SEEDS at Growers' prices. Lists with price and terms of business may be had on application to the Secretary, JOHN MOSS, Jun., Feering, Kelvedon, Essex.

GRASS SEEDS, CLOVERS, ETC.

T. F. WINSTANLEY is now ready to send out his Mixture of New Grass Seeds, for Laying down New or for Renovating Old Pasture; finest Mixtures for Lawns, &c. For list of sorts and quantities, &c., see his Garden and Agricultural Seed List, to be had on application.

28, Market Place, Manchester.

PASTURE AND LAWN GRASSES.—Gentlemen laying down land as permanent Pasture, &c., or fine Lawns and Bowling Greens, may obtain SEEDS for the same, either mixed or separate, of DAWE, COTTRELL, and BENHAM (Successors to F. Warner), WHOLESALE SEEDSMEN, 3, Laurence Pountney Lane, and 36, Moorgate Street, London.

D., C., & B. also beg to call attention to their well-tested Stocks of Mangold Wurzel, Swede, and other Turnips, &c. Descriptive Catalogues of Horticultural, Agricultural, and Garden Seeds on application. Fluke, early Shaw, Clark's Seedling, new early Bermuda, Red Ash-leaved, and many other kinds of Potatoes for sets. (Established at 28, Cornhill, 1750.)

TO BE SOLD, Bishop's last and best PEA, 10 to 15 quarters at 56s. per quarter, and 7 to 8 quarters of a superior BLUE PEA, capital boiler, or an abundant bearer for podding, 56s. per quarter; also a quantity of genuine Skirving's Swede Seed of last year's growth, grown from large roots; transplanted and other sorts of Turnips and Mangold Seeds, &c. —Apply to Mr. GEORGE TABER, Seed Grower, Rivenhall, Witham, Essex. Delivered carriage free. Terms cash.

A CHALLENGE TO ALL ENGLAND.

A GREAT BARGAIN IS NOW OFFERED TO THE PUBLIC.

TO BE SOLD, at 5s each, 100 Prime Dwarf-trained CHAMPION PEACH TREES, surpassing every other kind in size and flavour, and more hardy, having been raised in England. Also a large quantity of Dwarf-trained FLEMISH PEARS, and all the best kinds of APPLES, &c., at low prices. —Agents, Messrs. HURST & Co., 6, Leadenhall Street, London. T. HUTCHING, Manager, Great Nurseries, Axminster.

TO BE SOLD, at Prices that will be sure to give satisfaction, 10,000 STRONG CURRANTS of the following sorts, viz.:—Red and White Dutch, common Black and Black Naples, Wilmot's Superb Red, Champaign and Raby Castle. Also a quantity of strong dwarf-trained Pears and Plums of the best sorts, Fastolff and other Raspberries, strong standard Pears, and a quantity of prime Seed Potatoes, well kept, of the best sorts.—For further particulars apply to JAMES LAKE, Nurseryman, Bridgewater.

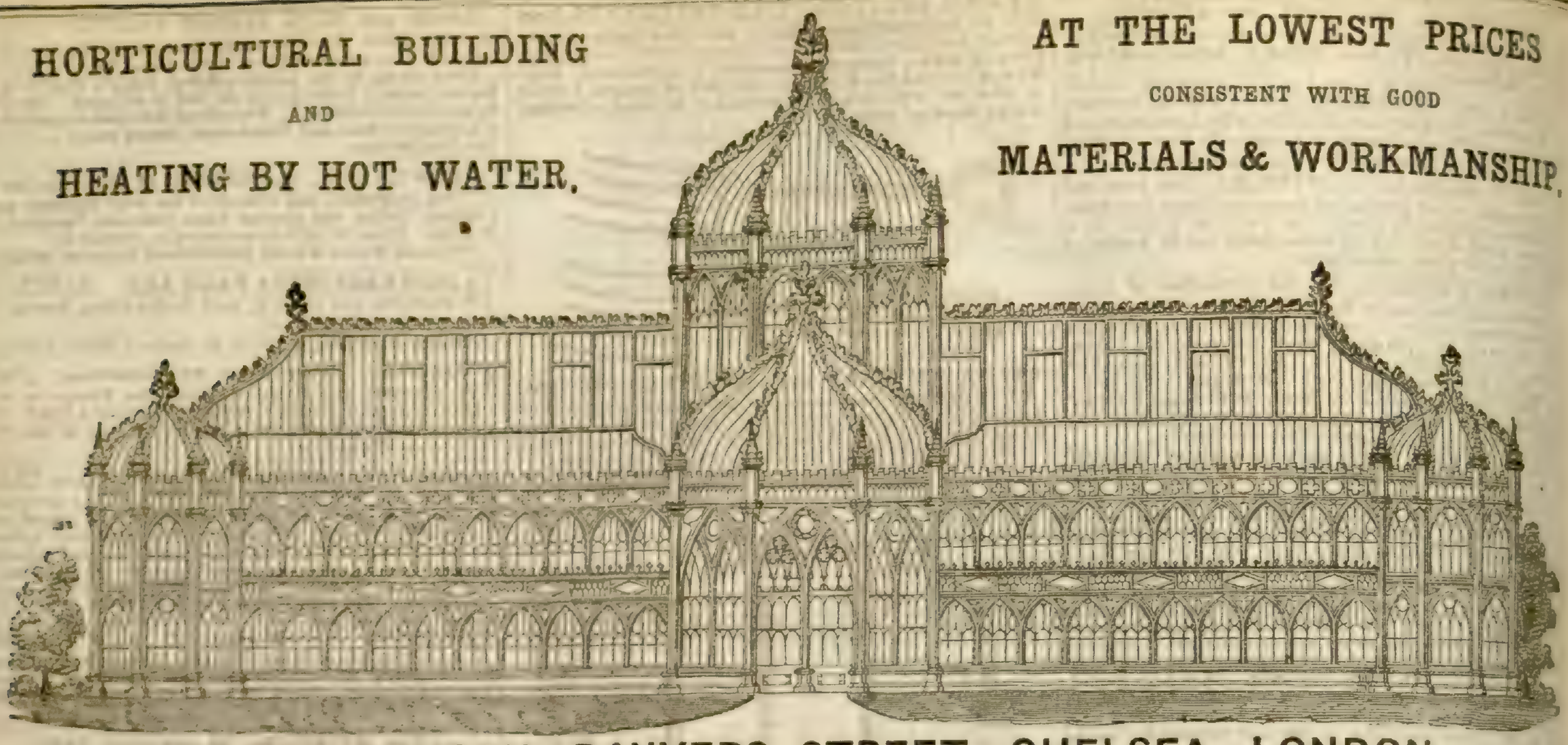
"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 6d. per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane Cannon Street, City, and the Royal Mills, Wandsworth, Surrey and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than mats as a covering."

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.

AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

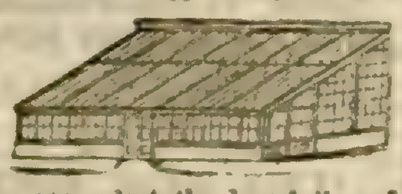
G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

TO GARDENERS AND OTHERS.

THE BRIDGEWATER FIRE AND WATER-PROOF MINERAL PAINT.—An Important Discovery.

This substance is a vein of earth found only in one of the Bridgewater Mountains of New Jersey, in the United States. It is the most extraordinary paint offered to the public, possessing new and valuable properties, and applicable to a variety of purposes. Its colour is dark red, never fading or changing in the hottest climates. When mixed with any other paint, the colour produced by that mixture will be rendered unfading also. After it has been applied and exposed to the atmosphere a few months, it becomes fireproof, and as durable as stone. Wherever it is applied neither rain, sea-water, nor damp can penetrate; thus preserving iron from rusting, wood from rotting, and brickwork from damp. It will endure intense heat without cracking or blistering. It has also the property of flexibility; Canvas, Tents, &c., covered with it become waterproof, retain their previous flexibility, and are not liable to crack when they are rolled up. Coarse Wrappers, covered with two coats of it, are an excellent substitute for Russian mats, to cover gardeners' pits and frames, or to protect wall fruit trees, being cheaper and more durable. If two coats of it be applied to trees, above and below the ground, where the borer generally enters, it will prevent the attack of that destructive grub, or insects of any kind; a new bark will be formed under the paint and the trees kept in a healthy condition. It is spread out easily, and does not emit any unhealthy effluvium.

A specimen of the paint on coarse wrappers for Gardeners and others may be seen at J. Le Cren's, House-painter, 26, Moorgate Street, who undertakes to supply Gardeners and the public with any quantity of painted wrappers at moderate prices.

Sole Consignee for the United Kingdom, JOHN EIVES, 17, Cornhill, London. Sold by Agents in most of the principal towns of the United Kingdom. In London by L. FRANK & SON, Oil Merchants, 14, Borough, London Bridge, of whom may be had Quick Drying Oil to mix with it, for use during the winter season, and also Testimonials in its favour from Shipowners, Builders, Painters, &c.

GLASS.

THOMAS MILLINGTON, Importer of Foreign Sheet Glass, requests attention to the present Prices of Glass and Stock sizes, which are cheaper and better than those of English manufacture:—

PACKED IN ONE HUNDRED FEET BOXES, THIRDS QUALITY, BOXES INCLUDED.

Inches.	Per 100 ft.	Inches.	Per 100 ft.	Inches	Per 100 ft.	Inches.	Per 100 ft.	Inches.	Per 100 ft.	Inches.	Per 100 ft.
6 by 4	12*s.*	12 by 10	20*s.*	14 by 11	20*s.*	16½ by 12½	20*s.*	18 by 13	20*s.*	18 by 14	20*s.*
6½ „ 4½		12½ „ 10½		14½ „ 11½		17 „ 12		18½ „ 13½		18½ „ 14½	
7 „ 5	14*s.* 6*d.*	13 „ 10		15 „ 11		17½ „ 12½		19 „ 13		19 „ 14	
7½ „ 5½		13½ „ 10½		15½ „ 11½		18 „ 12		19½ „ 13½		19½ „ 14½	
8 „ 6		14 „ 10		16 „ 11		18½ „ 12½		20 „ 13		20 „ 14	
8½ „ 6½		14½ „ 10½		16½ „ 11½		19 „ 12		20½ „ 13½		20½ „ 14½	
9 „ 7	17*s.* 3*d.*	15 „ 10		17 „ 11		19½ „ 12½		21 „ 13		21 „ 14	
9½ „ 7½		15½ „ 10½		17½ „ 11½		20 „ 12		21½ „ 13½		21½ „ 14½	
10 „ 8		16 „ 10		14 „ 12		20½ „ 12½		22 „ 13		22 „ 14	
10½ „ 8½		16½ „ 10½		14½ „ 12½		16 „ 13		16 „ 14		22½ „ 14½	
11 „ 9		17 „ 10		15 „ 12		16½ „ 13½		16½ „ 14½		23 „ 14	
11½ „ 9½		17½ „ 10½		15½ „ 12½		17 „ 13		17 „ 14		23½ „ 14½	
12 „ 9		13 „ 11		16 „ 12		17½ „ 13½		17½ „ 14½		24 „ 14	
12½ „ 9½		13½ „ 11½									

IMPROVED PATENT ROUGH PLATE, PLAIN, FLUTED, AND IN QUARRY PATTERNS.

British Plate, Patent Plate, Sheet, Crown, and Coloured Window Glass. Pure White Shades for Ornaments. Pumps, Water Closets, and Plumbers' Brass Work. Genuine White Lead, Paint, Colours, Varnishes, Brushes, &c. Tariffs of the above on application to

T. MILLINGTON, 87, Bishopsgate Street Without, London.

SHEET GLASS (15 oz.) of good quality in 100 feet boxes.

10 in. by 8 in. and under	15*s.* per box.
11 in. by 9 in. to 22 in. by 14 in.	17*s.* „
Larger sizes to 28 in. by 18 in.	19*s.* „

Also similar sizes in 21 oz. Sheet at 24*s.* per box. Boxes charged 2*s.* each, and returnable at the same price, if delivered free. CRYSTAL WHITE GLASS, Crown and Sheet Glass in Crates, British and Patent Plate, &c. &c. White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present prices of Glass for Cash:—

	SHEET SQUARES. In Boxes of 100 feet.	CROWN SQUARES. In Boxes of 100 feet.
Under 6 by 4	£0 12*s.* 6*d.*	... 8*s.* 6*d.*
6 by 4, and 6½ by 4½	0 13 0	... 12 6
7 „ 5, — 7½ „ 5½ / 8 „ 6, — 8½ „ 6½	0 15 0	... 14 0
9 „ 7, —10 „ 8, 12 by 9, 12 by 10, 14 by 10	1 0 0	

Larger Sizes, not exceeding 40 inches long.

16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. „ 4½*d.* to 5*d.* „ „ „
26 oz. „ 6*d.* to 7½*d.* „ „ „

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

Glass Tiles, ¼ of an inch thick, packed in cases, containing 50, at 1*l.* 17*s.* 6*d.* per case. Packages 2*s.* each extra, but allowed for when returned.

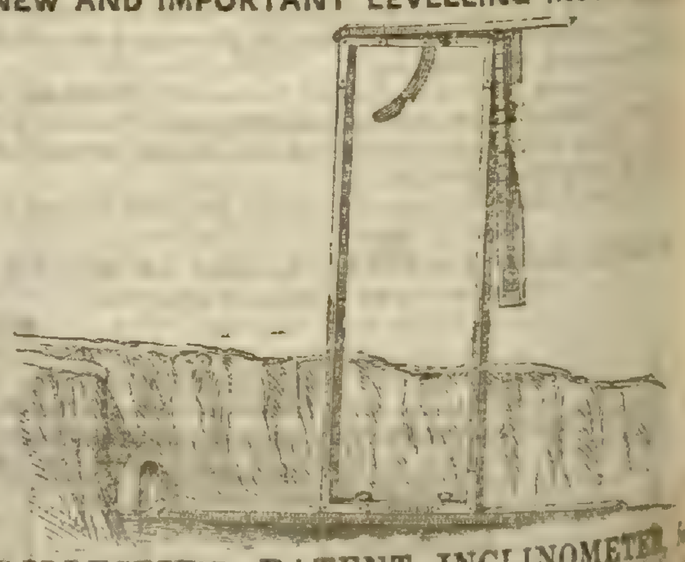
Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

WEEDS ON WALKS.

MR. FLEMING'S WEEDING OR SALTING MACHINE FOR GRAVEL WALKS, COURT YARDS, &c., manufactured and sold by ALEXANDER SHANKS & SON, Arbroath, Forfarshire, from whom particulars with prices may be had.

NEW AND IMPORTANT LEVELLING INSTRUMENT.



GILLESPIE'S PATENT INCLINOMETER for Taking, Fixing, and Adjusting Surface Slopes of Land, Earthen Embankments, Railway Gradients, &c., and the Fall, Outfall, or Rise of Drains, Water Courses, &c., and universally applicable to determine the plans and aid the execution of all levelling or sloping operations known in civil engineering.

PRICES:—Inclinometer, with mahogany frame and brass mounting £3 3 0
Do. with oak frame and wrought iron mounting £2 12 0
Light Telescope, 10*s.* 6*d.* extra.

TESTIMONIALS.

From Mr. James Gentles, Contractor.—"I have for a considerable time past used Gillespie's Patent Inclinometer in extensive drainage operations carried on by me, and I have found it to be of the greatest service, in showing the minutes on the ground, and in saving of labour; and I could not have constructed many of the drains with any degree of accuracy without its assistance."—James Gentles, Hart Hill, by Whitburn.

Extract of a letter from John Mitchell, Esq., Stand Hill, Rochdale.—"I highly appreciate its capabilities as a levelling instrument. In level lands, where there is a difficulty in determining which direction the land slopes, it is invaluable."

Extract of a letter from Mr. John Turner, Surveyor, Wakefield.—"The more I have tested it the more have I appreciated its value. By this invention the power of levelling is brought within the reach of all men of ordinary capacity."

Sold by WILLIAM DRAY & Co., Engineers, &c., Swan Yard, London. Specimens and Models may be seen at their Warehouse. Also a Descriptive Treatise on the nature and uses of the Patent Inclinometer, and copies of Recommendations of its official value to be had on application.

TO MANURE MAKERS AND FARMERS.

SULPHATE OR MURIATE OF AMMONIA.—These powerful fertilisers, genuine as manufactured, may be had in any quantities from READ HOLLIDAY, Ammonia and Soda Works, Huddersfield.

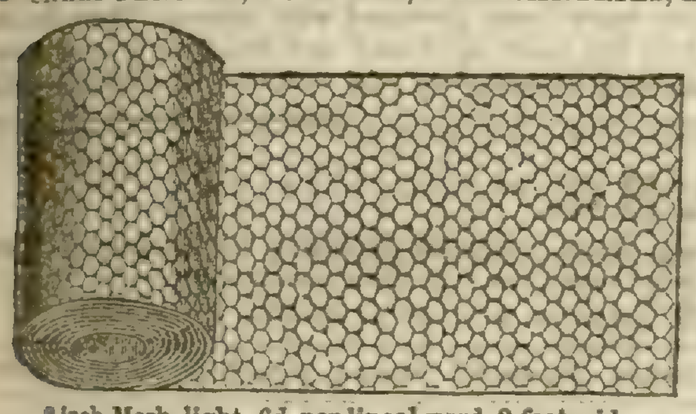
INGLIS AND CHISHOLM, Charles Street, Garratt, Manchester, make STEAM ENGINES for Agricultural and other purposes of the best quality at a reasonable price.—Address INGLIS & CHISHOLM, Charles Street, Garratt, Manchester.

HALL'S GARDEN NETTINGS; the best and cheapest for all purposes of shelter and shade from Frost, Hail Storms, and Gales of Wind. No. 0, 5*d.*; No. 1, 5½*d.*; No. 2, 6*d.*; Nos. 3 and 4, 7*d.* All 56 inches wide, and in lengths of 10, 20, 30, and 60 yards.—Manchester.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.* Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

FRUIT TREES, POULTRY, RABBIT, SHEEP, AND LAMB FENCING.—Spring Bird Traps, 10*s.* each. Worsted Netting, to protect the Bloom of Peach, Nectarine, and other Trees, Flower or Seed Beds, from frost, blight and birds, 2 yards wide, 5*d.* to 6*d.* per yard. New Twine Netting (tanned if required), 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.*; half-inch Mesh do., 2 yards wide, 8*d.* per yard. Tanned Netting, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. Elastic Hexagon Garden Net, or Scrim Canvas, 4½*d.* per square yard. Cocoa-nut Fibre, or Hemp Sheepfolding Net, of superior quality, 4 feet high, 4*d.* to 6*d.* per yard. Rabbit Net, 4 feet wide, 2*d.*, 6 feet wide, 3*d.*, 8 feet, 4*d.* per yard. Each edge corded, 1*d.* per yard extra, suitable for Poultry Fencing. Square Mesh Cricketing Net, fix its full width and length, made of stout cord, 3*d.* to 4*d.* per square yard; this is the best article for Fencing against Fowls, Cats, &c.—W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Kingsland, London.

GALVANISED WIRE NETTING FOR GAME AND SHEEP FENCING, AVIARIES, PHEASANTRIES, &c.



2 inch Mesh, light, 6*d.* per lineal yard, 2 feet wide.
" strong, 8*d.* " "
Netting of any size or quantity, and Fencing of all kinds, supplied on the shortest notice.

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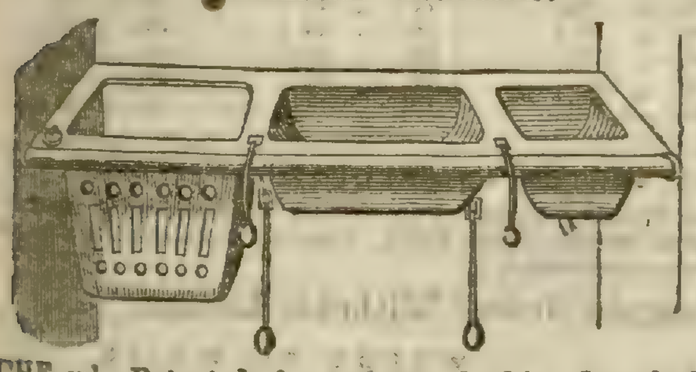
BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



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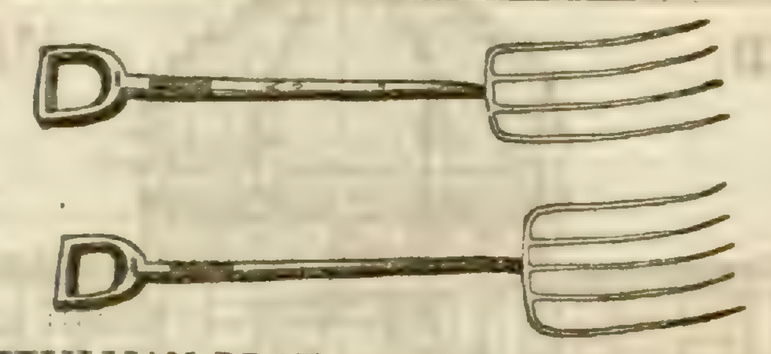

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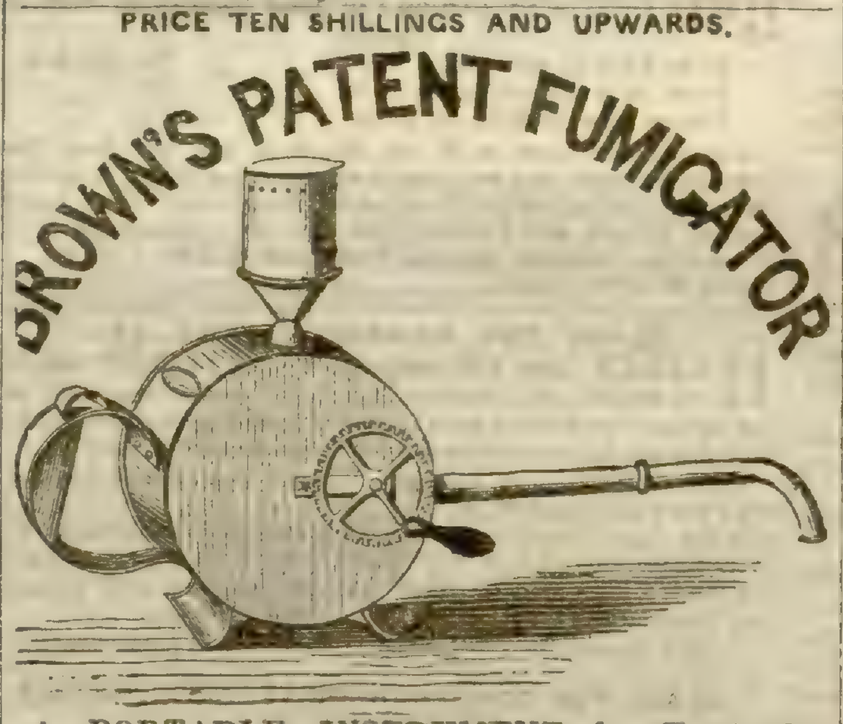

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MEADOW FESCUE GRASS (Festuca pratensis) ... ... 1*s.* per lb.
This is an excellent Grass, either for alternate husbandry or permanent pasture, but more particularly the latter. It is well liked by all kinds of herbivorous animals.

Suitable for parks and valuable for sheep pasture.

HARD FESCUE GRASS (Festuca duriuscula) ... ... 1*s.* per lb.
Will thrive on a great variety of soils, and is found to resist the effect of severe drought in summer, and to retain its verdure during the winter, in a remarkable degree. From the fineness of its foliage and greenness in winter, it is well adapted for sowing in parks, especially for sheep pasture.

Well liked by sheep.

SHEEP FESCUE (Festuca ovina) ... ... 1*s.* per lb.
This Grass forms the greater part of the sheep pasture of the Highlands. In quantity of Grass it is much inferior to the other cultivated Fescues; but, from being well liked by sheep, it should always enter into the composition of mixtures of lands on which they are to be pastured: in fact, on the authority of Linnæus, these animals have no relish for hills and heaths which are destitute of this Grass.

Well adapted for pleasure grounds.

WOOD MEADOW GRASS (Poa nemoralis) ... ... 1*s.* 3*d.* per lb.
Its habit of growth is delicate, upright, close, and regular. There is no Grass better adapted for pleasure grounds, particularly under trees, as it will not only grow in such places, but forms a fine sward where few of the other fine Grasses can exist. It produces a considerable deal of foliage early in spring.

Valuable for damp soils.

ROUGH-STALKED MEADOW GRASS (Poa pratensis) ... ... 1*s.* per lb.
This is a valuable Grass as a mixture for Grass Lands, particularly on damp soils. Its habit of growth fits it for mixing along with the upright grown sorts, such as the Italian Rye-grass.

Very early Grass.

SMOOTH-STALKED MEADOW GRASS (Poa trivialis) ... ... 1*s.* per lb.
This Grass yields a large quantity of herbage at a very early period of the season.

Remarkable for its fragrance.

SWEET-SCENTED VERNAL GRASS (Anthoxanthum odoratum) ... 2*s.* per lb.
This Grass yields but a scanty portion of herbage, yet, on the whole, Permanent Pasture should not be without a mixture of it, particularly in parks and pleasure grounds, were it for no other reason than its pleasant scent, not only when cut for hay, but also when the seeds become nearly ripe.

Suited for lawns.

CRESTED DOGSTAIL GRASS (Cynosurus cristatus) ... ... 2*s.* per lb.
From this Grass forming a close turf, and having rather fine foliage, it may be advantageously sown on lawns and other places to be kept under by the scythe.

For some of our descriptions of Grass Seeds, we are indebted to Lawson's Agrostographia.

Lawn Grass.

LAWN GRASS SEED ... ... 1*s.* 0*d.* per lb.

Clover seed.

CLOVER—White Dutch	9*d.* to 0 10	"
" Red or Broad	7*d.* to 0 8	"
" Trefoil	4*d.* to 0 5	"
" Cow Grass, or Perennial Red Clover	0 10	"
" Alsike	2 6	"

Evergreen.

ITALIAN RYE-GRASS—Imported Seed... ... per bushel 6 0

PERENNIAL RYE-GRASS (Pacey's) ... ... " 4*s.* 6*d.* to 5 6

We have found by our experience about 12 lbs. of Clover Seed—a mixture of Alsike, Cow Grass, White Dutch, and Trefoil (the proportions varying according to the nature of the soil)—and 2 bushels of Grass Seeds to be about the quantity required for laying down *an acre of Permanent Pasture, and these Seeds we can supply at from* **24s. to 30s. per acre.** *Quantity of seed required per acre.* *Price.*

For the improvement of Old Pastures, we should recommend, when the land is being dressed in the spring with manure, that about 8 or 10 lbs. of Grass Seed per acre be harrowed or bushed in with it; the quality and quantity of the herbage will be thus greatly improved. Suitable Seed for this purpose we can supply at **10d. per lb.** *Renovation of old pastures.*

GRASS SEEDS.

Grass seeds more in demand of late.

The demand for Natural Grass Seeds has greatly increased during the last few years; formerly many of the better sorts were scarce and dear, and their price was such as to prevent their being generally brought into cultivation, so that recourse was had to seeds scattered about the hay loft, which being often mixed with inferior varieties and weeds, produced but an indifferent sward, and formed a striking contrast to those pastures where seeds of the best and most nutritive sorts had been sown.

Inferior sorts used, and their pernicious results.

Reduced prices of the best sorts.

In consequence of the annually increasing demand for the better sorts of Grass Seeds, the price has been so reduced as to be within the reach of all, and more attention has been paid to saving and hand-picking them, keeping each sort separate and free from weeds; so that now whether land is required to be laid down for permanent pasture—or only for a year or two—under Trees, as in Orchards and Parks—in mossy and poor soil, or even on drifting sands, the different Grasses can be so selected and mixed as to form valuable pastures. For Lawns and Pleasure Grounds the finer growing sorts are well adapted, and a few months after sowing a fine sward is obtained, equal, if not superior to that formed by laying down turf, and at less than a quarter of the expense.

Usual time for sowing Grass seeds.

In laying down Land for Permanent Pasture, the plan usually adopted is to sow the seeds in spring, on land with Barley or where a crop of Wheat is growing; but it is a question with some whether it is not better to sow the seeds on ground without any other crop; in this case, if the land is in a good state of cultivation, and the seed sown in the spring (say in March or April), a good crop of Grass can be obtained in a very short time. We have also known Grass Seeds sown in this way in August and the beginning of September with complete success.

Proportion of Clover.

Alsike Clover.

In selecting Seeds for laying down Permanent Pasture, there should be a proportion of Perennial Red Clover or Cow Grass (Trifolium pratense perenne), and also some of the Alsike Clover (Trifolium hybridum) mixed with the other Clovers. The Cow Grass is well known, and highly esteemed, but it is somewhat difficult to obtain *true*. The Alsike Clover is a cross, or hybrid, between the White Dutch and the Broad or Red Clover. The Messrs. Lawson, speaking of this variety, say, "It is deservedly in repute as one of the best Perennial Clovers, and well adapted for growing in this country; one proof of its valuable qualities is in the great and yearly increasing demand for its seeds; but hitherto, from the comparative high price, it has not received a fair trial in field culture. From the result of our experiments, it is found to thrive on such soils as are termed by the farmers 'Clover-sick,' and must, were it for this quality alone, prove a most valuable acquisition to our cultivated field plants."

SWEDE, MANGOLD WURZEL, TURNIP,

AND OTHER

AGRICULTURAL SEEDS.

CARROT—LARGE WHITE BELGIAN	2*s.* 6*d.*	per lb.
" LARGE RED ALTRINGHAM	3 0	"
FRENCH FURZE, or GORSE	1 6	"
KOHL RABI	3 6	"
LUCERNE—FINEST IMPORTED	1 0	"
PARSNIP—LARGE CATTLE	2 0	"
VETCHES or TARES—SPRING		
" " WINTER		
SWEDES—IMPROVED WHITE	2 0	"
" SKIRVING'S PURPLE TOP	2 0	"
" LAING'S	2 0	"
This is a well-formed and excellent Swede.		
" EAST LOTHIAN	2 2	"
This is a large Swede, highly esteemed, and extensively grown in Scotland.		

White Carrot.

Through the severity of last winter Swede Seed is very scarce.

TURNIP—TWEEDDALE YELLOW BULLOCK ... ... 2*s.* per lb.
This is a new Scotch Turnip, of excellent quality; it is a great improvement on the old Purple-top Yellow Scotch. The stock at present in cultivation is extremely limited, and we can offer it only in small quantities. We strongly recommend a small quantity to be sown as a sample.

Quite new and scarce.

TURNIP—IMPROVED PURPLE-TOP YELLOW ... ... 1*s.* 6*d.* per lb.
The flesh and under part of the skin of this Turnip is deep yellow, with a purple top, hardy, of good size, and keeps well.

A valuable substitute for Swedes.

TURNIP—LINCOLNSHIRE RED GLOBE ... ... 1*s.* 2*d.* per lb.
This variety can be strongly recommended as a large handsome Turnip, of excellent quality.

TURNIP—DALE'S HYBRID ... ... 1*s.* 2*d.* per lb.

TURNIP—PURPLE-TOP ABERDEEN ... ... 1*s.* 2*d.* per lb.
This is an old and very deservedly esteemed variety, and is considered by some to come nearest the Swedes, in hardness and solidity of texture.

TURNIP—GREEN GLOBE... ... ... 1*s.* 2*d.* per lb.
Roots of a fine globular shape, with a small neck and tap-root: very white under and green above the surface of the ground; of the medium size, hard and firm in texture.

TURNIP—POMERANIAN ... ... 1*s.* 2*d.* per lb.
This variety was introduced some years since from Pomerania, and may be considered as the most perfect Globe Turnip in shape, as well as the most regular or uniform in growth. Its skin is of a smooth white and somewhat shining or transparent appearance; leaves smoothish, of a dark green colour, and whitish nerves.

The best White Globe Turnip.

TURNIP—WHITE GLOBE	1 0	per lb.
" EARLY STONE, or STUBBLE	1 6	"
" GREEN ROUND NORFOLK	1 0	"
" RED ROUND NORFOLK	1 0	"
" WHITE ROUND NORFOLK	1 0	"
" TANKARDS	1 0	"
MANGOLD WURZEL—LARGE YELLOW GLOBE ...	1 0	"
" LONG RED	1 0	"
" LONG YELLOW	1 0	"
" RED GLOBE	1 0	"

Of this we have a fine stock true to name, saved from selected Bulbs.

We can very strongly recommend our large Yellow Globe Mangold. Some very large roots have been exhibited at the Agricultural Show in this City, grown from Seeds supplied by us, many of the roots weighing from 30 lbs. to 40 lbs., and the average weight above 30 tons to the acre.

GARDEN SEEDS.

Seeds of our own growth.

It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality, and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving complete satisfaction to our customers. We are in receipt of most gratifying letters and renewed orders from those we had the honour of serving former years; and as we deliver our Seeds Carriage Free, we very respectfully solicit the honour of an order from those who have not yet given us a trial. We have the pleasure of subjoining the notice our Seed Catalogue has received:—

Delivered carriage free.

"The Catalogue of Seeds sold by J. C. WHEELER & SON, of Gloucester, appears to us to deserve notice, because of the stand which its authors make, in common with ourselves and others, against the useless incomprehensible Seed Lists of the day. In this, as in all matters of taste, there will be a difference of opinion as to the relative qualities of varieties; yet the mass of buyers who have no fancies, but who dislike being perplexed, and are satisfied with what is excellent, will greatly prefer a short, select Seed List to an interminable labyrinth of names, which, for the most part, represent nonenities or rubbish. Messrs. WHEELER's little book will do something to satisfy their expectations."—*Gardeners' Chronicle*, March 2.

We beg to offer the following Collections of Garden Seeds:—

Collections of Seeds.

No. 1.—A COMPLETE COLLECTION, SUITABLE FOR A LARGE GARDEN	£3	0*s.*	0*d.*
No. 2.—A COLLECTION OF EQUALLY CHOICE VARIETIES, BUT SMALLER QUANTITIES	1	10	0
No. 3.—A COLLECTION SUITABLE FOR A SMALL GARDEN	0	15	0

These Collections will be delivered Carriage Free.

Early Orders are respectfully solicited. We deliver our Seeds Carriage Free.

* We cannot tell the exact year our Business was established, but we have in our possession a copy of a work written by "James Wheeler, Nurseryman in Gloucester," 1763, published in London by W. Owen, at Homer's Head, near Temple Bar, Fleet Street, entitled "THE BOTANISTS' AND GARDENERS' NEW DICTIONARY, containing the Names, Classes, Orders, Generic Characters, and Specific Distinctions of the several Plants cultivated in England according to the system of Linnæus; directing the culture of each Plant, describing its singular Virtues and Uses, and explaining the Terms peculiar to Botany and Gardening. In which is also comprised a 'Gardener's Calendar,' divided alphabetically, according to the Names of the twelve Months of the Year, directing the whole Practice of Gardening in the Flower Garden, the Seminary, the Fruit Garden, the Kitchen Garden, the Greenhouse, and the Stove."

J. C. WHEELER & SON, NURSERYMEN AND SEED GROWERS, GLOUCESTER.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. 27, Victoria Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, March 10, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 11.—1855.] SATURDAY, MARCH 17. [PRICE 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—GARDENERS and NURSERYMEN who propose to EXHIBIT at the next MEETING on April 3, can have the Schedule of the day sent them by post, upon application at this Office.
21, Regent Street. W. B. BOOTH.

NATIONAL FLORICULTURAL SOCIETY, 21, Regent Street.—The Exhibitions for 1855 will be held on

THURSDAY, March 22.		THURSDAY, August 9 and 23.	
"	April 5 and 26.	"	Sept. 6 and 20.
"	May 17 and 31.	"	October 4.
"	June 7 and 21.	"	November 15.
"	July 12 and 26.	"	December 6.

The Chair to be taken, and the Report read at 3 o'clock each day precisely. Visitors, *not being Exhibitors*, will be admitted at 2 o'clock Exhibitors at half-past 2 o'clock.

NOTICE.—All subjects intended for examination must be at the Office, entered and staged, by 1 O'CLOCK, at which time the Censors will proceed to duty. Under no pretence can Flowers be staged for competition after that time. Intending Exhibitors will do well by giving a day or two's notice to the Secretary of such their intention, that ample provision may be made for the selection of Censors best qualified for particular subjects.
JOHN EDWARDS, Secretary.

NATIONAL FLORICULTURAL SOCIETY, 21, Regent Street.—At the Exhibition on THURSDAY next, March 22d, Messrs. W. Holmes, C. Lidgard, and A. Parsons will act as Censors of Cinerarias, Primulas, Camellias, &c.
Intending Exhibitors of *other subjects* will do well by giving timely notice of such their intention, that the selection of Censors best qualified may be facilitated. JOHN EDWARDS, Secretary.

SOUTH LONDON SOCIETY OF AMATEUR FLORISTS.—The Second Annual General Meeting of the Members of the above Society will be held at the Horns Tavern, Kennington, on WEDNESDAY, April 4th, at 8 p.m.
The following Exhibitions will take place during the season, viz.:—In APRIL, for Auriculas, Polyanthuses, Heartsease, Cinerarias, &c. MAY, for Tulips, Heartsease, Pelargoniums, &c. JUNE, for Pinks, Ranunculuses, Roses, &c. JULY, for Carnations, Picotees, Verbenas, Fuchsias, &c. SEPTEMBER, for Dahlias, Hollyhocks, &c.; and NOVEMBER, for Chrysanthemums, &c.
Subscriptions for Members, 20*s*. per annum; Honorary Members, 10*s*. per annum. Both Members and Honorary Members will have the privilege of admission for themselves, and two Tickets for friends for all Shows of the Society.
JOHN BUSHELL, Hon. Sec.
Lower Kennington Lane, Lambeth.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—NOTICE is hereby given that an Election of Two Pensioners on the Funds of this Charity will take place in June next. All persons desirous of becoming Candidates are requested to send in their certificates and testimonials to the Committee on or before the 31st inst., after which time they will not be received. Forms of petition may be had on application to
March 10. EDWARD ROGER CUTLER, Sec.,
14, Tavistock Row, Covent Garden.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.
*** Plans and Estimates furnished.

BOX TREES.
MESSRS. E. G. HENDERSON AND SON, of the WELLINGTON NURSERY, St. John's Wood, having on hand a large stock of FINE BOX and LILAC TREES, beg to call the attention of parties engaged in laying out Cemeteries and Ornamental Grounds to the same, which they are willing to dispose of at very reduced prices.—March 17.

NEW RIDGE CUCUMBER VECTIS.—A packet containing 12 good seeds of this first-rate Ridge Cucumber, for particulars of which see *Gardeners' Chronicle* for Jan. 27, 1855, p. 50, will be sent post free, on receipt of 12 postage stamps addressed to THOMAS TAYLOR, Nurseryman, &c., Weston Super-mare.

STRAWBERRY PLANTS.
WILLIAM NICHOLSON is now sending out fine strong plants of his four New and excellent varieties, viz., AJAX, the finest dessert fruit; RUBY, do.; CAPTAIN COOK, dessert and market; FILLBASKET, do., tremendous bearers, at 6*s*. per 100. The plants have been kept in frames under glass, and are in good condition for planting. Post-office orders payable at Yarm, Yorkshire, which are in all cases required with the order.—Egglescliffe near Yarm, Yorkshire.

SUTTON'S FARM SEED LIST, WITH PRICES, may be had gratis and post-free on application. Goods delivered Carriage Free, as see Catalogue.
Reading, Berks, March 17.

MESSRS. J. AND H. BROWN'S NEW PRICED CATALOGUE, post free, of American Plants, Coniferæ, Roses, Geraniums, Fuchsias, Orchidea, Stove and Greenhouse Plants, Fruit Trees, &c. A separate List of Garden Seeds, Choice Flower Seeds, 20 papers, 5*s*.; 40 do., 10*s*. free by post.
Albion Nursery, Stoke Newington, London.

GEORGE EDWARD'S ANNUAL CATALOGUE OF DAHLIAS, GERANIUMS, &c., is now ready, and may be had on application, at his Seed Establishment, 1, King Street, Castlegate, York.—Clarence Nurseries, Haxby Road, York.

T. F. WINSTANLEY'S Descriptive Catalogue of GARDEN and FLOWER SEEDS is now ready, and can be had on application, or sent free by post.
28, Market Place, Manchester.

T. F. WINSTANLEY'S Descriptive AGRICULTURAL SEED LIST will shortly be ready, and may be had on application, or sent free by post. The above List contains much useful information.—28, Market Place, Manchester.

CORNISH EARLY WHITE BROCCOLI, 1*s*. per packet, or 6*s*. per oz.
CONQUEROR OF THE WEST CUCUMBER, 1*s*. per packet, containing 12 good seeds.
The above can be had, warranted genuine, by forwarding postage stamps for the amount to
JAMES LAKE, Seedsman, &c., Bridgewater.

CUCUMBER PLANTS.
CONSTANTINE'S INCOMPARABLE BLACK SPINE.
E. HARMAN begs to offer strong Plants of the above, two in each pot, 48-sized pots, the price per pot, 1s.
Address E. HARMAN, Nursery, Denham, Bucks.

BOSSOM'S CHAMPION OF ENGLAND CELERY.
THE finest Celery yet introduced, beautifully white, very crisp and solid, and withstands a greater amount of frost than any other known variety; it has been blanched in the ground 3 feet.—To be obtained of T. F. Winstanley, Seedsman, 28, Market Place, Manchester, price 2*s*. 6*d*. per packet; prices to the trade on application.

CLOVER SEEDS.
GENUINE NEW CLOVER SEEDS *can be had at the lowest market prices of* JOHN SUTTON & SONS, SEED GROWERS, READING, BERKS.

WHITE BELGIAN CARROT SEED.—PURCHASERS OF LARGE QUANTITIES will be treated liberally.
For prices apply to SUTTON & SONS, Seed Growers, stating the quantity required.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, AND DICKENSON'S ITALIAN RYE-GRASS, are both very superior to the Italian Rye-grass commonly cultivated.
At present Messrs. SUTTON *have a supply of true Seed of each sort, price 7s. 6d. per bushel.*

SUTTON'S IMPROVED ITALIAN RYE-GRASS, AND DICKENSON'S ITALIAN RYE-GRASS, are both very superior to the Italian Rye-grass commonly cultivated.
At present Messrs. SUTTON *have a supply of true Seed of each sort, price 7s. 6d. per bushel.*

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

GERMAN FLOWER SEEDS FRESH IMPORTED.
SUTTON AND SONS *have imported a superior assortment of New German Flower Seeds, a Priced List of which may be had post free.*

IMPORTED GERMAN FLOWER SEEDS.
T. F. WINSTANLEY has received his annual importation (direct from Frankfort) of unrivalled Collections of German Seeds, including Double Ten-Week Stocks, Asters, Zinnia elegans, Truffeaus, new Pæony-flowered Aster, very beautiful, and many other varieties too numerous for insertion. Prices on application; lists free by post.
28, Market Place, Manchester.

GRASS SEEDS, CLOVERS, ETC.
T. F. WINSTANLEY is now ready to send out his Mixture of New Grass Seeds, for Laying down New or for Renovating Old Pasture; finest Mixtures for Lawns, &c. For list of sorts and quantities, &c., see his Garden and Agricultural Seed List, to be had on application.
28, Market Place, Manchester.

MANGOLD WURZEL, ETC.—TO THE SEED TRADE.
BASS AND BROWN beg to offer, of the finest Stocks, Mangold Wurzel, Long Red; Do. Yellow Globe; Do. Red Globe; White Carrot; Skirving's Swede; Orange Jelly Turnip; Meadow Fescue Grass. Wholesale prices to the trade on application.—Seed Establishment, Sudbury, Suffolk.

MANGOLD WURZEL SEED.
PURCHASERS OF LARGE QUANTITIES will be treated liberally.—For prices apply (stating the quantity required) to SUTTON & SONS, Seed Growers, Reading.

MANGOLD WURZEL SEED, LONG RED, and YELLOW GLOBE, warranted genuine, and the growth of 1854. Price 45*l*. per ton.—Apply to R. S. HEWS, Kelvedon, Essex.

GENUINE SEEDS.
THE MEMBERS OF THE "SEED GROWERS SOCIETY," continue to supply genuine AGRICULTURAL, VEGETABLE and FLOWER SEEDS at Growers' prices. Lists with price and terms of business may be had on application to the Secretary, JOHN MOSS, Jun., Feering, Kelvedon, Essex.

CHEAP AND GOOD CINERARIAS.—Fine flowering plants from Turner's best seed in large 60 and 48 pots, just coming into bloom, at from 4*s*. to 6*s*. per dozen. Also fine plants of named varieties, consisting of Mr. and Mrs. S. Herbert, Adela Villiers, Garland, Constellation, Lady H. Campbell, Kate Kearney, Flora M'Ivor, Étoile de Venus, &c., at 9*s*. per dozen.—WOOD & INGRAM, Nurseries, Huntingdon.

CABBAGE PLANTS.
THOMAS WELLAND offers fine E. Battersea, E. Imperial, E. York, and Field Drumheads, safely packed to the station for any part of England, Scotland, Ireland, and Wales for 3*s*. 6*d*. per 1000; picklers, 1*s*. per 100.—Surrey Gardens, near Godalming, Surrey.

GIANT ASPARAGUS PLANTS.—Fine plants, three years, at 25*s*. per 1000, can be had of STEPHEN SHILLING, Nurseryman, North Warnborough, Odiham, Hants.

DWARF FRENCH BEANS can be had in any quantity.—Apply to J. G. WAITE, Seed Merchant, 181, High Holborn, London.

BEAUTIFUL SEMI-DOUBLE PRIMULAS.—Only a few packets remain on hand. To prevent disappointment, order without delay.
The celebrated Ipswich Standard Cucumber is sold out, only 12 seeds left.—THOMAS WILD, Ipswich.

LIQUIDAMBAR.—The undernamed is a buyer of either a large or small quantity of the above. Send cash price, and height, to Mr. JEYES, Nurseries, Northampton.

IPOMŒA RUBRO CÆRULEA.—Seed of this exceedingly beautiful Climbing Annual being now obtainable at a moderate price, all cultivators of flowers having a greenhouse or wall with warm aspect are advised to include it in their spring selection.—Seed supplied to Seedsmen and Nurserymen only, by GEORGE ROBERTS, 32, Moorgate Street, London.

WANTED, a large quantity of GOLDEN-LEAVED BOX, 18 inches high.—Address, stating price, to ROBERT FOGGO, Gardener to Sir William F. F. Middleton, Bart., Shrubland Park, near Ipswich.

WANTED TO PURCHASE, a quantity of FRUIT TREE STOCKS and MAIDEN TREES.—Address, stating sorts and price, JAMES LAKE, Nurseryman, Bridgewater.

WILLIAM WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, will be happy to forward prices of a large quantity of very fine One-year Seedling LARCH, on application.

FRUIT TREES, FOREST TREES, AND SHRUBS, GARDEN AND FLOWER SEEDS, PERMANENT PASTURE GRASSES, and FINE DWARF LAWN GRASSES.—Catalogues of the above may be had on application to WILLIAM BARRATT, Saint John's Nursery, Wakefield.

LARCH AND SPRUCE TREES.
TO BE SOLD by private Contract—
100,000 excellent Larch Plants, transplanted, 2 to 5 feet.
20,000 Spruce Plants, transplanted, 9 to 24 inches.
For price, &c., apply to Mr. ALEX. LAWRIE, Edgefield, near Holt, Thetford, Norfolk.

TO BE SOLD, very cheap, 20,000 Transplanted NORWAY SPRUCE, 2 to 2½ feet. Price on application.—SAMUEL FINNEY & Co., Gateshead Nursery, Newcastle-on-Tyne.

TO BE SOLD, 63 fine FRUITING PINES and 225 SUCCESSION ditto. To be seen at the late residence of Mr. Alderman Copeland, Leyton, Essex.—For particulars and price inquire of Messrs. HUGH LOW & Co., Clapton.

TO BE SOLD, a first-rate Collection of ORCHIDS and other Stove and Greenhouse Plants, the property of a gentleman declining their cultivation.—For particulars apply to GARAWAY, MAYES, & Co., Durdham Down Nurseries, Bristol.

FLAX SEED, GROWN IN THE NORTH OF SCOTLAND.
TO BE SOLD, in quantity, excellent FLAX SEED, grown from Riga Seed imported. Samples may be had, and prices learned from BENJAMIN REID & Co., Seedsmen, Aberdeen, Scotland. References required from unknown correspondents.

PLANT YOUR POTATOES WITH JACKSON'S PATENT PREPARATION.
BASS AND BROWN having been appointed Agents for the above, will be happy to furnish it to their customers who may be forwarding their orders for Potatoes or other goods. Also Agents for PAGE'S COMPOSITION FOR THE DESTRUCTION OF BLIGHT.—Sudbury, Suffolk.

SEED POTATO, ETC.
THE BRITISH QUEEN, for productiveness, earliness, and quality unequalled:—First size, 7*s*. per bushel; second size, suitable for planting whole, 5*s*. per bushel, carriage paid to London. Also, a very superior Bath Cos Lettuce, in 1*s*. packets, free by post.—HART & NICKLIN, Florists and Seedsmen, Guildford.

NEW CHINESE POTATO—
DIOSCOREA (JAPONICA) BATATAS.
T. F. WINSTANLEY has received a limited quantity of the above new Potato. For description and method of planting see his Garden Seed List, where full particulars are given. T. F. W. has also a few Plants left of the Kaisha or Sweet-kernelled Apricot, a fortnight earlier than the Moor Park. Prices on application.—28, Market Place, Manchester.

FLUKE KIDNEY POTATO.
T. F. WINSTANLEY has a very fine stock of the above unrivalled POTATO, selected small for SEED, as they do not bear cutting. Also Lapstone Kidney, Ashleaf, Flourball, and many other varieties. Prices on application. The Trade supplied.—28, Market Place, Manchester.

THE FLUKE KIDNEY POTATO.—This excellent variety is now planted here as the principal crop, being more free from disease and more prolific than any other in cultivation. It was raised in Middleton, and may be had genuine in any quantity at 5*s*. per bushel of 56 lbs.—Apply to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.
Post-office Orders to be made payable at Middleton, Lancashire.

THE FLUKE POTATO.—A new second early variety, surpassing every other in its capability of resisting the Potato disease, and without exception the finest and most prolific Potato in cultivation. Price per cwt., 15*s*., bags included.
To be had genuine of THORNHILL & DICKSON, Lawrence Hill Nurseries; and No. 1, Wine Street, Bristol.

Great Novelties for the Ensuing Season.

FUCHSIAS WITH WHITE COROLLAS.

LUCOMBE, PINCE, and CO. beg leave to announce that they shall be prepared to send out two splendid and entirely novel Seedling Fuchsias, early in May next, viz.:—

FLORENCE NIGHTINGALE.

Pure white corolla, with brilliant scarlet sepals, finely reflexed; an extremely lovely and novel variety.

GALANTHIFLORA-PLENA

(The Double Snowdrop Corolla'd Fuchsia)

Pure double white corolla, resembling a fine large double Snowdrop, with rich scarlet sepals, altogether distinct from anything of the kind ever yet produced. Price 10*s.* 6*d.* each.

Together with a very beautiful new double Purple variety,

VIOLÆFLORA-PLENA.

Rich double blue corolla, resembling a fine double violet, 7*s.* 6*d.* each.

L., P., & Co. have also fine plants of the following choice kinds of Fuchsias at 18*s.* to 12*s.* per dozen.:—

Aspasia	Glory	Purple Perfection
Apollo	Lucretia	Sir Harry Smith
Brilliant	Orion	Sidonia
Duchess of Lancaster	Prime Minister	Sir Jno. Falstaff
Duke of Wellington	Princess	Telegraph
Dominiana	Kossuth	Resplendent.

They are also now prepared to send out their beautiful new

VERONICA KERMESINA,

Raised by that eminent horticulturist J. Lucombe, Esq., of Coombe Royal who sent specimens to Dr. Lindley, at the time of its first flowering, who thus pronounces his first opinion of it:—"The cuttings sent with this were charming a decided rose colour having mingled with the violet." See also notice of Dr. Lindley in the *Chronicle* for Dec. 2, 1854, as follows:—"L., P., & Co. Your V. Kermesina is a handsome dark variety of V. speciosa; its beautiful large spikes of deep purplish crimson blossoms cannot fail to make it a favourite." Price 7*s.* 6*d.* each. A few extra-sized specimens may be had.

The usual discount to the Trade when three or more are taken

Exeter Nursery, Exeter.—Established in 1720.

NEW ROSES.

BENJAMIN R. CANT begs to offer strong Dwarf Plants, in pots, of the following NEW ROSES:—

Hybrid Perpetuals.—	s. d.	Hybrid Perpetuals.—	s. d.
Alfred Colomb ...	3 6	Madame Recamier ...	3 6
Alphonse de Lamartine ...	3 6	" Rendatler ...	3 6
Auguste Guinoisseau ...	3 6	" Theodore Martel	10 6
Caroline Milsom	3 6	" Quetel	3 6
Ceres	3 6	Marie de Bourges ...	3 6
Cicero	7 6	Prince de la Moskwa ...	5 0
Comtesse Vaillant ...	10 6	Sephora	3 6
Conseiller Jordenil ...	3 6	Sir John Franklin ...	3 6
Colonel de Rougemont ...	3 6	Triomphe en Beauté ...	3 6
Dr. Jamain	3 6	P. Moss, André Thouin ...	3 6
Duchess of Norfolk ...	7 6	Bourbon, Omer Pacha ...	10 6
Deuil de P. Willermoz ...	7 6	Tea, Gloire de Dijon ...	3 6
George d'Amboise ...	3 6	" Louise de Savoie ...	7 6
Gloire de France	3 6	Nois, Augusta	7 6
Gloire de Parthenay ...	3 6	Moss, D'Arcet	2 6
Lady Milsom	3 6	" Gloire de Moussenses	5 0
Lady Shelley	3 6	" Jeanne de Montfort	3 6
La Ville de St. Denis ...	3 6	" L'Eblouissante ...	3 6
Madame Domage ...	3 6	" Marie de Blois ...	5 0
" Hector Jacquin	5 0	" Vandael	3 6
" Masson	12 6	Gallica, Amphitrite ...	2 6
" Lacroix	3 6	" George Vibert ...	3 6
" F. Rigaux ...	3 6	H. Bourb., Charles Lawson	7 6
" Place	10 6	" Gervaise Rouillard	3 6

N.B. The new Hybrid Perpetual Rose Emperor Napoleon I intend sending out in June, at 10*s.* 6*d.* each, orders for which are now solicited. A Descriptive List of the above New Roses can be had on application.

Carriage paid to any Station on the Eastern Counties Railway.

St. John's Street Nursery, Colchester.

LATE WHITE SUPERB BROCCOLI—"EMPEROR."

E. P. DIXON having purchased the entire stock of the above Broccoli of Messrs. Elletsons, Market Gardeners, Theringumbald, near Hull, begs to announce that he is prepared to send it out in sealed packets at 2*s.* 6*d.* each. This Broccoli has been raised by the Messrs. Elletsons, the raisers of the Mammoth, sent out some time ago, who state that the EMPEROR, if sown at the same time, will come into use before it. **Is of very dwarf growth, perfectly hardy, with heads from** 15 lbs. to 20 lbs. weight; keeps its colour, and stands firm three weeks after it is ready to cut. A noble flower, and commands the best price of any other in the Hull market, where it is well known, and will be a great acquisition to the market gardeners around London, as well as those who wish for a first-rate Broccoli.

PURE MAMMOTH BROCCOLI.—Numerous applications having been made to Messrs. Elletsons last season for Seed of the Pure Mammoth Broccoli, they determined to allow a flat to stand for Seed, carefully selected from the original stock, producing heads from 18 lbs. to 25 lbs. each. E. P. D. having purchased the stock of this celebrated Broccoli, is prepared to send it out in packets at 2*s.* 6*d.* each.

Each may be had of Messrs. Noble, Cooper, & Bolton, 152, Fleet Street; and Messrs. Hurst & M'Mullen, 6, Leadenhall Street, London. Also of the Advertiser, 57, Queen Street, Hull.

SALTHILL NURSERY.—ESTABLISHED 1785.

A. J. STEWART begs to offer the following:—

SEEDLING HOLLYHOCKS.	s.	d.
Autocrat, deep pink, compact, well formed, and large ...	5	0
Dauntless, chocolate and white, beautifully veined... ...	3	6
Harriet, pure white, large, and well formed	5	0
Rainbow, bright rosy lilac and white, shaded, mottled, and veined; very attractive	3	6
Mary Stewart, orange and saffron, shaded, well formed ...	5	0
Striata perfecta, silvery-shaded puce, much mottled and veined, well formed, and large	3	6
Pantaloon, an attractive mottled flower	2	6
SEEDLING VERBENAS.—(Plants first week in May.)	s.	d.
Cream of the Valley, deep cream, immense truss, very free bloomer, and fine habit	3	6
Cerise unique, beautiful bright cerise, with lemon eye, first-rate habit, profuse bloomer, good trusses, extra for bedding	3	6

A Descriptive and Priced Catalogue of Geraniums, Fuchsias, Verbenas, Hollyhocks, Chrysanthemums, &c., may be had on application; also a List of Kitchen Garden and Flower Seeds, with prices attached.

SUPERIOR GERMAN SEEDS WARRANTED.

JOHN WEEKS and CO., King's Road, Chelsea, London, beg most respectfully to call the attention of their patrons to their very superior collection of German Seeds, Asters, Stocks, &c., which, having been grown, ripened, and selected under their own immediate care at their Branch Establishment in Germany, they can guarantee to be of the finest sorts and best quality. In order that ladies and gentlemen not possessing them from Messrs. Weeks this season may be enabled to judge of the rare beauty of the different sorts in their splendid collection, they will be grown at Messrs. Weeks' Horticultural Establishment, King's Road, Chelsea, where their patrons may make a personal selection for a future season.

For the general List of all other Seeds, see J. W. & Co.'s Seed Catalogue, and also their various Catalogues of Stove and Greenhouse Plants, Vines, &c. Also their Illustrated Catalogues on Horticultural Buildings and Heating by Hot Water.

EXTRA SELECT GERMAN SEEDS.

GERMAN ASTERS.	s.	d.
A Collection of 24 distinct and fine varieties of tall double quilled	8	0
Do. do. 12 finest and most distinct double Dwarf	6	0
Do. do. 12 do. do. Globe-flowered double	4	0
Do. do. 20 do. do. Pyramidal do.	7	0
Do. do. 12 do. do. Globe-flowered Pyramidal do.	8	0
Do. do. 10 do. do. Anemone-flowered Pyramidal do. ...	7	0
Do. do. 6 do. do. Dwarf Bouquet Pyramidal do.	7	0
Do. do. 16 do. do. Truffant's Paeony-flowered do.	10	0
GERMAN BALSAMS.		
A Collection of 20 fine and distinct varieties of Tall double	7	0
Do. do. 10 do. do. Dwarf double	5	0
Do. do. 10 do. do. Double Camellia-flowered	5	0
Do. do. 10 do. do. Double Rose-flowered	5	0
Do. do. 10 do. do. Double Camellia Rose-flowered	7	0
GERMAN COCKSCOMB.		
A Collection of 12 fine distinct varieties	7	0
GERMAN LARKSPUR.		
A Collection of 8 fine and distinct Tall double	3	6
Do. do. 12 do. do. Dwarf double...	5	0
GERMAN STOCKS.		
A Collection of 36 distinct and beautiful varieties of Dwarf 10 weeks	10	0
Do. do. 18 do. do. do. Dwarf-branching do.	7	0
Do. do. 18 do. do. do. Wallflower-leaved do.	7	0
Do. do. 10 do. do. do. new large-flowered Dwarf do. ...	7	0
Do. do. 4 new hybrid perpetual-flowering 10 weeks ...	3	0
Do. do. 18 new and distinct vars. of new autumn-flowering	7	0
Do. do. 16 do. do. do. branching autumn-flowering	7	0
Do. do. 10 do. do. do. Emperor, or Perpetual-flowering ...	7	0
Do. do. 20 do. do. do. Winter or Brompton	10	0
GERMAN POPPIES.		
A Collection of 10 beautiful and distinct varieties of Carnation Poppies	4	0
GERMAN ZINNIA ELEGANS.		
A Collection of 12 beautiful and distinct varieties	7	0
FLOWER SEEDS.		
A Collection of 100 beautiful and distinct hardy and half-hardy Annuals, selected by J. W. & Co.	20	0
Do. do. 50 do. do. do. do.	10	6
Do. do. 25 do. do. do. do.	6	0
Do. do. 50 beautiful and distinct hardy Biennials and Perennials, selected by J. W. & Co.	10	6
Do. do. 25 do. do. do. do.	6	0
Do. do. 36 beautiful and distinct tender Annuals and Biennials, selected by J. W. & Co.	15	0
Do. do. 24 do. do. do. do.	10	6
Do. do. 12 do. do. do. do.	6	0

John Weeks & Co., Horticultural Builders and Hot-Water Apparatus Manufacturers, Nurserymen, Seedsmen, &c. &c.

The Horticultural Building and Engineering Department is near Sloane Square, Chelsea. The Nursery Establishment is near the Cremorne Gardens.

DILLISTONE AND CO., STURMER NURSERY,

Halstead, Essex, will supply the following at the annexed low prices:—

	s. d.
12 fine perpetual blooming Roses, 1½ to 2 feet stems	
12 " " dwarf Roses	
Climbing Banksia Fortuniana, Jaune Serins, Cloth of Gold, Solfaterre, &c., each	
100 good dwarf Roses, two of a sort	
12 fine named Hollyhocks, including Pourpre de Tyre, &c.	
100 unbloomed seedlings, strong from the best seed	
Packets of seed from 20 best kinds, each packet	
100 double French white Rockets, very showy and fragrant	
12 hardy Climbers, including fine Clematis, Honeysuckles, &c.	
12 showy mixed Carnations and Picotees for borders ...	
100 evergreen and flowering shrubs, two of a sort	
100 fine showy Herbaceous plants, two of a sort	
12 double white and yellow Primroses	
12 Hepaticas, in four sorts, fine	
20 of the most popular and profitable Strawberries, 100 ... ... 2*s.* 6*d.* to 5	

Remittances respectfully requested from unknown correspondents. Carriage of all orders above 20*s.* paid to London. Fine collection of Fruit trees, Seeds, &c.—March 17.

SUPERB NEW HYBRID HEATHS.

LUCOMBE, PINCE, and CO., are now prepared to send out their beautiful well-known New Hybrid HEATHS, they were exhibited at the Horticultural Society's meeting at Regent Street, and obtained the large Silver Medal. The following is the description given by the Editor of the *Gardeners' Chronicle*, May 28, 1853:—

"Messrs. Lucombe, Pince, and Co. *received a Large Silver Medal for a collection of new Hybrid Cape Heaths consisting of Lindleyana, Exomiensis, Insignis, Pulcherrima, Exquisita, and Metulæflora superba, all fine kinds possessing large bold flowers and bright clear colours; they were stated to have been raised from Massoni, Ampullacea, Sprengelli, Hartnelli, and Aristata, all of which will be seen good parents.*"

L., P., and Co. can assure all cultivators of this beautiful tribe of Plants that these fine varieties cannot fail to give satisfaction as they possess excellent habits and have large rich coloured flowers of much substance, which are produced in great profusion, properties that fully justify L., P., and Co. in very strongly recommending them to the public. Price, 3*l.* the set of six.

Exeter Nursery, Exeter. Established 1720.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, &c., which they will forward to any part:—

	s. d.
Andromeda floribunda, per dozen ... ... 12*s.* to 18	
25 Azaleas, new hardy Belgian varieties, one of a sort, by name on their own roots	
25 Azaleas, American varieties, do. do.	
Hardy Heaths, Ledums, and Kalmias, per dozen	
25 Hardy American Plants, one of a sort, by name ...	
12 Rhododendrons, including scarlet, white and rose ...	
Fine hardy Scarlet Rhododendrons, 1 to 2 feet, per dozen...	
New Yellow Rhododendrons, in pots, each ... 3*s.* 6*d.* to 5	
6 Fine hardy Magnolias, one of a sort	
50 Dwarf Roses, two of a sort, on their own roots	
Standard Roses, superb sorts, per dozen ... ... 12*s.* to 15	
Fine climbing Roses, of sorts, per dozen	
Bourbon Roses, budded, 1 foot, fine for beds or edgings, do.	
Fitz-Roya, Saxe-Gothæa, Cephalotaxus, Libocedrus, each...	
Wellingtonia gigantea, and other choice and cheap hardy Coniferæ (see list).	
Cedar of Lebanon, 2 to 3 feet, well grown, per dozen, 12*s.* to 18	
Greenhouse Azaleas, choice varieties, per dozen ... 12*s.* to 18	
12 Camellias, with buds, fine sorts, for	
50 choice Greenhouse plants, one of a sort	
Orchidea Plants, beautiful species, by name, per dozen ...	
24 choice Ericas, one of a sort	
24 choice Fuchsias, fine proved varieties	
6 Tree Carnations, choice sorts	
Verbenas and Petunias, best new sorts, per dozen	
First Class Carnations, Picotees, and Pinks, per dozen ...	
25 choice Pansys, one of a sort—	
12 Paeonias new white, pink and blush, of sorts	
25 choice hardy herbaceous plants named	
Choice Flower Seeds, 20 papers, 5*s.*; 45 ditto, 10*s.* Free by post.	

FRUIT TREES.

	s.
Fine standard and dwarf-trained Apples, Plums, Pears, and Cherries of the very best sorts, 2*s.* 6*d.* each, or per doz.	24
Fine Gooseberries, Currants, and Raspberries, per dozen	3
Figs, Medlars, Quinces, Walnuts, and Mulberries, each ...	2
Filberts, new thin shelled and red skinned, per dozen ...	3
Strong Vines, from eyes and layers, in pots, per dozen ...	18

A large stock of fine Transplanted Scotch Larch and Spruce Firs, cheap. Also Evergreen Shrubs of all kinds.

New Priced Catalogues of Plants and Seeds by post.

Albion Nursery, Stoke Newington, London.—March 17.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY respectfully invite attention to their stock of the following very desirable HARDY PLANTS.

Araucaria imbricata, from 2 to 7 feet high: as handsome as plants can be.
Cedrus Deodara, in any quantity, from 1 to 3 feet high
Do. do., 4, 5, 6, 7, 8, and 10 feet high; splendid plants
Cedars of Lebanon, 3, 4, 6, and 10 feet high
Pinus Douglasi, 3 to 10 feet
" insignis, 2 to 7 feet
" Menziesi, 3 to 7 feet
" Pinsapo, fine plants, 3 to 6 feet
" Nordmanniana, 1½ to 3 ft., all from seed and remarkably handsome
" nobilis, 1½ to 2 feet; a few larger, 5 and 6 feet high, on their own roots, and with perfect leaders
" Montezumæ, 2 to 4 feet
Pinus canadensis, 3 to 8 feet
Cupressus macrocarpa or Lambertiana, 4 to 7 feet
" thyoides variegata, 3 " 4 feet (the variegated white Cedar)
Juniperus, Upright Irish, perfect columns, 3 to 7 feet
" chinensis, 2 to 9 feet
Yew, common English, 3 to 8 feet
" Irish, 4 to 10 feet
" gold-striped, 1½ to 3 feet
" do., tall standards, 4 to 7 ft.
" Dovaston, or Weeping worked on tall straight stems
Thuja aurea, the finest plants in the country
Libocedrus chilensis, the finest plants in the country
Large variegated Hollies
" Standard Bays

Also an immense stock of large Evergreens, Standard Ornamental Trees, &c.

All the plants here offered may be seen growing in the Nursery; they are removed every year, and will travel any distance with perfect safety. Of some, such as Araucarias, Deodaras, Golden Yews, Thuja aurea, Pinus nobilis, Nordmanniana, we have any quantity; and the plants, for root and branch, are not to be surpassed. Priced Catalogues will be forwarded on application, enclosing two postage stamps, to Waterer and Godfrey, nephews and successors of the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey, near the Woking Station, South-Western Railway, where all trains stop, and where carriage conveyances can be obtained.

The 2*d.* stamp will also include a descriptive Catalogue of their American Plants, Roses, and Nursery Stock in general.

To Farmers, Potato Growers, and Others.

JACKSON'S PATENT PREPARATION

FOR

PRESERVING POTATOES, WHEAT, AND OTHER SEEDS

From DISEASE, the RAVAGES of the SLUG, GRUB, and WIREWORM, in addition to which the CROPS are brought forward in HEALTH AND VIGOUR, and the yield is greatly increased, in proof of which the following extracts are given from numerous letters received by Mr. Jackson.

EXTRACTS:—

"One of the fields of this farm, the property of Mrs. Stanbury, was planted with Regents Potatoes in April last, some of which were prepared by you. The result now is, that the whole of the crop from the unprepared sets is thoroughly diseased, and hardly worth the trouble of taking up: while those raised by the side of them from the prepared sets are not only in a beautiful state of preservation from the disease, but the produce is much greater,—the Potatoes are more numerous than the others; indeed, if there were no such thing as the disease to be feared, it would be worth the trouble and expense of preparing the sets by your process, even for the sake of the improved crops. I shall certainly, for the future, prepare all my Potatoes for seed by your process; and I intend to adopt it for preserving my Wheat from the Smut.

"G. B. Baxter.

"Belmont Farm, Eltham, Kent, August 28, 1854."

"Admiral Sir J. A. Gordon, K.C.B., Marlee House, Blairgowrie.

"Sir,—I have received your note of the 16th. The Potatoes that came here from England, prepared by Mr. Jackson, were planted in a piece of new ground, and according to the directions sent by him along with them as to distance between the plants, &c. They came up well, with strong healthy stems; I have now taken the whole crop up, and there is not the slightest appearance of any disease amongst them. They are of large equal size and very prolific. There were long black unprepared Kidneys planted in the same patch, and a great deal of them are not fit for use, at least a third part are diseased. I hope Mr. Jackson's process may be widely known, as it is a great boon.—I am, &c., John Shanks,

"Forester, Kildrummy Castle.

"Kildrummy Castle, Aberdeenshire, November 17, 1854."

"I am very much pleased with the result of the experiments I have made with your Prepared Potatoes; for I planted them, without any manure, in ground where for several years I have hardly had a sound Potato, and I now find the crop perfectly free from disease, and in a very fine condition; while those of the same sort, unprepared, which were planted at the same time, and next to them, are diseased and eaten by worms.

"The Potatoes from the Prepared Seed were so remarkably good that I was induced to weigh them, and I found, to my great astonishment, that they were as 200 to 150 of the others, or about 25 per cent. in favour of your preparation.

"T. Austin, Nurseryman and Seedsman.

"Blackheath, Kent, 24th August, 1854."

Sold by Messrs. Charlwood & Cummins, Seedsmen, Covent Garden; and John Kersan, Seedsman, 4, Great Russell Street, Covent Garden; all Seedsmen and Chemists; and at the Patentee's, 18, Cannon Street, London Bridge, in Packets of One, Two, Three or Four Pounds, or in Bulk for the use of Farmers and Potato Growers.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks, at 5s. 12 varieties, 2s. 6d.; and from good double sorts, 1s. Superior Quilled German and French Asters, in 12 varieties, mixed, 1s. per packet: separate, 2s. Fine Quilled African Marigolds, 6d. per packet.—Saffron Walden Nurseries.

BANKS' SEEDLING FUCHSIAS.—1855.
(FOR FULL DESCRIPTION SEE FORMER ADVERTISEMENTS, AND ON APPLICATION).

W. J. EPPS has much pleasure in stating that the above Fuchsias have been proved to be the finest that have been raised by that celebrated grower E. Banks, Esq., Deal. Early orders are solicited. The set of six, 2l. 2s. The usual discount to the trade.—Bower Nurseries, Maidstone.

DOUBLE ITALIAN TUBEROSE ROOTS, 4s. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall. N.B. Printed regulations for treatment sent; also, just arrived very moist and open Parmasan Cheeses.

RHUBARB ROOTS for FORCING or PLANTING.—Strong one-year planted roots of MYATT'S VICTORIA and LINNÆUS, MITCHELL'S ROYAL ALBERT, at 6s. per doz. HOWARD'S PRINCE ALBERT, 12s. per dozen. This is a larger variety than the Victoria, and is extensively cultivated about Manchester. Price to the trade of the above, per 100 or 1000, on application to MESSRS. J. MYATT AND SONS.
Manor Farm, Deptford, March 17.

BEAUTIFUL FLOWERS.—Twelve packets, each packet containing 100 Seeds, 1s.; sent free per post, 1s. 2d.; a 5s. packet sent free per rail. Abronia umbellata, Eccremocarpus scaber, choice Gloxinias, Lophospermum Hendersoni, Lisianthus Russellianus, and every other choice variety 6d. per packet. Dwarf German (10 week) Stocks, as imported, 36 varieties, each variety 3d. per packet.—WM. CULLINGFORD, 1, Edmund Terrace, Paul's Road, Islington, London.

N.B. Elletson's superb new late Dwarf White Broccoli Seed "Emperor", 2s. 6d. per packet. The Broccoli raised from this seed weigh from 17 lbs. to 25 lbs. each.

TO BE SOLD, at Prices that will be sure to give satisfaction, 10,000 STRONG CURRANTS of the following sorts, viz.:—Red and White Dutch, common Black and Black Naples, Wilmot's Superb Red, Champaign and Raby Castle. Also a quantity of strong dwarf-trained Pears and Plums of the best sorts, Fastolff and other Raspberries, strong standard Pears, and a quantity of prime Seed Potatoes, well kept, of the best sorts.—For further particulars apply to JAMES LAKE, Nurseryman, Bridgewater.

HOPS SUPERSEDED BY THE BAVARIAN BITTER, a perfect substitute for Hops, of an agreeable flavour, quite soluble in wort or beer, saving the trouble of straining through a Hop-back, and giving to Beer the well-known keeping properties of the Bavarian Beer. Price of 1 packet, 1s. 8d., which is equal to 5 lbs. of best Hops.—Prepared only by THOMAS PRATT WILLS, St. George's Square, Portsea. Free per post.

WILLIAM MASTERS AND SON, LANDSCAPE GARDENERS, NURSERYMEN and SEEDSMEN, Exotic Nursery, Canterbury, have assorted Collections of VEGETABLE and FLOWER SEEDS, containing the most desirable varieties in cultivation.

VEGETABLE SEEDS.

		£	s.	d.
No. 1.	Collection for a large garden, containing 20 quarts of Peas of the best sorts for succession, 10 best sorts of Broccoli, 8 do. of Lettuce, with all other Vegetables in proportion	£2	10	0
No. 2.	The best new and other sorts in smaller quantities	1	10	0
No. 3.	Ditto Ditto Ditto	1	0	0
No. 4.	A collection of esteemed kinds for a small garden	0	10	6

FLOWER SEEDS, with printed directions for their culture, in collections of 12 for 2s.; 25 for 4s.; 50 for 8s.; 100 for 15s.

WILLIAM MASTERS & SON respectfully solicit commissions, and beg to intimate to their kind patrons, that the varieties to be included in these Collections may be selected by their own Gardeners from the newly printed Lists to be had on application.

NOTICE.—For full particulars of EDWARD TILEY'S two unequalled new Cucumbers, Melons, and Seedling Potato, see advertisement in *Gardeners' Chronicle* of 24th February, 1855, page 128, together with an exact representation of the Cucumber, Sir Colin Campbell.

TWO NEW CUCUMBERS, SIR COLIN CAMPBELL and GENERAL CANROBERT, 3s. 6d. per packet, or a packet of each and a packet of either of the Melons mentioned in the advertisement of the above date (except Golden Drop and Scarlet King) for 6s.

TILEY'S SEEDLING POTATO, THE CHAMPION MONEY, the best and earliest in the world, price 5s. 6d. per peck, hamper and package included, or 1l. per bushel.

UNEQUALLED NEW MELON, GOLDEN DROP (Green Flesh), price 1s. 6d. per packet.

THE KING, a superb Scarlet Flesh Melon, 1s. 6d. per packet. A packet of Golden Drop, one of the King Melon, together with a packet of any other variety mentioned in the former advertisement will be forwarded post free on receipt of 3s. 6d. in cash or penny postage stamps.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somersetshire.

NEW BEDDING CALCEOLARIAS.

MESSRS. WILLIAM ROLLISSON AND SONS beg to announce that they have purchased the entire stock from Mr. Cole of the undermentioned Gems, and will commence sending out on the first week in May.

CALCEOLARIA VARIABILIS, 10s. 6d. each.—As a bedding plant this will make a charming variety, and in some measure supply the deficiency there has been for durable and effective flowers of a light colour for the parterre. It is an excellent grower of very compact, pretty habit, and produces in great profusion immense trusses of blossom, which open of a delicate primrose colour, and change to white. Altogether it is a most desirable acquisition, and a variety thoroughly distinct to any in cultivation.

CALCEOLARIA ECLIPSE, 10s. 6d. each.—This is the most brilliant and brilliant coloured variety ever raised, of nice compact habit, producing large trusses of glowing crimson flowers, which are remarkable for the length of time they last in bloom; as a bedding plant its value will be inestimable. It received a first class certificate by the National Floricultural Society, June 13, 1854, also at the Royal Botanic Gardens, Regent's Park, for its good qualities and matchless colour.

The above two Calceolarias produce such magnificent trusses of bloom, and are so extremely effective, that they will be admirably adapted for Greenhouse and Conservatory decoration.

Messrs. W. R. & Sons have an excellent stock of Rollisson's Scarlet Geranium, which can be supplied at 5l. per 100. Although well known, this is a very useful and showy plant for bedding and decorative purposes.

Messrs. William Rollisson & Sons beg to draw attention to their extensive Collection of Specimen and Half-specimen Orchids, Azaleas, Stove and Greenhouse Plants, &c. &c., which are this season in unusually fine condition.

The Nurseries, Tooting, near London.

NEW AND RARE CONIFERÆ.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, Edinburgh and London, have still on hand a small quantity of the Seeds of the following RARE CONIFERÆ, &c.:

	£ s. d.		£ s. d.
Pinus Lambertiana, 50 Seeds	1 5 0	Taxus Lindleyana (quite new) 50 Seeds ...	2 2 0
P. tuberculata, entire cones	2 2 0	Club-headed Wheat (cultivated by the old Californians) 200 grains	1 0 0
P. monticola, 50 Seeds ...	2 2 0	Wheat (a variety of Triticum durum) do.	15 0
P. Jeffreyi do. ...	2 2 0		
P. Beardsleyi do. ...	2 2 0		
Libocedrus decurrens, do.	1 5 0		

Full descriptions will be found in the last page of the *Gardeners' Chronicle*, for Feb. 3.—Orders may be addressed to PETER LAWSON & SON, in Edinburgh; or to their London House, 27, Great George Street, Westminster.

NOW READY.

WILLIAM AND GEORGE DAVISON can supply complete collections of KITCHEN GARDEN SEEDS, to suit the various sized Gardens, at the following prices:—

No. 1 Collection ...	£3 0 0	No. 3 Collection ...	£1 2 6
No. 2 " ...	1 16 0	No. 4 " ...	0 12 6

FLOWER SEEDS: 50 packets, including the best hardy, half hardy, and tender Annuals and Biennials, with printed instructions, 10s. 6d.; 25 ditto ditto, 6s.; 12 ditto ditto, 3s.

GRASS SEEDS: Fine Lawn Grass Seed 1s. per lb.; Grass Seeds for laying down permanent pasture mixed to suit any soil, 30s. per acre. Every variety of agricultural Seeds of the finest quality. Priced Catalogues may be had on application to W. & G. DAVISON, Seed Warehouse, St. Peter's Street, Hereford.

SEEDS CARRIAGE FREE.

SUTTON'S COLLECTIONS OF SEEDS.—A Clergyman, whom we have had the honour of supplying many years, writes us:—"*I have much satisfaction in recommending your Seeds to various friends, as I find they are much pleased with them;*" and another purchaser says, "*I never received so numerous a Collection, so good in quality, from any house.*"

We therefore confidently recommend those gentlemen who are not themselves acquainted with the best sorts of Vegetables, to order immediately (while we have a large Stock), one of the undermentioned complete Collections:—

KITCHEN GARDEN SEEDS.	£	s.	d.
No. 1. A complete Collection, for one year's supply ...	3	0	0
No. 2. A complete Collection, in reduced quantities ...	2	0	0
No. 3. Ditto Ditto Ditto	1	5	0
No. 4. Ditto Ditto Ditto	0	15	0
HARDY AND SHOWY FLOWER SEEDS (POST FREE).			
No. 5. A Collection of the best 50 sorts known	0	10	6
No. 6. A Collection of the best 36 sorts known	0	7	6
No. 7. A Collection of the best 24 sorts known	0	5	0

SUTTON'S CATALOGUE OF SEEDS will be sent post free.
JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

BASS AND BROWN'S CHOICE VEGETABLE AND FLOWER SEEDS.

For some of the novelties of their first-rate Collections, also choice imported Seeds, Roots for early spring planting, &c., see Advertisements in the Gardeners' Chronicle *of Feb.* 17, *page* 109, *and March* 10, *page* 149.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS, containing the best new sorts

	s.	d.
No. 1, with 20 quarts of Peas, and other vegetables in proportion	60	0
No. 2 Collection, 40s.; No. 3, 25s.; No. 4	15	0

The collections are given in the Seed and Plant List.

FLOWER SEEDS, BEST AND NEWEST ASSORTMENTS, with printed instructions for sowing, &c.

100 vars. choice strong annuals...	15	0
50 vars., 8s. 6d.; 30 vars., 5s. 6d.; 20 vars.	4	0
20 vars. best dwarf kinds, in large packets, suited for beds on lawns, 7s. 6d.; 12 vars....	5	0
20 vars. choice greenhouse annuals, 7s. 6d.; 12 vars. ...	5	0
20 vars. choice greenhouse perennials, 10s. 6d.; 12 vars....	7	6
20 vars. choice hardy biennials and perennials	7	6
12 do. do do do.	5	0

For further particulars see Seed and Plant List.

CHOICE IMPORTED SEEDS, comprising Stock, Aster, Balsam, Cockscomb, Larkspur, Salpiglossis, Scabious, Sinecia, Sweet William, Wallflower, Zinnia, &c.

BASS & BROWN'S Seed and Plant List free by post for three penny stamps. Also the autumn Catalogue for three penny stamps; or gratis to our customers who may not have received them.—Seed and Horticultural Establishment, Sudbury, Suffolk.

MESSRS. E. G. HENDERSON AND SON will commence sending out, on and after Monday, April 30, the following New Plants:—

CALCEOLARIAS (Shrubby or Bedding).

Brunette	7s. 6d.	Norma	7s. 6d.
Coreggio	7 6	Red Rover	7 6
Maggiore	7 6	Vezzosa	7 6
Minnie...	7 6	Wildfire	7 6

Or the set of eight varieties, 2l. 2s.

Full descriptions of which may be seen in the *Gardeners' Chronicle* of last week.

With permission of Mr. C. Turner we shall offer CALCEOLARIA PURITY, the best of the two white bedding varieties, raised and exhibited by Mr. Cole, at 7s. 6d. each, or with the above set 2l. 7s.

HYDRANGEA HORTENSIS, flore pleno, 10s. 6d.—This remarkable plant with double flowers will prove a great acquisition; the colour, as with Hortensis, is either blue or pink, according to the soil or treatment it may receive. The flowers remain a long time on the plant in full beauty.

DAHLIA EMPEROR FRANCIS JOSEPH, 10s. 6d.—This beautiful plant, with constant and attractive white variegated foliage, will give a height amongst variegated foliaged plants that has been much required, 3½ to 4 feet. The double dark coloured flowers over the sheet of white foliage will be quite unique as a bedding plant.

PHLOX QUEEN VICTORIA, 5s.—One of the finest formed flowers, with the free strong growth of the decussata section; splendid truss of blush white flowers, with a conspicuous large purple eye.—Wellington Nursery, St. John's Wood.—March 17.

PAGE AND CO.'S BLIGHT COMPOSITION.—Extra Strong, 4s. per gallon, sufficient to make four (Jars and Barrels extra); in Bottles, 1s. 3d. and 2s. 6d. each. Directions for application forwarded. 10 Gallons and upwards Carriage Free to London. Should be in the hands of all Plant and Fruit Growers. See *Gardeners' Chronicle*, March 3, 1855. It can now be obtained of

Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester
Bass & Brown, Sudbury
Sutton & Sons, Reading
W. & G. Davison, St. Peter's Street, Hereford
Henderson & Co., Pine Apple Place, London
Rendle & Co., Plymouth
Masters & Son, Canterbury
Thomas Davies & Co., Wavertree, Liverpool
Mr. Freeman, Woburn
" J. Perkins, Northampton
" Tiley, Bath
" E. Paul, Derby
" W. Barratt, St. John's, Wakefield.
" Baskerville, Bristol
" Burham, Hastings

and of the Inventors and Manufacturers—
B. PAGE & CO., SEED MERCHANTS, Oxford Street, and Above Bar, Southampton.

N.B.—Other names will shortly appear, as the agents are appointed.

NEW PLANTS.

A. VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer to Amateurs and to the trade his following new plants:—

ACHIMENES (TREVIRANIA), AMBROISE VERSCHAFFELT. This is the finest Achimenes of all: a correct drawing is figured in L'ILLUSTRATION HORTICOLE, Number 1, 1855. Nice plants will be sent out next May, each 8s.—N.B. One over if three plants are taken.

TYDŒA WARSCEWICZI; magnificent plant for foliage, and particularly for the flowers. It is the finest gesneriaceous plant of all; a correct drawing is figured in L'ILLUSTRATION HORTICOLE, Number 1, 1855. Strong plants are now ready for sale, each 15s.—N.B. One over if two plants are taken.

RHODODENDRON (HARDY), PRINCE CAMILLE DE ROHAN. This is the finest hardy variety raised; a correct drawing is figured in L'ILLUSTRATION HORTICOLE, Number 2, 1855. This variety is warranted to be quite hardy, and very free bloomer. Nice plants will be sent out next May, each 15s. N.B. One over if three plants are taken.

Agent in London: Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street.

NEW EVERGREEN CLIMBING ROSE.

WILLIAM WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, beg to intimate to their friends that they ARE NOW prepared to send out AT ONCE good strong plants of WILLIAMS' EVERGREEN CLIMBING ROSE, at 3s. 6d. each, with the usual allowance to the trade, and a still further reduction if one dozen or more are ordered at once. Price may be had on application.

N.B.—Single Plants will be sent free per post on receipt of six penny postage stamps EXTRA to defray postage. Strong Plants of the above may also be obtained at the same price from Mr. CHARLES TURNER, of the Royal Nursery, Slough.

DWARF-BUDDED ROSES,
ADAPTED EITHER FOR POTTING OR PLANTING IN GROUPS.

WILLIAM WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, have the pleasure of offering fine strong Plants of the following DWARF HYBRID PERPETUAL ROSES, at 15s. per dozen: Baronne Prevost, Duchess of Sutherland, Jacques Lafitte, La Reine, Madame Trudeaux, Pius the Ninth (pillar Rose), Robin Hood.

The following at 10s. per dozen:—Madame Laffay, Marquise Boccella, Marquis of Ailsa, William Jesse.

N.B. A very liberal allowance to the trade on the above.

NEW ROSES.

WOOD'S DUCHESS OF NORFOLK, a superb bright crimson Hybrid Perpetual Pillar Rose, 10s. 6d. per plant. Usual discount to the trade, and a further reduction if six or more plants are ordered at once.

WILLIAMS' EVERGREEN CLIMBING ROSE, 3s. 6d. each. Usual discount to the trade.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, begs to inform Gentlemen, Amateurs, &c., that he can supply them with the following, from a Stock of 20,000 Plants, well rooted, and in robust health, including every choice variety grown.

CARNATIONS, 9s., 12s., and 18s. per dozen pairs.
PICOTEES, 9s., 12s., and 18s. "
PINKS, 4s., 6s., and 9s. "
PANSIES, 4s., 6s., and 9s. per dozen plants.
BELGIAN DAISIES, 4s. and 6s. "
FLUKE KIDNEY POTATO, 5s. per bushel of 56 lbs.
SELECTED PANSY SEED, 1s. and 2s. per packet.
DELPHINIUM BARLOWI, 4s. per dozen.
Auriculas, Alpine Auriculas, Polyanthuses, Primroses, &c.

Priced and Descriptive Catalogues now ready for one stamp. Post-office Orders to be payable at Middleton, Lancashire.

GERANIUM—"ENGLAND'S GLORY."

BAINBRIDGE AND HEWISON have purchased this beautiful bedding Geranium. The colour of the flower is pale flesh, or maiden's blush; the leaf of the horse shoe kind, and very glossy; the individual flowers are smooth, of great substance, and of exquisite form. It is an abundant bloomer, an exceeding large trusser, and throwing its flowers well above the foliage. It resembles much the Hydrangea, and is considered the best Geranium out for bedding or conservatory.

Plants in June, 1855, 5s. each. The usual allowance to the trade when three Plants are taken.—York Nurseries, March 17.

R. SMITH is now sending out his New Seedling Strawberry, SIR CHARLES NAPIER, the best forcing one of the day, admired by all who have seen its growth, and for colour not one to equal it. Price 3l. per 100; 50 for 30s.; 25 for 17s. Also, Sir Charles Napier, British Queen, and Keens' Seedling in pots for Forcing.—R. SMITH, Market Gardener, Richmond Road, Twickenham.

NOTICE TO THE TRADE.

JOHN ADAMS, NURSERYMAN AND SEEDSMAN, High Street, near the Market Place, New Brentford, Middlesex. Nursery Grounds at Acton Green, established several years.

JOHN ADAMS begs to inform his kind friends and patrons that he intends carrying on the above business on a large scale, and begs a continuance of their kind favours, and that nothing on his part shall be wanting to give entire satisfaction.—Brompton Park Nursery. March 17.

THE ANNUAL SPRING EXHIBITION OF PLANTS IN THE EXETER NURSERY.

LUCOMBE, PINCE AND Co. very respectfully beg leave to announce that their superb specimens of CAMELLIAS are now in flower; they are particularly fine this season, and great additions have been made to their collection. Their New Show House is also filled with an extensive assortment of various Fine Plants, which cannot fail to gratify those who pay their Nursery a visit, as it is now, and will continue for a long time to be exceedingly brilliant and attractive with all the gayest Spring and other Choice Flowers.

L., P., & Co. have now several experienced Gardeners whom they can strongly recommend.—Exeter Nursery, Exeter. Mar. 17.

The Gardeners' Chronicle.

SATURDAY, MARCH 17, 1855.

The CLIMATE OF THE CRIMEA has lost none of its interest. The army has passed through the perils of December, January, and February, which have proved to be such as we long ago anticipated. March has now arrived, and it is thought probable that the troops will be before Sebastopol at least till the end of June; so that four or five months' experience of a Taurian spring and summer has still to be gained. Two translations* of Professor KOCH's work on the Crimea having just issued from the

* *The Crimea, with a Visit to Odessa.* By C. W. KOCH. ROUTLEDGE; pp. 183, with woodcuts. 12mo (1s.).

The Crimea and Odessa: Journal of a Tour, with an Account of the Climate and Vegetation. By C. W. KOCH. MURRAY; pp. 323 with a map of the country and woodcuts. Small 8vo.

press, we possess the means of furnishing the reader with some information upon that subject also. In our quotations, we avail ourselves of Mr. Routledge's translation, which we much prefer.

Professor Koch, after spending some years in the Caucasus, passed into the Crimea by way of Kertch, the land of Circe and Mithridates. Thence he proceeded westerly to Kara-su-Bazar and Sympheropol, after which he turned to the south, visited Sebastopol, Balaclava, and the south coast up to Orianda, where there is an imperial palace, and finally doubling back as far as Aloushta, he again reached Sympheropol, whence he proceeded through the dreary steppes and pampas to Odessa, by way of Perekop. In the book before us he gives an account of what he saw and learned in the course of his journey.

It is impossible to read his pages without arriving at the conclusion that the Crimea is destitute of everything that can render it valuable except as a military position. The vast plains north of Sympheropol are almost uninhabited and utterly barren; between Perekop and Sympheropol he did not see a single herd of cattle or flock of sheep; human beings were only visible at the post-houses.

"A plain," he says, "such as is found in the north of the Crimea and in the south of Russia, affords the most melancholy prospect in autumn, when all vegetation has disappeared, and only the varieties of Wormwood and Horehound, or a few Centauries, can be distinguished. The only feeling to which we could yield was that of boundlessness, which was grand, even in this melancholy desert. Wherever we turned we could only perceive the far distant horizon, without a single point on which the eye could rest, even for the shortest space of time. In spring, indeed, a very busy scene is presented. Many thousand sheep and oxen, followed by shepherds and dogs, traverse the steppe, and feed on the juicy herbs. But when the last days of June arrive, the Tatars with their flocks draw nearer to the south coast, and spend the time from July to the season when the rain is turned into snow, upon the Crimean mountain range, where a healthier and fresh pasturage is afforded them."

On the south coast it is better, the country being rugged and picturesque, though sterile; the country houses there of the Russian nobles seem to be maintained merely as an occasional retreat, or in obedience to the desire of the Court of St. Petersburgh. We are assured that the Tatar population is reduced to 60,000 souls, and that the whole country is incapable of supporting a million of persons without external aid.

The climate is thus described:—"The south coast has no real autumn, but a double spring, in so far as by spring we understand the reproduction of vegetation. The actual spring, which agrees with ours as regards season, at times lasting from the middle of April to the middle of June—more generally, however, beginning in March and ending in May—is not the finest part of the year, as it is with us: the greatest variation prevails here in every respect. This the south coast shares in common with many Eastern countries. At the beginning of March there is frequently splendid weather, and the vegetation makes extraordinary progress; when, suddenly, cool, even cold weather, sets in in April, and the thermometer frequently sinks below zero. (32° Fahr.) It seems as if winter were recommencing.

"The autumn, which seems like a second spring, is far more pleasant. A portion of the shrubs and trees put forth new shoots, and even are covered with a fresh display of foliage. Towards the end of August, the heat generally decreases, and autumnal days set in: rain alternates with wind and fine weather. Towards the equinox the wind becomes a storm, frequently a hurricane, and causes the most fearful desolation. At this season there is a good deal of rain. The soil which, till the beginning of spring, was parched and burnt up, eagerly imbibes the moisture. Springs which, at the end of August, were quite dried up, begin to flow again. In case it has rained itself out—to use the common phrase,—by the 5th or 6th October, the sky is suddenly cleared, and the most beautiful weather in the whole year sets in. While the last half of October, November, and December are frequently a very disagreeable season in Germany, on the south coast it is the most pleasant in the year, and the vegetation is very luxuriant. These regularly beautiful days last till the second half of December, and very frequently till the new year. From that period, wind and rain again alternate with sunshine. The thermometer vacillates between 36° and 46° [we change the scale of Réaumur to that of Fahrenheit], falls at times below 32° but rises also to 54°. The rain at times changes into snow, which rarely lasts longer than an hour, and melts as soon as it has fallen. Towards the end of February, or beginning of March, extreme cold sets in, and the thermometer not unrarely sinks 20° or 30° below freezing point. In the middle of March, there are frequently several fine though cold days, which last for a week or more. At the vernal equinox, another change occurs, which is generally accompanied by a fall in temperature. The mercury sinks sometimes to 38°. The period from the end of January to the middle of April, however, varies in other years from the rule I have just given. There have been years when there was hardly any cold in February, and the winter was at an end. This reminds me forcibly of the climate of Tiflis, where I spent the winters of 1836-7, and 1843-4. On the 20th January, 1837, I spent the night in the open air, without any extra clothing, during a shooting excursion. It was at that time lovely weather; the Almond trees were beginning to blossom, and on the 18th of February they were covered with splendid flowers. In the middle of April, on the contrary, it was so cold that I did not dare to go out without a great coat.

"On the south coast of the Crimea, the weather was fine in 1843 up to the 17th March; the thermometer had never once fallen to freezing point. In January it stood once at 66°, in February at 63°. A frost suddenly set in on the 18th March, and the mercury fell to 8°. It was not till the 29th March that milder weather set in; and at the beginning of April, the thermometer showed 36° of warmth. In 1844, the winter was generally mild; but on the 11th April the mercury fell to 34°, and on the 13th to 25°. In the year 1840, there were 18° of cold on the first Easter festival.

"It can be easily imagined that such a variable climate has no good effect on the vegetation. A quantity of shrubs and trees, which flourish in England in the open air, will not grow at all, or only very sparingly on the south coast."

"The spring only lasts for a short space. In the Crimea it generally begins with the first days of March, but at times much later. The vegetation is rapidly developed, in spite of the night frosts, and collects in the steppe that energy which enables it to resist a long, lasting heat, or else dies away in a few months, as is the case in the pampas. In proportion as the soil is covered with plants, the longer do they maintain their verdure, but whenever they die away rapidly, as in the pampas, the ground grows heated with extraordinary rapidity; an exhalation of heated air commences, which continues even during the night, and is scarcely ever interrupted. As the countries on the Black Sea and Sea of Azov possess the least vegetation, there is scarcely any rain there during the whole of the warm season. Most fearful storms frequently rage over the adjacent sea; the rain pours down in streams there, but not a drop falls on land.

"With each week of summer, the heat becomes more insupportable. At the outset, the sky is of the purest azure; it only appears more or less overcast over the larger rivers, where continuous evaporation is taking place. Soon, however, the pure colour disappears; it becomes daily more milky; and that haze sets in which is frequently visible in our country in hot days, but which is much more prominent in the south, especially over deserts. In July, all the water in the pampas and the adjacent country is evaporated; in the month of August and beginning of September, water is sought for in vain in the steppe regions, except in the vicinity of large rivers. Here, too, the vegetation gradually dies away, and the stems of the plants, 6 or 8 feet in height, are alone visible, which the Russians call Burian, and apply to all sorts of purposes, but principally as fuel for the winter.

"In the middle of September, cooler weather sets in, in which the trade winds cease blowing, at least for a short period, in the unwooded zone, and produces a change in the temperature: with this a fresh vegetation commences. The buds for the next year are not only formed on perennial plants, but many of them are covered with a new coat of verdure. In October, there is a considerable quantity of rain, and the ground grows so soft that there is great difficulty in walking over it. In November, it grows colder, and storms set in, of which we can form no idea. Whirlwinds are very frequent, and cause an immense amount of destruction. In December the winter generally commences, though frequently without a flake of snow falling. The cold is, consequently, much more severely felt, and principally by the plants, of which immense quantities are killed. There are winters, on the other hand, in which a great deal of snow falls. The storms at this season are terrible, and the wind generally blows from the east and north-east, at times for more than half the year, and not unfrequently becomes a hurricane. It raises the dust aloft, and drives it before it in the shape of a pillar; but it is much worse if snow is lying, as the entire mass is raised up a in whirlwind and carried away. Woe to the flock which is surprised by such a snow-drift (called samet by the Russians). The cattle are terrified, and disperse in every direction. It is almost impossible to see a step before you, and the road is continually lost. As a snow-drift at times lasts several weeks, though usually only three days, sheep and oxen, and frequently men, cannot find their homes, are exhausted by terror and hunger, and finally perish from cold. It is a very frequent circumstance for sheep to run right into the sea or large rivers, and be drowned. The sheep, also, in such cases, are continually devoured by wolves.

"No less dangerous are the snow-storms (Wyura among the Russians), even when only a gentle breeze is blowing, or in a perfect calm. A darkness frequently sets in, so that it is impossible to see ten paces before you. Any one who does not possess a good knowledge of the locality—I might say instinct—can easily miss his road, and be exposed to extreme peril."

This gives an idea of what the troops have before them.

The Crimean trees are not yet well known, but we have no doubt the present occupation of the country will bring us better acquainted with them. According to Koch, one of the commonest Oaks is *Quercus pubescens;* but we already know from evidence furnished by one of our gallant friends on the spot, that the scrubby Oak which abounds near Sebastopol and on the Tchernaya, and among which the battle of Inkermann was fought, is by no means the species so called in Europe, but one which is peculiar to the East. It has sessile amplexicaul leaves, without the midrib projecting beyond the margin; the acorns are sessile, and the cups those of the Turkey Oak. According to Koch it never grows more than 40 or 50 feet high, but branches immediately from the ground, so as to form a giant bush. The same plant was found by Mr. Bentham in the forest of Belgrade, near Constantinople, and occurs among Kotschy's ill preserved Cilician collections. Within the lines of the Allies it bears no acorns. Possibly in a climate like ours it would develope in a more perfect manner.

According to Prof. Koch the scrubby Juniper of the country is the *Juniperus rufescens* of Link, and he describes it thus:—

"The nearer we drew to the promontory, the extremity of which forms Cape Aithodor, the less fertile did the soil become, and the indigenous bushes, especially the Oak and the Eastern Hawthorn, were very scrubby. Gradually, too, the Juniper with bright red berries (*Juniperus rufescens*, Link) made its appearance, which for so long a time was confounded with the Juniper Cedar (*Juniperus oxycedrus*, L.). At the commencement of our walk this bush was a very fine object, and in size like that of the Cypress, although, instead of fleshy scales, it bore needle-shaped leaves. Like the tall Juniper, this variety also likes rocks, and above all a soil covered with triturated rock. Where it is very sterile, and a strong wind blows, it lies on the ground like our Savin tree, and its branches grow upwards." Our correspondent, in sending specimens to this country, observes that it is very common about that place, usually growing 3 to 4 ft. high, but sometimes much more; it has a very spreading habit, and extremely sharp leaves. The cinnamon brown fruit is abundant, and contrasted with the green of the leaves produces a very lively and pleasing effect. This, we presume, is one of the plants whose roots the men grub up for fuel. It is very like *J. oxycedrus.*

Another tree near Balaclava is described by our friend at Balaclava as one to be much admired. Its colour is beautiful, its form graceful, and its dark berries hanging in profusion on the branches produce a charming effect. About Balaclava it forms a spreading head 20 feet high and upwards. Koch thus describes a specimen seen by him at Orianda—"Further in the front, and just on the verge of the precipice, stood a splendid specimen of one of those Junipers (*Juniperus excelsa*, Bieb.), which instead *of needle-shaped leaves, like the Arbor-vitæ or the Cypress,* have close-pressed pulpy scales, and of a larger size than I ever saw in the Crimea, though I had found similar ones in the valley of the Tchoruk; the trunk itself was no less than [illegible] feet in diameter. If we bear in mind that the Juniper grows very slowly, indubitably it has required more than a thousand years to attain such a size. It is, consequently, the only tree which saw all the various nations come and again depart at the period of the great migration."

Whether this is the same as the tree called *J. excelsa* in this country is extremely doubtful. The words in italics being rendered in the same sense in both the translations before us must be taken to be the words of the author: but what they mean we cannot say.

By the same opportunity we have received from our active correspondent ripe seed-vessels of the

Christ's Thorn (*Paliurus aculeatus*) gathered near Balaclava, a Syrian shrub which is unable to bear a hard English winter; together with specimens from the highest ground of a Lichen, which is probably a form of *Lecanora tartarea*, our Cudbear, in the condition called *Isidium corallinum* by botanists, and approaching the Armenian Manna, or *Lecanora esculenta*, formerly figured in our columns (see 1849, p. 612). He also finds near the soldiers' huts in great abundance a little land-shell which our friend Mr. Westwood refers to *Bulimus tauricus* or *parnensis*, a genus extending from Italy to India.

All these bits of evidence tend to show that the vegetation of the Chersonese and adjacent country is such as indicates a Southdown climate at the worst. Of course on the plateau above Sebastopol the cold is very trying to the troops, and so it would be if the works of the Allies were constructed upon the hills round Folkestone. We may add that the other information contained in Professor Koch's book, to which we must refer the reader, wholly confirms the statements already made in this journal.

In our columns for 1854, p. 299, we gave a full account of the manner of cultivating that stubborn hedge plant called in the United States the Osage Orange (Maclura aurantiaca). But it turned out that the supply of seed which was then expected never arrived, and those who desired to try the shrub where an impenetrable live fence is wanted, were disappointed. We are now able to announce the actual arrival of a considerable quantity, which is held by Messrs. Charlwood & Co., Seedsmen, Covent Garden, of whom it may be procured. The article above referred to is too long for re-insertion, and therefore we are obliged to refer the reader to its place.

It is now officially announced that the Imperial and Central Horticultural Society of Paris will hold a permanent exhibition in that city, in connection with the Exhibition of all Nations, from May 1 to Oct 31. Rules and regulations are not yet issued, but are promised very shortly. As soon as we receive them we shall make them known. In the meanwhile communications should be addressed to "Mons. Léon le Guay, Inspector of Imperial Parks and Gardens, 17, Rue du Cherche-midi," who acts as Secretary of the Horticultural Committee.

New Plants.

— 119. Cœlogyne micrantha.

C. (? filiferæ) pseudobulbis oblongis angustis diphyllis, foliis lineari-lanceolatis racemo sessili (?) basi imbricato longioribus, sepalis ovatis æqualibus, petalis filiformibus brevioribus, labelli trilobi lobo medio subrotundo emarginato, disco lamellis pluribus in fimbrillis solutis apice bilamellato basi bidentato.

We owe our knowledge of this curiosity to Mr. A. Dick, gardener at Dale Park, where it had been received from "the East Indies." It is probably from some Malay island, since it approaches nearly the *C. miniata* of Java, which has, however, a lip with a pair of elevated lines. In this, on the contrary, the whole face of the lip is broken up into fringes, except at the point where two short plates stand apart, and at the base, which is furnished with two teeth and an intermediate ridge. The flowers are very small, pale brown, with the back of the lip marked with the sooty brown stains so characteristic of the filiferous Cœlogynes. Not worth cultivation.

120. Posoqueria revoluta, *Nees. D. C. Prodr.* iv. 376.

This beautiful Brasilian stove shrub was exhibited a fortnight since in the rooms of the Horticultural Society by Messrs. Veitch. It has fine Laurel-like leaves, and clusters of graceful snow white flowers, the tube of which is more than 3 inches long. The specific name was given upon the supposition that the leaves have their edges rolled back, but this occurs in so slight a degree as to cause regret that so fine a plant should not bear a more characteristic title.

VEGETABLE PATHOLOGY.—No. LXIII.

282. Apostaxis. *Constitutional or Accidental.* 5. Discharge of manna. Manna is a sweet substance, resembling sugar in chemical constitution, but differing principally in its indisposition to fermentation, and yielding mucic or saccholactic as well as oxalic acid when digested in nitric acid. All manna is not, however, identical in composition. The manna produced as mentioned below by a variety of Tamarix gallica does not, in fact, contain sugar possessed of the peculiar properties of manna sugar, but those of glucose, or Grape sugar. It exudes naturally from many different trees in warm countries, or in more temperate regions during unusually warm weather, but those trees which produce it abundantly under high degrees of temperature, are entirely unproductive in less genial climates. The manna of commerce is produced principally from Fraxinus ornus, either oozing naturally from the bark, or from artificial incisions. Grafted trees are much more productive than others, in all probability, as Meyen believes, because the sap, in general, does not descend so rapidly in grafted trees as in those which are left in a state of nature. The manna which drips from the Larch in the form of little beads, is known under the name of Manna of Briançon; it is, however, very inferior in consequence of its containing a large quantity of turpentine. Eucalyptus mannifera produces manna very similar to that of the Calabrian Ash, of which importations are made for medical purposes. A variety, of which little is known, has also been brought from Botany Bay in the form of snow white globules, collected from the ground in large quantities, identical probably, or nearly so, with the manna tears produced in our own country in very hot summers from the Elm and other trees, from which it occasionally falls in such quantities as to be capable of being swept up like little hailstones where there is a smooth area beneath the branches. In countries where it is abundant manna is collected as an article of food, for its purgative qualities seem to be slight when it is freshly gathered, and to increase with age, and are at any rate not such as greatly to interfere with its use. The Bedouin Arabs in the neighbourhood of Mount Sinai collect it for food from Hedysarum Alhagi, and it is well known that a variety of Tamarix gallica produces the same substance in those districts. In the latter case, and probably in some others, the production of manna is due to the agency of an insect, Coccus manniferus, and it has been asserted also that Cicada orni produces the same result in the Calabrian Ash.

283. It appears then that the discharge of manna may take place naturally without any organic lesion, as from the stomates, having first oozed through the walls of the cells; it may accumulate beneath the bark in such quantities as to find a vent by rupturing the superincumbent tissues; or it may be due to pure accident or to the agency of insects. As in other cases of Apostaxis the urgency of the case depends entirely on the extent of the symptoms, and it is probable that the discharge is never so great naturally as to prove really injurious. Where it is separated from the leaves in hot weather, it is doubtless a relief of a plethoric state of the system which might prove fatal without some outlet, and in other cases, except possibly in some instances where it is due to insects, it is quite harmless.

284. It has been attempted to show that the supply of manna to the people of Israel in the wilderness, may have been derived from the Tamarix; but a very slight degree of reflection would show that this notion is entirely inconsistent with the scriptural account, the very essence of which is that its origin was miraculous. It may be mentioned also that a species of Lichen (Lichen esculentus, Pallas and some other species) has been supposed to be the manna of Scripture. It is found in Armenia, Algiers, and other districts, lying in dense masses on the ground, and there are accounts worthy of credit, which show that it is sometimes taken up from the surface in whirlwinds and deposited again after a journey of many miles. This substance has not, however, any of the properties of manna. It is used in times of scarcity to grind with Wheat, and whatever nutritive matter it contains must depend almost entirely upon the Lichen starch which enters into the composition of its cellular tissue. At best it is a very poor article of food, dangerous to some constitutions from the immense quantity which it contains of oxalate of lime, and could only be used where there was a great deficiency of better commodities.*

285. A very curious affection has occurred for many years past on the leaves of Stenocarpus salignus and of several Myrtaceæ in one of the houses at Kew. At first there is a rather copious exusion of transparent sugary matter both from the upper and under surface of the leaves. This spreads in little round patches, on which pure white byssoid radiating lines soon make their appearance, but little elevated above the surface, and interrupted once or twice in their growth, after the manner of the mycelia of many of the higher Fungi. At this stage, the white matter is found to consist of moniliform threads, whose articulations are oblong from $\frac{1}{2500}$ to $\frac{1}{2000}$ inch long, and containing two nuclei. They resemble, in fact, very closely the reproductive bodies of Ergotetia arbortifaciens, Queckett. In some cases, in addition to these bodies, there are others far more minute,* and sometimes the whole substance consists of these lesser granules. A change now takes place, which gives the production an appearance very similar to that of manna. The byssoid lines become gradually confluent, and lose their filamentous aspect. The edges of the little mass become swollen and granulated, till at last small, more or less orbicular, pellets are formed, still of a pure white, easily separable from the leaf, and having much the appearance of the sugary efflorescence which occurs on large seaweeds. Under the microscope, however, the mass consists of a multitude of acicular crystals, mixed with a few of the original granules. The exact nature of these crystals I have not been able to ascertain, but they do not consist of carbonate of lime, and therefore are not due merely to the water with which the plants are syringed.† The secretion is confined to a certain number of plants; and since some change has taken place in their position, it is not produced in so many species as it was formerly.‡ *M. J. B.*

* An interesting account of this will be found in this Journal, 1849, p. 612.

† Since the above was written, the substance has been kindly examined at my request by Dr. G. Owen Rees. The quantity submitted to his inspection was necessarily very small, and insufficient for any very extended chemical analysis. The crystals are soluble in water; little, if at all so, in alcohol; they yield an alkaline ash on incineration. The probability is, then, that they are some salt arising from a vegetable acid combined with potash or soda, most likely the former. Their solubility n water forbids their being oxalate of lime.

‡ It has occurred on Stenocarpus salignus for more than 20 years. Mr. Smith informs me that he has observed it on Callistemon speciosum and several other Myrtaceæ, but never in the same abundance as on the Stenocarpus. At the present moment it is confined to that species. The Myrtaceæ, it should be observed, are now in a different house from the Stenocarpus.

SEEDLING RHODODENDRONS.

In the matter of seedling Rhododendrons "J. R" is certainly behind his time. He would have us go back a quarter of a century, and repeat labours now almost forgotten; labours, nevertheless, in themselves of the highest value, and from which the hybridizer of the present day has reaped, and is still reaping, the greatest assistance, but which it would only be a waste of time to repeat.

Seedling Rhododendrons but once removed from arboreum are, as a general rule, wholly valueless for out-door cultivation. In the first place they are generally from 20 to 25 years old before they flower; and from the fact of such flowers, when they *are* produced, expanding very early in the year, it is only in the most favoured seasons, and in a few localities, that they come to perfection without artificial protection; not that the plants themselves are not hardy, but the flowers, in which, of course, the chief attraction of the plants lie, are destroyed. We could name many gardens where there are fine specimens of such early flowering kinds, and where, in the majority of seasons, they never expand a flower. We recollect one in particular on the south coast, where the Myrtle hardly requires protection, but where, nevertheless, these early flowering Rhododendrons rarely perfect a head of bloom. The plants, retaining too much of the constitution of arboreum, are excited by a few prematurely warm days in February to lose, as a natural result, by the first severe frost afterwards, their expanding blossoms. The qualities that Rhododendrons for cultivating in the open air should possess are, hardiness of constitution, handsomeness of foliage, freedom of growth, richness and variety of colour, precocity and abundance of flower, and the power of remaining inactive in growth till the danger from spring frosts is over. All who are acquainted with even a small part of the hybrids in cultivation know well enough that plants possessing these qualities are abundant.

Now, although it is found desirable, both as a means of inducing rapidity of growth and earliness of bloom (by earliness we here refer to the *age* of the plants) as well as by its affording a ready means of propagation, to graft seedlings, even though they possess the above desirable qualities; they are, nevertheless, very precocious in the production of flowers without grafting. How "J. R." can give to such plants as he very justly observes are often 20 years old before producing a flower, the preference over those we have been describing, we are at a loss to understand. But there is no accounting for tastes, and every one has an undoubted right to entertain and to advocate his own ideas upon any subject, however eccentric they may be.

As we have before observed, seedlings from Rhododendron arboreum do not usually flower before they are 20 or 25 years old; yet these are the plants that "J. R." wishes to see in place of the hybrids now so generally cultivated. If to produce a mass of evergreen be the result sought, there are very many other shrubs much better suited for general cultivation by which such may be attained; and if flower be the object, we do not see how a preference can, even in a remote degree, be claimed for them. This we do know, that among a pretty extensive connection, we never yet found the purchaser who would order them for cultivation in the open borders. Plants that will flower abundantly and at an early age are invariably stipulated for; and in good truth it would be a folly in any one to purchase a plant that would require 10 years to produce a scanty crop of flowers, when for the same money he could purchase one that would abundantly reward him in one year.

The most abundant as well as the most precocious bloomers as species are the following, which are placed in the order in which they are entitled to priority, viz., ciliatum, glaucum, caucasicum, catawbiense, ponticum, and purpureum; while arboreum and its varieties possess the opposite qualities, but which, as regards season, are the earliest to produce their flowers. The latest bloomers in the season are maximum, catawbiense, ponticum, and purpureum. The hardiest are catawbiense and maximum, the former standing first in this respect.

From what has been said it will readily be seen that if free-blooming qualities are desired in a hybrid Rhododendron, it must be removed as far as possible from maximum and arboreum; while the nearer its parentage is to ciliatum or either of the six following named above, the more will it partake of that desirable quality. For late-blooming qualities the hybridiser must employ catawbiense, maximum, ponticum, and purpureum; while arboreum and maximum will afford him the richest as well as the most delicate tints.

The primary defect, as hardy plants, of all the first hybrids from catawbiense, caucasicum, and ponticum, by arboreum, is their early blooming propensity, the consequences of which we have before alluded to; and in those from maximum by arboreum their extreme shyness in producing flowers detracts very much from their usefulness; for when you do get a head of bloom from them, it is indeed extremely beautiful, but it occupies almost a life-time to realise such a result. As an instance we may mention that some years since we were admiring a solitary head of bloom in a large bed of Rhododendrons at Highclere, when the gardener informed us that the whole of the plants were hybrids between maximum and arboreum, that they were 26 years old, and that the head of flowers we were then admiring was the first

and only one that had been produced. We could name many similar instances if it were necessary.

Among first hybrids the earliest (as regards age) and most abundant bloomers are those of which caucasicum, or a near hybrid of it, is one of the parents; next in order come seedlings between ponticum and arboreum, and following these crosses between catawbiense and arboreum. The defects of these we have just pointed out. Now, if a cross between a hybrid arboreum and a hybrid from one of the above crosses be again crossed with either of them, the plants resulting will be perfectly hardy, and produce flowers at a very early age, and the nearer they are to caucasicum the more precocious will they prove. From such crosses a great part of the hardy hybrids in cultivation have sprung. But the most abundant bloomers, and such as flower in the youngest state, are plants raised from a third cross by a third cross.

The shyest-blooming hybrids are those in which maximum is a parent. Hybrids between a hybrid caucasicum and a hybrid arboreum will bloom when about six or seven years old; and seedlings from a hybrid ponticum, say Smithii, by catawbiense, will flower at about the same age.

By a careful selection of breeders and a due admixture of the qualities of each, the present race of beautiful hardy hybrids have, after years of labour, been obtained. Would "J. R." have us then throw these out of cultivation, and grow nothing but his favourites, which require 20 years of cultivation before they condescend to show colour! Surely not; yet from his letters we can only infer as much.

In the course of many years' practice in hybridising the Rhododendron we have observed very curious sports and crosses, some of which confirm, others entirely overthrow, the received opinions as regards the results of hybridisation among plants. These we shall, if desirable, be very glad to record in another article. *Standish and Noble.*

COMMON THINGS.

Propagation of Figs.—Figs are propagated by cuttings and by layers. The latter method is the best, as plants at the end of a year are fit to take up from the stools, and to plant out where they are intended to remain. Cuttings taken from plants from which layers cannot be obtained may be planted singly in pots, and placed under a frame, in a gentle heat now, and they will make good plants by the end of the year. The best of all methods, however, for obtaining fruiting plants quickly is the following. Take a Potato, cut it in half, and scoop out of each half enough of the Potato to permit it to be fastened round the stem of the intended cutting. Then select a good fruitful branch with two or three shoots on it, fasten the Potato round the stem where you are desirous roots should form, and cover it with moss. The moisture afforded by the moss and Potato will soon cause it to emit roots, when it may be removed from the parent tree and potted. In this way you may make tolerably sure of having a fruitful tree.

Seakale from Seed.—Its seeds should be sown in March or April, thinly upon a bed in an open part of the garden, keeping the plants clean from weeds through the summer. In the following spring they should be taken up carefully, and, shortening the roots to 8 or 9 inches, they should be planted out on good well-trenched ground, in rows 4 feet apart, and the plants at 18 inches distance from each other, placing the crowns of the roots 2 inches below the surface. This may be considered as a regular distance for the crop, but a smaller sized root may be planted between each of the others as an intermediate plant, which will increase the crop for the first two or three years without injuring the rest; afterwards they may be removed, leaving the original number at 18 inches apart. At the end of the first year after planting out the heads may be forced by means of large pots being placed over the crowns, and covered with hot dung. It should be observed that immediately on cutting the forced heads they should be brought to a level with the surface of the ground, or else in the course of a few years the plants will form their crowns so high that it will be necessary to earth them up to preserve them from the effects of severe frost. Should young plants not be at hand when a new plantation is required to be made, cuttings from the roots of the old plants of 2 or 3 inches in length will answer the purpose equally well as plants, for every inch of root will grow if planted near the surface, and the stronger these pieces are the stronger will be the plants at the end of the year.

TRADE MEMORANDA.

Beware of foreign hawkers offering wonderful plants for sale.

Home Correspondence.

Masson's Patent Mode of Preserving Vegetables is a striking instance of the usefulness of even trivial articles that have appeared in your pages, for his method is little more than the extension of a common Russian practice that was noticed in the *Gardeners' Chronicle* some years ago. It was therein related that green Peas and green French Beans were habitually preserved for winter use by first scalding them slightly, then drying them, the French Beans having been previously sliced, as is usual in preparing them for the table. Mr. Masson's exposure of vegetables to steam is more simple than the throwing them for a moment into boiling water, as is practised in Russia; but both modes are productive of the same effect. Mr. Masson presses the vegetables to diminish their bulk, but in Russia their original form is retained, that they may the more nearly resemble fresh green Peas and fresh French Beans, and they are commonly sold in all the provision shops in St. Petersburgh. It seems remarkable that this well-known mode of preserving green Peas and French Beans has not before been extended to other vegetables. *B.*

Temperature of February in Berwickshire.—The following table represents the extreme cold and heat which we had here during the 28 days and nights of February last. It has been prepared from data furnished by a registering thermometer, which I have used for these last six years, and which has always been found to be correct. It stands 2 feet to the north of a large Portugal Laurel, clear of all other objects, and is fixed to a board 16 inches by 13 inches, sided with a 2-inch deep frame to throw off wet, and screwed to a post 4 feet above the ground. It faces the north. The ground was completely covered with snow a foot deep all around it from the 14th to the 24th of February. I may mention that the Portugal Laurel behind the thermometer—a beautiful bush, 14 feet through and 10 feet high—has been killed down to within a few inches of the ground; the old stems, 18 inches in circumference, not escaping, although thickly covered

Days of the month.	Lowest night temp.	Highest day temp.
February 1	26° above zero	36° above zero
" 2	11 "	38 "
" 3	31 "	36 "
" 4	30 "	37 "
" 5	31 "	34 "
" 6	30 "	38 "
" 7	11 "	38 "
" 8	26 "	32 "
" 9	23 "	30 "
" 10	25 "	37 "
" 11	23 "	42 "
" 12	13 "	46 "
" 13	20 "	42 "
" 14	13 "	46 "
" 15	11 below zero	24 "
" 16	16½ "	21 "
" 17	20 "	20 "
" 18	15 above zero	37 "
" 19	4 below zero	33 "
" 20	15 above zero	37 "
" 21	19 "	35 "
" 22	12 "	34 "
" 23	8 "	35 "
" 24	5 "	37 "
" 25	27 "	39 "
" 26	23 "	40 "
" 27	18 "	41 "
" 28	29 "	40 "

with leaves and branches down to the bottom. In the above table it will be seen that the day temperatures are all above zero. The degrees are numbered from zero each way as shown on the thermometer, and as they ought to be, not from 32°, the freezing point: for instance, on the 17th February the lowest temperature marked was 20° below zero, making 52° of frost; and the highest that day was 20° above zero, showing 12° of frost in the warmest part of the day. The above will serve to confirm my remarks in the *Gardeners' Chronicle* of March 3d. The young wood of Apricots and Peach trees on walls is all killed, as are also parts of the old wood. French Pears, standard trees, and many other things are likewise killed down to a foot above the ground, or to where they were protected with snow. *C. Kay, Blackadder Gardens, Chirnside, N. B., March* 10.

The Fluke Potato.—It is not, I am aware, usual to find fault with advertisements unless it is evident that they contain a misrepresentation tending to mislead, but finding that one in your last publication states that "they (Fluke Kidney Potatoes) do not bear cutting," I beg in opposition to such a statement to give you the result of my experience in the matter. Having received a quantity of the above variety last year from Yorkshire, one-half, at least, of which weighed between 3 and 8 ounces each, it seemed to me that it would be wasteful to plant them whole; I therefore had them lightly covered with earth, and as soon as the eyes were started I had the tubers cut into sets, having one and two eyes each, and neither from the produce nor the appearance of the plants could any difference be perceived. Knowing that a large quantity of similar seed has been sent out this season, I have related the above, in order that the purchasers of it may not be induced to commit such a piece of useless extravagance as to plant whole Potatoes. *E. Wilkinson, Ealing.*

Pear Culture in Scotland.—I read with interest M. de Jonghe's papers, and I wish that his views could be realised; it would be very pleasant indeed if one were able by judicious culture to beat unfavourable seasons, and always secure a good crop of good fruit; but it remains to be shown how this is to be done, and, till that be, we must look upon it as a happy delusion. It is absurd to reason from Belgium to England—their climates differ so much. As he insists on having the trees wrought standard high, I beg to give what little experience I have of the matter. Seven years ago I got a number of Pear trees, pyramids, on the Quince stock, and being in a nursery in my neighbourhood, where there were some Pears on Pear stocks for sale, with stems 6 and 7 feet high, I bought some of them for trial. The trees are all in the same kind of soil, are well taken care of, and properly pruned, but I have never yet had a solitary fruit from the tall trees, although they have had abundance of blossoms every year. Bad as the seasons here have been, I have always had some fruit from the pyramids, and sometimes very good crops. The tall trees are growing in the same soil, are of the same age as the pyramids, and in a most healthful and vigorous condition, yet they will not give me fruit. I attribute this to their height; they are more exposed thereby to the force of cold winds and frosts than their more humble neighbours; and the lower pyramids and bushes are in a more comfortable condition and more easily escape. One can understand a fruit tree being made to grow on a tall stem in orchards where there is much undergrowth, such as Gooseberries, Currants, or tall vegetables; but if there be no undergrowth to prevent due circulation of air, I can see no purpose whatever in having the head so far from the ground except bad ones. Tall trees certainly do not set their fruit so well as those that are low; and if the wind blows off and destroys their fruit in the north of England, how much more here in Scotland are we exposed to its ravages? It is difficult to see, too, how these long-legged trees are to be so nicely pruned as M. de Jonghe describes, for they are so difficult to get at, and to prune them without damaging their buds would require either a cat or a monkey for a gardener. My objections then to these trees are that they are very ugly, bad to get at, don't set their fruit well, and will not show what they do set; and I would say more, that in a soil like mine it is hardly possible to keep them on their legs, as in heavy rains with strong wind, which we have usually in October from the north-east, they are apt to get tilted over. I am now going to say something about the pyramids: I planted, I think, about 20 varieties of these on Quince stocks. The sorts which bear freely with me and ripen their fruit are Citron des Carmes, Williams' Bon Chretien, Louise Bonne of Jersey, Soldat Laboureur, and Beurré Rance; I have always some Pears of these sorts, and frequently good crops. In the autumn of 1853 I had 12 dozen fine fruit on two small pyramids of Louise Bonne of Jersey, 12 dozen on one tree of Beurré Rance, large and very fine, 20 dozen on two trees of Soldat Laboureur (this is like Beurré d'Aremberg in its fruit, but does not grow quite so vigorously, and bears more freely). I do not know what size your Pears get to in the south, but suppose they must be much larger than we can raise here; however, Williams' Bon Chrétien, from pyramids on the Quince, measure about 9 inches round, and when ripe is wonderfully juicy, indeed it is impossible to cut it without losing a great deal. The Glou Morceau will not ripen as a standard; on the wall, on a Quince stock, it yields good fruit and bears well. As a standard Marie Louise is not hardy, and will not ripen its fruit with us. Now I have to say something further in favour of low standards. I would prefer bushes to pyramids, and several of my trees I have in that form, for they escape winds and frosts best of all, and I always see that the finest fruit is lowest down if not shaded or choked, which I do not allow. My rule is to keep the tree as close to the surface as possible, to let nothing trench upon its position, but to let it have room and plenty of light and air. I grow all my Apple trees on this plan; they are low bushes: branches in autumn are often resting on the ground, and the fruit on these branches is of the best quality. It is warmest near the surface—it is warmest there at night from the radiation of the heat from the ground, and warmest there during the day from reflection of the sun's heat. Being near the ground gives the tree something of the advantage of being near a brick wall; for it is close to an earth wall. When the tree is at the top of a pole, as in those high standards, it loses every advantage, and is subject to great disadvantages. *R. O. B., the Manse, by Coldstream, N. B.*

Swede Turnips as Food.—At this season of scarcity of vegetables, in consequence of the late severe weather, it may be useful to know that the common Swede Turnip, such as is given to cattle, makes a most excellent dish for the table. I use it regularly at my own table, and it is greatly approved of. The only treatment different from that of the common garden Turnip is that it requires to be boiled a much longer time, to make it perfectly soft—from seven to eight hours. It is then strained, and mashed in the usual way, with the addition of pepper and salt and a little cream or good milk. A 10 *years' Subscriber, York.*

American Axes.—In your paper of March 12th you doubt whether these can be obtained in London. Permit me to state for your information that I keep a large stock of the genuine Samuel W. Collins' axes, which are so much sought after in all our colonies. *Joseph Fenn*, 105, *Newgate Street, London.*

Spade and Fork Husbandry.—Mr. Dixon has made some remarks, at p. 38, on the use and durability of Parkes's steel digging forks. I beg to observe that "Experience is a great teacher," both to those who make forks and to those who use them. After years of close application and months of severe drilling to our workmen, we now rarely, if ever, turn out a defective article, and when such a case does occur our agents in London are instructed to make good the damage to the purchaser in all such instances. "Occasionally, if carelessly used, a tine will break," says your correspondent. Now, after a little experience, the workman will become so enamoured of his light and handy tool, that he will not break it carelessly. In many instances where the workman has hard stony subsoil to dig, after delivering the load of a previous spit from his fork he will take a step backwards in the trench, at the same time raising his hands above his head he will bring down his fork with all the percussive force which he is capable of exerting, and should one of the prongs come in contact with a stone the concussion is so great that there is risk of its being broken. Now this is altogether unnecessary, as the points of the prongs of our steel forks are always so fine that the pressure of the foot is quite sufficient to

drive them down in any soil, and when it is so driven the workman can feel if it comes in contact with a large stone, and by moving the handle of the fork to and fro he will spring the prong and pass by the stone. By what I learn from the description which your correspondent gives of his land I think three-prong forks would answer his purpose better than four prongs. I know instances where two prongs are the most useful implements for digging clay-land. As a general rule a person should never use more prongs than he requires, for the greater the number of prongs the greater is the amount of pressure demanded to sink the fork to its depth, and the greater is the cost of the article. In some instances a three-prong fork will break a clod up the centre, allowing a part to fall on either side, where a fork one inch wider would bring up the clod whole, notwithstanding the prongs are so much further apart. Your correspondent says his men will dig from 5 to 6 rods per day; I presume about 30 square yards in the rod. This is by no means the maximum amount of labour which can be performed if the workman lays himself out judiciously for the work. Throughout a large tract of land lying between Birmingham and Lichfield, trench digging is now universally adopted, and we have many men in this immediate neighbourhood who frequently dig 5 roods per day (a local measure of 8 yards each way, viz. 64 square yards). We have, in fact, one man particularly clever at this kind of work, who has with the assistance of his own two boys, aged respectively 11 and 13 years, dug an acre 18 inches deep in 10 days. This is the system:—Suppose the land to be a foul stubble it is ploughed about 5 inches deep, and then the manure is carted on it; it is then ready for the diggers. The man gets out a trench from 20 inches to 2 feet wide. The first boy takes a four prong steel Potato or short-handled dung fork, one that has been considerably worn; with this implement he pulls the furrow slice of the plough to pieces, and places it in the bottom of the trench, taking care to keep it all down level, to prevent Couch from growing through; he then scatters the dung all over it. The man follows with his large steel trenching fork, say 9½ by 16 inches (two spits with this fork take up the width of the trench), and this soil is turned over (right or left, as the case may be) on to the manure. The second boy follows with a No. 1 shovel, and clears up the crumbs from the bottom of the trench, pointing the work with them. In clay land, perhaps, this last operation would be better omitted. *F. Parkes, Sutton Coldfield, near Birmingham.*

The Late Frost and Rain-fall in 1854 *in Hertfordshire.*—The following list of the minimum temperatures on the severest nights of the late frost may be interesting, by way of comparison. The minimum thermometer is 6 feet from the ground:—

	Min.		Min.
January 19...	13°	February 13	10°
„ 31...	18°	„ 15	15°
February 1	11°	„ 16	15°
„ 9	14°	„ 17	8°
„ 10	12°	„ 18	14°

From Feb. 7 to 22 the temperature never reached the freezing point. Vegetation, notwithstanding the long-continued severity, has escaped better than in the two preceding years, Laurels and Bays especially, a result mainly to be attributed to the previous dry season. I saw a plantation of young Laurels completely destroyed by the frost in Feb. 1853, which was not nearly so severe a month as the last (mean temp. 4° higher), but which set in after a wet mild December and January, and a very wet autumn in 1852. The ground in which they were planted was light and sandy, and well drained, and the situation rather elevated, so that no excessively low temperature could have been the cause. The frost in 1853-4 injured Bay and Laurustinus shrubs, which this year have been unscathed. I subjoin a table of the rain-fall at this place during 1854:—

	Inches.		Inches.
January	1.91	Brought forward ...	10·42
February	0.87	August	1.98
March	0.45	September...	0.83
April	0.81	October	2.37
May	3.36	November...	1.59
June	1.16	December	1.42
July	1.86		18.61
Carried forward ...	10.42	Rain, 1852	29.79
		1853...	38.07

C. B. N. P., Stevenage, March 12.

Lapstone Kidney Potato.—I think I shall be doing service by recommending your readers to try this kidney; its quality is excellent, and it is an abundant cropper. I obtained this sort from Messrs. Sutton last year, and out of the produce, which was about 2 bushels, only one tuber was slightly affected with disease. *G. Rous, Laverton, near Bath, March* 13.

Water-wheels, Orchard-houses, and Garden Walls.—I have half an acre of water at the top of a hill, from which in wet weather issues a stream about the size of my wrist. This water I am conveying to a kitchen garden 42 feet below the pond, to supply a fountain in the middle of the garden, and also to give it (the garden) a shower two or three times a week. I want this water to turn a saw mill. What I wish to know is, the power and velocity given to the periphery of a water-wheel 6 feet in diameter, by water running out of a pipe 2 inches in diameter, with 42 feet of fall or pressure, into the usual shaped boxes on the circumference of a water-wheel. Can any of your correspondents give me their experience in this matter? I am constructing an orchard-house, the glass 21 ounces to the foot, the rafters 23 inches apart. I want to substitute something for lapping the glass, as I am thinking of grooving the glass into the rafters instead of puttying. Would lead do, as in lead lights? I have just constructed a garden wall of stone, on which I intend to stretch a wire trellis, like the invisible wire fence, to save defacing the walls, and to prevent the fruit being eaten up by woodlice, &c. I have cut off the capillary attraction of the wall by boiling gas-tar and lime together, and spreading it on the stone about 6 inches from the earth. This has answered the purpose, wears very well, the stone beneath the tar being dark and wet, all above being white and perfectly dry—the whole expense for a wall for half an acre of garden being only a few shillings. The composition must be laid on boiling, and afterwards more lime sprinkled over it to dry it. This would do for any wall, and the expense not to be compared with slate and cement. I am making some glass walls (20 oz.), which, when complete, will cost 4½*d.* per foot. I thus grow trees on each side, and the appearance is very good; this is intended for the south wall of my garden. I thus have no damp dark side. *S. N.*

Lombardy and Black Italian Poplars.—At p. 104 I perceive a question as to the utility of the last-named species (monilifera). In looking over an old book on gardening in 1818 I met with the following distich relative to the Poplar:—

> "Though heart of Oak be strong and stout,
> Yet keep me dry, I'll see him out."

I was at that time gardener to a gentleman whose alcove (which stood on the bank of the river Test) was undergoing repair; the floor, which rose 5 feet above the ground, was in a dilapidated state, and I advised him to renew it with boards prepared from the Lombardy Poplar. He did so, and I had thus an opportunity of testing its lasting properties. For 25 years it neither showed signs of dry rot nor the least symptoms of decay, and it is probable that it would have remained in the same condition for a period as long again had not the place been pulled down to make room for improvements. If the Black Italian Poplar be as lasting, its rapid growth, durability, and the facility with which it can be propagated would render it invaluable to large landed proprietors. I have a tree now growing in my garden, which when planted in 1841 measured 6 feet in height, its stem being rather larger than a man's thumb. The trunk of this tree now measures 38 inches in girth 6 feet from its base, and its height is upwards of 45 feet. Another peculiar feature in this tree is, its growing luxuriantly in low marshy bogs, where almost every other species of timber ceases to thrive. *C. T., Whitchurch, Hants, Feb.* 25.

Mr. John Weeks' and Co.'s One-boiler System of Heating.—As your reporter visited our nursery in December last and reported on our improved apparatus for heating the whole of our establishment with one boiler, and as since then the winter has been unusually long and severe, we think both you and the public will be interested in learning how the apparatus heating such extensive ranges of houses and pits by one boiler has succeeded. The conservatories, hothouses, and pits would extend in one line 1000 feet and expose to the atmosphere 16,000 superficial feet of glass. Many of the houses are wide and lofty, and are divided into about 40 different compartments, and several of the propagating houses and pits have both top and bottom-heat. Throughout the whole of the late severe weather the boiler and apparatus have worked to our entire satisfaction, giving us a greater command of heat than we required, and enabling us for the first time to dispense altogether with matting and every other description of external covering. In this we have found a large economy not alone in saving the cost of mats but also in avoiding the breakage of glass, which formerly was both expensive and seriously inconvenient. In our hothouses we have been able to maintain a temperature of from 70° to 80°, in the greenhouses 60°, and 90° for bottom-heat, air having been admitted both by day and night. Our nursery, though laid out with much regularity, yet consists of various detached buildings, so that large portions of the main pipes have to pass underground; but notwithstanding this great disadvantage, we feel confident that we could heat nearly if not quite double the quantity of glass with the same boiler. We use coke, the consumption of which has not averaged more than three sacks each 24 hours, and we feed the boiler every 12 or 14 hours. We are no longer inconvenienced by having to attend to a number of fires, stokeholes, and chimneys, and the boiler and apparatus being powerful there is always a large supply of hot water in circulation through every house, or division of a house; and by a simple but well contrived brass valve we are enabled in a few minutes to regulate the temperature throughout each building of the establishment according to our desire. Our Orchid-house is situated upwards of 300 feet from the boiler, and in it we maintain a regular steady temperature of from 70° to 80°. We are fortunate in having had so severe a winter to test the efficiency of our new arrangements, and doubly so in their having proved so eminently successful. *John Weeks & Co., King's Road, Chelsea.*

Societies.

Linnean, *March* 6.—The President in the chair. Mr. J. T. Syme exhibited specimens of a variety of Ophioglossum vulgatum found at Swanbister, Orkney, together with a series of specimens of the species from other localities; and also specimens of O. lusitanicum from various distinct localities; and made some observations on the two supposed species, which, in common with many recent botanical writers, he considered as merely varieties of one species. N. B. Ward, Esq., exhibited on the part of Mr. M. T. Masters a remarkable abnormal stem of a species of Dipsacus; and some observations on the specimens exhibited by Mr. Masters were read. The commencement of a memoir on the botany of Madeira and Teneriffe, by C. J. F. Bunbury, Esq., was read, and from it the following passages are gleaned:—The first thing that strikes a botanist on landing at the capital of Madeira is the thoroughly tropical aspect of the cultivated vegetation. The Banana, the Sugar-cane, the Coffee, the Guava, and the Custard-apple are seen in all the gardens. On the lower slopes of that sunny amphitheatre of mountains, which rises from the Bay of Funchal, most of the productions of the tropics are cultivated with success. The Papaw is frequent in the gardens, and ripens its fruit abundantly. Pandanus odoratissimus grows to a great size, and occasionally ripens fruit. The Rose-apple is a common garden tree, attaining to great size and beauty. In the fields and in the little plots and terraces of soil, which are cultivated with infinite industry amidst the basaltic rocks, we see the plants of the tropics mixed with those of the temperate zone—the Banana, Sugar-cane, Coffee, Orange, and Guava, in company with the Peach, Vine, Fig, and the tall Italian reed, Arundo Donax. Two of the characteristic field crops in Madeira are the Sweet Potato (Batatas edulis, Convolvulus Batatas?), and what is there called the Inhame or Yam, which is an aroideous plant (Caladium nymphæifolium?) with beautiful large leaves of a peculiarly soft and tender green. The culture of the Cactus or Opuntia (O. Tuna, according to Mr. Lowe), has of late been much extended. When, leaving the beautiful gardens of Funchal, search was made for the native vegetation, considerable disappointment was at first experienced, partly owing to the season; for winter has a much more decided effect on the condition of the vegetable world in that island than might have been inferred from its latitude. One striking characteristic of Madeira is the rapidity with which exotic plants become naturalised. This process is going on so fast that it is difficult, and is constantly becoming more difficult to judge what plants are really native and what are introduced. For example, a beautiful cherry-coloured Oxalis (O. speciosa?) from the Cape of Good Hope was introduced into the island by a lady still living there, and is now thoroughly established as a wild plant and very abundant in many places, not only in cultivated fields, but on rough, wild, broken ground amidst the Fir plantations. So also Pelargonium capitatum and Salvia pseudo-coccinea are completely naturalised in various places. The Datura arborea and Fuchsia coccinea are rapidly establishing themselves. It is very probable that many other plants, of which the exotic origin cannot so easily be traced, may in like manner have been introduced into Madeira in modern times, through the agency, either voluntary or accidental, of man. The culture of the Vine hardly extends above 2000 feet; beyond this there is still some cultivation, but it is in scattered patches, no longer so continuous and extensive as to exclude the native vegetation. Of Ferns, the Polystichum angulare and Blechnum boreale are very common in the Chestnut woods of the mountain sides. Asplenium anceps, Asplenium acutum, and Polypodium vulgare frequent on rocks in this as well as in the lower region. Nephrodium affine [Lastræa Filix-mas] and Polystichum falcinellum more local. This last is an interesting plant remarkable for its very rigid texture, and its resemblance at first sight to the leaves of a Zamia. Mr. Bunbury found it sparingly in the woods about the Jardim da Serra, the residence of Mr. Veitch, 2000 feet above the sea, and in a more dwarfed state amidst the crowning rocks of the Arrebentao peak, at an elevation of more than 3800 feet. The beautiful ravine, commonly called the Little Carral, from which the Ribeiro de Joao Gomez descends to Funchal, is attractive to a botanist, and especially to a lover of ferns. Here Woodwardia radicans, Adiantum reniforme, Pteris arguta, Cystopteris fragilis, Athyrium Filix femina, Lastræa elongata, Davallia canariensis, may all be found, with abundance of Lycopodium denticulatum. The fine ravine of the Santa Luzia torrent, at the head of which is a remarkable waterfall, is still more rich in Ferns. Woodwardia radicans, Allantodia [Asplenium] umbrosa, and Pteris arguta grow in most luxuriant beauty about the foot of the waterfall, at an elevation of 2600 feet above the sea. Adiantum reniforme is plentiful on the cliffs that bound the ravine; and A. capillus-veneris, which at Funchal grows close to the actual sea shore, extends even up to the waterfall. In this one ravine, and in one day's excursion, 22 species of Ferns were observed. The Tea tree is cultivated with great success by Mr. Veitch at the Jardim da Serra, and its produce is of excellent flavour. At Funchal it does not succeed. On the highest parts of the southern mountains occur a few Ferns, particularly Gymnogramma Lowei [G. totta], and Blechnum boreale; these two ascend to upwards of 3800 feet. Madeira is famous for its abundance of Ferns, owing to its wild and wooded condition, and its very moist climate. The beautiful Haresfoot Fern (Davallia canariensis), and the Polypodium vulgare, appeared the most generally common throughout the island. The other Ferns enumerated by Mr. Bunbury, with notices of their localities, were the following:—Nothochlæna lanuginosa, Gymnogramma Lowei, G. leptophylla, Acrostichum squamosum, Blechnum boreale, Woodwardia radicans, Pteris aquilina, P. arguta, Cheilanthes fragrans, Adiantum reniforme, A. capillus-veneris, Asplenium palmatum, A. anceps, A. monanthemum, A. marinum, A. canariense, A. lanceolatum, A. acutum, Athyrium Filix-femina, Allantodia umbrosa, Scolopendrium vulgare, Ceterach officinarum, Polystichum falcinellum, P. aculeatum [angulare], Nephrodium molle, N. affine, N. elongatum, N. fœnisecium [the three latter Lastræas], Cystopteris fragilis, Davallia canariensis, Trichomanes speciosum, Hymenophyllum tunbridgense. The Fern Flora of Madeira, according to Mr. Lowe, comprises 40 species, of which the relative distribution in Madeira and the adjacent isles is traced. The author then, at considerable length, records his observations on the lower cryptogamic and the phænogamous plants of the island.

Pomological, *March* 5.—Dr. Davies, of Pershore, in the chair. The chairman furnished a collection of Apples from the orchards of Worcestershire, among which the most remarkable were the Flanders Pippin

and the Queen's Delight, two sorts which are not in general cultivation. The former is a very large variety adapted for kitchen use, and keeps in good condition till April. It possesses a tender flesh, with a delicate and pleasant acidity, and has an agreeable perfume. The latter is a small dessert Apple of very excellent quality, the trees of which are in the last stage of decay; but Dr. Davies intimated that he would furnish the Society with grafts to be distributed among its members. The same gentleman also placed grafts of three varieties of seedling Plums, which he stated to possess superior merits, at the disposal of the Society. The Secretary reported upon specimens of the Melon Apple which were exhibited by Mr. Rivers at a former meeting. This variety has a very high reputation in America, and Mr. Rivers has succeeded in fruiting it in this country. The specimens so produced were found to be of large size and handsome; the flesh tender, crisp, juicy, and vinous, with all the delicacy and perfume of the imported fruit of the Newtown Pippin. From Mr. Smith, of Herefordshire, came a large assortment of Apples from the orchards of that county; and from G. S. Wintle, Esq., was a collection illustrative of the pomology of Gloucestershire. Among them we observed the Carraway Russet in good condition, and a seedling dessert variety raised by Mr. Holbert, of Gloucester. Mr. Lane, of Berkhamstead, exhibited fruits of the New Hawthornden, which were perfectly sound even at this late season, and possessed all the merits of its parent. There were also other specimens of Apples and Pears from the same nurseryman. Mr. Bunyard, of Maidstone, contributed examples of Pears grown in that neighbourhood. Seven new members were elected.

Notices of Books.

Elements of Geometry and Mensuration, with easy Exercises, designed for Schools and Adult Classes. Part II.: Geometry as an Art. By Thomas Lund, B.D. Longmans, 12mo., 2s.

The favourable opinion expressed by us of the first part of this little work deserves to be extended to the second. Mr. Lund has endeavoured to bring practical geometry to the notice of those whose attention is usually confined to Euclid, and to add the scientific principles of geometry to the knowledge of persons who are usually only taught how to apply rules deduced from and depending on them. In this the author appears to us to have been eminently successful. His work will be found especially useful to young men who, feeling a want of knowledge on these subjects, have to supply that want by their own exertions.

Mensuration made easy, or the Decimal System for the Million: with its Application to the daily employments of the Artizan and Mechanic. By Charles Hoare. 3d thousand. Effingham Wilson. 12mo, 1s.; or in cloth, 1s. 6d.

This is a book of rules without the reasons for them, and therefore not one calculated to improve the minds of those for whom it is intended. At the same time, as a book of rules, the work will suit those who, so long as they can do a thing, care little to know the principles upon which they proceed.

Garden Memoranda.

Messrs. Chandler's Nursery, Vauxhall.—The extensive collection of Camellias, for which this nursery has been long and justly celebrated, is now in full bloom, and well worth inspection. Red kinds, as altheæflora, Chandleri, Woodsi, imbricata, elegans, &c., are abundant and fine, and the old Double Whites have flowered well here this year, few of the buds having dropped. Of Carnation-striped varieties Albertus is still one of the best, the next being perhaps Colvilli striata, and the semi-double sort called tricolor is also very pretty. Among newer kinds may be mentioned Marchioness of Exeter, a fine rose, not very double, but never showing the eye; Reine des Fleurs, a beautiful imbricated red; Duchess of Northumberland, white, flaked with pink, and very handsome; americana, a small, delicate pink, with a good round petal; elata, a small but compact carmine; Teutonia, a medium-sized rose, and very constant; and Henri Favre, a small but finely shaped red kind. We may add that, in addition to the treat the Camellias afford, the show-house is at present gay with Hyacinths, Narcissi, purple-striped and other Crocuses, Azaleas, Epacrises, Cinerarias, Cyclamens, and forced shrubs, among which we remarked the pretty white-blossomed slender Deutzia (D. gracilis). This, we need scarcely say, is a most valuable plant for forcing, requiring about the same treatment as Kalmia glauca, and things of that sort. Here and elsewhere out-door plants have suffered considerably from the severity of the winter, but the exact extent of the injury committed is at present unknown.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—No time should be lost in ascertaining whether or not there is a sufficient quantity of suitable plants for the decoration of the conservatory during the summer and autumn. If this is attended to at once very much may yet be done towards making up for any deficiencies which may be discovered, for it is not yet too late to provide multitudes of showy plants for autumn decoration. Young plants of Allamandas, if encouraged with bottom-heat, &c., and stopped occasionally will form nice little bushes in course of the summer, and cuttings of Clerodendrons may be rooted, and made to form nice little flowering plants in a few months, and Torenias, Vincas, and many other soft-wooded stove plants, if kindly treated, soon form useful-sized specimens.

FORCING DEPARTMENT.

Pineries.—Attend carefully to the bottom heat, particularly where this is produced by fermenting materials, as tan, &c., and see that it is not allowed to rise too high, which it is exceedingly apt to do after fresh materials have been added, either during bright weather, or where there are pipes under the bed, where much fire heat is used. It requires some practice and attention to be able to keep the soil in a proper state as regards moisture, but this must be effected at any expense of attention if success is to be insured. Maintain a thoroughly moist atmosphere, but do not push young stock too fast until we may be favoured with more sunshine, when if all is right at the roots there will be no danger of drawing the plants, as would be the case in the present cloudy state of the weather. Avoid allowing water to lodge in the hearts of plants showing fruit, and spare the flowers of those in bloom with the syringe. Pot off or plant out suckers as they can be obtained sufficiently strong, and attend to keeping up a regular succession of plants, which is the surest way of providing for a succession of fruit. Vineries.—See that the houses in which the Vines are not yet started are properly cleaned, the Vines painted with the usual composition of soft soap, sulphur, &c., and everything put into proper working order; also get the rods bent in time to induce the buds to push regularly. Attend to disbudding and stopping, &c., as may be necessary in the succession houses, and see that the inside borders are kept properly moist, giving tepid manure water as may be necessary to effect this, and do not be afraid of giving too much of this to Vines in pots. Be as sparing of fuel as the state of the weather will admit, and husband the sun's influences by shutting up early on the afternoons of bright days; for depend upon it there is no heat so congenial to vegetation as that derived from the sun. Where plants are grown under Vines keep a sharp eye upon these for thrips and spare no pains to keep them clear of this pest, which if once allowed to get upon the Vines will spread with amazing rapidity and soon ruin the foliage. This is not only the most destructive insect with which we have to contend, but it is also the most difficult to extirpate, and should, therefore, be kept under by every possible means. Frost is the only effectual means of eradicating it, but tobacco smoke and a liberal use of the engine will keep it in check and prevent its being injurious. Azaleas are exceedingly subject to it, and many of the varieties can hardly be kept clear of this pest while growing in heat, and if these must be grown in Vineries they must be carefully watched and smoked, or syringed with the mixture recommended in a previous calendar for the destruction of this pest immediately it is perceived, for if it is ever allowed to get established upon the Vines the chances are that it will greatly injure the foliage before it can be eradicated.

FLOWER GARDEN AND SHRUBBERIES.

Sweep and thoroughly clean lawns, and roll them with a heavy roller as often as may be necessary, to render the turf even and firm. This is sometimes, through the pressure of other jobs, put off until dry weather sets in, after which the roller makes comparatively little impression; whereas, if done at once, while the turf is in a soft spongy state, it will be greatly consolidated and improved for the season. If any alterations or planting still remain to be done, every available hand should be concentrated on this work, so as to get it completed as quickly as possible. Planting, unless done soon, will be almost sure to require much attention in watering, and this during the very busiest season of the year, especially in the case of large shrubs or trees, and it is much too common a practice to put off such work until too late in the season. Look over the beds planted with bulbs, and where necessary stir the surface soil, so as to keep it open and friable, and also to give it a fresh, neat appearance. If the stock of bedding plants is still deficient get in cuttings in the most favourable position, and with the least possible loss of time. See to the propagation of Dahlias and Hollyhocks; the latter are now, thanks to the well directed labours of the florists, so greatly improved, that they much surpass the Dahlia for many situations, and ought to be extensively planted in every garden.

HARDY FRUIT AND KITCHEN GARDEN.

Now that we are being favoured with comparatively mild weather, Cauliflowers and Lettuces that have been wintered under glass may be planted out, selecting a sheltered deep rich piece of ground. It is a very good practice in planting-out things that are at all tender at this uncertain season to throw up the ground in good strong ridges running east and west, planting on the south side of the ridge. The plants are thus sheltered from the north winds and fully exposed to the sun. Peas, &c., that have been raised under glass, if properly inured to the weather, should be planted out at once, giving them the most favourable situation at command, and it is a very good practice to shelter them for some time after planting out, by placing some branches of Spruce Fir, or any other suitable evergreen along the lines so as to break the wind, &c. Take advantage of dry days to stir the surface of the ground among growing crops, and to prevent weeds from making their appearance.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending March 15, 1855, as observed at the Horticultural Gardens.

March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.
Friday 9	20	30.063	29.894	41	27	34.0	39	40	E.
Satur. 10	21	29.838	29.754	40	17	28.5	38	39½	S.E.
Sunday 11	22	29.673	29.374	37	29	33.0	38	39½	W.
Mon.. 12	23	29.018	28.886	46	31	38.5	38½	39½	S.W.
Tues. 13	24	29.522	29.206	49	29	39.0	38½	39½	S.W.
Wed. 14	25	29.634	29.584	45	31	38.0	39	40	S.
Thurs. 15	26	29.793	29.522	46	39	42.5	40	40	S.E.
Average.		29.648	29.461	43.4	29.0	36.2	38.7	39.6	

March 9—Frosty; snow-flakes occasionally; overcast.
— 10—Snow an inch deep; snowing; sharp frost at night.
— 11—Snow in the night nearly two inches deep; cloudy, overcast.
— 12—Cloudy; rain; overcast at night.
— 13—Fine throughout; overcast.
— 14—Fine; cloudy; slight rain; overcast.
— 15—Fine; cloudy; rain at night.
Mean temperature of the week 6 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 29 years, for the ensuing week, ending March 21, inc.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 18	49.6	33.2	41.4	6	0.19 in.	3	—	1	1	3	—	—	—
Mon. 19	50.5	33.3	41.9	8	0.33	3	—	6	—	—	—	—	—
Tues. 20	51.4	33.8	42.6	11	0.36	1	—	4	1	—	—	—	—
Wed. 21	51.7	34.3	43.0	13	0.21	6	—	1	3	4	—	—	—
Thurs. 22	50.1	36.0	43.0	14	0.44	1	2	3	2	5	—	—	—
Friday 23	50.5	34.4	42.4	14	0.60	5	2	1	1	—	—	—	—
Satur. 24	49.9	31.1	40.5	16	0.11	—	—	3	—	4	3	1	—

The highest temperature during the above period occurred on the [illegible] and 20th, 1836—therm. 69 deg.; and the lowest on the 20th, 1[illegible]—therm. 16 deg.

Notices to Correspondents.

Diseases: *W M.* Had your plants been exposed, we should have said that they were frost-bitten, for it is frequently the case only of evergreen leaves that are affected. But your account is not consistent with such a notion. Neither is the fault, as it appears, in the soil. Many similar affections arise from some deficiency of ventilation, or from the miasma of noxious matter for which there is no sufficient outlet. Are you sure that there is no latent evil of this sort. The vital powers of your plants are evidently too low, and perhaps the judicious application of some stimulant might remedy the mischief, provided the ventilation be perfect. *M. J. B.*

Footmarks in Snow: *R.* Prof. Owen has distinctly shown that the mysterious tracks seen in Devonshire are merely those of the plantigrade hind-foot of a badger; having the five short claws in front, and the rounded heel behind, which latter has been mistaken for a hoof! and the tracks consequently have, in most instances, been traced backwards, which bothers the observer. The badger climbs well, both walls and sheds: he is a harmless nocturnal beast, very active, and having a great range of prowl when roused by unusually long frost out of his winter repose. You may have badgers in your vicinity a long time before you are aware of them, until their nocturnal rambles are made manifest on snow. The long and large hind-foot, in walking, usually obliterates the impression of the corresponding fore-foot, and so leaves a track as of some mysterious hoofed biped. Its tail is too short to make a track, as an otter's would. A question of this nature hardly comes within the subjects of this journal; but we answer your question for the sake of showing you that there is no necessity to have recourse to the unknown in explaining appearances which scientific observers like our eminent comparative anatomist have no difficulty in referring to simple natural causes.

Gorgonias: *W. Smithson.* These are corticiferous Polypes, therefore animals, not plants, and we have nothing to do with them.

Grass Seeds: *J M Caledonia.* It is very difficult to say. We advise you to state your case to Messrs. Lawson and Co. of Edinburgh, and to take their advice. You cannot have better. Transplant your evergreens in September, not in April or any other time in the spring.

Late Correspondents: *R S G.* We are sorry to disappoint you, but it is out of our power to answer inquiries which do not reach us till we are about to go to press.

Monstrosities: *J J M.* Very much obliged; but such cases are by no means uncommon. You will find a similar malformation figured at p. 669 of our volume for 1848. We do not know who wrote the treatise you speak of.

Mulberry: *E B S.* The fruit of the Mulberry is the ripened state of an inflorescence; that of the Strawberry and Raspberry is the ripened pistil of a single flower. The other part of your question is unintelligible. What are fructures?

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*W S.* Helleborus niger, changing its colour.—*Constant Reader.* Oncidium maculatum.—*A D.* C. [illegible]gyne ocellata and C. micrantha.—*Z X.* Oncidium sanguineum; very pretty.—*J B K L.* Your Col is Enteromorpha compressa; but the question is not horticultural, nor does it relate to Rural Œconomy.

Pentstemon: *A H.* P. Cobæa is figured in the "Botanical Magazine," t. 3465. We do not know what Calceolaria violaris is. C. violacea is a greenhouse under-shrub, which will of course live out of doors in summer. Plants from Chilöe are not hardy unless they are annuals.

Rhododendrons: *J H R.* Graft them now and place them in a close frame, and if on a gentle bottom-heat so much the better.

Rubus Arcticus: *A H.* This will fruit, indifferently, in a peat bed; as to R. Chamæmorus we never saw it fruit in this part of the kingdom. If plants can be had it will probably be in Edinburgh.

Stunted Trees: *W H H.* The period for ringing the branches of these, in the way described by Mr. Billington at p. 152, is, we presume, when the bark will run. ‡

Susquehanna root: *J B D.* You are quite right: the whole affair is an ingenious and successful scheme to sell what we can only hope does no harm.

Transplanting Roses: *C B N P.* The best month in the spring for moving them is the present; but the best time of all for the operation is as soon as the leaves have fallen in autumn. ‡

White-fruited Blackberry: *A H.* We have seen this variety of Rubus fruticosus; and it may still exist in some remote place. It is a mere curiosity, and has nothing to do with Needham's white, which is an American not European species.

Misc: *A B C.* Fritillary roots require no particular attention beyond planting them out in the open border in good light garden mould. Any nurseryman can supply them. The best cure for mildew on Roses is dusting the parts affected with sulphur the moment the evil is perceived. ‡—*Northwood.* In a soil like yours Beans will be the best crop to put between your rows of Potatoes, which you anticipate may fail. Let the rows of Potatoes be not less than 2½ feet apart, and the sets 10 inches asunder in the row. Pond mud mixed with lime makes a good top-dressing for a lawn; but it should have been put on in autumn. If applied now no time must be lost and it should be well rolled in afterwards. ‡

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The ORIGIN AND HISTORY OF PERUVIAN GUANO will be found amongst its contents, as well as some excellent advice for detecting the spurious from the genuine article. The proprietors have been favoured with some good sound advice to Farmers on this point by J. C. NESBIT, Esq., the celebrated Agricultural Chemist. They have also reprinted PROFESSOR WAY'S LECTURE on the same subject, from the *Gardeners' Chronicle*, read to the Members of the Royal Agricultural Society.
Descriptive articles relating to Lawes' Patent Superphosphate, Nitrate of Soda, the new Mexican Guano, and other manures will also be found very useful and interesting.
The "SUPERPHOSPHATE CONTROVERSY" in the Plymouth Papers is also given at length. The whole of the letters are reprinted from the *Plymouth Herald.* In this Controversy the "*Gypsum mixers*" are fully exposed by Mr. J. PRIDEAUX, the eminent Agricultural Chemist.
A valuable Paper has also been written expressly for this Edition by Mr. R. ERRINGTON on the "*Cultivation of the Potato,*" as well as an article on "*Liquid Manure*" by the same gentleman.
The Proprietors have also much pleasure in stating that they have been favoured with two Original Articles, by J. B. LAWES, Esq., Rothamsted, the celebrated Agricultural Chemist, on "*The Artificial Manures most suitable for the Growth of Barley*" and "*The Cultivation of one Grain Crop after another on heavy land.*"
There will be a good Engraving of the CEDRUS DEODARA, one of the hardiest and best varieties of Cedars ever introduced, and prices of various Forest Trees, Shrubs, and Fruit Trees.
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THE CONSULTING CHEMIST OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND (Mr. WAY) is about to REMOVE his LABORATORY from 23, Holles Street, to 15, Welbeck Street, Cavendish Square, where, after the 25th of March, all communications and substances for analysis should be addressed. Mr. WAY receives pupils into his laboratory for the study of Agricultural Chemistry.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—Prize Sheets for the CARLISLE MEETING may be had on application to the SECRETARY of the Society, No. 12, Hanover Square, London.

The Agricultural Gazette.

SATURDAY, MARCH 17, 1855.

THE discussion on ITALIAN RYE-GRASS CULTIVATION before the London Farmers' Club last week terminated in the adoption of a resolution which, however true in itself, was not, we agree with a writer in the *Mark Lane Express*, borne out by the evidence which was on that occasion laid before the meeting.

It may very properly be the opinion of that Club that "on most farms a portion of land sown with Italian Rye-grass, especially if irrigated in the manner of the Ayrshire farms, would in many ways be very advantageous to

the farmer, from the great amount of the produce and the easy and cheap mode of obtaining it;" but certainly, however satisfactorily the abundance and facility of the produce which may in this way be ensured was proved, no evidence was adduced in reference to its cheapness. We nevertheless believe in that as much as in the other; and if the weak point in the opening address be, as the *Mark Lane Express* asserts, its non-production of evidence on that point, this is, we believe, a weakness merely in the advocacy, not in the cause advocated. It was, we think, however, a sound discretion which led the discussion exclusively to the consideration of the productiveness of the crop. If that be proved, it becomes well worth the while of any one to inquire into the means by which it can be ensured. And though Mr. Telfer's experience, or that of Messrs. Kennedy and Ralston had been given in full detail, no one would have risked a large expenditure with the view of treading in their steps without inquiring for himself into the accuracy of the statement made, and the possibility, under altered times, &c., of verifying it elsewhere.

The speakers who followed Mr. Morton, in discussing the merits of the Italian Rye-grass, referred especially to the exhausting character of the crop and its watery character as food. On both points we believe that much misconception prevails. Mr. Denton, who referred to the unsatisfactory character of a glass full of froth to a thirsty man, seemed to think he had established a parallel case in placing Italian Rye-grass before a hungry animal, because it contained so much as 75 per cent. of water: but 75 per cent. of water is a remarkably small proportion in green food, as the analyses of Turnips, Mangold Wurzel, Clover, &c., prove; and it is needless to quote such illustrations, seeing that Mr. Mechi fairly closed discussion on that point by recalling to the recollection that there are 75 per cent. of water in a beefsteak! The succulence of Italian Rye-grass entirely depends upon its age. At the period when it is fit for hay-making it is not less substantial than other Grasses, and it excels them all in the palatable character which it retains up to a later stage of growth than is done by any other plant.

The exhausting character which it possesses is another feature in its character charged against it: and justly so. But this is a feature which belongs to it not as Italian Rye-grass, but as a productive crop. The distinction between scourging and ameliorating crops no longer exists, according to Mr. Nisbet, for it is possible to grow any crop on any land by the application of fitting manures; nevertheless, it is we believe the case, that after a heavy cutting of Italian Rye-grass the succeeding Wheat crop will be less luxuriant than it will be after Clover. The heavier growth of the former crop has not been obtained without expense to the soil—it would be very extraordinary if it had. Suppose that of two kinds of Turnip one is capable of a more thorough use of the fertility of the land than another, its greater consequent produce must more perfectly exhaust the soil, and the succeeding crop will suffer for it; but it is the better Turnip of the two for all that. Exhausting crops, in fact, are what we want. It is the very art of the farmer to convert the fertilising matter of his soil into marketable matters, such as milk, or grain, or meat; the more perfectly any agency does this the better will it serve his purpose. It must depend upon himself to fill the land with the raw material of his crops, and it depends upon the due selection of these crops to extract it all in the more profitable forms in which, as vegetable or animal substance, it exists. The Italian Rye-grass is one of the most thoroughly exhausting—one of the most voracious plants we can grow; and in that its very merit lies. If consumed upon the land, of course it so far reproduces the material out of which it grew; if carried off the land, of course it exhausts the farm as well as the mere field from which it has been taken. In either case it cannot be made to yield the enormous crops which Mr. Telfer and others obtain, except by doses of manure which are quite as remarkable in the history of agriculture as is the extraordinary produce in which they result.

Among the speakers who referred to the value of the crop were Mr. Baker, of Writtle, who related an experience of it of some fifteen years' standing; Mr. Sidney, who referred to its position in Italy under the irrigation system, both by sewage and by rain water, around Milan, where seven cuttings, four in winter for consumption green, and three for hay in summer, are obtained; Mr. Moore, who referred at length to Mr. Dickenson's experience at Willesden; Mr. Bradshaw, who spoke with favour of its use with Clover in ordinary rotation in a course of cropping; Mr. Williams, who confirmed what had been said on the liability to damage from the choice of inferior seed; and Mr. Mechi, who adduced his own experience, now generally known. The resolution we have already adverted to; it will, we believe, result in a larger extension of the crop than ever hitherto, and in an extended use of the irrigation system adopted at Tiptree and elsewhere.

[We add to the above that the related subject of Town Sewage is again to be discussed before the Society of Arts next Monday evening; and that when it is closed we shall draw attention to the results determined by it.]

According to official tables collected by M. Mounier in his work on the Agriculture of France the number of mules in the south-east division was in 1846 216,394, being in round numbers somewhat less than one-third below the amount of horses; and in the north-west the number of mules was 106,128, the horses being more than three times as numerous.

We know so little comparatively of Mule breeding in this country that we are tempted to give the substance of a letter addressed by the late M. Bujault to the directors of the Haras of Saint Maixent, in which he bitterly complains of the new government system of improving the breed of horses, because it directly led to the extinction of the old description of mare that used to produce the most valuable mules in France.

The district in question is that surrounding Poitiers, where about twelve millions of francs were annually realised by the export of these animals to Spain, Italy, and various parts of the central and southern parts of France.

Our author is an enthusiastic admirer of the mule, which he distinguishes as "admirable" and "superb," indispensable in the south of Europe, while the horse is only "handsome;" even the Arabian steed that bears the robber of the desert on its back and does not *work* is, in Bujault's estimation, "a hundred-thousand times" less valuable than the old Poitevin horses of ancient and honoured race, created for the soil and improved by extreme attention, from which had sprung the noble mule of Poitou. The author makes some preliminary remarks as to the influence of climate, soil, and pasturage on animals, and illustrates his argument by what we must accept as a fact—that on a large area of the locality around him several young horses go blind, and he attributes this to the water which they drink. The sour herbage of the Bocage, though suitable to the temperate, hardy and enduring mule, he asserts to be quite unsuited to the sort of cavalry horses which the Government introduced into that locality. While he does not affect to deny the possibility of improving the native breed of horses, as the Germans and English have done, he hints that the improvers must first possess such means and advantages as German and English landowners have at their command. Some of ours are thus flatteringly described:—"The English nobility, who possess a great proportion of the soil, have a mania for horses. I have before me an immense list, containing the names of English and Irish lords, who have from 150 to 1300 horses in their stables [!!] This is astounding. They will give 100,000 francs for a horse, and freight a vessel to Arabia for sires and mares." Maniacs and millionnaires he indeed finally designates them, but yet all powerful in effecting their object. His argument against the usefulness of the Haras in Poitou is in effect this—the mare of the old and true type for producing first-rate mules has certain points of conformation, viz., short body, long ribs, wide haunches, wide and low hocks, fleshy thighs, wide hoofs, heels well turned out and hairy; in short, a thickset animal of capacious body is the right mould for a fine mule. Now the directors of the Government studs would certainly not approve of such a piece of frame-work for moulding colts and fillies, though, according to the Poitevin farmers, it is for mule bearing the perfection of symmetry. M. Bujault rather dogmatically asserts that large mares with long legs, or lengthy and slight body and elevated back are generally barren. He affirms that of mares which have been served by the ass only two out of three become pregnant, and of these several cast the fœtus from the second to the seventh month, which he attributes to internal incapacity for mule bearing. Five out of six mares served by the horse will produce foals; it would naturally be inferred thence, that horse breeding would be more remunerative, but, on the contrary, we are here informed that the male progeny of the horse and mare (when emasculated) is of so little worth in that hot and relaxing climate, that the owner of a brood mare would rather that she missed foal than have a colt produced: the high price obtainable for one of the rare Poitevin high-caste mules renders the breeding of them—though mares be not prolific of them — more remunerative. Our author informs us that the males of the mule kind, also, in warm climates, though larger and handsomer than the females, are easily enervated, less capable of hard labour, and subject to a peculiar and wasting urinary disease, so that they are 25 per cent less in value. Annual importations into Poitou of some hundreds of mule-breeding mares from Bas Poitou and Britanny, first tended to the deterioration of the genuine breed of mules, and the social revolution which turned the heads of even the slow-going people of western France, stimulated the farmers there to rear horses (through the intervention of the Haras) that could go at a fast pace with diligences, &c. Thus the celebrated Poitevin mule was superseded by the light-bodied and fast stepping horse brought into existence for the sake of its speed. The strong, heavy, and somewhat peculiarly formed mare which used to be valued for rearing mules is out of fashion, and our author mourns thus:—"Inspectors and directors of Haras are sent to us—what their powers and privileges may be, I know not—they are, however, reformers, and arbiters of our horseflesh; they made us take our stallions from station to station, and have ruined choice stock for mule breeding. Nothing will satisfy them but huge brutes with long necks, long bodies, and long legs—racers! These are distinguished by privileges; every mare that brings into the world such an animal as I have described is honoured, and receives *la paie*, and is allowed to compete for the Government prizes if she have borne offspring to one of the herring-gutted* horses of the Haras." It might have been expected that the old gentleman who has so enthusiastically traced all the physical conditions of the mare—the usual maternal parent of the mule (the she-ass and horse engendering a very diminutive and inferior sort)—would have honoured the paternal donkey with some notice. But we have no information from him as to the Poitevin Jackasses of high degree, and are left to conjecture whether any of them equal those of Kentucky, which occasionally stand 15, and even 16 hands high, and are worth enormous prices. As he is silent on this side of the family tree, we may infer that the true aristocratic bearing of the Poitevin mule is on the mother's side.

The demand for mules by our united armies in the east is now considerable, and the south of France and Spain will furnish the supplies needed. The "superb" breed of Poitevin—now fast diminishing, it would seem—is too costly to fall into the hands of jobbers for the commissariat service. The itinerant dealers have been in the habit of paying for the prime specimens about 500 francs each, at five years old, to the farmers of La Vendée and Deux Sèvres, who buy them when yearlings, in the seven or eight communes of Poitou where they are bred, and work them with careful tending until they reach the full age for profitable labour. *D.*

A LADY-DAY INVENTORY, 1844.

It included live stock, implements, tillage, and the outgoing tenant's rights, which consist of the unexhausted cultivation, in preparing and manuring 86 acres of land which produced a crop of roots last year; the dung made from the consumption of those roots and the Wheat straw since harvest; the manure dropped on 34 acres of Clover, which were pastured by sheep during the summer; and the farm produce of last year's crop which remained unconsumed, valued by —— on the part of the incoming tenant, and by —— on the part of the outgoing tenant.

	£	s.	d.	£	s.	d.
No. 1.—*Live Stock.*—To 5 horses, 2 cows, 118 sheep, 15 pigs, and 33 fowls ...	336	4	0			
No. 2.—*Implements.*—To harness for 4 horses, 3 ploughs, 3 carts, 3 pair of harrows, 1 cultivator, 1 Finlayson's harrow, Turnip drill, 2 rollers, 38 corn staddles, &c., and household furniture ...	235	4	0	571	8	0
No. 3.—*Tillage, or acts of Husbandry.*—To 233½ acres once ploughed, 338 acres harrowed, 128 acres drilled, 33 acres cultivated; 175½ bushels of Wheat, and 37½ acres of Clover seeds...				204	11	[illegible]
No. 4.—*Tenant's Rights.*—To 35 tons of Carrots, 70 tons of Mangold Wurzel, 40 tons of straw, the unconsumed portion of last year's crop	108	15	0			
No. 5.—To unexhausted cultivation in labour and manure in producing 86 acres of roots, the crop of 1843	314	12	4			
No. 6.—*Manure.*—To the manure dropped in consuming 34 acres of Clover crop, 1843, and manure left in the yards, produce of the consumption of 86 acres of roots by stock, and the Wheat straw	374	17	0	798	4	4
				£1574	4	[illegible]

The first and second entry of this inventory (the live stock and implements) are never reckoned to the incoming tenant except by special agreement.

The third entry is a customary valuation made to the incoming tenant by the arbitrators of the two tenants mutually. The fourth, fifth, and sixth entries are never taken any account of, the landlord generally claiming it as belonging to the estate and giving them to his incoming tenant at the expense of the retiring tenant. There is

* We have taken a liberty with the original word, *[illegible]* which we think gives the exact meaning of the indignant expostulator.

however, a trifle given to the outgoing tenant for stacking up the straw and for squaring of the manure-heaps, but this seldom amounts to 5*l.* There is no instance where the outgoing tenant has had any compensation for the unexhausted cultivation and manure left in the soil during the previous year's culture, when the outgoing tenant carted off the Turnip and other root crops. So that in this case the outgoing tenant has been paid 500*l.* as Tenant's rights on the farm of 260 acres, besides live and dead stock, amounting to 570*l.*

By this inventory justice has been done to the outgoing tenant, and therefore the whole of the land has been left in a good state of cultivation, for which the incoming tenant has paid 1002*l.* 16*s.*, and the incoming tenant has received value for this sum in the large crops of Wheat the land produced the first year, and in the large quantity of manure which he had on the farm, which was as much as was required for all his root crops the first year, nor were there any extra expenses for clearing the land in preparing it for his fallow crops.

It must be evident that if the outgoing tenant did not receive the value of all his labour and the produce of his last year's crop, whether it be in a raw state, or for the manure produced from the last year's crop, he would be careless about it, and might greatly injure the land in consuming the crops on it, and of course he would not be careful in what state he left the land to the next tenant. *J. M.*

RAPE CAKE AS FOOD FOR STOCK.

Since the advance in price of Linseed-cake from 6*l* to 12*l.* and more per ton, we used, in the first place, Linseed and Rape-cake mixed in equal proportions; and for the last two years we have used Rape-cake alone. The analyses of Linseed and Rape-cake indicated their equal value for agricultural purposes, having regard to their feeding and manuring capabilities; the only difficulty therefore which presented itself was that Rape-cake was much less palateable to animals than the Linseed-cake. In the raw state we got over this difficulty by a few days' perseverance, and we found the sheep do perfectly well on it, given broken in their troughs in the field. When we used it dissolved in water to pour over chaff in a cooked state for bullocks, the same cake varied very much. Sometimes the dissolved cake on being poured over the chaff was offensive to the smell, and affected the eyes so much that the man could hardly continue the admixture, and the animals rejected the food; at other times nothing of the kind existed, and the mixture was eaten freely. This was very perplexing for a time, but we ultimately discovered this depended entirely upon the temperature of the water into which the cake was put; that when the cake was put into boiling water the evils experienced were completely cured; and that when it was dissolved in water under that temperature they existed in full force.

As Rape-cake has of late been so much used for feeding, I think it may be useful to communicate this fact to your readers. I thought it desirable to ascertain the cause of this phenomenon, as the solution of it might elicit further information as to the composition of Rape-cake, and I therefore mentioned the circumstance to my friend Dr. Voelcker, the skilful chemical professor at our Agricultural College, who wrote to me as follows: "I believe the pungent principle in Rape-cake arises from the presence of Mustard seed, which is often contained in considerable quantities in foreign Rape-cake. Mustard and Rape belong to the same family of plants; and in Germany, at least, I am sorry to say our Rape fields are often very foul with Mustard. That boiling water prevents the pungent, acrid smell, is fully explained by the chemistry of Mustard seed. That seed does not contain any volatile or essential oil of Mustard, the cause of the pungency of Mustard paste; but it does contain two peculiar principles which, in contact with cold or tepid water, generate essential oil of Mustard. The one is called myronic acid by chemists, the other myron. The latter is a substance-like albumen, and, when moistened with cold water, acts as a kind of ferment upon myronic acid, producing the acrid oil of Mustard, whereas boiling water coagulates myron like albumen. In a coagulated state myron loses its efficacy as a ferment, and consequently no pungent or acrid smell is produced when cake containing Mustard is mixed in boiling water. I am not aware that clean Rape-seed contains analogous principles to those in Mustard; but as this is possible, I shall be glad if you will send me a few ounces of decidedly clean Rape seed. A few experiments with such Rape-seed will soon tell me if it contains substances allied to myronic acid and myron in Mustard seed; or if, that which I expect to be the case, your Rape-cake is made from seed containing a mixture of Mustard seed.

"However, the practical result of mixing Rape-cake with boiling water deserves to be generally known, for even pure Mustard cake will lose its poisonous character; or, more correctly speaking, its poisonous qualities will not be called into existence, if it be mixed with water at the temperature of 112° Fahrenheit.

"An analogous case is presented to us in bitter Almonds. There the albuminous substance which acts as a ferment in contact with water is called emulsin. Besides this emulsin, bitter Almonds contain a beautiful crystalline substance called amygdalin. Neither the emulsin nor the amygdalin are poisonous; neither have they any smell; but when both are mixed together in cold water, the emulsin resolves the amygdalin into volatile or essential oil of bitter Almonds, and into hydrocyanic or Prussic acid. Digested with cold water, bitter Almonds gradually generate oil of bitter Almonds and Prussic acid. Digested with boiling water, or heated by themselves to the temperature of 212° Fahrenheit, the emulsin in Almonds coagulates, and no oil of bitter Almonds or Prussic acid is formed."

On the receipt of this highly interesting elucidation of the practical result we had arrived at, I sent to Dr. Voelcker some perfectly clean Rape seed, for the purpose of the experiment proposed in his letter; and I have since received another letter from him, accompanied by a bottle containing some of this seed crushed and digested in cold water for 24 hours. He writes, "The experiments which I have made with the Rape seed you kindly forwarded to me fully confirm my impression, that the strong smell observed when Rape-cake is moistened with cold water is due to the admixture of Mustard seed. I find that Rape seed does not contain any substances analogous to those which in Mustard seed produce the pungent volatile oil of Mustard. Neither cold nor boiling water develop, in pure Rape seed, any pungent principle. The fluid obtained by distilling crushed Rape seed with water faintly smells like the crushed seed, as you will perceive by the bottle I send you. Boiling, tepid, or cold water have the same effect on pure Rape seed. It follows from these experiments that Rape-cake cannot act injuriously, when given to animals, by reason of any irritating substance which it contains, provided it has been made from pure seed, and not, as is frequently the case, largely mixed with Mustard seed."

I have great pleasure in forwarding to you these important explanations from so distinguished a chemist as Dr. Voelcker, as of great practical use to our agricultural brethren, affording, as they do, a very simple mode of distinguishing pure from impure Rape-cake, and confirming, by the aid of science, the mode suggested of rendering the latter comparatively innoxious. *Charles Lawrence, Cirencester, March 3.*

Home Correspondence.

Agricultural Society.—It would be very gratifying to many supporters of the Agricultural Society of England, and a great boon to practical agriculturists, if prizes were given for animals in a proper saleable condition for the butcher, as well as profitable to the breeder and feeder. During the infant days of a society it may be difficult to check the fancy and fashion of the day; opinions, however numerous, must run riot for a time, in order that good may eventually arise from the extravagant flights of its first promoters. Experience and the progress of science will, however, rescue a valuable institution from its youthful mistakes, and raise its character for usefulness. Awarding prizes for quadrupeds whose existence must be a burden to them from the immense masses of fat hanging from their sides has to a certain extent been discontinued, but to give the farmer the full advantage of this change, it is suggested that prizes should be given for various animals whose power of accumulating wholesome meat on their carcases could be proved by reference to age and a Dr. and Cr. account of what has been consumed by each beast during the period of fatting. Persons who are in the habit of supplying beef to the market know what may be done with animals of an inferior description if the owner is willing to open his purse-strings widely. Too much care and attention cannot be paid to crossing to obtain constitution and symmetry, as when both these are apparent in an animal, it may be presumed he will prove a good feeder without pampering, weigh heavy in the scales, and show well on the spit. At all exhibitions "holiday folk" form a considerable item amongst the spectators, who, although they may stare with wonder at an over-fed brute, have their pity rather than their admiration excited for the uncomfortable state the animal must be in, puffing and blowing as if its heart would break. The interest excited throughout the United Kingdom by the meetings of the Royal Agricultural Society is immense, and would be increased fourfold could farmers be sure of having the feeding properties of animals fully tested on the broad £ *s. d.* basis. After all, there is no conviction comes so home as that of the pocket. Eloquence on the back, ribs, and loins of an ox is thrown away in comparison with the weight of a plain statement of the quantity, quality, and cost of the food required to bring the object of admiration to a condition fit for the shambles and the appetite of a healthy man. It is not impossible that an amateur when viewing the stock of a celebrated breeder may have inquired the expense of feeding a beast whose dimensions appeared extraordinary, and may have received for answer, "He is for the next show; I cannot tell what I have spent on him. I expect the prize." *Falcon.*

Cattle Food.—The mode which I have adopted for years is the following. I prepare a compound, 10 lbs. of which are Oat straw cut into chaff, 3 lbs. of Linseed meal, 5 lbs. of Beans and Oats and bran ground, and 10 lbs. of water. This compound is made in the following manner: 3 lbs. of Linseed meal is boiled in 10 lbs. of water for about 15 minutes, and 10 lbs. of chaff being spread out on the floor the liquid is spread over the chaff and mixed together; the straw, the Beans, Oatmeal, and bran are sifted over the chaff, and the whole well mixed together. It is rammed hard down, so as to let the whole be intimately mixed and well saturated. This is the quantity given to two beasts night and morning. The compound is made at night and in the morning; that which is made at night is given first thing in the morning, and what is made in the morning is given about 2 o'clock. So that the times of feeding are—first the compound, say at 6 o'clock; at 8 o'clock they get as many cut Swedes as they can eat; about 2 o'clock they get the remainder of the compound, and at 6 o'clock at night they get as many Swedes as they can eat. They eat daily about 1 cwt. of Swedes, 3 lbs. of Linseed, 5 lbs. of Beans, Oats, and bran, and 10 lbs. of straw cut with chaff. They are regularly littered afresh during the time they are eating their breakfast, and at supper time the litter is again stirred up. As they are in boxes they are never allowed out oftener than once in 8 or 10 weeks; but their litter keeps them perfectly dry and sweet. The Beans, Oats, bran, and Linseed I reckon to be of more value than the same money value of oilcake, and the straw checks the tendency and saves laxativeness produced by roots. *J. M.*

Draining v. *Trenching.*—Let "Leisurely" trench his rushy ground say 20 inches deep. If he cannot afford to destroy the turf he may pare it off, and plant it or lay it down as the trenching proceeds. In numerous instances where rushes grow vigorously the land only requires culture to make it produce abundant crops of our best Grasses without draining; and in the instance in question the water is not stagnant, but finds its way off at the gravel stratum. Two-thirds of the turf will be sufficient to lay down again; the remainder may and ought to be left near the surface, chopped into shreds, which would afford food for the superincumbent turf. My firm opinion is that had the money which has been expended in draining in numerous instances been spent in the proper culture of 18 inches of the surface the results would have been more satisfactory. *Monco.* [We do not agree with our correspondent.]

To the Growers of Hops.—Perhaps few plants have been longer or more forced by cultivation than the Hop; the usual consequences have been of late yearly exhibited, and progressing in intensity of operation—an increasing inability to resist disease. It has been the same with our long cultivated fruit trees; and recent observation has shown, that by reverting to the native stock a healthier plant has been obtained, resisting a greater severity of inclement weather. Why not pursue the same plan with the Hop? The probability of success (if the experiment have not yet been judiciously tried) seems almost certain, and, if so, the consequent value of it is incalculable. In Mr. Ruegg's recent prize report of Dorsetshire farming, he says there is a great prevalence of indigenous Hops in that county; that the late Mr. Mowlam cultivated them, it is thought profitably until his death, and that they were quite free from mildew, lice, &c. *T. Landor, Burton, Feb.* 12.

Lambing Season.—At this period it may not be useless to direct the attention of flock-masters to the simple means by which the evil effects resulting from unusually hard or protracted labour may be in many instances averted. In all cases where much "handling" has been required during parturition, where "draining" supervenes, or in cases of abortion, the administration of the following dose has been found very beneficial:—Two ounces of Epsom salts, 2 drachms of ginger, and 2 drachms of laudanum. Should inflammation ensue, resort may be had to bleeding; but as a rule such patients require all the strength which Nature furnishes. Unless the unfavourable symptoms disappear in the course of 24 hours, repeat the dose. It is from experience that I recommend this mode of treatment, as I feel fully assured that in the two past lambing seasons it has been—in connection with careful nursing—the means of saving many ewes, which under the old methods would have been lost. I send you this with the simple desire that what I have found advantageous in my own experience may be placed at the disposal of other breeders. *T. R. Ellis, Oxnead Hall, Norfolk.*

The Plough.—In the plough we have, no doubt, a very efficient instrument for turning the ground, but will it not admit of a question, except in the breaking up of old leas, whether turning of the ground is a necessary operation; whether the use of the grubber, which has been lately advocated, with other implements for separating a portion of the upper soil from the lower, and for tearing the portion so separated to pieces, may not be found to give as effectual cultivation at far less cost of labour? By the plough, with the action of a wedge, a slice of clay is separated, raised, displaced, and turned over, and, all these operations become necessary for the mere purpose of exposing the under part of this slice to atmospheric action; were it not for this the separation, the under and side cutting of the slice, would be all sufficient. But while a considerable amount of force is necessary to perform these operations by the upper side of the wedge, as much more is lost in the pressure of the lower side of the wedge on the unmoved soil below, and on the land side, to much detriment of the land, especially where clay predominates. I admit that the slice so turned is easily operated on by the harrow, and that in the interstices beneath the sods a small quantity of air is locked up, but this is soon deprived of all its fertilising properties; and the working of grubbers, &c., will, I should think, be more effectually beneficial on the unturned surface than that of the harrow on the turned slices, for the action of the harrow, while it tears the surface, closes it and excludes, to a certain extent, the air, while that of the grubber is to open it and render it pervious to the air, and its tearing action, though it may be less than the harrow on the surface, is much greater in the depth. But we bury weeds by the turning operation of the plough; granted—but if we do, we bury indiscriminately those that rot and decay when so burned and those that thrive, and are rendered more difficult to extirpate afterwards from this covering of them; we obtain a clean surface, which looks well to the eye for a

while, but we destroy no weeds that would not be as effectually destroyed if dragged to the top, and we promote and encourage the growth of many which, if brought to the top, would have dried up and withered by the frosts of winter or the sunbeams of summer, if we did not choose to take the trouble of raking them off. It is also true that in turning the sod we expose a fresh surface to atmospheric action, but is atmospheric action limited to the surface?—will it not equally prevail, and be as powerful in every part of the soil which is opened to its influence? Will it not follow the tines of the grubber? Is it even known to what depth it will penetrate? It is probable it does to some extent into the subsoil; it certainly does into unstirred ground, or lands exhausted by tillage could not recover fertility by being left unstirred in Grass. If this is true surely the turning of the land is unnecessary and its cost would be much more profitably expended in such operations as would go deeper, and more frequently might be applied from their inexpensiveness. Would not a share and coulter with two grubbing tines in lieu of the sole, by the application of the same force that is now used in ordinary ploughing go much deeper, while there would be no pressure on the under soil, which, indeed, would be left as loose as after the spade. *J. M. Goodiff.*

Drainage.—If "Leisurely" has been an attentive reader of the *Agricultural Gazette* since 1853, he will remember seeing in its columns the writer's method of drying a field in every respect analogous to the one he describes. The plan adopted was boring holes from bottoms of the parallel drains into the stratum of gravel every 20 yards or so the whole length of the drain. Down these holes 1-inch pipes were put into the gravel; the water rose and was carried away by the pipes in the drains. In the above case the drains were 3½ feet deep, 30 feet apart, and had only 3 inches of fall in every 100 feet. The making of the holes and putting in of the pipes do not cost ½*d.* per hole, and one year's trial leaves no doubt as to the efficiency of the work. *J. R.*

——From another correspondent we have received the following:—Your correspondent "Leisurely" describes a rushy pasture which, with a total fall of 5½ feet, he has commenced to drain at only 30 inches deep. Why not make use of the total fall? At the lower end of the field where the brook leaves his boundary, it would give to a main drain having its outlet there a depth of 5½ feet, sufficient for any purpose, even supposing the field was of such a length as to make it necessary that the depth at the commencement of the main should be only 30 inches; why the whole field should be drained at this depth I cannot exactly conceive. If the gravel is springy from upland sources, tapping it, as you recommend, of course would remove it; but would it do so in all cases with "the bottoms of the brooks in the district" on the same or perhaps higher levels, and on the same bed of gravel, to feed these drains? In such a case a syphon would be a more correct name for such than a drain, I opine. *Agricola.*

Peas.—It may be useful to some of your readers to know that common white boiling Peas sown at this time in any field prepared for Oats on one ploughing and harrowing in, in fact treated precisely as Oats are, will come in very seasonably for the table, if picked green in July and August, and if not quite as delicate as the garden kinds, are very excellent eating, at any rate make extremely good green Pea soup, forming a very efficient auxiliary crop to the garden forces. As they ripen at different times they will last for six weeks. A third of an acre would supply a family of 20, and those not picked green may be left to ripen for the pigs till harvest time. *Crede Experto.*

Labourers and Masters.—In advocating the cause of the labourer, the interests of the upper and middle classes are not neglected; indeed they are all three so inseparably mixed up together that what is beneficial to one must either, directly or indirectly, affect the others. The capital of the rich would be useless without the assistance of the bone and sinew of the poor. The exertions of the peasant and mechanic would comparatively be thrown away without being backed up by the wealth of the merchant, agriculturist, and manufacturer. We are all equal in the sight of God; each will receive his reward hereafter according to the use he has made of the talent intrusted to his care. There equality terminates in this world. In the distribution of riches, a greater proportion may seem to fall to the lot of men whose circumstances are already independant, and who are free from the pressing wants to which many of their neighbours are liable. Take a large manufacturer who has amassed a fortune sufficient to enable him to retire from business and enjoy (if there can be enjoyment in idleness) the fruits of his speculations. He has a right to do so, but what would be the immediate consequence to those who envy him his daily profits. The sudden stoppage of the ponderous steam-engine would throw a vast amount of labour on the market, and cause much misery amongst the workpeople. To grudge capitalists, whether they employ their money in growing Wheat or spinning cotton, the lion's share of the proceeds, after paying expenses, is both unjust and unfair—what is to compensate for risk?—nevertheless it is the duty of men who reap such a plentiful harvest not to forget those by whose aid they become rich. The neglect of their wants as human beings and Christians entails a fearful responsibility on their employers. If an equal division of property could be made amongst high and low—how long would it last? The Paradise (of fools) would continue long enough for talent and energy, under whatever garb it might be, to run ahead of sloth and indolence, when a balance would be struck and classes again formed, after, no doubt, immense confusion, fighting, and squabbling—the loss of enormous wealth and reputation as a country in the great family of nations during the halcyon days of equality. The stronger the bond of union between master and man, the longer will this country continue to flourish; but it must be on fair grounds, not starving the labourer on the scantiest wages, and casting him off on the slightest pretext—deal with him honestly, and with a generous hand, recollecting he is a man. There will then be some prospect of the farm-servant being raised from the degraded position he now occupies—vegetating—not living. *Falcon.*

Ayrshire Cows.—In reply to "Clericus's" inquiry, I beg to say I would recommend him to apply direct to some breeder in Ayrshire for his cows, and if at all convenient to him, to go over and make his own selection; his advantage would then be two-fold, viz, a certainty of getting pure bred animals, and, secondly, making his own bargain on the spot. If your correspondent will drop a line to either of the following gentlemen, viz., Mr. Robert Kirkwood, of Highlongmuirs, Kilmaurs, or Mr. George Cowan, Wheating, Kilmaurs, both near Kilmarnock, I doubt not he will get supplied with what he requires by either one or both of them, or if not they will refer him to some of their friends who can do so. The first named gentleman was a successful competitor at the Highland Society's show last year at Berwick with this breed of cattle, carrying off several prizes; and I am sure if your correspondent pays them a visit—as I and a friend did last autumn—he will be pleased with their stock, and I think not less so with the kind reception he will meet with. *J. L., Lofthouse, March* 5.

Duchess Cow.—I consider Mr. Wood's information on the Duchess family of short-horns of rather slender description, inasmuch as though Mr. Bates "loved his cattle for their own sake and not for the money he might happen to make of them," yet I have heard through several breeders that the Duchess tribe of short-horns were never first prize-takers at the national shows, on account of slight deficiency in thighs and fore-quarters. That Mr. Bates was fond of them for some of their points is proved by in and in breeding for the purpose of further developing those favourite points; and if Mr. Wood would be kind enough to explain more fully why he considers that no man of our day has possessed such a herd as the late Mr. Bates's, he would be conferring a great benefit on breeders this side of the channel, many of whom have early known the Duchess tribe of short-horns by the pedigree in the "Herd-book," which proves that up to the year 1851, 64 have been registered in the female line, of which there is no account of 28 of them to have bred at all. The remaining 36 are registered to have 110 live calves, being on an average of 3 each cow, and 2 calves over. This appears to be a very small proportion of progeny for 43 years' breeding; and whether in and in breeding is the cause of it, or whether obviating against consanguinity would insure a larger propagation, and whether Norfolk (2377) and Usurer (9763) blood have not caused an improvement in constitution, I will thank Mr. Wood to explain. *John Daly, Charleville, Enniskerry, Ireland.*

Scottish Agricultural Statistics.—From the returns of Scottish agricultural statistics, given in the *Agri. Gazette* of the 10th February, it would appear that the estimate had been very generally given in Scotch acres, which would both account for the great deficiency appearing in the whole extent of the country (nearly 7,000,000 of acres), and also for the high acreable averages stated. More than 3½ quarters of Wheat, 4½ of Barley, the same of Oats, 3½ of Beans, and upwards of 15 tons of Turnips per imperial acre, are high averages, and exceed in the case of Wheat and Turnips those stated for East Lothian in the returns of the preceding year; that was an unfavourable year for both crops, while last season was of an opposite character. Yet, after making allowance, that the averages for the whole country should have exceeded those of the finest county in it was not to have been expected. It may also be remarked, as showing the excellence of the farming, how nearly the figures relating to the arable country represent a five-course rotation (one of the best)—the fallow and fallow or ameliorating crops, Beans, Peas, Turnips, Potatoes, Mangold, Carrots, Vetches, and Cabbage, amounting to 666,380 acres or one-fifth of the whole cultivated land; the corn crops, Wheat, Barley, Oats, Bere, Rye, and Flax to 1,337,314 acres, or two-fifths; and Grass, in the rotation of the farm, to 1,427,790 acres, the remaining two-fifths. *N. Drake.* [The figures refer in every case to imperial measure, not to Scottish or to local measure.]

Seed Wheat.—Some time ago one of your correspondents put a question to me which I am only now enabled to answer; and I answer it willingly, because the subject of seed Wheat is so important to the farmer that it is but fair to him to have every careful experiment of a new sort brought to his notice. The question referred to my experience of Payne's "Defiance Wheat." I have tried it for two years. The first year was the year of almost universal blight, and then the yield was only 26 bushels, after a fair promise before harvest of at least 40. The crop of the second year (1854) was only thrashed out the week before last, and the produce from the 4-acre piece was 20 qrs. and 3 bushels; and, deducting 1*s.* a bushel for 2½ qrs., it was sold last week at a falling market for 60*s.* But, though this looks well; though it gave me, besides, 7 tons of good straw; though the Defiance yields well, and stands up well, and defies the attacks of the birds, I have given it up for the following reasons: The farmer does not like it, because, though sown early, it ripens late; and because the miller does not like it; and because of their dislike *I* do not like it, and because a new system of growing Wheat cannot fairly be tested in comparison with the old but by the growth of the ordinary seed. I have therefore given it up, I own with some regret, and now use for seed a mixed Wheat which, deservedly, as I think, is in great favour with many neighbouring farmers, being a judicious combination of the Lammas and Bristol red, the former for sample and the latter for bulk. *S. Smith, Lois Weedon, March* 10.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Weekly Council, *March* 14.—Sir Robert Peel, Bart., M.P., in the chair.

Communications and Presents.—Mr. George Sainsbury complained of the annoyance to which the breeders of choice and valuable stock were subjected by the "trespass of neighbours' bulls" when turned out into adjoining pastures. Mr. Towers stated his opinion on the application of steam power to the cultivation of land, adopting the views of Mr. Wren Hoskyns on the subject. Captain Kellermann's paper on the medicinal properties of the leaves of the Black Currant was received through the Foreign Office from Lord Cowley in Paris. Mr. John Howe suggested the destruction of rats by means of fumigation, on the principle adopted by Mr. Browne in his well-known apparatus for fumigating fruit and other trees. Mr. Bethell exhibited specimens, in a moist as well as dry state, of roots reduced to a pulp by machinery. The East India Company transmitted a further supply of Pine seeds, from the Himalayan and other districts of India. The Royal Hanoverian Agricultural Society presented a copy of their Transactions, for which the Council ordered the Journal of the Society to be forwarded in return. Prof. Wilson transmitted a collection of Illustrated Implement-Catalogues, from America.

The Council having ordered their usual acknowledgments for these communications and presents, adjourned over Wednesday, the 21st inst., to their weekly meeting on the 28th of March.

Reviews.

The Agricultural Cyclopedia. Edited by John C. Morton. Blackie & Son, Glasgow, Edinburgh, and London.

It will be allowed us to intimate the completion of this work. It has appeared in 28 parts, and is now published in two large volumes. Among the 60 or 70 who have contributed to its pages are Dr. Lindley, Mr. Bentham, and the Rev. M. J. Berkeley, who have written the botanical articles; Dr. Lyon Playfair, Mr. Way, and Dr. Voelcker, who have contributed its chemistry; Messrs. Trimmer and Morton, well-known writers on the geology of agriculture; Mr. Curtis, who has written all the entomological articles, and Professor Buckman, who has written several articles on natural history.

Among those who have written papers on some of the more general aspects of agriculture are Mr. Hoskyns and Mr. Pusey. Articles on the several crops are written by cultivators of them; the arboricultural portion of the work has been written by Messrs. Grigor of Forres and of Norwich; agricultural implements are described by the editor; agricultural engineering is treated by Mr. Newlands, borough engineer of Liverpool, by Mr. Bravender, and Mr. Girdwood. Animals are described and their management discussed by well-known breeders; and Mr. Spooner refers to their diseases; and such names as Gray of Dilston, Caird of Baldoon, Wilson of Edington Mains, Baker of Writtle, Haxton of Drumnod, Paine of Farnham, Clarke of Long Sutton, and many others are among the contributors. The volumes are abundantly illustrated by wood-cuts and engravings.

Miscellaneous.

What is a Bargain?—A trial in the Southampton County Court the other day has given occasion to a decision on this subject by Judge Gale.

Gulliver v. *Harris.*—A plaint for 10*l.*, the action being brought to recover the difference between the price at which the defendant had agreed to sell to the plaintiff a quantity of Wheat, and the price to which it had arrived in the market upon the defendant's refusal to deliver it. Mr. Pocock stated the case: Mr. Gulliver, a farmer at Wimpson, on the 17th of October last, agreed with Mr. Harris, butcher, Abovebar, Southampton, and who rents some land adjoining the plaintiff, to purchase of him 30 quarters of Wheat, at 5*l.* 10*s.* a load, and Mr. Harris inquired where he should deliver it, implying, of course, that according to the custom of farmers selling, he should deliver it anywhere within a moderate distance the buyer might desire. Mr. Gulliver said he would let him know in a day or two, and went away. He then went to the barn (at Wimpson) and took a sample of the Wheat, it not being necessary he should take one from Mr. Harris at the time, as it was conditioned the Wheat should weigh 65 lbs. a bushel. He bought the Wheat on a Tuesday, and sold it on Wednesday (next day), to Mr. Ray, farmer and miller at Woodmill. On Friday he wanted the Wheat to be delivered, but Mr. Harris refused to do so, assigning as a reason that the markets were going up! Mr. Gulliver, having sold the Wheat, and being unable to deliver it, had to compromise with the buyer in consequence, and paid Mr. Ray so. Mr. Pocock concluded by saying that business in the markets would be at an end if bargains could be repudiated or got rid of in any such way. The loss between the price agreed for and that at which the Wheat arrived he should show to be 8*l.* 8*s.*

After evidence had been given,

Mr. Leigh, for the defendant, said the plaint could not be maintained, for under the statute of frauds, as he need hardly state to his honour, no contract was binding where the consideration amounted to 10*l.* and upwards, unless it was made in writing, or

part payment made, or delivery and acceptance of part of the articles made. The Judge said that Mr. Leigh need not proceed further in the case as the action could not be maintained, and proceeded to quote some cases in Selwyn's "Nisi Prius" bearing on the case, but in fact the statute of frauds, passed so long ago as Charles the Second's time, quite established the rule of law that such a contract as this for the sale of so much Wheat ought to have been in writing, and the non-delivery did not take it out of the statute. Wheat was sold by sealed notes in London. Mr. Pocock said he, of course, took the law from his honour, but there would be an end to all bargains in the agricultural markets if it were to be so ruled. The Judge said they would all be void in law. If the farmers chose to deal upon honour they must take the consequences.

Table showing the Rates of Wages for Agricultural Labourers in the different Counties in Ireland, 31st December, 1853 :—

Schools.	Counties.	Men.	Women.	Boys.
		d.	d.	d.
Larne	Antrim ...	15	7	...
Markethill	Armagh ...	12	6	4
Bailieborough ...	Cavan... ...	11	7	6
Balleighan	Donegal ...	12	10	7
Carrick	Fermanagh ...	9	3	3
Behill	Londonderry...	12	8	6
Drumhilla	Monaghan ...	8	6	6
Longhashe	Tyrone ...	10	...	3
Ballybank	Clare	10	4	6
Munster (2 miles from city) ...	Cork	12	6	4
Tervoe...	Limerick ...	9	5	5
Gormanstown ...	Tipperary ...	11	6	...
Gloungaragh	Waterford ...	11½	5¾	...
Glasnevin	Dublin ...	16	...	...
Athy	Kildare ...	12	6	8
Woodstock	Kilkenny ...	8⅓	5⅓	6
Rahan	King's County	9	4	6
Dromisken	Louth	11½	5	4½
Kilskyre	Meath... ...	11½	...	...
Ballinvally	Westmeath ...	12	...	6
Delgany	Wicklow ...	12	...	6
Castlehackett ...	Galway ...	8	4	4
Leitrim	Leitrim ...	10	...	4
Cappaduff	Mayo	7½	4¾	5
Ghaduff	Roscommon ...	8	4	4
Geevagh	Sligo	11½	...	6

Dr. Kirkpatrick's Report on National Agricultural Schools, 1854.

The New Market, Copenhagen Fields.—It is rumoured that it will be opened about the middle of April. It has been ready for use in almost all its parts for a considerable time.

Calendar of Operations.

MARCH.

Lammermuir Sheep Farm, *March* 12.—Since the middle of January we have had a very severe snow storm, more severe than has been experienced for the last 15 years. Though there has been little drift, there has been a most intense frost. With an interval of a week sheep have been fed with hay night and morning since the 24th of January; and the crop, which at hay harvest was reckoned most abundant, has in many places been found no more than sufficient to supply the large demands which have necessarily been made upon it. Though there is a fine south wind to-night yet we are by no means certain that we have seen the last of the storm—a continuance of which for another 10 days would see the majority of flock masters in extremities for fodder. Cheviot ewes are now being put on to Turnips; it is desirable to allow them a month's Turnips previous to lambing, and if possible a fortnight after. On those farms where it is usual to winter ewe hogs without Turnips the gimmers require to be put on a week or two earlier than the more aged ewes, as never having eaten Turnips they are a considerable time before they learn to eat them. Cheviot wedder hogs are frequently turned off Turnips to the hill about the middle of this month; when practicable, however, they ought to remain on during the whole month of March, and in the present season this will be the more necessary, as from the long duration of the snow storm they were often but scantily supplied with Turnips, and did little more than keep what condition they had. It is yet premature to say whether hill stock generally have stood the winter well or not, as their deficiencies never appear till some time after fresh weather fairly sets in. It is then that the effects of the storm become visible, and very frequently sheep, which during the snow have pleased the eye pretty well, appear shaken and haggard on the return of fresh. *J. S. B.*

Wester Ross, *March* 12.—At this date in ordinary seasons we are all busily engaged sowing in the seed; this year we have scarcely as yet got the plough into the ground, and it will take a considerable time ere the soil be in a fit state for harrowing. It would be rash and premature to conclude that, as the winter has encroached far upon the spring, our harvest must necessarily be correspondingly late, for it is quite possible and not at all unlikely that our spring and summer weather may be such as will make up for all detentions. Wheat when freed from its winter's cloak looked withered and lifeless; now it begins to recover, and looks quite thick enough. Sowing Wheat is likely to be much interfered with, and less than the usual quantity will now be sown. Turnips are complained of as being much destroyed by the intensity and continuance of the frost. The softer sorts suffer most in this way, and all that were injured by accident or game are totally lost. Sheep had difficulty in eating as many frozen Turnips as would keep them in *statu quo*, and cattle in open courts felt much the severity of the winter. The price of grain has been for some time very unsteady, and tending downs. Exhibitions of corn have been held in connection with the different agricultural societies in the north, and the weights of the different kinds of grain range as follows:—Spring Wheat, 63½ lbs.; Barley, from 56 to 60 lbs.; Oats, from 43 to 46 lbs..; Rye-grass, 28 lbs. per bushel, clearly showing that the stuffs we grow in this quarter are anything but despicable.

Notices to Correspondents.

Analysis of Soils: *W T.* Consult the Appendix to Johnston's "Agricultural Chemistry."

Liquid Manuring: *R W.* You will find all that is published on the subject in the last year's volume of this Journal. Consult its Index. We will endeavour to obtain the details you ask for in reference to the Ayrshire farm.

Salt, &c.: *Three Years' Subscriber.* If sown in wet weather, a cwt. per acre. You may sow Clover and Rye-grass land a week afterwards without their being hurt. On a sheep-house see what is said of Mr. Kennedy's in the article on Italian Rye-grass last week. We cannot give estimates of cost.

Two-Horse Power: *H W.* You must state your quantity of water, and then the size of wheel can be named over which that water would be two-horse power; or state your fall, and then we can tell you how much water you will need. Multiply the volume of water per minute by 62½ (which is the weight in pounds of 1 cubic foot), and that by the fall in feet, and divide by 33,000, and you have the theoretical number of horse-power. In practice you get about three-fifths of this by an overshot wheel.

MAY'S MAGNUM BONUM LETTUCE.—In calling attention to the letter below, we beg to say that we are entire strangers to the gentleman, and know nothing further of him than what the letter says. He objects to having his name made public, but any party can have the name and address by sending to us.

"To Mr. May. "March 6th, 1855.

"Sir,—I see your Advertisement in the *Gardeners' Chronicle* of the Magnum Bonum Lettuce. You are right in saying the Lettuces are most magnificent; they are indeed so. Although I only grow Vegetables for my own use, I had quite a run upon me for them last year from friends, and one and all pronounced them the most splendid they ever saw. Indeed, when telling some friends (gardeners) about them, they looked at me thinking I was romancing, but when they came to my garden and saw them, they held up their hands in amazement. Not only were they out of sight the largest ever I saw, but though I have for many years grown all kinds, they were the crispest and sweetest I ever met with. My soil is very thin and light, however, I managed to have them so large that in sending them to friends I put them in one of those open round bushel baskets which come from Rotterdam with fruit. After I got in three, I had to squeeze them a good deal to get in a fourth. I could have put in two dozen of my best Cos Lettuces of the same year's growth. I enclose 24 stamps, and will feel obliged by your sending me two packets of the seed."

Price, per packet, 1*s*., and would recommend early application, as the stock of seed is getting very small.—Address Henry May, The Hope Nurseries, near Bedale, Yorkshire.

IMPORTANT TO ALL PLANTERS WHO DESIRE IMMEDIATE EFFECT.

WM. JACKSON and CO., Bedale, Yorkshire, will supply the following choice stock, of good quality, at the annexed low prices:—

	s.	d.
*12 Abies Menziesi, 2 to 3 feet	20	0
12 „ Morinda, 4 feet, fine specimens	20	0
*12 „ Douglasi, 3 to 4 feet, do., from seed	70	0
*12 Pinus cembra, 4 feet, fine specimens, do.	25	0
*12 „ excelsa, 2 to 3 feet, do. do.	20	0
*12 Cedrus Deodara, 2 to 3 feet, do. do.	30	0
*12 „ „ 3 to 4 feet, large, do. do	60	0
*12 Cedar of Lebanon, 2 to 3 feet, fine specimens, from seed	18	0
12 Best hardy Azaleas, with large and rich flowers, perfect shrubs, on their own roots, 2 feet high... ...	18	0
*12 Hardy hybrid Rhododendrons, 1½ to 2 feet and 2 to 3 feet, perfect shrubs, on their own roots	6	0
*12 Rhododendron dauricum atrovirens, with flower-buds, 3 to 4 feet	18	0
*12 Handsome hardy Rhododendrons, 2 to 3 feet, scarlet, purple, white, and crimson, and all shades of colours, selected from above 100 kinds	20	0
12 Standard Berberis dulcis, with fine heads	30	0
*100 Evergreen and Flowering Shrubs, two of a sort ...	30	0
*100 Good showy Herbaceous Plants, two of a sort ...	20	0
100 „ „ Hollyhocks, 10*s*., and	15	0
*100 Portugal Laurels, 1½ to 2 feet	25	0
*100 Limes for avenues, 4 feet, 10*s*.; 6 to 8 feet	30	0
100 English Elms, well grown, 5 to 6 feet, 15*s*.; 6 to 8 ft.	20	0
*1000 Evergreen Privets, Myrtle-leaved, for fancy hedges, 25*s*. and	30	0
1000 „ „ strong, 3 feet, for field fences and coverts	25	0
*1000 Hollies, 1 to 1½ feet, very bushy	40	0
1000 Common Laurels, 1½ to 2 feet, 60*s*.; 2 to 3 feet ...	80	0

* These have been several times transplanted, to ensure good roots.

FRUIT TREES.—Per dozen.

Apples, most approved kinds, good strong standards				...	6	0
Do.	do.	do.	do.	dwarfs... ...	4	0
Pears	do.	do.	do.	standards ...	9	0
Do.	do.	do.	do.	dwarfs ...	6	0
Plums	do.	do.	do.	standards ...	9	0
Do.	do.	do.	do.	dwarfs... ...	6	0
Cherries, good strong standards					12	0
Apricots, Peaches, and Nectarines, trained, 42*s*. to ...					48	0

A reference or remittance is respectfully solicited from unknown correspondents.

MESSRS. WILLIAM ROLLISSON and SONS beg to inform their Patrons and the Public that their NEW CATALOGUE OF SEEDS for 1855 is now ready, and will be forwarded post free on application.

W. R. & Sons embrace this medium of stating that many of the Seeds most difficult to obtain true, such as Beet, Lettuce, the Brassica tribe, &c., &c., are of their own saving, and the others have been procured from growers of the highest reputation; particular attention having been paid to secure the German Flower Seeds from eminent sources; are therefore able to state with confidence that the whole of their seeds are of very superior quality. W. R. & Sons respectfully invite attention to the following Choice Flower Seeds, selected from their Catalogue:—

	s.	d.
Alonsoa Warscewiczi, a beautiful half hardy annual, of graceful habit, with spikes of scarlet flowers	2	6
Arctotis breviscapa, a free flowering showy annual from the Cape	1	0
Aster, new Pæony pyramidal, in collections of 12 distinct colours	3	6
Aster, dwarf bouquet, or nosegay, ditto ditto	3	6
Canna Warscewiczi, ornamental foliage plant	1	6
Centauridium Drummondi, orange coloured, very showy ...	0	6
Chenopodium atriplex, ornamental foliage plant	1	6
Clintonia pulchella, a lovely little blue flower	0	6
Coreopsis coronata, bright yellow, free flowering	0	6
Dianthus Dunnetti superbus, double Sweet William, of brilliant colour and dwarf habit	1	0
Digitalis (Foxglove), extra choice, saved from a collection of splendid spotted flowers	1	6
Elichrysum compositum maximum, large double flowers of many colours	1	6
Eschscholtzia tenuifolia, straw coloured, very distinct ...	1	6
Eucnida bartonioides, yellow, very beautiful	0	6
Gypsophila muralis, red flowers, very neat	1	0
Helianthus angophyllus, silvery foliage, very ornamental ...	2	6
Hibiscus Thunbergi, yellow, showy	0	6
Ipomœa limbata, a tender climber, Tyrian purple, with white margin, beautiful...	2	0
Lilium giganteum	5	0
Limnanthes sulphurea odorata, yellow, edged with white ...	1	6
Linum grandiflorum rubrum, a large bright crimson Linum from Algiers, with brilliancy of colour and style of flower which surpass three-fourths of the usual pot plants used for decorating the conservatory	2	6
Pansy, extra choice, saved from superb flowers	2	6
Phlox Drummondi, extra fine, mixed	0	6
Primula sinensis fimbriata, alba, and rubra, saved from superb flowers, each	2	6
Reseda myriophylla, a very distinct new Mignonette ...	1	0
Sabbatia campestris, fine rose with yellow centre, really beautiful	1	0
Stock, dwarf double autumn flowering, in collections of 12 distinct colours	3	0
Stock, new large flowering German, in collections of 12 distinct colours	3	6
Tropæolum Lille Schmidt, good for winter blooming ...	0	6
Vittadinia lobata, pink, very compact and dwarf	1	0
Whitlavia grandiflora, large dark violet bell-shaped flowers	1	6

Messrs. W. Rollisson & Sons are desirous of directing especial attention to their fine Collection of Fruits, which contains all the choicest varieties in cultivation. The rare Cymbidium eburneum is now in blossom and can be seen at the

Nursery, Tooting, London.—March 17.

FISHER, HOLMES, and CO. beg to offer the following, all of which are good sized healthy plants, such as they feel assured cannot fail to give satisfaction:—

	Each—s.	d.		Each—s.	d.
Begonia Prestoniensis ...	1	0	Eranthemum leuconervum	1	0
Æschinanthus splendidus	1	6	Cantua dependens ...	0	9
Rogeria amœna	1	6	„ bicolor	0	9
Hoya bella	1	0	Mitraria coccinea ...	0	9
„ campanulata ...	1	6	Lycopodium umbrosum ...	1	0
Allamanda neriifolia ...	1	6	„ viticulosum ...	1	0
Ixora coccinea	1	6	„ apothecum ...	1	0
„ „ smaller ...	1	0	„ lousianum ...	1	0
Burchellia capensis ...	1	6	„ Pœppigianum	1	0
Franciscea confertifolia, flowering plants 1*s*. 6*d*. to	2	6	„ cæsia arborea	1	0
Cypripedium insigne ...	2	6	Doodia aspera	1	0
Henfreya scandens ...	1	0	Humea elegans, strong, for flowering this season, 1*s*. to	1	6
Justicia coccinea	1	6	Fuschia Duke of Wellington	0	9
Hexacentris myosoriensis	1	6	White Fairy Rose ...	0	6

The following smaller but nice established plants:—

Cyrtoceras reflexa ...	1	6	Hoya picta	2	6
Pentas rosea	1	0	Tacsonia molissima ...	1	0
			Yucca aloefolia	1	6

Azalea indica Apollo, Amabilis, Aurantia superbe, Decora, Duke of Wellington, double white, Extrani, formosa, Frosti, fulgens, Gem, Glory of Sunning Hill, Hebe, Ignescens, Lucombe majesta, Murrayana, Optima, Prima Donna, refulgens, and splendens. The above 1*s*. to 1*s*. 6*d*. each, all strong healthy bushy plants. Remittances from unknown correspondents will oblige.

Handsworth Nursery, Sheffield, March 17.

MESSRS. E. G. HENDERSON and SON, of the Wellington Nursery, St. John's Wood, London, will commence sending out April 30, 1855, the following new Seedling FUCHSIAS, raised by Messrs. Story and Banks.

Queen Victoria (Story's), scarlet, with white corolla. 10*s*. 6*d*.
Prince Albert (Banks's), fine violet corolla. 10*s*. 6*d*.
Perrugino (Story's), fine striped corolla. 10*s*. 6*d*.
Empress Eugenie (Story's), rosy crimson, white corolla. 10*s*. 6*d*.
Ranunculæflora (Story's). fine double white corolla. 21*s*.
Lady of the Lake (Story's), blush, white corolla. 10*s*. 6*d*.
Water Nymph (Story's), globe-flowered, fine white corolla. 10*s*. 6*d*.
Raffaelle (Story's), beautiful variegated corolla. 10*s*. 6*d*.
Mrs. Story (Story's), fine white corolla. (In accordance with Mr. Story's wish, this was named after Mrs. Story, as it was in his opinion the finest.) 10*s*. 6*d*.

Or if the set of Nine are taken, the price 4*l*. 4*s*., including SNOWDROP (Story's). This was received from Mr. Story as possessing a double white corolla, and described by himself and others who saw it in flower as a very beautiful variety. It was the first double white raised by him; but the plant did not flower in the Wellington Nursery after it was received by Messrs. Henderson; and through three stout branches having been broken off it, it did not quite correspond with the description given by Mr. Story and others a few months after to Mr. A. Henderson when at Newton making inquiries respecting the Plants. Consequently no charge will be made for it, but one will be presented with every set ordered.

FUCHSIA, BANKS'S FAVOURITE (BANKS), considered the finest of the blue violet corollas. 10*s*. 6*d*.

For further particulars see page 62 of the *Gardeners' Chronicle* for Jan. 27; or a list will be sent post free on application.

Messrs. E. G. HENDERSON & SON having purchased of the late W. Story, Esq., of Newton, in the county of Devon, for ONE HUNDRED GUINEAS, all Seedling Fuchsias with white Corollas, which new feature in this tribe he succeeded in introducing, and in consequence of an advertisement which appeared in the *Gardeners' Chronicle* some few weeks back from Messrs. Lucombe, Pince, & Co., of Exeter, offering two new Fuchsias similar in character to those purchased of the late Mr. Story, and after a written communication with that gentleman, it was thought necessary for one of the firm to make further inquiries about them, and in consequence Mr. Andrew Henderson went to Exeter and Newton, where he was informed by a jobbing gardener at Newton that he had received Seven Pounds for them after (as the said jobbing gardener stated) he had been offered £20 for them by a nurseryman in London, but whose name or address he did not know.

Messrs. E. G. H. & Son give the above explanation in consequence of a great number of their customers throughout the autumn having ordered plants of them at higher prices than are above quoted. This reduction is made in consequence of information which they have received that leaves no doubt on their minds but that those to be sent out by Messrs. Lucombe, Pince, & Co. are similar in character to the above.

Messrs. E. G. HENDERSON & SON, of the Wellington Road Nursery, St. John's Wood, London, beg to inform their patrons and the public that their New Catalogue of Seeds for 1855 is now ready, with full descriptions and other information, and will be forwarded post free on application.

E. G. HENDERSON & SON take this opportunity of stating that none but the most popular and improved kinds of Vegetable Seeds appear in their list, and among the Flower Seeds only those whose beauty and merit are univerally acknowledged, together with a carefully selected stock of the principal new varieties. They would call particular attention to the following new and choice seeds, which they can confidently recommend:—

	Per packet—s.	d.		Per packet—s.	d.
Antirrhinum, extra fine ...	0	6	Ipomœa limbata	2	6
Auricula, fine mixed ...	1	6	Leptosiphon luteum ...	0	6
Abronia umbellata	1	6	„ aureum	1	6
Anagallis azurea grandiflora	1	0	Linum grandiflorum rubrum 1*s*. 6*d*., and	2	6
„ rubra „	1	0	Lobelia Queen Victoria (scarlet)	0	6
Arctotis breviscapa ...	0	6	Lobelia Roi Leopold ...	0	6
Aster, new Peony pyramid, in packets of 10 distinct colours, separate ...	3	6	Larkspur, new double improved hyacinth flowered, in packets of 6 distinct colours ...	2	6
„ new bouquet pyramidal, in packets of 12 distinct colours	3	6	Limnanthes sulphurea odorata	1	0
Balsam, double Camellia-flowered, in packets of 6 distinct colours, separate	3	0	Mignonette, new, large ...	0	3
„ new double Camellia Rose, in packets of 10 distinct colours, separate, extra fine	5	0	Mimulus, beautiful ...	0	6
„ Aurora, new double crimson	1	0	Pansy, choice show ...	1	6
„ new dble. pale yellow	1	0	„ choice fancy	1	6
Carnation, stage flowers...	1	6	Petunia, extra fine ...	1	0
Calceolaria, ex. ex. 2*s*. 6*d*. & 5*s*.			Phlox Drummondi coccinea	0	6
Cineraria, ex. ex. 1*s*. 6*d*. & 2*s*. 6*d*.			Portulaca, new orange ...	0	6
Chrysanthemum pompone	1	0	„ new rose	0	6
„ large flowered	1	0	Primula sinensis fimbriata, alba and rubra mixed ...	2	6
Calendrinia umbellata ...	0	6	Poppy, new large Pæony, in 8 brilliant colours ...	2	0
Dianthus Dunnetti, suprb.	1	0	Reseda myriophylla, new Mignonette	1	0
„ Chinensis flore-pleno, extra fine...	0	6	Salpiglossis, scarlet, blue, and sulphur	0	6
Eschscholtzia tenuifolia...	1	6	Stock, German, new large flowering, in packets of six distinct colours ...	2	6
Geranium, choice show ...	2	6	Verbena, choice mixed ...	1	0
„ choice fancy	2	6	Sweet William, new double	0	6
Hollyhock, first quality ...	2	6	Whitlavia grandiflora ...	1	6
„ second quality ...	1	0			
Ipomœa rubro cærulea ...	1	0			

Lilium giganteum seed, 2*s*. 6*d*. and 5*s*. per packet.
Holcus saccharatus (new Sugar-cane), 1*s*. to 2*s*. 6*d*. do.
Dioscorea Batatas (Japanese Yam), 2*s*. 6*d*. each tuber.
20 Ornamental Grasses (see Catalogue).
12 Ornamental foliage Annuals.—March, 1855.

R. PARKER begs to offer the following, all of which are well established, and can be forwarded to any part of the Kingdom:—

	Per dozen.—s.	d.
Exotic Orchids, distinct and beautiful species	60	0
Exotic Ferns " "	18	0
Exotic Lycopodiums " "	12	0
Roses, consisting of the best varieties of Hybrid Perpetuals, Teas, and Bourbons, strong plants established in pots ...	12	0
Cinerarias, choice named varieties, strong, established plants, in 4-inch pots	9	0
Cinerarias (Seedlings), from the finest named varieties, including the best varieties sent out last season, strong, established plants, in 4-inch pots	4	0
Calceolarias (Seedlings), from beautiful spotted varieties, strong, established plants	6	0

Lists of Names forwarded upon application.

The following choice Cucumbers and Melons, in packets of 12 Seeds, at 1s. per packet:—

CUCUMBERS.	MELONS.
Superlative Improved	Golden Perfection (extra fine)
Walker's Rambler	Bromham Hall
Manchester Prize	Persian Green Flesh
Hunter's Prolific	Chichester Prize
Improved Patrick.	Cuthill's Scarlet Flesh.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Holloway.

TO NURSERYMEN AND GARDENERS.

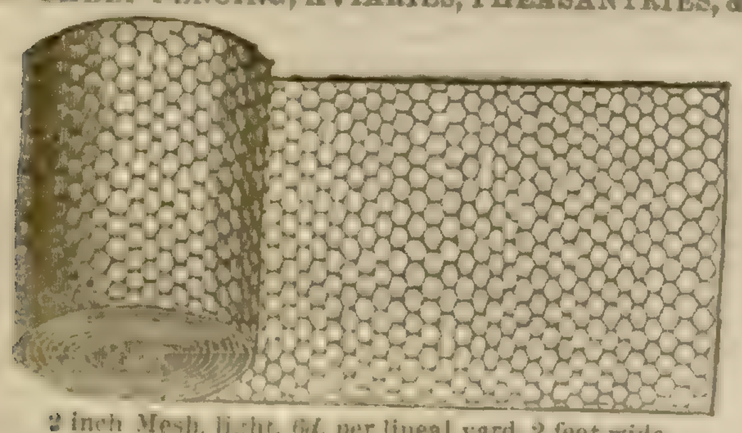
REIGATE SILVER SAND, 1s. 6d. per bushel or 16s. per ton, delivered to any of the London wharfs or railways, or within a circuit of five miles. Peat and Loam of excellent quality. Sacks charged cost price—Kennard, Brothers, Swan Place, Old Kent Road, London.

BLOSSOM OF FRUIT TREES.—WORSTED NET to effectually protect the blossom of wall fruit trees from frost and blight, and the ripe fruit afterwards from wasps and flies, 7d. per square yard, in various widths. All kinds of garden, fishing, and sheep nets, made by machinery, and at very low prices.—R. Richardson, 21, Tonbridge Place, New Road, King's Cross, London.

HALL'S GARDEN NETTINGS; the best and cheapest for all purposes of shelter and shade from Frost, Hail Storms, and Gales of Wind. No. 0, 5d.; No. 1, 5½d.; No. 2, 6d.; Nos. 3 and 4, 7d. All 56 inches wide, and in lengths of 10, 20, 30, and 60 yards.—Manchester.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1d. per square yard; 200 yards, 14s.; 500 yards, 30s.; 1000 yards, 50s. Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

GALVANISED WIRE NETTING FOR GAME AND SHEEP FENCING, AVIARIES, PHEASANTRIES, &c.

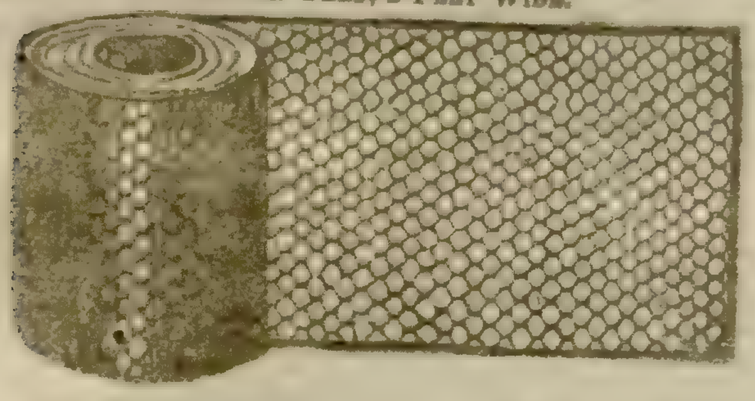


2 inch Mesh, light, 6d. per lineal yard, 2 feet wide.
" strong, 8d. " " "

Netting of any size or quantity, and Fencing of all kinds, supplied on the shortest notice.

William Dray & Co., Manufacturers, Swan Lane, Upper Thames Street, near London Bridge.

GALVANISED WIRE GAME NETTING.—7d. per Yard, 2 Feet Wide.



	Galvanised.	Japanned iron.
2-inch mesh, light, 24 inches wide ...	7d. per yd.	5d. per yd.
2-inch " strong " ...	9 "	6½ "
2-inch " extra strong " ...	12 "	9 "
1½-inch " light " ...	8 "	6 "
1½-inch " strong " ...	10 "	8 "
1½-inch " extra strong " ...	14 "	11 "

All the above can be made any width at proportionate prices. If the upper half is a coarse mesh, it will reduce the prices one-fourth. Galvanised Sparrow-proof Netting for Pheasantries, 3d. per square foot. Patterns forwarded post free.

Manufactured by Barnard & Bishop, Market Place, Norwich, and delivered free of expense in London, Peterborough, Hull, or Newcastle.

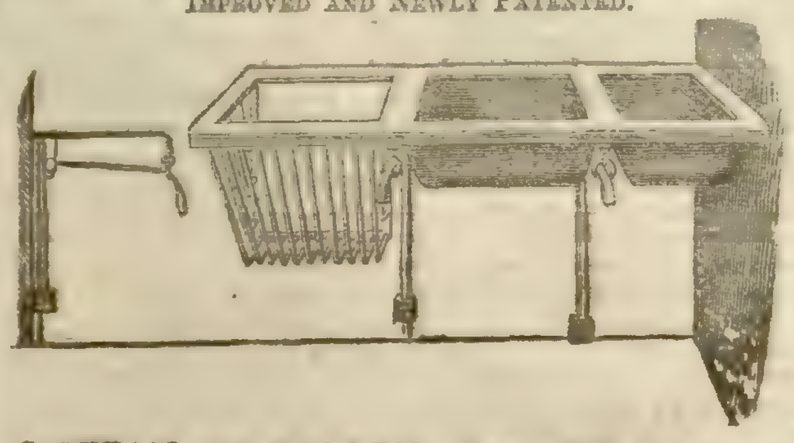
INGLIS AND CHISHOLM, Charles Street, Garratt, Manchester, make STEAM ENGINES for Agricultural and other purposes of the best quality at a reasonable price.—Address Inglis & Chisholm, Charles Street, Garratt, Manchester.

CLAYTON, SHUTTLEWORTH, AND CO.'S PRIZE PORTABLE STEAM ENGINES, AND COMBINED THRESHING, STRAW SHAKING, RIDDLING AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as threshed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.

C. S. & Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading Agricultural Shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

MAW'S ENCAUSTIC TILE PAVEMENTS form an indestructible and highly decorative substitute for ordinary flooring, and their imperishable Oil Cloth Coverings for Entrance Halls, Passages, Verandahs, Conservatories, &c.—Maw & Co. send free of expense their Book of Designs, suitable in price and style for every description of Building.—Benthall Works, Broseley, Salop.

MANGER, RACK, & WATER-TROUGH AS ONE FIXTURE.
Improved and Newly Patented.

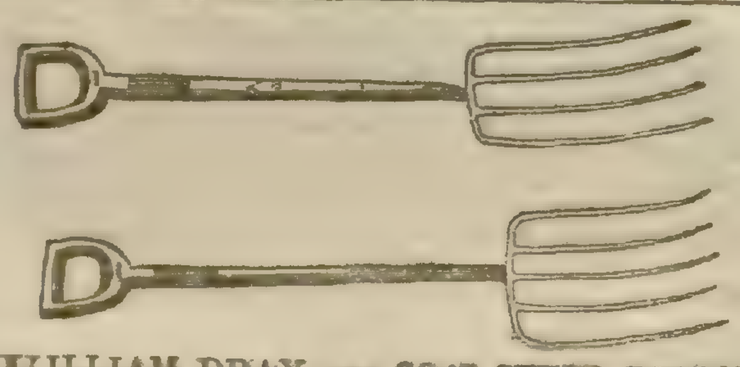


COTTAM AND HALLEN, the original inventors, obtained the Great Exhibition Prize Medal for this arrangement, to which all the latest improvements are adapted, secured by Patent, including a method entirely new of attaching the halter-weight and rein from the back of the manger to the under front of the plate, allowing the horse greater freedom, and being noiseless in operation, add much to its comfort whilst feeding and convenience when at rest, as likewise, from their position, avoiding the liability of the most restive horse getting cast. No well-managed stable should be without these fittings.

COTTAM'S ENAMELLED MANGERS are constructed in the best possible manner, both as to form and utility; are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, and Enamelled. Improved Surface Drain, with Safety Covers, Sanitary Traps, Stable Pumps, Loose Box, Fittings, Gutta Percha Preserving Saddle and Harness Brackets, and every article in Stable Furniture, in stock. An extensive assortment of Patterns for both Plain and Ornamental Castings, and every description of Wrought and Cast Iron Work for building and other purposes. Agricultural and Horticultural Implements, Iron Gates, both plain and ornamental, Hurdles, Strain Fencing, &c.

Estimates and Catalogues on application to Cottam & Hallen, 2, Winsley Street, Oxford Street.

WARMING AND VENTILATING.



WILLIAM DRAY AND CO.'S STEEL DIGGING FORKS are warranted equal, and by many are considered superior, to any in use. Three Tine Forks, 4s. 6d. each; Four Tine Forks, 5s. 6d. each. A liberal allowance on Wholesale Orders.

William Dray & Co., Swan Lane, Upper Thames Street, near London Bridge.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

103, Newgate Street, and 52, Little Britain, London.

CAUTION.

Parkes' Steel Digging Forks and Draining Tools.—Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. Burgess & Key, of No 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. Francis Parkes & Co.

TREE TRANSPLANTING BY M'GLASHEN'S PATENT.

MR. M'GLASHEN is now prepared to supply Apparatus or give Estimates as to the rate at which he will safely and expeditiously transplant Trees or Shrubs of any dimensions in any part of the United Kingdom.

Canonmills Bridge, Edinburgh.

SCYTHES.

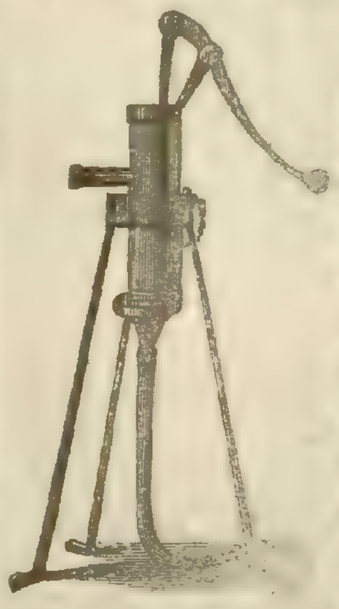
BOYD'S PATENT SELF-ADJUSTING SCYTHES may be had of all Ironmongers and Nurserymen, and Wholesale and Retail of William Dray & Co., Agricultural Implement Makers, Swan Lane, London.

CHAFF-MACHINES AND CORN-CRUSHERS.—All these Machines exemplify, in the most satisfactory manner, the high degree of perfection to which Richmond and Chandler have attained in the manufacture of Agricultural Implements; and the recent improvements made upon the various Chaff-Machines and Corn-Crushers (articles for the production of which this firm has long been justly celebrated as of the highest value in the economical preparation of food for cattle.—Address Richmond & Chandler, Salford, Manchester, and South John Street, Liverpool. Catalogues gratis.

TO MANURE MAKERS AND FARMERS.

SULPHATE OR MURIATE OF AMMONIA.—These powerful fertilisers, genuine as manufactured, may be had in any quantities from Read Holliday, Ammonia and Soda Works, Huddersfield.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will lock together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3l. 3s. The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1s. 6d. per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3s. 6d. per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Sons, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.: also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 12 0
2½ "	long 3 " 3 "		1 15 0
3 "	ditto 3 " 6 "		2 12 0
3½ "	ditto 3 " 6 "		2 18 0
4 "	ditto 3 " 6 "		3 5 0
2½ "	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 12 0
2½ in.	long ditto	ditto ditto	2 15 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

FREDERICK PHILLIPS' PATENT.

THE PRIZE PULPING MACHINE of the Royal Agricultural Society's Show, held at Lincoln, July, 1854.

Of all the Pulping Machines which are before the Public, this is the only one which the Royal Agricultural Society certifies as "breaking the roots well,"—all others are certified as slicers see their *Journal*, just published, page 373, also in the article on "Diminishing the Quantity of Roots in Fattening Cattle," page 490), and the great braggadocia "No Other," advertised weekly, although tried against that of F. P. and others, was not placed at all, in fact was "nowhere."

F. P. is happy to inform his numerous applicants for his Machine, that he has greatly simplified its construction without affecting its efficiency, and has reduced its price from 11l. 11s. to 7l. with Floor, and 6l. 10s. without boarded Floor.

Orders addressed to Frederick Phillips, near Brandon, Suffolk, promptly attended to.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 6d. per yard run, of Elisha Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than mats as a covering."

LOOKER'S PATENT VENTILATORS

For Workhouses, Barracks, Factories, Workshops, Greenhouses, Stables, Farm Buildings, &c. &c.

The cheapest but most effectual method yet introduced for admitting fresh air into any kind of building without cold or draught.

Made in Pottery, Metal, or other material of any shape or size to suit every situation, and so arranged that they may be regulated with perfect ease to any point.—Particulars, with prices, &c., forwarded to any part of the United Kingdom, on application to the Inventor, Patentee, and Manufacturer,

BENJAMIN LOOKER, Jun., Kingston-on-Thames.

GREAT saving in the cost of BREAD by the use of WM. DRAY & Co.'s DOMESTIC FLOUR MILLS. Lists of Prices forwarded on application to WM. DRAY & Co., Swan Lane, Thames Street, London.

PRIZE MEDAL—1851.
AT A VERY ECONOMICAL RATE.

SAMUEL CUNDY, MASON and BUILDER, PIMLICO Marble and Stone Works, Belgrave Wharf, Lower Belgrave Place, Pimlico, London.

Marble Chimney-pieces manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price. A good Marble Chimney-piece for 40*s*. Marble Work in all its branches at a remarkably cheap rate for Halls, Dairies, Larders &c. Circulars sent on application.

N.B. The "Royal Blue" Omnibuses pass the Works every ten minutes from the Bank.

STEPHENSON AND PEILL, 61, Gracechurch Street, London, and 17, New Park Street, Southwark, Manufacturers of Copper Cylindrical and Improved Conical Iron BOILERS, and Conservatory and Hothouse Builders, either in Wood or Iron, respectfully call the attention of the Nobility, Gentry, and Farmers to their simple but efficacious method of warming Horticultural and other Buildings by Hot Water.

From the extensive works they have executed, references of the highest respectability can be given, and full particulars furnished on application.

WEEDS ON WALKS.

MR. FLEMING'S WEEDING OR SALTING MACHINE FOR GRAVEL WALKS, COURT YARDS, &c., manufactured and sold by ALEXANDER SHANKS & SON, Arbroath, Forfarshire, from whom particulars with prices may be had.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES (15 oz.) of good quality, in boxes of 100 feet each. Sizes from 7 in. by 5 in., to 9 in. by 7 in., at 12*s*. per box; 9½ in. by 7½ in., 10 in. by 8 in., and 10½ in. by 8½ in., at 14*s*. per box. In 21 oz., at 1*s*. per box extra.) Larger sizes in stock, of 15 oz., 2*d*. per foot; 21 oz., 3*d*. per foot. Boxes charged 2*s*. each, and returnable at the same price, if delivered free. CRYSTAL WHITE GLASS, Crown and Sheet Glass in Crates, British and Patent Plate, &c. &c. White Lead, Oils, Turpentine, Colours, &c.

G. FARMILOE & SON, 118, St. John Street, West Smithfield.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d*. to 3*d*. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS FOR CONSERVATORIES.

THOMAS MILLINGTON'S present prices for good 16 oz. sheet glass, boxes included.

6 in. by 4 in. to 6 in. by 5½ in. ...	13*s*. 3*d*.	per 100 feet.
7 by 5 to 8 by 6	13 6	
8½ by 6½ to 10 by 8	14 0	
10½ by 8½ to 14½ by 10½	16 0	
17 by 10 to 18 by 12	18 0	

A great variety of sizes. Particulars had on application.

ORCHARD HOUSE SQUARES on Mr. RIVERS'S plan, to whom I have sold some thousands of feet.

Large Sheets for cutting up, in cases, at 2½*d*. and 3*d*. per foot.

HARTLEY'S IMPROVED ROUGH PLATE GLASS, Sheet, and Rough Plate, Tiles, Milk Pans, Bee and Propagating Glasses, Wasp Traps, Cucumber Tubes, Preserve Jars, with and without covers; Fern Glasses.

Plate, Sheet, Crown, and Ornamental Window Glass. Crystal Glass Shades for ornaments.

Greenhouses, erected in either wood or iron. Garden Lights and Frames.

67, Bishopsgate Street Without, London—same side as Eastern Counties Railway.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.
In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12*s*. 0*d*.
7 „ 5, — 7½ „ 5½ } 8 „ 6, — 8½ „ 6½ }	0 14 0
9 „ 7, — 9½ „ 7½, 10 by 6 } 10 „ 7, 10 by 8 }	0 16 0

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 16*s*. per 100 feet. If cut to order not exceeding 40 inches long.
16 oz. from 2½*d*. to 3½*d*. | 21 oz. from 3½*d*. to 4½*d*.
26 oz. from 5½*d*. to 7½*d*.

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½*d*. per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand.

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¾ of an inch thick	£1 17*s*. 6*d*. per case of 50	
⅝ „	2 1 3 „	60
½ „	1 17 6 „	60

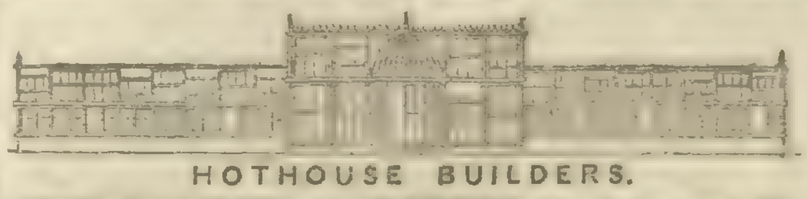
Glass Slates of the usual dimensions.

Glass Milk Pans, 21*s*. per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,



HOTHOUSE BUILDERS.

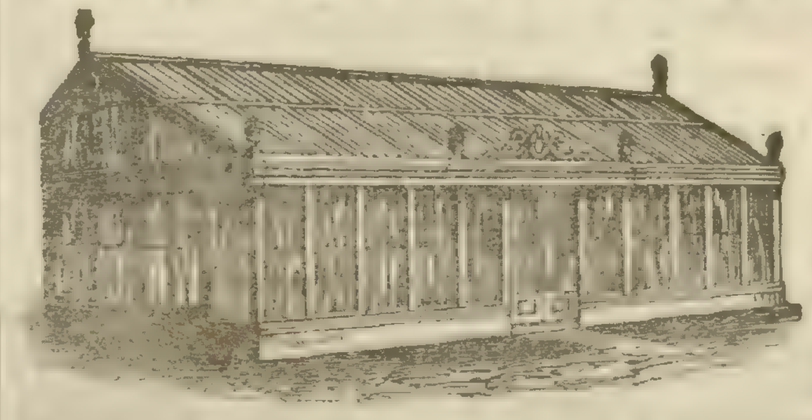
THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.

The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s*. 8*d*. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

NO CHARGE FOR STAMPING at LOCKWOOD'S, 75, New Bond Street. Good cream-laid Note-paper, five quires for 9*d*.; Thick ditto, five quires, 1*s*.; Albert and Queen's sizes, five quires for 6*d*., 9*d*., and 1*s*.; Note-paper made from Straw, 2*s*. 6*d*. per ream; Envelopes, 4*d*. to 1*s*. 6*d*. per hundred; Foolscap paper, 7*s*. 6*d*. per ream; Copybooks 2*s*. 6*d* per dozen. Card Plate engraved, 2*s*. 6*d*.; 100 Cards printed, 2*s*. 6*d*. Wedding orders promptly executed. A large variety of Writing and Dressing Cases, Envelope Boxes, Blotting Books, Inkstands.—Copy address, LOCKWOOD'S, 75, New Bond Street. Country orders for 20*s*. sent carriage free. LOCKWOOD'S celebrated Nugget (Gilt) Pen, 1 doz. post free for 13 stamps.

TO BE SOLD, by private treaty, a NURSERY and PLANT BUSINESS, established nearly 70 years. The Proprietor of this old-established Nursery Business is willing to retire, and dispose of the Stock and Good-will. The nursery comprises about 20 acres of ground, and about 15 large and commodious Stove, Greenhouse, and Propagating Houses, with numerous Pits, frames, &c. *The business is in full working order, and is capable of being increased to almost any extent, and of being made one of the best provincial nurseries in the kingdom.* The stock is in a flourishing condition, being young, healthy, and in good saleable order, and comprises a general assortment of all the most saleable Forest Trees, Shrubs, Fruit Trees, Stove, Greenhouse, and Miscellaneous Plants. The Nurseries are situated close and adjoining one of the largest towns in the West of England, with a population of more than 100,000 inhabitants. The whole of the land, houses, &c., belongs to the proprietor, *who will have no objection to grant a long lease to his successor or successors, and at least one-half of the purchase money could remain on security at common interest.* The business has been carried on with great success by the present proprietor, which partly contributes to his retiring from the business. None but principals and *bond fide* purchasers will be treated with.—Apply to Mr. WILLIAM E. RENDLE, Union Road, Plymouth.

TO LET, for a term of years, from Lady-day next, a compact SHEEP AND TURNIP FARM, Seaton, near Axminster, on the South Coast of Devon, comprising a good Farm House, convenient Offices, and 205 a. 1 r. 34 p. of Land, of which 29 a. 1 r. is Meadow, 2 a. 3 r. 4 p. Orchard, 18 a. 2 r. 25 p. Pasture, and 154 a. 3 r. 5 p. Arable. The whole within a ring fence, and near good Market Towns and Seaports.—To view apply to Mr. THOMAS AYNSLEY, at the Farm; and for particulars, by letter, to Mr. BABBAGE, Nettlecombe, Taunton.—March 17.

TO BE LET, for a term of years, and entered upon at Lady-day next, the FARM of TESTWOOD, in the Parish of Eling, in the County of Southampton. It consists of about 357 acres, of which 60 acres are excellent Water Meadow, 265 acres of excellent Arable Land, and 32 acres of Rough Pasture, which is to be converted into Arable Land. There is a good Farm House, and large commodious Farm Buildings. The Farm is about five miles from Southampton, and the turnpike road from there to Salisbury passes through it. It is within 1½ miles of Eling Railway Station and Wharf on the Southampton ride.—For particulars apply to Messrs. COXWILL & BASSETT, Southampton; or Mr. JOHN MORTON, Nailsworth, Gloucestershire. A person at Testwood House will be directed to show the Farm.

NURSERY AND SEED BUSINESS,
ESTABLISHED IN THE YEAR 1819.

TO BE LET, with immediate possession, the NURSERY and SEED SHOP at Taunton, for some time past in the occupation of Messrs. M'Intyre and M'Intosh. The Grounds and Stock are in excellent condition, moderately rented, and are well worthy the attention of any person wishing to carry on the business. If required the quantity of ground may be reduced. The Nursery is about 5 minutes' walk from the Railway Station.—Apply to Mr. YOUNG, the Proprietor, Elm Cottage, Taunton.

TO MARKET GARDENERS, NURSERYMEN & OTHERS.

TO BE LET or SOLD, 17 acres of Freehold Arable Land, Tithe free, in the County of Surrey, 20 miles from London, with frontage to a good Road, and adjoining the Guildford and Basingstoke Canals, and 1½ miles from Stations on the South Western Railway. Well situated for a Gentleman's Seat, Building Society, or Market Garden.—Particulars of Mr. CLARK, Girdlers' Hall, Basinghall Street, City.

TO MARKET GARDENERS, AND OTHERS.

TO BE LET, or the LEASE to be SOLD, of 16 Acres of excellent GARDEN PASTURE and ARABLE LAND, with a comfortable Dwelling-house, Barn, Stable, and other convenient Out-buildings. The above Property is most desirably situate in the centre of a highly respectable neighbourhood, about six miles from London.—For further particulars and cards to view, apply to Messrs. HOUGHTON and JAMESON, Solicitors, 4, Verulam Buildings, Gray's Inn.

TO BE SOLD, BUFF COCHIN CHICKENS, from first class Prize Birds, Brahma Pootra Chickens, from imported American Prize Birds, and Spanish Chickens. Also some very good one-year-old Birds of the above descriptions. Wire, Game, and Poultry Netting, Poultry Hurdles, Hen-houses, Chicken Coops, Flower Stands, and Trainers, Garden Arches, and every kind of Wire Work, useful and ornamental.—T. H. Fox's, City of London Wire Works, 44, Skinner Street, and 6 & 8, Snow Hill.
Illustrated Catalogues forwarded post free.

COLOURED DORKINGS.—EGGS, from coloured Dorking Fowls, which have taken prizes and been commended at Reading, Cambridge, Norwich, and Colchester Shows at half a guinea the setting of 13; also Eggs from prize Buenos Ayrean Ducks at the same price.—Apply to Rev. E. H. KITTOE, Chadwell Rectory, Grays, Essex.

EGGS from CANARY and CINNAMON COCHINS by a WHITE COCHIN COCK, 8*s*. 6*d*. for 13. A COMPACT PARTRIDGE-COLOURED COCK, two years old, 12*s*. 6*d*. PARTRIDGE PULLETS, NOW LAYING, 8*s*. 6*d*., or three for 21*s*., package included.—Address, R. O., 7, Raeburn Place, Edinburgh.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

T. F. WINSTANLEY, NURSERYMAN, SEEDSMAN, and FLORIST, begs respectfully to inform his patrons, the nobility, and public, that he has added to the above business that of AUCTIONEER and VALUER to noblemen, gentlemen, and nurserymen about relinquishing their establishments, or otherwise desirous of disposing of their stock of Conservatory, Greenhouse, and Stove Plants.

T. F. W. having been for some years in a Nursery previous to his coming to Manchester, trusts that his knowledge of Plants and their value will enable him the better to dispose of them than any ordinary Auctioneer.—28, Market Place, Manchester.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY, March 22, at 12 o'clock, about 200 choice double CAMELLIAS, from 18 inches to 5 feet, comprising all the approved kinds, beautifully furnished with bloom buds; 100 very strong Camellia Stocks; also a choice assortment of Standard and Dwarf Roses, a fine collection of American Plants, comprising Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Magnolias, Andromeda floribunda, choice Dahlias in dry roots, Pæonias, Verbenas, Fuchsias, Epacris, Roses in pots, &c.—May be viewed the morning of Sale. Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

BROMPTON PARK.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the premises, Brompton Park Nursery, Park Lane, near the "Hoop and Toy," on MONDAY, March 19, at 11 o'clock, without reserve, by order of Mr. Adams (in consequence of the ground being taken by the Royal Commissioners for the Exhibition of 1851) the whole of the valuable NURSERY STOCK growing on the above celebrated Nursery, consisting of Evergreens and Fruit Trees, comprising large Cedar of Lebanon, variegated and green Hollies, Portugal and common Laurels, Irish and English Yews, Pinus sorts, Arbor-vitæ, Red Cedars, Laurestinus, Aucubas, Bays, Box, Berberries, a quantity of Irish Ivies and Vines in pots, Weeping Limes, Elms, &c.; also standard-trained Peaches, Nectarines, Apricots, Pears, Apples, Plums, Cherries, Box Edging, &c.—May be viewed one week prior to the sale. Catalogues may be had on the premises; of the principal seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

FIGURES, FOUNTAINS, VASES, TAZZAS, ETC.
TO PRIVATE GENTLEMEN, BUILDERS, AND OTHERS.

MR. PEAKE is instructed to Sell by Auction, on the Premises, 74, Borough Road, Newington Causeway, on THURSDAY, March 22d, at 12 o'clock, without reserve, the Genuine Stock in Trade of the ARTIFICIAL STONE WORKS, comprising a great and pleasing variety of Figures, Fountains, Vases, Ornaments, and other elaborate Works of Art, suitable for embellishing Gardens and Pleasure Grounds, well worthy the attention of private gentlemen and others.—May be viewed prior to the sale, and Catalogues obtained on the Premises; at Mr. PEAKE'S Auction Offices, 44, Tooley Street; and 4, Fair Street, Southwark, London.

SALE OF THE ENTIRE HERD OF PURE-BRED NORTH DEVON CATTLE, AND SUFFOLK HORSES, THE PROPERTY OF THE RIGHT HON. THE EARL OF AYLESFORD, AT THE DAIRY FARM, PACKINGTON, IN THE COUNTY OF WARWICK.

BROWN AND CLARKE have the pleasure to announce to the admirers and breeders of Devon Cattle, that the Sale of pure-bred DEVONS, the property of the Right Honourable the Earl of Aylesford, will take place at the Dairy Farm, Packington, on FRIDAY, the 23d March, on which occasion they will have the honour to submit by Auction the following STOCK, viz.:—55 Cows and Heifers, in milk or in calf, and their young Calves; 40 Two-year-old and Yearling Heifers; 30 Three-year-old, Two-year-old, and Yearling Steers; 4 Bulls, various ages. The Cattle to be offered at the sale will be found to possess the highest degree of purity and most beautiful symmetry, having been bred by the noble proprietor from beasts purchased out of the best herds in the kingdom. The young stock possesses all the most desirable qualities of this justly admired breed.

HORSES AND COLTS.

Two Suffolk Mares in foal, and 3 Barren Mares; 2 Three-year-old, 1 Two-year-old, and 2 Yearling Chesnut Suffolk Colts; 2 Three-year-old, 3 Two-year-old, and 2 Yearling Filleys; 1 Two-year-old Black Filley; a superior Suffolk Stallion "Punch;" 9 powerful Draught Horses. Luncheon on the table at half-past 10 o'clock, and the sale to commence at half-past 11 precisely. Catalogues may be had at the Dairy Farm, Packington; Mr. NEWTON, the Farm Bailiff, Meriden; Spread Eagle, Rugby; Warwick Arm, Warwick; and the Auctioneers, Coventry. The place of sale is within three miles of the Hampton, and three and a half miles of the Coleshill Stations, on the London and North-Western Railway.

READ'S GARDEN ENGINES, SYRINGES, &c.

WHEN an article of real utility attracts public attention, IMITATORS start into the field to snatch from the inventor the just reward of his labours. It has now become a daily practice of exhibiting in the windows of ironmongers and other, Syringes of the VERY COMMONEST DESCRIPTION, with the words "READ'S PATENT," as an inducement to purchasers. This, as an eminent writer on Horticulture has recently remarked on the subject, is indeed "living upon another man's fame."

READ'S Instruments have the ROYAL ARMS, with the Address—35, REGENT CIRCUS, LONDON.

*** A liberal discount allowed to Nurserymen, Seedsmen, &c., &c.—Descriptions sent Post free.

YOUELL AND CO.

BEG RESPECTFULLY to refer the Subscribers to the *Gardeners' Chronicle* to their advertisement which appeared in last week's Paper, containing a detailed List, with prices, of some very choice "Greenhouse Plants," "Rare and Hardy Conifers," "Hardy Ornamental Shrubs and Climbers," "Fastolff Raspberry," with other desirable fruits; "Choice Flower Seeds for present Sowing," Norfolk Hero Cucumber, &c. &c.

☞ In our Advertisement last week, p. 150, *for* Picea pinsapo, 2½ to 3 ft. fine specimens, each 3*s.* 6*d.*, per doz. 42*s.*, *read* 31*s.* 6*d.* to 42*s.* each

ROYAL NURSERY, GREAT YARMOUTH.

PRICED NURSERY CATALOGUES.

A. PAUL AND SON will be happy to forward the following priced Nursery CATALOGUES in return for one postage stamp each:—A, ROSES; B, ORNAMENTAL TREES AND CONIFERS; C, FRUIT TREES; D, HERBACEOUS PLANTS; F, GREENHOUSE PLANTS, &c.; G, SEEDS; H, HOLLYHOCKS; I, BULBS.—Nurseries, Cheshunt, Herts.

BEDDING AND OTHER PLANTS.

T. AND A. SMITH'S Descriptive LIST of the undermentioned is now ready, and may be had, post free, on application:—Antirrhinums, Verbenas, Fuchsias, Scarlet Geraniums, Calceolarias, Petunias, Heliotropes, Pentstemons, Chrysanthemums, Mimulus, Salvias, Lobelias, &c. Climbers in variety, also a miscellaneous Collection of Greenhouse Plants. They have now in bloom Cytisus racemosus, Cinerarias in variety, Primula sinensis, Acacia armata, Deutzia gracilis, Erica Willmorea, &c. The Trade supplied.—Dulwich, Surrey, March 17.

GEORGE SMITH'S PRICED AND DESCRIPTIVE CATALOGUE of first-class Verbenas, Fuchsias, Geraniums (Show, Fancy, Variegated, and Scarlet), Dahlias, Chrysanthemums, splendid new Hollyhocks, very choice Petunias, &c., will be forwarded in return for one postage stamp.

The Geraniums are in extra fine condition, and require repotting. Parties giving orders immediately will save much in carriage, with less liability to damage by having them before they are repotted. Choice Verbena Seed from the finest show flowers.—Tollington Nursery, Hornsey Road, Islington, London.

AMERICAN NURSERY.

GEORGE BAKER'S DESCRIPTIVE CATALOGUE OF AMERICAN PLANTS, &c., as exhibited by him in the Royal Botanic Gardens, Regent's Park, may be had by inclosing two postage stamps.

G. B. begs to call attention to his fine stock of Weeping Hollies, Coniferous Plants, Ornamental Shrubs, &c.—American Nursery, Windlesham, near Bagshot, Surrey, near Staines Station, South-Western Railway, where conveyances may be obtained.

AMERICAN PLANTS.—A Descriptive Priced CATALOGUE of HARDY AMERICAN PLANTS for the coming season is just published, and may be had by inclosing two stamps for postage. As everything in the way of American Plants is grown to an unequalled extent at this Nursery, intending purchasers would do well to provide themselves with this Catalogue.

WATERER AND GODFREY, Nephews and Successors to the late Hosea Waterer, Knap Hill Nursery, Woking, Surrey.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year; and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

WILLIAMS' EVERGREEN CLIMBING ROSE.

WILLIAM WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, have strong Plants of the above now ready for delivery. This highly interesting and valuable addition to the class of Evergreen Climbing Roses was raised by the late John Williams, Esq., of Pitmaston. It is a Seedling from Ayrshire Splendens, fertilised with Yellow Tea. Its rapid growth and elegant habit is precisely like the Ayrshire Splendens, while its glossy foliage and long lemon-coloured buds partake of the character of the Yellow Tea. Its flowers are creamy white, deliciously sweet-scented, and are borne in long racemes of 12 to 20 on a single shoot, being produced from every axil. It is highly desirable for covering walls, lattice work, verandahs, or buildings of any kind, and, as a pillar Rose, is unequalled, being of an extremely elegant habit for forming festoons or arches, and is also very hardy. For Bouquets it is a most beautiful variety, producing an immense number of its finely-formed buds. It only requires to be grown to be pronounced the best Climbing Rose for all purposes in cultivation.

Good established Plants at 3*s.* 6*d.* each, with the usual allowance to the trade, and a further reduction when one dozen or more are ordered at once.

NORTH CHINA SUGAR CANE—(HOLCUS SACCHARATUS). NEW CHINESE POTATO—(DIOSCOREA BATATAS).

MR. JOHN HENDERSON, of Kingskerswell, South Devon, is still prepared to supply and warrant genuine Seeds of the above Sugar Cane, and tubers of the New Chinese Potato, with description of the Chinese mode of culture at the following prices free, for cash:—

Holcus Saccharatus, in packets, at 1*s.*, 2*s.* 6*d.*, and 5*s.* each.
Dioscorea Batatas—four tubers, 10*s.*; ten ditto, 1*l.* 2*s.* 6*d.*

For further particulars as to culture, &c., see a pamphlet descriptive of the nature and progress of these plants, with directions for cultivation, by JOHN HENDERSON, price 1*s.*, published by Mr. S. JOHNSON, St. Martin's Lane, and to be had of all booksellers. Post Office Orders are requested to be made payable at Newton Abbott, South Devon.

NEW ASHLEAF—THE "EARLY CHAMPION."

JOSEPH WILSON, SEEDSMAN, Ipswich, begs to call attention to the following varieties:—

The CHAMPION ASHLEAF, 12*s.* (per bushel, 56 lbs.), is decidedly the finest in cultivation; it is healthy, hardy, and prolific, and for delicacy of flavour it is impossible to be surpassed.

The BRITISH QUEENS, the earliest round variety known. The stock on hand this week is a remarkably fine sample for "sets," and can with confidence be recommended. The following testimonial is worthy of note:—

"SIR.—The quarter of a peck of British Queens you sent me last year on trial has produced over 2 bushels of very fine Potatoes; in fact I have not seen such a crop for the last 20 years, and I have much pleasure in recommending them to your numerous customers. Signed J. BASTING, Gardener to
"Mr. J. Wilson. Mrs. Campbell, Birkfield Lodge."

The new Mammoth variety, LORD RAGLAN, 42*s.*; and the MOSS KIDNEY, 24*s.* per sack of 16 stones as 2d Early's, and well worthy of a trial by large growers for sale.

Free to London for orders of 4 bushels and upwards. No charge for bags or sacks.

TO POTATO GROWERS.—ROSS'S AMERICAN EARLY, grown expressly for Seed on reclaimed Peat or Moor without manure. This well-known productive Potato cannot be equalled as a "second early;" price 21*s.* per sack of 2 cwt.

WALKER'S LARGE WHITE.—This variety is about two weeks later than the preceding, and for general crops cannot be surpassed. It grows to a large size, is an extraordinary cropper, and for table use is all that could be desired; price 24*s.* per sack of 2 cwt. *These prices include a strong sack, and carriage paid to London, Liverpool, and Hull.*

W. DRUMMOND AND SONS, SEEDSMEN, Stirling, N.B.

*** To prevent disappointment unknown correspondents will enclose a remittance with their order.

CHARLES SHARP begs to call the attention of the Nobility, Gentry, and the Trade to his unrivalled collection of SEED POTATOES, which have been grown and selected with great care, and perfectly free from disease. The undermentioned prices include hampers and package. Terms to the Trade known on application.

POTATOES:—

	Per bush. of 4 st.		Per bush. of 4 st.
Ash-leaf Kidney (Jackson's)	10*s.*	American Early	7*s.*
Ash-leafed Kidney (Walnut-leafed)	10*s.*	Forty-Fold	8*s.*
Early Emperor	10*s.*	Kentish Kidney	8*s.*
" Shilling's	10*s.*	York Regent's	6*s.*
" Martin's Globe ...	10*s.*	White Rough	6*s.*
" Oxford Large ...	8*s.*	French Blues	7*s.*
" Round Frame (for Forcing)	8*s.*	White Kidney	8*s.*
Early (Fox's Seedling) ...	8*s.*	British Queen, the largest and best produce in cultivation	8*s.*

Seed Establishment, Wisbeach, Cambridgeshire.

TO THE SEED TRADE.—TURNIP SEEDS, &c.

Skirving's or Liverpool Swede	Orange Globe Wurzel
Laing's	Broccoli, of sorts
White Globe Turnip	Fairbeard's Nonpareil Peas
Green	Cole's Crystal White Celery.
Red Tankard	

W. J. EPPS can with confidence offer the above (not large quantities), having been grown from the best selected stocks possible.—Prices sent on application.

Seed Establishment, High Street, Maidstone, March 17.

AGRICULTURAL SEEDS, MEADOW & PASTURE GRASSES, &c.

PETER LAWSON AND SON, of Edinburgh and London, the QUEEN'S SEEDSMEN, NURSERYMEN, and WOOD FORESTERS; and to the HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND, beg to intimate to their English Customers and the Public that they are now sending out FARM SEEDS of every description, saved from genuine stocks, and for which they respectfully solicit orders.

Also Garden Seeds, Flower Seeds, Garden Implements, Draining Tools, and everything connected with their trade. Catalogues will be sent on application.

London Branch, 27, Great George Street, Westminster.

P. L. & S. are always able to recommend experienced Bailiffs, Gardeners, and Foresters.

GRASS SEEDS, SEPARATE OR MIXED.—*Gentlemen intending to lay down land to Permanent Pasture, or for one or two years' lay, are recommended to communicate with us, stating the nature of the soil and situation, that we may advise as to sorts of Grass Seeds most suitable.* Price 24*s.* to 32*s.* per acre for Permanent Pasture.

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

PERMANENT PASTURE.

H. R. SMITHE, of Eastling, Faversham, Kent, is now prepared to send out his mixtures of the NATURAL GRASSES, PERENNIAL CLOVERS, &c., &c., to lay down Land to Permanent Pasture, at 25*s.* per acre, allowing three bushels to the acre, carriage free. Mixtures for Lawn, or any other purpose, or the sorts separate. Most of the species of Grass are collected by the Advertiser, and he will bestow the greatest attention in selecting such as shall constitute mixtures specifical to the soil, purpose, &c., of each buyer.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their Mixtures of Grass Seeds are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre ... ... 30*s.* per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre.
Mixtures for improving and renovating old Grass Land, 1*s.* per lb.
Mixtures (finest sorts) for forming Lawns... ... 1*s.* 3*d.* per lb.

These Seeds are all new, and have all been properly cleaned and their growing properties fully tested. Directions for sowing accompany the seed.

G. G. and Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., SEEDSMEN,
26, Down Street, Piccadilly, London.

TO PLANTERS.

HAY, SANGSTER, AND CO., have for sale the following;—600 to 700 strong Standard PEARS, 500 Dwarf do., and 100 Dwarf-trained do. Any reasonable offer will not be refused, as the ground must be cleared by the 25th March.

Apply to HAY, SANGSTER, & Co., Newington Butts, London; of whom also may be had for seed York Regent Potatoes, 6*s.*, and Early American, 8*s.* per bushel of 56 lbs., the produce of their prepared Cuttings. Terms cash.

RHUBARB.

BASS AND BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk, offer the following:— *s. d.*
Bailey's Early Monarch, a splendid early sort. Particulars see BASS & BROWN'S Seed and Plant List. Per root ... 2 0
Salt's Crimson Perfection, per root 7 0
Mitchell's Royal Albert, Myatt's Linnæus, and Myatt's Victoria Giant, each per dozen 7*s.* 6*d.*, or 1*s.* each.

STRAWBERRIES.

FOR PARTICULARS SEE SEED AND PLANT LIST.

Admiral Dundas (Myatt's), per dozen 7 0
Scarlet Nonpareil (Patterson's), per dozen 12 0
Omer Pacha (Ward's), per dozen 12 0
Magnum Bonum (Barrett's), per dozen 6 0
Other best older sorts, 3*s.* to 10*s.* per 100.

POTATOES.

TRUE AND FREE FROM DISEASE.

British Queen, per bushel of 56 lbs. 7 0
Soden's Early Oxford do. 7 0
Flour Ball do. 6 0
York Regents do. 6 0

For other sorts see Seed and Plant List.

Fine trained Apricots, Peaches, Nectarines, Plums, &c.

GOODS (not under 20*s.*) CARRIAGE FREE to all the London Termini, or on the Eastern Counties, Colchester line.

PELARGONIUMS OR GERANIUMS.

JOHN DOBSON AND SON beg to offer the following, and feel sure that the plants and varieties will give the greatest satisfaction. Any 12 of the following (purchaser's selection) for 63*s.*, Zampa, &c., included: Attraction, Bride of Abydos, Carlos, Sunrise, Eliza, Glowworm, Leah, Optimum, Pasha, Harriet, Vulcan, Rosa (Foster's), Lucy, and Ambassador.

The following 12 for 42*s.*: Neatness, Colonel of the Buffs, Virginia, Leonora, Gertrude, Enchantress, Rosa (Beck's), Arethusa, Jupiter, Spot, Purple Perfection, and Picta.

Any 12 of the following, 21*s.*: Mochanna, Arethusa, Magnet, Astrea, Amazon, Purpurea, Magnificent, Chloe, Capella, Exhibitor, Leader, Generallissimo, Prince Arthur, Virgin Queen, Galatea.

FANCY PELARGONIUMS.—Any 12 of the following, 24*s.*: Advancer, Annette, Caliban, Captivation, Carlotta Grisi, Fascination, Fleur de Marie, Nerea, Formosissima, Gipsy Queen, Lady Downes, Picturata, Prima Donna, Perfection, and Prince Albert.

Catalogues with full descriptions on application, Woodlands Nursery, Isleworth.

REDUCED PRICE.

WARD'S OMER PACHA STRAWBERRY.

WILLIAM JAMES WARD respectfully informs his friends and the public that he has still a few well-rooted plants to offer of the above excellent Strawberry, which obtained the Bronze Medal at the Royal Botanic Garden Exhibition, July 5, 1854.

It was submitted for opinion to Mr. Thompson, Horticultural Society, Chiswick; Mr. Marnock, Royal Botanic Gardens, Regent's Park; Mr. Powell, Royal Gardens, Frogmore; Mr. Spencer, Bowood Gardens; and several others: all of whom speak highly favourably of it.

The following extract, accompanied with a woodcut, appeared in the "Florist and Fruitist," September, 1854, in the descriptive list of new Strawberries:—

"OMER PACHA.—This variety is a seedling raised by Mr. Ward from British Queen, fertilised by the old Caroline Pine, two good kinds, of which the present variety seems to be a combination. The samples I received were fine looking fruit, and of good quality."

W. J. W. warrants it of very superior flavour, and well adapted for long carriage.

100 Plants	£2 0 0	25 Plants	£0 15 0
50 "	1 5 0	12 "	0 8 0

Terms, cash.—Prospect Hill, Reading, March 17.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. 27, Tavistock Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, March 17, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 12.—1855.] SATURDAY, MARCH 24. [PRICE 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The SECOND SPRING MEETING will take place at the Society's House, 21, Regent Street, on TUESDAY, April 3, from 12 to 5 P.M.

HORTICULTURAL SOCIETY OF LONDON.—GARDEN EXHIBITIONS.

Notice is hereby given that the FIRST EXHIBITION of the Season will take place, by permission of her Majesty's Commissioners for the Great Exhibition of 1851, in the GROUNDS of GORE HOUSE, on WEDNESDAY, May 16.

The Garden will be opened to the Public at TWO o'clock, under the following regulations:—All Fellows of the Society will be admitted without tickets, from half-past 12 till 6 o'clock, on signing their names in a book at the entrance. Visitors can be admitted only by tickets, to be obtained by the personal or written orders of Fellows of the Society.

All Fellows who shall apply, on or before Monday, the 30th of April, may obtain at the PRIVILEGED RATE of Three Shillings and Sixpence each, any number of tickets NOT EXCEEDING THIRTY-SIX; but no application for such tickets will be received after that day. *Fellows of the Society subscribing for tickets at this price will be allowed a clear week from the 30th of April during which they may claim them.* AFTER THAT PERIOD ALL THE 3*s*. 6*d*. TICKETS SUBSCRIBED FOR, BUT NOT ISSUED, MAY BE CANCELLED. After the 30th of April, any further number of tickets will be delivered to Fellows on their personal application or written order, at the price of *Five Shillings* each ticket.

All applications for tickets must be made at the Society's Office, 21, Regent Street.

NO TICKETS WILL BE ISSUED IN REGENT STREET ON THE DAYS OF EXHIBITION. On those days Offices, near the Garden Entrance, will be opened at half-past 12 o'clock for the issue of tickets at 7*s*. 6*d*. each; but still under the regulations above stated.

SPECIAL PRIVILEGE OF FELLOWS.—Fellows of the Society not only enter free at half-past 12, but can also introduce two friends, WITH TICKETS, at Gore House, Kensington Gore, May 16: at Chiswick, June 20, and July 11. Or the Fellow's power may be transferred to a brother, sister, son, daughter, father, mother, or wife, residing in the Fellow's house, provided the person to whom the transfer is made be furnished with a ticket signed by that Fellow. That is to say, the power of entering early may be transferred, but not the right to FREE admission.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The EXHIBITIONS of PLANTS, FLOWERS, and FRUIT this season will take place on WEDNESDAYS, May 9, June 13, and July 4: and of AMERICAN PLANTS, MONDAY, June 18.

Tickets of Admission are now being issued, and may be obtained at the Gardens only, by orders from Fellows or Members of the Society—price on or before May 5, 4*s*.; after that day, 5*s*. each.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

BANKS' SEEDLING FUCHSIAS.—1855.
(FOR FULL DESCRIPTION SEE FORMER ADVERTISEMENTS, AND ON APPLICATION).

W. J. EPPS has much pleasure in stating that the above Fuchsias have been proved to be the finest that have been raised by that celebrated grower E. Banks, Esq., Deal. Early orders are solicited. The set of six, 2*l*. 2*s*. The usual discount to the trade.—Bower Nurseries, Maidstone.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks, at 5*s*.; 12 varieties, 2*s*. 6*d*.; and from good double sorts, 1*s*. Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s*. per packet: separate, 2*s*. Fine Quilled African Marigolds, 6*d*. per packet.—Saffron Walden Nurseries.

BOSSOM'S CHAMPION OF ENGLAND CELERY.

THE finest Celery yet introduced, beautifully white, very crisp and solid, and withstands a greater amount of frost than any other known variety; it has been blanched in the ground 3 feet.—To be obtained of T. F. Winstanley, Seedsman, 28, Market Place, Manchester, price 2*s*. 6*d*. per packet: prices to the trade on application.

R. SMITH is now sending out his New Seedling Strawberry, SIR CHARLES NAPIER, the best forcing sort of the day, admired by all who have seen its growth, and for flavour not one to equal it. Price 3*l*. per 100; 50 for 30*s*.; 25 for 17*s*. Also, Sir Charles Napier, British Queen, and Keens' Seedling in pots for Forcing.—R. SMITH, Market Gardener, Richmond Road, Twickenham.

CHEAP AND GOOD CINERARIAS.—Fine flowering plants from Turner's best seed in large 32s and 48s pots, just coming into bloom, at from 4*s*. to 6*s*. per dozen. Also fine plants of named varieties, consisting of Mr. and Mrs. S. Herbert, Adela Villiers, Garland, Constellation, Lady H. Campbell, Kate Kearney, Flora M'Ivor, Étoile de Venus, &c., at 9*s*. per dozen.—WOOD & INGRAM, Nurseries, Huntingdon.

SEEDS FOR THE FARM, CARRIAGE FREE.—SEE RENDLE'S "FARMING PRICE CURRENT AND AGRICULTURAL DIRECTORY."
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SUTTON'S FARM SEED LIST, WITH PRICES, may be had gratis and post-free on application. Goods delivered Carriage Free, as see Catalogue.
Reading, Berks, March 24.

YOUELL AND CO. beg respectfully to refer the Subscribers to the *Gardeners' Chronicle* to their advertisement which appeared on the 10th of March, containing a detailed List, with prices, of some very choice "Greenhouse Plants," "Rare and Hardy Conifers," "Hardy Ornamental Shrubs and Climbers," "Fastolff Raspberry," with other desirable fruits; "Choice Flower Seeds for present Sowing," "Norfolk Hero Cucumber," &c. &c.—Royal Nursery, Great Yarmouth.

MESSRS. J. AND H. BROWN'S NEW PRICED CATALOGUE, post free, of American Plants, Coniferæ, Roses, Geraniums, Fuchsias, Orchidea, Stove and Greenhouse Plants, Fruit Trees, &c. A separate List of Garden Seeds, Choice Flower Seeds, 20 papers, 5*s*.; 40 do., 10*s*. free by post.
Albion Nursery, Stoke Newington, London.

T. F. WINSTANLEY'S Descriptive Catalogue of GARDEN and FLOWER SEEDS is now ready, and can be had on application, or sent free by post.
28, Market Place, Manchester.

T. F. WINSTANLEY'S Descriptive AGRICULTURAL SEED LIST will shortly be ready, and may be had on application, or sent free by post. The above List contains much useful information.—28, Market Place, Manchester.

CORNISH EARLY WHITE BROCCOLI, 1*s*. per packet, or 6*s*. per oz.
CONQUEROR OF THE WEST CUCUMBER, 1*s*. per packet, containing 12 good seeds.
The above can be had, warranted genuine, by forwarding postage stamps for the amount to
JAMES LAKE, Seedsman, &c., Bridgewater.

FINE DELPHINIUMS OF SORTS FOR BEDDING AND FLOWER-BORDERS.

Azurea, per doz.	6*s*. 0*d*.	Azurea pleno, per doz.	24*s*. 0*d*.
Barlowi, "	6 0	Elatum pleno, "	12 0
Hybridum pleno, p. doz.	24 0	Mesoleucum "	4 0
Magnificum, per doz.	42 0	Sinensis "	4 0
Wheeleri "	18 0		

Also a quantity of fine Seedling Delphiniums, strong plants of various colours, 3*s*. per dozen.
D. WOOD, Welton Nursery, near Brough, Yorkshire, March 24.
Not to be repeated.

VINES.

JOHN AND CHARLES LEE have an extensive stock of strong well rooted VINES of the following sorts, warranted true:—

Black Hamburgh	White Frontignan	Pope's Hamburgh
Black Prince	Barbarossa	Esperione
Black Alicant	Chasselas Musqué	West's St. Peter's
Black Tripoli	Muscat of Alexandria	Royal Muscadine
Black Frontignan	Cannon Hall Muscat	August Muscat
	Dutch Hamburgh	Prolific Sweet Water

Nursery, Hammersmith, near London.

CHARLES TURNER begs to intimate that his New SPRING CATALOGUE is now ready, and contains descriptive lists of—

Dahlias,	Carnations,	Scarlet and Horseshoe Geraniums,
Fancy Dahlias,	Picotees,	Delphiniums,
Cinerarias,	Pinks,	Mimulus,
Verbenas,	Pansies,	Pentstemons,
Fuchsias,	Auriculas,	Petunias,
Hollyhocks,	Shrubby Calceolarias,	Bedding Plants, &c.,
Chrysanthemums,		

including several new Dahlias, new Verbenas, new White Bedding Calceolarias, &c., offered for the first time. Can be had on application.—Royal Nursery, Slough.

CHOICE STOCK SEED.—One packet of very choice Scarlet Intermediate, or one of White Emperor Stock, will be forwarded to any one enclosing 12 postage stamps to E. N., Post Office, Louth, Lincolnshire.

IMPORTED GERMAN FLOWER SEEDS.

T. F. WINSTANLEY has received his annual importation (direct from Frankfort) of unrivalled Collections of German Seeds, including Double Ten-Week Stocks, Asters, Zinnia elegans, Truffeaus, new Pæony-flowered Aster, very beautiful, and many other varieties too numerous for insertion. Prices on application; lists free by post.
28, Market Place, Manchester.

COVENT GARDEN.

W. AND S. GAINES beg respectfully to offer to Gardeners, Farmers, and Nurserymen, the following SEEDS:—Scarlet Runners, 27*s*. per bushel; China, Dwarf, or Robbin's Egg Beans, at 28*s*. per bushel. Potatoes for planting; also Annual Flower Seeds, fifteen varieties, 2*s*. 6*d*.; thirty varieties, 5*s*. Prices for cash.—Post-office orders payable to W. & S. GAINES, Charing Cross, London.

HOPS SUPERSEDED BY THE BAVARIAN BITTER, a perfect substitute for Hops, of an agreeable flavour, quite soluble in wort or beer, saving the trouble of straining through a Hop-back, and giving to Beer the well-known keeping properties of the Bavarian Beer. Price of 1 packet, 2*s*. 8*d*., which is equal to 5 lbs. of best Hops.—Prepared only by THOMAS PRATT WILLS, St. George's Square, Portsea. Free per post.

NOTICE TO THE TRADE.

JOHN ADAMS, NURSERYMAN AND SEEDSMAN, High Street, near the Market Place, New Brentford, Middlesex. Nursery Grounds at Acton Green, established several years.

JOHN ADAMS begs to inform his kind friends and patrons that he intends carrying on the above business on a large scale, and begs a continuance of their kind favours, and that nothing on his part shall be wanting to give entire satisfaction.—Brompton Park Nursery, March 24.

GERMAN FLOWER SEEDS FRESH IMPORTED.

SUTTON AND SONS *have imported a superior assortment of New German Flower Seeds, a Priced List of which may be had post free.*

ALSIKE CLOVER (TRIFOLIUM HYBRIDUM).

SUTTON AND SONS have some pure genuine Seed of this superior new CLOVER, which will be found an invaluable Perennial Plant.

WHITE BELGIAN CARROT SEED.—PURCHASERS OF LARGE QUANTITIES will be treated liberally. For prices apply to SUTTON & SONS, Seed Growers, stating the quantity required.

SKIRVING'S SWEDE SEED.—PURCHASERS OF LARGE QUANTITIES will be treated liberally.—For prices, apply to SUTTON & SONS, Seed Growers, Reading, stating the quantity required.

MANGOLD WURZEL SEED.

PURCHASERS OF LARGE QUANTITIES will be treated liberally.—For prices apply (stating the quantity required) to SUTTON & SONS, Seed Growers, Reading.

MANGOLD WURZEL, ETC.—TO THE SEED TRADE.

BASS AND BROWN beg to offer, of the finest Stocks, Mangold Wurzel, Long Red; Do. Yellow Globe; Do Red Globe; White Carrot; Skirving's Swede; Orange Jelly Turnip; Meadow Fescue Grass. Wholesale prices to the trade on application.—Seed Establishment, Sudbury, Suffolk.

MANGOLD WURZEL SEED, LONG RED, and YELLOW GLOBE, warranted genuine, and the growth of 1854. Price 45*l*. per ton.—Apply to R. S. HEWS, Kelvedon, Essex.

SPECIAL CONTRACTS FOR SEEDS.—*Noblemen, Clergymen, or Yeomen requiring large quantities, special contracts will be made, at a great reduction in price, on application to*
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SEEDS CARRIAGE FREE.

AGRICULTURAL SEEDS.—*Landed Proprietors and Farmers who require* LARGE QUANTITIES *of Turnip, Mangold Wurzel, Carrot, or any other kinds of Agricultural Seeds, will be supplied on the most liberal terms.*—Apply to
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SOUTH AMERICAN CALCINED BONES (for Agricultural Purposes), for SALE, in Store or Afloat, by GOAD, RIGG, & Co., Brokers, 17, Mark Lane.

FLAX SEED, GROWN IN THE NORTH OF SCOTLAND.

TO BE SOLD, in quantity, excellent FLAX SEED, grown from Riga Seed imported. Samples may be had, and prices learned from BENJAMIN REID & Co., Seedsmen, Aberdeen, Scotland. References required from unknown correspondents.

DWARF FRENCH BEANS can be had in any quantity.—Apply to J. G. WAITE, Seed Merchant, 181, High Holborn, London.

CAMELLIA JAPONICA.

CHANDLER AND SON'S extensive collection of this beautiful plant is now in flower and will continue for some weeks. Also a great variety of Flowering Plants for rooms and conservatories.—Wandsworth Road, Vauxhall.

BEAUTIFUL SEMI-DOUBLE PRIMULAS.—Only a few packets remain on hand. To prevent disappointment, order without delay.
The celebrated Ipswich Standard Cucumber is sold out.
THOMAS WILD, Ipswich.

GIANT ASPARAGUS PLANTS.—Fine plants, three years, at 25*s*. per 1000, can be had of STEPHEN SHILLING, Nurseryman, North Warnborough, Odiham, Hants.

LIQUIDAMBAR.—The undernamed is a buyer of either a large or small quantity of the above. Send cash price, and height, to Mr. JEYES, Nurseries, Northampton.

FRUIT TREES, FOREST TREES, AND SHRUBS, GARDEN AND FLOWER SEEDS, PERMANENT PASTURE GRASSES, and FINE DWARF LAWN GRASSES.—Catalogues of the above may be had on application to WILLIAM BARRATT, Saint John's Nursery, Wakefield.

TO BE SOLD, a few thousand good strong transplanted ENGLISH OAKS, 5, 6, and 7 feet high. Price on application.—W. JACKSON & Co., Bedale, Yorkshire.

ONE YEAR SEEDLING LARCH.

WILLIAM WOOD AND SON have a fine Stock of the above, and will be happy to furnish prices on application.—Woodlands Nursery, Maresfield, near Uckfield, Sussex.

CHEAP NURSERY STOCK.
IMPORTANT TO ALL PLANTERS WHO DESIRE IMMEDIATE EFFECT.

WILLIAM JACKSON & Co., Bedale, Yorkshire, beg to refer to their advertisement in the *Gardeners' Chronicle and Agricultural Gazette* of the 17th March, page 181.

BOX TREES.

MESSRS. E. G. HENDERSON AND SON, of the WELLINGTON NURSERY, St. John's Wood, having on hand a large stock of FINE BOX and LILAC TREES, beg to call the attention of parties engaged in laying out Cemeteries and Ornamental Grounds to the same, which they are willing to dispose of at very reduced prices.—March 24.

TO PLANTERS.

HAY, SANGSTER, AND CO., have for sale the following;—600 to 700 strong Standard PEARS, 500 Dwarf do., and 100 Dwarf-trained do. Any reasonable offer will not be refused, as the ground must be cleared immediately.

Apply to HAY, SANGSTER, & Co., Newington Butts, London; of whom also may be had for seed York Regent Potatoes, 6*s*., and Early American, 8*s*. per bushel of 56 lbs., the produce of their prepared Cuttings. Terms cash.

PERMANENT PASTURE.

H. R. SMITHE, of Eastling, Faversham, Kent, is now prepared to send out his mixtures of the NATURAL GRASSES, PERENNIAL CLOVERS, &c., &c., to lay down Land to Permanent Pasture, at 25s. per acre, allowing three bushels to the acre, carriage free. Mixtures for Lawn, or any other purpose, or the sorts separate. Most of the species of Grass are collected by the Advertiser, and he will bestow the greatest attention in selecting such as shall constitute mixtures specifical to the soil, purpose, &c., of each buyer.

BEDDING AND OTHER PLANTS.

F. AND A. SMITH'S Descriptive LIST of the undermentioned is now ready, and may be had, post free, on application:—Antirrhinums, Verbenas, Fuchsias, Scarlet Geraniums, Calceolarias, Petunias, Heliotropes, Pentstemons, Chrysanthemums, Mimulus, Salvias, Lobelias, &c. Climbers in variety, also a miscellaneous Collection of Greenhouse Plants. They have now in bloom Cytisus racemosus, Cinerarias in variety, Primula sinensis, Acacia armata, Deutzia gracilis, Erica Willmorea, &c. The Trade supplied.—Dulwich, Surrey, March 24.

To Farmers, Potato Growers, and Others.

JACKSON'S PATENT PREPARATION
FOR
PRESERVING POTATOES, WHEAT, AND OTHER SEEDS

From DISEASE, the RAVAGES of the SLUG, GRUB, and WIREWORM, in addition to which the CROPS are brought forward in HEALTH AND VIGOUR, and the yield is greatly increased, in proof of which the following extracts are given from numerous letters received by Mr. JACKSON.

EXTRACTS:—

"One of the fields of this farm, the property of MRS. STANBERY, was planted with Regents Potatoes in April last, some of which were prepared by you. The result now is, that the whole of the crop from the unprepared sets is thoroughly diseased, and hardly worth the trouble of taking up; while those raised by the side of them from the prepared sets are not only in a beautiful state of preservation from the disease, but the produce is much greater,—the Potatoes are more numerous than the others; indeed, if there were no such thing as the disease to be feared, it would be worth the trouble and expense of preparing the sets by your process, even for the sake of the improved crops. I shall certainly, for the future, prepare all my Potatoes for seed by your process; and I intend to adopt it for preserving my Wheat from the Smut.
"G. B. BAXTER.
"Belmont Farm, Eltham, Kent, August 28, 1854."

"Admiral Sir J. A. GORDON, K.C.B., Marlee House, Blairgowrie.
"SIR,—I have received your note of the 16th. The Potatoes that came here from England, prepared by Mr. JACKSON, were planted in a piece of new ground, and according to the directions sent by him along with them as to distance between the plants, &c. They came up well, with strong healthy stems; I have now taken the whole crop up, and there is not the slightest appearance of any disease amongst them. They are of large equal size and very prolific. There were long black unprepared Kidneys planted in the same patch, and a great deal of them are not fit for use, at least a third part are diseased. I hope Mr. JACKSON's process may be widely known, as it is a great boon.—I am, &c.,
JOHN SHANKS,
"Forester, Kildrummy Castle.
"Kildrummy Castle, Aberdeenshire, November 17, 1854."

"I am very much pleased with the result of the experiments I have made with your Prepared Potatoes; for I planted them, without any manure, in ground where for several years I have hardly had a sound Potato, and I now find the crop perfectly free from disease, and in a very fine condition; while those of the same sort, unprepared, which were planted at the same time, and next to them, are diseased and eaten by worms.

"The Potatoes from the Prepared Seed were so remarkably good that I was induced to weigh them, and I found, to my great astonishment, that they were as 200 to 150 of the others, or about 25 per cent. in favour of your preparation.
"T. AUSTEN, Nurseryman and Seedsman.
"Blackheath, Kent, 24th August, 1854."

Sold by Messrs. CHARLWOOD & CUMMINS, Seedsmen, Covent Garden; and JOHN KENNAN, Seedsman, 4, Great Russell Street, Covent Garden; all Seedsmen and Chemists; and at the Patentee's, 18, Cannon Street, London Bridge, in Packets of One, Two, Three or Four Pounds, or in Bulk for the use of Farmers and Potato Growers.

DOUBLE ITALIAN TUBEROSE ROOTS, 4s. per dozen.—The annual importation of the above named beautiful and fragrant Flower has just been received and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT's Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived very moist and open Parmasan Cheeses.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, &c., which they will forward to any part:—

	s. d.
Andromeda floribunda, per dozen ... ... 12s. to	18 0
25 Azaleas, new hardy Belgian varieties, one of a sort, by name on their own roots	36 0
25 Azaleas, American varieties, do. do.	36 0
Hardy Heaths, Ledums and Kalmias, per dozen ...	15 0
25 Hardy American Plants, one of a sort, by name ...	6 0
12 Rhododendrons, including scarlet, white and rose ...	10 0
Fine hardy Scarlet Rhododendrons, 1 to 2 feet, per dozen...	12 0
New Yellow Rhododendrons, in pots, each ... 3s. 6d. to	5 0
6 Fine hardy Magnolias, one of a sort	10 0
50 Dwarf Roses, two of a sort, on their own roots	17 0
Standard Roses, superb sorts, per dozen ... ... 12s. to	15 0
Fine climbing Roses, of sorts, per dozen	6 0
Bourbon Roses, budded, 1 foot, fine for beds or edgings, do.	10 0
Fitz-Roya, Saxe-Gothæa, Cephalotaxus, Libocedrus, each...	5 0
Wellingtonia gigantea, and other choice and cheap hardy Coniferæ (see list).	
Cedar of Lebanon, 2 to 3 feet, well grown, per dozen, 12s. to	18 0
Greenhouse Azaleas, choice varieties, per dozen ... 12s. to	18 0
12 Camellias, with buds, fine sorts, for	36 0
50 choice Greenhouse plants, one of a sort	45 0
Orchidea Plants, beautiful species, by name, per dozen	40 0
24 choice Ericas, one of a sort	18 0
24 choice Fuchsias, fine proved varieties	12 0
6 Tree Carnations, choice sorts	6 0
Verbenas and Petunias, best new sorts, per dozen ...	6 0
First Class Carnations, Picotees, and Pinks, per dozen	12 0
25 choice Pansys, one of a sort—	10 0
12 Pæonias new white, pink and blush, of sorts ...	8 0
25 choice hardy herbaceous plants named	7 0
Choice Flower Seeds, 20 papers, 5s.; 45 ditto, 10s. Free by post.	

FRUIT TREES.

	s. d.
Fine standard and dwarf-trained Apples, Plums, Pears, and Cherries of the very best sorts, 2s. 6d. each, or per doz.	24 0
Fine Gooseberries, Currants, and Raspberries, per dozen	3 0
Figs, Medlars, Quinces, Walnuts, and Mulberries, each ...	2 0
Filberts, new thin shelled and red skinned, per dozen ...	3 0
Strong Vines, from eyes and layers, in pots, per dozen ...	18 0

A large stock of fine Transplanted Scotch Larch and Spruce Firs, cheap. Also Evergreen Shrubs of all kinds.

New Priced Catalogues of Plants and Seeds by post.

Albion Nursery, Stoke Newington, London.—March 24.

LAURELS FOR THE MILLION.

DAVID FERGUSON, Landscape Gardener and Contracting Planter,

CAN supply LAUREL, 6 to 9 inches in height, 50*l.* per 100,000; 9 to 18 inches, 100*l.*; 18 to 30 inches, 150*l.*; 30 to 50 inches, 200*l.* Fine bushy Cedrus Deodara, 12 to 50 inches, 100*l.* per 1000. Very fine Specimen Yews, 4 to 5 feet 100*l.* per 1000. Very fine Double Pink and Single Crimson Thorns, 5 to 7 feet, 100*l.* per 5000. Bushy Tree Box, 12 to 14 inches, 50*l.* per 10,000. Berberis Aquifolia, 12 to 24 inches, 20*l.* per 10,000. Cotoneaster Microphilla, 25*l.* per 5000. Evergreen Privet, 20*l.* per 20,000. Aucubas, 18 to 24 inches, 40*l.* per 5000. Very fine Portugal Laurels, Variegated Hollies, Auracarias, Cryptomeria Japonica, Irish Yews, Phillyreas, Standard and Dwarf Budded Roses, Spruce, Hazel. Elms and Limes for Avenues. A few very fine dwarf worked May Duke Cherry Trees, full of flower buds. Cedar of Lebanon, 2 to 4 feet, 10*l.* per 100, &c. Heliotropes in five or six varieties, very strong, 8*l.* per 1000. Tom Thumb Geraniums, &c., 10*l.* per 1000.—No more Orders taken for Bedding Plants till after the 20th of April.

D. F. was many years Gardener to the late P. C. Labouchere, Esq., Hylands, Essex, and is well acquainted with Forcing Grapes, Peaches, Apricots, Raspberries, Strawberries, Melons, French Beans, Lettuce, Carrots, &c., on the Dutch System, which is superior to the British, where a stud of horses is kept. D. F., to save trouble, distinctly wishes it to be understood in case of Contracting or Carrying out the Works, his time and patience will not admit of any interference but with his Employers. D. F. will feel much pleasure in recommending two Working Gardeners: one requires 80*l.* per annum, with Cottage, &c.; the other will be satisfied with 60*l.*, and are well worth the notice of any Lady or Gentleman in want of such.

PLANS OF HOUSES AND PITS, ETC., FURNISHED ON THE DUTCH AND ENGLISH SYSTEMS.

STOWE, BUCKINGHAM.

ESTABLISHED 1786.

WEST OF ENGLAND AGRICULTURAL AND HORTICULTURAL ESTABLISHMENT,

FOR THE SUPPLY OF EVERY REQUISITE FOR THE FARM AND GARDEN.

UNION ROAD, PLYMOUTH.

Under the Patronage of

HER MOST GRACIOUS MAJESTY THE QUEEN, HIS ROYAL HIGHNESS THE PRINCE OF WALES AND DUKE OF CORNWALL, HIS MAJESTY THE KING OF THE BELGIANS, HER IMPERIAL HIGHNESS THE DUCHESS OF BRABANT, HER ROYAL HIGHNESS THE DUCHESS OF ORLEANS, HIS EXCELLENCY THE NEPAULESE AMBASSADOR AND SUITE.

His Grace the Archbishop of York.
His Grace the Duke of Bedford.
His Grace the Duke of Devonshire.
His Grace the Duke of Leinster.
His Grace the Duke of Marlborough.
His Grace the Duke of Somerset.
The Most Hon. the Marquis of Conyngham.
The Right Hon. the Earl of Besborough.
The Right Hon. the Earl of Burlington.
The Countess Dowager of Craven.
The Countess Dowager of Macclesfield.
The Right Hon. the Earl of Falmouth.
The Right Hon. the Earl of Fortescue.
The Right Hon. the Earl Howe.
The Right Hon. the Earl of Morley.
The Right Hon. the Earl of Mount Edgcumbe.
The Right Hon. the Earl of Portsmouth.
The Right Hon. the Earl of St. Germans.
The Right Hon. the Earl of Roseberry.
The Right Hon. the Earl of Wilton.
The Right Hon. Lord Viscount Ebrington.
The Right Hon. Lord Viscount Lorton.
The Right Rev. Lord Bishop of Ely.
The Right Rev. Lord Bishop of Exeter.
The Right Rev. Lord Bishop of Meath.
The Right Rev. Lord Bishop of Ossory.
The Right Rev. Lord Bishop of Ripon.
The Right Hon. and Rev. Dean of Windsor.
The Right Hon. Lord Ashburton.
The Right Hon. Lord Oranmore.
The Right Hon. Lady Bassett.
The Right Hon. Lord Bolton.
The Right Hon. Lady Elizabeth Brownlow.
The Right Hon. Lord Carew.
The Right Hon. Lady Churchill.
The Right Hon. the Baroness de Sternberg.
The Right Hon. Lady Fortescue.
The Right Hon. Lord Graves.
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The Right Hon. Lord Hill.
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The Right Hon. Lady Rose.
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The London Horticultural Society.
The Royal Agricultural Society, Prince Edward's Island
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And upwards of two thousand of the leading aristocracy and principal families in Great Britain and Ireland.

WILLIAM E. RENDLE & CO.,
SEED MERCHANTS, PLYMOUTH,
BY SPECIAL APPOINTMENT TO THE SOUTH DEVON AGRICULTURAL ASSOCIATION, AND THE ROYAL AGRICULTURAL SOCIETY, PRINCE EDWARD'S ISLAND, SUPPLY ALL KINDS OF

SEEDS FOR THE FARM AND THE GARDEN.

CARRIAGE FREE, AS PER FOLLOWING SCALE:—

All Orders for Seeds above £1 (excepting heavy articles, as Grain, Tares, Clover, Seed Potatoes, &c., will be delivered Free of Carriage to any Railway Station between Plymouth and Paddington.

All Orders above £2, with the above exceptions, Free to any Station on the Broad Gauge Railways, or to any Market Town in Devon and Cornwall, or to Cork, Dublin, and Liverpool, by Steamers.

All Orders for Seeds above £5, with the above exceptions, will be delivered, Free of Carriage, to any Railway Station in England and Wales, and to any Steam Port in England, Wales, Scotland, and Ireland.

NEW AND RARE CONIFERÆ.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, Edinburgh and London, have still on hand a small quantity of the Seeds of the following RARE CONIFERÆ, &c.:

	£ s. d.		£ s. d.
Pinus Lambertiana, 50 Seeds	1 5 0	Taxus Lindleyana (quite new) 50 Seeds ...	2 2 0
P. tuberculata, entire cones	2 2 0	Club-headed Wheat (cultivated by the old Californians) 200 grains	1 0 0
P. genticiana, 50 Seeds ...	2 2 0	Wheat (a variety of Triticum durum) do.	15 0
P. Jeffreyi do. ...	2 2 0		
P. Beardsleyi do. ...	2 2 0		
Libocedrus decurrens, do.	1 5 0		

Full descriptions will be found in the last page of the *Gardeners' Chronicle*, for Feb. 3.—Orders may be addressed to PETER LAWSON & SON, in Edinburgh; or to their London House, 27, Great George Street, Westminster.

REDUCED PRICE.

WARD'S OMER PACHA STRAWBERRY.

WILLIAM JAMES WARD respectfully informs his friends and the public that he has still a few well-rooted plants to offer of the above excellent Strawberry, which obtained the Bronze Medal at the Royal Botanic Garden Exhibition, July 5, 1854.

It was submitted for opinion to Mr. Thompson, Horticultural Society, Chiswick; Mr. Marnock, Royal Botanic Gardens, Regent's Park; Mr. Powell, Royal Gardens, Frogmore; Mr. Spencer, Bowood Gardens; and several others: all of whom speak highly favourably of it.

The following extract, accompanied with a woodcut, appeared in the "Florist and Fruitist," September, 1854, in the descriptive list of new Strawberries:—

"OMER PACHA.—This variety is a seedling raised by Mr. Ward from British Queen, fertilised by the old Caroline Pine, two good kinds, of which the present variety seems to be a combination. The samples I received were fine looking fruit, and of good quality."

W. J. W. warrants it of very superior flavour, and well adapted for long carriage.

100 Plants	£2 0 0	25 Plants	£0 15 0
50 „	1 5 0	12 „	0 8 0

Terms, cash.—Prospect Hill, Reading, March 24.

NOTICE.—For full particulars of EDWARD TILEY'S two unequalled new Cucumbers, Melons, and Seedling Potato, see advertisement in *Gardeners' Chronicle* of 24th February, 1855, page 128, together with an exact representation of the Cucumber, Sir Colin Campbell.

The TWO FINEST CUCUMBERS IN THE WORLD, SIR COLIN CAMPBELL and GENERAL CANROBERT (for further particulars see *Gardeners' Chronicle* of February 24th), price 3*s.* 6*d.* per packet, or a packet of each and a packet of either of the Melons mentioned in the advertisement of the above date (except Golden Drop and Scarlet King), for 6*s.*

TILEY'S SEEDLING POTATO, THE CHAMPION KIDNEY, the best and earliest in the world, price 5*s.* 6*d.* per peck, hamper and package included, or 1*l.* per bushel.

UNEQUALLED NEW MELON, GOLDEN DROP (Green Flesh), price 1*s.* 6*d.* per packet.

THE KING, a superb Scarlet Flesh Melon, 1*s.* 6*d.* per packet. A packet of Golden Drop, one of the King Melon, together with a packet of any other variety mentioned in the former advertisement, will be forwarded post free on receipt of 3*s.* 6*d.* in cash or penny postage stamps.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somersetshire.

GERMAN ASTER SEED, all saved from the finest Globe varieties, ever yet exhibited, and which have surpassed all others in cultivation for their immense size and distinct colours, 1*s.* per packet.

SWEET WILLIAM SEED saved from 50 of the choicest and most superb varieties, 1*s.* per packet.

ANTIRRHINUM SEED saved from all the finest shaped and best varieties, 1*s.* per packet.

SUPERB HOLLYHOCK SEED saved from all the best named flowers, 1*s.* per packet.

SCARLET GIANT BROMPTON STOCK, extra fine, 1*s.* per packet.

VERY SUPERIOR FIMBRIATA PRIMULA SINENSIS SEED, saved from six distinct varieties of the largest and most superb plants ever grown, 2*s.* 6*d.* per packet.

PANSY SEED, a few packets from selected varieties, 1*s.* per packet.

POLYANTHUS SEED, fine mixed, 1*s.* per packet.

CROWN GOURD, or CUSTARD MARROW; this variety is the most delicious of all the Marrows grown, 1*s.* per packet.

AQUILEGIA, or COLUMBINE, of 12 distinct varieties, 1*s.* per packet.

Any three packets of the above (except the Primula) sent post-free on receipt of 2*s.* 6*d.*, or the Primula included with two other packets, for 3*s.* 6*d.*, in cash or penny postage stamps by

EDWARD TILEY, NURSERYMAN, SEEDSMAN, AND FLORIST, 14, Abbey Church Yard, Bath, Somerset.

NOW READY.

WILLIAM AND GEORGE DAVISON can supply complete collections of KITCHEN GARDEN SEEDS, to suit the various sized Gardens, at the following prices:—

No. 1 Collection ...	£3 0 0	No. 3 Collection ...	£1 2 6
No. 2 „ ...	1 16 0	No. 4 „ ...	0 12 6

FLOWER SEEDS: 50 packets, including the best hardy, half hardy, and tender Annuals and Biennials, with printed instructions, 10*s.* 6*d.*; 25 ditto ditto, 6*s.*; 12 ditto ditto, 3*s.*

GRASS SEEDS: Fine Lawn Grass Seed 1*s.* per lb.: Grass Seeds for laying down permanent pasture mixed to suit any soil, 8*l.* per acre. Every variety of agricultural Seeds of the finest quality. Priced Catalogues may be had on application to W. & G. DAVISON, Seed Warehouse, St. Peter's Street, Hereford.

BASS AND BROWN'S CHOICE VEGETABLE AND FLOWER SEEDS.

For some of the novelties of their first-rate Collections, also choice imported Seeds, Roots for early spring planting, &c., see Advertisements in the Gardeners' Chronicle *of Feb.* 17, *page* 109, *and March* 10, *page* 149.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS, containing the best new sorts

	s.	*d.*
No. 1, with 20 quarts of Peas, and other vegetables in proportion	60	0
No. 2 Collection, 40*s.*; No. 3, 25*s.*; No. 4	15	0

The collections are given in the Seed and Plant List.

FLOWER SEEDS, BEST AND NEWEST ASSORTMENTS, with printed instructions for sowing, &c.

100 vars., choice strong annuals...	15	0
50 vars., 5*s.* 6*d.*; 30 vars., 5*s.* 6*d.*; 20 vars.	4	0
20 vars. best dwarf kinds, in large packets, suited for beds on lawns, 7*s.* 6*d.*; 12 vars....	5	0
20 vars. choice greenhouse annuals, 7*s.* 6*d.*; 12 vars. ...	5	0
20 vars. choice greenhouse perennials, 10*s.* 6*d.*; 12 vars....	7	6
20 vars. choice hardy biennials and perennials	7	6
12 do. do do do.	5	0

For further particulars see Seed and Plant List.

CHOICE IMPORTED SEEDS, comprising Stock, Aster, Balsam, Cockscomb, Larkspur, Salpiglossis, Scabious, Sinecia, Sweet William, Wallflower, Zinnia, &c.

BASS & BROWN'S Seed and Plant List free by post for three penny stamps. Also the autumn Catalogue for three penny stamps; or gratis to our customers who may not have received them.—Seed and Horticultural Establishment, Sudbury, Suffolk.

R. PARKER begs to offer the following, all of which are well established, and can be forwarded to any part of the Kingdom:—

	From per dozen.—*s.*	*d.*
Exotic Orchids, distinct and beautiful species	60	0
Exotic Ferns „ „	18	0
British ditto „ „	9	0
Exotic Lycopodiums „ „	12	0
Roses, consisting of the best varieties of Hybrid Perpetuals, Teas, and Bourbons, strong plants, established in pots ...	12	0
Cinerarias, choice named varieties, strong, established plants, in 4-inch pots	9	0
Cinerarias (Seedlings), from the finest named varieties, including the best varieties sent out last season, strong, established plants, in 4-inch pots	4	0
Calceolarias (Seedlings), from beautiful spotted varieties, strong, established plants	6	0

Lists of Names forwarded upon application.

The following choice Cucumbers and Melons, in packets of 12 Seeds, at 1*s.* per packet:—

CUCUMBERS.	MELONS.
Superlative Improved	Golden Perfection (extra fine)
Walker's Rambler	Bromham Hall
Manchester Prize	Persian Green Flesh
Hunter's Prolific	Chichester Prize
Improved Patrick.	Cuthill's Scarlet Flesh.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Holloway.

NEW SEEDS, CARRIAGE FREE.

	Per lb.—*s.*	*d.*
White Belgian Carrot	2	0
Yellow Globe Mangold Wurzel	1	0
Morton's Yellow Globe do....	1	6
Fisher Hobbs' Yellow Globe do.	1	6
Elvetham Long Red do.	2	0
True Devon Evergreen Grass ... ... 5*s.* to	6	0
Imported Italian Rye-grass ... ... 8*s.* to	7	0
Dickenson's Improved do.	8	0
True Somerset Cow Grass ... ... 9*d.*, 10*d.*, to	1	0
Alsike Hybrid Clover	2	0
Common Red Clover... ... ... 6*d.*, 7*d.* to	0	8
White Dutch do. ... ... 9*d.*, 10*d.*, to	1	0

Prices of all kinds of Agricultural Seeds will be found in RENDLE'S "Farming Price Current and Garden Directory," just published.—Apply to

WILLIAM E. RENDLE & CO., Seed Merchants, Plymouth.

MESSRS. E. G. HENDERSON AND SON, of the Wellington Nursery, St. John's Wood, London, will commence sending out the following New Plants on the 30th April next:—

HYDRANGEA HORTENSIS, flore pleno, 10*s.* 6*d.*

PHLOX QUEEN VICTORIA, 5*s.*

DAHLIA EMPEROR FRANCIS JOSEPH (variegated foliage), 10*s.* 6*d.*

SHRUBBY BEDDING CALCEOLARIAS.

Brunette	7*s.* 6*d.*	Norma	7*s.* 6*d.*
Coreggio	7 6	Red Rover	7 6
Maggiore	7 6	Vezzosa	7 6
Minnie...	7 6	Wildfire	7 6

Or the set of eight varieties, 2*l.* 2*s.*

With the permission of Mr. C. Turner they will offer his new CALCEOLARIA PURITY (the best white bedding variety) at 7*s.* 6*d.* each, or with the above set 2*l.* 7*s.*

FUCHSIAS.

Queen Victoria (Story)	10*s.* 6*d.*	Lady of the Lake (Story)	10*s.* 6*d.*
Prince Albert (Banks) ...	10 6	Water Nymph (Story) ...	10 6
Perrugino (Story)	10 6	Raffaelle (Story)	10 6
Empress Eugenie (Story)	10 6	Mrs. Story (Story)	10 6
Ranunculæflora (Story)...	21 0	Snowdrop (Story)	10 6

Or the set of ten varieties, 4*l.* 4*s.*

FUCHSIA BANKS' FAVOURITE (Banks), 10*s.* 6*d.*

For full particulars of the above see back numbers of this Paper.—March 24.

UNRIVALLED SPECIMENS OF HARDY ORNAMENTAL TREES, SHRUBS, CONIFERÆ, ETC.

LUCOMBE, PINCE, AND CO. respectfully call attention to their superior stock of the above, which is worthy of the notice of those who are engaged in Ornamental Planting, where immediate effect combined with perfect safety in removal is an important consideration.

L., P. & Co. refer with much satisfaction to the great success with which they have for many years been in the habit of removing their large and symmetrically grown specimens (even to very great distances), facts which fully justify them in stating that such Plants as they now offer are seldom to be met with. Their stock is too extensive for the limits of an Advertisement, a few only of the more prominent ones being here named, but sizes, prices, and full particulars of all may be had on application.

Arbutus, of sorts	Pinus cembra
Abies Douglasi	„ excelsa
„ orientalis	Picea Nordmanniana
„ Menziesi	„ Pinsapo
„ canadensis	Portugal Laurels, *fine large, bushy*
Araucaria imbricata	Purple Beech
Biota glauca	Irish Yews
„ japonica	Ilex Oak
Birch, silver stemmed	Japan Yews
Cedars of Lebanon	Juniperus excelsa
Cedrus deodara	Libocedrus chilensis
Cupressus macrocarpa	Scarlet Oaks
Ford's Oaks	Rhododendrons, *fine large, bushy, grown in loam, fit for any soil or situation*
Laurels, *fine large, bushy*	Standard Bays, *in tubs*
Lucombe Oaks	„ Portugal Laurel
Magnolias	„ Standard Thorns
Pampas Grass	&c. &c. &c.
Pinus insignis	
„ austriaca	

Exeter Nursery, Exeter.—Established 1720.

FISHER, HOLMES, AND CO. beg to offer the following, all of which are good sized healthy plants, such as they feel assured cannot fail to give satisfaction:—

	Each—*s.*	*d.*		Each—*s.*	*d.*
Begonia Prestoniensis ...	1	0	Eranthemum leuconervum	1	0
Æschinanthus splendidus	1	6	Cantua dependens ...	0	9
Rogeria amœna	1	6	„ bicolor	0	9
Hoya bella	1	0	Mitraria coccinea ...	0	9
„ campanulata ...	1	6	Lycopodium umbrosum ...	1	0
Allamanda neriifolia ...	1	6	„ viticulosum ...	1	0
Ixora coccinea	1	6	„ apothecum ...	1	0
„ „ smaller ...	1	0	„ lousianum ...	1	0
Burchellia capensis ...	1	6	„ Poppigianum	1	0
Franciscea contertifolia, flowering plants 1*s.* 6*d.* to	2	6	„ cæsium arboreum	1	0
Cypripedium insigne ...	2	6	Doodia aspera	1	0
Henfreya scandens ...	1	0	Humea elegans, strong, for flowering this season, 1*s.* to	1	6
Justicia coccinea	1	6	Fuchsia Duke of Wellington	0	9
Hexacentris myosoriensis	1	6	White Fairy Rose ...	0	6

The following smaller but nice established plants:—

Cyrtoceras reflexa ...	1	6	Hoya picta ...	2	6
Pentas rosea	1	0	Tacsonia molissima ...	1	0
			Yucca aloefolia	1	6

Azalea indica Apollo, Amabilis, Aurantia superbe, Decora, Duke of Wellington, double white, Extrani, formosa, Frosti, fulgens, Gem, Glory of Sunning Hill, Hebe, Ignescens, Lucombe majesta, Murrayana, Optima, Prima Donna, refulgens, and splendens. The above 1*s.* to 1*s.* 6*d.* each, all strong healthy bushy plants. Remittances from unknown correspondents will oblige.

Handsworth Nursery, Sheffield, March 21.

PRICED NURSERY CATALOGUES.

A. PAUL AND SON will be happy to forward the following priced Nursery CATALOGUES in return for one postage stamp each:—A. ROSES; B. ORNAMENTAL TREES AND CONIFERS; C. FRUIT TREES; D. HERBACEOUS PLANTS; F. GREENHOUSE PLANTS, &c.; G. SEEDS; H. HOLLYHOCKS; I. BULBS.—Nurseries, Cheshunt, Herts.

AMERICAN NURSERY.

GEORGE BAKER'S DESCRIPTIVE CATALOGUE OF AMERICAN PLANTS, &c., as exhibited by him in the Royal Botanic Gardens, Regent's Park, may be had by inclosing two postage stamps.

G. B. begs to call attention to his fine stock of Weeping Hollies, Coniferous Plants, Ornamental Shrubs, &c.—American Nursery, Windlesham, near Bagshot, Surrey, near Staines Station, South-Western Railway, where conveyances may be obtained.

GEORGE SMITH'S PRICED AND DESCRIPTIVE CATALOGUE of first-class Verbenas, Fuchsias, Geraniums (Show, Fancy, Variegated, and Scarlet), Dahlias, Chrysanthemums, splendid new Hollyhocks, very choice Petunias, &c., will be forwarded in return for one postage stamp.

The Geraniums are in extra fine condition, and require repotting. Parties giving orders immediately will save much in carriage, with less liability to damage by having them before they are repotted. Choice Verbena Seed from the finest show flowers.—Tollington Nursery, Hornsey Road, Islington, London.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year; and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

NEW BEDDING CALCEOLARIAS.

MESSRS. WILLIAM ROLLISSON AND SONS beg to announce that they have purchased the entire stock from Mr. Cole of the undermentioned Gems, and will commence sending them out the first week in May.

CALCEOLARIA VARIABILIS, 10*s.* 6*d.* each.—As a bedding plant this will make a charming variety, and in some measure supply the deficiency there has been for durable and effective plants of a light colour for the parterre. It is an excellent grower of very compact, pretty habit, and produces in great profusion immense trusses of blossom, which open of a delicate primrose colour, and change to white. Altogether it is a most desirable acquisition, and a variety thoroughly distinct to any in cultivation.

CALCEOLARIA ECLIPSE, 10*s.* 6*d.* each.—This is the most showy and brilliant coloured variety ever raised, of nice compact habit, producing large trusses of glowing crimson flowers, which are somewhat remarkable for the length of time they last in blossom; as a bedding plant its value will be inestimable. It was awarded a first class certificate by the National Floricultural Society, June 15, 1854, also at the Royal Botanic Gardens, July 5, 1854, and has been repeatedly noticed in the *Gardeners' Chronicle* for its good qualities and matchless colour.

The above two Calceolarias produce such magnificent trusses of blossom, and are so extremely effective, that they will be admirably adapted for Greenhouse and Conservatory decoration.

Messrs. W. R. & Sons have an excellent stock of Rollisson's Unique Geranium, which can be supplied at 5*l.* per 100. Although not new, this is a very useful and showy plant for bedding and general decorative purposes.

Messrs. William Rollisson & Sons beg to draw attention to their extensive Collection of Specimen and Half-specimen Orchids, Ericas, Azaleas, Stove and Greenhouse Plants, &c. &c., which are this season in unusually fine condition.

The Nurseries, Tooting, near London.

GRASS SEEDS, CLOVERS, ETC.

T. F. WINSTANLEY is now ready to send out his Mixture of New Grass Seeds, for Laying down New or for Renovating Old Pasture; finest Mixtures for Lawns, &c. For list of sorts and quantities, &c., see his Garden and Agricultural Seed List, to be had on application.

28, Market Place, Manchester.

NEW EVERGREEN CLIMBING ROSE.

WILLIAM WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, beg to intimate to their friends that they ARE NOW prepared to send out AT ONCE good strong plants of WILLIAMS' EVERGREEN CLIMBING ROSE, at 3*s.* 6*d.* each, with the usual allowance to the trade, and a still further reduction if one dozen or more are ordered at once. Price may be had on application.

N.B.—Single Plants will be sent free per post on receipt of six penny postage stamps EXTRA to defray postage. Strong Plants of the above may also be obtained at the same price from Mr. CHARLES TURNER, of the Royal Nursery, Slough.

The Gardeners' Chronicle.

SATURDAY, MARCH 24, 1855.

IT is to be feared that TEMPERING STEEL will soon become one of the lost arts, unless our cutlers bestir themselves to some purpose. Witnesses before the Crimean Committee of inquiry declare that the English hardware supplied to the Ordnance is of the vilest quality; that the picks won't pick, nor the bill-hooks cut, nor the trenching tools break up earth; that hence we can neither mine, nor throw up field works, nor even grub up roots for fuel. Cavalry officers say that their men's swords are incapable of piercing a Russian jacket, and that for an English soldier to strike a blow is only to disarm himself. In short, steel is becoming an unknown material, and the present age seems likely to be called by future historians neither that of iron nor of bronze, but of LEAD and BRASS. We trust the admirers of routine will not regard the last remark as being personal.

It is no business of ours, indeed, to complain of swords and military tools. Nor should we do so if the public service were all that suffered: for there are men enough now, active, intelligent, and resolute, to look after that. Our grievance is purely horticultural. We complain that gardeners are treated as badly as troops, and that they can nowhere procure the instruments peculiar to their calling. The only

cutting instrument, the use of which is limited to gardeners, is the pruning knife; and that they cannot buy. To be sure we see in every cutler's or even ironmonger's shop, things called pruning knives; heavy, awkward, ill-contrived pieces of iron, admirably suited for bending or snapping or conversion into primitive saws, after half a day's pruning; but if we ask for a pruning knife that will prune no such article can be found.

Seriously speaking this is not only a great evil, but indicates a state of trade discreditable to the cutlers of this country. It is also quite a modern condition of things. A few years ago every nurseryman could supply his customers with knives that were faultless and at a price within the means of those who had to use them. Now it is so far otherwise that people to whom a good knife is of the first necessity may travel from Exeter to Inverness without finding such a thing. We do not mean that no good knives are procurable for money; doubtless the great cutlers will supply you with a perfect instrument if you will pay an exorbitant price for it: but what is wanted by the public is as good a knife as was made 30 years ago at the same price as was then demanded. That we cannot have; or at least we are wholly unable to discover its whereabouts. In the days of the late Lord Vernon there was a capital maker at Derby, one of whose knives now before us is still fit for excellent service, although it has been but indifferently treated for a dozen years. If that maker still exists he may bring the horticultural world to his shop, provided he has not lost his art or unreasonably raised his price.

A pruning-knife should be light, not too thick at the back, forming two gentle curves at the back and edge, and with a handle rough enough and long enough to enable the operator to have a firm grasp. The hook-pointed knives now so common are very objectionable. In temper it should be tough, and so hard as to keep a keen edge, with no more trouble in sharpening than is demanded by a good chisel. If too hard it breaks at the edge, or snaps short near the neck or middle of the blade. In price it ought to be sold retail for 1*s.* 6*d.* or 2*s.* If a clasp knife it would we suppose be worth something more: but a true gardener is content with a fixed blade in the old fashioned paper sheath, or "shade," as it used to be called. If fine gentlemen earning 12*s.* a week think it vulgar to wear such a knife in a slit on the right hand of the trousers, as their fathers did, they will of course not object to paying the price of being genteel and set themselves up with a "clasp." Can no one induce some skilful artizan to turn his attention to this subject? or must we go to the United States or Canada for our pruning knives as well as our axes?

No principle is more generally recognised in the treatment of human maladies, though few perhaps are less attended to by the majority, of every grade of education and indeed of natural intelligence in other matters, than the necessity of ascertaining accurately the nature of any affection before an attempt is made to apply a remedy. Where a contrary practice is adopted, people must be prepared to run all the risks that wait upon empiricism, and much more if they are not content to let well alone, but will be using all sorts of nostrums, where there is scarcely a trace of disorder. These remarks are quite as applicable to horticultural pursuits as they are to other cases in which men are victimised by the bold assertions of empirics. It is, in fact, a far more easy matter to use a dozen different remedies than it is to ascertain with precision the disease to which those remedies are applied, or the cause from which it springs. A case has just been submitted to us respecting a disease the history of which is pretty well ascertained, and for which there is a certain remedy, as may be ascertained with ease by any one who will take the pains to look over the indices of our last two or three volumes, without having recourse to any anti-blight composition, however highly it may be vaunted.

The Grape blight is by no means difficult to recognise, even without a microscope, by its mealy aspect, which is totally different from any other affection, and precisely similar in appearance to the mildew of Roses, Hawthorn, Peaches, &c., with which every cultivator must of necessity be acquainted, and if other affections of a totally different nature, as rust, chlorosis, spotting, &c., be mistaken for it, the use of the best remedies for Grape mildew, which are totally inapplicable in the other cases, can only end in disappointment. It is well always to have wholesome suspicions of remedies which promise too much, and though it is just possible that some fiftieth remedy, after 49 unsuccessful recommendations, may take effect, there is a fearful risk on the other hand of aggravating the malady by such chance and aimless attempts. If chemical compositions be applied with a syringe in cases where there is no peculiar diseased action to neutralise or decompose the matter applied, it will form a permanent pellicle upon the plant, and like the carbonate of lime which is in some districts so copiously deposited from the water, will soon act as a mechanical obstacle to the due respiration and perspiration of the leaves, and in consequence induce serious malady.

When the tissues of plants themselves are in the first instance affected, it is often difficult to ascertain the cause, but every gardener who wishes to take an eminent position in his profession must make himself master, at least, of all external affections. There is, in fact, no excuse for him, if he is not able to combat such attacks where the remedy is in daily use amongst the more intelligent. *M. J. B.*

At the close of the article in the *Gardeners' Chronicle* of the 10th inst., on M. Godron's Experiments on Ægilops, we observed that neither he nor M. Jordan, who has filled 100 pages of the "Memoirs of the Academy of Lyons" with speculations upon the origin of domesticated plants, have attempted to explain what the origin of Wheat has been, if it is not a domesticated condition of Ægilops. We find that we overlooked a passage in this lengthy paper in which he does make the attempt, but in a manner so new and original that it is not worth referring to it, even as an instance of the absurdities into which we are led by the modern theory, that all varieties or races of plants of any degree of permanency are true species. This doctrine, which threatens to plunge the science of botany into inextricable chaos, would scarcely be deserving of serious refutation were it not that its advocates are daily increasing in number, especially on the Continent, and they seem generally to recognise M. Jordan as an able and talented expounder of their views.

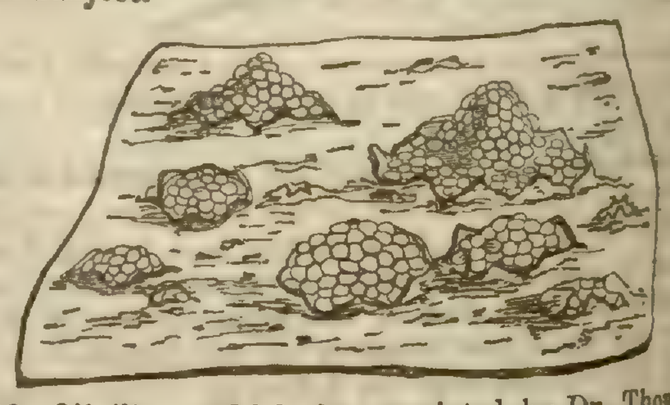
We have not access just now to the "Lyons Transactions," but in a detailed abstract in Schlechtendahl's "Botanische Zeitung" we find the following passage:—"If, therefore, all these supposed races of our domesticated plants are true species, how can we explain the fact of their being in cultivation, unless we assume that they either do now or did once exist on our globe in a wild state? But they are now nowhere to be found. From historical traditions we know that almost all our fruit trees, vegetables, and cerealia came to Europe from the temperate regions of Asia. Their cultivation in Asia appears to date from the remotest antiquity. Asia must, therefore, have been the country where they once grew wild, but are now no more to be found in that state. The same uncertainty prevails with regard to many domesticated animals. It appears, therefore, that these plants and animals are in direct connection with the origin of mankind. In the Bible we read that a fearful catastrophe once overwhelmed the earth — the Deluge—on which occasion only a small number of persons, with the animals and plants which they especially required for their support, were saved. It must be supposed that they also saved with them seeds of various plants which they sowed again on the subsidence of the flood. In this way the domesticated plants disappeared in their wild state, and only remained as cultivated. Thus, therefore, is the Biblical narrative confirmed by science, as the phenomena can only be explained in this way."

But not only are we unable to recall any passage in the Mosaic account of the Deluge in support of the gratuitous supposition that the waters destroyed vegetable as well as animal life, or that Noah laid in a stock of seeds to restore vegetation on the face of the earth, but we actually find that the Olive-tree at least was not destroyed, for the first evidence Noah had of the abatement of the waters was the return of the dove with "an Olive-leaf pluckt off" in her mouth. Moreover, does M. Jordan suppose that the Deluge destroyed only the wild originals of domesticated plants, or the entire vegetation? and, in the latter case, did Noah carry with him into the ark seeds of one or two hundred thousand species (or, if we adopt M. Jordan's views, one or two million species) in order to replenish the earth after the flood was over? We think that either he or his disciples should answer that inquiry before they carry their speculations any further.

VEGETABLE PATHOLOGY.—No. LXIV.

286. Apostaxis. *Constitutional or Accidental.* Discharge of Starch.—Amongst the collections made by Lieut.-Colonel Sir T. L. Mitchell in sub-tropical Australia, No. 471 is a most curious and beautiful production, which appears to have oozed from the upper and under surface of the leaves of some species of Eucalyptus. The substance consists of flabelliform flakes, marked occasionally with a few concentric zones, indicative of interruptions in the process of formation, and most beautifully and regularly fissured, often subdichotomously, in a radiating direction from the wedge-shaped base. Under the microscope it has a glistening aspect, and presents an appearance not unlike that of some thin sponge, in consequence of the frequent lacunæ and spiculæform processes which connect the linear bodies into which the mass is divided. In some cases also the lamina is not simple, but is composed of two or more distinct layers. The whole substance appears to consist of starch, for on the application of an aqueous solution of iodine it assumes the most beautiful blue, and on the addition of a drop of sulphuric acid gradually dissolves, assuming a reddish tint. The columnar structure, if so it may be called, resembles very closely that of the curious formation of ice on the stems of certain plants, which was lately described in the *Gardeners' Chronicle* (1854, page 740), from a paper by Dr. Caspary, and may perhaps be compared with the sort of spurious crystallisation which takes place in Wheat starch, as prepared for commerce, though the condition of the two is totally different. The quantity produced on the single leaf in my possession, for which I am indebted to the kindness of Dr. Lindley, is considerable, and must be highly injurious to the tree, and a very curious chemical condition must have existed in the plant to cause the amylaceous matter to flow out in such a form. It is very probably in a state of transition into dextrine, a transformation which is very frequent during the process of vegetation. Under the teeth it has a harsh consistence, something like that of the slices of pith known under the name of Rice Paper, but it is evidently no form of cellulose, as it at once assumes a fine blue with iodine, without the admixture of any sulphuric acid. I have in vain searched for any notice of a similar phenomenon, and regret that I am not able to do the subject more ample justice, both from want of materials and deficiency of chemical knowledge.*

287. Starch granules are sometimes ejected bodily from the cells of plants, without any transformation. During the prevalence of the Potato disease, it was not uncommon to find tubers which were studded with little glistening white patches, consisting entirely of starch grains. When it is considered that there are not only many layers of muriform cells immediately beneath the cuticle, but that the first layers which follow are deficient in starch granules, it is evident that a considerable organic lesion must take place before the grains themselves can be ejected, and at the same time there must be a great pressure on the walls of the cells themselves. These heaps of starch granules are not to be confounded with the curious appearance described in this Journal 1848, p. 555. The white granules of which the little heaps consisted in that case, instead of becoming blue with iodine, assumed a brown tint. They were, in fact, oblong cells adhering very loosely to each other, and were evidently of the same nature as the ordinary cells of the tubers, as they assumed, when exposed to light and air, the cinnamon tint which is usual to the tissue under similar circumstances. The cuticle was split into irregular stars, in order to make way for them, and when washed out they left pits similar to those which are produced by the scab. I have not myself had an opportunity of examining this disease, which has many points about it of considerable interest. The figure is here reproduced in order to draw attention once more to the subject.



288. Oliviline, which is associated by Dr. Thomson with amylaceous matters, is discharged with the gum of the Olive tree. The most recent chemists consider its nature as doubtful, and its occurrence is, therefore, simply mentioned in this place. *M. J. B.*

ENTOMOLOGY.

THE BRITISH INK GALL.

It was the opinion of a fanciful naturalist who lately occupied the chair of Natural History in one of our Universities, that the peculiar forms of galls upon different trees and plants were owing to the natural tendency of the sap of those plants to develop forms analogous to those of the galls in question;—thus the natural tendency of the sap of the Rose tree is to form pricklets, and consequently the galls of the Rose tree, commonly called Moss balls or bedeguars, are all over studded with weak pricklets. This pretty theory might be difficult to overthrow if it happened that each plant produced only one kind of gall, but as the same kind of tree, especially the Oak, bears a great number of distinct species of galls, each of a distinct form from the rest, it becomes at once evident that some other influence is in operation besides "the natural tendency of the sap."

Now nothing is more remarkable in the physiology of plants, as well as of insects, than that two kinds of flies, so nearly resembling each other in size, form, and colour as to be scarcely distinguished even with a lens, should by puncturing the leaf or stem of a plant produce two totally different galls, varying not only in size and colour

* It is just possible that the production may be the work of an insect; but if so, it must still be formed at the expense of the amylaceous matter in the plant, for I know of no instance of an animal secreting starch, though there is more than one case on record of the presence of cellulose in their organisms.

but also in texture, one being soft and fleshy, whilst another is hard as wood itself.

The common Oak, as above noticed, is especially prolific in producing a great number of distinct species of galls, the leaves, the catkins, the stem, the twigs, and even the root being infested with these excrescences, caused by the punctures of Cynips Quercus folii, C. Quercus baccarum, C. Quercus inferus, C. Quercus pedunculi, C. Quercus corticis, C. Quercus Ramuli, C. Quercus Gemmæ, C. Quercus terminalis, C. Quercus petioli, all described by Linnæus and Fabricius, besides a considerable number of new species, lately monographed by Hartig, who appears to have described the species which produces the gall figured in the *Gardeners' Chronicle* (ante p. 116, under the name of the Chesnut-fruited Oak gall) as the Cynips caput Medusæ.

These various galls and their inhabitants form an interesting subject of investigation, possessing, as they do, many curious points of inquiry, unattended however by any other practical results than may be produced from the injury, slight indeed as it appears to be, which the trees may receive from the distraction from their ordinary course of the nutritive fluids, although in the case of the Pear tree infested by aphis galls described by me in the *Gard. Chron.* for 1849, p. 755, a positive injury was produced. There is, however, one species of Oak-gall fly of great importance in a practical and even commercial point of view, which will form the subject of our next Entomological paper, namely, the Ink gall fly, Cynips Quercus tinctoria (C. scriptorum, of Kirby and Spence) the galls of which, under the name of Nut galls, are imported in great numbers for the manufacture of ink.

It might be a question worthy of some examination whether some of the kinds of Oak galls which occur in great numbers in this country might not be beneficially collected with the view of making use of the great quantity of tannin which they unquestionably contain. This might be done with the marble-like globular gall of Oak leaves, C. Q. folii, and especially with the Oak

Apples, so well known to every country schoolboy who strives to climb and get one to stick in his hat on King Charles's day.

Be this as it may, the species of gall, represented in the accompanying figure, possesses properties entirely similar to those of the Nut gall of commerce, and having been collected in considerable numbers in Devonshire, has been successfully applied in the manufacture of ink. At the last December meeting of the Entomological Society, Mr. Stainton read the following extract from a letter received from R. C. R. Gordon, Esq., of Queen's College, Birmingham, relative to this species of gall, which had been exhibited at a previous meeting by Mr. Rich. "The galls are old friends of mine; I have known them for 20 years; of late they have been more common. I have here some specimens of the Cynips—I have known the Cynips for three years. About five years ago a medical man at Lympstone, near Exmouth, used them always to make his ink and tried to impress upon the country people the use that might spring from making them an article, so to speak, of exportation. But of course, as with all other things of this sort, they would rather gather the galls for him to make the ink, when paid for it, but never made any attempt to sell them elsewhere. They would be a good substitute for the Nut galls, and deserve to be used instead. The Cynips appears in September, perforating the gall by a single round hole. The galls themselves are first green, afterwards brown; the larvæ may be occasionally found in them in spring."

Mr. Rich had obtained these galls from Somersetshire and part of Gloucestershire, where they were so abundant that the Oaks were covered with them to the extinction of the acorns, the loss of which for feeding their pigs the farmers greatly regretted, thus raising another economical question connected with the subject of these galls of considerable interest, bearing likewise, as it does, on the physiology of the plant, since the galls are developed in the axils of the leaves, and prevent the development of the acorns, of which they usurp the place. The species is figured, with considerable details, by Rosel (Ins. Belust. Supp. Vesp. Gall Quern., tab. 35 and 36), under the name of C. Quercus petioli, with a reference to Fabricius Sp. Ins., No. 6; but the insect had been previously described by Linnæus, Geoffroy, and Reaumur, the last-named author representing it in his Mémoires, iii. pl. 41, on which also are represented the Cherry-like galls of C. Quercus terminalis, which may possibly be a variety of the same kind of gall developed singly at the end of a twig. In this view I gave the latter name to the gall now before us some time since in reply to one of my correspondents.

Mr. Stainton's correspondent informs us, moreover, that it is chiefly upon the lower twigs of Oaks, in hedges which have been cut down three or four years previously, that the galls are most numerous, being rarely found higher than 10 feet above the surface of the ground, so that it would not be difficult to collect them, and that the appearance of the trees now denuded of leaves is rendered quite remarkable by their great number. Rendered thus conspicuous, they become the objects of attack to the titmice, which, notwithstanding the smooth hard surface of the galls, contrive to make a hole in them to pick out the larvæ which remain in them unchanged during the winter.

As the species is very closely allied to that which forms the Oak galls of commerce, we shall defer the specific description of the present species for our next article, in order to point out the distinctions between them by a comparative diagnosis. *J. O. W.*

CLIMATES OF FOREIGN COUNTRIES.—No. V.

Nice, *March* 9, 1855.—Though the winter here has been unusually cold, Violets, both single and double, are now in abundance. Wallflowers are in blossom, the single bright yellow (Cheiranthus Cheiri) growing wild on the rocks. The Almond trees have gone off bloom, and are succeeded by standard Peaches, which are very showy, and also Apricots. Scarlet Geraniums in the ground, which were cut by the frost, are making fresh shoots. Stocks of various colours, single and double, are large and handsome: the Jardin des Plantes, near the sea, is quite gay with them and Wallflowers, mixed with Venus's Looking Glass, now also in full bloom, with hedge-rows of yellow Coronilla. The corn fields are in many places literally covered with the single blue and scarlet Anemones.

It should be observed that each of the principal wild flowers has its own locality; for instance, Primroses are only met with in quantity by the "Vallon obscur," Crocuses on "Mont Vinaigrier," Blue Hepaticas in the valley of that name, Snowdrops on "Mont Gros," &c. The pretty Grape Hyacinth (Muscari racemosum) is almost everywhere to be met with, and a species of Rhus, with scarlet berries, is found in many places on the rocks, as is also the little blue Harebell (Campanula rotundifolia) and the pretty delicate lilac Lavatera maritima in some districts; likewise various sorts of Orchis.

The markets are now well supplied with vegetables, Broccoli being in full season, and Cauliflowers plentiful. New Potatoes are about 2*d.* per lb. English. There is also a small yellow sort sold here called Pommes de Terre Chataigne. Salmon and Turnip Radishes have continued throughout the winter in the open ground, and are now quite common; also young Carrots and Onions, Lettuces, Spinach, and Endive.

As to the temperature, fires indoors are nearly done with, and the power of the sun is almost too much for walking out in the middle of the day unless by the sea, from which there is a refreshing breeze. A comparison of the average temperature of Nice and London for the half months as under gives the following result:—

	Nice.	London.	Excess, Nice.
1854 to November 15	52	41	11
" 30	48	37	11
December 15	49	42	7
" 31	45	39	6
1855.—January 15	48	40	8
" 31	42	28	14
February 15	49	27	22
" 28	48	29	19

The ground temperature 1 foot below the surface is still 50°.

Daily Temperature.

1855.	7 A.M.	12.	10½ P.M.
February 16	33	45	39
" 17	41	50	46
" 18	46	55	50
" 19	46	58	52
" 20	50	47	46
" 21	41	52	43
" 22	42	60	41
Mean	42.7	52.4	45.3
" 23	40	58	46
" 24	43	60	42
" 25	41	58	45
" 26	44	52	45
" 27	41	56	46
" 28	44	56	44
March 1	42	60	46
Mean	42.1	57.1	44.8
" 2	44	61	49
" 3	49	54	48
" 4	45	58	43
" 5	41	52	48
" 6	48	58	45
" 7	42	58	46
" 8	44	57	47
Mean	44.7	56.9	46.5

E. C.

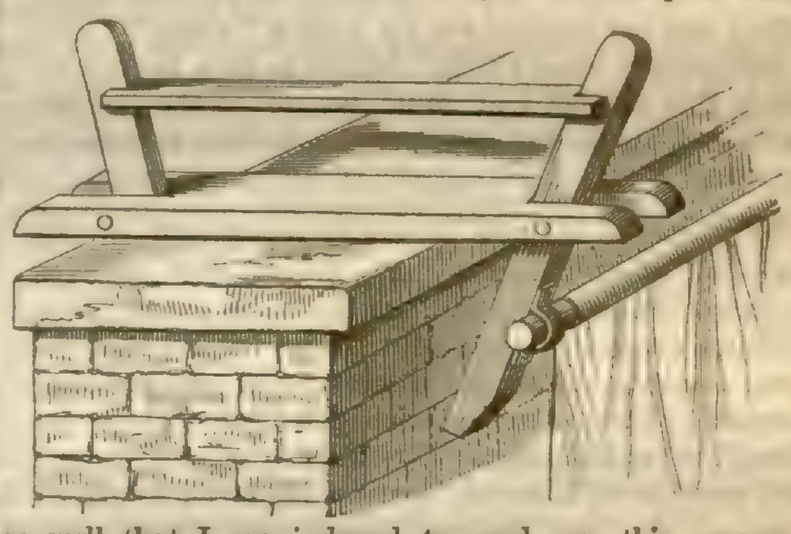
COMMON THINGS.

Asparagus.—There are various methods pursued in forming new plantations of Asparagus. The most common one is to trench the ground from 2 to 3 feet deep, mixing with the soil a good quantity of rotten dung. If the soil be good to the depth of 3 feet, it will not be necessary under the ordinary culture to prepare the ground deeper, but in doing this a large portion of manure is necessary, and it will be requisite that it should be regularly mixed with the soil from the bottom of the trench to the top. If one of the quarters of the garden should be required for Asparagus alone the whole ought to be trenched and manured as if it were for only one single bed, as the roots spread themselves in all directions, and by penetrating the alleys between the beds the outer rows of heads will always be finer than those in the middle. The ground being prepared the beds should be set out the width of 5 feet, with 3 feet alleys, fixing a strong stake at the corners of each bed, driven down to the depth of 3 feet. About the present season proceed thus to plant the beds: strain a line round the four corners of the first bed, cut it down perpendicularly on the inside of the line to the depth of 3 inches, and take out the soil, which must be laid on the alleys on each side, levelling the surface perfectly even, but take care not to stand upon the bed, on the contrary keep the soil as light as possible; mark out four lines at a foot from each side of the bed and a foot from each other; measure a foot from the end of the bed, and mark each a line at a foot apart, thus forming squares of 12 inches each way. Being now provided with some good one or two-year old plants (not more), open the roots flat, place one plant on each of those places marked on the lines, and fasten it down with a handful of mould to keep it in its place. When this is done the bed must be filled up level with the spade. This being finished, proceed with the other beds in like manner till the whole is completed.

Artichokes are propagated by the off-set suckers, which are produced abundantly from the roots of old plants: these should be planted in rows 4 feet apart, placing them in clumps of three or four in each, 2 feet asunder in the rows. Artichokes require a deep soil; and before they are planted the ground should be well manured, and trenched 2 feet deep: this operation should be performed in April as soon as the young leaves begin to show themselves above the surface of the ground. After this, the plants will require only to be kept clear from weeds during the summer; and in the autumn to be protected by litter from the stable, to secure them against frosts in winter.

SPRING PROTECTIONS.

Having accidentally in my possession six large canvas blinds mounted on strong rollers, I am fixing them in front of my Peach trees, as a protection against the frost, by a movable contrivance, of which the annexed is a sketch. They seem likely to work



so well that I am induced to send you this communication. I think the representation will tell its own tale. The bar across the top is driven down till it is quite tight; and as a precaution a nail may be lightly tacked in at each end, to prevent its getting loose. By putting another small staple for the gudgeon to run it under that shown in the drawing, another blind can be fixed on the other side, so that six blinds can be slung by seven of the fastenings. *C. W. M.*

Home Correspondence.

The Crimea, its Climate and Vegetation.—I am much interested by the account of Koch's work on the Crimea, noticed by you at p. 171. I have one or two observation to make on it. Not having yet seen his work I do not know whether he explains the present desolation of the Crimea, which is naturally a fertile country, with a fair middle European climate more like that of the Pyrenees or Lombardy than anything else I could compare it with. Remember that what there is of really Mediterranean vegetation, whether native or cultivated, is confined to the valleys of the southern coast—the plains or undulating country to the north being rather in the same condition, as to climate and Flora, as southern Hungary and Wallachia and Moldavia, which have a soil and physical status very like the great steppe of the Crimea. The Russians, as Clarke tells us, depopulated and destroyed the previous cultivation of the Crimea, and their system of government has continued or increased the state of desolation, to which it was reduced after their conquest of it. The steppe north of Perekop to the Dnieper, and a small part of that south of Perekop, are a dreadful saline desert. They are, as well as much of the coast of the peninsula and other parts of the shore of the Euxine, the ancient bed of a shallow sea (which once, in all probability, extended through the trough of the Manytch into the Caspian basin, and perhaps far beyond it), the sudden drying up or running off of which is alluded to in one or two passages of Pliny, apparently as a tra-

dition generally received in his time. This tract is indeed sterile; the surface little above the present level of the sea, the soil full of salt, showing no traces of hill or valley or running water—few wells—but hillocks of sand irregularly alternating with saline mud or marsh, in which the vegetation is all Salsola, Salicornia, Anabasis, Statice, and other salt plants, with abundance of Artemisia. The limit of this saline steppe, or ancient strait, is bold and well defined to the northward by the tertiary cliffs and hills of the right bank of the Dnieper, and of the high tertiary and granitic steppe which extends from that river near Bereslap above Cherson, to the sea of Azof near Mariupol. The southern limit of this low salt steppe within the peninsula of the Crimea, and south of Perekop, is not so well defined—the rise being gradual, and the change marked chiefly by the improvement of soil and vegetation. But all that central plain or low tertiary plateau is intersected by valleys, watered by fresh, if not copious, streamlets, and is in every respect equal to those similar high steppes of Southern Russia north of the low saline strait, with the advantage of a decidedly better, though still variable, climate. Were justice done to this district, it would probable become a fine corn country, but its masters must change or be changed before that is likely to happen. The natives are docile enough. Picturesque palaces, and marine villas of nobles, belonging to St. Petersburgh and Moscow, will not make up for the depopulation of a large province turned into a vast military position. On the limestone steppes or plateau, the most conspicuous among the Burian, or weeds, is the wild Hollyhock, Alcea ficifolia, the colour in the wild plant being invariably the sulphur yellow, and very handsome. Another striking plant, particularly so in the droughts of summer, is the Liquorice, Glycyrrhiza glabra, forming large patches of dark and seemingly indestructible green, which resists the strongest heats of summer and autumn, while everything is parched around it. It seems to flower but sparingly, even in a state of nature. Some of the coarse biennial or perennial Centaureas considered as flowering bushes, C. ovina, &c., are not ugly when in bloom. As to Koch's Quercus pubescens, it seemed to me the same as that which I saw some months later on the hills around the plain of Troy, growing with the Valonia Oak. I suppose it to be the same as that of Southern Austria and probably Hungary, which is not seen in Western Germany, except in a few pleasure grounds, as an ornamental grey tree. Juniperus rufescens seems very near J. macrocarpa of Greece and Naples—very near J. oxycedrus—which might easily extend to the Crimea. It seems everywhere to prefer sea shores. I am interested in the question of the identity of the J. excelsa with ours, or that of Nepal and Siberia. In some botanical works, every species from Russia which is not known to be European, and some European ones too, are set down as Siberian. Koch's description is exact. The words in italics in your quotation only need the omission of the last comma, and perhaps the transposition of the word "have" to be quite correct as a translation from what I conceive the original German, from its sense, to be. Just imagine the Isle of Wight on a larger scale, the Southampton water suddenly run dry by a submarine earthquake in the Atlantic (the Straits of Dover being not yet cut through the chalk), the water in the Solent and Spithead lowered so as to leave a spit of sand for an isthmus partly covered with brackish pools and salt marshes, and uniting the low shore of West Cowes with the nearest point of the then dry bed of the previous Southampton Waters, and you have a good idea of the geography of the Crimea—its tertiary plateau being further represented by the tertiary country about Newport; the Medina might be the Salghir, and the chalk and subjacent secondary strata very truly and correctly figuring the limestone rocks of a similar formation in the Yaila range, with a warm sunny under cliff of older beds, in both peninsulas, cropping out from below. *S.*

Under-ground Manuring.—Allow me to bear testimony to the value of this mode of applying liquid manure to Melons and Cucumbers. I have practised it for the last five years as follows:—Having put in the pit or frame about two-thirds of the soil intended for the plants, I then placed on this soil horizontally, at about 18 inches from the sides of the pit (all round), a row of common drainage pipes about two inches in the bore, together with three or four placed perpendicularly leading into them—I then put on the other third of soil. By this means you are able to water the roots with liquid manure without interfering with the surface. As a proof of the success of the plan, I may mention the following facts:—On the 21st June, 1853, I exhibited a Victory of Bath Melon at the Guildford Horticultural Exhibition, and gained a prize. I brought it home, sowed the seeds next morning, and cut and showed on the 24th September at the same place, from this sowing, and gained another prize. This surely was not bad work. *W. H. Wheeler, Hendon, Middlesex.*

Water Wheels (see p. 175.)—"S. N." should consider, before he lays out his money on a water wheel, what his power is worth. He has 42 feet fall, and half an acre of storing pond. Taking the rain-fall at 24 inches per annum (how else is his pond to be filled?), and supposing the clouds will be kind enough to allow him to keep half his yearly store by him at all times, and making use of your reply to "H. W." at page 181, I value his power at 1 horse 8½ minutes per day, or 1 man ½ an hour daily; in money about one penny. If he still thinks this small power might be turned to use, let him put in a wheel on the principle of Appold's Centrifugal Pump, where every drop of water which enters produces its due effect. An overshot water-wheel, 42 feet high, is in his case ridiculous. *Molar.*

Hybrid Rhododendrons.—Allow me to ask Messrs. Standish and Noble to name any hybrids which have been produced by a cross from ciliatum or glaucum, as I see they recommend them as breeders, and of course their recommendation is not a theoretical one. *W. F., March* 19.

Ipswich Standard Cucumber.—Permit me to furnish you with a specimen of this Cucumber, which is, however, by no means perfect, but is merely sent as an example of what kind of fruit it produces when the plants are overcropped. On Friday the 16th, four Cucumbers, all over 20 inches long, were cut from one plant, and the specimen sent for your inspection is one of them. *T. Wild, Ipswich.* [It measured 20¼ inches in length and 5¼ inches in girth. Its only fault was that it was a little irregular in thickness.]

Roasted Potato Sets.—The following is the result of my second year's experience in roasting Potato sets:—These were kept on the hot flue near a month before planting out, which was done in June to procure a late crop of new Potatoes. Some time before the disease had generally shown itself, one plant was very securely inclosed under a hand-glass; now precisely at the same time that the attack upon the crops in general commenced in my neighbourhood, the whole of these showed unequivocal symptoms of the rot, nor was the well covered plant any more protected than those immediately around. The result of my observations lead me to conclude that the cause lies at one particular time of the year, and not in the age of the plant, for that does not secure them; but, on the contrary, the younger they are at such time the more severe the rot will be; therefore those are right who recommend planting early. Last year the mischief, severe in the tops, did not show itself at first much in the tubers here, but a great many apparently very sound ones were found tainted afterwards, and had to be re-sorted over and over again with loss. *C. G., York.*

Rain at Dorwards Hall, Witham, in 1854.—

	Inches.		Inches.
January	1.81	Brought forward ...	7.42
February	0.63	August	2.57
March	0.24	September	0.59
April	0.46	October	1.74
May...	2.92	November	1.69
June	0.85	December	1.47
July	0.61	Total	15.48
Carried forward ...	7.42		

Henry Dixon.

Pinus insignis.—One peculiarity of this Fir is the difficulty in good ground of keeping it upright; another, that if you cut off a branch in spring it sprouts from the mutilated stump exactly like a deciduous tree. Except in gravelly or sandy soils, a good specimen cannot be considered safe from being uprooted however carefully planted. *Somerset.*

May's Magnum Bonum, alias Bedale Hall Cos Lettuce.—Observing that Mr. May is advertising this Lettuce in your columns, I wish to say that it is decidedly one of the best summer Lettuces grown, attaining the largest size; it requires to be planted 2 feet apart each way, which space it will quite fill up. It is a sweet and tender Lettuce, and will last good longer than any other. Bearfield's Bath Cos is the best Lettuce extant for autumn and winter use; indeed it is a good Lettuce for all seasons of the year, and stands the winter in the shape of young plants with impunity. *C. Hewson, Bedale Hall, Yorkshire.*

Holcus (Sorghum) Saccharatus.—We read in the "Botanische Zeitung," that at the sitting of the Berlin Society of Naturalists, on the 16th January, Herr Lüdersdorf spoke of the Sorghum saccharatum with relation to its saccharine principle. According to him the saccharine principle is only developed in the stem towards autumn, and is more considerable in the lower part of the stem than towards the panicle. The sugar contained in the whole stem is, according to his experiments, only 7·54 per cent, and, therefore, much less than Vilmorin found. This sugar is for the most part cane-sugar; but is unfortunately, like the sugar of Maize, mixed with Grape-sugar, so that the Sorghum is not likely to add to the number of useful sugar-bearing plants. Specimens of the plant and of the sugar produced from it were laid before the Society. *B.*

Trees broken down by Ice.—The effect of ice in weighing down the branches of trees, when it is formed as fast as the rain falls, as mentioned by Mr. Rogers in the *Gard. Chron.*, Feb. 10, 1855, is described in an article in the "Magazine of Natural History" (vol. vi., p. 100), from which a very graphic quotation is given in Loudon's "Arboretum" (vol. iv., p. 2136). A view of a Birch forest near Saratof, broken by the weight of the ice and bent down into the snow, is printed in Pallas's "Voyage through the Southern Provinces of the Russian Empire" (vol. i., p. 88). The description of the phenomenon is given at p. 55 as follows:—"After passing the Sokura we met with considerable heights, which abound with wood, and divide the brooks of the Tshardym from those of the Kurdyum. Here our curiosity was gratified by a new and uncommon appearance of the trees, of which we had received an imperfect idea in the former part of our journey. The cause of this singular phenomenon was as follows. Severe hoar frosts had commenced in these regions before Christmas, and were followed by snow mixed with rain or sleet, so that even the smallest branches of the trees were covered with ice an inch thick; by this all the flexible Birch trees had been bent to the ground in semicircles. Their tops and branches were thus buried under the continual snow, which lay upwards of a yard deep and kept the trees in that recumbent state. The interior full-grown Birch and Oak trees had been partly split and partly broken by the weight of the congeated snow on their tops, while their collateral branches were also bent to the ground. The thaw which began here towards the latter end of February and the rays of the sun indeed melted the icy incrustations on the upper part of the trees, but it still remained undissolved on the branches which were fixed in the snow. The cylinders of ice on one side all appeared melted into a solid mass, but on the lower part they were crystallised, some according to the usual configuration of frozen water, in hexagonal and partly in rhomboidal figures, while others consisted only of hexagonal sections. These bodies were like the well known hollow cubes of salt, apparently formed of icicles of a pyramidal figure when inverted, broad on the surface, and narrow towards the inner part where they were fixed in the ice. A similar phenomenon was observed in many woody regions beyond Saratof." *M. J. B.*

Coniferæ.—Like your correspondent "Pinus Glomeratensis" I should much like to see some competent authority taking up the nomenclature of such new, or rarely known Coniferæ, as were not included in the synopsis of Coniferous plants published in the Journal of the Hort. Soc. Many kinds of Cupressineæ and Abietineæ are to be met with, scattered through various nursery establishments, but it is difficult to say what they really are, not being referable to anything there mentioned. Again much confusion exists in the names of species which have been long introduced. I now only allude to Abies grandis and amabilis—the one being often substituted for the other, and *vice versâ*. From an inspection of many collections I am of opinion that there are very few plants of amabilis in the country, and very few more of grandis; most of the plants I have examined under the name of amabilis being nothing more than Frazeri. Mr. Veitch has however seedling plants of true amabilis in a small state. I once purchased a plant of Pinus bungeana from Mr. Glendinning, who informed me it came from Japan, and reached him through a continental nursery. Pinus Padufica, or Padufiana, I know to come from the Crimea, having myself received cones from thence; the species belongs to the two leaved section, and has cones closely resembling the Scotch Fir. There is a desire to rectify in the names of many species of Cupressus. I may mention the one under the name of macrocarpa, or its synonym, Lambertiana—as it represents two plants of very distinct habit. I have another kind named Knighti or majestica, about which I can hear nothing; it is a very fast grower, and is making a grand looking tree, evidently of the Thurifera section. Corneyana, as your correspondent observes, is certainly not chinensis fœmina. The Junipers are likewise in much confusion and require a revision to correct their names; which can however only be satisfactorily done by an examination of living specimens. I am a great admirer of Coniferous plants myself, and anything which will help to throw light on their history will be acceptable to all interested in their cultivation. *John Spencer, Bowood.*

The Winter in East Lothian.—The effects of the late severe frosts in this district have of course been various, according to the elevation and dryness of the situation, but so long a continuance of such a low temperature as 1° and 2° above zero is not remembered here, and consequently the destruction amongst evergreens and plants usually considered hardy has not been exceeded during the last quarter of a century; the foliage of the former has in all cases been browned, and in some instances the plants have been killed to the ground. All the Brassica tribe, and even Leeks not covered with snow, have been blanched and withered; and Cauliflowers, where not under glass, have been completely destroyed. In my garden, the soil of which is low and damp, and exposed to exhalations from a small river, I have suffered severely. Besides the effects noticed above, all China Roses even on a south wall have been cut down to the roots. On Moor Park Apricots, covered with flower buds, I do not expect half-a dozen blossoms to expand, the buds being all brown and lifeless. Peaches are a little better, and a good many forward Pears are in the same condition. It is satisfactory to observe how well Mr. Fortune's importations have weathered the storm, Weigela rosea, Forsythia viridissima, Spiræa prunifolia being apparently uninjured, while a small plant of the beautiful Jasminum nudiflorum, just coming into bloom, once or twice in the intervals of the storm, and surrounded by snow, opened a few blossoms, and is now nearly covered with fully expanded flowers. In a few weeks the ravages of the weather will be more distinctly marked out, but it will take many years to restore plants to their former condition, and some valuable specimens will never recover. *John Ferme, Haddington.*

Preserved Vegetables.—The great diminution of the bulk and weight of vegetables preserved in M. Masson's way is of considerable importance, whether as saving land carriage, or freight of sea-borne; but it may be questioned whether pressure of such articles be otherwise desirable, more especially as it is owing to the process that the vegetables require so considerable a time to cook them. For soups and stews this would be no objection, but in most other cases a material one. It is possible that the aroma of vegetables may be better preserved in cakes of them than if exposed in their natural form to the air; and on this account it might be expedient to press those herbs or roots that are suitable for soups or stews; but where a natural appearance is

desired, it might be advisable to dry vegetables as far as possible in their natural form, as green Peas and French Beans are dried in Russia. It would seem that vegetables of the most delicate kinds might be so preserved for winter use, Cauliflowers for example; but they would require division into small portions, so that they could only be served at table in a sauce, either white or brown, and in cooking them the first process would be soaking in tepid water till they had absorbed a sufficiency to bring them to their pristine state. Such herbs as Spinach and Sorrel might be pressed, since it is customary to mash them up in preparing them for table; so it is with Turnips. Sweet herbs of most kinds require only to be dried and bottled, but Parsley loses its peculiar flavour when most carefully dried; possibly the green tops of Celery might in a manner supply its place, as is not uncommon in France. It might be worthy of experiment whether roots, Carrots for example, might not be easily pressed in their natural form, whereby they might be served whole. It is needless to add a word on the great luxury as well as the economy of adopting M. Masson's process on an extensive scale, since it has been so ably advocated in the *Gardeners' Chronicle*; but its pages have not adverted to the employment it would afford to women and children in picking and cleansing the vegetables. A friend has suggested that it might afford suitable occupation for paupers. It was stated in the *Times* last week that a Union in Devonshire had realised a considerable profit by employing its paupers in the cultivation of vegetables; but, doubtless, much more would be gained by drying them also, since a market would thus be ensured. The strong and robust pauper might be the cultivator, whilst the old, the infirm, and the little child, would have sufficient strength to shell Peas, to divest Cabbages of caterpillars, or to wash roots, &c., preparatory to drying them. *B.*

Societies.

Entomological, *March 5.*—The President in the chair. Mr. Stevens exhibited several cases of insects, forming a series of the species of all orders collected by Madame Pfeiffer in Amboyna and Ceram. The specimens had been brought home folded separately in bits of paper or between layers of cotton wool, and were in perfect preservation, many being of very great rarity. Mr. Edwin Shepherd exhibited a remarkable specimen of Arctia caja, the common garden tiger moth, the upper wing of the left side of which was marked throughout its whole length with a narrow dash of red; also a Triphæna orbona, the upper wings of which presented almost the appearance of those of a Glæa. Mr. Edward Sheppard exhibited a bag of silken tissue without seam, used by the Chinese for lapping up the ends of rolls of spun silk. Dr. J. E. Gray stated that it was formed by beating out a single cocoon, and that Mr. Reeves had brought many specimens of it to this country. It was announced that a prize of five guineas had been offered by the Society for the best essay on the Coccus which produces the lac dye of India, to be forwarded on or before the 31st December, 1855; and it was stated that the East India Company had agreed to afford all the information in its power relative to the subject. The Secretary also announced that it was the wish of the Society to obtain the co-operation of members who had studied British Coleoptera in the formation and publication of a list of British beetles for distribution and labelling of cabinets. Mr. Newman read a notice of the honey bee of South Africa, a species stated to be only half the size of the English hive bee, and to be so prolific as to allow the comb to be cut away eight times in the course of the year. Also on the ravages committed by the common toad, as well as by the woodpecker, upon beehives, the latter not only having been observed tapping at the hive to induce the bees to come forth, but actually picking the mortar off the foot-board so as to make additional places of exit for the bees. Mr. Westwood also stated that at a particular period of the summer he had observed the common sparrows with their young broods to be very injurious to bees, the female bird flying up to the mouth of the hive and catching the bees as they take wing. Mr. Newman also read a notice by Mr. Wallace on the peculiar habits of two groups of Eastern butterflies, one of which sits with its wings deflexed, like the sphinges, whilst the other is very strong in its flight, hovering in the same manner as the same insects. Mr. Douglas read a note as to the means of avoiding and curing greasiness in insects preserved in the cabinet, which led to an extended discussion on the subject. Mr. Waterhouse read a note by M. Jekel on the scarce British Weevil Omias sulcifrons, lately also taken by M. Chevrolat near Brest. A note by Dr. Schaum was read on a species of Cetoniadæ recently incorrectly figured by Mr. Westwood as the Heterorhina bicostata; likewise on the species of Elateridæ recently described by Mr. Curtis, of which he corrected the nomenclature. A note was also read by Mr. Janson on the latter subject, proving most of the supposed new species to have been previously described by continental authors. A discussion having been raised upon the subject the President withdrew his inaugural autobiographical address.

Garden Memoranda.

Mr. Low's Nursery, Clapton.—Few nurseries contain a more extensive collection of plants in pots than this does. Upwards of 14 houses are appropriated to their accommodation besides long ranges of pits, consisting of many hundred lights. To keep the inmates of the latter in a healthy condition during the late severe weather has been no easy task; this, however, has been accomplished perfectly by means of good protections, made of reeds woven together with tar twine in the way in which straw coverings are made. In addition to these, mats and Fern have also been used, and it is surprising to see how safely and well Heaths and other plants of similar hardihood have wintered under them. In these pits we noticed Sarracenias of various kinds, Venus's Fly-traps (Dionæa Muscipula), and one or two hardy Canadian Lady Slippers (Cypripediums). Trilliums have also been wintered here, together with several plants of a violet called Viola pedata from New Jersey. In the Heath-house some of the winter flowering kinds were in blossom, such as hyemalis and gracilis, and even triumphans was beginning to open a few flowers. Under the stage were many fine plants of the Funereal Cypress, which it had been thought would winter better there than out of doors. Among other Conifers we remarked plants of the rare Thuja gigantea, which is said to be the same as the Libocedrus decurrens of Torrey, together with examples of Libocedrus chilensis, and Torreya Myristica, a fine coniferous tree, with foliage resembling that of a Cephalotaxus. Of Araucarias there were several, and among them some handsome plants of excelsa from cuttings, which, when made of the top or leading shoots, Mr. Low thinks form as good trees as those raised from seeds. Where the leader has been removed new shoots push out, which also strike readily, and make handsome plants.

In a long lean-to house were numbers of Camellias and Orange trees, the latter with clean straight stems from 4 to 5 feet in height, and with heads measuring from 2 to 3 feet in diameter. These, as may be imagined, will make very useful trees. Lapageria rosea has been raised here in abundance from imported seeds. They were sown in peat and loam, and nearly every one of them in many potfuls has germinated freely. Of Pitcher plants Mr. Low has a few of the best kinds, and of Orchids a great many, though most of them are plants recently imported. For these and other things a long span-roofed house is being built with a raised stage in the middle and slate shelves. It is heated by hot-water in 4-inch pipes, and glazed with 16 oz. sheet glass in small panes, long ones having been found here liable to split down the middle. Of Mangosteens and the Bourbon Palm Latania borbonica we noticed several plants. The latter have been raised from seeds sown in peat, in which they often lie five months before the young plants make their appearance. A very long span-roofed house is filled with Camellias and Azaleas. Of Ferns there is a good collection here, as indeed there is of most tribes of plants, the repotting of which and otherwise putting them in order for the summer are now works in active progress.

Notices of Books.

Century of Ferns, being Figures with brief Descriptions of One Hundred New, or Rare, or Imperfectly-known Species of Ferns from various Parts of the World, a Selection from the Author's Icones Plantarum. By Sir W. J. Hooker. Pamplin. 1854. 8vo.

It is much to be regretted that the admirable series of drawings and descriptions of new or rare plants contained in Sir W. J. Hooker's "Icones," remarkable alike for fidelity of execution and intrinsic interest, did not meet with that support from botanists which might have insured its continuance. Such works, unhappily, in this country, so far from proving any source of remuneration, are, for the most part, a certain loss, as every one who, from a love of science, wishes that the public should be partakers of the riches of his collection, is sure, sooner or later, to know to his cost. The series of drawings is now very voluminous, and though published at an extremely low rate, requires an outlay which is not within the means of many more humble cultivators. As, however, one of its most interesting features is the excellent and copious illustration of that most difficult but lovely tribe the Ferns, and as the cultivation of these is increasing every day in favour with the public, it has been thought advisable to select a number of the most instructive figures, publishing them in a separate volume, of the appearance of which we now apprise our readers. The drawings themselves are from the pencil of Mr. Fitch, a circumstance which not only insures correctness of detail and outline, but a degree of taste which is so often wanting in the mere botanical maps with which the botanist is so often afflicted. Their interest is not confined to the species themselves, but most important observations on the value of nervation as regards generic character, a point when justly estimated of great weight, though easily carried beyond all reasonable bounds, accompanied by just criticisms of other labourers in the same field, will repay attentive perusal. Those lovers of Ferns who wish to obtain some general views of the riches of the tribe will be enabled to gather from it a large mass of information, while their attention will not be called to mere herbarium species confined to the author's own collection or founded upon individual specimens; but they will find just views as to the value of forms, and will be able to recognise occasionally, if their collection is at all extensive, some of the species which they cultivate, which perhaps they would not be able to do from any other source. To suit the views of purchasers, there are both plain and coloured copies; and we think that we cannot give better advice to those who love elegance of form and not mere beauty of colouring to make themselves possessors of this attractive volume.

The Vicar of Wakefield, with 32 illustrations by Mulready (square 8vo., pp. 306, Van Voorst, 1*l.* 1*s.*) is a beautiful book, admirably printed, and adorned with exquisite wood-cuts, engraved after delightful designs by Mulready. For presents, or for the shelves of a library of illustration, the present season has produced nothing more interesting or more worthy of patronage. It even adds to the high reputation of Mr. Mulready as an artist, which is saying a great deal.

Miscellaneous.

Climate of the Crimea.—The weather has been of the most extraordinary character for the last few days. Three days ago the very sight of a great coat or warm pair of gloves made one perspire; next day it was so cold that even our immense stores of warm clothing were not superfluous: out of the midst of summer you are here suddenly precipitated, at half an hour's notice, into the midst of winter. At the end of this month we may expect rainy and warm days, and the sun becomes exceedingly powerful at times so early as the month of May. Three days ago the thermometer stood at 56°, next day it fell to 40°, in the afternoon it was at 32°, at night 28°. Yesterday morning early it was at 22°. This morning it was at 24°; it is now at 36°. Twice or thrice during this time the country has been obscured by drifting fogs, which have nothing of the characteristics of our "old London particular" except density. The influence of a few hours' sunshine here is remarkable. We have had a few warm days only, and yet the soil, wherever a flower has a chance of springing, pours forth multitudes of Snowdrops, Crocuses, and Hyacinths. The Chersonese is covered with bulbous plants, some of great beauty, and the shrubs contain several rare species. The finches and larks here have a Valentine's-day of their own, and still congregate in flocks. Very brilliant goldfinches, large buntings, gold-crested wrens, larks, linnets, titlarks, and three sorts of tomtits, the hedge sparrow, and a pretty species of wagtail, are very common all over the Chersonese: and it is strange to hear them piping their throats and twittering about the bushes in the intervals of the booming of cannon just as it is to see the young spring flowers forcing their way through the crevices of piles of shot and peering out from under shells and heavy ordnance. The insides of our huts are also turned into gardens, and Grapes sprout out of the earth in the window sills, the floor, and the mud walls. *Correspondence of the "Times," dated March 2.*

Gas Tar in Horticulture.—A discovery, which is likely to be of advantage to agriculture, has lately been reported to the Agricultural Society at Clermont (Oise). A gardener, whose frames and hot-houses required painting, decided on making them black, as likely to attract the heat better, and from a principle of economy he made use of gas-tar instead of black paint. The work was performed during winter, and on the approach of spring the gardener was surprised to find that all the spiders and insects which usually infested his hot-house had disappeared, and also that a Vine which for the last two years had so fallen off that he had intended to replace it by another had acquired fresh vigour, and gave every sign of producing a large crop of Grapes. He afterwards used the same substance to the posts and trellis works which supported the trees in the open air, and met with the same result, all the caterpillars and other insects disappearing. It is said that similar experiments have been made in some of the vineyards of the Gironde, with similar results. *Galignani's Messenger.* [We have always understood that gas-tar will kill plants by its effluvium.]

FLORICULTURE.

Seasonable Hints.—Auriculas at this season require much attention; their pips will be rapidly advancing. See that they experience no check from cold winds or other causes; but by no means keep them closely shut up, or weakened flowers will be the result. Early sorts intended for exhibition next month should at once be selected, and care taken to promote their flowering. Cinerarias.—These will be benefited by an occasional application of liquid manure. See that their flower-shoots are carefully tied out; this will strengthen them materially, and be productive of better defined colours. Dahlias.—The propagation of these must be proceeded with; those already struck should be potted off and kept in a hotbed for a few days to re-establish themselves after the shift. Fuchsias will require re-potting: cuttings taken off now will root freely and make nice blooming specimens to succeed the autumn struck plants. Hollyhocks must be shifted on as the pots get filled with roots; otherwise they will be pushing up their flower stems, much to the injury of their after welfare. Pansies in the open ground should be top-dressed and made secure from injury which heavy winds are sure to inflict on loose or straggling plants. Those in pots under glass must never be shut up closely. Pelargoniums intended for July flowering should now be stopped; let them become dry for a day or two, which will induce the formation of "back breaks," and these will be materially assisted by keeping the house rather close for a few days after the operation, avoiding also too much moisture; but as the buds show boldly

and indicate growth, occasional syringings may be given. Pinks should now receive a top-dressing. Tulips.—Mild gentle rain, when we are favoured with it, may be admitted as growth proceeds; occasionally stir the surface, and perseveringly protect from hail or frosts. Verbenas.—Continue to take off cuttings, and to pot off as they strike root, using light rich soil and small thumb pots; keep them in a slight dung-heat.

Cinerarias: *H.* The compost we would recommend for specimens intended for exhibition, and for large plants generally, would be two parts of good turfy loam, and equal parts of well-decomposed cow-dung and leaf-mould, with an admixture of silver or river sand. As the plants grow, take care to thin out all superfluous leaves, so as to admit the air freely and prevent mildew, which is a great pest, and which can only be removed by applying sulphur to the parts affected. The Cineraria should only be stopped once, as the second operation tends to produce weak growth. As soon as the shoots are long enough, tie out wide, keeping the outer branches as low as possible, and place them close to the glass, which will insure dwarf and compact plants. We had nearly forgotten the drainage, which should be of rough leaf-mould and potsherds mixed; this will keep the roots in a clean and healthy state.

SEEDLINGS.

Azaleas: *G H.* The best are Nos. 1 and 4: 1 is a brilliant rosy salmon, semi-double, and measures fully 3 inches across; 4 is rosy pink, and spotted on the upper petals. Both are well worth cultivating.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—In addition to the plants mentioned in last week's calendar as suitable for the decoration of the show-house in autumn, there are many greenhouse plants which soon form useful specimens if placed in favourable circumstances, and encouraged with pot-room, &c., such as Fuchsias, Croweas, the beautiful Luculia, and many others. The old Gardoquia Hookeri is a beautiful thing for autumn decoration; but it is too late to do much good with it for this season. Then there are quantities of things which may be raised from seed and grown into showy specimens, as Thunbergias, Ipomœas, Globe Amaranthus, Balsams, Cockscombs, &c., which are all useful enough where better things are scarce. But where these things are likely to be wanted there is no time to be lost, and every effort should be used at once to provide an ample stock of the most showy things that can be commanded. Camellias that have done flowering should be thoroughly cleaned, washing the foliage with a sponge, &c., if necessary; and if any of them are infested with scale this must be removed first, for there is no getting plants to thrive unless they are kept clear of insects. Repot such as require it, and place them in a suitable position for making their growth. Azaleas for flowering about next Christmas should also be encouraged to make their growth; and Epacrises that have done blooming should be cut back, and kept rather close and moist, in order to induce them to make early growth. These are first-rate plants for winter flowering, and by starting them into growth about this time, and getting their wood matured early in autumn, many of the varieties will be in full blossom in November, and their flowers last much longer at this season than after the sun becomes powerful in spring. Proceed as diligently as possible with the repotting of such of the hard-wooded plants as require it, so as to afford them a fair chance of making a vigorous season's growth, and endeavour to keep the newly potted stock as much together as circumstances will admit for a few weeks after potting, keeping the atmosphere rather closer and moister than usual. Stove.—Many of the plants here will be in vigorous growth, and will require careful attention. Attend to stopping, tying out, and regulating the growth as may be necessary, and do not let free growers suffer for want of pot room. Most stove plants enjoy a moderate supply of manure water while growing freely, and this should be given liberally to such things as Clerodendrons, &c., using it very weak at first, and taking care to have it at about the same temperature as the roots are growing in. A little of this sprinkled about the pots in the evening so as to charge the atmosphere with ammonia, will also be beneficial to the plants. Secure a thoroughly moist atmosphere by frequently sprinkling the paths, &c., and give air cautiously, and on the sheltered side of the house during the prevalence of cold easterly winds. Look sharply after insects of all kinds, and allow these no quarter, for if they are allowed to establish themselves upon the young growths they will soon ruin the most promising specimen. See to having shading in readiness, for some things are very impatient of bright sunshine at this season, particularly when air cannot be given freely without rendering the atmosphere too dry.

FLOWER GARDEN AND SHRUBBERIES.

The cold drying winds from which we are now suffering are exceedingly trying to recently transplanted trees or shrubs, and unless these are well attended to there will be but little chance of their escaping injury. See that they are secured against being blown about by staking, or whatever other means may be preferred, and where the soil is of a sound dry nature, watering will be necessary at once, unless the weather should become more favourable. In watering things that have been lifted with a ball the water is very apt to pass off through the loose soil, without soaking the ball where the roots are, and care should be used to prevent this, which is easily done by forming a basin over the ball. It is of the greatest importance to well care for plants after shifting until they can form fresh roots, and get established; but this is too often neglected in the bustle of this busy season, and many plants are allowed to get into a weakly state after shifting which with proper after care would not have been in the least injured. Indeed, success in transplanting large trees is quite as much dependant upon after care as upon their being lifted with large balls, &c. Push forward any alterations still remaining to be done, and get this work completed as quickly as possible, in order that the place may be got into good keeping. The bedding-out season will soon be here, and unless there is already a sufficient stock of cuttings put in, no time should be lost in getting in every one which can be procured, for it is most desirable to have strong well-established plants at turning-out time. If not already done, pot up scarlet Geraniums that have been wintered in boxes, and place them in a close frame to encourage them to make a nice short growth, and get them well inured to the air before planting out. Few places are overstocked with the variegated Geraniums, and these should have every attention. Where cuttings can be obtained they will be found to root very freely at this season.

FORCING DEPARTMENT.

Pineries.—Where the Pines are grown in pots, it is by no means a bad practice to occasionally rearrange those in the fruiting pit, placing those showing by themselves, so as to be able to afford them a rather drier atmosphere while in bloom; for at this season there is some danger of badly-formed fruit if the atmosphere is kept too moist, or the syringe used too freely while the plants are in bloom. Those expected to show shortly should also be kept as much together as circumstances will admit, so as to avoid having to disturb the arrangement for some time to come. Indeed, where a regular supply of fruit has to be furnished from only a moderate quantity of plants, frequent rearrangements will be necessary; for it is, perhaps, impossible to regulate the treatment so as to get every plant to fruit just at the desired time, and hence it will be necessary to use every means to regulate the supply, such as removing a portion of the plants to the coolest division when too many happen to show at once, which is frequently the case at this season, and forwarding others as much as can be done. Plants swelling their fruit can hardly be afforded too moist an atmosphere, and they must be carefully attended to with water at the root, giving clear liquid manure in a rather strong state, and some of this should also be sprinkled upon the tan, &c., so as to make the atmosphere resemble a dung pit. Shut up early in the afternoons of bright days, letting the glass rise to 85° or 90°, moistening the plants with the syringe, and sprinkling the passages so as to saturate the atmosphere with moisture, but avoid high night temperatures or a too free use of fire-heat. Vineries.—If fermenting materials have been used for warming the borders these must be turned occasionally, adding fresh as may be necessary to maintain a gentle warmth in the border, for it will not be safe to neglect this at present. Ventilate cautiously, on cold windy bright days admitting air on the sheltered side of the house only, and keep the inside borders moist by occasional sprinklings, so as to counteract the drying effects of cold air and bright sunshine. If it is desirable to prevent the Vines in the late house from starting for some time yet, they should be let down as far from the glass as can be conveniently done, and the house shaded, unless the Vines can be taken out, which would allow of the house being used for other purposes, and there is no danger of the weather being such after this season as to injure the Vines. Houses in which the Vines are starting should be kept thoroughly moist, syringing the Vines morning and evening, and the rods bent as may be necessary to induce the buds to push regularly. Peaches.—Where the fruit is fairly set, maintain a nice humid atmosphere, giving the trees a good washing with the syringe just before shutting up in the afternoon, so as to keep them clear of red spider, and see that the soil about the roots is in a properly moist state. Attend to disbudding and tieing in the shoots, keeping them thin and regular. Here as elsewhere it will be a work requiring careful attention, while the present state of the weather lasts, to properly regulate the ventilation, but this must be attended to at any expense of time or trouble.

HARDY FRUIT AND KITCHEN GARDEN.

Pruning, nailing, and the planting of all kinds of fruit trees should be finished at once if not already done; and recently planted trees should have their roots mulched, to protect them from the effects of drying winds; and standards should be carefully staked, so as to prevent their being blown about by the wind, and having their young roots broken off as fast as they are formed. Take advantage of the firm dry state of the ground to get manure wheeled upon quarters where it is likely to be wanted soon. Cauliflowers, Peas, &c., that have been lately removed to the open ground from under glass should be afforded some shelter against excessively cold winds. For Peas we know nothing better than the Spruce branches recommended last week, and the old practice of covering Cauliflower plants with inverted flower-pots will, in the absence of any better covering, be found a great protection to the plants. Forward Celery plants for an early crop by pricking out on a gentle hot-bed, and sow on the same for a succession crop. Attend to providing a regular and plentiful supply of Peas, &c., by sowing quantities proportionate to the demand at regular intervals; also keep up a supply of French Beans and Asparagus, and Seakale, &c., by introducing quantities into heat at short intervals; and advantage should be taken of the dry state of the mould to prepare ground for fresh plantations of Asparagus, Seakale, and Rhubarb, which it is necessary to make every year where these are used largely for forcing. The ground for these should be trenched some 3 feet deep, and plenty of rotten manure well incorporated with it as the work proceeds, for it can hardly be rendered too rich if good crops are to be obtained.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending March 22, 1855, as observed at the Horticultural Gardens.

March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.
Friday 16	27	29.707	29.518	53	32	42.5	41	41	W.
Satur. 17	28	29.641	29.498	50	33	41.5	41	41	S.W.
Sunday 18	●	29.730	29.667	48	34	41.0	42	41	W.
Mon.. 19	1	29.922	29.877	55	30	42.5	42	42	S.W.
Tues. 20	2	29.824	29.735	58	37	47.5	43	43	S.E.
Wed. 21	3	29.391	29.107	45	34	39.5	43½	43	N.E.
Thurs. 22	4	28.908	28.882	36	33	34.5	42	43½	N.E.
Average.		29.589	29.496	49.3	33.3	41.3	42.1	41.9	

March 16—Densely overcast; fine; clear at night.
— 17—Fine; rain; clear.
— 18—Fine; cloudy and boisterous; clear at night.
— 19—Uniformly overcast; slight showers; clear.
— 20—Foggy; very fine; overcast; boisterous.
— 21—Hazy and cold; cloudy; hail shower at night.
— 22—Sleet; barometer exceedingly low—a state, with wind easterly, quite unusual; cold rain.

Mean temperature of the week 1 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 29 years, for the ensuing week, ending March 31, 1855

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 25	50.3	33.0	41.7	11	0.50 in	3	7	4	—	3	3	[illegible]	[illegible]
Mon. 26	51.8	32.6	42.2	12	0.17	—	5	4	3	1	[illegible]	[illegible]	[illegible]
Tues. 27	53.6	34.2	43.9	10	0.37	1	5	4	3	1	[illegible]	[illegible]	[illegible]
Wed. 28	53.4	33.5	43.5	10	0.68	2	6	5	2	3	1	[illegible]	[illegible]
Thurs. 29	53.9	33.7	43.8	7	0.33	1	3	7	3	[illegible]	[illegible]	[illegible]	[illegible]
Friday 30	54.0	34.7	44.3	11	0.50	3	4	3	1	[illegible]	[illegible]	[illegible]	[illegible]
Satur. 31	55.1	35.7	45.4	12	0.30	2	7	2	3	1	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the 31st, 1830—therm. 75 deg.; and the lowest on the 25th, 1836—therm. 14 deg.

Notices to Correspondents.

Asparagus: *J S.* Make your new bed now of good rich soil, not less than 3 feet in depth. Two year old plants will answer quite as well as three year old ones; indeed better if the latter have grown all the time in a seed bed.‡

Black Honey Dew: *G A.* This is produced by the scot fungus Torula fumago, a terrible pest. It should be removed if possible. You might try dusting the part affected when wet with flowers of sulphur, or washing with fresh made lime water. It ruins plants if it is not checked.

Books: *U R.* Brown's "Forester."

Canvas: *A Sub.* You will not succeed in rendering this quite water tight without painting it. Boiled oil is very useful. You might try the effect of the following receipt:—Mix in boiling water equal parts of roach alum and sugar of lead; immediately plunge the cloth into the solution and let it remain, covered by the fluid, for 24 hours. Then take the canvas out, do not press or squeeze it, but hang it in the shade to dry very slowly. Half a pound of each material is enough for 6 gallons of water. When dry, brush off the white deposit, and the article is ready for use. In good woollen cloth this is effectual; we do not know how far it answers for linen.

Diseases: *S P M.* We have examined your Grapes and leaf very carefully, and do not find a trace of mildew. There are, indeed, certain white spots, especially on the under surface of the leaf, which look like carbonate of lime, but they do not effervesce with sulphuric acid, and therefore probably are due to the anti-blight composition. Let us recommend you, before you mak use of such compositions, to ascertain that you really have got the disorder for which they are recommended. We suspect that you will find some very different cause for failure. *M. J. B.*

Fern Cases: *J R.* When in London, you had better look in at Mr. Kennedy, of Covent Garden.‡

Gas-water: *Vectis.* Diluted gas-water will kill green fly, no doubt, but with what proportion of water it should be used we cannot say, because its strength is variable. It turns lead paint black; and if too strong will burn the leaves. You should make a few experiments with it upon some *corpus vile* before applying it to your Peach trees.

Guava Jelly: *A Constant Reader* will thank some of our correspondents to give him a receipt for making Guava jelly from fresh Guavas, as in the West Indies.

Insects: *S. F.* The insect caught in a piece of Turnip is the young caterpillar of a moth which during the summer, when nearly full grown, does great injury to the crop of Turnips. You may know the wireworm by its resembling a bit of polished wire, measuring from half to an inch in length. It is the larva of a beetle. *W.*

Heating: *G R.* There is no objection to using gas for this purpose, provided you can secure the stove from leakage or allowing the gas to escape into the house. This is very difficult to accomplish. If you do use gas you should place an evaporating pan of water near the source of heat, with a view to preventing the air of your house becoming over heated.

Labelling Plants: *Anne.* Your gardener ought to know better than to give you such advice. The face or named side of the label should never be towards the plants of which it is the name. Just the reverse is the proper practice.‡

Mahaleb Stocks: *Iota.* Either graft or bud them with Cherries, whichever process you prefer. This stock dwarfs the Cherry in the same way as the "Paradise" dwarfs the Apple. We hope your Escallonia macrantha will shoot again. It has survived even this exceptional winter in many places.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is only requested that, in future, not more than four plants may be sent us at one time.—*Thomas Lang, Geelong.* Festuca bromoides and Phalaris canariensis, both introduced, no doubt. We cannot undertake to pay the postage of either foreign or home letters.

Planting: *F H G.* We do not know who wrote the article on Useful and Ornamental Planting in the "Library of Useful Knowledge." For the cultivation of Oaks you should consult Brown's "Forester;" for the sorts in cultivation, Loudon's *Arboretum Britannicum:* but the information given there is not so satisfactory as it should be.

Reports on Nurseries: *Omega.* Not sufficiently well written. We never insert such reports unless furnished by our own reporters.

Slugs: *S F.* Quicklime would certainly be more lastingly effective than salt in a garden where the soil is extremely retentive and imperfectly drained, and in which you cannot keep the slugs under.‡

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Similar remarks were made in the Agricultural Journals on the roots exhibited by Mr. GROVE in 1852, 1853, and 1854.

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The proprietors of this well-known and widely circulated publication have much pleasure in announcing another edition for the present year. They have spared no expense nor trouble in making it a most useful and serviceable guide to all who take an interest in the cultivation of the soil. It contains a valuable Descriptive List of all the best AGRICULTURAL SEEDS, with prices affixed to every article, with cultural remarks and general information as to the best varieties for various crops.

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The ORIGIN AND HISTORY OF PERUVIAN GUANO will be found amongst its contents, as well as some excellent advice for detecting the spurious from the genuine article. The proprietors have been favoured with some good sound advice to Farmers on this point by J. C. NESBIT, Esq., the celebrated Agricultural Chemist. They have also reprinted PROFESSOR WAY'S LECTURE on the same subject, from the *Gardeners' Chronicle*, read to the Members of the Royal Agricultural Society.

Descriptive articles relating to Lawes' Patent Superphosphate, Nitrate of Soda, the new Mexican Guano, and other manures will also be found very useful and interesting.

The "SUPERPHOSPHATE CONTROVERSY" in the Plymouth Papers is also given at length. The whole of the letters are reprinted from the *Plymouth Herald.* In this Controversy the "*Gypsum mixers*" are fully exposed by Mr. J. PRIDEAUX, the eminent Agricultural Chemist.

A valuable Paper has also been written expressly for this Edition by Mr. R. ERRINGTON on the "*Cultivation of the Potato,*" as well as an article on "*Liquid Manure*" by the same gentleman.

The Proprietors have also much pleasure in stating that they have been favoured with two Original Articles, by J. B. LAWES, Esq., Rothamsted, the celebrated Agricultural Chemist, on "*The Artificial Manures most suitable for the Growth of Barley*" and "*The Cultivation of one Grain Crop after another on heavy land.*"

There will be a good Engraving of the CEDRUS DEODARA, one of the hardiest and best varieties of Cedars ever introduced, and prices of various Forest Trees, Shrubs, and Fruit Trees.

Engravings and descriptions of a great many Agricultural Implements are also added in the present Edition, and amongst them will be found M'CORMICK'S AMERICAN REAPER, GARDNER'S TURNIP CUTTER, SAMUELSON'S REGISTERED LAWN MOWER, PATENT LIQUID MANURE DISTRIBUTOR, WARNER'S GARDEN ENGINES, PUMPS, SYRINGES, &c.; FOWLER AND FRY'S CHAFF CUTTING MACHINE AND ONE ROW TURNIP DRILL, ANTHONY'S PATENT AMERICAN CHURN, AND PARKES' STEEL DIGGING FORKS.

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At the request of several correspondents the Publishers have printed the present Edition the size of the "Gardeners' Chronicle," so that those who wish it can bind it with the present volume of that valuable Paper. It contains 28 folio pages, "Chronicle" size.

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The Agricultural Gazette.

SATURDAY, MARCH 24, 1855.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, March 28—Agricultural Society of England.

THE agricultural relations of the subject of TOWN SEWAGE were very fully and instructively discussed last Monday evening, before the Society of Arts. Reports of some of the addresses delivered on that occasion will be found in another page; a full pub-

lication of the debate would occupy greater space than we can afford in a single number; and its postponement in part is the less to be regretted as the subject is not, like many others, one on which an immediate decision would at once affect farm practice. In fact the general tendency of increasing knowledge on the subject seems to discourage expectation that farm practice will ever largely benefit by the use of town sewage. Professor WAY has indeed shown how the conservative powers of ordinary soils would make them store-rooms of fertility, in which the food of plants might at any season be safely placed against the season of growth, when alone it can be used—but in sewage this food, it seems, is so greatly diluted that, however efficient a vehicle for it water may be, the manure which it thus conveys is pretty much as expensively conveyed as guano would be if a whole train of carriages were needed for the delivery of every ton. The question is, no doubt, as Mr. CAIRD has stated, now one more for the engineer than for the chemist. So far as the latter is concerned, it seems to be exhausted; but we fear that the problem, however simply now it may be stated, is as far as ever from a profitable solution.

We hope next week to give a further report of the discussion.

A VERY seasonable and useful discussion took place last week before the Highland and Agricultural Society of Scotland on TOP-DRESSINGS FOR DIFFERENT CROPS. Two papers were read—one by Mr. HOPE, of Fenton Barns, and the other by Mr. FINNIE, of Swanston—and Dr. ANDERSON, the chemist to the Society, summed up the points which had been brought out, and read the experience that had been described, in the light of that general experience which, when classified and arranged, is called science. One cannot imagine a more satisfactory and appropriate employment for an agricultural society than that in which the Highland Society was thus engaged. Its best practical men, instructed by its chemical officer, had brought their practical skill to bear upon a point of great practical importance, and the results of their experiments ascertained with carefulness are now published just at the time of year when likely to be most useful, and published along with suggestions by Professor ANDERSON, directing attention to such of the results made out as appear to one of his experience in experimental research to have been determined. Mr. RUSSELL, of Kilwhiss, in Fifeshire, had also contributed similar results with those of Messrs. FINNIE and HOPE, but his absence in America had interfered somewhat with their parallelism with the others, so that they could not so satisfactorily be presented in the same series.

We have not space for publication of the separate papers that were read; but their results we take from Dr. ANDERSON'S remarks, in which they have been compared. These remarks, it should be stated, specially directed attention to Mr. PUSEY'S view of the relative value of guano and of nitrate of soda as manures, and it was shown that in the experience of the Scottish experimenters that view was not borne out—guano being the more efficient of the two.

The experiments originated in a correspondence between Dr. ANDERSON and the three gentlemen we have named, in which the nature of the experiments was resolved upon: it was determined that nitrate of soda should be used at the rate of 1 cwt. per acre, and that sulphate of ammonia and Peruvian guano should be used in such quantities as to supply the same amount of nitrogen. It was further resolved that a mixture of these manures should also be used. One other point seemed worthy of inquiry. It has recently been customary to mix nitrate of soda with common salt, which is said to strengthen the straw, and prevent the tendency to lodge, which is frequently observed where light manures have been applied to grain, but as doubts have been expressed on this point, it was thought well that these manures should be tried both with and without salt.

On the last of these points it is sufficient to state that, comparing the two halves of all the experiments, over one of which the salt had been used, while over the other it had not, the conclusion arrived at is, that it was without effect, or at least that its influence was very uncertain.

The real point determined by these experiments is thus limited to their comparison of the nitrogenous manures, and here we simply present to the reader a somewhat condensed report of Professor ANDERSON'S remarks:—

On Wheat.—In Mr. FINNIE'S experiments there is remarkable similarity throughout the results. If we add together the quantities of good and weak grain, and, further, take the mean of each pair of experiments, with and without salt, we have the following table:—

	qrs.	bu.	lb.	qrs.	bu.	lb.
Nitrate of soda	5	8	47	5	4	30
" with salt ...	5	5	14			
Sulphate of ammonia ...	5	4	56	5	3	29
" with salt ...	5	2	14			
Peruvian guano	5	6	30	5	4	60
" with salt ...	5	2	60			
Mixture	5	5	37	5	4	16
" with salt	6	2	52			

We perceive at once that guano has given the largest return, next to it comes the mixture, and third only is nitrate of soda, *with salt*. The second column, giving the average of each pair, shows that though Peruvian guano stands highest, nitrate of soda is little behind it, while sulphate of ammonia falls short by more than a bushel. This difference is so small, however, as to be unimportant.

Turning to Mr. Hope's experiments, we find the results somewhat different, for, with him, sulphate of ammonia has given the highest result, while guano and nitrate of soda are nearly on a level. In Mr. Hope's experiments, we have the advantage of being able to compare the produce with that of an unmanured portion, from which we are enabled to calculate the actual profit derived from each manure. I shall select the highest result afforded by each manure, which is most favourable to nitrate of soda, and we obtain the following table, Wheat being taken at 70*s* per qr.:—

	Increase per acre.	Increased val. of crop.	Cost of manure.	Profit.
	Bushels.	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
Nitrate of soda and salt	3	1 6 0	1 0 0	0 6 0
Sulp. of ammonia and salt	5	2 3 9	0 13 6	1 10 9
Peruvian guano ...	3½	1 10 0	0 14 0	0 16 9

It follows, therefore, that while sulphate of ammonia has given a profit of 30*s.* per acre, nitrate of soda has given only 6*s.*, and nitrate of soda employed alone gave an increase of only 2 bushels per acre, value 17*s.* 6*d.* entailing a loss of 2*s.* 6*d.* per acre.

In Mr. RUSSELL'S experiments, where the produce of Wheat from the unmanured portion is very small, being only 3 qrs. 3 bush. per acre, the effect of the top dressings is more marked than either in Mr. FINNIE'S or Mr. HOPE'S, and in them guano holds the highest place, while nitrate of soda stands low. It gives a profit calculated on the same manner as before, but taking the Wheat at the value of 72*s.* as given by Mr. RUSSELL of but 7*s.* 9*d.* per acre, while sulphate of ammonia gives 2*l.* 9*s.*, and guano 3*l.* 7*s.* per acre. As far as the production of straw is concerned, Mr. FINNIE'S results are most favourable to nitrate of soda, Mr. HOPE'S to sulphate of ammonia.

On Grass.—Turning to the hay experiments, we find matters more favourable to nitrate of soda. Mr. HOPE finds that it produces on the average an increase of 12 cwt. per acre, while guano only gives 9 cwt., and sulphate of ammonia 7 cwt. It is worthy of remark, however, that guano conjoined with salt gave a higher result than nitrate of soda, but when employed alone its effects were greatly inferior, and hence the difference in the average. Mr. FINNIE'S increase is 17 cwt. from nitrate of soda, 14 from sulphate of ammonia, and only 10 from Peruvian guano. Here guano falls decidedly short of the other ones, while taking into account the relative costs of the two manures, the nitrate and sulphate of ammonia leave about the same profit.

Mr. FINNIE has calculated the money value of the hay crop at 7*d.* per stone, and it thus appears that the portion dressed with nitrate of soda alone gives an increased value of 1*l.* 8*s.* 7*d.*, but when common salt was added it was only 1*l.* 4*s.* 4*d.* Taking the average of the two, we have 2*l.* 4*s.* 1½*d.* as the profit; which considerably exceeds that of the other manures. Mr. HOPE'S experiments afford similar results with nitrate of soda, the profit is 1*l.* 18*s.* 8*d.* per acre; with sulphate of ammonia, 1*l.* 2*s.* 2*d.*; and with Peruvian guano, 1*l.* 11*s.* 10*d.* In Mr. RUSSELL'S experiments guano gives an increased amount of hay, the value of which, deducting the cost of the manure, is 12*s.* 10*d.*; nitrate of soda gives 1*l.* 0*s.* 8*d.* profit; and sulphate of ammonia, 1*l.* 7*s.* 2*d.* On Grass the results are on the whole more favourable to nitrate of soda, but they by no means give it that pre-eminence which has been lately assigned to it.

On Potatoes.—The results obtained from Potatoes are unfavourable to nitrate of soda, but considerable discrepancy exists between Mr. HOPE and Mr. FINNIE'S results. Calculating Mr. HOPE'S at the rate of 3*s.* per cwt., we find that, after deducting the cost of the manure, the profit is 10*s.* per acre, while sulphate of ammonia gives 1*l.* 8*s.* 6*d.*, and Peruvian guano entails a loss of 7*s.* In Mr. FINNIE'S experiments, sulphate of ammonia gives a loss of 14*s.* per acre, nitrate of soda a gain of 19*s.*, and guano a gain of 3*l.* 11*s.*

It is proper to add to this that the manures applied per acre were respectively as follows:—(1), nitrate of soda, 1 cwt.; (2), nitrate of soda, 1 cwt., and common salt, 2 cwt.; (3), 87 lbs. of sulphate of ammonia; (4), 87 lbs. of sulphate of ammonia and 2 cwt. of common salt; (5), 137 lbs. of Peruvian guano; (6), the same guano and 2 cwt. of salt; (7), a mixture of 37 lbs. of nitrate of soda with 29 lbs. of sulphate of ammonia and 46 lbs. of Peruvian guano; (8), the same mixture and 2 cwt. of common salt.

On the general value of these experiments, and on those circumstances under which they were performed by which this was affected, we quote Dr. ANDERSON further:—

Taking these experiments as a whole, it is obvious that they form a very important contribution to our knowledge of these manures, when used as top-dressings upon different crops. They cannot be considered as exhausting the subject, or that we are entitled to assert that in all cases similar results are to be obtained; but this much is clear, that the extraordinary pre-eminence assigned to nitrate of soda is far from being borne out. It is to be observed, however, that the season was dry, and on that account comparatively unfavourable to top-dressings. This circumstance would undoubtedly act prejudicially on all these manures, but less so in nitrate of soda than the others. We know that when sulphate of ammonia and guano lie for a considerable time on the surface before they are washed in by the rain that a material loss of their ammonia occurs. On chemical grounds we know that such loss is less likely to occur with nitrate of soda. We remark, also, that the greatest effect in many cases has been produced by sulphate of ammonia, while guano occasionally stands behind the other two. It must be remembered, however, that the experiments are incomplete, and that the effects upon the next crop may materially alter the relative position. Kuhlman found that guano differed from nitrate of soda and purely ammoniacal manures in the action which it exerted in the subsequent crops. He found that it produced a marked increase upon them, while the portions which had been dressed with nitrate of soda and sulphate of ammonia actually gave in the subsequent year a less produce than the unmanured portion. Should a similar result be obtained on the crops of this year, we shall at once see that our conclusions may undergo considerable modification, and that guano may come to stand higher than it at present does. Meanwhile while these manures are taken so as to supply the same quantity of nitrogen, we have evidence that there is no marked difference between them unless it be in the hay crop. There we find that nitrate of soda does undoubtedly produce a larger increase than either of the others, and this is in accordance with the observation frequently made of its superior effects on the Grasses. In other words, it produces a more powerful effect on the stems than the other manures, and this we see also in the Wheat, when a larger increase of straw is produced by it than by either of the other manures; but in the production of seed we observe that the advantage lies in some cases with sulphate of ammonia, in others with guano, while nitrate of soda is invariably inferior.

Our readers will agree with us that the thanks of the agricultural community are due to the gentlemen and to the Society who have thus called attention to facts so well determined on a department of farm practice which during the next few weeks will occupy so generally the attention of agriculturists.

YOUTH.—CRIME.—PUNISHMENT.

(TWO LETTERS)—No. I.

ONE fine afternoon, last autumn, a gentleman riding home saw a boy, at that time in his employment, earning his wages by knocking down Apples from a tempting-looking tree in a small orchard adjoining his garden. The lad was too busily occupied to notice the new arrival at the scene of his labours: the interview was inevitable: flight was vain: and a whip in the rider's hand. Boys will be boys, and men *will* forget that the remark once applied to themselves: so, whack! crack! down came the riding-whip twice upon the peccant shoulders, with the usual reprimandatory interjections for such cases made and provided. A most expressive shrug of the off-side shoulder, and a quick furtive glance curiously compounded of angry pain and intense deprecation of impending *number three*—arrested the whip-hand; and with that biting form of admonition which popular metaphor has likened to 'a flea in the ear,' the boy departed: and the rider.

Both, *in pain*. For, the excitement of the moment over, there was something in the appeal of that smarting look, and writhing figure that made me half disposed (for the writer was the rider) to throw the whip into the nearest pond, which chanced to be conveniently at hand. But why was this? Had I struck too hard? No; the whip was but a light one; the offence, and detection, complete; and I had—after the most approved fashion too—*punished* the little culprit.

I began to reflect, as I rode on, upon this thing 'Punishment.' Said I to myself —— but you shall see the soliloquy in result. I have already remarked it was a tempting apple-tree: (oh! those tempting Apples! what work they have played in history, sacred and profane! For aught we know, Troy itself might still be standing, strong and *safe* as Sebastopol, but for *one* of them!)—Well, under this same tree, before ten days had passed, I beheld another young marauder working away, as before. I was on foot this time; but before the little man, No. 2, could look round, the arm he was raising with might and main for 'another chip' dropped to his side, at the touch of a hand laid, very gently, on his shoulder.

"What, stealing Apples, my little man?"

A look of terror, and a burning blush, were the only answer.

"Why how comes this? Don't you know it's wrong to steal?"

No answer: but the same shamed and terrified look.

"Have you never heard that it is wicked to steal? Has your mother never told you this?"

The boy looked up somewhat re-assured by the words, or the tone, and in that peculiar way of children, so unthinking, often so touching, said—

"*Mother's dead.*"

"How long has she been dead?"

A pause: and then—"I doant know."

"And did poor Mother never tell you it is wicked to steal!"

A dull hang of the head: a long silence, and then a blubbering outbreak of tears.

Then followed a short lecture on stealing; a promise that I should watch him always, till by good behaviour he had wiped out this offence: that that was the only way to do it: and that by good character he might soon be able to earn the means to buy some apples of his own, &c.

Both these boys I see frequently. The one meets me with a cowering angry sort of look, as if I was a Dragon that he dreads, but should like to slay. The smart of the whip is not forgotten; the 'Punishment' has done its work. What that work is we will inquire presently. The other boy meets me with a sort of under-glow of countenance, solicitous of notice; evidently with a sense of pleasure: he knows not why, of course, but with an indistinct association of my look and voice with '*poor* mother.'

Now, without going the length of assuming that all boys caught stealing would blush extempore, and hang their heads, and cry; or have that sad startling answer —"Mother's dead!" I would ask you, Madam or Sir, to "look on this picture, and on this," and say which of these two modes of treating juvenile crime, is the one most likely to *cure* it, and to protect us from it—the first, or *punitive* system, or the second, the 'reformatory' system?

'But Crime must be 'punished!'

'With what view!'

'Oh! to prevent it, of course.'

'But how does the Punishment of the Criminal prevent Crime?'

'By the example, doubtless, to other offenders.'

'Then it is not on the 'tit for tat' principle that you'd inflict it; not to avenge it upon the individual?'

'Certainly not: it is inflicted in order to deter others from repeating the offence; that society may be protected from depredation and assault, from "injury to person and property."'

Such is the answer. It has stood good for some hundreds of years: mayn't one say *thousands?* The 'British Constitution' is a chicken to it. It is older than the Pyramids: almost *really* "as old as the hills!" At least so all people say, and most people think. A solitary rider on a still autumn evening, of the year of grace 1854, with a flushed cheek and a shaking hand, as this thought passes through his mind, draws in a long breath between his closed teeth, as if it was some plaister for the heart-burn, and when he can draw in no more, dares to ejaculate it all—breath, thought, words, authority, antiquity, British Constitution, and I don't know how much more, in this hot short phrase—

"This 'Punishment!' This hateful PUNISHMENT!"

I know not how or why it is, that when one's thoughts are strongly excited, and most especially if the burning ember of *compunction* is thrusting its red-hot end into the Council that sits under the waistcoat-buttons,—an odd phenomenon is apt to occur: floating sentences or phrases long ago familiar, yet never *marked* till now, drift unwittingly across the recollection,—vaguely, lightly, suddenly, like an air-borne leaf across the face in winter, some Cumæan leaf that has lost its place and parentage, that bloomed far back in forgotten summer, and far away from the spot where now, bat-like, it flaps across you. What is it that brings those morsels of memory so oddly obtrusive yet so curiously a-propos, across the mind in its distress, uttering the very words, so that one rather seems to *hear* than think them!

"*And God put a mark upon Cain, lest any one finding him should slay him.*"

Such were the words that alighted impromptu, and kept repeating themselves, as it were, over and over again, as I rode home, swung myself into my study, closing the door behind me.

"This Punishment! this hateful *human Punishment:* is it RIGHT?"

I took down a volume of Blackstone, that most eloquent and satisfied of 'Commentators' upon Things that *be*, or that *once did* be; whose pleasant ample portrait smiles, in the old editions, opposite the title-page of what is now a charnel-house of dead Law. Caught by an old pencil-mark in the margin, my eye fell upon the following passage—

"For, every human law is only so far just and *efficacious*, in proportion as it is founded on the Laws of Nature."

Admirable! said I. Come, here, at least, is a proposition that needs no argument or proof. This is the right track! this *must* lead 'out of the wood.' I begin to think I see daylight already.

'Punishment.' 'The Laws of Nature.' 'Human law.' I regularly laid it out, and *stated it;* like an equation. It almost seemed as if it would *work!*

The Laws of Nature! blessed, beautiful, merciful Nature! fresh, fresh every morn and every 'dewy eve' and every hour and every instant, from the living hand of the Living God!——Well done, robed and ermined Justice Blackstone! For that one gem of a sentence I'll forgive you all the dusty toil of by-gone days through those four volumes octavo, all those bones and heaped-up skulls of dead and buried legislation from which my marvelling mind kept drawing conclusions most forbidden,—to find, at the end of all, at the last round of the ladder, that 'the climbing of it was indeed a useful practice for beginners, and that I must now kick it down behind me, and begin to study the Laws of England *as they are*'!

'The Laws of Nature!' And what, then, says Nature about Natural '*Punishment*?' Let us humbly examine the question; and look into it carefully, unflinchingly. Let us lay this hideous thing Punishment under the dissecting-knife, and probe into the very essence of its nature. What *is* it?

The child, not yet able to walk or speak, puts its finger into the candle: it burns: in an instant the arm is drawn back with an instinctive jerk. There's a roar: an angry look at the unconscious mutton and its pointed tongue of flame, and (with perhaps an occasional repetition of the *warning*) the child grows to manhood with two hands having upon each a thumb and four fingers, instead of two mutilated dedigitalised stumps.

The schoolboy—but who on earth is to follow *him!* At every hour, at every game, at every jump, at every trick, he is trying and testing and proving, and torturing if he could, the 'Laws of Nature.' No dashing French cavalier galloping round the serried phalanx of a British 'square-for-cavalry' ever tried with more daring and dauntless cunning to find out *one* unguarded spot. In vain! Nature hedges him around with her chevaux-de-frise of *warning* pains and penalties, sometimes mild, sometimes sharp, always proportionate to the invasion, always *discriminate* to the offence, always alighting on the exact transgressing member. She bites him, burns him, kicks him, scratches, pinches, bruises him. There is not a trick he can put upon her, but she has a trick in return; yet she never for an instant loses her temper. It is all *his own* act and deed producing *its own* certain and cognate result. 'Punishment it is absurd to call it: it is simply an educational experience of physical *causes and effects.* By it he learns: by it he is warned, guided, *preserved* to manhood.

The youth enters upon a deeper course of lessons. The physical Laws of Nature with their physical *warning* of pains and penalties, on one side, and rewards and pleasures on the other—that fair hedgerow of joyous flowers and prickly brambles lining on each side the road of safety—swell into richer hues, caught from the *moral* world, and protected from rude invasion by thorns of deeper smart on the way-side of Duty and Happiness. Yet all in *warning* mercy still! The midnight revel and excess followed by the waking agony and depression corresponding *to the very cups*, varying in intensity with the very number of the stupid 'toasts'—all with such an exactitude, such a *Minié* precision of cause and consequence, that almost an idiot might learn!

The grown-up man—but is it necessary to pursue it further? the dyspepsia of the glutton, the ennui of the idler, the gout, and other mystic inward gravelings of Mr. Sober Excess, the poverty of the slothful man, the isolation of the selfish man, the fever that penetrates the inner chamber of the careless neglecter of his penury-and-disease-stricken neighbours—are they 'Punishments' or *Warnings?* Look at them well: compare them with the gentle flame that checked the errant finger of the little child; you will see the same principle and kindly purpose running throughout; the Law of *Motive* and of merciful guidance and protection to *the individual.* As well might the spur that pricks the speed of the charger flying from certain death, as well might the knife that cuts away the mortified part of a diseased limb be called 'Punishment.'

In the sense that criminal-law-makers attach to the word, and have taught men to understand it, the laws of Nature exhibit *no such thing* as 'Punishment.' From first to last the whole 'criminal code' of Nature is simply and emphatically *prospective, reformatory,* and *parental,* acting upon the external and the physical, and still more potently and keen, with the tooth that *is not seen,* upon the internal and moral feelings of the individual. And if teaching such as this, so kind yet never disguising truth, so gentle yet never relaxing effort, keen in presence and perception, *constant* as his own shadow in its attendance upon each individual, often fail to teach,—what shall we say of the presumptuous hand which attempts by 'examples' of human 'punishment' to prevent the crimes *of others?*

The whole idea is a mixture of error and injustice: *of error* because it is ethically false to the constitution of human nature to suppose, or to make laws on the supposition, that punishment can generate vicarious motive or morality, and thus extinguish future crime; *of injustice,* because no human power or human laws have the right to make men into the scarecrows of hypothetical offences of others, not yet committed, any more than into scapegoats of the past offences of others, with whom the offender himself has no relation past or future, and for whom he is not and cannot be responsible.

Where did legislators get the preposterous notion of this *transitive* operation of Punishment from the thief in *esse* to the thief in *posse?* Upon what 'discourse of reason' was the theory based? The practical experience of the whole history of Crime in this country flatly contradicts it, and condemns it, as false to human nature. When men were hanged for horse and sheep stealing, the number of sheep and horses stolen was far greater (and from a smaller population) than since it has ceased to be a 'hanging' crime: the same is true of all.

But would not common sense and common sanity of argument require that before you assume that the punishment of A. who has committed a crime, will operate to the prevention of X. who has committed none at all—that you should first of all be able to show some evidence of its salutary influence upon A. himself? If the tramp! tramp! all day up the interminable staircase of a *grist-less* Mill, and the turning of a crank (that is grinding *nothing!*)—be found to harden the heart that wants softening, and blister the hand and its truest instincts with oh! such a sacrilegious mockery of Heaven-born LABOUR, all in vain, is it reasonable to assume that the effects upon *paulo-post-futurum* transgressors who 'may, can, might, would, could, should, *or ought to*' sin, subjunctively,—will be more successful? Do Grapes grow on Thorns, or Figs on Thistles, inside the garden-walls of a Goal?

If not—if the antiquated fallacy of severe punishment on guilty A. to terrify innocent X. from uncommitted crime, be simply a blunder equally against true justice and the true philosophy of human action—and if the idea of individual vengeance have been long ago rejected and disclaimed by our criminal code—what, then, is the true practical doctrine of 'Punishment?' What ought it to be? What is the right of Society against those who have wounded her peace, outraged her in property or person, transgressed her laws? Let us give this practical question a really practical investigation—not through the narrow lens of 'eye-for-eye-and-tooth-for-tooth' legislation, not through the miserable fallacy of 'example-punishments,' to be hereafter known as the exploded '*scarecrow* theory'—but by the broad and free light which lighteth every man if he will only come to the Light, and read the Laws of Nature as revealed and interpreted by One who was patient to be called the 'Friend of Sinners.' *H.*

Home Correspondence.

The Meat Manufacture.—In the interesting paper on "Italian Rye-grass," read by Mr. Morton before the London Farmers' Club, which appears in your *Gazette,* March 10th, in describing the produce under the irrigation system, page 154, the following observation occurs: "When Rye-grass is cut young, it contains with more of water more of the substances corresponding to the gluten of flour, which chemists tell us resemble the fleshy parts of animal matter. Those who wish to make flesh by consumption of Italian Rye-grass may therefore be right in cutting it frequently, and having it younger," &c. If by "making flesh" Mr. Morton means "fattening" or beef making, and that protein or albuminous compounds are more essential for fattening than for milk, I may hope for space to explain my grounds for a different conclusion. When cows are in full milk soon after calving, they will give 16 quarts per day. I have now five on hand which are giving this quantity on the average, and are apparently maintaining their weight and condition. An analysis of milk of standard quality shows a proportion of solid or dry mater al of 5 lbs. in the 16 quarts of milk per day, of which 2 lbs. will be casein or pure curd. If we assume the materials of food rich in protein, such as Beans, oilcake, &c., to contain 25 to 33 per cent. of this, it will appear that the 2 lbs. of casein or pure curd will represent the protein of 6 lbs. to 8 lbs. of Beans, oilcake, or other substances equally rich in protein; or, in other words, a daily supply of this quantity of Beans and oilcake will be required to produce the 5 lbs. of casein or pure curd. My cows giving 8 quarts per day increase in weight on the average, and for a length of time, 7 lbs. to 9 lbs. each per week. This produce of milk and gain of weight will represent the protein compounds of 3¾ lbs. to 5 lbs. of Beans, oilcake, or other materials equally rich in protein. The experience of feeding or fattening shows that a gain of 14 lbs. per week, or 2 lbs. per day, to be as much as can be relied on as an average for a length of time. If we consider ½ lb. per day as fat, which is probably not more than the actual proportion, there will be 1½ lb. for flesh, of which the fibrine, reckoned as dry material, will be less than ½ lb., and will represent the protein of 1½ lb. to 2 lbs. of Beans, oilcake, or other materials equally rich in protein. It will be observed that I have treated only of the quantities of protein compounds carried off in milk, or assimilated in increase of beef, and that each class of animals will require beyond this what is adequate to maintain their condition. Experience affords a tolerably safe guide to estimate the quantity required for this purpose. In the Turnip districts it is found that with 120 lbs. of Swedish Turnips per day, a fair-sized beast will maintain its condition for a length of time. In the district of Craven, in Yorkshire, where hay is the staple food, 1½ stones of meadow hay are found to maintain the condition of a like-sized animal. These quantities, which supply bulk with elements of respiration, correspond in their contents of protein compounds, and represent those in 6 lbs. to 8 lbs. of Beans, oilcake, and other substances containing 25 to 33 per cent. of protein. As a feeder supplies for purposes of bulk and respiration substances richer or poorer in protein, he will have to lessen or increase his quantity of these auxiliaries. It is of the utmost importance in the treatment of cattle, as also of plants, to afford an ample though (on consideration of cost, if not of effect also) not excessive supply of the elements of food, whether mineral or organic, suited to their requirements, and constitution, and purposes; on our ability to effect this depends, in a great degree, our measure of success. The milch cow may be said to have a twofold occupa-

tion in using her food—the production of milk and the maintenance of her condition. The former is the favourite one; if the food supplied be inadequate for both purposes, the defective elements are diverted to the milk, in which she strives to maintain the natural proportion of constituents, at the expense of her flesh, fat, and probably also of her phosphates or bone material. This we see daily exemplified in the dairy cows kept near large towns, which are bought in full condition, and after undergoing a course of milking, are sold off, greatly reduced. I am clearly of opinion that hitherto, in philosophy as well as in practice, the value of substances, rich in nitrogenous or protein compounds, has been under estimated, and too little of them used as auxiliaries for food, for cows giving milk; whilst for purposes of fattening have been too much relied on, and used too freely. *Y.*

Societies.

Society of Arts, *March 8 and 19.—On the Sewage of London.*—The agricultural relations of this subject were discussed more fully on the second day devoted to its consideration. The discussion, as reported in the Journal of the Society, extends to an unusual length, and we can find room for the remarks of only two or three of the speakers. The general scope of the debate, along with a condensed report of two or three more of the speeches that were made, we hope to give next week.

Professor Way stated that from the great pains and trouble which Mr. Lawes and his able coadjutor Dr. Gilbert had taken, as well as from his own experiments on this subject, that there could now be no doubt as to the composition and value of sewage. Mr. Lawes had arrived at the same results which, by a different road, he (Professor Way) arrived at some two or three years ago—that was—in determining the value of the sewage by a direct reference to the composition of the excrements, and within a very trifle the results which he arrived at agreed with those of Mr. Lawes. Mr. Lawes had found that 2 ounces of solid matter were daily ejected by each individual of the population—taking males and females and people of all ages and classes together; and that three and a half tenths of nitrogen were ejected in the same matter. He (Professor Way) found it to be 2¼ ounces as against Mr. Lawes's 2 ounces of solid matter and [illegible]ths of an ounce of nitrogen, which within a minute quantity agreed with Mr. Lawes's results. He thought, therefore, the question of the average composition of sewage water was set at rest, and that so far the subject was exhausted; for when two persons came nearly to the same point by different results, he thought it might be considered that they had arrived at truthful results. If, therefore, he agreed with the data of Mr. Lawes, he could not hesitate to agree also with the general conclusion as to the gross value of sewage water. He also agreed with Mr. Lawes that solid manure could not be profitably made from sewage. He regretted to have to state an opinion of this kind, when adverse to the interests of the many persons engaged in trying to make solid manure from that source; but at the same time he thought it did not become any one whose opinion was of any weight at all to allow people to go on with those schemes when their success was opposed to all knowledge and experience on the subject. He therefore said unhesitatingly that any existing plan for the production of solid manure from sewage water would be a failure. He said this from a knowledge of the fact, that of the valuable matters contained in sewage water nine-tenths exist in a liquid state, and these could not be separated by any known process of filtration, nor could they be precipitated by any substance which they had at present at command. Taking it for granted, then, that sewage must be supplied in a liquid condition, there were two principles to be borne in mind. One was that the proper place for its application was not necessarily or usually the land to which it naturally flowed. In nine cases out of ten these were heavy clay lands, which did not require sewage. If well drained they would be naturally rich lands, and if not drained sewage could not be applied to them. But the lands which required sewage were those high-lying, or comparatively high-lying, lands, in which there was a fair admixture of sand and gravel, which would take in the sewage and allow it to pass through. He did not mean to say any sandy soils, but lands of a medium character, which benefitted by manure of all kinds; and, therefore, he said that they should endeavour not to go to the natural outfall, but to produce an artificial outfall, if that could be done at a moderate and reasonable amount of expense. It was the proper plan to pursue, and in so doing a more extended area was obtained for the deposit of the sewage. It had been stated in the course of this discussion, and he had elsewhere been informed that the pumping of a quantity of 80,000 gallons of water could be done for a shilling, raising it 100 feet in height. This was stated in one of Mr. Chadwick's reports. Now, if every person consumed 25 gallons of water per day, that would amount to 9,000 gallons a year for each individual. If the urine and fæces of 10 people were put upon an acre of land, 80,000 gallons would represent that quantity. These 80,000 gallons would be raised to the higher level of 100 feet at the expense of 1*s.*, and if twice or thrice that quantity were allowed, 2*s.* or 3*s.* only would be the additional cost of manuring an acre of land at a high as compared with a low level. He therefore would say, let it be their object to seek the high-lying land. Then he would say again, a great and an increasingly acknowledged principle was that they should manure the land and not the crop. It was not necessary, even in the case of liquid manure, that the crop should be on the land when the manure was applied. He believed there was abundant practical experience to show that liquid containing manuring qualities produced its effects twelve months after its application, although it might be supposed to have run through before the crop was put on. But they had independent evidence of that fact, and here he must be allowed to refer to his own investigations upon this subject. He had found that soils removed nearly every particle of manuring matter from solutions which were filtered through them, allowing the water to run away and leaving the fertilising properties in the soil, and this proved that liquid manure might be applied to the soil without fear of losing the fertilising substances which it contained, although no crop was on the land at the time, a view of the subject which tended very widely to enlarge the opportunities for the application of liquid sewage manure. It was not necessary to be applied to the crop on the land, but they might take advantage of any favourable opportunity that presented itself for putting the sewage on. It was not for him to say to what description of crops sewage could be most profitably applied. All he said was, they ought to apply it to the land, rather than to the crop when it was on the land. He thought at present that principle was not properly understood. He would say a few words as to the quantity to be applied per acre to land; he thought Mr. Lawes's estimate was excessive. He had said 10,000 tons of sewage ought to be applied per acre. This amounted to something like the excrement of 100 people; now if they made a calculation of the quantity of solid matter which 10 people would supply, they would find this would amount to twice the value of a good dressing of manure—that was, 10 people would, in a year, produce the ammonia and other matter equal to the fertilising value of between 5 cwt. and 6 cwt. of guano. He believed that manure was more effective in a liquid than in a solid state; and if they put on, as Mr. Lawes suggested, manuring matter equal to 2 or 3 tons of guano per acre, it would be wasting manure and doing harm rather than good. He repeated, he thought Mr. Lawes's estimate of the quantity per acre was much too high, and he thought it was a duty to the agriculturists to show that the sewage of a town could be profitably applied to a much larger area.

[The address of Mr. Scott we must postpone. It related to the alleged unwholesomeness, both to man and beast, of the irrigation method of applying manure.]

Mr. Caird considered the conclusion which the preceding speaker had arrived at, regarding the alleged unwholesomeness of Grass produced by liquid manure, to be without adequate foundation. Pleuro-pneumonia affected cows fed in every way. It had no doubt been most virulent in towns where the stock are crowded together and the air foul; but, on farms, he had seen it equally fatal whether the stock were fed on artificial Grass or natural Grass, whether forced by irrigation or pastured in the field. It seemed to be generally admitted that, with our present knowledge, it is impracticable to make a solid manure of high value from sewage, and the plan hinted at by Mr. Ward of separating the valuable portion from the rain water might be open to the fatal objection of so rendering the small sewers detrimental to health. Any result of that kind would be infinitely more injurious that even the total waste of the sewage under the present system. The conclusion seemed to be that the sewage of London possesses no money value except as a liquid manure. He was not aware of any facts yet published which showed that value satisfactorily. The report of the Board of Health, so far as he could recollect, gave many instances of the advantage of farm sewage but none of London sewage. If we take Professor Way's estimate of the solid and liquid excrements contained in London sewage, we find it to be one in 1400. If that one is equal in quality to Peruvian guano, then 140 tons of sewage would supply as much manure as 2 cwt. of guano, with the water to wash it in besides. Now this quantity at the price mentioned by Mr. Chadwick, 2*d.* per ton, costs almost exactly the same money as 2 cwt. of guano, viz., 1*l.* 3*s.* 4*d.* But the water itself is of very considerable value to a Grass crop in the dry months of summer. Is the one then, in sewage, equal in value to the same weight of guano? That is a point to be determined by analysis and actual experiment. If it can be satisfactorily proved, there cannot be a doubt of the agricultural benefit of London sewage so applied. Even should it be of somewhat less value, the water in which it floats may make up the difference. Mr. Pusey has shown the enormous produce his meadows in Berkshire yield by the application of water alone. In Ayrshire, Mr. Morton tells us, that the use of large quantities of water in washing in guano to Italian Rye-grass was found to give two cuttings instead of one where the same quantity of guano was applied dry. We all know the value of a shower of rain in dry hot weather, and if we had the power of throwing on something better than rain when we liked, it would be well worth paying for. But it may, no doubt, be said, why not use the water which you can get for nothing on your farm instead of paying for it? He had no doubt that this might occasionally be done with great advantage in washing in guano to Italian Rye-grass. But it could not be done for nothing. In a trial which he had made with horses, water barrels, and tank, he found that to pump, carry out, and apply liquid, at a distance of only 120 yards, cost 2½*d.* a ton. Now London sewage at 2*d.* a ton must be cheaper—for, guano pays to be washed in with 100 tons of water.

You have the cost of the guano, 2 cwt. at 11*s.* 6*d.*	£1 [illegible]
Cost of applying 100 tons of water by water-cart at 2½*d.*	1 [illegible]
Against 140 tons of sewage at 2*d.*	2 [illegible]
Showing a saving by the use of sewage of	1 [illegible]
(Provided the sewage is equally valuable in its results)	£1 [illegible]

The position of the metropolis and other large towns was highly favourable to the use of this manure, for, within a circle of 10 miles, the land is chiefly under Grass and market gardens, to both of which sewage manure may be applied with peculiar advantage. And when gentlemen spoke of the danger of using so large a quantity of liquid to crops, it was not considered that Italian Rye-grass, under this system, yielded five crops in a season, and could therefore absorb with advantage a much larger supply of liquid than a single corn crop. (Hear, hear.) He thought the solution of the question might now be said to rest with the engineer. If the engineer can construct his works so as to deliver sewage from hydrants in the farmers' fields for 2*d.* a ton, the point was gained. For even though the water had but a very small portion of actual manure, who would not, as he had already said, gladly pay for an abundant supply of water at certain seasons? An inch of rain in the end of May might save the hay crop; and, at 2*d.* a ton, this could then be had at a cost of 16*s.* 8*d.* The advantage of the water manure drill was well known in the south. Now, the timely application of a quarter of an inch of water, at a cost of 4*s.* 2*d.* an acre, might make the difference between success and failure in starting the Turnip crop. But let them not blame the stolidity of the farmers, as had been done by a speaker in the previous night's discussion, for any part of the failure of this system hitherto. It was quite a mistake to suppose that as individuals the farmers are averse to the introduction of improvements, or unable to comprehend their value, or incapable of appreciating their own interests. Let the gentleman who thinks them so simple try them by dealing with them. Look at the rapidity with which they adopted guano as a manure. In 1841 it was scarcely known: in 1845 nearly 300,000 tons, at a cost of 2 millions sterling, were used by the farmers of this country. Prove to them, as clearly as guano has proved itself, that you can give them a valuable manure for even less money, and you will have a demand larger than you can supply. (Cheers.)

[We postpone for a week the condensed report, which is all we can obtain room for, of speeches by Mr. Paine and other gentlemen who subsequently addressed the meeting.]

Mr. Wren Hoskyns confessed that, from the general testimony that had been elicited in the course of the debate, from practical and scientific speakers, both as to the precise value and the engineering availability to the agriculturist of sewage manure, the hopes he had always encouraged upon the subject had received less confirmation than the fears he had latterly been led to admit. Still, the problem appeared to him not without hope. And the ground upon which he founded it was this: that the problem had two heads to work it, two sets of shoulders to bear it—the agriculturist at the one end, and the sanitary commissioner on the other, both equally and interestedly bent upon its solution. "Nothing will ever be undertaken," says the poet Imlac to Rasselas, "if all difficulties must be first overcome." He felt an instinctive assurance that this subject would not end with this night's discussion; the question was too important, and the parties interested in it too many, to forbid the belief that further knowledge and research would be brought to bear on it, and further opportunity of its discussion afforded at some future day. He would admit that his mind was not unprepared altogether for the low estimate which chemical analysis had conclusively disclosed in the case of sewage manure. There were, it seemed to him, *reasons* calculated to mislead a judgment formed merely from the *physical sense*, as to the fertilising value of this manure. For obvious reasons no animal consumed so little food, in proportion to the living bulk, as man, whilst in no animals were the resulting organised tissue so important and *expensive*, physiologically speaking. Four pounds of new blood in the 24 hours (the quantity produced from the food of a healthy man), was a heavy *draw* upon less, on an average, than a pound of meat, with the relative proportion of farinaceous and vegetable food; and though from this, of course, a considerable residuum passed off in excretion, still, after due allowance for respiration and perspiration, the aggregate loss in the formation of new tissue suggested, *à priori*, ground for somewhat disappointing results in the agricultural value of the manure. In illustration of this Mr. Hoskyns referred to some recent experiments at the Hatton Lunatic Asylum, in Warwickshire, the sewage of which, when distributed over the surrounding soil, under local circumstances peculiarly favourable for the experiment, seemed to have produced results in no degree commensurate with the anticipations based upon the amount of the nuisance experienced prior to its utilisation upon the soil.

Reviews.

Agriculture, Past and Present. Being two introductory Lectures delivered in the University of Edinburgh. By John Wilson, F.R.S.E., Professor of Agriculture in the University of Edinburgh.

These lectures present, in a condensed, unpretending, and compendious form, first the history and next some

of the existing relations of agriculture. The former of the two is especially commendable for the exceedingly full, interesting, and well packed narration which it gives of the many steps by which agricultural progress has been effected, and which, though following one another often at long and tedious intervals, present nevertheless instructive relations when thus brought together. This lecture is certainly a satisfactory exception to the general, or at least the comparative, uselessness of dwelling on the history and maxims of the past in agriculture. There are in our current history instances more striking of agricultural intelligence and success, and in our current literature lessons, arguments, and illustrations drawn from all sources, and bearing with more living influence on our agriculture and our agriculturists, than those which one sees so often quoted from the Latin and the Greek. In the second lecture Professor Wilson relates the way in which chemistry, geology, botany, and meteorology are connected with farm practice, and the following are among his concluding remarks:—

"I have ventured thus to point out to you some of the more prominent features in the connection between these several sciences and that which I am appointed to teach in this university, because I believe firmly that they constitute the basis upon which agriculture as a science must stand. Holding that opinion, I have not disguised from myself the heavy responsibility of the duties I have assumed in attempting to teach a science involving such a wide range of knowledge, and I am free to confess that I look forward with some anxiety as to my capability for fulfilling them to my own satisfaction; for I do not forget that I am charged to uphold the intellectual interests of agriculture in this its acknowledged *capital*. But this anxiety is considerably lessened when I recollect that under *this* same roof each of these allied sciences, to which I, as a farmer, have already sworn allegiance, forms a distinct and separate study, presided over and taught by its respective professors. A knowledge of this relieves me at once from the weightiest portion of the responsibility, and encourages me to hope that I may be able so to make use of the knowledge which it is their province to impart to the student, as to render *my* task—that of establishing its relations with agriculture—a comparatively easy one.

Miscellaneous.

Agricultural Prejudice.—At first many of my neighbours came, when they saw the mode of deep tillage and frequent stirrings of the land I was practising, and very goodnaturedly warned me of what they considered the folly of my proceedings, and assured me that from their knowledge of the exhausted state of the farm I had entered on, if I did not cease my "book farming," and "let the soil rest," I would "break the heart of the land," meaning that I would destroy its fertility. As the result of my labours proved the falsity of their opinions, many, of whose judgments I had formed a more favourable opinion, have been forced to change the grounds of attack, and now assert that the system I advocate and pursue has been established by landlords for the purpose of keeping up high rents! This is the most unfortunate impression of any to get abroad; and I am sorry to say, groundless though it be, it is one that is very general. I do not believe it to be my province to enter further upon a question of this nature, nor attempt to point out how such a feeling is to be removed; still I think it right to state that such an impression exists, and seriously tends to impede agricultural improvement. *Mr. Healey's Report of Dressog to Dr. Kirkpatrick.*

Calendar of Operations.

MARCH.

CHESHIRE, *March* 20.—Since our last report the unusual severity of the weather has very much retarded all field operations, excepting carting out manure for green crops, &c., and it will require more than ordinary exertion on the part of both men and horses to bring up the arrears of spring work, and place the farmer in that position he would wish to be by the end of April. The frost has left the land in fine condition for working, and if the clay land is allowed time to dry before being trampled on by the horses, the work will be greatly facilitated, otherwise the benefit derived from the frost will be destroyed, and additional labour created. On some of the fine warm land Wheat sowing was resumed immediately on the disappearing of the frost, with great expectations of a full crop; but this practice cannot be considered general, many preferring Oats as a more certain crop. Swede Turnips, where left in the ground, have been much injured, and in many instances entirely destroyed by the frost, which has materially reduced the amount of spring food for the stock. Mangold Wurzel has kept well where the necessary precautions of covering with straw and soil in the pit have been resorted to. Winter Vetches have been cut severely, but are now recovering; it is, however, feared they will be much later than was anticipated. Where Summer Vetches have been sown by mistake, they are entirely destroyed, much to the annoyance of the parties sowing them, and we think persons supplying such seed knowingly ought to be made to pay for the loss and disappointment. Considering the severity of the winter, ewes have done better than we could have expected, and are now producing fine healthy lambs; this may be attributed in some measure to the dryness of the season, which is far better for sheep than a wet open winter. At the annual sales which are now held almost every week at one place or other throughout the county, stock of every description, but more especially fat stock, fetch high prices. The "pleuro-pneumonia" still lingers in some localities, but it does not appear to be of so devastating a character as formerly. *W. P.*

Notices to Correspondents.

TURNIP SEED: *J. H.* We suppose it impossible to be sure that two varieties of Turnips do not become mixed in growing on the same farm. You had better seed but one kind.

PELARGONIUMS,
FUCHSIAS, PANSIES, VERBENAS, ETC.

JOHN DOBSON AND SON having a large and healthy stock of the above, beg to offer them at the low prices affixed; the plants are all in the finest health and require immediate repotting.

PELARGONIUMS, fine named varieties, 12*s.*, 21*s.*, 30*s.*, 42*s.*, and 63*s.* per dozen.

PANSIES, a first-rate collection, 6*s.*, 12*s.*, and 18*s.* per dozen.

FUCHSIAS, 12 fine varieties, including Vanguard, Queen of Hanover, Duchess of Lancaster, Glory, Duke of Wellington, &c., 18*s.*; older varieties, 9*s.* and 12*s.* per dozen.

VERBENAS, the best of last season's English and French varieties, 6*s.* and 9*s.* per dozen. A general descriptive Catalogue of the above may be had for one postage stamp.

Woodlands Nursery, Isleworth.

NEW ROSES IN POTS.

WILLIAM WOOD AND SON have to offer fine Dwarf Plants of the following:—

HYBRID PERPETUALS.—	s.	d.
Baron Laray	7	6
Cicero	5	0
Comtesse d'Orléans ...	7	6
„ Vaillant ...	7	6
Deuil de François Willermoz	7	6
Duchess of Norfolk ...	10	6
Empereur Napoleon (SEMI DOUBLE)	7	6
Evèque de Meaux... ...	10	6
General Bréa	2	0
Jules Margottin, 2*s.* 6*d.* to	3	6
Julie Guinoisseau ...	10	6
Lafontaine	7	6
La Ville de St. Denis ...	3	6
Léon Haimann	7	6
Lord Raglan	10	6
Madame de Cambacères (splendid)	10	6
Madame de Trottaire ...	5	0
„ Domage, 2*s.* 6*d.* to	3	6
„ Hector Jacquin .	3	6
„ Lacour Jurie ...	7	6
„ Masson	10	6
„ Phelip	5	0
„ Place	7	6
„ Theodore Martel	7	6
„ Vidos	10	6

HYBRID PERPETUALS.—	s.	d.
Monsieur Pigeron... ...	10	6
Panaché d'Orléans ...	10	6
President Menoux ...	7	6
Prince de la Muskowa ...	5	0
Souvenir de Leveson Gower	5	0
„ des Braves ...	3	6
Triomphe en Beauté ...	2	6
Bourbon, Ferdinand Deppe	7	6
„ François Henrique	5	0
„ Omer Pacha ...	7	6
Tea, Auguste Vacher ...	3	6
„ Barillet Deschamps	5	0
„ Gloire de Dijon, 3*s.* 6*d.* to	5	0
„ Laurette (Belle Laure)	3	6
„ Madame Maurin ...	3	6
China, Lucullus	7	6
Perpetual Moss, Salét ...	7	6
Noisette, Augusta, 7*s.* 6*d.* to	10	6
Moss, Jeanne de Montfort	3	6
„ L'éblouissante ...	3	6
„ Vandaël	3	6
Hybrid Bourbon, Charles Lawson	7	6
Gallica, Amphitrite ...	2	6
„ George Vibert ...	2	6

N.B. The new Perpetual Rose Empereur Napoleon, 7*s.* 6*d.*, is only semi-double, plants of which are now ready to send out. Extra plants will be presented with each order,

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

NEW ROSES.

BENJAMIN R. CANT begs to offer strong Dwarf Plants, in pots, of the following NEW ROSES:—

HYBRID PERPETUALS.—	s.	d.
Alfred Colomb	3	6
Alphonse de Lamartine ...	3	6
Auguste Guinoisseau ...	3	6
Caroline Milsom	3	6
Ceres	3	6
Cicero	7	6
Comtesse Vaillant ...	10	6
Conseiller Jordeuil ...	3	6
Colonel de Rougemont ...	3	6
Dr. Jamain	3	6
Duchess of Norfolk ...	7	6
Deuil de F. Willermoz ...	7	6
George d'Amboise ...	3	6
Gloire de France	3	6
Gloire de Parthenay ...	3	6
Lady Milsom	3	6
Lady Shelley	3	6
La Ville de St. Denis ...	3	6
Madame Domage... ...	3	6
„ Hector Jacquin	5	0
„ Masson	12	6
„ Lacroix	3	6
„ F. Rigaux ...	3	6
„ Place	10	6

HYBRID PERPETUALS.—	s.	d.
Madame Recamier ...	3	6
„ Rendatler ...	3	6
„ Theodore Martel	10	6
„ Quetel	3	6
Marie de Bourges ...	3	6
Prince de la Moskwa ...	5	0
Sephora	3	6
Sir John Franklin ...	3	6
Triomphe en Beauté ...	3	6
P. Moss, André Thouin ...	3	6
Bourbon, Omer Pacha ...	10	6
Tea, Gloire de Dijon ...	3	6
„ Louise de Savoie ...	7	6
Nois, Augusta	7	6
Moss, D'Arcet	2	6
„ Gloire de Mousseuses	5	0
„ Jeanne de Montfort	3	6
„ L'Eblouissante ...	3	6
„ Marie de Blois ...	5	0
„ Vandael	3	6
Gallica, Amphitrite ...	2	6
„ George Vibert ...	3	6
H. Bour., Charles Lawson	7	6
„ Gervaise Rouillard	3	6

N.B. The new Hybrid Perpetual Rose Emperor Napoleon I intend sending out in June, at 10*s.* 6*d.* each, orders for which are now solicited. A Descriptive List of the above New Roses can be had on application.

Carriage paid to any Station on the Eastern Counties Railway.

St. John's Street Nursery, Colchester.

SELECT NEW ROSES.

THOMAS RIVERS offers the following selection of New and Fine Roses, young healthy Plants, fit to plant out the end of April.

HYBRID PERPETUALS.

Baron Larrey, rose, shaded with carmine, 7*s.* 6*d.*
Belle Lyonnaise, nearly white, beautifully shaped, 7*s.* 6*d.*
Ciceron, marbled crimson, 5*s.*
Colonel de Rougemont, bright rose, Baronne Prevost, improved, 3*s.* 6*d.*
Comtesse Vaillant, deep crimson purple, 7*s.* 6*d.*
Deuil de Willermoz, very dark crimson, 7*s.* 6*d.*
Emperor Napoleon, brilliant glossy scarlet, large petals, a little more than semi-double, 7*s.* 6*d.*
Felicité Rigeaud, white, tinted with rose, 3*s.* 6*d.*
Georges d'Amboise, bright red, 3*s.* 6*d.*
Gloire de France, deep vivid crimson, large and fine, 3*s.* 6*d.*
Jules Margottin, light vivid crimson, a fine pillar Rose, 2*s.* 6*d.* to 3*s.* 6*d.*
Léon Haimann, brilliant glossy rose, 7*s.* 6*d.*
Lord Raglan, scarlet and crimson, larger and more brilliant than the Géant, 10*s.* 6*d.* [Roses, 5*s.*
Madame Hector Jacquin, bright rose, one of the largest of
„ Lacour Jury, delicate rose, tea-scented, 7*s.* 6*d.*
„ Masson, deep crimson red, large, 10*s.* 6*d.*
„ Place, delicate bright pink, most perfect in shape, 7*s.* 6*d.*
„ Theodore Martel, pale flesh, 7*s.* 6*d.*
„ Trotter, bright red, vigorous, a fine pillar Rose, 5*s.*
President Menoux, bright rose, cropped a seedling from Standard of Marengo, 7*s.* 6*d.*
Prince de Moskowa, dark crimson, 5*s.*
Rose et Blanche, bright rose with centre white, 5*s.*

TEA-SCENTED ROSES.

Belle de Moulins, pale flesh, very large, 5*s.*
Belle Laure, pale rose, large, 3*s.* 6*d.*
Censi Pourpre, crimson, 3*s.* 6*d.*
Gloire de Dijon, salmon, tinted with rose, the finest of Tea Roses, 3*s.* 6*d.* to 5*s.*, the latter one year old stout plants.
Louise de Savoie, fine sulphur yellow, large, 7*s.* 6*d.*
Madame Maurin, pale yellow, finely shaped, 5*s.*

NOISETTE ROSES.

Augusta, sulphur, large, finely shaped, 7*s.* 6*d.* to 10*s.* 6*d.*
Isis, pure white large, 5*s.*

PERPETUAL MOSS ROSES.

Celine Briant, bright rose, blooms freely in autumn, 7*s.* 6*d.*
Didon, pale flesh, finely shaped, 10*s.* 6*d.*
Madame Ory, bright rose, globular, large and very double, 15*s.*
Michel Adanson, brilliant crimson, 10*s.* 6*d.*
Salet, bright rose, large and double, the most vigorous of this group, 7*s.* 6*d.*

Carriage paid to London. The Descriptive Catalogue of Roses free per post. "The Rose Amateur's Guide," 5th edition, 3*s.* 6*d.* per post.—Nurseries, Sawbridgeworth, Herts.

GREAT NOVELTIES FOR THE ENSUING SEASON,
FUCHSIAS WITH WHITE COROLLAS.

LUCOMBE, PINCE, AND CO. beg leave to announce that they shall be prepared to send out two splendid and entirely novel Seedling Fuchsias, early in May next, viz.:—

FLORENCE NIGHTINGALE.

Pure white corolla, with brilliant scarlet sepals, finely reflexed; an extremely lovely and novel variety.

GALANTHIFLORA-PLENA

(The DOUBLE Snowdrop Corolla'd Fuchsia.)

Pure double white corolla, resembling a fine large double Snowdrop, with rich scarlet sepals: altogether distinct from anything of the kind ever yet produced. Price 10*s.* 6*d.* each.

Together with a very beautiful new double Purple variety,

VIOLÆFLORA-PLENA,

Rich double blue corolla, resembling a fine double violet, 7*s.* 6*d.* each.

L., P., & Co. have also fine plants of the following choice kinds of Fuchsias at 18*s.* to 42*s.* per dozen.:—

Aspasia	Glory	Purple Perfection
Apollo	Lucretia	Sir Harry Smith
Brilliant	Orion	Sidonia
Duchess of Lancaster	Prime Minister	Sir Jno. Falstaff
Duke of Wellington	Princess	Telegraph
Dominiana	Kossuth	Resplendent.

They are also now prepared to send out their beautiful new

VERONICA KERMESINA,

Raised by that eminent horticulturist J. Luscombe, Esq., of Coombe Royal, who sent specimens to Dr. Lindley, at the time of its first flowering, who thus pronounces his first opinion of it:—"The variety sent with this was charming, a decided rose colour having mingled with the violet." See also notice of Dr. Lindley in the *Chronicle* for Dec. 2, 1854, as follows:—"L., P., & Co. Your V. Kermesina is a handsome dark variety of V. speciosa; its beautiful large spikes of deep purplish crimson blossoms cannot fail to make it a favourite." Price 7*s.* 6*d.* each. A few extra-sized specimens may be had.

The usual discount to the Trade when three or more are taken.

Exeter Nursery, Exeter.—ESTABLISHED IN 1720.

TO NURSERYMEN, SEEDSMEN, ETC.

MESSRS. E. G. HENDERSON AND SON having had (through their customers), a Seed Catalogue brought under their notice, and which seems to have been distributed throughout the whole of their connection, published by a very eminent and old established firm near London; and on referring to the same they find that all the Hardy Annuals from Nos. 1 to 308, the Half-hardy Annuals from Nos. 309 to 479, Hardy Biennials and Perennials from Nos. 480 to 660, and the Greenhouse Plants and Tender Annuals from Nos. 661 to 741 have all been copied from their lists, with the full descriptions of colour, height, treatment, and other information, even the numbers attached to each article correspond with the strictest accuracy. The only alteration is that no prices are attached, whereas, in the original catalogue every article is priced.

Messrs. E. G. H. & SON beg to say, that as they are at some considerable expense and trouble preparing and issuing their Catalogues throughout the year, they now give notice that in future they shall consider it very disreputable in any parties copying them in the style above alluded to, unless the source from which they derive their information is published at the time, or otherwise communicating with them previously to copying the same.

Wellington Nursery, St. John's Wood, London.—March 24.

MESSRS. E. G. HENDERSON AND SON having purchased of the late W. Story, Esq., of Newton, in the county of Devon, for ONE HUNDRED GUINEAS, all Seedling Fuchsias with white Corollas, a new feature in this tribe introduced by him, and in consequence of an advertisement appearing in the *Gardeners' Chronicle* from Messrs. Lucombe, Pince, & Co., of Exeter, offering two new Fuchsias similar in character to those purchased of the late Mr. Story, it was thought necessary, after a written communication with that gentleman, for one of the firm to make further inquiries about them, and in consequence Mr. ANDREW HENDERSON went to Exeter and Newton, where he was informed by a jobbing gardener at Newton that he had received in the month of November last Seven Pounds for them after (as the said jobbing gardener stated) he had been offered £20 for them by a nurseryman in London, but whose name or address he did not know.

Messrs. E. G. H. & Son give the above explanation in consequence of numbers of their customers having ordered plants at higher prices than are now quoted. This reduction is made in consequence of information which they have received that leaves no doubt on their minds but that those to be sent out by Messrs. Lucombe, Pince, & Co. are similar in character to those purchased of Mr. Story.

E. G. HENDERSON & SON take this opportunity of stating that none but the most popular and improved kinds of Vegetable Seeds appear in their list, and among the Flower Seeds only those whose beauty and merit are univerally acknowledged, together with a carefully selected stock of the principal new varieties. They would call particular attention to the following new and choice seeds, which they can confidently recommend:—

Per packet—	s.	d.
Antirrhinum, extra fine ...	0	6
Auricula, fine mixed ...	1	6
Abronia umbellata	1	6
Anagallis azurea grandiflora	1	0
„ rubra „	1	0
Arctotis breviscapa ...	0	6
Aster, new Peony pyramid, in packets of 10 distinct colours, separate ...	3	6
„ new bouquet pyramidal, in packets of 12 distinct colours	3	6
Balsam, double Camellia-flowered, in packets of 6 distinct colours, separate	3	0
„ new double Camellia Rose, in packets of 10 distinct colours, separate, extra fine	5	0
„ Aurora, new double crimson	1	0
„ new dble. pale yellow	1	0
Carnation, stage flowers...	1	6
Calceolaria, ex. ex. 2*s.* 6*d.* & 5*s.*		
Cineraria, ex. ex. 1*s.* 6*d.* & 2*s.* 6*d.*		
Chrysanthemum pompone	1	0
„ large flowered	1	0
Calendrinia umbellata ...	0	6
Dianthus Dunnetti, suprb.	1	0
„ Chinensis flore-pleno, extra fine...	0	6
Eschscholtzia tenuifolia...	1	6
Geranium, choice show ...	2	6
„ choice fancy	2	6
Hollyhock, first quality ...	2	6
„ second quality ...	1	0
Ipomœa rubro cærulea ...	1	0

Per packet—	s.	d.
Ipomœa limbata	2	6
Leptosiphon luteum ...	0	6
„ aureum	1	6
Linum grandiflorum rubrum 1*s.* 6*d.*, and	2	6
Lobelia Queen Victoria (scarlet)	0	6
Lobelia Roi Leopold ...	0	6
Larkspur, new double improved hyacinth flowered, in packets of 6 distinct colours ...	2	6
Limnanthes sulphurea odorata	1	0
Mignonette, new, large ...	0	3
Mimulus, beautiful ...	0	6
Pansy, choice show ...	1	6
„ choice fancy	1	6
Petunia, extra fine ...	1	0
Phlox Drummondi coccinea	0	6
Portulaca, new orange ...	0	6
„ new rose	0	6
Primula sinensis fimbriata, alba and rubra mixed ...	2	6
Poppy, new large Pæony, in 8 brilliant colours ...	2	0
Reseda myriophylla, new Mignonette	1	0
Salpiglossis, scarlet, blue, and sulphur	0	6
Stock, German, new large flowering, in packets of six distinct colours ...	2	6
Verbena, choice mixed ...	1	0
Sweet William, new double	0	6
Whitlavia grandiflora ...	1	6

Lilium giganteum seed, 2*s.* 6*d.* and 5*s.* per packet.
Holcus saccharatus (new Sugar-cane), 1*s.* to 2*s.* 6*d.* do.
Dioscorea Batatas (Japanese Yam), 2*s.* 6*d.* each tuber.
20 Ornamental Grasses (see Catalogue).
12 Ornamental foliage Annuals.

Their new Seed Catalogue, with full particulars of the above and many other novelties, is now ready and will be forwarded post free on application.

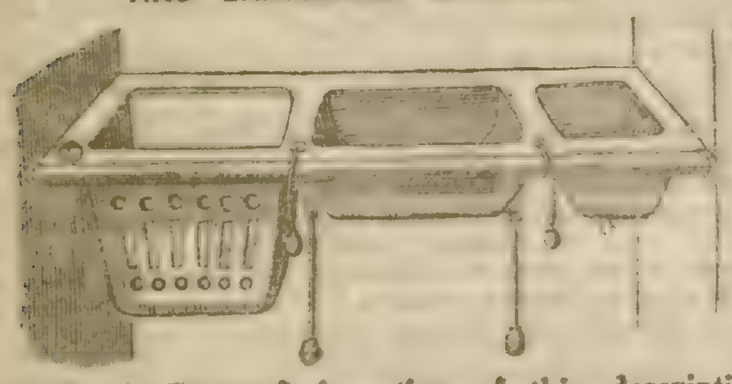
Wellington Nursery, St. John's Wood.—March, 1855.

SAMUELSON'S REGISTERED LAWN MOWING MACHINES. To cut 16, 19, 22, and 25 inches wide. The Registered Improvement renders unnecessary the great care requisite in the handling of these Machines on the old plan. All that is now required can be done by any unskilled labourer, who has only to push the Machine before him, the Registered Adjustment insuring a clean cut of uniform height, and preventing the knives from cutting into the soil, however uneven the ground may be. Illustrated Price Lists, with copies of Testimonials, and a Catalogue of his other Agricultural Implements, may be procured, post-paid, on application to the Manufacturer,

B. SAMUELSON, Britannia Works, Banbury, Oxon.

The above may also be procured at the principal Agricultural Implement Depôts in London, and of all respectable Ironmongers and Seedsmen in the country.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



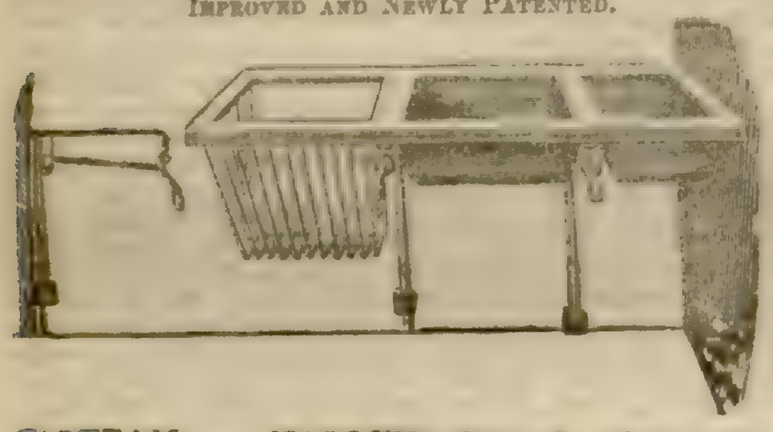
THE only Patented invention of this description constructed so as to prevent considerable waste of Hay and Corn, together with all the newest improvements.

NEWLY IMPROVED ECONOMIC STABLE FITTINGS, FORTY SHILLINGS PER SET, to fill up the whole width of Stalls, and can be had enamelled or galvanised. Every description of Mangers, Racks, and Stable Furniture in stock; Iron Hurdles, Gates, Fencing, &c.

Manufacturer of Kite's Patent Noiseless Cast-Iron Smoke-Curing Chimney Caps (200 on Buckingham Palace), price 35*s.* each. Price Lists and Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, IRON FOUNDER, &c., 370, Oxford Street, few doors east of the Pantheon.

MANGER, RACK, & WATER-TROUGH AS ONE FIXTURE.
IMPROVED AND NEWLY PATENTED.



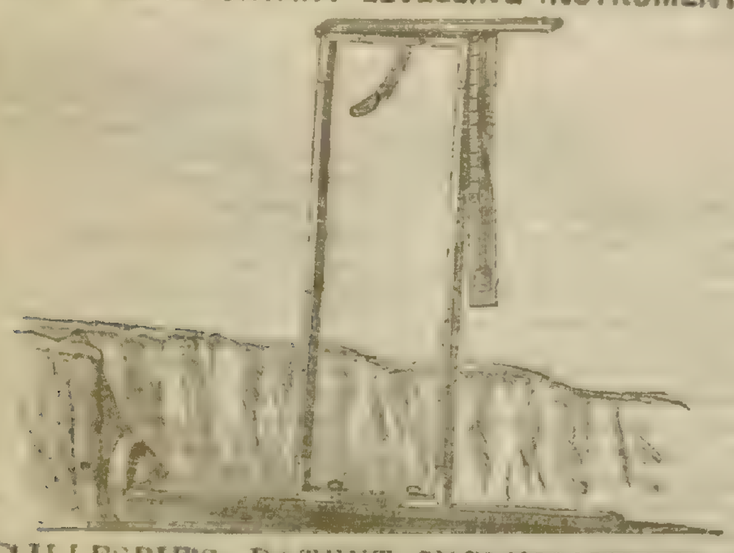
COTTAM AND HALLEN, the original inventors, obtained the Great Exhibition Prize Medal for this arrangement, to which all the latest improvements are adapted, secured by Patent, including a method entirely new of attaching the halter-weight and rein from the back of the manger to the under front of the plate, allowing the horse greater freedom, and being noiseless in operation, add much to its comfort whilst feeding and convenience when at rest, as likewise, from their position, avoiding the liability of the most restive horse getting cast. No well-managed stable should be without these fittings.

COTTAM'S ENAMELLED MANGERS are constructed in the best possible manner, both as to form and utility; are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, and Enamelled. Improved Surface Drain, with Safety Covers, Sanitary Traps, Stable Pumps, Loose Box, Fittings, Gutta Percha Preserving Saddle and Harness Brackets, and every article in Stable Furniture, in stock. An extensive assortment of Patterns for both Plain and Ornamental Castings, and every description of Wrought and Cast Iron Work for building and other purposes. Agricultural and Horticultural Implements, Iron Gates, both plain and ornamental, Hurdles, Strain Fencing, &c.

Estimates and Catalogues on application to COTTAM & HALLEN, 2, Wimsley Street, Oxford Street.

WARMING AND VENTILATING.

NEW AND IMPORTANT LEVELLING INSTRUMENT.



GILLESPIE'S PATENT INCLINOMETER, for Taking, Fixing, and Adjusting Surface Slopes of Lands, Earthen Embankments, Railway Gradients, &c., and the Dip, Outfall, or Rise of Drains, Water Courses, &c., and universally applicable to determine the plans and aid the execution of all levelling or sloping operations known in civil engineering.

PRICES:—Inclinometer, with mahogany frame and brass mounting ... ... £3 3*s.* 0*d.*
Do. with oak frame and wrought iron mounting 2 12 0
Light Telescope, 10*s.* 6*d.* extra.

TESTIMONIALS.

From Mr. James Gentles, Contractor.—"I have for a considerable time past used Gillespie's Patent Inclinometer in extensive drainage operations carried on by me, and I have found it to be of the greatest service, in showing the minutest slope in the ground, and in saving of labour; and I could not have constructed many of the drains with any degree of accuracy without its assistance."—James Gentles, Hart Hill, by Whitburn.

Extract of a letter from John Mitchell, Esq., Stand Hill, Bathgate.—"I highly appreciate its capabilities as a levelling instrument. In level lands, where there is a difficulty in detecting in which direction the land slopes, it is invaluable."

Extract of a letter from Mr. John Turner, Surveyor, Whitburn.—"The more I have tested it the more have I appreciated its value. By this invention the power of levelling is brought within the reach of all men of ordinary capacity."

Sold by WILLIAM DRAY & Co., Engineers, &c., Swan Lane London. Specimens and Models may be seen at their Warerooms Also a Descriptive Treatise on the nature and uses of the Patent Inclinometer, and copies of Recommendations of its efficiency and value to be had on application.

MAW'S ENCAUSTIC TILE PAVEMENTS form an indestructible and highly decorative substitute for ordinary flooring, and their imperishable Oil Cloth Coverings for Entrance Halls, Passages, Verandahs, Conservatories, &c.—MAW & Co. send free of expense their Book of Designs, suitable in price and style for every description of Building.—Benthall Works, Broseley, Salop.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

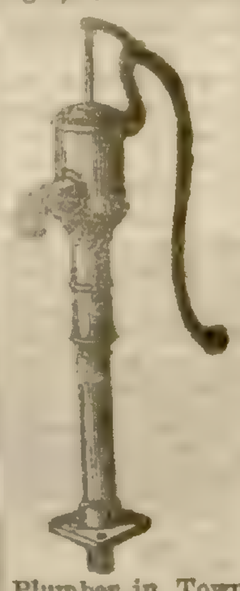
1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

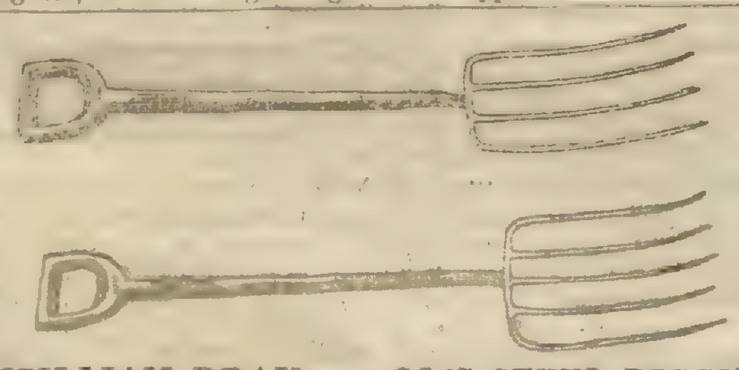


Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead,	1	12	0
2½ „ long	3 „ 3 „	gutta percha,	1	15	0
3 „ ditto	3 „ 6 „	or cast iron	2	12	0
3½ „ ditto	3 „ 6 „	flanged pipe,	2	18	0
4 „ ditto	3 „ 6 „	as required.	3	5	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	12	0
2½ in. long	ditto	ditto ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

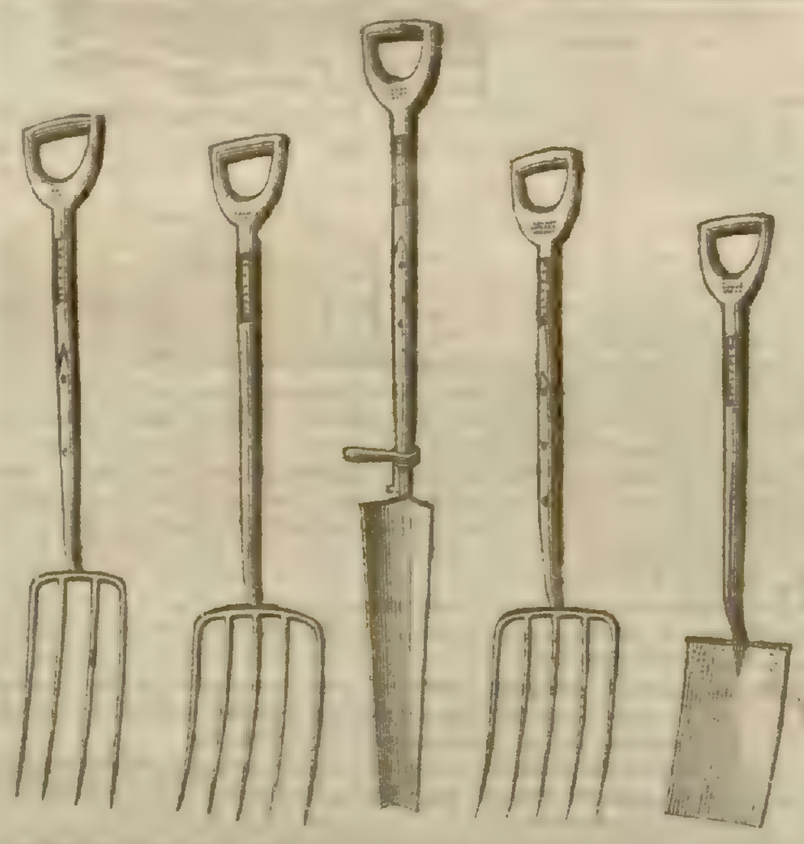
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.



WILLIAM DRAY AND CO.'S STEEL DIGGING FORKS are warranted equal, and by many are considered superior, to any in use. Three Tine Forks, 4*s.* 6*d.* each; Four Tine Forks, 5*s.* 6*d.* each. A liberal allowance on Wholesale Orders.

WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

108, Newgate Street, and 52, Little Britain, London.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.—Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 108, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

FREDERICK PHILLIPS' PATENT.

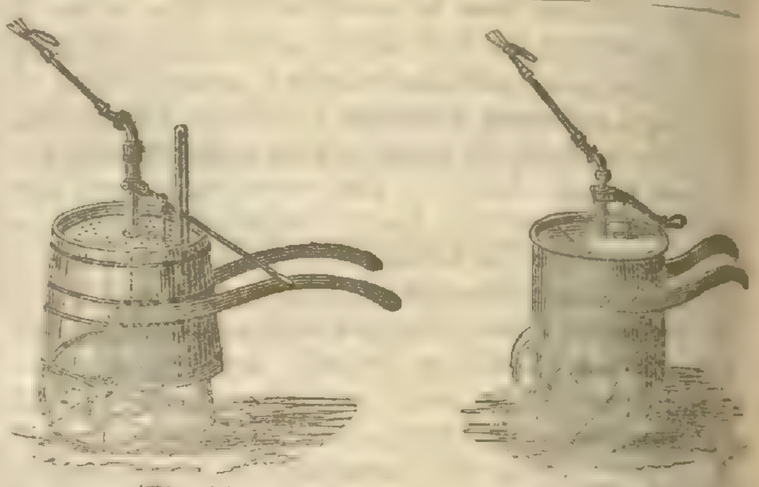
THE PRIZE PULPING MACHINE of the Royal Agricultural Society's Show, held at Lincoln, July, 1854.

Of all the Pulping Machines which are before the Public, this is the only one which the Royal Agricultural Society certified as "**breaking the roots well,**"—**all others are certified as slicers** in their *Journal*, just published, page 373, also in the article on "Diminishing the Quantity of Roots in Fattening Cattle," page 490), and the great braggadocia "No Other," advertised week by week, although tried against that of F. P. and others, was not placed at all, in fact was "nowhere."

F. P. is happy to inform his numerous applicants for the Machine, that he has greatly simplified its construction without affecting its efficiency.

To be had of the PATENTEE, Brandon, Suffolk; of Mr. JAMES WOODS, Implement Manufactory, Stowmarket, Suffolk; or of the London Agents, Mr. WILLIAM DRAY & Co., Swan Lane, Upper Thames Street; or of Mr. MEDWORTH, Implement Department, Baker Street, Bazaar.

Price, with boarded floor, 6*l.* 10*s.*; do. without do., 6*l.*



(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons,	throws 30 feet high	...	£4 10
No. 2 „ 15 „	„ 45 „	...	5 10
No. 3 „ 28 „	„ 45 „	...	6 10

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons,	throws 25 feet high	...	£2 15
No. 13 „ 12 „	„ 30 „	...	3 5
No. 11 „ 16 „	„ 40 „	...	4 0
No. 12 „ 24 „	„ 45 „	...	5 0
No. 14 „ 30 „	„ 45 „	...	5 10

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

Full size Syringe, on Read's principle, of the very best quality and workmanship, with two roses and one jet, 21*s.*; Plain Syringes from 10*s.* 6*d.* upwards.

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for all the all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

WEEDS ON WALKS.

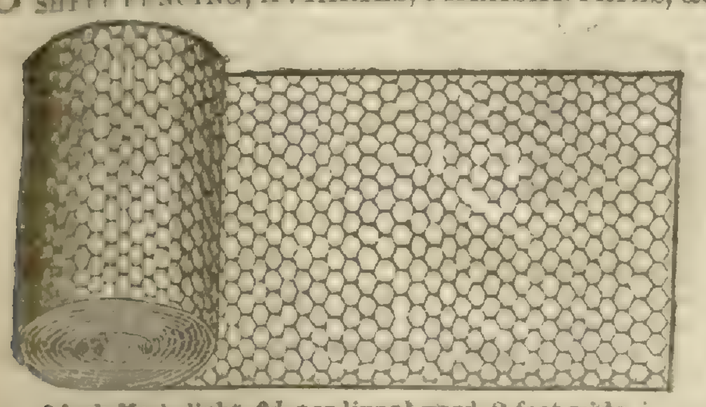
MR. FLEMING'S WEEDING OR SALTING MACHINE for GRAVEL WALKS, COURT YARDS, &c., manufactured and sold by ALEXANDER SHANKS & SON, Arbroath, Forfarshire, from whom particulars with prices may be had.

LOOKER'S PATENT VENTILATORS for Workshops, Barracks, Factories, Workshops, Greenhouses, Farm Buildings, &c. &c. The cheapest but most effectual method yet introduced for admitting fresh air into any kind of building without cold or draught. Made in Pottery, Metal, or Glass, of any shape or size to suit every situation, and so arranged that they may be regulated with perfect ease to any point.—Pamphlets, with prices, &c., forwarded to any part of the United Kingdom, on application to the Inventor, Patentee, and Manufacturer, BENJAMIN LOOKER, Jun., Kingston-on-Thames.

HALL'S GARDEN NETTINGS; the best and cheapest for all purposes of shelter and shade from Frost, Hail Storms, and Gales of Wind. No. 0, 5*d.*; No. 1, 5½*d.*; No. 2, 6*d.*; Nos. 3 and 4, 7*d.* All 56 inches wide, and in lengths of 10, 20, 30, and 60 yards.—Manchester.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d.* per square yard; 250 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.* Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

GALVANISED WIRE NETTING FOR GAME AND SHEEP FENCING, AVIARIES, PHEASANTRIES, &c.



2 inch Mesh, light, 6*d.* per lineal yard, 2 feet wide.
" strong, 8*d.* " "
Netting of any size or quantity, and Fencing of all kinds, supplied on the shortest notice.
WILLIAM DRAY & Co., Manufacturers, Swan Lane, Upper Thames Street, near London Bridge.

CLAZING WITH OR WITHOUT PUTTY.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.—Printed Price Lists supplied on application.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES (15 oz.) of good quality, in boxes of 100 feet each. Sizes from 7 in. by 5 in., to 9 in. by 7 in., at 12*s.* per box; 9½ in. by 7½ in., 10 in. by 8 in., and 10½ in. by 8½ in., at 14*s.* per box. (In 21 oz., at 1*s.* per box extra.) Larger sizes in stock, of 15 oz., 2*d.* per foot; 21 oz., 3*d.* per foot. Boxes charged 2*s.* each, and returnable at the same price, if delivered free. CRYSTAL WHITE GLASS, Crown and Sheet Glass in Crates. British and Patent Plate, &c. &c. White Lead, Oils, Turpentine, Colours, &c.
G. FRAMPTON & SON, 118, St. John Street, West Smithfield.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS FOR CONSERVATORIES.

THOMAS MILLINGTON'S present prices for good 16 oz. sheet glass, boxes included.

6 in. by 4 in. to 6 in. by 5½ in. ...	13*s.* 3*d.*	per 100 feet.
7 by 5 to 8 by 6	13 6	
8½ by 6½ to 10 by 8	14 0	
10½ by 8½ to 14½ by 10½	16 0	
17 by 10 to 18 by 12	18 0	

A great variety of sizes. Particulars had on application.
ORCHARD HOUSE SQUARES on Mr. RIVERS's plan, to whom I have sold some thousands of feet.
Large Sheets for cutting up, in cases, at 2½*d.* and 3*d.* per foot.
HARTLEY'S IMPROVED ROUGH PLATE GLASS, Sheet, and Rough Plate, Tiles, Milk Pans, Bee and Propagating Glasses, Wasp Traps, Cucumber Tubes, Preserve Jars, with and without screws; Fern Glasses.
Plate, Sheet, Crown, and Ornamental Window Glass. Crystal Glass Shades for ornaments.
Greenhouses, erected in either wood or iron. Garden Lights and Frames.
87, Bishopsgate Street Without, London—same side as Eastern Counties Railway.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.
In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12*s.* 0*d.*
7 „ 5, — 7½ „ 5½ }	0 14 0
8 „ 6, — 8½ „ 6½ }	
9 „ 7, — 9½ „ 7½, 10 by 6 }	0 16 0
10 „ 7, 10 by 8 }	

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 14*s.* per 100 feet. If cut to order not exceeding 40 inches long.
16 oz. from 2½*d.* to 3*d.* | 21 oz. from 3½*d.* to 4½*d.*
26 oz. from 5½*d.* to 7½*d.*
Sixteen-ounce Sheet Glass packed in cases of 200 feet, or boxes of 300 feet, 2½*d.* per foot.
SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY as we supply to Mr. RIVERS, and of various dimensions, always on hand.
Double-crown Glass of various dimensions in 100 feet boxes.
GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	£1 17*s.* 6*d.*	per case of 50
⅜ „	2 1 3	„ 60
½ „	1 17 6	„ 60

Glass Slates of the usual dimensions.
Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.
Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

TO MANURE MAKERS AND FARMERS.

SULPHATE OR MURIATE OF AMMONIA.—These powerful fertilisers, genuine as manufactured, may be had in any quantities from READ HOLLIDAY, Ammonia and Soda Works, Huddersfield.

TREE TRANSPLANTING BY M'CLASHEN'S PATENT.

MR. M'CLASHEN is now prepared to supply Apparatus or give Estimates as to the rate at which he will safely and expeditiously transplant Trees or Shrubs of any dimensions in any part of the United Kingdom.
Camera Hills Bridge, Edinburgh.

INGLIS AND CHISHOLM, Charles Street, Garratt, Manchester, make STEAM ENGINES for Agricultural and other purposes of the best quality at a reasonable price.—Address INGLIS & CHISHOLM, Charles Street, Garratt, Manchester.

CHAFF-MACHINES AND CORN-CRUSHERS.—All these Machines exemplify, in the most satisfactory manner, the high degree of perfection to which RICHMOND AND CHANDLER have attained in the manufacture of Agricultural Implements; and the recent improvements made upon their various Chaff-Machines and Corn-Crushers (articles for the production of which this firm has long been justly celebrated) are of the highest value in the economical preparation of food for cattle.—Address RICHMOND & CHANDLER, Salford, Manchester; and South John Street, Liverpool. Catalogues gratis.

CLAYTON, SHUTTLEWORTH, AND CO.'S PRIZE PORTABLE STEAM ENGINES, AND COMBINED THRESHING, STRAW SHAKING, RIDDLING AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as threshed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.

C. S. & Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading Agricultural Shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

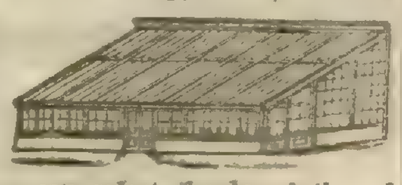
EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.
Priced Lists of Plant Tubs and Boxes forwarded on application.

HORTICULTURE IN ALL ITS BRANCHES.

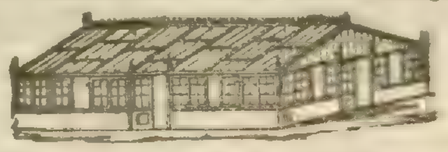
JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

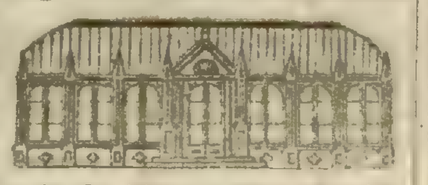
THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.



Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

STEPHENSON AND PEILL, 61, Gracechurch Street, London, and 17, New Park Street, Southwark, Manufacturers of Copper Cylindrical and Improved Conical Iron BOILERS, and Conservatory and Hothouse Builders, either in Wood or Iron, respectfully call the attention of the Nobility, Gentry, and Nurserymen to their simple but efficacious method of warming Horticultural and other Buildings by Hot Water.

From the extensive works they have executed, references of the highest respectability can be given, and full particulars furnished on application.

NURSERY AND SEED BUSINESS,
ESTABLISHED IN THE YEAR 1819.

TO BE LET, with immediate possession, the NURSERY and SEED SHOP at Taunton, for some time past in the occupation of Messrs. M'Intyre and M'Intosh. The Grounds and Stock are in excellent condition, moderately rented, and are well worthy the attention of any person wishing to carry on the business. If required the quantity of ground may be reduced. The Nursery is about 5 minutes' walk from the Railway Station.—Apply to Mr. YOUNG, the Proprietor, Elm Cottage, Taunton.

TO BE LET, for a term of years, and entered upon at Lady-day next, the FARM of TESTWOOD, in the Parish of Eling, in the County of Southampton. It consists of about 357 acres, of which 60 acres are excellent Water Meadow, 265 acres of excellent Arable Land, and 32 acres of Rough Pasture, which is to be converted into Arable Land. There is a good Farm House, and large commodious Farm Buildings. The Farm is about five miles from Southampton, and the turnpike road from there to Salisbury passes through it. It is within 1½ miles of Eling Railway Station and Wharf on the Southampton ride.—For particulars apply to Messrs. COXWILL & BASSETT, Southampton; or Mr. JOHN MORTON, Nailsworth, Gloucestershire. A person at Testwood House will be directed to show the Farm.

TO BE LET, for a term of years, from Lady-day next, a compact SHEEP AND TURNIP FARM, Seaton, near Axminster, on the South Coast of Devon, comprising a good Farm House, convenient Offices, and 2 5 a. 1 r. 34 p. of Land, of which 29 a. 1 r. is Meadow, 2 a. 3 r. 4 p. Orchard, 18 a. 2 r. 25 p. Pasture, and 154 a. 3 r. 5 p. Arable. The whole within a ring fence, and near good Market Towns and Seaports.—To view apply to Mr. THOMAS AYNSLEY, at the Farm; and for particulars, by letter, to Mr. BARRAGE, Nettlecombe, Taunton.—March 24.

KING'S COUNTY, IRELAND.

TO BE LET, with immediate possession, the DWELLING-HOUSE, OFFICES, and DEMESNE LANDS of COROLANTY, containing 100 acres, late Irish plantation measure, together with 50 acres of Bog attached, situate within one mile of the town of Shinrone, and five of Parsonstown and Roscrea, both first-class inland towns. The House, upon which a large sum has just been expended, is in perfect repair, and contains Breakfast, Dining, and Drawing Rooms, Study, eight Bed Rooms, Kitchen, and all necessary servants' apartments; attached are two large yards with extensive offices, as a large walled-in garden, well stocked with Fruit trees. The Lands are mostly of prime quality, well watered and sheltered, and well suited for all agricultural purposes. The neighbourhood is remarkably quiet and the public burdens very moderate. To a solvent tenant a long lease will be given; none other need apply.—For further particulars, apply to JOSEPH J. WALKER, Esq., Belfield, Shinrone, Ireland; or Mrs. PALMER NUNN, 13, York Terrace, Leamington, Warwickshire. The Caretaker residing in the house will show the Lands.

TO BE SOLD, for half their value, a nearly new SPAN-ROOFED GREENHOUSE, 30 feet 6 inches long; and a STOVE 23 feet 4 inches long, each 17 feet 9 inches wide, with a Glass Partition, including Hot-water Apparatus, Slate Shelves, Centre Table, Hanging Shelves, &c., complete. They are both first-rate Plant Houses, being constructed on the most improved plan.—Apply to J. LEWIS, Machine Hothouse Works, Stamford Hill, Middlesex.

TO BE SOLD, the BUSINESS, GREENHOUSES, PITS, FRAMES, and STOCK therein, containing a choice collection of plants in the finest condition; also the Lease of the ACACIA ROAD NURSERY, situated in the best part of St. John's Wood, and close to the Regent's Park. There is an excellent Residence, with Stable, Coach, and Potting Houses. Well worthy the attention of any person wishing to carry on the business. A part of the purchase money may remain on security if required. Further particulars may be obtained of the proprietor, ROBERT YEO, Esq., 10, Victoria Terrace, Belsize Road, St. John's Wood, London.

TO BE SOLD, by private treaty, a NURSERY and PLANT BUSINESS, established nearly 70 years. The Proprietor of this old-established Nursery Business is willing to retire, and dispose of the Stock and Good-will. The nursery comprises about 20 acres of ground, and about 15 large and commodious Stove, Greenhouse, and Propagating Houses, with numerous Pits, frames, &c. *The business is in full working order, and is capable of being increased to almost any extent, and of being made one of the best provincial nurseries in the kingdom.* The stock is in a flourishing condition, being young, healthy, and in good saleable order, and comprises a general assortment of all the most saleable Forest Trees, Shrubs, Fruit Trees, Stove, Greenhouse, and Miscellaneous Plants. The Nurseries are situated close and adjoining one of the largest towns in the West of England, with a population of more than 100,000 inhabitants. The whole of the land, houses, &c., belongs to the proprietor, *who will have no objection to grant a long lease to his successor or successors, and at least one-half of the purchase money could remain on security at common interest.* The business has been carried on with great success by the present proprietor, which partly contributes to his retiring from the business. None but principals and *bond fide* purchasers will be treated with.—Apply to Mr. WILLIAM E. RENDLE, Union Road, Plymouth.

TO BE SOLD, BUFF COCHIN CHICKENS, from first class Prize Birds, Brahma Pootra Chickens, from imported American Prize Birds, and Spanish Chickens. Also some very good one-year-old Birds of the above descriptions. Wire, Game and Poultry Netting, Poultry Hurdles, Hen-houses, Chicken Coops, Flower Stands, and Trainers, Garden Arches, and every kind of Wire Work, useful and ornamental.—T. H. Fox's, City of London Wire Works, 44, Skinner Street, and 6 & 8, Snow Hill.
Illustrated Catalogues forwarded post free.

POULTRY.—Eggs of Brahma Pootra Fowls at 10*s.* per dozen; Buff and Partridge Cochin China, Dorking, Black Spanish Fowls at 5*s.* per dozen; package included. Also a few birds of each of the above and a pair of Golden Spangled Bantams on sale, at very moderate prices.—For particulars apply to AN AMATEUR, Matlock, Bath.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY, March 29th, at 12 o'clock, about 200 Choice DOUBLE CAMELLIAS, from 18 inches to 5 feet, comprising all the approved kinds, beautifully furnished with bloom buds; also a superb collection of fine Hollyhocks from a celebrated grower; an assortment of choice American Plants, Standard and Dwarf Roses, Azalea Indica, Ericas, Fuchsias, Verbenas, Dahlias in dry roots, Pæonias, &c. May be viewed the morning of Sale.—Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

MR. ALEXANDER will Sell by Auction, at the Mart, near the Bank of England, on TUESDAY, March 27th, at 12 o'clock, a choice collection of CARNATIONS, PICOTEES, PINKS, HERBACEOUS PLANTS, STANDARD ROSES, and other TREES; also IRIS GERMANICUS, comprising all the show varieties.—May be viewed on the morning of Sale. Catalogues had at the Mart; and of Mr. ALEXANDER, Shacklewell.

MR. J. WILLMER will Sell by Auction, at the Auction Mart, Bartholomew Lane, on WEDNESDAY, March 28, at 12 o'clock, a choice collection of Carnations and Picotees, Pinks, Dahlias in dry roots, Pæonies, Climbing Roses in pots, &c.—May be viewed the morning of sale, and Catalogues had at the Mart, and of the Auctioneer, Sunbury, Middlesex.

TO GARDENERS AND OTHERS.

NORLAND TERRACE AND LANSDOWN ROAD, A FEW DOORS FROM THE UXBRIDGE ROAD, NOTTING HILL.

MR. HAWKINGS will Sell by Auction, on the premises as above, on WEDNESDAY, 28th March, at 10 for 11 o'clock, a quantity of Lights, Frames, Frame-work fixed to wall, Stages and Pits, Flues and Brick-work, Plants, Pots, Herbs, Manure, Mould, Wood, Barrow, Tools, &c., &c.; also TWO DOGS, one a Scotch Terrier, the other Isle of Skye.—On view, Tuesday and morning of sale; and Catalogues had on the premises, and of the Auctioneer, 6, Lisson Grove, London.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

T. F. WINSTANLEY, NURSERYMAN, SEEDSMAN, and FLORIST, begs respectfully to inform his patrons, the nobility, and public, that he has added to the above business that of AUCTIONEER and VALUER to noblemen, gentlemen, and nurserymen about relinquishing their establishments, or otherwise desirous of disposing of their stock of Conservatory, Greenhouse, and Stove Plants.

T. F. W. having been for some years in a Nursery previous to his coming to Manchester, trusts that his knowledge of Plants and their value will enable him the better to dispose of them than any ordinary Auctioneer.—28, Market Place, Manchester.

AGRICULTURAL SEEDS, MEADOW & PASTURE GRASSES, &c.

PETER LAWSON AND SON, of Edinburgh and London, the QUEEN'S SEEDSMEN, NURSERYMEN, and WOOD FORESTERS; and to the HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND, beg to intimate to their English Customers and the Public that they are now sending out FARM SEEDS of every description, saved from genuine stocks, and for which they respectfully solicit orders.

Also Garden Seeds, Flower Seeds, Garden Implements, Draining Tools, and everything connected with their trade. Catalogues will be sent on application.

London Branch, 27, Great George Street, Westminster.

P. L. & S are always able to recommend experienced Bailiffs, Gardeners, and Foresters.

GRASS SEEDS, SEPARATE OR MIXED.—*Gentlemen intending to lay down land to Permanent Pasture, or for one or two years' lay, are recommended to communicate with us, stating the nature of the soil and situation, that we may advise as to sorts of Grass Seeds most suitable.* Price 24s. to 30s. per acre for Permanent Pasture.

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, AND DICKENSON'S ITALIAN RYE-GRASS, are both very superior to the Italian Rye-grass commonly cultivated.

At present Messrs. SUTTON *have a supply of true Seed of each sort, price 7s. 6d. per bushel.*

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

TO THE TRADE.—*The Subscribers can supply the following* AGRICULTURAL SEEDS *to the Trade. Prices on application.*

White Belgian Carrot.
Yellow Globe Mangold Wurzel.
Long Red " "
Skirving's Swede Turnip.
Rendle's " "
True Devon Evergreen Grass.

Apply to WILLIAM E. RENDLE & CO., Seed Merchants, Plymouth.

RENDLE'S IMPROVED SWEDE TURNIP.—*This is the most hardy variety in cultivation, and has stood the late severe winter, in the most exposed situations, without the least injury. The Subscribers have received scores of letters during the past month to confirm this statement.*

It is handsome in form. Small tap roots will keep longer than any other sort, and is altogether a most valuable variety.

It has been selected with much care for the last seven years, and the present stock has been grown by growers of the first respectability. Price 2s. per lb., or 1s. 9d. per lb. if taken by the cwt. Wholesale Dealers can be supplied with a few bushels.

For Description, Testimonials, and Engraving, see RENDLE'S "FARMING PRICE CURRENT AND AGRICULTURAL DIRECTORY."—Apply to WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their Mixtures of Grass Seeds are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre ... ... 30s. per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 30s. per acre.
Mixtures for improving and renovating old Grass Land, 1s. per lb.
Mixtures (finest sorts) for forming Lawns... ... 1s. 3d. per lb.

These Seeds are all new, and have all been properly cleaned and their growing properties fully tested. Directions for sowing accompany the seed.

G. G. and Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., SEEDSMEN,
26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS.

THOMAS GIBBS AND CO., the SEEDSMEN to the Royal Agricultural Society of England, beg to inform their friends and agriculturists generally that they are now prepared to supply the undermentioned in any quantities required.

Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow; Irrigation or Water Meadow Mixtures; Upland Sheep Walk Mixtures; Park and Field Lawn Mixtures; Renovating Mixtures for old Swards; Garden, Lawn, or Grass-plot Mixtures; various Permanent Grass Seeds supplied separately to order; Mixtures for one year's lay, do. for two or three years' lay (commonly called "seeds").

CLOVERS.—Red or broad leaved, white or Dutch, Red Suckling, Alsike or Hybrid, Trefoil, Cow Grass or Perennial.
RYE-GRASSES.—Italian (very fine), Annual, improved Perennial, and other kinds.
CARROTS.—Large White Belgian, large field Altringham, Yellow Belgian, long Orange or Surrey.
PARSNIPS.—Gibbs' large Guernsey Cattle, common large.
MANGOLD WURZELS.—Long Red, Orange or Yellow Globe, Red Globe, long Yellow.
CABBAGES.—Large Drumhead Cattle, Thousand headed.
TURNIPS.—Purple-top Swedes, Green-top Swedes, Skirving's Swedes, Green-top Yellow Hybrid, Red-top Yellow Hybrid, Globes or Rounds, Tankard's sorts, Kohl Rabi.
Lucerne, Broom, Furze or Gorse, Field Parsley, Rape, Seed Barley sorts, Wheat sorts, Rye, Sainfoin, Tares White Mustard, White Silesian Beet, Peas, Potatoes, and all other seeds for the farm.
KITCHEN GARDEN AND FLOWER SEEDS, including all the new and most approved varieties. Assortments made up to suit different sized gardens, or to any given amount.

Priced Lists of both Agricultural and Garden Seeds sent free by post on application to THOMAS GIBBS & Co., Corner of Half-Moon Street, Piccadilly, London.

NEW PLANTS.

A. VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer to Amateurs and to the trade his following new plants:—

ACHIMENES (TREVIRANIA), AMBROISE VERSCHAFFELT. This is the finest Achimenes of all; a correct drawing is figured in L'ILLUSTRATION HORTICOLE, Number 1, 1855. Nice plants will be sent out next May, each 8s.—N.B. One over if three plants are taken.

TYDEA WARSCEWICZI; magnificent plant for foliage, and particularly for the flowers. It is the finest gesneriaceous plant of all; a correct drawing is figured in L'ILLUSTRATION HORTICOLE, Number 1, 1855. Strong plants are now ready for sale, each 15s.—N.B. One over if two plants are taken.

RHODODENDRON (HARDY) PRINCE CAMILLE DE ROHAN. This is the finest hardy variety raised; a correct drawing is figured in L'ILLUSTRATION HORTICOLE, Number 2, 1855. This variety is warranted to be quite hardy, and very free bloomer. Nice plants will be sent out next May, each 15s. N.B. One over if three plants are taken.

Agent in London: Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street.

ROSES IN POTS, FOR FORCING.

JOHN AND CHARLES LEE [illegible] to offer SEVERAL [illegible] strong dwarf [illegible] YBRID PERPETUAL ROSES, of the best kinds, well established in pots, and fit for immediate forcing. The wood being well ripened, they cannot fail to produce an abundance of bloom, and they will be found invaluable for filling up beds that have suffered from the late severe frost.

Nursery, Hammersmith, near London.

STRAWBERRY PLANTS.

WILLIAM NICHOLSON is now sending out fine strong plants of his four New and excellent varieties, viz., AJAX, the finest dessert fruit; RUBY, do.; CAPTAIN COOK, dessert and market; FILLBASKET, do., tremendous bearers, at 6s. per 100. The plants have been kept in frames under glass, and are in good condition for planting. Post-office orders payable at Yarm, Yorkshire, are in all cases required with the order.—Egglescliffe near Yarm, Yorkshire.

THOMAS BEACH, the well-known Strawberry Grower, begs to say that he has now ready a large stock of fine strong Plants of his TRUE BRITISH QUEEN, the same he beat the whole world with at the Crystal Palace, many weighing from 2 to 3 oz. each, likewise the same he gained the Knightian Medals with at Chiswick, and other places. He has gained the head prize, and surprised the world, both in flavour and weight. Strong Plants sent to any part of the world, at 5s. per 100, box included.

Post-office Orders on Hounslow, to Mr. THOMAS BEACH, Strawberry Grounds, Worton, Isleworth, Middlesex.—March 24.

SWEDISH TURNIP SEED.

STUART AND MEIN have for sale a considerable quantity of PURPLE-TOPPED SWEDISH TURNIP SEED of last season's produce, which they can recommend as true to kind, and of first-rate quality.

Also PERENNIAL RYE-GRASS, 15 lbs. per bushel, warranted from a prime Ayrshire stock. Prices on application, with a reference from unknown correspondents.

Kelso, Roxburghshire, March 24.

TO THE SEED TRADE.—TURNIP SEEDS, &c.

Skirving's or Liverpool Swede	Orange Globe Wurzel
Laing's	Broccoli, of sorts
White Globe Turnip	Fairbeard's Nonpareil Peas
Green	Cole's Crystal White Celery.
Red Tankard	

W. J. EPPS can with confidence offer the above (not large quantities), having been grown from the best selected stocks possible.—Prices sent on application.

Seed Establishment, High Street, Maidstone, March 24.

GERMAN FLOWER SEEDS.

H. HENKEL begs to offer the following choice Collections of NEW FLOWER SEEDS, just imported, and warranted fresh, at wholesale prices:—

		s.	d.
12	varieties of Ten weeks Stocks, separate in packets of 100 seeds each	2	0
18	ditto ditto ditto	3	0
24	ditto ditto ditto	3	6
36	ditto ditto ditto	5	0
12	varieties of Winter, or Biennial Stocks ditto ...	1	9
6	do. Marigold ... ... ditto ...	1	3
6	do. Phlox Drummondi ... ... ditto ...	2	6
12	do. Larkspurs, new Hyacinth flowered, in pckts. of ½ oz. each	3	0

30, Rood Lane, London.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, begs to inform Gentlemen, Amateurs, &c., that he can supply them with the following, from a Stock of 20,000 Plants, well rooted, and in robust health, including every choice variety grown.

CARNATIONS, 9s., 12s., and 18s. per dozen pairs.
PICOTEES, 9s., 12s., and 18s. "
PINKS, 4s., 6s., and 9s. "
PANSIES, 4s., 6s., and 9s. per dozen plants.
BELGIAN DAISIES, 4s. and 6s. "
FLUKE KIDNEY POTATO, 5s. per bushel of 56 lbs.
SELECTED PANSY SEED, 1s and 2s. per packet.
DELPHINIUM BARLOWI, 4s. per dozen.

Auriculas, Alpine Auriculas, Polyanthuses, Primroses, &c.

Priced and Descriptive Catalogues now ready for one stamp. Post-office Orders to be payable at Middleton, Lancashire.

DILLISTONE AND CO., STURMER NURSERY, near Halstead, Essex, will supply the following at the annexed low prices:—

	s.	d.
12 fine perpetual blooming Roses, 1½ to 2 feet stems ...	12	0
12 " " dwarf Roses	9	0
Climbing Banksia Fortuniana, Jaune Serins, Cloth of Gold, Solfaterre, &c., each	1	6
100 good dwarf Roses, two of a sort	30	0
12 fine named Hollyhocks, including Pourpre de Tyre, &c.	9	0
100 unbloomed seedlings, strong from the best seed ...	15	0
Packets of seed from 20 best kinds, each packet	1	6
100 double French white Rockets, very showy and fragrant	15	0
12 hardy Climbers, including fine Clematis, Honeysuckles, &c.	9	0
12 showy mixed Carnations and Picotees for borders ...	6	0
100 evergreen and flowering shrubs, two of a sort	30	0
100 fine showy Herbaceous plants, two of a sort	20	0
12 double white and yellow Primroses	6	0
12 Hepaticas, in four sorts, fine	6	0
20 of the most popular and profitable Strawberries, 100	2s. 6d. to 5	0

Remittances respectfully requested from unknown correspondents. Carriage of all orders above 20s. paid to London. Fine collection of Fruit trees, Seeds, &c.—March 24.

PLANT YOUR POTATOES WITH JACKSON'S PATENT PREPARATION.

BASS AND BROWN having been appointed Agents for the above, will be happy to furnish it to their customers who may be forwarding their orders for Potatoes or other goods. Also Agents for PAGE'S COMPOSITION FOR THE DESTRUCTION OF BLIGHT.—Sudbury, Suffolk.

PAGE AND CO.'S BLIGHT COMPOSITION. Extra Strong, 4s. per gallon, sufficient to make four (Jars and Barrels extra); in Bottles, 1s. 3d. and 2s. 6d. each. Directions for application forwarded. 10 Gallons and upwards Carriage Free to London. Should be in the hands of all Plant and Fruit Growers. See *Gardeners' Chronicle*, March 3, 1855. It can now be obtained of

Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester	Masters & Son, Canterbury
Bass & Brown, Sudbury	Thomas Davies & Co., Wavertree, Liverpool
Sutton & Sons, Reading	Mr. Freeman, Woburn
W. & G. Davison, St. Peter's Street, Hereford	" J. Perkins, Northampton
Henderson & Co., Pine Apple Place, London	" Tiley, Bath
Rendle & Co., Plymouth	" E. Paul, Derby
	" W. Barratt, St. John's, Wakefield.
	" Baskerville, Bristol
	" Burham, Hastings

and of the Inventors and Manufacturers—

B. PAGE & Co., SEED MERCHANTS, Oxford Street, and Above Bar, Southampton.

N.B.—Other names will shortly appear, as the agents are appointed.

RHUBARB.

BASS AND BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk, offer the following:—

Bailey's Early Monarch, a splendid early sort. Particulars see BASS & BROWN'S Seed and Plant List. Per root ... 2 6
Salt's Crimson Perfection, per root 7 6
Mitchell's Royal Albert, Myatt's Linnæus, and Myatt's Victoria Giant, each per dozen 7s. 6d., or 1s. each.

STRAWBERRIES.

FOR PARTICULARS SEE SEED AND PLANT LIST.

Admiral Dundas (Myatt's), per dozen 7 6
Scarlet Nonpareil (Patterson's), per dozen 7 6
Omer Pacha (Ward's), per dozen 12 0
Magnum Bonum (Barrett's), per dozen 10 0
Other best older sorts, 3s. to 10s. per 100. ... 6 0

POTATOES.

TRUE AND FREE FROM DISEASE.

British Queen, per bushel of 56 lbs. 7 0
Soden's Early Oxford do. 7 0
Flour Ball do. 9 0
York Regents do. 9 0
For other sorts see Seed and Plant List. ... 6 0

Fine trained Apricots, Peaches, Nectarines, Plums, &c.

GOODS (not under 20s.) CARRIAGE FREE to all the London Termini, or on the Eastern Counties, Colchester line.

OSAGE ORANGE (MACLURA AURANTIACA).

CHARLWOOD AND CUMMINS beg to announce that they have received from America Seeds of the above-named valuable Hedge Plant, which they are ready to send out at 4s. per lb., accompanied with directions for sowing and treatment, as described in the *Gardeners' Chronicle*, May 13th, 1854.

They have also received their annual importation of American Trees and Shrubs; Seeds, consisting of Azaleas, Rhododendrons, Quercus, Red Cedar, &c., of which a Priced List will be sent on application.

One-year Seedlings of the following varieties of American Oaks, at 4s. per 100: Quercus nigra, Banisteri, alba, and obtusiloba. Fine Plants of Aquilegia glandulosa, 20s. per dozen. Lilium giganteum, per 100 seeds, 20s.

SEED POTATOES.

	s. d.		s. d.
Lapstone Kidney, per bush.	7 0	Early Defiance, per bush.	7 0
Ash-leaved do. "	8 0	Forty-fold	6 0
Soden's Oxford "	7 0	Early Manley	7 0

C. & C. will be glad to receive offers of 1, 2, and 3-years old Quick.—14, Tavistock Row, Covent Garden, London.

CHARLES SHARP begs to call the attention of the Nobility, Gentry, and the Trade to his unrivalled collection of SEED POTATOES, which have been grown and selected with great care, and perfectly free from disease. The undermentioned prices include hampers and package. Terms to the Trade known on application.

POTATOES:—

	Per bush. of 4 st.		Per bush. of 4 st.
Ash-leaf Kidney (Jackson's)	10s.	American Early	7s.
Ash-leafed Kidney (Walnut-leafed)	10s.	Forty-Fold	8s.
Early Emperor	10s.	Kentish Kidney	8s.
" Shilling's	10s.	York Regent's	8s.
" Martin's Globe ...	10s.	White Rough	8s.
" Oxford Large ...	8s.	French Blues	7s.
" Round Frame (for Forcing)	8s.	White Kidney	8s.
Early (Fox's Seedling) ...	8s.	British Queen, the largest and best produce in cultivation	5s.

Seed Establishment, Wisbeach, Cambridgeshire.

NEW ASHLEAF—THE "EARLY CHAMPION."

JOSEPH WILSON, SEEDSMAN, Ipswich, offers the following varieties:—

	s.	d.
The CHAMPION ASHLEAF, (per bushel, 56 lbs.) ...	12	0
MOSS KIDNEYS " " ...	6	0
NONPAREIL DITTO " " ...	6	0
The New Mammoth variety, "LORD RAGLAN," medium size (per sack, 16 stones)	42	0

No charge for bags or sacks, and free to London for orders of 4 bushels and upwards. A remittance must accompany all orders.

NEW CHINESE POTATO—DIOSCOREA (JAPONICA) BATATAS.

T. F. WINSTANLEY has received a limited quantity of the above new Potato. For description and method of planting see his Garden Seed List, where full particulars are given. T. F. W. has also a few Plants left of the Kaisha or Sweet-kernelled Apricot, a fortnight earlier than the Moor Park. Prices on application.—28, Market Place, Manchester.

FLUKE KIDNEY POTATO.

T. F. WINSTANLEY has a very fine stock of the above unrivalled POTATO, selected small for SEED as they do not bear cutting. Also Lapstone Kidney, Ashleaf, Flourball, and many other varieties. Prices on application. The Trade supplied.—28, Market Place, Manchester.

THE FLUKE KIDNEY POTATO.—This excellent variety is now planted here as the principal crop, being more free from disease and more prolific than any other in cultivation. It was raised in Middleton, and may be had genuine in any quantity at 5s. per bushel of 56 lbs.—Apply to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

Post-office Orders to be made payable at Middleton, Lancashire.

THE FLUKE POTATO.—A new second early variety, surpassing every other in its capability of resisting the Potato disease, and without exception the finest and most prolific Potato in cultivation. Price per cwt., 15s., bags included.

To be had genuine of THORNHILL & DICKSON, Lawrence Hill Nurseries; and No. 1, Wine Street, Bristol.

TO POTATO GROWERS.—ROSS'S AMERICAN EARLY, grown expressly for Seed on reclaimed Peat on Moor without manure. This well-known productive Potato cannot be equalled as a "second early;" price 21s. per sack of 2 cwt.

WALKER'S LARGE WHITE.—This variety is about two weeks later than the preceding, and for general crops cannot be surpassed. It grows to a large size, is an extraordinary cropper and for table use is all that could be desired; price 24s. per sack of 2 cwt. *These prices include a strong sack, and carriage paid to London, Liverpool, and Hull.*

W. DRUMMOND AND SONS, SEEDSMEN, Stirling, N.B.

*** To prevent disappointment unknown correspondents will enclose a remittance with their order.

BEAUTIFUL FLOWERS.—Twelve packets, each packet containing 100 Seeds, 1s.; sent free per post, 1s. 6d. a 5s. packet sent free per rail. Abronia umbellata, Eccremocarpus scaber, choice Gloxinias, Lophospermum Hendersoni, Lisianthus Russellianus, and every other choice variety 6d. per packet. Dwarf German (10 week) Stocks, as imported, 36 varieties, each variety 3d. per packet.—WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington, London.

N.B. Elletson's superb new late Dwarf White Broccoli (Snow) ("Emperor"), 2s. 6d. per packet. The Broccoli raised from this seed weigh from 17 lbs. to 25 lbs. each.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. 27, Tavistock Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, March 24, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 13.—1855.] SATURDAY, MARCH 31. [PRICE 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The SECOND SPRING MEETING will take place at the Society's House, 21, Regent Street, on TUESDAY, April 3, from 12 to 5 P.M.

HORTICULTURAL SOCIETY OF LONDON.—GARDEN EXHIBITIONS.

Notice is hereby given that the FIRST EXHIBITION of the Season will take place, by permission of her Majesty's Commissioners for the Great Exhibition of 1851, in the GROUNDS of GORE HOUSE, on WEDNESDAY, May 16.

The Garden will be opened to the Public at TWO o'clock, under the following regulations:—All Fellows of the Society will be admitted without tickets, from half-past 12 till 6 o'clock, on signing their names in a book at the entrance. Visitors can be admitted only by tickets, to be obtained by the personal or written orders of Fellows of the Society.

All Fellows who shall apply, on or before Monday, the 30th of April, may obtain at the PRIVILEGED RATE of Three Shillings and Sixpence each, any number of tickets NOT EXCEEDING THIRTY SIX; but no application for such tickets will be received after that day. *Fellows of the Society subscribing for tickets at this price will be allowed a clear week from the 30th of April during which they may claim them.* AFTER THAT PERIOD ALL THE 3*s*. 6*d*. TICKETS SUBSCRIBED FOR, BUT NOT ISSUED, MAY BE CANCELLED. After the 30th of April, any further number of tickets will be delivered to Fellows on their personal application or written order, at the price of *Five Shillings* each ticket.

All applications for tickets must be made at the Society's office, 21, Regent Street.

NO TICKETS WILL BE ISSUED IN REGENT STREET ON THE DAYS OF EXHIBITION. On those days Offices, near the Garden Entrance, will be opened at half-past 12 o'clock for the issue of tickets at 7*s*. 6*d*. each; but still under the regulations above stated.

SPECIAL PRIVILEGE OF FELLOWS.—Fellows of the Society not only enter free at half-past 12, but can also introduce two friends, WITH TICKETS, at Gore House, Kensington Gore, May 16; at Chiswick, June 20, and July 11. Or the Fellow's power may be transferred to a brother, sister, son, daughter, father, mother, or wife, residing in the Fellow's house, provided the person to whom the transfer is made be furnished with a ticket signed by that Fellow. That is to say, the power of entering early may be transferred, but not the right to FREE admission.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The EXHIBITIONS of PLANTS, FLOWERS, and FRUIT this season will take place on WEDNESDAYS, May 9, June 13, and July 4; and of AMERICAN PLANTS, MONDAY, June 18.

Tickets of Admission are now being issued, and may be obtained at the Gardens only, by orders from Fellows or Members of the Society—price on or before May 5, 4*s*.; after that day, 5*s*. each.

CRYSTAL PALACE.—HORTICULTURAL FETE.—It is intended to hold a grand Horticultural Exhibition at the Palace on SATURDAY, the 2d of June next. The Rules and Schedules of Prizes are now ready, and can be obtained on application to the Secretary.

March 23. (By Order.) G. GROVE, Secretary.

NORTH WILTS HORTICULTURAL AND FLORICULTURAL SOCIETY.—The Exhibitions for this year will be held in the Castle Grounds, Devizes, on THURSDAY, the 5th of July, and on THURSDAY, the 6th of September.

Devizes, March 31. J. J. FOX, Hon. Secretary.

WILLIAM MASTERS AND SON, LANDSCAPE GARDENERS, Exotic Nursery, Canterbury.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

BOTANICAL.

TO BE SOLD, the following Collections of BRITISH PLANTS, scientifically named and systematically arranged:

A fasciculus of 400 FLOWERING PLANTS	£2	0	0
A fasciculus of elegant FERNS	0	10	6
A fasciculus of 80 beautiful MOSSES	0	8	0

WILLIAM FOGGITT, F.B.L.S., Market Place, Thirsk.

WALTER BIRD, Atherstone, Warwickshire, begs to inform the public that he has a number of well-rooted VINES FROM EYES, which he can send out at a very low rate, the names and prices of which can be had on application.

TERMS—CASH.

CHOICE FLOWER SEEDS, saved from the best varieties, post free.

Antirrhinum, from 100 vars., 6*d*.; Balsam, from 25 vars., 6*d*.; Hollyhock, show vars., 6*d*.; German Aster, from 24 vars., 6*d*.; Fuchsia, from 40 vars., 6*d*.; Pansy, show, from 100 vars., 1*s*.; Fancy Pansy, fine, 1*s*.; Mimulus, from 12 vars., 6*d*.; Verbena, from 100 vars., 1*s*.; Double Daisy, from 50 vars., 6*d*.; Gloxinia, from 50 vars., 1*s*. Catalogues for one stamp, from

WILLIAM KNIGHT, Florist, &c., High Street Battle, Sussex.

THE ROYAL NATIONAL GRAND ANNUAL EXHIBITION OF TULIPS (Adjourned from the Royal Botanic Gardens), will be held at Cambridge, on TUESDAY, May 22, in connection with the Cambridge Horticultural Society.

Treasurer.—R. HEADLY, Esq., Stapleford, Cambridgeshire.

Hon. Secretary.—Mr. C. E. BROWN, 62, Sidney Street, Cambridge.

The Committee have pleasure in directing attention to the following extended and liberal

SCHEDULE OF PRIZES.

Class A.—SIX DISSIMILAR BLOOMS, with one Feathered and one Flamed Flower in each Class of Bizarres, Byblœmens, and Roses. GRAND PREMIER PRIZE, a Silver Cup, value 10*l*. 10*s*.; 2d, 7*l*.; 3d, 4*l*.; 4th, 3*l*.; 5th, 2*l*.; 6th, 1*l*.

Class B.—TWELVE DISSIMILAR BLOOMS, to consist of four Bizarres, four Byblœmens, and four Roses. 1st prize, a Silver Cup, value 7*l*.; 2d, 4*l*.; 3d, 3*l*.; 4th, 2*l*.; 5th, 1*l*.

Class C.—EIGHTEEN DISSIMILAR BLOOMS, consisting of six Bizarres, six Byblœmens, and six Roses. 1st prize, Silver Cup, value 6*l*.; 2d, 4*l*.; 3d, 3*l*.; 4th, 2*l*.; 5th, 1*l*.

SINGLE SPECIMENS.

Class D.—FEATHERED BIZARRES. 1st prize, 1*l*.; 2d, 15*s*.; 3d, 10*s*.; 4th, 7*s*; 5th, 6*s*.; 6th, 5*s*.

Class E.—FLAMED BIZARRES. 1st prize, 1*l*.; 2d, 15*s*.; 3d, 10*s*.; 4th, 7*s*.; 5th, 6*s*.; 6th, 5*s*.

Class F.—FEATHERED BYBLŒMENS. 1st prize, 1*l*.; 2d, 15*s*.; 3d, 10*s*.; 4th, 7*s*.; 5th, 6*s*.; 6th, 5*s*.

Class G.—FLAMED BYBLŒMENS. 1st prize, 1*l*.; 2d, 15*s*.; 3d, 10*s*.; 4th, 7*s*.; 5th, 6*s*.; 6th, 5*s*.

Class H.—FEATHERED ROSES. 1st prize, 1*l*.; 2d, 15*s*.; 3d, 10*s*.; 4th, 7*s*.; 5th, 6*s*.; 6th, 5*s*.

Class I.—FLAMED ROSES. 1st prize, 1*l*.; 2d, 15*s*.; 3d, 10*s*.; 4th, 7*s*.; 5th, 6*s*.; 6th, 5*s*.

Class K.—SIX DISSIMILAR BREEDERS. 1st prize, 1*l*.; 2d, 15*s*.; 3d, 10*s*.; 4th, 5*s*.

Premier prizes of 1*l*. each will be awarded to the best Feathered and Flamed Flower in each Class, selected from the entire Exhibition. Certificates of Merit will be awarded to Seedlings, which the judges think worthy of such distinction.

In Class B, private growers only will be allowed to compete. The other Classes are open to all growers.

Subscribers of 1*l*. 1*s*. and upwards to be allowed to show free in their respective classes. Non-subscribers to pay the following entrance-fees: In Classes A, B, and C, 5*s*. each Class; in Class K, 2*s*. 6*d*.; Single Specimens, 1*s*. each bloom. There will be no charge for Seedlings. All Entries to be made, and the Entrance-money paid, on or before the 9th of May, to the Secretary, of whom further particulars may be obtained.

SEEDS FOR THE FARM, CARRIAGE FREE.—SEE RENDLE'S "FARMING PRICE CURRENT AND AGRICULTURAL DIRECTORY."

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

YOUELL AND CO. beg respectfully to refer the Subscribers to the *Gardeners' Chronicle* to their advertisement which appeared on the 10th of March, containing a detailed List, with prices, of some very choice "Greenhouse Plants," "Rare and Hardy Conifers," and "Hardy Ornamental Shrubs and Climbers."—Royal Nursery, Great Yarmouth.

CORNISH EARLY WHITE BROCCOLI, 1*s*. per packet, or 6*s*. per oz.

CONQUEROR OF THE WEST CUCUMBER, 1*s*. per packet, containing 12 good seeds.

The above can be had, warranted genuine, by forwarding postage stamps for the amount to

JAMES LAKE, Seedsman, &c., Bridgewater.

TO POTATO GROWERS.

WANTED TO PURCHASE, a considerable quantity of good sound POTATOES.—Address, in the first instance, with full particulars, lowest price, &c., to E., care of Sotheran & Co., 10, Tower Street, London.

EARLY POTATOES.

CHARLES SHARPE begs to offer to Market Gardeners and others the following sorts of Early Potatoes for Seed:—

Ashleaf Kidney (Jackson's)	Early Martin's Globe
Early Foxe's Seedling	„ Rilot's Flour Ball.

Terms per ton, or for less quantities, may be had on application.

Seed Establishment, Wisbeach, Cambridgeshire.

SEED POTATOES, SOUND AND TRUE.—EARLY OXFORDS, FLUKES, REGENTS, FIFTY-FOLD, *and several other choice sorts at moderate prices, particulars of which may be had on application (stating quantity required) to*

SUTTON & SONS, Seed Growers, Reading.

FLUKE KIDNEY POTATO.

T. F. WINSTANLEY has a very fine stock of the above unrivalled POTATO, selected small for SEED, as they do not bear cutting. Also Lapstone Kidney, Ashleaf, Flourball, and many other varieties. Prices on application. The Trade supplied.—28, Market Place, Manchester.

THE FLUKE KIDNEY POTATO.—This excellent variety is now planted here as the principal crop, being more free from disease and more prolific than any other in cultivation. It was raised in Middleton, and may be had genuine in any quantity at 5*s*. per bushel of 56 lbs.—Apply to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

Post-office Orders to be made payable at Middleton, Lancashire.

THE FLUKE POTATO.—A new second early variety, surpassing every other in its capability of resisting the Potato disease, and without exception the finest and most prolific Potato in cultivation. Price per cwt., 15*s*., bags included.

To be had genuine of THORNHILL & DICKSON, Lawrence Hill Nurseries; and No. 1, Wine Street, Bristol.

COVENT GARDEN.

W. AND S. GAINES beg respectfully to offer to Gardeners, Farmers, and Nurserymen, the following SEEDS:—Scarlet Runners, 27*s*. per bushel; China, Dwarf, or Robbin's Egg Beans, at 28*s*. per bushel. Potatoes for planting; also Annual Flower Seeds, fifteen varieties, 2*s*. 6*d*.; thirty varieties, 5*s*. Prices for cash.—Post-office orders payable to W. & S. GAINES, Charing Cross, London.

GERMAN FLOWER SEEDS FRESH IMPORTED.

SUTTON AND SONS *have imported a superior assortment of New German Flower Seeds, a Priced List of which may be had post free.*

ALSIKE CLOVER (TRIFOLIUM HYBRIDUM).

SUTTON AND SONS have some pure genuine Seed of this superior new CLOVER, which will be found an invaluable Perennial Plant.

GIANT ASPARAGUS PLANTS.—Fine plants, three years, at 25*s*. per 1000, can be had of STEPHEN SHILLING, Nurseryman, North Warnborough, Odiham, Hants.

DWARF FRENCH BEANS can be had in any quantity.—Apply to J. G. WAITE, Seed Merchant, 181, High Holborn, London.

LIQUIDAMBAR.—The undernamed is a buyer of either a large or small quantity of the above. Send cash price, and height, to Mr. JEYES, Nurseries, Northampton.

STATICE PSEUDO ARMERIA.

WILLIAM MOORE can supply the Trade with fine Seed of the above, at 1*s*. 6*d*. per oz., or in packets 6*d*. each. Payment to be made in postage stamps.

Norfolk Nursery, East Dereham.

LUCERNE.—FRESH IMPORTED SEED may be had of SUTTON & SONS, Reading, price 1*s*. per pound, or 95*s*. per cwt. April is the best month for sowing. True French Furze, (Ulex europeus), 1*s*. per pound, or 95*s*. per cwt.

FINE STRONG SEAKALE ROOTS, fit for immediate planting.—Apply to LUCOMBE, PINCE & Co., Exeter Nursery, Exeter, Established 1720.

CABBAGE PLANTS.

THOMAS WELLAND offers extra fine DRUMHEADS for cattle; also E. BATTERSEA, E. YORK, E. IMPERIAL, &c., at 3*s*. 6*d*. per 1000, safely packed for any part of England, Scotland, Ireland, and Wales, crates included, and sent free to Godalming Station.—Surrey Gardens, near Godalming, Surrey.

ELLETSON'S LATE WHITE BROCCOLIS, the EMPEROR and MAMMOTH.—Packets of the above highly esteemed varieties of BROCCOLI may still be had, at 2*s*. 6*d*. each, of Messrs. NOBLE & Co., 152, Fleet Street; Messrs. HURST & Co., 6, Leadenhall Street; and of E. P. DIXON, 57, Queen Street, Hull.

HAMPSHIRE BROWN COS LETTUCE PLANTS, fine, at 5*s*. per 1000.

CABBAGE PLANTS, fine, of all kinds, including the true QUEEN, and FLAT DUTCH CATTLE, at 3*s*. 6*d*. per 1000.

PICKLING RED CABBAGE PLANTS, 9*s*. per 100.

Can be had in any quantity of STEPHEN SHILLING, Nurseryman, North Warnborough, near Odiham, Hants.

RANUNCULUSES, ANEMONES, GERANIUMS, ETC.

HENRY GROOM, CLAPHAM RISE, near LONDON, by Appointment FLORIST TO HER MAJESTY, begs to say that his Spring CATALOGUE is ready, and will be forwarded by post on application. He would beg to call attention to this being the time to plant Ranunculuses and Anemones.

CHEAP NURSERY STOCK.

IMPORTANT TO ALL PLANTERS WHO DESIRE IMMEDIATE EFFECT.

WILLIAM JACKSON & Co., Bedale, Yorkshire, beg to refer to their advertisement in the *Gardeners' Chronicle and Agricultural Gazette* of the 17th March, page 181.

MANGOLD WURZEL, ETC.—TO THE SEED TRADE.

BASS AND BROWN beg to offer, of the finest Stocks, Mangold Wurzel, Long Red; Do. Yellow Globe; Do. Red Globe; White Carrot; Skirving's Swede; Orange Jelly Turnip; Meadow Fescue Grass. Wholesale prices to the trade on application.—Seed Establishment, Sudbury, Suffolk.

TO PINE GROWERS.

WANTED to purchase about 50 FRUITING PLANTS, and 100 SUCCESSION Do.—Particulars of sorts, with prices, may be addressed to Mr. BATES, Gardener Tittenhurst Park, Sunning Hill.

PINE PLANTS, ETC.

JOHN A. WATSON, FRUIT GROWER, has now for sale a fine clean healthy Stock, principally Ripley Queen; also fine young stock of the following kinds—Moscow Queen, Bristol Queen, Providence, Black Jamaica, Smooth Havanah, Sierra Leone, Smooth Cayenne, Prickly Cayenne, Enville, and Blood. Lily of the Valley, 10*s*. per bushel; Gooseberry Bushes, 16*s*. per 100; Thimble Raspberry, 10*s*. per 100.

Vine Gardens, Ealing.

STRONG OAKS.

I. AND J. GAITSKILL have on hand a fine healthy stock of the above, 1½ to 2 feet and 2 to 3 feet, which will be sold cheap. Price on application.

Hall Santon Nurseries, Whitehaven.—Mar. 31.

STRONG QUICK.

CHARLES SHARPE has for sale a quantity of STRONG QUICK, 2 to 2½ ft. high, at 16*s*. per 1000. Price to the trade may be had on application.

Seed Establishment, Wisbeach, Cambridgeshire.

TO BE SOLD CHEAP, price 60*l*., a small private Collection of ORCHIDS (130 Plants).—Apply to Messrs. FRAZER, Nurserymen, Lea Bridge Road, Leyton, Essex.

TO BE SOLD CHEAP, 3000 transplanted WALNUT TREES, 3 to 4 feet high. Price on application.—WILLIAM MOORE, Norfolk Nursery, East Dereham.

SWEDE, CARROT, AND MANGOLD SEEDS.

TO BE SOLD, a few sacks of SKIRVING'S SWEDE, of last year's growth, from large roots; some YELLOW GLOBE and LONG RED MANGOLD; and ALTRINGHAM CARROT, all warranted.—Apply to Mr. GEO. TABER, Seed Grower, Rivenhall, Witham, Essex.

PELARGONIUMS OR GERANIUMS.

JOHN DOBSON AND SON beg to offer the following, and feel sure that the plants and varieties will give the greatest satisfaction. Any 12 of the following (purchaser's selection) for 42s.: Zampa, &c., included: Attraction, Bride of Abydos, Carlos, Sunrise, Eliza, Glowworm, Leah, Optimum, Pache, Harriet, Vulcan, Rosa, Foster's, Lucy, and Ambassador.

The following 12 for 42s: Neatness, Colonel of the Buffs, Virginia, Leopora, Gertrude, Enchantress, Rosa (Beck's), Arethusa, Jupiter, Spot, Purple Perfection, and Picta.

Any 12 of the following, 24s.: Mochanna, Arethusa, Magnet, Astrea, Amazon, Purpurea, Magnificent, Chloe, Capella, Exhibition, Leader, Generalissimo, Prince Arthur, Virgin Queen, Galatea.

FANCY PELARGONIUMS.—Any 12 of the following, 24s.: Advancer, Annette, Caliban, Captivation, Carlotta Grisi, Fascination, Fleur de Marie, Nerea, Formosissima, Gipsy Queen, Lady Downes, Picturata, Prima Donna, Perfection, and Prince Albert.

Catalogues with full descriptions on application, Woodlands Nursery, Isleworth.

MESSRS. E. G. HENDERSON AND SON having purchased of the late W. Story, Esq. of Newton, in the county of Devon, for ONE HUNDRED GUINEAS, all Seedling Fuchsias with white Corollas, a new feature in this tribe introduced by him, and in consequence of an advertisement appearing in the *Gardeners' Chronicle* from Messrs. Lucombe, Pince, & Co., of Exeter, offering two new Fuchsias similar in character to those purchased of the late Mr. Story, it was thought necessary, after a written communication with that gentleman, for one of the firm to make further inquiries about them, and in consequence Mr. ANDREW HENDERSON went to Exeter and Newton, where he was informed by a jobbing gardener at Newton that he had received in the month of November last Seven Pounds for them after (as the said jobbing gardener stated) he had been offered £20 for them by a nurseryman in London, but whose name or address he did not know.

Messrs. E. G. H. & Son give the above explanation in consequence of numbers of their customers having ordered plants at higher prices than are now quoted. This reduction is made in consequence of information which they have received that leaves no doubt on their minds but that those to be sent out by Messrs. Lucombe, Pince, & Co. are similar in character to those purchased of Mr. Story.

E. G. HENDERSON & SON take this opportunity of stating that none but the most popular and improved kinds of Vegetable Seeds appear in their list, and among the Flower Seeds only those whose beauty and merit are univerally acknowledged, together with a carefully selected stock of the principal new varieties. They would call particular attention to the following new and choice seeds, which they can confidently recommend:—

	Per packet—s.	d.
Antirrhinum, extra fine ...	0	6
Auricula, fine mixed ...	1	6
Abronia umbellata	1	6
Anagallis azurea grandiflora	1	0
„ rubra „	1	0
Arctotis breviscapa ...	0	6
Aster, new Peony pyramid, in packets of 10 distinct colours, separate ...	3	6
„ new bouquet pyramidal, in packets of 12 distinct colours	3	6
Balsam, double Camellia-flowered, in packets of 6 distinct colours, separate	3	0
„ new double Camellia Rose, in packets of 10 distinct colours, separate, extra fine	5	0
„ Aurora, new double crimson	1	0
„ new dble. pale yellow	1	0
Carnation, stage flowers...	1	6
Calceolaria, ex. ex. 2s. 6d & 5s.		
Cineraria, ex. ex. 1s. 6d. & 2s. 6d.		
Chrysanthemum pompone	1	0
„ large flowered	1	0
Calendrinia umbellata ...	0	6
Dianthus Dunnetti, suprb.	1	0
„ Chinensis flore-pleno, extra fine	0	6
Eschscholtzia tenuifolia...	1	6
Geranium, choice show ...	2	6
„ choice fancy	2	6
Hollyhock, first quality ...	2	6
„ second quality ...	1	0
Ipomœa rubro cærulea ...	1	0

	Per packet—s.	d.
Ipomœa limbata	2	6
Leptosiphon luteum ...	0	6
„ aureum	1	6
Linum grandiflorum rubrum 1s. 6d., and	2	6
Lobelia Queen Victoria (scarlet)	0	6
Lobelia Roi Leopold ...	0	6
Larkspur, new double improved hyacinth flowered, in packets of 6 distinct colours ...	2	6
Limnanthes sulphurea odorata	1	0
Mignonette, new, large ...	0	3
Mimulus, beautiful ...	0	6
Pansy, choice show ...	1	6
„ choice fancy	1	6
Petunia, extra fine ...	1	0
Phlox Drummondi coccinea	0	6
Portulaca, new orange ...	0	6
„ new rose	0	6
Primula sinensis fimbriata, alba and rubra mixed ...	2	6
Poppy, new large Pæony, in 8 brilliant colours ...	2	0
Reseda myriophylla, new Mignonette	1	0
Salpiglossis, scarlet, blue, and sulphur	0	6
Stock, German, new large flowering, in packets of six distinct colours ...	2	6
Verbena, choice mixed ...	1	0
Sweet William, new double	0	6
Whitlavia grandiflora ...	1	6

Lilium giganteum seed, 2s. 6d. and 5s. per packet.
Holcus saccharatus (new Sugar-cane), 1s. to 2s. 6d. do.
Dioscorea Batatas (Japanese Yam), 2s. 6d. each tuber.
20 Ornamental Grasses (see Catalogue).
12 Ornamental foliage Annuals.

Their new Seed Catalogue, with full particulars of the above and many other novelties, is now ready and will be forwarded post free on application.

Wellington Nursery, St. John's Wood.—March, 1855.

BASS AND BROWN'S CHOICE VEGETABLE AND FLOWER SEEDS.

For some of the novelties of their first-rate Collections, also choice imported Seeds, Roots for early spring planting, &c., see Advertisements in the Gardeners' Chronicle *of Feb. 17, page 109, and March 10, page 149.*

ASSORTED COLLECTIONS OF VEGETABLE SEEDS, containing the best new sorts

	s.	d.
No. 1, with 20 quarts of Peas, and other vegetables in proportion	63	0
No. 2 Collection, 40s.; No. 3, 25s.; No. 4	15	0

The collections are given in the Seed and Plant List.

FLOWER SEEDS, BEST AND NEWEST ASSORTMENTS, with printed instructions for sowing, &c.

100 vars. choice strong annuals...	15	0
50 vars., 8s. 6d.; 30 vars., 5s. 6d.; 20 vars.	4	0
20 vars. best dwarf kinds, in large packets, suited for beds on lawns, 7s 6d.; 12 vars....	5	0
20 vars. choice greenhouse annuals, 7s. 6d.; 12 vars ...	5	0
20 vars. choice greenhouse perennials, 10s. 6d.; 12 vars....	7	6
20 vars. choice hardy biennials and perennials	7	6
12 do. do do do.	5	0

For further particulars see Seed and Plant List.

CHOICE IMPORTED SEEDS, comprising Stock, Aster, Balsam, Cockscomb, Larkspur, Salpiglossis, Scabious, Sinecia, Sweet William, Wallflower, Zinnia, &c.

BASS & BROWN'S Seed and Plant List free by post for three penny stamps. Also the autumn Catalogue for three penny stamps; or gratis to our customers who may not have received them.—Seed and Horticultural Establishment, Sudbury, Suffolk.

R. PARKER begs to offer the following, all of which are well established, and can be forwarded to any part of the Kingdom:—

From per dozen.—	s.	d.
Exotic Orchids, distinct and beautiful species	60	0
Exotic Ferns „ „	18	0
British ditto „ „	9	0
Exotic Lycopodiums „ „	12	0
Roses, consisting of the best varieties of Hybrid Perpetuals, Teas, and Bourbons, strong plants, established in pots ...	12	0
Cinerarias, choice named varieties, strong, established plants, in 4-inch pots	9	0
Cinerarias (Seedlings), from the finest named varieties, including the best varieties sent out last season, strong, established plants, in 4-inch pots	4	0
Calceolarias (Seedlings), from beautiful spotted varieties, strong, established plants	6	0

Lists of Names forwarded upon application.

The following choice Cucumbers and Melons, in packets of 12 Seeds, at 1s. per packet:—

CUCUMBERS.	MELONS.
Superlative Improved	Golden Perfection (extra fine)
Walker's Rambler	Bromham Hall
Manchester Prize	Persian Green Flesh
Hunter's Prolific	Chichester Prize
Improved Patrick.	Cuthill's Scarlet Flesh.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Holloway.

GREAT NOVELTIES FOR THE ENSUING SEASON,

FUCHSIAS WITH WHITE COROLLAS.

LUCOMBE, PINCE, AND CO. beg leave to announce that they shall be prepared to send out two splendid and entirely novel Seedling Fuchsias, early in May next, viz.:—

FLORENCE NIGHTINGALE.

Pure white corolla, with brilliant scarlet sepals, finely reflexed; an extremely lovely and novel variety.

CALANTHIFLORA-PLENA

(The DOUBLE Snowdrop Corolla'd Fuchsia.)

Pure double white corolla, resembling a fine large double Snowdrop, with rich scarlet sepals; altogether distinct from anything of the kind ever yet produced. Price 10s. 6d. each.

Together with a very beautiful new double Purple variety,

VIOLÆFLORA-PLENA,

Rich double blue corolla, resembling a fine double violet, 7s. 6d. each.

L., P., & Co. have also fine plants of the following choice kinds of Fuchsias at 18s. to 42s. per dozen.:—

Aspasia	Glory	Purple Perfection
Apollo	Lucretia	Sir Harry Smith
Brilliant	Orion	Sidonia
Duchess of Lancaster	Prime Minister	Sir Jno. Falstaff
Duke of Wellington	Princess	Telegraph
Dominiana	Kossuth	Resplendent.

They are also now prepared to send out their beautiful new

VERONICA KERMESINA,

Raised by that eminent horticulturist J. Luscombe, Esq., of Coombe Royal, who sent specimens to Dr. Lindley, at the time of its first flowering, who thus pronounces his first opinion of it:—"The variety sent with this was charming, a decided rose colour having mingled with the violet." See also notice of Dr. Lindley in the *Chronicle* for Dec. 2, 1854, as follows:—"L., P., & Co. Your V. Kermesina is a handsome dark variety of V. speciosa; its beautiful large spikes of deep purplish crimson blossoms cannot fail to make it a favourite." Price 7s. 6d. each. A few extra-sized specimens may be had.

The usual discount to the Trade when three or more are taken.

Exeter Nursery, Exeter.—ESTABLISHED IN 1720.

GRASS SEEDS.—CARRIAGE FREE.

PERMANENT PASTURE GRASS.—*The very best Selections can be obtained from* WILLIAM E. RENDLE & Co., *Seed Merchants, Plymouth,—all new and carefully selected, from 24s. to 30s. per acre.*

ORNAMENTAL LAWNS, PLEASURE GROUNDS.—The choicest varieties for producing a fine sward for Lawns or Pleasure Grounds can be procured from WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth, at 18s. per bushel, 2s. 6d. per gallon, or 1s. per lb.

RENOVATING GRASSES—for sowing over land deficient in plant—can be obtained at 9d. per lb.

A complete descriptive List of Grasses will be found in "RENDLE'S FARMING PRICE CURRENT," *and some valuable Tables, and other information relative to the best varieties for certain Lands and Situations.*

Apply to WM. E. RENDLE & Co., Seed Merchants, Plymouth.
ESTABLISHED SEVENTY YEARS.

GRASS AND AGRICULTURAL SEEDS.

THOMAS GIBBS AND CO., the SEEDSMEN to the Royal Agricultural Society of England, beg to inform their friends and agriculturists generally that they are now prepared to supply the undermentioned in any quantities required.

Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow; Irrigation or Water Meadow Mixtures; Upland Sheep Walk Mixtures; Park and Field Lawn Mixtures; Renovating Mixtures for old Swards; Garden, Lawn, or Grass-plot Mixtures; various Permanent Grass Seeds supplied separately to order; Mixtures for one year's lay, do. for two or three years' lay (commonly called "seeds").

CLOVERS.—Red or broad leaved, white or Dutch, Red Suckling, Alsike or Hybrid, Trefoil, Cow Grass or Perennial.

RYE-GRASSES.—Italian (very fine), Annual, improved Perennial, and other kinds.

CARROTS.—Large White Belgian, large field Altringham, Yellow Belgian, long Orange or Surrey.

PARSNIPS.—Gibbs' large Guernsey Cattle, common large.

MANGOLD WURZELS.—Long Red, Orange or Yellow Globe, Red Globe, long Yellow.

CABBAGES.—Large Drumhead Cattle, Thousand headed.

TURNIPS.—Purple-top Swedes, Green-top Swedes, Skirving's Swedes, Green-top Yellow Hybrid, Red-top Yellow Hybrid, Globes or Rounds, Tankard's sorts, Kohl Rabi.

Lucerne, Broom, Furze or Gorse, Field Parsley, Rape, Swedish, Barley sorts, Wheat sorts, Rye, Sainfoin, Tares White Mustard, White Silesian Beet, Peas, Potatoes, and all other seeds for the farm.

KITCHEN GARDEN AND FLOWER SEEDS, including all the new and most approved varieties. Assortments made up to suit different sized gardens, or to any given amount.

Priced Lists of both Agricultural and Garden Seeds sent free by post on application to THOMAS GIBBS & Co., Corner of Half Moon Street, Piccadilly, London.

GERMAN ASTER SEED, all saved from the finest Globe varieties, ever yet exhibited, and which have surpassed all others in cultivation for their immense size and distinct colours, 1s. per packet.

SWEET WILLIAM SEED saved from 50 of the choicest and most superb varieties, 1s. per packet.

ANTIRRHINUM SEED saved from all the finest shaped and best varieties, 1s. per packet.

SUPERB HOLLYHOCK SEED saved from all the best named flowers, 1s. per packet.

SCARLET GIANT BROMPTON STOCK, extra fine, 2s. per packet.

VERY SUPERIOR FIMBRIATA PRIMULA SINENSIS SEED, saved from six distinct varieties of the largest and most superb plants ever grown, 2s. 6d. per packet.

PANSY SEED, a few packets from selected varieties, 1s. per packet.

POLYANTHUS SEED, fine mixed, 1s. per packet.

CROWN GOURD, or CUSTARD MARROW; this variety is the most delicious of all the Marrows grown, 1s. per packet.

AQUILEGIA, or COLUMBINE, of 12 distinct varieties, 1s. per packet.

Any three packets of the above (except the Primula) sent post free on receipt of 2s. 6d., or the Primula included with two other packets, for 3s. 6d., in cash or penny postage stamps by

EDWARD TILEY, NURSERYMAN, SEEDSMAN, AND FLORIST,
14, Abbey Church Yard, Bath, Somerset.

FOR PRESENT PLANTING.

BASS AND BROWN offer the following SELECT PLANTS:—

	£	s.	d.
HERBACEOUS PLANTS, 100 fine and distinct vars	1	10	0
„ „ 100, including newer „	2	10	0
ROCK PLANTS, 25 fine varieties	0	10	0
DELPHINIUMS, 12 in 6 fine varieties	0	9	0
„ very fine seedlings of splendid mixed colours, per 100	1	1	0
DIANTHUS ATRORUBENS, splendid dark crimson for bedding; per doz.	0	6	0
DIANTHUS SPLENDENS, rich bright crimson, for ditto, per doz.	0	5	0
POTENTILLAS, 12 fine varieties, 9s.; 12 extra fine ...	0	10	0
„ splendid mixed seedlings, per doz ...	0	9	0
„ 5 best new varieties — King of Crimson, Sudbury Gem, Theodore, Shylock, and Julia, for	1	10	0
HOLLYHOCKS, 12 fine varieties, per doz. 9s. and	0	12	0
ANTIRRHINUMS, 12 fine varieties of richest colours	0	4	0
ROCK CISTUS, dwarf, 24 beautiful vars., very distinct	0	15	0
PHLOX, 25 fine vars., 9s.; 25 beautiful newer vars.	0	12	0
Primula involucrata, most lovely white, per doz. ...	0	9	0
Lupinus magnificus, fine variegated blue and white, each 1s. 6d., or per doz.	0	12	0
Lupinus polyphyllus purpureus and albus, each per doz.	0	6	0
Mimulus, 6 fine varieties	0	5	0
Pentstemons, 12 fine varieties	0	7	0
Viola arborea, 6s. per doz.; alba, per doz.	0	6	0
„ Neapolitan 6s. „ Russian „	0	4	0
Berberis Darwini, flowering plants, per doz. 18s. to	0	15	0
Escallonia macrantha, fine plants „ 1s. 6d. to	1	4	0
Pæonia papaveracea, strong	0	2	0
Ribes, 5 best vars., 2 of each for	0	9	0
Spirea, 8 beautiful vars., 2 of each for ... ... 9s. to	0	12	0
Rhododendron pontionm, fine, per doz. ... ... 9s. to	0	12	0
Hardy Climbing Plants, 12 fine vars.	0	12	0
Roses, Tea-scented and Climbing, in pots, 12 fine vars.			
Plums, Peaches, Nectarines, and Apricots, finest sorts trained, very strong and fine, 12 sorts 1l. 16s. to	2	8	0
Standard and Dwarf Apples, Pears, Plums, and Cherries, &c., &c.			
Rhubarb, Myatt's Linnæus, and Mitchell's Royal Albert, choice early vars., also Myatt's Victoria Giant, each per doz.	0	7	0
Seakale, very strong, per 100	0	10	0
Strawberries, newest and best sorts			

Goods carriage free (not under 20s.) to all the London termini and all stations on the London and Norwich Colchester Line. Plants added gratis with orders of 40s. and upwards.

COMPLETE CATALOGUES on application for six penny stamps, or the Spring Catalogues alone for three penny stamps, or gratis to our customers who may not have received them.

Seed and Horticultural Establishment, Sudbury, Suffolk.

To Farmers, Potato Growers, and Others.

JACKSON'S PATENT PREPARATION

FOR

PRESERVING POTATOES, WHEAT, AND OTHER SEEDS

From DISEASE, the RAVAGES of the SLUG, GRUB, and WIREWORM, in addition to which the CROPS are brought forward in HEALTH AND VIGOUR, and the yield is greatly increased, in proof of which the following extracts are given from numerous letters received by Mr. JACKSON.

EXTRACTS:—

"One of the fields of this farm, the property of MRS. STANBURY, was planted with Regents Potatoes in April last, some of which were prepared by you. The result now is, that the whole of the crop from the unprepared sets is thoroughly diseased, and hardly worth the trouble of taking up; while those raised by the side of them from the prepared sets are not only in a beautiful state of preservation from the disease, but the produce is much greater,—the Potatoes are more numerous than the others; indeed, if there were no such thing as the disease to be feared, it would be worth the trouble and expense of preparing the sets by your process, even for the sake of the improved crops. I shall certainly, for the future, prepare all my Potatoes for seed by your process; and I intend to adopt it for preserving my Wheat from the Smut.

"G. B. BAXTER.

"Belmont Farm, Eltham, Kent, August 28, 1854."

"Admiral Sir J. A. GORDON, K.C.B., Marlee House, Blairgowrie.

"SIR,—I have received your note of the 16th. The Potatoes that came here from England, prepared by Mr. JACKSON, were planted in a piece of new ground, and according to the directions sent by him along with them as to distance between the plants, &c. They came up well, with strong healthy stems; I have now taken the whole crop up, and there is not the slightest appearance of any disease amongst them. They are of large equal size and very prolific. There were long black unprepared Kidneys planted in the same patch, and a great deal of them are not fit for use, at least a third part are diseased. I hope Mr. JACKSON's process may be widely known, as it is a great boon.—I am, &c.,

JOHN SHANKS,
"Forester, Kildrummy Castle.

"Kildrummy Castle, Aberdeenshire, November 17, 1854."

"I am very much pleased with the result of the experiments I have made with your Prepared Potatoes; for I planted them, without any manure, in ground where for several years I have hardly had a sound Potato; and I now find the crop perfectly free from disease, and in a very fine condition; while those of the same sort, unprepared, which were planted at the same time, and next to them, are diseased and eaten by worms.

"The Potatoes from the Prepared Seed were so remarkably good that I was induced to weigh them, and I found, to my great astonishment, that they were as 200 to 150 of the others, or about 25 per cent. in favour of your preparation.

"T. AUSTEN, Nurseryman and Seedsman.

"Blackheath, Kent, 24th August, 1854."

Sold by Messrs. CHARLWOOD & CUMMINS, Seedsmen, Covent Garden; and JOHN KEENAN, Seedsman, 4, Great Russell Street, Covent Garden; all Seedsmen and Chemists; and at the Patentee's, 18, Cannon Street, London Bridge, in Packets of One, Two, Three or Four Pounds, or in Bulk for the use of Farmers and Potato Growers.

NEW AND RARE CONIFERÆ.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, Edinburgh and London, have still on hand a small quantity from Seeds of the following RARE CONIFERÆ, &c.:

Picea Lambertiana 50 Seeds	£ s. d. 1 5 0	Taxus Lindleyana, quite new, 50 Seeds	£ s. d. 2 2 0
Abies Pinsapo, entire cones	2 2 0	Club-headed Wheat (cultivated by the old Californians) 200 grains	1 0 0
P. nobilis, 50 Seeds	2 2 0	Wheat (a variety of Triticum durum) do.	15 0
P. Jeffreyi do.	2 2 0		
P. Beardsleyi do.	2 2 0		
Libocedrus decurrens, do.	1 5 0		

Full descriptions will be found in the last page of the *Gardeners' Chronicle* for Feb. 3.—Orders may be addressed to PETER LAWSON & SON, in Edinburgh; or to their London House, 27, Great George Street, Westminster.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, begs to inform Gentlemen, Amateurs, &c., that he can supply them with the following, from a Stock of 20,000 Plants, well rooted, and in robust health, including every choice variety grown.

CARNATIONS, 9*s*., 12*s*., and 18*s*. per dozen pairs.
PICOTEES, 9*s*., 12*s*., and 18*s*. „
PINKS, 4*s*., 6*s*., and 9*s*. „
PANSIES, 4*s*., 6*s*., and 9*s*. per dozen plants.
BELGIAN DAISIES, 4*s*. and 6*s*. „
FLUKE KIDNEY POTATO, 5*s*. per bushel of 56 lbs.
SELECTED PANSY SEED, 1*s* and 2*s*. per packet.
DELPHINIUM BARLOWI, 4*s*. per dozen.
Auriculas, Alpine Auriculas, Polyanthuses, Primroses, &c.
Priced and Descriptive Catalogues now ready for one stamp.
Post-office Orders to be payable at Middleton, Lancashire.

SELECT CARNATIONS, PICOTEES, ETC.

CHARLES SCHOFIELD (late JOHN SCHOFIELD & Son) respectfully begs to offer for sale the following in strong healthy plants, viz.—12 pairs of Carnations for 8*s*., 10*s*., or 20*s*.; 12 ditto Picotees, for 6*s*., 10*s*., or 20*s*; 12 ditto of Pinks, for 4*s*., 6*s*., or 12*s*.; 12 Plants of Pansies, for 4*s*., 10*s*., or 15*s*.; 12 ditto of Dahlias (in May), for 3*s*., 10*s*., or 20*s*.; 12 ditto of Scarlet Geraniums, for 6*s*. or 12*s*.; 12 ditto of Verbenas, for 4*s*. or 12*s*.

Also the following Seeds, selected from the choicest show flowers, Pansies, Calceolarias, and Hollyhocks, each per packet, 2*s*. 6*d*. or 1*s*. 6*d*. A Descriptive Catalogue of the above plants sent free on application inclosing one postage stamp.

Knowsthorpe, near Leeds, Yorkshire.

NEW SCARLET VERBENA—MRS. WOODROFFE.

ARTHUR HENDERSON AND CO. will send out, the first week in April, a NEW SCARLET VERBENA, a very decided improvement upon the great favourite Scarlet Defiance; being similar in habit, but the trusses of flowers and also the single flowers are nearly double the size, and with equal—if not more—brilliancy of colour.

A. H. & Co. having a large stock to cull from, and being desirous that their patrons shall at once enjoy the pleasure of seeing a good mass of this valuable bedding plant in their own flower gardens, have determined on sending out fine strong plants at 18*s*. per dozen, or 5*l*. per hundred.

Testimonials of the highest order could be given in favour of this Verbena for its size and colour, but the recommendation of ARTHUR HENDERSON & Co. is no doubt quite sufficient, without troubling their friends with any further remarks.

Pine-Apple Place, Edgware Road.—March 31.

NEW AND DISTINCT PELARGONIUM.

V. GAINES begs to submit to the Nobility, Gentry, and Trade, the following description of his very beautiful first class Pelargonium.

TETE NOIR.—Flower large size, upper petals rich velvety black, of good substance and smooth on the edges, inclined a trifle to reflex, which in this variety rather adds to its beauty than otherwise, showing to advantage its richness of colour; lower petals beautifully shaded, orange salmon with velvety black spot in each. The orange colour combined with the darker shade of this truly beautiful flower gives it a most gorgeous appearance: it is, without exception, the greatest novelty of its class, and will form a conspicuous object in the choicest collection. Price per plant, 31*s*.

N. G. also has a large collection of Geraniums, comprising all the newest varieties; also Dahlias, Fuchsias, Stove and Greenhouse Plants, Ericas, Epacris, Correas, Ferns, Azaleas, Rhododendrons, &c., &c., Catalogues of which may be had post free on application.—The Nursery, Surrey Lane, Battersea.

REDUCED PRICE.

WARD'S OMER PACHA STRAWBERRY.

WILLIAM JAMES WARD respectfully informs his friends and the public that he has still a few well-rooted plants to offer of the above excellent Strawberry, which obtained the Bronze Medal at the Royal Botanic Garden Exhibition, July 5, 1854.

It was submitted for opinion to Mr. Thompson, Horticultural Society, Chiswick; Mr. Marnock, Royal Botanic Gardens, Regent's Park; Mr. Powell, Royal Gardens, Frogmore; Mr. Spencer, Bowood Gardens; and several others: all of whom speak highly favourably of it.

The following extract, accompanied with a woodcut, appeared in the "Florist and Fruitist," September, 1854, in the descriptive list of new Strawberries:—

"OMER PACHA.—This variety is a seedling raised by Mr. Ward from British Queen, fertilised by the old Caroline Pine, two good kinds, of which the present variety seems to be a combination. The samples I received were fine looking fruit, and of good quality."

W. J. W. warrants it of very superior flavour, and well adapted for long carriage.

100 Plants	£2 0 0	25 Plants	£0 15 0
50 „	1 5 0	12 „	0 8 0

Terms, cash.—Prospect Hill, Reading, March 31.

CHARLES TURNER begs to recommend the following Seeds:—

SARBATIA STELLARIS.—This beautiful Greenhouse Annual was raised at the Royal Gardens, Frogmore, from seed received from Texas, and was exhibited at the Horticultural Society's July Show, at Chiswick, and was awarded a First Class Certificate. It is of a deep rose colour, with a yellowish-green eye and sweet-scented. It should be grown in a mixture of half leaf-mould, with the other half comprised of light peat, loam, and silver sand, and sown in a little heat. 2*s*. 6*d*. per packet.

NEW CUCUMBER, "WARD'S IMPROVED SION HOUSE," superior either to the "Improved Sion House" or "Lord Kenyon's Favourite," for winter use. Mr. Ward, of Prospect Hill, Reading, who raised it, writes—"I can strongly recommend it as the best winter sort I ever met with: and it always swells out, not plumber's iron fashion, as is the case with many others, and equal in bearing to Lord Kenyon's Favourite, generally throwing three or four fruit together." Price 1*s*. 6*d*. per packet.

	s. d.
HOLLYHOCK SEED, saved from the newest and finest sorts in cultivation, per packet	2 6
„ „ smaller packets, each ..	1 6
DAHLIA SEED, saved from the very best exhibition flowers, per packet	2 6
„ „ smaller packets, each	1 6
CALCEOLARIA, extra quality, per packet	2 6
CINERARIA, extra quality, do.	2 6
BALSAM, from best show flowers, do.	2 6
„ „ „ smaller packets, each	1 6

The new white bedding Calceolaria "Purity," the entire stock of which is in CHARLES TURNER's hands, also his new Dahlias, new Verbenas, &c., will shortly be advertised.

Royal Nursery, Slough.

NEW ROSES.

A. PAUL AND SON have to offer the following New ROSES, good healthy plants, for which early orders are solicited. The kinds marked thus (*) can be highly recommended from their own knowledge. Most of the others *not having yet bloomed in England* are offered on the faith of their respective raisers. The kinds marked thus (†) can be supplied either as Standards or Dwarfs, at the prices here attached:—

HYBRID PERPETUALS.	s. d.
Alexandrine Bachmeteff	2 6
Alphonse de Lamartine	3 6
Baron Laray	7 6
Comtesse Vaillant ...	7 6
Duchess of Norfolk ...	7 6
Emperor Napoleon ...	7 6
*Gloire de Parthenay ...	3 6
†*Glory of France... ...	3 6
†*General Castellane ...	3 6
†* „ Jacqueminot, 3*s*. 6*d*. to	5 0
†*Jules Margottin, 2*s*. 6*d*. to	3 6
*Lady Stuart	2 6
*Leon Plee	2 6
Lord Raglan	10 6
Madame Aline Gilbon	5 0
„ Phelip ...	3 6
„ Masson ...	10 6
„ de Cambacères	7 6
„ Martel ...	7 6
„ Place	7 6
* „ Eugenie Cavaignac	3 6
Monsieur Pigeron ...	10 6
*Paul Dupuy	3 6
†*Prince Leon	3 6
„ Moskowa ...	5 0

HYBRID PERPETUALS.	s. d.
*Salvator Rosa	2 0
*Souvenir de Leveson Gower	3 6
Moss, Captain Ingram...	5 0
„ Comtesse Doria ...	5 0
„ Frederic Soulié ...	5 0
†* „ Princess Alice (Paul's)	3 0
*Bourbon, François Henrineq ...	5 0
* „ Madame Helfenbein	3 6
†* „ Prince Albert (Paul's)	3 6
*Noisette, Marie Chargé	5 0
*China, Elise Flory ...	2 6
*Tea-scented, Auguste Vacher	3 6
* „ Gloire de Dijon, 3*s*. 6*d*. to	5 0
* „ Madame Villermoz...	2 6
* „ Melanie Oger ...	2 6
* „ Sombrieuil	2 0
†*Hybrid Bourbon, Vivid (Paul's)	3 0
(*Rich brilliant crimson, a splendid pillar Rose.*)	
Perpetual Moss Salet ...	7 6

N.B. *An unrivalled collection of Hollyhocks. Some thousands of Plants now ready, in fine healthy condition.*

Nurseries, Cheshunt, Herts.

NEW ROSES IN POTS.

WILLIAM WOOD AND SON have to offer fine Dwarf Plants of the following:—

HYBRID PERPETUALS.	s. d.
Baron Laray	7 6
Cicero	5 0
Comtesse d'Orléans ...	7 6
„ Vaillant ...	7 6
Deuil de François Willermoz	7 6
Duchess of Norfolk ...	10 6
Empereur Napoleon (SEMI DOUBLE)	7 6
Evêque de Meaux... ...	10 6
General Bréa	2 0
Jules Margottin, 2*s*. 6*d*. to	3 6
Julie Guinoisseau ...	10 6
Lafontaine	7 6
La Ville de St. Denis ...	3 6
Léon Haimann	7 6
Lord Raglan	10 6
Madame de Cambacères (splendid)	10 6
Madame de Trottaire ...	5 0
„ Domage, 2*s*. 6*d*. to	3 6
„ Hector Jacquin .	5 0
„ Lacour Jurie ...	7 6
„ Masson	10 6
„ Phelip	5 0
„ Place	7 6
„ Theodore Martel	7 6
„ Vidos	10 6

HYBRID PERPETUALS.	s. d.
Monsieur Pigeron... ...	10 6
Panaché d'Orléans. ...	10 6
President Menoux ...	7 6
Prince de la Muskowa ...	5 0
Souvenir de Leveson Gower	5 0
„ des Braves ...	3 6
Triomphe en Beauté ...	2 0
Bourbon, Ferdinand Deppe	7 6
„ François Henrique	5 0
„ Omer Pacha ...	7 6
Tea, Auguste Vacher ...	3 6
„ Barillet Deschamps	5 0
„ Gloire de Dijon, 3*s*. 6*d*. to	5 0
„ Laurette (Belle Laure)	3 6
„ Madame Maurin ...	3 6
China, Lucullus	7 6
Perpetual Moss, Salét ...	7 6
Noisette, Augusta, 7*s*. 6*d*. to	10 6
Moss, Jeanne de Montfort	3 6
„ L'éblouissante ...	3 6
„ Vandaël	3 6
Hybrid Bourbon, Charles Lawson	7 6
Gallica, Amphitrite ...	2 6
„ George Vibert ...	2 6

N.B. The new Perpetual Rose Empereur Napoleon, 7*s*. 6*d*., is only semi-double, plants of which are now ready to send out Extra plants will be presented with each order.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

NEW ROSES.

BENJAMIN R. CANT begs to offer strong Dwarf Plants, in pots, of the following NEW ROSES:—

HYBRID PERPETUALS.	s. d.
Alfred Colomb	3 6
Alphonse de Lamartine ...	3 6
Auguste Guinoisseau ...	3 6
Caroline Milsom	3 6
Ceres	3 6
Cicero	5 0
Comtesse Vaillant ...	7 6
Conseiller Jordeuil ...	3 6
Colonel de Rougemont ...	3 6
Dr. Jamain	3 6
Duchess of Norfolk ...	5 0
Deuil de F. Willermoz ...	7 6
George d'Amboise ...	3 6
Gloire de France	3 6
Gloire de Parthenay ...	3 6
Lady Milsom	3 6
Lady Shelley	3 6
La Ville de St. Denis ...	3 6
Madame Domage... ...	2 6
„ Hector Jacquin	3 0
„ Masson	10 6
„ Laeroix	3 6
„ F. Rigaux ...	3 6
„ Place	7 6

HYBRID PERPETUALS.	s. d.
Madame Recamier ...	3 6
„ Rendatler ...	3 6
„ Theodore Martel	7 6
„ Quetel	3 6
Marie de Bourgos ...	3 6
Prince de la Moskwa ...	5 0
Sephora	3 6
Sir John Franklin ...	3 6
Triomphe en Beauté ...	2 6
P. Moss, André Thouin ...	3 6
Bourbon, Omer Pacha ...	7 6
Tea, Gloire de Dijon ...	3 6
„ Louise de Savoie ...	7 6
Noisette, Augusta	7 6
Moss, D'Arcet	2 6
„ Gloire de Mousseuses	5 0
„ Jeanne de Montfort	3 6
„ L'Eblouissante ...	3 6
„ Marie de Blois ...	5 0
„ Vandael	3 6
Gallica, Amphitrite ...	2 6
„ George Vibert ...	2 6
H. Bourbon, Charles Lawson	7 6
„ Gervaise Rouillard	3 6

N.B. The new Hybrid Perpetual Rose Emperor Napoleon will not be sent out before June; by that time I shall have proved it. If not more than semi-double, I much question if it is worth 7*s*. 6*d*. I, however, received a very high character of it, which induces me to offer it to the public, *but not to let it out before proving its worth.*

Carriage paid to any Station on the Eastern Counties Railway.

St. John's Street Nursery, Colchester.

MESSRS. E. G. HENDERSON AND SON, of the Wellington Nursery, St. John's Wood, London, will commence sending out the following New Plants on the 30th April next:—

HYDRANGEA HORTENSIS, flore pleno, 10*s*. 6*d*.
PHLOX QUEEN VICTORIA, 5*s*.
DAHLIA EMPEROR FRANCIS JOSEPH (variegated foliage), 10*s*. 6*d*.

SHRUBBY BEDDING CALCEOLARIAS.

Brunette	7*s*. 6*d*.	Norma	7*s*. 6*d*.
Coreggio	7 6	Red Rover	7 6
Maggiore	7 6	Vezzosa	7 6
Minnie...	7 6	Wildfire	7 6

Or the set of eight varieties, 2*l*. 2*s*.

With the permission of Mr. C. Turner they will offer his new CALCEOLARIA PURITY (the best white bedding variety) at 7*s*. 6*d*. each, or with the above set 2*l*. 7*s*.

FUCHSIAS.

Queen Victoria (Story)	10*s*. 6*d*.	Lady of the Lake (Story)	10*s*. 6*d*
Prince Albert (Banks) ...	10 6	Water Nymph (Story) ...	10 6
Perrugino (Story)	10 6	Raffaelle (Story)	10 6
Empress Eugenie (Story)	10 6	Mrs. Story (Story)	10 6
Ranunculaeflora (Story)...	21 0	Snowdrop (Story)	10 6

Or the set of ten varieties, 4*l*. 4*s*.

FUCHSIA BANKS' FAVOURITE (Banks), 10*s*. 6*d*.

For full particulars of the above see back numbers of this Paper.—March 31.

THE ANNUAL SPRING EXHIBITION OF PLANTS IN THE EXETER NURSERY.

LUCOMBE, PINCE, AND CO. very respectfully beg leave to announce that their superb specimens of CAMELLIAS are now in flower; they are particularly fine this season, and great additions have been made to their collection. Their New Show House is also filled with an extensive assortment of various Fine Plants, which cannot fail to gratify those who pay their Nursery a visit, as it is now and will continue for a long time to be exceedingly brilliant and attractive with all the gayest Spring and other Choice Flowers.

L., P., & Co. have now several experienced Gardeners whom they can strongly recommend.—Exeter Nursery, Exeter, Mar. 31

NEW SHRUBBY CALCEOLARIAS.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that his beautiful new Seedling Shrubby CALCEOLARIAS are now read to send out, price 3*l*. the set of fifteen. The usual allowance to the trade for cash only. The following is Mr. Glenny's opinion upon them:—"Shrubby Calceolarias—Without exception the best batch of seedling Calceolarias we ever saw; we could pick out several that are far better than nine out of ten of the varieties now esteemed good."

H. M. offers a second set of twelve, to include all his best sorts sent out last year, price 25*s*.

Choice Calceolaria and Pansy Seed, 2*s*. 6*d*. per packet; also a few packets of very select Alpine Auricula Seed, 2*s*. 6*d*. per packet.

It is respectfully requested that orders from unknown correspondents be accompanied by a Post-office order.

Postage stamps are requested in payment of the seeds.

A descriptive Catalogue of the new Calceolarias may be had on application.

OSAGE ORANGE (MACLURA AURANTIACA).

CHARLWOOD AND CUMMINS beg to announce that they have received from America Seeds of the above-named valuable Hedge Plant, which they are ready to send out at 4*s*. per lb., accompanied with directions for sowing and treatment, as described in the *Gardeners' Chronicle*, May 13th, 1854.

They have also received their annual importation of American Trees and Shrubs; Seeds, consisting of Azaleas, Rhododendrons, Quercus, Red Cedar, &c., of which a Priced List will be sent on application.

One-year Seedlings of the following varieties of American Oaks, at 4*s*. per 100: Quercus nigra, Banisteri, alba, and obtusiloba. Fine Plants of Aquilegia glandulosa, 20*s*. per dozen. Lilium giganteum, per 100 seeds, 20*s*.

SEED POTATOES.

	s. d.		s. d.
Lapstone Kidney, per bush.	7 0	Early Defiance, per bush.	7 0
Ash-leaved do. „	8 0	Forty-fold ... „	6 0
Soden's Oxford ... „	7 0	Early Manley ... „	7 0

C. & C. will be glad to receive offers of 1, 2, and 3-years old Quick.—14, Tavistock Row, Covent Garden, London.

PLANT YOUR POTATOES WITH JACKSON'S PATENT PREPARATION.

BASS AND BROWN having been appointed Agents for the above, will be happy to furnish it to their customers who may be forwarding their orders for Potatoes or other goods. Also Agents for PAGE'S COMPOSITION FOR THE DESTRUCTION OF BLIGHT.—Sudbury, Suffolk.

PAGE AND CO.'S BLIGHT COMPOSITION.

Extra Strong, 4*s*. per gallon, sufficient to make four (Jars and Barrels extra); in Bottles, 1*s*. 3*d*. and 2*s*. 6*d*. each. Directions for application forwarded. 10 Gallons and upwards Carriage Free to London. Should be in the hands of all Plant and Fruit Growers. See *Gardeners' Chronicle*, March 3, 1855. It can now be obtained of

Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester
Bass & Brown, Sudbury
Sutton & Sons, Reading
W. & G. Davison, St. Peter's Street, Hereford
Henderson & Co., Pine Apple Place, London
Rendle & Co., Plymouth
Masters & Son, Canterbury
Thomas Davies & Co., Wavertree, Liverpool
Mr. Freeman, Woburn
„ J. Perkins, Northampton
„ Tiley, Bath
„ E. Paul, Derby
„ W. Barratt, St. John's, Wakefield.
„ Baskerville, Bristol
Mr. Burham, Hastings
Messrs. Chandler & Son, Wandsworth Road, London
Mr. James Veitch, Exotic Nursery, Chelsea
Messrs. Wheeler & Son, Gloucester
Messrs. Downie & Laird, South Frederick Street, Edinburgh
Mr. W. F. Smith, Rivershead Nursery, Sevenoaks
Messrs. Fisher, Holmes, & Co., Handsworth Nursery, Sheffield
Mr. Thos. Cridland, Willeton, near Taunton
Mr. E. Taylor, Malton, Yorkshi.
Mr. S. Smee, Halstead, Essex
Mr. Henry Horne, Henley-on-Thames
Mr. Thomas Pierpoint, Warrington, Lancashire

and of the Inventors and Manufacturers—

B. PAGE & Co., SEED MERCHANTS, Oxford Street, and Above Bar, Southampton.

N.B.—Other names will shortly appear, as the agents are appointed.

The Gardeners' Chronicle.

SATURDAY, MARCH 31, 1855.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, April 3 { Horticultural ..... 3 P.M.
Linnean ..... 8 P.M.

IN the year 1852 the following statement appeared in the "Botanical Magazine:"—

"During the early part of the present year seeds of an Australian Nymphæaceous plant were in the hands of several cultivators in this country as a new Victoria, *Victoria Fitzroyana*, with flowers of a 'purplish blue:' from what source obtained I have not been able to ascertain. Those which were obligingly presented to us by Mr. CARTER and Mr. STOKES under that name were, we think, not the seeds of a Victoria, but of a Nymphæa; and were so crushed in a letter, and sent dry, that we have no hope of their germinating. Now, it does happen that we received during the past year specimens of a magnificent new Nymphæa from our friend Mr. BIDWILL, gathered in the Wide-Bay district, North-eastern Australia, some of whose flowers certainly vie with the ordinary ones of *Victoria regia*, being a foot in diameter, and if not of a purplish blue colour, yet blue—the blue, as it would appear, of the well-known *Nymphæa cærulea*. We are much disposed to think that this is the plant producing the seeds in question, and that the plant having been known

to other colonists in Australia, the seeds have been by them sent to their friends in this country, under the name of *Victoria Fitzroyana*. Mr. Bidwill is too good a botanist to have done so. Be that as it may, we deem it a matter of duty now to lay a figure and description of our magnificent plant before the public, and even a *coloured* figure; for so beautiful are the specimens dried by our valued friend and correspondent, that we think we cannot err much on that point. And sure we are that, even should all the seeds above alluded to fail to germinate, or prove to be those of another plant, our Nymphæa gigantea will, ere long, find its way into our tropical tanks, and adorn them with a Water Lily little inferior to the Royal Victoria in the size or beauty of its flowers, and with leaves equally remarkable in size, for a true Nymphæa, being 18 inches to 2 feet across. A tuber which we have lately received from Mr. Bidwill for cultivation, but unfortunately dry and dead, is about the size of an ordinary Apricot, and nearly as globose, having numerous depressions or eyes, like the 'eyes' of the Potato, with a scale at each depression."

As Sir William Hooker foresaw, this Australian Nymph has found her way to Europe, and now exists in a living state in several continental collections. It has even flowered and seeded with Mr. Van Houtte, of Ghent, with whom it produced delicate blue blossoms nearly 8 inches across. It appears, however, that there is some difficulty in managing the plant, for tubers sent to Mr. Edward Otto, of Hamburgh, and others, obstinately refused to move, or only produced a few scale-like leaves which soon died off again, and would not root at all. Upon this subject Mr. Ortgies, the skilful plant manager in Mr. Van Houtte's nursery, has remarked to the following effect (*Rev. Hort.*, 1855, p. 92):—"I have had similar complaints before, and I have myself met with the same difficulty; and although the intractable lady is now in full flower and has continually five or six flowers open at a time, I am far from being satisfied with the result; the plant is in fact a puzzle. However, don't fancy your tubers lost; I have had them for 12 months with little undeveloped leaves, and nevertheless they have ultimately started. Once set a-growing they push with surprising rapidity. I am of opinion that the plant requires to be very deep in the water, and that we have been all wrong in putting the tubers near the surface; and for the following reason. Last spring all the tubers, after having been kept dry during winter, were replanted and placed in shallow water. A few days after they began to move; but the young leaves made no progress, and never reached the surface. It was, therefore, obvious that no roots could be formed; for in this, as in Nymphæas, the roots appear *after* not *before* the leaves. One day I found that some little leaves had reached the surface of the water, and upon inquiring into the cause, I found that a pot had been upset and had tumbled to the bottom of the tank, which was 2 feet deep. As soon as the tuber was thus carried beyond the action of light, its leaves began to lengthen and spread over the water; larger leaves soon succeeded, and in a short time the plant was in full growth. Acting upon this hint, I placed the tubers 2 feet deep in water, and now they grow vigorously."

M. Ortgies deserves honourable mention for this very useful discovery; of which growers will know how to profit in other cases besides that of the Great Blue Australian Water Nymph.

The scarcity of textile materials, that is to say, of vegetable fibres capable of being manufactured into linen, cordage, or paper, still continues, and appears likely to increase. Whatever importance the subject possessed when we last drew the attention of growers to it (see *Gardeners' Chronicle*, 1854, pp. 300 and 340) is now considerably augmented. We are, therefore, sure that the public will receive with much satisfaction Dr. Royle's new work on the "Fibrous Plants of India,* in which the learned author gives a full and particular account of all the known textile species found in our Asiatic possessions.

As we have formerly observed, all countries that can support a vigorous vegetation abound in vegetable fibres of greater or less value; the tropics are most especially rich in such substances, partly owing to the exuberant growth of plants under the combined influence of a moist atmosphere and high temperature, and partly because of the great variety of species which such climates bring forth. It is therefore impossible to move in any good climate without encountering the materials in question at every step. Nevertheless, notwithstanding their importance, our much boasted commercial enterprise has found in Great Britain nothing for general employment except Flax and Hemp (straw is hardly worth notice), and in all the world only Flax, Hemp, Cotton, Jute, and New Zealand Flax and Bowstring Hemp—just half a dozen out of the thousands of articles which the vegetable kingdom is ready to yield up. To these may indeed be added Coir for mats and cables and the coarsest uses.

In the review of what India is known to offer we find mention made of various Grasses, Sedges, Screw Pines, Palms, Liliaceous plants, Plantains, Malvaceous plants, Leguminous plants, Dogbanes, Daphnes, Nettles and their allies, with a host of other products, cheap and abundant, which India is able to supply if our manufacturers will take them. And that which is thus bounteously furnished in the East is as lavishly offered by the West. Nevertheless, Flax, Hemp, and Cotton remain the manufacturers' great reliance, just as they were in the days of Sennacherib. Why is this? Is it because of the wonderful excellence of these fibres, and of the inferiority of all similar products? Let us hear what Dr. Royle has to say upon that point:—

"It is now well known that India possesses, and indeed exports, various fibres which are produced by several fast-growing plants. Of these fibres, some, though long and fine in texture, are deficient in strength; others appear coarse in texture, or are harsh in feel, and yet not remarkable for tenacity. It has therefore been inferred by some very intelligent men, that the heat and moisture of the climates where these grow are favourable to rapid growth, which of itself is sufficient to account for the want of strength; and that therefore we cannot expect to find them suited to the production of good fibres. But here the conclusion come to is equally hasty, for no distinction is made between what is due to the nature of the plant itself, and what to its mode of cultivation, or to the preparation of its fibre, and what to the effects of soil and of climate. We do not in this country expect the Willow to have the strength of the Oak, nor that a rope of Rushes will have the tenacity of even a cord of Hemp. Yet all may be seen growing in the vicinity of each other. There is as little reason for expecting that the soft and silky Jute of India is to have the strength of either Flax or of Hemp; and because it does not have it, for inferring that there cannot be produced in its vicinity other fibres possessed of greater strength. But, if we were to judge from the density and strength of some of the woods produced in the hottest and moistest, as well as in some of the driest climates, we might expect to find plants in the same localities which are equally conspicuous for tenacity of fibre. Instead, however, of inference, I hope to be able to prove, to the satisfaction of even the most sceptical, that India grows plants in some of its dry and barren plains, yielding fibres which are as strong and tough as any produced in other parts of the world; but which are equalled in such qualities by others growing in some of its moistest and hottest valleys. Some of these, while possessed of the greatest strength, are also divisible to any extent of fineness. Most of them exist in sufficient quantities, or are so easily cultivated, as to be of great commercial and manufacturing value; because it has been ascertained that they can be brought to the markets of Europe even from these distant fields, so as to contend in price, even in ordinary times, with the favoured products of the nearest countries."

It is, therefore, clear that colonial fibres are not neglected because of their quality, especially when the more usual materials are dear, but for some other reason. That reason is commercial indifference, as Dr. Royle well explains:—

"If we inquire into the history of many of the most important articles of commerce, we shall find that they were at first either neglected or abused. Large sums were expended, and much money was lost, before they came to be established as regular articles of commerce. The difficulty in making new things known and appreciated as articles of commerce, arises chiefly from the habitual neglect of such things when sent for inquiry from abroad, in order to have their value ascertained at home."

"Indeed, I am informed, that the novelty of the appearance, or the strangeness of the name, is more often the subject of jest, than the article is one of serious inquiry. At all events, the result usually is, that the article is sold at a price which does not pay its expenses, and the planter is deterred from sending any fresh quantities. Further progress is, in that quarter at least, thus stopped, even at its commencement."

Evidence like this shows that our much vaunted commercial enterprise moves in a much narrower track than is supposed; and that while gentlemen at Manchester are clamorous, with very good reason, about inexorable official routine, they quite forget that their own routine is as inexorable in another way. It is for this reason that Dr. Royle is obliged to declare that great as the value of Indian Fibres undoubtedly is, they will not find their way into the home markets without some little encouragement. The encouragement deemed necessary is not, however, Government or other assistance which shall place the raw produce in an unnaturally advantageous position in the market; it is not to be given in the shape of bounties or protective duties, or in any other of those ways which are opposed to the principles of political economy. The only encouragement advocated by the author consists in a little patience on the part of the home merchant, and a little trouble on the part of the producer and broker. As it is, the merchant is ignorant of the existence of the raw material, of its excellence for the purposes of manufacture, of the facility and cheapness with which it can be brought into the market. On the other hand, the producer knows not that his fibre is suited to supply the demand for more cordage, more clothing, more paper, and if he sends some of his material to this country, in the hope that somebody may find a use for it, he is told by the broker that the commodity is unknown in the market, and no one will buy an untried article; the broker himself knowing nothing of what is consigned to him, except that he has never seen it before. The removal of these sources of discouragement is the encouragement declared necessary by the author. Let the merchant take the trouble to inquire into the means of production and the nature of the material—let the broker acquire such knowledge as will enable him to make those between whom he stands better acquainted with each others wants—let the producer see that if he will furnish a steady supply, that supply will be taken off his hands, and there seems no reason to doubt that Indian Fibres will, from their abundance and cheapness, hold their own against all competition. No other encouragement, at all events, is sought for them. We should not have dwelt upon this point had not a writer in the *Economist* made some remarks upon the same subject, which would lead the reader to infer that Dr. Royle advocated encouragement in some other mode. The writer in question appears to us wholly to have mistaken the sense in which the author has used the word encouragement, and such is the deserved repute of the opinions of the *Economist* on all matters relating to political economy, that it becomes no less just to the author than important to the mercantile community, to show that no protection, no bounties, no favouritism of any kind is sought for the producers of the materials in question. A fair trial is all that is recommended; once made, the rest will take care of itself.

No doubt one reason why manufacturers are apt to throw cold water upon new raw products is that their machinery must be altered to work them up. That is inconvenient and to be avoided. Just as in a public office the officers cling to old routine, although it can be made clear that it is detrimental to the public service, because it is troublesome to change official habits. The machinery of a government department is its clerks and books and checks and foolscap paper. The machinery of a manufacturer is his steam-engines, looms, printing blocks, spinning-jennies, and carding machines. What is the difference except that one is fed with beef and bread, the other with coals and oil?

We once asked a manufacturer celebrated for good taste why he continued to issue the frightful patterns then in vogue. "Why," he replied, "should I alter my patterns, ugly as they are, so long as I can sell them as fast and as profitably as better things? In like manner if another is asked why he continues to use an expensive instead of a cheap description of raw material of equal or greater excellence, he would probably say, "Why should I alter my machinery for this novelty, when the old article notwithstanding its dearness to the consumer is just as profitable to me?"

We are persuaded that this is the true history of the indifference with which new kinds of raw materials are received in the produce market. The only cure for it is competition; and that it is to be hoped that we shall speedily witness. Nothing indeed but the state of the law has prevented its being already established; for it appears from proceedings in the House of Lords that Mr. Shaw, who has most honourably distinguished himself in his attempts to introduce a cheaper and better class of textile materials, when he applied to the Privy Council for a charter of incorporation, which would limit the liability of those ready to find him capital, was met by the objection that a charter might not be wanted, because the whole question of limited liability was under the consideration of Government; and then when months afterwards inquiry is made into the intentions of Government with

* The Fibrous Plants of India, fitted for Cordage, Clothing, and Paper; with an account of the preparation of Flax, Hemp, and their substitutes. By J. Forbes Royle, M.D. 8vo. Pp. 403. Smith and Elder. 12s.

respect to introducing a bill for legalising partnerships with limited liability, the same stereotyped reply that the subject was still under consideration was all that could be elicited.

But it is not alone because of Indian fibres, whether from the East or West, that this question becomes of importance, nor even because it promises to secure a reduction in the price of such necessaries as cordage, linen and paper, but because there is every reason to suppose, as we have always contended, that with suitable machinery and sufficient competition there are waste or worthless products at home which may be brought most profitably into consumption.

It is not improbable that Hemp and Flax refuse might become valuable as ingredients in paper making; so may dried Potato haulm, Jerusalem Artichoke stalks, and other substances. Indeed we have now before us cleaned fibre, extracted from Mangel Wurzel after crushing and preparing it for the sugar maker or distiller, which an eminent paper maker valued at the minimum price of 10*l.* per ton. It was prepared on the estate of the Rt. Hon. Thos. Francis Kennedy, in Scotland, and could be had in enormous quantities if distillation from Beet should become a branch of British industry. It is also probable that the Holcus saccharatus may, as Mr. John Henderson thinks he has ascertained, be worth growing for the same purpose, the crushed straw, after yielding up its sugar, consisting chiefly of vegetable fibre of excellent quality.

But, as Dr. Royle observes, these efforts at introducing cheaper materials than we now have require encouragement; such for instance as the introduction of a law which will enable speculations to be carried on without exposing their promoters to the danger of unknown, unforeseen, and unlimited liability. Scientific knowledge has pointed out the source of boundless supplies of cheap manufacturing materials; and it only remains for an enlightened legislature and commercial skill to render them generally available. For ourselves we entertain no doubt that to work out the textile problem to its final solution would be to cheapen our clothes, our books, and our navy, and would be of far more social importance than the repeal of every one of the so-called taxes on knowledge.

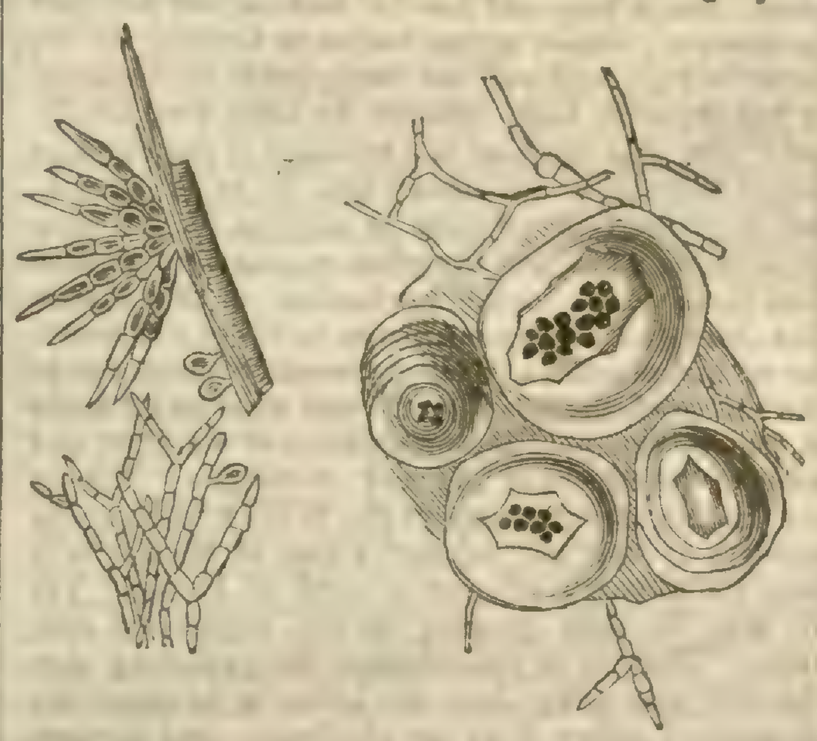
New Plants.

121. Rhododendron citrinum. *Hasskarl Cat. Hort. Bogor.* 1844, *p.* 161. *B. M., t.* 4797.

A Javanese species, with yellow campanulate flowers as large as a sparrow's egg. It inhabits the mountains of Java, at the height of 5000 ft. in swampy places. Messrs. Rollissons' collector, Henshall, found it in similar places, but 4700 feet higher, and it is to that eminent firm that its introduction was owing. It is said to grow on the branches of trees in its native country; but it is not the less able to thrive in earth on that account. According to Mr. Van Houtte, it likes in winter a low damp stove, at 39° to 50°, and close to the light. About the first of April he puts it on an exhausted hot-bed, covered with glazed sashes (a cool Cucumber bed), taken off at night in cloudy or misty weather. Shaded from sun in the daytime, except in the early morning; completely shut up in windy weather or when it is bright and clear, turned out in a low damp place in an east aspect, from the 15th May to 15th September, it thrives perfectly well. After the last date it is restored to a cold pit, and put back into the stove when frost returns.

VEGETABLE PATHOLOGY.—No. LXV.

271.* Apostaxis. *Constitutional and Organic.* Gummine. There are so many curious points connected with the discharge of Tragacanth and Cherry gum, that a supplementary section is necessary for their illustration. It was long since conjectured by De Candolle that the swelling of Tragacanth in water must arise from the matter being inclosed in cells, and the analysis of Guibourt showed that it was very different in its physical condition, as well as in its chemical properties, from gum arabic, and that the insoluble part was, in point of fact, a mixture of starch and lignin. The complicated nature of the collections of bassorin in the roots of Orchids was pointed out many years ago in the Linnæan Transactions by Dr. Lindley. Since the article Gumming was printed, it became necessary for me to examine the structure of Tragacanth under the microscope, in illustration of a curious gelatinous body found on the Grass after the breaking up of the frost, in Sussex, which was sent to me by Mr. Borrer, and I then found that De Candolle's conjecture that the structure was cellular was really true, and on further consideration, it came into my recollection that there was something on the same subject in Kützing's* "Introduction to Botany," which on reference proved to be of some importance, and illustrated with excellent figures. Kützing, indeed, considers Tragacanth as a fungus; but I am not prepared to assent to such a view, for the structure is by no means that of any fungi, to which it could possibly be allied, and the case of Cherry gum, a substance so evidently of a similar nature, is almost conclusive against such a view. There are two sorts of Tragacanth, which are often mixed indiscriminately in commerce, of a different form and aspect, but whether they are the produce of the same plant or no, does not appear with certainty. The one, however, is known by the name of Flaky or Smyrna Tragacanth, and is supposed to be derived from Astragalus verus, the other Vermiform or Morea Tragacanth†, the produce as it is believed of Astragalus creticus. The first of these is white flabelliform or reniform, with a few concentric lines, and resembling very much in appearance some gelatinous fungus; the second forms long yellow tendrils, very much after the fashion of the cirrhiform threads of spores of Nemaspora. Both agree essentially in structure, but this is far more clear in the Flaky Tragacanth than in the other, and there is some difference in the component cells. When examined under the microscope they exhibit a mass of large rounded sacs, very loosely compacted, and capable of being partially separated from each other by slight pressure under a thin plate of microscopic glass. In the centre of each cell is an irregular cavity filled with starch granules, and the wall which incloses these is evidently formed of many concentric layers, calling to mind very forcibly the structure of the common many-coated hydatids. On the application of an aqueous solution of iodine, the starch granules at once declare their nature, and the addition of a little sulphuric acid turns the walls from white to a beautiful blue,‡ making a most pleasing object



under the microscope. The walls then consist of cellulose, but evidently in some different condition from that in which it occurs in ordinary cases, and perhaps including in their substance as in a sponge the bassorin, though there is no ambiguity of tint to indicate such a matter. This is, however, a chemical question. What we have to consider here is, inasmuch as the structure of the whole mass is cellular, can it be regarded really as an exusion, or is the matter formed by the increase of cells, by means of addition to the external surface as in fungi. The case is certainly one of considerable difficulty, but my belief is that in the first instance the gummy matter is collected between the bark and albumen; that it there becomes loosely organised after the fashion of lymph in animal structures; and finally that the accumulation is at length so large as to force its way through the bark and thus to make fungiform bodies. The cirrhiform condition is evidently squirted through the bark and not a mere external growth, and since this is organised in the same way as the Flaky Tragacanth, we cannot seek for a different origin of the latter. Now if a specimen of Cherry gum (using the term generically) be examined, the portion of it which is clearest and in a semi-liquid state will be found to contain portions of the woody tissue of the plant, showing clearly that in oozing out it has carried with it detached portions of the matrix, which have been broken off in the course of its exusion. Kützing has figured the growth of cells in this substance.§ I have not succeeded in ascertaining their presence in English gum; but in a specimen of South Carolina gum from Prunus serotinus, which I examined some years since, I remember being much surprised at the presence of cells, and supposed that they must be due to a little species of Sphinctrina which was parasitic upon them. Unfortunately I have no opportunity at present of re-examining the structure.‖ In either case the mycelium of different species of mould is very abundant. I have not examined a scrap of Tragacanth without finding quantities of mucedinous threads like those represented in the figure; and in gum from the Apricot the base absolutely consisted of a compact mass of mould threads glued together with gum, while in the less compact and more transparent portions abundant threads were swimming about, and every fragment of the protruded tissues of the matrix was swarming with parasites. It may be remarked in conclusion that Brewster ascertained that the varnish produced by such trees as Melanorrhea is organised when recent, and that the change of colour to red or black is induced by disorganisation. See Lindley, Veg. King., Ed. 2, p. 466. Our figure represents a portion of the cellular tissue of the Flaky Tragacanth interspersed with mycelium. The lower figure on the left is from the base of a piece of Apricot gum, showing the mucedinous threads of which it is compacted; while the upper figure represents a portion of the tissue of the matrix overrun with parasites. *M. J. B.*

* Kützing, Grundzüge der philosophischen Botanik, vol. i. 1851.

† Tournefort states (Voyage du Levant, vol. i. p. 21), that the vermiform Tragacanth which he gathered on Mount Ida is the product of a species of Limonium. He figures it as occupying at first cavities in the wood and bark.

‡ Kützing does not seem to have tested the cell walls with iodine and sulphuric acid, but only with these substances separately. He says therefore that Tragacanth consists of three substances:—1. Bassorin, which forms the outer thick wall, consisting of many layers; 2. A peculiar form of cellulose to which he gives the name of Gelin—this answers to what is commonly called the primordial membrane; 3. Starch granules. It is evident from the account given above that there is some error. The whole cell wall consists of what he calls Gelin.

§ Kützing states that little molecules arranged in moniliform threads are first formed at the base, that these gradually form large cells which in turn give birth to others, and that the gelinous substance (to use his own phraseology) is converted into bassorin as the cells become more and more superficial. The bassorin ultimately becomes more or less soluble, and the cellular structure is no longer capable of being recognised. Kützing, l. c., p. 204.

‖ Since the above was printed, I have examined a specimen of this gum, entirely free from any external parasitic growth. Part of the specimen was quite colourless and transparent, another was amber-coloured, and another brown; but I found no cellular structure whatever. The sporidia of an Hypoxylon, and the spores of a Pestaloazia were inclosed in the mass exactly as similar objects are in amber. It may be mentioned here, that on macerating a large piece of gum from a wild Cherry tree, with a view to obtain the cerasine free from any admixture, a brick-red substance was formed on the sides of the cup containing minute linear bodies, endowed with active motion. They did not revive on being moistened after they had become perfectly dry.

THE VINE DISEASE IN MADEIRA.

Funchal, Madeira, *March* 6, 1855.—Before leaving England in the last autumn, I told you that I would employ a part of my leisure here in making inquiries into some collateral points connected with the Vine mildew, which have not hitherto been much investigated. Through the kindness of Mr. Leacock and Señor Freitas Ferrar, old residents on the island, I have been fortunate in obtaining information which may be safely relied on; and in regard to the phenomena attending the fermentation, &c., of diseased Grapes, the testimony is that of a person whose occupation is distillation and its cognate processes.

1. As to the sorts of Grapes most liable to the attacks of the Oidium.—In Madeira the disease appears pretty indiscriminately to haunt all kinds; but its ravages are most rapid and disastrous in those which produce the best wines, as Malmsey, Muscatel, Sercial, Verdelho, Bual, Negra-mol, Negrinho, Bastardo, and Tinta. White Grapes have suffered more than black. Of the former, Malmsey and Verdelho most; of the latter, Tinta. In general, the Grapes richest in saccharine matter, and which therefore should yield most alcohol, were the greatest sufferers. The mildew attacks the Grape in every stage of its development, as well when it is in flower as when the berry begins to ripen. If while in flower (or before), the fruit does not set; if the berry be already set, it cracks on approaching maturity, and lays the seed more or less open, showing it to be partially separated from the pulp. Under such circumstances the pulp does not attain the semifluid state of maturity, but becomes in consistence like the pulp of an Apple, the bunch ceasing to grow, and speedily drying up. In some clusters a few of the berries will continue to grow, and even after cracking give some signs of ripening; but these contain very little juice, and that green and immature.

On arriving here in November, I was struck by the miserable appearance of the vineyards after the disease of the previous spring and summer. A few attenuated shoots struggling for life, on which appeared some black and shrivelled remains of bunches, with leaves hardly exceeding those of the Ivy in size. These were a strange contrast to some leaves of the Black Hamburgh, which I had gathered at home last summer on account of their unusual size, too large to be entirely concealed within the grasp of a quarto volume.

2. As to the phenomena attending the fermentation of diseased Grapes.—The fermentation in 1852, when the disease first appeared here, was short but violent. What wine was made tasted sweet, but with the fungose flavour of the disease. In 1853 and 1854, the few Grapes that were gathered at all, being taken earlier, were consequently less ripe. The fermentation in these was very slow and imperfect. The greater part became putrid without even clearing; that is, passed into the last stage of fermentation without the previous vinous and acetous stages. This is confirmed by a Portuguese authority: "A fermentação putrida tem mais lugar nas uvas doentes que nas sãas." *

My informants concur in stating that it is not easy to say whether the produce of diseased Grapes contains the customary quantity of *argol*, or tartaric acid, the deposit being in the usual course a work of time, and it does not seem that the wine was subjected to a chemical analysis with a view to ascertain the fact. A Portuguese authority, however, states that "Tartaric acid exists in diseased Grapes, as in healthy ones, when the fruit developes itself, but the comparative quantities have not yet been observed. In the sediment of wine produced from diseased Grapes, portions of tartrate of potash are found, as in that from healthy ones."

It follows, from what has gone before, that the quantity of spirit obtained by distillation is much smaller. The absence of healthy maturity, and of the saccharine principle in the diseased fruit, affords not the same matter for vinous fermentation, nor consequently for the production of brandy subsequently.

It is agreed that (as you surmised yourself) diseased Grapes, during the process of fermentation, emit a very

* "The putrid fermentation takes place more in diseased Grapes than in healthy ones."

nauseous smell, "especially (adds a Portuguese informant) when remedies of a sulphureous nature have been applied to them." The wine obtained from mildewed Grapes, even when they have been but slightly attacked, is very bad both in taste and smell, and this in spite of any after process to which it may be subjected. The effects of the disease are so summary and unequivocal as to leave no chance to the operations of doctoring.

In the mean while the island is fast going to ruin. In its best days it attained a degree of prosperity surpassing that of any other Portuguese colony, by its natural advantages, and in spite of a bad government and the usual influence of the Romish religion; but a still worse blight has come over it since 1852. The change in the condition of the chief landowner may be taken as a measure for that of the whole island. His income was at least 30,000*l.* a year in amount; it is now about 2000*l.* We have only to hope that vegetable pestilences may bear some analogy, in nature and duration, to the plagues and murrains of animal life, and that after running its course the Vine mildew may disappear.

The substitutes that have been proposed in Madeira for the Grape are by no means encouraging. The Sugar Cane flourishes, but it exhausts the soil, and requires hard labour and liberal reinforcements of manure—things which the Madeira people do not understand. Wheat has been grown, it is said, without any change, and without manure, for many years. The Coffee grown on the island is very good, but its cultivation is narrowly limited by locality and the means of irrigation. The Cactus which feeds the cochineal insect appears to flourish naturally in the most barren spots, and I understand that attempts are being made in that direction. *D.*

COMMON THINGS.

The Potato Onion is so called from its producing its crop generally under the surface, like a Potato; hence it is also called the under-ground Onion, and is never obtained from seed. There are several ways of cultivating it. The two following have been practised with success. The first is to dung and dig the ground well, and form beds four feet wide now, on each of which plant three rows, placing the roots ten inches apart, and inserting the bulb about half its depth in drills, drawn lengthwise on the beds to receive them. As they grow, earth them up like Potatoes; small bulbs become large ones, and produce offsets; the middle-sized and large ones, large clusters. Under this management 60 bulbs planted out in spring are reported to have produced 360 in the July following. The second method is, when the Onions have shot out their leaves to their full size, and when they begin to get a little brown at the top, to clear away all the soil from the bulb, down to the ring from whence proceed the roots, thus forming round each bulb a basin which catches the rain and water from the watering-pot. The old bulbs then immediately begin to form new ones, and if kept properly moist and the ground good, the clusters will be large and numerous, and bulbs grown thus above ground are said to be sounder than those grown below, and better keepers. The Potato Onion is very hardy, productive and of mild quality, equally so with the Spanish, and it comes into use earlier than any other sort.

Long and Short Prickly Cucumbers for Ridges.—These should be raised in frames now, and when large enough to transplant two or three plants should be put into a pot. They should be kept in the frames till they are strong enough to turn out under handglasses in the end of April for the first crop. For the last crop the seeds should be sown under the glasses in May and June. When the plants have grown long enough to train on the ridges, it is an advantage to cover the latter with clean straw, which keeps the sun from parching the ground, and prevents the blossoms and young fruit from being covered with soil during heavy rains. The covering the ridges with straw has also another advantage—that of preventing, in a great measure, the fruit from becoming spotted when the autumn is wet and cold. The thickness of the straw covering should not be less than two inches when pressed close to the ground.

Home Correspondence.

Pruning-knives.— Regarding the *Chronicle* as our floricultural *Times*, I rejoice to read your declaration of "war to the knife," and with it. Your comments, I trust, unlike the article in question, will "cut and come again." We have heard something of "the de'il among the tailors," but it really seems as though his evil presence had been transferred to the cutlers; and how guardsmen or gardeners are to prevail over their "Garden Battery" with such worthless blades, I know not. Why, every full grown Rose tree is now a Sebastopol, bristling, not with cannon, but with thorns; and we have not made our assault five minutes before we have to fall back upon our whetstones, and find ourselves and our weapon in the worst of tempers. If other amateurs share my tribulation, there can be no "needy knife-grinder" in the land. I have just now returned, utterly exhausted, from a single combat with H. C. General Jacqueminot; and my pruning-knife, I feel convinced, would be powerless upon a pat of butter. To add to my misery, all the time I was cutting and slashing, a gardener near me, with a knife of mediæval aspect, made the timber fly in all directions, whittling and whistling "Through the wood, laddie," with an occasional grin at his perspiring master. Oh! will not some benign florist tell where I may arm myself with a blade that will cut; and, *coute qu'il coute*, I will have that *couteau*. Surely it will not be necessary, as you darkly intimate, to go to the United States. If we country folk are startled when we hear, from time to time, that such and such a neighbour is "gone to town to have his hair cut," what will be our feelings of amazement when we are told that Mr. So-and-so has "sailed for New York with a view to buying a pruning-knife?" *S. R. H.*

Effect of the late Frost on Autumn-planted Potatoes.—I had about an acre of these, all of which are destroyed except a few small patches where the snow had drifted. I have been accustomed to ridge up the earth over the rows, which exposes more surface to the action of sun, air, &c., and places the sets a little farther from the frost. But this year I trenched them in, leaving a flat surface; had I, however, ridged the ground they would not have been saved this year, for Celery ridges that had no protection on them were frozen quite through, even below the trenches. In future I intend, whether I plant on the flat or ridged plan, to scatter some straw litter over the ground, which, should there be snow, will form a lodgment for it, and if not will prevent the frost from going so deeply into the ground. It is worthy of remark how little prevents snow from being drifted. I had a piece of Broccoli, which, after being attacked by the larks, were little more than stumps, yet the snow lay amongst them quite evenly, 2 or 3 inches deep, although the surrounding ground was bare. A very thin layer of snow prevents frost from penetrating the soil. *G. Lee, Clevedon.* [Mr. Lee confirms (what indeed requires no confirmation) Mr. Wilkinson's statement (see p. 174) that the Fluke Potato may be cut into sets like any other Potato.]

Hybrid Rhododendrons (*see p.* 190.)—Allow us to observe, in reply to "W. F.," that if he will favour us with a visit, we will show him a numerous progeny of hybrid Rhododendrons, of which ciliatum is one of the parents. We have not yet offered any for sale, but shall do so in due course. *Standish and Noble.*

Pregusata Fig. — A correspondent makes inquiry about the Pregusata Fig? I have had it several years without show of fruit until last season, when it put forth a second crop, and now promises well for this year. It appears to be one of the small sweet Mediterranean Figs, but the colour is not yet perceptible. *W.*

Supply of Water to Wells, Springs, Rivers, &c.—I have been often asked of late by persons who are aware of my investigation of the supply of water in the chalk stratum, "When shall we have water in our wells?" The answer is obvious, "When we have more rain or snow." But I find so much (if I may be permitted so to call it), ignorance on this subject, that I am induced to offer a few remarks upon it. In 1852 I registered 34 inches of rain, or 10 inches above the average of 24 inches. We know the effect of this on wells, springs, and rivers—the height of water in the one, and the volume of flow in the other was scarce ever exceeded in the memory of man. In 1853 I registered 26 inches, of which 24 fell before the first of November; from that date to the present, just 17 months, I registered 23 inches, or 1 inch below the average of 12 months. In that period only on two occasions has the quantity in 24 hours amounted to half an inch, and that in the hot months of July and August; hence the depression of wells, such as never, I believe, has been known. The present fall of snow, which has amounted to more than a foot in depth, equal to 1 inch of rain, will, I believe, produce a marked and almost immediate effect on the water in the chalk and elsewhere. If there is no frost to hinder the thaw, a rise may be looked for by the first of next month. I shall feel really obliged to any one who will note the rise of water in his well in the chalk or any other water-yielding stratum. It is but to measure to the water, and so note the rise; not to measure the depth of water in the well; this is best done by a wooden float attached to a string or measuring tape. *James C. Clutterbuck, Long Wittenham, Bucks.*

Nottingham Elms.—I have lately seen a distinct sort of Elm planted a good deal in the neighbourhood of Nottingham, and as it is quite different from, and I think very superior to any other variety I have seen, I should like to know if you are acquainted with it. Having made inquiries of the person on whose grounds they were growing, I found they had most, if not all, been procured at a nursery, under the name of "Siberian Elms." Is there such a thing? Mr. Lowe, of the Highfield House Observatory, has some growing in his park, I was told. As he has the reputation of paying great attention to nature perhaps he may know something about its origin. I called at the nursery and asked the proprietor where it had been procured; he told me it had been sold as an ornamental Elm by his grandfather, and had been propagated and sold regularly for at least 50 years, but that it was only lately that it had been much talked about; as to its real origin he knew nothing—"it had always been sold by that name." It is a graceful and delicate growing tree, and looks more like some of the pendulous English Elms one sees from the Eastern Counties line in passing through Hertfordshire, than any other I am acquainted with; the bark is almost as smooth as a Beech, the shoot so slender that it gives one the idea of being a slow grower, yet it is a plant of enormous growth; some of the trees I saw were wonderful specimens for the time they had been planted. I was shown some near Chilwell Hall, the residence of T. B. Charlton, Esq., planted alternately with a sort called the Giant Elm, and they had made quite double the wood in the time. As it does not sucker, I was told it did not require grafting, every cutting making a tree with a rapidity almost equal to a black Italian Poplar. By inserting this some information may, perhaps, be elicited. *A. B.*

May's Magnum Bonum Lettuce.—We have received two letters respecting this variety—one from Mr. Fitzsimon, of Reigate; the other from Mr. Mountford, of Kinmel Park, St. Asaph. The latter states that it is nothing more than the well-known Florence Cos, which, although a good summer Lettuce, is not equal to the Alphange Cos, which grows to a large size, requires tying, eats beautifully crisp, and continues a long time in use without running to seed. As a summer Lettuce he thinks the last-named variety has no equal. Mr. Fitzsimon says that May's Magnum Bonum has no right to the name of Bedale Hall, farther than that it may be cultivated there by Mr. Hewson, and that if he is rightly informed it was raised some 9 or 10 years ago by Mr. M'Donald, of Newton House, and went by his name in that neighbourhood. About seven years ago he saw it growing in the gardens at Brough Hall, where, as nearly as he can recollect, it was about 15 inches high by 10 inches through, beautifully blanched without tying, and felt in weight more like a well grown Cabbage than a Lettuce. He adds that it is an excellent variety. [Seeds sent to the Horticultural Society will show what this new name is worth.]

Swede Turnips as Food (*see p.* 174).—Permit me to say that if your York correspondent will slice his Swede Turnips a little thicker than a penny piece, he will find them done (boiled) in much less time than seven or eight hours, and also much better flavoured. *George Lee, Clevedon.*

Water Power and Glass Walls.—"S. N." asks for information as to the velocity to be given to a wheel six feet diameter by a certain amount of water. I believe a foot perpendicular of water will give 1 lb. pressure on the square inch. Allow me to direct your correspondent to the 26th number, page 223, of the "Engineers' and Machinists' Assistant," published by Blackie and Son, Warwick Square, London. Perhaps "S. N." will be kind enough to furnish me with some particulars as to his mode of constructing a glass wall. *William Edwards, Stamford.*

Societies.

Linnean, *March* 20.—The president in the chair. Samples of Kino from Nyami, Upper Gambia, were presented by Dr. Daniell; who also exhibited specimens of M. Masson's compressed vegetables, now being largely transmitted to the Crimea; these samples were from Messrs. Fortnum, Mason, and Co. N. B. Ward, Esq., exhibited autograph letters from Sir J. Franklin, Capt. Flinders, and Sir J. Banks, together with autographs of Tournefort and of the Jussieus, Antoine, Bernard, Antoine Laurent, and Adrien. Read a description of Peachia hastata, a new genus of zoophytes, with observations on the family Actiniadæ, by P. H. Gosse, Esq. It was stated that in January and again in March, 1853, the Rev. C. Kingsley found near Torquay an undescribed Actinia, which, in Mr. Gosse's view, constitutes a new genus. This he here proposes to call Peachia, and minutely describes. The peculiarities of the animal seem to reside in the mouth. From the mouth protrudes a singular organ, unlike any other belonging to this class of animals; it is a sort of fleshy proboscis, the top of which dilates into a clubbed head, divided into about 20 short papillæ. This curious apparatus, which appeared to form one side of the mouth, and to be in fact an enlargement of the lip at one part of the circumference, without anything corresponding to it on the opposite side, was perforate, and was supposed to lead down to the visceral cavity of the body external to the stomach, constituting the orifice through which the ova are ordinarily deposited. The animal appears to have a more than usually rapid and spasmodic power of retraction. The generic name is proposed as a tribute to the zeal, industry, and success with which marine zoology has been studied by Mr. Charles W. Peach. Mr. Gosse proceeded to revise the British species of the genus Actinia, and proposed to separate two new genera under the names of Sagartia and Bunodes. On this he remarks, "I hold that wherever we find several characters co-existent in a certain number of species, none of which are common to other species, the species possessing such characters ought to be elevated into the rank of a separate genus."

Caledonian Horticultural, *March* 10.—On this occasion the following prizes were awarded, viz.:—To Messrs. Dicksons & Co. for Hyacinths, La Tour d'Auvergne, Jenny Lind, Nimrod, Baron Von Tuyll, Voltaire, Prince Albert, Prince of Wales, and Grand Vidette (blue and white). Silver Medal to Mr. Hewison, gr. to C. K. Sivewright, Esq., for La Tour d'Auvergne, Lord Wellington, Prince Albert, Grand Lillas, Grand Vidette, and Amicus. One or two other collections of Hyacinths were also exhibited. Silver Medal to Mr. Smith, gr. to Viscount Melville, for a specimen Erica hyemalis. To Mr. Pender, Moreton, for Azalea Conqueror. To Mr. Edwards, Lauriston Castle, for clusters of Rhododendron Alta-clerense, Cinnamomeum, and Russellianum tigrinum. Silver Medal to the same for Cinnamomeum in pot. Camellias: 1st, Mr. Fowlis, gr. to J. Tytler, Esq., with Double White, Jeffersoni, Fimbriata, Pratti, Reine des Fleurs, and Imbricata. 2d, Mr. Mitchell, Ravelston, with Frankfurtensis, Fimbriata, Sweeti, Double White, Imbricata, and Traversi; 3d, Mr. Edwards, with Double

White, Imbricata, Fimbriata, Albertus, Candidissima, and Rosa Mundi. Cinerarias, 1st, Mr. Fowler, with Climax and Lady Jane. Stove or Greenhouse Plant: Silver Medal to Mr. Fowler, for Dendrobium nobile; 2d award to Mr. Cameron, for Boronia macrantha. For the finest two Spring-flowering Hardy Herbaceous Plants grown in pots the prize was awarded to Mr. Mitchell, for Epimedium violaceum, and Draba aizoides; 2d, Mr. Falconer, gr. to Mrs. Fraser, for Saxifraga oppositifolia, red and white varieties. Rhubarb: Mr. John H. Porterfield, with Victoria and Albert. Messrs. Dicksons and Co. exhibited (not for competition) a collection of Hyacinths; and Messrs. Cunningham, Fraser, and Co., a basket of Cyclamens. Messrs. Downie and Laird sent Hyacinths. From the garden of S. Hay, Esq., were Azaleas, Epacris miniata, and Rhododendron splendidum; from C. K. Sivewright, Esq., Hyacinths; from D. Anderson, Esq., Azalea Gledstanesi excelsa, and a dish of Mushrooms; from R. Girdwood, Esq., specimens of a new black Turnip grown at Corstorphine; and from Mr. Laing, Camellias and Rhododendrons.

Notices of Books.

The Golden Colony, or Victoria in 1854, with Remarks on the Geology of the Australian Gold Fields, by George Henry Wathen (Longmans), has been written with the object of giving emigrants to Australia a rapid but distinct impression of the aspect and condition of the land of their adoption; and of affording to the English public an opportunity of becoming better acquainted with the rise and progress of a colony which is destined one day to take a prominent place among the nations of the earth.

The portion of this book which will be read with most interest at the present time is that which traces the origin and history of the recent disturbances and loss of life at the gold fields. These riots are here attributed to the inequality and excessive amount of the gold tax; and the oppressive and un-English manner in which it is levied from a population naturally orderly, but particularly likely to resent every exercise of injustice or oppression. Were it not too serious a subject to be treated lightly, those persons who are now so loudly accusing all grades of government officials on this side of the water of ignorance and want of sympathy with the common business of life, and of too servile an adherence to forms even in great emergencies, might derive a sort of negative consolation from discovering here that they are not worse off in these respects than their fellow countrymen at the antipodes, who suffer severely from the same causes.

The scenery is graphically described and illustrated by the author's sketches. The different phases in the wild life at the gold fields are brought out with considerable effect, and disclose a state of manners, which by its strong contrast with what we ordinarily witness in England will add considerably to the interest with which this book will be perused.

Hints on Village Architecture, &c. (By H. Weaver. Large 4to, Hollway, Bath; Pope, London), forms a thin volume 13 by 17 inches, and contains 10 lithographed drawings representing seven designs for Rural Schools, Labourers' Cottages, and Parsonage Houses, with rough estimates of their cost. Those who wish to be their own architects may gather useful hints from Mr. Weaver's plans, which are made with a view to economy and convenience rather than architectural effect—a result, however, in some cases not unskilfully obtained. Internal arrangements offer no ground for criticism because we do not know the precise objects or fancies of those for whom the designs were made; upon the whole they have produced a favourable impression upon us, and may be taken as good general guides, to be neglected or improved upon as circumstances may require.

The Ferns of Great Britain, illustrated by J. E. Sowerby (8vo, with 49 coloured plates; 27*s.*), has been already noticed at pp. 502, 631 of our last year's volume. We have only now to announce its completion in a thin volume, the plates of which are neatly drawn and coloured, and give a good idea of the plants represented. The letterpress, by Mr. Johnson, of Guy's Hospital, is well written and instructive, and includes good practical directions for cultivation.

Our Heroes of the Crimea (Routledge. 1*s.*). Under this name Mr. Ryan has given hasty but graphic, and we believe authentic, sketches of the lives of some of the gallant spirits who have fallen under, and of others who still survive, the perils of the Crimean campaign. He writes like a soldier, with force and spirit. Of course, he takes the popular view of the great question of army promotion, the working of which under existing regulations he boldly exemplifies in the well-known case of one of the most distinguished modern generals, Sir de Lacy Evans.

Garden Memoranda.

Horticultural Society's Garden, Turnham Green.—It will be satisfactory to know that the injuries inflicted on out-door vegetation in this establishment have been fewer and less severe than might have been expected, considering the kind of winter we have had, and which has not even yet left us; for on the morning of Monday last the thermometer fell 14° below freezing. On the conservative wall the foliage and unripe wood of many of the more tender things have been browned; but as far as can be judged at present, little has been entirely killed. The New Zealand Podocarpus Totara has had its leaves destroyed, as have also different kinds of Duvaua, Ceanothus divaricatus, C. papillosus, and C. dentatus. The same misfortune has likewise befallen Spiræa Reevesiana, Escallonia rubra, Berberis hypoleuca, B. dealbata, and B. aristata. B. tinctoria has apparently been killed, while in another part of the grounds, away from a wall, the handsome Darwin Barberry has withstood the frost unhurt.

As regards other plants on the conservative wall, the New Holland Eucalyptus coccifera has escaped injury, as has also Mr. Fortune's Jasminum nudiflorum, which has been for some time past, and is even now producing a tolerable crop of round bright yellow Primrose-like blossoms. Prunus sinensis, the single pink kind, has had its leaves browned, as have also the common Myrtle, and Solanum crispum. From the above it will be seen that what injury has been committed has mostly been confined to the foliage and young tops of shoots, which when removed will leave the plants in comparatively good condition for making new wood and leaves for the coming season.

In the open ground the trees that have suffered most are the Mexican Pines—apulcensis, macrophylla, Teocote, Devoniana, Russelliana, and patula, which sustained so much injury last spring. These have apparently been killed, while even the long leaves of P. Lindleyana have escaped almost untouched. This fine species must therefore be pronounced to be perfectly hardy, as are also P. cembröides, P. Montezumæ, and the Californian species radiata, muricata, and tuberculata. P. monticola likewise stands well. P. orizabæ has had its leaves killed. Fitz-Roya patagonica has sustained no injury, nor has the Crimean Abies Nordmanniana. Libocedrus chilensis has had its foliage browned. Cupressus australis has been hurt a little, and it is probable that portions of some plants of C. Goveniana may turn out to be dead, though that cannot be correctly ascertained at present. The Pampas Grass has been thoroughly blanched, but it is to be hoped not killed. The Chusan Palm has likewise been a good deal injured; but it may yet recover. The Californian Cherry (Cerasus ilicifolia) has had its foliage browned. Camellias, fine bushes of which have been growing on the north side of a wall for years, have stood the frost well, only one or two of them having had their foliage hurt. The majority of them are quite uninjured, and as green and healthy as in the month of June or July. Among Sikkim Rhododendrons, ciliatum, alpinum, and cinnabarinum are quite safe, while some of the hybrids from arboreum have had their leaves somewhat browned. Benthamia fragifera has been killed to the ground; Laurus regalis has had its top hurt; Quercus Cooki has lost its foliage, and Garrya macrophylla appears to be at least three parts dead. Among hardy Berberries must be mentioned Mr. Rivers's hybrid, between fascicularis and aquifolium, which must be set down as a valuable evergreen shrub, and quite hardy. Magnolias have stood well, except the narrow-leaved variety of grandiflora, which is a little browned. Laurustinus and Bays have suffered but little; in fact, as we have already hinted, the garden altogether looks about as well now as it usually does at the close of much milder winters. This may be attributed, in a great measure, perhaps, to the wood having been well ripened last year.

Owing to the continued coldness of the weather vegetation has made but little progress as yet, and if it were not for the gaiety of the Crocuses in the beds on the west side of the arboretum, and the increased greenness of the Grass in that department, it would scarcely be known that spring had yet set in. Fruit trees of all kinds show well for a good crop, which the backward state of the bloom buds will help to secure. Nine-inch wide coping boards have just been fixed on the Peach wall, and even above Pears the same kind of coping boards are about to be placed.

As regards routine operations, pruning and nailing are now nearly finished, and in the kitchen garden the getting in of seeds, &c., chiefly occupies attention.

Under glass little alteration has taken place since our last report.

IMPERIAL AND CENTRAL HORTICULTURAL SOCIETY OF PARIS.

We have received the following regulations for the exhibitions of the present year:—

REGLEMENT DE L'EXPOSITION UNIVERSELLE.

Article Premier. La Société impériale et centrale d'horticulture ouvrira, 1er mai 1855, une exposition permanente et universelle des produits de l'horticulture; elle sera close le 31 octobre suivant.

Art. 2. Cette exposition sera établie aux Champs-Elysées, sur le carré de l'Elysée.

Art. 3. Pourront être admis à cette exposition les plantes, arbres, arbrisseaux et arbustes de tout genre et de toute espèce, fleuris ou non, les légumes et fruits forcés ou cultivés naturellement, et les objets d'art et d'industrie ayant un rapport direct à l'horticulture.

Art. 4. Les horticulteurs et amateurs français et étrangers qui voudront concourir à cette exhibition sont invités à faire parvenir, dans le plus bref délai, à M. le Secrétaire de la commission d'organisation, rue du Cherche-Midi, 17, une demande d'exposition qui devra contenir:—1° La nature et la quantité des produits qu'ils se proposent d'envoyer; 2° L'emplacement qui leur sera nécessaire; 3° L'époque à laquelle ces produits pourront être exposés; 4° Le temps qu'ils pourront séjourner à l'exposition; 5° Toutes autres indications qui pourraient être nécessaires.

Art. 5. Aucune demande ne pourra être admise, si elle n'est parvenue au secrétariat de la commission quinze jours au moins avant l'ouverture. Dans le cours de l'exposition, les demandes devront être adressées huit jours à l'avance.

Art. 6. En réponse à ces demandes, la Commission d'organisation fera connaître:—1° Le nombre des produits qui pourront être admis; 2° L'emplacement accordé; 3° L'époque précise à laquelle les produits peuvent être admis. Elle adressera, en outre, en triple expédition, un bulletin d'admission, sur lequel seront indiqués le nom et la demeure de l'exposant, la nature et le nombre des produits admis.

Art. 7. Tous les produits destinés à l'exposition de la Société impériale et centrale d'horticulture devront être adressés, francs de port, à MM. les Commissaires de l'exposition universelle d'horticulture (voir le modèle d'adresse ci-dessous).

A Messieurs
les Commissaires de l'exposition universelle
d'horticulture,
carré de l'Elysée, aux Champs-Elysées.
A Paris.

Envoi de (nom et prénoms de l'exposant ou raison sociale) demeurant à (résidence ou siége de l'établissement), exposant de (nature du produit).

Art. 8. Chaque colis portera une adresse semblable qui mentionnera, en outre, l'indication:—1° Du lieu d'expédition; 2° Du nom de l'exposant; 3° L'espèce des produits inclus. Il sera, de plus, accompagné du bulletin d'admission, indiqué art. 6.

Art. 9. Les colis contenant les produits de plusieurs Exposants porteront, de plus, sur leur adresse, les noms de ces Exposants, et seront accompagnés d'un bulletin d'admission pour chacun d'eux.

Art. 10. Par une concession faite à la Société impériale et centrale d'horticulture par les compagnies des chemins de fer du Nord, de l'Est, de Lyon, d'Orléans, de l'Ouest, de Rouen, Havre et Dieppe, de Saint-Germain, de la Méditerranée, du Midi et du Grand central, les produits destinés à l'Exposition de l'horticulture jouiront, sur les tarifs, de la réduction accordée aux produits destinés à l'exposition universelle de l'industrie. Cette réduction ne sera accordée que sur la présentation de leur bulletin d'admission. Ce bulletin d'admission devra être remis en double, avec les colis, entre les mains de MM. les agents des compagnies des chemins de fer; tous les frais de transport devront, en outre, être acquittés au départ.

Art. 11. Les produits venant de l'étranger et destinés à l'exposition de l'horticulture seront admis en pleine et entière franchise de tous droits. Ces produits, accompagnés d'un bulletin d'admission, entreront par les villes et ports ci-après:—Lille, Valenciennes, Forbach, Wissembourg, Strasbourg, Saint-Louis, les Verrières-de-Joux, Pont-de-Beauvoisin, Chaparellan, Saint-Laurent-du-Var, Marseille, Cette, Port Vendres, Perpignan Bayonne, Bordeaux, Nantes, Boulogne, Calais et Dunkerque.

Art. 12. Ils jouiront, à partir de la frontière, de la réduction indiquée art. 10.

Art. 13. L'admission des produits à l'Exposition est gratuite, et les Exposants ne sont assujettis à aucune rétribution, de quelque nature qu'elle puisse être.

Art. 14. La Commission d'organisation de l'Exposition est chargée de recevoir, déballer et disposer les objets à l'Exposition. L'ouverture des colis se fera en sa présence; elle en constatera l'état, et dressera un procès-verbal des avaries qui pourraient y être survenues. En cas d'avaries graves, copie du procès-verbal sera immédiatement expédiée à l'Exposant par les soins de la Commission.

Art. 15. Toutes les plantes ou objets exposés devront être munis d'une étiquette lisible et correcte, indiquant leur nom. MM. les Commissaires placeront sur chaque lot une étiquette indicative du nom, de la profession et de l'adresse de l'Exposant.

Art. 16. Les produits exposés seront placés soit dans des serres de différentes températures et pourvues d'appareil de chauffage, soit sous des tentes ou autres abris les plus convenables à assurer leur conservation. Leur entretien sera confié à des jardiniers spéciaux attachés à l'Exposition et placés sous la surveillance de la Commission.

Art. 17. Chaque Exposant aura la faculté de faire garder ses produits, à l'Exposition, par un représentant de son choix. Déclaration devra être faite, dès le début, du nom et de la qualité de ce représentant; il lui sera délivré une carte d'entrée personnelle, pour le temps que durera l'exposition de ces produits; cette carte ne pourra être ni cédée ni prêtée à aucune période de l'Exposition, sous peine de retrait.

Art. 18. Les représentants des Exposants devront se borner à répondre aux questions qui leur seront faites, et à délivrer des adresses, prospectus ou prix courants qui leur seront demandés. Il leur sera interdit, sous peine d'exclusion, de solliciter l'attention des visiteurs, ou de les engager à acheter les objets exposés.

Art. 19. La Commission veillera, avec la plus grande sollicitude, à la garde des objets expédiés; mais elle ne sera responsable ni des avaries, ni des vols ou détournements qui pourraient être commis.

Art. 20. Dans le cas de vente des produits exposés, ils ne seront livrés qu'à l'expiration du temps fixé pour leur exposition.

Art. 21. L'appréciation et le jugement des produits exposés seront confiés à un Jury composé de trente-six membres titulaires et de douze suppléants. Ce Jury, choisi par la Société, sera divisé en six sections; chacune de six membres titulaires et de deux suppléants, et présidé par un des Vice-présidents de la Société. Chaque section fonctionne alternativement et sous la présidence du Vice-président ou celle d'un Membre délégué pour le remplacer.

Art. 22. Chaque produit exposé sera, pendant la durée de son exposition, l'objet d'un examen par la section de service, qui en dressera un procès-verbal.

Art 23. Ces procès-verbaux seront revus, et les récompenses déterminées par le Jury, toutes sections réunies, sous la présidence du Président de la Société.

Art. 24. Des médailles seront données en récompense, et les Exposants récompensés recevront, à titre de prime, le remboursement des frais qu'ils auront faits pour le transport, aller et retour, de leurs produits sur le territoire français.

Le Secrétaire de la commission. LÉON LE GUAY. — *Le Président de la commission.* COMTE DE MORNY.

FLORICULTURE.

Pyramidal Fuchsias.—As the Fuchsia has now been brought to great perfection both in shape and colour, a few remarks on the mode of culture which I have pursued may perhaps be of use to the amateur in enabling him to produce pyramidal plants as fine and in as short a time as the most experienced practical gardener. The system I adopt is as follows: I put a few old plants in a warm pit or Vinery where the temperature ranges about 55°, about the end of January or beginning of February, in order that they may have pushed out plenty of young wood by the middle of March. I then take off what cuttings I can get from each sort, preferring the shortest-jointed wood. First prepare as many 4-inch pots as you may require, taking care that the pots are well drained, and the compost of a sharp open nature—coarse brown river sand and a little leaf-soil well intermixed will be found to suit very well, with about an inch of silver sand on the top, which will enable the cuttings to emit roots more freely. Water gently with a fine-rosed pot, then plunge the

pots in the propagating pit, where there is a gentle moist bottom-heat, where in the course of three weeks they will have made roots enough to stand potting off. You may now pot off singly into 3-inch pots in a light open sifted compost of rich loam, leaf-soil, and sand, equal parts, and if you have any bottom-heat to spare they will be the better to be plunged in it for a day or two, to give the young roots a start. They may now be removed to a warm pit or Vinery, or whatever you find most convenient, where the atmosphere is kept moist, which will ensure a strong, healthy, and vigorous growth. When you find the pots full of roots repot into 6-inch pots, using for this shift a good rich compost of turfy loam two parts, one of old rotten cow droppings, leaf soil and sand. As this will be their last shift this season, care must be taken to provide good drainage; this can be secured by putting in plenty of potsherds, with two or three bits of open turf or Moss over all. As the plants will now be pushing strongly, they must be tied to a neat stake, as they will be sending out laterals or side shoots. As the making of these side branches secures the formation of the plant, a little weak sheep dung liquid manure will be found very beneficial at this period of their growth. As the first tier of laterals has made their first joint, pinch it at that; this will not only enable you to have two shoots from each lateral, but will cause the leader to push away, and furnish you with plenty of side wood. The four first tiers of laterals will be enough to pinch this season, the rest may be allowed to grow on. They will be forming nice little plants now, so they may as well be taken to the greenhouse or conservatory, where, with a gay profusion of flowers, they will assist in keeping the house "dressy" for a short time. By the middle of November water should be withheld gradually, in order to ripen the wood, and they may be placed in a dry cold pit, or any out of the way place, such as under the greenhouse stage, for instance, where they must remain all winter, as they will require no more attention till the end of February, when a little water may be applied sparingly to induce them to start; the knife must now be applied to cut back the side shoots that were pinched last year, to the second joint on the wood they made after they were pinched, and a couple of tiers of single shoots to the second joint, the rest to the first, and the leader to within four inches; thus you will have a pyramidal basis to work on. Place them now in a warm vinery, and they will soon show indications of rapid growth. After they are fairly started turn them out of their pots, and shake off all loose soil, and examine the roots; repot now in 10-inch pots, using strong fibry loam of a rich texture, old cow dung, leaf soil and sand, equal parts well mixed. As stated for last season, attend well to drainage, as they will require no more pot room this season; replace them again in heat, and pinch in according to the directions laid down for last season, always aiming at having the plant broad and full at the pot, and tapering to the top. Pinching should, however, be stopped after the 1st of June, for by the middle of the month they should get a prominent place in the conservatory, where, by July, they will be the objects of greatest admiration in the house; liquid manure must not be omitted upon any account, at least three times a week, as this is now the only thing the plant will derive its nourishment from, and will cause it to bloom right on till October, when it will be getting unsightly, and may be removed out of doors to make room for some other favourite. When cold nights set in remove them as before to a cold pit, &c. No more attention will be necessary till spring, when they may be pruned and started according to the time they are wanted in bloom. They can be had in bloom by putting a few into heat by the beginning of January, about the middle of May; others, started accordingly, will enable you to have them in flower all the summer. *W. F.*

SEEDLINGS.

Cinerarias: *E J. and G R., &c.* All inferior to varieties possessing the same colours now in cultivation.

Epacrises: *F A D and Sons.* All handsome, but no improvement on kinds already in existence.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—If the pruning of any of the more tender climbers has not yet been done, it should be seen to at once, for growth will now be commencing, and such things ought not to have their growth retarded by any means. Also see that the soil about the roots of creepers is in a nice moist healthy state, as also the beds and the borders; and where it is found too dry give two or three liberal soakings at intervals of a few days, for as the water is apt to pass off through the crevices or fissures, it is hardly possible to thoroughly moisten any bulk of soil by one application. See that Orange trees, &c., are free from insects, and that their foliage is free from dust and other impurities. These will soon be coming into flower, and will be objects of considerable attraction; hence they should be in perfect order.

FLOWER GARDEN AND SHRUBBERIES.

If not already done, the walks, &c., should be edged and fresh gravel put on where wanted so as to put them into proper order for the season. The turf should also be well rolled and made smooth and firm, without loss of time, for notwithstanding the cold state of the weather the Grass shows that the work of mowing must soon be commenced. And it is a great saving of after labour to take time by the forelock in this matter, for when the first mowing is deferred until the Grass gets too long, the turf becomes spongy, and if it is once allowed to get in this state it is much more difficult to mow, and can hardly be got into "good keeping" without cutting it up so as to make it present a brown and very unsightly appearance. Attend carefully to the stock of bedding-out plants, and get rooted cuttings potted off as soon as they are fit, and encourage them by kind treatment to make free growth, for after this season there is no time to be lost with young stock.

FORCING DEPARTMENT.

Pineries.—Look over young growing stock, occasionally examining and repotting such as are found to be in want of more pot room, and avoid the old injudicious practice of repotting the whole stock at once, irrespective of the state of the roots, than which nothing can be more improper, particularly where a constant succession of fruit is an object. Pines, like other plants, are checked in their growth by allowing the roots to get too much matted before repotting, hence every plant should be shifted before it suffers for the want of pot room, and no plant should be repotted until the state of its roots indicate that more pot room is required. This requires rather more time and attention than the old practice of repotting all in one day, but the result fully repays the extra trouble, &c. The temperature may be slightly advanced as the amount of light increases, but this is a matter in which the state of the plants will be the best guide. Aim at securing strong dwarf plants, with a free habit of growth; and if this is obtained, it is immaterial whether the night temperature is 60° or 70°, and very much will depend upon circumstances as to which will be proper. Plants that may be unhealthy and in an unkind state, if kept near the glass, will be benefitted by a considerable higher temperature than would be suitable for others in a free state of growth. These are circumstances, however, which can be properly judged of only by those in care of the plants, but they are easily understood by a little careful observation. Use very means to induce a vigorous root action, and if this is obtained free strong growth will result with otherwise ordinary care only. Vineries.—See that Vines starting into growth are tied up in their places before the shoots get so long as to be liable to be broken off in the operation. Syringe frequently until the leaves begin to unfold; but use the syringe sparingly after that is the case, and only on the afternoons of bright days. Where the buds do not promise to break regularly bend the Vines so as to place those that are backward in the most likely position to catch the sap, and this should be done directly any indications of their breaking irregularly are observed. If any of the bunches in houses where the berries are stoned look as if they would be improved by a few more berries being cut out, let this be done at once, so as to allow those left plenty of room, and also to avoid having to handle the fruit after it begins to colour. Give air as freely as the state of the weather will admit, using a little extra fire heat, and leaving a little air on at night, so as to prevent the bloom being injured by damp settling on the berries, as is apt to be the case where the house is shut up. Figs.—Where the early crop is approaching maturity the borders should be well watered, so as to avoid the necessity of having to water the soil after the fruit begins to ripen, which is injurious to the flavour, and is also apt to cause the fruit to burst prematurely, particularly if the trees have been rather dry at the root previously. So far as the present crop is concerned the trees can, perhaps, hardly be too dry at the root, while the fruit is ripening, but where a second crop is expected care must be exercised to keep the trees in health, and to prevent the foliage becoming a prey to red spider, otherwise the second crop can hardly be expected to be good for much. Use the syringe vigorously, and maintain a moist atmosphere as long as this can be done without risk of injuring the fruit. Also keep the young wood thin and regularly tied in, stopping before the fourth or fifth leaf, according to the strength of the shoots, &c. Melons.—Encourage those newly planted-out with a moist warm atmosphere, so as to get them into full growth as quickly as possible; but plants that are fairly established should be kept cooler, admitting air on every favourable opportunity, in order to secure short-jointed fruitful wood. Keep the shoots thin and regular, pinching out any not wanted, but avoid stopping the main shoots until they reach the sides of the pit, when by pinching out the points the laterals will start into growth and show fruit abundantly; and by this time the plants will have gained sufficient strength to set and carry a fair crop. Do not exceed 65° at night, and admit air when the glass rises to 75°, but do this very carefully on cold days. Endeavour to maintain a steady bottom-heat of about 80° or 85°, and keep the soil in a healthy state as to moisture. See to providing plenty of young plants for succession crops.

HARDY FRUIT AND KITCHEN GARDEN.

The protection of the blossoms of fruit trees will soon require attention, and we have found Hall's nets to answer admirably for this purpose. If expense is no consideration, there can be little doubt but that the preference should be given to woollen net, as being the most effective protection, and likely to last longer than any material made of cotton. But the woollen net which was used so successfully by Mr. Harrison, of Snelston Hall, costs 10*d.* per square yard, while Hall's No. 1 costs a fraction less than 4*d.*, and this quality seems sufficiently strong to last well, and is as close in the mesh as we think anything for being permanently fixed while the trees are in bloom should be. The woollen net used by Mr. Harrison when made up for use, with calico at top and bottom (making it 3 yards wide), costs 1*s.* 10½*d.* per yard along the wall, exclusive of making; and Hall's, made up in the same manner, would cost less than the 10½*d.*, which is a most important difference where any considerable length of wall has to be covered. But where the materials for protection have still to be procured, there is no time to be lost, and whatever material may be decided upon should be obtained at once and made up ready for use. The main crop of Carrots should be sown at once, choosing a fine day when the ground is in a dry state, to prevent the surface being rendered hard by the treading.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending March 29, 1855, as observed at the Horticultural Gardens.

March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.
Friday 23	5	29.180	29.025	38	27	32.5	41	41	N.
Satur. 24	6	29.301	29.283	38	25	31.5	40	40	N.W.
Sunday 25	7	29.621	29.402	43	18	30.5	39½	40	N.E.
Mon. 26	8	29.662	29.645	45	29	37.0	38½	41	N.E.
Tues. 27	9	29.821	29.786	51	27	39.0	40	41	E.
Wed. 28	10	30.230	30.029	41	31	36.0	41	41	E.
Thurs. 29	11	30.434	30.420	44	25	34.5	40	41	N.E.
Average.		29.749	29.513	42.8	26	34.4	40.0	40.7	

March 23—Densely clouded; cloudy and cold; slight frost.
— 24—Cloudy; overcast; frosty at night.
— 25—Fine throughout; sharp frost.
— 26—Clear and frosty; very fine; cloudy; fine.
— 27—Overcast; very fine; clear at night.
— 28—Drizzly thick haze; constant rain, yet barometer rising rapidly.
— 29—Overcast; cloudy; clear and fine.

Mean temperature of the week 8 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 29 years, for the ensuing week, ending April 7, 1855.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 1	55.1	35.0	45.0	15	0.76 in.	3	5	3	3	3	7	[illegible]	[illegible]
Mon. 2	55.5	36.3	45.9	12	1.19	4	3	4	2	3	[illegible]	1	3
Tues. 3	56.3	34.5	45.4	7	0.30	5	3	3	1	2	2	[illegible]	[illegible]
Wed. 4	56.2	36.7	46.4	12	0.46	4	5	2	2	1	4	3	1
Thurs. 5	56.7	35.8	46.2	14	0.65	—	5	3	1	2	5	[illegible]	[illegible]
Friday 6	56.5	36.4	46.4	11	0.30	3	3	2	1	4	2	1	—
Satur. 7	57.0	36.9	46.9	13	0.40	2	7	2	2	1	2	1	—

The highest temperature during the above period occurred on the 2[illegible] 1848—therm. 78 deg.; and the lowest on the 1st, 1838—therm. 16 deg.

Notices to Correspondents.

Alpine Rose: *Sub.* It is a hardy shrub, and requires the same treatment as any other hardy Rose. It is not worth cultivation except in botanical gardens. Heat your greenhouse with hot water.‡

Books: *A W.* Koch's "Flora Germanica."

Canker: *Aleph.* We will endeavour to procure you some information by next Saturday. If it is really canker, the disease is, we believe, incurable.

Conifers: *A Constant Reader.* Such land as you describe will suit them well. It is impossible for us to say what is hardy or the contrary in a situation of which we do not even know the name. All N. European, Siberian, Himalayan, Japanese, and American species from above the latitude of South California, and all the Real del Monte species, are hardy in our situations. Certainly make walks through your Pinetum, and plant evergreens—if with gay flowers so much the better—by their side. For other matters you had better consult your gardener, who of course understands such questions. Larches are the best nurses.—*W A.* They ought not to be grafted. Grafted plants are worthless. We decline to instruct you how to do that which ought not to be done. If you are a gardener of course you do not want to be told how to perform the ordinary work belonging to your business.

Dioscorea Batatas: *S S.* The small tubers should be planted whole. As to its treatment, the best information you can have will be found at p. 19 of our present year's volume, and in a pamphlet on the subject, published by Mr. Henderson, of Kingskerswell, Newton Abbot, Devon.‡

Ferns: *Sub.* Next week.

Gas Tar: *Alnus.* There is no objection to gas-tar as an application to tree *guards* in a park, though there is to putting it on trees themselves. You will not find any other substitute for paint than tar of some kind. We prefer to gas-tar Stockholm tar mixed with a small quantity of pitch and resin—although it is a little dearer. The mixture used in the navy is the best.

Haricot Beans: *C F L.* The common white Dutch runner Kidney Bean is one of the eatable Haricots of the French; but they cultivate several other more delicate white-seeded sorts.

Names of Plants: We have been so often obliged to reiterate our decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*J S W.* One of the many varieties of Amaryllis Johnsoni.

Osage Orange: *U M.* Certainly it might be transplanted when 4 feet high; but it should be done as soon as the leaves have fallen in autumn.‡

Physiology: *W S.* We are unable to discover anything unusual in your inarched Vine. Had the result been different it might have been extraordinary. All that the experiment amounts to is, that a graft with a long heel will grow as well as a graft without a heel.

Plants for Baskets: *Reader.* Cyanotis vittata, commonly called Tradescantia zebrina, will possibly answer your purpose best.‡

Potatoes: *Northwood.* Your question was answered immediately, see p. 176, bottom of third column. Bees prefer making their own comb.‡

Rhubarb: *A Subscriber* will be obliged by any of our readers furnishing him with some explanation of the following circumstances. He says, "My gardener, last October, covered over some roots of Rhubarb with cement casks, and fold-yard manure, which was added several times in order to force the growth. Again, three weeks ago he covered over, in a precisely similar way, other roots on the same soil, and those covered *the last* are ready *the first.* How is that?"

Strawberries: *H H.* You may obtain a late crop: 1, by growing Alpines; 2, by turning out in a warm place the pots which were forced very early; 3, by picking off all the flowers that appear up to the middle of July.

Vine Leaves: *L P.* They are not mildewed, nor is it possible to say what ails them without inspecting the house. Have your flues burst? or are they cracked? or have you been doing anything to your border?

Water Melons: *Sub.* They should be cultivated in the same way as other Melons.‡

Misc.: *H W.* Our agent will supply you with the paper. The numbers can be had.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
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CONCENTRATED URATE FOR GRASS, RAPE, AND ALL ROOT CROPS.
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ESTABLISHED 1850.

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Have much pleasure in informing their Friends and Agriculturists generally, that in order to secure the most complete arrangements in all the Chemical Processes in the Manufacture of their Manures, they have engaged the professional services of Dr. EDWARD FRANKLAND, F.R.S., F.C.S., Professor of Chemistry at Owen's College, Manchester, to analyse all the various Manures made daily at their Works, and they have empowered him to reject every portion which is not found to be of the full standard quality. This arrangement will secure to all their customers a standard and uniform manure, of equal or greater value (in proportion to its cost) than foreign guano, and on which agriculturists may confidently rely.

The Nitro-Organic Manures are a Compost of Blood, Bones, Urine, Nightsoil, and other animal matters, and highly fertilising Chemical Ingredients, which, in a concentrated state, are incorporated with prepared Charcoal, and forming dry portable manures, which enrich the land for several years after they are applied. They may be used in all cases, exactly the same as Peruvian Guano, *at equal cost per acre.*

For top-dressing, the Manure is recommended to be applied in all cases in wet or showery weather. If convenient, the Nitro-Organic Manures may be used with very beneficial effect along with a small dressing of common farm-yard manure, or nightsoil, in which form they have been strongly recommended.

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For Grass, Clover, &c.	£5	5	0	per ton.
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SULPHATE OR MURIATE OF AMMONIA.—These powerful fertilisers, genuine as manufactured, may be had in any quantities from READ HOLLIDAY, Ammonia and Soda Works, Huddersfield.

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C. S. & Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading Agricultural Shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

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The Agricultural Gazette.

SATURDAY, MARCH 31, 1855.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	April 3—	Agricultural Imp. Soc. of Ireland.
WEDNESDAY,	— 4—	Agricultural Society of England.

THE discussion before the Society of Arts on TOWN SEWAGE has been one of the fullest and most interesting to which that question has been yet subjected. Mr. LAWES, by his long experience as a chemist, an agriculturist, and a manure manufacturer, was perfectly qualified to introduce it fairly in all its aspects; and amongst his audience were Professor WAY, who had made the chemical relations of the subject his especial study—Messrs. CHADWICK, WARD, BAZALGETTE, and HAYWOOD, who were competent to speak upon its sanitary and engineering relations—and such men as Messrs.

Caird, and Paine, and Scott, and Sidney, who were guarantees that the purely agricultural aspect of it was fully represented.

The main results of the debate may perhaps be given thus:—(1), that the conversion of sewage into a solid manure of value enough to pay for cost and carriage is impracticable; and (2), that the possibility of carrying it in a liquid form to such lands as are suitable for it is more than ever doubtful. Probably on the first point it would be fair to add that the decision of Professor Way, which was generally acquiesced in, related to *London* sewage. Elsewhere (unfortunately for the inhabitants of such places) it may be stronger than it is with us, and its concentration may be profitable: and Mr. Wicksteed's works not yet completed at Leicester—of which we shall give a report as soon as they are ready for inspection—have been erected in the confident belief that Mr. Way's decision does not apply in that locality. On the second point, too, it must be added that the doubtfulness of a profitable application of town sewage in the liquid form seems to depend on the improbability of finding suitable land on a lower level than the sewers. Professor Way's remark, that large towns are situated either in the neighbourhood of alluvial and adhesive soils does not universally apply; and wherever drained land of a porous character is obtainable below the level of and near a source of sewage, it may no doubt be profitably used. The very interesting experience of Mr. Paine on the possibility and economy of applying liquid manure during the winter months to arable land, in anticipation of summer crops, together with the researches of Professor Way on that power in soils on which their conservative character in this respect depends, are, of course, an encouragement to persevere in the attempt to utilise the contents of our sewers; and the practice on the Ayrshire farms, where the liquid is applied during the winter months upon the land for Turnips, and only in the spring and summer on the Italian Rye-grass, points the same way.

The agricultural discussion in connection with the subject, conducted chiefly by Messrs. Scott, Caird, and Paine, we have given pretty fully in our columns. Our own opinion is that the possibility of growing a "poisonous!" food by excessive manuring, if it has any truth at all, has been greatly exaggerated; and that to attribute pleuro-pneumonia to the use of Italian Rye-grass grown in this way is not "tying the two ends of a thing together" at all; it is placing together two entirely different things which have no *necessary* relationship to one another. The evils of those Edinburgh meadows, of which, we should think, every reader on this subject is heartily tired—the experience of cow-feeders there, and that of the Insurance Company which bears their risks—all these matters have no *necessary* relationship to the subject; they are obviously either exceptional or the result of mismanagement. There is hardly any more richly manured field, we dare say, in the island than Mr. Telfer's Italian Rye-grass plot near Ayr; but he can cut from off that field food as succulent or as dry as he chooses, and, we dare say it, he can ensure what health for his live stock he may please, not of course by attending merely to their food but by management in other respects.

We have seen cow-houses, containing from nearly 50 to upwards of 500 cows—one light and sweet and clean, another at the first sight seeming dark and foul as any "black hole" that was ever imagined. We entered the one as into an airy and pleasant apartment; on opening the door of the other a rat was disturbed, and slunk lazily away out of sight, just as if we had been looking in at the mouth of a sewer tunnel. In both of these byres the cattle are fed upon Italian Rye-grass—fed, too, upon Grass grown on liquid manure; what the experience as to balance-sheet of the two cow-keepers actually may be we do not know, but that there is a difference between the two, both as to healthiness of animals and wholesomeness of milk, we cannot doubt. This difference is notwithstanding a great sameness of food, for both are fed upon the "unwholesome" Italian Rye-grass—and it shows where we must lay the charge of pleuro-pneumonia death—not so much upon the food of the animals as upon their treatment in other respects.

We must add a word upon the opinion on manuring soils rather than plants, expressed by Mr. Paine as a practical agriculturist, in accordance with Mr. Way's opinion as a scientific man. His statement is that it is becoming more than ever the rule to manure the land rather than the crop. Now, we confess that we should have stated the case exactly the other way. Whether there is thus an advantage to the wholesomeness of vegetable growth (which, by the way, is almost entirely a new idea in agriculture) for hitherto vigorous growth and large produce have been held proof of healthy growth,—whether this wholesome growth is ensured by a digestion, so to speak, of the manure in the soil before it is sucked in by the plant—we do not now discuss, but we must state the belief that, comparing present practice with that of years ago, there is a *shorter* interval generally now between the application of manure and the attainment of its result in the crop than there used to be. The idea of a crop whose consumption shall restore the land—one manuring crop in a rotation by which fertility is maintained throughout it, so that the full result is not obtained till the 4th or 6th year, as the case may be—no longer has that hold it used to have. "The practice on this farm," said the *Times* commissioner of Mr. Hudson's land at Castle Acre, "is to manure for *every* crop." And that practice is gaining ground everywhere: witness the enormous bulk of artificial manure now in use, and the practice now becoming more general, of saving a portion of the farm-yard dung from the green crop "break" and applying it to the other crops in the rotation. Whatever use may be, has been, and no doubt will be made of Mr. Way's discoveries as to the conservative character of ordinary well tilled soils, we believe that, comparing 1855 with 1845 and previously, it is becoming *less* than ever the rule to manure the land rather than the crop. And how greatly to the advantage of the farmer this altered practice is, any one who can do a sum in compound interest and knows the difference between quick and slow returns on the profits of a business, easily can tell.

The subject in some other of its relations must be again referred to.

Among the earlier agricultural gatherings of importance this year will be that of the Royal Dublin Society on the 10th of next month, and the forthcoming exhibition between June 1st and 10th at Paris. The extent of the Dublin show may be gathered from the fact that there are 200 bulls entered for competition. The character of the Paris exhibition may be anticipated from the central position which the capital of France this year occupies from almost every point of view. The agricultural, no less than the commercial and social interests, are being cared for by the imperial commissioners in charge of the Great Exhibition of 1855. Agriculturists of all countries are invited to compete for the very liberal prizes offered for cattle, sheep, pigs, and poultry; and we hope those of the United Kingdom will respond liberally to the invitation. Many of the cattle shown at Dublin early in April will no doubt find their way to Paris towards the end of the following month. Their expenses from the place of landing to Paris will be repaid by the French Government, who charge themselves also with the cost of maintenance of the animals in Paris.

It appears that "the experience of some of the best Lothian farmers is against the growing of Italian Rye-grass, they having some years ago cultivated it in the place of the common Rye-grass, and as a mixture with it," and most of them having since abandoned it. This is a statement published by one agricultural paper and quoted by another in the leading page, with all the emphasis of capitals and italics. What if an agricultural journal should lift a warning voice against the use of guano—quote instances (which may no doubt be had for the search) in which the manure has failed—and, generally, shake the head and recommend the wisdom of a cautious course in reference to it! This would not be greater folly than the attempt to write down the cultivation of Italian Rye-grass. The single ton or so of guano which Mr. Scott told us at the Society of Arts last week that he, with Mr. Skirving, of Liverpool, was the first to use some 14 or 15 years ago, though at the price of nearly 30*l.* per ton, has grown to 129,839, 123,166, and 235,111 tons in the three last years; and this would, probably, be held conclusive of its usefulness in agriculture, notwithstanding the failures which have been recorded, whether owing to mismanagement or adulteration. And though "some of the best of the Lothian farmers" may have given up the use of Italian Rye-grass, the real value of that crop in general estimation is sufficiently proved by the importation of its seed, which in the hands of a single firm alone has reached the amount of nearly 40,000 bushels annually, by a steady growth from 160 bushels 24 years ago; and by the distribution of this seed, too, from the hands of all the retail dealers who have spoken on the subject, for it too has wonderfully increased in almost every part of the country.

Let those who think that agriculturists generally are given to speculative and extravagant enterprise act the drag as the greatest service they can do. We do not here desire to compare the relative merits of the spur and drag respectively as agricultural implements; but, in reference to a progress so constant and so safe—made, too, without the aid of any spur—and proved so unquestionably by the direct testimony of seedsmen, it does seem to be the height of absurdity to think that the interests of the farmer require him to be cautioned against the adoption or extension of it. We have no doubt that in spite of the exceptional failures—and the liability to false seed is just as fatal to the result as is the liability to adulterated manures—the growth of Italian Rye-grass will continue to extend just as the use of guano has extended; and a larger extent of the stubbles of the now young grain crops will this year be set apart for Italian Rye-grass than has ever hitherto been done. We venture to recommend agriculturists to act in this matter independently of the doubting tone which has been raised upon this point, and so echoed as that the warning portion of it is heard louder than the rest. We know that the growth of this crop has been, and we believe it will continue to be, extended largely, not only in mixtures with other Grasses and with Clover, but by itself, both under ordinary cultivation and as stimulated by irrigation.

TOWN SEWAGE AND ITALIAN RYE-GRASS.

The question of liquid manuring begins to assume a practical bearing, and the interest as well as the importance of the subject has been greatly promoted by the recent excellent papers of Mr. Lawes on the Sewage of London, and of Mr. J. C. Morton on the Italian Rye-grass. I am pleased to find that the conclusions respecting the value and the application of sewage which I arrived at several years ago, and which I endeavoured in vain to impress on a neighbouring town (since victimised by the apostles of the Board of Health) has been borne out and established by the elaborate and valuable calculations of Mr. Lawes. The subject is, therefore, one of peculiar interest to me, and I am desirous of directing attention to one or two points, whilst the papers to which I have referred are before the attention of readers. We may I think consider as settled points—

1. That if the sewage of towns is to be rendered profitable it must be by being applied in a liquid state.

2. That Italian Rye-grass is above all others the plant which offers the greatest return for the application of liquid manures.

3. That this plant should not be fed on the land, but cut for soiling, and removed, so as to allow the immediate supply of an abundant dressing of liquid manure.

4. That the liquid manure as applied by Messrs. Mechi, Kennedy and Telfer is of vastly superior quality to that furnished by ordinary sewage. On this last point I think it would be very desirable if the above gentlemen were to furnish samples of their manure, which should be compared by a chemist with that furnished by ordinary sewage. This observation leads us to notice a practical difficulty with regard to sewage which has not hitherto received the attention it deserves, viz., that when we require the most sewage we shall have the least, and when we need the least we shall be supplied with the most; when the land is saturated with moisture the sewage will be copious and diluted, and when the soil is parched by drought the sewage will be scanty and concentrated. To this we may add that the tendency of sanitary improvements is to render sewage more diluted and less valuable.

It is evident therefore that it will be at all times difficult to fix a pecuniary value per ton on sewage in the same manner as it would on Peruvian guano if it sometimes contained 17 per cent. of ammonia and sometimes only seven.

It will be necessary, in order to render it available, that a given number of acres should be devoted to the growth of Grasses for its reception, and that means should be afforded by which its quality should be doubled or trebled by artificial manure when required, and either diluted with water in the summer, or collected and retained in immense reservoirs against dry weather. Dismissing the subject of sewage, and reverting to that of the application of ordinary or artificial manure in a liquid state, I may venture to express my belief, that although the idea of laying down pipes for the purpose throughout the whole extent of a farm, and on many farms, is probably Utopian, and would by forcing into general use a particular mode of farming defeat the very end for which it would be introduced in the realisation of profit, yet that it is extremely probable that on a great number of farms where steam machinery is available, and a copious supply of water exists, a portion of the farm nearest the homestead might be furnished with pipes, and devoted by means of irrigation to the production of monster crops of Grasses. If, for instance, in a farm of 500 acres, 100 of those nearest the homestead were to be pierced with pipes, a moiety of 5 acres might always be kept in Italian Rye-grass or Clover, whilst large crops of grain, Pulse, or roots might be raised alternately without further manure. The resources of the farm would thus be vastly enhanced whilst the general management might not be greatly interfered with.

There appears to be much discrepancy with regard to the quantity of liquid to be applied at each dressing; Mr. Mechi applies 10,000 gallons; Mr. Telfer more than double, viz. 100 tons, or 22,400 gallons; whilst Mr. Lawes gives

down the enormous quantity of 10,000 tons per acre per annum, which gives 2000 for each of five applications. Now whilst we think the latter (if not a mistake) is greatly above the rate that can be profitably employed, the quantity applied by Mr. Mechi might be increased with much advantage. It was very evident to those who, like myself, had the pleasure of inspecting Mr. Mechi's operations in July last that whilst the Italian Rye-grass in the neighbourhood of the furrows was green and luxuriant that on the top of the ridge was very inferior. The former from their lower level must have received at least double the amount of liquid to that imbibed by the ridge; whilst the furrow might have had at the rate of 60 tons per acre, the ridge could only have had 15, which, supposing the land to be in a dry state, would not have penetrated one inch in depth. It appears, therefore, that as 1 inch, or 100 tons of liquid, would wet the land 4 inches in depth, that this quantity in dry weather would be by no means too much. We may, therefore, come to the conclusion that the quantity supplied at each dressing should approach 100 tons if the land is in a dry state. It is very evident that if the Grass crops are heavily dressed the intervening grain crops will require no further assistance, but will be sufficiently fed by the overplus supplied for the Grass. It has been urged by some parties that if no solid manure is used the land will become too close, and will miss the carbon which the straw supplies. This objection, however, may easily be met by leaving the stubble of the grain crop longer than usual and putting it in, or a portion of the last cutting of Italian Rye-grass might easily be buried, thereby supplying plenty of carbon if it is really required. There is one point of much interest which the production of monster Grass crops appears to elicit, which is the enormous quantity of silica readily extracted from the land by means of the Rye-grass; and although, no doubt, a good portion of silica is supplied in the liquid manure, yet it is only partially in a soluble state, and we can rapidly raise a monster crop with equal facility by applying sulphate of ammonia, or guano (containing very little silica), with a large quantity of water. If therefore the free application of ammonia to the soil will enable it to give up so large an amount of silica to plants, we need not be under any apprehension that sufficient silica will not be supplied to ordinary crops under ordinary treatment, and there is very little encouragement afforded for supplying silica, either soluble or insoluble, in artificial manures. *W. C. Spooner.*

Home Correspondence.

Measurement of Haystacks of a cylindrical form with conical roof.—In Strachan's agricultural tables (Simpkin and Marshall, 1843), the following rule is laid down, viz.: "To the perpendicular height from the ground to the eaves, add one-third of that from the eaves to the top for the mean height; then multiply the square of the girth by the mean height, their product multiplied by 100 and divided by 4847 will give the number of stones nearly, reckoning 7 stones to the cubic yard." Example. A rick of hay 18 feet from the ground to eaves, 9 feet from that to the top, and 60 feet girth gives 1559$\frac{4}{5}$ stones. Now, what I want to know is—firstly, Why does he multiply by 100 and divide by 4847? Secondly: Is 7 st. per cubic yard a pretty fair allowance for ordinary sized haystacks (say one of the above dimensions)? Lastly, is it true that there are 1559 st. in the above-mentioned stack? By the aid of mathematics I make out that the cone = 35 cubic yards, cylinder = 209 cubic yards; total, 244. I am aware that in the second question much would depend on the quality and state of the hay, yet I think that there must be some approximate weight fixed by valuers for a cubic yard of good meadow hay well got. *Mathematics.* [The solid contents of a cylindrical rick, assuming the conical top of it to fill a cylinder one-third its height from the eaves upwards, are obtained by multiplying the area on which it stands into the height thus obtained, *i.e.*, into a height equal to the height up to the eaves, *plus* one-third of the height above the eaves. But the area is the radius multiplied into one-half the girth, and as the diameter is the girth divided by 3.14159, it follows that the area is represented by the square of the girth divided by about 12.566. If, therefore, the solid content in cubic feet be obtained by multiplying the height into the square of the girth (both in feet), and dividing by 12.566, it follows that by multiplying this by the number of stones of hay in a cubic foot you obtain the weight of the rick. According to Mr. Strachan there are 7 stones in a cubic yard, or $\frac{7}{27}$ in a cubic foot; and you will find that to divide by 12.566, and then multiply by the fraction $\frac{7}{27}$, is just the same as multiplying by 100 and dividing by 4847, which is Mr. Strachan's rule. Hay varies from 8 to 12 cubic yards per ton, according to the age and size of the rick, and therefore no rigid rule is applicable.]

The Laughing Pigeons.—In answer to inquiries, I mention that a friend purchased these birds for me at Mr. Steven's, in King Street. My friend understood, when he bought them, that they had come from Persia, *viâ* Bombay. If I can obtain any further particulars I will send it to you. *An Old Subscriber.*

Cross Breeding v. *Breeding in-and-in.*—I had fully intended to leave Mr. W. P. Ayres to the quiet enjoyment of his theory, however erroneous I may and do consider it, on the subject of breeding; but, as my silence might be misconstrued into an approval of a system—if system it may by courtesy be called—the leading feature of which is alteration of form under the guise of improvement of animals, I think it but due to the public and to myself to reiterate my firm but earnest protest against the opinions he has endeavoured to promulgate, and which, if generally adopted, would infallibly lead to very serious and mischievous results. I endeavoured to prove this, and to my own satisfaction, and that of many of far greater experience than I can boast, did prove it, from the written testimony of one of our ablest and most scientific authorities in such matters, the late Henry Cline; and, yet more important, the living evidence of Messrs. Brown's flock at Denver. To all this, what counter evidence has Mr. Ayres to offer? A successful blunder of his Welsh friend to enlarge the form of his native mountain sheep, by means repugnant alike to the principles of science and nature. I speak advisedly. It is a blunder, and not the less so, because in this instance it happened to succeed. It is beginning at the wrong end; and most assuredly, if generally adopted, would lead to a vast amount of mischief and disappointment—I mean, of course, the introduction of males whose chief recommendation is their size and weight. By these so-called improvers, the old maxim of "small in size and great in value" seems either disregarded or in some danger of being altogether reversed. Shade of Bakewell! forgive this outrage on the principles so wisely and assiduously inculcated by thee; and in all kindness compassionate the errors both of omission and commission of many who in their own imagination are theoretically treading in thy footsteps, when, literally and truly, they are but following an *ignis fatuus* of their own invention! As to the in-and-in system, so long and so successfully adopted by the Messrs. Brown—"a great fact," as I may call it, of more than half a century—what has Mr. Ayres to oppose? Not a syllable as to sheep breeding at all, but a most touching and doleful tale of a certain dairy of cows being so bred that they had no milk; and so fat, you could not keep it down, even in a strawyard! And this Jeremiad is put forth, I suppose, as a caution to my unhappy friends (Joseph and Thomas Brown) to avoid the rock on which this unfortunate cowman (laid down in Mr. Ayres's chart as "the in-and-in shoals") appears to have split. With all deference, I suspect that my excellent friends, however much they may appreciate Mr. Ayres's kindness in this his friendly warning, will be very apt, with me, to assign a far different reason for the cowman's failure, viz., ignorance and mismanagement. These are strong words, I admit; but obstinate diseases require strong remedies, and this is of them. I have mentioned Messrs. Brown as skilful and successful breeders on the in-and-in system; but I am able to point to a similar instance in the immediate neighbourhood of Mr. Ayres, in the person of Mr. Valentine Barford, of Foscote, near Towcester, and but a short distance from Whittlebury. This gentleman will, I am quite sure, not only confirm all I have said as to the Denver sheep, but is able to exhibit in his own flock a further instance of what may be done by a long course of judicious management in the breeding and selection of individuals on the in-and-in principle. I have no authority from Mr. Barford thus to bring forward his name; but knowing, as I do, the pleasure it always gives him to aid the cause of real improvement, I have the less scruple in taking the liberty with him. If I am wrong in so doing, my motive must be my excuse. *T., Gloucester, March* 23.

The Lambing Season.—Having lost several ewes during the lambing season, I shall feel obliged by your inserting these few lines in the *Agricultural Gazette*, trusting that some of its numerous readers may be enabled to render me a little assistance. My flock consists of 500 ewes of the Dorset breed; they commenced lambing about the middle of December, and with the exception of a few which were very late, had dropped their lambs by the end of the first week in January; consequently my ill-luck cannot be ascribed to the severe weather, as about that time it was both dry and mild. About two days after lambing the disease first appears; the ewe does not feed, inflammation of the uterus is, I suppose, going on; within a few hours she commences heaving, after which I have not known a single instance of recovery. I must add that this disease attacks the "two-teeth" sheep only. I have tried laudanum, Epsom salts, and ginger, but always unsuccessfully. Can any remedy be given? and what is the reason that the older sheep do not suffer? Whilst mentioning Dorset sheep, I will draw your attention to what appear to me to be errors in "Blackie's Cyclopædia." I think the fleeces will be found to average 5 lbs. per fleece, and three-year-old fat wethers will average a great deal more than 18 lbs. per qr. *C. P.—W. P.* [*Heaving and Inflammation.*—This somewhat mysterious and peculiarly fatal disease has been very prevalent this year, and appears to bid defiance to remedial measures. A friend of the writer, who has suffered much from it this, as well as in former seasons, has found that of two flocks, one that had had Swedes were affected, and another that had received common Turnips escaped. He ascribes it to the stimulating properties of the Swedes, and intends for the future to give no Swedes before lambing. High keep, and a want of sufficient exercise before lambing, are no doubt predisposing causes. It usually attacks ewes with the second and third lamb, but your case appears to be an exception. Perhaps your young ewes may be in better condition. *W. C. S.*]

Agricultural Statistics of Scotland.—I have no doubt a great many in England look with great interest at the statistical returns of Scotland collected by the Highland Society, and we shall no doubt see them taken for what they are not—a true return of the produce of Scotland. It must be remembered that farms rented under 20*l.* in the Highlands, and 10*l.* in the Lowlands, are excluded altogether. (I do not see why 20*l.* should be fixed upon in one division of the country and 10*l.* in another.) This, it is obvious, confuses the whole affair; and, as we have no means of ascertaining the proportion the excluded portion bears to the whole, the deficiency cannot in any way be calculated; indeed it varies immensely in my own neighbourhood. In the Highlands I am inclined to think one-third of the arable land is not returned; these small farmers, although nominally going by the five-course rotation, grow a much larger proportion of Oats, sowing it both in the place of Barley and as a second crop, but scarcely any Wheat, so by excluding them the proportion of the various crops returned varies from the truth. If the returns are continued year after year on exactly the same plan they will prove useful, as showing to some extent the progress of agriculture; but they can in no way show the produce of the country either in amount or the proportion of the different crops. *A. C.*

Italian Rye-grass.—The favourable account of the growth of Italian Rye-grass that has lately appeared in the *Gazette* will be the means of doing much good. The incontrovertible and well-defined facts therein stated should be a sufficient inducement to many to enter on its culture, "at least in an experimental point of view." Though I do not happen personally to have an experience in its separate culture, yet I have always advocated the introduction of a certain portion of Italian Rye-grass in addition to the other Clover seeds in the ordinary course of cropping, and have derived great benefit from the practice in "early spring" by having good pasture to turn ewes and lambs on to at least a week or 10 days in advance of some of the neighbouring farmers—a circumstance of some importance in a sheep-breeding district such as this happens to be; nor was the appearance of a good bite of green food at this season of the year lost sight of. As I have the pleasure of knowing many intelligent farmers who, within the last few years, have had recourse to the same alternative, and with the like good result, I have seen some enormous crops of Italian Rye-grass grown "north of the Tweed," and have often wondered why its culture had not become more extended; but from the able advocacy its merits are now receiving, I have no doubt that ere long patches of Italian Rye-grass may be seen flourishing on every farm with as much luxuriance as it has hitherto shown on the Ayrshire farms. *P. Deane.*

Hardiness of Mangold Wurzel.—Last year about the beginning of May I drilled a few acres of yellow Globe Mangold Wurzel, 27 inches apart, with seed from Messrs. Sutton, Reading; they were hoed and set out in the usual way, not moulded up to keep them from the frost. About the latter end of October I began to stack them. Having had some conversation with a first-rate agriculturist on the hardiness of the root, by way of experiment I determined on leaving a few. I therefore selected two rows, about 200 plants, in the middle of a 40 acre field, where they have been during this severe winter. On examining them this day there is scarcely a rotten one; I fancy they are as good as they were last autumn. If any of your readers would like to inspect them they are at liberty to do so by applying to me. *W. Davis Briginshaw, Amerden Farm, Taplow, Maidenhead, March* 23.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, *March* 28.—Mr. MILES, M.P. president, in the chair.

FRENCH AGRICULTURAL SHOW.—M. Herbet, the Consul-General of France in London, transmitted to the Council, on the part of the Minister of Agriculture and Commerce in Paris, an announcement of the Agricultural Show to be held in that city at the beginning of June next, and a schedule of the prizes and the conditions of competition in reference to foreign exhibitors. The following is a summary of the prizes offered in the first section, which includes cattle of foreign (that is, not French) breeds, imported into France for the purpose of the show, and having either French or foreign owners:—

Improved short-horned cattle	£187
Other English breeds	233
Dutch, Swiss, and other breeds	233
Merino, pure and crossed	116
Dishley, New Leicester, and other long-woolled sheep	116
South-Down, and other short-woolled sheep	116
Pigs, of large breed	47
Pigs, of small breed	53

The birth of all male animals in the classes of cattle and sheep must have occurred before the 1st of May, 1854; and that of females in those classes before the 1st of November, 1853. That of boars and sows must have occurred before the 1st of October, 1854. All animals condemned by the jury as being too fat will be excluded. The first prizes for cattle, sheep, and pigs will be accompanied in each case by a gold medal; the second prizes by a silver medal; and the other prizes by a bronze medal. The show will last from the 1st to the 9th of June, during which period the French authorities will take charge of the animals and supply them with food. The French Government will pay the expenses from the frontiers to Paris, attending the conveyance of all stock sent from foreign countries. The reception of animals for the show will close at 2 P.M. on June 1st. The public exhibition will take place on the 5th and 6th of June. The entry of animals for the show will close on May 24.

The appointment of a deputation from the Society to the Agricultural Meeting of France was then suggested, and referred to the ensuing Monthly Council.

LABOURERS' COTTAGES.—Miss Banister, of Steyning,

transmitted to the Society several models of cottages for labourers, with statements referring to their construction and peculiar advantages, for which the thanks of the Council were ordered. Mr. Slaney, at the request of the President, undertook to inspect these models, and to report upon them to the Council.

Production of Butter.—Prof. Way read to the Council a letter addressed to him by Mr. Horsfall, of Burley Hall, near Otley, on the amount of cream and butter he obtained in his dairy by the particular management of his cows. This communication led to the expression of much diversity of opinion on the conditions under which the production and quality of milk is affected. Mr. Horsfall was requested to supply details of his management; and, on the motion of Mr. Caird, the further discussion of the subject was deferred until the second Wednesday in May.

Lecture.—Prof. Way's lecture on the Atmospheric Influence in Reference to Vegetation was arranged to be delivered on the 25th instead of the 18th of April.

Society of Arts, *March* 19.—*Sewage of London.*—[We add to our last week's report an abridgment of the addresses on the subject by Mr. Scott, of Liverpool, and Mr. Paine, of Farnham. Mr. T. Scott said—

The value of sewage had been carefully ascertained by Prof. Way, and amply illustrated by Mr. Lawes, and the result appeared to show that five-sixths of it was held in solution, and one-sixth in suspension. This also was the case of the Edinburgh sewage water, according to Professor Anderson's analysis, which, however, must be noted as much richer in the elements of fertility; and this analysis confirmed the results of Professor Way and Mr. Lawes's investigations, if any confirmation were required. Now as there was no absolute fixer of ammonia and of the other valuable elements thus held in solution, enabling us to secure the above five-sixths of volatile matter in a solid or sedimentary state, and then let the pure water go free, a pretty general unanimity of opinion was becoming prevalent in favour of appropriating the whole sewage of London to irrigation. No one, however, had as yet ventured even to shadow forth a plan on which this theory was to be carried out in practice, and it, therefore, appeared premature to launch so much recrimination as had been done against those the business of whose lives was remunerative farming for not accepting that which had never yet been put within their reach. As a practical agriculturist, farming land mainly for profit, he differed with Mr. Lawes and with a similar sentiment contained in a letter he held in his hand from Mr. Telfer, of Ayr, as to the propriety of forcing crops up to a point at which they become injured, but he was quite willing to use manure up to the highest point at which it was profitable. He at the same time was ready to admit, and had good data for believing, that 10 times the present expenditure of manure could be profitably employed if it could be obtained in any shape at the standard price of pure superphosphate of lime, or guano. Mr. Mechi said that sewage manure could be profitably applied to cereal crops: we had no precedent, however, for such a doubtful practice except on a very limited area of light soils in this country, or in the rice swamps of Italy, India, and America; in fact, the great desideratum in connexion with cereal crops here was how to stiffen and support the straw, not how to turn it into a weak aquatic reed. Just ask any farmer—he would not even stipulate for an intelligent farmer but one possessed of only the ordinary instinct of his kind—if he would like to have the fall of rain over his Wheat fields throughout the year doubled or quadrupled, and you would have a sound solution of the problem as to applying liquid manure to Wheat crops generally. Few of us would like to miss Mr. Mechi's presence from these meetings, and from Tiptree farm at his annual gatherings, but if he persisted in the practice of applying liquid manure to grain crops, his legitimate field of operations was not Essex, with its 130 rainy days in the year, but Italy, with its 38 (see Capt. Baird Smith on Italian Irrigating), or even the arid sands of Sahara. In these countries it was a question of irrigation and a crop, or, no irrigation and no crop. This, however, was seldom the case with us in this country, and it, therefore, appeared to him superfluous to adduce the case of Italy, and other countries, with their comparatively rainless climates and arid soils, and where no parallel circumstances existed. The nature and appropriation of the soil, too, was so entirely dissimilar that he thought he should do best to confine his remarks to what existed or was proposed to be carried out at home in connection with sewage irrigation. The lowest estimate of the quantity of land required for the London sewage was made by Mr. Lawes, and amounted to 20,000 acres. He at the same time confirmed the all but universal opinion that Grass, either natural or artificial, was the only crop to which liquid manure could be profitably applied. Now, although London was surrounded by Grass lands, he could not see that this 20,000 acres could practically be obtained out of a less area than 40,000 acres, or upwards of 60 square miles of land—being a larger area than that on which London stands (and here within parenthesis he would say that the Italian irrigation was nearly always applied to land under alternate husbandry). The first question that occurred was how this immense tract of land for irrigation was to be obtained: were the owners and occupiers voluntarily to combine to take the sewage, or were they to be compelled under an act of parliament? He confessed this staggered him. Again, if the sewage at the rate of 10,000 tons per acre, as proposed by Mr. Lawes, was thus concentrated on a single district, would not the nuisance created be greater than that now existing in the Thames? Surely, if we were to pay for its removal, we were not to have an equivalent elsewhere. Why residential property for miles around would be depreciated in lettable and fee simple value, and its owners would indite the nuisance, as would all passers by, whether by road or rail, and who would answer for the consequences? Who would justify the scheme to the general public, who have no interest in getting cheap bad milk near town, when they could by rail get better from a distance. It would be seen, by a letter he should presently read, that two eminent men, Dr. Sutherland and Professor Simpson, of Edinburgh, had reported against the fœtid irrigation of one of the newest water meadows near that city, and that medical men had condemned the milk. If, on the contrary, it was attempted to apportion out the sewage of London in driblets over a wider expanse of country, Mr. Lawes had shown that it would not pay, and the chairman had confirmed his calculations. When Mr. Chadwick said that it could be delivered at a distance of 10 or 15 miles from London, and 150 feet above the level of the discharging sewers, at 2½*d.* per ton, he surely never meant that it was to be spread over the land—which was the principal item of cost—at that rate; if so, many individual occupiers of light land could apply the sewage with advantage, but not even then at the rate of 10,000 tons an acre, as suggested by Mr. Lawes, which would cost 104*l.* 3*s.* 4*d.* an acre. It could be used more sparingly, however, and no doubt with a profit to many crops. He had been in the habit, for 5 or 6 years, of sowing upwards of 100 acres of Turnips annually with Chandler's liquid manure drill, using about three tons of water or 672 gallons per acre, with signal success; but he never could get it distributed at less than about 6*s.* per acre, nor did he expect to do so even, though this was nearly ten times Mr. Chadwick's price. He agreed with Messrs. Chadwick and others that Mr. Wicksteed's estimates of cost for trunk drains and pipes for irrigation were extreme—as also his estimate of land required, and which might, to some extent, be accounted for by his being an advocate for solidifying the sewage ingredients. He had, therefore taken the figures of those who preferred irrigation. Mr. Lawes valued the ingredients in the sewage of London at 774,525*l.*, and Mr. F. O. Ward calculated the water with which they were carried off at 90 millions of tons. Now, if all this sewage was to spread over 20,000 acres of land, we should have 100 inches deep over 60 square miles. Imagine such a putrid sea within sight of the largest and most condensed mass of human beings in Europe, and then say, if such a thing was likely to be tolerated. Edinburgh, with its 600 acres, was bad enough in sultry weather, as he had personally experienced; but what was it to this! Then take the case of Edinburgh as to the effect on the animals fed on sewage Grass. The author of the admirable prize essay on the farming of the Lothians lately published in the "Journal of the Royal Agricultural Society" wrote him:—"Since *pleuro-pneumonia* became so prevalent, the loss from this disease in the Edinburgh dairies exceeds all belief. During the first year or two, the veterinary surgeon was called in; but as cures were seldom effected, the butcher has taken his place. The loss has been so great that many cow-keepers have been ruined. It is rather suspicious and against the system of feeding with irrigated Grass, that Mr. Telfer, at Cunning Park, has been losing an immense number of cows, and the ventilation of his cow-houses cannot be surpassed, and cleanliness is most scrupulously observed. It is quite understood here" (Edinburgh), "that the experiment at Myremill has been anything but profitable; and Mr. Huxtable has, we believe, partly relinquished the practice. (Authority, Lavergne, the French agriculturist.)" Then as to the special case of Mr. Telfer, a gentleman wrote:—"So great a nuisance is Cunning Park that we have felt the most offensive smells near 'Alloway Kirk,' distant a mile and a half. We advised Mrs. Begg, Burns' sister, to indite him for a nuisance. This she declined doing; but we believe that other parties have been threatening a process of this kind." Another correspondent in Edinburgh, on whom he could rely, said:—"The meadows being very near the town (Edinburgh), and being irrigated so frequently as to produce three or four crops of very rank grass in the course of the season, were considered a very great nuisance by the inhabitants in this neighbourhood, and it was considered a great benefit to the city, generally, when the improvements connected with the Queen's drive, &c., led to the practice of so irrigating those nearest town being done away with. In hot weather, and in certain winds, the smell from these fields was intolerable, and the grass had the thick, rank appearance of the grass of a crowded churchyard. The smell, and their insalubrity, affected the rents of the houses exposed to their influence. As to the effects of grass produced by them on the milk or meat of cattle fed with it, I can only say that the general impression on the part of the public was very much against such milk and meat."

[Further evidence from the Agricultural Manure Company and from other witnesses, was adduced on the point by Mr. Scott.]

He had one letter from a large rent-paying occupier on the Duke of Argyll's estate in the west, and with which he was familiar, having resided as his grace's agent upon it, and he stated that irrigation and horse-feeding were supposed to destroy the procreative powers of cattle; and added, "The irrigation works in Ayrshire are looked upon by practical farmers and good judges with great suspicion, *i. e.*, Messrs. Kennedy's and Telfer's. Mr. Ralston's is upon the gravitation principle, and is most admired, and considered the most profitable. Indeed, the others are considered to be the reverse, even though Mr. Telfer sells his milk at 6*d.* per Scotch pint; but no one can say without seeing the honest balance-sheet." In justice, however, to Mr. Telfer, whose extensive and exact knowledge of the sciences of chemistry and physiology, and love of their pursuit, had, he had little doubt, been the main instigation to him to undertake his wonderful operations to illustrate "agricultural possibilities," at Cunning Park, and with the purest motives to instruct and not mislead—in justice to him he (Mr. Scott) should read part of a letter to himself, dated the 14th inst. That gentleman said, "I have hurriedly read Mr. Lawes' paper, delivered at the Society of Arts, and agree with him in what he says about the advantage of manuring up to the point at which the plant is injured in its growth. It is better to put a large quantity of manure on a small area than a limited supply on a more extended surface, or, if you choose, better to waste manure than land. I have been acting in this view in the growth of Italian Rye-grass, and with most satisfactory results. I believe I could put the whole liquid of my 48 cows in one acre of Italian Rye-grass, not only without doing injury to the plant, but with a decidedly more profitable return than if applied to a larger area." It must not, however, from this be supposed that Mr. Telfer would be able to feed his 48 cows off the acre so manured, for he saw by a report of the Board of Health that he had always been under the necessity of purchasing not only foreign cake, but home-grown corn and hay to sustain his cattle under his present system. But even if this irrigating system were found to be desirable and remunerative, the cost of carrying it out generally would absorb more than all the surplus capital of the kingdom. Take the case of the Duke of Portland, and who can imitate it by sinking 39,000*l.* on 300 acres. But this proof was entirely wanting up to the present time, and we had as yet no pecuniary inducement, and certainly no sanitary one, to adopt the system, and after banishing the ague by drainage, to bring it back by pestilential irrigation! How to render town sewage available to agriculture remained one of the most urgent, but he feared involved, economical problems of the day, and the offer of 1000*l.* for its solution, by Mr. S. Brooks, of Manchester, remained unclaimed. But the discoveries that science had made during the last few years left no man at liberty to dogmatise of the future. In the meantime, he would venture to suggest that a Commission of two first class practical agriculturists, aided by a competent chemist and a hydraulic engineer, might be sent to examine the sewage of continental towns—see how it was disposed of, if used, and to ascertain the results. Until something of this kind be done, we must, he thought, be content to obtain for agriculture from our cities only such solid matter as blood, and, in many cases, night soil, as we could intercept from the sewers, and which the Sanitary and Sewerage Commissioners might much facilitate; and, afterwards, we might intercept the sediment by an inexpensive process, which he purposed recommending to the notice of the Commissioners. Our present information leads to the conclusion: 1st. That precipitation produced an inferior manure, and would not pay for preparing; 2nd. That open-drain, foul-water irrigation would not be tolerated; 3rd. That pipe irrigation was unsuitable for either low or elevated clay soils, was doubtfully remunerative on any, impracticable on a large scale and would create an indictable nuisance; 4th. Intercepted solids and settled sediment inexpensively obtained seemed, then, the only residue we could secure out of this mine of liquid wealth. It was a scientific mistake to suppose that this water, or any kind of manure containing by analysis the elements of fertility required, was, *per se*, adapted to all soils; for in many cases we required to alter the mechanical texture of the soil by bulk—hence sewage as rich as that of Edinburgh might injure a clay soil, whilst the poorest solid manure might produce a beneficial effect. In the stewartry of Kirkcudbright he had seen land where, after the stones had been gathered off the land, it became unmanageable and unproductive, and these had to be restored to their original bed. And in Kent he had seen land, on Sir Percival Dyke's estate, where flints were obliged to be brought back, for the same reasons, after having been sold for road metal. So, after all, the bulk of Mr. Wicksteed's precipitated manure might constitute its chief value, and thus practically qualify the theory of the analytical chemists. A few experiments would shortly prove this, and it was to be regretted that we had no national experimental farm where such experiments could be made, and reliable results obtained.

[The following are remarks by Mr. Paine, of Farnham: we regret we are unable to give the contributions of other speakers to this most interesting discussion.]

To the conclusions of Mr. Lawes, that we must measure the value of manures by their chemical ingredients, he gave his most hearty assent; and he thought that the enunciation of the maxim that we should chiefly estimate the worth of manures by reference to the proportions of nitrogen and phosphoric acid they might contain, had been of immense service to all those farmers who had availed themselves of that information. Mr. Scott had just now alluded to the rank luxuriance of the Edinburgh meadows, as an evidence of extravagant liquid manuring, and had attributed the disease so prevalent amongst the cattle fed on those meadows to the bad quality of their food; while Mr. Caird altogether dissented from this view on the ground that his own cattle, receiving a different kind of food, were quite as severely visited by the epidemic. But whether the rank quality of the Grass in the Edinburgh meadows predisposed the cattle fed thereon to the taking of this particular disease or not, still he felt satisfied that even Grass lands might be over-manured by too large doses of sewage, so as not to allow it time to form those chemical combinations with the soil which Professor Way had spoken of, and which he had good reason to believe always took place in the land before the manure could be healthily assimilated by the plant, the manure being as it were digested by the soil, and thus fitted for vegetable use; and if so, it was highly probable that excessive manuring would produce a growth of crude vegetation of a poisonous rather than a nutritive character. But, returning to the uses of the London sewage, it had been generally admitted during this discussion that the several processes for converting it into a dry manure were failures, on account of the low chemical value of their results. To the liquid form of application our attention was chiefly directed, but from the many practical difficulties which had been started, he was not very hopeful of a speedy realisation of the advantages which the theory of the subject would lead us to expect. In the onset of any such undertaking, it seemed pretty clear that unless the City of London, for its own sanitary purposes, lent a strong helping hand to the agriculturist, there was not much prospect of so large a scheme being attempted; there must be, in fact, a combination of both interests. Now, as to the theoretical value of this London sewage, we learned from Mr. Lawes' Tables that each individual in the course of the year supplied about 8 lbs. of nitrogen and 4½ lbs. of phosphates, which substances would, if available, be worth at least 4*s.* and 3*d.* respectively; and, taking the population at 2,500,000, we had a money representation of 531,250*l.* per annum. This was supposing there was no loss of nitrogen in respiration, but this loss would be more than compensated by other refuse matters which flowed into the sewers along with human excreta. Then, again, 80 lbs. of nitrogen in the sewage, combined with the accompanying phosphates and alkalies, would be a most liberal manuring per acre for any description of crop; 10 persons produced this quantity, consequently 250,000 acres ought to be manured. Such capabilities of manuring, and so large a money value, ought not, and we might be allowed to hope would not, be eventually lost. The chemist and the agriculturist recognised the value of this sewage, but they must look to the civil engineer for the means of application. Mr. Way told us, in the early part of the evening, that we were not to expect much advantage from the application of sewage to the low-lying alluvial lands near the Thames, as they could not be properly drained for this purpose; and he (Mr. Way) differed from the opinion of Mr. Lawes, and many others, in thinking that it might be advantageously used for cereal crops; and he stated that he had arrived at this conclusion from the facts which he had discovered in his investigation of the absorbent properties of soils, and, therefore, especially recommended the use of sewage prior to the crops being sown. He (Mr. Paine) would be able to adduce a few facts presently, illustrative and confirmatory of Mr. Way's views, which, he considered, had a most important bearing upon the useful application of liquid manure. He fully believed that the metropolitan sewage might be beneficially used as a manure to every crop, provided due regard were paid to the time and mode of distribution, and provided always that the land were, either naturally or artificially, drained, so as to ensure a porous subsoil manure. For his own part he would fearlessly place the sewage upon the soil destined for root crops at any convenient time, before as well as after the plants came up. And here he could not but refer to Mr. Caird's valuable remark, that if sewage, or even water alone, could be obtained when wanted, at the prices stated by some of the speakers, it would prove a great boon in certain dry seasons in saving the crop of upland hay, and in starting the young root plants. Mr. Paine would now detail a few facts which had recently occurred on his own farm, which would tend to prove the soundness of Mr. Way's opinions relative to the possibility of successfully using liquid manure for corn crops, if placed upon the land at the proper time. 1. A field on a gravelly soil, resting upon chalk, was manured, in September 1853, with about 8000 gallons of liquid per acre, from the farmyard tank. It was sown in the beginning of November, with Payne's "Defiance Wheat," the same sort that the Rev. Mr. Smith, of Lois Weedon, sowed in his experimental crop of last year. It was a rather coarse variety. The rick being the produce of this field was threshed out in the autumn, the crop was 64½ bushels per acre, and was sold for 18*l.* per load of 40 bushels. The crop of straw was fully 3 tons per acre. 2. Part of another large field of a similar geological character had been in Italian Rye-grass for three years previous to the spring of 1853, and during this period it had occasionally been liberally dressed with strong tank manure. It was sown, late in the spring of 1853, with Wheat, and the whole field was much blighted. Last year, 1854, the field was sown with Oats, and the part which had previously been manured with the liquid grew the strongest crop of Oats he ever saw. The crop of the whole field was a good one; indeed, the average growth of Oats on his farm was upwards of 13 quarters, but this portion of about 3 acres greatly surpassed any other. The straw stood fully 6 feet high. 3. Another instance was on Hops, in a field adjoining another farmyard, in which there were spots where the chalk subsoil was faulty near the surface, and which were naturally less fertile than the rest of the field. Upon these spots in the winter time, when of course there was no growth in the plant, the liquid from the manure tank was pumped. This happened during two successive winters, and the result was the bringing of these poorer spots of land to the average fertility of the whole garden. He, Mr. Paine, regarded these "facts from the fields" as highly confirmatory of his friend Professor Way's researches in the laboratory, and he could confidently recommend them to the attention of his brother farmers, and he hoped they might tend to lead others to make similar experiments, as it was manifest that the safe application of liquid manure to the cereal crops had a most important bearing on the sewage question. He would only add another word in conclusion. Some of his friends who had visited his farm might ask him why he had partially discontinued the use of liquid manure. His answer was, that with the aid of Mr. Way he had discovered an inexhaustible supply of soluble silica on his estate. It was a porous rock, similar in many respects, to charcoal, especially in its deodorising and absorbent characters. He, therefore, now ground this rock into powder, and the liquid manure from the tanks was absorbed by it. This enabled him to give all his root crops a moist seed bed of highly stimulating properties. It might seem curious that he thus fell back upon manures obtained by absorption, the making of which from sewage he deprecated at the commencement of his remarks. But, then, let it be remembered, that the manufactory was on the farm, and, therefore, the cost of carriage constituted a very trifling expense.

Miscellaneous.

Guano.—A Return "of all the Guano imported into the United Kingdom in each of the years from 1852 to 1854, inclusive; distinguishing the quantities imported from each Country respectively."

Countries from which Imported.	Quantities of Guano Imported into the United Kingdom in the Years 1852.	1853.	1854.
	Tons.	Tons.	Tons.
West Coast of Africa	4,192	...	...
British Possessions in South Africa	7,273	850	3,187
Eastern Coast of Africa	1,363	...	...
China	790	654	...
British West India Islands	117	...	362
United States of America	182	2	1,502
Brazil	650	683	606
Oriental Republic of the Uruguay ...	1,575	669	112
Buenos Ayres, or Argentine Republic	932	383	536
Chili	11,191	5,828	4,249
Bolivia	6,213	1,058	...
Peru	86,293	106,312	221,747
Patagonia	7,282	2,209	430
Falkland Islands	...	178	601
Other Places	1,836	4,340	1,779
Totals of the Quantities Imported	129,882	123,166	235,111

Office of the Inspector-General of Imports and Exports, Custom House, London, March 17, 1855. *John A. Messenger, Inspector-General of Imports and Exports.*

Calendar of Operations.

MARCH.

West Sussex, *March* 26.—We have now got near to the end of March, when we usually have the fields assuming their cheerful green, but this year every kind of vegetation is very backward; and we find our Turnips disappearing rapidly and nothing coming to supply their place. The weather for the past few days has been very cold, and the frost at night sharp, and Grass has hardly begun to change its dull wintry aspect, so that if a change of milder weather does not soon come we shall hardly know which way to turn. We must now put the sheep upon a limited allowance of Swedes, and make up with cake or other artificial food with hay, and for the latter the consumption is unusually great for this time of the year, for generally before this time they give up eating hay. On all sides we hear that the Swedes are rotting, in some cases more than half the crop; and we shall now have an opportunity of testing the merits of those sorts that are said to stand any winter; for any that stand such a winter as we have had may be depended upon for any ordinary season. But there are other circumstances to take into account. We find that the same sorts have stood well on some land, and given way on others; and generally, where the land was free of stones, they have stood best: perhaps the stones may have damaged them when compressed by the frost, while in the soft land they have not been bruised so much. But, on the whole, we do not think that roots have been healthy at all; for all stock has done badly upon them from first to last. Tares and Rye have stood well, but do not come on fast; and the young Clovers are extremely weak, and make us doubt whether to leave them, or plough them up, to sow something else; but Tritolium looks well, and even one fine day would change it much. Wheat got very much cut up, but is now recovering, and may be pronounced in a fair way. The lambing season has passed over favourably, and young lambs are now coming into the market, but they are mostly of the Leicester or horned breeds; there have not yet been any pure Downs shown Barley sowing is hardly begun; and many are sowing Oats, though we consider it somewhat late for that crop. There is yet nothing done in preparing for the Turnip crop, but we are never allowed to forget that the time for that is coming; for the applications from the farmers' friends—I mean the manure sellers—are becoming numerous, and there is no difficulty in meeting with that respectable man or his agent with whom, in all treatises on manure, we are advised to deal exclusively. Who is not respectable? Of course all are if we take their word for it, and we must do so until we prove it otherwise, for that is the principle of English law. But then the proof is established with costs; and is it not the most ridiculous thing in existence to see a good old farmer listening to the plausible arguments of some clever-tongued agent for some celebrated nostrum? Surely, respectable men will bestir themselves and enlighten their own judgment so that it will act as their guide, instead of being led by the nose, and fleeced by well-known "respectables," as they have been. *G. S.*

Notices to Correspondents.

Agricultural Statistics: We have received a valuable paper on this subject from Mr. Lack, of the statistical department of the Board of Trade, which we are unfortunately obliged to postpone for a week.

Books: *O.* We do not know a work specifically on the law of leases. Bayldon on "Rents and Tillages" refers, we think, to the subject: and Low on "Landed Property" has a useful chapter on that topic.

Churn: *Constant Subscriber.* The churn made, we think, by Robinson, of Lisburn, in which the milk is treated pretty much as rags in the paper mill, travelling round and round in an elliptical tub, divided longitudinally into two divisions, in one of which the agitator is placed, while in the other any vessel may be put filled with water of the requisite temperature.

Cowpoxy: *Omega.* Pull the flowers before they seed, and cut up the plant, lifting as much of the root as possible, whenever the leaves appear. "Patience and perseverance overcome all difficulties."

Cream: *J. A. Gill.* You can easily sell any quantity. Cream of ordinary thickness can be bought wholesale in London, so we are told, for 2*s.* a quart; but of course it varies in price according to thickness. Milk sells wholesale for about 1*s.* 10*d.* per barn gallon of 17 pints. Cream would not stand a long railway journey, we fear.

"Economic" Manure: *A Subscriber from* 1841. The character of this manure was fully described in last year's volume. We do not advise you to buy it!

Grey Peas: *S. Cotton.* You have no doubt already answered the question for yourself. The crop has either already shown that it has recovered or the plants are plainly dead.

Guano to Oats: *A C.* Apply it mixed with mould at any time, and harrow it in. If spread broadcast without mixture, you had better wait till the seed has well brairded, and harrow it in after a shower of rain.

Lucerne: *Inquirer.* 12 inches intervals are enough.

Weight of Italian Rye-Grass Seed: *Messrs. Drummond, of Stirling,* write to us that their mention of 28 lbs. as the weight of a bushel of Rye-Grass referred to the common perennial kind; the greatest weight they have known of Italian Rye-grass was 22 lbs. per bushel, and the ordinary weight of that seed in their experience has been from 14 lbs. to 16 lbs. per bushel.

TREE TRANSPLANTING BY M'GLASHEN'S PATENT.

MR. M'GLASHEN is now prepared to supply Apparatus or give Estimates as to the rate at which he will safely and expeditiously transplant Trees or Shrubs of any dimensions in any part of the United Kingdom.

Canonmills Bridge, Edinburgh.

SCYTHES.

BOYD'S PATENT SELF-ADJUSTING SCYTHES may be had of the Manufacturers, William Dray & Co., Swan Lane, London; and of all Ironmongers and Seedsmen. A liberal allowance to the trade.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Sons, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1 12 0
2½ „	long 3 „ 3 „	gutta percha,	1 15 0
3 „	ditto 3 „ 6 „	or cast iron	2 12 0
3½ „	ditto 3 „ 6 „	flanged pipe,	2 18 0
4 „	ditto 3 „ 6 „	as required.	3 5 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 12 0
2½ in.	long ditto ditto	ditto	2 15 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.

GALVANISED IRON TUB GARDEN ENGINE,

With Warner's Registered Spreader,

is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

JOHN WARNER AND SONS, 8, Jewin Crescent, London, Manufacturers of FIRE ENGINES, PUMPS, GARDEN ENGINES, and SYRINGES.

Brass Syringes, 9*s.* to 18*s.*

All articles of John Warner & Sons' manufacture may be obtained of any Ironmonger or Plumber in town or country, at the advertised prices.

John Warner & Sons having been practical Horticulturists for many years, know exactly the requirements of both Amateurs and Gardeners. A gardener with a properly constructed pump will get through as much work in five minutes as he could with any Syringe in a quarter of an hour, and with half the labour to himself. Syringes are economical for small houses.

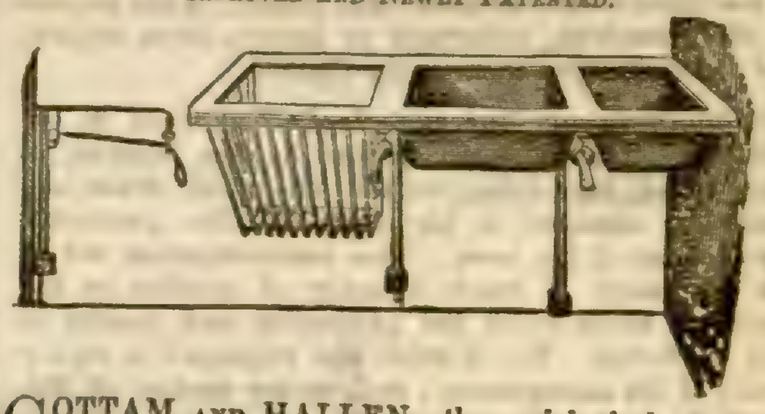
No establishment offers such a variety of effective machines for hydraulic purposes, whether to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of liquids.

Fountains suitable for Conservatories, Lawns, &c.

Sheets of Engravings sent on application.

MANGER, RACK, & WATER-TROUGH AS ONE FIXTURE

Improved and Newly Patented.



COTTAM AND HALLEN, the original inventors, obtained the Great Exhibition Prize Medal for this arrangement, to which all the latest improvements are adapted, secured by Patent, including a method entirely new of attaching the halter-weight and rein from the back of the manger to the under front of the plate, allowing the horse greater freedom, and being noiseless in operation, add much to its comfort whilst feeding and convenience when at rest, as likewise, from their position, avoiding the liability of the most restive horse getting cast. No well-managed stable should be without these fittings.

COTTAM'S ENAMELLED MANGERS are constructed in the best possible manner, both as to form and utility; are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, and Enamelled. Improved Surface Drain, with Safety Covers, Sanitary Traps, Stable Pumps, Loose Box, Fittings, Gutta Percha Preserving Saddle and Harness Brackets, and every article in Stable Furniture, in stock. An extensive assortment of Patterns for both Plain and Ornamental Castings, and every description of Wrought and Cast Iron Work for building and other purposes. Agricultural and Horticultural Implements, Iron Gates, both plain and ornamental, Hurdles, Strain Fencing, &c.

Estimates and Catalogues on application to Cottam & Hallen, 2, Winsley Street, Oxford Street.

WARMING AND VENTILATING.

FREDERICK PHILLIPS' PATENT.

THE PRIZE PULPING MACHINE of the Royal Agricultural Society's Show, held at Lincoln, July, 1854.

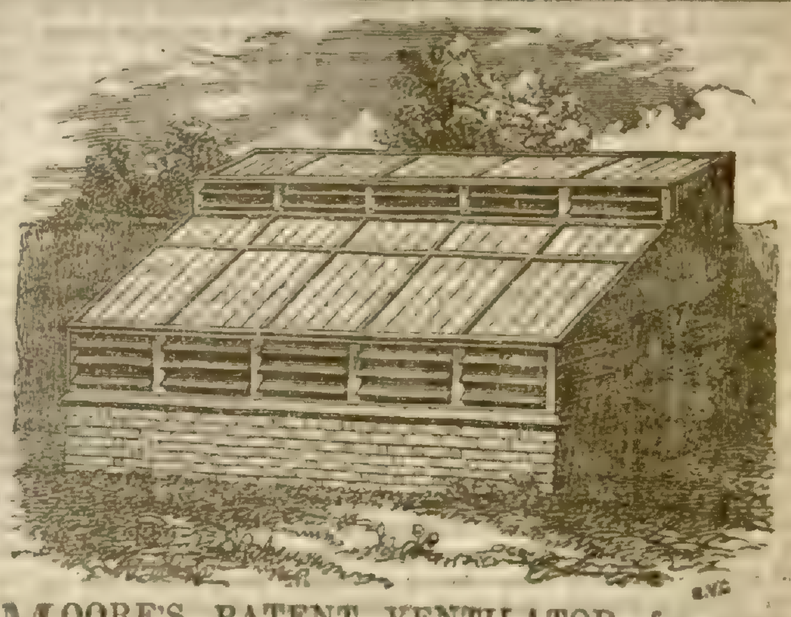
Of all the Pulping Machines which are before the Public, this is the only one which the Royal Agricultural Society certifies as "breaking the roots well,"—all others are certified as slicers (see their *Journal*, just published, page 373, also in the article on "Diminishing the Quantity of Roots in Fattening Cattle," page 490), and the great braggadocia "No Other," advertised weekly, although tried against that of F. P. and others, was not placed at all, in fact was "nowhere."

F. P. is happy to inform his numerous applicants for his Machine, that he has greatly simplified its construction without affecting its efficiency.

To be had of the Patentee, Brandon, Suffolk; of Mr. James Woods, Implement Manufactory, Stowmarket, Suffolk; or of the London Agents, Mr. William Dray & Co., Swan Lane, Upper Thames Street; or of Mr. Medworth, Implement Department, Baker Street, Bazaar.

Price, with boarded floor, 6*l.* 10*s.*; do. without do., 6*l.*

LOOKER'S PATENT VENTILATORS admit pure air without cold or draught. The cheapest arrangement yet introduced.—Particulars may be obtained of the Inventor and Manufacturer, Benjamin Looker, Jun., Kingston-on-Thames.



MOORE'S PATENT VENTILATOR, for every Description of Farm-Buildings, Conservatories, Hot-houses, Warehouses, Market-houses, Bell-turrets, also for Ventilating Shafts, &c.

These Ventilators are fitted to side-slips of wood with iron levers, iron flanges, and brass screws, with rough plate, or 32 oz. sheet glass, at 4*s.* per foot super. 2*s.* 6*d.* extra for necessary fittings to each Ventilator. If with brass levers in place of iron, 4*s.* per pair extra. It is presumed the accompanying drawing of a Greenhouse will show the advantages obtained (independent of a most perfect system of Ventilation, by admitting any amount of fresh air and distributing equally over the plants, &c., and at the same time emitting the vitiated), viz., a much neater appearance, and an uninterrupted view of the whole interior. Greenhouses at Mr. James Veitch, Jun., Exotic Nursery, King's Road, Chelsea; Messrs. Veitch & Sons, Nursery, Exeter; Messrs. Messrs. Perry, Nursery, Banbury; and the Pleasure Grounds at Hampton Court Palace; having been fitted with these Ventilators with perfect success, the Patentee has obtained permission to refer to the above places all parties desirous of seeing the same.

These Ventilators have been applied to many other Greenhouses, Conservatories, &c., but they are not published, in order to avoid giving unnecessary trouble. Fifty-four of these Ventilators, 5 ft. square (34 on the roof at an angle of 60 degrees), have been fitted at Her Majesty's Saltpetre Works, Waltham Abbey; the success of which has been proved by the fact, that the saltpetre is crystalised in little more than half the time, previously to the light and ventilation obtained by the adoption of these Ventilators.

Moore's double-current Ventilators for External Walls, &c. Ventilators for every description of apartment, from the Cottage to the Palace. Stained and Ornamental Glass if required. In taking the size, the exact opening should be given, stating the height and width distinctly. Tariff Prices of the ordinary Ventilators may be had on application at either of the above addresses. Packing cases allowed full price when returned free.

N.B.—These Ventilators can be readily fitted to Greenhouses already erected, by removing the entire sashes and fixing the Ventilators in their places.

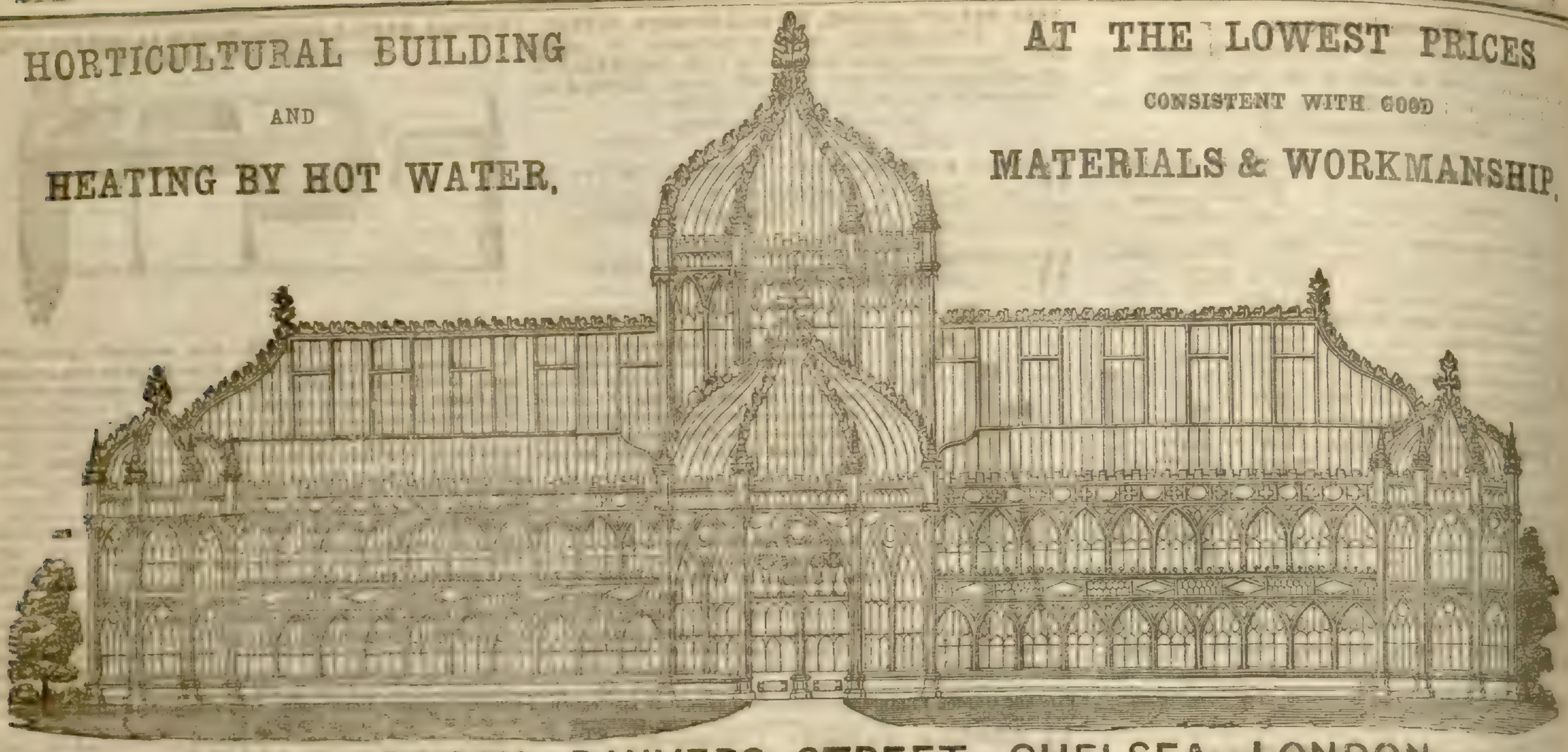
Perfect Ventilation in all Cases Guaranteed.

Church, Turret, Musical and House Clock Makers, to the Lords of the Admiralty, the Hon. Board of Ordnance, the Emperor of China, &c.

London: 81, Fleet Street, London.—Manufactory, Sekford Works, Clerkenwell.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER,

AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.



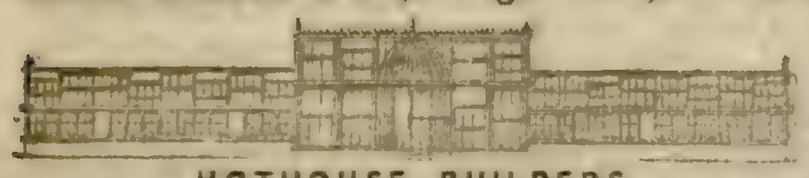
GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

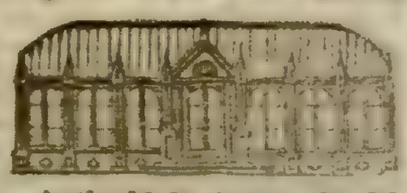


HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.

The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3s. 8d. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.

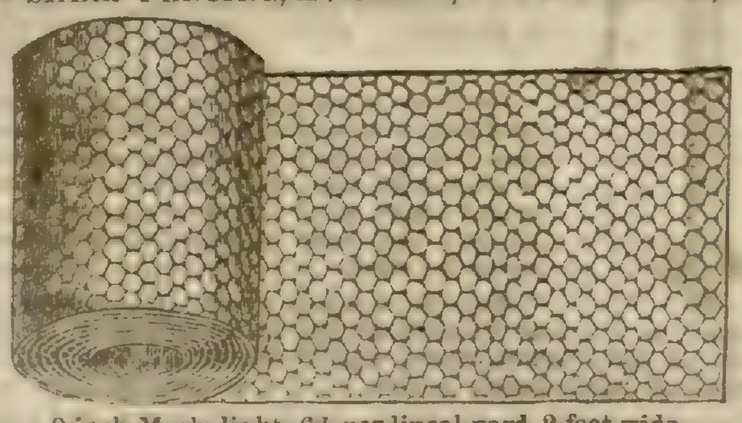
JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

STEPHENSON AND PEILL, 61, Gracechurch Street, London, and 17, New Park Street, Southwark, Manufacturers of Copper Cylindrical and Improved Conical Iron BOILERS, and Conservatory and Hothouse Builders, either in Wood or Iron, respectfully call the attention of the Nobility, Gentry, and Nurserymen to their simple but efficacious method of warming Horticultural and other Buildings by Hot Water.

From the extensive works they have executed, references of the highest respectability can be given, and full particulars furnished on application.

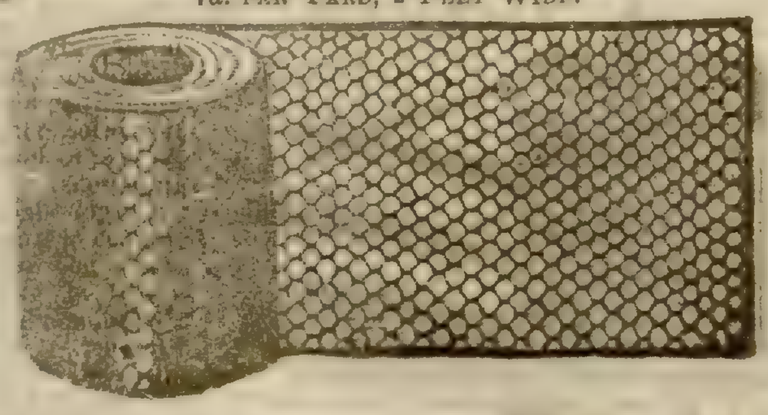
GALVANISED WIRE NETTING FOR GAME AND SHEEP FENCING, AVIARIES, PHEASANTRIES, &c.



2 inch Mesh, light, 6*d.* per lineal yard, 2 feet wide.
" strong, 8*d.* " "

Netting of any size or quantity, and Fencing of all kinds, supplied on the shortest notice.—WILLIAM DRAY & Co., Manufacturers, Swan Lane, Upper Thames Street, near London Bridge.

GALVANISED WIRE GAME NETTING.—
7*d.* PER YARD, 2 FEET WIDE.

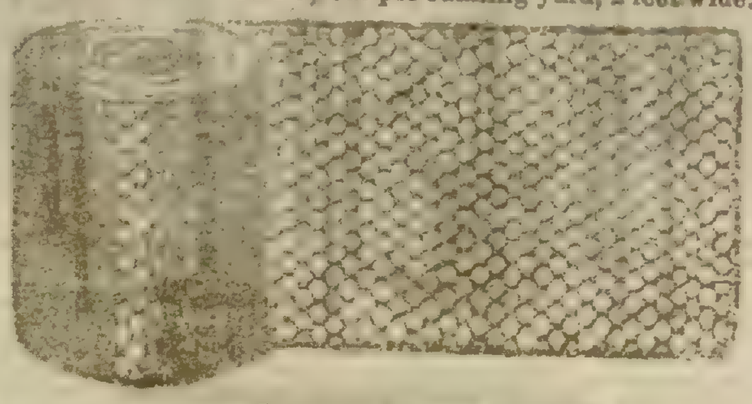


	Galvanised.	Japanned iron.
2-inch mesh, light, 24 inches wide ...	7*d.* per yd.	5*d.* per yd.
2-inch " strong " ...	9 "	6½ "
2-inch " extra strong " ...	12 "	9 "
1⅝-inch " light " ...	8 "	6 "
1⅝-inch " strong " ...	10 "	8 "
1⅝-inch " extra strong " ...	14 "	11 "

All the above can be made any width at proportionate prices. If the upper half is a coarse mesh, it will reduce the prices one-fourth. Galvanised Sparrow-proof Netting for Pheasantries, 3*d.* per square foot. Patterns forwarded post free.

Manufactured by BARNARD & BISHOP, Market Place, Norwich, and delivered free of expense in London, Peterborough, Hull, or Newcastle.

CHEAP WIRE GAME & POULTRY NETTING,
5*d.* per running yard.
GALVANISED DITTO, 7*d.* per running yard, 2 feet wide.

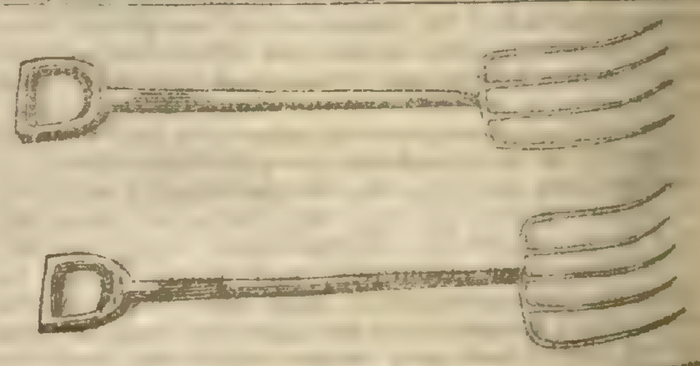


	Galvanised.	Not Galvanised.
24 in. wide, 2 in. mesh,	7*d.* per yard. ...	5*d.* per yard
30 in. " 2 in. "	9*d.* " ...	6½*d.* "
36 in. " 2 in. "	10½*d.* " ...	7½*d.* "
48 in. " 2 in. "	1*s.* 2*d.* " ...	10*d.* "

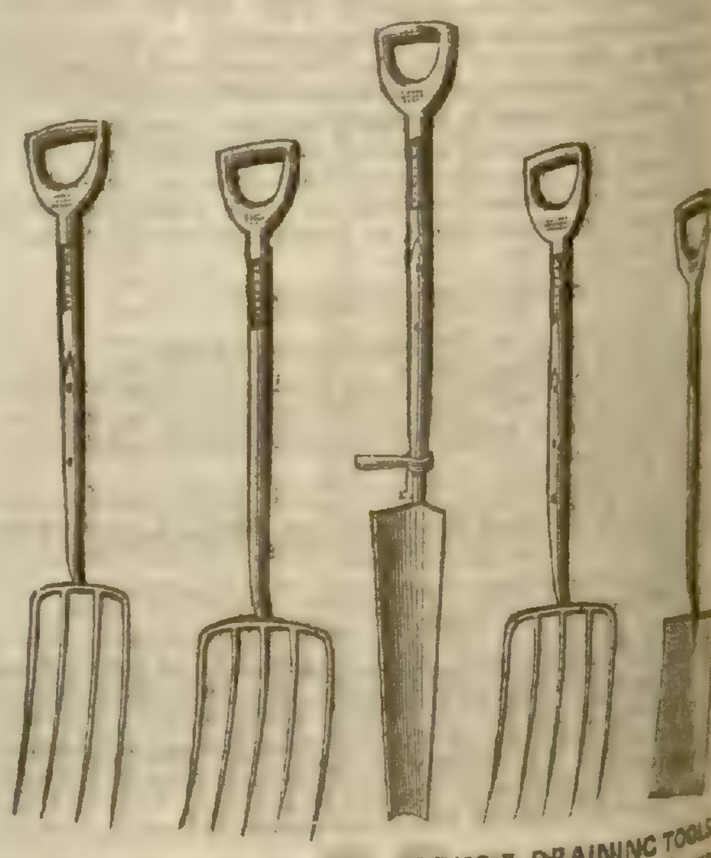
Sparrow Proof Netting, Galvanised, 3*d.* per square foot, made to any size for the same proportionate price. This article was shown at the Great Exhibition, where it was so much admired for its light and durable appearance, and acknowledged to be the cheapest and best article of the kind ever offered. Extra strong Wire Sheep Netting, 3 feet high, 1*s.* 6*d.* and 2*s.* 3*d.* per yard. Also every description of Flower Trainers, Dahlia Rods, Garden Arches, Bordering, Flower Stands, Tying Wire, Trellis Work, Invisible Wire Fencing, Hurdles, and every description of Wire Work for Horticultural purposes.—Illustrated Catalogues of Patterns forwarded, post free, on application to T. H. FOX, City of London Wire Work and Iron Fence Manufactory, 44, Skinner Street, and 6 and 8, Snow Hill, London.

HALL'S GARDEN NETTINGS; the best and cheapest for all purposes of shelter and shade from Frost, Hail Storms, and Gales of Wind. No. 0, 5*d.*; No. 1, 5½*d.*; No. 2, 6*d.*; Nos. 3 and 4, 7*d.* All 56 inches wide, and in lengths of 10, 20, 30, and 60 yards.—Manchester.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.* Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark: Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.



WILLIAM DRAY AND CO.'S STEEL DIGGING FORKS are warranted equal, and by many are considered superior, to any in use. Three Tine Forks, 4*s.* 6*d.* each; Four Tine Forks, 5*s.* 6*d.* each. A liberal allowance on Wholesale Orders. WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

103, Newgate Street, and 52, Little Britain, London.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.—Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

INGLIS AND CHISHOLM, Charles Street, Garratt, Manchester, make STEAM ENGINES for Agricultural and [illegible] purposes of the best quality at a reasonable price.—Address the Proprietors, Inglis & Chisholm, Charles Street, Garratt, Manchester.

CHAFF-MACHINES AND CORN-CRUSHERS.—All these Machines exemplify, in the most satisfactory manner, the high degree of perfection to which RICHMOND AND CHANDLER have attained in the manufacture of Agricultural Implements; and the recent improvements made upon their various Chaff-Machines and Corn-Crushers (articles for the production of which this firm has long been justly celebrated) are of the highest value in the economical preparation of food for cattle.—Address RICHMOND & CHANDLER, Salford, Manchester; and South John Street, Liverpool. Catalogues gratis.

WEEDS ON WALKS.

MR. FLEMING'S WEEDING OR SALTING MACHINE FOR GRAVEL WALKS, COURT YARDS, &c., manufactured and sold by ALEXANDER SHANKS & SON, Arbroath, Forfarshire, from whom particulars with prices may be had.

GLAZING WITH OR WITHOUT PUTTY.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.—Printed Price Lists supplied on application.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES (15 oz.) of good quality, in boxes of 100 feet each. Sizes from 7 in. by 5 in., to 9 in. by 7 in., at 12s. per box: 9½ in. by 7½ in., 10 in. by 8 in., and 10½ in. by 8½ in., at 13s. per box. (In 21 oz., at 1s. per box extra.) Larger sizes in stock, of 15 oz., 2d. per foot; 21 oz., 3d. per foot. Boxes charged 2s. each, and returnable at the same price, if delivered free. CRYSTAL WHITE GLASS, Crown and Sheet Glass in Crates, British and Patent Plate, &c. &c. White Lead, Oils, Turpentine, Colours, &c.

G. FARMILOE & SON, 118, St. John Street, West Smithfield.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.

In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12s. 0d.
7 „ 5, — 7½ „ 5½ }	0 14 0
8 „ 6, — 8½ „ 6½ }	
9 „ 7, — 9½ „ 7½, 10 by 6 }	0 16 0
10 „ 7, 10 by 8 }	

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 19s. per 100 feet. If cut to order not exceeding 40 inches long.

16 oz. from 2½d. to 3½d. | 21 oz. from 3½d. to 4½d.

26 oz. from 5½d. to 7½d.

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½d. per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand.

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

½ of an inch thick	£1 17s. 6d.	per case of 50
⅝ „	2 1 3	„ 60
¾ „	1 17 6	„ 60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21s. per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps: Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by 4 in. and 6 in. by 4½ in.	12s. 0d.
6½ „ 4½ „ 7 „ 5	12 6
7½ „ 5½ „ 8 „ 6	13 0
8½ „ 6½ „ 9 „ 7	13 6
9½ „ 7½ „ 10 „ 8	13 6
10½ „ 8½ „ 11 „ 9	14 0
12 „ 9 „ 13 „ 9	14 0
10 „ 10 „ 10½ „ 10½	14 0
11 „ 10 „ 11½ „ 10½	14 0
11 „ 11 „ 11½ „ 11½	14 0
12 „ 11 „ 12½ „ 11½	14 0
13 „ 11 „ 13½ „ 11½	14 0
13 „ 12 „ 13½ „ 12½	16 0
13½ „ 13½ „ 14½ „ 13½	16 0
15½ „ 13½	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.

Ditto, not exceeding 1 foot ... 2¼ „

Ditto „ 2 „ ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY.—The Managers beg to inform the Nobility and Gentry, Farmers, Gardeners, &c., that their new List of Prices may be had free on application at the Company's Depôt, 296, Oxford Street, London.

PLATE, CROWN, and SHEET WINDOW GLASS.

HARTLEY'S PATENT ROUGH PLATE for Roofing Conservatories, Halls, and Public Buildings.

Coloured and Ornamental Glass.

CRYSTAL SHADES for covering Ornaments, and

MOORE'S PATENT LOUVRE VENTILATOR, and Lockwood's Patent Perforated Ventilating Glass for Dairies, Greenhouses, Stables, &c.; Glass Milk Pans, Pails, Tests, and Measures; Cream Pots and Syphons; Churns, Butter Tests and Slabs; Tiles and Slates; Bee Hives &c.

Aquariums, Fern Shades, Propagating Glasses, Fruit Protectors, Preserve Jars, Cucumber Tubes, Hand Lights, Flower Vases, Labels, &c., and all kinds of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass.

NOTICE.—TO GENTLEMEN WISHING TO DECORATE THEIR TERRACES, GARDENS, GROUNDS, &c.

A large and beautiful choice of FOUNTAINS, FIGURES, VASES, BUSTS, TRACERY, &c., is offered for sale, at 74, Borough Road, Newington Causeway, at *greatly* reduced prices.

MAW'S ENCAUSTIC TILE PAVEMENTS form an indestructible and highly decorative substitute for ordinary flooring, and their imperishable Oil Cloth Coverings for Entrance Halls, Passages, Verandahs, Conservatories, &c.—MAW & Co. send free of expense their Book of Designs, suitable in price and style for every description of Building.—Benthall Works, Broseley, Salop.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Colebrook Dale Garden Seats and Chairs.

Averuncators	Gidney's Prussian Hoe	Pickaxes
Axes	[Scissors	Potato Forks
Bagging Hooks	Grape Gatherers and	Pruning Bills
Bills [terns.	Gravel Rakes and	„ Knives, various
Borders, various pat-	Sieves	„ Saws
Botanical Boxes	Greenhouse Doors	„ Scissors
Brown's Patent Fu-	and Frames	„ Shears
migator [struments	Hammers	Rakes in great variety
Cases of Pruning In-	Hand glass Frames	Reaping Hooks
Daisy Rakes	Hay Knives	Scythes
Dibbles	Horticultural Ham-	Scythe Stones
Dock Spuds	mers and Hatchets	Shears, various
Draining Tools	Hoes of every pattern	Sickles
Edging Irons and	Hotbed Handles	Sickle Saws
Shears	Ladies' Set of Tools	Spades and Shovels
Flower Scissors	Labels, various pat-	Spuds
„ Stands in Wires	terns, in Zinc, Por-	Switch Hooks
and Iron	celain, &c.	Thistle Hooks
Fumigators	Lines and Reels	Transplanting Tools
Galvanic Borders and	Marking Ink	Trowels
Plant Protectors	Mattocks	Turfing Irons
Garden Chairs and	Menographs	Wall Nails
Seats	Metallic Wire	Watering pots
„ Loops	Milton Hatchets	Weed Hooks
„ Rollers	Mole Traps	Wheelbarrows
„ Scrapers	Mowing Machines	Youths' Set of Tools

DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.—DEANE, DRAY, & CO. (Opening to the Monument), London Bridge.

LINGHAM BROTHERS, No. 170, Hampton Street, Birmingham, sole Manufacturers of the improved WOOD and ZINC MONOGRAPH, or LABELS for Garden Borders, Flower-pots, &c., in boxes of 100 each. The Zinc Labels are highly approved of for their lasting durability, can be written upon with the greatest ease, and when dry a permanent inscription is secured. Directions are sent with each box, including bottle of metallic ink.—Sole Agents in London, Messrs. DEANE, DRAY & Co., Horticultural Implement Warehouse, 46, King William Street, London Bridge.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES, consisting of MATTING, MATS, MATTRESSES, BRUSHES, NETTING, HORSE-HAIR, and BRISTLE SUBSTITUTE, are distinguished for superiority and excellency of workmanship, combined with moderate prices. Prize Medal both in England and America at the Exhibition of all Nations.

T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 1s. 6d. per bushel or 16s. per ton, delivered to any of the London wharfs or railways, or within a circuit of five miles. Peat and Loam of excellent quality. Sacks charged cost price.—KENNARD, BROTHERS, Swan Place, Old Kent Road, London.

FULLER'S EARTH WORKS, CHART LODGE, REIGATE, SURREY.
NOTICE.—SILVER SAND.

GAWKROGER AND HYNAM beg to inform the Nobility and Gentlemen, Gardeners, Nurserymen, Florists, and Seedsmen, that they are prepared to supply them with the REIGATE SILVER SAND, which is known by its superior whiteness and fine quality, and is much used in the Propagation and Growth of Greenhouse Plants, &c. It will be sent in fine bags, and delivered to any of the Railway Carriers, or Wharfs in London, in not less than ½ ton lots of 10 bushels, at the rate of 2/. per ton. Parties requiring lots of 4 tons and upwards can have the Sand delivered loose or in bags at the Bricklayers' Arms Station, or within five miles of the same, at a very low price.—For further particulars, apply at the Offices of JAMES GAWKROGER, 21, Union Street, Halifax, Yorkshire; and JOHN HYNAM, 7, Princes Square, Wilson Street, Finsbury, London.

TO BUILDERS.

FISHERTON ANGER CEMETERY, Salisbury, Wilts.—The Burial Board of the Parish of Fisherton Anger are desirous to receive TENDERS for the several works required to be done in erecting the Entrance Buildings, the Boundary Enclosures, and the two Chapels, and FORMING, LAYING OUT, and PLANTING the new Cemetery on the Devizes Road. The Plans and Specifications of the works may be seen at the Office of Mr. JOHN TURNER, 15, Wilton Street, London, the Architect, until the 27th instant; and at my Office, High Street, Salisbury, from the 28th instant until the 9th day of April next. The Burial Board will not object to receive Tenders for the separate Trades or for the whole works, but they do not bind themselves to accept either of them or the lowest Tender. The Tenders to be forwarded to me on or before the said 9th day of April next, marked on the outside *Tender for Fisherton Cemetery:* and if for either of the Trades, stating which. The Contractor or Contractors will be required to give such security as the Board may require for the due performance of the work agreeably to the plans and the general conditions and specifications, such security to be prepared at his or their expense.

G. SMITH, Clerk to the said Board.

Salisbury, March 31.

NURSERY AND SEED BUSINESS,
ESTABLISHED IN THE YEAR 1849.

TO BE LET, with immediate possession, the NURSERY and SEED SHOP at Taunton, for some time past in the occupation of Messrs. M'Intyre and M'Intosh. The Grounds and Stock are in excellent condition, beautifully varied, and are well worthy the attention of any person wishing to carry on the business. If required the quantity of ground may be reduced. The Nursery is about 5 minutes' walk from the Railway Station.—Apply to Mr. YOUNG, the Proprietor, Blue Cottage, Taunton.

TO BE LET IMMEDIATELY, a capital FARM in Lincolnshire, of 400 acres.—W. G. STEWARD, Lincoln.

TO BE LET ON LEASE, for a Term from Michaelmas next, with the usual entry forthwith, a highly reputed CORN and STOCK FARM, in North Hants, very compact, and with Market and Railway facilities. Content 1[illegible]57 acres.—To view and treat apply to LAMB, BROOKS, & Co., Solicitors, Basingstoke, or Odiham, Hants. (Reference as to substance and character will be required.)

KING'S COUNTY, IRELAND.

TO BE LET, with immediate possession, the DWELLING-HOUSE, OFFICES, and DEMESNE LANDS of COROLANTY, containing 100 acres, late Irish plantation measure, together with 50 acres of Bog attached, situate within one mile of the town of Shinrone, and five of Parsonstown and Roscrea, both first-class inland towns. The House, upon which a large sum has just been expended, is in perfect repair, and contains Breakfast, Dining, and Drawing Rooms, Study, eight Bed Rooms, Kitchen, and all necessary servants' apartments; attached are two large yards with extensive offices, as a large walled-in garden, well stocked with Fruit trees. The Lands are mostly of prime quality, well watered and sheltered, and well suited for all agricultural purposes. The neighbourhood is remarkably quiet and the public burdens very moderate. To a solvent tenant a long lease will be given; none other need apply.—For further particulars, apply to JOSEPH J. WALKER, Esq., Belfield, Shinrone, Ireland; or Mrs. PALMER NUNN, 13, York Terrace, Leamington, Warwickshire. The Caretaker residing in the house will show the Lands.

TO BE SOLD, by private treaty, a NURSERY and PLANT BUSINESS, established nearly 70 years. The Proprietor of this old-established Nursery Business is willing to retire, and dispose of the Stock and Good-will. The nursery comprises about 20 acres of ground, and about 15 large and commodious Stove, Greenhouse, and Propagating Houses, with numerous Pits, frames, &c. *The business is in full working order, and is capable of being increased to almost any extent, and of being made one of the best provincial nurseries in the kingdom.* The stock is in a flourishing condition, being young, healthy, and in good saleable order, and comprises a general assortment of all the most saleable Forest Trees, Shrubs, Fruit Trees, Stove, Greenhouse, and Miscellaneous Plants. The Nurseries are situated close and adjoining one of the largest towns in the West of England, with a population of more than 100,000 inhabitants. The whole of the land, houses, &c., belongs to the proprietor, *who will have no objection to grant a long lease to his successor or successors, and at least one half of the purchase money could remain on security at common interest.* The business has been carried on with great success by the present proprietor, which partly contributes to his retiring from the business. None but principals and *bonâ fide* purchasers will be treated with.—Apply to Mr. WILLIAM E. RENDLE, Union Road, Plymouth.

TO NOBLEMEN, GENTLEMEN, AND OTHERS.

TO BE SOLD, a great bargain, a Large VINERY, about 100 feet long by 22 feet deep, consisting of 48 top lights and 24 front sashes, with wrought-iron uprights, and iron rods to train the Vines to; two glass ends, and two glass divisions with pulleys, &c. &c., complete. The lights are 3-inch stuff, and in very excellent condition. The whole to be sold a bargain, as it must be cleared in a short time.—Apply within one week to Mr. BIRD, Florist, Green Lanes, Stoke Newington, London. Such a chance may never occur again.

TO BE SOLD, a ZEBRA BULL, and TWO COWS heavy in calf, all bought at the late Knowsley Sale, 25*l.* the three.—Apply to D. F. N., Dangstein, Petersfield.

TO BE SOLD, a pair of young PEA-FOWL, in splendid plumage, price Three Guineas.—Mr. JOSH. NEWMAN, Chesterton Farm, near Cirencester.

TO BE SOLD, BUFF COCHIN CHICKENS, from first class Prize Birds, Brahma Pootra Chickens, from imported American Prize Birds, and Spanish Chickens. Also some very good one-year-old Birds of the above descriptions. Wire, Game, and Poultry Netting, Poultry Hurdles, Hen-houses, Chicken Coops, Flower Stands, and Trainers, Garden Arches, and every kind of Wire Work, useful and ornamental.—T. H. FOX'S, City of London Wire Works, 44, Skinner Street, and 6 & 8, Snow Hill. Illustrated Catalogues forwarded post free.

MR. J. WILLMER will Sell by Auction, at the Auction Mart, Bartholomew Lane, on TUESDAY, April 3, at 12 o'clock, a choice collection of Carnations and Picotees, Pinks, Dahlias in dry roots, Pæonies, Climbing Roses in pots, &c.—May be viewed the morning of sale, and Catalogues had at the Mart, and of the Auctioneer, Sunbury, Middlesex.

ORCHIDS.

MR. J. C. STEVENS will sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, April 10, at 1 o'clock precisely, a collection of Established ORCHIDS, in fine health, and including the following choice varieties:—

Aerides crispum	Cattleya Acklandæ
„ suavissimum	„ labiata
„ cornutum	„ superba
Saccolabium guttatum	Oncidium sarcodes
„ Blumi major	„ Barkeri
„ retusum	Cymbidium eburnum
„ miniatum	Trichopilia coccinea
Vanda tricolor	„ tortilis
„ insignis	Odontoglossum hastilabium

May be viewed on the morning of sale; and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

TO GENTLEMEN, NURSERYMEN, FLORISTS, & OTHERS.

MESSRS. PROTHEROE AND MORRIS will sell by Auction, at the Mart, Bartholomew Lane, on TUESDAY and THURSDAY, April 3d and 5th, at 12 o'clock, a First Class Collection of CARNATIONS, comprising Justice Shallow, S. F., Jenny Lind, Puxley's, C. B., Valentine, S. F., Ascendant, P. F., Garland, R. F., Poor Tom, R. F., Admiral Curzon, S. B., Beach Diamond, C. B., Lord Milton, C. B., Falconbridge, P.P.B., Beauty of Woodhouse, P. F., Bardolph, &c.; PICOTEES, among which are Mrs. Keyne's, P. P., ex., Countess, P. P., Mrs. Barnard, Magnificent, R. P., Haidee, P. P., Duke of Rutland, Prince of Wales, R. P., Green's Queen, R. P., Bloomer, P. P., &c.; and PINKS, including Mrs. Lewis, Mrs. Woolf, Great Britain, Hebe, Narboro Buck, Teddington, Sappho, Desdemona, Purple Perfection, Harry, &c. Also a superb Collection of fine Hollyhocks, from a celebrated Grower; a choice assortment of Standard and Dwarf Roses; American Plants; choice Dahlias in dry roots; Pæonias, Verbenas, Fuchsias, &c.—May be viewed the morning of sale; Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

BANKS' SEEDLING FUCHSIAS.—1855.

For Full Description see Former Advertisements, and on Application).

W. J. EPPS has much pleasure in stating that the above Fuchsias have been proved to be the finest that have been raised by that celebrated grower E. Banks, Esq., Deal. Early orders are solicited. The set of six, 2*l.* 2*s.* The usual discount to the trade.—Bower Nurseries, Maidstone.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks, at 5*s.*; 12 varieties, 2*s.* 6*d.*; and from good double sorts, 1*s.*

Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s.* per packet; separate, 2*s.* Fine Quilled African Marigolds, 6*d.* per packet.—Saffron Walden Nurseries.

BOSSOM'S CHAMPION OF ENGLAND CELERY.

THE finest Celery yet introduced, beautifully white, very crisp and solid, and withstands a greater amount of frost than any other known variety; it has been blanched in the ground 3 feet.—To be obtained of T. F. Winstanley, Seedsman, 28, Market Place, Manchester, price 2*s.* 6*d.* per packet; prices to the trade on application.

J. IVERY and SON beg to say that the two AZALEAS, CRITERION and ADMIRATION, sent out by them last autumn, may now be seen in bloom at their Dorking Nursery, plants of which may be had from 21*s.* to 42*s.* each.—Dorking, March 31.

TO PLANTERS.

HAY, SANGSTER, and CO., have for sale the following;—600 to 700 strong Standard PEARS, 500 Dwarf do., and 100 Dwarf-trained do. Any reasonable offer will not be refused, as the ground must be cleared immediately.

Apply to Hay, Sangster, & Co., Newington Butts, London; of whom also may be had for seed York Regent Potatoes, 6*s.*, and Early American, 8*s.* per bushel of 56 lbs., the produce of their prepared Cuttings. Terms cash.

NOTICE TO THE TRADE.

JOHN ADAMS, Nurseryman and Seedsman, High Street, near the Market Place, New Brentford, Middlesex. Nursery Grounds at Acton Green, established several years.

John Adams begs to inform his kind friends and patrons that he intends carrying on the above business on a large scale, and begs a continuance of their kind favours, and that nothing on his part shall be wanting to give entire satisfaction.—Brompton Park Nursery, March 31.

RARE AND CHOICE FLOWER ROOTS,

At very Reduced Prices.

LILIUM LANCIFOLIUM RUBRUM, 2*s.* each, or 21*s.* per doz.
GLADIOLUS GANDAVENSIS, 3*s.* per dozen, or 21*s.* per 100.
The above are strong flowering roots.

To be had of William Denyer, Seedsman and Florist, 82, Gracechurch Street, London.

Catalogues of all the New and Choice Flower and Vegetable Seeds forwarded on application.

SPRING FLOWERS.—CINERARIAS, good flowering Seedling Plants, 4*s.* to 6*s.* per doz.; fine named varieties, 6*s.* to 9*s.*

HYACINTHS in pots, various colours, just showing bloom, 4*s.* per doz.; also a few very fine named flowers, many of which are catalogued at 1*s.* to 1*s.* 6*d.* each, in the same state as the above, 9*s.* per doz.

FINE HERBACEOUS CALCEOLARIAS, from Major's seed, in large and small 60 pots, 4*s.* to 6*s.* per doz.

Wood and Ingram, Nurseries, Huntingdon.

BEAUTIFUL FLOWERS.—Twelve packets, each packet containing 100 Seeds, 1*s.*; sent free per post, 1*s.* 2*d.*; a 5*s.* packet sent free per rail. Abronia umbellata, Eccremocarpus scaber, choice Gloxinias, Lophospermum Hendersoni, Lisianthus Russellianus, and every other choice variety 6*d.* per packet. Dwarf German (10 week) Stocks, as imported, 36 varieties, each variety 3*d.* per packet.—Wm. Cullingford, 1, Edmund Terrace, Ball's Pond, Islington, London.

N.B. Elletson's superb new late Dwarf White Broccoli Seed ("Emperor"), 2*s.* 6*d.* per packet. The Broccoli raised from this seed weigh from 17 lbs. to 25 lbs. each.

FLOWER SEEDS.—Twelve separate varieties of choice Hardy Annuals, 1*s.*; 25 ditto, 2*s.*; 50 ditto, 4*s.*; 100 ditto, 8*s.* The name, height, and colour described on each variety. Scarlet Runners and Dwarf French Beans, 1*s.* 6*d.* per quart; and every kind of Vegetable and Flower Seed in Cultivation (of the best quality) at very low prices.—Robert Green's Seed Warehouse, 154, Kingsland Road, London.

NEW EVERGREEN CLIMBING ROSE.

WILLIAM WOOD and SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, beg to intimate to their friends that they are now prepared to send out at once good strong plants of WILLIAMS' EVERGREEN CLIMBING ROSE, at 3*s.* 6*d.* each, with the usual allowance to the trade, and a still further reduction if one dozen or more are ordered at once. Price may be had on application.

N.B.—Single Plants will be sent free per post on receipt of six penny postage stamps extra to defray postage. Strong Plants of the above may also be obtained at the same price from Mr. Charles Turner, of the Royal Nursery, Slough.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. Cobbett's Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived very moist and open Parmasan Cheeses.

THOMAS BEACH, the well-known Strawberry Grower, begs to say that he has now ready a large stock of fine strong Plants of his TRUE BRITISH QUEEN, the same he beat the whole world with at the Crystal Palace, many weighing from 2 to 3 oz. each, likewise the same he gained the Knightian Medals with at Chiswick, and other places. He has gained the head prize, and surprised the world, both in flavour and weight. Strong Plants sent to any part of the world, at 5*s.* per 100, box included.

Post-office Orders on Hounslow, to Mr. Thomas Beach, Strawberry Grounds, Worton, Isleworth, Middlesex.—March 31.

TO NURSERYMEN, SEEDSMEN, ETC.

MESSRS. E. G. HENDERSON and SON having had (through their customers), a Seed Catalogue brought under their notice, and which seems to have been distributed throughout the whole of their connection, published by a very eminent and old established firm near London; and on referring to the same they find that all the Hardy Annuals from Nos. 1 to 308, the Half-hardy Annuals from Nos. 309 to 479, Hardy Biennials and Perennials from Nos. 480 to 660, and the Greenhouse Plants and Tender Annuals from Nos. 661 to 741 have all been copied from their lists, with the full descriptions of colour, height, treatment, and other information, even the numbers attached to each article correspond with the strictest accuracy. The only alteration is that no prices are attached, whereas, in the original catalogue every article is priced.

Messrs. E. G. H. & Son beg to say, that as they are at some considerable expense and trouble preparing and issuing their Catalogues throughout the year, they now give notice that in future they shall consider it very disreputable in any parties copying them in the style above alluded to, unless the source from which they derive their information is published at the time, or otherwise communicating with them previously to copying the same.

Wellington Nursery, St. John's Wood, London.—March 31.

GOOSEBERRIES AND CURRANTS.

WILLIAM MOORE having a surplus stock of the above begs to offer them at the following low prices, all nice fruiting plants:—

Per 100	s.	d.	Per 100	s.	d.
Black Naples Currant ...	8	0	Ironmonger, fine late red		
White Dutch ditto ...	8	0	ditto	10	0
Red Grape ditto	8	0	True Champagne ditto	10	0
Crown Bob Gooseberry...	10	0	Fine mixed Sorts ...	8	0

Norfolk Nursery, East Dereham.

HORTICULTURAL GARDENS, NORWICH.

WILLIAM HUSSEY begs to offer the undernamed, in fine healthy plants:—

	per dozen.
GERANIUMS, all the finest show sorts ...	6*s.*, 9*s.*, and 12*s.*
" Fancy do. do.	6*s.*, 9*s.*, and 12*s.*
SCARLET GERANIUMS	3*s.* to 4*s.*
FUCHSIA, all fine sorts	4*s.* to 6*s.*
CALCEOLARIAS, fine plants	6*s.*

VERBENAS, including all new ones of last year, 3*s.* to 4*s.*

W. H.'s Descriptive Catalogue may be had by forwarding one penny postage stamp.

CHOICE FLOWER SEEDS,

FOR PRESENT SOWING.

Per packet.—			s.	d.
Pansy, saved from 100 of the best varieties, by name			2	6
Polyanthus, do.	50	do. "	2	6
Verbena, do.	50	do. "	2	6
Hollyhock, do.	60	of the most superb kinds "	2	6
Calceolaria, do.	24	do., spotted varieties	2	6
Gloxinia, do.	30	newest varieties	2	6
Daisy, do.	50	of the new Belgian do. do. ...	1	6
Antirrhinum, do.	20	best named varieties ...	1	0
Anemone, from the most showy and brilliant kinds			1	0
30 packets of new and choice Flower Seeds			5	0

The above, per post, free. Postage stamps received in payment.

YOUELL and CO., Royal Nursery, Great Yarmouth.

CHOICE FLOWER SEEDS, &c.

	s.	d.
30 varieties HARDY ANNUALS	5	0
CALCEOLARIA, saved from a collection that has taken first prizes, per packet...	2	6
CINERARIA, very choice	1	0
PRIMULA "	1	0
STOCK, superior mixed German and intermediate, each...	0	6
SWEET WILLIAM, ANTIRRHINUM, each	0	6
PANSIES, per dozen Plants, choice named	6	0
BROWN COS LETTUCE, very superior	1	0

All the above can be highly recommended and forwarded free by post.—Hart & Nicklin, Florists, &c., Guildford.

TO THE SEED TRADE.—TURNIP SEEDS, &c.

Skirving's or Liverpool Swede	Orange Globe Wurzel
Laing's "	Broccoli, of sorts
White Globe Turnip	Fairbeard's Nonpareil Peas
Green "	Cole's Crystal White Celery.
Red Tankard	

W. J. Epps can with confidence offer the above (not large quantities), having been grown from the best selected stocks possible.—Prices sent on application.

Seed Establishment, High Street, Maidstone, March 31.

TO THE TRADE.—*The Subscribers can supply the following* AGRICULTURAL SEEDS *to the Trade. Prices on application.*

White Belgian Carrot.
Yellow Globe Mangold Wurzel.
Long Red " "
Skirving's Swede Turnip.
Rendle's " "
True Devon Evergreen Grass.

Apply to WILLIAM E. RENDLE & CO., Seed Merchants, Plymouth.

SPECIAL CONTRACTS FOR SEEDS.—*Noblemen, Clergymen, or Yeomen requiring large quantities, special contracts will be made, at a great reduction in price, on application to*

William E. Rendle & Co., Seed Merchants, Plymouth.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, and DICKENSON'S ITALIAN RYE-GRASS, are both very superior to the Italian Rye-grass commonly cultivated.

At present Messrs. Sutton *have a supply of true Seed of each sort, price 7s. 6d. per bushel.*

John Sutton & Sons, Seed Growers, Reading, Berks.

SWEDISH TURNIP SEED.

STUART and MEIN have for sale a considerable quantity of PURPLE-TOPPED SWEDISH TURNIP SEED of last season's produce, which they can recommend as true to kind, and of first-rate quality.

Also PERENNIAL RYE-GRASS, 15 lbs. per bushel, warranted from a prime Ayrshire stock. Prices on application, with a reference from unknown correspondents.

Kelso, Roxburghshire, March 31.

RHUBARB.

BASS and BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk, offer the following:—

	s.	d.
Bailey's Early Monarch, a splendid early sort. Particulars see Bass & Brown's Seed and Plant List. Per root ...	2	6
Salt's Crimson Perfection, per root	7	6

Mitchell's Royal Albert, Myatt's Linnæus, and Myatt's Victoria Giant, each per dozen 7*s.* 6*d.*, or 1*s.* each.

STRAWBERRIES.

For Particulars see Seed and Plant List.

Admiral Dundas (Myatt's), per dozen	7	6
Scarlet Nonpareil (Patterson's), per dozen	12	0
Omer Pacha (Ward's), per dozen	10	0
Magnum Bonum (Barrett's), per dozen	6	0

Other best older sorts, 3*s.* to 10*s.* per 100.

POTATOES.

True and Free from Disease.

British Queen, per bushel of 56 lbs.	7	0
Soden's Early Oxford do.	9	0
Flour Ball do.	9	0
York Regents do.	6	0

For other sorts see Seed and Plant List.

Fine trained Apricots, Peaches, Nectarines, Plums, &c.

Goods (not under 20*s.*) Carriage Free to all the London Termini, or on the Eastern Counties, Colchester line.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS and Co., 26, Down Street, Piccadilly, beg to announce that their Mixtures of Grass Seeds are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre ... ... 30*s.* per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre.
Mixtures for improving and renovating old Grass Land, 1*s.* per lb.
Mixtures (finest sorts) for forming Lawns... ... 1*s.* 3*d.* per lb.

These Seeds are all new, and have all been properly cleaned and their growing properties fully tested. Directions for sowing accompany the seed.

G. G. and Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., Seedsmen,
26, Down Street, Piccadilly, London.

TO WHEAT GROWERS.

PETER LAWSON and SON, the Queen's Seedsmen, Edinburgh and London, have received from North West America a small quantity of two new kinds of WHEAT, which they are sending out in packets containing 200 grains. One kind is named Club-headed, cultivated by the old Canadians. The yield is said to be very large, and forms a very beautiful delicate-coloured sample. Price 20*s.* per packet, containing 200 seeds.

The other kind is evidently a variety of Triticum durum, with solid stalks. It is very early, and well adapted for spring sowing. Price 15*s.* per packet, containing 200 seeds.—Orders may be sent to Peter Lawson & Son, in Edinburgh; or direct to their London House, 27, Great George Street, Westminster.

BEDDING AND OTHER PLANTS.

F. and A. SMITH'S Descriptive LIST of the undermentioned is now ready, and may be had, post free, on application:—Antirrhinums, Verbenas, Fuchsias, Scarlet Geraniums, Calceolarias, Petunias, Heliotropes, Pentstemons, Chrysanthemums, Mimulus, Salvias, Lobelias, &c. Climbers in variety, also a miscellaneous Collection of Greenhouse Plants. They have now in bloom Cytisus racemosus, Cinerarias in variety, Primula sinensis, Acacia armata, Deutzia gracilis, Erica Willmoreana, &c. The Trade supplied.—Dulwich, Surrey. March 31.

WHEELER and SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year: and as we deliver our Seeds Carriage Free, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. Wheeler & Son, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

AMERICAN NURSERY.

GEORGE BAKER'S DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, &c., as exhibited by him in the Royal Botanic Gardens, Regent's Park, may be had by inclosing two postage stamps.

G. B. begs to call attention to his fine stock of Weeping Hollies, Coniferous Plants, Ornamental Shrubs, &c.—American Nursery, Windlesham, near Bagshot, Surrey, near Staines Station, South-Western Railway, where conveyances may be obtained.

JOSEPH FRYER, Clarendon Nurseries, Camberwell, begs to state that he can supply fine Standard, Standard trained, Dwarf and Dwarf-trained Apples, Pears, Plums, Cherries, Peaches and Apricots, many of them large and in a bearing state; fine Mulberries, Figs, Walnuts, Quinces, Raspberries, Gooseberries, and Currants, Strawberries, fine strong Seakale, Asparagus, &c. A great variety of Ornamental Trees and Shrubs of all sizes, American Plants, Standard and Dwarf Roses. A general collection of Greenhouse, Herbaceous, and Bedding Plants, Vegetable and Flower Seeds, &c. Most of the above can be supplied to the trade.—N.B. *Gravel, Loam, Bog Mould, Manure, Silver Sand, &c., in any quantity.

WILLIAM IVERY, Hanover Nursery, Peckham, near London, begs to inform his friends and the public that his SPRING CATALOGUE is now ready, and may be had on application; it contains all the choicest Geraniums, Fuchsias, Verbenas, Cinerarias, Antirrhinums, Petunas, large and Pompone Chrysanthemums, Indian Azaleas, Phloxes, Herbaceous and other Miscellaneous Plants.

W. I. has a well-rooted stock of Hamburgh and other Vines from eyes; also a fine selected stock of Plants of all kinds for Bedding, at reasonable prices, such as Geraniums, Golden Chain, Flower of the Day, Trentham Rosy Scarlet, Lady Cotteniham, Lilac, and Rollisson's Unique, &c.—Post Office orders made payable at Peckham.

CEDRUS DEODARA.—From 100 to 200 of the above, from Seed, 3 to 4 feet in height, and as much thereof, splendid specimens, transplanted last year, can be supplied at 7*s.* 6*d.* each, or 84*s.* per dozen.

ARAUCARIA IMBRICATA, fine plants, 15 to 18 inches, stout and bushy, 5*s.* each, or 42*s.* per dozen.

Larger sizes of the above if required.

Youell & Co., Royal Nursery, Great Yarmouth.

"NORFOLK HERO" CUCUMBER.—Without exception the very best Cucumber for open ground cultivation that has yet been offered. It is a most prolific bearer, handsome as any frame variety, and is as delicate in point of texture, the fruit measuring from 16 to 20 inches in length. It is in the sole possession of Youell & Co., who will forward per post free (on receipt of postage stamps) packets containing 8 Seeds, 1*s.*; 18 Seeds, 2*s.* 6*d.*—To Market Gardeners the above will be found a great acquisition.

Royal Nursery, Great Yarmouth.

TO POTATO GROWERS.—ROSS'S AMERICAN EARLY, grown expressly for Seed on reclaimed Peat Moor without manure. This well-known productive Potato cannot be equalled as a "second early;" price 21*s.* per sack of 2 cwt.

WALKER'S LARGE WHITE.—This variety is about two weeks later than the preceding, and for general crops cannot be surpassed. It grows to a large size, is an extraordinary cropper, and for table use is all that could be desired; price 24*s.* per sack of 2 cwt. *These prices include a strong sack, and carriage paid to London, Liverpool, and Hull.*

W. DRUMMOND and SONS, Seedsmen, Stirling, N.B.

*** To prevent disappointment unknown correspondents will enclose a remittance with their order.

SUPERB NEW HYBRID HEATHS.

LUCOMBE, PINCE, and CO., are now prepared to send out their beautiful well-known New Hybrid HEATHS, they were exhibited at the Horticultural Society's meeting in Regent Street, and obtained the large Silver Medal. The following is the description given by the Editor of the *Gardeners' Chronicle*, May 28, 1853:—

"Messrs. Lucombe, Pince, and Co. *received a Large Silver Medal for a collection of new Hybrid Cape Heaths, consisting of Lindleyana, Exomiensis, Insignis, Pulchellima, Exquisita, and Metulæflora superba, all fine kinds, possessing large bold flowers and bright clear colours; they were stated to have been raised from Massonii, Ampullacea, Sprengelli, Hartnelli, and Aristata, and will be seen good parents.*"

L., P., and Co. can assure all cultivators of this beautiful tribe of Plants that these fine varieties cannot fail to give satisfaction, as they possess excellent habits and have large rich coloured flowers of much substance, which are produced in great profusion, properties that fully justify L., P., and Co. in very strongly recommending them to the public. Price, 3*l.* the set of six.

Exeter Nursery, Exeter. Established 1720.

Printed by William Bradbury, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and Frederick Mullett Evans, of No. 37, Verney Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, March 31, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 14.—1855.] SATURDAY, APRIL 7. [PRICE 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—GARDEN EXHIBITIONS.

Notice is hereby given that the FIRST EXHIBITION of the season will take place, by permission of her Majesty's Commissioners for the Great Exhibition of 1851, in the GROUNDS of CORK HOUSE, on WEDNESDAY, May 16.

Privileged Tickets at 3*s*. 6*d*. each are now issuing to Fellows of the Society, or their orders, at 21, Regent Street, daily from 11 to 4.

HORTICULTURAL SOCIETY OF LONDON.—SECOND SPRING MEETING, APRIL 3, 1855.

AWARD OF MEDALS.

NEWLY INTRODUCED PLANTS	Messrs. Rollisson, C 1, H M; Messrs. Veitch, C 2.
INDIAN AZALEAS	Mr. Wood, L S; Mr. Todman, S K.
FORCED BULBS	Messrs. Cutbush, S B.
ROSES, in pots	Mr. E. P. Francis, S K.
— cut	Messrs. A. Paul & Son, C 1; Mr. McEwen, C 2.
ORCHIDS	Messrs. Rollisson, S K; Messrs. Veitch, S B.
FORCED PELARGONIUMS	Mr. David Coe, S K.
SINGLE SPECIMENS	Messrs. Veitch, S K; Mr. McEwen, C 2; John Allnutt, Esq., C 2; Mr. Snow, C 2; Mr. Wm. Taylor, C 2; Mr. C. Hale, C 2; Mr. Thomas Moore, C 2.
GRAPES	Mr. J. Allport, S K.
PINE APPLES	Mr. T. Bailey, S K; Mr. McEwen, S B; Mr. W. Brown, C 1.
STRAWBERRIES, in pots	Mr. M'Ewen, S K; Mr. J. Fleming, S B.
— in dishes	Duke of Marlborough, S B; Mr. Ingram, C 1; Mr. Snow, C 2.
CHERRIES	Mr. Shuter, S K.
FORCED VEGETABLES	Mr. M'Ewen, S B; Mr. Tillyard, C 1; Mr. Lewis Solomon, S B.
PEARS	Mr. Geo. Tillyard, S B; Mr. Hill, C 2.
PEARS and APPLES (Foreign growth)	Mr. Lewis Solomon, S B.
MISCELLANEOUS	Mr. Ingram, S B; Mr. Turner, C 1; Messrs. A. Henderson & Co., C 2; Mr. Hutchinson, H M; Mr. W. Brown, H M; Messrs. A. Paul & Son, H M; H.E.I. Company, H M.

CRYSTAL PALACE.—HORTICULTURAL FETE.—It is intended to hold a grand Horticultural Exhibition at the Palace on SATURDAY, the 2d of June next. The Rules and Schedules of Prizes are now ready, and can be obtained on application to the Secretary.

April 7. (By Order.) G. GROVE, Secretary.

WILLIAM MASTERS AND SON, LANDSCAPE GARDENERS, Exotic Nursery, Canterbury.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

BANKS' SEEDLING FUCHSIAS.—1855.

(FOR FULL DESCRIPTION SEE FORMER ADVERTISEMENTS, AND OF APPLICATION).

W. J. EPPS has much pleasure in stating that the above Fuchsias have been proved to be the finest that have been raised by that celebrated grower E. Banks, Esq., Deal. Early orders are solicited. The set of six, 2*l*. 2*s*. The usual discount to the trade.—Bower Nurseries, Maidstone.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks, at 5*s*.: 12 varieties, 2*s*. 6*d*.; and from good double sorts, 1*s*. Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s* per packet: separate, 2*s*. Fine Quilled African Marigolds, 2*d*. per packet.—Saffron Walden Nurseries.

H. LANE AND SON, The Nurseries, Great Berkhamsted, beg to inform their Patrons and Customers in general that they possess all the NEW ROSES of the Season, and having proved them, cannot confidently recommend them, knowing their different qualities. The Rose Catalogue may be had on application.

CORNISH EARLY WHITE BROCCOLI, 1*s*. per packet, or 6*s*. per oz.

CONQUEROR OF THE WEST CUCUMBER, 1*s*. per packet, containing 12 good seeds.

The above can be had, warranted genuine, by forwarding post-office stamps for the amount to

JAMES LAKE, Seedsman, &c., Bridgewater.

BOSSOM'S CHAMPION OF ENGLAND CELERY.

THE finest Celery yet introduced, beautifully white, very crisp and solid, and withstands a greater amount of frost than any other known variety; it has been blanched in the ground 3 feet.—To be obtained of T. F. Winstanley, Seedsman, 28, Market Place, Manchester, price 2*s*. 6*d*. per packet; prices to the trade on application.

SUTTON'S FARM SEED LIST, WITH PRICES, may be had gratis and post free on application. Goods delivered Carriage Free, as see Catalogue.

Reading, Berks, April 7.

SEEDS FOR THE FARM, CARRIAGE FREE.—SEE RENDLE'S "FARMING PRICE CURRENT AND AGRICULTURAL DIRECTORY."

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to inform Amateurs and the Trade that an Extract of his Catalogue and Price Current is just published, which may be had on application from his agent, Mr. R. SILBERRAD, 5, Harp Lane, Gt. Tower Street, London.

RANUNCULUSES, ANEMONES, GERANIUMS, ETC.

HENRY GROOM, CLAPHAM RISE, near LONDON, by Appointment FLORIST TO HER MAJESTY, begs to say that his Spring CATALOGUE is ready, and will be forwarded by post on application. He would beg to call attention to this being the time to plant Ranunculuses and Anemones.

NEW FUCHSIAS.

STEWART AND NEILSON are now receiving orders for their Twelve NEW FUCHSIAS, advertised in September last, which will be ready to send out on the 1st of May at the following prices, or 3*l*. for the twelve.

Mr. Ewart, dark	10*s*. 6*d*.	Mrs. E. Hill, light	7*s*. 6*d*.
Mr. D. Neilson, do.	10 0	Mrs. Gardner, dark	7 6
Mr. G. Lawrance, do.,	10 0	Miss A. J. Wright, do.	5 0
Miss France, do.	10 0	Mrs. Maxwell, do.	5 0
Mr. Littledale, do.	7 6	Mrs. Perry, do.	5 0
Dr. Parr, do.	7 6	Mrs. Bouch, light	5 0

A remittance from all unknown correspondents.

Nurseries, Liscard, Cheshire, near Liverpool.—April 7.

GOOSEBERRIES AND CURRANTS.

WILLIAM MOORE having a surplus stock of the above begs to offer them at the following low prices, all nice fruiting plants:—

	s.	d.		Per 100 s.	d.
Black Naples Currant	8	0	Ironmonger, fine late red		
White Dutch ditto	8	0	ditto	10	0
Red Grape ditto	8	0	True Champagne ditto	10	0
Crown Bob Gooseberry	10	0	Fine mixed Sorts	8	0

Norfolk Nursery, East Dereham.

TO THE SEED TRADE.—TURNIP SEEDS, &c.

Skirving's or Liverpool Swede	Orange Globe Wurzel
Laing's	Broccoli, of sorts
White Globe Turnip	Fairbeard's Nonpareil Peas
Green	Cole's Crystal White Celery.
Red Tankard	

W. J. EPPS can with confidence offer the above (not large quantities), having been grown from the best selected stocks possible.—Prices sent on application.

Seed Establishment, High Street, Maidstone, April 7.

HAMPSHIRE BROWN COS LETTUCE PLANTS, fine, at 5*s*. per 1000.

CABBAGE PLANTS, fine, of all kinds, including the true QUEEN, and FLAT DUTCH CATTLE, at 3*s*. 6*d*. per 1000.

PICKLING RED CABBAGE PLANTS, 9*s*. per 100.

Can be had in any quantity of STEPHEN SHILLING, Nurseryman, North Warnborough, near Odiham, Hants.

COVENT GARDEN.

W. AND S. GAINES beg respectfully to offer to Gardeners, Farmers, and Nurserymen, the following SEEDS:—Scarlet Runners, 27*s*. per bushel; China, Dwarf, or Robbin's Egg Beans, at 28*s*. per bushel. Potatoes for planting; also Annual Flower Seeds, fifteen varieties, 2*s*. 6*d*.; thirty varieties, 5*s*. Prices for cash.—Post-office orders payable to W. & S. GAINES, Charing Cross, London.

TO LARGE POTATO GROWERS.

JOSEPH WILSON, Ipswich, begs to offer about 25 sacks of small SHORT-TOP ASHLEAF, at 22*s*. per sack, and about 10 sacks of JACKSON'S IMPROVED ASHLEAF; these are a good sample, but "honeycombed;" the crowns are all perfect, price 22*s*. per sack; and about 6 sacks of the OLD ASHLEAF, in excellent condition, 24*s*. per sack.

The whole of the above are worthy of notice by growers for sale. No charge for sacks.

SEED POTATOES, SOUND AND TRUE.—EARLY OXFORDS, FLUKES, REGENTS, FIFTY-FOLD, *and several other choice sorts at moderate prices, particulars of which may be had on application (stating quantity required) to*

SUTTON & SONS, Seed Growers, Reading.

FLUKE KIDNEY POTATO.

T. F. WINSTANLEY has a very fine stock of the above unrivalled POTATO, selected small for SEED, as they do not bear cutting. Also Lapstone Kidney, Ashleaf, Flourball, and many other varieties. Prices on application. The Trade supplied.—28, Market Place, Manchester.

THE LANCASHIRE FLUKE POTATO.—Fine medium-sized SEED of this celebrated variety, warranted true, to be disposed of, at 5*s*. per bushel of 60 lbs., bags included. A reduction will be made when a quantity is ordered. Post-office orders made payable at Bury, Lancashire.—ROBERT DAVENPORT, Gardener and Seedsman, Union Street, Bury, Lancashire.

THE FLUKE KIDNEY POTATO.—This excellent variety is now planted here as the principal crop, being more free from disease and more prolific than any other in cultivation. It was raised in Middleton, and may be had genuine in any quantity at 5*s*. per bushel of 56 lbs.—Apply to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

Post-office Orders to be made payable at Middleton, Lancashire.

THE FLUKE POTATO.—A new second early variety, surpassing every other in its capability of resisting the Potato disease, and without exception the finest and most prolific Potato in cultivation. Price per cwt., 15*s*., bags included.

To be had genuine of THORNHILL & DICKSON, Lawrence Hill Nurseries; and No. 1, Wine Street, Bristol.

SPECIAL CONTRACTS FOR SEEDS.—*Noblemen, Clergymen, or Yeomen requiring large quantities, special contracts will be made, at a great reduction in price, on application to*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

CLOVER SEEDS.

GENUINE NEW CLOVER SEEDS *can be had at the lowest market prices of* JOHN SUTTON & SONS, SEED GROWERS, READING, BERKS.

WHITE BELGIAN CARROT SEED.—PURCHASERS OF LARGE QUANTITIES will be treated liberally. For prices apply to SUTTON & SONS, Seed Growers, stating the quantity required.

SKIRVING'S SWEDE SEED.—PURCHASERS OF LARGE QUANTITIES will be treated liberally.—For prices apply to SUTTON & SONS, Seed Growers, Reading, stating the quantity required.

GERMAN FLOWER SEEDS FRESH IMPORTED.

SUTTON AND SONS *have imported a superior assortment of New German Flower Seeds, a Priced List of which may be had post free.*

MANGOLD WURZEL SEED.

PURCHASERS OF LARGE QUANTITIES will be treated liberally.—For prices apply (stating the quantity required) to SUTTON & SONS, Seed Growers, Reading.

MANGOLD WURZEL, ETC.—TO THE SEED TRADE.

BASS AND BROWN beg to offer, of the finest Stocks, Mangold Wurzel, Long Red; Do. Yellow Globe; Do. Red Globe; White Carrot; Skirving's Swede; Orange Jelly Turnip; Meadow Fescue Grass. Wholesale prices to the trade on application.—Seed Establishment, Sudbury, Suffolk.

SWEDE, CARROT, AND MANGOLD SEEDS.

TO BE SOLD, a few sacks of SKIRVING'S SWEDE, of last year's growth, from large roots; some YELLOW GLOBE and LONG RED MANGOLD; and ALTRINGHAM CARROT, all warranted.—Apply to Mr. GEO. TABER, Seed Grower, Rivenhall, Witham, Essex.

FINE STRONG SEAKALE ROOTS, fit for immediate planting.—Apply to LUCOMBE, PINCE & Co., Exeter Nursery, Exeter, Established 1720.

GOOD SEAKALE, for Planting ... 6*s*. per 100.
1 Year's ASPARAGUS ditto ... ... 2*s*. „

The Trade Supplied.

Apply to TROTMAN & Co., Nurserymen, Hammersmith New Road, London.

GIANT ASPARAGUS AND SEAKALE.

Strong 2 years old Giant Asparagus		... ...	15*s*. per 1000.
„ 3 „	„	3*s*. 6*d*. per 100,	25*s*. „
„ 1 „	Seakale ...	... 5*s*.	„
„ 2 „	transplanted do.	10*s*.	„

YOUELL & Co., Royal Nursery, Great Yarmouth.

STATICE PSEUDO ARMERIA.

WILLIAM MOORE can supply the Trade with fine Seed of the above, at 1*s*. 6*d*. per oz., or in packets 6*d*. each. Payment to be made in postage stamps.

Norfolk Nursery, East Dereham.

LIQUIDAMBAR.—The undernamed is a buyer of either a large or small quantity of the above. Send cash price, and height, to Mr. JEYES, Nurseries, Northampton.

CHEAP DAHLIAS.

ADAM HOGG has a large Stock of the above, at 6*s*. per dozen. Catalogues on pre-paid application. Also Double White Primrose at 4*s*. per dozen, set with flower buds.

Nurseries, Scotswood Road, Newcastle-on-Tyne.

FLOWER SEEDS.—Twelve separate varieties of choice Hardy Annuals, 1*s*.: 25 ditto, 2*s*.: 50 ditto, 4*s*.; 100 ditto, 8*s*. The name, height, and colour described on each variety. Scarlet Runners and Dwarf French Beans, 1*s*. 6*d*. per quart; and every kind of Vegetable and Flower Seed in Cultivation (of the best quality) at very low prices.—ROBERT GREEN'S Seed Warehouse, 154, Kingsland Road, London.

CHEAP NURSERY STOCK.

IMPORTANT TO ALL PLANTERS WHO DESIRE IMMEDIATE EFFECT.

WILLIAM JACKSON & Co., Bedale, Yorkshire, beg to refer to their advertisement in the *Gardeners' Chronicle and Agricultural Gazette* of the 17th March, page 181.

WANTED, a few Thousands of STRONG QUICKS.—Apply, stating size, age, quantity, and price, to A. Z., Messrs. Wrench & Sons, London Bridge.

TWO HUNDRED AND TWENTY-FIVE SUCCESSION PINES FOR 1856–57, to be seen at the late residence of Mr. Alderman Copeland, Leyton, Essex.—Particulars of Messrs. Low, Upper Clapton.

THRIVING YOUNG OAKS FOR SALE.—A large quantity of clean well-grown Oaks, 2 ft. 6 in. to 6 ft. high, to be sold or exchanged for other trees; to be removed in the autumn of the present year. Particulars may be ascertained on application to Mr. C. J. NEALE, Land Agent, Mansfield, Notts.—April 7.

TO BE SOLD CHEAP, 3000 transplanted WALNUT TREES, 3 to 4 feet high. Price on application.—WILLIAM MOORE, Norfolk Nursery, East Dereham.

TO BE SOLD CHEAP, price 60*l*., a small private Collection of ORCHIDS (180 Plants).—Apply to Messrs FRASER'S, Nurserymen, Lea Bridge Road, Leyton, Essex.

TO BE SOLD, 124 dozen GOLDEN CHAIN GERANIUMS, and a parcel of HOLLYHOCK SEED from a gentleman who grows all the best flowers. Price according to the quantity required; the trade will be liberally dealt with. Only a few packets of the beautiful Primulas left. The Ipswich Standard Cucumber is sold out.—THOMAS WILD, Ipswich.

TO WHEAT GROWERS.

PETER LAWSON AND SON, the Queen's Seedsmen, Edinburgh and London, have received from North-West America a small quantity of two new kinds of WHEAT, which they are sending out in packets containing 200 grains. One kind is named Club-headed, cultivated by the old Californians. The yield is said to be very large, and forms a very beautiful delicate-coloured sample. Price 2½. per packet, containing 200 seeds.

The other kind is evidently a variety of Triticum durum, with solid stalks. It is very early, and well adapted for spring sowing. Price 15s. per packet, containing 200 seeds.—Orders may be sent to Peter Lawson & Son, in Edinburgh; or direct to their London House, 27, Great George Street, Westminster.

RENDLE'S IMPROVED SWEDE TURNIP.—*This is the most hardy variety in cultivation, and has stood the late severe winter, in the most exposed situations, without the least injury. The Subscribers have received scores of letters during the past month to confirm this statement.*

It is handsome in form. Small tap roots, will keep longer than any other sort, and is altogether a most valuable variety.

It has been selected with much care for the last seven years, and the present stock has been saved by growers of the first respectability. Price 2s. per lb., or 1s. 9d. per lb. if taken by the cwt. Wholesale Dealers can be supplied with a few bushels.

For Description, Testimonials, and Engraving, see RENDLE'S "FARMING PRICE CURRENT AND AGRICULTURAL DIRECTORY."—Apply to William E. Rendle & Co., Seed Merchants, Plymouth.

SPLENDID NEW HOLLYHOCKS.

G. SMITH respectfully informs the admirers of the HOLLYHOCK that the following are Seedlings of great merit, and cannot fail to give entire satisfaction. They were raised by Mr. Parsons, the grower of Joan of Arc, and other fine varieties. To be sent out about the middle of April, 1855, in strong healthy plants.

	s.	d.
Eclat, yellow and buff, a nice full flower	3	6
King of Yellows, large, of fine form, flower full, extra fine yellow	7	6
Marchioness, flesh or blush, very double and close, fine for exhibition	3	6
Monarch, a true salmon, very large and fine shape ...	7	6
Mr. Adams, dark salmon pink, a noble show flower ...	5	0
Pearl, blush white, large and distinct	5	0
Pillar of Roses, a beautiful bright rose, a splendid spike, the finest border flower yet offered, and a most attractive show flower	5	0
The Alma, cherry rose, distinct, fine shape	5	0
White Unique, very close and double	3	6
Sarah, a splendid large rose, fine form and spike	5	0

Tollington Nursery, Hornsey Road, Islington, London.

MESSRS. WILLIAM ROLLISSON AND SONS embrace this medium of announcing that they will commence sending out the first week in May the annexed three new ERICAS, which they can with the greatest confidence recommend, and which will doubtless be as universally admired as the sorts hitherto introduced by them, among which we may name Cavendishi, jasminiflora, Hartnelli, Ventricosa superba, mutabilis, tortulæflora, Tricolor elegans, Sprengeli.

ERICA ÆMULA.—This is a very beautiful hybrid in the Erica Massoni section, of a fine bright crimson colour, after the style of Erica aristata, but very much higher in colour; altogether this is a very distinct variety. 21s.

ERICA EXIMIA SUPERBA.—This variety may really be said to be three times as fine as the parent whose name it bears; it is a very compact grower and excellent habit, with tubular blossoms of a fiery scarlet colour. This charming variety obtained the First Seedling Prize at the Royal Botanic Gardens, 1852. 31s. 6d.

ERICA PAXTONI.—A very distinct variety, obtained by hybridising Erica Hartnelli with Erica Massoni. It blossoms in very large whorls, of a soft red colour. This variety will be very useful for autumnal exhibition purposes, as it blossoms from July to October 21.

The Set of the above named Ericas three guineas.

The Nurseries, Tooting, London.

GERMAN ASTER SEED, all saved from the finest Globe varieties, ever yet exhibited, and which have surpassed all others in cultivation for their immense size and distinct colours, 1s. per packet.

SWEET WILLIAM SEED saved from 50 of the choicest and most superb varieties, 1s. per packet.

ANTIRRHINUM SEED saved from all the finest shaped and best varieties, 1s. per packet.

SUPERB HOLLYHOCK SEED saved from all the best named flowers, 1s. per packet.

SCARLET GIANT BROMPTON STOCK, extra fine, 1s. per packet.

VERY SUPERIOR FIMBRIATA PRIMULA SINENSIS SEED, saved from six distinct varieties of the largest and most superb plants ever grown, 2s. 6d. per packet.

PANSY SEED, a few packets from selected varieties, 1s. per packet.

POLYANTHUS SEED, fine mixed, 1s. per packet.

CROWN GOURD, or CUSTARD MARROW; this variety is the most delicious of all the Marrows grown, 1s. per packet.

AQUILEGIA, or COLUMBINE, of 12 distinct varieties, 1s. per packet.

Any three packets of the above (except the Primula) sent post-free on receipt of 2s. 6d., or the Primula included with two other packets, for 3s. 6d., in cash or penny postage stamps by

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somerset.

BASS AND BROWN'S CHOICE VEGETABLE AND FLOWER SEEDS.

For some of the novelties of their first-rate Collections, also choice imported Seeds, Roots for early spring planting, &c., see Advertisements in the Gardeners' Chronicle *of Feb. 17, page 109, and March 10, page 149.*

ASSORTED COLLECTIONS OF VEGETABLE SEEDS, containing the best new sorts

	s.	d.
No. 1, with 20 quarts of Peas, and other vegetables in proportion	60	0
No. 2 Collection, 40s.; No. 3, 25s.; No. 4	15	0

The collections are given in the Seed and Plant List.

FLOWER SEEDS, BEST AND NEWEST ASSORTMENTS, with printed instructions for sowing, &c.

100 vars. choice strong annuals...	15	0
50 vars., 8s. 6d.; 30 vars., 5s. 6d.; 20 vars.	4	0
20 vars. best dwarf kinds, in large packets, suited for beds or lawns, 7s. 6d.; 12 vars....	5	0
20 vars. choice greenhouse annuals, 7s. 6d.; 12 vars. ...	5	0
20 vars. choice greenhouse perennials, 10s. 6d.; 12 vars....	7	6
20 vars. choice hardy biennials and perennials	7	6
12 do. do. do. do.	5	0

For further particulars see Seed and Plant List.

CHOICE IMPORTED SEEDS, comprising Stock, Aster, Balsam, Cockscomb, Larkspur, Salpiglossis, Scabious, Sinecia, Sweet William, Wallflower, Zinnia, &c.

Bass & Brown's Seed and Plant List free by post for three penny stamps. Also the autumn Catalogue for three penny stamps; or gratis to our customers who may not have received them.—Seed and Horticultural Establishment, Sudbury, Suffolk.

Reduced Price.

WARD'S OMER PACHA STRAWBERRY.

WILLIAM JAMES WARD respectfully informs his friends and the public that he has still a few well-rooted plants to offer of the above excellent Strawberry, which obtained the Bronze Medal at the Royal Botanic Garden Exhibition, July 5, 1854.

It was submitted for opinion to Mr. Thompson, Horticultural Society, Chiswick; Mr. Marnock, Royal Botanic Gardens, Regent's Park; Mr. Powell, Royal Gardens, Frogmore; Mr. Spencer, Bowood Gardens; and several others: all of whom speak highly favourably of it.

The following extract, accompanied with a woodcut, appeared in the "Florist and Fruitist," September, 1854, in the descriptive list of new Strawberries:—

"Omer Pacha.—This variety is a seedling raised by Mr. Ward from British Queen, fertilised by the old Caroline Pine, two good kinds, of which the present variety seems to be a combination. The samples I received were fine looking fruit, and of good quality."

W. J. W. warrants it of very superior flavour, and well adapted for long carriage.

100 Plants	£2	0	0	25 Plants	£0	15	0
50 „	1	5	0	12 „	0	8	0

Terms, cash.—Prospect Hill, Reading, April 7.

FRUIT TREES IN POTS.—As the fruit seasons have been for late years so unfavourable, the undermentioned offer an opportunity for growing it, so that the crop is certain and can even be put on table on the trees. They consist of the following, well set with bloom buds, Apples, Apricots, Currants, Figs, Gooseberries, Nectarines, Peaches, Pears, Plums. Also a fine assortment of the best Vines from eyes, and Strawberries for forcing; dwarf-trained Cherries, Nectarines, Peaches, Pears, Plums; standard-trained Apricots, Nectarines, Peaches, Pears; pyramidal Apples and Pears; standard Apples, Cherries, Pears, Plums; also Currants, Gooseberries, &c.

H. Lane & Son, The Nurseries, Great Berkhamsted.

MESSRS. E. G. HENDERSON AND SON, of the Wellington Nursery, St. John's Wood, London, will commence sending out the following New Plants on the 30th April next:—

HYDRANGEA HORTENSIS, flore pleno, 10s. 6d.

PHLOX QUEEN VICTORIA, 5s.

DAHLIA EMPEROR FRANCIS JOSEPH (variegated foliage), 10s. 6d.

SHRUBBY BEDDING CALCEOLARIAS.

Brunette	7s. 6d.	Norma	7s. 6d.
Coreggio	7 6	Red Rover	7 6
Maggiore	7 6	Vezzosa	7 6
Minnie...	7 6	Wildfire	7 6

Or the set of eight varieties, 2l. 2s.

With the permission of Mr. C. Turner they will offer his new CALCEOLARIA PURITY (the best white bedding variety) at 7s. 6d. each, or with the above set 2l. 7s.

FUCHSIAS.

Queen Victoria (Story)	10s. 6d.	Lady of the Lake (Story)	10s. 6d.
Prince Albert (Banks) ...	10 6	Water Nymph (Story) ...	10 6
Perrugino (Story)	10 6	Raffaelle (Story)	10 6
Empress Eugenie (Story)	10 6	Mrs. Story (Story)	10 6
Ranunculæflora (Story)...	21 0	Snowdrop (Story)	10 6

Or the set of ten varieties, 4l. 4s.; or without Ranunculæflora, 3l. 3s.

FUCHSIA BANKS' FAVOURITE (Banks), 10s. 6d.

For full particulars of the above see back numbers of this Paper. Any further orders for some of the above Fuchsias cannot be executed till after the second week in May.—April 7.

Great Novelties for the Ensuing Season,

FUCHSIAS WITH WHITE COROLLAS.

LUCOMBE, PINCE, AND CO. beg leave to announce that they shall be prepared to send out two splendid and entirely novel Seedling Fuchsias, early in May next, viz.:—

FLORENCE NIGHTINGALE.

Pure white corolla, with brilliant scarlet sepals, finely reflexed; an extremely lovely and novel variety.

GALANTHIFLORA-PLENA

(The Double Snowdrop Corolla'd Fuchsia.)

Pure double white corolla, resembling a fine large double Snowdrop, with rich scarlet sepals; altogether distinct from anything of the kind ever yet produced. Price 10s. 6d. each.

Together with a very beautiful new double Purple variety,

VIOLÆFLORA-PLENA,

Rich double blue corolla, resembling a fine double violet, 7s. 6d. each.

L., P., & Co. have also fine plants of the following choice kinds of Fuchsias at 18s. to 42s. per dozen.:—

Aspasia	Glory	Purple Perfection
Apollo	Lucretia	Sir Harry Smith
Brilliant	Orion	Sidonia
Duchess of Lancaster	Prime Minister	Sir Jno. Falstaff
Duke of Wellington	Princess	Telegraph
Dominiana	Kossuth	Resplendent.

They are also now prepared to send out their beautiful new

VERONICA KERMESINA,

Raised by that eminent horticulturist J. Luscombe, Esq., of Coombe Royal, who sent specimens to Dr. Lindley, at the time of its first flowering, who thus pronounces his first opinion of it:—"The variety sent with this was charming, a decided rose colour having mingled with the violet." See also notice of Dr. Lindley in the *Chronicle* for Dec. 2, 1854, as follows:—"L., P., & Co. Your V. Kermesina is a handsome dark variety of V. speciosa; its beautiful large spikes of deep purplish crimson blossoms cannot fail to make it a favourite." Price 7s. 6d. each. A few extra-sized specimens may be had.

The usual discount to the Trade when three or more are taken.

Exeter Nursery, Exeter.—Established in 1720.

CHARLES TURNER begs to recommend the following Seeds:—

SABBATIA STELLARIS.—This beautiful Greenhouse Annual was raised at the Royal Gardens, Frogmore, from seed received from Texas, and was exhibited at the Horticultural Society's July Show, at Chiswick, and was awarded a First Class Certificate. It is of a deep rose colour, with a yellowish-green eye, and sweet-scented. It should be grown in a mixture of half leaf-mould, with the other half comprised of light peat, loam, and silver sand, and sown in a little heat. 2s. 6d. per packet.

NEW CUCUMBER, "WARD'S IMPROVED SION HOUSE," superior either to the "Improved Sion House" or "Lord Kenyon's Favourite," for winter use. Mr. Ward, of Prospect Hill, Reading, who raised it, writes—"I can strongly recommend it as the best winter sort I ever met with; and it always swells out, not plumber's iron fashion, as is the case with many sorts, and equal in bearing to Lord Kenyon's Favourite, generally throwing three or four fruit together." Price 1s. 6d. per packet.

	s.	d.
HOLLYHOCK SEED, saved from the newest and finest sorts in cultivation, per packet	2	6
„ „ smaller packets, each	1	6
DAHLIA SEED, saved from the very best exhibition flowers, per packet	2	6
„ „ smaller packets, each	1	6
CALCEOLARIA, extra quality, per packet...	2	6
CINERARIA, extra quality, do.	2	6
HEARTSEASE, from best show flowers, do.	2	6
„ „ „ smaller packets, each	1	6

The new white bedding Calceolaria "Purity," the entire stock of which is in Charles Turner's hands, also his new Dahlias, new Verbenas, &c., will shortly be advertised.

Royal Nursery, Slough.

NEW EVERGREEN CLIMBING ROSE.

WILLIAM WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, beg to intimate to their friends that they are now prepared to send out at one shilling strong plants of WILLIAMS' EVERGREEN CLIMBING ROSE, at 3s. 6d. each, with the usual allowance to the trade, or a still further reduction if one dozen or more are ordered at once. Price may be had on application.

N.B.—Single Plants will be sent free per post on receipt of penny postage stamps extra to defray postage. Strong Plants of the above may also be obtained at the same price from Mr. Charles Turner, of the Royal Nursery, Slough.

NEW ROSES.

MESSRS. WILLIAM ROLLISSON AND SONS beg to offer the following new Roses, which they will be able to supply in good healthy plants the first week in May, at 7s. 6d., established in pots. Purchasers wishing for a less number than here enumerated, by leaving the selection to ourselves, may depend upon having the best and most desirable varieties chosen for them.

HYBRID PERPETUALS.

Abadie de Rougemont, bright crimson, very fine.
Baron Larray, fine rose, and beautiful shape.
Belle Lyonnaise, very double, blush white.
Clecron, very curiously mottled, dark crimson and white.
Comtesse de Marennes, rosy lilac, tinted with carmine.
„ d'Orleans, delicate rose.
„ de Turennes, beautiful light flesh colour.
„ de Vaillant, light violet.
Deuil de Frederic Villermoz, purple velvet shaded with lilac.
Docteur de Varennes, rosy purple.
Duchesse de Cambacérès, bright rose, very sweet.
Empereur Napoleon, bright scarlet.
Etendard des Amateurs, very bright rosy purple.
Eugenie Poilleaux, bright carmine.
Evêque de Meaux, rosy velvet.
Folichonne, bright crimson. Gloire de Vitry, rosy crimson.
Julie Guinoiseau, delicate glossy rose colour.
La Fontaine, bright crimson. Leon Raimaux, bright glossy crimson.
Lord Raglan, scarlet and crimson.
Louise de Châteaubourg, bright rosy crimson, very sweet.
Madame de Trotter, bright red.
„ Hitz, beautiful flesh colour.
„ Latour, very delicate pink.
„ Massan, bright velvety crimson, changing to violet.
„ Place, bright delicate pink.
„ Theodore Martell, blush white, tinged with pink.
„ Vidot, delicate blush, shaded with pink.
Marie Liabaud, rosy pink.
Maxime, rosy violet in the centre, and shaded.
Monsieur Pigeron, very large, deep crimson.
Nouvelle Etendard du Grand Homme, pale apricot colour.
Panaché d'Orleans, soft rose colour striped with red and purple.
Perfection, dark crimson, shaded with carmine.
Prince de la Moskowa, dark crimson.
Raphaël, bright rosy crimson.

TEA-SCENTED ROSES.

Baronne de Savigny, blush white, darker centre.
Blanche de Solleville, white shaded with cherry colour.
Louise de Savoie, yellow.
Madame Barillet Deschamps, white tinged with yellow.
Souvenir d'Elisa, pale yellow, centre white.

NOISETTE.

Polonie Bourdin, salmon colour, yellow centre.

BOURBON.

Auguste Pajol, bright cherry colour.
Camille de Châteaubourg, red, shaded with purple.
Emilie Miret, carmine. Etoile du Nord, bright red.
Ferdinand Deppe, purplish velvet, fine.
Frilet, bright crimson. Isabelle, bright rose colour, very fragrant.
Josephine Chambert, cherry colour.
Marguerite Dubourg, bright red. Omer Pacha, dark purple.

PERPETUAL MOSS ROSES.

Madame Edouard Ory, bright rosy carmine.
Salet, bright red in the centre, and beautifully shaded.

The usual discount to the trade when a dozen sorts are taken.

The Nurseries, Tooting, London.

GEORGE SMITH has much pleasure in offering the undermentioned strong Plants, ready for delivery about the 20th of April, 1855, feeling the greatest confidence in recommending them as possessing first-rate qualities:—

VERBENAS.

BOULE DE FEU (Young), bright orange scarlet, with conspicuous lemon eye; pip large, of fine form, compact truss of good size, the habit excellent, a most profuse bloomer, the finest scarlet ever offered. First class certificates at the National, Royal South London and North London Floricultural Societies.

LORD RAGLAN (Banks), crimson scarlet, large lemon eye, pip and truss large, of fine form. This will be found a noble variety.

EMPRESS (Smith), pure white, with conspicuous rosy purple centre, pip and truss large, smooth and compact. One of the very finest of the light varieties.

MRS. M'NIEL (Smith), brilliant rose with large lemon eye, truss and pip large, of exquisite form, and very beautiful, in the style of Beauty of Hornsey.

VIOLACEA (Smith), intense violet, with a very conspicuous large white eye, pip and truss large, of good form. This flower will be found most remarkable and beautiful, either for bedding or exhibition. It is something in the way of M. Paquin, with the colour much more intense, and a fine free grower.

SILISTRIA (Smith), pale lilac, shaded with rose, very large and compact. First class at the Royal South London Horticultural Society. The set of six for 24s., or 5s. per plant.

FUCHSIAS.

The following four Fuchsias are fine show flowers, plants of good growth, and very free blooming kinds that must be grown in all good collections:—

OMER PASHA (Smith), tube short and stout, sepals well reflexed, of bright waxy crimson scarlet, corolla deep violet purple, large, of good shape, fine habit, free in growth and profuse bloomer. A fine plant for exhibition. 7s. 6d.

ORLANDO (Smith), dark tube and sepals reflexed, with an intense dark corolla. 3s. 6d.

CORONET (Smith), white tube and sepals, corolla violet, good shape, very free. 3s. 6d.

NIMROD (Smith), white tube and sepals, corolla light purple, good form. Plant of strong growth, and a very free bloomer. 5s.

SCARLET GERANIUMS.

BEAUTY OF COMB BANK, intense scarlet, eye white, pip large and circular, truss very large, dwarf habit, with handsome foliage. A first class bedding variety. 5s.

CHEPSTEAD BEAUTY, fiery crimson scarlet, extra large and fine, foliage very beautiful, habit dwarf, and free blooming. One of the finest scarlet Geraniums ever offered. 5s.

CERITO, salmon rose, truss and pip large. A novel and pleasing variety. Was exhibited at the National Floricultural Society, where the judges would have awarded it a first class certificate had the plant been exhibited. 5s.

PETUNIA.

SINGULARITY (Smith), a novel and striking variety, corolla two-thirds downward bright green, throat rose, flower extra large, the habit of Prince Albert, a pleasing variety. 5s.

Choice Verbena Seed, 2s. 6d. per packet.

A Priced and Descriptive Catalogue of first class Verbenas, Geraniums, Fuchsias, Hollyhocks, Dahlias, Chrysanthemums, and Petunias, will be forwarded in exchange for one stamp.

Tollington Nursery, Hornsey Road, Islington, London.

PELARGONIUMS, FUCHSIAS, PANSIES, VERBENAS, ETC.

JOHN DOBSON AND SON having a large and healthy stock of the above, beg to offer them at the low prices affixed; the plants are all in the finest health and require immediate repotting.

PELARGONIUMS, fine named varieties, 12*s.*, 21*s.*, 30*s.*, 42*s.*, and 63*s.* per dozen.

PANSIES, a first-rate collection, 6*s.*, 12*s.*, and 18*s.* per dozen.

FUCHSIAS, 12 fine varieties, including Vanguard, Queen of Hanover, Duchess of Lancaster, Glory, Duke of Wellington, &c., 18*s.* Older varieties, 9*s.* and 12*s.* per dozen.

VERBENAS, the best of last season's English and French varieties, 6*s.* and 9*s.* per dozen. A general descriptive Catalogue of the above may be had for one postage stamp.

Woodlands Nursery, Isleworth.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, begs to inform Gentlemen, Amateurs, &c., that he can supply them with the following, from a Stock of 20,000 Plants, well rooted, and in robust health, including every choice variety grown.

CARNATIONS, 9*s.*, 12*s.*, and 18*s.* per dozen pairs.
PICOTEES, 9*s.*, 12*s.*, and 18*s.* ,,
PINKS, 4*s.*, 6*s.*, and 9*s.* ,,
PANSIES, 4*s.*, 6*s.*, and 9*s.* per dozen plants.
BELGIAN DAISIES, 4*s.* and 6*s.* ,,
FLUKE KIDNEY POTATO, 5*s.* per bushel of 56 lbs.
SELECTED PANSY SEED, 1*s* and 2*s.* per packet.
DELPHINIUM BARLOWI, 4*s.* per dozen.
Auriculas, Alpine Auriculas, Polyanthuses, Primroses, &c.

Priced and Descriptive Catalogues now ready for one stamp. Post-office Orders to be payable at Middleton, Lancashire.

HORTICULTURAL GARDENS, NORWICH.

WILLIAM HUSSEY begs to offer the undernamed, in fine healthy plants:—

	per dozen.
GERANIUMS, all the finest show sorts	6*s.*, 9*s.*, and 12*s.*
Fancy do. do.	6*s.*, 9*s.*, and 12*s.*
SCARLET GERANIUMS	3*s.* to 4*s.*
FUCHSIA, all fine sorts	4*s.* to 6*s.*
CALCEOLARIAS, fine plants	6*s.*
VERBENAS, including all new ones of last year,	3*s.* to 4*s.*

W. H.'s Descriptive Catalogue may be had by forwarding one penny postage stamp.

SELECT CARNATIONS, PICOTEES, ETC.

CHARLES SCHOFIELD (late JOHN SCHOFIELD & SON) respectfully begs to offer for sale the following in strong healthy plants, viz.—12 pairs of Carnations for 8*s.*, 10*s.*, or 20*s.*; 12 ditto Picotees, for 6*s.*, 10*s.*, or 20*s.*; 12 ditto of Pinks, for 4*s.*, 6*s.*, or 12*s.*; 12 Plants of Pansies, for 4*s.*, 10*s.*, or 15*s.*; 12 ditto of Dahlias (in May), for 3*s.*, 10*s.*, or 20*s.*; 12 ditto of Scarlet Geraniums, for 6*s.* or 12*s.*; 12 ditto of Verbenas, for 4*s.* or 12*s.*

Also the following Seeds, selected from the choicest show flowers, Pansies, Calceolarias, and Hollyhocks, each per packet, 2*s.* 6*d.* or 1*s.* 6*d.* A Descriptive Catalogue of the above plants sent free on application inclosing one postage stamp.

Knowsthorpe, near Leeds, Yorkshire.

ROBERT M. STARK begs to intimate that his spring Catalogue of FLORISTS' FLOWERS, BEDDING, and select HERBACEOUS PLANTS (comprising every novelty of merit) is now ready, and may be had on application. Choice assortments of GARDEN, FARM, and FLOWER SEEDS, to which he has added several new and deserving varieties. Every other article connected with the Nursery and Seed Trade.

Edgehill Nursery; and 145, Princes Street, Edinburgh.—April 7.

SIR COLIN CAMPBELL CUCUMBER.—This is the finest Cucumber ever grown for exhibition, produce, and perfection. No grower should be without this unequalled variety. It is a splendid black spine, and always grows of an even length. Price 3*s.* 6*d.* per packet, containing five seeds.

GOLDEN DROP (Green Flesh Melon.)—One of the finest flavoured and most handsome Melons ever yet grown.

SCARLET KING.—This is a splendid Scarlet Flesh Melon of a very superb variety.

Each, price 1*s.* 6*d.* per packet; or a packet of the Cucumber with a packet of either of the Melons for 4*s.* 6*d.*, sent post free on receipt of penny stamps to the amount.

*** In answer to numerous inquiries for "TILEY'S CHAMPION KIDNEY POTATO," E. T. begs to state that he has about 5 bushels more to dispose of at 1*l.* per bushel, or 5*s.* 6*d.* per peck, hamper and package included.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somerset.

TO THE TRADE.—*The Subscribers can supply the following* AGRICULTURAL SEEDS *to the Trade. Prices on application.*

White Belgian Carrot.
Yellow Globe Mangold Wurzel.
Long Red ,, ,,
Skirving's Swede Turnip. ,,
Rendle's ,, ,,
True Devon Evergreen Grass.

Apply to WILLIAM E. RENDLE & CO., Seed Merchants, Plymouth.

NEW ASHLEAF.—"THE CHAMPION."

JOSEPH WILSON, Ipswich, begs to state that his stock of CHAMPION ASHLEAF (decidedly the finest in cultivation), price 12*s.* per bushel (56), is getting low, and that early applications will be necessary.

J. W.'s stock also comprises the following excellent varieties:—The PROLIFIC KIDNEY, price 6*s.*; these on light land are a most profitable crop—they will repay a little outlay. MOSS KIDNEYS, 6*s.*; a similar variety to the Prolific, grow to a large size, but not so many to a root. SUFFOLK EARLY SHAWS, the finest in the world, 22*s.* per sack. LORD RAGLANS, a new mammoth variety, 42*s.* per sack (medium size cut); and the late variety, PINK KIDNEY, price 24*s.* per sack: for private growers this variety offers many inducements: its well known keeping qualities being as good in the month of May as when first taken up: and added to its immense yield, it possesses all the fine flavour of the Ashleaf.

Free to London for orders of 4 bushels and upwards. No charge for bags or sacks. No order attended to without a remittance.

OSAGE ORANGE (MACLURA AURANTIACA).

CHARLWOOD AND CUMMINS beg to announce that they have received from America Seeds of the above-named valuable Hedge Plant, which they are ready to send out at 4*s.* per lb., accompanied with directions for sowing and treatment, as described in the *Gardeners' Chronicle*, May 13th, 1854.

They have also received their annual importation of American Trees and Shrubs: Seeds, consisting of Azaleas, Rhododendrons, Quercus, Red Cedar, &c., of which a Priced List will be sent on application.

One-year Seedlings of the following varieties of American oaks, at 4*s.* per 100: Quercus nigra, Banisteri, alba, and obtusiloba. Fine Plants of Aquilegia glandulosa, 20*s.* per dozen. Delphinium giganteum, per 100 seeds, 20*s.*

SEED POTATOES.

	s. d.		s. d.
Lapstone Kidney, per bush.	7 0	Early Defiance, per bush.	7 0
Ash-leaved do.		Forty-fold ... ,,	6 0
Rosen's Oxford ,,	8 0	Early Manley ... ,,	7 0
	7 0		

C. & C. will be glad to receive offers of 1, 2, and 3-years old Quick.—14, Tavistock Row, Covent Garden, London.

NEW AND RARE CONIFERÆ.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, Edinburgh and London, have still on hand a small quantity of the Seeds of the following RARE CONIFERÆ, &c.:

	£ s. d.		
Pinus Lambertiana, 50 Seeds ...	1 5 0	Taxus Lindleyana (quite new) 50 Seeds ...	2 2 0
P. tuberculata, entire cones	2 2 0	Club-headed Wheat (cultivated by the old Californians), 200 grains	1 0 0
P. monticola, 50 Seeds ...	2 2 0	Wheat (a variety of Triticum durum) do.	15 0
P. Jeffreyi do. ...	2 2 0		
P. Beardsleyi do. ...	2 2 0		
Libocedrus decurrens, do.	1 5 0		

Full descriptions will be found in the last page of the *Gardeners' Chronicle*, for Feb. 3.—Orders may be addressed to PETER LAWSON & SON, in Edinburgh: or to their London House, 27, Great George Street, Westminster.

CHOICE FLOWER SEEDS, &c.

	s. d.
30 varieties HARDY ANNUALS	5 0
CALCEOLARIA, saved from a collection that has taken first prizes, per packet...	2 6
CINERARIA, very choice	1 0
PRIMULA ,, ...	1 0
STOCK, superior mixed German and intermediate, each...	0 6
SWEET WILLIAM, ANTIRRHINUM, each	0 6
PANSIES, per dozen Plants, choice named	6 0
BROWN COS LETTUCE, very superior	1 0

All the above can be highly recommended and forwarded free by post.—HART & NICKLIN, Florists, &c., Guildford.

NEW SEEDS, CARRIAGE FREE.

	Per lb.—s. d.
White Belgian Carrot	2 0
Yellow Globe Mangold Wurzel	1 0
Morton's Yellow Globe do....	1 6
Fisher Hobbs' Yellow Globe do.	1 6
Elvetham Long Red do.	2 0
True Devon Evergreen Grass ... Per bushel 5*s.* to	6 0
Imported Italian Rye-grass ... ... 6*s.* to	7 0
Dickenson's Improved do.	8 0
True Somerset Cow Grass ... ...Per lb. 9*d.*, 10*d.*, to	1 0
Alsike Hybrid Clover	2 0
Common Red Clover... ... ... 6*d.*, 7*d.* to	0 8
White Dutch do. ... ... 9*d.*, 10*d.*, to	1 0

Prices of all kinds of Agricultural Seeds will be found in RENDLE'S "Farming Price Current and Agricultural Directory," just published.—Apply to

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

CHARLES TURNER begs to intimate that his New SPRING CATALOGUE is now ready, and contains descriptive lists of—

Dahlias,	Carnations,	Scarlet and Horse-shoe Geraniums,
Fancy Dahlias,	Picotees,	Delphiniums,
Cinerarias,	Pinks,	Mimulus,
Verbenas,	Pansies,	Pentstemons,
Fuchsias,	Auriculas,	Petunias,
Hollyhocks,	Shrubby Calceolarias,	Bedding Plants, &c.,
Chrysanthemums,		

including several new Dahlias, new Verbenas, new White Bedding Calceolarias, &c., offered for the first time. Can be had on application.—Royal Nursery, Slough.

TREES AND SHRUBS.—The annexed having been constantly removed are very suitable for immediate effect, having been grown more as single Specimens than Nursery Stock, and having formed large balls of earth. Every care is taken to ensure success.

Araucaria imbricata.	Deutzia gracilis.	Pinus Cembra.
Arborvitæ.	Holly, green.	,, insignis.
Azaleas, Ghent,	,, variegated.	Rhododendrons, best sorts.
Cedrus deodara.	Junipers in large variety.	,, hybrids.
,, Libani.	Picea Pinsapo.	Red Cedars 6 to 9 ft.
Chesnuts, scarlet.	,, Fraseri.	Portugal Laurels.
Cryptomeria japonica	Pinus excelsa.	Yew, Irish, 3 to 7 ft.

Also very fine Specimen Standard Portugal Laurels and Rhododendrons. Indian Azaleas and Greenhouse Rhododendrons, for which we received first prizes last year, are grown very extensively. Catalogues may be had on application; also the Tree and Shrub Catalogue.

H. LANE & SON, The Nurseries, Great Berkhamsted.

UNRIVALLED SPECIMENS OF HARDY ORNAMENTAL TREES, SHRUBS, CONIFERÆ, ETC.

LUCOMBE, PINCE, AND CO. respectfully call attention to their superior stock of the above, which is worthy of the notice of those who are engaged in Ornamental Planting where immediate effect combined with perfect safety in removal is an important consideration.

L., P. & Co. refer with much satisfaction to the great success with which they have for many years been in the habit of removing their large and symmetrically grown specimens (even to very great distances), facts which fully justify them in stating that such Plants as they now offer are seldom to be met with. Their stock is too extensive for the limits of an Advertisement, a few only of the more prominent ones being here named, but sizes, prices, and full particulars of all may be had on application.

Arbutus, of sorts	Laurels, *fine large, bushy*	Irish Yews
Abies Douglasi	Lucombe Oaks	Ilex Oak
,, orientalis	Magnolias	Japan Yews
,, Menziesi	Pampas Grass	Juniperus excelsa
,, canadensis	Pinus insignis	Libocedrus chilensis
Araucaria imbricata	,, austriaca	Scarlet Oaks
Biota glauca	Pinus cembra	Rhododendrons, *fine large, bushy, grown in loam, fit for any soil or situation*
,, japonica	,, excelsa	
Birch, silver stemmed	Picea Nordmanniana	
Cedars of Lebanon	,, Pinsapo	Standard Bays, *in tubs*
Cedrus deodara	Portugal Laurels, *fine large, bushy*	,, Portugal Laurel
Cupressus macrocarpa	Purple Beech	,, Standard Thorns
Ford's Oaks		&c. &c. &c.

Exeter Nursery, Exeter.—Established 1720.

R. PARKER begs to offer the following, all of which are well established, and can be forwarded to any part of the Kingdom:—

	From per dozen.—s. d.
Exotic Orchids, distinct and beautiful species	60 0
Exotic Ferns ,, ,, ...	18 0
British ditto ,, ,, ...	9 0
Exotic Lycopodiums ,, ,, ...	12 0
Roses, consisting of the best varieties of Hybrid Perpetuals, Teas, and Bourbons, strong plants, established in pots ...	12 0
Cinerarias, choice named varieties, strong, established plants, in 4-inch pots	9 0
Cinerarias (Seedlings), from the finest named varieties, including the best varieties sent out last season, strong, established plants, in 4-inch pots	4 0
Calceolarias (Seedlings), from beautiful spotted varieties, strong, established plants	6 0

Lists of Names forwarded upon application.

The following choice Cucumbers and Melons, in packets of 12 Seeds, at 1*s.* per packet:—

CUCUMBERS.	MELONS.
Superlative Improved	Golden Perfection (extra fine)
Walker's Rambler	Bromham Hall
Manchester Prize	Persian Green Flesh
Hunter's Prolific	Chichester Prize
Improved Patrick.	Cuthill's Scarlet Flesh.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, Holloway.

BEDDING AND OTHER PLANTS.

F. AND A. SMITH'S Descriptive LIST of the undermentioned is now ready, and may be had, post free, on application:—Antirrhinums, Verbenas, Fuchsias, Scarlet Geraniums, Calceolarias, Petunias, Heliotropes, Pentstemons, Chrysanthemums, Mimulus, Salvias, Lobelias, &c. Climbers in variety, also a miscellaneous Collection of Greenhouse Plants. They have now in bloom Cytisus racemosus, Cineurarias in variety, Primula sinensis, Acacia armata, Deutzia gracilis, Erica Willmorea, &c. The Trade supplied.—Dulwich, Surrey, April 7.

TO PLANTERS.

HAY, SANGSTER, AND CO., have for sale the following:—600 to 700 strong Standard PEARS, 500 Dwarf do., and 100 Dwarf-trained do. Any reasonable offer will not be refused, as the ground must be cleared immediately.

Apply to HAY, SANGSTER, & Co., Newington Butts, London; of whom also may be had for seed York Regent Potatoes, 6*s.*, and Early American, 8*s.* per bushel of 56 lbs., the produce of their prepared Cuttings. Terms cash.

THOMAS BEACH, the well-known Strawberry Grower, begs to say that he has now ready a large stock of fine strong Plants of his TRUE BRITISH QUEEN, the same he beat the whole world with at the Crystal Palace, many weighing from 2 to 3 oz. each, likewise the same he gained the Knightian Medals with at Chiswick, and other places. He has gained the head prize, and surprised the world, both in flavour and weight. Strong Plants sent to any part of the world, at 5*s.* per 100, box included.

Post-office Orders on Hounslow, to Mr. THOMAS BEACH, Strawberry Grounds, Worton, Isleworth, Middlesex.—April 7.

AMERICAN NURSERY.

GEORGE BAKER'S DESCRIPTIVE CATALOGUE OF AMERICAN PLANTS, &c., as exhibited by him in the Royal Botanic Gardens, Regent's Park, may be had by inclosing two postage stamps.

G. B. begs to call attention to his fine stock of Weeping Hollies, Coniferous Plants, Ornamental Shrubs, &c.—American Nursery, Windlesham, near Bagshot, Surrey, near Staines Station, South-Western Railway, where conveyances may be obtained.

BEAUTIFUL FLOWERS.—Twelve packets, each packet containing 100 Seeds, 1*s.*; sent free per post, 1*s.* 2*d.* Abronia umbellata, Eccremocarpus scaber, choice Gloxinias, Lophospermum Hendersoni, Lisianthus Russellianus, and every other choice variety 6*d.* per packet. Dwarf German (10 week) Stocks, as imported, 36 varieties, each variety 3*d.* per packet.—WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington, London.

AUSTRALIAN KIDNEY VICTORIA KIDNEY, and EARLY PROLIFIC POTATOES, 8*s.* per bushel.

SPRING FLOWERS.—CINERARIAS, good flowering Seedling Plants, 4*s.* to 6*s.* per doz.; fine named varieties, 6*s.* to 9*s.*

HYACINTHS in pots, various colours, just showing bloom, 4*s.* per doz.; also a few very fine named flowers, many of which are catalogued at 1*s.* to 1*s.* 6*d.* each, in the same state as the above, 9*s.* per doz.

FINE HERBACEOUS CALCEOLARIAS, from Major's seed, in large and small 60 pots, 4*s.* to 6*s.* per doz.

WOOD and INGRAM, Nurseries, Huntingdon.

DWARF FRENCH BEANS can be had in any quantity.—Apply to J. G. WAITE, Seed Merchant, 181, High Holborn, London.

PLANT YOUR POTATOES WITH JACKSON'S PATENT PREPARATION.

BASS AND BROWN having been appointed Agents for the above, will be happy to furnish it to their customers who may be forwarding their orders for Potatoes or other goods. Also Agents for PAGE'S COMPOSITION FOR THE DESTRUCTION OF BLIGHT.—Sudbury, Suffolk.

PAGE AND CO.'S BLIGHT COMPOSITION.—Extra Strong, 4*s.* per gallon, sufficient to make four (Jars and Barrels extra); in Bottles, 1*s.* 3*d.* and 2*s.* 6*d.* each. Directions for application forwarded. 10 Gallons and upwards Carriage Free to London. Should be in the hands of all Plant and Fruit Growers. See *Gardeners' Chronicle*, March 3, 1855. It can now be obtained of

Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester	Mr. Burham, Hastings
Bass & Brown, Sudbury	Messrs. Chandler & Son, Wandsworth Road, London
Sutton & Sons, Reading	Mr. James Veitch, Exotic Nursery, Chelsea
W. & G. Davison, St. Peter's Street, Hereford	Messrs. Wheeler & Son, Gloucester
Henderson & Co., Pine Apple Place, London	Messrs. Downie & Laird, South Frederick Street, Edinburgh
Rendle & Co., Plymouth	Mr. W. F. Smith, Rivershead Nursery, Sevenoaks
Masters & Son, Canterbury	Messrs. Fisher, Holmes, & Co., Handsworth Nursery, Sheffield
Thomas Davies & Co., Wavertree, Liverpool	Mr. Thos. Cridland, Willeton, near Taunton
Mr. Freeman, Woburn	Mr. E. Taylor, Malton, Yorksh.
,, J. Perkins, Northampton	Mr. S. Smee, Halstead, Essex
,, Tiley, Bath	Mr. Henry Horne, Henley-on-Thames
,, E. Paul, Derby	Mr. Thomas Pierpoint, Warrington, Lancashire
,, W. Barratt, St. John's, Wakefield.	
,, Baskerville, Bristol	

and of the Inventors and Manufacturers—

B. PAGE & Co., SEED MERCHANTS, Oxford Street, and Above Bar, Southampton.

N.B.—Other names will shortly appear, as the agents are appointed.

The Gardeners' Chronicle.

SATURDAY, APRIL 7, 1855.

THE war with Russia has already doubled the price of garden mats, and will, probably, destroy the trade altogether. Should this prove to be the case gardeners, the great consumers of Russia mats, must find a substitute, for BAST is necessary to their business. Already a substance called Cuba bast has found its way into the market; but it is too weak and too dear. At the last meeting of the Horticultural Society, Messrs. PAUL, of Cheshunt, exhibited samples of a better material, for it was softer and stronger, which we understand can be supplied at a much lower rate; and this appears to be the best substance of the kind at present on sale.

But at the same meeting were exhibited by Dr. ROYLE other basts, from the East Indies, incomparably stronger than either of the preceding. They came from Arracan, where they appear to bear the common name of *Shaw*. All tropical damp

countries in fact abound in trees whose inner bark can be peeled into such strips as Russia mats are made from, and if such as have hitherto been most heard of come chiefly from India, it is only because we know more of the non-commercial products of the old than of the new world, thanks to the experiments and inquiries continually making by the officers of the East India Company, and most especially of late years by Dr. Royle. There can be no doubt that an article of the same class as the Russian mat, and of far better quality, can be manufactured in India from the basts that are procurable in all directions. The only difficulty would be the cost of freight. Whether it could be brought in Europe into competition with the very indifferent Russian mat, we are unable to say; but there can be no doubt that were that possible, there would be a ready sale for such a production, at even a higher price, provided strength and durability were increased in proportion. Merchants alone know whether such an import could come profitably as dunnage, and therefore at little cost, and to them must be left the solution of the question.

It must not, however, be supposed that this is a matter interesting only to us English; it is in reality a great colonial question, for we find that Russia exports about three millions and a half of mats annually, of which from 300,000 to 800,000 are consumed in the United Kingdom. Nothing produced naturally in this country can be converted into such an article. We have of late been forced into the use of the light woollen canvas called *Frigi domo*, but the quality of that article is already so deteriorated that it will probably soon cease to be in demand, and then we shall feel the want of mats more than ever. It is possible, indeed, to manufacture our own straw mats, and for winter covering they are excellent; but they are too opaque for shading, and give the gardener no aid when he looks round for something inexpensive with which he can tie up his trees or his produce. Mats, therefore, may be considered indispensable horticultural implements, and we earnestly hope that either our East Indian or West Indian possessions will find us a good substitute.

—The roots of a variety of plants are subject to excrescences of different size, form, and character. Some of these, as in Leguminosæ and Conifers, are more modifications of the branchlets of the roots themselves, and are either normal or due to peculiar circumstances in which the plant may be placed. In the former case they are probably reservoirs of nutriment, in the latter from their abundant reticulated cells, homologous with those of the aerial roots of Orchids, there can be no doubt that they perform some important economical function. There are, however, many other tumours which are evidently of insect origin, and some which are mere hypertrophies, or whose nature is still doubtful. Some of these so closely resemble fungi that they have been placed by Fries in his genus Mylitta, and we have one now before us, in which such a curious resemblance occurs to the fructification of some smooth-seeded Truffle that a youg botanist might almost be excused were he to fall into error. Amongst a quantity of Cucumber plants in the garden at Nuneham, Mr. Baily observed, a few days since, one whose leaves were covered with brown spots, some of which occurred also on the stem. The frame was slightly affected with Thrips, but there was no circumstance to account for the unhealthy state of this individual plant, and on closer examination the root was found to be covered with excrescences varying from the size of a small pin's head to that of a little Bean or Nutmeg. The roots of Melons, Gourds, and many allied Cucurbits, have a peculiar odour when healthy, resembling very closely that of the pith of the common Rush; but in this case there was a hot acrid smell, like that which is so common in Crucifers.

The tubercles were of a dirty cream colour, nearly globose, obscurely furfuraceous, and in almost every case were developed on one side of the root, as was very evident in the younger individuals; but the same fact might be traced even in the largest. A section exhibited irregular, radiating, whitish, and sometimes snow white masses of vascular tissue with numerous large open ducts intercepted by loose cellular tissue, simulating in arrangement medullary rays, and passing gradually into a thick external ring of parenchymatous cells, especially on the side of the tubercle where the swelling had first taken place. On a minute examination of the tissues the first point worthy of remark was the enormous development of the vascular tissue, and a second that many of the ducts, both in the tubercles and the unaffected portions of the roots, were traversed apparently by multitudes of threads. It was a question, therefore, whether the morbid bodies might not be due to the mycelium of some fungus. Few points, however, are more difficult to ascertain with certainty than the real nature of such appearances. It is extremely easy to confound sections of cells with mycelium, and such mistakes are often made. After long examination we were, however, convinced that there was no mycelium,* and the application of chemical tests was conclusive as to the point, since the connecting membranes became visible, and the supposed threads acquired a deep blue tint when treated with iodine and sulphuric acid; and it was evident that a growth of loose cells had taken place within the ducts, probably for the ultimate deposition of fecula, as in some Leguminosæ. Our attention had, however, been drawn to certain little cyst-like bodies, much larger than

the mouths of the ducts, which were themselves of considerable size, and to our great surprise it appeared that these cysts were regular membranous sacs, exactly resembling the sporangia of Truffles, and filled with a multitude of minute elliptic or slightly cymbiform eggs, averaging not more than $\frac{1}{550}$th† of an inch in length, with a breadth of $\frac{1}{300}$. In many of these the nucleus already showed the form of a Vibrio, folded up once or twice, and several of the animals were free, though still of small size, having escaped from the eggs by a little circular aperture at one

extremity. The cyst was destitute of any evident organic structure, was not affected by iodine and sulphuric acid, but showed some appearance of giving way under caustic potash. It was clear, then, that it did not consist of cellulose, but might possibly be some modification of xylogen. It is not conceivable that such a cyst could have been deposited by the Vibrio itself, and we must therefore consider it as due to the irritation caused by the presence of the eggs, and exactly analogous to the cysts produced by the larvæ of the cestoid worms in animal structures. We are not aware that anything of the kind has ever been observed before in vegetable parasites; for though the tissues of vegetables are greatly altered by the presence of the larvæ which produce galls, it does not appear that they ever give rise to a free cyst, as in the present case, differing altogether from the surrounding tissues. In immediate contact with the cyst was a most delicate tissue of spiral or reticulated cells, probably in a young state, the structure of which was only visible under very high powers. There is every reason to believe that the anomalous condition of the roots was due to the presence of the Vibrio, the extreme minuteness of which makes it very improbable that any remedy could be suggested were the evil such as to require one. The Vibrio was not seen except in a very young state; any attempt, therefore, to ascertain the species, supposing it to be described, is hopeless.

The articulated appearance, after the fashion of Cephaëlis, often assumed by Melon roots, may possibly arise from some similar cause. We shall hope on some future occasion to examine the phenomenon.

We have represented in the annexed figures the general appearance of the production, of the natural size, omitting, however, for the sake of distinctness many of the nodules; a section through one of the cysts with the surrounding tissue magnified; a portion of the eggs and the young Vibrios themselves, as seen when treated with iodine and sulphuric acid; and also a portion of the delicate tissue above mentioned more highly magnified. It should be observed that this latter presents very different appearances in different parts; in some, the outlines of the cells are as represented in the figures, in others the tips of the cells are sharply pointed; and while the generality of them merely exhibit transverse lines, as from a spiral thread, some of them are delicately reticulated. *M. J. B.*

* Threads of mycelium rarely, if ever, turn blue on the application of iodine and sulphuric acid. If perfectly free from nitrogenous matter they will do so. Every doubtful case should therefore be submitted to chemical verification.

† These are, however, large in comparison with those of the common human thread-worm, whose dimensions are $\frac{1}{400}$ by $\frac{1}{320}$.

The following announcements appeared the other day in the *Globe*:—"We have reason to believe that the Hon. James Kenneth Howard will succeed Mr. T. F. Kennedy in the office of Commissioner of Woods and Forests. We have much satisfaction in stating that Sir John Herschel will be succeeded as Master of the Mint by the distinguished Professor Graham, of University College, now one of the Assayers."

The latter of these appointments does great honour to Lord Palmerston. A man more highly qualified than Mr. Graham for the important post to which he has been advanced could not have been selected. As a profound chemist he is intimately acquainted with the great processes over which he is now to preside, and the public service cannot but derive all the advantages which scientific refinement, combined with practical experience, can bring with it to so vast a subject as our coinage. In short Professor Graham is a worthy successor to Sir John Herschel; and the appointment is the more to be applauded that it was made without the aid of political influence.

But what are we to say of the other nomination? The officer under whom the management of the Royal Forests is placed should have attainments of a high order as well as the Master of the Mint. Unless he is conversant with the science of forestry, the working of mines, and a variety of other matters of the first consequence in rural economy, to say nothing of the control of landed property, he does not possess the qualifications indispensable in so peculiar a charge. Is the Honourable James Kenneth Howard a master of these branches of knowledge? We are not the only persons unable to answer that question; for we observe that Mr. Craufurd has given notice in the House of Commons of his intention, after the recess, to call the attention of Parliament to the appointment in question. As far as we are at present informed we can only say that Mr. Howard is son of the Earl of Suffolk, son-in-law of the Marquis of Lansdowne, and brother-in-law of Lord Shelburne, and of the Honourable Charles Gore, the other Commissioner of Woods and Forests. All therefore which is certain is, that he enjoys the advantage of high connections. Let us hope that the honourable gentleman is equally provided with the greater requisites of his office.

VEGETABLE PATHOLOGY.—LXVI.

289. Variegatio.—Phænogamous plants, with few exceptions, in a state of health, and duly exposed to the influence of light, exhibit in their leaves and often in other organs a green tint of greater or less density according to the individual species. This depends upon a peculiar substance called chlorophyll, capable of various modifications as regards colour, and incorporated in some way not perfectly ascertained at present with certain, for the most part, nitrogenous globules, which do not, however, seem to consist entirely of chlorophyll, but to be a mere receptacle for it. These globules are indeed intimately connected with its production, as they do not seem to exist in cells which are perfectly colourless.

290. Chlorophyll seems to differ in quality in different plants; that of Lichens at least is not identical with that of Phænogams. The globules moreover which serve as

its receptacle are not always of the same nature. In Lichens they are probably reproductive; in some Algæ they are certainly capable of germination, while in Phænogams, notwithstanding the attributes assigned by Turpin to his globuline, there is no proof that they are capable of giving rise to organised structures, except by chemical decomposition. In Phænogams such globules are dispersed irregularly in the protoplasm of the cells, while in Chara, Zygnema, &c., they have a definite arrangement, which in the former instance cannot be deranged without the destruction of the circulation and other vital phenomena. In most instances the globules arise indifferently in the midst of the protoplasm; but in Lichens they are produced at the tips of threads, of which they are the ultimate articulations, after the manner of spores.

291. According to the various modifications which chlorophyll undergoes, different tints are assumed in various parts of a plant, and not only do flowers exhibit their multiplicity of hues, but even leaves in their normal condition are variously painted. With such matters, as peculiar to each species, and consistent with perfect health and the performance of every vital function, however interesting, we have nothing to do in this place. In certain cases, however, either in every cell equally, as in seedlings, or in portions only, variously disposed, the chlorophyll, though in the normal condition produced abundantly, is entirely wanting. The seedlings are of very short duration, seldom advancing beyond the development of the cotyledons; the partially affected plants are of indefinite duration, and are known under the name of variegated.

292. If the leaf of a plant, as for instance of a variegated Pelargonium, be examined under the microscope, while the green portions are rich in chlorophyll, the blanched parts are entirely destitute, except in those varieties in which the border exhibits a golden or speckled appearance, which is dependent on modifications of the contents of the cells. In proportion as the cells are coloured, the globules, which are the receptacles of the chlorophyll, are more or less developed, and of greater or less size. The functions of the cells in other respects are not impeded, there is no lesion of their walls; the bleached parts are not killed by exposure, as is the case with some delicate pale tissues, as, for instance, the expanding fronds of certain Ferns; and if there were no other peculiar phenomena, plants so affected could be regarded only as mere varieties, and not as plants in a diseased condition. It is, however, curious that when a portion of a plant with variegated leaves is in communication with other parts which normally would produce leaves endowed with the ordinary green tint, those parts are liable to contract the affection; and the affection, when once present, does not seem to vanish altogether, though it is said that in some cases it may be modified by rich soil, accompanied by complete exposure to light. It is possible, however, that variegation may not always be properly distinguished from Chlorosis.*

293. Variegation may arise either in the seedling,† or in some particular branchlet of a tree; often in shoots coming from adventitious buds. Such a shoot may communicate the affection immediately, or if grafted upon a sound stock may affect the stock; or, on the contrary, if the stock be variegated the graft may be affected. Many such instances are reported in the older writers on Horticulture and Vegetable Physiology, and in more recent times Turpin, in his memoir‡ on grafting, informs us that Noisette had observed the phenomenon in the case of a variegated Jasmin. Seedlings, however, from variegated plants are not of necessity variegated, exactly as the produce of an Albino does not necessarily exhibit the peculiarities of that animal condition.

294. Many plants in their normal condition exhibit parts which are entirely colourless, though modifications of organs which in their normal condition are green. It does not however follow that such plants are in precisely the same state as the colourless parts of variegated leaves. White flowers, for instance, seem to have their own peculiarities. They are by no means free from colouring matter, and in some instances they give the same chemical results as flowers of a different colour.§

295. It appears, on the whole, that variegation depends originally upon a weak condition, but if so, one which does not admit of perfect remedy, and which, moreover, is capable of propagation. It should seem, however, that this capability exists only for cells in a young and tender condition. A leaf which is already green does not lose its chlorophyll, nor are neighbouring cells affected; it is only in new shoots or leaves that the extension of the malady is visible. In fact, cells of the most different colours may be in juxtaposition without any mutual effect, as regards colouring only. *M. J. B.*

* A case is quoted by Meyen from Burgsdorf's "Versuch einer vollständigen Geschichte vorzüglicher Holzarten," a book to which I have not access, which is worthy of attention. A young Beech which had been eaten down by snails to its cotyledons, and in its first winter by deer, produced in the spring two leaves only, with but little green about them. It was transplanted the next year into better soil, and again produced variegated leaves: after it was established the white spots gradually disappeared, and at length there were no signs of variegation. It is said also that variegated Myrtles recover their green tint when so treated; and it is notorious that even in variegated trees particular shoots will reappear in their normal condition. The curious point is, that if the malady arises in the first instance from any external cause, it should so seldom disappear, and that it should be so easily and permanently propagated.

† Knight obtained variegated plants of Vines by crossing.

‡ Annales des Sciences Naturelles (1st series), vol. 24, p. 349.

§ See Thomson's "Organic Chemistry," p. 427.

CLIMATE OF FOREIGN COUNTRIES.—No. VI.

NICE, 30 *March*, 1855.—On the 10th of this month single red Tulips (Oculus solis) were in flower in the cornfields. On the 13th white Thorns were in full leaf. On the 15th were gathered wild the double Scarlet Anemone (Regina), which is also abundant in gardens. Some of the Lemon and Orange trees were also in blossom in the warmer situations. On the 22d, Peaches and Nectarines (all standards here), and new Cherries, Pear trees, and Plums were fully out—Apples, partially. Asparagus from gardens, and also *wild from the hedges*, is sold in the market. On the rocks of Mount Vinaigrier, the Asplenium Petrarchæ (a Fern not known in Britain) something like A. trichomanes, but much prettier, grows rather plentifully. China Roses are coming into flower. Lycopodium denticulatum grows in the lanes and valleys. Manure here has great care taken of it; a great part is *liquefied* and in that state applied round the roots of the Orange and Olive trees. *No sewage is allowed to escape.* The recent decrease in temperature appears to have been almost simultaneous in London, Paris, and Brussels, and of about the same extent. The usual cold March winds have been but little felt here at present.

Daily Temperature.

1855.		7 A.M.	12.	10½ P.M.
March	9	46	52	39
"	10	35	51	43
"	11	39	48	39
"	12	37	50	44
"	13	39	55	44
"	14	43	58	46
"	15	42	60	45
	Mean	40.1	53.4	42.8
"	16	45	62	51
"	17	47	62	54
"	18	48	58	47
"	19	47	62	46
"	20	46	61	47
"	21	49	53	48
"	22	47	53	46
	Mean	45.5	58.7	48.4
"	23	45	61	51
"	24	45	56	46
"	25	48	58	49
"	26	46	55	45
"	27	47	55	43
"	28	40	52	42
"	29	42	52	45
	Mean	44.7	55.5	45.8

E. C.

Villa Reale, Naples, March 28th, 1855.—Trees coming into leaf: Maple, Fig, Lime, Beech, Hornbeam, and Acacia, and in sunny places the Vine; except one Maple in full leaf, all the rest seem equally advanced. The flowers are "legion:" Judas trees, of which there are only three in this garden, Glycine, Azaleas, Roses,—amongst the rest Devoniensis and the dark China—Tulips, Ranunculuses, Hyacinths, the Grape Hyacinth, and Anemones, we met with a month ago in Tuscany; Calla Æthiopica, in full flower, planted in rock-work islands round a fountain; Geranium (Scarlet) Mallow, 8 feet high; Stocks of all sorts, very poor; the chief weed under the trees is a yellow Oxalis. The Mesembryanthemum hangs like Ivy in masses 6 feet long from the top of walls; its triangular leaves are half an inch each side of the triangle. The Cytisus and even the Laurustinus and Magnolia have the edges of their leaves browned by the frost; the Laburnum in full leaf will, in two or three days, be in flower; the Aloe and Iris (common blue) grow on the ruined walls, and Ivy quite as thick as with us. At Florence beyond the Olives and Oleanders no one thing existed to remind one of the south, the only Ferns were the Ceterach and Asplenium nigrum and Trichomanes; here the true Adiantum cap. Veneris covers the lava round the fountains. The Filix-mas grows from the tufa walls, and is now a foot high. The Grass borders here are cut with a hook! and every plant of Clover is eradicated. The China Roses, Azaleas, and Camellias have each a hole 2 feet in diameter round them. In Lady Strong's villa, across the street, there is an Araucaria excelsa, about 15 feet high, worth coming to Naples to see. The Lupins and Trifolium incarnatum are in flower in the fields. The want of any freestone, and the excellence of the clay, cause terra-cotta vases of beautiful forms to be universally used here, even in the King's gardens. The beautiful yellow red to which this clay turns in the fire agrees much better with the green leaves than either stone or marble, and I am much surprised that our friends never think of sending any over to England. They have the bad taste here to put white marble seats on rough bases of small lava and scoriæ, and make their statues rest on similarly made islands, from holes in which lava issue two jets of water. The Palms are not allowed fair play, but "overcrowed" by dozens of other trees, consequently they are not very fine. There are no small Tangerine Oranges in the Villa Reale, but at two or three villas at Pausilippo there are a few. Vesuvius has much snow on it yet. At 5 o'clock a common bat was hawking after flies in broad daylight here amongst the promenaders. *Somerset.*

THE DISMISSAL OF THE RIGHT HON. T. F. KENNEDY.

WHEN Sir John Shelley withdrew his motion in the House of Commons on the 27th of February, for a Committee to inquire into the grounds and justification of the removal of Mr. Kennedy from the office of Commissioner of Woods, &c., he did so on the condition of an express undertaking, by the Prime Minister, being also first Lord of the Treasury, in the face of the House of Commons, that certain words, contained in a Treasury Minute of the 31st March, 1854, offensive to Mr. Kennedy and his friends, should be *officially* retracted by the Treasury, and that such retractation should be *officially* recorded at the Treasury.

This pledge has been amply and promptly fulfilled by the First Lord of the Treasury.

A Parliamentary Paper has recently been printed (No. 141) containing a letter addressed, by command of the Lords Commissioners of her Majesty's Treasury, to Mr. Kennedy, together with a Treasury Minute *made in pursuance of the undertaking of the Prime Minister.* This Minute contains a letter from Mr. Gladstone, dated 28th February, the debate having taken place on the 27th. It may be worth while to place in juxtaposition the offensive paragraph and the Minute made in pursuance of the undertaking of the Prime Minister:

Extract from Minute of Treasury, March 31, 1854.—"In the case, however, of the controversy which has "arisen between Mr. Higginbothom and Mr. Brown, "and *also* between the former gentleman and *Mr.* "*Kennedy* on the subject of Mr. Brown's reports on "Alice Holt and Woolmer Forests, the questions "at issue are reduced to matters of simple fact, "but which, from the spirit in which the discussion "has been conducted, have assumed a character in-"volving the veracity, integrity, and honour of the "parties, and rendering it desirable, on that account, "that the matter should be brought to a conclusion with "the least possible delay."

"COPY OF TREASURY MINUTE, DATED MARCH 2, 1855.

"My lords read the following letter from the Right Hon. W. E. Gladstone:—

"'Downing Street, Feb. 28.

"'My Lords,—In a discussion which arose last night in the House of Commons, with respect to the case of Mr. Kennedy, it was stated by Sir John Shelley, who made a motion on his behalf, that his removal from office had taken place in conjunction with reflections on his honour, veracity, and integrity. Having been the person principally responsible, as Chancellor of the Exchequer at the time, for Mr. Kennedy's removal, I may take this opportunity of stating, what, however, I know to be perfectly familiar to your lordships, namely, that *no imputation was cast* or was intended to be cast *by me upon Mr. Kennedy* in respect of his honour, veracity, or integrity; on the contrary, I had a sincere respect for the zeal with which he appeared to prosecute his duties; and his character, after a long life, was unassailable in these vital points. I am able to state that in all communications which have passed between the Earl of Aberdeen or myself on the one hand, and friends of Mr. Kennedy on the other, the utmost willingness has at all times been expressed by us both to adopt any effectual and proper mode of placing this matter, naturally so interesting to Mr. Kennedy, beyond doubt. As, however, I must judge from the language used last night by Sir John Shelley, and likewise by other members of Parliament, that such doubt has existed, and as it appears to be in some degree supported by words in a Treasury minute, which were used, I am well assured, with another intention, I venture to suggest it to your lordships for consideration, whether you might not act justly by Mr. Kennedy were you to place it upon record in a supplemental minute that it has never at any time been *intended to cast any reflection upon Mr. Kennedy in point of honour, veracity, or integrity.* I have, &c.,

"'W. E. GLADSTONE.'

"Mr. Wilson states to the Board that, being fully cognizant of the intentions of their lordships' immediate predecessors, he is enabled to assure their lordships that the expressions in a minute of the Board to which Mr. Gladstone refers, and which have been interpreted by Mr. Kennedy and his friends as throwing an imputation upon the honour, veracity, and integrity of that gentleman, *were not intended to have such an application*, or in any way to impeach his honour. My lords desire that a copy of this minute be communicated to Mr. Kennedy, with the expression of their lordships' hope that it will have the effect of relieving his mind from any feeling that his honour has been called in question."

"Thus," as is remarked in a paper in private circulation, "it appears that Mr. Gladstone on the 28th of February, 1855, '*suggested*' to the Lords Commissioners of the Treasury, for their consideration, a course of proceeding ('acting justly,' as he says, 'by Mr. Kennedy') which the Prime Minister had on the *previous day*, the 27th, pledged himself to the House of Commons to adopt. It appears that Mr. Gladstone thought this proceeding proper to be adopted, on considerations of justice and truth, but he waited for upwards of nine months before he took it, or 'suggested it for consideration,' and until it was extorted by a motion in the House of Commons. He claims credit for doing that in which the Prime Minister had anticipated him, and had pledged himself to do, before he had the benefit of Mr. Gladstone's suggestions." This, it would seem, is Mr. Gladstone's perception and sense of justice, and the manner in which he carries them into execution. May we ask in what school he gained his own ideas of right and wrong; at Naples? or in Whitehall?

With reference to the last remark, we beg the attention of our readers to the words here printed in italics. After giving it they may perhaps arrive at a better judgment concerning the true value of the statements occasionally made by public men, than they could previously form. It is clear that what Messrs. Gladstone and Wilson really say is not to be taken as an expression of what they intend or mean, but that they belong to that ingenious school which takes for its motto, "The use of words is to conceal meaning."

Lord Palmerston, in thus forcing his ex-colleague to sing his palinode, has fully redeemed his promise to the House of Commons. "But," as a contemporary has well put it, "though Mr. Kennedy was dismissed from the Woods and Forests, yet a Minute is entered on the records of the Treasury praising Mr. Kennedy to the skies. The only inference one can draw from this, and many similar instances, is, that under our matchless constitution men are turned out of their offices because they have deserved well of their country. It would seem to follow, that for a man to be left in office is tantamount to a declaration that he is incapable or

untrustworthy." However unjust such an inference manifestly is in numerous cases, we must confess that the conduct of the Woods and Forests renders the conclusion inevitable in that department of the public service.

COMMON THINGS.

Shallots.—The usual method of cultivating these is to plant the roots in drills, and to earth them up as the plants advance in height; but the late Mr. Knight suggested a mode of surface-planting by which he states he succeeded in growing very fine bulbs. It is thus described:—He placed a rich soil beneath the bulbs, and raised the mould on each side, to support them till they became firmly rooted. This mould is then removed by the hoe, and watered from the rose of a watering-pot; and the bulbs in consequence were placed wholly out of the ground. "The growth of these plants," he added, "now so closely resembled that of the common Onion as not to be readily distinguished from it till the irregularity of form resulting from the numerous germs within each bulb became conspicuous. The forms of the bulbs, however, remained permanently different from any ever seen of the same species, being much more broad and less long, and the crop was so much better in quality, as well as much more abundant, that the mode of culture adopted is confidently recommended to every cultivator.

Tomatoes.—The seeds of these should now be sown upon a hot-bed, and as soon as the plants are 2 inches high they should be planted in small sized pots, placing two plants in each pot. They should have plenty of air allowed them so that they may not draw up weakly, and about the end of the month they may be removed to a cool frame, and hardened off by degrees till they will bear the open air. In May, or the beginning of June, they may be planted against a south wall. They must be trained close to the wall as they grow, and when they have acquired sufficient length and shown blossom enough for a crop they should then be topped and all useless laterals removed as well as those leaves which shade the fruit. The common large red kind is the most useful for ordinary purposes.

Home Correspondence.

Restoration to Health of a decayed Holly.—Some years ago a beautiful, old, spreading Holly tree showed signs of decay. It grew in a cultivated field; the roots of the Couch-grass, which were in the field, were collected, and instead of carting them to an out-of-the way corner, they were spread in large quantities under the Holly tree; the fresh soil attached to the roots of the grass, and the decomposition of the roots themselves, have greatly benefited the Holly, which is now in a healthy condition. It will thus be seen that the years of many a favourite tree may often be prolonged by very simple means. *P. M.*

May's Magnum Bonum, alias Bedale Hall Cos Lettuce.—Mr. Fitzsimon is wrong in stating that this variety was raised by Mr. M'Donald; that it was called M'Donald's Cos is true, but this name, as well as that of Bedale Hall Cos, were given it merely because its proper name had not been ascertained. In the first place Mr. M'Donald gave a few plants or seeds of this Lettuce to my father, declaring that he could not "shank" it, and that he would give him a sovereign for every seed; my father, however, succeeded in seeding it, and gave a few seeds to one or two neighbouring gardeners, along with his method of producing them, and in this way the variety has been preserved. Mr. M'Donald also declared that it was only possessed by himself and a friend; that it was not in the trade, but refused to give its name (if it had one) or its origin. I have endeavoured to discover its right name, both from London and country travellers, but without success. If it can be proved what it really is in the garden of the Horticultural Society it will be a pleasure to myself and a benefit to the public, as it is deserving of general cultivation. Mr. M'Donald, I have been informed, went to America a few years ago. *C. Hewson, Bedale Hall, Yorkshire.*

Pruning Knives.—An inquirer after a good pruning knife may buy the best I ever had of Beach, of Salisbury. They are mounted in wood and particularly well shaped. I direct to him, Mr. Beach, King of the Cutlers, Salisbury, and have had dozens of him. *Woglog.*——I could readily explain why these are not good at the present day. Suffice it to say that our manufacturers generally have acquisitiveness rather too fully developed; but there are yet remaining a few men devoted to their callings, and who feel the greatest amount of gratification when they have served their customers well. One of these is Mr. Williams, Butchers' Cutler, 14, West Smithfield, and if your correspondents will be satisfied with a plain knife (not a clasp), they may there procure as good a one as ever was put into a bush; and if they would more certainly assure themselves of this fact, let them inquire at any butcher's shop in London. *Francis Parkes, Steel Digging-fork maker, Sutton Coldfield.*

Dead Vines.—Last week I called on a neighbour who has two vineries; one he uses as a greenhouse, the other during the winter months is a plant-stove. In the former the Vines have been planted 3 years last autumn, and in the latter two years. The borders were made over-rich, being fully half manure, with insufficient drainage, the subsoil being stiff clay. During the two first years the Vines grew luxuriantly; but in the beginning of December, 1853, they were turned out of the house before the wood was thoroughly ripened, and exposed to the severity of the weather until the following March, 1854. They broke but indifferently last summer, owing doubtless to their being so much exposed; this season every Vine has died to within 3 feet of the ground. On examination it was found that the roots had entered the stiff clay. Now what was the cause of this failure? Their being exposed in an unripened state, or was the disaster occasioned through the roots entering the cold clay? All the Vines were planted outside the houses. Most of them in the other house have been planted two years, but I believe three were planted this spring; they have all been turned out of the house during the winter, with a few haybands twisted round them; they have nearly all shared the same fate as those alluded to above—in short, they are all dead to within 2 or 3 feet from the ground. *E. B.* [Of course. If you manure Vines extravagantly they cannot ripen their wood, and frost must kill them.]

The Weather in Stirlingshire—"Borrowing days."—There are some old popular rhymes about the "borrowing days," such as—

"March borrowit fra Aperill,
Three days and they were ill."

Also the following—

"March said to Aperill,
'I see three hogs upon a hill;
But lend your three first days to me
And I'll be bound to gar them die.
The first it shall be wind and weet,
The next it shall be snaw and sleet,
The third it shall be sic a freeze,
Sall gar the birds stick to the trees;'
But when the borrowed days were gane,
The three silly hogs came hirplin hame."

This season winter has borrowed a month or two from spring which will be long remembered by the cultivators of the soil. In the last week of March the frost and snow in some places in the neighbourhood of Stirling prevented the spade and the plough from working freely, and the effect of 30° of frost is still visible in many places upon garden vegetables and shrubs; some are dead and their remains bleached white, others will require a good cutting in to remove the withered appearance, and yet some shrubs of the same species appear to be little injured by the severe frost, which almost killed their near relations. Our common spring bulbous flowers are long in coming, but they are welcome, although they are "hirplin hame" at a slow rate. The severe frost has also tested the hardiness of some of our newly introduced plants; for instance the Dielytra spectabilis, which will bloom in our stoves and greenhouses, will also live at zero of Fahrenheit's scale. *P. Mackenzie, West Plean, Stirling.*

Origin of the name Hypericum.—Few plants have had such a run of popular names as this genus. Gerard is loud in its praises, and says "a most pretious ointment" is made from it, hence probably its name in our time of "Tutsan" (*toute saine*, all heal). "Aaron's beard" and "terrestrial sun" relate no doubt to its starry flowers, for not only are its petals of a bright golden yellow, but it has a host of yellow stamens slightly tinged with red occupying the whole disc of the flower, and forming half a globe; but, besides the golden hues of its petals and stamens, it has a multitude of pores in its leaves—hence the French writers call it the flower of a thousand holes (*mille pertuis*). These names are therefore all easily accounted for; but I was not a little surprised to find in Loudon's "Hortus Britannicus" that the botanical name of this genus (Hypericum) was stated to be of "origin unknown." On referring, however, to Loudon's great work, the "Arboretum et Fruticetum Britannicum," I find various conjectures offered as to the origin of this very ancient name, not one of which appears even to be in the least plausible; and it were vain to look among modern words for a name compounded, for aught we know, hundreds of years before the Christian era, since the name Hypericum is given in the works of Dioscorides. Hypericums are all of the easiest culture, and by nature widely spread both as beautiful plants and as weeds; we might therefore, with good reason, look for the name occurring as a household word along with such as the Lily and the Rose, and following like them in the wake of civilisation and Christianity. Bearing as it does in our own language, as well as in that of Germany, the name of one of the Holy Family, the beloved St. John, it is easy to see that its virtues were accounted by the early Christians as of the highest order; and added to this its ancient name "Androsæmum" literally signifying human blood, from aner (andros), a man, and haima, blood, in allusion to the dash of red on its stems, [We rather believe this name refers to the property undoubtedly possessed by the Androsæmum of staunching blood; it is, in fact, an ancient vulnerary.] as well as on the golden rays of its long slender stamens, we can readily comprehend that bright ideas were associated with this terrestrial sun in those early days. Now in all figures of the Holy Family, ancient and modern, the rays of light encircle not only the head of our Lord and Saviour, but likewise the heads of the blessed Virgin and St. John, and as the precursor of the Messiah was the foremost ray of the world's light (terrestrial sun), we can easily see the link that connected the St. John's Wort with the glory on the figure, for this is literally the Greek compound of this ancient and beautiful name from huper, upon, and icon, the figure. Hence we have the classic origin of Hypericum simplified, and in harmony with its ancient line. *Alex. Forsyth.*

Beneficial Results of Planting Evergreens in Peat.—The following statement may be useful to those who may yet plant evergreens, for shelter or ornament, where peat can be easily obtained. Upwards of [illegible] years ago some Portugal Laurels were planted in a mixture of peat earth and common earth. Others in common soil, only a few feet apart from each other with the same aspect to each. Some of those in the peat measure 25 feet in diameter and 18 feet in height, and are still in a healthy vigorous state with scarcely a leaf injured by the frost of last winter; the best of the others measure 14 feet in diameter and 10 feet in height, and they have many brown leaves upon them. *P. M.*

Societies.

HORTICULTURAL, *April* 3.—Sir Philip de Malpas Grey Egerton, Bart., M.P., in the chair. Lieut.-Col. Crabbe, K.H.; T. B. Simpson, Esq.; J. H. Hedge, Esq.; and C. Fletcher, Esq., were elected Fellows. This second spring meeting, notwithstanding the peculiar backwardness of the season, was the occasion of bringing together a very interesting exhibition of flowers, fruit, and vegetables, and a very crowded attendance of Fellows and their friends.

Of New Plants there were several. From Messrs. Rollisson came the Java Rhododendron retusum, the Brassia cinnamomea, and the Odontoglossum Pescatorei mentioned in another column. Messrs. Veitch contributed the handsome light-coloured Camellia, Countess of Orkney, an Achimenes in the way of picta called gigantea, a Dendrobium allied to transparens, and though by no means new, the Yellow Side-saddle flower (Sarracenia flava). Concerning this and other Sarracenias it was mentioned, that although they brave the rigour of a Canadian winter with impunity, they have not been found to succeed out of doors in England, and the reason ascribed for this is, that our summers are not hot enough for them. They like a hot, moist atmosphere while growing, which is what they have in their native swamps; but when at rest they may be kept cool and comparatively dry.

Of Indian Azaleas there were two nice collections; one from Mr. Wood, gr. to G. W. Norman, Esq., of Bromley; the other from Mr. Todman, gr. to Mrs. Buckmaster, of Clapham Park. There was also a specimen of Smith's Azalea, from Mr. M'Ewen, gr. to the Duke of Norfolk, at Arundel Castle. In the group from Bromley was an example of Gledstanesi, variegata, and lateritia, all grafted together in one plant, the different coloured flowers thus intermixed producing a very beautiful effect.

Of Hyacinths a dozen charming plants was furnished by Mr. Cutbush, of Highgate. As regards colour the most remarkable among them were Prince Albert, a nearly black kind, and Cavaignac, a bright salmon-coloured sort with faint white streaks running down the centres of the petals. These are two varieties which no collection should be without.

Roses in Pots, not less remarkable for their clean bright green foliage than for the beauty and fragrance of their flowers, were furnished by Mr. Francis, of Hertford. The varieties consisted of Souvenir d'un Ami, Auguste Mie, Géant des Batailles, Madame Bravy, Comte de Paris, and other well known kinds, all of which were "worked" on the Manetti stock, which is a favourite with Mr. Francis. The same exhibitor likewise showed a collection of cut Roses, as did also Mr. M'Ewen, of Arundel, and a beautiful boxful of these flowers came from the Messrs. Paul, of Cheshunt. In the last-named exhibition we remarked examples of the new Rose Gloire de Dijon, which may be described as possessing the rich colour of Safranot, or rather perhaps that of Vicomtesse Decazes, with the fine full form of our English Rose Devoniensis. It is certainly a glorious addition to Tea-scented varieties, and that it stands forcing well was evident from the beauty of the blooms exhibited.

Of Orchids two fine collections were produced, one from Messrs. Rollisson, the other from Messrs. Veitch. Messrs. Rollisson's plants are fully described in another column. Messrs. Veitch sent Phalænopsis grandiflora, capital specimens of Cypripedium villosum and Dendrobium nobile, Vanda insignis and tricolor, the beautiful Dendrobium Farmeri, and Ansellia africana, the only Orchid known to come from Fernando Po, and that from a Palm tree, on which few of them like to grow. Mr. Wicks sent Miltonia candida and Sellaginella peruviana.

Of Cinerarias, one of the best collections perhaps ever shown was furnished by Mr. Turner, of the Royal Nursery, Slough. It consisted of the following varieties, which were pronounced by all who saw them to be "perfect gems," viz., Lablache, blue; Estella, white, broadly tipped with purple; Lady Mary Lambouchere, white, tipped with blue; Loveliness, purple, with a small ring of white round a purple centre; Lord Stamford, white, tipped with blue; Esther, white, with a dark centre, and broadly tipped with brilliant crimson; and Kate Kearney, a white kind. Along with these were also two or three others not for competition. Pelargoniums were confined to one collection, which came from Mr. Coe, of Ham. The sorts were Bloomsbury, Album multiflorum, Duke of Cornwall, Mrs. Johnstone, Silene, and Gauntlet, all kinds known to force well. Mr. Ingram, gr. to her Majesty at Frogmore, contributed cut specimens of different varieties of Begonias, chiefly hybrids raised by himself, and with whose brilliancy and beauty all were struck. In colour they may be said to have varied from delicate pink to the rich crimson or rather scarlet of B. fuchsioides. The best were perhaps suaveolens rosea, Ingrami, and

the varieties of nitida called rubra and rosea; but to particularise is needless where all are so well worth growing.

Mr. Snow, gr. to Earl de Grey, sent Amaryllis "Stephenia," a variety of A. Johnsoni with a large amount of colour in it. From J. Allnutt, Esq., came Camellia Donckelaari, and a large boxful of blooms of Camellias was furnished by Mr. Collins, gr. to E. H. Chapman, Esq., of Hornsey. Two collections of Stove and Greenhouse Plants were exhibited, one from Messrs. Henderson, of Pine Apple Place, the other from Mr. Davies, gr. to E. Rosher, Esq., Hamilton Terrace, St. John's Wood. Mr. Taylor, gr. to J. Coster, Esq., also had a most beautiful specimen of Boronia triphylla, covered with little pink stars, whose polished surfaces almost seemed to sparkle; and of Eriostemons, a class of plants with pale star-shaped flowers, there were some good specimens, together with a well-grown example of Acacia Drummondi, a beautiful species from Swan River, which flowers in a sufficiently small state to render it suitable for pot culture; this was shown by Messrs. Veitch. From Mr. Moore, of the Apothecaries' Garden, Chelsea, came the rare and extremely handsome Fern Nephrolepis davallioides.

Of Fruit there were several exhibitions. Black Hamburgh Grapes, very good bunches and well coloured, were furnished by Mr. Allport, gr. to H. Ackroyd, Esq.

Pine Apples were numerous. Mr. Bailey, of Shardeloes, sent a prickly Cayenne weighing 4 lbs. 4 oz.; Mr. M'Ewen, a Black Sugar Loaf weighing 5 lbs. 3 oz., a Smooth Cayenne, 3 lbs. 8 oz., and a Queen, 2 lbs. 10 oz.; Mr. Jones, gr. to Lady Charlotte Guest, had a Prickly Cayenne weighing 4 lbs. 15 oz., but it was somewhat over ripe. Mr. Brown, of Waltham Abbey, had a Moscow Queen, weighing 2 lbs. 9 oz.; and Mr. Clements, of Oak Hill, a Providence weighing 4 lbs. 6 oz., and a Queen, 2 lbs. 12 oz.

Strawberries in Pots.—Keens' Seedling and Cuthill's Black Prince were shown by Mr. M'Ewen, of Arundel, and Mr. Fleming, gr. to the Duke of Sutherland, at Clevedon. Mr. M'Ewen also furnished a dish of mixed Strawberries, consisting of Keens' Seedling and British Queen. The best dish of Strawberries, however (Keens' Seedling), came from the gardens of the Duke of Marlborough. These were fruit worthy of July; and little less can be said of a dish of Ingram's Prince of Wales from the Royal Gardens at Frogmore, and of a dish of Keens' Seedling from Mr. Snow. Mr. Brown, of Waltham Abbey, sent Keens' Seedling.

A plate of May Duke Cherries was exhibited by Mr. Slater, gr. to the Earl of Wilton at Heaton Park, near Manchester.

A small branch, with ripe fruit on it, of Rivers' Perpetual Raspberry was produced by Mr. M'Ewen, to show that Raspberries may be had now, as well as Cherries and Strawberries, if they should be desired.

Pears, equal to those of the best French growth, and in excellent preservation, were shown by Mr. Tillyard, gr. to the Right Hon. the Speaker at Heckfield. They consisted of Beurré Rance, Ne Plus Meuris, Easter Beurré, and Knight's Monarch. Beurré Rance Pears, large and fine, were furnished by Mr. Hill, gr. to R. Sneyd, Esq., of Keel Hall, Staffordshire; and some Pears and Apples, somewhat shrivelled, were shown from Liverpool by Mr. Hutchinson, gr. to H. Harrison, Esq.

Of French produce, in the shape of Apples and Pears, Mr. Lewis Solomon, of Covent Garden, sent a famous exhibition. Among the Apples were enormous fruit of Reinette du Canada, the beautiful little Pomme d'Api, and White Calville. These were remarkable for their bright polished skins, which were such as could only be acquired under a continental sun. The Pears, though fine, were nearly if not quite equalled by those from the garden of the Speaker already alluded to, except perhaps Uvedale's St. Germain, which were very large.

Of Foreign Vegetables Mr. Lewis Solomon sent a very fine collection, in which were enormous Cardoons, Cauliflowers, and Asparagus, French Beans, Globe Artichokes, new Potatoes, Horn Carrots, Tomatoes, quite ripe, and well coloured, roots of Oxalis crenata, young shoots of the Hop gathered before they had reached the surface of the ground; and an excellent forced Salad, consisting of Lettuces, Endive, Barbe du Capucin, and white and red Turnip Radishes.

Of English Vegetables, Mr. M'Ewen contributed Kidney Beans, young Peas, Potatoes, Seakale, Asparagus, and Mushrooms. From the Right Hon. the Speaker's garden came Rhubarb, Potatoes, Seakale, Mushrooms, Endive, and Cucumbers. Mr. Brown showed a dish of Sutton's Early Emperor Peas, which were good for this early season of the year.

Among Miscellaneous subjects were specimens of Bast from Messrs. Paul, and also from the East India Company. These were strong, though somewhat hard and coarse; Messrs. Paul are of opinion that theirs might be sold for about one-third less than Cuba bast. Mrs. Compton, of Collyer's Buildings, Blackheath Hill, again sent an example of her ornamental leather baskets. Mr. Rivers contributed a perforated circular tile or cover for keeping newly sown seeds from birds, &c.; and Mr. M'Laughlin, foreman to Messrs. Wood and Ingram, showed a square Orchid basket made of cylinders of burnt earthenware, holed at the ends to allow of their being fastened together with wire. Their great fault was thought to be their liability to break should they happen to meet with a fall or other accident.

From the garden of the Society came a collection of Begonias, the Swan River Trymalium odoratissimum, Thyrsacanthus rutilans, the little Violet Grass (Cochlearia acaulis), and one or two other plants.

The list of medals, &c., awarded on the occasion will be found in our advertising columns.

Notices of Books.

The Ferns of Great Britain and Ireland, by Thomas Moore, F.L.S.; edited by Professor Lindley; nature-printed by Henry Bradbury. Bradbury and Evans. Large folio; 6*s.* each part.

The following extracts from the editor's preface will explain the history of the present publication, to which great interest attaches, on account of the novelty and importance of the curious process which it illustrates.

"Everyone who has attempted to ascertain the name of a plant by comparing it with mere descriptions, is aware of the difficulty of effecting the object unless he is more familiar with the technical language of science than those commonly are who, although admirers of delicate texture, beautiful colour, or graceful form, do not profess to be skilful botanists. Even with the aid of drawings, investigation often leads to no satisfactory result, in consequence of the inability of art to represent faithfully the minute peculiarities by which natural objects are often best distinguished. If this is so with plants in general it is most especially true of Ferns, the complicated forms and tender organisation of which baffle the most skilful and patient artist, who can only give at the best an imperfect sketch of what he supposes to be their more important features. And herein lies the great defect of all pictorial representations. The draughtsman can do no more than delineate a part of what he sees; and whether he sees correctly what he delineates will at all times be a matter of doubt, especially where, as in natural history, minute accuracy is indispensable. But if minute accuracy is of more vital importance in one than another race of plants, it is most especially so among Ferns, in the distinctions of which the form of indentations, general outline, the exact manner in which repeated subdivision is effected, and most especially the distribution of veins scarcely visible to the naked eye, play the most important part. To express such facts with the necessary accuracy, the art of a Talbot or a Daguerre would have been insufficient until nature-printing was brought to its present state of perfection.

"The process of the Imperial Printing Office at Vienna, to which the name of nature-printing has been happily applied, and to which the work now offered to the public owes its origin, is a great improvement upon the old method, inasmuch as it represents not only general form with absolute accuracy, but also surface, hairs, veins, and all those minutiæ of superficial structure by which plants are known, irrespective of those hidden details of internal organisation. Moreover, an exact copy in copper of the part to be represented being employed by the printer, instead of so fragile an object as the plant itself, we obtain the means of multiplying copies to the same extent as in copperplate engraving; and hence the method becomes suitable for purposes of publication. The Germans have already availed themselves of the method, and with considerable success. Von Heufler has published a specimen of the Cryptogamous plants of the Valley of Arpasch, some of the figures in which are admirable representations of nature; and other works are announced as having made their appearance, or being in preparation, in the Austrian dominions.

"It is in emulation of such continental efforts that the present work has been prepared, with the view of showing by unmistakeable evidence in what the differences consist among the Ferns which grow wild in Great Britain and Ireland. It is true that nature-printing has its defects as well as its advantages: it can only represent what lies upon the surface, and not the whole even of that. But, on the other hand, its accuracy is perfect as far as it goes; and in the case of British Ferns it goes far enough for all practical purposes.

"The minute structures to which botanists trust for the distinction of genera, and to which nature-printing cannot be applied, are sufficiently pointed out by description alone, and, among the subjects of the present work at least, are in no need of delineation. It is not, indeed, too much to say that in many other plants besides Ferns a knowledge of the inconspicuous parts of fructification might be dispensed with if it were possible accurately to represent by figures, or to describe by words, the real forms and condition of the larger organs. But, when compared with the result of nature-printing, botanical drawings are often little more than indifferent diagrams. It is related of the late John Gough, of Kendal, that, having become totally blind from small-pox when two years old, he so cultivated his other senses as to recognise by touch, smell, or taste, almost every plant within 20 miles of his native place. It is believed that good nature-printing will convey to the eye the same class of positive impressions as those which were conveyed to the mind of Gough by other organs."

Garden Memoranda.

Messrs. Rollisson's Nursery, Tooting. — The Camellia house here has been extremely gay for some weeks past; but now, although it is still well worth inspection, its beauty is considerably impaired by the decay of many of the best blossoms. The house is a long lean-to, one end of which is filled with greenhouse plants, which are separated from the Camellias by a few large and fine specimens of the true Rhododendron arboreum. Of the different varieties of Aphelexis there is a fine assortment here, as indeed there is of most greenhouse plants, more especially of Cape Heaths, for which this nursery has long been celebrated. Of these there are some beautiful specimens, which are well set with bloom buds. Of the Java Rhododendron we noticed large quantities of plants. This variety is reported to succeed well enough in a cool greenhouse; but it is, unfortunately, not sufficiently hardy to stand out of doors. A new Rhododendron named retusum, also from Java, has just flowered here. Its blossoms somewhat resemble in shape those of the Jasmine-flowered Rhododendron, but they are smaller and of a deep orange colour. A well grown plant of it thickly furnished with blossoms, provided they are only bright enough, must, therefore, have a striking appearance.

Among Orchids, some noble plants were in bloom. Foremost among them must be mentioned specimens of Dendrobium macranthum, and a large-flowered variety of that kind; also the charming D. densiflorum; together with various plants of D. nobile; Burlingtonia fragrans; some of the better varieties of Cattleya Skinneri; the rare and beautiful C. Aclandiæ; Odontoglossum hastilabium, a white-lipped species with long narrow sepals and petals beautifully marked with bands of deep purple; the still scarce O. Pescatorei; and the graceful yet singular looking Cypripedium Lowi or Low's Lady's Slipper. This last had four beautiful blooms on it. A novelty was also here in the shape of Brassia cinnamomea, a species so named on account of half of each of its flowers being cinnamon-coloured. It is not a plant of great beauty, but it possesses an odour which is liked by some, and it will serve to make variety. Of Vandas several were in flower, and at an end of the house, which is somewhat damp and shaded, were some of the better kinds of Pitcher plants, while in a propagating house were numbers of Cephalotus follicularis, and young plants of Nepenthes, all raised from seeds. Of Ferns there is an interesting collection here, among which were examples of Platycerium grande; the most remarkable, however, was a noble plant of the rare Nephrolepis davallioides, whose graceful fronds measured nearly 3 feet in length, and half a foot in width. Of Begonias we noticed a Java kind, with handsome foliage, covered all over with bright red hairs; and of Meyenia erecta, a new tender greenhouse shrub from Cape Coast, a few plants were pointed out, and if its flowers at all agree with those in drawings of it, it will certainly be an acquisition. They are represented as being nearly as large as a half-crown piece, and of a beautiful blue with a light eye. Among Vacciniums was Rollissoni, a small, deep crimson-flowered kind, which is said to be hardy; and among Conifers were fine plants of the different sorts of Araucarias, the as yet little known Thujopsis borealis, Podocarpus antarctica, and the smaller-leaved P. acicularis, together with fine plants of the new Thuja gigantea, which is said to be the same as the Libocedrus decurrens of Torrey.

Out of doors, in a large American ground which the Messrs. Rollisson have at some distance from the home nursery, many of the Rhododendrons have been browned and otherwise hurt by the frost, especially some of the early crosses from arboreum; with the exception of these, however, no great amount of damage has been sustained. Large quantities of Sikkim Rhododendrons are grown here; but they are in pits; they, therefore, have wintered safely. Indeed, R. Edgeworthi promises soon to be in flower.

Of new houses one or two are being erected for soft-wooded plants, such as Pelargoniums and things of that sort, to the growth of which the Messrs. Rollisson are about to devote especial attention.

FLORICULTURE.

The Cineraria.—Where do we find a plant, which during the autumn, winter, and early spring months, is so gay and beautiful as this; or one which is so useful for exhibition or decorative purposes, or for the embellishment of the flower-vase or bouquet? By gas or candle-light, the colours of some of the rose, crimson, and purple varieties are extremely brilliant; while the white varieties, margined with the preceding colours, are matchless. Add to this, that many of the kinds are agreeably fragrant, and you have nearly all the qualities which constitute a useful flower. In treating of the Cineraria as a plant for exhibition, or of its value for decorative purposes (and, in the early part of the season, the plants make a fine display), I cannot refrain from stating that their cultivation should be much improved, and indeed must be before they will assume their wonted standing upon our exhibition-tables. Only a few years ago Cinerarias were but a set of poor, starry things, with narrow, flimsy petals, and flowers supported by tall, unsightly stems; but now, thanks to the march of improvement, the best varieties are dwarf and compact, and, when properly grown, produce perfect trusses of stout, and, in some few cases, of almost perfectly-formed flowers. When high cultivation is aimed at, peculiar treatment (which I shall presently describe) is required to produce stout, healthy cuttings, as from such the Cineraria can only be properly grown. As the plant is now in bloom, and seedlings will be required, a few of the most esteemed varieties should be selected for that purpose, bearing in mind that those chosen must be of the best possible form, clear colours

and marking, as much depends on this in producing new and first-rate varieties. When this is done, some secluded place in the garden should be selected, to keep them entirely apart from any inferior varieties, with which the bees would cross them, and produce muddy, unsightly flowers, instead of clear and well-defined colours. When the seeds are ripe, sow immediately in some shady place; and as soon as large enough, prick off thinly into pans or wide pots, and keep close for a few days, until they are properly established, when they may be removed to the open air until large enough to place in single pots: should large plants be required, they should be stopped when about 2 or 3 inches high. As soon as the seeds are gathered, the old plants should be cut down, or partly so, as in many instances the crowns of the plants rot if cut too close to the surface. Now that they are cut down, remove them to some shady place (a north border being preferable), until they throw up young shoots, when they should be potted into larger pots, in a light compost, or planted out in the open ground in a light soil, where they will furnish strong cuttings, and from these only can good specimens be obtained. When they have grown about an inch or two, remove the cuttings, and place them in mould prepared for the purpose—composed of equal parts of loam, leaf-mould, and silver sand, taking care to well drain the pots with potsherds. When rooted (which will be in about a fortnight), pot off into thumbs or 3-inch pots, in a nice light soil. Should first-rate plants be wanted, every care will now be required to keep them in a growing and healthy condition, to which end they should be shifted every few weeks, until they receive their final potting, which should be about January; every care should be taken that they do not get pot-bound in the small pots, as that would throw them into a blooming state immediately. The compost I would recommend for specimens intended for exhibition, and for large plants generally, would be two parts of good turfy loam, and equal parts of well-decomposed cow-dung and leaf-mould, with an admixture of silver or river sand. As the plants grow, take care to thin out all superfluous leaves, so as to admit the air freely and prevent mildew, which is a great pest, and which can only be removed by applying sulphur to the parts affected. The Cineraria should only be stopped once, as the second operation tends to produce weak growth. As soon as the shoots are long enough tie out wide, keeping the outer branches as low as possible, and place them close to the glass, which will insure dwarf and compact plants. I had nearly forgotten the drainage, which should be of rough leaf-mould and potsherds mixed, which will keep the roots in a white and healthy state; fumigate occasionally, to prevent the green-fly; and water very sparingly through the winter months, increasing the supply as the spring advances, when weak liquid manure may occasionally be given. *S.*

Hollyhocks: *A.* They may be propagated either by division of the roots, by cuttings, or raised from seed. The seed should be gathered from the best coloured double varieties, and when cleaned from the husk it should be stored in a dry situation until now, when it should be sown broadcast, either on a gentle hotbed or on a warm sheltered border prepared for the purpose. As soon as the young seedlings will bear handling they should be transplanted into a rich soil in rows 2 feet apart, and the plants should stand 1 foot asunder in the rows.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Where there is proper convenience for growing plants the show-house will now be very gay, as Azaleas and some of the New Holland plants, &c., will be in bloom. While in flower these are exceedingly gay; but their beauty is but short-lived if exposed to bright sunshine in a dry atmosphere, and as they are what may be termed expensive plants, requiring considerable care and time to get good-sized specimens of them, every means should be used to preserve their flowers in beauty. The beds, borders, and every available space, should be lightly sprinkled on the mornings of bright days, in order to counteract the effects of the prevailing dry winds; a thin shade will also be indispensable on the forenoons of sunny days, both for protecting the blossoms from bright sunshine and keeping down the temperature without letting currents of cold drying air pass over the plants. Use shading sparingly, however, at present, and have it removed immediately it may be safely dispensed with. Remove decaying flowers directly they are perceived, and endeavour to be prepared with specimens in full beauty to replace any that begin to look poor. Greenhouse.—Ventilate cautiously here in the present state of the weather, especially near recently potted specimens, avoiding all direct currents until the weather becomes warmer and the atmosphere moister. Proceed as diligently as circumstances will admit with repotting and training young stock, taking care that the balls are in a rather moist state before potting, and also to place them in a close part of the house, sprinkling the shelves, &c., frequently, to assist in affording them a moist atmosphere. Do not neglect Correas, Epacrises, and other early winter-flowering things; but let these have every possible attention, in order to induce them to make their growth early. Examine large specimens very carefully, for the purpose of ascertaining whether the balls are properly moist, and where it is found that this is not the case, see that they are thoroughly soaked at once, for the present weather will speedily ruin plants that are dry at the root. A gentle syringing on the afternoons of sunny days will now be beneficial, but this should be done early, shutting up the house before the temperature gets too low; and where for any reason this cannot be done, the syringe had better not be used over the plants until the weather becomes warmer. Stove.—The twiners here will be in free growth, and will require frequent attention to keep their shoots from getting entangled, &c. It is a great saving of time to go over this kind of work frequently, as the shoots of such things are easily regulated when this is done at the proper time; but if allowed to grow into each other, they are not easily unravelled. Endeavour to keep young growing stock near the glass, and attend to repotting, stopping, and tieing out as may be necessary. Large specimens should be frequently turned in order to prevent the young shoots from drawing to one side. Look sharply after insects, and spare no pains to extirpate mealy bug and black thrips; keep the floors, &c., regularly moist; syringe the plants lightly over head early in the afternoon, shutting up early, so as to saturate the atmosphere with moisture. In the present state of the weather give air cautiously, opening the top sashes, and this only as far as may be necessary to prevent burning. Most stove plants enjoy a moderate supply of manure water while growing freely, and this should be given liberally to such things as Clerodendrons, &c., using it very weak at first, and taking care to have it at about the same temperature as the roots are growing in. A little of this sprinkled about the pots in the evening so as to charge the atmosphere with ammonia, will also be beneficial to the plants. See to having shading in readiness, for some things are very impatient of bright sunshine at this season, particularly when air cannot be given freely without rendering the atmosphere too dry.

FLOWER GARDEN AND SHRUBBERIES.

The dry state of the ground affords a very favourable opportunity for making preparation for planting Roses that may have been wintered under shelter. It is hardly possible to render the soil too rich for this favourite flower, nor to get them to thrive save in very rich soil. The beds should be made at least 2 ft. deep of good strong loam, adding some 3 or 4 inches of old rotten cow manure, which should be well incorporated with the soil. It will also tend to improve the texture of soil, and more thoroughly incorporate the manure with it if the beds can be turned over two or three times when the surface is in a dry state. Planting out should be deferred until we experience a favourable change of weather, particularly in the case of Teas, &c., and plants that are starting into growth. If not already done, pruning should be finished, unless it is desirable to retard the blooming of a portion of the plants, and in this case the pruning of these may be deferred for a week or so. Where any alterations are in hand involving the transplanting of large shrubs or trees, the ground, &c., should be prepared, so that the plants may be removed to their fresh quarters immediately the weather becomes more favourable for this kind of work, but it will be safer not to disturb large plants while cold drying winds prevail. Attend to recently transplanted things, and do not let them suffer for want of water at the root. See to getting hardy annuals sown about the borders, &c., for early summer flowering, and get stocks that have been raised under glass strong and ready for planting out as early as possible.

FORCING DEPARTMENT.

Pineries.—In the present state of the weather it will be nearly impossible to maintain a properly moist state of the atmosphere without the aid of shading; for, if sufficient air is admitted on bright days to keep down the temperature, the atmosphere is speedily robbed of its moisture, and the foliage at once feels the change, and is easily injured by bright sunshine acting upon it in its exhausted state. We are no advocates for shading Pines when it can be dispensed with, consistent with the well-being of the plants; but save in the case of tank or dung pits, where a constant stream of moisture can be commanded, it is nearly impossible, in the present state of the weather, without the aid of shading, to maintain a sufficiently moist atmosphere, either for young growing stock or for plants swelling their fruit. A very thin material should be used, however, and this only for a few hours on the forenoons of bright days. Growing stock and fruiters should be lightly syringed every fine afternoon, shutting up the house early, but do not use the syringe too freely, as this is apt to render the soil about the collars of the plants too wet, and water, when allowed to lodge in the axils of the leaves, tends to disfigure and render the foliage weakly. See that the whole of the stock, whether in pots or planted out in the open bed, is kept in a healthy state as to moisture at the root, for any neglect in this respect at the present season will be most injurious, and may cause a large portion of the young stock to show fruit prematurely. In watering Pines, the same attention and care should be exercised as in the case of more tender things, looking over the plants often, watering only such as are dry, and giving these a liberal soaking. Vineries.—The unusually severe winter, and the long continuance of cold weather will render this a memorable season to those who have had much to do with early forcing; for fire-heat, even in its best applied forms, can only be considered as little better than a dangerous necessity. And when a comparative absence of sunshine and prevalence of cold weather extend far into the spring, as has been the case this season, rendering its use necessary to a larger extent than has been the case for many years, it will not be surprising if the ill effects of so much artificial heat should be here and there apparent in weakly foliage becoming the prey of red spider. Where the Vines are strong and a healthy root action can be secured there will not be so much to fear from the attacks of red spider, but in the case of old sickly Vines and badly conditioned borders, and these two generally go together, the most assiduous attention will be necessary to keep this pest from making its appearance. The atmosphere should be kept moist, using fire-heat as sparingly as possible, and if spider makes its appearance it must be eradicated at once either by washing every affected leaf with a sponge, or by a liberal use of the syringe as long as this can safely be used, so as to avoid having to contend with this enemy when the Grapes are colouring. The pipes should also be coated with a mixture of sulphur and lime, renewing this occasionally as it gets worn off. Stop laterals as they make their appearance, and keep the shoots thin and regular in order to expose the foliage as much as possible to the light. Ventilate very cautiously, opening the top sashes only on cold drying days, and shut up early in the afternoon. Peaches.—Where the stoning process is over there will be little or no danger of the fruit falling, therefore if the crop has not already been sufficiently thinned this should be done at once, and if fine fruit is an object thin liberally. Keep the trees moist at the root after stoning while the fruit is swelling rapidly, and weak manure-water may be given with advantage to such as show any indications of weakness. Also secure a moist atmosphere by frequently sprinkling the floors, &c., and use the syringe freely on the afternoons of bright days to prevent the appearance of red spider.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the week ending April 5, 1855, as observed at the Horticultural Gardens.

March and April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Winds.	Rain.
Friday 30	12	30.438	30.418	46	29	37.5	40	41	N.E.	[illegible]
Satur. 31	13	30.408	30.375	45	22	33.5	40	41	N.E.	[illegible]
Sunday 1	14	30.382	30.221	48	22	35.0	40	41	N.E.	[illegible]
Mon.. 2	○	30.173	29.967	46	27	36.5	40½	41	S.E.	[illegible]
Tues. 3	16	29.723	29.566	51	39	45.0	41	41½	S.	[illegible]
Wed. 4	17	29.868	29.723	51	23	37.0	42	42	N.E.	[illegible]
Thurs. 5	18	30.061	30.013	57	33	45.0	43	42½	W.	[illegible]
Average.		30.149	30.040	49.1	27.8	38.5	40.9	41.4		[illegible]

March 30—Cloudy and fine throughout.
— 31—Heavy clouds; fine; clear and frosty.
April 1—Frosty; clear; overcast; frosty.
— 2—Frosty and foggy; fine; overcast.
— 3—Cloudy; showery; uniformly overcast.
— 4—Cloudy; clear in the evening; rain at night.
— 5—Slight haze; very fine throughout.
Mean temperature of the week 7 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 29 years, for the ensuing week, ending April 14, 1855.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 8	56.2	35.3	45.8	13	0.0 in.	2	6	6	—	5	5	[illegible]	[illegible]
Mon. 9	54.8	35.1	44.9	13	0.30	4	5	5	1	3	5	[illegible]	[illegible]
Tues. 10	55.1	33.6	44.3	11	0.27	2	6	6	2	4	4	[illegible]	[illegible]
Wed. 11	55.3	35.7	45.0	14	0.51	2	7	2	1	5	7	[illegible]	[illegible]
Thurs. 12	55.6	37.5	46.6	19	0.56	1	6	5	—	2	9	[illegible]	[illegible]
Friday 13	56.0	34.5	45.2	12	0.45	2	5	1	4	2	7	[illegible]	[illegible]
Satur. 14	57.7	37.1	47.4	11	0.31	2	5	6	1	4	5	[illegible]	[illegible]

The highest temperature during the above period occurred on the 9th, 1844, and 14th, 1852——therm. 73 deg.; and the lowest on the 11th, 1841, and 13th, 1853—therm. 22 deg.

Notices to Correspondents.

American Blight: *Lower Beeding.* Prune your trees hard in, then paint them all over down to as far below ground as you can get with the following mixture, viz., half a peck of quick lime, half a pound of flowers of sulphur, and a quarter of a pound of lamp black mixed with boiling water till of the consistency of paint. Before applying it, however, take care to scrap off all loose bark and burn it.‡

Books: *Sub.* There is no separate book on nursery work that we know of. You will probably find all you want to learn in Brown's "Forester." The most complete catalogue of trees is that of the Horticultural Society, with its supplement. Both may be had of all booksellers.

Diseases: *Aleph.* It is seldom safe to give any judgment without some sort of ocular inspection. There can, however, be little doubt that yours is a case of canker, which assumes many forms, and arises from many causes. Where it is local and arises from local causes, excision may prove efficacious, but where it is constitutional no cure is known. We have ourselves, just discovered a vexatious case of canker on the stem of a Pear tree of extraordinary vigour, which bore a large crop last year, and is laden now with flower buds. That the tree will fall a sacrifice we have no doubt, and we have, therefore, left it to take its chance. *M. J. B.*

Flax: *A Farmer* will find the best information in Dr. Ronalds' new work on "Fibrous Substances," noticed last week. For machines, he should apply to the nearest machine maker.

Galvanised Iron: *A Sussex Man* seeks for information as to whether patent galvanised iron hothouses have been found generally to answer, and especially during the late severe winter; and also which, in the opinion of our correspondents, is best—wood or galvanised iron for garden buildings.

Hollies: *Watford.* Had your large plant been removed in September we should have acceded to your own theory. The operation having been deferred till the present time we must agree with your gardener.

Lilium giganteum: *A Sub.* Sow it *on* damp peat in a cool bed, covering it with a little moss to guard it from light. Too much moisture, or being covered with earth, is fatal to it. Perhaps your seed is bad, as is often the case.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Ashbu.* Myrsine africana.—*A B C.* Chrysosplenium hederifolia.—*A D.* 1, Dendrobium chrysanthum; 2, D. cærulescens.—*T D H.* One of the many varieties of Dendrobium transparens.

Strawberries: *Oxonian.* The blossom buds were doubtless killed by the frost while the plants were plunged in the open ground.‡

Misc: *C N R.* You can have the numbers mentioned in your note.—*K W.* Lobelias are poisonous plants.

THE AGRICULTURAL MACHINERY DEPARTMENT OF THE CRYSTAL PALACE will be ready for Public Inspection on and after EASTER MONDAY. It contains the largest and most complete Collection ever exhibited, comprising the most approved Agricultural Implements and Machines by all the first-rate makers. By order.

Crystal Palace, April 7. G. GROVE, Secretary.

SCYTHES.

BOYD'S PATENT SELF-ADJUSTING SCYTHES may be had of the Manufacturers, WILLIAM DRAY & Co., Swan Lane, London; and of all Ironmongers and Seedsmen. A liberal allowance to the trade.

CORN MANURE FOR SPRING SOWING.
CONCENTRATED URATE FOR GRASS, RAPE, AND ALL ROOT CROPS.
SUPERPHOSPHATE OF LIME.

THE LONDON MANURE COMPANY continue to manufacture the above Manures, which have been used with so much success for the last 14 years.

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Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

SEWAGE CHARCOAL MANURE.—This highly fertilising Manure, which is Peat Charcoal completely saturated with London Sewage, will be found most efficient for every species of crop; more especially for Peas, Beans, Turnips, Mangold Wurzel, and other root crops. It will produce a greater return for the outlay than Guano or any other Manure at an equivalent value; it also possesses the property of retaining its fertilising power longer than other Manures now in use. It may be obtained at the SEWAGE MANURE WORKS, Stanley Bridge, Fulham, at 4*l.* per ton, and in quantities less than half a ton, at 5*s.* per cwt., for ready money only; and in quantities not less than a ton, will be delivered at the London Termini of the Railroads free of charge for cartage. No charge for sacks.

It may also be had from Messrs. G. GIBBS & Co., 26, Down Street, Piccadilly, Agricultural Seedsmen, Agents for London, and from all the other Agents of the Company.

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Price 24s. to 30s. per Acre.

GENTLEMEN intending to lay down LAND to PERMANENT PASTURE, or for one, two, or three years' lay, are recommended to communicate with us, stating the nature of the soil and situation, that we may advise as to sorts of Grass Seeds most suitable. Having had many years' experience in laying down Land to Permanent Pasture in almost every part of the kingdom, we can confidently undertake to supply the sorts of Seeds best adapted to the land to be laid down.

EXTRACTS FROM LETTERS TO MESSRS. SUTTON.

It may appear superfluous that we should publish anything in the way of testimonial; we will, however, quote the following from among many other letters now before us:—

From Mr. C. Judd,
Gardener to his Grace the Archbishop of Canterbury.

"The Grass Seeds received from you succeeded admirably, and, although sown late, the growth was such that we were enabled to mow the Churchyard in the autumn, and it has now the appearance of an established lawn of some years' standing; and my employer, the Archbishop of Canterbury, is quite satisfied with its appearance."

From Mr. Dowdeswell, Steward to R. B. Sheridan, Esq.

"The Grass Seeds have turned out uncommonly well, and we have some very fine crops of Turnips, Swedes, and Mangold Wurzel."

From the Rev. Joseph Gibbs, Clifton, Hampton.

"The Pasture made with your seed is every year improving, and getting more Clover in it, which is more than I expected, as the land hereabouts is not calculated to grow good natural Grass."

From Professor Lindley, Horticultural Society, 21, Regent Street, London.

"We have already made trial of your Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

From the Rev. J. Lawson Sisson, Edingthorpe Rectory, North Walsham.

"I have one piece of land, sown last year with your Permanent Grass Seeds, and no one can possibly tell it from an old meadow save in the absence of weeds. I have had a great deal of feed from it also."

From Mark Philips, Esq., Snitterfield, Stratford-on-Avon.

"The Permanent Grass Seeds supplied me last spring are remarkably strong and healthy."

From William A. Commerell, Esq., Strood Park.

"I forward a cheque for the Grass Seeds supplied by you, and am glad to be able to bear witness to their quality, having found them so very superior to what I have generally obtained."

The Rev. Joshua Bennett, Caverson Parsonage.

"In less than three months it has presented a most luxuriant herbage, forming a striking contrast to the self-sown turf around it."

From P. Pusey, Esq., Pusey.

"I was particularly pleased with your Grass Seeds, which I employed for laying down fresh broke land. It became a close, fine sward, by August."

From the Rev. Mr. Wingfield, Gulval Vicarage, Penzance.

"My pasture laid down with seeds from you in March, 1851, is in a very luxuriant state, and in every way satisfactory. The Clover Seed also, sent during the present year, has grown admirably."

From R. Tull, Esq., Crookham House, near Newbury.

"The Grass Seeds sent in the spring to sow for a pasture grew remarkably well, and the present appearance of the pasture is most satisfactory."

From N. Manby Power, Esq., the Hill Court, Ross, Herefordshire.

"The Grass Seed sent has answered very well, and is almost a sward already."

From Rev. Robert Hawthorn, Stapleford Lodge, near Cambridge.

"I was very much pleased with the Grass Seeds which you sent me; the Grass sprang up quickly and covered the field well."

From the Rev. Jerome Clapp, Odem House, Appledore, Devon.

"Allow me to say that the Grass Seeds you sent me have fully realised my highest expectations."

SUTTON & SONS, Seed Growers, Reading, Berks, *having made the cultivation of Natural and Artificial Grasses the subject of their especial attention for many years, have much satisfaction in receiving (besides very many others,) the above communications quite unsolicited.*

Clovers and Grasses for One, Two, or Three Years' Lay, 12s., 16s., and 22s. per Acre.

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Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

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PRIZE SHEETS and CERTIFICATES of ENTRY for the CARLISLE MEETING may be had on application to the Secretary of the Society, 12, Hanover Square, London; to whom all Certificates for Implements must be sent by the 1st of May, and all Certificates for Stock by the 1st of June.

TESTIMONIAL TO J. B. LAWES, Esq.—The Committee beg to inform those interested in the above undertaking, that the New Laboratory is expected to be ready for presentation in May or June, until which time the Subscription List will remain open, to afford an opportunity to any who may still wish to associate their names with this acknowledgment of Mr. Lawes' services.

Communications to be addressed to
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AGRICULTURAL SEEDS.—*Landed Proprietors and Farmers who require* LARGE QUANTITIES *of Turnip, Mangold Wurzel, Carrot, or any other kinds of Agricultural Seeds, will be supplied on the most liberal terms.*—Apply to

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Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow; Irrigation or Water Meadow Mixtures; Upland Sheep Walk Mixtures; Park and Field Lawn Mixtures; Renovating Mixtures for old Swards; Garden, Lawn, or Grass-plot Mixtures; various Permanent Grass Seeds supplied separately to order; Mixtures for one year's lay, do. for two or three years' lay (commonly called "seeds").

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PETER LAWSON AND SON, of Edinburgh and London, the QUEEN'S SEEDSMEN, NURSERYMEN, and WOOD FORESTERS; and to the HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND, beg to intimate to their English Customers and the Public that they are now sending out FARM SEEDS of every description, saved from genuine stocks, and for which they respectfully solicit orders.

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London Branch, 27, Great George Street, Westminster.

P. L. & S. are always able to recommend experienced Bailiffs, Gardeners, and Foresters.

The Agricultural Gazette.

SATURDAY, APRIL 7, 1855.

"AN Englishman" writes to the *Times* in reference to the so-called Bird Island, which has been claimed by the Venezuelan Republic, inquiring to whom the sovereignty of the island rightfully belongs.

Venezuela has its sea board on the north coast of South America, and this island, it is said, must not be confounded with one of the same name lying near that shore, between the islands Les Roques and Buenayre. It is one of the more westward of the Carribean group, lying some 150 miles west of the British island Guadaloupe, and the large deposits of guano said to be lying there seem to have been appropriated by mere "seizure and occupation." In the meantime it appears that, on the 21st of December last, the Venezuelan Secretary of State for the Home Department signed a contract with a citizen of the United States, named D. F. Wallace, conceding to that person the exclusive privilege of procuring at, and exporting guano from, Bird Island during a period of 15 years, in consideration of a payment to Venezuela of 4 dollars a bushel thus exported; Mr. Wallace furthermore binding himself to advance to the Venezuelan Government a sum of 200.000 dols. on account of that contract.—The sooner the worth of such a contract is tested the better.

Such peculiar changes as have taken place during the last four months in temperature and the general condition of the weather, can scarcely be expected to pass by without some marked effect upon the Wheat Crops. The seed was committed to the ground in a season of unusual dryness, and it was six or seven weeks before the first leaf appeared above the ground; the high temperature and genial weather immediately after Christmas caused a peculiarly rapid growth, which was checked at once by nearly two months severe frost, succeeded by drying north east winds, pulverising the surface, and in many cases exposing the tender stem, the consequence of all which has been that in some districts* not only do the fields without close inspection appear almost bare, but a great portion of the plant has either already perished or is perishing rapidly.

If this were a case of mere thinness of plant, we should not think it worth while to call our readers' attention to the subject, for we have known cases in which there was apparently scarcely any hope, improve so rapidly after two or three careful hoeings, in consequence of excessive tillering, as to afford ultimately a far better produce than breadths which at first wore a far more favourable aspect. In the present case, however, the plants which seem likely to stand do not bear a proportion of one in a hundred to those which must inevitably perish, or are already dead. On the slightest touch many of those which have some little trace of green about them separate from below, as if destroyed by wire-worms. If, however, the diseased plants are carefully dug up, all will be found in connection with the seed and roots; but the roots are withered, and the shoot is either soft and pappy and in a state of decomposition, being brown instead of white, or where there is some indication of life, there is incipient canker, many of the cell walls being brown and charged with humates or ulmates, while the spongelets are for the most part dead or greatly discoloured. There was not a trace of any insects, and scarcely any of fungi, and there can be no doubt that the ungenial condition of the atmosphere succeeding to the increased excitability consequent on the previous warm weather has acted unfavourably upon the plant, and possibly another cause may have been at work of which we shall speak presently. Meanwhile what is to be done? In the cases which have come before us we feel sure that the decision to drill in fresh seed, which is quite practicable without ploughing, from the pulverised condition of the soil, is the only one which can lead to any good result. To wait for improvement is quite useless. Seventy acres out of 90 in one case are beyond hope, and in the neighbouring farm 50 must be resowed. It would not, indeed, be wise to take such a measure without careful examination; plants if still healthy, however dwarfed and miserable they may now appear will recover under more favourable circumstances, but where they are evidently dead or rapidly dying, it is well to take time by the forelock and to apply a remedy as quickly as possible.

We suspect, however, as said above, that there may be another element in the question. The seed remained many weeks without germinating. Is it not possible then that injury may have been imbibed from the metallic poisons with which the seed was dressed? The inquiries which we have at present been able to make tend to show this. Where the general crop is healthy, lime alone or lime and salt have been used, but the answers in the other cases have been, that sulphate of copper (blue vitrol) or some of the advertised dressings, all of which we believe are highly poisonous, have been used. It is true that in ordinary cases such dressings are not injurious, but many persons suffered two years since in consequence of the weather being too wet to get the seed which had been dressed with arsenic, corrosive sublimate or blue vitriol into the ground; and we see no reason why injury to some extent should not take place when the seed is really placed in the soil, but cannot germinate at all, or only slowly, because of its dry condition. The subject is well worth consideration, and the more so because poisonous dressings are altogether needless. Quick-lime, when properly applied, is perfectly efficacious and safe; and the best dressing of all is a solution of Glauber's salts (sulphate of soda) succeeded when the Wheat has been drained by a dredging of quick-lime, the lime and sulphuric acid combining to make sulphate of lime or gypsum; while the caustic soda acts upon the spores of the bunt, to destroy which is the main object of dressing. We shall be anxious to learn whether the malady is widely spread or not, and if any communications are made to us confirmatory of its prevalence, we should be glad to know what dressing has been applied. *M.J.B.*

* We speak more especially of the northern part of Northamptonshire.

Steam Cultivation having become so far practical that a handsome prize is to be awarded in July to the best invention able to accomplish it, we may venture to offer a renewed series of observations on the subject. And we may commence by congratulating Mr. Hoskyns, and any other advocate for steam-farming, upon the late rapid progress and promising prospects of their cause. In the days of our childood we remember sketching an out-door threshing machine, with a steam boiler in place of horse works, and the engine crank-shaft where the "spindle" should be. This was a mere whim; but in after years a Lincolnshire farmer, we believe, suggested to a machine maker the first notion of such a portable steam-thresher, and what was our delight at seeing at a fair—now 10 or 12 years ago—a threshing machine mounted upon the carriage-frame of a portable steam-engine, and frightening all the farmers who crowded round it to see fire and straw in such dangerous proximity! The enterprising firm who constructed it had it in model several years before, but business considerations had prevented them from sooner setting up a rival to the universally used horse wheels.

In 1841 a portable steam-engine was first exhibited at the Royal Agricultural Society's show held at Liverpool, and was styled in the judges' report "the great novelty of the meeting." And it may perhaps be almost a parallel to the well-known engineer's prediction that a steam-vessel could not cross the Atlantic, to record that the firm who manufactured this very engine were of opinion (we believe) that however promising and ingenious, *portable steam-engines would never be found to answer.* At Bristol the next year, this engine was shown having four wheels instead of only two, and was made also locomotive. There were also two others portable, but not locomotive, by other makers. At Derby in 1843 three were present; and steam-engines there first figured as a class in the prize list. At Shrewsbury, in 1845, there were only two; at Newcastle, in 1846, *only one.*, At the last year's meeting at Lincoln, however, there were 40 portable steam-engines, and a good many fixed engines besides, for agricultural purposes. In 1851 the number of portable steam threshing machines in the kingdom was computed at 8000; and as since that time many firms have been each turning out several new ones every week, and as a steam-engine (like a certain patient beast of burden) never dies—being renewed from time to time, still preserving its individuality, like a clasp-knife after several new blades and hafts—there must be several thousands more now busy in our farm-yards and fields. Well, this is a bright beginning in the application of steam *portable* power to agricultural operations; and we refer only to the *portable form* of this power because of its being adapted to the various processes of tillage. Steam threshing machines were invented, made, exhibited; were encouraged with premiums; and are now successful and in general use—and all within a very few years. Steam cultivators have likewise been invented, constructed, tried, and at last are to be exhibited for a prize: what is there to prevent their further career in becoming established as common business requirements? In 1841 the steam threshing machine was "the great novelty;" in 1851 the chief agricultural novelty was the machine which excavated drains, and laid in its own pipes; and this, which was considered Utopian by so many beholders, has become, through Mr. Fowler's ingenuity and extraordinary perseverance, a successful *steam draining machinery*, of which, we believe, he has now 17 at work, and by which he has already drained more than 10,000 acres.

Here we have the grand agent steam coming step by step nearer to the prime labour to which we are seeking to yoke it. Considered in 1841 unable to be made moveable in the yard, field, and over farm-roads with permanent advantage, it has overcome all difficulties in this respect: next, considered as confined to such *millwork* as threshing, grinding, sawing, pumping, with *stationary machinery*, it has belied the general opinion by laying hold of a *travelling implement*, and causing it to traverse up and down a field so as to perform its required work; and it does this efficiently, and at a profit. But if it can drag one tool it can another; and the mechanical *possibility of some kind of steam-cultivation is therefore proved.* Are we then to say, "Possible it may be, but it will never be found effectual and economical? Steam-power has certainly shown that it is not restricted to our barn machinery, &c.; but it is adapted at most only to traction implements of very great draught (such as the drain-plough), and which perform operations previously found to be highly expensive." Such a limitation as this, to the last achievement of steam power we may happen to have seen, is hardly philosophical, and is certainly rather insulting to the dignity of the steam-engine. Besides it is not predicating the exact truth. *Steam power has been applied to the traction of common ploughs*, with or without subsoiling-tines, or harrows, &c., following after,—and applied, too, with success, as far as the quality of performance is concerned. And improvements in the mode of connecting the power with the implements are being contrived from time to time, so that we have arrived very nearly at an economical method of ploughing by steam. We allude to the long and persevering trials of the Marquis of Tweddale, Lord Willoughby d'Eresby, and some previous experimenters.

We have strong expectations, therefore, of a speedy solution of the great problem. Never mind about the plough being an imperfect implement: if a steam-engine once works this tool so foreign to its abilities, we do not despair of quickly substituting something better adapted to the new motor. But on light land the plough is not to be easily beaten; and having once managed to work *it* well, there is no grubber, broadshare, presser, forker, &c., that need be refractory. On heavy soils, perhaps, steam-ploughing may be a forthcoming *possibility*; but the *desideratum* is a far different order of operation. *I. A. C.*

As the cultivation of meadow land should at this time be occupying the attention of the farmer, we are induced to offer a few notes on a subject apparently much neglected, or at best only partially attended to, namely the weeding of pastures. That pastures require weeding is a matter which to some would admit of question we are fully aware, for many conceive that herbage of all kinds is useful in pasture as tending to improve quality and make up bulk, and yet it is questionable whether some of even the larger plants allowed in pasture do not derogate from the goodness of the sample, while at the same time they diminish the amount of crop. These are facts which we hope to fully prove in discussing the natural history of some groups of weeds, in the order of the following table:—

1st. Poisonous weeds, or plants injurious to cattle.
2d. Weeds which prejudice a pasture by reason of their mechanical structure.
3d. Innutritious weeds which dilute the feeding properties of the sample.
4th. Weeds which take up room, but do not add to bulk.

1st. That pastures frequently contain plants that render the fresh herbage at least highly injurious, and often absolutely poisonous to cattle, is a fact not sufficiently understood, or surely we should not see year by year an increasing growth in some meadows of so great a pest as the *Colchicum autumnale*, Meadow Saffron. This plant which puts forth its lilac-coloured flowers without leaves in the pastures in autumn, to be succeeded by its large succulent herbage in the spring, is highly poisonous in all its stages of growth. Some years since a farmer in the neighbourhood of Stow-on-the-Wold, in Gloucestershire, lost 10 calves in one season, from eating the flowers of this plant, which is exceedingly abundant along the whole range of the oolites of the Cotteswold district, and this, notwithstanding that a season or two previously three cows had been poisoned from the like cause in the same district, and probably in the same field. Here the mischief resulted in the usual error of conceiving that the flowers are innocuous from their delicacy and smallness, so that cattle are turned into the autumn pasture, whilst the more conspicuous leaves prevent those who know the plant from depasturing the meadows where it occurs in spring, and in consequence it is made into hay, in which, it is true, much of the poisonous principle is lost in the process of drying. However, a little reflection will show that if it can be entirely eradicated, it would be far better than the being forced to disagreeable expedients to

avoid injury from it; to which end, if the bunches of leaves be pulled in May or even mown off close to the ground, not only will its seeding power be destroyed, but the new corm will be prevented forming,* and thus the parent and progeny are both cut off at one blow. Now, although it is more than probable that the eradication of this pest cannot be expected in one year, yet it will be materially lessened, and we have found two or three seasons, especially of the pulling process, quite sufficient; and the cost of the operation is more than paid for in removing a plant which takes up so much room as to bring it into the fourth category of our table, even if it did not possess poisonous properties.

2d. Such plants as Thistles, and even some Grasses, such as *Hordeum* (the Barley Grasses), greatly injure the hay, on account of the mechanical obstructions they present, such as the spines of the former and the awns or beards of the latter. The Thistles, which are mostly biennial, are easily overcome, as the cutting them off below the crown at once destroys them; but the perennial forms, with the creeping underground stem (*rhizome*) must be mown down while in the freshness and vigour of youth, and never allowed, as is usually the case, to get into flower before they are thus attacked, as then their work is done, and the full-grown leaves have not only been active in bringing forward the flowers, but at the same time have increased the growth of rhizome. One or two seasons of this treatment will greatly weaken this pest, but perfect eradication will require longer time. Objectionable Grasses must be got rid of by other means, and it is a fortunate circumstance that whatever tends to improve the fertility of pasture mostly results in the destruction of Grasses of an inferior kind, which die out as the better species take a stronger hold upon the soil.

3d. There are many weeds in almost every pasture which occupy a large space, but inasmuch as they add something to the hay, and do not possess any more positive injurious tendencies, are allowed to remain unmolested, such as the following:—*Rumex*, Docks and Sorrel, various species; *Polygonum historta*, Snake-root; *Plantago lanceolata*, lance-leaved Plantain; *Heracleum sphondylium*, Cow Parsnip; *Anthriscus sylvestris*, beaked Parsley; and many other large-leaved plants. These, of course, are highly varied in their structure and habits, which must at all times be estimated in dealing with them, but in general they may be expeditiously attacked in detail, by pulling and the spud, or in the aggregate by mowing;—the former methods, if perfectly done, destroying the individuals at once; whilst mowing, though it operates more slowly, is still certain if done in time, the rule to observe being that the herbage should at all times be cut down before it has advanced in the performance of its functions. This is usually too long delayed, which is the reason why hay-making, especially if delayed until too ripe, so slowly effects the desired end, and should warn us that, though sometimes a larger crop is thus obtained, it is often counterbalanced not only by loss of nutriment in the hay itself, but by consequences still more prejudicial to the land.

4th. The best plants in which to observe the effects of the occupation of the soil by useless species are the *Plantago media*, Hoary Plantain; *P. m. var. major*, Greater do.; *Primula veris*, Cowslip; *Bellis perennis*, Daisy. It is not at all uncommon to see the broad-leaved Plantain spreading its single bunch of leaves close to the soil, occupying hundreds of circular patches to the acre of from 5 to 10 inches in diameter; and frequently aggregations may be seen of twice or thrice that size. These are almost if not entirely passed over by the scythe, and at most can only add their small flower-stems (*scapes*) to the hay. And the same may be said of the Daisy, only in a less aggravated degree, as the plants are smaller; whilst the Cowslip, though its leaves do not grow so close to the ground, yet covers a great space, and just in the spring when the Grass growth is determined. The Plantain and Daisy are from their manner of growth great pests in lawns, on which account we determined the last year to attack them on our own lawn, which was expeditiously done by cutting off each individual below the crown; and though we are aware that it is not at all times safe to recommend for field culture such processes as have only been tried in the gardens, yet, after all, this is the only certain method of eradicating these plants wherever they occur, except in such pastures as can be irrigated—irrigation, properly carried out, killing all such plants in a most summary manner. It simply therefore resolves itself into a matter of expense; and if, as our own experiments show, a boy can easily be taught to overlook at least half an acre in a day, and at the same time remove weeds objectionable from other causes, it will at once be seen that, provided we can get Grass to grow on the denuded soil, this in itself may be expected to be sufficient to meet so trifling an outlay, to say nothing of the great improvement in the value of the pasture and hay crops as respects their nutritive qualities. To this end, these weeds should be attacked in the autumn, as the seeding Grasses will sow the denuded spots; and if, in the following spring, the pasture be bush harrowed and rolled, a rapid change for the better will be observed.

In dealing with pastures it should be borne in mind that the Grass tribe of plants is more nutritious than any other pasture herbage; the latter, however, frequently takes possession of the land by reason of exhaustion of the soil, want of drainage and other neglect; and where this is the case, it, after all, frequently follows that encouraging better herbage, by fertilising processes, prevents the necessity of mere mechanical methods of eradication of pasture weeds.

* The Colchicum has a tuber or *corm* to each root, which annually withers whilst the leaves are forming, and at the same time a new *corm* is formed by the action of the new leaves.

OBSERVATIONS ON AGRICULTURAL STATISTICS.—By H. R. Lack.

The number of persons employed in agriculture in Great Britain has been gradually diminishing of late years, as compared with increased population. In the year 1831, according to the Census returns, 31½ per cent. of the males of 20 years of age and upwards were employed in various occupations connected with agriculture, whilst in the year 1851 only 26 per cent. of the males of 20 years of age and upwards were so engaged, showing a decrease of 5½ per cent. in the latter as compared with the former year. The improved method of cultivating the soil, and the introduction of steam and other more perfect machinery for performing farming operations, are no doubt the chief causes of this diminution.

In reviewing the movements of this class during the period that elapsed between the taking the two last Censuses of 1841 and 1851, it is necessary to bear in mind the peculiar position of the agriculturists consequent upon the more general introduction of the free-trade system of politics on the part of the government of the country within that period. The decay and break up of the old protection, and the introduction of the new free-trade system, with the uncertainty of its results to farming interests, acted in any way but favourably either upon the undertaking of agricultural pursuits, or towards stimulating agricultural energy. In addition to this change of policy of the government, the increased demand for manufactured goods both at home and abroad (which demand is looked upon as the result of the introduction of the free-trade system), may have been an inducement to many to have embarked in the more promising commercial employments, and to have abandoned the less remunerative agricultural occupations.

The period then must be viewed, with respect to the agricultural classes, rather as one of trial and transition than one of progress, as a period during which the great question had to be tried, whether or not the new free-trade system would benefit or injure farming interests, whether it would increase or curtail its profits. The question may now almost be said to have been fairly tried, and the result to have proved, to most minds, beneficial, and we may therefore look forward with interest to the coming census of 1861, to furnish us with a fairer view of the position of the agricultural classes as existing in a time of agricultural prosperity.

Farming has of late years been regarded and treated more as a science, and its operations regulated by established principles, rather than by established practices. A large proportion of the total number of farmers in Great Britain are now working their lands upon scientific principles, from which most beneficial results may be anticipated. The improvement in the working of farms is not confined to England alone, but is being rapidly pursued by many Continental nations and by the United States of America, and it is evident that if the British farmer does not now bestir himself and call to his aid the latest improvements that science can offer him, he will be left far behind in this age of universal progress.

The systems of rotation of crops; of returning to the soil in kind, in the shape of manure, &c., the mineral properties exhausted by crops; of draining and irrigation, and of reclaiming waste or exhausted lands, are every day becoming better known and more generally acted upon, and it can hardly be expected that those who persist in doing only as their fathers have done before them, will be able to compete with others who manage their farms on the more improved and reasonable principles.

The same man who laughs at the rude implements of the savage scorns the more perfect machines of civilisation: it may be that he thinks with Aristotle that a happy medium between two extremes is best.

1. Persons Employed.—The total number of persons engaged in agricultural pursuits in Great Britain in each of the years 1841 and 1851 was:

1841	1,499,278
1851	2,390,568

No comparison, however, can be made between these sums on account of the discrepancies in the enumeration of 1841. The following table, No. 1, showing the proportion of males of 20 years of age and upwards engaged in agricultural occupations, gives a more correct view of the position of this class, in each of the years 1831, 1841, and 1851.

Table I.—*Proportion per cent of Occupiers and Labourers (males) of 20 years of age and upwards, of the total male population of Great Britain, of 20 years of age and upwards (exclusive of the army and navy abroad).*

	1831	1841*	1851
England and Wales	31·7	25·6	25·9
Scotland	30·4	26·8	26·5
Islands in the British Seas	35·3	25·5	26·5
Great Britain (taken separately) ...	31·5	25·8	26·

* The proportions for the year 1841 are rather lower than they ought to be, in consequence of "farm servants" having been returned in that year as "domestic servants;" whereas in 1831 and 1851 such servants have been returned, more properly, as agricultural labourers.

Although the number of males of 20 years of age and upwards, employed in agriculture, has greatly increased in 1851 (see Table II.) as compared with the number employed in the year 1831; it will be seen that they bear a less proportion to the population in the year 1851 than they did in the year 1831. This decrease is to be accounted for by the fact that the majority of the increased population embraced manufacturing or commercial occupations; there being comparatively but few openings for them in agricultural employments.

Table II.—*Number of Occupiers and Labourers (males) of 20 years of age and upwards employed in agriculture in Great Britain.*

	1831	1841	1851
England and Wales	1,075,912	1,041,986	1,224,629
Scotland	167,145	166,009	187,190
Islands in the British Seas	8,694	7,275	9,535
Total, Great Britain	1,251,751	1,215,264	1,421,354

2. Size of Farms.—The statistics relating to the sizes of farms are only obtainable for the year 1851. In that year there were 285,936 farms in Great Britain, of the average size of 102 acres each. The proportions in a thousand farms were as follows:—

Under 100 acres	672 farms.
100 and under 200	187 "
200 and under 1000	137 "
1000 and upwards	4 "
	1000

England and Wales.—The number of acres in the hands of 2038 English farmers, holding farms of 700 acres and upwards, exceeded the number of acres in the hands of 97,800 small farmers by 10,060 acres, viz.:

	No. of Farms.	Acres of Land.
Farmers holding Farms of 700 acres and upwards ...	2,038	2,152,050
Small Farmers	97,800	2,141,990

It is remarked in the census report "that when agricultural statistics are obtained, the comparative results of farming in the large and small way will be evident." The large holdings in England and Wales are in the south-eastern and eastern counties, the small farms in the north-midland, in Yorkshire, in Wales, and in the north-western counties, comprising Lancashire and Cheshire. The average size of farms in England and Wales is 111 acres; this, it will be remembered, differs little in size from the "hyde" of the Anglo-Saxons, which, according to some estimates, contained 100, according to others 120 acres. The average size of the English farms is much greater than that of Scotch farms.

Scotland.—In Scotland both large and small holdings are numerous, viz., 360 farms of 1000 acres and upwards, and 44,469 farms each of which is under 100 acres. The average size of Scotch farms is 74 acres.

Islands in the British Seas.—947 farms in a thousand are under 100 acres, and therefore come under the denomination of small farms, if farms under 100 acres can be so designated.

The number of farms in each division of Great Britain in 1851 was—

	No. of Farms.
England and Wales	225,318
Scotland	56,650
Islands in the British Seas	3,968
Total—Great Britain	285,936

(*To be concluded next week.*)

Home Correspondence.

Seeding thick and thin.—Repeated experiments have proved that the capabilities of grains of corn, whether Wheat, Barley, or Oats, are only to be known by planting early, thinly, and singly; and in order for the full development of each grain, whether on poor or rich soils, it requires to be planted at least 3 feet apart square. Although the notion of planting at this extreme distance may be ridiculed and pronounced illogical by thick seeders, yet we contend that by judicious management on good and well-prepared soils, and by planting early in September, each plant of Wheat thus treated will invariably not fail to produce 4000-fold, and half a pint of selected seed is thus sufficient to plant 1 acre, and as a natural consequence, it is, of course, quite possible to obtain a produce of 4000 half pints, equal to 31 bushels, and 1 peck per acre, quite equal to the average yield of the United Kingdom, from the opposite extreme and ordinary practice of sowing 256 half pints, or 2 bushels of seed, and sometimes more to the acre. Anomalous as this may appear, yet it is certain, and defies irrefragable evidence to prove the contrary, that whilst 4000-fold is thus obtainable from half a pint of seed, not 30-fold is nor can possibly be obtained from a full crop of 256 times the quantity, by reason of its extreme thickness; for, were it so, 30 times 2 bushels would be

the average yield, viz., 60 bushels per acre! If our agricultural friends will take the trouble to plant, or thin, small plots of their corn to about 6 inches by 12 apart, or about 18 plants to the square yard (the distance we believe proper for obtaining the fullest crops), their expectations will be fully realised. As the season is now too far advanced to prove the correctness of this statement on Wheat crops, if not already done, we do trust that some unprejudiced farmers will take the trouble to plant, transplant, or thin singly, about a rod at least of their Barley or Oat crops, in the middle of their fields, when it has been up about a fortnight, and afterwards keep it perfectly clean by hoeing it deeply with a hack hoe; then all their doubts of the reasonableness of this expostulation will be removed. *Hardy & Son, Seed Growers, Maldon, Essex.*

The Manchester Guardian Society.—A Trade Memorandum.—Knowing that you are always ready to assist the agricultural interest whenever you can by any means, I have the greater pleasure in giving to you for the benefit of your numerous readers a few hints as to forwarding live stock and produce to some parties resident in Manchester, several of whom combine together and refer as to character from one to another, and by these means have at various times during the last six months obtained possession of some very valuable pigs which have been sold for very little more than the carriage. I have informed the secretary of the Manchester Guardian Society of some of these transactions, and he informs me that the owners have come over after the pigs have been sent some weeks, but of course too late to do any good. Having taken several prizes at Lincoln, and elsewhere, I have not only been applied to but have had some of the pigs to which I allude offered to me at prices such as I would not sell such stock at, and upon inquiry soon found out "the reason why." Most of those I have heard of as coming to Manchester have been black ones; in one case I understood one of the pigs was invoiced at 20*l.* He was a fine bred small boar. I kept the man in treaty for some days to try to find out where it came from, but was not able. The gentleman who sent it has since visited Manchester, and my friend Mr. Cottam found out where the pig was, but it had been sold. If I can be of any use to any person who has such application, I will with pleasure let them know who and what the parties are if they will address *A. B., Box* 124, *Post Office, Manchester.*

Nitrate of Soda v. Guano.—The experiments made by Messrs. Hope, Finnie, and Russell on the comparative value of different portable manures for top-dressing Wheat, which you have published and commented on, are doubtless of much interest to the agricultural community. The result arrived at by each of the experimenters, viz., the superiority of guano over nitrate of soda for this purpose, hitherto generally considered as the one for which there could be no question of the superiority of the nitrate, is a little startling. Query! Had the nitrate a fair trial? It is the custom of those using this manure much to apply it at two different periods—one-half when spring growth is just starting, the other half in two or three weeks afterwards when the shot-blade is about forming. In neither of the experiments we have before us was this attended to. The whole cwt. was sown at once. Hence, as regards nitrate, the result may have been less satisfactory than might have been the case had the method generally adopted been followed by the experimenters. *S.*

Can you contrive to keep Tree Roots out of Pipe Drains, or any sort of Drain whatever?—If too near, we want an impossibility—nothing short of hermetically sealed pipes will effectually prevent their intrusion. This remedy would exclude water, and not dry the land, for which purpose you put in your pipes. The attack is made in dry times, when the tree wants a drink, and down go the roots after moisture. Wherefore does a dry March produce a good stiff standing crop of Wheat? Because the rootlets grow downwards in such moist search. Then from such a state of growth, throwing out very many deep roots, laying strong hold of the soil; and when the summer growing time arrives, such formed vigour causes the plant to tiller well and produce many stiff upright fruit-stalks. Let me, therefore, boldly advance with my drains straight up to the tree, and take him in front, allowing neither an attack from behind, nor on either flank; in growing into the drain in front it would do no farther mischief than what it actually fills up; and probably the water would continue to ooze on and not do any material damage. *An Aged Practical Observer.* [If water can get in the roots will follow. You had better, therefore, not let water into the pipes when close to trees. Bed them in cement just at those places.]

Farmers' Clubs.

Discussion on the Cultivation of Root Crops.—On Monday evening last, the monthly meeting for discussion of the Central Farmers' Club, was held at the York Hotel, New Bridge Street. Mr. Sherer in the chair. Subject, "The Cultivation of Root Crops." Proposer, Mr. Bennett, of Cambridge. He said:—

"In the days we live in, when our agriculture is making the most astonishing advancement, climbing, as Sir James Graham very aptly expresses it, "to the very hill top," it is scarcely necessary for me to say to the enlightened agriculturists I see before me, that, with the judicious cultivation of the fallow crop is immediately connected (I had almost said) all that is great and magnificent in agriculture, and that because it is the foundation on which rests the successful rotation of all the other crops. The fallows neglected, or only imperfectly done, the whole thing is a failure; and the farm throughout will never bear inspection. Whatever course of farming is adopted (and that man is a novice in agriculture who farms without a system), the fallows must be gone into with spirit, and with no niggardly or parsimonious hand; and I must be allowed to say, although some of our amateur agriculturists will tell you that fallows are unnecessary, I trow not, and, although I am no friend to needless restrictions, I hold landlords are justified in requiring that the farm shall systematically, either with or without a green crop, as is best adapted to the soil, receive a good and efficient fallow. Nor is it scarcely more to the interest of the landlord than the tenant (unless the latter is about to run away), that it should be so. Sir, I am free to confess, after an experience of some 40 years—and, like other men, I have occasionally been naughty—but I say it advisedly, I have never stolen a crop in substitution for a fallow, without ultimately drinking damage. The fallow season is the starting post in the race. If the land requires draining, this is the time to effect it. If double ploughing or subsoiling, it must be done now. If crooked and unsightly hedges are to be reduced, there is no time more fitting for the operation than the winter preceding the fallow. In pursuing this discussion, it will perhaps comport with the convenience of the Club, if we first attempt to show on what soils roots may or may not be profitably grown at all. I hope, by the by, this statement will not shock any of my friends around me, because it is the opinion of some of our more modern agriculturists that Turnips may and ought to be grown on all arable land. It is true, there are but few soils on which you cannot cultivate Turnips. But the question we have to discuss is—Can it be done economically, or will another system leave the land in a better state, and the farmer more money in his pocket? The farming world is by no means agreed on this point. There are those who will tell you that, only drain and plough deep, and you may then plant the land with Turnips to advantage, irrespective of the nature of the soil, or its situation as regards the homestead. On the other hand, so much are we the creatures of habit, that I know there are farmers situate in the clay land districts, who year by year pursue the naked fallow system, without attempting anything better, even on the more favourable spots of the farm. The result of my experience, backed by close observation, leads me to believe both these practices are far enough from the correct one, but of the two, the man who recklessly drives at Turnips over all his fallows, however unfit for such a mode of cultivation, will, sure enough, be quit of his money first! In fact, to pursue such a system upon the poorer dead tenacious clays of England is, in my judgment, the most rapid way to ruin a man can well pursue; and for this simple reason—the cost of production far exceeds their value in such situations, while the succeeding crops will show vast inferiority to those the land produces under a naked fallow, or where Tares have been previously fed off with sheep. Close akin to such infatuation is that which induces the farmer of clay land to go through the whole of his farm, like a blind horse in a mill, with his naked fallows, because his father before him did the same, without looking round to see if there are not some portions of the farm contiguous to the homestall where a crop of Mangold and Wheat might be grown, perhaps alternately, to the great benefit of the farm, and sometimes other spots of newly broken up or woodland soil off which, if not fit to depasture sheep in the winter, the crop might be taken for the flock in the spring, with great advantage. In addition to the soils above named, as not generally adapted to the growth of Turnips, we must add, however, a large tract of fenland, particularly in parts of Cambridgeshire, Norfolk, and Lincolnshire. It seems, however, it is not so much because the land will not bear Turnips, or that there is difficulty in feeding them off, but that stock are not found to do well with them from such land. I am not at all sure, however, if this arises from an absolute inferiority of quality, or if it is not the soil attaching to the bulb, which mainly disagrees with the sheep; if so, washing the roots might obviate the evil. For the present, Rape, Mangold Wurzel, and on the better land Potatoes, with here and there a few Cabbages, are the vegetables chiefly grown on the fens, and probably best adapted to the soil. Cabbages might, I think, be profitably cultivated to a much larger extent. Having, then, noticed, in passing on, what soils it is doubtful that Turnips can be grown on with a profit, it is very gratifying to know that the progressive improvements which have been made within the last 50 years in Turnip culture (and are still going on) have contributed perhaps to a greater extent to the production of human food, and added more real wealth to the country, than all other improvements besides. How, then, we may best make these improvements known, and progress still higher in the science, is an object not merely worthy of the best efforts of this Club, but, if I mistake not, of every true patriot in the land. For in the teeth of these astounding improvements it must be admitted, in some districts good farming is yet the exception and not the rule. Nor is the system of Turnip culture by any means uniform, even among tolerably good farmers. What, then, is the best mode of raising root crops, and at the least cost? That is the point in hand. I have bestowed some pains to get at the practice of some eminent agriculturists in different localities, and I regret that it would be taxing the valuable time of this meeting too severely to give the result of these inquiries at all at large; suffice it to say, there is no general uniformity of practice among them, and perhaps with the variation in soils we must not expect it. Mr. Henry Overman, of Norfolk, whose well-earned reputation as an agriculturist and keeper of stock, as well for his hospitality and general intelligence, makes him an authority—this gentleman seems to favour ploughing (on his quality of soil) only a moderate depth, and still drills his Swedes and Mangold on the flat surface, 2 feet apart; and if his Turnips are not the largest they are certainly the best preserved of any I have seen. Mr. Francis Sowerby, of Lincolnshire, a very extensive and spirited agriculturist, adopts the ridge system for all his Mangold and Swedes with great effect; has used the water-drill to some extent, and in July last the Turnips so put in seemed, I am free to admit, very much to take the lead, and I learn are still in favour. Mr. G. Russell, near Woolwich, whom Mr. Caird describes as one of the first growers of green crops in the kingdom, prepares his land by very deep ploughing in the autumn, but first uses manual labour, chiefly with a fork, to extract twitch or other noxious weeds; completing the cultivation with a scarifier, without the further aid of the plough; manuring heavily both with solid and artificial manures; plants on the level surface, I believe, and with such cultivation on a naturally rich soil, grows (as might be expected) the most astounding crops, both of Mangold and Swede Turnips. Gen. Hall, M.P., of Weston Colville, Cambridgeshire, is (to all who know him) no mean authority as an agriculturist. On a naturally weak soil, he commences his cultivation for Turnips and Mangold by very deep four-horse ploughing, and then sometimes drives the subsoil plough through the chalk strata below, after which the common plough has about finished its work, the scarifier, harrows, and roller doing the rest, when a moderate portion of farm-yard manure is applied with the bouting plough, and 4 or 5 cwt. of blood, superphosphate, or the same cost in guano, with 5 cwt. of salt, are put on per acre; and there, in an open tract of country, on a thin chalky soil, doubtless any of you may witness, next autumn, close by the Six Miles Bottom Station, about 40 tons of Mangold and hard by 30 tons of Swedish Turnips per acre, growing most luxuriantly. It is but justice to say the General farms his own land, and is, doubtless, bent on its improvement, almost regardless of expense. But it only shows what may be done by skill and capital in the way of cultivation. I understood the General to have also commenced ploughing two furrows deep for Wheat; in the success of which, however, I must be excused for remaining an unbeliever till I have the honour of paying the gallant General another visit. I will give but one other example. Mr. Charles Howard, of Bedfordshire, a young but spirited agriculturist, began cultivating Turnips on the usual plan of the neighbourhood—fallowing about 5 or 6 inches deep, and after repeated plowings drilled his Turnips but 18 inches apart, on the level land. The consequence was—being a gravelly soil—as soon as the hot dry weather of August or September set in, they almost invariably mildewed, and got so stinted in their growth that three years out of four the unthrifty plants produced nothing but a number of little hard unsightly bulbs, and they of the meanest quality. He now breaks up his land 10 inches deep, with four horses—does the greater part afterwards with the scarifier, harrows, and roller—adopts the ridge system of 27 inches, in which he deposits from 12 to 15 tons of good corn or cake-made manure—has not found the water drill, so far, to answer on his soil, it producing, mixed with the superphosphate, a sort of concrete which runs the soil together where the seed is deposited, like an hasty thunder shower. Nor has he found artificial manures generally pay the extra cost; but with the above cultivations he can grow splendid crops of Turnips without their aid, of which, I must say, I have had ocular demonstration. It is but justice, however, to add, the soil (in fertility) is above an average of the country. Having furnished these examples from different parts of the country, I will now, sir, with your permission, give you as briefly as I can my own views on the subject. If, then, garden cultivation is right, there can be no question that for root crops, as often as they occur, the soil ought to be moved much deeper than is at all necessary or desirable for the general crops of the farm. I am decidedly of opinion, however, that you obtain your object far better, in the general way, by what I call double ploughing than by one deep furrow of 10 or 12 inches, because that furrow must be proportionately wider than the depth to stir it at all properly; and on anything like stiff land you will get a huge untractable lump of earth, which the weather of no ordinary winter will penetrate or pulverise; whereas by taking it up in two ploughs, the latter one being of higher construction and casting the furrow to the top, thereby exposing the most ungenial soil to the winter frost and rains, you leave it in a far better state than even under ordinary spade cultivation. The P.P. Plough, lately invented by the Messrs. Howard, and which took the prize for deep ploughing at Lincoln, as also that of Messrs. Ransom, which followed so close upon the heels of the former, appear to me admirably adapted for taking out this second furrow. And I fully incline to the opinion that almost at any time whenever you want to go beyond 7 inches, requiring more than two horses, looking at the improved state in which you leave the land, it is most economical. I think the system far preferable to one moderately deep furrow followed by the subsoil plough, because in the latter case much of the strata below falls pretty much into its former position, and the virgin soil receives but little benefit from the action of the atmosphere. The depth you go must depend more or less upon the nature of the subsoil—but experience will of course be the best guide. It is but justice to say that I have not hitherto adopted the system at all largely, except as cultivation for Potatoes, Carrots, and Cabbages, but have done a considerable tract for the planting of Fir trees, and it was astonishing what fine Carrots and other vegetables we grew between the trees for two or three years, even on a weak soil, without a particle of manure. In adopting this system, if land be foul, it will be desirable to do as much cleaning as practicable in the autumn before you commence this operation. Indeed among our very best agriculturists autumnal cleaning, where Mangold and Swede Turnips are to follow, is every year becoming more general. (Cheers.) It may be too much to say that the system can be brought to bear on all lands, but in the majority of cases (to borrow a favourite phrase of our friend Mr. Mechi), "I think I might stake my agricultural reputation upon its success." We come now to the seeding operations (for the land so ploughed will require little else than the application of the scarifier, harrows, and roller). It is evident that great authorities still differ as to the best mode of drilling. The result of my own experience, backed by much observation, is, however, very decidedly in favour of the ridge system 27 inches apart, more especially where the Turnips or Mangold are to be carted from the land or stored in heaps — first, because in putting in the manure (if the weather be at all showery) you cart the soil less than by manuring on the flat surface; and if the same quantity of manure is used, you certainly get a greater weight per acre with the manure directly under the plants than otherwise, and that not more from the contiguity of the manure, than the fact that you can move the soil later, clean the land more perfectly, and perform all the hoeing operations far more cheaply, than on the flat surface at nearer intervals, in addition to which they are much more easily extracted when you take them up. Care should be had not to leave the ridges too high to roll freely with a suitable roller, if the weather be dry, before drilling, and not to be afraid of pulling them down with the hoes, as the ridges should be lost ere the hoeing is completed: for it is quite a mistake to suppose that these kinds of bulbs require moulding up. Let them only have something good to feed upon underneath, and if you want fine handsome bulbs, you can hardly disencumber them too much. You thus make the land more even and better for the sheep, and pretty effectually obviate the too frequent irregularity of the succeeding corn crop under ridge cultivation. Had I been addressing a few raw inexperienced farmers, I might have guarded them against drilling Turnip seed among dry clods, and referred them to the couplet of Tusser (I think it is), who says—

"Where clods prevail
The Turnips fail."

And on the subject of manure, I should have said, guard against the prodigal system of those antiquated farmers, who make no calculation of their means, but allow the whole of their farm manure to be laid sometimes on little more than half the fallows—having to finish, if they complete at all, with artificials only; but rather use it with caution, laying on but a moderate quantity of the former, eking it out with blood, superphosphate, guano, Lawes's Turnip manure, Rape-dust, or such other dressing as may be most approved, and he who leaves a portion of dung for Wheat where most wanted (as many good farmers do) is no novice. In putting manure into ridges, use but two ploughs together, one opening and the other closing in the manure close after the spreaders, avoiding exposure to the atmosphere. I have long followed the practice of dragging over the ridges a small piece of timber, or strong Larch pole, reaching four rows at once, sweeping off any of the manure on the top of the ridge and pretty well covering the dung; and in that state add the artificial manures, rather than drill them into a very narrow compass after the ridge is completed; the last plough then closes in altogether, when you have only to roll and drill the seed. I am not, however, so enamoured of the Northumberland system as to suppose, in all situations and circumstances it must be the best. But, on the other hand, where Turnips are not for extraction, but to be fed off upon the ground, they may sometimes be grown to advantage at somewhat narrower intervals; but even in that case, I prefer, if practicable, to place them on smaller ridges, by which you set them more effectually, without smothering the young plants. I have practised this system extensively by attaching small skeleton ploughs to a Bedfordshire drill, forming three straight ridges at a time, about 22 inches apart, depositing the artificial manure by the same operation; and, I repeat, where Turnips are to be fed upon the land, this mode of cultivation, I think, has its advantages. In bringing these remarks to a close—and I fear I have already trespassed too freely upon your indulgence—I assure you I have introduced the subject to elicit the sentiments of the enlightened agriculturists of this Club, and so get them before the public, rather than at all dogmatically to propound my own. What has been said, then, backed by the experience of others, must, I think, pretty generally bring us to this conclusion—that to cultivate root crops profitably we have first to lay the land dry by draining, if required; to clean the fallows intended for the earlier crops in

far as possible, in the previous autumn; to cultivate deeply, taking time by the forelock in getting the soil thoroughly pulverised: not to plough too frequently, nor at all when the land poaches but, if practicable, let it be undisturbed for two or three weeks previous to the last operation: to manure as freely as you can in justice to the Wheat crop, both with the farm and artificial manures: to put all crops intended for carting, or clamping, on the ridge, taking care not to deposit your seed deeper than is necessary to ensure vegetation; to hoe well both by horse and manual labour, not forgetting (as the best money spent in the whole operation) to send over the Turnip and Mangold Wurzel fields, as you may at a trifling cost, a few men after harvest, with a small three-tined fork, and a bag or apron tied before them, taking two ridges at a time, to extract any fibres of twitch or other noxious weeds that may be still alive; and last, though not least, to take warning by the past, and preserve your roots well when you have grown them. (Loud cheers.)

[We must postpone for a week our report of the discussion which followed this very interesting paper.]

Calendar of Operations.

MARCH.

Forfarshire Glens, *April* 2.—With the exception of about a week in the beginning of March we have had uninterrupted frost and snow since the 14th of January, being eleven weeks, and we are still under wintry influences; the atmosphere has a freezing temperature, and the snow clings fast to the ground, and only in few warm spots and sunny slopes has it been moved; the northern sides and tops of the hills still present an unbroken sheet of dazzling white. The consequences both immediate and prospective of such a state of things begin to be felt. There has been no ploughing since the beginning of the storm, and even with favourable weather it can be but partially resumed for eight or ten days to come. The seed time will be late, and indications are not wanting that, in upland districts at least, it will be very late, but our prophetic fears may be disappointed, and the dreaded cloud may yet break in blessings. A benevolent connection may now be traced between the abundant produce of last summer and autumn and the protracted winter which has followed; fodder and Turnips being still in plentiful supply and likely to continue so as long as required. Had a long winter and a late spring followed a deficient crop of the previous season, we should have been very differently circumstanced. The flocks have had considerable hardships to contend with, and notwithstanding that most part of them have to live solely by their own exertions, they have generally reached the present date with remarkably few casualties; they were unusually well-conditioned, both in flesh and wool, at the commencement of winter, and have therefore been able to endure cold and short-comings for so long a period with less injury. There are well authenticated instances of black-faced sheep having lain upwards of six weeks under a wreath of snow, without food, and come out in perfect health [!], clearly showing that they are endowed with the power of secreting within themselves a considerable part of their winter provision, a remarkable adaptation to the circumstances in which they are placed, and one which their owners would do well not to disregard. It is a common remark, that a well summered sheep is an easy wintered sheep. Alpine regions are liable to sudden and violent storms, such as occurred in this district on the 8th and 9th of January, 1852, when whole flocks were engulphed in the drifted snow. On that occasion many were no doubt destroyed, not however by being buried in the snow, but by being driven one above another into hollows and suffocated; some that were merely drifted up came out weeks after without injury. A northern winter requires all the care of the most careful shepherds, and when their duty is well performed it ought to be well rewarded. Much of the ground being still covered with snow, food is scarce, and supplemental rations of hay or straw have been required in many cases during the last two or three weeks. The wedder hogs get Turnips during the spring, for sometimes they had great difficulty in getting at them for snow; but they have now plenty, and are doing well. The lambing season begins in 10 or 12 days; the prospect at present is not cheering, but Grass would rapidly succeed the snow at this advanced period of the season if the weather were at all genial. Although there has as yet been little appearance of disease and few deaths, long privation must have greatly reduced many flocks in condition, and induced constitutional weakness, which will only be developed when the Grass comes, the healthy will then improve and the unhealthy will deteriorate. Fed stock, both sheep and cattle, will pay their rations, and also leave enough for risk and trouble. *S.*

Miscellaneous.

The New Market, Copenhagen Fields.—At a Court of Common Council held this week, Mr. Taylor, chairman of the Markets Improvement Committee, brought up a report in which reference was made to the greatly increased cost (25 to 30 per cent.) of both labour and material since the commencement of the work, involving, according to the estimate of the architect, an expenditure of 30,000*l.* beyond the amount already authorised by the court. This raises the sum of 278,721*l.*, at which the cost was estimated in the report of quarter from 1853 to upwards of 350,000*l.*—The report was received, and after the failure of several amendments, referred to the Coal, Corn, and Finance Committee to consider how the money may be raised for the purpose required.

Notices to Correspondents.

Blood Manure: *X.* Blood is used by very many manure companies now. The Nitrophosphate Manure Company, the Cyanic Manure Company, the so-called Manchester Sewage Manure Company, and the London Manure Company, beside others, use it. The Nitrophosphate Company throw bones and blood together, and add sulphuric acid, thereby manufacturing a manure which, as it contains soluble phosphates along with nitrogenous manure, is as nearly perfect, whether for roots or corn, as anything ordinarily need be; and a similar process is, we believe, employed by other companies, of whose operations we shall shortly speak.

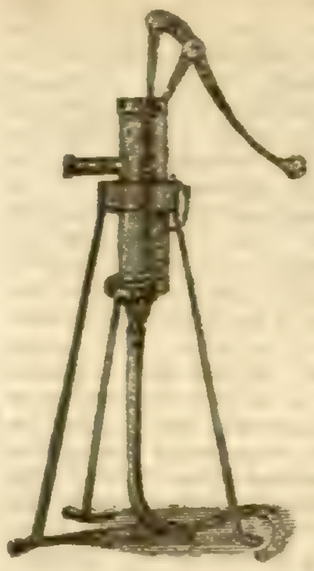
Cut Hole after Tares: *C W S.* Sow early in May, and transplant in the end of June, after you have reduced the land to the proper tilth. Drumheads managed thus will come in for spring use. They may be planted out from 24 to 30 inches apart.

Gas Lime: *G W L.* Most of the ammonia is taken up by the water in the purifying apparatus. The lime absorbs the sulphuretted hydrogen, and will to that extent become, by exposure to the air, gypsum. You should lay it in a heap and turn it frequently over, and afterwards spread it, a ton or two per acre, over stubbles before ploughing.

Potatoes: *Kempsey.* Each ton of tubers placed on a dry well drained spot in a conical heap, well and thickly covered with straw, and then with earth covered with a cap of thatch, is as good a way of keeping Potatoes as any.

*** As usual, many communications have been received too late and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

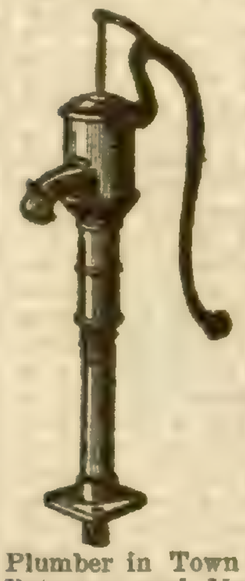
1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Sons, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.



Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ „ long	3 „ 3 „		1	15	0
3 „ ditto	3 „ 6 „		2	12	0
3½ „ ditto	3 „ 6 „		2	18	0
4 „ ditto	3 „ 6 „		3	5	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	12	0
2½ in. long	ditto	ditto ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

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JOHN WARNER AND SONS, Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
With Warner's Registered Spreader,

is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

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No establishment offers such a variety of effective machines for hydraulic purposes, whether to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of liquids.

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From the extensive works they have executed, references of the highest respectability can be given, and full particulars furnished on application.

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B. Samuelson, Britannia Works, Banbury, Oxon.

The above may also be procured at the principal Agricultural Implement Depôts in London, and of all respectable Ironmongers and Seedsmen in the country.

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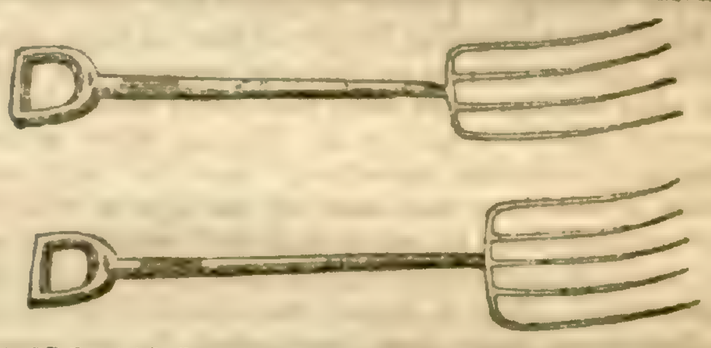

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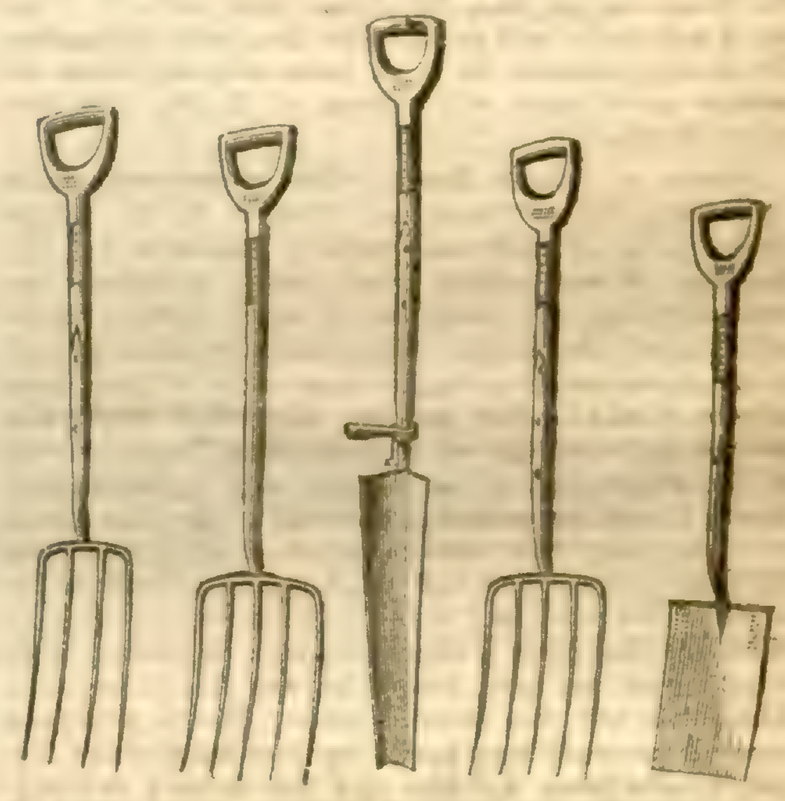
William Dray & Co., Swan Lane, Upper Thames Street, near London Bridge.



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CAUTION.

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BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

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" " 100, including newer "	2	10	0
ROCK PLANTS, 25 fine varieties	0	12	0
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POTENTILLAS, 12 fine varieties, 9s.; 12 extra fine ...	0	18	0
" splendid mixed seedlings, per doz ...	0	9	0
" 5 best new varieties — King of Crimson, Sudbury Gem, Theodore, Shylock, and Julia, for	1	10	0
HOLLYHOCKS, 12 fine varieties, per doz. 9s. and	0	12	0
ANTIRRHINUMS, 12 fine varieties of richest colours	0	6	0
ROCK CISTUS, dwarf, 24 beautiful vars., very distinct	0	15	0
PHLOX, 25 fine vars., 9s.: 25 beautiful newer vars.	0	12	6
Primula involucrata, most lovely white, per doz. ...	0	9	0
Lupinus magnificus, fine variegated blue and white, each 1s. 6d., or per doz.	0	12	0
Lupinus polyphyllus purpureus and albus, each per doz.	0	6	0
Mimulus, 6 fine varieties	0	5	0
Pentstemons, 12 fine varieties	0	7	6
Viola arborea, 6s. per doz.; alba, per doz.	0	6	0
" Neapolitan 6s. " Russian "	0	4	0
Berberis Darwini, flowering plants, per doz.	0	15	0
Escallonia macrantha, fine plants " 18s. to	1	4	0
Pæonia papaveracea, strong ... ... 1s. 6d. to	0	2	6
Ribes, 5 best vars., 2 of each fer	0	7	6
Spirea, 8 beautiful vars., 2 of each for	0	8	0
Rhododendron ponticum, fine, per doz. ... ... 9s. to	0	12	0
Hardy Climbing Plants, 12 fine vars. ... ... 9s. to	0	18	0
Roses, Tea-scented and Climbing, in pots, 12 fine vars.	0	12	0
Plums, Peaches, Nectarines, and Apricots, finest sorts trained, very strong and fine, 12 sorts 1l. 16s. to	2	8	0
Standard and Dwarf Apples, Pears, Plums, and Cherries, &c., &c.			
Rhubarb, Myatt's Linnæus, and Mitchell's Royal Albert, choice early vars., also Myatt's Victoria Giant, each per doz.	0	7	6
Seakale, very strong, per 100	0	10	0
Strawberries, newest and best sorts			

Goods carriage free (not under 20s.) to all the London termini, and all stations on the London and Norwich Colchester Line. Plants added gratis with orders of 40s. and upwards.

COMPLETE CATALOGUES on application for six penny stamps, or the Spring Catalogues alone for three penny stamps, or gratis to our customers who may not have received them.

Seed and Horticultural Establishment, Sudbury, Suffolk.

TO NURSERYMEN, SEEDSMEN, ETC.

MESSRS. E. G. HENDERSON AND SON having had (through their customers), a Seed Catalogue brought under their notice, and which seems to have been distributed throughout the whole of their connection, published by a very eminent and old established firm near London; and on referring to the same they find that all the Hardy Annuals from Nos. 1 to 308, the Half-hardy Annuals from Nos. 309 to 479, Hardy Biennials and Perennials from Nos. 480 to 660, and the Greenhouse Plants and Tender Annuals from Nos. 661 to 741 have all been copied from their lists, with the full descriptions of colour, height, treatment, and other information, even the numbers attached to each article correspond with the strictest accuracy. The only alteration is that no prices are attached, whereas, in the original catalogue every article is priced.

Messrs. E. G. H. & Son beg to say, that as they are at some considerable expense and trouble preparing and issuing their Catalogues throughout the year, they now give notice that in future they shall consider it very disreputable in any parties copying them in the style above alluded to, unless the source from which they derive their information is published at the time, or otherwise communicating with them previously to copying the same.

Wellington Nursery, St. John's Wood, London.—April 7.

MESSRS. E. G. HENDERSON AND SON having purchased of the late W. Story, Esq., of Newton, in the county of Devon, for ONE HUNDRED GUINEAS, all Seedling Fuchsias with white Corollas, a new feature in this tribe introduced by him, and in consequence of an advertisement appearing in the *Gardeners' Chronicle* from Messrs. Lucombe, Pince, & Co., of Exeter, offering two new Fuchsias similar in character to those purchased of the late Mr. Story, it was thought necessary, after a written communication with that gentleman, for one of the firm to make further inquiries about them, and in consequence Mr. ANDREW HENDERSON went to Exeter and Newton, where he was informed by a jobbing gardener at Newton that he had received in the month of November last Seven Pounds for them after (as the said jobbing gardener stated) he had been offered £20 for them by a nurseryman in London, but whose name or address he did not know.

Messrs. E. G. H. & Son give the above explanation in consequence of numbers of their customers having ordered plants at higher prices than are now quoted. This reduction is made in consequence of information which they have received that leaves no doubt on their minds but that those to be sent out by Messrs. Lucombe, Pince, & Co. are similar in character to those purchased of Mr. Story.

E. G. HENDERSON & SON take this opportunity of stating that none but the most popular and improved kinds of Vegetable Seeds appear in their list, and among the Flower Seeds only those whose beauty and merit are univerally acknowledged, together with a carefully selected stock of the principal new varieties. They would call particular attention to the following new and choice seeds, which they can confidently recommend:—

Per packet—	s.	d.
Antirrhinum, extra fine ...	0	6
Auricula, fine mixed ...	1	6
Abronia umbellata	1	6
Anagallis azurea grandiflora	1	0
" rubra "	1	0
Arctotis breviscapa ...	0	6
Aster, new Peony pyramid, in packets of 10 distinct colours, separate ...	3	6
" new bouquet pyramidal, in packets of 12 distinct colours	3	6
Balsam, double Camellia-flowered, in packets of 6 distinct colours, separate	3	0
" new double Camellia Rose, in packets of 10 distinct colours, separate, extra fine	5	0
" Aurora, new double crimson	1	0
" new dble. pale yellow	1	0
Carnation, stage flowers...	1	6
Calceolaria, ex. ex. 2s. 6d. & 5s.		
Cineraria, ex. ex. 1s. 6d. & 2s. 6d.		
Chrysanthemum pompone	1	0
" large flowered	1	0
Calendrinia umbellata ...	0	6
Dianthus Dunnetti, suprb.	1	0
" Chinensis flore-pleno, extra fine	0	6
Eschscholtzia tenuifolia...	1	6
Geranium, choice show ...	2	6
" choice fancy	2	6
Hollyhock, first quality ...	2	6
" second quality ...	1	0
Ipomœa rubro cærulea ...	1	0

Per packet—	s.	d.
Ipomœa limbata	2	6
Leptosiphon luteum ...	0	6
" aureum	1	6
Linum grandiflorum rubrum 1s. 6d., and	2	6
Lobelia Queen Victoria (scarlet)	0	6
Lobelia Roi Leopold ...	0	6
Larkspur, new double improved hyacinth flowered, in packets of 6 distinct colours ...	2	6
Limnanthes sulphurea odorata	1	0
Mignonette, new, large ...	0	3
Mimulus, beautiful ...	0	6
Pansy, choice show ...	1	6
" choice fancy	1	6
Petunia, extra fine ...	1	0
Phlox Drummondi coccinea	0	6
Portulaca, new orange ...	0	6
" new rose	0	6
Primula sinensis fimbriata, alba and rubra mixed ...	2	6
Poppy, new large Pæony, in 8 brilliant colours ...	2	0
Reseda myriophylla, new Mignonette	1	0
Salpiglossis, scarlet, blue, and sulphur	0	6
Stock, German, new large flowering, in packets of six distinct colours ...	2	6
Verbena, choice mixed ...	1	0
Sweet William, new double	0	6
Whitlavia grandiflora ...	1	6

Lilium giganteum seed, 2s. 6d. and 5s. per packet.
Holcus saccharatus (new Sugar-cane), 1s. to 2s. 6d. do.
Dioscorea Batatas (Japanese Yam), 2s. 6d. each tuber.
20 Ornamental Grasses (see Catalogue).
12 Ornamental foliage Annuals.

Their new Seed Catalogue, with full particulars of the above and many other novelties, is now ready and will be forwarded post free on application.

Wellington Nursery, St. John's Wood.—April 7.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their Mixtures of Grass Seeds are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre ... ... 30s. per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32s. per acre.
Mixtures for improving and renovating old Grass Land, 1s. per lb.
Mixtures (finest sorts) for forming Lawns... ... 1s. 3d. per lb.

These Seeds are all new, and have all been properly cleaned and their growing properties fully tested. Directions for sowing accompany the seed.

G. G. and Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., SEEDSMEN,
26, Down Street, Piccadilly, London.

HEATHS AND EPACRISES.

MESSRS. YOUELL AND CO., in offering the following, beg to say that the whole are very healthy and well grown; those marked * are set well for flowering.

ERICAS.—Strong bushy plants in 48's at 12s. per dozen varieties:—Aristata vittata, *aggregata, bicolor, *Cavendishi, Coventryana, *daphnoidea, *denticulata moschata, *echiflora, *grandinosa, *hyemalis, hybrida, hyacinthiflora, Linnæoides nova, Metulæflora bicolor, *propendens, *propendens tubiflora, *pyriformis, *rubens, *Scabriuscula, *Sindryana, *Ventricosa breviflora, *V. coruscans, V. curta rubra, *V. densa carnea, *V. fasciculata rosea, V. fasciculata superba, V. fasciculata longiflora, *V. hirsuta, V. perspicuoides, *V. superba, *V. tumida, *V. tenuiflora, Verticilla Vestita fulgida, *viridiflora, Westphalingi, *Wilmorea superba.

The above are all dwarf bushy plants, and can be supplied to the trade at the usual discount in large quantities.

ERICAS, in large and small 60's, at 9s. per dozen varieties:—Archeriana, ampulacea, amp. carnea, amp. rubra, aristata major, Bandoniana, Cavendishi, corinthoides coronata, Cliffordi, *Colorans, daphnoidea, Devoniana depressa, denticulata moschata, elata, eweriana, eximia, exurgens coccinea, *gracilis, *grandinosa, grandis Hartnelli, *hyemalis, hybrida, hyacinthiflora, longiflora, Linnæoides superba, Metulæflora bicolor, *ovata, *perspicua nana princeps, *propendens, *prop. tubiflora, primuloides retorta major, Savilliana, Shannoniana, do. Turnbull's variety, *Sindryana, splendens, sulphurea, tricolor, tricolor rubra, T. Wilsoni, trossula rubra, Vent. alba, V. alba tincta, V. Browni, V. carnea, V. coccinea minor, V. conspicua, V. dependens coccinea, V. fasciculata longiflora, V. f. rosea, V. globosa, V. grandiflora Storey's), V. hirsuta, V. magnifiora, V. perspicuoides, Vernix coccinea, Vernoniana, Vern. superba, Verticillata, Vestita carnea tenuiflora, Vest. coccinea, Vest. coc. tenuiflora, Vest. fulgida, Vest. rosea, Westcotti, Westphalingi, Wilmorea superba, Walkeri.

These are admirably adapted for specimen growing, being of the proper size to start with; the trade may also be supplied at the usual discount per 100 plants.

EPACRISES, in large 48's, fine plants, 12s. per dozen; ditto in large 60's and small 48's. The following varieties at 9s. per dozen varieties; those marked with an asterisk are set with flower buds:—*Alba pendulifiora, angustissima, autumnalis, *Campanulata alba, *C. maxima, C. grandiflora, Cupelandica, *Carnea, *Cerasiflora, Coruscans, coriacta, densifiora, *densiflora incarnata, *elegantissima, Fairbarniana, *formosa, grandiflora, hyacinthiflora candidissima, hyacinthiflora rosea, *Hopeana, impressa, *imp. alba, *imp. magna, *imp. rosea magna, *lunata, magnifiica, miniata, *nivalis, *nivalis grandiflora, *ornata, purpurascens, rubra grandiflora, *sanguinea, *splendida, Tauntonensis, *variabilis.

This List comprises nearly all the varieties in cultivation. As a winter flowering plant the Epacris is eminently useful; it is also easily managed. The usual discount to the trade per 100 plants. We beg to refer to our advertisement of March 10, where will be found enumerated Centaurs, Choice Greenhouse, and Hardy Plants, &c. &c.

	s.	d.
VERONICA VARIEGATA	2	6
WOOD'S DUCHESS OF NORFOLK ROSE ...	5	0
LILIUM GIGANTEUM, strong bulbs	10	6
FUCHSIA DOMINIANA, each	2	6

YOUELL & Co., Royal Nursery, Great Yarmouth.

ESTABLISHED 1786.

WEST OF ENGLAND AGRICULTURAL AND HORTICULTURAL ESTABLISHMENT,

FOR THE SUPPLY OF EVERY REQUISITE FOR THE FARM AND GARDEN.

UNION ROAD, PLYMOUTH.

Under the Patronage of

HER MOST GRACIOUS MAJESTY THE QUEEN, HIS ROYAL HIGHNESS THE PRINCE OF WALES AND DUKE OF CORNWALL, HIS MAJESTY THE KING OF THE BELGIANS, HER IMPERIAL HIGHNESS THE DUCHESS OF BRABANT, HER ROYAL HIGHNESS THE DUCHESS OF ORLEANS, HIS EXCELLENCY THE NEPAULESE AMBASSADOR AND SUITE.

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His Grace the Duke of Bedford.
His Grace the Duke of Devonshire.
His Grace the Duke of Leinster.
His Grace the Duke of Marlborough.
His Grace the Duke of Somerset.
The Most Hon. the Marquis of Conyngham.
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The London Horticultural Society.
The Royal Agricultural Society, Prince Edward's Island.
The South Devon Agricultural Association.
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And upwards of two thousand of the leading aristocracy and principal families in Great Britain and Ireland.

WILLIAM E. RENDLE & CO.,

SEED MERCHANTS, PLYMOUTH,

BY SPECIAL APPOINTMENT TO THE SOUTH DEVON AGRICULTURAL ASSOCIATION, AND THE ROYAL AGRICULTURAL SOCIETY, PRINCE EDWARD'S ISLAND, SUPPLY ALL KINDS OF

SEEDS FOR THE FARM AND THE GARDEN.

CARRIAGE FREE, AS PER FOLLOWING SCALE:—

All Orders for Seeds above £1 (excepting heavy articles, as Grain, Tares, Clover, Seed Potatoes, &c., will be delivered Free of Carriage to any Railway Station between Plymouth and Paddington.

All Orders above £2, with the above exceptions, Free to any Station on the Broad Gauge Railways, or to any Market Town in Devon and Cornwall, or to Cork, Dublin, and Liverpool, by Steamers.

All Orders for Seeds above £5, with the above exceptions, will be delivered, Free of Carriage, to any Railway Station in England and Wales, and to any Steam Port in England, Wales, Scotland, and Ireland.

GARDEN ENGINES, SYRINGES, &c.—CAUTION.—The well-known reputation of READ'S Engines, Machines, and Syringes, has led to the nefarious practice of placing Cards in Shop Windows, with the words "READ'S PATENT" over Syringes of the VERY COMMONEST DESCRIPTION. R. READ begs to Caution the Public against being deceived by such false representations, as many of these Instruments, upon trial, will be found defective and useless.—READ'S Instruments have the Royal Arms and address,

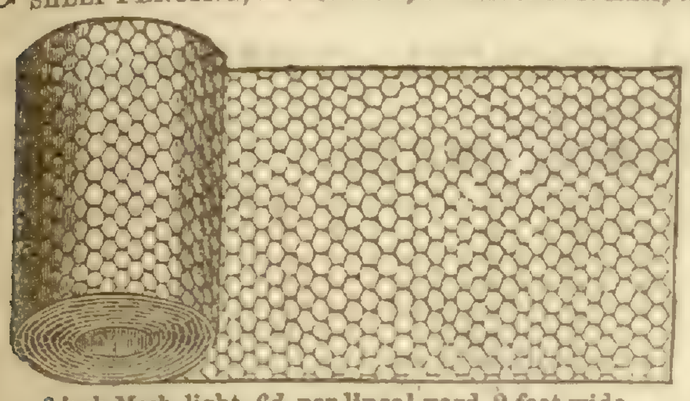
35, Regent Circus, London.

BLOSSOM OF WALL FRUIT TREES.—WORSTED NET to effectually preserve the blossom and the ripe fruit afterwards from wasps and flies, also for shading purposes, 7*d.* per square yard, in any width required. All kinds of Garden, Fishing, and Sheep Nets, made by machinery, at very low cost. N.B. Transparent Sheeting, nearly 2 yards wide, 1*s.* per yard, very much approved.

R. RICHARDSON, 21, Tonbridge Place, New Road, London.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.* Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

GALVANISED WIRE NETTING FOR GAME AND SHEEP FENCING, AVIARIES, PHEASANTRIES, &c.



2 inch Mesh, light, 6*d.* per lineal yard, 2 feet wide.
" strong, 8*d.* " "

Netting of any size or quantity, and Fencing of all kinds, supplied on the shortest notice.—WILLIAM DRAY & Co., Manufacturers, Swan Lane, Upper Thames Street, near London Bridge.

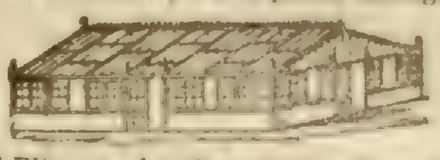
HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.

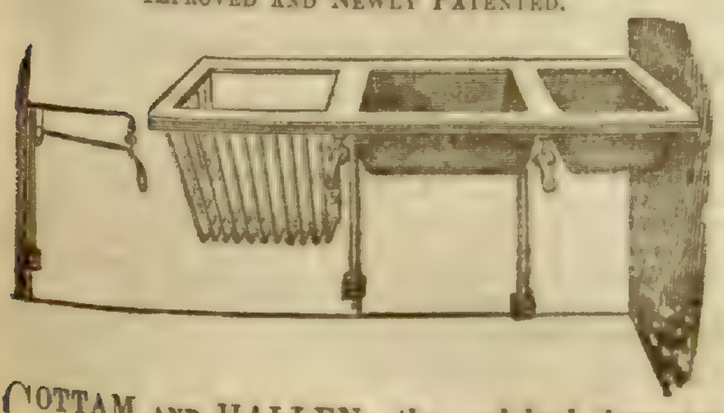
The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.



Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by one *boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings, also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

MANGER, RACK, & WATER-TROUGH AS ONE FIXTURE
IMPROVED AND NEWLY PATENTED.



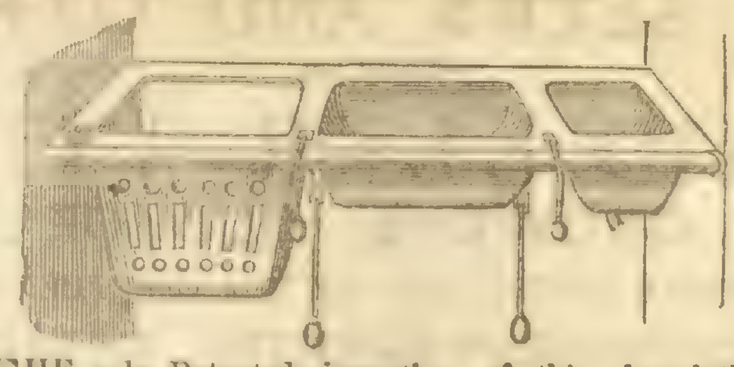
COTTAM AND HALLEN, the original inventors, obtained the Great Exhibition Prize Medal for this arrangement, to which all the latest improvements are adapted, secured by Patent, including a method entirely new of attaching the halter-weight and rein from the back of the manger to the under front of the plate, allowing the horse greater freedom, and being noiseless in operation, add much to its comfort whilst feeding and convenience when at rest, as likewise, from their position, avoiding the liability of the most restive horse getting cast. No well-managed stable should be without these fittings.

COTTAM'S ENAMELLED MANGERS are constructed in the best possible manner, both as to form and utility; are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, and Enamelled. Improved Surface Drain, with Safety Covers, Sanitary Traps, Stable Pumps, Loose Box Fittings, Gutta Percha Preserving Saddle and Harness Brackets, and every article in Stable Furniture, in stock. An extensive assortment of Patterns for both Plain and Ornamental Castings, and every description of Wrought and Cast Iron Work for building and other purposes. Agricultural and Horticultural Implements, Iron Gates, both plain and ornamental, Hurdles, Strain Fencing, &c.

Estimates and Catalogues on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

WARMING AND VENTILATING.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THE only Patented invention of this description constructed so as to prevent considerable waste of Hay and Corn, together with all the newest improvements.

NEWLY IMPROVED ECONOMIC STABLE FITTINGS, FORTY SHILLINGS PER SET, to fill up the whole width of Stalls, and can be had enamelled or galvanised. Every description of Mangers, Racks, and Stable Furniture in stock; Iron Hurdles, Gates, Fencing, &c.

Manufacturer of Kite's Patent Noiseless Cast-Iron Smoke-Curing Chimney Caps (200 on Buckingham Palace), price 35*s.* each. Price Lists and Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, IRON FOUNDER, &c., 370, Oxford Street, few doors east of the Pantheon.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons,			throws 30 feet high		...	£4 10
No. 2	" 15	"	" 45	"	...	5 10
No. 3	" 28	"	" 45	"	...	6 18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds	8 gallons,		throws 25 feet high		...	£2 15
No. 13	" 12	"	" 30	"	...	3 5
No. 11	" 16	"	" 40	"	...	4 0
No. 12	" 24	"	" 45	"	...	5 0
No. 14	" 30	"	" 45	"	...	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

Full size Syringe, on Read's principle, of the very best quality and workmanship, with two roses and one jet, 21*s.*; Plain Syringes from 10*s.* 6*d.* upwards.

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsmen in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each; Large size, for Gardeners' use, **25s.** each.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expenses of delivery in the country.

ROSES ON MANETTI STOCKS.

EDWARD PARKE FRANCIS offers the following ROSES, strong vigorous plants in small 32's and 48's size pots. Specimens of the complete success of Roses on the Manetti stock were exhibited at the Regent Street Rooms on Tuesday, the 3d, measuring 2 feet high and 1 foot through, 1 year's growth, and were the admiration of all who saw them.

HYBRID PERPETUALS.—	*s.*	*d.*
Madame du Trotter ...	5	0
" Theodore Martel	7	6
" Domage	3	6
" Harriet Stowe ...	10	6
" Hector Jacquin...	5	0
" Masson	10	6
" Aline Gibbon ...	5	0
" Felicité Rigeaux	3	6
" Place	7	6
" Vidot	10	6
Auguste Guinoisseau ...	3	6
Baron Larray	7	6
" Clopard	7	6
" Kermont	3	6
Conseiller Jourdeuil ...	3	6
Colonel de Rougemont ...	3	6
Gen. Jacqueminot 3*s.* 6*d.* to	5	0

HYBRID PERPETUALS.—	*s.*	*d.*
Jules Margottin, 2*s.* 6*d.* to	3	6
Gloire de Parthenay ...	3	6
Lady Stuart	2	6
Sephola	3	6
Bourbons, Mad. Fontaine	5	0
" Souvenir de la Malmaison	2	0
Teas, Comte de Paris ...	2	0
" Pauline Plantier ...	2	0
" Jaune	2	0
" Niphitos	2	0
" Anteros	2	0
" Bougere	2	0
" Devoniensis ...	2	0
" Elise Sauvage ...	2	0
Noisette, Mutabilis ...	5	0
Moss, Baron Wasner ...	7	6

Hertford Nurseries, Hertford. Carriage paid to London.

PRUNING.

THE GRECIAN PRUNING SAWS are universally acknowledged to be the best for every description of Pruning. They cut faster and cleaner than any other, and do not bend or break. Price 2*s.* 6*d.*, 3*s.*, and 3*s.* 6*d.* each.

THOMAS HILL, late W. Coleman, 4, Haymarket, London.

A RECEIPT FOR THE MILLION.

TO SET CAMELLIAS, with or without artificial heat, by a most simple means. Price 1*s.* 6*d.* by stamps.—Direct, post paid, to R. KEELE, Practical Gardener, 46, Wellington Street, Woolwich.

NURSERY AND SEED BUSINESS,
ESTABLISHED IN THE YEAR 1819.

TO BE LET, with immediate possession, the NURSERY and SEED SHOP at Taunton, for some time past in the occupation of Messrs. M'Intyre and M'Intosh. The Grounds and Stock are in excellent condition, moderately rented, and are well worthy the attention of any person wishing to carry on the business. If required the quantity of ground may be reduced. The Nursery is about 5 minutes' walk from the Railway Station. —Apply to Mr. YOUNG, the Proprietor, Elm Cottage, Taunton.

TO SMALL CAPITALISTS.

TO BE SOLD, the Lease of a Plant and Grape growing Business, in full working order, 3 miles from Covent Garden Market. It contains a convenient Cottage, with about 3000 feet of Glass, and 10,000 Plants. To any respectable man a part of the purchase money may remain, and be paid as agreed upon.—For further particulars apply (by letter only) to ALPHA, Office of this Paper.

TO GARDENERS AND OTHERS.

TO BE LET, within an easy distance of Covent Garden, a FLORIST BUSINESS, with four Large Greenhouses, a Propagating-house, with Pits, Frames, &c., with about half an acre of land, walled in, and a good stock of plants for market; rent moderate.—For particulars apply to T. B., Office of this Paper.

TO GENTLEMEN'S GARDENERS AND OTHERS.

TO BE LET, with immediate possession, a FLORIST'S, FRUITERER'S, and GREENGROCER'S BUSINESS, in a populous neighbourhood. It would be a good opening for a jobbing business. Coming in moderate.—Apply to H. S. H., Westcroft Place, Hammersmith.

POULTRY.—Eggs of Brahma Pootra Fowls at 10*s.* per dozen; Buff and Partridge Cochin China, Dorking, Black Spanish Fowls at 5*s.* per dozen, package included. Also a few pairs of each of the above and a pair of Golden Spangled Bantams on sale, at very moderate prices.—For particulars apply to AN AMATEUR, Matlock, Bath.

DORKING BLUE MOTTLED FOWLS' EGGS, 12*s.* per dozen. Took first Prize at Brighton Exhibition of three counties, 1854.—Address Mr. ED. HENDEN, Beehive Inn, Dorking, Surrey.

TO BE SOLD, BUFF COCHIN CHICKENS, from first class Prize Birds, Brahma Pootra Chickens, from imported American Prize Birds, and Spanish Chickens. Also some very good one-year-old Birds of the above descriptions. Wire, Game, and Poultry Netting, Poultry Hurdles, Hen-houses, Chicken Coops, Flower Stands, and Trainers, Garden Arches, and every kind of Wire Work, useful and ornamental.—T. H. Fox's, City of London Wire Works, 44, Skinner Street, and 6 & 8, Snow Hill. Illustrated Catalogues forwarded post free.

NURSERY GROUNDS, DUFFIELD ROAD, DERBY.
TO NURSERYMEN AND LANDSCAPE GARDENERS.

MR. POOL will Sell by Auction, on TUESDAY, WEDNESDAY, and THURSDAY, April 10th, 11th, and 12th, at 11 o'clock, at Mr. Palmer's Nursery Grounds, Duffield Road, Derby, the extensive and valuable Stock of Ornamental and Flowering Shrubs, Evergreens, Roses, Herbaceous Plants and Bulbous Roots of rare descriptions, Choice Fruit Trees, Tree Stocks, Implements, and other effects.

Auction Offices, Albert Street, Derby.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY, April 12, at 12 o'clock, a first-class collection of Carnations, Picotees, and Pinks; about 100 fine double Camellias, well furnished with bloom buds, Standard and Dwarf Roses, American Plants, Choice Dahlias in dry roots, Fuchsias, and Verbenas, Azalea indica in bloom, &c.—May be viewed the morning of sale; Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

STANDARD AND DWARF ROSES AND FRUIT TREES
THE PROPERTY OF AN EXTENSIVE GROWER, TO BE SOLD IN ABOUT 200 CONVENIENT LOTS, WITHOUT RESERVE.

MR. J. C. STEVENS begs to notify that he has received instructions to Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on FRIDAY, April 13, at 12 o'clock precisely, 800 fine STANDARD ROSES, consisting of 11. P. Géant des Batailles, Duchess of Sutherland, Louis Napoleon, Mrs. Elliott, &c. &c.; B. Mrs. Bosanquet, Queen, Jupiter, Souchet, Emilie Courtier, &c; 500 strong Dwarfs, principally worked; 200 very fine dwarf Mayduke Cherry Trees in beautiful order for potting, and with ordinary treatment would have a large crop of fruit this season, being full of flower-buds. Upwards of 1000 Standard and Dwarf Apple, Apricot, Pear, and Plum Trees, including a a quantity of the Baddon Pippin, also a very fine un-named Seedling, equal for bearing and keeping to the Hanwell Souring, and good either for table or kitchen use.—May be viewed on the morning of sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

A LIST OF GRASS SEEDS AND OTHER FARM SEEDS

OFFERED BY

J. C. WHEELER AND SON,

SEED GROWERS, GLOUCESTER,

(ESTABLISHED IN THE EARLY PART OF THE EIGHTEENTH CENTURY)*

SEEDSMEN TO THE GLOUCESTERSHIRE AGRICULTURAL SOCIETY.

The following are some of the best Natural Grasses well calculated for Permanent Pasture:—

Adapted for strong heavy land. MEADOW CATSTAIL, OR TIMOTHY GRASS (Phleum pratense) ... 10*d.* per lb
The Timothy Grass possesses the advantage of affording double the quantity of nutriment when its seeds are ripe that it does if cut when in flower. On strong, tenacious, and rather moist soils, it is entitled to a precedence to almost any other, and should at least form a considerable portion of the mixture employed for laying down such, either for alternate husbandry or permanent pasture.

Valuable for its earliness. MEADOW FOXTAIL GRASS (Alopecurus pratensis) ... ... 1*s.* 6*d.* per lb
This is one of the earliest and best of Pasture Grasses, but not so well adapted for hay, as it produces but few stalks; its root leaves are very broad, long, soft, slender, and grow rapidly when cut, or when eaten down by live stock. It requires two or three years after sowing to arrive at full maturity.

May be sown under trees. ROUGH COCKSFOOT (Dactylis glomerata) ... ... 1*s.* per lb
Is a valuable Grass in cultivation, on account of the great quantity of produce which it yields, and the rapidity with which its leaves grow after being cut. It is well adapted for growing in shady moist places under trees, as in orchards, &c.

Alternate culture. MEADOW FESCUE GRASS (Festuca pratensis) ... ... 1*s.* per lb
This is an excellent Grass, either for alternate husbandry or permanent pasture but more particularly the latter. It is well liked by all kinds of herbivorous animals.

Suitable for parks and valuable for sheep pasture. HARD FESCUE GRASS (Festuca duriuscula) ... ... 1*s.* per lb.
Will thrive on a great variety of soils, and is found to resist the effect of severe drought in summer, and to retain its verdure during the winter, in a remarkable degree. From the fineness of its foliage and greenness in winter, it is well adapted for sowing in parks, especially for sheep pasture.

Well liked by sheep. SHEEP FESCUE (Festuca ovina) ... ... 1*s.* per lb
This Grass forms the greater part of the sheep pasture of the Highlands. In quantity of Grass it is much inferior to the other cultivated Fescues; but, from being well liked by sheep, it should always enter into the composition of mixtures of lands on which they are to be pastured; in fact, on the authority of Linnæus, these animals have no relish for hills and heaths which are destitute of this Grass.

Well adapted for pleasure grounds. WOOD MEADOW GRASS (Poa nemoralis) ... ... 1*s.* 3*d.* per lb
Its habit of growth is delicate, upright, close, and regular. There is no Grass better adapted for pleasure grounds, particularly under trees, as it will not only grow in such places, but forms a fine sward where few of the other fine Grasses can exist. It produces a considerable deal of foliage early in spring.

Valuable for damp soils. ROUGH-STALKED MEADOW GRASS (Poa pratensis) ... ... 1*s.* per lb
This is a valuable Grass as a mixture for Grass Lands, particularly on damp soils. Its habit of growth fits it for mixing along with the upright grown sorts, such as the Italian Rye-grass.

Very early Grass. SMOOTH-STALKED MEADOW GRASS (Poa trivialis) ... ... 1*s.* per lb
This Grass yields a large quantity of herbage at a very early period of the season.

Remarkable for its fragrance. SWEET-SCENTED VERNAL GRASS (Anthoxanthum odoratum) ... 2*s.* per lb
This Grass yields but a scanty portion of herbage, yet, on the whole, Permanent Pasture should not be without a mixture of it, particularly in parks and pleasure grounds, were it for no other reason than its pleasant scent, not only when cut for hay, but also when the seeds become nearly ripe.

Suited for lawns. CRESTED DOGSTAIL GRASS (Cynosurus cristatus) ... ... 2*s.* per lb.
From this Grass forming a close turf, and having rather fine foliage, it may be advantageously sown on lawns and other places to be kept under by the scythe.

Lawn Grass. *For some of our descriptions of Grass Seeds, we are indebted to Lawson's Agrostographia.*

Clover seed. LAWN GRASS SEED		1*s.* 0*d.* per lb.
CLOVER—White Dutch	9*d.* to	0 10 "
" Red or Broad	7*d.* to	0 8 "
" Trefoil	4*d.* to	0 5 "
" Cow Grass, or Perennial Red Clover		0 10 "
" Alsike		2 6 "
Evergreen. ITALIAN RYE-GRASS—Imported Seed... ...	per bushel	6 0
PERENNIAL RYE-GRASS (Pacey's)	" 4*s.* 6*d.* to	5 6

GRASS SEEDS.

Grass seeds more in demand of late. Inferior sorts used, and their pernicious results. The demand for Natural Grass Seeds has greatly increased during the last few years; formerly many of the better sorts were scarce and dear, and their price was such as to prevent their being generally brought into cultivation, so that recourse was had to seeds scattered about the hay loft, which being often mixed with inferior varieties and weeds, produced but an indifferent sward, and formed a striking contrast to those pastures where seeds of the best and most nutritive sorts had been sown.

Reduced prices of the best sorts. In consequence of the annually increasing demand for the better sorts of Grass Seeds, the price has been so reduced as to be within the reach of all, and more attention has been paid to saving and hand-picking them, keeping each sort separate and free from weeds; so that now whether land is required to be laid down for permanent pasture—or only for a year or two—under Trees, as in Orchards and Parks—in mossy and poor soil, or even on drifting sands, the different Grasses can be so selected and mixed as to form valuable pastures. For Lawns and Pleasure Grounds the finer growing sorts are well adapted, and a few months after sowing a fine sward is obtained, equal, if not superior to that formed by laying down turf, and at less than a quarter of the expense.

Usual time for sowing Grass seeds. In laying down Land for Permanent Pasture, the plan usually adopted is to sow the seeds in spring, on land with Barley or where a crop of Wheat is growing; but it is a question with some whether it is not better to sow the seeds on ground without any other crop; in this case, if the land is in a good state of cultivation, and the seed sown in the spring (say in March or April), a good crop of Grass can be obtained in a very short time. We have also known Grass Seeds sown in this way in August and the beginning of September with complete success.

Proportion of Clover. In selecting Seeds for laying down Permanent Pasture, there should be a proportion of Perennial Red Clover or Cow Grass (Trifolium pratense perenne), and also some of the Alsike Clover (Trifolium hybridum) mixed with the other Clovers. The Cow Grass is well known, and highly esteemed, but it is somewhat difficult to obtain *true*. *Alsike Clover.* The Alsike Clover is a cross, or hybrid, between the White Dutch and the Broad or Red Clover. The Messrs. Lawson, speaking of this variety, say, "It is deservedly in repute as one of the best Perennial Clovers, and well adapted for growing in this country; one proof of its valuable qualities is in the great and yearly increasing demand for its seeds; but hitherto, from the comparative high price, it has not received a fair trial in field culture. From the result of our experiments, it is found to thrive on such soils as are termed by the farmers 'Clover-sick,' and must, were it for this quality alone, prove a most valuable acquisition to our cultivated field plants."

Quantity of seed required per acre. Price. Renovation of old pastures. We have found by our experience about 12 lbs. of Clover Seed—a mixture of Alsike, Cow Grass, White Dutch, and Trefoil (the proportions varying according to the nature of the soil)—and 2 bushels of Grass Seeds to be about the quantity required for laying down *an acre of Permanent Pasture, and these Seeds we can supply at from* **24s. to 30s. per acre.**

For the improvement of Old Pastures, we should recommend, when the land is being dressed in the spring with manure, that about 8 or 10 lbs. of Grass Seed per acre be harrowed or bushed in with it; the quality and quantity of the herbage will be thus greatly improved. Suitable Seed for this purpose we can supply at **10d. per lb.**

SWEDE, MANGOLD WURZEL, TURNIP,

AND OTHER

AGRICULTURAL SEEDS.

CARROT—LARGE WHITE BELGIAN	2*s.* 6*d.* per lb.	*White Carrot.*
" LARGE RED ALTRINGHAM	3 0 "	
FRENCH FURZE, or GORSE	1 6 "	
KOHL RABI	3 6 "	
LUCERNE—FINEST IMPORTED	1 0 "	
PARSNIP—LARGE CATTLE	2 0 "	
VETCHES or TARES—SPRING		
" " WINTER		
SWEDES—IMPROVED WHITE	2 0 "	*Through the severity of last winter, Swede Seed is very scarce.*
" SKIRVING'S PURPLE TOP	2 0 "	
" LAING'S	2 0 "	
This is a well-formed and excellent Swede.		
" EAST LOTHIAN	2 2 "	
This is a large Swede, highly esteemed, and extensively grown in Scotland.		
TURNIP—TWEEDDALE YELLOW BULLOCK	2*s.* per lb.	*Quite new and scarce.*
This is a new Scotch Turnip, of excellent quality; it is a great improvement on the old Purple-top Yellow Scotch. The stock at present in cultivation is extremely limited, and we can offer it only in small quantities. We strongly recommend a small quantity to be sown as a sample.		
TURNIP—IMPROVED PURPLE-TOP YELLOW	1*s.* 6*d.* per lb.	*A valuable substitute for Swedes.*
The flesh and under part of the skin of this Turnip is deep yellow, with a purple top, hardy, of good size, and keeps well.		
TURNIP—LINCOLNSHIRE RED GLOBE	1*s.* 2*d.* per lb.	
This variety can be strongly recommended as a large handsome Turnip, of excellent quality.		
TURNIP—DALE'S HYBRID	1*s.* 2*d.* per lb.	
TURNIP—PURPLE-TOP ABERDEEN	1*s.* 2*d.* per lb.	
This is an old and very deservedly esteemed variety, and is considered by some to come nearest the Swedes, in hardness and solidity of texture.		
TURNIP—GREEN GLOBE...	1*s.* 2*d.* per lb.	
Roots of a fine globular shape, with a small neck and tap-root: very white under and green above the surface of the ground; of the medium size, hard and firm in texture.		
TURNIP—POMERANIAN	1*s.* 2*d.* per lb.	*The best White Globe Turnip.*
This variety was introduced some years since from Pomerania, and may be considered as the most perfect Globe Turnip in shape, as well as the most regular or uniform in growth. Its skin is of a smooth white and somewhat shining or transparent appearance; leaves smoothish, of a dark green colour, and whitish nerves.		
TURNIP—WHITE GLOBE	1 0 per lb.	
" EARLY STONE, or STUBBLE	1 6 "	
" GREEN ROUND NORFOLK	1 0 "	
" RED ROUND NORFOLK	1 0 "	
" WHITE ROUND NORFOLK	1 0 "	
" TANKARDS	1 0 "	
MANGOLD WURZEL—LARGE YELLOW GLOBE ...	1 0 "	*Of this we have a fine stock true to name, saved from selected Bulbs.*
" LONG RED	1 0 "	
" LONG YELLOW	1 0 "	
" RED GLOBE	1 0 "	

We can very strongly recommend our large Yellow Globe Mangold. Some very large roots have been exhibited at the Agricultural Show in this City, grown from Seeds supplied by us, many of the roots weighing from 30 lbs. to 40 lbs., and the average weight above 30 tons to the acre.

GARDEN SEEDS.

Seeds our own growth. Delivered carriage free. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality, and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving complete satisfaction to our customers. We are in receipt of most gratifying letters and renewed orders from those we had the honour of serving former years; and as we deliver our Seeds Carriage Free, we very respectfully solicit the honour of an order from those who have not yet given us a trial. We have the pleasure of subjoining the notice our Seed Catalogue has received:—

"The Catalogue of Seeds sold by J. C. WHEELER & SON, of Gloucester, appears to us to deserve notice, because of the stand which its authors make, in common with ourselves and others, against the useless incomprehensible Seed Lists of the day. In this, as in all matters of taste, there will be a difference of opinion as to the relative qualities of varieties; yet the mass of buyers who have no fancies, but who dislike being perplexed, and are satisfied with what is excellent, will greatly prefer a short, select Seed List to an interminable labyrinth of names, which, for the most part, represent nonenities or rubbish. Messrs. WHEELER's little book will do something to satisfy their expectations."—*Gardeners' Chronicle*, March 2.

We beg to offer the following Collections of Garden Seeds:— *Collections of Seeds.*

No. 1.—A COMPLETE COLLECTION, SUITABLE FOR A LARGE GARDEN	£3 0*s.* 0*d.*
No. 2.—A COLLECTION OF EQUALLY CHOICE VARIETIES, BUT SMALLER QUANTITIES	1 10 0
No. 3.—A COLLECTION SUITABLE FOR A SMALL GARDEN	0 15 0

These Collections will be delivered Carriage Free.

Early Orders are respectfully solicited. We deliver our Seeds Carriage Free.

* We cannot tell the exact year our Business was established, but we have in our possession a copy of a work written by "James Wheeler, Nurseryman in Gloucester," 1763, published in London by W. Owen, at Homer's Head, near Temple Bar, Fleet Street, entitled "THE BOTANISTS' AND GARDENERS' NEW DICTIONARY, containing the Names, Classes, Orders, Generic Characters, and Specific Distinctions of the several Plants cultivated in England according to the system of Linnæus; directing the culture of each Plant, describing its singular Virtues and Uses, and explaining the Terms peculiar to Botany and Gardening. In which is also comprised a 'Gardener's Calendar,' divided alphabetically, according to the Names of the twelve Months of the Year, directing the whole Practice of Gardening in the Flower Garden, the Seminary, the Fruit Garden, the Kitchen Garden, the Greenhouse, and the Stove."

J. C. WHEELER & SON, NURSERYMEN AND SEED GROWERS, GLOUCESTER.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MELLETT EVANS, of No. 27, Victoria Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, April 7, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 15.—1855.] SATURDAY, APRIL 14. [PRICE 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—GARDEN EXHIBITIONS.

Notice is hereby given that the FIRST EXHIBITION of the Season will take place, by permission of her Majesty's Commissioners for the Great Exhibition of 1851, in the GROUNDS of GORE HOUSE, on WEDNESDAY, May 16.

Privileged Tickets at 3*s*. 6*d*. each are now issuing to Fellows of the Society, or their orders, at 21, Regent Street, daily from 11 to 4.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The EXHIBITION of PLANTS, FLOWERS, and FRUIT this season will take place on WEDNESDAYS, May 9, June 13, and July 4; and of AMERICAN PLANTS, MONDAY, June 18.

Tickets of admission may be obtained at the Gardens only, by orders from Fellows or Members of the Society—price on or before May 5th, 4*s*.; after that day 5*s*. each.

CRYSTAL PALACE.—HORTICULTURAL FETE.—It is intended to hold a grand Horticultural Exhibition at the Palace on SATURDAY, the 2d of June next. The Rules and Schedules of Prizes are now ready, and can be obtained on application to the Secretary.

April 14. (By Order.) G. GROVE, Secretary.

BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY. — ROYAL PAVILION. — The Second Annual Summer Exhibition of Plants, Flowers, Fruits, &c., will be held on WEDNESDAY and THURSDAY, the 27th and 28th June next, on the same grand scale as last year. Schedules are now ready and can be had by application to E. SPARY, General Superintendent of the Exhibition, or of the Secretary, E. CARPENTER, 45, Lavender Street, Brighton. By the liberality of the Railway Company all plants will be conveyed to the Exhibition and back *carriage free* from all stations on the lines.—By order of the Committee,

EDWARD CARPENTER.

N.B. The Autumn Exhibition will take place on the 12th and 13th September next.

ENROLLED AGREEABLY TO ACT OF PARLIAMENT.

UNITED GARDENERS' BENEFIT SOCIETY, Waterloo Arms, Camberwell, Surrey. Instituted 1839.

This Society (established for Gardeners only under 35 years of age), has proved for 16 years the accuracy and soundness of principle upon which it is founded, namely, the highest amount of benefits to be received by its Members in Sickness, Superannuation, and Mortality, for the smallest amount of contribution consistent with stability and permanence. The accounts are always open to the inspection of all the members, who have also the control of the expenditure of its funds; it is therefore incumbent on all, by a small monthly contribution, to provide against the casualties of life, from which none are exempt, by enrolling themselves in a Society of this nature, which guarantees 12*s*. per week in sickness; 3*s*. and 4*s*. per week superannuation; 10*l*. at the death of a member, and 8*l*. member's wife, for the small contribution of 2*s*. 3*d*. per month.

Camberwell Green, Surrey. CHARLES STUNELL, Secretary.

WILLIAM MASTERS AND SON, LANDSCAPE GARDENERS, Exotic Nursery, Canterbury.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

NOTICE.—As the Supply of the New RIDGE CUCUMBER "VECTIS" (advertised in the *Gardeners' Chronicle*, page 50 of No. 4, by THOS. TAYLOR), is limited, persons are requested to give their orders as early as possible.

THOS. TAYLOR, Nurseryman, Weston-super-mare.

NOTICE TO FARMERS AND OTHERS.—The Prices of Clover Seeds having advanced, and a REDUCTION having taken place in the price of several other kinds of Seeds, purchasers are recommended to procure a copy of the present prices, which will be sent post free on receipt of one penny stamp.

SUTTON & SONS, Seed Growers, Reading, Berks.

LIQUIDAMBAR.—The undernamed is a buyer of either a large or small quantity of the above. Send cash price, and height, to Mr. JEYES, Nurseries, Northampton.

SEEDS CARRIAGE FREE.

AGRICULTURAL SEEDS.—*Landed Proprietors and Farmers who require* LARGE QUANTITIES *of Turnip, Mangold Wurzel, Carrot, or any other kinds of Agricultural Seeds, will be supplied on the most liberal terms.*—Apply to

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

TO GROWERS OF VERBENAS.

JACOB SCOTT MATTHEWS, SPRING GARDENS, Cardiff, South Wales, begs to inform the Public that his stock of Autumn-struck Verbenas are now ready for sending out, consisting of 30 of the best Bedding varieties, fine Plants and well established in pots. Retail price, 1 doz., 3*s*.; 4 doz., 10*s*.; 9 doz., 20*s*. Carriage paid when 20*s*. worth or upwards is taken. The usual allowance to the Trade.

SEEDS FOR THE FARM, CARRIAGE FREE.—SEE RENDLE'S "FARMING PRICE CURRENT AND AGRICULTURAL DIRECTORY."

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SPECIAL CONTRACTS FOR SEEDS.—*Noblemen, Clergymen, or Yeomen requiring large quantities, special contracts will be made, at a great reduction in price, on application to*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SUPERIOR WHITE BELGIAN CARROT SEED.

SUTTON AND SONS have some remarkably fine seed of this useful root. Whereas much of the Carrot Seed selling this season is acknowledged to be of inferior quality, Messrs. SUTTON & SONS having tested theirs, find it to germinate as well or better than any they have ever sold. Price according to quantity required.—Address SUTTON & SONS, Seed Growers, Reading, Berks.

ALSIKE CLOVER (TRIFOLIUM HYBRIDUM).

SUTTON AND SONS have some pure genuine Seed of this superior new CLOVER, which will be found an invaluable Perennial Plant.

LUCERNE.—FRESH IMPORTED SEED may be had of SUTTON & SONS, Reading, price 1*s*. per pound, or 95*s*. per cwt. April is the best month for sowing. True French Furze (Ulex europeus), 1*s*. per pound, or 95*s*. per cwt.

GRASS SEEDS.

J. C. WHEELER AND SON'S DESCRIPTIVE PRICED LIST OF GRASSES FOR PERMANENT PASTURE will be forwarded free by post on application.

J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

GIANT ASPARAGUS AND SEAKALE.

Strong 2 years old Giant Asparagus	...	...	15*s*. per 1000.
„ 3 „ „		3*s*. 6*d*. per 100, 25*s*.	„
„ 1 „ Seakale ...	...	5*s*.	„
„ 2 „ transplanted do.		10*s*.	„

YOUELL & Co., Royal Nursery, Great Yarmouth.

JOHN WEEKS AND CO. beg to intimate that they have still on hand a limited supply of superior imported STOCKS, raised in their own German Branch Establishment, which they are furnishing in Collections at 2*s*. 6*d*. to 10*s*. each Collection, according to quantity of Seeds and number of Varieties. They are sold out of German Asters, Zinnias, and Balsams of their own raising, and therefore are unable this season to attend to further orders.

Horticultural Establishment, King's Road, Chelsea.

RARE AND CHOICE FLOWER ROOTS, AT VERY REDUCED PRICES.

LILIUM LANCIFOLIUM RUBRUM, 2*s*. each, or 21*s*. per doz.
GLADIOLUS GANDAVENSIS, 3*s*. per dozen, or 21*s*. per 100.

The above are strong flowering roots.

To be had of WILLIAM DENYER, Seedsman and Florist, 82, Gracechurch Street, London.

Catalogues of all the New and Choice Flower and Vegetable Seeds forwarded on application.

HYACINTHS.

ARTHUR HENDERSON AND Co.'s Grand Collection of Hyacinths will be in great perfection during the next fortnight, which may be seen. Also the New Scarlet Verbena, Mrs. Woodroffe, at their Nursery, Pine-apple Place, Edgware Road, London.—April 14.

HOLLYHOCKS.

A. PAUL AND SON have for Sale a large Stock of fine double HOLLYHOCKS in separate colours, 30*s*. to 50*s*. per 100. Superior named varieties, 12*s*. per doz. and upwards. The plants are strong and in perfect health.

Nurseries, Cheshunt, Herts.

CAMELLIA JAPONICA.

CHANDLER AND SONS, extensive collection of this beautiful plant is now in flower, and will continue for some weeks. Also a great variety of flowering plants for Rooms and Conservatories.—Wandsworth Road, Vauxhall.

OSAGE ORANGE (MACLURA AURANTIACA).

CHARLWOOD AND CUMMINS can supply SEED of the above-named Hedge Plant at 4*s*. per lb., with full directions for treatment. The month of May is the best time for sowing.—14, Tavistock Row, Covent Garden, London.

H. LANE AND SON, The Nurseries, Great Berkhamsted, beg to inform their Patrons and Customers in general that they possess all the NEW ROSES of the Season, but, not having proved them, cannot confidently recommend them, not knowing their different qualities. The Rose Catalogue may be had on application.

FIRST-RATE NEW FUCHSIAS, VERBENAS, GERANIUMS, CINERARIAS, DAHLIAS, PANSIES, PETUNIAS, CARNATIONS, PICOTEES, GREENHOUSE, BEDDING PLANTS, &c., UNSURPASSED FOR CHEAPNESS AND QUALITY.

WILLIAM RUMLEY AND SONS NEW DESCRIPTIVE SPRING CATALOGUE, containing first-rate collections of the above, is now ready, and may be had on application.—Gilling, Richmond, Yorkshire.

J. FOWLE AND SON'S DESCRIPTIVE CATALOGUE OF VERBENAS, FUCHSIAS, DAHLIAS, GERANIUMS, CHRYSANTHEMUMS, HERBACEOUS PLANTS, &c. &c., is now ready, and can be had on application.—Holland Nursery, Holland Street, Brixton Road, Kennington.

PHLOX BEAUTY OF MILRIG.

DREGHORN AND AITKIN, NURSERY and SEEDSMEN, Kilmarnock, N.B., beg to acquaint the Public that they have still a small stock of the above PHLOX, which is considered by all good judges who have seen it in flower to be the best white Phlox in cultivation, both as to size and form of flower. Price 2*s*. 6*d*. each, with one added to every three ordered by the Trade.

D. & A. beg to acknowledge thankfully the large share of patronage they have received for this flower.

Kilmarnock, April 14.

NEW SCARLET VERBENA.—MRS. WOODROFFE.

ARTHUR HENDERSON AND CO. are now sending out this fine new VERBENA; particulars of which may be seen in their advertisement of the last week's *Gardeners' Chronicle*. The usual discount to the Trade.

☞ This Verbena is the same as "Conqueror," one offered by another firm.—Pine-apple Place, Edgware Road, London.

DWARF FRENCH BEANS can be had in any quantity.—Apply to J. G. WAITE, Seed Merchant, 181, High Holborn, London.

BLUE SCIMETAR PEAS.—May be had of the grower, T. K. THEDAM, Little Braxted, near Witham, Essex, at 12*s*. 6*d*. per bushel, carefully drawn.

STRAWBERRY PLANTS.

TROLLOP'S VICTORIA and KITLEY'S GOLIAH, two of the best in cultivation; strong Plants 10*s*. per 1000.—Address JAMES LAKE, Nurseryman, Bridgewater

STRONG SEAKALE.

JOSEPH FRYER, Clarendon Nurseries, Camberwell, can supply the Trade with a large quantity of the above. Price on application.

CEDRUS DEODARA—ONE-YEAR OLD SEEDLINGS.

MAULE AND SONS have a few Thousands of the above to offer at 10*l*. per thousand, strong healthy Plants. They still have a good supply of all sizes from 1 to 5 feet.

The Nurseries, Bristol, April 14.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to inform Amateurs and the Trade that an Extract of his Catalogue and Price Current is just published, which may be had on application from his agent, Mr. R. SILBERRAD, 5, Harp Lane, Gt. Tower Street, London.

LARGE YELLOW GLOBE MANGOLD WURZEL, WHITE BELGIAN CARROT, SWEDE, AND TURNIP SEED, offered at Reduced Prices, which may be known on application to J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

SWEDE, CARROT, AND MANGOLD SEEDS.

TO BE SOLD, a few sacks of SKIRVING'S SWEDE, of last year's growth, from large roots; some YELLOW GLOBE and LONG RED MANGOLD; and ALTRINGHAM CARROT, all warranted.—Apply to Mr. GEO. TABER, Seed Grower, Rivenhall, Witham, Essex.

IMPORTANT TO FARMERS AND SEEDSMEN.

TO BE SOLD, Skirving's and Purple Top SWEDE TURNIP SEED (growth of 1854), from large roots, and planted out.—Apply to WILLIAM COOPER, Seed Grower, Eaton Socon, St. Neot's, Hunts.

TO BE SOLD CHEAP, price 60*l*., a small private Collection of ORCHIDS (180 Plants).—Apply to Messrs. FRASER'S, Nurserymen, Lea Bridge Road, Leyton, Essex.

SEEDLING SWEETBRIARS.

WANTED, from Two to Three Dozen of the above plants, very fragrant. State price per post.—Address to J. X. N., Parade, Nottingham.

WANTED.—Any one having a small weekly supply of CUT FLOWERS to dispose of may hear of a customer by applying to W. H. MAITLAND, 24, Regent Road, Liverpool.

ROGERS'S SEED DEPOT AND GARDENERS' REGISTRY OFFICE, Clock House, Chelsea.—Seed of the Osage Orange, Texian Grass, Whitlavia grandiflora, Holcus saccharatus, Eschscholtzia tenuifolia, Leptosiphon aureum, and all the New Things supplied, sent free per post.

SEED POTATOES, SOUND AND FREE FROM DISEASE

JOHN HARRISON begs to offer to the Trade a quantity of Fluke Kidney, Lapstone or Hayes Kidney, Ashleaf and Egyptian Kidney, Early Round Manly Potatoes, 5*s*. per bushel or 8*s*. per cwt.

JOHN HARRISON, Nursery, Seedsman, and Florist, Landscape Gardener, Darlington.

SECOND EARLYS.

JOSEPH WILSON, Ipswich, begs to offer the following Second Earlys; they are all fine samples, and entirely free from disease. The Derdby Drop, 28*s*. per sack (16 stones nett); Moss Kidneys, 24*s*.; Prolific do., 24*s*.; and Early Shaws, 21*s*. The excellent late variety Pink Kidney, 24*s*. Orders for the Champion Ashleaf, price 12*s*. per bushel, will be executed up to the 20th inst. Free to London. No charge for sacks. All orders must be accompanied by a remittance.

FLUKE KIDNEY POTATO.

T. F. WINSTANLEY has a very fine stock of the above unrivalled POTATO, selected small for SEED, as they do not bear cutting. Also Lapstone Kidney, Ashleaf, Flourball, and many other varieties. Prices on application. The Trade supplied.—28, Market Place, Manchester.

THE FLUKE KIDNEY POTATO.—This excellent variety is now planted here as the principal crop, being more free from disease and more prolific than any other in cultivation. It was raised in Middleton, and may be had genuine in any quantity at 5*s*. per bushel of 56 lbs.—Apply to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

Post-office Orders to be made payable at Middleton, Lancashire

THE FLUKE POTATO.—A new second early variety, surpassing every other in its capability of resisting the Potato disease, and without exception the finest and most prolific Potato in cultivation. Price per cwt., 15*s*., bags included.

To be had genuine of THORNHILL & DICKSON, Lawrence Hill Nurseries; and No. 1, Wine Street, Bristol.

THE LANCASHIRE FLUKE POTATO.—Fine medium-sized SEED of this celebrated variety, warranted true, to be disposed of, at 5*s*. per bushel of 60 lbs., bags included. A reduction will be made when a quantity is ordered. Post-office orders made payable at Bury, Lancashire.—ROBERT DAVENPORT, Gardener and Seedsman, Union Street, Bury, Lancashire.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, &c., which they will forward to any part:—

	s.	d.
Andromeda floribunda, per dozen ... ... 12s. to	18	0
25 Azaleas, new hardy Belgian varieties, one of a sort, by name on their own roots	20	0
25 Azaleas, American varieties, do. do.	16	0
Hardy Heaths, Ledums, and Kalmias, per dozen	6	0
25 Hardy American Plants, one of a sort, by name ...	10	6
12 Rhododendrons, including scarlet, white and rose ...	12	0
Fine hardy Scarlet Rhododendrons, 1 to 2 feet, per dozen...	12	0
New Yellow Rhododendrons, in pots, each ... 3s. 6d. to	5	6
6 Fine hardy Magnolias, one of a sort	10	0
50 Dwarf Roses, two of a sort, on their own roots	15	0
Standard Roses, superb sorts, per dozen ... ... 12s. to	15	0
Fine climbing Roses, of sorts, per dozen	6	0
Bourbon Roses, budded, 1 foot, fine for beds or edgings, do.	10	0
Fitz-Roya, Saxe-Gothæa, Cephalotaxus, Libocedrus, each ..	5	0
Wellingtonia gigantea, and other choice and cheap hardy Coniferæ (see list).		
Cedar of Lebanon, 2 to 3 feet, well grown, per dozen, 12s. to	18	0
Greenhouse Azaleas, choice varieties, per dozen ... 12s. to	18	0
12 Camellias, with buds, fine sorts, for	30	0
50 choice Greenhouse plants, one of a sort	45	0
Orchidea Plants, beautiful species, by name, per dozen ...	40	0
24 choice Ericas, one of a sort	16	0
24 choice Fuchsias, fine proved varieties	12	0
6 Tree Carnations, choice sorts	6	0
Verbenas and Petunias, best new sorts, per dozen	6	0
First Class Carnations, Picotees, and Pinks, per dozen ...	10	0
25 choice Pansies, one of a sort—	10	0
12 Pæonias, new white, pink and blush, of sorts	8	0
25 choice hardy herbaceous plants, named	7	6

Choice Flower Seeds, 20 papers, 5s.; 45 ditto, 10s. Free by post.

FRUIT TREES.

	s.	d.
Fine standard and dwarf-trained Apples, Plums, Pears, and Cherries of the very best sorts, 2s. 6d. each, or per doz.	24	0
Fine Gooseberries, Currants, and Raspberries, per dozen	3	0
Figs, Medlars, Quinces, Walnuts, and Mulberries, each ...	2	0
Filberts, new thin shelled and red skinned, per dozen ...	3	0
Strong Vines, from eyes and layers, in pots, per dozen ...	18	0

A large stock of fine Transplanted Scotch Larch and Spruce Firs, cheap. Also Evergreen Shrubs of all kinds.

New Priced Catalogues of Plants and Seeds by post.

Albion Nursery, Stoke Newington, London.—April 14.

TO THOSE ABOUT REPLENISHING THE FLOWER GARDEN.

YOUELL AND CO. beg to submit the following List of desirable PLANTS, suitable for the above purpose. Carriage paid on all Orders of 2*l.* and upwards to any distance within 150 miles of the Nursery, and good Plants added to compensate for this charge on packages of less value.:—

CARNATIONS AND PICOTEES. Per doz. pairs.

	s.	d.
Fine selections by name from our extensive and well-known Collection, in strong plants ...	18s.	0d.
Fine mixed border ditto	9	0
True old Clove Carnations	12	0
Tree Carnations, in choice variety ... ... each	1	6

CALCEOLARIAS.—Of this favourite flower the following list contains some of the best varieties for Bedding:—

Ajax (Lucombe, Pince, & Co.), fine large rich-coloured flower, of crimson and yellow, 1*s.* 6*d.* each.
Golden Chain, fine golden yellow, 6*s.* per dozen.
Gold Cap, rich dark maroon yellow cap, 9*s.* per dozen.
Superba (Constantine's), dwarf, rich crimson plum, 1*s.* 6*d.* each.
Surprise „ bright orange crimson, ex. fine, 12*s.* per doz.
Sulphurea splendens, fine large yellow, 6*s.* per dozen.
Mr. White, rich shining bronze red, 6*s.* per dozen.
Superba (Turner's), fine dwarf, dark crimson (ex. fine), 6*s.* per doz.
Wellington Hero, rich deep golden yellow, 6*s.* per dozen.
Magnificent, large and rich crimson, with yellow crown, extra fine, 6*s.* per dozen.
Viscosissima, deep yellow, 6*s.*

They will also supply in May next Turner's new shrubby Calceolaria "PURITY," a new and beautiful variety, PURE PAPER WHITE, dwarf, free habit, branching, and a most desirable bedding plant, very highly recommended, 7*s.* 6*d.*

ROCKETS, new double crimson, 9*s.* per dozen; old double white, 3*s.* per dozen.

PRIMROSES, double white, 4*s.* per dozen; double crimson or maroon, 12*s.* do.; double yellow, 5*s.* do.; double purple, 4*s.* do.

PHLOXES.—The following choice varieties 9*s.* per dozen:—Maria Boulanger, Striata superba, Roi Leopold, Villaret joyeuse, Bois Rose, Imbricata, Macrantha, Deuil de la Comtesse de Marne, Anais, Eliza, Mrs. Thompson, Madame Courcelles, Madame Frobel, Madame Lanier, Madame de Pruines, Gen. Lamoricière, Princesse de Cleres, Princesse Marianne, and other fine kinds.

HOLLYHOCKS, extra fine, first-class show varieties by name, 12*s.* to 18*s.* per dozen.

BELGIAN DAISIES in 36 best kinds, by name, 4*s.* per doz.

PÆONIAS in 20 new and very choice Continental varieties, for 1*l.*

Dielytra spectabilis; this universal favourite, 9*s.* per dozen.
Delphinium Barlowi, 9*s.* per dozen.
„ Mooreanum, an extremely beautiful variety, 12*s.* per doz.
„ grandiflorum maximum, 9*s.* per dozen.
Saponaria ocymoides, 6*s.* per dozen.
Statice maritima rosea, a very pretty, hardy herbaceous plant of dwarf habit, producing numerous heads of bright rose-coloured flowers, 6*s.* per dozen.

MIMULUS in 6 new and choice varieties, 6*s.* per dozen.

POTENTILLAS in fine variety, 6*s.* per dozen.

Lilium lancifolium album, 9*s.* per dozen; rubrum, 20*s.* per dozen.
Lobelia Feu du Roi, St. Clair, and Aurora, 9*s.* per dozen.
Herbaceous Plants in very choice variety, 30*s.* per 100; or 6*s.* per dozen.

CHOICE FRUITS. (Warranted true to name.) Per dozen.

					s.	d.
APPLES, standard, in best selections, good heads				...	9s.	0d.
„ dwarf	„	„	...	...	6	0
„ trained	„	„	...	...	30	0
PEARS, standard	„	„	...	...	12	0
„ dwarf	„	„	...	...	8	0
„ trained	„	„	...	...	30	0
PLUMS, dwarf	„	„	...	...	9	0
„ trained	„	„	...	...	36	0
PEACHES, dwarf trained, in fine strong plants,				36s. to	60	0
NECTARINES, dwarf trained			„	36s. to	60	0
APRICOTS	„		„	36s. to	60	0
CHERRIES, standard, in fine variety			...	...	12	0
„ dwarf	„		...	...	9	0
„ trained	„		...	36s. to	42	0

FASTOLFF RASPBERRY (true), as originally sent out by YOUELL & Co., strong, well-rooted canes, 15*s.* per 100; Large White Raspberry, 24*s.* per 100; New Monthly Fruiting, 24*s.* per 100; Belle de Fontenay, 9*s.* per dozen.

GOOSEBERRIES, 25 of the finest varieties (good bushes), selected for size and flavour, 30*s.* per 100, or 4*s.* per dozen.

CURRANTS, improved large White Dutch, Black Naples, Raby Castle (red), and Large Red Grape, 4*s.* per dozen; Knight's Sweet Red, 6*s.* per dozen. These are the most desirable kinds in cultivation, and are highly recommended.

		s.	d.
ASPARAGUS, Giant, 2 years	per 100	2s.	6d.
„ 3 years	„	3	6
RHUBARB, Myatt's Victoria	per doz.	8	0
„ Linnæus	„	8	0
„ Mitchell's Royal Albert	„	8	0
„ Hawke's Champagne, new ...	each	2	0

YOUELL AND CO., Royal Nursery, Great Yarmouth.

QUEEN'S GRAPERIES AND NURSERY GROUND.

PARK STREET, AND AT 176, WESTERN ROAD, BRIGHTON.

E. SPARY, NURSERYMAN, FLORIST, and SEEDSMAN, begs respectfully to return thanks to his numerous patrons and friends for the increasing patronage received, and wishes to direct attention to his extensive collection of Plants, Vines, Seeds, &c., &c., at the above establishments. His new Catalogue of select Dahlias, Plants, &c., for 1855 is now ready and can be had on application.

FOR PRESENT PLANTING.

BASS AND BROWN offer the following SELECT PLANTS:—

	£	s.	d.
HERBACEOUS PLANTS, 100 fine and distinct vars.	1	10	0
„ 100, including newer „	2	10	0
ROCK PLANTS, 25 fine varieties	0	12	0
DELPHINIUMS, 12 in 6 fine varieties	0	9	0
„ very fine seedlings of splendid mixed colours, per 100	1	1	0
DIANTHUS ATRORUBENS, splendid dark crimson for bedding, per doz.	0	6	0
DIANTHUS SPLENDENS, rich bright crimson, for ditto, per doz.	0	5	0
POTENTILLAS, 12 fine varieties, 9*s.*; 12 extra fine ...	0	18	0
„ splendid mixed seedlings, per doz ...	0	9	0
„ 5 best new varieties — King of Crimson, Sudbury Gem, Theodore, Shylock, and Julia, for	1	10	0
HOLLYHOCKS, 12 fine varieties, per doz. 9*s.* and	0	12	0
ANTIRRHINUMS, 12 fine varieties of richest colours	0	6	0
ROCK CISTUS, dwarf, 24 beautiful vars., very distinct	0	15	0
PHLOX, 25 fine vars., 9*s.*; 25 beautiful newer vars.	0	12	6
Primula involucrata, most lovely white, per doz. ...	0	9	0
Lupinus magnificus, fine variegated blue and white, each 1*s.* 6*d.*, or per doz.	0	12	0
Lupinus polyphyllus purpureus and albus, each per doz.	0	6	0
Mimulus, 6 fine varieties	0	5	0
Pentstemons, 12 fine varieties	0	7	6
Viola arborea, 6*s.* per doz.; alba, per doz.	0	6	0
„ Neapolitan 6*s.* „ Russian „	0	4	0
Berberis Darwini, flowering plants, per doz.	0	15	0
Escallonia macrantha, fine plants „ 18*s.* to	1	4	0
Pæonia papaveracea, strong ... ... 1*s.* 6*d.* to	0	2	6
Ribes, 5 best vars., 2 of each for	0	7	6
Spirea, 8 beautiful vars., 2 of each for	0	8	0
Rhododendron ponticum, fine, per doz. ... ... 9*s.* to	0	12	0
Hardy Climbing Plants, 12 fine vars. ... ... 9*s.* to	0	18	0
Roses, Tea-scented and China, in pots, 12 fine vars.	0	12	0
Plums, Peaches, Nectarines, and Apricots, finest sorts trained, very strong and fine, 12 sorts 1*l.* 16*s.* to	2	8	0
Standard and Dwarf Apples, Pears, Plums, and Cherries, &c., &c.			
Rhubarb, Myatt's Linnæus, and Mitchell's Royal Albert, choice early vars., also Myatt's Victoria, Giant, each per doz.	0	7	6
Seakale, very strong, per 100	0	10	0
Strawberries, newest and best sorts			

Goods carriage free (not under 20*s.*) to all the London termini, and all stations on the London and Norwich Colchester Line. Plants added gratis with orders of 40*s.* and upwards.

COMPLETE CATALOGUES on application for six penny stamps, or the Spring Catalogues alone for three penny stamps, or gratis to our customers who may not have received them.

Seed and Horticultural Establishment, Sudbury, Suffolk.

FLOWER SEEDS—A FEW CHOICE NEW AND SELECT.

BASS AND BROWN'S CATALOGUE, including also a great variety of other Novelties, may be had free for three penny stamps.

	Per packet.	
Clary, new white-topped, very showy	0s.	6d.
Eschscholtzia tenuifolia, very dwarf, neat, and attractive	1	6
Gilia, new Californian sp., large and fine	0	6
Leptosiphon aureum, beautiful bright golden yellow ...	1	6
„ luteum, fine primrose yellow	0	6
Limnanthes sulphurea odorata, fine new yellow, white edged, and rose stamens	0	6
Whitlavia grandiflora, fine new Californian annual, with large dark bell-shaped flowers	1	6
Calceolaria chelidinoides, beautiful yellow	0	6
„ new Californian species	0	6
Nemesia bicolor, white and blue, very attractive ...	0	6
Perilla nankinensis, fine dark purple	0	6
Portulaca, 6 beautiful new varieties, separate, for ...	3	0
Cineraria, choice, 1*s.*; new ex., from our choice collection	2	6
Geranium, choice, 1*s.*; new ex., from ditto ...	2	6
„ from finest fancy varieties	1	6
Gloxinia, extra, from our superb collection	2	6
Verbena, choice, 1*s.*; new ex., from our fine collection	2	6
Antirrhinum, extra, from our choice collection	1	0
Carnation and Picotee, ex., from a collection of 400 vars.	2	6
Dianthus Dunnetti, superb new dark Sweet William ...	1	0
„ Burridgi, splendid new scarlet ditto ...	1	0
„ maculata, very showy, red and white spotted	0	6
Gladiolus, choice, from our beautiful collection	1	0
Hollyhock, choice, 1*s.*; extra, from our fine collection ...	2	6
Lindheimara texana, fine new yellow	1	0
Potentilla, extra, from our finest varieties	2	6

CHOICE IMPORTED SEEDS.

STOCKS, 30 superb vars., dwarf German, 5*s.*: 15 vars.	3	0
„ choice new sulphur, 1*s.*; fine new white hybrid	1	0
„ 10 superb varieties, new large flowering ...	2	6
„ 18 superb vars., new wall-leaved or Prussian	3	6
„ 15 superb vars. Brompton, 3*s.* 6*d.*; 8 vars. ...	1	6
„ 6 superb varieties Perpetual Emperor ...	2	0
„ 4 superb vars. new large flowering Emperor	2	0
ASTER, 24 splendid vars. quilled and striped, 5*s.*; 12 vars.	3	0
„ 12 do. globe fl., 2*s.* 6*d.*; 12 do. pyramidal	2	0
„ 10 do. bouquet dbl. dwf., 3*s.*; 8 do. French pæony fl.	4	0

Imported Balsam, Cockscomb, Larkspur, Indian Pink, Salpiglossis, Sweet William, Wallflower, Zinnia, &c.—See Catalogue.

FLOWER SEEDS—BEST ASSORTMENTS.

(These may be had prepaid by Post at the prices affixed.)

100 vars. select showy Annuals, the two beautiful new Leptosiphons, Eschscholtzia tenuifolia, Whitlavia grandiflora, and other choice novelties of the season	15s.	0d.
50 vars. including new, 8*s.* 6*d.*; 30 vrs. do., 5*s.* 6*d.*; 20 do. do.	4	0
20 vars. best Dwarf Annuals, large packets, for filling beds, 7*s.* 6*d.*; 12 vars.	5	0
12 vars. best Dwarf Annuals, large packets	5	0
20 vars. choice Greenhouse Annuals, including the new Gomphrena, Salpiglossis, Portulacas, Rhodanthe, Thunbergia, &c., 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse Perennials, including very fine and new Calceolaria, Cineraria, Fuchsia, Petunia, Verbena, &c., 10*s.* 6*d.*; 12 vars.	7	6
20 vars. Hardy Biennials and Perennials, including very choice Antirrhinum, Gladioli, Heartsease, Dianthus, Brompton and Emperor Stock, &c., 7*s.* 6*d.*; 12 vars.	5	0

THE FINEST LAWN GRASSES,

Containing a mixture of the best Dwarf kinds, suited for Flower-Gardens, 1*s.* per lb., or 4*s.* 6*d.* per peck.

JACKSON'S PATENT PREPARATION FOR PRESERVATION OF POTATOES AND SEEDS from Disease, the attacks of Insects, Vermin, &c., in packages of 1 lb. to 4 lbs., 2*s.* 6*d.*, 4*s.* 6*d.*, 6*s.* 6*d.*, and 8*s.* 6*d.*; also in tight casks of 7 lbs. to 28 lbs., at 1*s.* 6*d.* per lb.

PAGE'S COMPOSITION FOR THE DESTRUCTION OF BLIGHT, in bottles at 1*s.* 3*d.* and 2*s.* 6*d.* each, or 4*s.* per gallon

Remittances requested from unknown correspondents. Post Office orders to be made payable to BASS & BROWN, or to STEPHEN BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

MESSRS. WILLIAM ROLLISSON AND SONS embrace this medium of announcing that they will commence sending out the first week in May the annexed three new ERICAS, which they can with the greatest confidence recommend, and which will doubtless be as universally admired as the sorts hitherto introduced by them, among which we may name Cavendishi, jasminiflora, Hartnelli, Ventricosa superba, mutabilis, tortulæflora, Tricolor elegans, Sprengeli.

ERICA ÆMULA.—This is a very beautiful hybrid in the Erica Massoni section, of a fine bright crimson colour, after the style of Erica aristata, but very much higher in colour; altogether this is a very distinct variety. 21*s.*

ERICA EXIMIA SUPERBA.—This variety may really be said to be three times as fine as the parent whose name it bears; it is a very compact grower and excellent habit, with tubular blossoms of a fiery scarlet colour. This charming variety obtained the First Seedling Prize at the Royal Botanic Gardens, 1852. 31*s.* 6*d.*

ERICA PAXTONI.—A very distinct variety, obtained by hybridising Erica Hartnelli with Erica Massoni. It blossoms in very large whorls, of a soft red colour. This variety will be very useful for autumnal exhibition purposes, as it blossoms from July to October 21.

The Set of the above named Ericas three guineas.

The following choice and new Plants can be seen in blossom at the Nurseries:—

Brassia cinnamomeum (new).	Cypripedium Lowi (rare).
Cattleya Aclandiæ (rare).	Odontoglossum pescatoris (new).
„ ianthina (new).	„ hastilabium (rare).

With several Orchids equally rare.

The Nurseries, Tooting, London.

SIR COLIN CAMPBELL CUCUMBER.—This is the finest Cucumber ever grown for exhibition, produce, and perfection. No grower should be without this unequalled variety. It is a splendid Black Spine, and always grows of an even length. Price 3*s.* 6*d.* per packet, containing five seeds.

GOLDEN DROP (Green Flesh Melon.)—One of the finest flavoured and most handsome Melons ever yet grown.

SCARLET KING.—This is a splendid Scarlet Flesh Melon of a very superb variety.

Each, price 1*s.* 6*d.* per packet; or a packet of the Cucumber with a packet of either of the Melons for 4*s.* 6*d.*, sent post free on receipt of penny stamps to the amount.

*** In answer to numerous inquiries for "TILEY'S CHAMPION KIDNEY POTATO," E. T. begs to state that he has about 5 bushels more to dispose of at 1*l.* per bushel, or 5*s.* 6*d.* per peck, hamper and package included.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 4, Abbey Church Yard, Bath, Somerset.

SUPPLEMENT TO MAY'S CATALOGUE OF HARDY HERBACEOUS PLANTS to be had free by post on application at the Nursery. The Catalogue and Supplement contain the most rare and beautiful varieties of this interesting class of Plants, amounting to upwards of 2000 sorts:—

100 fine Herbaceous and Alpine Plants, named ...	£1	10	0
100 do. do. do., Purchasers' selection...	2	10	0
100 fine Double Hollyhocks	1	10	0
12 fine named Calceolarias, new	0	12	0
12 fine do. Shrubby do. do., including "Masterpiece," "Surprise," and "Superba"... ...	0	12	0
12 fine Ericas, named	0	12	0
12 do. Epacris do.	0	12	0
12 do. Cinerarias, do., including "Lord Stamford"	0	12	0

N.B.—A fine collection of Shrubs and Hardy Trees, also Greenhouse Plants, &c. &c. See Catalogue.—Address, HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

ROBERT PARKER begs to inform his friends and the public that his New Spring Catalogue containing Descriptive and Priced Lists of the following:—

Exotic Orchids	Roses in pots
Ferns—stove, greenhouse, and hardy	Dahlias — show and fancy varieties
Geraniums—show, fancy, scarlet, variegated, and hybrid bedding varieties	Fuchsias
Chrysanthemums—large flowered, and Pompone varieties	Selaginillas or Lycopodiums
Petunias	Gloxinias
Antirrhinums	Cinerarias
	Calceolarias—bedding varieties
	Verbenas
	Miscellaneous bedding plants &c., &c.

Is now ready and can be had Post-free on application.

Paradise Nursery, Hornsey Road, Holloway, London.

TO WHEAT GROWERS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, Edinburgh and London, have received from North-West America a small quantity of two new kinds of WHEAT, which they are sending out in packets containing 200 grains. One kind is named Club-headed, cultivated by the old Californians. The yield is said to be very large, and forms a very beautiful delicate-coloured sample. Price 20*s.* per packet, containing 200 seeds.

The other kind is evidently a variety of Triticum durum, with solid stalks. It is very early, and well adapted for spring sowing. Price 15*s.* per packet, containing 200 seeds.—Orders may be sent to PETER LAWSON & SON, in Edinburgh; or direct to their London House, 27, Great George Street, Westminster.

RENDLE'S IMPROVED SWEDE TURNIP.—*This is the most hardy variety in cultivation, and has stood the late severe winter, in the most exposed situations, without the least injury. The Subscribers have received scores of letters during the past month to confirm this statement.*

It is handsome in form. Small tap roots, will keep longer than any other sort, and is altogether a most valuable variety.

It has been selected with much care for the last seven years, and the present stock has been saved by growers of the first respectability. Price 2s. per lb., or 1s. 9d. per lb. if taken by the cwt. Wholesale Dealers can be supplied with a few bushels.

For Description, Testimonials, and Engraving, see RENDLE'S "FARMING PRICE CURRENT AND AGRICULTURAL DIRECTORY."—Apply to WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

BEDDING PLANTS.—AT 2*s.* 6*d.* PER DOZ.

JOHN SCOTT, Merriott Nurseries, Crewkerne, Somerset (established 1728), has nearly 20,000, in 3-inch pots, ready to be sent out. Post-office Orders payable at Crewkerne. (Baskets and Package at the Expense of Purchaser, and not returnable.)

200 Sorts of the best and newest Verbenas.
120 do. Scarlet and other Bedding Geraniums.
20 do. Variegated leaved ditto.
100 do. Fuchsia, all the best; 24 do. Shrubby Calceolarias; 24 do. Petunias; with Anagallis, Ageratums, Cupheas, Heliotropes, Lobelias, Salvias, Senecios, &c. Also the beautiful white Double Pyrethrum.

When a fair proportion of each is taken the price will be 2*s.* 6*d.* per dozen; but if only Calceolarias and Geraniums are ordered they will be 4*s.* per dozen. Catalogues, in which the above are arranged in sections of colour, &c., sent on receipt of a postage stamp. Parties requiring large quantities can have them in store pots by agreement.

NEW SHRUBBY CALCEOLARIAS.

MR. HENRY MAJOR, Knowsthorpe, near Leeds, begs to announce that his beautiful new Seedling Shrubby CALCEOLARIAS are now ready to send out, price 3*l.* the set of fifteen. The usual allowance to the trade for cash only. The following is Mr. Glenny's opinion upon them:—"Shrubby Calceolarias—Without exception the best batch of seedling Calceolarias we ever saw; we could pick out several that are far better than nine out of ten of the varieties now esteemed good."

H. M. offers a second set of twelve, to include all his best sorts sent out last year, price 25*s.*

Choice Calceolaria and Pansy Seed, 2*s.* 6*d.* per packet; also a few packets of very select Alpine Auricula Seed, 2*s.* 6*d.* per packet.

It is respectfully requested that orders from unknown correspondents be accompanied by a Post-office order.

Postage stamps are requested in payment of the seeds.

A descriptive Catalogue of the new Calceolarias may be had on application.

NEW ROSES.

MESSRS. WILLIAM ROLLISSON AND SONS beg to offer the following new Roses, which they will be able to supply in good healthy plants the first week in May, at 7*s.* 6*d.*, established in pots. Purchasers wishing for a less number than here enumerated, by leaving the selection to ourselves, may depend upon having the best and most desirable varieties chosen for them.

HYBRID PERPETUALS.

Abadie de Rougemont, bright crimson, very fine.
Baron Larray, fine rose, and beautiful shape.
Belle Lyonnaise, very double, blush white.
Clecron, very curiously mottled, dark crimson and white.
Comtesse de Marennes, rosy lilac, tinted with carmine.
" d'Orleans, delicate rose.
" de Turennes, beautiful light flesh colour.
" de Vaillant, light violet.
Deuil de Frederic Villermoz, purple velvet shaded with black.
Docteur de Varennes, rosy purple.
Duchesse de Cambacérès, bright rose, very sweet.
Empereur Napoleon, bright scarlet.
Etendard des Amateurs, very bright rosy purple.
Eugenie Poilleaux, bright carmine.
Evêque de Meaux, rosy velvet.
Folichonne, bright crimson. Gloire de Vitry, rosy crimson.
Julie Guinoiseau, delicate glossy rose colour.
La Fontaine, bright crimson. Leon Raimann, bright glossy [crimson.
Lord Raglan, scarlet and crimson.
Louise de Châteaubourg, bright rosy crimson, very sweet.
Madame de Trotter, bright red.
" Hitz, beautiful flesh colour.
" Latour, very delicate pink.
" Masson, bright velvety crimson, changing to violet.
" Place, bright delicate pink.
" Theodore Martell, blush white, tinged with pink.
" Vidot, delicate blush, shaded with pink.
Marie Liabaud, rosy pink.
Maxime, rosy violet in the centre, and shaded.
Monsieur Pigeron, very large, deep crimson.
Nouvelle Etendard du Grand Homme, pale apricot colour.
Panaché d'Orleans, soft rose colour striped with red and purple.
Perfection, dark crimson, shaded with carmine.
Prince de la Moskowa, dark crimson.
Raphael, bright rosy crimson.

TEA-SCENTED ROSES.

Baronne de Savigny, blush white, darker centre.
Blanche de Solleville, white shaded with cherry colour.
Louise de Savoie, yellow.
Madame Barillet Deschamps, white tinged with yellow.
Souvenir d'Elisa, pale yellow, centre white.

NOISETTE.

Polonie Bourdin, salmon colour, yellow centre.

BOURBON.

Auguste Pajol, bright cherry colour.
Camille de Châteaubourg, red, shaded with purple.
Emilie Miret, carmine. Etoile du Nord, bright red.
Ferdinand Deppe, purplish velvet, fine.
Frilet, bright crimson. Isabelle, bright rose colour, very [fragrant.
Josephine Chambert, cherry colour.
Marguerite Dubourg, bright red. Omer Pacha, dark purple.

PERPETUAL MOSS ROSES.

Madame Edouard Ory, bright rosy carmine.
Salet, bright red in the centre, and beautifully shaded.

The usual discount to the trade when a dozen sorts are taken.
The Nurseries, Tooting, London.

SELECT NEW ROSES.

THOMAS RIVERS offers the following selection of the finest of the New Roses, which will for the most part be in full and fine bloom the ensuing week, in the Rose house; the young plants are grafted on the Manetti stock, and are strong and healthy.

HYBRID PERPETUALS.

Baron Larrey, rose, shaded with carmine, 7*s.* 6*d.*
Belle Lyonnaise, nearly white, beautifully shaped, 7*s.* 6*d.*
Ciceron, marbled crimson, 5*s.*
Colonel de Rougemont, bright rose, Baronne Prevost, improved, 3*s.* 6*d.*
Comtesse Vaillant, deep crimson purple, 7*s.* 6*d.*
Deuil de Willermoz, very dark crimson, 7*s.* 6*d.*
Emperor Napoleon, brilliant glossy scarlet, large petals, a little more than semi-double, 7*s.* 6*d.*
Gloire de France, deep vivid crimson, large and fine, 3*s.* 6*d.*
Jules Margottin, light vivid crimson, a fine pillar Rose, 2*s.* 6*d.* to 3*s.* 6*d.*
Léon Haimann, brilliant glossy rose, 7*s.* 6*d.*
Lord Raglan, scarlet and crimson, larger and more brilliant than the Géant, 10*s.* 6*d.*
Madame Hector Jacquin, bright rose, one of the largest of [Roses, 5*s.*
" Lacour Jury, delicate rose, tea-scented, 7*s.* 6*d.*
" Masson, deep crimson red, large, 10*s.* 6*d.*
" Place, delicate bright pink, most perfect in shape, 7*s.* 6*d.*
" Theodore Martel, pale flesh, 7*s.* 6*d.*
" Trotter, bright red, vigorous, a fine pillar Rose, 5*s.*
President Menoux, bright rose, cupped, a seedling from Standard of Marengo, 7*s.* 6*d.*
Prince de Moskowa, dark crimson, 5*s.*

TEA-SCENTED ROSES.

Belle de Moulins, pale flesh, very large, 5*s.*
Belle Laure, pale rose, large, 3*s.* 6*d.*
Cerise Pourpre, crimson, 3*s.* 6*d.*
Gloire de Dijon, salmon, tinted with rose, the finest of Tea Roses, 3*s.* 6*d.* to 5*s.*, the latter one year old stout plants.
Louise de Savoie, fine sulphur yellow, large, 7*s.* 6*d.*
Madame Maurin, pale yellow, finely shaped, 5*s.*

NOISETTE ROSES.

Augusta, sulphur, large, finely shaped, 7*s.* 6*d.* to 10*s.* 6*d.*
Isis, pure white large, 5*s.*

PERPETUAL MOSS ROSES.

Celine Briant, bright rose, blooms freely in autumn, 7*s.* 6*d.*
Didon, pale flesh, finely shaped, 10*s.* 6*d.*
Madame Ory, bright rose, globular, large and very double, 15*s.*
Michel Adanson, brilliant crimson, 10*s.* 6*d.*
Salet, bright rose, large and double, the most vigorous of this group, 7*s.* 6*d.*

Carriage paid to London. The Descriptive Catalogue of Roses free per post. "The Rose Amateur's Guide," 5th edition, 3*s.* 6*d.* per post.—THOS. RIVERS, Nurseries, Sawbridgeworth, Herts, near the Harlow Station.

NEW EVERGREEN CLIMBING ROSE.

WILLIAM WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, beg to intimate to their friends that they ARE NOW prepared to send out AT ONCE good strong plants of WILLIAMS' EVERGREEN CLIMBING ROSE, at 3*s.* 6*d.* each, with the usual allowance to the trade, and a still further reduction if one dozen or more are ordered at once. Price may be had on application.

N.B.—Single Plants will be sent free per post on receipt of six penny postage stamps EXTRA to defray postage. Strong Plants of the above may also be obtained at the same price from Mr. CHARLES TURNER, of the Royal Nursery, Slough.

ROSES ON MANETTI STOCKS.

EDWARD PARKE FRANCIS offers the following ROSES, strong vigorous plants in small 32's and 48's size pots. Specimens of the complete success of Roses on the Manetti stock were exhibited at the Regent Street Rooms on Tuesday, the 3d, measuring 2 feet high and 1 foot through, 1 year's growth, and were the admiration of all who saw them.

HYBRID PERPETUALS.—	*s.*	*d.*	HYBRID PERPETUALS.—	*s.*	*d.*
Madame du Trotter ...	5	0	Gloire de Parthenay ...	3	6
" Theodore Martel	7	6	Lady Stuart	2	6
" Domage	3	6	Sephoia	3	6
" Harriet Stowe ...	10	6			
" Hector Jacquin...	5	0	Bourbons, Mad. Fontaine	5	0
" Masson	10	6	" Souvenir de la Malmaison	2	0
" Aline Gibbon ...	5	0	Teas, Comte de Paris ...	2	0
" Felicité Rigeaux	3	6	" Pauline Plantier ...	2	0
" Place	7	6	" Jaune	2	0
" Vidot	10	6	" Niphitos	2	0
Auguste Guinoisseau ...	3	6	" Anteros	2	0
Baron Larray	7	6	" Bougere	2	0
" Clopard	7	6	" Devoniensis ...	2	0
" Kermont	3	6	" Elise Sauvage ...	2	0
Conseiller Jourdeuil ...	3	6	" Gloire de Dijon 3*s.* 6*d.* to	5	0
Colonel de Rougemont ...	3	6	" Madame Willermoz	2	6
Gen. Jacqueminot 3*s.* 6*d.* to	5	0	Noisette, Mutabilis ...	5	0
Jules Margottin, 2*s.* 6*d.* to	3	6	Moss, Baron Wasner ...	7	6

A few hundred Manetti Stocks may still be had.
Hertford Nurseries, Hertford. Carriage paid to London.

NEW ROSES.

BENJAMIN R. CANT begs to offer strong Dwarf Plants, in pots, of the following NEW ROSES:—

HYBRID PERPETUALS.—	*s.*	*d.*	HYBRID PERPETUALS.—	*s.*	*d.*
Alfred Colomb	3	6	Madame Theodore Martel	7	6
Alphonse de Lamartine ...	3	6	" Quetel	3	6
Ceres	3	6	Marie de Bourges ...	3	6
Cicero	5	0	Prince de la Moskowa ...	5	0
Comtesse Vaillant ...	7	6	Sir John Franklin ...	3	6
Conseiller Jordeuil ...	3	6	Triomphe en Beauté ...	2	6
Duchess of Norfolk ...	5	0			
Deuil de F. Willermoz ...	7	6	P. Moss, André Thouin ...	3	6
George d'Amboise ...	3	6	Bourbon, Omer Pacha ...	7	6
Gloire de France	3	6	Tea, Gloire de Dijon ...	3	6
Gloire de Parthenay ...	3	6	" Louise de Savoie ...	7	6
Lady Milsom	3	6	Nois, Augusta	7	6
Lady Shelley	3	6	Moss, D'Arcet	2	6
La Ville de St. Denis ...	3	6	" Gloire de Mousseuses	5	0
Madame Domage... ...	2	6	" Jeanne de Montfort	3	6
" Hector Jacquin	3	0	" L'Eblouissante ...	3	6
" Masson	10	6	" Marie de Blois ...	5	0
" Lacroix	3	6	" Vandael	3	6
" F. Rigaux ...	3	6	Gallica, Amphitrite ...	2	6
" Place	7	6	" George Vibert ...	2	6
" Recamier ...	3	6	H. Bour., Charles Lawson	7	6
" Rendatler ...	3	6	" Gervaise Rouillard	3	6

N.B. The new Hybrid Perpetual Rose Emperor Napoleon will not be sent out before June; by that time I shall have proved it. If not more than semi-double, I much question if it is worth 7*s.* 6*d.* I, however, received a very high character of it, which induces me to offer it to the public, *but not to let it out before proving its worth.*

Carriage paid to any Station on the Eastern Counties Railway.
St. John's Street Nursery, Colchester.

NEW ROSES.

A. PAUL AND SON have to offer the following New ROSES, good healthy plants, for which early orders are solicited. The kinds marked thus (*) can be highly recommended from their own knowledge. Most of the others, *not having yet bloomed in England,* are offered on the faith of their respective raisers. The kinds marked thus (†) can be supplied either as Standards or Dwarfs, at the prices here attached:—

HYBRID PERPETUALS.—	*s.*	*d.*	HYBRID PERPETUALS.—	*s.*	*d.*
Alexandrine Bachmeteff	2	6	*Salvator Rosa	2	0
Alphonse de Lamartine	3	6	*Souvenir de Leveson Gower	3	6
Baron Larray	7	6			
Comtesse Vaillant ...	7	6	Moss, Captain Ingram...	5	0
Duchess of Norfolk ...	7	6	" Comtesse Doria...	5	0
Emperor Napoleon ...	7	6	" Frederic Soulié ...	5	0
*Gloire de Parthenay ...	3	6	†* " Princess Alice (Paul's)	3	6
†*Glory of France ...	3	6	*Bourbon, François Henrincq ...	5	0
†*General Castellane ...	3	6	* " Madame Helfenbein	3	6
†* " Jacqueminot, 3*s.* 6*d.* to	5	0	†* " Prince Albert (Paul's)	3	6
†*Jules Margottin, 2*s.* 6*d.* to	3	6	*Noisette, Marie Chargé	5	0
*Lady Stuart	2	6	*China, Elise Flory ...	2	6
*Leon Plee	2	6	*Tea-scented, Auguste Vacher	3	6
Lord Raglan	10	6	* " Gloire de Dijon, 3*s.* 6*d.* to	5	0
Madame Aline Gilbon	5	0	* " Madame Villermoz...	2	6
" Phelip ...	3	6	* " Melanie Oger ...	2	6
" Masson ...	10	6	* " Sombrieuil	2	0
" de Cambacères	7	6	†*Hybrid Bourbon, Vivid (Paul's)	3	6
" Martel ...	7	6	(*Rich brilliant crimson, a splendid pillar Rose.*)		
" Place	7	6	Perpetual Moss Salet ...	7	6
" Eugenie Cavaignac	3	6			
Monsieur Pigeron ...	10	6			
*Paul Dupuy	3	6			
†*Prince Leon	3	6			
" Moskowa ...	5	0			

N.B.—*An unrivalled collection of Hollyhocks. Some thousands of Plants now ready, in fine healthy condition.*
Nurseries, Cheshunt, Herts.

FLOWER SEEDS.—We have selected out of our large collection of Flower Seeds the most beautiful and showy varieties, each sort distinct in colour, and calculated to produce a fine effect when planted out in beds or groups in the flower border. We have had each variety distinctly marked with the Botanical and English name, height, time of flowering, colour of the flower, manner of growing, whether erect or trailing, &c., the time it should be sown, and other valuable hints as to its cultivation. In selecting these varieties we have been careful to exclude all which are shy bloomers or have an insignificant appearance, so that the collections will comprise only those which are really showy and handsome, and which we believe would prove to the entire satisfaction of any lady or gentleman who might be disposed to order them. The German Stocks and Asters especially are most superb. The Collections will be sent free by post to any part of the kingdom at the following prices:—

20 extra fine varieties, all distinct and beautiful	...	5*s.* 0*d.*
50 do. do.	...	10*s.* 6*d.*
100 do. do.	...	20*s.* 0*d.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.
ESTABLISHED IN THE EARLY PART OF THE 18TH CENTURY.

VINES FROM EYES.—THE BLACK BARBAROSSA,

THE LAST LATE GRAPE IN COVENT GARDEN MARKET.

JOHN BUTCHER can supply fine Plants of the above splendid late Grape. Plants, with well-ripened wood, stopped at from 5 to 7 feet. J. B. has been awarded Prizes for the above Grape by the Floricultural Society of London, at Regent Street, on the following occasions:—October 19, 1852; February 18, 1853; February 21, 1854; and February 6, 1855.

All the following varieties true to name:—Black Hamburgh, Muscadel, Tripoli, Alicant, West's St. Peter's (Oldaker's), Raisin, White Muscat of Alexandria, Syrian, Malvaise or Grove-end Sweetwater, and Red or Grisly Frontignan.

Stratford-on-Avon, April 14.

SUPERB SHOW CARNATIONS, PICOTEES, PINKS, PANSIES, ETC.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now sending out choice selections of the above, in strong well-rooted plants, package, &c., included.

25 pairs of Show CARNATIONS in 25 different vars.			£1	0	0
25 pairs of PICOTEES	do.	do. ...	1	0	0
25 pairs of PINKS	do.	do. ...	0	10	0
25 fine show PANSIES, in 25 distinct varieties		...	0	12	0

AURICULAS, ALPINES, POLYANTHUSES, &c. Extra fine selected PANSY SEED, 1*s.* and 2*s.* per packet. Priced and Descriptive Catalogues are now ready, and may be had for one postage stamp. Post office orders to be made payable at Middleton, Lancashire.

The FLUKE KIDNEY POTATO, TRUE, 5*s.* per bushel of 56 lbs.

FINE MANGOLD WURZEL AND BELGIUM CARROT SEED

JAS. FAIRHEAD, SEED GROWER, Braintree, Essex, begs to offer, at moderate prices, ORANGE GLOBE, RED GLOBE, LONG RED, and LONG YELLOW MANGOLD WURZEL; WHITE and ORANGE GREEN-TOPPED BELGIUM CARROT, of selected Stocks, the growth of 1854.

Carriage paid to any Station on the Eastern Counties Railway.

TREES AND SHRUBS.—The annexed having been constantly removed are very suitable for immediate effect, having been grown more as single Specimens than Nursery Stock, and having formed large balls of earth. Every care is taken to ensure success.

Araucaria imbricata.	Deutzia gracilis.	Pinus Cembra.
Arborvitæ.	Holly, green.	" insignis.
Azaleas, Ghent.	" variegated.	Rhododendrons, best sorts.
Cedrus deodara.	Junipers in large variety.	" hybrids.
" Libani.	Picea Pinsapo.	Red Cedars 6 to 9 ft.
Chesnuts, scarlet.	" Fraseri.	Portugal Laurels.
Cryptomeria japonica	Pinus excelsa.	Yew, Irish, 3 to 7 ft.

Also very fine Specimen Standard Portugal Laurels and Rhododendrons. Indian Azaleas and Greenhouse Rhododendrons, for which we received first prizes last year, are grown very extensively. Catalogues may be had on application; also the Tree and Shrub Catalogue.

H. LANE & SON, The Nurseries, Great Berkhamsted.

GRIMSTONE'S HISTORY OF AN EGYPTIAN PEA, discovered amongst others by the Committee of the British Museum, in a Vase presented to them by Sir Gardener Wilkinson, the Egyptian Traveller. Three were presented to Mr. WM. GRIMSTONE by Mr. T. I. Pettigrew, who assisted in opening this relic of the time of the Pharaohs, being 2844 years old. The growth of this Pea is different to those of this country; the taste is unequalled, they boil much greener than ours, and so prolific, being planted thus . ˙ . ˙ . 8 inches apart. The 2*s.* 6*d.* bag will produce enough for a small family. They require no sticks, and the bloom hangs in clusters. Remember the only genuine is sold in bags, 2*s.* 6*d.*; three times the quantity, 5*s.*; seven times the quantity, 10*s.* Each bag is signed and sealed by WILLIAM GRIMSTONE, Herbary, Highgate; every bag contains the only method of cultivating them.—Depôt, 52, High Street, Bloomsbury, London Eye-snuff and Herb Tobacco Warehouse, 3*d.* per ounce.

GEORGE SMITH has much pleasure in offering the undermentioned strong Plants, ready for delivery about the 20th of April, 1855, feeling the greatest confidence in recommending them as possessing first-rate qualities:—

VERBENAS.

BOULE DE FEU (Young), bright orange scarlet, with conspicuous lemon eye; pip large, of fine form, compact truss, of good size, the habit excellent, a most profuse bloomer, the finest scarlet ever offered. First class certificates at the National, Royal South London and North London Floricultural Societies.

LORD RAGLAN (Banks), crimson scarlet, large lemon eye, pip and truss large, of fine form. This will be found a noble variety.

EMPRESS (Smith), pure white, with conspicuous rosy purple centre, pip and truss large, smooth and compact. One of the very finest of the light varieties.

MRS. M'NIEL (Smith), brilliant rose with large lemon eye, truss and pip large, of exquisite form, and very beautiful. In the style of Beauty of Hornsey.

VIOLACEA (Smith), intense violet, with a very conspicuous large white eye, pip and truss large, of good form. This flower will be found most remarkable and beautiful, either for bedding or exhibition. It is something in the way of M. Paquin, with the colour much more intense, and a fine free grower.

SILISTRIA (Smith), pale lilac, shaded with rose, very large and compact. First class at the Royal South London Horticultural Society. The set of six for 24*s.*, or 5*s.* per plant.

FUCHSIAS.

The following four Fuchsias are fine show flowers, plants of good growth, and very free blooming kinds that must be grown in all good collections:—

OMER PASHA (Smith), tube short and stout, sepals well reflexed, of bright waxy crimson scarlet, corolla deep violet purple, large, of good shape, fine habit, free in growth and profuse bloomer. A fine plant for exhibition. 7*s.* 6*d.*

ORLANDO (Smith), dark tube and sepals reflexed, with an intense dark corolla. 3*s.* 6*d.*

CORONET (Smith), white tube and sepals, corolla violet, good shape, very free. 3*s.* 6*d.*

NIMROD (Smith), white tube and sepals, corolla light purple, good form. Plant of strong growth, and a very free bloomer. 3*s.* 6*d.*

SCARLET GERANIUMS.

BEAUTY OF COMB BANK, intense scarlet, eye white, pips large and circular, truss very large, dwarf habit, with horseshoe foliage. A first class bedding variety. 5*s.*

CHEPSTEAD BEAUTY, fiery crimson scarlet, extra large and fine, foliage very beautiful, habit dwarf, and free bloomer. One of the finest scarlet Geraniums ever offered. 5*s.*

CERITO, salmon rose, truss and pip large. A novel and pleasing variety. Was exhibited at the National Floricultural Society, where the judges would have awarded it a first class certificate had the plant been exhibited. 5*s.*

PETUNIA.

SINGULARITY (Smith), a novel and striking variety, corolla two-thirds downward bright green, throat rose, flower extra large, the habit of Prince Albert, a pleasing variety. 5*s.*

Choice Verbena Seed, 2*s.* 6*d.* per packet.

A Priced and Descriptive Catalogue of first-class Verbenas, Geraniums, Fuchsias, Hollyhocks, Dahlias, Chrysanthemums, and Petunias, will be forwarded in exchange for one stamp.

Tollington Nursery, Hornsey Road, Islington, London.

AGRICULTURAL SEEDS, MEADOW & PASTURE GRASSES, &c.

PETER LAWSON AND SON, of Edinburgh and London, the Queen's Seedsmen, Nurserymen, and Wood Foresters; and to the Highland and Agricultural Society of Scotland, beg to intimate to their English Customers and the Public that they are now sending out FARM SEEDS of every description, saved from genuine stocks, and for which they respectfully solicit orders.

Also Garden Seeds, Flower Seeds, Garden Implements, Draining Tools, and everything connected with their trade. Catalogues will be sent on application.

London Branch, 27, Great George Street, Westminster.

P. L. & S. are always able to recommend experienced Bailiffs, Gardeners, and Foresters.

PERMANENT PASTURE.

H. R. SMITHE, of Eastling, Faversham, Kent, is now prepared to send out his mixtures of the NATURAL GRASSES, PERENNIAL CLOVERS, &c., &c., to lay down Land to Permanent Pasture, at 25*s.* per acre, allowing three bushels to the acre, carriage free. Mixtures for Lawn, or any other purpose, or the sorts separate. Most of the species of Grass are collected by the Advertiser, and he will bestow the greatest attention in selecting such as shall constitute mixtures specifical to the soil, purpose, &c., of each buyer.

GRASS SEEDS.—CARRIAGE FREE.

PERMANENT PASTURE GRASS.—*The very best Selections can be obtained from* William E. Rendle & Co., *Seed Merchants, Plymouth,—all new and carefully selected, from 24s. to 30s. per acre.*

ORNAMENTAL LAWNS, PLEASURE GROUNDS, &c. The choicest varieties for producing a fine sward for Lawns and Pleasure Grounds can be procured from William E. Rendle & Co., Seed Merchants, Plymouth, at 18*s.* per bushel, 2*s.* 6*d.* per gallon, or 1*s.* per lb.

RENOVATING GRASSES—for sowing over land deficient of plant—can be obtained at 9*d.* per lb.

A complete descriptive List of Grasses will be found in "Rendle's Farming Price Current," *and some valuable Tables, and other information relative to the best varieties for certain Lands and Situations.*

Apply to Wm. E. Rendle & Co., Seed Merchants, Plymouth.
Established Seventy Years.

NEW SEEDS, CARRIAGE FREE.

	Per lb.—*s.*	*d.*
White Belgian Carrot	2	0
Yellow Globe Mangold Wurzel	1	0
Morton's Yellow Globe do....	1	6
Fisher Hobbs' Yellow Globe do.	1	6
Elvetham Long Red do.	2	0
True Devon Evergreen Grass ... Per bushel 5*s.* to	6	0
Imported Italian Rye-grass ... ... 6*s.* to	7	0
Dickenson's Improved do.	8	0
True Somerset Cow Grass ... ...Per lb. 9*d.*, 10*d.*, to	1	0
Alsike Hybrid Clover	2	0
Common Red Clover... ... ... 6*d.*, 7*d.* to	0	8
White Dutch do. ... ... 9*d.*, 10*d.*, to	1	0

Prices of all kinds of Agricultural Seeds will be found in Rendle's "Farming Price Current and Agricultural Directory," just published.—Apply to
William E. Rendle & Co., Seed Merchants, Plymouth.

FARM SEEDS.

W. DRUMMOND AND SONS have implicit confidence in recommending the following Seeds:—

PERENNIAL RYE-GRASS, from the most select growths, and perfectly clean.

ITALIAN RYE-GRASS, direct from Lombardy, and through the same gentleman in that country who has for several years been employed by us in collecting those fine parcels which have hitherto given so much satisfaction to our customers.

GRASSES FOR PERMANENT PASTURE.—*Having been among the first to recommend the use of the* Natural Grasses *in the formation of* Permanent Pasture, *the subject has occupied a large share of our attention. We have carefully noted the species composing the best Natural Pastures, and the results of combinations in culture under varied circumstances of soil and situation; and, as the result of our observations, as well as from the great satisfaction our selections have given, we feel warranted in recommending, in addition to the Grasses usually sown, a variety of such species as are known, not only to yield the greatest bulk of herbage, but the largest amount of milking and feeding properties, varying those species, and the proportions of each, according to the nature of the land to be laid down.* From the increased demand, we are enabled to charge a lower price than formerly. An excellent assortment, and allowing a *liberal supply* of Seeds, may be had at from 24*s.* to 26*s.* per statute acre.

TURNIP, in all the leading varieties, saved by ourselves from full-formed Bulbs.

VETCHES (or TARES), large broad-leaved, a very superior sort.

Priced Lists of the above, with every other description of Farm Seeds, may be had post free on application.

Free Delivery.—All Parcels of Seeds above 2*l.* value (with the exception of Grain and Vetches), delivered free in London, Liverpool, Hull, Newcastle, Belfast, Londonderry, Aberdeen, Inverness, and to all the Stations along the Lines of the Caledonian and North British Railways, &c.

W. Drummond & Sons, Seed and Implement Warehouse, Stirling, N.B.

GRASS AND AGRICULTURAL SEEDS.

THOMAS GIBBS AND CO., the Seedsmen to the Royal Agricultural Society of England, beg to inform their friends and agriculturists generally that they are now prepared to supply the undermentioned in any quantities required.

Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow; Irrigation or Water Meadow Mixtures; Upland Sheep Walk Mixtures; Park and Field Lawn Mixtures; Renovating Mixtures for old Swards; Garden, Lawn, or Grass-plot Mixtures; various Permanent Grass Seeds supplied separately to order; Mixtures for one year's lay, do. for two or three years' lay (commonly called "seeds").

CLOVERS.—Red or broad leaved, white or Dutch, Red Suckling, Alsike or Hybrid, Trefoil, Cow Grass or Perennial.

RYE-GRASSES.—Italian (very fine), Annual, improved Perennial, and other kinds.

CARROTS.—Large White Belgian, large field, Altringham, Yellow Belgian, long Orange or Surrey.

PARSNIPS.—Gibbs' large Guernsey Cattle, common large.

MANGOLD WURZELS.—Long Red, Orange or Yellow Globe, Red Globe, long Yellow.

CABBAGES.—Large Drumhead Cattle, Thousand headed.

TURNIPS.—Purple-top Swedes, Green-top Swedes, Skirving's Swedes, Green-top Yellow Hybrid, Red-top Yellow Hybrid, Globes or Rounds, Tankard's sorts, Kohl Rabi.

Lucerne, Broom, Furze or Gorse, Field Parsley, Rape, Seed Barley sorts, Wheat sorts, Rye, Sainfoin, Tares, White Mustard, White Silesian Beet, Peas, Potatoes, and all other seeds for the farm.

KITCHEN GARDEN AND FLOWER SEEDS, including all the new and most approved varieties. Assortments made up to suit different sized gardens, or to any given amount.

Priced Lists of both Agricultural and Garden Seeds sent free by post on application to Thomas Gibbs & Co., Corner of Half-Moon Street, Piccadilly, London.

CLOVER SEEDS.

GENUINE NEW CLOVER SEEDS *can be had at the lowest market prices of* JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

SUTTON'S LAWN GRASS SEEDS,

At the Crystal Palace, Sydenham.

SUTTON AND SONS *have had the honour of supplying to the Crystal Palace Company the Grass Seeds by which so many acres of Arable Land have been converted into the beautiful Park and Lawns, now so much admired at Sydenham.*

The following letter has been received, besides many others:—

From Professor Lindley, Horticultural Society, 21, Regent Street, London.—"We have already made trial of your Lawn Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

Price 1*s.* per lb.; 2*s.* 6*d.* per gallon; or 20*s.* per bushel. Quantity required for forming new Garden Lawns, 2½ bushels, or 50 lbs.

Address John Sutton & Sons, Seed Growers, Reading, Berks.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS FOR IMPROVING OLD PASTURES.—Great improvement may be effected by sowing 8 to 12 lbs. per acre of Sutton's Renovating Seeds, which consist of Perennial Clovers and Grasses of the finer kinds for improving the bottom.

An increase of several Tons of Hay per acre has been thus effected on many Meadows and Upland Pastures. The Seeds should be sown early.

The drought of last summer having caused partial failures in the ordinary Grass and Clover Leys, Sutton's Renovating Grass Seeds may be sown with great advantage *in all such cases.* Price reduced to **9d.** per pound.

Sutton & Sons *also supply Grass Seeds for laying down Land to Permanent Pasture at a moderate expense, the sorts being selected in accordance with the nature of the soil to be laid down, particulars of which may be obtained by post.*

Goods delivered Carriage Free by Rail.

Address John Sutton & Sons, Seed Growers, Reading, Berks.

ESTABLISHED ABOUT HALF A CENTURY.

AGRICULTURAL SEEDS OF THE FINEST SELECTED STOCKS.—*As the quantity of Mangold, some of the Turnips, &c., are found not so scarce on the market as was expected at the close of harvest, we submit our present prices, in which several will be found lower than quoted in our Spring Catalogue.*

	Per lb.—*s.*	*d.*
Mangold Wurzel, Long Red	0	8
" " Long Yellow	1	0
" " Yellow Globe	0	8
" " Red Globe ...	0	9
Carrot, Long White Belgian	2	0
Turnips, fine Purple Top	1	9
" fine Green Top ...	1	9
" Skirving's	1	9
" Laing's Purple Top	1	0
" Norfolk White Round	0	9
" " Green Round	0	9
" Lincolnshire Red Globe	1	2
" Pomeranian White Globe	1	2

	Per lb.—*s.*	*d.*
Turnip White Decanter, or Norfolk Bell ...	1	2
" Green Barach ...	1	2
" White Tankard ...	0	10
" Red Tankard ...	0	10
" Yellow Tankard ...	2	0
" Orange Jelly ...	1	4
" Purple Top Bullock	1	0
Cabbage, large Drumhead	2	6
" Kohl Rabi ...	2	6
Lucerne	1	0
Furze or Gorse	1	0
Alsike Clover	2	0
Bokhara Clover	2	6

PERMANENT PASTURE AND OTHER GRASSES.—Our Mixtures for Permanent Pastures will be found equal to any which are supplied. Prices per acre, according to the nature of the soil, 24*s.* to 34*s.* Wholesale Prices of Grasses and other Seeds to the trade on application.

Finest Mixed Lawn Grasses, per lb. 1*s.*, or 4*s.* 6*d.* per peck.

☞ Goods Carriage Free (not under 20*s.*) to all the London termini, or any station on the Colchester and Norwich line.

BASS AND BROWN, Seed Establishment, Sudbury, Suffolk.

HEATHS AND EPACRISES.

MESSRS. YOUELL AND CO., in offering the following, beg to say that the whole are very healthy and well grown; those marked * are set well for flowering.

ERICAS.—Strong bushy plants in 48's at 12*s.* per dozen varieties:—Aristata vittata, *aggregata, bicolor, *Cavendishi, Coventryana, *daphnoidea, *denticulata moschata, *echiflora, *grandinosa, *hyemalis, hybrida, hyacinthiflora, Linnæoides nova, Metulæflora bicolor, *propendens, *propendens tubiflora, *pyriformis, *rubens, *Scabriuscula, *Sindryana, *Ventricosa breviflora, *V. coruscans, V. curta rubra, *V. densa carnea, *V. fasciculata rosea, V. fasciculata superba, V. fasciculata longiflora, *V. hirsuta, V. perspicuoides, *V. superba, *V. tumida, *V. tenuiflora, Verticilla *vestita fulgida, *viridiflora, Westphalingi, *Wilmorea superba.

The above are all dwarf bushy plants, and can be supplied to the trade at the usual discount in large quantities.

ERICAS, in large and small 60's, at 9*s.* per dozen varieties:—Archeriana, ampulacea, amp. carnumbrata, amp. rubra, aristata major, Bandoniana, Cavendishi, cerinthoides coronata, Cliffordi, *Colorans, daphnoidea, Devoniana depressa, denticulata moschata, elata, eweriana, eximia, exurgens coccinia, *gracilis, *grandinosa, grandis Hartnelli, *hyemalis, hybrida, hyacinthiflora, longiflora, Linnæoides superba, Metulæflora bicolor, *ovata, *perspicua nana princeps, *propendens, *prop. tubiflora, primuloides retorta major, Savilliana, Shannoniana, do. Turnbull's variety, *Sindryana, splendens, sulphurea, tricolor, tricolor rubra, T. Wilsoni, trossula rubra, Vent. alba, V. alba tincta, V. Browni, V. carnea, V. coccinea minor, V. conspicua, V. dependens coccinea, V. fasciculata longiflora, V. f. rosea, V. globosa, V. grandiflora (Storey's), V. hirsuta, V. magniflora, V. perspicuoides, Vernix coccinea Vernoniana, Vern. superba, Verticillata, Vestita carnea tenuiflora, Vest. coccinea, Vest. coc. tenuiflora, Vest. fulgida, Vest. rosea, Westcotti, Westphalingi, Wilmorea superba, Walkeri.

These are admirably adapted for specimen growing, being of the proper size to start with; the trade may also be supplied at the usual discount per 100 plants.

EPACRISES, in large 48's, fine plants, 12*s.* per dozen; ditto in large 60's and small 48's. The following varieties at 9*s.* per dozen varieties; those marked with an asterisk are set with flower buds:—*Alba penduliflora, ardentissima, autumnalis, *Campanulata alba, *C. maxima, C. grandiflora, Copelandica, *Carnea, *Ceræflora, Coruscans, delicata, densiflora, *densiflora incarnata, *elegantissima, Fairbarniana, *formosa, grandiflora, hyacinthiflora candidissima, hyacinthiflora rosea, *Hopeana, impressa, *imp. alba, *imp. magna, *imp. rosea magna, *lunata, magnifica, miniata, *nivalis, *nivalis grandiflora, *ornata, purpurascens, rubra grandiflora, *sanguinea, *splendida, Tauntoniensis, *variabilis.

This List comprises nearly all the varieties in cultivation. As a winter flowering plant the Epacris is eminently useful; it is also easily managed. The usual discount to the trade per 100 plants. We beg to refer to our advertisement of March 10, where will be found enumerated Coniferæ, Choice Greenhouse, and Hardy Plants, &c. &c.

	s.	*d.*
VERONICA VARIEGATA	2	6
WOOD'S DUCHESS OF NORFOLK ROSE ...	5	0
LILIUM GIGANTEUM, strong bulbs	10	6
FUCHSIA DOMINIANA, each	2	6

Youell & Co., Royal Nursery, Great Yarmouth.

NEW BEDDING GERANIUM.

GAINES' SCARLET UNIQUE.

N. GAINES begs to inform the nobility, gentry, and trade in general that he can supply strong healthy plants of the above beautiful variety. In habit it is like Rollisson's Unique, producing magnificent trusses of brilliant scarlet flowers. It was exhibited at the Chiswick and Royal Botanic Horticultural Shows, where it was considered a great novelty, and well adapted for bedding purposes. Price 5*s.* per plant; when three are taken, a fourth will be sent to compensate for carriage.

A Descriptive List of his large Collection of Pelargoniums, Show and Fancy varieties, also Stove, Greenhouse, and Hardwooded Plants, may be had post free, by applying at the Nursery, Surrey Lane, Battersea, Surrey.

SPLENDID NEW HOLLYHOCKS.

G. SMITH respectfully informs the admirers of the HOLLYHOCK that the following are Seedlings of great merit, and cannot fail to give entire satisfaction. They were raised by Mr. Parsons, the grower of Joan of Arc, and other fine varieties. To be sent out about the middle of April, 1855, in strong healthy plants.

	s.	*d.*
Eclat, yellow and buff, a nice full flower	3	0
King of Yellows, large, of fine form, flower full, extra fine yellow	7	6
Marchioness, flesh or blush, very double and close, fine for exhibition	5	0
Monarch, a true salmon, very large and fine shape ...	7	6
Mr. Adams, dark salmon pink, a noble show flower ...	5	0
Pearl, blush white, large and distinct	5	0
Pillar of Roses, a beautiful bright rose, a splendid spike, the finest border flower yet offered, and a most attractive show flower	5	0
The Alma, cherry rose, distinct, fine shape	5	0
White Unique, very close and double	3	6
Sarah, a splendid large rose, fine form and spike	5	0

Tollington Nursery, Hornsey Road, Islington, London.

GERMAN ASTER SEED, all saved from the finest Globe varieties, ever yet exhibited, and which have surpassed all others in cultivation for their immense size and distinct colours, 1*s.* per packet.

SWEET WILLIAM SEED saved from 50 of the choicest and most superb varieties, 1*s.* per packet.

ANTIRRHINUM SEED saved from all the finest shaped and best varieties, 1*s.* per packet.

SUPERB HOLLYHOCK SEED saved from all the best named flowers, 1*s.* per packet.

SCARLET GIANT BROMPTON STOCK, extra fine, 1*s.* per packet.

VERY SUPERIOR FIMBRIATA PRIMULA SINENSIS SEED, saved from six distinct varieties of the largest and most superb plants ever grown, 2*s.* 6*d.* per packet.

PANSY SEED, a few packets from selected varieties, 1*s.* per packet.

POLYANTHUS SEED, fine mixed, 1*s.* per packet.

CROWN GOURD, or CUSTARD MARROW; this variety is the most delicious of all the Marrows grown, 1*s.* per packet.

AQUILEGIA, or COLUMBINE, of 12 distinct varieties, 1*s.* per packet.

Any three packets of the above (except the Primula) sent post-free on receipt of 2*s.* 6*d.*, or the Primula included with two other packets, for 3*s.* 6*d.*, in cash or penny postage stamps by

EDWARD TILEY, Nurseryman, Seedsman, and Florist,
14, Abbey Church Yard, Bath, Somerset.

CHARLES TURNER begs to recommend the following Seeds:—

SABBATIA STELLARIS.—This beautiful Greenhouse Annual was raised at the Royal Gardens, Frogmore, from seed received from Texas, and was exhibited at the Horticultural Society's July Show, at Chiswick, and was awarded a First Class Certificate. It is of a deep rose colour, with a yellowish-green eye, and sweet-scented. It should be grown in a mixture of half leaf-mould, with the other half comprised of light peat, loam, and silver sand, and sown in a little heat. 2*s.* 6*d.* per packet.

NEW CUCUMBER, "WARD'S IMPROVED SION HOUSE," superior either to the "Improved Sion House" or "Lord Kenyon's Favourite," for winter use. Mr. Ward, of Prospect Hill, Reading, who raised it, writes—"I can strongly recommend it as the best winter sort I ever met with; and it always swells out, not plumber's iron fashion, as is the case with many sorts, and equal in bearing to Lord Kenyon's Favourite, generally throwing three or four fruit together." Price 1*s.* 6*d.* per packet.

	s.	*d.*
HOLLYHOCK SEED, saved from the newest and finest sorts in cultivation, per packet	2	6
" " smaller packets, each	1	6
DAHLIA SEED, saved from the very best exhibition flowers, per packet	2	6
" " smaller packets, each	1	6
CALCEOLARIA, extra quality, per packet...	2	6
CINERARIA, extra quality, do.	2	6
HEARTSEASE, from best show flowers, do.	2	6
" " " smaller packets, each	1	6

The new white bedding Calceolaria "Purity," the entire stock of which is in Charles Turner's hands, also his new Dahlias, new Verbenas, &c., will shortly be advertised.

Royal Nursery, Slough.

NEW STRAWBERRY—CAROLINA SUPERBA.

JAMES KITLEY begs to inform his friends and the public that he has succeeded in raising from Seed a New Strawberry, the qualities of which have long been a desideratum. It possesses the excellent flavour of the old Carolina, the fruit as large as the British Queen, with all the combined good qualities of productiveness, hardiness of plant, dwarf habit, &c., which tend to make it a general favourite. It was exhibited at the Chiswick Horticultural Exhibition, and obtained a First-class Certificate.—See *Gardeners' Chronicle*, July 15, 1854.

Dr. Lindley's Opinion.

"J. K., the Strawberry which you have named Carolina Superba partakes of the flavour of the old Carolina, but the fruit was bruised by carriage, so that the paper which accompanied the Strawberries was saturated with juice, and this juice dried on the paper like syrup—sweet, adhesive, glossy, and brownish coloured. Strawberry juice does not usually possess these properties."—See *Gardeners' Chronicle*, July 1, 1854.

The undermentioned gentlemen having had opportunities of seeing it growing, and also tasting the fruit, have kindly permitted their Testimonals to be placed before the public:—

"Your Carolina Superba Strawberry, which I saw last summer in bearing, appeared a very hardy and productive kind, with the flavour of the old Carolina, and will prove an acquisition to this class of fruit.

"John Spencer, Marquis of Lansdowne's, Bowood."

"I feel much pleasure in giving my opinion of your Seedling Strawberry, Carolina Superba. Having had frequent opportunities of seeing it growing and tasting the fruit, I consider it hardy, of good habit, short foliage and fruit-stem. In flavour and crop, I know none that will surpass it; and feel assured it will do you credit, and give satisfaction to all who may purchase it.

"James Pond, Devonshire Cottage, Bath."

"The Seedling Strawberry, named Carolina Superba, that I saw in fruit in your nursery last season, appeared to me to be a first-class variety of dwarf foliage, a profuse bearer, and flavour excellent. I have no doubt it will give the greatest satisfaction to all who may possess it.

"D. Butler, Widcombe Nursery, Bath."

Strong well-rooted PLANTS are now ready, at 3*l.* per 100, 10*s.* per dozen, or 12*s.* free by Post.

Lyncombe Vale Nursery, Bath.

IPOMŒA RUBRO CÆRULEA.—Seed of this exceedingly beautiful Climbing Annual being now obtainable at a moderate price, all cultivators of flowers having a greenhouse or wall with warm aspect are advised to include it in their spring selection.—Seed supplied to Seedsmen and Nurserymen only, by GEORGE ROBERTS, 32, Moorgate Street, London.

NEW PLANTS IN FLOWER.

MESSRS. E. G. HENDERSON AND SON beg to announce that the following plants are now in flower, and may be viewed at their nursery :—

Camellia Jenny Lind	Rhododendron Pontica coccinea
" Marie Antoinette	Camellia de la Reine
" Ariosto	" Faustine Lechi
" Mathotiana	" Americana
" alba pleno of Casoretti	Azalea Admiration
" Mary Ann (new American variety)	" Narcissiflora
Azalea Criterion	Cyclamen Persicum, new collection
" Juliana	Camellia Gloria della Isole
Cyclamen Atkinsi	Barroma
Camellia Rapalling	Rhododendron, new seedling
Rhododendron Fergusoni	Genestyllis macrostegia (Fuchsioides).

Rhododendrons species from Sikkim flowering for the first time in England, small Plants with three trusses, each truss having 18 flowers, colour canary-yellow.

NEW PLANTS

To be sent out in May (orders for the Fuchsias received after April 7th will only be executed after the earlier orders are sent off, when it is probable one or two varieties may be too small to travel with the rest) :—

HYDRANGEA HORTENSIS, flore pleno, 10*s.* 6*d.*
PHLOX QUEEN VICTORIA, 5*s.*
DAHLIA EMPEROR FRANCIS JOSEPH (variegated foliage), 10*s.* 6*d.*

SHRUBBY BEDDING CALCEOLARIAS.

Brunette	7*s.* 6*d.*	Norma	7*s.* 6*d.*
Coreggio	7 6	Red Rover	7 6
Maggiore	7 6	Vezzosa	7 6
Miania...	7 6	Wildfire	7 6

Or the set of eight varieties, 2*l.* 2*s.*

With the permission of Mr. C. Turner they will offer his new CALCEOLARIA PURITY (the best white bedding variety) at 7*s.* 6*d.* each, or with the above set, 2*l.* 7*s.*

FUCHSIAS.

Queen Victoria (Story)	10*s.* 6*d.*	Lady of the Lake (Story)	10*s.* 6*d.*
Prince Albert (Banks) ...	10 6	Water Nymph (Story) ...	10 6
Perrugino (Story)	10 6	Raffaelle (Story)	10 6
Empress Eugenie (Story)	10 6	Mrs. Story (Story)	10 6
Ranunculæflora (Story)...	21 0	Snowdrop (Story)	10 6

Or the set of ten varieties, 4*l.* 4*s.*; or without Ranunculæflora, 3*l.* 3*s.*

FUCHSIA BANKS' FAVOURITE (Banks), 10*s.* 6*d.*

For full particulars of the above see back numbers of this Paper.

NEW SEED CATALOGUE,

With full description of all the New Annuals, forwarded post free on application; each article is priced, the height and colour given, with various information to guide the cultivator. A list of the choicest sorts is also selected and brought together in a separate List.

THE NEW SPRING CATALOGUE

Will shortly be published and forwarded post free on application. Parties wishing for the same will have their names booked for it, to be sent as soon as ready.

A COLOURED PLATE,

Composed of a group of Nine new Flowers belonging to the Stove, Greenhouse, and Garden. It will be sufficient to say that it was taken by Mr. Andrews, the floricultural artist, to insure their accuracy, and which are now in course of preparation under his superintendence; any one wishing for the same will have their names booked for it, to be sent them when finished, by forwarding 12 postage stamps; and if ordered in time will be stitched-in and sent with their new Spring Catalogue. This notice also applies to any nurseryman that may wish to have the Plate.

Messrs. E. G. HENDERSON & SON having purchased of the late W. Story, Esq., of Newton, in the county of Devon, for ONE HUNDRED GUINEAS, all Seedling Fuchsias with white Corollas, a new feature in this tribe introduced by him, and in consequence of an advertisement appearing in the *Gardeners' Chronicle* from Messrs. Lucombe, Pince, & Co., of Exeter, offering two new Fuchsias similar in character to those purchased of the late Mr. Story, it was thought necessary, after a written communication with that gentleman, for one of the firm to make further inquiries about them, and in consequence Mr. ANDREW HENDERSON went to Exeter and Newton, where he was informed by a jobbing gardener at Newton that he had received in the month of November last Seven Pounds for them after (as the said jobbing gardener stated) he had been offered £20 for them by a nurseryman in London, but whose name or address he did not know.

Messrs. E. G. H. & Son give the above explanation in consequence of numbers of their customers having ordered plants at higher prices than are now quoted. This reduction is made in consequence of information which they have received that leaves no doubt on their minds but that those to be sent out by Messrs. Lucombe, Pince, & Co. are similar in character to those purchased of Mr. Story.

TO NURSERYMEN, SEEDSMEN, ETC.

Messrs. E. G. HENDERSON & SON having had (through their customers), a Seed Catalogue brought under their notice, and which seems to have been distributed throughout the whole of their connection, published by Messrs. Rollisson & Son, Nurserymen, Tooting, near London; and on referring to the same they find that all the Hardy Annuals from Nos. 1 to 308, the Half-hardy Annuals from Nos. 309 to 479, Hardy Biennials and Perennials from Nos. 480 to 660, and the Greenhouse Plants and Tender Annuals from Nos. 661 to 741 (appear to) have all been copied from their lists, with the full descriptions of colour, height, treatment, and other information, even the numbers attached to each article correspond with the strictest accuracy. The only alteration is that no prices are attached, whereas, in the original catalogue every article is priced.

Messrs. E. G. H. & SON beg to say, that as they are at some considerable expense and trouble in preparing and issuing their catalogues throughout the year, they now give notice that in future they shall consider it very disreputable in any parties copying them in the style above alluded to, unless the source from which they derive their information is published at the time, or otherwise communicating with them previously to copying the same.

Wellington Nursery, St. John's Wood, London.—April 14.

FULLER'S EARTH WORKS, CHART LODGE, REIGATE, SURREY.

NOTICE.—SILVER SAND.

GAWKROGER AND HYNAM beg to inform the Nobility and Gentlemen, Gardeners, Nurserymen, Florists, and Seedsmen, that they are prepared to supply them with the REIGATE SILVER SAND, which is known by its superior sharpness and fine quality, and is much used in the Propagation and Growth of Greenhouse Plants, &c. It will be sent in fine sacks and delivered to any of the Railway Carriers, or Wharfs in London, in not less than ½ ton lots of 10 bushels, at the rate of 40*s.* per ton. Parties requiring lots of 4 tons and upwards can have the Sand delivered loose or in bags at the Bricklayers' Arms Station, or within five miles of the same, at a very low price.—For further particulars, apply at the Offices of JAMES GAWKROGER, Union Street, Halifax, Yorkshire; and JOHN HYNAM, 7, Prince's Square, Wilson Street, Finsbury, London.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their Mixtures of Grass Seeds are now ready for delivery at the following prices :—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s.* per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre.
Mixtures for improving and renovating old Grass Land, 1*s.* per lb.
Mixtures (finest sorts) for forming Lawns... ... 1*s.* 3*d.* per lb.

These Seeds are all new, and have all been properly cleaned and their growing properties fully tested. Directions for sowing accompany the seed.

G. G. and Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., SEEDSMEN,
26, Down Street, Piccadilly, London.

TO THE TRADE.—*The Subscribers can supply the following* AGRICULTURAL SEEDS *to the Trade. Prices on application.*

White Belgian Carrot.
Yellow Globe Mangold Wurzel.
Long Red " "
Skirving's Swede Turnip.
Rendle's " "
True Devon Evergreen Grass.

Apply to WILLIAM E. RENDLE & CO., Seed Merchants, Plymouth.

TO THE SEED TRADE.—
TURNIP SEEDS, &c.

Skirving's or Liverpool Swede	Orange Globe Wurzel
Laing's	Broccoli, of sorts
White Globe Turnip	Fairbeard's Nonpareil Peas
Green	Cole's Crystal White Celery.
Red Tankard	

W. J. EPPS can with confidence offer the above (not large quantities), having been grown from the best selected stocks possible.—Prices sent on application.

Seed Establishment, High Street, Maidstone, April 14.

SEED POTATOES.

ALSTONE KIDNEY.—*This is perfectly distinct from any other Potato. It is an astonishing cropper, and the tubers are of a large size. It keeps well, and is good flavoured, and is altogether an excellent and profitable variety. 2s. 6d. per peck, or 9s. per bushel.*

PRINCE OF WALES.—*This is an early round white Potato, which, for a general crop, can be highly recommended. It is a sort that gives the most complete satisfaction to every one who sows it. 2s. 6d. per peck, or 9s. per bushel.*

J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

ESTABLISHED IN THE EARLY PART OF THE 18TH CENTURY.

BOSSOM'S CHAMPION OF ENGLAND CELERY.

THE finest Celery yet introduced, beautifully white, very crisp and solid, and withstands a greater amount of frost than any other known variety; it has been blanched in the ground 3 feet.—To be obtained of T. F. WINSTANLEY, Seedsman, 28, Market Place, Manchester, price 2*s.* 6*d.* per packet; prices to the trade on application.

NEW FUCHSIAS.

STEWART AND NEILSON are now receiving orders for their Twelve NEW FUCHSIAS, advertised in September last, which will be ready to send out on the 1st of May at the following prices, or 3*l.* for the twelve.

Mr. Ewart, dark	10*s.* 6*d.*	Mrs. E. Hill, light ...	7*s.* 6*d.*
Mr. D. Neilson, do. ...	10 0	Mrs. Gardner, dark ...	7 6
Mr. G. Lawrance, do.,	10 0	Miss A. J. Wright, do.	5 0
Miss France, do.... ...	10 0	Mrs. Maxwell, do. ...	5 0
Mr. Littledale, do. ...	7 6	Mrs. Perry, do.	5 0
Dr. Parr, do.	7 6	Mrs. Bouch, light ...	5 0

A remittance from all unknown correspondents.

Nurseries, Liscard, Cheshire, near Liverpool.—April 14.

CORNISH EARLY WHITE BROCCOLI,
1*s.* per packet, or 6*s.* per oz.
CONQUEROR OF THE WEST CUCUMBER,
1*s.* per packet, containing 12 good seeds.

The above can be had, warranted genuine, by forwarding postage stamps for the amount to

JAMES LAKE, Seedsman, &c., Bridgewater.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks, at 5*s.*; 12 varieties, 2*s.* 6*d.*; and from good double sorts, 1*s.*

Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s.* per packet; separate, 2*s.* Fine Quilled African Marigolds, 6*d.* per packet.—Saffron Walden Nurseries.

BANKS' SEEDLING FUCHSIAS.—1855.
(FOR FULL DESCRIPTION SEE FORMER ADVERTISEMENTS, AND ON APPLICATION).

W. J. EPPS has much pleasure in stating that the above Fuchsias have been proved to be the finest that have been raised by that celebrated grower E. Banks, Esq., Deal. Early orders are solicited. The set of six, 2*l.* 2*s.* The usual discount to the trade.—Bower Nurseries, Maidstone.

SELECT CARNATIONS, PICOTEES, ETC.

CHARLES SCHOFIELD (late JOHN SCHOFIELD & SON) respectfully begs to offer for sale the following in strong healthy plants, viz.—12 pairs of Carnations for 8*s.*, 10*s.*, or 20*s.*; 12 ditto Picotees, for 6*s.*, 10*s.*, or 20*s.*; 12 ditto of Pinks, for 4*s.*, 8*s.*, or 12*s.*; 12 Plants of Pansies, for 4*s.*, 10*s.*, or 15*s.*; 12 ditto of Dahlias (in May), for 3*s.*, 10*s.*, or 20*s.*; 12 ditto of Scarlet Geraniums, for 6*s.* or 12*s.*; 12 ditto of Verbenas, for 4*s.* or 12*s.*

Also the following Seeds, selected from the choicest show flowers, Pansies, Calceolarias, and Hollyhocks, each per packet, 2*s.* 6*d.* or 1*s.* 6*d.* A Descriptive Catalogue of the above plants sent free on application inclosing one postage stamp.

Knowsthorpe, near Leeds, Yorkshire.

PRICES OF TURNIP SEEDS BY THE BUSHEL.
CARRIAGE FREE.

SUTTON & SONS, SEED-GROWERS, READING,

DESIROUS of affording every advantage to purchasers of Seeds in considerable quantities, make the following offer of choice kinds, at the prices annexed :—

Per bushel—	£	s.	d.
WHITE GLOBE TURNIP	1	15	0
GREEN GLOBE Do.	1	15	0
SUTTON'S LINCOLNSHIRE RED GLOBE ditto.—The heaviest and most certain cropper; sow in June, July, and August	2	10	0
WHITE TANKARD TURNIP			
SUTTON'S EARLY SIX WEEKS' TURNIP.—The quickest Turnip known; sow in April, May, & August	2	2	0
POMERANIAN TURNIP, very large white	2	2	0
WHITE STONE, or STUBBLE TURNIP	1	15	0
NORFOLK WHITE ROUND ditto	1	15	0
GREEN BARREL ditto	2	2	0
ORANGE JELLY TURNIP; should be sown in July	2	10	0

Per bushel—	£	s.	d.
SUTTON'S PURPLE TOP YELLOW HYBRID TURNIP, the best substitute for Swedes; sow in July	3	3	0
SUTTON'S GREEN TOP HYBRID TURNIP.—Similar to Sutton's Purple Top; may be sown in August	3	3	0
SKIRVING'S PURPLE TOP YELLOW BULLOCK	2	10	0
YELLOW SCOTCH TURNIP (Green Top)	2	5	0
SUTTON'S HARDY PURPLE TOP SWEDE ...	4	0	0
ASHCROFT SWEDE	4	0	0
SKIRVING'S IMPROVED SWEDE	3	15	0
HARDY WHITE SWEDE	2	10	0
YELLOW TANKARD SWEDE.—A superior new sort for early or late sowing	3	0	0
HARDY GREEN TOP YELLOW SWEDE	3	0	0

SUTTON'S LARGE YELLOW GLOBE MANGOLD WURZEL.

This is a superior stock of Mangold Wurzel raised from selected, large, finely-formed bulbs; it is more solid than other kinds, and perfectly hardy, not requiring to be stored or clamped in the winter. *W. D Briginshaw, Esq., of Taplow, near Maidenhead, who grew some of this kind from our Seed last season, has written to the Editor of the* AGRICULTURAL GAZETTE, *on 23d March last, stating that the Mangold he raised from Messrs. Sutton's seed, and which has been standing in an open field, where it was sown at the beginning of last May, is as sound and as good as it was in the autumn.* We have also received an order from a gentleman in the same neighbourhood who states that *his* Mangold, grown in a field near Mr. Briginshaw's, but not from our seed, is nearly all rotten.

PRICE OF SEED, 1*s.* per lb., or 5*l.* per cwt.

The common sorts of Mangold Wurzel may be had much cheaper.

GOODS DELIVERED CARRIAGE FREE.

To Farmers, Potato Growers, and Others.

JACKSON'S PATENT PREPARATION
FOR
PRESERVING POTATOES, WHEAT, AND OTHER SEEDS

From DISEASE, the RAVAGES of the SLUG, GRUB, and WIREWORM, in addition to which the CROPS are brought forward in HEALTH AND VIGOUR, and the yield is greatly increased, in proof of which the following extracts are given from numerous letters received by Mr. JACKSON.

EXTRACTS:—

"One of the fields of this farm, the property of MRS. STANBURY, was planted with Regents Potatoes in April last, some of which were prepared by you. The result now is, that the whole of the crop from the unprepared sets is thoroughly diseased, and hardly worth the trouble of taking up; while those raised by the side of them from the prepared sets are not only in a beautiful state of preservation from the disease, but the produce is much greater,—the Potatoes are more numerous than the others; indeed, if there were no such thing as the disease to be feared, it would be worth the trouble and expense of preparing the sets by your process, even for the sake of the improved crops. I shall certainly, for the future, prepare all my Potatoes for seed by your process; and I intend to adopt it for preserving my Wheat from the Smut.

"G. B. BAXTER.

"Belmont Farm, Eltham, Kent, August 28, 1854."

"Admiral Sir J. A. GORDON, K.C.B., Marlee House, Blairgowrie.

"SIR,—I have received your note of the 16th. The Potatoes that came here from England, prepared by Mr. JACKSON, were planted in a piece of new ground, and according to the directions sent by him along with them as to distance between the plants, &c. They came up well, with strong healthy stems; we have now taken the whole crop up, and there is not the slightest appearance of any disease amongst them. They are of large equal size and very prolific. There were long black unprepared Kidneys planted in the same patch, and a great deal of them are not fit for use, at least a third part are diseased. I hope Mr. JACKSON's process may be widely known, as it is a great boon.—I am, &c., JOHN SHANKS,

"Forester, Kildrummy Castle.

"Kildrummy Castle, Aberdeenshire, November 17, 1854."

"I am very much pleased with the result of the experiments I have made with your Prepared Potatoes; for I planted them without any manure, in ground where for several years I have hardly had a sound Potato, and I now find the crop perfectly free from disease, and in a very fine condition; while those of the same sort, unprepared, which were planted at the same time, and next to them, are diseased and eaten by worms.

"The Potatoes from the Prepared Seed were so remarkably good that I was induced to weigh them, and I found, to my great astonishment, that they were as 200 to 150 of the others, or about 25 per cent. in favour of your preparation.

"T. AUSTEN, Nurseryman and Seedsman.

"Blackheath, Kent, 24th August, 1854."

Sold by Messrs. CHARLWOOD & CUMMINS, Seedsmen, Covent Garden; and JOHN KERNAN, Seedsman, 4, Great Russell Street, Covent Garden; all Seedsmen and Chemists; and at the Patentee's, 18, Cannon Street, London Bridge, in Packets of One, Two, Three or Four Pounds, or in Bulk for the use of Farmers and Potato Growers.

NEW AND RARE CONIFERÆ.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, Edinburgh and London, have still on hand a small quantity of the Seeds of the following RARE CONIFERÆ, &c.:

	£ s. d.		
Pinus Lambertiana, 50 Seeds	1 5 0	Taxus Lindleyana (quite new) 50 Seeds ...	2 2 0
P. tuberculata entire cones	2 2 0	Club-headed Wheat (cultivated by the old Californians) 200 grains	1 0 0
P. monticola, 50 Seeds ...	2 2 0	Wheat (a variety of Triticum durum) do.	15 0
P. Jeffreyi do. ...	2 2 0		
P. Beardslevi do. ...	2 2 0		
Libocedrus decurrens, do.	1 5 0		

Full descriptions will be found in the last page of the *Gardeners' Chronicle*, for Feb. 3.—Orders may be addressed to PETER LAWSON & SON, in Edinburgh; or to their London House, 27, Great George Street, Westminster.

TO THE SEED TRADE.

ESCHSCHOLTZIA TENUIFOLIA, LEPTOSIPHON ACIRICM, AND WHITLAVIA GRANDIFLORA.

MESSRS. VEITCH AND SON have still to spare a small quantity of SEED of the above beautiful new Californian Annuals, which are fully described in the *Gardeners' Chronicle* of the 4th of November last. Prices will be forwarded to the Trade on application.

Nurseries, Exeter and Chelsea, April 14.

RHODODENDRON CAMPANULATUM (TREE).

WILLIAM JACKSON AND CO., Bedale, Yorkshire, having a large stock of this most distinct and beautiful species, will supply fine bushy plants, perfect shrubs on their own roots, 9 inches high, 40s. per 100, or 1s. 6d. each; 12 to 15 inches high, 60s. per 100, or 2s. 6d. each, during the present planting season; afterwards no more will be offered at the prices. Not a leaf is injured by the late severe winter.

SPRING FLOWERS.—CINERARIAS, good flowering Seedling Plants, 4s. to 6s. per doz.; fine named varieties, 6s. to 9s.

HYACINTHS in pots, various colours, just showing bloom, 4s. per doz.; also a few very fine named flowers, many of which are catalogued at 1s. to 1s. 6d. each, in the same state as the above, 9s. per doz.

FINE HERBACEOUS CALCEOLARIAS, from MAJOR'S seed, in large and small 60 pots, 4s. to 6s. per doz.

WOOD and INGRAM, Nurseries, Huntingdon.

HERBERT TIREBUCK, NURSERYMAN and SEEDSMAN, Luton, Beds, begs to inform Gardeners and Nurserymen that he has several thousand strong healthy plants of double WHITE ROCKETS to dispose of at 2s. 6d. per dozen, or 16s. per hundred.

H. T. also begs to inform the public that he has an unequalled collection of CARNATIONS and PICOTEES at 3s. 6d. per pair, true to name; warranted strong, well-rooted plants. Liberal allowance to the trade.—Breach Nursery, Luton, Beds.

ROBERT M. STARK begs to intimate that his spring Catalogue of FLORISTS' FLOWERS, BEDDING, and select HERBACEOUS PLANTS (comprising every novelty of merit) is now ready, and may be had, on application. Choice assortments of GARDEN, FARM, and FLOWER SEEDS, to which he has added several new and deserving varieties. Every other article connected with the Nursery and Seed Trade.

Edgehill Nursery; and 145, Princes Street, Edinburgh.—April 14.

CHOICE GERANIUMS.

WILLIAM HUSSEY begs to offer the undernamed collection for 30s., fine healthy plants, package included, viz.:—Alonzo, Ariadne, Belle of the Village, Butterfly, Colonel of the Buffs, Conspicuum, Christine, Constance, Cuyp, Chloe, Diana, Elise, Enchantress, Eurydice, Ganymede, Generalissimo, Gulielma, Lavinia, Lord Mayor, Little Nell, Magnificent, Magnet, Major Domo, May Queen, Mecrianna, Nonsuch, Nectar Cup, Narcissus, Ocellatum, Optimum, Old Story, Prince of Orange, Prince Arthur, Pearl, Pulchra, Rosa, Rubens, Roweana, Rosamond, Rachael, Silk Mercer, Virgin Queen.

A remittance or reference to accompany all orders from unknown correspondents. Horticultural Gardens, Norwich.

CHEAP NEW FUCHSIAS AND VERBENAS.

JOHN HOADE, Addlestone, near Chertsey, offers the following:—Autocrat, Clio, Charles Palmer, Clapton Hero, Duchess of Lancaster, Duke of Wellington, England's Glory, King Charming, Macbeth, Nil Desperandum, Othello, Onega, Perfection (Standish's), Queen of Hanover, Vanguard. Post free 8s. the dozen; single plants, 1s.

VERBENAS.—Avalanche, Fair Rosamond, Ivor Rival, Incomparable, King of Scarlets, Hon. Mrs. Gerard Leigh, Prince of Wales, Prince of Orange, Queen of Purples, Rouge et Noir, Sarah, Standard. Post free at 5s. per dozen: older sorts, 2s. 6d. per dozen.

SKIRVING'S IMPROVED TURNIP SEEDS.

W. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his TURNIP SEEDS for the season, as follows:—

SKIRVING'S IMPROVED SWEDE TURNIP, at 1s. 9d. per lb.

" IMPROVED PURPLE-TOP YELLOW BULLOCK TURNIP, at 1s. 3d. per lb.

All other kinds of Turnip and Agricultural seeds in general, of the most select description, at moderate prices. A remittance, or reference from unknown correspondents, is respectfully requested to accompany orders. W. S. has no agent in town or country.

Liverpool, April 1855.

BEDDING AND OTHER PLANTS.

F. AND A. SMITH'S Descriptive LIST of the undermentioned is now ready, and may be had, post free, on application:—Antirrhinums, Verbenas, Fuchsias, Scarlet Geraniums, Calceolarias, Petunias, Heliotropes, Pentstemons, Chrysanthemums, Mimulus, Salvias, Lobelias, &c. Climbers in variety, also a miscellaneous Collection of Greenhouse Plants. They have now in bloom Cytisus racemosus, Cineerarias in variety, Primula sinensis, Acacia armata, Deutzia gracilis, Erica Willmorea, &c. The Trade supplied.—Dulwich, Surrey, April 14.

AMERICAN NURSERY.

GEORGE BAKER'S DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, &c., as exhibited by him in the Royal Botanic Gardens, Regent's Park, may be had by inclosing two postage stamps.

G. B. begs to call attention to his fine stock of Weeping Hollies, Coniferous Plants, Ornamental Shrubs, &c.—American Nursery, Windlesham, near Bagshot, Surrey, near Staines Station, South-Western Railway, where conveyances may be obtained.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year; and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

GLAZING WITH OR WITHOUT PUTTY.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.—Printed Price Lists supplied on application.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY.—The Managers beg to inform the Nobility and Gentry, Farmers, Gardeners, &c., that their new List of Prices may be had free on application at the Company's Depôt, 296, Oxford Street, London.

PLATE, CROWN, and SHEET WINDOW GLASS.

HARTLEY'S PATENT ROUGH PLATE for Roofing Conservatories, Halls, and Public Buildings.

Coloured and Ornamental Glass.

CRYSTAL SHADES for covering Ornaments, and

MOORE'S PATENT LOUVRE VENTILATOR, and Lockhead's Patent Perforated Ventilating Glass for Dairies, Greenhouses, Stables, &c.; Glass Milk Pans, Pails, Tests, and Measures; Cream Pots and Syphons; Churns, Butter Tests and Slabs; Tiles and Slates; Bee Hives, &c.

Aquariums, Fern Shades, Propagating Glasses, Fruit Protectors, Preserve Jars, Cucumber Tubes, Hand Lights, Flower Vases, Labels, &c., and all kinds of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,

87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in. ...	...	12s. 0d.
6½	"	4½	"	7	"	5	...	...	12 6
7½	"	5½	"	8	"	6	...	...	13 0
8½	"	6½	"	9	"	7	...	...	13 6
9½	"	7½	"	10	"	8	...	...	13 6
10½	"	8½	"	11	"	9	...	...	14 0
12	"	9	"	13	"	9	...	...	14 0
10	"	10	"	10½	"	10½	...	...	14 0
11	"	10	"	11½	"	10½	...	...	14 0
11	"	11	"	11½	"	11½	...	...	14 0
12	"	11	"	12½	"	11½	...	...	14 0
13	"	11	"	13½	"	11½	...	...	14 0
13	"	12	"	13½	"	12½	...	...	16 0
13½	"	13½	"	14½	"	13½	...	...	16 0
15½	"	13¼	...	...	...	...	...	...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.

Ditto, not exceeding 1 foot ... 2¼ "

Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

JAMES PHILLIPS AND CO., 116, Bishopsgate Street Without, have the pleasure to hand their present prices of the following articles:—

GLASS MILK PANS.

12 inch. diameter	1s. 3d. each.		
14 " "	1 9	"	
16 " "	2 3	"	
18 " "	2 9	"	
20 " "	3 3	"	
22 " "	3 9	"	
24 " "	4 6	"	
26 " "	5 6	"	

GLASS CREAM POTS.

6 inch. diameter	1s. 0d. each.		
8 " "	1 9	"	
10 " "	2 6	"	
12 " "	3 6	"	
14 " "	5 0	"	
16 " "	6 0	"	
18 " "	8 0	"	

GERMAN-SHAPE MILK PAN.

Extra Strong—17 inches in diameter, and 4 inches in depth, recommended by the Agricultural Society. 21s. *per doz.*

PROPAGATING CLASSES.

2 inches diameter,	0s. 3½d. ea.		
3 " "	0 4½	"	
4 " "	0 5½	"	
5 " "	0 6½	"	
6 " "	0 8	"	
7 " "	0 10	"	
8 " "	1 0	"	
9 " "	1 2	"	
10 " "	1 4	"	
11 " "	1 6	"	
12 " "	1 9	"	
13 " "	2 0	"	
14 " "	2 6	"	
15 " "	3 0	"	
16 " "	3 6	"	
17 " "	4 0	"	
18 " "	5 0	"	
19 " "	6 0	"	
20 " "	7 0	"	

BEE CLASSES.

4 inch. diameter	0s. 6d. each.		
5 " "	0 8	"	
6 " "	0 10	"	
7 " "	1 1	"	
8 " "	1 4	"	
9 " "	1 8	"	
10 " "	2 0	"	

CUCUMBER GLASSES.

	s.	d.
24 inches long	2	0
22 " "	1	10
20 " "	1	8
18 " "	1	6
16 " "	1	4
14 " "	1	2
12 " "	1	0

Made to any length.

GLASS FERN SHADES AND STANDS.

	s.	d.		s.	d.	
6 in. dia.	2	0	with sds.	3	0	ea.
7 "	2	4	"	3	6	"
8 "	2	9	"	4	0	"
9 "	3	3	"	5	0	"
10 "	4	0	"	6	0	"
11 "	5	0	"	7	0	"
12 "	6	0	"	8	0	"
13 "	7	6	"	10	0	"
14 "	10	0	"	12	6	"
15 "	14	0	"	17	0	"
16 "	18	6	"	22	0	"

PRESERVE JARS.

	s.	d.		s.	d.	
3 in. dia.	0	4	with lids	0	6	ea.
4 "	0	6	"	0	9	"
5 "	0	8	"	0	11	"
6 "	0	10	"	1	2	"
7 "	1	0	"	1	4	"
8 "	1	4	"	1	8	"
9 "	1	8	"	2	2	"
10 "	2	0	"	2	8	"

LACTOMETERS.

For testing the quality of Milk. 4s. 6d. each.

GARDEN-LIGHTS, CONSERVATORIES, AND HOT-HOUSES

Erected on the shortest notice, and most reasonable terms.

London Agents for the sale of "HARTLEY'S PATENT ROUGH PLATE GLASS," 116 Bishopsgate Street Without.

LINGHAM BROTHERS, No. 170, Hampton Street, Birmingham, sole Manufacturers of the improved WOOD and ZINC MONOGRAPH, or LABELS for Garden Borders, Flower-pots, &c., in boxes of 100 each. The Zinc Labels are highly approved of for their lasting durability, can be written upon with the greatest ease, and when dry a permanent inscription is secured. Directions are sent with each box, including a bottle of metallic ink.—Sole Agents in London, Messrs. DEANE, DRAY & Co., Horticultural Implement Warehouse, 46, King William Street, London Bridge.

A RECEIPT FOR THE MILLION.

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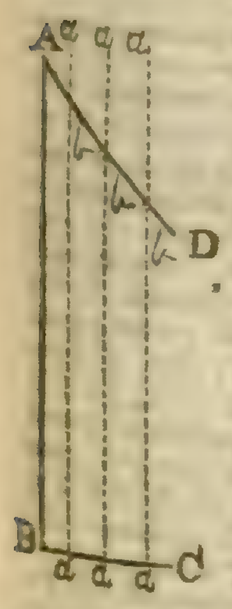
The Gardeners' Chronicle.

SATURDAY, APRIL 14, 1855.

THE mode of securing wall fruit against spring frosts is now engaging the attention of gardeners, as well it may, for, if the end of this present April should be at all like that of the last five or six, our gardens will again be deprived of their most valuable produce.

Wall trees, then, must be protected, and immediately; but in what way?—or rather, in which of the dozens that have been suggested? Should it be with canvas? or with netting? or with glass fronts? or with hay-bands? or coping boards? or Fir twigs? The best reply is that all will answer more or less if properly applied, and none will be efficient if care instead of judgment is all that the gardener can trust to.

What is the true object of this shelter? To keep the wind off? No. To keep the rain off? No. To keep trees warm? Certainly not. To keep the air away? No, no. It is simply and purely to guard against nocturnal radiation, or to stop driving sleet. Beyond this no purpose is served. Let us look at this from a general point of view.

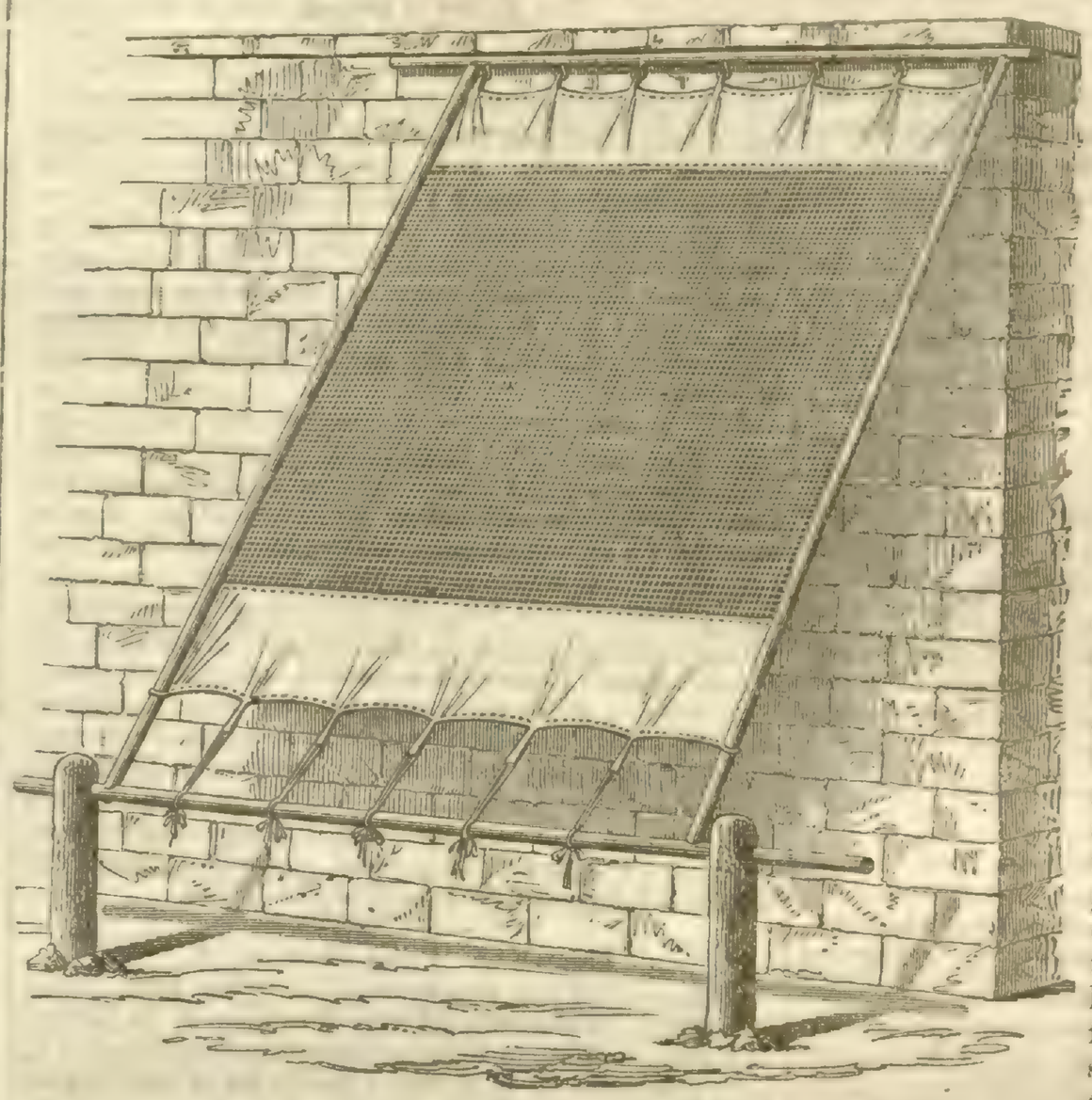


Let A B represent the front of any wall, and B C a border on one side of it. When nocturnal radiation takes place, that is to say, loss of heat by the earth, the heat passes away into space in the direction of the dotted lines *a a a*, and in no other direction. In bright nights this takes place to a degree that is fatal to the blossoms of fruit trees. But the lines of radiation are intercepted by any object interposed between them and the sky, such, for example, as is shown at A D; and then the heat which flies off perpendicularly, being stopped at *b b b*, is immediately radiated back to *a a a*, so that what is lost by the earth at one moment being sent back again the next moment, the effect of radiation from *a* to *b* is nullified by the counter radiation from *b* to *a*. Such is the theory of radiation upon which the means of securing wall trees from night frosts wholly turns.

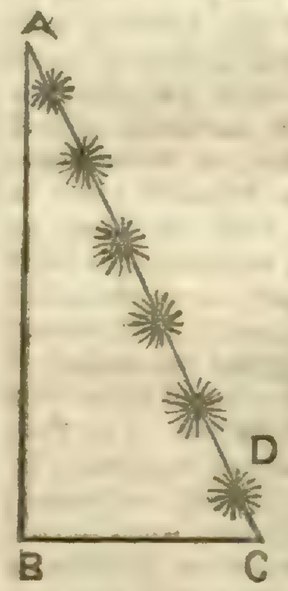
It is evident that in this case A D represents a coping, screen, or any other inclined body used for protection. Supposing it to be opaque, it is evidently immaterial whether it forms the usual angle with the wall, or is horizontal; but if it is composed of net-work, or any other open material, then it is equally clear that it should be hung at such an angle as will enable the meshes to form among them an unbroken roof when viewed from B C.

No better illustration of this principle can be given than that of Mr. HARRISON, formerly mentioned in our pages, and which we here reproduce without its explanatory letter-press. In this case the application of the above diagram to an excellent kind of shelter is self-evident.

A very little ingenuity is sufficient to show how



such a sloping screen can be made with other materials in a temporary manner. We content ourselves with pointing out one. The HARRISON screen admits light and air abundantly, and destroys radiation; that is its fundamental principle. Whether the effect is obtained with brown calico and woollen netting and neatly trimmed framework, or with far ruder materials and hedge-stakes, is of no great consequence to the crop, however much such rough contrivances offend the eye. The following scheme, which has been repeatedly tried with advantageous results, may be put up in any country place in a few hours. Let the accompanying diagram represent A B, a wall; B C, the border; and A D, the screen as before, seen endwise. Let A D



also represent a line of strings stretched from the top of a wall to C. Suppose haybands or strawbands, the rougher the better, are tied horizontally to A D at the places marked ✳, it is evident that, when looked at from below, A D will have the appearance of a close roof, and in reality will be so for the purpose of intercepting radiation. In fact it does roughly and imperfectly what the HARRISON screen does neatly and securely. Its fault is, that the slope A D does not keep off driving sleet sufficiently.

In all these schemes there is one important condition which is little thought of, although it makes the whole difference between success and failure. To retain warmth (or as we say to keep off cold) is not of itself enough to secure a crop of fruit. Precautions must also be taken to enable the flowers to "set." Nothing is done if that is neglected. We have seen most carefully and expensively executed contrivances wholly resultless owing to this simple matter not having been thought of. Their ingenious inventors could not divest their minds of the maxims of the "coddling school" of cultivation, and killed their children with kindness. In order that flowers may set, it is indispensable that they shall be exposed to all natural currents of air, short of storms, and to the freest access of insects, both which agencies are undoubtedly natural contrivances to ensure the dispersion of pollen. But when a plant is put under a close glass case, or bagged up in a tight canvas frame, or stifled by any similar scheme, no air finds free admission, no insects can visit the flowers, and the dispersion of pollen is practically arrested. Whenever close screens are used, then, the space between D and C in the diagram ought to be amply sufficient to allow abundant indraughts of air, and the visits of as many insect admirers as the flowers can attract. This is perfectly provided for in the HARRISON screen, as will be seen by comparing it with the diagrams.

IT is known to every one that the only reason gardens cannot be kept in beauty in great cities, especially such as London, consists in the impossibility of guarding them from the effects of smoke. Other inconveniences are susceptible of remedy; against smoke it is hopeless for a gardener to contend except at a cost that few care to incur. Lord PALMERSTON's Smoke Prevention Bill is however working so well, and has already purified some of the worst districts to such a degree, that the great metropolitan horticultural difficulty is rapidly diminishing. From Limehouse to Blackwall the atmosphere has become as pure as at Hammersmith, and if smoke inspectors did their duty, which they do not, the Isle of Dogs might even now become the site of a botanic garden.

River steamers, indeed, still continue to poison the air, and dwelling houses to assist them; but PRIDEAUX's furnace door, concerning which we hear the best accounts, promises to render the former smokeless, and Dr. ARNOTT's ingenious fire grate, now coming into general use, will by degrees enable Lord PALMERSTON's Act to be extended to dwelling houses, should their owners not find it their interest—as they surely will—to employ it without compulsion. Under these circumstances metropolitan or town gardening assumes new importance.

It is not, however, to be supposed that coal smoke is the only obstacle to gardening in the midst of acres of houses; other enemies are in the way, as fatal as smoke, but fortunately more easily guarded against. The first of these is the general dryness of the atmosphere. Wherever large areas are deprived of trees the air ceases to be charged with moisture, and vegetation languishes or perishes. Wherever trees abound, as in natural forests, the atmosphere is incessantly supplied with vapour by the insensible perspiration of their leaves, and luxuriant verdure is the result. A great city is therefore like a great desert, and equally incapable of supporting vegetation in the absence of artificial supplies of water. It is even worse, for the dry brickwork of houses is perpetually and powerfully absorbing the little vapour which does exist applicable to the purposes of vegetation. But in this country water is never wanting in cities, and refreshing showers can be administered at the pleasure of the gardener. All that his home-made rain is deficient in is that carbonate of ammonia which natural rain collects in its passage through the atmosphere. But this is a want which a very small amount of ingenuity can supply.

Another, though less universal, difficulty in town gardening consists in the general sterility of the soil in such places. Whatever its original quality may have been, and it was most commonly indifferent enough, it becomes in a few years utterly exhausted of all matters on which plants can feed, and no means are taken to restore or communicate fertility by manure. If Grass is mown, the mowings are removed and nothing supplies the nutritive matter they have abstracted; if leaves fall they are swept up and carried away; if the borders are decorated with annual or perennial plants, the gardener's first care is to cut off and remove their decaying leaves in order to make the place tidy. We may take our wretched London squares to be gardens of a peculiar kind. In the course of 30 or 40 years, during which we have known them, we never remember to have seen a single load of manure carted into even the best of them. The inhabitants trust to Providence, instead of their own outlay and superintendence; contract with somebody, at the lowest possible price, to "keep the square in order," that is to say to mow the Grass and sweep up the dead leaves; and there they stop. They would seem not to know that trees and Grass require to be fed as well as themselves. It would be as rational to trust to the action of a curreycomb alone for keeping

a horse in health. Luckily it does so happen that their great enemy soot renews a little the languid powers of the soil; were it otherwise these trees would disappear. That which is true of a square as it is, would be equally true of a garden properly so called; and more so, for ordinary garden plants usually demand a better soil than that in which trees contrive to exist.

When, therefore, we shall have lost our sooty atmosphere and begun again to garden, the first requisites will be water in abundance and manure. In their absence no skill can succeed; with them at command, no greater failure is possible than that which arises from ignorant gardening, which is just as bad in the country as in towns. Towns, indeed, will have this advantage—that they provide a degree of warmth and shelter which in the open country is unattainable. The only real impediments will be birds, cats, and other vermin. A man must, however, have very little skill who cannot keep off such visitors by means that shall not render his garden less enjoyable.

We presume that it is in anticipation of the advent of this new condition of London that the two little works mentioned at foot have been prepared.* We cannot, however, say much in favour of the second, which does not seem to have been written by a gardener, if we are to judge from the plants recommended for cultivation, and from sundry little symptoms which the practised eye has no difficulty in detecting. Gardeners do not talk of "Abderas of suffocated greens," or "Tantalian lakes," or "Stagyrian retreats," whatever those phrases may mean, nor would he have recommended such plants as Browallias, Cleomes, Hebenstreitias, Chænostomas, and Eutocas, as annuals for a town garden, or unattractive species like Nicotiana longiflora, Malva crispa, Catananche lutea, and Fedia dentata to be cultivated anywhere.

Mr. Paul's book, on the contrary, is that of a practical man, whose advice may be taken with confidence; and we anticipate that it will become, as it deserves, a general authority in suburban cultivation. We must, however, be permitted to doubt whether his selection of plants will continue to have weight with those who shall have purchased upon his advice such things as the following for decoration of London gardens:—Erigeron philadelphicum, Lathyrus *in variety*, Benthamia fragifera, Podocarpus coriacea, Sanguinaria canadensis, to say nothing of others whose names are unknown beyond the nurseries.

VEGETABLE PATHOLOGY.—No. LXVII.

296. Decoloratio (*Change of Colour*). Variegation not only differs in degree, according to the more or less imperfect formation of chlorophyll, but different shades may be combined in the same individual, as in a variety of crown imperial, where there are yellow, white, and green bands, but it may be accompanied by hues which are no proper shade of green or its component parts, as reds. A well-known instance is that of the variety of Kale called Ragged Jack, which is permanent when raised from cuttings. How far it may have the same effect upon the stock as other variegated grafts has, perhaps, not been ascertained. Any such effect if really produced would probably be confined to the white or whitish cells, for coloured cells apparently exercise no general effect upon those with which they are connected. The stock and graft retain their own peculiarities of colour unchanged. In the white Silesian and red Beet grafted on each other by Dr. Maclean (see *Gardeners' Chronicle*, 1855, p. 20) there was not the least blending of the colours in the contiguous cells.† "Each produced its own colouring matter in its own new cells as they formed superficially, the red cells adhering to the white cells while in the nascent state, but retaining each the peculiarity belonging to it, without any interchange of contents through the sides of the walls in contact."

297. It is not then with any primary or normal disposition of red tints combined with blue or otherwise that we are concerned in this place. They do not depend upon any diseased action as far as we know, nor can they communicate like tints arising from true variegation to tissues with which they may be in contact. The decoloration of which we now wish to speak is that which accompanies tissues when arrived at full maturity and just about to lose their vitality, evidenced either by parting from the parent plant, or by a tendency to enter into further and more rapid decomposition. It may be regarded possibly rather as a symptom than as an especial disease; but in whatever light it may be regarded, it is the inevitable forerunner in mature tissues of more or less speedy decay.‡ The presence of chlorophyll is necessary in almost all self-sustained plants;* but the green tint is rather a concomitant of healthy effects produced by exposure to light and air than anything to which we can attribute inherent virtue. In Chlorosis we see that the defect of colour is accompanied by an unhealthy condition, rapidly tending to death, and when organs have arrived at maturity, and have performed their functions, changes take place in the chlorophyll concomitant, as before, with derangements dependent upon old age. And this is the more probable because it appears from the observations of M. Macaire Princep, that the red and yellow colour of flowers is the same as that which exists in leaves which have assumed what are commonly called autumnal tints. Such tints take place only in leaves exposed to sunlight, under which they absorb oxygen instead of giving it out. The change of colour, then, is dependent on the formation of an acid which changes the chlorophyll first to yellow and then to red.† A red leaf macerated in potash becomes green, but a green leaf treated with an acid becomes yellow (see Thomson's "Organic Chemistry," p. 426). It is, therefore, apparently more a purely chemical than a vital phenomenon, and where the assumption of florid hues may be supposed to be essentially vital, as in the flowers of plants, such parts are seldom of very long duration, but for the most part pass rapidly into decomposition, except the moisture which they contain is very small originally, or soon dried up.

298. The green tint of chlorophyll not only passes into other colours, but sometimes becomes unnaturally deep, a circumstance which is occasionally indicative of evil. Under the full action of light and air, forcing manures or certain gaseous matters have this effect; and the same phenomenon takes place in fairy rings under the influence of the fungi by which they are produced. The presence of mycelium in tissues, as for instance that of bunt, causes sometimes a marked intensity of green, by which the plants which are affected may be pointed out long before the spike appears, and indeed in the case of seed purposely inoculated, occasionally from the earliest infancy. Some other epiphytal fungi have a similar effect. The general deep tint observed in some years at the beginning of autumn in woods is caused by the dark Fumagos which overrun the leaves.

ROBINIA PSEUD-ACACIA.

This elegant and fast-growing tree has been justly celebrated for the strength and durability of its timber. But some writers, in their enthusiastic encomiums on it, have attributed to it qualities to which it can lay no claim, more especially when grown in this country. Its chief merit consists in the early formation of heart wood, its strength and durability; the other portions of the tree possess no claim to notice more than any other quick growing tree. Having been employed for very many years by a gentleman who has planted a goodly number of the Robinia, and who has in various ways tested and proved the lasting qualities of its wood, I am, therefore, enabled to give the following remarks from practical experience and observation.

The Robinia delights in a rich light soil and sheltered situation. In such a soil it is questionable whether digging or trenching is of advantage. Its natural habit when young is to grow freely and rapidly, making shoots, when once established, from 6 to 10 feet in a season. The object in such a soil should be rather to check than encourage an excessive growth; for the great defect of the Robinia in its young state is the splitting and separation of its branches from the trunk, even by their own weight, and much more than when exposed to a brisk wind. In light sandy, gravelly, or chalky soils I would advise the ground to be trenched 18 inches deep. In stiff retentive clays I have seen repeated trials to grow it without success; the last trial was made in 1845, but in the wet autumn of 1852 and spring of 1853 they all perished. A strong stiff soil, on which is laid a large quantity of sand, and then trenched, however, appears to suit it well. The splitting and separation of the branches require the constant attention of those who plant the Robinia to produce lasting timber. I confess I am unable to point out any mode of treatment by which this natural defect may be entirely overcome; but shortening or pruning back the young wood during summer and even the leading shoot when it shows a tendency to split off, appears to me to be the best way of lessening the evil. From the neglect of such a mode of proceeding I have frequently seen trees of considerable size much injured; and, therefore, if we would have the wood of the Robinia in perfection, we must grow it under a regular and systematic course of pruning. It may be grown to produce timber in dells, or where it is surrounded by high trees, but not to the exclusion of sunlight and air, for these, I hold to be indispensable to the organism of the tree. In woods where there are large vacant spaces, if the soil is suitable (and any soil that is not retentive of excess of moisture will do), the Robinia may be planted with advantage. When planted in the margins of plantations, or in belts by the side of public roads, &c., its leaves contrast agreeably with the more formal and darker foliage of many of its associates; its clustering, drooping, white, Pear-blossoms are very attractive, furnishing an agreeable perfume, and during the brief periods of their beauty they afford an abundant and rich harvest to the honey-bee. In favourable seasons this tree ripens abundance of seed, and if it is kept in the pod until the following spring, and sown in light good soil, it will grow freely.

When of considerable size, the Robinias may be transplanted with safety; indeed, for ornamental purposes moved trees are to be preferred, it makes them less vigorous, and consequently they are better able to resist the force of winds. When removed the branches should be well cut back, and the long rope-like roots which run near the surface carefully preserved to a considerable length, with a view to ensure its growth as well as to assist in keeping it in an erect position.

What Robinias have come under my notice have not attained a great age or size; but the heart-wood has attained full maturity in from 25 to 35 years; when put down, trees of the latter age have even shown signs of decay at the pith; after that age the growth is slow, but they will resist the force of the storm unscathed. When once established repeated thinnings will soon be replaced by suckers, which are produced freely from the roots. The rapid growth and the early period at which it produces heart-wood, has induced the belief that the young stems were well adapted for Hop-poles; but those who are practically acquainted with its mode of growth will require no argument to convince them that it is ill adapted for this purpose. If Hop-poles can be obtained at all from it they must be from those trees that have grown up with long and straight branches or limbs, and that have made durable heart-wood. These, indeed, will be lasting. Cattle will eat eagerly of the young shoots and foliage of the Robinia, but fortunately the green meadows and pastures, together with the greatly improved husbandry of our country, will, we hope, always preclude the necessity of depending on such a source for a supply of fodder for our stock.

The Robinia has likewise been praised for its abundant and quick supply of firewood; but when we take into consideration the strong and repulsive thorns with which it is armed in the early period of its growth, and that the workman must be thoroughly defended by a panoply of leather before he can attempt to make any progress with the work, it is not likely that it will ever become a favourite in this country as an inhabitant of the copse; but if its qualities in this respect were even such as have been described, there could be little inducement now to plant it for this purpose. The formation of railways has opened up an intercommunication throughout the country, by which the produce of our coal-fields, the wreck of the forests and morasses of bygone ages of our globe, are conveyed for our use.

Upon a careful examination of those trees that have come more particularly under my notice, I find that there is not more than one in ten whose stems are without blemish and decay; these defects are principally caused by winds breaking off the branches, producing decay and admitting moisture; or possibly the nature of the soil and the variableness of our climate may tend to accelerate the evil. These are the reasons, notwithstanding the undoubted value and durability of its wood, and the urgent recommendations of many of its advocates, why it is not more generally planted in this country.

I shall not enumerate the purposes to which its wood has been applied in this and other countries, but will merely confine my remarks to what I have seen it taken for, which has been for strong posts to support the roofs of open sheds, gate posts, posts for various sorts of fencing, frames for covered tanks, window sills, handles for picks and mattocks, espalier stakes, Dahlia stakes, Carnation sticks, flower sticks, tallies, &c. &c.; and likewise for cabinet work. The heart-wood should be well seasoned before it is sawn up for Dahlias and for flowers, otherwise it is apt to twist and warp.

The measurements of the following specimens are given with a view to show the growth of the tree and size of timber in a given number of years, but no account is taken of the limbs, many of which would make posts for low fences; the trees are selected from many planted at the same time, the stems are apparently sound, having no outward appearance of decay.—1st. Planted in 1844, nine years' growth; height of tree, 28 ft.; circumference at ground, 1 ft. 8 in.; at 6 ft. high, 1 ft. 4 in.; protected by large trees. 2d. Planted in 1822, 31 years' growth; ground trenched 2 ft. deep; height, 45 ft.; stem at ground, 4 ft. 9 in.; at 10 ft., 3 ft. 8 in.; at 15 ft., 3 ft. 6 in.; no protection. 3d. Planted in 1821, 32 years' growth; deep, rich, garden soil; height, 50 ft.; stem at ground, 5 ft. 1 in.; at 10 ft., 3 ft. 3 in.; at 20 ft., 2 ft. 8 in.; at 30 ft., 2 ft.; rather sheltered. 4th. Planted in 1811, 34 years' growth, ground trenched 2 ft. deep, light soil, chalky bottom; height, 45 ft.; stem at ground, 4 ft. 9 in.; at 10 ft., 3 ft. 7 in.: at 18 ft., 2 ft. 5 in.; no protection. 5th. Planted in 1819; 34 years' growth, ground trenched 2 ft. deep; light soil, gravelly bottom; stem at ground, 4 ft. 3 in.; at 10 ft., 3 ft. 2 in.; at 20 ft., 2 ft. 11 in.; at 30 ft., 2 ft. 8 in.; height of tree, 55 ft.; clear stem, free from branches, protected south and west by high trees.

I have omitted to mention that the above trees were planted along with Larch, Turkey Oak, and Fir trees.

* The "Handbook of Villa Gardening," by Wm. Paul. Piper and Co. 12mo, pp. 138.

"The Town Garden," by Shirley Hibberd. Groombridge. 24mo, pp. 172.

† This is the more remarkable because deep red Beet when eaten in large quantities imparts colour to the urine. The colouring matter is probably not chemically combined with the fluid, or at least not in a state of real solution but merely suspended in it, and therefore will not pass through the membranous walls.

‡ All assumption of florid tints by parts normally green is not, however, necessarily indicative of decay. The bleached shoots of Pelargoniums for instance, which have been produced in a cellar, assume a red tint when exposed in a warm frame to light. The tint may, however, be confined to the petioles of the leaves, the laminæ acquiring rapidly a full green without any concomitant red. A branch of Alder if cut across soon assumes a vivid red. In this case possibly the change may be one rather of molecular arrangement in the exposed sap than of chemical composition, as in the analogous blue tint of many Boleti.

* Monotropa is stated by Duchartre, in his memoir on that genus, to be no true parasite. It is certainly capable of cultivation, which is not the case with Orobanches, and such plants as derive their nutriment from some organised matrix.

† It is obvious that change from green to yellow is not necessarily dependent upon the same causes as the prevention of the formation of a full green tint. The one may take place in the presence of light, the other in its partial or total absence.

but they have outgrown them all except the Larches, which have maintained their ascendancy.

A variety from the nursery planted in 1816, and replanted on a lawn in 1818, has attained a height of 60 ft., fully exposed, with a girth or circumference at bottom of 7 ft. 10 in.; at 10 ft, 4 ft. 4 in.; at 20 ft., 4 ft.; at 28 ft., 3 ft. 9 in.; at 5 feet high are several large limbs, of which no notice is taken.

In the rector's garden, a tree which had apparently been cut down, and had afterwards thrown up two stems, is now (both stems) 55 ft. in height. No. 1. Circumference at bottom, 5 ft. 8 in.; at 10 ft., 4 ft. 4 in.; at 20 ft., 3ft. 4 in.; at 33 ft., 2 ft. 10 in. No. 2. Circumference at bottom, 5 ft. 8 in.; at 10 ft., 4 ft. 10 in.; at 20 ft., 3 ft. 8 in.; at 33 feet, 3 ft. Several large limbs have been sawn off. There is no record when it was planted, but it is certainly more than 50 years of age. *Tassel.*

SALVIA SPLENDENS.

Cuttings of this gay winter flowering plant may be put in now, and afforded a gentle bottom-heat until they emit roots, when they should be potted singly in small pots. After potting place them in a close but not over warm situation, and as soon as they get established keep them near the glass, and afford them all the light possible, syringing overhead morning and evening in bright weather, and keeping the atmosphere as moist as circumstances will admit. If good sized specimens are wished by the autumn the young plants must not be allowed to suffer for want of pot room. As they advance in growth the shoots should be carefully stopped and tied out, in order to secure bushy compact specimens; but if a vigorous root action is maintained, there will be little difficulty in keeping the plants bushy. A cold frame or pit will be the best situation for them after the beginning of May, or earlier if the weather proves favourable; but they should be kept close here, and not allowed to sustain any check, which at this stage would be very injurious. If all goes on well, the plants will be ready for shifting into good-sized pots by the end of June, and I seldom repot them after that season. By that time they should be strong and well established in 8-inch pots, and when this is the case I shift some into 12 and others into 15-inch pots, according to the strength of the plants and the size it may be desirable to have them by the flowering season. They should be returned to their former situation, kept close and moist, and encouraged to make active growth, merely giving sufficient air to keep the young wood strong. When the pots get well filled with roots, and the plants become good-sized specimens, which will be the case by August, they should be gradually prepared for removal to a sheltered situation out of doors, where they will be shaded from the forenoon sun. Here they will make short growth, and will flower more profusely than if kept under glass all the autumn. Stopping should not be practised on plants intended to flower in November later than about the middle of August. As soon as the weather becomes unsettled in autumn the plants must be placed under glass, for they are very easily injured by frost, and should be afforded a light airy situation. After flowering, the specimens may be thrown to the rubbish heap, reserving one or two to supply cuttings. These should be kept dry at the roots for a fortnight, then cut back rather closely, and placed in any spare corner of the greenhouse until towards the end of February, when they should be placed in a warm house, and thoroughly watered, when they will soon furnish a supply of cuttings. *Alpha.*

CLIMATES OF FOREIGN COUNTRIES.—No. VII.

Climate of Madras.—From the meteorological observations made in the years 1846-1850 at the Hon. East India Company's Magnetical Observatory at Madras, and printed by order of the Madras government, we learn that, on the mean of five years, the barometrical pressure is greatest in January and least in June, with a gradual decrease and increase between these extremes, but that the law is not strictly followed out in individual years; as for example in 1850, February had the greatest mean pressure; and in 1849, May had the least. The greatest and least pressures observed during the five years both occurred in 1846, and were respectively 30.189 inches on January the 11th, and 29.346 inches on October the 20th. The four daily tides of pressure are well marked, even by a single day's observation, the exceptions being very rare, and occurring only in tempestuous weather. The principal maximum occurs on a mean at $9^h. 15^m.$ a.m., the excess above the mean being .060; the principal minimum at $3^h. 52^m.$ p.m., being .060 below the mean. There are two minor tides in the night, the maximum of + .032 occurring at $10^h. 5^m.$ p.m., and the minimum of — .026 at $3^h. 22^m.$ a.m. The greatest average daily range (.130) occurs in March, and the least (.106) in December. As it has been stated that, at St. Helena and other places, the moon produces a sensible effect on the barometer, the observations of 1846 were reduced and arranged according to the moon's right angle, with the view of ascertaining if anything of the kind was perceptible at Madras; but the result would lead us to infer that the moon has no direct influence, either on the atmosphere or on the mercurial column.

With respect to temperature, it appears that for the five years 1846-50, the hottest month was May, though June nearly equals it, and was in excess in three years out of the five. January is the coldest month, but December has the least daily variation. The line of the mean daily temperature throughout the year forms a very regular parabola; while that of the night differs little from a straight line. It is therefore difficult to estimate exactly the time of minimum temperature, but it appears usually to precede sunrise by a few minutes. The mean maximum temperature for the year is 89°, the mean minimum 77°. The highest temperature noticed during the five years was May 18, 1849, when the thermometer indicated 108°. The lowest was 63° on the morning of the 27th of January, 1850.

The driest month is June, and the most humid are October and November: the daily curve of humidity is very nearly an inversion of that of temperature; the driest being about 1 p.m., and the moistest about sunrise, except in June and July, when the moisture is greatest about midnight.

The average annual fall of rain for the five years was 58.583 in. The most rainy month is October, which averages 14.868 in.; November nearly equals it, the average for that month being 13.916. March is the only month in which no rain falls.

The course of the winds throughout the year is as follows:—In January, until about the middle of February, N.E; then southerly winds predominate, especially S.E., until the middle of May, when the S.W. monsoon commences, and continues the prevailing wind until the end of September. In October the winds are variable and nearly equally divided between the four quarters, until about the end of the month, when the N.E. monsoon sets in, and prevails until February. Taking the whole year the southerly winds considerably predominate. On the average the number of days from each quarter is, N.W., 63—N.E., 85—S.E., 96—S.W., 121. These results are not only interesting in so far as meteorology is concerned, but they are of considerable importance in a horticultural point of view to those engaged in the cultivation of tropical plants, particularly of such as are peculiar to the neighbourhood of Madras. They show that, in order to compensate for the great degree of heat to which vegetation is subjected there in the daytime, Nature supplies a proportionate amount of moisture in the form of heavy dews or rain at night, the average depth of rain being nearly three times the quantity which usually falls in the climate of London, thus making the daily curve of humidity, as stated in the report, an inversion of that of temperature. The young and inexperienced cultivator will therefore do well to remember this, and if he hopes to be successful he must endeavour as much as possible to imitate such a climate by using the syringe most liberally during the summer season, as late in the evening, after a fine warm day, as it can be done without inconvenience. *W. B. B.*

New Plants.

122. Thujopsis dolabrata, *Siebold and Zuccarini Flora Japonica, Vol. II., p.* 32; *aliàs* Thuja dolabrata, *Thunberg.*

A living plant or two of this fine tree having reached the Botanic Garden, Leyden, as we learn from Monsieur de Vriese, the learned Professor of Botany in that institution, our readers may be glad to know something of its history.

We are told that as a genus Thujopsis differs from Thuja in the scales of its cones being woody, with five seeds in two rows in the axil of each. It has the same flattened branches and leaves; but the latter are

covered with glaucous stomates, all over the middle, which looks towards the ground, while the Thujas have no stomates at all.

The tree is a native of Japan, where it is called *Hiba*, and acquires great stature with a majestic aspect. The head is pyramidal, and formed of spreading or even pendulous branches. It grows wild on mountains in the islands of Nipon, especially on the chain called Hakone, where it prefers the damp slopes of the valleys. Its wood is much valued for building purposes. The leaves are very dark green, except at the middle of the back, where they are covered with a silver bloom like that of a Plum, which gives them a singularly beautiful appearance. There is a sort of smaller stature called Nezu by the Japanese.

We presume the plant to be as hardy as the common Thujas, which no frost seems to touch. A, in our figure, represents a twig the natural size; B, a portion magnified, copied from the "Flora Japonica."

Home Correspondence.

Preserves and Copper Vessels.—May I ask your opinion on a point which is certainly of much importance to the comfort and health of a large part of the community:—Is it safe to prepare acid preserves by boiling in bare untinned copper pans, as is, I believe, the established practice, both in private families and in the confectionary trade? A shopkeeper lately informed me that he is in the habit of supplying most of the houses in his neighbourhood with copper preserving pans, and that mine is the only house that requires them to be tinned. The misfortune is, that even tinning cannot be relied on as a remedy for the danger, as that operation is usually performed by applying, for the sake of cheapness, about equal parts of tin and lead; so that it would appear that the eaters of preserves have only the choice of being poisoned by copper or by lead. I have somewhere read that there is no danger of the copper being dissolved as long as the acid is kept boiling and not allowed to cool in the vessel, but this statement is so contrary to all experience in chemical combinations that it is difficult to think it can be correct. *Death in the Pot.* [There is no doubt that preserves prepared in naked copper vessels are unwholesome; or that the mischief is increased if a mixture of tin and lead is substituted for tin itself, which we dare say occurs in these days of rascality. The last suggestion is as new to us as to you. Preserving pans should always be made of bell-metal.]

Mowing Machines.—Can any one inform me which is the very best mowing machine now in use? For some years I have used Budding's, which answered my purpose exceedingly well; but as I am now in want of a new one I imagine there may be some superior to the one I have just named. I have seen Samuelson's, but it will not suit, in consequence of the wheels not going sufficiently near the edge of the walks; I want one that will cut close to the edge of the flower beds and walks; one, therefore, that has wheels projecting like Samuelson's will not answer. I want one sufficiently large for a strong lad to pull, and as I only employ manual labour, I would like one to run as lightly as possible. Any information on the subject will oblige *E. B., Perdiswell.*

Comparison between the late Winter and that of 1854.—I send you the following tables of averages, which may be interesting. I have no maximum average of the thermometer for January, 1854; the tables are therefore made without it:—

		1854	1855	Differ.
Average maximum of thermometer	January ..	caret	34·6	—
	February ..	45.56	30.60	14 96
	March ..	54.00	41.03	12.97
Average minimum of thermometer	January ...	32.03	25.2	6.83
	February ...	32.85	19.40	13.45
	March ...	31.12	26.98	4.14
Mean temperature ...	January ..	caret	caret	—
	February ...	39.20	25.00	14.20
	March ...	42.56	34.00	8.56
Average maximum of February and March		49.78	33.11	16,67
Average minimum of January, February, and March		32.00	23.96	8.04
Mean temperature of February and March		40.87	28.15	12.72

We cannot wonder at the lateness of the spring, when, though the winter of 1854 was considered severe, the mean temperature of February and March, 1855, is 12.72 lower than that of the same months in 1854. *A. R., Bromley Common, Kent, April* 11.

The Nimrod Strawberry.—I had hoped that ere this some explanation would have been given by Messrs. Lucombe, Pince, and Co. respecting the Strawberry sent out by them in the autumn of 1853, under the name of "Nimrod;" such not having been the case, I wish to say a few words upon the subject. The simple facts are these:—In the *Gardeners' Chronicle* it was stated that fruit of a seedling Strawberry under this name had been sent to the Editor, and that it was superior in sweetness and richness of flavour to the British Queen; soon afterwards an advertisement appeared from Messrs. Lucombe, Pince, and Co., stating that they had purchased the stock of this Strawberry of the raiser, and that it would be sent out in October. I was induced to become a purchaser of some plants, and was much disappointed to find that they were merely Myatt's Eleanor. I have heard it hinted that there was some mistake; if so, Messrs. Lucombe, Pince and Co. should have frankly stated that this was the case, and every purchaser would have been satisfied; now, the very reverse is the fact, and it is a matter of serious consequence to the trade, as persons will be very shy of purchasing articles advertised as novelties after having been so completely deceived. *Henry Doubleday, Epping, April* 9. [This statement is not exactly correct. What the *Gardeners' Chronicle* stated was as follows: "We have received samples of the Nimrod Strawberry from Mr. Sanders, the intelligent gardener at Tedworth, with a request that we would state our opinion of it. *So far as we can judge of it, after having been packed in a post-office bag.*

for several hours, we should say it is superior to the British Queen; it is large, oblong, or rather conical, with the same colour as that variety, but sweeter and richer. *It is said* by Mr. Sanders to be an excellent bearer, and to force well; in addition to which *it is reported* to be much hardier than the British Queen, nearly all which perished last winter round Tedworth, while this Nimrod suffered in no degree whatever."]

Effects of the Winter about Newark.—In this immediate district the frost of the winter has done more mischief than was done by the frost of last year. The common Laurels are killed by hundreds, at least cut quite down to the ground. Last year they suffered very little. The Cupressus macrocarpa, I fear, is killed. The Pinus insignis, which was untouched last year, has its spines turned brown half way through. The variegated Golden Holly has the white or golden leaves generally turned brown. The large Araucarias have their leaves tinged with brown many feet higher from the ground than last year. The Cryptomeria has not suffered much. Pinus Russelliana is killed. In several places the common Yew is burnt on one side, and the Cedar of Lebanon also. Altogether these two last winters have cut very short the catalogue of hardy shrubs. *D.*

Early Rhubarb (see p. 208)—Your correspondent who says his gardener last October covered over some Rhubarb with cement casks and fold-yard manure, which was added several times in order to force the growth, and again some four months afterwards covered over, in a precisely similar way, other roots on the same soil, which though last covered were ready first, should remember that he covered up at a time when Rhubarb was wholly at rest, and when it would require double the time and heat to start it that it would when he covered his second lot, growth at that time having already commenced. Besides, starting to force before midwinter does not ensure his cutting so much earlier, more especially if the Rhubarb had not been forced before; if, however, it has once been started early it will start about the same time ever after, with little trouble; but to begin too soon, as your correspondent states, would require something more than merely adding manure "several times," for every gardener knows too well the uncertainty of dung heat in hard weather. If, on the other hand, your correspondent should begin to force after midwinter, and continue the heat till he gets a supply of Rhubarb, and the next year commence a week or two earlier, he might not then fail. It must be remembered, however, that different sorts of Rhubarb naturally vary very much as regards earliness. *J. Divers, Maidstone.*

Does Sea-water Kill Seeds?—I have begun making some few experiments on the effects of immersion in sea-water on the germinating powers of seeds, in the hope of being able to throw a very little light on the distribution of plants, more especially in regard to the same species being found in many cases in far outlying islands and on the mainland. Will any of your readers be so kind as to inform me whether such experiments have already been tried? And, secondly, what class of seeds, or particular species, they have any reason to suppose would be eminently liable to be killed by sea-water? The results at which I have already arrived are too few and unimportant to be worth mentioning. *Charles Darwin, Down, Farnborough, Kent, April* 11.

Foreign Correspondence.

Leaves from my Chinese Note-Book: No. 8.—*A Journey in search of a new Cedar or Larch, called Abies Kæmpferi.*—I have been acquainted with this interesting tree for several years in China, but only in gardens, and as a pot plant in a dwarfed state. The Chinese, by their favourite system of dwarfing, contrive to make it, when only a foot and a half or two feet high, have all the characters of an aged Cedar of Lebanon. It is called by them the *Kin-le-sung*, or Golden Pine, probably from the rich yellow appearance which the ripened leaves and cones assume in the autumn. Although I have often made inquiries after it, and endeavoured to get the natives to bring me some cones, or to take me to a place where such cones could be procured, I met with no success until last autumn. Then, however, I happened to visit a part of the country where I had not been before, and quite unexpectedly came upon some fine specimens of full grown trees covered with ripe cones. They were growing in the vicinity of a Buddhist monastery in the western part of the province of Chekiang, at an elevation of 1000 or 1500 feet above the level of the sea. Their stems, which measured fully 5 feet in circumference 2 feet from the ground, carried this size, with a slight diminution, to a height of 50 feet, that being the height of the lower branches. The total height I estimated about 120 or 130 feet. The stems were perfectly straight throughout, the branches symmetrical, slightly inclined to the horizontal form, and having the appearance of something between the Cedar and Larch. The long branchless stems were, no doubt, the result of their growing close together and thickly surrounded with other trees, for I have since seen a single specimen growing by itself on a mountain side at a much higher elevation, whose lower branches almost touched the ground.

I need scarcely say how pleased I was with the discovery I had made, or with what delight, with the permission and assistance of the good priests, I procured a large supply of those curious cones sent to England last winter. It was with great regret I read in this paper, and in a letter from Mr. Glendinning, that so few of these seeds had vegetated, and in order to increase the number by procuring another supply, I paid a visit this autumn to the place where I had been so successful last year, with what results I shall proceed to relate. Having arrived at the Monastery of Tsan-tsing—for that is the name of the place—I lost no time in visiting the spot of my last year's discovery. The trees were there as beautiful and symmetrical as ever, but after straining my eyes for half an hour I could not detect a single cone. I returned to the temple and mentioned my disappointment to the priests, and asked them whether it was possible to procure cones from any other part of the country. They told me of various places where there were trees, but whether these had seed upon them or not they could not say. They further consoled me with a piece of information, which, although I was most unwilling to believe it, I knew to be most likely too true, namely, that this tree rarely bore cones two years successively, that last year was its bearing year, that this one it was barren. A respectable looking man, who was on a visit to the temple, now came up to me and said that he knew a place where a large number of trees were growing, and that if I would visit the temple to which he belonged he would take me to this spot, and that there I would probably find what I wanted. I immediately took down the name of his residence, which he told me was Quan-ting, a place about 20 le distant from the temple in which I was domiciled, and at a much higher elevation on the mountains. Having made an appointment for next day he took his leave of me with great politeness, and returned to his home.

Having procured a guide for Quan-ting, I set out early next day to visit my new acquaintance. Leaving the temple of Tsan-tsing, our way led up a steep pass, paved with granite stones. On each side of the road were forests of fine Bamboos—the variety called by the Chinese *Moou*, the finest I ever saw. The forests are very valuable, not only on account of the demand for the full-grown Bamboos, but also for the young shoots, which are dug up and sold in the markets in the early part of the season. Here, too, were dense woods of Cryptomeria, Cunninghamia lanceolata, Oaks, Chesnuts, and such like representatives of a cold or temperate climate. The Chinese Chesnut appears to differ slightly from the Spanish, but it is superior to that variety. A very pretty small one, about the size and form of the Hazel Nut, is much esteemed; both, I think, worth introduction to Europe. I have sent them both to India, and I am happy to hear that both are now doing well on the Himalayan mountains. Chesnuts have long been a desideratum in India; many fruitless attempts have been made to introduce them, but with Ward's cases we now work wonders.

Our road was long and rugged, and we were gradually attaining a higher elevation. We reached the temple of Quan-ting at last, and had no difficulty in finding our acquaintance of the preceding day, Mr. Wang-a-nok, as he called himself. It now appeared he was a celebrated cook—the Soyer of the district—and had been engaged on this day to prepare a large dinner for a number of visitors who had come to worship at the temple. He told me he would be ready to accompany me as soon as the dinner was over, and invited me to be seated in the priest's room until that time. This little temple has no pretensions as regards size, and was in a most dilapidated condition. In one of the principal halls I observed a table spread and covered with many good things, which were an offering to Buddha, and before which the visitors, as they arrived, prostrated themselves. As the valley in which the temple is placed is fully 3000 feet above the sea, I felt the air most piercingly cold, although it was only the middle of October, and hot enough in the plains in the day time. So cold was it that at last I was obliged to take refuge in the kitchen, where Mr. Wang was busy with his preparations for the dinner, and where several fires were burning. This place had no chimney, so the smoke had to find its way out through the doors, windows, or broken roof, or, in fact, any way it could. My position here was, therefore, far from being an enviable one, although I got a little warmth from the fires. I was therefore glad when dinner was announced, as there was then some prospect of being able to get the services of Mr. Wang. The priests and some of the visitors now came and invited me to dine with them, and, although I was unwilling, they almost dragged me to the table. In the dining room, which was the same, by-the-by, in which they were worshipping on my arrival, I found four tables placed, at one of which I was to sit down, and was evidently considered the lion of the party. They pressed me to eat and to drink, and although I could not comply with their wishes to the fullest extent, I did the best I could to merit such kindness and politeness. But I shall not attempt a description of a Chinese dinner which, like the dinner itself, would be necessarily a long one, and will only say that, like all good things, it came to an end at last, and Mr. Wang having finished his in the kitchen and taken a supply in his pockets, declared himself ready for my service.

Our road led us up to the head of the valley in which the temple stands, and then it seemed as if all further passage was stopped by high mountain barriers. As we got nearer, however, I observed a path winding up round the mountain, and by this road we reached the top of a range of mountains fully a thousand feet higher than any we had passed, or 4000 feet above the sea. When we reached the top the view that met our eyes on all sides rewarded us richly for all the toil of the morning. I had seen nothing so grand as this since my journey across the Bohea mountains. On all sides, in whichever direction I looked, nothing was seen but mountains of various heights and forms, reminding one of the waves of a stormy sea. Far below us in various directions appeared richly cultivated and well wooded valleys; but they seemed so far off, and in some places the hills were so precipitous, that it made me giddy to look down. On the top where we were there was nothing but stunted brushwood, but, here and there, where the slopes were gentle, I observed a thatched hut and some spots of cultivation. At this height I met with some Lycopods, Gentians, and other plants not observed at a lower elevation. I also found a Hydrangea in a leafless state, which may turn out a new species, and which I hope to introduce to Europe. If it proves to be an ornamental species it will probably prove quite hardy in England.

We had left the highest point of the mountain ridge and were gradually descending, when on rounding a point I observed at a distance a sloping hill covered with the beautiful object of our search—the Abies Kæmpferi. Many of the trees were young, and all had apparently been planted by man; at least so far as I could observe they had nothing of a natural forest character about them. One tree in particular seemed the queen of the forest, from its great size and beauty, and to that we bent our steps. It was standing all alone, measured 8 feet in circumference, was fully 130 feet high, and its lower branches were nearly touching the ground. The lower branches had assumed a flat and horizontal form and came out almost at right angles with the stem, but the upper part of the tree was of a conical shape, resembling more a Larch than a Cedar of Lebanon. But there were no cones even on this or on any of the others, although the natives informed us they had been loaded with them on the previous year. I had therefore to content myself with digging up a few self-sown young plants which grew near it, and which I shall endeavour to introduce to England.

I now parted from my friend Mr. Wang, who returned to his mountain home at Quan-ting, while I and my guide pursued our journey towards the temple in which I was staying by a different route from that by which we had come. The road led us through the same kind of scenery which I have endeavoured to describe — mountains; nothing but mountains, deep valleys, and granite and clay-slate rocks—now bleak and barren, and now richly covered with forests chiefly consisting of Oaks and Pines. We arrived at the monastery just as it was getting dark. My friends, the priests, were waiting at the entrance, and anxiously inquired what success had attended us during the day. I told them the trees at Quan-ting were just like their own—destitute of cones. "Ah!" said they, for my consolation, "next year there will be plenty."

I cannot agree with Dr. Lindley in calling this an *Abies*, unless Cedars and Larches are also referred to the same genus. It is apparently a plant exactly intermediate between the Cedar and Larch; that is, it has deciduous scales like the Cedar and deciduous leaves like the Larch, and a habit somewhat of the one and somewhat of the other. However, it is a noble tree; it produces excellent timber, will be very ornamental in park scenery, and I have no doubt will prove perfectly hardy in England. *R. F.*

Societies.

Entomological: *April* 2.—J. Curtis, Esq., President, in the chair. Donations of books from the Royal Society, the Society of Arts, the Entomological Society of Stettin, Berwickshire Naturalists' Club, &c., were announced, as well as an extensive collection of specimens of aphides preserved in Canada Balsam presented by Mr. F. Walker, and a number of rare British Lepidoptera by Mr. H. Doubleday. Mr. Stainton stated with reference to the discussion respecting the corrosion of the pins with which insects are stuck, that he had only observed this to occur in one species of Nepticula (N. Acetosæ), and from the acid nature of the Sorrel upon which it fed it might be considered that the corrosion was attributable to the nature of the food of the larva; the transformations of the species in question had been observed last year by Mr. Shield, of Dublin. Mr. Foxcroft exhibited specimens of 17 rare species of Lepidoptera which he had reared from larvæ taken last year in Fifeshire; he also exhibited specimens of Papilio Machaon reared from two very different varieties of larvæ. Mr. Bond exhibited a variety of Spilosoma Menthastri. Mr. Edward Shepherd exhibited specimens of Donaciæ, some stuck with the common pins and others with electro-plated pins; the former were now, after a few months, infected with verdigris, whilst the latter remained uninjured. Mr. Samuel Stevens exhibited specimens of the very rare Euchirus longimanus, male and female, brought to England by Madame Pfeiffer, from the Eastern Archipelago; also specimens of Euchirus MacLeayii. A note was read from Mr. Wallace containing a description of a magnificent new species of butterfly belonging to the genus Ornithoptera from Borneo, which he proposed to name after the Rajah Brooke. Mr. Curtis read a note on the species of Galls, recently figured by himself in the *Gardeners' Chronicle*, suggesting that some of them might prove varieties. A memoir by Mr. Dunborough was read on the natural history of the hive bee, being a continuation of his observations on the observatory hive, which had gained the prize recently given by the Society on that subject. The secretary read a notice that the Council had resolved to offer the duplicate insects in their collection for distribution among the

members. The portion at present arranged for that purpose consists of foreign butterflies, foreign Coleoptera, and British Coleoptera, the distribution to commence after the June meeting, the Council hoping that members partaking in the distribution will in return contribute to the Society's collection from their own stores. Dr. Gray stated that he had made arrangements with Mr. Janson for the preparation and publication of a working catalogue of British Coleoptera; and also that he had secured for the British Museum collection the whole of the types of Mr. Wollaston's Coleoptera of Madeira.

British Meteorological, *March* 27.—Dr. R. D. Thomson in the chair. A paper was read "On the late severe weather, as compared with that of 1814; and on the crystals of snow, observed during its continuance;" by James Glaisher, Esq., F.R.S.

The present year was ushered in with a high temperature, exceeding its average by quantities varying from 8° to 12° daily. On Jan. 10 a cold period set in, together with a dense fog, and the temperature which was as high as 49.6 on the 9th, fell to 26° on the 11th; this diminution of temperature was accompanied by a change in the wind, which from blowing a compound from the west changed to a compound from the east, and with few exceptions has so continued up to the present time. On Jan. 12 and 13 the temperature was about its average value, but after the 14th, when the cold set in, its departures were very considerable, particularly over the south, west, and eastern parts of England. Scotland, and the northern counties were frequently exempt from any share in the great severity of the period, which was also less severely felt at sea-side than at inland places. The lowest temperature, viz., 0.8, took place at Berkhampstead, and at different places in England on several days it was recorded as low as 3°, 5°, 7° and 10°. For a similar period to the one which has just passed, it is necessary to go back to the year 1814. That year, however, commenced with a very low temperature, a frost having set in on December 26, 1813. The intensity of the two periods was about the same; it ended in 1814, on March 21st, whereas in the present year, with the exception of a short intermission about the first week in March, it has continued to the present time. The temperature of the present period has descended lower and more frequently than in 1814, in which year the coldest day was on Jan. 10, when the reading was 19.6. The lowest temperature of this year also occurred in January, and was 19.2. In 1814 the lowest temperature in February was on the 4th, and was 22°. The lowest reading in this month of the present year was 20.6, and took place on the 18th, and this Feb. was a much more severe month than the Feb. of 1814. The mean temperature of Feb. 1814, was 32.4, and that of the present year was 29.3. The snow this year has been replete with crystallised particles of compound figure, formerly imagined to be confined almost, if not entirely, to the Polar regions. The primary figure or base of each crystal was either a star of six radii or a plane hexagon. The compound varieties included combinations of spiculæ, prisms, and laminæ, clustered on and around the radii, and seemed in their various stages of formation, and almost endless variety, to defy any attempt to classify or arrange them into groups. At the commencement of the frost simple stellar forms were chiefly prevalent, and fell in clusters of from 10 to 20 in a group. They descended quickly to the ground, where they lay like cotton ravelings knotted here and there, an effect produced by the white molecule, the centre of each star. On the morning of Feb. 8 a large number of crystals fell intermingled with the snow, which continued from early morning till late at night, with a temperature of from 29° to 32°. From 8 to 9 A.M., crystals of arborescent character fell sparingly; after 9 these entirely ceased, and were replaced by minute and glistening hexagons of laminæ, which gradually gave place to other hexagons compounded of solid hexagons set round in groups, and solid. These again, as the day advanced, became exchanged for figures still more compound, and from the centre hexagon of which, diverged six radii laden with prisms, set on at an angle of 60°. Soon after November the crystals ceased falling for a time till 4 P.M., when the arborescent form again set in, and was soon after accompanied by a mingling of nearly all the figures which had previously fallen during the day. They only ceased with the snow long after dark, when it laid upon the ground to the depth of 8 ins. On Feb. 13th, 16th, and 17th, a large number of crystals were observed, particularly on the 17th. The prevailing form was an arrangement of six radii studded on either side with prisms, ranged parallel to each other, but of different lengths; some exhibited a double layer of prisms the one superimposed upon the other. A few were discovered of cruciform figure made up of solid hexagons cut into numerous facets; these last were very minute and scarcely discernible to the naked eye. On Feb. 21st, there fell a large number of very complex crystals made up of solids, both of rhomboidal and irregular figure, cut into many facets and heaped one upon the other; there were also a large number of double crystals, that is, two crystals united to each other by an axis at right angles to the plane of each. On Feb. 23 the frost gave way, but for some hours in the morning Mr. Glaisher was able to continue his observations. The morning was overcast and calm, and snow fell in flakes, accompanied by minute spiculæ; soon after 9 o'clock a change took place, and mingled with the heavy flakes there fell a large number of thick snowy crystals; on examining these with a Coddingstone, they were found to consist of an assemblage of prisms, grouped in thick arrangement, and bristling up (if the phrase may be allowed) at all angles from some invisible nucleus. Some of the prisms were longer than others, but most of them were notched here and there, giving indications of the intended formation of other prisms or spiculæ. After the lapse of half an hour the common flakes were fewer in number, and were accompanied with innumerable spiculæ. These did not fall separately, but in groups of several, clinging to each other at all angles. They had a fleecy appearance to the naked eye, but under the glass were long and rounded prisms, partaking much of the character of an icicle, but all notched and tapering to a point. At this time the air was soft and mild, and the snow was falling thickly. At 10h. 30m. the air was still calm, and the snow continued. At this time it was easy to detect here and there pinnules in an intermediate stage of formation. The spiculæ which were still falling were now of greater length, and their figure more perfectly developed. At 11 crystals were falling of great beauty and transparency, but of simple figure; they were aborescent and many of them double. Whilst observing them they changed their figure in the most curious and kaleidoscope manner possible, the upper groups of prisms collapsing first, the next in order next, and so on, the collapsing each time dissolving three or more prisms into one, a change effected with instantaneous rapidity. This was the first step preparatory to their dissolving: the next step was the rounding of every angle that remained, and the next step to that the extension and thickening of spiculæ, which had served as axes to prisms, and which now derived accession from their half finid and dissolving matter. In this manner they continued to exchange one simple form for another yet more simple until the pristine drop of water occupied the site of the former crystal. At 11h. 15m. snow was falling quickly in minute crystals, as described. The air was genial and mild, the clouds lightened as preparatory to sunshine, and the birds for a while sang joyously. All nature seemed to rejoice at the mitigation of the weather. At 12h. the snow had all but ceased, and the temperature was 37°. The cocks crew as anticipating a change; the birds answered each other from the trees. Icicles 2 feet in length, which had been noticed for 16 days previously, began fast to melt away. All nature but the birds was still, and what is rarely seen, the trees were dripping moisture, while the snow lay like a rime upon their branches and bended stems. At 1h. 13m. the temperature was 35.5, and small and fine snow was again falling, water was dripping everywhere, the birds were singing joyously, and the calm continued. The paper was illustrated by numerous drawings by Mr. Glaisher.

Notices of Books.

Commentaries on the Productive Forces of Russia. By M. L. de Tegoborski. Vol. I. 8vo, pp. 528. Longmans.

At last we have an account of the resources of the empire with which we are at war, a book which gives us some real information respecting our formidable antagonist. How far the facts and figures brought together by M. de Tegoborski can be relied upon we are not in a position to judge, but assuming them to be true, we proceed to select such as are most likely to be of general interest.

European Russia, including Poland and Finland, considerably exceeds half the entire surface of Europe, and had in 1851 a population of about 62 000,000 inhabitants, *i. e.*, three times the population of England and Scotland in the same year. The population of the Russian possessions in Asia, whence it has been supposed such swarms of troops can be procured, is estimated at less than 5,000,000, or scarcely more than twice the population of London. Of the surface of this immense empire it appears that 18 per cent. consists of land in cultivation, 12 per cent. of meadow, 35.8 per cent. of forest, and 34.2 per cent. of pastures, marshes, *Landes*, heaths, roads, canals, lakes, rivers, and grounds occupied by buildings. The forests are very unevenly distributed, for whilst in some districts they occupy nearly the whole ground, in others they are entirely absent; in the Government of Taurida, which includes the Crimea, only 4 per cent. of the country is forest. Of the land fit for cultivation, 234,000,000 of acres are eminently fertile, consisting of a black earth or humus, the like of which is not found in any part of Western Europe. The natural fertility of this soil is, however, in some districts more then counterbalanced by excessive droughts, which are so frequent and of such long duration that it is nothing uncommon for 20 months to pass without a single copious shower of rain. The mineral resources of Russia are comparatively unimportant. Iron of very fine quality, it is true, is exported; but in the agricultural districts this metal is so scarce as to be almost a luxury; in fact, owing to the concentration of the mines at the extremity of the country, iron is so dear that more than 9-10ths of the cart and waggon wheels of every description are without iron tire; and, with the exception of private carriages, all the axles are of wood.

The most important agricultural vegetable products are,—In the northern provinces Rye, Barley, Oats and Flax; in the central provinces and in Poland Wheat and all other cereals, vegetables, Hemp and Flax; in the southern provinces Wheat, wine, silk, oleaginous seeds, Tobacco, and several tinctorial and medicinal plants. The most important to England are corn, Flax, and Hemp.

The author calculates the mean annual crop of cereals throughout all the European possessions of Russia at 260 millions of tchetwerts,* equal in value to 144,000,000*l.* Podolia, and part of Poland, furnish the finest Wheat. Rye is the most extensively diffused throughout almost every district. Barley and Oats are also cultivated in abundance. The fluctuations in the price of corn are very great, and their causes are examined at considerable length; the most important seems to be difficulty of transit, owing to which a deficiency in one district is not easily supplied from the superabundance in another. The average quantity of corn exported during the decennial period of 1839—1848, amounted (exclusive of Poland) to about 4,400,000 tchetwerts. The three-course system is still common; indeed it is almost universally prevalent throughout Russia.

The total production of Flax in Russia has been estimated at 10 millions of poods (1 pood equals 36 lbs.), and that of Hemp at 6 millions. There were exported in the years 1847, 1848, 1849, 12½ million poods of Flax, and nearly 8½ million poods of Hemp, or about 21 million poods of both together, giving an annual average of about 7 millions. This in value may be taken as equal to 2,346,000*l.* When it is remembered that Flax and Hemp (including seed) are upon the whole the most important of all the Russian exports, and that more than 61 per cent. of all that is exported comes to England, and that on the other hand 62 per cent. of all the Flax and Hemp which comes to this country is imported from Russia, some idea may be formed of the prejudicial effects of war upon both countries in this one particular alone. The author has not overlooked the rapid increase of the exports of Flax from Ireland, and he examines the probability of a successful competition by Ireland with Russia in this article. In his opinion there is no cause for alarm for Russia, at least for the present. In each of the years 1846, 1847, 1848, the average quantity of Flax exported by Russia to England was about 3½ million poods, whilst in 1849 and 1850, when the exports from Ireland greatly increased, the average quantity supplied by Russia was more than 5½ million poods. It is the small cost of production which gives Russia the advantage over other countries as regards this important article, for in quality Russian Flax stands at the bottom of the list. The price of Riga Flax is to Irish (the next worst in quality) as 10 to 16.3; to Dutch as 10 to 18.4; to Flemish as 10 to 23; and to Courtray (the best) as 10 to 27; in other words, Russian Flax fetches 38 per cent. less than the next lowest quality, viz., Irish. England, again, is Russia's best customer for Hemp, and it is upon Russia that England is chiefly dependent for a supply of that article, for it appears that notwithstanding an increasing supply from the East Indies, 65 per cent. of all the Hemp imported by us in the years 1846-49 came from Russia. Nevertheless owing to the supplies from the East Indies, and the increasing use of cotton, sailcloth, and iron cables, the Russian exports of Hemp, to this country are gradually declining. Linseed also is principally exported to England; three-fifths of the Russian exported Linseed come to this country, and 79 per cent. of all the Linseed England imports are obtained from Russia.

Passing from vegetable to animal produce we find that in 1846, according to government returns, there were 25 million head of cattle in European Russia, and the average quantity of tallow exported in the years 1846-48 was 3,810,000 poods. The quantity of cattle exported is trifling; and yet in the provinces contiguous to the Black Sea and Sea of Azov cattle are, relatively at all events, superabundant—there being more than one head of cattle to each inhabitant. With respect to foreign breeds, the Dutch and Tyrolese seem to succeed best, whilst English cattle appear to be the worst adapted to the Russian climate and Russian treatment. Sheep farming, owing to the great demand for wool and the extensive pastures of Russia, was and still is very profitable; but the effect of the enormous quantities of excellent wool imported by England from Australia is seriously felt. The appearance of Australian wool in the markets of Germany, and the increasing demand for it there, is also calculated to alarm the Russian farmers. The author, however, is far from despairing as to the fate of his countrymen, provided they will pay more attention to quality. As it is, he says, "It is notorious that the washing and assorting of the wool—operations of great importance—are, with a few laudable exceptions, performed amongst us with such consummate slovenliness as to be elsewhere unparalled; and what is more, such is the ignorance and absurdity of some flock masters that they speculate on the increment of weight from dirt, and wash their sheep in muddy water in expectation that the fleece will thus bring in more money—the fact being that the price offered by the merchant, who is quite alive to the trick, is in consequence so small that the advantage redounds to him and not to the farmer." Great attention is paid in Russia to horse breeding, a matter of the highest importance in consequence of the large numbers of the Imperial Cavalry and of the immense demand for horses of all kinds for the purpose of intercommunication. The best horses are reared in the provinces of new Russia, and especially in the Governments of Taurida, Kherson, and Bessarabia, the country of the Don and Black Sea Cossacks, &c. In the Caucasian provinces and in Georgia there are numerous herds of horses of excellent breed, very suitable for light cavalry. The total number of horses in European Russia (excluding Finland) is computed to be upwards of 18,000,000, or about 9 horses for every 31 inhabitants, an enormous proportion as compared with France, Austria, and Prussia. The number of horses exported is very trifling. The author states at considerable length the means taken by the Government to improve the various breeds, but for these as well as other details reference must be made to his work itself.

The chief productions of the Crimea seem to be wine and fruit. In 1848 the number of Vines in the whole government of Taurida was 35½ millions. The wines themselves, however, are not much liked by those unaccustomed to them; the prices vary according to quality and sort from 3*d.* to 10*s.* per gallon. Apples and Pears are the principal fruits; of the former the rennet, and of the latter the St. Germain and virgouleuse (a winter Pear), are greatly cultivated. The Black Sea and Sea of Azov, moreover, abound in fish of the greatest variety. Amongst others there are the tunny, the salmon, the sea trout, anchovies, and herrings weighing as much as a pound and a half.

We take reluctant leave of this highly interesting work. It is well translated, and will, if furnished with a good index, take the place it deserves amongst standard works of reference.

* 1 tchetwert = 0·72 imperial quarters.

FLORICULTURE.

The Auricula.—Notwithstanding the severity of the winter, I have seldom seen my Auriculas look better than they do at the present time. They promise to bloom unusually well, and in order to strengthen and increase the size of the truss, I give them now and then a little weak manure water. In cultivating the Auricula, I have found that the principal care required is to keep the plants in a clean and healthy state, by removing all decayed leaves and keeping the pots and surface of the soil neat and tidy. The compost I use is made up in the following proportions, viz., 2 barrow-loads of cow dung, at least two years old; 1 do. of leaf mould; 1 do. of pure light loam, from an old pasture. These are well mixed together, and a sufficiency of silver sand added to keep the mass open and porous. During November, December, and January, if the weather is mild, I give the plants all the air I can. While they are at rest I occasionally give them a little water to prevent the foliage from becoming flaccid,

taking great care not to wet the plants themselves. The first mild weather in February I top-dress, by removing about an inch in depth of the surface compost, taking care not to disturb the fibres, and filling up to within a little of the foliage with new compost, having a portion of good old sheep dung mixed with it. After they are top-dressed, the plants must be set to work, by being regularly watered; towards the end of the month they will be growing rapidly—at which time protection is requisite from sudden and severe frosts. My stages face north-east; but, immediately after being top-dressed, I remove those plants intended for exhibition to a stage facing due south; and as they come into bloom, I remove them again to the north-east, where they only get the morning sun. During May, June, and July, the plants must be liberally supplied with water, and kept clear of decaying leaves and flower stems; at the same time look out well for a small black caterpillar, which attacks the centres of the plants, and if not caught in time, will leave only a naked stump. Green fly, also, must be removed, by carefully brushing them off. There is much difference of opinion respecting the time to repot Auriculas; there can be no doubt that early potting causes many of the plants to bloom in autumn, which weakens them and injures the spring bloom. My time for beginning this necessary operation is towards the end of July, so that I may have them all finished by the middle of August. The plan I follow is to shift two years consecutively, leaving a good ball of soil at the roots, and the third year to shake the whole of the compost from the fibres, and pot them afresh; when I require to do this I repot about a month earlier. The method I adopt in repotting is as follows:—For a full-sized plant I use a pot 6 inches wide and 7 deep, and for smaller plants and offsets pots varying from 3 to 5 inches wide. For draining I use first, a layer of broken crocks, then a layer of oyster-shells, convex side up; above this I place some vegetable fibre, to prevent the compost choking the drainage; I then fill in some compost; when this is done I examine the plant to be repotted, and reduce the ball of fibres with a sharp knife. I like to grow my plants with short stems, consequently the lower portion of the stem is well examined annually, and all decaying portions of it cut off, and the wound dressed with powdered wood charcoal to dry it up, and keep the plant healthy; the offsets are then slipped carefully off, and the part of the plant to which they adhered, dressed also with charcoal; the plant is then placed in the centre of the pot, which is filled up to within about half an inch of the top, care being taken to keep the foliage clear of the compost; a gentle stroke or two upon the bench will settle the soil, and should it sink much, I add what is necessary to complete the quantity. When the compost is shaken altogether from the plants, and the stem and fibres properly trimmed, the fibres require to be equally distributed over the soil in the pot, touching the side, and then filled up. Some cultivators have recommended keeping the plants in a dry state for a few days after re-potting. I have found injury to result from following this advice; therefore, they should be watered whenever completed. There is one fatal malady to which this fine flower is liable, viz, Rot. This may be attributed to two causes, viz., improper compost, and allowing water to lodge in the hearts of the plants. An experienced cultivator can instantly perceive by the peculiar smell when disease is in a collection: when a plant is seen with its head leaning to one side, and the outer leaves assuming a purple hue, having also a strong disagreeable smell, then rot has commenced. Plants so infected must be immediately removed to a distance from those in health, otherwise the whole collection may be swept off in a very short time. I have tried every sort of experiment to cure this scourge. The only remedy that was successful was to take the plant out of the pot, wash it well, and with a sharp knife cut away all infected parts, and dust the wounds with charcoal; and after allowing the plant to dry for a few hours, to re-pot it in a mixture of leaf mould, loam, and sharp sand. To guard effectually against rot, never allow the plants to receive any heavy rains, and purchasers cannot be too careful in having their plants from a healthy stock. These are precautions which every grower must attend to who wishes to have a healthy and fine display of this favourite spring flower. *L.*

SEEDLINGS.

Scarlet Geraniums: *J S G.* 1 is the best; it is a brilliant scarlet, but of the size and appearance of the truss we can form no opinion, as it had dropped to pieces before it reached us.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Where the hardier kinds of stove twiners are grown for covering the rafters of the show-house, every possible attention must be afforded them this season, in order to induce an early healthy growth, for unless this is secured many of them will bloom but poorly, if at all. Give particular attention to the state of the roots, and endeavour to keep the soil in a nice moist healthy state; also avoid giving top air when not absolutely necessary for the other inmates of the house. Considerable attention and care are necessary to get these things to flower abundantly even in favourable seasons, and this season the spring has hitherto been so cold and unfavourable that without extra attention the growth of such things will be unusually late, and hence there will be but a poor chance of their blooming satisfactorily. The present is a favourable season for making any alteration among the conservatory twiners, and we would recommend those who have a large demand for cut flowers in winter to plant some of the finer Acacias to be trained to the rafters. These grow very rapidly, and when allowed plenty of space form objects of great beauty in winter, and early spring.

FORCING DEPARTMENT.

Pineries.—Plants swelling their fruit should be very carefully attended to with water at the root; for, if allowed to get too dry, there is great danger of checking the fruit and preventing its attaining the size which it would under proper treatment. It is, however, very easy to err in the opposite extreme, and considerable care and practice are necessary to enable one to properly water plants having their pots plunged; therefore this should not be intrusted to inexperienced hands, who would probably water every plant if the surface soil indicated dryness. Use weak tepid manure water for plants that are well rooted, whether fruiters or growing stock, and keep the atmosphere thoroughly moist, giving air very sparingly on cold, drying, gleamy days. Black Jamaicas and Montserats expected to supply ripe fruits at Christmas should soon be ready for shifting into their fruiting pots, and great care should be exercised to avoid checking their growth by any means, as this might lead to their fruiting prematurely. See to having the balls in a rather moist state at the time of repotting, and keep the bottom-heat regular and the atmosphere very moist and rather close until the plants appear to have taken to the fresh soil. The same attention will be necessary in watering, and bottom-heat, &c., in the case of those growing in the open bed, for plants that are any size are very apt to show fruit at this season if at all checked in their growth. Vineries.—Directly the fruit in succession houses is sufficiently advanced for thinning get this done, the laterals stopped, and the shoots regulated without loss of time, for allowing the berries to get so thick that the scissors can hardly be got amongst them renders thinning tedious, and also robs the Vines. Give inside borders a liberal supply of manure water, using that from the stable-yard tank where it can be obtained, and mixing with it a sufficient quantity of warm water to render it about milk warm. In all cases, give every possible attention to the state of the roots, securing a little artificial warmth where circumstances allow of doing so, for the ground is cold and very unfavourable for the roots of Vines. Where fermenting materials have been used on the border of the early house, the heat should not be allowed to decline until the fruit is fairly ripe, for it is much easier to secure a heavy crop of well swelled fruit than to perfectly colour and ripen even a moderate crop, and a healthy root action is perhaps more important while the fruit is colouring than at any other period. Therefore let the fermenting materials be turned occasionally, adding fresh as may be requisite to keep the temperature of the border at about 70°. In cases where red spider threatens to be troublesome, in succession-houses, rendering syringing necessary, rain water should be provided for syringing with, as if water containing lime is used, the berries are sure to be disfigured by an incrustation of lime, and we have seen a splendid house of Grapes disfigured through syringing with hard water. Figs.—To have this fruit in perfection, the trees should be rather dry at the root and the atmosphere rather dry and warm during the ripening period; but respect to the second crop often prevents proper attention being given to the ripening of the first. If care, however, is used to have the borders in a healthy state as to moisture, and rather inclining to dryness at the time the fruit begins to ripen, and save in the case of plants growing in pots or tubs, giving no more water at the root until the first crop is gathered, fruit of good quality will be obtained without risking the loss of the second crop. Plants in pots or tubs swelling a heavy crop of fruit will be benefited by an occasional watering with weak manure water.

FLOWER GARDEN AND SHRUBBERIES.

The weather continues most unfavourable for recently transplanted trees and shrubs, and nothing but careful attention will save large plants that have been shifted this spring, especially if in exposed situations. Do not allow anything to suffer for the want of water at the root, but one good soaking after planting to settle the soil about the roots will be sufficient in most cases until we have more sunshine to warm and dry the ground; for keeping the soil saturated will not be of any service in encouraging the production of active roots. The soil should be kept moist, but not saturated and run together by over watering as is sometimes done—a sprinkling overhead with the engine on the evening of drying days will be of more service to large evergreens than over-watering them at the root. See that all recently planted things, whether large or small, are well secured against the wind. The best way of effecting this in the case of large plants is to use three strong tarred cords for each, fixing them to the plant by means of a collar made of strong metallic wire, and thickly wrapped with canvas to prevent its injuring the bark, and tieing to strong pieces of Oak driven into the ground at a proper distance from the stem of the plant. This may be somewhat more expensive than staking, especially where stakes can be obtained without any outlay; but a plant once properly secured in this way may be considered safe against wind, as the ropes will last for years, and until the roots get sufficient hold of the ground. For specimens in prominent situations, metallic wires should be used instead of cords, being neater in appearance; and if somewhat expensive in the first instance, they will last a lifetime, and a little expense is of no importance compared with living in constant fear of having a favourite specimen blown down or injured by the wind. Take advantage of the dry state of the ground to stir and rake the surface soil of shrubbery and herbaceous borders to prevent the growth of weeds, and give a fresh neat appearance. Also plant out Wallflowers, double Rockets—young stock of herbaceous plants generally. Delphinium Hendersoni is one of the finest plants we possess in this way, and should have a place in every garden.

HARDY FRUIT AND KITCHEN GARDEN.

Be prepared with protection for the blossoms of fruit trees wherever this can be applied, for it will be nothing surprising if the present stormy weather should be followed by a few nights of sharp frost, and even if it should be true that frost does not injure the blossoms of trees that have been properly pruned, we would advise those who can command some kind of covering not to make the experiment. Thick coverings, which would keep light and air from the trees, should not be allowed to remain on during the day, for this would probably be as injurious as frost. See that recently planted trees are perfectly secured against the wind, and do not let them suffer for the want of water at the root. The main crop of Broccoli should be sown at once, also a bed of Couve Tronchuda, which is excellent for autumn and early winter use. A small breadth of Cabbage should also be sown for succession, as also Cauliflower, Lettuce, Turnips, &c. The best way of securing a regular succession of these is to sow small quantities frequently, and at stated intervals during the summer—say once every fortnight. Put in a few Kidney Beans on a warm border, and plant some in pots or turves, to be raised under glass, and planted out where they can be covered in case of frost. These will afford the chance of an early dish, and anything in the way of early vegetables will be doubly valuable this season. If not already done, Ridge Cucumbers, Vegetable Marrows, Cardoons, Tomatoes, and Capsicums should be sown in a warm frame, so as to have strong plants by planting-out time.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending April 12, 1855, as observed at the Horticultural Gardens.

April.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	
Friday	6	19	30.135	30.119	64	40	52.0	44	43	N.W.	
Satur.	7	20	30.120	29.994	60	32	46.0	46	46	N.W.	
Sunday	8	21	30.050	29.999	53	38	45.5	46	45	N.W.	
Mon.	9	22	29.811	29.404	58	39	48.5	46	45	W.	
Tues.	10	23	29.301	29.253	54	40	47.0	47	46	W.	
Wed.	11	24	29.556	29.423	57	42	49.5	45	46	W.	
Thurs.	12	25	29.572	29.512	60	46	53.0	46	45	S.W.	
Average.			29.792	29.672	58.0	39.5	48.8	46.7	44.8		

April 6—Fine; very fine; partially overcast.
— 7—Overcast; exceedingly fine; clear at night.
— 8—Low white clouds; cloudy and cold; slight rain.
— 9—Slight rain; cloudy; rain; boisterous.
— 10—Boisterous; hail occasionally; clear and boisterous.
— 11—Cloudy; rather boisterous; rain at night.
— 12—Clear; very fine throughout; slight rain.
Mean temperature of the week 8 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 29 years, for the ensuing week, ending April 21, inc.

April.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind.							
Sunday	15	57.7	39.1	48.4	17	0.47 in.	[illegible]							
Mon.	16	56.4	36.9	46.6	12	0.63	[illegible]							
Tues.	17	57.1	36.1	46.6	14	0.32	[illegible]							
Wed.	18	57.6	37.2	47.4	13	0.49	[illegible]							
Thu.	19	58.4	36.8	47.1	7	0.45	[illegible]							
Frid.	20	59.5	36.8	48.2	14	0.39	[illegible]							
Satur.	21	58.4	39.3	48.8	13	0.28	[illegible]							

The highest temperature during the above period occurred on the [illegible] 1854—therm. 77 deg.; and the lowest on the 16th, 1847, and 19th, 1848—therm. 20 deg.

Notices to Correspondents.

Asparagus: *T B P.* The general opinion is that there is but one sort of Asparagus, and that the so-called varieties are merely the result of differences of cultivation. The matter is, however, undecided. Our own opinion is that there are more sorts than one. ‡

Dioscorea Hatatas: *R J M.* It has been advertised by some nurserymen; see our paper of the 10th ult., p. 149. ‡

Insects: *S F.* Your insect is the young state of the Rove Coach-horse, Staphylinus (Goerius) olens. You must not destroy it, as it feeds upon worms and other obnoxious grubs. ‡

Names of Plants: We have been so often obliged to remark that we decline naming heaps of dried or other plants, that we were in hopes to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*F C S.* The species of Cupressus cannot be recognised by fragments. No doubt C. macrocarpa and Lambertiana are the same species.—*T W.* Jatropha panduræfolia.—*O P.* We cannot recognise your Salvia from so small a bit. It may be S. pulchella. As regards S. splendens, see an article by "Alpha" in another column. ‡—*W Fane.* Catasetum intermedia, a dark variety; and a Vanda that seems to be quite new. You will see further mention of it hereafter.—*F* [illegible] It looks like a bit of Silene arenaria; but the specimen is too small for identification.

Oranges: *L C.* They may be grafted now if they have not begun to grow. We would, however, prefer inarching to grafting. ‡

Vines: *Woolton.* There is no objection to stopping the progress of your Vine-roots by an underground wall. The other inquiry is answered in a leading article.

Misc: *Sub.* Melilotus leucantha is the plant otherwise called Bokhara Clover. Magnetic observations do not fall within the scope of this Paper.

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The Agricultural Gazette.

SATURDAY, APRIL 14, 1855.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, April 18—Agricultural Society of England.

ON Tuesday, April 24, one of the largest and finest herds of SHORT-HORNS in England, and therefore in the world, is to be distributed. During the past few years it has been laboriously and expensively collected, and now for reasons which are, we presume, of no public interest Mr. STRAFFORD is to scatter it. Mr. TANQUERAY has been known among short-horn breeders for some years past as an attendant and buyer at sales of well-bred stock, and he has collected at Hendon, near London, a herd of about 100 animals, whose prices will, we doubt not, maintain the reputation of the short-horn breed. Many of these are very nearly related to the Kirkleavington blood, and thus (as appears in the valuable letter which we publish to-day from Mr. WOOD) related to several of the best tribes into which the breed is divided. The Oxford family is largely represented; Oxford 11th and 16th among the cows and heifers, and the 6th and 7th Dukes of Oxford among the bulls, will no doubt create extraordinary competition. Oxford 11th was bought at Tortworth by Mr. TANQUERAY for 250 guineas,

and Oxford 16th, then a three months calf, was bought for 180 guineas. The sixth Duke of Oxford—just a yearling—is from the first of these cows; the other bull is from Oxford 6th, a cow bought by Mr. Tanqueray, at Tortworth, for 200 guineas. Besides these there are animals with many crosses of the Duchess blood in them which will doubtless fetch very high prices. Seventy-seven cows and heifers and 23 bulls and bull calves will be offered for sale on April 24th, and American and French will bid against English breeders for their possession. The reputation of Mr. Bates, of Lord Ducie, and of many other breeders, as well as that of Mr. Tanqueray, will be maintained by the result. It is very much to be regretted on national grounds that a gentleman who has at such a cost of time and means done much to improve and encourage the breeding of short-horns, should thus have determined to abandon the pursuit.

Mr. Lock has recently published an appendix to the fourth edition of his excellent work "Ireland's Recovery," that supplies a want generally experienced in making investments in the purchase of Irish estates. The mode of valuing land is methodically managed in England, and the condition of it when about to be transferred from one proprietor to another is easily ascertainable. Our area comparatively with that of Ireland is divided into larger farms, held on shorter leases, and occupied by tenants who more punctually pay their rents, and are prepared to surrender their farms at the expiration of their leases, if either party wishes to sever the connection; and if the tenant does not faithfully observe the covenants under which he binds himself, the law affords an easy remedy to the injured landlord. There are also many smaller holdings under yearly tenancy, in which cases six months' notice on either side is sufficient to conclude the temporary agreement, and in many instances without liability on the part of the landlord to allow compensation for any improvements made by the tenant; but though legally there may be no obligation on the English landlord in the latter case to make any compensation, it is the custom in some portions of the midland counties to do so, under peculiar circumstances. These instances are locally understood by the valuators, and rarely produce any difficulty whatever.

If a proprietor of land wishes to sell it, and has a right to do so, no difficulties arise from the circumstances of the occupying tenants; and the principle of valuing the property is simple, and, we believe, nearly uniform in England. One or more professional land surveyors are employed to examine into the details of each farm, with its labourers' cottages, &c. A map of reference is before them (where a tithe or parochial map exists this is the guide), with each field, coppice, &c., specified and numbered upon it. The valuator criticises the qualities of the soil and subsoil, and notes the acreable value. The timber is perhaps valued in detail, or not unfrequently a certain sum is demanded for it in the gross. The condition of the farm houses, the repairs to be executed, the deficiencies to be supplied, the drainage necessary, are of course estimated also by the valuer, who takes into consideration the amount of land-tax or other charges payable by the landlord, and the probable amount of tithes, poor taxes, and parochial rates chargeable to the tenants. From such data he ascertains the just acreable value, referring to the local prices of agricultural produce as a standard. From his return the value is accurately fixed, and the estate changes ownership without difficulty, and at the average rate of about 20 years' purchase.

But in Ireland the application of the English principles alone is often insufficent to meet the cases submitted to the valuer. Mr. Lock's practical remarks on the subject are extremely interesting in a statistic point of view and important in themselves. We shall give them in an epitomised form, regretting that our limits of space do not admit of them being transferred to our columns *in extenso*. To carry out the details of the Poor Law in Ireland the first valuations were made "by isolated individuals at different periods, without co-operation, or reference to any fixed schedule of prices." To attain something definite and uniform, Government valuations were made in the years 1839, 1846, and 1852. The first was called the Ordnance or Townland Valuation, and was based on the then current prices of agricultural produce, viz.—

Schedule of Prices adopted under the Townland Valuation, 6 & 7 Wm. IV., c. 84.—Per cwt. of 112 lbs.

Wheat.		Oats.		Barley.		Butter.		Beef.		Mutton.		Pork.		Potatoes.		Flax.
s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	
0	6	6	0	7	0	69	0	33	0	34	6	25	6	1	7	Not included in Schedule

It was intended to form a uniform and relative valuation, the Townland (the smallest denomination of land possessing permanent boundaries) being made the unit of valuation.

The second valuation was upon an estimate of the net annual rent which each tenement might be reasonably expected to bring, all rates, insurances, repairs, and public charges (except tithe-rent charge) being paid by the tenant. At that period the value of agricultural produce was as follows—

Schedule of Prices adopted under the Tenement Valuation, 15 & 16 Vict., c. 63, with Supplement of 17 Vict., c. 8.

Per cwt. of 112 lbs.

Wheat.		Oats.		Barley.		Butter.		Beef.		Mutton.		Pork.		Flax.		Potatoes.
s.	d.	s.	d.	s.	d	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	
7	6	4	10	5	6	65	4	35	6	41	0	32	0	49	0	Not included in Schedule

Then came the last acts, with a new reference standard of prices, from which schedule Potatoes are omitted, and Flax included, the valuations previously made remaining fixed until they shall be revised under the act, so as to present one uniform scale of value.* It appears two of the provinces, with the exception of the counties of Longford and Clare, are under the latter (or Tenement) valuation; the other parts are under the Ordnance valuation. When the Tenement valuation, that is of "the rateable hereditament under the provisions of the Poor Law" shall be completed, the valuation of each Poor Law union, &c., is to continue fixed for 14 years, when a revision may be ordered by the authorities.

A British intending purchaser of Irish land property must find it an advantage to be informed of those details. Nor will he think it superfluous information that the county cess is paid by the occupier or tenant, who is also liable to half the poor rates: and though the other moiety is chargeable to the landlord, with the whole of the tithe-rent charge, (which however does not exceed 11*d.* in the 1*l.* on the net rental of the country) "the amount of Poor Law taxation now happily diminishing throughout Ireland will not be a serious discouragement when it is considered that the very circumstance of an independent and employing capitalist becoming the proprietor of a hitherto insolvent estate must necessarily result in the reduction of local taxation." Then it must be borne in mind that land in Ireland is valued lower in comparison with its productive capabilities than land in England, the superior farming of the latter causing the average produce per acre to exceed our returns by about one-third. From this it is easily apprehended how agricultural skill applied to Irish land will yield the purchaser an increased per-centage on his investment, or, in other words, reduce the number of years purchase, as estimated on the increased productive value under improved culture. It is pleasing to find that even the Peat moors in the west of Ireland, which hitherto have been classed under the head of waste land—to a great extent, too—are found to be giving larger comparative returns for draining, &c., than the richer soils. The Scotch sheep farmers have found this out; their hardy Irish sheep are quite at home, or perhaps better than they would be in their native highlands, on the green pasturage to be found on the shallow Irish bogs.

* Mr. Lock's third table shows the average prices at the commencement of 1855:—

Per cwt. of 112 lbs.

Wheat.		Oats.		Barley.		Butter.		Beef.		Mutton.		Pork.		Flax.		Potatoes.	
s.	d.	s.	d.	s.	d.	s.	d	s.	d.	s.	d.	s.	d.	s.	d	s.	d.
17	3	9	0	9	6	94	6	48	0	53	0	45	6	60	0	5	6

There is also a table showing the present value in years, &c. of a lease for any certain term which it may be desirable to purchase.

YOUTH.—CRIME.—PUNISHMENT.

(TWO LETTERS.)—No. II.

It is a favourite adage and one which appears to reflect no little of the free spirit of our Courts of Criminal Law—that 'It is better 20 guilty men should escape than that one innocent man should be wrongfully convicted.'

Those who are old enough to remember poor 'Matthews at Home' may be able to recall the stage-coach scene of a very talkative travelling lady, the headlong plausibility of whose discourse is doomed to be from time to time tripped up by a gruff old gentleman in an enormous throat-wrapper, which his mouth only surmounts at the most provoking intervals, just to utter the words—

"That's *another* vulgar herror!"

The indignation of the good lady's face as the rude and repeated blows from this travelling sledge-hammer keep smashing the best links in the chain of her mail-coach oratory, is suggested by the bare thought of a point-blank contradiction of the above adage about innocent and guilty men. But it may as well be spoken out at once: it *is* an error, and an error based upon an error.

Try it in this shape. "It is better that 20 rotten sheep should be turned loose amongst the flock than that one sound animal should be submitted, without occasion, to the doctor." Or thus, "It is better that 20 typhus patients should be billeted on the town than that one person, free from the disease, should be sent to the hospital." Or, once again, thus—"It is better that 20 dangerous lunatics should be set at large than that one man of sound mind should undergo treatment for insanity."

If the 'treatment' be, in each case, cruel, ignorant, and antiquated—Yes! If enlightened and discriminating—No! Because, a few days would end the mistake; and meantime no suffering would befal the supposed 'patient,' because none would be required or practised.

When shall our Gaols have their 'Quetelet,' 'Winslow,' and 'Conolly!' When will the 'Punishment' for *moral*-insanity follow the drum that has beaten the retreat of the straight-waistcoat and the scourge from the abodes where infirmity *of intellect* is sad enough—but a good deal milder and safer without them.

The truth is, that in our dealing with the criminal we cannot, and we *do not*, get our own minds clear rid of the idea of vengeance. Alas, for poor human nature! you shall see it start, now, at the very shadow of *the word*, but the substance is there still, barbed like a fish-hook, rooted deep and firm; hidden away from *self*, most carefully and most tenaciously. In vain we try metaphysical conclusions with the young Ignorance standing impersonate before us, telling him we 'punish' him for his own good. The obedient air conveys the sounding paradox to his outer ear: 'the voice is the voice of Jacob, but the hands ——!' as Mr. Bumble bears him away, roughly, though unresisting. Did you ever chance to notice, after some kind and gentle-voiced magistrate or judge had almost called up the forgotten tear of sorrow and penitence to the face of conscious guilt, how, the very instant the last syllable, hung upon by a solemn and silent assembly, has dropped from his lips—how Mr. Bumble, with his "Come along!" and a shove and a pull to correspond, dislocates the whole fabric in the twinkling of an eye-lash! Mr. Bumble is your true 'practical man.' He has been listening all the while with impatience withheld only by 'respect for the Court,' or magistrate, (whose 'hignorance o' the natur' o' them young varmints' he unfeignedly pities in his secret soul) till *his* turn comes. And then! the voice and hand of vulgar authority compelling, back to the precious acquaintance which prison has 'introduced' him to, goes the little culprit, a new soul waiting upon the Stygian shore beyond which lies the land of Universal-crime-specific, "Three months' Hard-Labor," "Six months' *Hard*-Labor," "Twelve months' Hard-Labor."

Talk of quackery and Morrison's Pills! Why this beats anything that the most stolid empiricism ever dared or dreamt of. For, look you, Justice Morrison, you do not understand the moral pharmacopœia you pretend to dispense from! This Pill of yours which you prescribe as a 'hard' and bitter drug is, all the while, your patient's proper *Food!* Teach him but to believe *that* not so 'hard' as he supposes; make *that* but pleasant in his eyes—show him that when *the ground* was cursed for man's sake, *that* was the occult inherent blessing, the precious flower entwined by merciful Omniscience within the thorns and brambles that sprung from man's first disobedience—that The Hand which made both Man, and Labour, could mitigate, unite and reconcile the lot, till it should be inseparable from the happiness of the *forgiven* sinner—that unlike earthly power, the *creative* Hand could withdraw the penalty without altering the sentence: that from that same 'Labour' which you have now stigmatised for ever in the culprit's mind by an epithet as ugly as it is false—springs all that makes man healthy, wealthy, wise, and happy! all that enriches, instructs, and ennobles, all the difference physical, intellectual, moral, that stands between, and separates him the poor, ignorant, Prisoner, from you the wealthy, learned, Judge! And this talisman of earth—this golden key that unlocks every door, you, as far as in you lay, have dissociated for ever from his hand and will! Blind leader, of the blind! putting bitter for sweet and sweet for bitter!

What said the immortal Howard this eighty years ago! "Make a man industrious, and you will make him honest." This was his favourite aphorism. Now if anybody but Howard had said this, who amongst us would ever have dreamt of its having the remotest application to the genus *Homo* that has its habitation on the wrong side of Prison walls! For, according to the popular doctrine, and practice of the criminal law, so soon as the terra incognita included in those walls is reached, all human motive and propensity become reversed; the Tender now goes before the Engine. Labour, the producer, and the sweetener, of Food, is henceforward to be unproductive 'by Act of Parliament,' and the decrees of pseudo-political-economists. Breakfast, dinner, and supper drop from the skies, and have no more to do with divinely-appointed labour than with the passing clouds that form the day-landscape, or the starry segment of the celestial-globe bequeathed by departed earth to the prisoner's nocturnal eye,—though alas! without the "knowledge" that night should give to night. Everything, as in dream, interpreting, is henceforward to go by contraries; instead of its being a man's interest to keep in health, he swallows his soap at washing time as a note-of-invitation to Diarrhœa, and the comforts of the Gaol-Infirmary, or "wilfully seeks his own salvation" by rupturing himself for life, to escape 'such a getting up

stairs' as that presented by the barren orbit of the Treadwheel, and so slips the yoke of 'Hard-labour' for evermore.

What a practical commentary upon the 'punishment' of '*Hard*-labour'! What a justification of itself by outraged natural Truth! *Naturum expellas furcâ, tamen usque recurret.* You may drive out Nature, but she'll be up and at you again! You may drive it out from your universities, and teach your lawmakers everything but the simplest natural truths that preside over the relation of man, body and mind, with the laws of the universe around him. They shall talk of Physics, and Metaphysics, and be ignorant of the most ordinary laws of both; and then they shall sit upon a Parliamentary Committee, and produce you such a struggling modicum of wisdom as this—

"The Committee concurs with some of the most experienced witnesses they have examined, in the opinion that the great majority of convicted prisoners are *open to the same good motives and good impulses that influence other human beings* (!), and therefore that a system of encouragement to good conduct and endeavour to inspire feelings of self-respect, self-reliance, and hopefulness, which have been tried in some of our largest establishments, ought to be adopted as far as practicable."*

Read this, shade of Howard! nearly three generations after you had wandered through the prisons of the earth and striven in vain to persuade mankind that the bird, though caged, was still a bird, that every 'old bird' was *once a young bird*, and that the bird that won't sing can be made to sing by early teaching, and can never be made to sing by mere punishment, which, indeed, never produced one song yet; and that "no song, *no supper*" is a good maxim all the world over, the prison world included. How the old birds grow from young birds, and how the young birds come to be old birds let the following extracts show.

"One plain fact showing the extent to which crime is caused by the neglect of children, is the large number of Orphans always to be found in prison. Out of *seventy boys and girls under eighteen years of age* in the prison, *fifty* had lost one or both parents; and the greater portion of the parents who were living were of bad character."†

And again:—

"Of children trained at all aright, the number is small indeed whom we have had the pain of seeing here: but where *any* pains have been bestowed even by one parent, the last thing forgotten in all the recklessness of profligacy is the prayer or hymn taught by a mother's lips; and the most poignant sting of conscience in solitude and adversity is what the memory of filial disobedience inflicts."‡

Are there no waste lands in Great Britain and Ireland where the busy fingers of inchoate crime may be reconciled to useful labour, and the brains belonging to those fingers be taught really to know, as a practical *truth*, that Honesty *is* the best policy? It is but to know that! Not to know it, is the ignorance that leads to all crime: and to rescue from crime 'one of the least of these' may indeed in a double sense of truth be called a charity that 'covereth a multitude of sins;' since, it has been ascertained that to cure one criminal is, on a proved average, to prevent fifty crimes. It is like 'killing a wasp in March,' which is said to 'take a whole nest without gunpowder.' And if there be an occupation that can turn *the wasp into a bee*, it is that first and best of arts that soils but not contaminates, that *separates*, but without solitude, that invites toil yet assuages and illudes it, that gives the help of a sound body towards the restoration of a sound mind; and the prolonged engagement in which, is consistent with and favourable to the exercise on the part of the supervisor, of the *three essentials of Reformatory Discipline* of the young offender, viz., KINDNESS, FIRMNESS, and HOPE. *H.*

* Resolution of House of Commons Committee on Prison Discipline, 1850.

† Mr. F. Hill. Report for 1845.

‡ Rev. Mr. Kingsmill, chaplain at Pentonville. 1846.

THE DUCHESS TRIBE OF SHORT-HORNS.

I FEAR that your correspondent Mr. Daly may still consider any information I have to communicate respecting the "Duchess" tribe somewhat scanty. Mr. Bates is dead, and breeders too seldom keep any written record of their proceedings, of the views on which they acted, of their successes or of their failures. This is greatly to be regretted, inasmuch as a history of their experience could scarcely fail to afford material assistance to their successors. With regard to the Duchess tribe, however, your correspondent has been misinformed when he has been told they were never first-prize takers at the national shows. At the first meeting of the Royal Agricultural Society at Oxford, the Duke of Northumberland (1940) took the first prize as the best bull of any age. Two Duchesses also took first prizes in their respective classes, and of five premiums awarded at Oxford, Mr. Bates carried off four! The Duke of Northumberland also took the prize as the best two-year-old and the best aged bull at the Yorkshire Society's meetings, when his dam also took the prize as the best cow. As far as short-horns are concerned, the exhibitions of this society rank quite as high as those of the Royal Agricultural, Yorkshire, Durham, and the North of England generally being the stronghold of the breed. It has happened before now, that a cow which has been the victress at the latter of these societies, has been beaten at the former in the course of the same season. Although not belonging to the Duchess tribe, it is not irrelevant to mention that 2d Cleveland Lad (3408) gained a second premium in 1843, and a first prize in 1844 at the Yorkshire Society's meetings, both because his blood was largely interchanged with that of the Duchesses, and as showing that public opinion supported the individual judgment of Mr. Bates in his choice of an animal, which, as you have yourself remarked, was almost without a pedigree. Again I remark that in the latter year, at the same society's show, Mr. Bell obtained the first prize for his bull calf General Sale, of which the sire was the Duke of Northumberland, and the dam was by Cleveland Lad; and that at the Royal Agricultural Society's meeting at Liverpool in 1841 a bull belonging to Mr. Bates also took the prize of 30 sovereigns. Latterly, Mr. Bates became indifferent about showing, as indeed who would not be after winning so many first prizes as he had done? Independently of the heart-burning, the jealousy, the expense, and the risk always incident to showing, the system, as at present carried out, involves permanent injury to the animals exhibited, because, in order to insure a fair chance of success, it is absolutely necessary to make them fatter than they ought to be for breeding purposes. Important as this point is, I have not space to consider it here, within the limits which I have assigned to myself, and I must therefore content myself with expressing my conviction that if the really useful qualities of short-horns are to be maintained, the present system of forcing them in order to win premiums must be altogether abandoned.

The facts which I have just adduced prove that, in the opinion of the judges at our agricultural shows, the animals of the Duchess tribe held a pre-eminent place. I now proceed to what I consider a still more decisive test of their merits, I mean the prices which the public have been willing to pay for them as breeding stock. The second Duke of Oxford (9046) was a son of the Duke of Northumberland, out of Cleveland Lad's sister. He was himself only second to his sire in appearance, and in his turn became the sire of many first-rate and high priced animals. Among the cows by him, I will only name Duchess 59th, which was sold at Lord Ducie's sale for 350 guineas, and Duchess 54th, which fetched the still higher price of 600 guineas. I desire to call especial attention to his son, fourth Duke of York, which at nearly eight years old, an age when numbers of excellent bulls are consigned to the butcher, made at Lord Ducie's sale 500 guineas. At Mr. Bates's sale that noble earl was by some persons deemed extravagant because he gave 200 guineas for him. Yet the event proved him triumphantly right, inasmuch as, independently of a numerous progeny of extraordinary excellence which he gained by his purchase, he more than doubled his original cost. Duchess 66th, which sold for 700 guineas, the highest price ever given for a cow, was in my opinion the most perfectly lovely short-horn ever seen. Along with her may be mentioned another daughter of the fourth Duke, Duchess 69th, which fetched the enormous price of 400 guineas, although only five months old. These sums far exceed those given at Charles Colling's sale, where the highest price given for a cow was for Lily, which fetched 410 guineas, while no heifer calf made more than 106 guineas. Here it may be interesting to note, that at the same sale the highest priced heifer was Young Duchess, the original of the tribe, for which Mr. Bates gave the large sum of 183 guineas, which was by his friends considered an act approaching to insanity. Yet, whenever the progeny of that heifer have come into the market, they have always been sold for prizes continually progressive up to the present day. I consider that the fourth Duke of York was the finest bull of our day, and that he was the sire of more stock of a superior and even quality than any other. He died on his passage to America last year. Many persons, however, considered that he was surpassed by another bull of the same tribe, the Duke of Glo'ster (11,382), which at the same sale fetched 650 guineas. However this may be, the world may safely be challenged to produce two other animals their equals, either for their interior merits or the evenly high quality of their stock.

These facts contain the reason why I consider Mr. Bates's herd superior to any other of our time. When did any other cows fetch such prices as these? What other herd can produce bulls like the Dukes of Northumberland, of Oxford, of York, and of Glo'ster? Nor must the sire of the latter, Grand Duke (10,284), be forgotten, which, apart from the excitement of public competition, was sold by private contract for 1000 guineas! The late Lord Spencer remarked that many defects were visible in a male animal which would not have been perceivable in an ox. To produce perfect males is therefore the highest test of the merits of any tribe, as it is the perfection of a male to impress his own character on his progeny. In this latter respect the bulls of Mr. Bates's descent are surpassed by no others.

Mr. Daly considers the Duchess tribe slightly deficient in the thighs and forequarters. A certain degree of lightness in the former part is the almost invariable characteristic of a cow that milks well, let the breed be what it may. On the contrary, whenever a cow has thighs like a bullock, there is the strongest presumption that she is no milker. That the Duchesses were noted in their early days for their milking powers, we learn from the pamphlet of the Rev. H. Berry. I know that they have not lost them now; and I have been assured, on the highest authority, that during the preparation of the Tortworth herd for sale, it was no easy matter to dry them, as was necessary, in order to put that "bloom" upon them which the public taste demands. For my own part, I much prefer a good milker to a cow with thighs like a fat bullock, but which is unable to rear its own calf. As to lightness of fore-quarters, that is a defect common, though not universal, among the highest bred short-horns. Many animals of the tribe we are considering are very good in that point, as the Duke of Glo'ster, for example. As far as my experience goes, it is possible by a judicious selection of parents to remedy this deficiency in the offspring. For instance, I have a cow whose sire was not of Mr. Bates's pure blood, while her dam and grand-dam were of his blood; she is herself excellent in the fore-quarters, a deep milker, and a very fine animal altogether. By a pure Bates bull she has had a prize heifer, and she is now in calf again to one of that tribe. I have another cow of the highest pedigree, being by 4th Duke of York (10,167) and of the finest quality, very lengthy and an excellent handler. It would be difficult for the most fastidious to find a fault in her, unless she might be thought somewhat light in the forequarter. She is in calf to the Duke of Glo'ster (11,382) whose depth there is extraordinary.

The prolific qualities of the Duchess tribe are at least equal to those of other short-horns. Thus it appears from the "Herd-book" that Duchess 51st produced six calves in seven years. That 28 females of the tribe should not have bred at all is so extraordinary a statement that I was led into inquiry as to its correctness; I find that of this number five or six heifers were choked at one time by eating too greedily of Turnip tops. Suppose an equal number to have died from natural causes, and that as many more were either fed for the butcher, or by being prepared for show were rendered prematurely fat, this materially reduces the number of those which would not breed, if indeed, which I cannot learn, that were the case with any. Mr. Bates, moreover, somewhat hasty in his proceedings, and having a large number to choose from, at once discarded a cow which showed any reluctance to breed. At Tortworth Duchess 55th had not had a calf at the time of the sale for three years, and having been for some time out of health, it was thought she might never have another. The consequence was that she only fetched 50 guineas, and that actually being in calf at the time, she was the best purchase made at that wonderful sale. *Willoughby Wood, Holly Bank, Burton-on-Trent.* [We understand that Duchess 55 has not had a calf since the Tortworth sale.]

OBSERVATIONS ON AGRICULTURAL STATISTICS.—By H. R. LACK.

(*Concluded from p.* 227.)

3. LAND CULTIVATED AND UNCULTIVATED.—One-half the area of Great Britain is stated to be occupied by farms. The hill pastures are not included in the farms to which they are attached.

The following are the proportions of territory occupied by farms in Great Britain, England and Wales, and Scotland, respectively:—

Great Britain	0.507
England and Wales	0.667
Scotland	0.209

Or one half of the territory of Great Britain, two-thirds of England and Wales, and one-fifth of Scotland.

The estimated number of acres under cultivation, as returned by the farmers, in Great Britain in 1851 was 29,213,312, and the number uncultivated or unaccounted for 28,411,065.

The table below (No. 3) shows the proportion of cultivated and uncultivated land in each division of Great Britain, in the year 1851:—

TABLE III.

DIVISIONS.	Estimated No. of acres under cultivation as returned by farmers.	No. of acres uncultivated or unaccounted for.	Total acres of territory.
England and Wales	24,905,758	12,419,157	37,324,915
Scotland	4,188,578	15,858,884	20,047,462
Islands in the British Seas	118,976	133,024	252,000
Great Britain	29,213,312	28,411,065	57,624,377

Note.—In addition to the number of acres farmed in Scotland there were 1,662,491 acres of pasture or moor land, making in all a total of 5,851,069 acres under cultivation of some kind in Scotland in 1851. A considerable addition may also be made to the number of acres farmed in England and Wales, on the assumption that many of the farmers did not return the acreage of pasture or moor land held by them in addition to the number of acres actually farmed.

In the year 1827 the amount of land under cultivation in Great Britain was estimated to be 34,397,690 acres, and that uncultivated and waste 23,554,799 acres, making a total of 57,952,489 acres. This estimate is in excess of the recent returns made by the farmers to the census office, and appears to be rather a high one. Taking the better means possessed by the census commissioners for obtaining information on this point into consideration, there is no doubt that the returns for 1851 are the most correct.

4. LABOURERS ON FARMS.—The number of labourers on farms, males and females, in the year 1851, was as follows:—

OCCUPATIONS.	MALES. Above 20 years of age.	MALES. Under 20 years of age.	FEMALES. Above 20 years of age.	FEMALES. Under 20 years of age.
Out-door agricultural labourers, including shepherds	824,587	201,216	56,073	14,826
In-door farm servants	109,452	126,491	63,538	64,713
Occupied in the woods as woodmen, &c.	8,896	1,174	18	

Total { Males, ... 1,271,816
{ Females 199,168

Of the total number of farmers returned to the census commissioners in 1851, 128,096 were stated as employing no labourers, and it may therefore be supposed that they were small farmers who did the manual

labour themselves, assisted by their children and by the employment of occasional labour.

The number of farmers in Great Britain in 1851 who only employed one labourer each, was 38,821; those employing two 33,536; three, 21,172; ten, 9660; twenty, 3153; forty, 403; fifty, 213; and those employing sixty labourers and upwards, 182. These returns are exclusive of women and children.

It needs also be stated that of the total number of persons who returned themselves as farmers, no less than 22,982 were engaged in some other pursuit or business besides that of farming, and amongst this number we find 3434 inn or beershop keepers, 1885 millers, 1463 nurserymen, 1230 land proprietors, and 1352 butchers. The remainder of these persons were engaged in various other occupations.

From the foregoing statements it will be observed that it is very difficult to arrive at any satisfactory results with regard to the exact number of farm labourers employed. The only way in which we can get a tolerably fair view of the proportion of the population engaged in agriculture is to view the whole number of persons employed in agricultural occupations as a class; and as a class compare them with the total population. On doing this we find that 26 per cent. of the males, and 3 per cent. of the females, of 20 years of age and upwards—and 8 per cent. of the males and nearly 3 per cent. of the females under 20 years of age, were specially employed in agriculture in the year 1851.

From what has been said, it appears that the agricultural classes have increased in number since 1831 but decreased as compared with the increased population, that is to say that although the total number of persons employed in agriculture has somewhat increased since 1831, it has not increased in the same proportion as the population.

The agricultural classes of Great Britain, therefore, as regards number, may be stated to occupy a nearly stationary position; the efforts of the farmers being rather directed towards the greater production of the land under cultivation than to the inclosure of uncultivated lands.

In the United States of America not only are the farmers paying greater attention to the fertilisation of the lands already under cultivation, but the stationary position of the agricultural classes in that country is also apparent, although not arising from precisely the same causes as in England. In the Patent Office Reports on Agriculture for 1849 it is stated, with reference to that country, "That it is a notorious fact that farm labourers do not seem to increase; they are everywhere scarce, and the demand for their labour in the towns and manufacturing villages enables them to command high wages.. . . . Farmers can with difficulty obtain sufficient labouring men, notwithstanding the almost half million of arrivals" (immigrants).

It is very probable that the increased education of the working classes may have in some measure been the cause of this scarcity of labourers, and if so, the still increasing education of the masses will materially affect the position of the farmer. For it is evident that when the masses become more generally educated, they will be better able to undertake skilled employments, and therefore the farmer will have to raise the wages of his labourers; for if he does not, he cannot expect a man to be content to do the work and receive the pay of unskilled labour, when he has the means in his power of acting just in the opposite direction.

The introduction of machinery, however, in the place of unskilled labour, will enable the farmer to get over this difficulty; and to raise the wages of the skilled hands he will then require to employ (which will be fewer in number than those at present engaged) to the standard of that of the manufacturing labourer, and thus the skilled agricultural labourer will be placed on an equal footing with the skilled manufacturing labourer. When farming is managed entirely upon scientific principles it will be necessary for the farm labourer to know something of those principles, and so we may hope that the position of the agricultural labourer will eventually be greatly improved.

With regard to the territory which is lying waste it is possible that science may aid us in reclaiming a portion of it, and when we consider the wants of the coming generations it appears most necessary that every step should be taken to increase the fertility of the soil, as well as to restore waste lands to fruitfulness. It is worthy of notice that some thousands of acres of land in this kingdom, hitherto employed for agricultural purposes have, during the last few years, been used for the construction of railroads, and thus been subtracted from the total producing area of the country. To make up this deficiency, as well as to provide for the increasing wants of the people of this land, is in the power of the agricultural classes, and it is hoped that they will, ere long, awaken to a sense of their own and country's interest.

HOW ARE WE TO FIND FOOD FOR OUR FLOCKS?

Of all the inquiries which press most anxiously upon the farmer's consideration at the present moment, this is the most urgent and obtrusive. In an unparalleled season like this, when our soft Turnips, on which we depended for our ewes and lambs, are almost universally destroyed, and when the extreme backwardness of the season is considered, in which Nature seems unable or unwilling to awake from her long wintry sleep, or the sharp nightly frosts, like fetters of iron, bind her hand and foot, and either prevent her putting forth her powers or counteract her efforts, it seems that nothing short of a miracle can find food for the enormous number of animals, now all at once starting into existence, and clamouring for that supply which she has so unprecedentedly withheld. What is to be done?

An answer to this question will, perhaps, be one which will interest your farming readers more than any other, perhaps not less than the taking of Sebastopol itself—and to this question I now apply myself. The first grand requirement in the feeding of ewes is, not only that they should have a sufficiency of food, but that that food should be succulent in its nature, and capable of enabling them to secrete a sufficient quantity of milk for their lambs.

The second grand requirement in feeding of ewes and lambs is, to do it so economically, that while they get the benefit, the farmer does not suffer in his pocket beyond what he may reasonably replace. Now I asked a large flock-master the other day how he fed his ewes, and what he thought the best food for bringing them to their milk. "I give them Oats," he said; "nothing like Oats." What I said to him was this: "You remind me very much of an old joke against a brewer, who upon a friend bragging to him what excellent beer he brewed, asked him how he made it, 'Why,' said he, 'I procure the best malt and Hops.' 'Ah,' said the brewer, interrupting him, 'any fool may brew good beer with good malt and Hops; but the grand art and mystery of brewing is to brew good beer without either.' So I say, any one may keep up the condition of his ewes, and get up his lambs, with plenty of Oats, but to do it without,—'There's the rub.'" Now, it is a fact well known in animal physiology that highly nutritious food, in a concentrated state, does not produce the same beneficial effects upon an animal fed with it, as food less nutritious but more bulky; bulk is essential to bringing the mechanical action of the stomach into play, and, though a pint of Oats is essentially more nutritious than half a pint of Oats mixed with half a peck of chaff, yet the latter would be more beneficial than the former, because of its mechanical effect. And this brings me to the question of the economical feeding of ewes and lambs; and the substance which I point to, is straw. "Straw," some one will say, "I should like my ewes to eat straw." Straw this season is the farmer's sheet-anchor. Thanks to a bountiful Providence, if we have no Turnips, we have plenty of straw. Of straw, as a light-land farmer, I would say, as the poet of "The Seasons" beautifully said of health: "He that hath thee hath little else to wish for; he that is so wretched as to want thee wants everything with thee." I remember visiting a successful Norfolk farmer many years ago, one who by his farming had lined his pockets well; I found him in his chaff-house, standing beside a large heap of straw chaff, and seeing it prepared for some operation. I asked him what he was going to do with it. "Stay a minute," said he, "and I will show you." Presently a man came in with two pails full of hot boiling Linseed mucilage, and emptied them amongst the chaff, which act he repeated, and then mixed straw chaff and mucilage all up together. "There," said my friend, "that's what I do with my straw; and if those who grow the wretched stuff called 'low-land hay' knew how worthless it is, they would never be at the trouble of saving it, while they can get good straw. I feed all my horses and bullocks upon straw chaff." I was a younger man then than I am now, yet I have never forgotten the lesson which I then learned; but I fancy I have rather improved upon my friend's practice, for instead of giving it to my horses and bullocks only, I give it also to my ewes and to my fatting sheep.

We have all laughed at the old joke of the two penitents, who being enjoined penance to a distant shrine, were to proceed there with Peas in their shoes. One performed his journey gaily and expeditiously, and returning home, met his poor foot-worn crippled brother hobbling along, having hardly made any way at all, who asked how it was that, enjoined as they were a like penance, the other should have got over his ground so gaily and so quickly, whereas he was in torture, and had all his misery yet before him. "Well, to tell you the truth," said the more sly and fortunate brother, "I took the liberty to boil my Peas." And here's the secret of using straw chaff—cook it; you will never get sheep to eat it successfully without, unless a portion of pulped root is mixed with it. I steam mine. To do this I have brick vats, which will hold about 500 bushels, with perforated false bottoms; beneath these false bottoms is the steam supply pipe, which I can regulate at pleasure, but where there is not a supply of steam a substitute may be found in this way: take any large receptacle—it may be a mash tun, or anything else, the larger the better; place within it a layer of straw chaff, about 4 inches thick, sprinkle this well with boiling water, put in another layer of chaff, sprinkle this in like manner, and so on, until your vessel or receptacle is full; press it down tolerably compact, cover it well up, and let it stand until the straw is thoroughly cooked. I find it best to mix a small quantity of good stover or hay chaff with the straw chaff before steaming—say one-sixth part or one-fourth part, if you have plenty; it gives its flavour to the straw, and makes it very palatable; and I also add just a little dust of salt to flavour it; and those who are fortunate enough to have some Swedes or Mangold left will do well, with the aid of my pulping machine, to pulp a few, and mix with the chaff after it is cooked sufficiently, when they will find, to their great satisfaction, and that of their animals, that they have prepared an economical and nutritious food, which their ewes will eat with a relish, and that as often as they please to repeat it.

I will venture to say that whoever will adopt this plan systematically will find that he has got hold of a recipe which, if it does not make his fortune, will at any rate save his animals from starvation, and his pocket from a ruinous outlay.

At the present moment I am feeding nearly a hundred score of ewes and lambs and other sheep by this mode, without having scarcely a sound Turnip left upon my farm, and without the assistance of corn, meal, or cake; and I never had my ewes and lambs do better in all my experience. *Frederick Phillips, the Hall Farm, near Brandon, March 20, in the Bury and Norwich Post of March 28.*

Home Correspondence.

Agriculture as a Science.—The difficulties which a good practical farmer has to encounter are many and perplexing. There is one, however, that stands paramount above all others, as claiming the first attention—it consists in a general ignorance of the qualities and temperament of the staple soil. True it is that cultivation has made great advances during this 19th century; and indeed since the time when Arthur Young, in 1770, wrote in favour of bones as beneficial to clay lands, and when Marshall, in 1795, asserted that one farmer in Norfolk had applied rape-cake for 20 years at the rate of 1 ton to 3 acres, which cost from 2*l.* to 3*l.* per acre. Artificial manures were, however, little thought of till the organic manure produced upon the farm was found to be insufficient to recruit a soil exhausted by inadequate tillage and injudicious cropping. Judging from the many statements and opinions recorded in our numerous periodicals, and the facts we obtain from personal inspection, we arrive at the conclusion that agriculture still remains, to a great extent, under the guidance of empirical routine, and that little is really known of causes or principles. The discordant and even opposite results obtained from the use of any kind of fertiliser upon different portions of one and the same farm or garden yield proofs conclusive of the existing ignorance of the first principle above alluded to; and therefore until the mineral elements of the soil and subsoil be thoroughly understood, any system of agriculture must be more or less defective and uncertain in its results. But how is such knowledge to be obtained! If the plain and direct answer—"By analysis of the soil" be returned, then the immensity of the undertaking must render the attempt all but hopeless! Here, however, it is but just to inform the English reader that the Highland Society now offers, at its own expense, to have correct analyses made of the soils and manures used by those farmers who may compete for its premiums with special manures. Aided by the steady and rapid advance of chemical science, with the most delicate tests and refined processes, much might be locally effected during that deep laboration of land which must precede the thorough draining of every good farm, and wherein the temper and constituent minerals would, to a great extent, be discovered, and the required system of manuring indicated. Since the first appearance of Liebig's work the mineral constituents of the ground have been much studied, and less has been thought of stable and fold manures. Those elements are sandy or silicious matter, alumina or the basis of pure clay, chalk (carbonate of lime), and oxide of iron. These minerals are found in extremely variable quantities in every fertile land, and of that I had ample means of proof during my 17 years' experience in Berkshire. I first consulted Sir H. Davy, and went through the minute details given in the 12 pages, commencing at p. 140, of his fourth agricultural lecture. Clever as these were nearly 50 years ago, they (and also the processes of the late Dr. Henry) failed to bring out clear results, particularly in the elimination of the oxides of iron and phosphoric acid. The simple and mechanical washing through tin strains perforated so as to arrest silicious particles, and carry off the soft and more divisible fine matters, proved more instructive in so far as that they at once exhibited the substances which constitute the texture of the sample. Step by step improvement advanced; and about the era when the English Agricultural Society was established, every process of refined investigation was rendered more conclusive by the writings of Dr. Ure and Fownes, and in Mr. Mitchell's "Analytical Chemistry." The young chemist can now feel his way to discovery by the light so afforded. My experiments upon land and its soils, by deep 3-spit trenching, proved the necessity of effectual turning over, trituration, aeration, and comminution of all new lands, and also the good effects that would follow a similar course in the renovation of old ground long under the cultivation of its upper stratum to the depth of 6 to 8 inches only. If we desire to manure on sound principles with auxiliary fertilisers appropriate to the requirements of the earth, we must, as before stated, acquaint ourselves with the actual condition of every rod or pole and rood of land prior to the introduction of any particular crop. The subject of organic manure, such as those of the dung-heap and of Linseed cake, requires great attention, and that for a particular reason, little noticed by any writers. Lime, also, has its own essential specific claim not to be passed by or overlooked; but space cannot now be afforded, though the objects are of great interest. *J. T., Croydon, April 3.*

Newton-Abbot Union.—Report of the Agricultural Committee for the year ended Christmas, 1854.—The

agricultural committee beg to present to the board their annual report and balance-sheet for the past year. In so doing they think it unnecessary to enlarge on the advantages of the labour scheme, as carried out in this Union during the last four years, or upon the beneficial results which must be admitted to have followed it. In preparing their balance-sheet they have made use of the form adopted by them last year. They consider this form will convey, in the most concise manner, all the information which may be required as to the quantity of the different crops grown, and their disposal, as well as a fair statement of the pecuniary results of the year's proceedings. The total quantity of land under cultivation is about 6 acres; and the following is a statement of the amount of the principal crops grown thereon during the past year:—Potatoes, 241 bags (not including refuse given to pigs); Wheat, 13 bags; Barley, 20 bags; Cabbages, 28 cwt.; Swedes, 10 cwt.; Parsnips, 26 cwt.; Mangold Wurzel, 6 tons; Onions, 340 lbs.; Leeks, 1000 lbs.; Broccoli, 8 cwt. The number of hours of labour, &c., performed during the past year by the different classes of inmates employed on the land, has been as follows:—The aggregate number of hours of field labour done by adult paupers (mostly aged and infirm), 12,983½; the number of adult paupers at work on an average of 8½ hours daily, 5; the total number of hours of field labour done by boys, 14,218; the number of boys at work, five days each week, and on an average 4½ hours daily, 13; the number of boys in the house fit for service at Christmas was 8. By a comparison of these figures with those on the last year's report, it will be seen that there is an increase in the number of boys whose labour has been made available during the last year. Nineteen boys were provided with situations in the course of the year. The committee cannot conclude their report without adverting to the loss which they, as well as the board, have sustained by the death of their late chairman, Mr. Story, whose deep interest in the success of the agricultural scheme, and the zeal and energy displayed by him in promoting that success, are well known to every member of the board. *E. S. Bearne, Chairman, March 7.*

AGRICULTURAL ACCOUNT, 1854.

Dr.	£	s.	d.	*Cr.*	£	s.	d.
To Rent	40	10	0	By vegetables & straw used in the house	44	1	1
„ Rates and Tithe	7	9	5	„ Wheat and Potatoes sold	14	0	6
„ Seed Potatoes ...	13	5	0	„ Potatoes for seed ...	8	13	4
„ Ditto Barley ...	1	1	0	„ Vegetables, &c., in store at Christmas	37	5	8
„ Seeds and Cabbage Plants ...	2	12	2½				
„ Purchase and repair of tools ...	1	12	5				
„ Expenses of harvesting, threshing, and drawing Wheat & Barley	4	0	5				
	70	10	5½				
Profit of Labour	33	10	1½				
	£104	0	7		£104	0	7

PIGGERY ACCOUNT.

	£	s.	d.		£	s.	d.
To purchase of 10 pigs	9	19	6	By produce of 3 pigs slaughtered, 21 score 2 lbs., at 10*s.*	10	11	0
„ Bran, pollard, and sharps, bought ...	5	5	0	„ estimated value of 7 pigs in store ...	24	0	0
	15	4	6	„ estimated value of Barley and roots on hand	5	5	0
„ Profit	24	11	6				
	£39	16	0		£39	16	0

SUMMARY.

	£	s.	d.
Profit on vegetables	33	10	1½
Ditto Pigs	24	11	6
	£58	1	7½

SUPPLEMENTAL STATEMENT.—DISPOSAL OF THE CROPS GROWN.

Vegetables, &c., consumed by the Inmates of the Workhouse, to Christmas.

Potatoes, 831 score 15 lbs., average price 10*d.* per score	£34	13	1½			
Cabbages, 28 cwt. 1 qr. 22 lbs., at 2*s.* 4*d.* per cwt.	3	6	4½			
Leeks, 10 score, at 10*d.* per score	0	8	4			
Onions, 42 score, at 1*s.* 5*d.*	3	0	0			
Scarlet Runners, 6 score, at 10*d.*	0	5	0			
Beans, 14 pecks, at 6*d.* per peck	0	7	0			
Peas, 8 pecks, at 10*d.* per peck	0	6	8			
Parsley, 2¾ score, 1*s.* 8*d.* per score	0	4	7			
Straw, 10 seams, at 3*s.* per seam	1	10	0			
				44	1	1
Vegetables, &c., sold.						
Wheat, 13 bags, at 15*s.* 6*d.*	10	1	6			
Potatoes, 11 ditto	3	19	0			
				14	0	6
Potatoes for seed.						
Twenty-six bags at 6*s.* 8*d.*				8	13	4
Vegetables, &c., in store, at Christmas.						
Potatoes, 30 bags, at 6*s.* 8*d.* ... 10 0 0						
„ 70 „ 6*s.* ... 21 0 0						
	31	0	0			
Leeks, 40 score, at 10*d.*	1	13	4			
Celery, 3 rows, at 2*s.* 6*d.*	0	7	6			
Winter greens (valued at)	0	10	0			
Parsnips, 16 cwt., at 2*s.* 4*d.*	1	17	4			
Swedes, 10 cwt., at 15*s.* per ton	0	7	6			
Straw, 10 seams, at 3*s.* per seam	1	10	0			
				37	5	8
				£104	0	7

Loss of Sheep by browsing Yew.—On the night of Jan. 17th a flock of sheep got into the gardens of Gosfield Hall, and fed on the Yew trees growing in abundance there. In the morning the owner was sent for, and in a note to me he says—"I found two dead, and the remainder, or at least the greater portion of them, unable to walk, foaming at the mouth, and in a stupid state." The number was 63, out of which 42 died. From the fact of the ground being covered with snow, I suppose the sheep were very hungry, and ate voraciously, hence the fatal result. The treatment adopted had no effect. Considering the nature of the poison a "narcotic irritant," I believe that oil, of whatever kind came first to hand, would be the best remedy, acting as a purgative of a mild kind, and sheathing the intestines from the irritating effect of the Yew. The oil should be repeated at intervals and gruel also. Some of the sheep lived several days, and one 10 days; but touched nothing but what was forced down as a drench. It was a sad sight to see the poor things standing for hours in the same place and position. In the last that died the intestines were almost in a rotten state from the intense inflammation. *T. T.*

Societies.

ROYAL DUBLIN SPRING SHOW, *April* 10.—This Society, the patron and parent of all the other various societies for the improvement of the agriculture of Ireland, is now holding its annual spring exhibition of farm stock, farm implements, and to some extent farm produce, and never during the 30 years in which I am acquainted with its exhibitions, scarcely one of which during that time have I missed the pleasure of seeing, have I seen one which told so well as this is likely to tell for the real improvement of Irish agriculture, in as far as the production of improved stock and of improved implements are concerned. At this early stage of the exhibition it would be premature to give anything like a full description of the various animals or various implements in anything like detailed accuracy, for at the moment I write the judges are only entering on their arduous task, nor would I so soon give you this brief notice, but because at a later period it might be too late for your next publication. Indeed, but for the obliging disposition of the Curator I could not give you as much information even as I now do, as the catalogues are very properly kept out of sight till the judges have made their awards.

SHORT-HORNED STOCK muster in large numbers, and are quite select in character.

Short-horns—Yearling Bulls	101	
Two-year-old do.	46	
Three-year-old do.	13	
		160
Long-horned Bulls—None.		
Hereford Bulls—One solitary entry		1
Devon Bulls—Yearlings	1	
Two-year-olds...	2	
Three-year-olds	1	
		4
West Highland Bulls—one single entry		1
Scotch-polled Bulls, of any age		4
Ayrshire Bulls of any age		3
Alderney Bulls		2
Kerry Bulls of any age		3
Best Bulls of any age or breed, calved prior to 1852 ...		15
Total of Bulls		193
Heifers, short-horned, yearlings	34	
Do. two-year-olds	11	
Do. three-year-olds	8	
		53
Cows, short-horned, in calf, or having had a live calf since April, 1854		28
Cows, Heifers, long-horned. None.		
Cows and Heifers, Herefords. None.		
Devon, Heifers, yearlings	1	
Do. two-year-olds	0	
Do. three-year-olds	1	
Cows	1	
		3
Best Highlands. None.		
Scotch-polled Cows		2
Ayrshire Heifers	2	
Cows	1	
		3
Alderney Heifers	1	
Cows	3	
		4
Kerry—Heifers, yearlings		0
ditto, two-year-olds		0
ditto, three-year-olds		6
Cows in calf or giving milk		9
		15
For the best three heifers in calf		1 entry.
For the best three milch cows		5 „
For the Tenant's Challenge Cup		5 „
Fat Stock—Oxen, *short-horned*, two-year-olds		No entry.
„ „ „ three-year-olds... ...		2 entries.
„ „ „ aged		4 „
„ „ *Long-horned*, two-year-olds		None.
„ „ „ three-year-olds... ...		None.
„ „ „ aged		4 entries.
„ *Herefords*		None.
„ *Devons*		None.
„ Any other breed		2 entries.
„ *West Highland*		None.
„ *Scotch-polled*		None.
„ *Kerries*, three-year-olds		2 entries
„ Best pair of *Fat Plough Oxen*...		1 entry
Fat Ewes—Short-horned		11
„ Long-horned		None
„ *Hereford*		1 entry
„ *Devons*		4 „
„ *West Highland*		None
„ *Scotch-polled*		None
„ *Ayrshire "Half-bred Black"*		1
„ *Kerries*		2
Fat Heifers, of any breed		10

From a review of the foregoing it will be seen how deservedly the Short-horns are taking the lead; the Long-horns, the Herefords, West Highlanders, Scotch Polls, have all but disappeared; the Devons, too, are very few, whilst the Kerries not only hold their places, but appear to be taking those left vacant by their hitherto more highly favoured neighbours.

SHEEP.

One-shear *Leicester* Rams	12
Two-shear „ „	4
Best Ram of „ „ any other age	1
Best three Hogget Rams, never shorn—seven entries ...	21
Total of Leicester Rams	38
Best five Leicester Ewes, with their lambs—three entries ...	1
Best five Hogget Ewes, never clipped—six entries	30
	45
Long-woolled Rams, not as Leicesters, one-shear	2
„ „ two-shear	0
Ditto of any age	1
Best three do., never clipped—three entries	9
Total long-woolled	12
Best five long-woolled Ewes with lambs—two entries ...	6
Best five Hoggets, never clipped—two entries	6
Total long-woolled Ewes	12
Short-woolled Rams—one-shear	6
„ „ two-shear	2
„ „ of any age	4
„ „ in lots of three, never clipped, two entries	6
Total of short-woolled Rams ...	18
Best short-woolled—pen of five Ewes, one entry	5
„ „ never clipped, two entries	10
Total of short-woolled Ewes ...	15
Cheviots—one-shear Rams	2
„ two-shear „	3
„ of any other age	2
„ three never clipped, two entries	6
Total Cheviot Rams	13
Cheviot Ewes with lambs, one entry	5
„ Hoggets never clipped, two entries	10
Total of Cheviot Ewes	15
Fat Wedders—pen of five long-woolled, one entry	5
„ „ short-woolled	0
„ Cheviots, one entry	5
Total of fat Wedders	10

The sheep show is limited (as all Dublin shows are), but very select, yet it so far proves the rage for Cheviots is much diminished.

SWINE—BLACK PIGS.

Boars, not exceeding 24 months old	24
Sows in pig, or had littered during the last six months ...	18
Breeding Pigs in lots of three; 14 entries	42
Litters not exceeding 4 months old; 13 entries, probable average of 8	104
Total number of black Pigs	188

SWINE—WHITE PIGS.

Boars not exceeding 24 months old	10
Sows with litters or in pig...	10
Breeding Pigs of three in number; 2 entries	6
Litters not over 4 months old; 7 entries, average 8	56
Total of white breeding Pigs	72
Fat Pigs of any breed	6

The Royal Dublin Society, with much good judgment, separated the whites from the black breeds on this occasion, and it is to be hoped, if the funds admit, they will, by the next show, separate the large from the smaller breeds in both the classes. Having run this analysis, I fear, over long, I will merely add I had a hasty look through the above stock yesterday evening, and hence the impressions glanced over in the introductory part of this. The poultry I had not time to see. Of course the horses I could not see, as they will be only on view during the week. The implements as well as the farm produce are select and valuable, which, with the poultry and horses, as well as the stock generally, deserve a more detailed notice. *Edward Carroll, Triton Villa, Phibsboro, Dublin, April* 10.

Farmers' Clubs.

LONDON: [The following remarks followed the reading of Mr. Bennett's paper last week on Root Crops]:—

Mr. RUSTON observed, that he happened to be one of those unfortunate men who farmed fen land, and he assured them that they were entitled to all the sympathy they could obtain. In their cultivation of that description of land, however, they hardly needed the caution which Mr. Bennett had given regarding a thorough pulverising of the clods; for their real difficulty was not how to pulverise but how to compress and consolidate, so as to prevent dry winds blowing away the soil; hence the growing of roots on this sort of land upon the ridge system did not succeed so well as upon the flat, for the influence of sun and wind so dried up the land that the seed no sooner became a plant than it dried off. During the last spring he sowed eight acres of Mangold—four on the flat and four on the ridge system—fresh ploughing and manuring the whole. The four acres cultivated on the flat system did extremely well, but the four cultivated on the ridge, after vegetating, immediately died away, which compelled him to follow with a crop of Swedes. He had been most successful on light soils by manuring in winter, just before Christmas, ploughing the manure well in, and letting it lie till the spring, then working the land two or three times, so as to thoroughly incorporate the manure with the soil, and consolidating it with Crosskill's roller. He had derived considerable advantage from the use of the liquid manure drill, and believed that Mr. Bennett had some of his Mangold in his eye when he mentioned the benefits he had witnessed from the application of the water drill in the fen districts. Last year he used it to a considerable extent, when it answered so admirably that he invited Mr. Bennett down to see for himself the difference between the dry and the water drill, where all things were equal. A cousin of his had also made an experiment with the two sorts of drills on a piece of Swedes, but he did not know the dates of the sowing and weighing. The produce per acre on the land sown by the water drill was 16 tons 10 cwt.: on that sown by the dry drill, 12 tons 7 cwt. 4st.; being an excess in favour of the water drill of 4 tons 2 cwt. 4st., the manure used being in the proportion of 2 cwt. of Lawes' superphosphate of lime, and 10 loads of yard manure per acre. In his own experiments the produce resulting from the liquid manure drill was about one-fourth more than that from the dry drill; but he was convinced that the water drill would not be equally effective on all soils, though generally where there was a difficulty in getting the seed to germinate and the plant to grow well in the early stages of its existence, which was the case in his district, it would produce satisfactory results; indeed he had never experienced a failure. However his experience had led him to the conclusion that fen land was unsuitable for Turnips, and he intended never to sow them on such land again.

Mr. J. WILLIAMS (Wilts) said that after nearly 30 years

experience in the growth of Turnips, during which period he had tried almost every plan in existence, he had arrived at the conclusion that the best system for general adoption was that described by Mr. Bennett. With regard to the relative merits of the flat system of drilling, he could state that it was considered the best in the West of England; and the old system of sowing Turnips without manure was nearly obsolete.

Mr. Wood (Sussex) remarked that he farmed that description of soil which Mr. Bennett considered it hardly expedient to cultivate Turnips upon to any extent—he meant a stiff clay soil; perhaps it might be unprofitable to do so merely for the sake of root crops, but taking it altogether, and considering the cleansing it gave the land, it answered his purpose to cultivate it in that way. He believed the autumn was the best season for that purpose. As to ploughing the land deeply, he coincided with Mr. Bennett that it increased the value of the soil. His (Mr. Wood's) system was to plough gradually deeper and deeper, and subsoil afterwards. He had not yet tried the liquid manure system, but he should like to know whether by that system the seed would not in some cases malt or sprout, without taking root, and then die from the drought around. He always ploughed on the flat, and not on the ridge; for he never drilled in his seed till after the land had been worked down for a considerable time, so as to have the moisture near the top and in contact with the seed. He considered the most economical mode of cultivating roots depended much on the nature of the soil, and that whatever the plan adopted it should be in the autumn.

Mr. Charles Howard said, that he had taken great interest in the cultivation of Turnips. His farm was a really sharp gravel, notwithstanding Mr. Bennett's thinking the contrary. In fact it had always been considered a burning soil. When he first entered on it he used to plough in the regular way, 4 or 5 inches, deeming it sufficient to get the land up before Christmas. For some time he pursued that jog-trot system; but after reading a good deal of what passed in that Club, he put a stop to it, and commenced the system of autumnal cultivation. He had been very successful; and he considered that success depended upon the following course of operation—autumnal cultivation, deep winter ploughing, wide intervals, early sowing, and choice of seed, all of which important matters ought to be kept in view in cultivating Turnips. He used to sow his Turnips in June, latterly he had commenced in May. He had tried Chandler's drill, but without the beneficial results he had anticipated; probably that was through his inexperience in its management. He intended trying again this year. For some years he had experimented in the cultivation of Turnips, both on the flat and on the ridge system, and had found that a greater weight was to be grown on the ridge, with much less manure, because the manure was immediately under the Turnip. By having them at wider intervals the land could be better watered; the most they could do on the flat was to hoe once or twice, on the ridge they might hoe three or four times.

Mr. Ruston remarked that his Turnips were sown about 26 or 27 inches apart on the flat, the same as on the ridge.

Mr. Thomas, after stating that he had been a large and successful grower of Turnips, said that five or six-and-twenty years ago he happened to be in the neighbourhood of Worksop, Nottinghamshire, when he was impressed with the extraordinary quality of the Turnips grown there, the cleanliness of the soil, and the success which invariably attended the farmers in the production of the roots. On inquiry he found that their almost uniform plan was to apply the farmyard dung made in the previous year to the Clover leas before the sowing of Wheat, and that the Turnips were grown by the application of bone-dust to the ridge. He tried this system himself, and had better crops than he ever had by any other plan.

Mr. Little (Wilts) said it appeared to him that on two points they all seemed to agree—autumnal cultivation and clean cultivation. With respect to Chandler's liquid-manure drill, he could say that it had accomplished great good in his county, and was an immense boon to the light-land farmer; in fact, it had reduced to a certainty the culture of the Turnip upon that description of soil. On the large farms in Wiltshire the ridge system was seldom adopted; the Turnips were drilled on the flat, and the artificial manure, generally applied by means of Chandler's drill, was superphosphate with a little guano. With regard to the seed malting, he had never seen it on light soils. He had never lost a plant from the use of the water drill, but from the dry drill he had lost many.

Mr. Owen (Berkshire) considered that the application of sufficient cart dung to the Wheat crop was the ground-work of the root crop the following year. He thought that artificial manures were the cheapest manures that could be put upon the land for Turnips. Having been one of the first to use Mr. Chandler's drill, he could speak with the utmost satisfaction of its value; and if had the necessary supply of water on his farm he would not put in Turnips under any other system.

Mr. Chandler (inventor of the drill bearing his name) said he knew of but two cases where his drill had failed, and one of them was Mr. Howard's. He was unacquainted with the nature of that gentleman's land, but he (Mr. Howard) had described it as a sharp gravel or building sand; as superphosphate contained a good deal of lime, it was not improbable that the building sand and the superphosphate had combined to form a concrete. (Hear, hear.) The other case was in Shropshire; in that case the drill was to have another trial. It was of no use to try the liquid manure system unless by some compression they made the land retain the moisture put upon it.

Mr. Abbott (Norfolk) observed that Mr. Bennett's system was the same as that generally used in Norfolk. He did not agree with the plan of ploughing only once in the spring; it was highly desirable to plough the land three times.

Mr. Wood.—Would it not be better to go a little deeper at first?

Mr. Abbott.—My soil will not admit of deep ploughing.

Mr. Howard.—How deep do you plough?

Mr. Abbott.—Seven or eight inches.

Mr. Bennett observed that there seemed but one point on which the meeting did not agree—whether the ridge or flat system was the best. After 30 years' experience he had arrived at the conclusion that he could grow 5 or 6 tons more per acre by the ridge than by the flat system.

The following resolution was then unanimously adopted:—

"That it is the opinion of this Club, that in the cultivation of root crops the principal points to be borne in mind, having regard to the most economical mode of proceeding, with a view to a full crop, are—autumn cultivation, deep ploughing, where practicable, choice of seed, judicious manuring, and seasonable hoeing."

The thanks of the meeting were unanimously given to the lecturer and to the chairman.

Miscellaneous.

Will Cattle pay for their Keep?—The real value of a crop of roots can only be fixed by the amount of beef or mutton which a given weight will produce. Some have assigned 150 lbs. as the quantity required to produce 1 lb. of beef; this is too high an estimate of their properties. 200 lbs. is nearer the mark in an average of crops and seasons. Taking the price of beef at 6*d*. per lb., a ton of roots will have a money value of about 5*s*. 7¼*d*.;—the feeding value of roots, therefore, may be reckoned at 6*s*. per ton in order to simplify calculations. Experience has led me to fix 5 lbs. oilcake as the maximum daily average which a bullock of 60 imperial stones when fat should receive during the time of fattening, and for a sheep of 20 lbs. per quarter when fat ½ lb. is the highest daily average allowance for which a return of prime cost has been made on this farm. With these quantities, and valuing the roots at 6*s*. per ton, or 5*l*. an acre, I have not had any difficulty in making both cattle and sheep pay for what they consume, and leave a money profit, and the manure into the bargain. Hay is never given to cattle except under peculiar circumstances, as sickness, or along with cut Grass in summer, when it acts very beneficially, especially when soiling in wet weather. The quantity of roots given daily to a bullock of the size named is three baskets of 50 lbs. each, along with straw *ad libitum*. 5*l*. an acre may not be thought a high enough value for a crop of roots, but we must remember 17 tons is a good average crop in ordinary seasons, and considerably above the present; indeed I have not known a valuation wherein this amount has been reached on farms of any extent under ordinary cultivation. Whether they can really be grown for this sum depends on a variety of circumstances into which I shall not at present enter, but will subjoin a statement of the result of fattening 20 oxen during part of 1853 and 1854.

Dr.	£	*s.*	*d.*	*Cr.*	£	*s.*	*d.*
To 20 oxen at 12*l.* 10*s.* each ...	250	0	0	By 2 sold at	32	0	0
„ 30 tons Mangold, at 6*s.* ...	9	0	0	2 ...	58	0	0
„ 12 acres Clover once cut at 40*s.*	24	0	0	3 ...	78	0	0
„ 6 acres Winter Vetches at 50*s.*	15	0	0	2 ...	48	0	0
„ ½ acre Cabbages	5	0	0	2 ...	54	0	0
„ 8½ acres hybrid Turnips and Swedes at 5*l.* ...	42	10	0	2 ...	50	0	0
				2 ...	48	0	0
„ 5 tons oilcake at 9*l.* 14*s.* ...	48	10	0	1 ...	25	0	0
„ 28 qrs. Vetch & Barley-meal at 27*s.* per qr. ...	37	16	0	2 ...	50	0	0
				2 ...	52	0	0
„ 1¾ tons oilcake at 9*l.* 14*s.* ...	16	19	6				
	£448	15	6		£495	0	0
Profit	£46	4	0				

Out of this profit attendance would have to be paid. *John Dunn, Bisterne, near Ringwood, in the North British Agriculturist.*

Food and Produce of Dairy Cows.—The following experiments, conducted with great care, on the different kinds of food usually given to cows, will be found interesting and valuable. The cows were house-fed summer and winter, and had access to a pasture field for four hours daily; in addition to the food mentioned in each experiment, they received Oat-straw, the refuse of which was used for litter. The milk was measured every morning and evening, skimmed after setting 36 hours, and churned generally in one hour at a temperature of 60°.

No. of Experiment.	No. of Cows.	Date at which Experiment was finished.	Kind and quantity of feeding per head daily.	Duration of Experiment. Days	Produce. Gallons of Milk.	Quarts of Cream.	lbs. of Butter.	No. of Quarts of Milk to produce 1 quart of cream.	No. of Quarts of Cream to produce 1 lb. of Butter.	No. of Quarts of Milk to produce 1 lb. of Butter.
1	7	April 11	70 lbs. of Mangold and 50 lbs. of Turnips	9	42¾	28	19	7·43	1.21	9
2	12	July 11	Italian Rye-grass, *ad libitum*	7	173	115	75	6·01	1·53	9·22
3	12	Sept. 18	Second Cutting of Clover	7	181	88	60	5·95	1·46	8.73
4	12	Sept. 25	Cabbages	7	144	92	62	6·26	1.48	9·29
5	12	Oct. 2	Mangold Leaves and Cabbages	7	169	94	60	6·89	1·56	10·8
6	12	Oct. 9	Mangold Leaves alone ...	7	212	137	86	6.67	1·47	9·86
7	12	Dec. 1	50 lbs. of Mangold and 60 lbs. of Turnips ...	7	168	93	74	7·22	1·25	9·08

These experiments not being so comprehensive as would be desirable, they shall be repeated next season. The Grass, Clover, Cabbage, and Mangold leaves were not weighed, but they were given in such quantity as would not disturb the animal system. The influence of a change of food was immediately perceived in an increase of milk; and the effects of the food of the previous week did not extend to the succeeding week, so as to have any influence over the experiment. In reference to the case in which the cows received Mangold leaves and Cabbages, and in which there is an increase of milk above the previous week, but a less quantity of butter; it is right to observe that the cows did not seem to relish the Cabbages after the Mangold leaves, a fact which partly accounts for the result. *From Magazine of Albert Training Institution.*

Calendar of Operations.

APRIL.

Berwickshire Merse Farm, *April* 9.—Five weeks ago I reported that the storm had come to an end; but scarcely had we begun to think of seed time when the wind returned to the east, and we were for a fortnight exposed to all the horrors of a second and unseasonable storm. A constant succession of snow showers whitened the ground every night; but the temperature was never much below the freezing point, and sometimes rose of an afternoon so as to melt the nightly fall, which on one occasion reached the depth of 7 or 8 inches. In these brief intervals lea ploughing was proceeded with; some, indeed, eager to get on, ploughed down the snow, which will make but a cold bed for their seed. On the 23d ult. the snow finally left the fields clear; and, cold east winds still prevailing, a dry seed bed was quickly prepared, and Oat sowing has been universal during these two weeks past. Lea harrows beautifully; but Turnip land, where wet tramped with sheep, has got hardened by the drought, and does not present to the Barley seed so fine a mould as that cereal is said to require. We never had a right fresh, however, until Thursday last, when the wind veered to the west. It has since that day blown pretty strong, revealing black ground on the hills, and dissipating those patches of snow that lingered so pertinaceously in sheltered nooks. Seed time will be all but over this week. It has been characterised by dry winds, like last year; but after a late spring a dry summer would be doubly hazardous. The wind has risen very high this afternoon, and we hope for rain; indeed at this moment a smart shower is passing over us, but it will be dried up in ten minutes. The young Wheat plant was well protected from the severe frosts of February, but after the departure of its snowy covering, it looked very blue under the influence of the frosty east wind. These two or three days, however, have given it a healthier colour; and, of course, but few plants have been thrown out by frost. Grass is at least a month back; but the plant is good, and has just begun to grow. Ewes have, since lambing, got 2 or 3 lbs. each of Oats a day (besides Turnips) to promote the secretion of milk, but this has proved terribly costly latterly, and a portion of Rape cake has been substituted. As a consequence of the dry weather the lambing progresses but slowly, but the crop promises to be an average one. Lambs lived wonderfully well during last storm; but those lambed earlier, which with better weather might now have been fat, will scarcely regain their lost time, and many of them must be kept on as hogs. Turnips are now very scarce, but scarcely so dear as they were, for folks will rather have Grass at a high price at this season than doubtfully nutritious Turnips. Consequently Grass parks have been let, in many cases, above last year's very high rents. As irrigation is not practised in this district, we cannot expect to cut seeds for soiling before the month of June, though they were top-dressed with Peruvian guano in January, and will soon receive a further allowance of nitrate of soda. *J. T.*

Border of the Fens, *April* 10.—The weather may well be a prominent a subject of conversation, since the health of every individual depends so much upon it, and the prospect of having plenty to eat next year is confirmed or uncertain according as the effects of long continued frost, the prevalence of harsh winds or any other cause retarding the spring, brings evidence of mischief to the future crop, or discovers there is slight grounds for alarm to the ever sensitive and observant farmer. Two or three mild days and a few passing showers have started into growth both Grass and Wheat, and we again behold a healthy green overspread the fields: Oats and Barley are making their appearance, and the Beans look strong, yet there is good reason to fear that a good deal of Wheat will be too thin of plant, particularly on cold or thin soils, and after Clover. In the fens those crops of Wheat that succeed Oats are observed to suffer most, but in nearly every case after Beans, Coleseed, Carrots, or Turnips, the Wheat looks strong and of a good colour. If the dry cutting winds are unfavourable to the pastures, they suit planting Potatoes well, and a great breadth will be got in this week. I saw yesterday a rather uncommon plan of putting Potatoes in by drawing the trenches with a plough first, then spreading manure out of a cart into the trenches, placing the Potatoes *on* the manure and raking the ridges over them so as to level the surface: I remarked that the practice seemed a good one, except placing the Potatoes *on* the manure, which I contend ought to have been ploughed-in previous to trenching the land, or if placed in the trenches they should have been split in a somewhat similar manner to ridging for Mangolds, only a little more care would be required in dropping or rather pressing the Potatoes in at a proper distance and depth. After Potatoes are disposed of we must attend to Carrots and Mangolds; we give a good dressing of farm-yard manure to the seed-bed of the Carrots, and although we have been cautioned to expect thereby forked roots and coarse ungainly produce, we have more than once or twice had a heavy crop of straight and clean Carrots; as to Mangold, we shall sow as early as we can, probably next week, although we may have a few plants run to seed we deem that infinitely preferable to a deficient or late plant, for transplanting will never come up to the Mangold grown where they are sown. The lambing season is nearly concluded, and we hear generally of a good fall of lambs this year; some persons have already stocked their seeds with ewes and lambs, but this should be done as lightly as possible before May-day, as this year neither Clover or Rye-grass have made much progress, and they appear to suffer much from wind and frost when prematurely stocked. Applications for work are numerous, but in another week or so hoeing will require all the labourers now unemployed. *J. W., Peterborough.*

Wester Ross, 10*th April*.—The weather continues particularly unfavourable—stormy and changeable. Last month we had a few fine drying days, which were taken advantage of for getting down the remainder of the Wheat, and for sowing Oats. On the earlier farms in the neighbourhood the whole of the Oats has been sown; and, thanks to the continued and intense frost, they have been well covered in, and the ground finely pulverised over them. Last year we commenced sowing on the 23d March, this year we began on the 26th; and as there were only a few days of difference, we expected, with good weather and pretty hard driving, to make up our lee-way. But here we are stuck up once again. On Saturday last we had a field prepared for being sown with Barley, but on Monday the rain was falling in torrents, a northerly storm having set in. To-day it is no better, heavy showers continue to fall at short intervals; and not only is Barley sowing out of the question, but agricultural labour is all but at a stand still. Patience, it would appear, must be exercised. The work on the earlier farms must now be far behind what it ordinarily is, but in the higher and later districts scarcely anything has as yet been got done. The higher hills all around continue thickly covered with snow, and the path of the plough is still obstructed in many of our highland glens. Vegetation has made a little, yet only a very little, progress in our earlier districts. Wheat, although sadly pale and sickly when it came out from under its winter covering, begins to exhibit signs of life and vigour, and has regained somewhat of its natural green. Grass, which at this season often affords a bite for a hungry animal, has only made the least perceptible advance, whilst the Turnips are well nigh finished in most places. Sheep have finished their proportion of the Turnips, and have left the low country for their hill pasturage, where little will be met with for some time but snow and starvation. Considering the uncommon severity of the winter, sheep have left in better condition than might have been anticipated. Having received higher prices this year than usual for Turnips eaten by sheep, the anxiety was to give over as many for this purpose as could be spared, and failing to calculate on such a perverse winter, our cattle bid fair to be on stinted allowance for a pretty protracted period, should the weather in reserve for us be in any sort of keeping with that we are now experiencing.

Notices to Correspondents.

Bread: *E C.* One sack of good flour will make 100 4 lb. loaves, and a quarter of white Wheat of 62 lbs. per bushel will yield from 390 lbs. to 400 lbs. of flour, from which bran alone has been taken.

Chemical Manure: *Young Farmer.* You had better not attempt to manure your land by artificial manure devised after consideration of what is taken out of the land by your crops. Manure liberally with guano and farm-dung, and you will do better than by any attempt at exact supply of the absent materials of fertility.

Farm Horses: *Decon.* Oats, 1½ bushels per week; Beans, 1 peck; Hay cut into chaff, 28 lbs. per week: Swedes or Carrots, 1 cwt. per week; and Oat straw, 28 lbs. per week—will feed a horse.

Pigeon Manure: *A Subscriber.* Ten or 12 cwts. dried in a lot of turf ashes would be a good dressing for an acre of Turnips. But you must not depend on this alone—there must be a dressing of farm-yard dung also.

MUTUAL LIFE ASSURANCE.

SCOTTISH PROVIDENT INSTITUTION.

The SEVENTEENTH ANNUAL GENERAL MEETING of this SOCIETY was held at Edinburgh, on 21st February,

MR. CHARLES MORTON, Writer to the Signet, the Senior Director, in the Chair.

The CHAIRMAN, after thanking the meeting, and referring briefly to the several topics embraced in the report from the Directors, addressed the meeting on the distinguishing principles of the Institution. He recapitulated the grounds of preference of mutual over proprietary offices, and of the system of moderate premiums and appropriation of the surplus unbroken to those who have made surplus payments over the system of excessive premiums and promiscuous bonuses. The Chairman then said—I believe that most classes who have incomes dependant on their lives have largely availed themselves of Life Assurance: but there is one class of the community I should wish to reach, who do not make so much of its advantages as they ought. I mean the important class of tenant farmers. I have frequently conversed on the subject with farmers, even of superior intelligence, and I have been grieved to find a prejudice prevailing against Assurance, founded very generally on the supposition I have just noticed, that it would be less beneficial in the end than their own savings would be; and founded also on an idea that, though it might be very useful to some classes, it is not of much consequence to them. Now, I think that the class of farmers is just one of the classes to whom Life Assurance is peculiarly valuable. The position of the farmer is often this: He has taken a lease, and, if a person of enterprise, very probably all the capital he has is sunk in the land at the outset. He may die at that stage, and what is then the position of his family? All he has is sunk on the farm, and perhaps his credit is pledged even for something more. His lease cannot be divided—it goes to his eldest son as heir-at-law; and unless his eldest son gets along with it the crop and the stock, he cannot carry on the farm. From what fund, then, are the widow and the younger children to be provided for, if the parent shall have died in such circumstances, and before he has got back from the land, and accumulated as savings, as much of the money expended on it as would form a provision for them? It is clear that, in such a case, they must either be left in poverty, or a burden on the heir; which perhaps he may bear with for a time without a grudge, but which, when he gets a family of his own, may be more than he or the profits of the lease can stand, and may lead even to its surrender and the loss of all the outlay. How often is a farmer's family thus situated, if its head dies early; and how different would be their position and their comfort if he had had the prudence to insure his life! By a very small annual payment, which could never affect his means of cultivating his farm, or even diminish his personal comforts, he might have the satisfaction of knowing that his stock and crop, with his lease, would go unburdened to his eldest son, ensuring a fair and remunerative working of the farm; while his widow and younger children would be comfortably provided for by the sum in his Policy. I feel very strongly the importance of Life Assurance to the farmers, and I am glad to see present a gentleman who has great influence with that important class (the Secretary to the Highland and Agricultural Society), and probably the work in which he has been lately engaged in reporting on the Agricultural Statistics of the country will give him better opportunities of bringing the subject of Life Assurance—a subject in which I know he also takes a warm interest—under their notice. I hope the result may be that we shall see a great many more farmers availing themselves of Life Assurance than there are at present.

W. NEIL COLQUHOUN CAMPBELL, advocate, laid on the table the report by the Directors, which showed that since the commencement of the Institution 7184 policies had been issued, assuring £3,139,416. In the last year the number of new policies was 577, assuring £258,595. The amount of new business is thus somewhat less than the previous year, the diminution having arisen entirely within the last few months, and being easily traceable to commercial depression, following upon high prices and increased taxation.

The report, with the relative states, and the report by the auditors, having been read—

CHARLES HENRY FORBES, Esq., of Kingairloch, said: I beg to move that the highly favourable report we have just heard read be approved of by the contributors. I have been long connected with this Institution, and I can bear witness to the attention paid both by the Directors and those in the management to everything tending to promote the prosperity of the establishment. As one of the class alluded to by the chairman, I can say that in carrying out the operations of a large farm, which I have had occasion to take into my own management, I have derived great benefit from my connexion with this office, and I only wonder that more of the class of farmers have not joined it. It is not the object of the farmer to speculate for bonuses. What he has to do is to secure a provision for his family at the lowest possible outlay, and in no office can he do that with so much advantage to himself as in this office. He may here, without throwing away any of his chance of profits, insure 1000*l.* for the same sum that would only bring him 800*l.* in another office. It is a comfortable thing for a man paying away his money to this society to know that he cannot lose it, for if he happens to die before he has paid up the sum insured, his family is a considerable gainer; and if he is spared till he has paid up that sum, he has the prospect of one of those comfortable bonuses being added to the sum to be paid his relatives at his death. In these times, when taxation and all the necessaries of life are so high, there is an additional motive—I may say duty—for the head of a family to make provision for those he leaves behind him, in order to meet the enhanced price of the necessaries of life, on which their comfort so much depends. I beg to move that the Report now read be approved of.

Mr. WILLIAM GRAY, farmer at Southfield, seconded the motion, and expressed his entire concurrence in the remarks of Mr. Forbes.

The motion was put, and unanimously agreed to.

The Chairman expressed his satisfaction that his remarks had called up two farmers. He would remind them that they were the class at present most able to insure, as while others groaned under high prices they were reaping the advantage. (Laughter.)

Mr. HALL MAXWELL, of Dargavel, Secretary to the Highland and Agricultural Society of Scotland, then said: I have great pleasure in moving that we give the thanks of the meeting to the Directors for their services during the past year. I am quite sure you will all willingly join in the compliment so well earned by these gentlemen, who have devoted so much time and trouble to the promotion of your interests, and to whose industry and intelligence, as well as to the possession of similar qualities by their predecessors in office, we owe in so great a degree the high position which this institution now occupies. The Chairman has been pleased to allude to me in connexion with the great and acknowledged advantages of Life Assurance to the farming community. I apprehend that all I can do in this matter is to express my entire concurrence with what has fallen from the Chairman; but I fear that any attempt on my part to inculcate on the farmers the nature of these advantages might be regarded as somewhat foreign to the functions of my office. At the same time I have that high appreciation of the intelligence of the farmers of Scotland—and certainly there is no man in Scotland who has better opportunities of knowing them than I have—as to feel perfectly convinced that they will year after year become more impressed with these advantages, and that they will year after year more generally avail themselves of them. You say that you have called up two farmers. Why, I think this is altogether a very agricultural meeting—(laughter)—for I have at present other two farmers in my eye, and I must say that, attending, as I sometimes do, on the meetings of other bodies such as this, I do not generally see such meetings graced by so many members of the agricultural profession as this is. As I have said, I sometimes attend other meetings of this kind. As you know, I am connected with another Insurance Company, and as, I dare say, there are many other gentlemen here who are connected with other bodies, I would like to make one observation, and I do it with the best of feeling, in reference to a remark which fell from my friend, Mr. Campbell. Connected as I am with other bodies, I could not subscribe exactly to the doctrine which, I understand, that gentleman laid down, that the Scottish Provident was the only Institution which an insurer should go to. (Laughter) But this I will say, that there is no other office in Scotland I would more willingly and readily, or with greater confidence, go to than the Scottish Provident. (Hear, hear.) To that length I will go, and I think that is the legitimate length to go. Before sitting down, I cannot forbear expressing the gratification afforded me by the unanimous and harmonious manner in which this day's report has been received and approved of. I do trust that our affairs will continue to be managed so as to warrant us to hope that our future meetings will be characterised by that harmony which it is no less our interest than I am sure it is our inclination to promote. I have therefore only to propose that the thanks of this meeting be given to the Directors for their services during the past year.

Mr. GEORGE HOPE, farmer, Fentonbarns, said—As a farmer I rise to second this motion. I had the pleasure, sir, of hearing the greater part of what you said, and was much pleased with the clear and distinct manner in which you pointed out the benefits of life insurance. I was not before aware that the farmers as a body were behindhand in taking advantage of life assurance. For my own part, I see several other farmers present, and I have known several whose farms after their death had been enabled to be carried on at a profit, which would not have been the case had they not left a life insurance policy. I think it is every man's duty, in whatever rank or station of life he may be placed, to insure his life. It is a Christian duty, even although those he leaves do not directly depend upon it, as it is only by the union of numbers that the families of those who die early can be provided for. I may mention, also, in reference to what Mr. Campbell said of the benefits of the Scottish Provident Institution, that it is now some 10 or 12 years since I first joined this Society. At that time I looked most carefully over the terms of the whole of the Life Assurance Societies in Edinburgh, and I came to the decided conviction that the Scottish Provident was the one for my money. Some years afterwards I thought it expedient to effect a second insurance, and, lest I might have been wrong in my first judgment, I determined that I should for the second time carefully examine the principles that regulated the different societies, and again I came back to the Scottish Provident—(hear, hear)—where I had the pleasure of effecting a second insurance. I beg to second the motion.

The motion was agreed to.

The CHAIRMAN then said—I suspect I must have been in some error as to the farmers. (A laugh.) But I think the remarks of our friends will do a great deal of good. They show that those who are in the foremost rank of their own profession are also in advance in other matters affecting their interests. I doubt not their example will be followed by many; and, if so, I will be delighted to come back next year and retract every word I have said as to the farmers to-day.

Mr. CHARLES LAWSON, jun., seedsman, moved the thanks of the contributors to the manager, secretary, and medical officer.

Mr. ROBERT SCLATER moved the thanks of the meeting to the auditors and trustees for their efficient services.

Mr. DAVID RANKIN, postmaster at Kilmarnock, in seconding the motion, made some remarks as to the peculiarly favourable advantage held out by the Scottish Provident Institution to young lives, and dwelt more particularly on this subject in connection with the initiative the Government had recently taken in the promotion of Life Assurance amongst the Post Office officials; and sincerely entertaining a conviction of the superior benefits of this Society, had no doubt but that it would largely participate in the business thus thrown open.

Mr. John Schank More, Professor of Scots Law; Mr. John Fletcher M'Farlan, Chairman of the Chamber of Commerce; and Mr. James Crawford, jun., W.S., were then appointed directors in room of the three retiring; and Mr. Robert Walker (of Bell and Bradfute), publisher, Master of the Merchant Company, was appointed Auditor, in room of Mr. Crawford.

The meeting separated after a vote of thanks to the Chairman.

MUTUAL LIFE ASSURANCE.

SCOTTISH PROVIDENT INSTITUTION.

THE ONLY OFFICE WHICH COMBINES THE ADVANTAGE OF PARTICIPATION IN THE

WHOLE PROFITS WITH MODERATE PREMIUMS.

The Premiums are, at early and middle ages, about a fourth lower than in other mutual or participating Offices. They are as low as the non-participating rates of the Proprietary Companies, which they admit of being, not only with safety but with ample Reversion of Profits to the Policy-holders, being free from the burden of Dividends to shareholders.

Examples of Annual Premium to Assure 100l. at Death.

Age 25	30	35	40	45	50
£1 18 9	£2 1 6	£2 6 10	£2 14 9	£3 5 9	£4 1 7

Thus a person of 30 may secure 1000*l.* at death, for a yearly payment of 20*l.* 15*s.*, which, if paid to any of the other Mutual Offices, would secure a policy for 800*l.* only, instead of 1000*l.*

The arrangement, by which the premiums are reduced to a rate commensurate with the risk, is obviously more suited for securing a competent family provision, in case of early death, than that which, by the same yearly outlay, secures a much smaller present sum, with the hope only of prospective and contingent addition.

PROFITS.

The principle on which the Profits are divided is at once safe, equitable, and favourable to good Lives—the surplus being reserved for those members who alone can have made surplus payments; in other words, for those whose Premiums, with accumulated interest, amount to the sums in their Policies.

The practical working of the system has been, that at the First Division of Surplus—15½ years after the commencement—Bonus Additions have been made to the Policies which have come within the participating class,

Varying from 20 to 54 per cent. on their amount.

In all points of practice — as in provision for the indefeasibility of policies, facility of license for travelling, or residence abroad, and of obtaining advances on the value of the Policies—the regulations of the Society, as well as the administration, are as liberal as is consistent with right principle.

Copies of Reports, explanatory of the principles, with every information, may be had on application at the Head Office, 14, St. Andrew Square, Edinburgh; or at the London Branch, 66, Gracechurch Street, City.

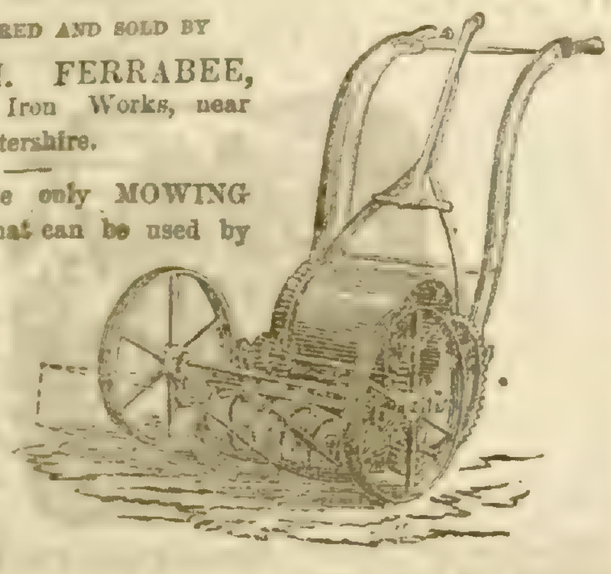
LONDON BRANCH, 66, GRACECHURCH STREET, CITY.

JAMES WATSON, Manager.
GEORGE GRANT, Resident Secretary.

BUDDING'S PATENT
IMPROVED LAWN MOWING MACHINES,

MANUFACTURED AND SOLD BY

J. AND H. FERRABEE,
Phœnix Iron Works, near Stroud, Gloucestershire.



These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds on Bowling Greens, Cricket, and Pleasure Grounds; 4500 of them have been sold.

Hand Machine, for One Man, cutting	16 inches wide	£5 10s.	0d.
Ditto for Two Men	22 ditto	... 6 0	0
Pony Machine (or Donkey)	26 ditto	... 8 0	0
Horse Machine	28 ditto	... 11 0	0
Ditto	36 ditto	... 15 0	0

London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons,	throws 30 feet high	...	£4 10
No. 2 „ 15 „	„ 45 „	...	5 10
No. 3 „ 28 „	„ 45 „	...	6 18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons,	throws 25 feet high	...	£2 15
No. 13 „ 12 „	„ 30 „	...	3 5
No. 11 „ 16 „	„ 40 „	...	4 0
No. 12 „ 24 „	„ 45 „	...	5 0
No. 14 „ 30 „	„ 45 „	...	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

Full size Syringe, on Read's principle, of the very best quality and workmanship, with two roses and one jet, 21s.; Plain Syringes from 10s. 6d. upwards.

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsmen in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

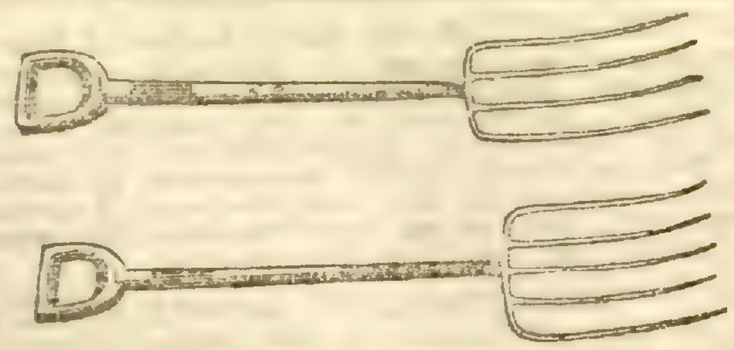
J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each; Large size, for Gardeners' use, **25s.** each.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected: and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

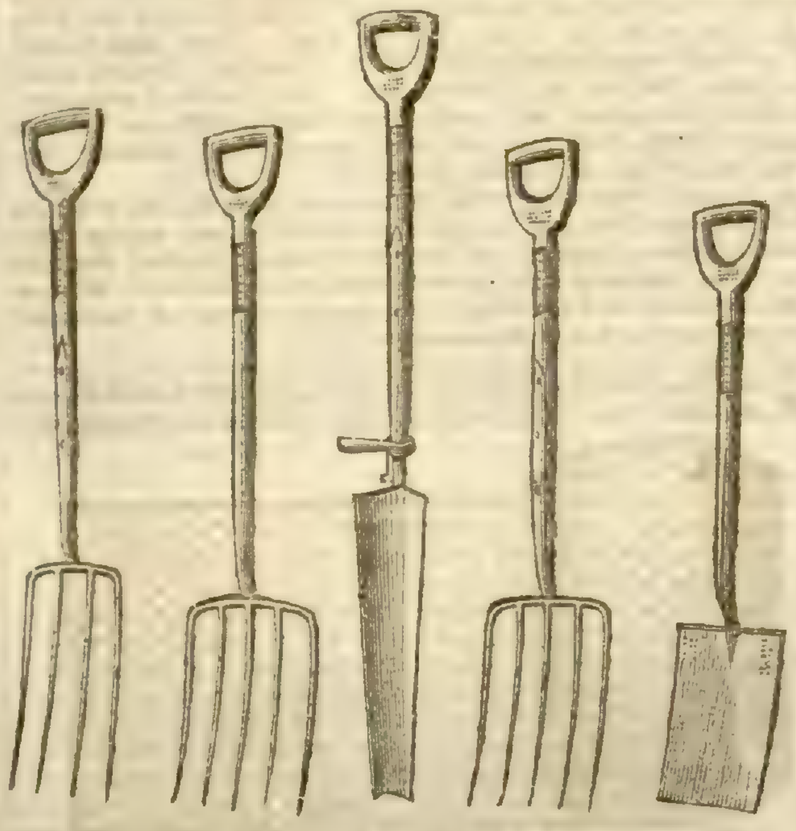
J. Tylor & Sons, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expenses of delivery in the country.



WILLIAM DRAY AND CO.'S STEEL DIGGING FORKS are warranted equal, and by many are considered superior, to any in use. Three Tine Forks, 4s. 6d. each; Four Tine Forks, 5s. 6d. each. A liberal allowance on Wholesale Orders.

William Dray & Co., Swan Lane, Upper Thames Street, near London Bridge.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

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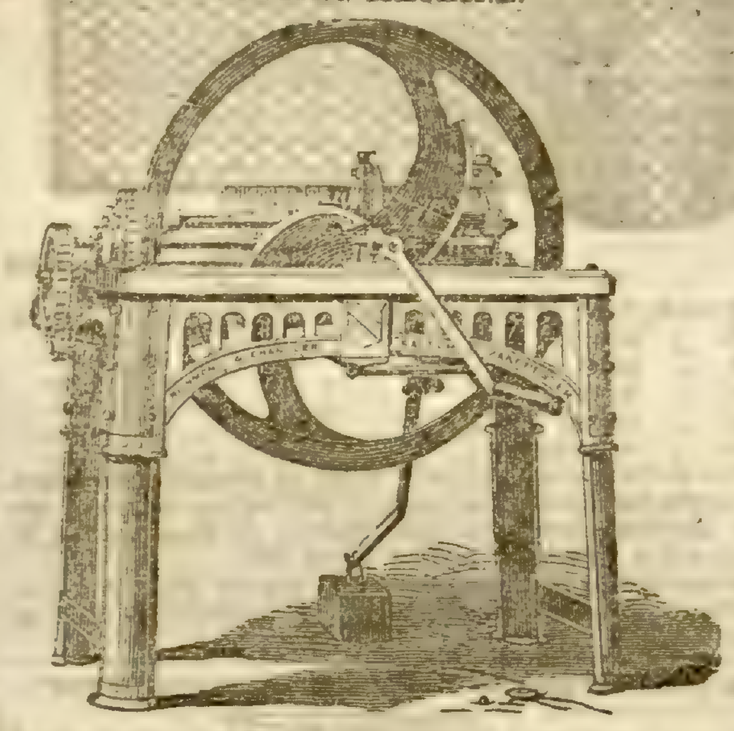

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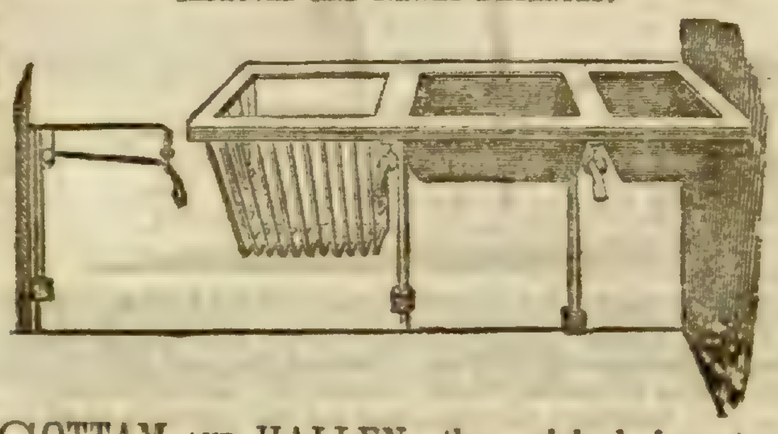
MANGER, RACK, & WATER-TROUGH AS ONE FIXTURE
Improved and Newly Patented.



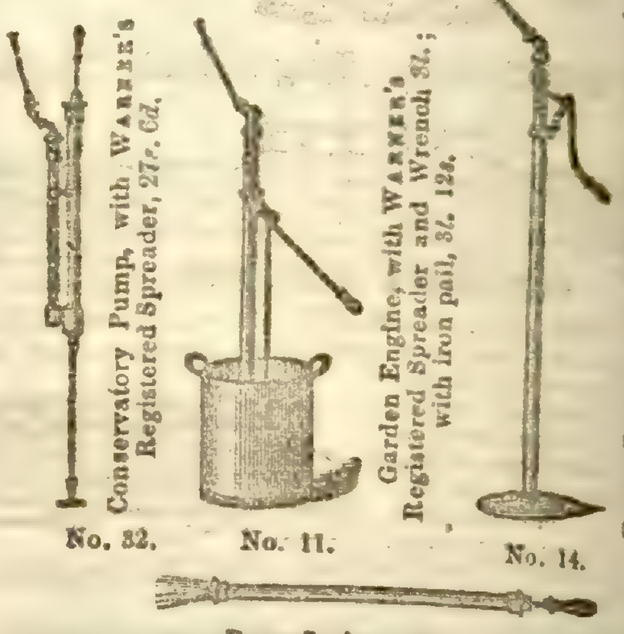
COTTAM AND HALLEN, the original inventors, obtained the Great Exhibition Prize Medal for this arrangement, to which all the latest improvements are adapted, secured by Patent, including a method entirely new of attaching the halter-weight and rein from the back of the manger to the under front of the plate, allowing the horse greater freedom, and being noiseless in operation, add much to its comfort whilst feeding and convenience when at rest, as likewise, from their position, avoiding the liability of the most restive horse getting cast. No well-managed stable should be without these fittings.

COTTAM'S ENAMELLED MANGERS are constructed in the best possible manner, both as to form and utility; are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, and Enamelled. Improved Surface Drain, with Safety Covers, Sanitary Traps, Stable Pumps, Loose Box, Fittings, Gutta Percha Preserving Saddle and Harness Brackets, and every article in Stable Furniture, in stock. An extensive assortment of Patterns for both Plain and Ornamental Castings, and every description of Wrought and Cast Iron Work for building and other purposes. Agricultural and Horticultural Implements, Iron Gates, both plain and ornamental, Hurdles, Strain Fencing, &c.

Estimates and Catalogues on application to Cottam & Hallen, 2, Winsley Street, Oxford Street.

WARMING AND VENTILATING.

JOHN WARNER AND SONS, 8, Jewin Crescent, London, Manufacturers of FIRE ENGINES, PUMPS, GARDEN ENGINES, and SYRINGES.



Brass Syringes, 9s. to 18s.

All articles of John Warner & Sons' manufacture may be obtained of any Ironmonger or Plumber in town or country, at the advertised prices.

John Warner & Sons having been practical Horticulturists for many years, know exactly the requirements of both Amateurs and Gardeners. A gardener with a properly constructed pump will get through as much work in five minutes as he could with any Syringe in a quarter of an hour, and with half the labour to himself. Syringes are economical for small houses.

No establishment offers such a variety of effective machines for hydraulic purposes, whether to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of liquids.

Fountains suitable for Conservatories, Lawns, &c.

Sheets of Engravings sent on application.

JOHN WARNER AND SONS,
Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
With Warner's Registered Spreader,

is strongly recommended, for durability and low price, viz., 2l. 19s., to hold 10 gallons.

Larger sizes in wood or iron. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9s. upwards. Metallic String from 5d. to 1s. 3d. per ft.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3l. 3s. The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1s. 6d. per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3s. 6d. per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Sons, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 12
2½ „	long 3 „ 3 „		1 15
3 „	ditto 3 „ 6 „		2 17
3½ „	ditto 3 „ 6 „		2 18
4 „	ditto 3 „ 6 „		3 5
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 19
2½ in.	long ditto	ditto ditto	2 15

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

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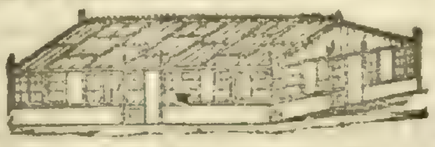
HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.

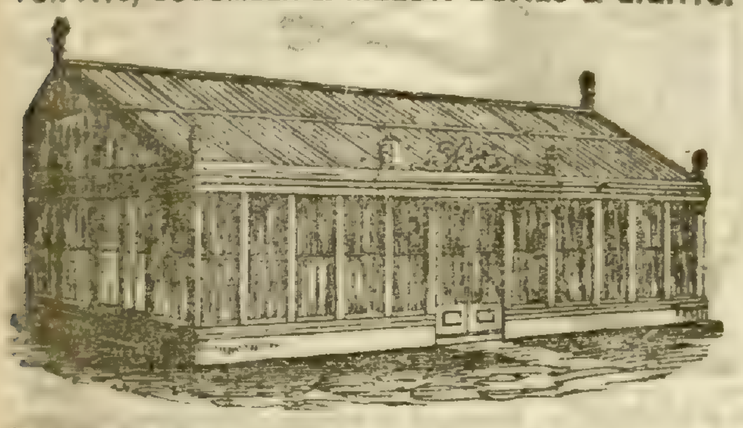
The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.



Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s*. 8*d*. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings: also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

WEIR'S IRRIGATORS, LIQUID MANURE PUMPS, FIRE AND GARDEN ENGINES.

	£	s.	d.
Single Cylinder (as engraving) ...	5	8	0
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Exclusive of Suction and Delivery Pipes.

Illustrated Catalogues free, per post.

Terms Cash on Delivery.

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IMPROVED MOWING AND ROLLING MACHINE.

ALEXANDER SHANKS AND SON, Arbroath,

Forfarshire, Inventors and Sole Manufacturers, respectfully solicit the attention of the Nobility, Gentry, and Gardeners to their Improved Machine for Mowing and Rolling Lawns. The Machine is in operation in the Royal Gardens at Windsor Castle, Buckingham Palace, and at Osborne, in the Botanical Gardens at Kew, Regent's Park, Manchester, Sheffield, &c.; at Worsheim Palace, Trentham, Cleveden, Elvaston, Broadlands, Welbourn Abbey, Clumber, Lilleshall, Castle Howard, Shrubland, Bridge Castle, Enville Hall, Tiptree Hall, Chatsworth, and in many other of the principal gardens in the kingdom as well as in the United States, British America, and on the Continent, where its merits have been fully proved, and its success established.

The machine is made to cut the breadth of 42, 30, 20, and 15 inches respectively, is exceedingly durable, easily managed, and adjusted to cut to the length required. The execution of the work is far superior to what may be attained by the most skilful mower, while at the same time a great saving of labour is effected, and the turf much improved. By the largest machine a Scotch acre may be mowed, rolled, and the Grass collected in one hour.

A. S. and Son have much pleasure in stating that they have made considerable improvements in their 15-inch or hand machine this year, by which the draught is considerably lessened. This machine combines all the merits and advantages of the larger machines with firm and secure construction, and is admirably adapted for borders and for lawns of no great extent.

ALEXANDER SHANKS and SON also respectfully solicit notice of "Fleming's Weeding or Salting Machine" for destroying weeds in gravel walks, court-yards, drives, &c. This machine is now in operation in many parts of England, where it has given ample satisfaction as the best and most economical means of thoroughly keeping down weeds or Moss

Further particulars, with testimonials and prices, may be had on application.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d*. per square yard: 200 yards, 14*s*.: 500 yards, 30*s*.; 1000 yards, 50*s*. Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

FRUIT TREES, POULTRY, RABBIT, SHEEP, AND CAT FENCING.—Worsted Netting, to protect the Bloom of Peach, Nectarine, and other Trees, Flower or Seed Beds, from frost, blight and birds, 2 yards wide, 5*d*. per yard. New Twine Netting (tanned if required), 1 yard wide, 1½*d*. per yard; 2 yards wide, 3*d*. per yard; 4 yards wide, 6*d*.; half-inch Mesh do., 2 yards wide, 6*d*. per yard. Tanned Netting, 2 or 3 yards wide, 1½*d*. per yard; 4 or 6 yards wide, 3*d*. per yard. Elastic Hexagon Garden Net, or Scrim Canvas, 4½*d*. per square yard. Cocoa-nut Fibre, or Hemp Sheepfolding Net, of superior quality, 4 feet high, 4*d*. to 6*d*. per yard. Rabbit Net, 4 feet wide, 1½*d*., 6 feet wide, 2½*d*., 8 feet, 3*d*. per yard. Each edge corded, ½*d*. per yard extra, suitable for Poultry Fencing. Square Mesh Cricketing Net, fix its full width and length, made of stout cord, 3*d*. to 4*d*. per square yard; this is the best article for Fencing against Fowls, Cats, &c.—W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Kingsland, London.

A 20-yard Drag Net, with purse complete, 2*l*. 10*s*; a Single Walled Drag Net, any length and depth, 1*s*. per square yard; Casting Nets, complete, 1*s*. per yard, measured round the lead line; Flue Nets, any size, 1*s*. per square yard complete. Minnow Nets, Eel Nets, and Landing Nets equally cheap, all warranted first-rate quality and workmanship.

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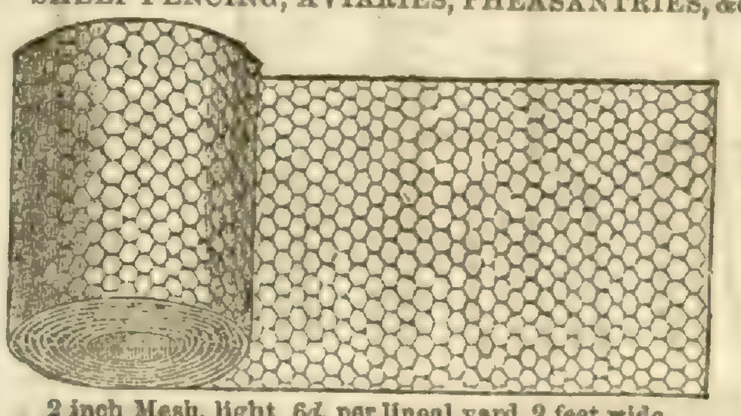

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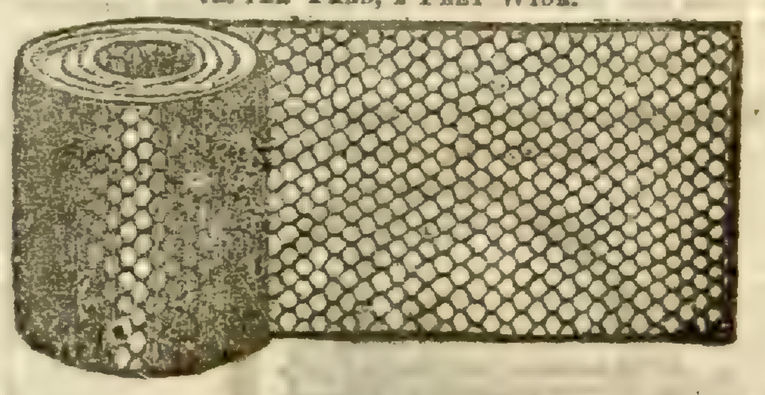

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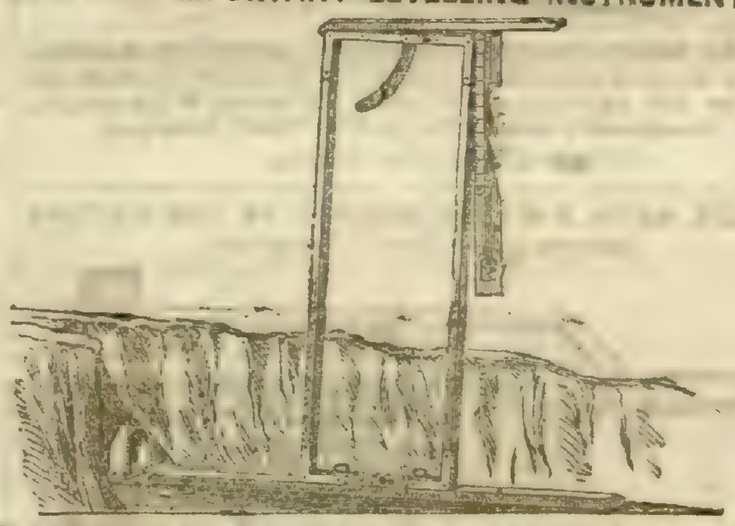

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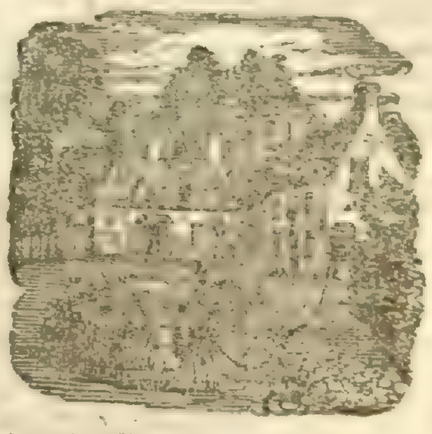

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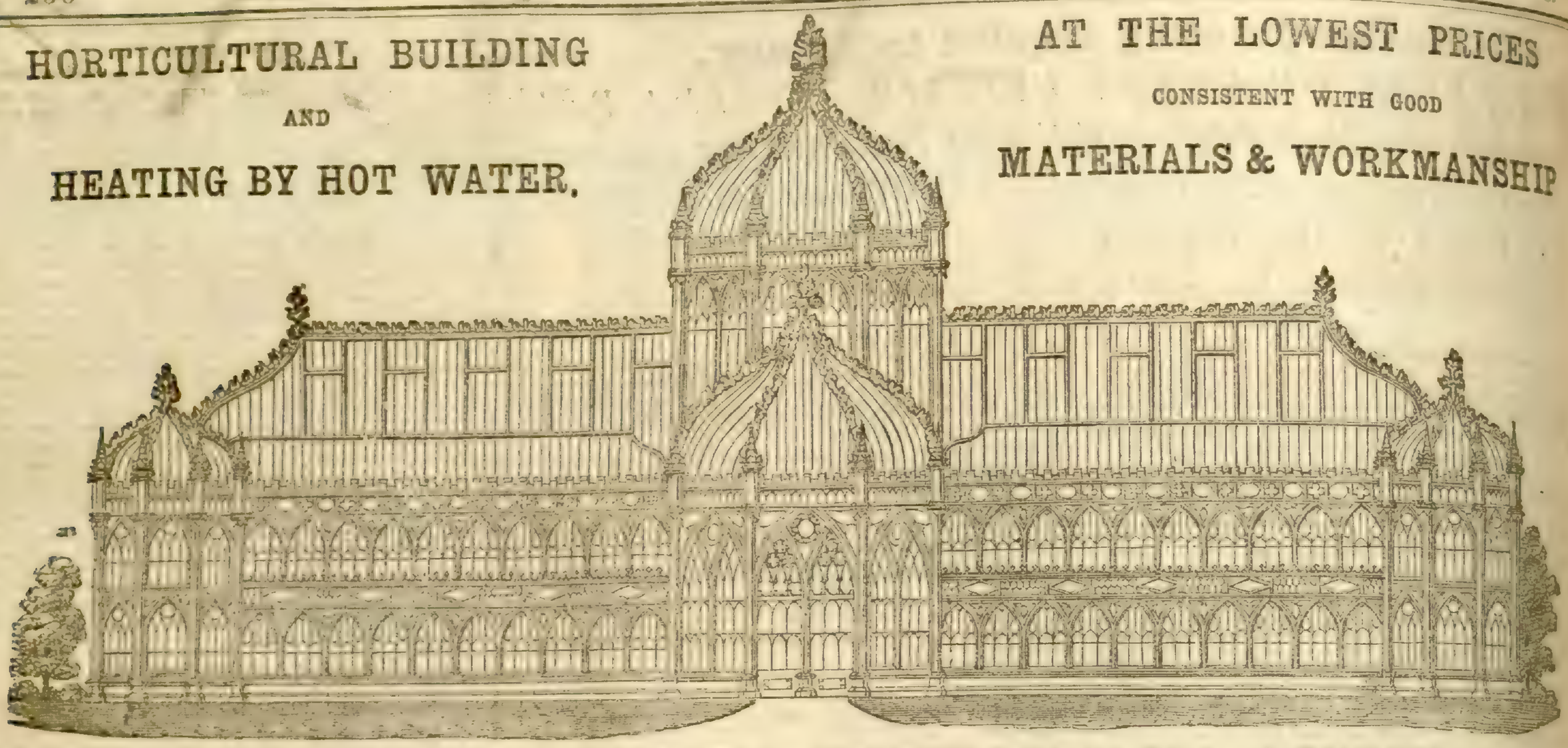

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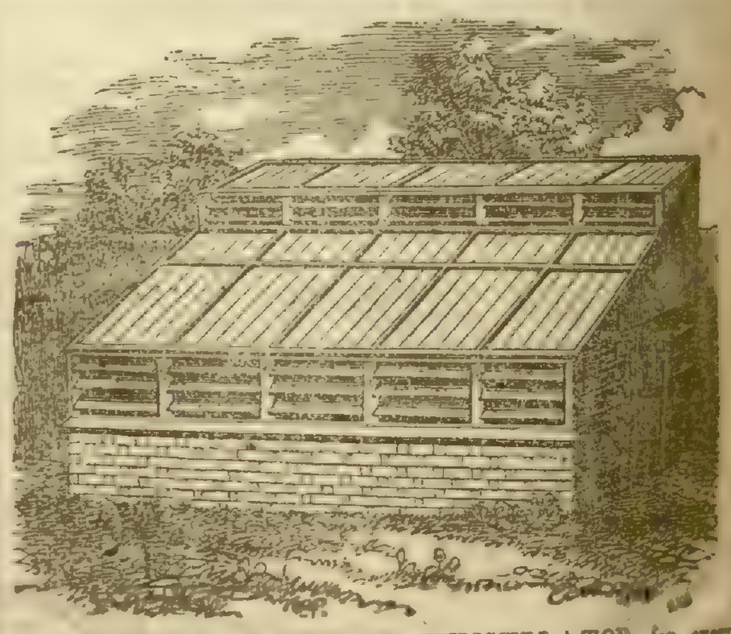

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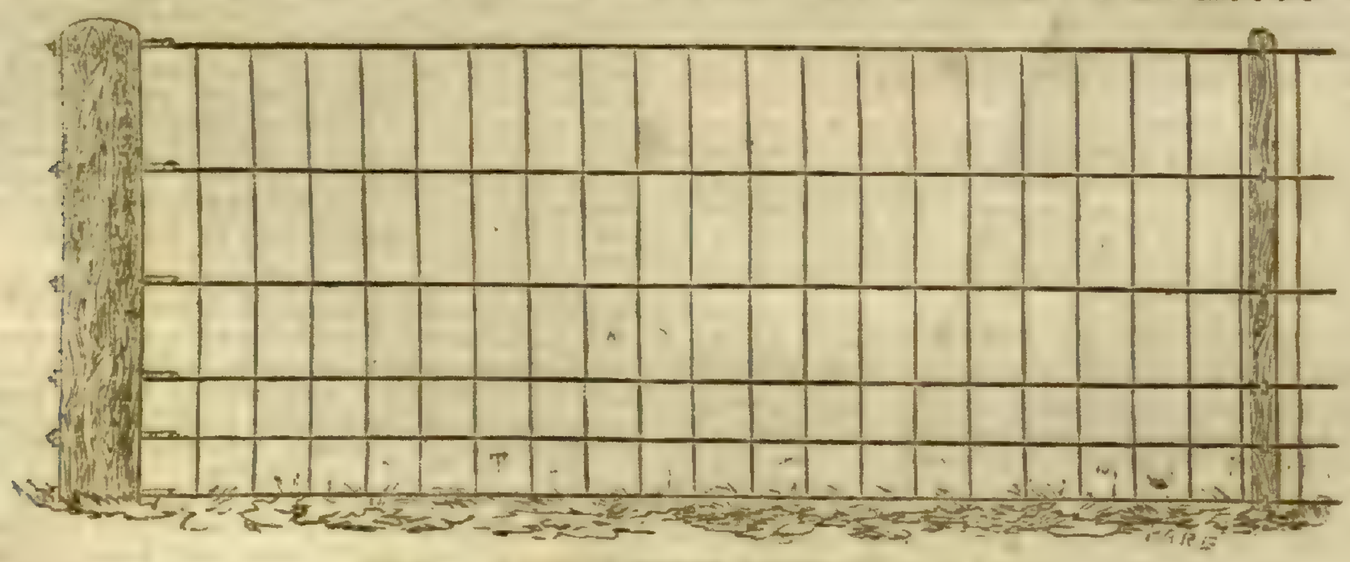

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 16.—1855.] SATURDAY, APRIL 21. [PRICE 6*d*.

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HORTICULTURAL SOCIETY,
21, REGENT STREET, APRIL 21, 1855.

Notice is hereby given, that the ANNIVERSARY MEETING of this Society will be held on TUESDAY, May 1st, for the Election of Council and Officers for the ensuing year, and for receiving the report of the Council for the past year. The Chair will be taken at 1 o'clock, P.M.

HORTICULTURAL SOCIETY OF LONDON.—GARDEN EXHIBITIONS.

Notice is hereby given that the FIRST EXHIBITION of the Season will take place, by permission of her Majesty's Commissioners for the Great Exhibition of 1851, in the GROUNDS of CORE HOUSE, on WEDNESDAY, May 16.

Privileged Tickets at 3*s*. 6*d*. each are now issuing to Fellows of the Society, or their orders, at 21, Regent Street, daily from 11 to 4.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The EXHIBITIONS of PLANTS, FLOWERS, and FRUIT this season will take place on WEDNESDAYS, May 9, June 13, and July 4: and of AMERICAN PLANTS, MONDAY, June 18.

Tickets of admission may be obtained at the Gardens only, by orders from Fellows or Members of the Society—price on or before May 5th, 4*s*.; after that day 5*s*. each.

CRYSTAL PALACE.—HORTICULTURAL FETE.—It is intended to hold a grand Horticultural Exhibition at the Palace on SATURDAY, the 2d of June next. The Rules and Schedules of Prizes are now ready, and can be obtained on application to the Secretary.

April 21. (By Order.) G. GROVE, Secretary.

SOUTH LONDON SOCIETY OF AMATEUR FLORISTS.—The FIRST EXHIBITION for this season will take place at the HORNS TAVERN, KENNINGTON, on TUESDAY, 1st May, 1855, when prizes will be awarded for the following productions, viz., AURICULAS, HEARTSEASE, CINERARIAS, and MISCELLANEOUS PLANTS. An efficient Band will be in attendance.—Admission to Non-Members from 2 to 7 o'clock, at Sixpence each. List of Prizes and the Rules for Exhibitors may be had from

JOHN BUSHELL, Hon. Sec., *pro tem.*

Lower Kennington Lane.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY, under the Patronage of HER MOST GRACIOUS MAJESTY the QUEEN.—The FIRST EXHIBITION of the season will be held at the HORNS TAVERN, KENNINGTON, on THURSDAY, the 2d of May, 1855 (open to all Exhibitors), when prizes will be awarded for the following productions, viz., MISCELLANEOUS PLANTS in collections, SPECIMEN PLANTS, AZALEAS, CINERARIAS, AURICULAS, POLYANTHUSES, and HEARTSEASE, with additional Prizes offered by Members.—Lists of Prizes and the Rules of the Exhibition may be obtained of the Secretary,

JOHN TAYLOR NEVILLE.

Ebenezer House, Peckham, Surrey.

NATIONAL CARNATION AND PICOTEE SOCIETY.

The FIFTH ANNUAL EXHIBITION of this Society will be held at OXFORD, in connexion with the Royal Oxfordshire Horticultural Society, on THURSDAY, the 2d of August, 1855, when the following Prizes will be offered for competition, viz.:—

OPEN TO ALL GROWERS—

CLASS A.—Carnations, 12 dissimilar blooms, 60*s*., 40*s*., 20*s*., 10*s*.
CLASS B.—Picotees (white ground), do. do. 60*s*., 40*s*., 20*s*., 10*s*.

FOR PRIVATE GROWERS—

CLASS C.—Carnations, 12 blooms, to contain not less than nine dissimilar varieties, 60*s*., 50*s*., 40*s*., 30*s*., 25*s*., 20*s*.
CLASS D.—Picotees (white gnd.), do., 60*s*., 50*s*., 40*s*., 30*s*., 25*s*., 20*s*.

[No Exhibitor can win more than one Prize in Classes A. & B., and C. & D., respectively.]

CLASS E.—Single specimens in Classes; on Cards (open to all Growers), five in each class, 5*s*., 4*s*., 3*s*., 2*s*., 1*s*.

Carnations, six Classes: Picotees (white ground) six Classes: Yellow Picotees one Class.

[One variety may win any number of awards in its Class. Seedlings may be shown either in the Stands or Classes, and a First Class Certificate may be awarded to those of sufficient excellence, provided not less than two blooms are shown. Bottles for the single specimens will be provided by the Committee.]

Premier Carnation (to be selected from the Stands or Classes), 7*s*. 6*d*.

Premier Picotee (ditto), 7*s*. 6*d*.

A Schedule of Prizes and Conditions for Exhibition may be had of

WM. R. HOBBS, Secretary.

Subscriptions will be received by Mr. Charles Turner, Royal Nursery, Slough; Mr. John Holland, Middleton, Manchester; Mr. Keynes, Salisbury; John Edwards, Esq., Wace Cottage, Twickenham, Middlesex; Mr. E. S. Dodwell, Derby; or by Mr. W. Ingram, 22, St. Giles's Street, Oxford, to whom all Subscriptions are to be remitted.—Oxford, April, 1855.

BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY.—ROYAL PAVILION.—The Second Annual Summer Exhibition of Plants, Flowers, Fruits, &c., will be held on WEDNESDAY and THURSDAY, the 27th and 28th June next, on the same grand scale as last year. Schedules are now ready and can be had by application to E. SPARY, General Superintendent of the Exhibition, or of the Secretary, E. CARPENTER, 45, Lavender Street, Brighton. By the liberality of the Railway Company all plants will be conveyed to the Exhibition and back *carriage free* from all stations on the lines.—By order of the Committee,

EDWARD CARPENTER.

N.B. The Autumn Exhibition will take place on the 12th and 13th September next.

WILLIAM MASTERS AND SON, LANDSCAPE GARDENERS, Exotic Nursery, Canterbury.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

SPECIAL CONTRACTS.

SUTTON AND SONS are prepared to make Contracts on very liberal terms to Farmers or others requiring Seeds in considerable quantities.

ALSIKE CLOVER (TRIFOLIUM HYBRIDUM).

SUTTON AND SONS have some pure genuine Seed of this superior new CLOVER, which will be found an invaluable Perennial Plant.

CLOVER SEEDS.

GENUINE NEW CLOVER SEEDS *can be had at the lowest market prices of* JOHN SUTTON & SONS, SEED GROWERS, READING, BERKS.

TRUE GUERNSEY PARSNIP.—*This is a large and superior sort, and can be strongly recommended. The Subscribers have just imported a choice lot of Seed from Guernsey, and can supply it at 2s. per lb.*

WILLIAM E. RENDLE & Co., SEED MERCHANTS, Plymouth.

WHITE BELGIAN CARROT, 2*s*. *per lb., or much cheaper by the cwt.*

WILLIAM E. RENDLE & Co., SEED MERCHANTS, Plymouth.

MORTON'S YELLOW GLOBE MANGOLD.—*From Seed grown from the original stock of J. C. Morton, Esq., the Editor of the* AGRICULTURAL GAZETTE. 1*s*. 6*d*. *per lb.*

WILLIAM E. RENDLE & Co., SEED MERCHANTS, Plymouth.

FINE MANGOLD WURZEL AND BELGIUM CARROT SEED.

JAS. FAIRHEAD, SEED GROWER, Braintree, Essex, begs to offer, at moderate prices, ORANGE GLOBE, RED GLOBE, LONG RED, and LONG YELLOW MANGOLD WURZEL; WHITE and ORANGE GREEN-TOPPED BELGIUM CARROT, of selected Stocks, the growth of 1854.

Carriage paid to any Station on the Eastern Counties Railway.

TO THE SEED TRADE.

ABRAHAM HARDY AND SON, SEED GROWERS, Maldon, Essex, have for sale SCARLET RUNNERS, YELLOW GLOBE MANGOLD SEED, KNIGHT'S TALL, and CHAMPION OF ENGLAND PEAS, at moderate prices, all new and good. Other home-grown Seeds in variety.

TO SEED MERCHANTS.

TO BE SOLD, 120 bushels of OLD PURPLE-TOP SWEDE IMPROVED, all transplanted and carefully selected in flower. Also 100 bushels of RED-TOP ROUND TURNIP, and 1 ton of LONG YELLOW MANGOLD SEEDS.—W. WOODCOCK, Wisbech, Agricultural Seed-Grower of 20 years standing. Respectable references given and required.

SWEDE, CARROT, AND MANGOLD SEEDS.

TO BE SOLD, a few sacks of SKIRVING'S SWEDE, of last year's growth, from large roots; some YELLOW GLOBE and LONG RED MANGOLD; and ALTRINGHAM CARROT, all warranted.—Apply to Mr. GEO. TABER, Seed Grower, Rivenhall, Witham, Essex.

TO BE SOLD CHEAP, price 60*l*., a small private Collection of ORCHIDS (180 Plants).—Apply to Messrs. FRASER'S, Nurserymen, Lea Bridge Road, Leyton, Essex.

TO BE SOLD, 100 strong healthy PINE SUCKERS, mostly large and well-rooted, chiefly Queen's, Black Jamaica's, and a few other varieties.—Address to Mr. VAIR, Head Gardener to Lady Dorothy Nevill, Dangstein, Petersfield.

DWARF FRENCH BEANS can be had in any quantity.—Apply to J. G. WAITE, Seed Merchant, 181, High Holborn, London.

LIQUIDAMBAR.—The undernamed is a buyer of either a large or small quantity of the above. Send cash price, and height, to Mr. JEYES, Nurseries, Northampton.

SECOND EARLYS.

JOSEPH WILSON, Ipswich, begs to state that up to the 28th instant he will be glad to execute orders for not less than one sack (16 stones) of the following varieties:—Derby Drop, Moss Kidney, Prolific do., Cambridge do., and Early Shaw. Large buyers will be liberally treated with. Price on application.

THE FLUKE KIDNEY POTATO.—This excellent variety is now planted here as the principal crop, being more free from disease and more prolific than any other in cultivation. It was raised in Middleton, and may be had genuine in any quantity at 5*s*. per bushel of 56 lbs.—Apply to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

Post-office Orders to be made payable at Middleton, Lancashire.

THE LANCASHIRE FLUKE POTATO.—Fine medium-sized SEED of this celebrated variety, warranted true, to be disposed of, at 5*s*. per bushel of 60 lbs., bags included. A reduction will be made when a quantity is ordered. Post-office orders made payable at Bury, Lancashire.—ROBERT DAVENPORT, Gardener and Seedsman, Union Street, Bury, Lancashire.

SEEDS FOR THE FARM, CARRIAGE FREE.—SEE RENDLE'S "FARMING PRICE CURRENT AND AGRICULTURAL DIRECTORY."

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

GRASS SEEDS.

J. C. WHEELER AND SON'S DESCRIPTIVE PRICED LIST OF GRASSES FOR PERMANENT PASTURE will be forwarded free by post on application.

J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

NEW AND RARE PLANTS.

MESSRS. VEITCH AND SON respectfully announce that their DESCRIPTIVE LIST OF NOVELTIES for this season is now ready for distribution, and will be forwarded on application.—Nurseries, Exeter and Chelsea, April 21.

T. F. WINSTANLEY'S Second Edition of his DESCRIPTIVE GENERAL CATALOGUE OF SEEDS is now ready, and can be had post free in exchange for two stamps.—28, Market Place, Manchester.

GERMAN FLOWER SEEDS FRESH IMPORTED.

SUTTON AND SONS *have imported a superior assortment of New German Flower Seeds, a Priced List of which may be had post free.*

CEDRUS DEODARA—ONE-YEAR OLD SEEDLINGS.

MAULE AND SONS have a few Thousands of the above to offer at 10*l*. per thousand, strong healthy Plants. They still have a good supply of all sizes from 1 to 5 feet.

The Nurseries, Bristol, April 21.

HYACINTHS.

ARTHUR HENDERSON AND Co.'s Grand Collection of Hyacinths will be in great perfection during the next fortnight, which may be seen. Also the New Scarlet Verbena, Mrs. Woodroffe, at their Nursery, Pine-apple Place, Edgware Road, London.—April 21.

CHOICE PANSIES.

HART AND NICKLIN, FLORISTS, &c., Guildford, offer the following, the set for 12*s*.:—Sovereign, Elegantissima, France, Cycole, Sir J. Paxton, Pandora, National, Criterion, Alfred the Great, Caroline, Sylvia, Sultan, Marchioness of Bath, Eva, Ophir, Mr. Beck, Duke of Perth, British Queen, Euphemia, Adela, Blanche, Royal Purple, Pompey, Lady Carrington, and Lord Jeffrey.—Choice varieties, 4*s*. per dozen.

TO GROWERS OF VERBENAS.

JACOB SCOTT MATTHEWS, SPRING GARDENS, Cardiff, South Wales, begs to inform the Public that his stock of Autumn-struck Verbenas are now ready for sending out, consisting of 30 of the best Bedding varieties, fine Plants and well established in pots. Retail price, 1 doz., 3*s*.; 4 doz., 10*s*.; 9 doz., 20*s*. The usual allowance to the Trade.

NEW SCARLET VERBENA.—MRS. WOODROFFE.

ARTHUR HENDERSON AND CO. are now sending out this fine new VERBENA; particulars of which may be seen in their advertisement in the *Gardeners' Chronicle* of March 31. The usual discount to the Trade.

☞ This Verbena is the same as "Conqueror," one offered by another firm.—Pine-apple Place, Edgware Road, London.

HOLLYHOCKS.

A. PAUL AND SON have for Sale a large Stock of fine double HOLLYHOCKS in separate colours, 30*s*. to 50*s*. per 100. Superior named varieties, 12*s*. per doz. and upwards. The plants are strong and in perfect health.

Nurseries, Cheshunt, Herts.

OSAGE ORANGE (MACLURA AURANTIACA).

CHARLWOOD AND CUMMINS can supply SEED of the above-named Hedge Plant at 4*s*. per lb., with full directions for treatment. The month of May is the best time for sowing.—14, Tavistock Row, Covent Garden, London.

BOSSOM'S CHAMPION OF ENGLAND CELERY.

THE finest Celery yet introduced, beautifully white, very crisp and solid, and withstands a greater amount of frost than any other known variety; it has been blanched in the ground 3 feet.—To be obtained of T. F. WINSTANLEY, Seedsman, 28, Market Place, Manchester, price 2*s*. 6*d*. per packet; prices to the trade on application.

MAY'S MAGNUM BONUM LETTUCE is by far the largest, sweetest, and crispest Lettuce known, in proof of which we possess numerous letters received from parties who had it last season. The addresses of the writers can be had on application. Only a few packets remaining at 1*s*. each.—HENRY MAY, the Hope Nurseries, near Bedale, Yorkshire.

BANKS' SEEDLING FUCHSIAS.—1855.

(FOR FULL DESCRIPTION SEE FORMER ADVERTISEMENTS, AND ON APPLICATION).

W. J. EPPS has much pleasure in stating that the above Fuchsias have been proved to be the finest that have been raised by that celebrated grower E. Banks, Esq., Deal. Early orders are solicited. The set of six, 2*l*. 2*s*. The usual discount to the trade.—Bower Nurseries, Maidstone.

CABBAGE PLANTS.

THOMAS WELLAND offers genuine Garden and Field Cabbage Plants, safely packed for any part of Great Britain. Packed and delivered free to Godalming Station, 8*s*. 6*d*. per 1000.—Surrey Gardens, Godalming, Surrey.

500,000 FLAT-POLE OR DRUM-HEAD CABBAGE PLANTS.

THOMAS MOORE, NURSERY AND SEEDSMAN, Fore Street, Kingsbridge, Devon, begs to call attention to his large Stock of CABBAGE PLANTS, which will be ready in May and June. They are a superior late sort, and raised from seed of his own saving.

"NORFOLK HERO" CUCUMBER.—Without exception the very best Cucumber for open ground cultivation that has yet been offered. It is a most prolific bearer, as handsome as any frame variety, the fruit measuring from 16 to 20 inches in length. It is in the sole possession of YOUELL & Co., who will forward per post free (on receipt of postage stamps) packets containing six Seeds, 1*s*.; 18 Seeds, 2*s*. 6*d*.

To Market Gardeners the above will be found a great acquisition.

Royal Nursery, Great Yarmouth.

SPLENDID NEW HOLLYHOCKS.

G. SMITH respectfully informs the admirers of the HOLLYHOCK that the following are Seedlings of great merit, and cannot fail to give entire satisfaction. They were raised by Mr. Parsons, the grower of Jean of Arc, and other fine varieties. To be sent out about the middle of April, 1855, in strong healthy plants.

	s.	d.
Eclat, yellow and buff, a nice full flower	3	6
King of Yellows, large, of fine form, flower full, extra fine yellow	7	6
Marchioness, flesh or blush, very double and close, fine for exhibition	3	6
Monarch, a true salmon, very large and fine shape ...	7	6
Mr. Adams, dark salmon pink, a noble show flower ...	5	0
Pearl, blush white, large and distinct	5	0
Pillar of Roses, a beautiful bright rose, a splendid spike, the finest border flower yet offered, and a most attractive show flower	5	0
The Alma, cherry rose, distinct, fine shape	5	0
White Unique, very close and double	3	6
Sarah, a splendid large rose, fine form and spike	5	0

Tollington Nursery, Hornsey Road, Islington, London.

FLOWER SEEDS.—We have selected out of our large collection of Flower Seeds the most beautiful and showy varieties, each sort distinct in colour, and calculated to produce a fine effect when planted out in beds or groups in the flower border. We have had each variety distinctly marked with the Botanical and English name, height, time of flowering, colour of the flower, manner of growing, whether erect or trailing, &c., the time it should be sown, and other valuable hints as to its cultivation. In selecting these varieties we have been careful to exclude all which are shy bloomers or have an insignificant appearance, so that the collections will comprise only those which are really showy and handsome, and which we believe would prove to the entire satisfaction of any lady or gentleman who might be disposed to order them. The German Stocks and Asters especially are most superb. The Collections will be sent free by post to any part of the kingdom at the following prices:—

20 extra fine varieties, all distinct and beautiful	...		5s. 0d.
50 do.	do.	...	10s. 6d.
100 do.	do.	...	20s. 0d.

J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the 18th Century.

NEW PLANTS IN FLOWER.

MESSRS. E. G. HENDERSON AND SON beg to announce that the following plants are now in flower, and may be viewed at their nursery:—

Camellia Jenny Lind	Azalea Criterion
" Marie Antoinette	" Juliana
" Ariosto	Rhododendron campylocarpum
" Mathotiana	" Dalhousie will be open in the course of a week
" alba pleno of Casoretti	Rhododendron Pontica coccinea
" alba illustrata	Camellia de la Reine
" Catherine Longhi	Azalea Admiration
" Comte de Paris	" Narcissiflora
" Don Michel	Cyclamen Persicum, new collection
" Innocenza	Rhododendron, new seedling
" Madonna	Genestyllis macrostegia (Fuchsioides).
" Ristori	
" Verschaffeltiana	

NEW PLANTS

To be sent out in May (orders for the Fuchsias received after April 7th will only be executed after the earlier orders are sent off, when it is probable one or two varieties may be too small to travel with the rest):—

HYDRANGEA HORTENSIS, flore pleno, 10s. 6d.

PHLOX QUEEN VICTORIA, 5s.

DAHLIA EMPEROR FRANCIS JOSEPH (variegated foliage), 10s. 6d.

SHRUBBY BEDDING CALCEOLARIAS.

Brunette	7s. 6d.	Norma	7s. 6d.
Coreggio	7 6	Red Rover	7 6
Maggiore	7 6	Vezzosa	7 6
Minnie...	7 6	Wildfire	7 6

Or the set of eight varieties, 2l. 2s.

With the permission of Mr. C. Turner they will offer his new CALCEOLARIA PURITY (the best white bedding variety) at 7s. 6d. each, or with the above set, 2l. 7s.

FUCHSIAS.

Queen Victoria (Story)	10s. 6d.	Lady of the Lake (Story)	10s. 6d.
Prince Albert (Banks) ...	10 6	Water Nymph (Story) ...	10 6
Perrugino (Story)	10 6	Raffaelle (Story)	10 6
Empress Eugenie (Story)	10 6	Mrs. Story (Story)	10 6
Ranunculæflora (Story)...	21 0	Snowdrop (Story)	10 6

Or the set of ten varieties, 4l. 4s.; or without Ranunculæflora, 3l. 3s.

FUCHSIA BANKS' FAVOURITE (Banks), 10s. 6d.

For full particulars of the above see back numbers of this Paper.

NEW SEED CATALOGUE,

With full description of all the New Annuals, forwarded post free on application; each article is priced, the height and colour given, with various information to guide the cultivator. A list of the choicest sorts is also selected and brought together in a separate List.

THE NEW SPRING CATALOGUE

Will shortly be published and forwarded post free on application. Parties wishing for the same will have their names booked for it, to be sent as soon as ready.

A COLOURED PLATE.

Composed of a group of Nine new Flowers belonging to the Stove, Greenhouse, and Garden. It will be sufficient to say that Mr. Andrews, the eminent floricultural artist, has them in course of preparation, and under his superintendence full reliance may be placed on their accuracy; any one wishing for the same will have their names booked for it, to be sent them when finished, by forwarding 12 postage stamps; and if ordered in time will be stitched-in and sent with their new Spring Catalogue. This notice also applies to any nurseryman that may wish to have the Plate.

Messrs. E. G. Henderson & Son having purchased of the late W. Story, Esq., of Newton, in the county of Devon, for ONE HUNDRED GUINEAS, all Seedling Fuchsias with white Corollas, a new feature in this tribe introduced by him, and in consequence of an advertisement appearing in the *Gardeners' Chronicle* from Messrs. Lucombe, Pince, & Co., of Exeter, offering two new Fuchsias similar in character to those purchased of the late Mr. Story, it was thought necessary, after a written communication with that gentleman, for one of the firm to make further inquiries about them, and in consequence Mr. Andrew Henderson went to Exeter and Newton, where he was informed by a jobbing gardener at Newton that he had received in the month of November last Seven Pounds for them, after (as the said jobbing gardener stated) he had been offered 420 pounds by a nurseryman in London, but whose name or address he did not know.

Messrs. E. G. H. & Son give the above explanation in consequence of many of their customers having ordered plants at higher prices than are now asked. This reduction is made in consequence of information which they have received that leaves no doubt in their minds but that those to be sent out by Messrs. Lucombe, Pince, & Co. are similar in character to those purchased of Mr. Story.

HENDERSON

TO THE TRADE.—*The Subscribers can supply the following* AGRICULTURAL SEEDS *to the Trade. Prices on application.*

White Belgian Carrot.
Yellow Globe Mangold Wurzel.
Long Red " "
Skirving's Swede Turnip.
Rendle's " "
True Devon Evergreen Grass.

Apply to WILLIAM E. RENDLE & CO., Seed Merchants, Plymouth.

NEW SEEDS, CARRIAGE FREE.

		Per lb.— s.	d.
White Belgian Carrot		2	0
Yellow Globe Mangold Wurzel		1	0
Morton's Yellow Globe do....		1	6
Fisher Hobbs' Yellow Globe do.		1	6
Elvetham Long Red do.		2	0
True Devon Evergreen Grass ...	Per bushel 5s. to	6	0
Imported Italian Rye-grass	6s. to	7	0
Dickenson's Improved do.		8	0
True Somerset Cow Grass ...	...Per lb. 9d., 10d., to	1	0
Alsike Hybrid Clover		2	0
Common Red Clover...	6d., 7d. to	0	8
White Dutch do.	9d., 10d., to	1	0

Prices of all kinds of Agricultural Seeds will be found in Rendle's "Farming Price Current and Agricultural Directory," just published.—Apply to

William E. Rendle & Co., Seed Merchants, Plymouth.

GERANIUMS.

BASS AND BROWN have the following to offer, strong and healthy plants, well established for a fine and abundant bloom. For descriptive list see their autumn Catalogue.

The following 12 *Superb New Show Varieties of last season for* 40s., *or separately as priced.*

Dobson's Eliza	3s.	6d.	Turner's Duchess of Wellington ... ... 5s. 0d.
" Empress ...	5	0	Topping's Emily Rival 3 6
" Glowworm ...	3	6	Hoyle's Regalis... ... 5 0
Foster's Lucy	5	0	" Virginia ... 5 0
" Purple Perfection	5	0	" Carlos 5 0
Turner's Pilot	3	6	" Tamberlik ... 3 6

The following 20 *first-rate Varieties, of previous date, for* 30s., *or any* 12 *for* 21s.

Admiral, Albira, Ambassador, Astrea, Butterfly, Eleanor, Exhibitor, Ganymede, Harriet, Jupiter, Kulla, Lagoma, Leonora, National, Novelty, Optimus, Portia, Queen of May, Rachel, and Rubescens.

The following 20 *first-rate older Varieties for* 15s., *or any* 12 *for* 12s.

Alderman, Commissioner, Elise, Enchantress, Field Marshal, Flying Dutchman, Gem, Medus, Mochanna, Magnificent, May Queen, Nepaulese Prince, Nandee, Prince Arthur, Painter Improved, Rosa, Rowena, Rubens, Village Maid, and Virgin Queen.

FANCY GERANIUMS.

The following 12 beautiful varieties for 9s.:—Bishop of Winchester, Caliban, Extravaganza, Jehu Improved, Lady Downs, Magnifica, Mazeppa Superbe, Necrée, Odoratissima grandiflora, Odorata Superba, Statiaski, and Superba.

GLOXINIAS.

The following set of 11 new varieties of last season are very fine, and may be had for 33s., or separately 3s. 6d. each:—

Duke of Wellington, rich velvety scarlet of stout substance, throat shaded with violet, and slightly spotted with white.
Eleanor, pure white, blotched with rose, and purple shade.
Elegantissima, French white of great substance, pale lavender centre, spotted with buff.
Erecta Magnifica, fine white, with blue throat, habit of Fyfiana.
Eugenie, rosy pink, centre creamy white, spotted with rose.
Exquisite (Henderson's), pure white, with broad belt of puce, throat creamy white, spotted with puce.
Grand Sultan, a fine Continental variety.
Lady Franklin, extra large rose, stout and robust, shading off to pink, slightly spotted white in the throat.
Magnet, clear rose, with blotch of purple in the throat, large and fine form.
Prince of Wales, white, shading off to lavender.
Sir C. Napier, deep rosy crimson, throat blotched with intense rose, dwarf habit.

The following 12 superb vars. for 20s.:—Belle Clymene, Duchess de Brabant, Dr. Plancheon, Grandis, Hogoveen, Imperialis, Leonie Van Houtte, Petoiana, Princesse de Lamballe, Victoria Regia, Wilsonia, and Wortleyana.

ACHIMENES.

The following three very beautiful new varieties may be had for 17s. 6d.:—

Madame Rendatler, a fine large purplish lilac, with yellowish white throat	5s. 0d.
Picturata, brilliant rose colour, flowers of the form of multiflora, with darker spots, exceedingly handsome ...	5 0
Gigantea, a novelty beyond comparison, resembling Picta, but twice as large and brighter colours, very free and keeping in flower several months	10 6

Twelve Superb Varieties for 10s., including Louis Van Houtte, Mr. Aparpart, Cerito, &c.; 12 fine older vars. for 6s.

	£	s.	d.
GREENHOUSE PLANTS, 50 fine and select species and varieties	2	5	0
" " 50 do. do., best selection	3	5	0
STOVE PLANTS, 50 superb and select species and vars.	4	0	0
HERBACEOUS PLANTS, 100 fine and distinct vars	1	10	0
" " 100, including newer "	2	10	0
ROCK PLANTS, 25 fine varieties	0	12	0
DELPHINIUMS, 12 in 6 fine varieties	0	9	0
" very fine seedlings of splendid mixed colours, per 100	1	1	0
DIANTHUS ATRORUBENS, splendid dark crimson for bedding, per doz.	0	6	0
DIANTHUS SPLENDENS, rich bright crimson, for ditto, per doz.	0	5	0
POTENTILLAS, 12 fine varieties, 9s.; 12 extra fine ...	0	18	0
" splendid mixed seedlings, per doz ...	0	9	0
" 5 best new varieties — King of Crimson, Sudbury Gem, Theodore, Shylock, and Julia, for	1	10	0
ROCK CISTUS, dwarf, 24 beautiful vars., very distinct	0	15	0
PHLOX, 25 fine vars., 9s.; 25 beautiful newer vars.	0	12	6
PENTSTEMONS—Grandis, fine blue, improvement on Atrocærulea, and a fine bedding plant, per doz.	0	15	0
" Magniflora, extra large dark red, 2s. 6d.; per doz.	0	24	0
" Azureum (true), a fine dwarf blue, per doz. ...	0	7	6
" Ovatum, light blue, abundant bloomer, per doz.	0	6	0
Primula involucrata, most lovely white, per doz. ...	0	9	0
Viola arborea, 6s. per doz.; alba, per doz.	0	6	0
" Neapolitan 6s. " Russian "	0	4	0
Berberis Darwini, per doz.	0	15	0
Pæonia papaveracea, strong ... ... 1s. 6d. to	0	2	6
Hardy Climbing Plants, 12 fine vars. ... ... 9s. to	0	18	0
Roses, Tea-scented and China, in pots, 12 fine vars.	0	12	0
Wood's New Duchess of Norfolk, Hy. perpetual, each...	0	5	0

Goods carriage free (not under 20s.), to all the London termini, and all stations on the London and Norwich Colchester Line. Plants added gratis with orders of 40s. and upwards.

COMPLETE CATALOGUES on application for six penny stamps, or the Spring Catalogues alone for three penny stamps, or gratis to our customers who may not have received them.

Seed and Horticultural Establishment, Sudbury, Suffolk.

BEDDING PLANTS.—At 2s. 6d. per Doz.

JOHN SCOTT, Merriott Nurseries, Crewkerne, Somerset (established 1728), has nearly 20,000, in 3-inch pots, ready to be sent out. Post-office Orders payable at Crewkerne. (Baskets and Package at the Expense of Purchaser, and returnable.)

200 Sorts of the best and newest Verbenas.
120 do. Scarlet and other Bedding Geraniums.
20 do. Variegated leaved ditto.
100 do. Fuchsia, all the best; 24 do. Shrubby Calceolaria, 24 do. Petunias; with Anagallis, Ageratums, Cupheas, Heliotropes, Lobelias, Salvias, Senecios, &c. Also the beautiful variety, Double Pyrethrum.

When a fair proportion of each is taken the price will be 2s. 6d. per dozen; but if only Calceolarias and Geraniums are ordered they will be 4s. per dozen. Catalogues, in which the above are arranged in sections of colour, &c., sent on receipt of a postage stamp. Parties requiring large quantities can have them in store pots by agreement.

NEW AND CHEAP PLANTS.

The Cheapest Establishment in the Kingdom for Plants is at

HENRY WALTON'S, Edge End, Marsden, near Burnley, Lancashire, where there are propagated annually from 20,000 to 30,000 plants for sale, which for cheapness and quality are not to be equalled. Parties desirous of possessing a choice collection of good plants would do well to select from the following:—

GERANIUMS, new varieties, strong autumn-rooted plants, purchasers selection, 30s. per dozen; H. W.'s selection, 25s. per dozen, viz.—Attraction, Carlos, Duchess of Wellington, Empress, Eliza, Glowworm, Helen, Indian Chief, Leah, Lucy, Mrs. Hoyle, Marginata, Mary, Neatness, Picta, Rebecca, Regalis, Rosa (Foster's), Rhoda, Tamberlik, Virginia, and Zeno. Extra strong choice older varieties, 9s., 12s., and 15s. per dozen: 25 for 20s.; 50 for 35s.

FUCHSIAS, new varieties of last season, spring struck, 7s. 6d. per dozen; autumn struck, 9s. per dozen, post free, viz.—Admiral, Autocrat, Clio, Duke of Wellington, Elegans, Fenny Webb, Grandissima, Globosa Splendens, Henry Monteith, Macbeth, Magnifica, Monarch, Mr. Charles Palmer, Omega, Queen of Hanover, Telegraph, Trentham, and Vanguard.

CINERARIAS, choice new varieties, 12s. per dozen, or 6 for 8s., viz.—Advancer, Etoile de Vaise, Estelle, Empress Eugenie, Exquisite, Garland, Lady Camoys, Lord Stamford, Lablache, Mrs. Seagrave, Mrs. Beecher Stowe, Novelty, National, and Polyanthiflora. Choice varieties of previous years, 6s. and 9s. per dozen.

PANSIES, the following choice select varieties, 12s. per dozen, or the set of 22 for 18s.—Duke of Perth, Eldorado, Flower of the Day, Golden Eagle, Kate, St. Andrew, Sovereign, Emperor, Fearless, Lord Walsingham, Ajax, Owen Glendower, Prince Albert, Rubens, Rising Sun, Sir William Wallace, Lady Bute, Miss Jane, Mrs. Oswald, Marchioness of Bath, Yellow Climax, and Charles Turner. Good older show varieties for 4s. 6d. and 6s. per dozen.

VERBENAS, new varieties of last season, 7s. 6d. per dozen.

New PETUNIAS of last season, 9s. per dozen.

CARNATIONS and PICOTEES, 50 superior sorts, named, one pair of each, 2l.; 25 do., one pair of each, 1l.; or 9s., 12s., and 18s. per dozen pairs.

PINKS, 4s. 6d., 6s., 9s., 12s., and 18s. per dozen pairs.

HOLLYHOCKS, a choice selection of strong healthy plants, 12s., 18s., 24s., and 30s. per dozen, H. W.'s selection.

DAHLIAS, in May, new varieties of last season, 9s. and 12s. per dozen; older varieties 4s. 6d. to 6s.

A choice selection of Bedding Plants, including Scarlet and other Geraniums, Heliotropes, Pentstemons, Cupheas, Salvias, &c., equally cheap.

H. W.'s Spring List is now ready, and may be had for one postage stamp.

It is respectfully requested that all Post Office Orders be made payable at Marsden, Lancashire; and a remittance or satisfactory reference expected with all orders from unknown correspondents. All orders to the amount of 25s., carriage free to Liverpool, Manchester, Leeds, and Preston; 2l. and upwards, carriage free to Birmingham and Carlisle; for more distant carriage extra plants will be given gratis.

GEORGE SMITH has much pleasure in offering the undermentioned strong Plants, which he is now sending out, and feels great confidence in recommending them as possessing first-rate qualities:—

VERBENAS.

BOULE DE FEU (Young), bright orange scarlet, with conspicuous lemon eye; pip large, of fine form, compact truss, of good size, the habit excellent, a most profuse bloomer, the finest scarlet ever offered. First class certificates at the National, Royal South London and North London Floricultural Societies.

LORD RAGLAN (Banks), crimson scarlet, large lemon eye, pip and truss large, of fine form. This will be found a noble variety.

EMPRESS (Smith), pure white, with conspicuous rosy purple centre, pip and truss large, smooth and compact. One of the very finest of the light varieties.

MRS. M'NIEL (Smith), brilliant rose with large lemon eye, truss and pip large, of exquisite form, and very beautiful. In the style of Beauty of Hornsey.

VIOLACEA (Smith), intense violet, with a very conspicuous large white eye, pip and truss large, of good form. This will be found most remarkable and beautiful, either for bedding or exhibition. It is something in the way of M. Paquin, with colour much more intense, and a fine free grower.

SILISTRIA (Smith), pale lilac, shaded with rose, very fine and compact. First class at the Royal South London Horticultural Society. The set of six for 24s., or 5s. per plant.

FUCHSIAS.

The following four Fuchsias are fine show flowers, plants of good growth, and very free blooming kinds that must be grown in all good collections:—

OMER PASHA (Smith), tube short and stout, sepals well reflexed, of bright waxy crimson scarlet, corolla deep violet purple, large, of good shape, fine habit, free in growth and profuse bloomer. A fine plant for exhibition. 7s. 6d.

ORLANDO (Smith), dark tube and sepals reflexed, with an intense dark corolla. 3s. 6d.

CORONET (Smith), white tube and sepals, corolla violet-purple, shape, very free. 3s. 6d.

NIMROD (Smith), white tube and sepals, corolla light purple, good form. Plant of strong growth, and a very free bloomer. 3s. 6d.

SCARLET GERANIUMS.

BEAUTY OF COMB BANK, intense scarlet, eye white, pip large and circular, truss very large, dwarf habit, with luxuriant foliage. A first class bedding variety. 5s.

CHEPSTEAD BEAUTY, fiery crimson scarlet, extra large and fine, foliage very beautiful, habit dwarf, and free bloomer. One of the finest scarlet Geraniums ever offered. 5s.

CERITO, salmon rose, truss and pip large. A novel and pleasing variety. Was exhibited at the National Floricultural Society, where the judges would have awarded it a first class certificate had the plant been exhibited. 5s.

PETUNIA.

SINGULARITY (Smith), a novel and striking variety, corolla two-thirds downward bright green, throat rose, flower extra large, the habit of Prince Albert, a pleasing variety. 5s.

Choice Verbena Seed, 2s. 6d. per packet.

A Priced and Descriptive Catalogue of first-class Verbenas, Geraniums, Fuchsias, Hollyhocks, Dahlias, Chrysanthemums, and Petunias, will be forwarded in exchange for one stamp.

Tollington Nursery, Hornsey Road, Islington, London.

VARIEGATED IPOMŒA.

GEORGE ROBERTS has just received from a correspondent a small packet of the seed of a Variegated IPOMŒA, which appears from the following description to be a very interesting novelty. "Apparently a beautiful hybrid. The ground colour of the flower is white or pale pink, profusely spotted and streaked with purple, blue, lilac, bright crimson, &c. The same plant presents an almost infinite variety of colours, each flower varying from its neighbour on the same stalk: in one the purple, in another the blue stripes would be more prominent." Packets containing 10 seeds 2*s.* 6*d.*

GEORGE ROBERTS begs also to offer to the Trade the following Seeds:—Quisqualis indica, Q. hirsuta, Galphimia elegans, Canna lutea, C. indica, Aristolochia odoratissima, Cæsalpinia sepiaria, Mimosa aspirata or Shrubby Sensitive, Momordica Luffa, Ipomœa rubro cærulea, I. bona nox, a fragrant white Convolvulus, and Argemoni mexicana.—32, Moorgate Street, London.

A. STANSFIELD AND SON beg to offer the following:—

1000 species and varieties of Herbaceous and Alpine Plants at 4*s.* per dozen, or 30*s.* per 100.

500 species and varieties adapted for Rockwork at 4*s.* per dozen.

200 species and varieties of Hardy Greenhouse and Stove Ferns and Lycopods, at from 6*s.* per dozen, and upwards.

Verbenas, Fuchsias, Geraniums, and other Bedding Plants, at from 3*s.* 6*d.* per dozen. Catalogues on application.

*** 100 bushels of selected Fluke Potatoes at 4*s.* 6*d.* per bushel of 56 lbs. Dean's Seedling Fluke at 3*s.* 6*d.* per stone of 14 lbs.

Vale Gardens, Todmorden, Lancashire.—April 21.

NEW ROSES.

MESSRS. WILLIAM ROLLISSON AND SONS beg to offer the following new Roses, which they will be able to supply in good healthy plants the first week in May, at 7*s.* 6*d.* established in pots. Purchasers wishing for a less number than here enumerated, by leaving the selection to ourselves, may depend upon having the best and most desirable varieties chosen for them.

HYBRID PERPETUALS.

Abadie de Rougemont, bright crimson, very fine.
Baron Larray, fine rose, and beautiful shape.
Belle Lyonnaise, very double, blush white.
Clecron, very curiously mottled, dark crimson and white.
Comtesse de Marennes, rosy lilac, tinted with carmine.
" d'Orleans, delicate rose.
" de Turennes, beautiful light flesh colour.
" de Vaillant, light violet.
Deuil de Frederic Villermoz, purple velvet shaded with black.
Docteur de Varennes, rosy purple.
Duchesse de Cambacérès, bright rose, very sweet.
Empereur Napoleon, bright scarlet.
Etendard des Amateurs, very bright rosy purple.
Eugenie Poilleaux, bright carmine.
Evêque de Meaux, rosy velvet.
Folichonne, bright crimson. Gloire de Vitry, rosy crimson.
Julie Guinoiseau, delicate glossy rose colour.
La Fontaine, bright crimson. Leon Raimann, bright glossy crimson.
Lord Raglan, scarlet and crimson.
Louise de Châteaubourg, bright rosy crimson, very sweet.
Madame de Trotter, bright red.
" Hitz, beautiful flesh colour.
" Latour, very delicate pink.
" Masson, bright velvety crimson, changing to violet.
" Place, bright delicate pink.
" Theodore Martell, blush white, tinged with pink.
" Vidot, delicate blush, shaded with pink.
Marie Liabaud, rosy pink.
Maxime, rosy violet in the centre, and shaded.
Monsieur Pigeron, very large, deep crimson.
Nouvelle Etendard du Grand Homme, pale apricot colour.
Panaché d'Orleans, soft rose colour striped with red and purple.
Perfection, dark crimson, shaded with carmine.
Prince de la Moskowa, dark crimson.
Raphaël, bright rosy crimson.

TEA-SCENTED ROSES.

Baronne de Savigny, blush white, darker centre.
Blanche de Solleville, white shaded with cherry colour.
Louise de Savoie, yellow.
Madame Barillet Deschamps, white tinged with yellow.
Souvenir d'Elisa, pale yellow, centre white.

NOISETTE.

Polonie Bourdin, salmon colour, yellow centre.

BOURBON.

Auguste Pajol, bright cherry colour.
Camille de Châteaubourg, red, shaded with purple.
Emilie Miret, carmine. Etoile du Nord, bright red.
Ferdinand Deppe, purplish velvet, fine.
Frilet, bright crimson. Isabelle, bright rose colour, very fragrant.
Josephine Chambert, cherry colour.
Marguerite Dubourg, bright red. Omer Pacha, dark purple.

PERPETUAL MOSS ROSES.

Madame Edouard Ory, bright rosy carmine.
Salet, bright red in the centre, and beautifully shaded.

The usual discount to the trade when a dozen sorts are taken.
The Nurseries, Tooting, London.

NEW ROSES.

H. LANE AND SON, The Nurseries, Great Berkhamsted, beg to inform their Patrons and Customers in general that they possess all the NEW ROSES of the Season, but cannot confidently recommend them until they have bloomed in the autumn. The Rose Catalogue may be had on application.

NEW EVERGREEN CLIMBING ROSE.

WILLIAM WOOD AND SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, beg to intimate to their friends that they ARE NOW prepared to send out AT ONCE good strong plants of WILLIAMS' EVERGREEN CLIMBING ROSE, at 3*s.* 6*d.* each, with the usual allowance to the trade, and a still further reduction if one dozen or more are ordered at once. Price may be had on application.

N.B.—Single Plants will be sent free per post on receipt of six penny postage stamps EXTRA to defray postage. Strong Plants of the above may also be obtained at the same price from Mr. CHARLES TURNER, of the Royal Nursery, Slough.

NEW ROSES IN POTS.

WILLIAM WOOD AND SON have to offer fine Dwarf Plants of the following:—

HYBRID PERPETUALS.—	*s.*	*d.*
Baron Laray	7	6
Cicero	5	0
Comtesse d'Orléans ...	7	6
" Vaillant ...	7	6
Deuil de François Willermoz	7	6
Duchess of Norfolk ...	10	6
Empereur Napoleon (SEMI DOUBLE)	7	6
Evêque de Meaux... ...	10	6
General Bréa	2	0
Jules Margottin, 2*s.* 6*d.* to	3	6
Julie Guinoisseau ...	10	6
Lafontaine	7	6
La Ville de St. Denis ...	3	6
Léon Haimann	7	6
Lord Raglan	10	6
Madame de Cambacères (splendid)	10	6
Madame de Trottaire ...	5	0
" Domage, 2*s.* 6*d.* to	3	6
" Hector Jacquin .	5	0
" Lacour Jurie ...	7	6
" Masson	10	6
" Phelip	5	0
" Place	7	6
" Theodore Martel	7	6
" Vidos	10	6

HYBRID PERPETUALS.—	*s.*	*d.*
Monsieur Pigeron... ..	10	6
Panaché d'Orléans ...	10	6
President Menoux ...	7	6
Prince de la Muskowa ...	5	0
Souvenir de Leveson Gower	5	0
" des Braves ...	3	6
Triomphe en Beauté ...	2	6
Bourbon, Ferdinand Deppe	7	6
" François Henrique	5	0
" Omer Pacha ...	7	6
Tea, Auguste Vacher ...	3	6
" Barillet Deschamps	5	0
" Gloire de Dijon, 3*s.* 6*d.* to	5	0
" Laurette (Belle Laure)	3	6
" Madame Maurin ...	3	6
China, Lucullus	7	6
Perpetual Moss, Salét ...	7	6
Noisette, Augusta, 7*s.* 6*d.* to	10	6
Moss, Jeanne de Montfort	3	6
" L'eblouissante ...	3	6
" Vandaël	3	6
Hybrid Bourbon, Charles Lawson	7	6
Gallica, Amphitrite ...	2	6
" George Vibert ...	2	6

Extra plants will be presented with each order.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

NEW ROSES.

BENJAMIN R. CANT begs to offer strong Dwarf Plants, in pots, of the following NEW ROSES:—

HYBRID PERPETUALS.—	*s.*	*d.*
Alfred Colomb	3	6
Alphonse de Lamartine ...	3	6
Ceres	3	6
Cicero	5	0
Comtesse Vaillant ...	7	6
Conseiller Jordeuil ...	3	6
Duchess of Norfolk ...	5	0
Deuil de F. Willermoz ...	7	6
George d'Amboise ...	3	6
Gloire de France	3	6
Gloire de Parthenay ...	3	6
Lady Milsom	3	6
Lady Shelley	3	6
La Ville de St. Denis ...	3	6
Madame Domage... ...	2	6
" Hector Jacquin	3	0
" Masson	10	6
" Lacroix	3	6
" F. Rigaux ...	3	6
" Place	7	6
" Recamier ...	3	6
" Rendatler ...	3	6

HYBRID PERPETUALS.—	*s.*	*d.*
Madame Theodore Martel	7	6
" Quetel	3	6
Marie de Bourges ...	3	6
Prince de la Moskowa ...	5	0
Sir John Franklin ...	3	6
Triomphe en Beauté ...	2	6
P. Moss, André Thouin ...	3	6
Bourbon, Omer Pacha ...	7	6
Tea, Louise de Savoie ...	7	6
Nois, Augusta	7	6
Moss, D'Arcet	2	6
" Gloire de Mousseuses	5	0
" Jeanne de Montfort	3	6
" L'Eblouissante ...	3	6
" Marie de Blois ...	5	0
" Vandael	3	6
Gallica, Amphitrite ...	2	6
" George Vibert ...	2	6
H. Bour., Charles Lawson	7	6
" Gervaise Rouillard	3	6

N.B. The new Hybrid Perpetual Rose Emperor Napoleon will not be sent out before June: by that time I shall have proved it. If not more than semi-double, I much question if it is worth 7*s.* 6*d.* I, however, received a very high character of it, which induces me to offer it to the public, *but not to let it out before proving its worth.*

Carriage paid to any Station on the Eastern Counties Railway.

St. John's Street Nursery, Colchester.

AMERICAN NURSERY.

GEORGE BAKER'S DESCRIPTIVE CATALOGUE OF AMERICAN PLANTS, &c., as exhibited by him in the Royal Botanic Gardens, Regent's Park, may be had by inclosing two postage stamps.

G. B. begs to call attention to his fine stock of Weeping Hollies, Coniferous Plants, Ornamental Shrubs, &c.—American Nursery, Windlesham, near Bagshot, Surrey, near Staines Station, South-Western Railway, where conveyances may be obtained.

PAGE AND CO.'S BLIGHT COMPOSITION.—Extra Strong, 4*s.* per gallon, sufficient to make four Jars and Barrels extra; in Bottles, 1*s.* 3*d.* and 2*s.* 6*d.* each. Directions for application forwarded. 10 Gallons and upwards Carriage Free to London. Should be in the hands of all Plant and Fruit Growers. See *Gardeners' Chronicle*, March 3, 1855. It can now be obtained of

Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester
Bass & Brown, Sudbury
Sutton & Sons, Reading
W. & G. Davison, St. Peter's Street, Hereford
Henderson & Co., Pine-apple Place, London
Rendle & Co., Plymouth
Masters & Son, Canterbury
Thomas Davies & Co., Wavertree, Liverpool
Mr. Freeman, Woburn
" J. Perkins, Northampton
" Tiley, Bath
" E. Paul, Derby
" W. Barratt, St. John's, Wakefield.
" Baskerville, Bristol
Mr. Burham, Hastings
Messrs. Chandler & Son, Wandsworth Road, London
Mr. James Veitch, Exotic Nursery, Chelsea
Messrs. Wheeler & Son, Gloucester
Messrs. Downie & Laird, South Frederick Street, Edinburgh
Mr. W. F. Smith, Rivershead Nursery, Sevenoaks
Messrs. Fisher, Holmes, & Co., Handsworth Nursery, Sheffield
Mr. Thos. Cridland, Willeton, near Taunton
Mr. E. Taylor, Malton, Yorksh.
Mr. S. Smee, Halstead, Essex
Mr. Henry Horne, Henley-on-Thames
Mr. Thomas Pierpoint, Warrington, Lancashire
Mr. W. Garraway, Welwyn, Herts
Mr. George Wheeler, Nurseryman, Warminster
Messrs. Wood & Ingram, Nurseries, Huntingdon
Mr. R. M. Mills, Market Place, Bourn
Mr. Husbands, Talbot Street, Nottingham
Mr. Caparn, Seedsman, Newark
Mr. John Cattell, Seedsman, Westerham
Mr. Morgan, Nursery, Kidderminster
Messrs. Ivery & Son, Nurserymen, Dorking and Reigate
Messrs. Leake & Smith, Bridgenorth

and of the Inventors and Manufacturers—

B. PAGE & CO., SEED MERCHANTS, Oxford Street, and Above Bar, Southampton.

N.B.—Other names will shortly appear, as the agents are appointed.

TO WHEAT GROWERS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, Edinburgh and London, have received from North-West America a small quantity of two new kinds of WHEAT, which they are sending out in packets containing 200 grains. One kind is named Club-headed, cultivated by the old Californians. The yield is said to be very large, and forms a very beautiful delicate-coloured sample. Price 20*s.* per packet, containing 200 seeds.

The other kind is evidently a variety of Triticum durum, with solid stalks. It is very early, and well adapted for spring sowing. Price 15*s.* per packet, containing 200 seeds.—Orders may be sent to PETER LAWSON & SON, in Edinburgh; or direct to their London House, 27, Great George Street, Westminster.

GRASS SEEDS.—CARRIAGE FREE.

PERMANENT PASTURE GRASS.—*The very best Selections can be obtained from* WILLIAM E. RENDLE & CO., *Seed Merchants, Plymouth,—all new and carefully selected, from* 24*s.* *to* 30*s.* *per acre.*

ORNAMENTAL LAWNS, PLEASURE GROUNDS, &c. The choicest varieties for producing a fine sward for Lawns and Pleasure Grounds can be procured from WILLIAM E. RENDLE & CO., Seed Merchants, Plymouth, at 18*s.* per bushel, 2*s.* 6*d.* per gallon, or 1*s.* per lb.

RENOVATING GRASSES—for sowing over land deficient of plant—can be obtained at 9*d.* per lb.

A complete descriptive List of Grasses will be found in "RENDLE'S FARMING PRICE CURRENT," *and some valuable Tables, and other information relative to the best varieties for certain Lands and Situations.*

Apply to WM. E. RENDLE & CO., Seed Merchants, Plymouth.

ESTABLISHED SEVENTY YEARS.

CHOICE FLOWER SEEDS,

FOR PRESENT SOWING.

Per packet.—			*s.*	*d.*
Pansy, saved from 100 of the best varieties, by name ...			2	6
Polyanthus, do.	50	do. " ...	2	6
Verbena, do.	50	do. " ...	2	6
Hollyhock, do.	60	of the most superb kinds " ...	2	6
Calceolaria, do.	24	do., spotted varieties ...	2	6
Gloxinia, do.	30	newest varieties	2	6
Daisy, do.	50	of the new Belgian do. do.	1	6
Antirrhinum, do.	20	best named varieties	1	0
Anemone, from the most showy and brilliant kinds ...			1	0
30 packets of new and choice Flower Seeds			5	0

The above, per post, free. Postage stamps received in payment.

YOUELL AND CO., Royal Nursery, Great Yarmouth.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks, at 5*s.*; 12 varieties, 2*s.* 6*d.*; and from good double sorts, 1*s.*

Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s.* per packet; separate, 2*s.* Fine Quilled African Marigolds, 6*d.* per packet.—Saffron Walden Nurseries.

SUPERIOR WHITE BELGIAN CARROT SEED.

SUTTON AND SONS have some remarkably fine seed of this useful root. Whereas much of the Carrot Seed selling this season is acknowledged to be of inferior quality, Messrs. SUTTON & SONS having tested theirs, find it to germinate as well or better than any they have ever sold. Price according to quantity required.—Address SUTTON & SONS, Seed Growers, Reading, Berks.

To Farmers, Potato Growers, and Others.

JACKSON'S PATENT PREPARATION

FOR

PRESERVING POTATOES, WHEAT, AND OTHER SEEDS

From DISEASE, the RAVAGES of the SLUG, GRUB, and WIREWORM, in addition to which the CROPS are brought forward in HEALTH AND VIGOUR, and the yield is greatly increased, in proof of which the following extracts are given from numerous letters received by Mr. JACKSON.

EXTRACTS:—

"One of the fields of this farm, the property of MRS. STANBURY, was planted with Regents Potatoes in April last, some of which were prepared by you. The result now is, that the whole of the crop from the unprepared sets is thoroughly diseased, and hardly worth the trouble of taking up; while those raised by the side of them from the prepared sets are not only in a beautiful state of preservation from the disease, but the produce is much greater,—the Potatoes are more numerous than the others; indeed, if there were no such thing as the disease to be feared, it would be worth the trouble and expense of preparing the sets by your process, even for the sake of the improved crops. I shall certainly, for the future, prepare all my Potatoes for seed by your process; and I intend to adopt it for preserving my Wheat from the Smut.

"G. B. BAXTER.

"Belmont Farm, Eltham, Kent, August 28, 1854."

"Admiral Sir J. A. GORDON, K.C.B., Marlee House, Blairgowrie.

"SIR,—I have received your note of the 16th. The Potatoes that came here from England, prepared by Mr. JACKSON, were planted in a piece of new ground, and according to the directions sent by him along with them as to distance between the plants, &c. They came up well, with strong healthy stems; we have now taken the whole crop up, and there is not the slightest appearance of any disease amongst them. They are of large equal size and very prolific. There were long black unprepared Kidneys planted in the same patch, and a great deal of them are not fit for use, at least a third part are diseased. I hope Mr. JACKSON's process may be widely known, as it is a great boon.—I am, &c.,

JOHN SHANKS,

"Forester, Kildrummy Castle.

"Kildrummy Castle, Aberdeenshire, November 17, 1854."

"I am very much pleased with the result of the experiments I have made with your Prepared Potatoes; for I planted them, without any manure, in ground where for several years I have hardly had a sound Potato, and I now find the crop perfectly free from disease, and in a very fine condition; while those of the same sort, unprepared, which were planted at the same time, and next to them, are diseased and eaten by worms.

"The Potatoes from the Prepared Seed were so remarkably good that I was induced to weigh them, and I found, to my great astonishment, that they were as 200 to 150 of the others, or about 25 per cent. in favour of your preparation.

"T. AUSTEN, Nurseryman and Seedsman.

"Blackheath, Kent, 24th August, 1854."

Sold by Messrs. CHARLWOOD & CUMMINS, Seedsmen, Covent Garden; and JOHN KERNAN, Seedsman, 4, Great Russell Street, Covent Garden; all Seedsmen and Chemists; and at the Patentee's, 18, Cannon Street, London Bridge, in Packets of One, Two, Three or Four Pounds, or in Bulk for the use of Farmers and Potato Growers.

The Gardeners' Chronicle.

SATURDAY, APRIL 21, 1855.

IN our columns of the 23d Dec. last we announced the very interesting fact that the MANGOSTEEN had at last produced its flowers in England, in the garden of his Grace the Duke of Northumberland. We can now add that the fruit has ripened—one having fallen from the tree last Monday, after acquiring the size of a St. Michael's Orange. It was of a deep plum colour, and upon being opened was found perfect in every respect except the formation of seeds, of which there was no trace. Its flavour proved equal to the great reputation which the Mangosteen enjoys; we thought it something like that of a melting Peach mixed with Grape juice; at all events there can be no doubt that it must rank even in England as the King of the dessert. Three other specimens are nearly ripe, one of which promises to be fully as large as if grown in the Malay Archipelago. It must be highly

gratifying to the Noble Duke to find that the patient care which has been bestowed upon the plant is at last, after so many years, thus rewarded by complete success.

We believe that the garden at Syon is the only establishment, private or public, in Europe in which have been ripened Vanilla, Nutmegs, Litchis, Cloves, and, greatest of all, the Mangosteen.

We find in the Prussian *Landwirthschaftliche Zeitung*, of March 9, the following highly interesting tabular view of the mean monthly earth temperature of Berlin, drawn up by Professor Dr. Dove from the observations of the last five years; for the convenience of our readers, we have reduced it from the scale of Réaumur to that of Fahrenheit.

	4 feet above the ground.	On the surface of the ground.	At a depth below the surface of 1 foot.	1½ ft.	2 feet.	2½ ft.	3 feet.	4 feet.	5 feet.	Difference.
January .	32.67	33.35	36.72	37.80	38.18	39.02	40.07	42.44	44.44	11.09
February	32.74	32.60	36.18	37.19	37.67	38.23	39.31	41.47	43.13	10.53
March . .	35.53	36 05	37.33	38.00	38.14	38.54	39.17	40.91	42.28	6.23
April . . .	45.68	44.80	43.72	43.83	43.52	43.63	43.43	43.88	44.01	0.79
May. . . .	58.59	57.24	52.13	51.48	50.76	50.72	49.57	48.96	48.15	9.09
June . . .	63.61	60.48	57 80	58.15	56.68	56.66	55.26	54.41	52.99	7.49
July . . .	68.47	65.43	62.46	61.04	60.55	60.48	59.00	57.78	56.21	9.22
August. .	64.91	61.97	60.57	60.53	60 50	60.66	59.72	59.00	57.85	4.12
September	58.16	56.72	57.35	57.78	58.10	58.41	58.01	58.01	57.49	0.77
October .	49.43	48.31	51.12	51.80	52.25	52.52	52.97	54.18	54.88	6.57
November	38.63	38.79	43.94	45.07	45.68	46.44	47.43	49.55	51.26	12.47
December	34.43	34.97	39.20	40.19	40.68	41.69	42.59	45.00	47.09	12.12

To adopt the words of the German editor, the importance of air-temperature with relation to the vegetation of plants, and their cultivation, is so universally recognised, that it is superfluous to waste words upon it. But the influence on the development of the plant, exercised by the relation borne by the warmth of the soil to that of the outer air, is less known, although practically admitted, inasmuch as it teaches us to sow different plants at different times of the year.

It is only, indeed, from a very recent period that even meteorologists have begun to ascertain the varying temperature of that soil in which the roots of plants are placed, and which governs their rate of growth at least as much as any other of the conditions to which vegetation is exposed.

To say, as was formerly said, that the average ground temperature of a country amounts to so much, as is indicated by springs, was wholly without signification to a cultivator, whatever interest the statement may have had in the eyes of a geologist. Springs indicate the temperature of their sources, and little else; and as the roots of plants do not reach the neighbourhood of such springs, to them the warmth of sources is indifferent. When artesian wells were bored in the valley of the Thames, the water rising from the depth of 200 or 300 feet was always warm; unless our memory deceives us, the temperature was somewhere about 66°, both in midwinter and at midsummer. But the vegetation of neither season could be affected by such a fact.

It was the deficiency of information upon this important subject which led to the long series of observations on ground temperature which have been carried on in the Horticultural Society's garden since 1838, and which have since been the subject of inquiry in other countries. Angström at Upsal, Weilbach at Copenhagen, Taylor on the Neilgherries, Hooker at Dorjiling, Captain Newbold at Bellary, and Caldecott at Trevandrum, have all published observations, more or less complete, which tend to illustrate this department of knowledge, and Professor Dove's new contribution is a most welcome addition. What the more important inferences are to which the experiments now on record lead, need not be here examined. For to-day we confine ourselves to asking whether the cause of the present singularly late season is explained by ascertained facts. That it is most unusually late is shown by the circumstance that the common Pilewort (Ranunculus ficaria), which near London usually opens its first flowers in the very beginning of March, was not this year to be found in blossom till the 15th April, six weeks after it was due.

The average ground temperature of Chiswick this year has been, at 1 foot and 2 feet below the surface, as follows:—

In February	35°.25 and 38°
In March	38°.75 and 39°.50
In April (to the 12th)	43°.38 and 43°.12

whereas, on an average of 10 years, it has been found to be—

In February	39°.74 and 40°.51
In March	40°.96 and 41°.57

February being 4¼° and 2¼°, and March about 2¼° and 2° below the average—an enormous difference, when it is considered how much the roots of plants are affected by small differences in temperature. In fact, our February has been little warmer underground than Berlin in January.

If we contrast the three first years in which careful observations were made at Chiswick with this year, it will be evident enough how much the balance is against 1855.

	1838.		1839.		1840.		1855.	
	1 foot	2 feet	1 foot	2 feet	1 foot	2 feet	1 foot	2 feet
Feb.	33.98	35.66	40.20	40.96	40.57	41.86	35°.25	38°
Mar.	41.48	41.46	41.46	41.93	39.24	41.71	38°.75	39°.50

In the year 1846, February averaged 43.23° and 44.07°, while March advanced still further, the thermometers indicating 44.47° and 45°.55.

One practical lesson to be drawn from these important facts is that seeds which might have been safely sown in February, 1846, ought not this year to be committed to the ground till April, and that nothing except the hardiest kinds can this year be safely sown before the end of the month. For until the earth at 1 foot below the surface reaches the temperature of 46°, a great part of the flower seeds which are regarded as hardy cannot be ensured from rotting, especially in the presence of wet weather. Physiologists know that seeds have their own specific vitality. The seed of the Nettle will not germinate at a temperature sufficient for Groundsel, nor the Cape Marigold in the temperature that suits the Nettle, nor the Cocoa-nut in that which is sufficient for Cape Marigold. Horticultural observations are wanting to show what is the exact temperature of the soil which different plants require; but we think ourselves justified, by what *is* known, in asserting that exotic annual seeds should not be put into the earth till our weekly records of temperature show that the ground has reached 46°.

It is to the neglect of this, and not to the quality of seed, as is always asserted, that those failures of annuals, of which we hear so much, should be ascribed. Seeds in fact, in nine cases in ten, do not fail because they are bad, but because they fall into the hands of bad managers.

The Cucumber Disease is already as active as it was last year, as baffling to the cultivator, and as obscure in its origin. All that we know is that from an early stage of growth parts of the cellular tissue are destitute of their proper vitality, chlorophyll is not formed, the cells are gorged with fluid, or give way under the first burning heat, and ultimately decay or deformity are the consequences. Great attention will sometimes palliate the evil; but we have never seen a plant which has been once seriously affected recover. Foreign seed unfortunately produces plants quite as unhealthy as our own, and we can suggest only one remedy, which, indeed, we have suggested before. Have recourse to the oldest seed which can be procured, and from this save the healthiest plants, for the sake of producing, if possible, a healthy stock. Reject every plant that shows the slightest tendency to sickliness or deformity, and allow all the best fruit to ripen. A stock may thus be saved which will supply every want for years to come; and if the experiment answers, it will be easy, with a little attention, to keep it up. If the produce, however, should still prove diseased, provided the seed is old enough to remove any suspicion of its being itself tainted with the malady—which is, we believe, of very recent origin—we shall then have simply to submit to an evil which does not admit of remedy, and conclude that there must be some atmospheric cause at work which we can neither discover nor control. *M. J. B.*

VEGETABLE PATHOLOGY.—LXVIII.

299. Chlorosis.—This term has been long in use to designate that condition of vegetables in which those parts which, under the influence of light, are normally of a healthy green, varying in tint according to the several species, though still properly illuminated, exhibit a pale yellowish tint with only a very slight admixture of blue. The name is evidently given from a supposed analogy between the affection known to physicians by the same denomination and that to which plants are subject, but inasmuch as it rather indicates an accession than a diminution of the green tint it has been supposed to be not strictly correct, and the word Pallor has been substituted by some. As the term is, however, well understood to indicate this peculiar condition, it seems scarcely worth while to change it, and the less so since χλωρότης is used by Hippocrates in the sense of paleness. The word Icterus has been proposed for those cases which are not constitutional, but the term appears unnecessary, and I know of no advantage that can arise from its adoption. It is properly only a synonym of Chlorosis.

300. It was shown above (297) that a green tint is not absolutely necessary to the health of every vegetable, and instances were adduced in proof. In general, however, any marked departure from the normal green, except it is simply transitional, is attended with more or less of danger. There is, however, a great difference between the diseased condition of which we are treating and mere blanching. Shoots which are produced in the absence of light seldom exhibit any tint of green, and the same may be said of the cotyledonal leaves of seeds before the integuments by which they are inclosed are ruptured. In these cases, however, the admission of light soon imparts their normal colour, and they are in the end as healthy as if they had been produced at once under the full influence of the most favourable atmospheric conditions. But this is not the case with Chlorosis. Exposure to light, so far from remedying the evil, sometimes almost aggravates it, because the tissues of the affected parts are in such a low state of vitality as not to be capable of bearing the stimulus, and unless this condition can be raised by the application of external remedies, such as gases arising from fermenting manure, a more generous diet, or weak solution of sulphate of iron, there is no hope of their returning to a sound condition. An exception, too, should be made where the evil has not existed too long, and become inveterate, in favour of the benefit to be derived from the removal of the primary cause, as, for instance, where bad draining, cold winds, or any other outward agent have produced a chlorotic condition of the tissues. Where it is purely constitutional, it is the most unmanageable of all disorders. In cases where outward agents are at work, if the older parts are sacrificed, the more recent produced under more congenial circumstances may be altogether unaffected, as we see every year in Wheat crops, Vines, &c.; but where the constitution is affected, the new parts will be affected as well as the old; and though there may be nothing present to aggravate the evil, it may be in itself so virulent as to admit of no palliation.

301. From whatever cause Chlorosis may arise, the effect is much the same upon the plant itself, though according to the peculiar circumstances of each species it may be slightly different. A portion of the plant, greater or less, according to circumstances, does not assume its natural green hue, but acquires instead a yellow tint. This spreads to neighbouring tissues or remains isolated. No chlorophyll is formed; the walls of the cells become flaccid; their contents undergo chemical change; and the whole either dries up, leaving additional work to be done by those tissues which remain healthy, or the walls give way, decomposition takes place, the putrefying mass spreads its contagion in every direction, and the neighbouring structures are involved. Where the tissues dry up, the effect may be slower, but it may not be less sure, and every part of the plant is liable to be affected; and even the tissues of the seed, if any should be produced, may be unhealthy, and capable of carrying on the evil through succeeding generations: and thus, what was at first accidental may eventually become constitutional or hereditary.

302. We will first notice such instances as may be deemed to be constitutional. These, indeed, may have arisen in remote external causes; but inasmuch as we are not in a position to ascertain what these are, and the plant—either from seed or otherwise, without any assignable reason—exhibits such phenomena, we are compelled to regard them as constitutional. As certain plants from their very infancy appear variegated, or others are chlorotic, and baffle every attempt to raise them to a healthy condition. A few scattered seedlings will be found in almost every patch consisting of numerous individuals which are in this state. But not only is this true of individuals where the majority of seedlings is healthy, but some varieties, especially hybrids, are by nature so delicate as scarcely to admit of cultivation. Mr. Herbert found this to be the case in his experiments on the muling of Rhododendron and its allies; and, indeed, it is notorious that some varieties of fruits are far more difficult of management than others, because they have such a tendency to assume a chlorotic condition. It is not merely that they are less impatient of wet and cold, but that in their own nature they are possessed of such a low degree of vitality as sometimes, under circumstances apparently not unfavourable, to defy the utmost pains and skill which can be brought to bear upon them. *M. J. B.*

ON THE EFFECTS PRODUCED BY THE FROSTS OF FEBRUARY, 1855, IN THE ROYAL DUBLIN SOCIETY'S GARDEN, GLASNEVIN.

BEING A PAPER READ BY D. MOORE, ESQ., AT THE EVENING MEETING OF THE ROYAL DUBLIN SOCIETY, ON FRIDAY, MARCH 30, 1855.

In furnishing details of the effects produced on out-door plants by the late severe frosts in the Botanic Garden, I shall first make a few remarks on the climatology of Ireland, as well as on relative climatology in several parts of Europe, in so far as plants are affected by it.

First, with respect to Ireland, I believe I am right in stating, that in no other country of equal superficial area will so many exotic plants, natives of the different temperate climates of the globe, be found flourishing with equal luxuriance as there are in Ireland. The green grassy sward of Erin, and the fine evergreen shrubs, are more admired by the majority of foreigners who visit us than almost anything else they see. The audible exclamations "très bien!" "très magnifique!" which one hears uttered by them when passing some fine Arbutus, Laurustine, or even Portugal Laurel, proves how much their attentions are arrested by the beauty of those plants as they appear here, con-

pared with the miserably stunted specimens of them seen on the continent, where they are treated as hot-house plants. The observation applies chiefly to European countries, as I am fully aware that there are localities in the southern hemisphere which enjoy meteorological conditions even more favourable for the growth of plants, which are natives of warm temperate climates; *e. g.*, Van Diemen's Land, and even the Island of Madeira in Europe. If this be admitted, it follows that Ireland must be influenced by some peculiar meteorological circumstances, which do not affect other countries situated in the same parallels of latitude; or those falling under the same isothermal lines on the surface of the globe. The prevailing cause, I presume, arises from the influence the sea exercises in equalising temperature in all countries which are broken up with gulfs and peninsulas, compared with those in the interior of compact masses of land.

It has been remarked by Dr. Lloyd that "Ireland, situated as it is at the north extremity of Europe, and exposed to the full influence of the northern branch of the gulf-stream which sweeps its western shores, has its temperature as high as countries on the southern shores of the Euxine." But it must be also considered, when reasoning on this subject, that the same causes which influence the high winter temperature operate in lowering that of the summer. Owing to the great amount of exhalations which take place, and the western winds crossing over part of the Atlantic Ocean, which prevail during the summer and autumnal months, we have generally cool, cloudy summers, which tend to lower the average mean temperature of the year. In Ireland, where those fine evergreen plants flourish so luxuriantly, it is not higher than in countries where there is some difficulty in preserving them during winter in conservatories, whilst, on the other hand, plants in those countries are much influenced by the greater summer heats which they experience, and are thereby enabled to ripen both their wood and fruit better. By tracing the isothermal lines over the map of Europe it will be found that the one which passes over the province of Munster extends on through Konigsberg, in Prussia, over the Isthmus of Perekop, on to the borders of the Caspian Sea, where Grapes and Peaches are produced in full perfection, without artificial aid—which is not the case in Ireland—but where many of our hardy trees and shrubs will not survive the intense frosts which occur during the winter months in those localities. It is thus clear that tender plants owe their existence in Ireland principally to the mildness of the temperature during the winter months, and not to the mean temperature of the year, which only averages 49½° Fahrenheit; in 1851 it averaged 50°, according to Dr. Lloyd. By referring to the highly interesting tables prepared by that gentleman, and lately published in the "Transactions of the Royal Irish Academy," it will be seen that the most important climatological laws, which are observed on a large scale through seaboard and inland counties over Europe, hold good in Ireland. On this head Dr. Lloyd observes, that, upon comparison of the mean yearly temperatures of the several stations where meteorological observations were made, it has been found that those of the inland stations are in defect, as compared with the corresponding coast stations—*e. g.*, the mean temperature of Armagh—48.6—is less 1 deg. than Donaghadee; and, again, the mean temperature of Markree—48.2—is less than that at Killybegs, on the coast of Donegal, by 2.6°, and that of Westport, on the coast of Mayo, by 3.5. Similarly there is an increase proceeding from east to west—Dublin being 49¼°, and Westport, 5.1.7; and from north to south, being at Portrush, on the Antrim coast, 49°, and at Dromore, on the coast of Waterford, 51° Fahrenheit, which are important data in aiding us to reach the proximate causes of plants being differently affected in various parts of Ireland, and will, no doubt, when better understood—*cæteris paribus*—go far to account for the distribution of some species in this country.

In applying myself more directly to the subject under consideration, I have not been able to obtain much relative information which could be depended on, to show at what previous periods any very intense frosts of long duration occurred in Ireland. It is said that the temperature has not been so low during the last 40 years; but there may be some mistake in this; my own impression is, that I saw the thermometer as low as zero in 1831, at the south side of the city, when a greater fall of snow occurred than we have lately experienced; plants suffered very much in consequence, though not nearly to the same extent they have this year, which may have resulted from the cold happening earlier in the winter, when they were in a more dormant state, or, probably, their wood had been better ripened during the previous autumn, thereby rendering them abler to withstand the effects of the frost. This year they were particularly liable to be injured, owing to the state of exciteability many of them were in, arising from the remarkably mild weather which had prevailed during the month of November, December, and January. The Roses had young shoots, on some of them several inches long, and were in full leaf, and other out-door plants were in a state of unnatural forwardness at that early period of the season. Scarcely any frost occurred during those three months to arrest vegetation, the thermometer not having fallen lower than to 28° above zero, indicating 4° of frost during November, and that only on one night. In December it also fell to 28° on one night, that being the lowest until the 28th of January, when it fell to 25°, up to which period the temperature of the winter months was equable and mild; yet I do not find so great a difference as I expected, on comparing the average mean temperature of the months of November and December, 1854, and January, 1855, with the corresponding months of the year 1851, as given by Dr. Lloyd, for the locality of Dublin. In his table showing the mean temperature of each month of the year at the several registering stations through Ireland, Dublin is marked for January, 43.3; February, 43.6; December, 43.3; which indicate a more than ordinary mild winter, since according to my calculations, taken from the readings of the thermometers at the Botanic Garden, registered once during 24 hours, the average mean temperature of the month of December, 1854, is 42°, and that of January, 1855, 40°, being rather under than over those of 1851. Those differences may, however, be owing, in some degree, to several readings having been taken in the one case during 24 hours, and only once in the other, as well as to the situations where the instruments were placed, the Botanic Garden being 65 feet above the level of the sea, and freely exposed, whereas the College is less than 10 feet, and, no doubt, influenced by the heat of the city. A very marked difference, however, occurs in February, the mean of that month having been 41.7 in 1851, whereas, in February, 1855, it was only 32° at the Botanic Garden, which I believe is the lowest on record; besides, the minimum thermometer fell to 2° above zero, indicating 30° of frost on the night of the 15th, and, again, on the 18th it fell to 5°, and on the 19th to 10°, which alone goes far to show the principal cause of so much destruction to our out-door plants; but when considered in connection with the state they were in at the time these frosts occurred, and the severity of the weather during the present month, when they were recovering, fully accounts for all the damage.

On the 6th inst., the thermometer marked 8° of frost, followed by a bright sun next day; and on the 25th, 7°, followed also by bright sunshine, along with piercing frosty winds which prevailed during the month, circumstances which have been very injurious to plants in their present condition.

I have already stated that I could not get any reliable registerings of the thermometer, indicative of the state of the weather during the early part of the present century; but Mr. Yeates has kindly furnished me with notes of the lowest points to which his thermometer fell during the last 12 years, from which I find it did not mark lower than 10° above zero during that period. I learn also, from the same data, that the greatest colds during those years occurred between the 6th to the 18th February, though in some instances in January.

Before passing from this part of the subject there is one other meteorological circumstance I shall briefly notice, because I consider that many of our herbaceous as well as woody plants owe their partial safety to it—namely, the unusually small fall of rain which occurred during the autumnal winter months. By referring to the meteorological tables published lately in the proceedings of this Society, it will be found that only 10¼ inches of rain fell from the 1st of July to the 31st of December, which is below the average quantity for that period in the neighbourhood of Dublin. The ground was, consequently, drier than it usually is in February; and although the smaller plants were snugly ensconced under a good covering of snow—which was, no doubt, the principal protecting medium—they would have suffered more had the ground been saturated with moisture, as I find the same species has been more affected in wet parts of the garden than where the ground is drier.

Having now considered, as briefly as I could, the prevailing meteorological causes which affect plants in Ireland, as well as those which have led to the destruction of so many in the present instance, it will have appeared that the moist equable temperature and cloudy skies which we generally experience during the autumnal months operate on them in two ways opposed to each other respecting their hardiness. Under these favourable climatal influences they often continue to grow luxuriantly up to Christmas, when their wood is soft and unable to resist frosts so well as it would be if the autumnal months were clearer and warmer to ripen it properly, and the early winter months sufficiently cold to arrest growth. Now, this is what takes place in those countries on the continent of Europe whose annual mean temperature equals that of Ireland, and also in several parts of England and Scotland the seasons are more marked, which accounts for the superior ripening of fruits, as well as the comparative hardiness of some plants; take, for example, the average mean temperature of the month of August, as it occurs in Hungary, and compare it with that of Dublin, under the same isothermal line; in the former it is 69.8, and in the latter only 60 deg.; but in November the scale changes conversely at nearly the same ratio.

(To be concluded in our next.)

ARE LARGE BOILERS ECONOMICAL?

Without in the slightest degree wishing to disparage the arrangements which Messrs. Weeks and Co. have made for heating their plant houses, &c., and which you have described at p. 807 of the last volume of the *Chronicle*, I may perhaps be permitted to ask the preceding question; and as I speak from experience, and have reason to doubt both the economy and policy of employing one boiler to do the work generally assigned to several separate and distinct arrangements, I imagine my convictions on the subject may not be without interest to those who are contemplating new arrangements, and who possibly may not have seriously studied the matter.

I may, therefore, premise that in 1843-4 I was entrusted with the re-arrangement of some old forcing houses and pits, to which were added a considerable extent of new erections. At that time Penn's system of heating was much in fashion, and being much interested in the matter and intimately acquainted with Mr. Penn, I was induced to adopt the "one boiler" system. The plan was for nine distinct pits and houses, and to supply both top and bottom heat to seven of them. The quantity of pipe employed was very considerable; indeed, power sufficient was provided to heat the whole of the houses properly with the thermometer 5° below zero, and a piercing north-east wind. One of "Hill's flue boilers" was employed (a better never had water put in it), and such a quantity of brass stop valves (costing, I think, about 42s. each), as makes me, now when I think of it, blush at the expense. The draught of the boiler was so good that it would burn anything and everything that was put under it; neither was the consumption of fuel large for the work done, while of ashes not a handful was taken out of the stoke hole in twelve months, the only residue of the fire being clinkers. This boiler for the thorough consumption of fuel and for the prevention of the loss of heat up the chimney, generally a great source of loss though but little observed, was the best I ever worked. Hence the arrangement, so far as the engineer was concerned, was in every respect complete. But how did it work?

The greater part of the glass was employed for forcing purposes, such as the growth of Pines, Melons, Cucumbers, stove plants, &c., and nearly 400 feet of pipe was employed to heat a large span-roofed greenhouse. The heating was complete, the attention to the fire was of course that of one instead of four or five, but as regards the valves to regulate the temperature of the various houses, how worked they? In one place we wanted a temperature of 75°, in a second 70°, in a third 65°, a fourth 50° and so on, the greenhouse being filled with hard-wooded plants merely requiring to have the frost excluded. So long as the valves were properly attended there was no difficulty in maintaining the temperature in the different compartments, but as the heat required shifting from one place to another, being one hour here, two hours there, and three hours in another place, the attention required was continuous, and hence, in the height of the forcing season, especially if the weather was severe, it was impossible, either day or night, to leave the valves for more than two or three hours together. And this was not the worst of it, for possibly just as the forcing department was got into proper condition to leave for the night, down went the thermometer in the greenhouse, and the heat must be turned on. Then rather than cool the water in the forcing department, it was stopped off at the boiler, and the poor attendant had not only to wait until the greenhouse was sufficiently warm to leave with safety, but he must also dance attendance until the forcing-pits were at the required temperature, and thus it may be fairly inferred that the heating of the greenhouse, in addition to the forcing-pits, required more attention from the stoker than would have been necessary had a separate boiler been employed to heat that one house.

I am, therefore, quite convinced that in point of labour and attention a single boiler involves more attention, and is far more difficult to manage, so far as accuracy of temperature is concerned, than if several separate boilers were employed.

Again, as to the expense of working and consumption of fuel—and here I may as well once more dispel the mystery in which this subject is involved. A given quantity of fuel contains a certain amount of caloric or heat. Now, that boiler which the most effectually absorbs or abstracts the caloric or product of combustion with the least loss by the furnace doors or up the chimney is the best; and it matters not what its form may be, whether square, circular, conical, flue, saddle, or tubular, so long as that object is attained. A given quantity of water requires a certain quantity of fuel to heat it, and it is a matter of very little importance whether one boiler or half a dozen be used so long as the caloric or heat is completely abstracted; the loss, if any, will be by the heating of the additional masonry of the six boilers and the five extra chimneys, but unless there is full work for the large boiler at all times, I am convinced that the loss by the additional masonry will be more than counterbalanced by the saving in only using the small boilers for such work as may be necessary in the summer season. As an example of the successful working of Mr. Weeks's arrangement, we are told that a small pit situated 365 feet from the boiler was raised 60° of temperature in a very short time, and for the purpose of testing the economy of large boilers, we will just examine this fact a little further. It is quite certain that in Mr. Weeks's case he does not, except in severe weather, require to use heat for more than one-third of his glass; in the summer not more than two or three houses require artificial warmth; and it is just possible that in a private establishment only this single pit for several months in the year might require to be heated. Allowing such, then, to be the fact, it is quite certain that the large boiler and the water contained in 730 feet of useless pipe must be heated to do the work which, under a separate arrangement, would be equally well accomplished by comparatively a tea-kettle and a handful of coals. Can such an arrangement be economical? The answer is too self-evident to need further explanation. It may be argued that this

is an extreme case; granted, but not more so than it might be necessary to put into practice.

There is yet, however, another view in which a single boiler will not appear very favourably. In my own case I was, one clear starry night just before Christmas, terrified with the exclamation from the man in charge of the fires, "Please sir, the boiler's burst!" and true enough it had burst, and by that simple accident nearly 20,000 plants, many of them of very considerable value, were, so far as the boiler was concerned, exposed to the tender mercies of the ice king. That night the thermometer fell to 15°, and during the whole time that new boilers were being put in—for I had done with the one boiler—the thermometer indicated several degrees of frost. Fortunately I was supplied with mats and other covering, and with the assistance of 10 to 20 lbs. of candles per night, and by burning charcoal in the houses I managed to pull through pretty well, but not without spoiling nearly 3 tons of hay used for covering, and severely injuring my whole stock of Polygalas, Boronias, Leschenaultias, &c. Such "a fix" as this I imagine would chill the ardour even of Mr. Weeks; in fact it gave my enthusiasm such a thorough cooling that it is quite out, and I shall eschew the single boiler arrangement for the remainder of my days.

The only view in which I could feel induced to advocate a "single boiler" would be as removing the nuisance of so many chimneys, for certainly they are great nuisances, but with a properly digested plan it is quite certain that the smoke of several different fireplaces might be concentrated in one chimney shaft. I have no objection to two or three houses being worked from one boiler, so long as the houses heat independently of each other and sufficient power is provided, but if three houses are attached to one boiler and that boiler only of sufficient capacity to heat one house properly, then, I say, whoever promotes such an arrangement, whether employer, architect, or gardener, does that for which his fingers ought to be burnt every time he goes near the boiler. If at the fireplace sufficient power is not provided to do the work assigned to the apparatus under any circumstances without forcing, it cannot work economically, and the annual loss of heat up the chimney and by the fire doors, and the consequent waste of fuel, will be more than would have paid for a proper arrangement at the first; in fact, it is the game of penny wise and pound foolish to its fullest extent. An extra pound or two on a good-sized boiler, or in a few score feet of extra pipe at the time of erection, is money well and profitably invested; for though, as a mere matter of fact, sufficient power may have been provided to heat a house properly with the water near the boiling point, it is quite certain that a much more healthy atmosphere will be generated if sufficient power is provided to do the work properly without the heat of the water ever exceeding 180°. Roaring fires and red-hot furnace doors may show that the stoker is doing all he can to keep the heat up, and there can be no question that he is at the same time working very profitably for the coal merchant. To have to put a boiler to its full force is bad policy and gross extravagance. In fact, our whole system of horticultural building requires revision—at least half the timber generally employed might be dispensed with, and a great proportion of the money expended in making sashes, building brick walls, and useless ornaments—too frequently mere harbours for insects, dust, and filth—would be more profitably invested in using better glass, and a more powerful heating apparatus. I may, however, recur to this subject some other day. *W. P. Ayres, Whittlebury Lodge.*

COMMON THINGS.

In raising Vines from cuttings, those which are furnished with two eyes each will be sufficiently long for the purpose; the lower part should be cut transversely, close to the bud. They should be planted singly in small pots filled with good mould, leaving the upper eye rather below the surface than above it. The pots should be placed either in a stove or in a hotbed, allowing the plants room as they advance in height, and shifting them into larger sized pots when they have filled the first with roots. As the season advances they may be removed into the stove or other hothouse, and from thence to the greenhouse, keeping them neatly tied up to sticks, and allowing them plenty of air, to prevent them from being drawn up weakly. Vines raised from single eyes require the same management as those from cuttings, beginning only with a smaller sized pot, and removing them into others as they gain strength and require room. Those raised from cuttings, as well as these, should be kept under glass throughout the summer, and a judicious application of liquid manure during the growing months would considerably promote the growth of both.

Cauliflowers.—The seed should be sown now for the autumnal crop upon a gentle hotbed. This sowing will come in during August, and for a later crop the seed should be sown the beginning or middle of May; this will furnish heads in October or November. If some of the plants of this last sowing be taken up and laid in like Broccoli they will be more secure in case of cold wet weather occurring at the end of the season.

Home Correspondence.

Disa grandiflora.—I quite agree with your remark (see p. 483, 1854), that there is no reason why this fine plant should not be found in every greenhouse in Europe. Eight years ago I procured some tubers of it, I potted them in a mixture of decaying turf and white sand, covered the surface with living sheets of Bryums, and placed the pots in the shade of trees, and there they have remained ever since without shifting, receiving (as they are evergreen) water once every day. Under this treatment they bloom freely. What amount of frost they will endure I cannot say, but I have frequently seen Potatoes destroyed with frost in a garden in which the Disa has been uninjured. *R. S. Smith, Mrs. Saunders', Grove Street, Cape Town.*

Transplanting late Peas.—Transplanting Peas to forward early crops has long been recommended; but having found transplanting late Peas so advantageous that in future I shall always practise it, I think it may be useful to your readers to have their attention directed to it. Having but a small garden, I grow only the finer kinds of Marrow Peas. These are at times a failing crop, coming up irregularly, in a manner difficult to account for. It is not the fault of the seed, for in some parts of the rows every seed produces a healthy plant, while in other parts every one perishes, or produces a weakly plant. These failing seeds, when examined, are found to be decaying, and full of small centipedes, 50 or 60 in a Pea. This cannot be from eggs existing in the Peas before they are sown; or there would not be in the same row, in some places, a dozen or more healthy plants together. Possibly the centipedes, aware that the Peas contain proper food for their young, and attracted by their peculiar sweetness, deposit their eggs in them after they are sown, passing on from one Pea to the next, which would account for parts of the row being almost wholly destroyed. The weakly plants appear to be caused by the substance of the Peas being devoured before the young plants have made roots sufficient to support themselves. Perhaps the Marrow Peas are more tender than others, and may be injured by the ground being in spots so much deprived of its moisture by drying winds that the sprouting Peas are dried and killed, as Barley is when malted; some being destroyed, others injured, and becoming, in their diseased state, attractive to the centipedes. However this may be, I have seen many crops of Marrow Peas injured as above described. So, in 1853, were my Peas (Hair's Defiance; a fine large Marrow Pea); and it was only by repeatedly sowing the missing places, and transplanting, that the rows were got at last to produce a moderate crop. To prevent the mischief described, and to secure a regular crop, I last year sowed all my Peas in a small bed; and afterwards transplanted the healthy plants, when 3 inches high, into rows. The seed was saved from the crop of Hair's Defiance, above mentioned. An ounce of spirit of tar, mixed with dry earth (recommended to me as destructive or repellant to insects), was trenched 3 inches deep into the bed, which was then levelled, and the Peas (previously steeped in water for 20 hours) were, about the 10th of March, sown by inserting them about 3 inches apart in the earth with the finger and thumb, each Pea with the root downwards. The roots can be plainly seen when the Peas are steeped; but only those who have time and inclination need to be thus particular. The bed when sown was pressed down with the back of the rake, and kept damp by slight sprinklings of water until the Peas came up. Few of them missed; but when Peas are sown to transplant—unless very few indeed be sown—though half were to miss, there would be sufficient left, as they go a long way when transplanted. Two rows 6 inches asunder, and the plants 6 inches apart, were set to form each row. This is quite near enough for large branching Peas. The rows (crops of other vegetables being grown between them) were 11 feet apart, planted north and south, to get the sun on each side. They were well sticked, and when 6 feet high, or a little more, had their tops taken off. These rows of Peas were perfectly regular, and quite as luxuriant in their growth as untransplanted Peas. They produce, as you will readily believe, when you consider their thorough exposure to sun and air, a good crop of fine full pods. The Pea, whether removed with or without earth, transplants better than any plant I know. Every plant which in its early growth may lose its top puts up another luxuriant shoot or shoots. Every plant in the half of one of my rows had its top taken off (by birds probably), but when the row was in flower, no difference could be perceived between that half and the other. The spoiled tops I pruned off for appearances' sake. My rows of Peas were as regular as well cut hedges, and being kept well to the sticks continued to put forth shoots and blossoms, and to bear Peas of good quality until the frosts destroyed them. In gathering Peas, all that are full grown (in which state the Marrow Peas eat quite young and tender) I gather; even should there be more ready than are required to be used. This keeps every gathering free from Peas which are too old. In the later gatherings of the season, when the pods become less plentiful, they are still regularly gathered, but at a little younger age, and are then placed upon the floor of a cellar until the quantity desired to be used at once has accumulated. Thus managed, the quality continues good. Should you consider this likely to interest your readers, I will (should you wish it) also send you an account of the means I use to stick my Peas securely, (pray do) my garden being much exposed to winds, since preventing Peas being injured by winds, &c., is essential to continued produce from the same crop. To make one crop continue to supply me during the season, and to have that crop a very productive one, are the objects I aim at, not having room to sow a succession of crops. It will be perceived, therefore, that my plan is particularly adapted to those who endeavour to compensate for the smallness of their gardens by taking greater pains, and try to acquire increased skill in securing a large and never failing produce from their crops. Every one must choose the time for sowing Peas, from his own experience of what is best in the place where he lives. For a large crop, it should be neither very early nor too late; in the first case, the plants are liable to be weakened and injured by bad weather; in the latter, by the heat forcing them into bloom before the plants have grown large enough, and their roots have penetrated deep enough into the ground. I dislike artificial watering: if the soil be deep, and in good order, Peas will find moisture for themselves. Warm sunny weather fills the pods; of course different situations will ever require somewhat different treatment. *John Ward, Queen's Road, Sheffield.*

Potatoes at the Cape.—As far as I have been able to learn all the kinds of Potatoes imported since the disease broke out in Europe are liable to the malady. Sometimes one-half or even more of the crop is destroyed sometimes only a few roots, but I believe it is always present. A sudden fall of rain, or an over dose of water in irrigating them, followed by a hot or perhaps a scorching day's sun, is sure to produce it, as will also a check from want of moisture. What is rather remarkable is the fact that the European kinds and some seedlings imported and raised before the disease broke out in Europe, are free from taint, although in one case I knew them to be mixed with diseased tubers before planting them. *R. S. Smith, Mrs. Saunders, Grove Street, Cape Town.*

Rhubarb and Seakale that have been forced in the Mushroom-house should now be planted out as soon as possible, and any roots that have been but lately removed from where they have been forced should be afforded the protection of an inverted flower-pot until they get inured to their altered circumstances. *W.*

American Timber.—Would you oblige me by naming the enclosed wood? It is largely used in Ireland in cart and car building, and in the upper works of coasting vessels, under the names of American Elm or White Elm. It is imported from Canada. It is exceedingly tough, pliant, and durable, but warps greatly. *B. A.* [It is the wood of Ulmus americana.]

Cardoons.—Seeds of these should now be sown in trenches 6 inches deep and 12 inches wide, into which a small quantity of rotten dung has been previously dug. The rows should be 4 feet apart, and the seeds should be sown in patches three or four together, and about 18 inches asunder. When the plants have acquired four or five leaves they should be thinned out to single plants. During summer they must be kept clean from weeds, and in dry weather frequently watered, as they require a good deal of moisture. About the end of October, when the plants have attained nearly their full size, a dry day should be chosen for earthing them up. When they are free from damp, the leaves of each plant should be carefully and tightly tied together with strong matting, keeping the whole upright, and the ribs of the leaves together. The plant should then be bound closely round with twisted haybands, about 1½ inch in diameter, beginning at the root and continuing to above two-thirds its height, covering the whole so as to prevent the earth when applied to it coming in contact with the ribs of the leaves. If the Cardoons are to be used early and before frost sets in, the plants may remain thus banded without earthing up, and will become sufficiently blanched for use; but if there is any danger of their being exposed to frost, then it is necessary that they should be earthed up in the same manner as Celery, care being taken that this is done, as has been stated, on a dry day, and not to raise the earth higher than the haybands. There have been other methods of blanching recommended, but plants treated as above have been found in all respects superior to others under different management. *H.*

Fruit and Potatoes uninjured by Frost.—In my fruit-room I had portions of Apples, Pears, and seed Potatoes; they were laid on clean dry straw, but not covered. In this room is fixed a cistern (for supplying a bath in the room beneath) the water in which was frozen so that the ice was full half an inch thick, while none of the fruit or Potatoes were injured in the least. Can any of your correspondents account for this? *G. H.*

Dielytra spectabilis.—Has any one ever tried the succulent shoots of this plant as a vegetable; or is there anything unwholesome in them? *Subscriber.* [No.]

Rhododendron Edgeworthi is now in flower here. The plant is about 2 feet and a half high; the flowers measure 5 inches in diameter; they are white, with a faint streak of pink, and emit a strong spicy fragrance. *I. Aiton, Enville Hall, April* 16.

Societies.

Botanical, of Edinburgh, *Feb.* 8.—The President in the chair. The following papers were read:—

1. *Account of a Botanical Excursion to the Braemar Mountains in August*, 1854, by Prof. Balfour.—2. *Report on the Diatomaceæ collected in Braemar in the autumn of* 1854 by Prof. Balfour and Mr. G. Lawson, by Dr. Greville.—3. *On the Geological Relations of some rare Alpine Plants*, by Dr. Gilchrist. The author remarked:—

"In August, 1853, I formed one of the party which now annually employs itself in botanical pursuits under the auspices of Prof. Balfour. Our ground for that year was the now classic region, botanically, of Clova. While there we had an opportunity of gathering a few of those plants which, from their rarity and isolation, would almost warrant the inference, either that they are new creations which have not yet had time to secure per-

season of a wider extent of surface, or that they are aged plants which have lived their time, and, yielding to the universal law of created life, are about to disappear for ever from this scene of things. Not being well satisfied with either of those theories, it occurred to me that some approximation, at least, to the solution of the problem might be obtained by an ascertainment of the nature and relations of each plant to the soil on which it grows, &c. The first plant examined was Oxytropis campestris, a plant rare in Britain, and confined to a single isolated locality in Clova. There it grows on a cliff facing the south in Glen Fiadh. The cliff is somewhat isolated from the surrounding rocks by two perpendicular indentations running along the entire face of the rocks, which, as they are not the result of water, but of weathering, would indicate some change in the structure or composition of the rocks. This is at once confirmed by an examination of the rocks themselves; that on which the plant grows, and to which it is limited, is a micaceous schist, extremely rich in mica, of a dark colour, and rapidly undergoing decomposition. The immediately surrounding rocks are of the same general character: but the mica is greatly less in proportion to the other materials, and lighter in colour.—The next plant was Lychnis alpina. It grows on the summit of a hill, called Little Gilrannoch, at about equal distances from Glens Isla and Dole. It seems limited to about half an acre of surface. The rock is a tabular mass of compound felspar, apparently capable of resisting decomposition. While in many places it is bare and flag-like, other portions of it present a singularly rough and irregular surface, as if the rocks had undergone fusion previous to expulsion, small portions of it bearing a distinct resemblance to similar specimens from the so-called 'vitrified forts.' The relations of this plant to the rock on which it grows are well seen, many of the specimens growing in little crevices of the bare rock, where there is not the slightest vestige of soil, ordinarily so called. The rock coextensive with the limits of the plant is unvaried in character. Its relations to those around could not be ascertained.—The Astragalus alpinus crowns the summit of Craigindal, a hill about 3000 feet in height. To the east of Braemar we gathered specimens of this elegant little plant, in two separate localities, at considerable distances from each other, but the rocks on which both grew were the same, a very pure compact felspar, of which the entire hill seems to be formed.—The Gentiana nivalis, found in Glen Isla, was also examined as to its geological relations; but, from the varying character of the rock and the difficulty of finding the plant, so as to ascertain its exact limits, the examination was not satisfactory. A porphyritic granite, rich in felspar, associated with a dark syenite, abounding in hornblende, was the prevailing rock.—With reference to the plants examined, two facts seem to have been ascertained: first, that each plant was limited in its range to a rock of the same specific character; second, that, in one case at least (the only one in which the examination could be completed), the limits of the plants' distribution, and of the rock possessing such character, were identical. On the ascertainment of these two facts, the writer would base the propriety of these remarks, as well as of the question he has now to ask, whether a farther and more minute examination is not justifiable and desirable."

4. *Descriptions of some new Coniferous Trees, recently introduced into this country by Mr. W. Murray, of San Francisco*, by A. Murray, Esq.—The expedition in which they had been procured left San Francisco under Mr. W. Murray's direction last autumn, and explored a considerable part of the range of mountains which runs between the coast range and the Rocky Mountains, lat. 40°, 41°, &c., N. The new Pines which Mr. Murray describes were the following, viz.:—Pinus Beardsleyi.—From the description given, it would appear that this tree has more affinity with Benthamiana than any other described species: but the cone of Benthamiana is 5 inches long, while that of Beardsleyi is only 3 inches. Its leaves are 11 inches in length, while in Beardsleyi they are only 6 inches. The sheath of the leaf in Benthamiana is an inch long, while in Beardsleyi it is short, being only an eighth of an inch. The wing of the seed in Benthamiana is much longer and larger than in Beardsleyi, and the seed itself is nearly twice as large. The timber of Beardsleyi is homogeneous all through; the heart of Benthamiana is redder than the sap wood, and the sap wood runs a long way into the stem. The tree is of great beauty and size; one which was cut down measured 123 feet in height, and 44 inches in diameter at the stump. Another tree next it measured 17 feet 4 inches in circumference, 3 feet from the ground. The stem was a very handsome column, about 30 feet to the first branch: timber good and clear. It was found on the top of the mountain, same altitude as P. Jeffreyi, monticola, and grandis, and higher than Benthamiana or Lambertiana. The Pine has been named in honour of A. F. Beardsley, Esq., who accompanied Mr. Murray in his expedition. Pinus Craigana.—This is a tree which also has some resemblance to Benthamiana as well as to the preceding species (Beardsleyi). It differs from it in having the prickle of the scale pointing towards the tip instead of the base. The prickle too is strong and firm in Craigana; in Beardsleyi it is small and weak. The apophysis or excrescence on the exposed part of the scale is much more developed in Craigana than in Beardsleyi, which has the exposed part somewhat flat; while in Craigana the upper part projects considerably over the lower. The wing of the seed of Craigana is shorter and relatively broader—the seed is nearly twice the size of that of Beardsleyi, although the cones are about the same size. The leaf of Craigana is also very distinct from that of Beardsleyi. It is much finer and not so long, while its sheath is considerably longer and more delicate. This species was found in the same mountains as Beardsleyi, but one-fourth of a mile further down, and higher up than Benthamiana. It spreads its branches wider from the stem than Benthamiana, and sheds its seeds a month later. This Pine has been dedicated to Sir William Gibson-Craig, who has done so much for the introduction and cultivation of this valuable family. Abies Hookeriana.—This species is closely allied to Pattoniana introduced by Jeffrey, and figured by the Oregon Committee, but may be readily distinguished from it by the following characteristics. Both trees are of exceeding beauty; but Pattoniana is described by Jeffrey as being 150 feet in height, and towering over the rest of the forest: the height of Hookeriana was only about 50 feet. The cones of Pattoniana are uniformly of a dark brown colour, while those of Hookeriana are of a light fawn, somewhat of the hue of our common Larch cone. The scales of Pattoniana are at least a third less than those of Hookeriana; they are deeply and firmly crenulated, while those of Hookeriana are not crenulated. The bract of Pattoniana is quite differently formed from Hookeriana: in the latter it commences to contract near the top, which it does not in the former. The seed and the wing of Pattoniana are both about one-third shorter than in Hookeriana, and the wing of the former has a purplish brown tinge at the top and back, while the latter is entirely fawn coloured. This species was found high up the Californian mountains, about lat. 41° N., where the ground was already covered with snow on the 16th of October. Cupressus Lawsoniana.—This was the handsomest tree seen in the whole expedition. It was found on the banks of a stream in a valley on the mountains: is about 100 feet high, and 2 feet in diameter; the foliage is most delicate and graceful. The branches spread upwards like a Spruce, and hang down at the tips like an ostrich feather: the top shoots droop like a Deodar. The timber is good, clear, and workable. Cupressus Macnabiana.—This is the same species as one sent home by Jeffrey, without a name, and distributed by the Oregon Committee in 1852. The cone is about the size of a Hazel-nut, with hard scales, having a projecting umbo in the centre. It is of small growth, and fitted for shrubbery. Taxus Lindleyana.—This tree was found growing on the banks of a creek, under the shade of lofty trees. It was of considerable size: the trunk of one which was measured being 50 inches in circumference at 5 feet from the ground. The branches are exceedingly long and pendulous, and the wood extremely elastic. It is used by the savages for their bows. The berry is red, and grows on the under side of the branches. It is exactly like the berry of the Irish Yew.

Notices of Books.

The Entomologist's Annual for 1855, *comprising Notices of the New British Insects detected in* 1854. Edited by H. T. Stainton. 2d Edition. 12mo. 153 pages and coloured title-page. Van Voorst.

For more than 20 years past we have been indebted to our indefatigable German friends, Burmeister,* Erichson, and Schaum, for an entomological annual, in which, with vast labour, all the publications and scattered memoirs upon the science have been concisely reviewed and brought into one focus. The little volume before us is, however, an annual of a different kind, its chief object being to collect together notices of all the new species of insects as they occur in this country, although the editor has added a few pages of descriptions of a few recently published entomological works. The present being the first of, it is to be hoped, a continuous series of volumes, has been confined to the orders Lepidoptera (by the editor), Hymenoptera (by Mr. F. Smith), and Coleoptera (by Mr. Janson). Instead, moreover, of being restricted to the insects detected in 1854, the new Lepidoptera discovered since 1835, New British Bees since the publication of Kirby's Monographia (1802), New fossorial Hymenoptera since the publication of Shuckard's Essay (1837), and new British Coleoptera since the publication of Stephens' Manual (1839), are included in the present volume.

Thus we have 175 additional British species of Lepidoptera (exclusive of Tineidæ and Crambidæ), 58 new Bees, and 227 new Coleoptera included in these lists, with references to their places of capture and notices of their publication. In the Lepidopterous portion we are surprised to find no reference to the late Mr. Wing's excellent figures, published in the supplement to Wood's Index; no fewer than 141 out of the 175 supplemental Lepidoptera being carefully represented in that work. From a passage also in p. 151, it is evident that the editor is unacquainted with M. Marloy's "Observations sur quelques chenilles de Satyres," published in the "Annales" of the French Entomological Society for 1838.

The work contains also an address to young entomologists, and instructions for collecting and preserving Lepidoptera, with other general remarks by the editor, and instructions for collecting and preserving Coleoptera by Mr. Wollaston, adding greatly to its utility. The following passages, urging the utility of a knowledge of the Latin and foreign languages, extracted from the address to young entomologists, will serve to show the character of this portion of the work:—

"To read the memoirs of Réaumur and De Geer it is necessary to know French, and a facility in reading Latin and German will also be found no mean advantage. The entomologist, therefore, immediately finds a personal interest in prosecuting his studies of those languages. Instead of saying, as many others might be tempted to say—'Of what use will Latin be to me?' he exclaims—'I shall then be able to read Haworth's Lepidoptera Britannica;' instead of despising French as a language 'good enough for girls,' he is anxious to get on with it that he may have no difficulty in reading Réaumur and De Geer. Now, though it be quite true that these studies ought to be pursued in good earnest from a sense of duty, yet when we can do so, it is surely desirable to give the scholar a personal interest in the steady prosecution of his studies.

"The philological skill which is used in deciphering some obscure passage in Xenophon or Thucydides may, later in life, be of use in enabling an entomologist to unravel some obscure description; indeed, the classical student soon gets to learn that, to ascertain an author's meaning, the only way is to familiarise yourself perfectly with all the author's modes of expression. Individuals rarely use the same combination of words to express exactly the same ideas, and an author's meaning is best elicited by a reference, not to a dictionary, but to himself."

From all interested in the progress of British natural history, the volume before us will be sure of a welcome, and most especially so from those who have experienced, as we have, the trouble of hunting up the notices of newly recorded species, scattered here and there in our various miscellaneous natural history publications.

Garden Memoranda.

Crystal Palace, Sydenham.—On Monday last everything was being put in as complete a state as possible for the reception of the distinguished personages who were about to honour the building and gardens with their presence. In the centre transept a dais was being erected, which was to be profusely ornamented with plants in flower, and the latter we understood were also to be liberally introduced throughout the building. As regards plants permanently turned out into the beds we have to report that they have stood the winter uncommonly well. The only one apparently killed is a large Pimelea decussata, near the entrance at the west end. One or two other things have also had their leaves a little browned; but altogether the injury sustained is extremely trifling. Acacias and Camellias have been flowering freely until within these last few days, whose heat and brilliant sunshine have driven them very much out of blossom. The large Indian Azaleas that have been planted out seem to have become perfectly established and are covered with flower buds, which, when expanded, cannot fail to produce a striking effect. The huge Epacrises bought at Mrs. Lawrence's sale and elsewhere have also taken well in their new situations; they promise to yield a fair crop of flowers, as well as furnish themselves plentifully this year with young wood. The two noble Norfolk Island Pines (Araucaria excelsa), from Chatsworth, in the centre of the building, are especially worthy of notice; and those presented by her Majesty are likewise in excellent condition. The Bourbon and other Palms planted in front of the Roman Court, the fan like leaves of which give to this cool part of the building quite an exotic appearance, have also wintered safely, with the exception, perhaps, of Ceroxylon Andicola, which has been nearly killed, even where Cocos plumosa, and things usually considered equally tender, have stood. The handsome Rhopala corcovadensis is unhurt, and Sparrmannia africana is now in flower, the latter emitting a by no means disagreeable fragrance.

All the tubs containing the large Orange trees have been painted green, and the naming of the plants throughout the building with proper labels has been commenced. The tops of the labels employed are made of wood—square, with the two upper corners cut off—and are furnished with iron spikes for fixing them in the soil. The name is written with white lead on a bright blue ground. The increased interest which this will give to the gardening part of the decorations needs, we think, no comment.

The creepers on pillars have for the most part begun to break strongly, and in a week or two the large Wistaria from Messrs. Loddiges will be in flower. The baskets suspended from the roof have been top-dressed, and the plants in them trimmed and put in order for the season.

In the aquariums, which are well stocked with water plants, we remarked thriving examples of Victoria regia. The vases round the water are well filled with things in flower, and the small round basins, out of which these vases with their pedestals rise, contain beautiful collections of Hyacinths, early Tulips, and other forced bulbs, which have been (and deservedly) much admired. Early Tulips and a few Hyacinths are also planted out in the beds, and serve to keep up a considerable amount of gaiety at this season until other plants come into flower.

The more tender Palms, Orchids, and other plants in the warm end of the building have, on the whole, done well. The Musas have suffered most; these have lost their leaves, but they are now beginning to push new ones. The Mangosteen has been tried here, but without success.

Out of doors the grounds may be said to be fast approaching completion. The great centre walk has been put into shape almost down to the boundary fence, where it is to terminate in a kind of temple. Below the lakes a row of Deodars has been planted on either side of it. They measure from 8 to 10 feet in height, and stand some 40 feet apart. The water towers for supplying the fountains are nearly built; one is quite ready for the reservoir on the top and the other is very nearly in as forward a state. It is expected that the fountains may be ready to play in June next. The water temples have been completed, and are ready for colouring; the cascades leading from them to the great lakes in the lower part of the grounds have been made, and the lakes themselves are ready to receive the iron piping for the fountains. On the rising ground beyond these noble pieces of water are to be seats surrounded by handsome stone balustrades. From these resting places, overlooking as they do the lakes below, a front view of the cascades, the water temples and the palace beyond them will be obtained, as well as a sight of most of the more prominent features of the park. The high ground behind where the geological illustrations have been placed, and indeed the whole of the hill face opposite the lakes and islands where the extinct animals are, has been planted, and is traversed by walks, which pass here and there over rustic steps, or wind among scenery of a semi-wild character; here a kind of massing system has been followed, Lilacs, Rhododendrons, Thorns, Arbutuses, Cotoneasters, Gorse, Heath, Broom, &c., having been planted in distinct groups so as to give breadth of effect, due regard being paid at the same time to harmony of colour. Specimen Conifers and other trees which are intended to form part of the Arboretum have also been planted in places where they will be seen to the best advantage. Passing still further round towards the Anerley side an extensive and extremely well managed root-work has been formed on the little hill which hides the railway station from the park. Here, in addition to Rhododendrons and other flowering shrubs which have been planted among the rough rustic looking roots, have been introduced such plants as Squills, Primroses, Wood Anemones, Foxgloves, and things of that sort which are so beautiful in early spring, and which are naturally looked for in situations of this kind. A large rockwork is also in course of formation on the other side of the park in the hollow below Sir Joseph Paxton's house; and on a natural knoll a little further on, on the same side, a kind of temple is to be built with glass roof and sides of open lattice work suitable for training climbers on. This will form a companion to the Rose temple on the opposite side, which has just received some additions in the shape of rapid growing climbers, so as to give it a temporary covering till the Roses get up a little.

From what has been stated above our readers will perceive that with the exception of filling the lakes and

* The author of the Coleopterous portion of the work before us does not seem (see p. 112) to be aware that Burmeister originated these Berichts.

bushes with water, planting the islands where the antediluvians are, gravelling some of the walks, and turfing or sowing with fine lawn-grasses the still bare portions of the grounds, little now remains unfinished.

With respect to the effects of the winter on the out-door plants, we may mention that little loss has been sustained. A large Sweet Bay appeared to be dead, and some of the larger Rhododendrons in exposed places have lost a few of their branches and have had their leaves browned; but nothing of importance has been seriously hurt. Deodars have been cut up a little, but they are now breaking afresh; altogether, both plants and grounds are looking as well as could reasonably be expected, and are now, it need scarcely be added, every day becoming more attractive. The walks in the terrace gardens are well rolled, and the Grass here and elsewhere has grown so fast within the last week that mowing has been commenced. This is conducted by means of scythes and Shanks's mowing-machine, which is said to be the best for large places.

Miscellaneous.

New Vine Disease.—The *Guienne*, a Bordeaux journal, states that another malady has broken out in the Vines. It consists of a sort of scab, and has received the name of itch (*gale*). According to some persons, it is an old complaint which has afflicted the Vines, though at very rare intervals; and according to others, it is a modification of the existing malady; but whatever the malady may be, it appears that it has done already great injury. In the commune of Condate, near Libourne, not fewer than 10,000 plants have been killed on one single estate, and have had to be pulled up. A great number of others, less severely attacked, have been cut down, in order to shoot out again. At Pessac the malady has also appeared, but has not done such great injury. The *Guienne* adds that in the districts of Entre-deux-Mers and the Bas Médoc, a small number of Vines has also been killed by a malady the precise nature of which has not yet been ascertained. It further states that at St. Macaire the Vines have been similarly attacked.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Any attention which will serve to prolong the flowering of the Azaleas and New Holland plants, which at this season contribute so greatly to the beauty of this house, will be well bestowed, as when these are over it will, in most cases, be impossible to furnish the house with equally handsome specimens, affording the same variety of colour which these do. Shading should be used on the forenoons of bright days, and every care exercised to keep the atmosphere of the house from getting too dry; also attend carefully to the watering of the plants, looking round on the forenoons of bright days to see if any of them are flagging, for bright warm weather coming so suddenly after the long sunless time through which we have just passed will tell severely on plants that are not properly moist at the root. Admit air freely on fine mild days, but sprinkle the borders, &c., frequently to keep the atmosphere moist. Greenhouse, &c.—Soft-wooded plants, as Pelargoniums, Fuchsias, &c., should now be carefully attended to, for it will soon be necessary to depend to a great extent upon these for the decoration of the show house. Fuchsias must not be allowed to become at all pot-bound until they are in their flowering pots, for this would check their growth and throw them into flower prematurely; neither must they be exposed too freely to sunshine, which would harden the wood and prevent free growth. Give air abundantly in the early part of the day when the weather is favourable, but shut up early, dewing the foliage over with the syringe, and saturating the atmosphere with moisture. Large specimens that have been cut back for blooming in autumn will be best in a shady part of the greenhouse, where they can be freely supplied with air to prevent their making soft weakly growth; stop any shoots that seem inclined to take the lead of the others, and also to induce a close bushy habit of growth. Some of the strongest of the Geraniums may be stopped and repotted for blooming late in the season, and although these will not make such plants as are commonly seen in June, they will be useful for cutting from. Scarlet Geraniums, when well grown and bloomed, are very useful for autumn decoration, but a well managed plant of these is rarely seen. They are generally over-potted and grown too fast, and consequently are more conspicuous for fine healthy green foliage than a profusion of flowers. To bloom them in perfection they must be treated very much as Pelargoniums, only they will bloom almost equally well in June or September, according to the season at which they may be cut back, &c., and by carefully supplying them with manure water, &c., they are easily kept in perfection for months. See that Calceolarias, &c., are not infested with green fly, and apply Tobacco smoke immediately this nuisance is perceived.

FORCING DEPARTMENT.

Pineries.—Where the houses are glazed with large sized squares, and the plants are close up to the glass, a thin shade will be of great service on bright days; but only a thin material should be used, for the object in shading should be to break the force of the sun's rays, not to darken the house. Give air rather freely on fine days, but shut up early in the afternoon, sprinkling the growing stock lightly with the syringe and well loading the atmosphere with moisture by sprinkling every available surface. See that plants growing in the open bed are properly moist at the root, giving a thorough soaking when the soil is found to be dry, for mere surface watering is of no use here. Fruit beginning to change colour should be afforded as dry an atmosphere as circumstances will admit, and the flavour will be improved if the soil inclines to dryness during the ripening period. Do not neglect to stake fruit that require it until they get disfigured by the crowns growing to one side; also attend to repotting succession stock before the roots get too much matted, and see to having the balls moist at the time of shifting, as allowing the plants to grow too long in small pots, or shifting when the balls are not properly moist, often causes the plants to fruit prematurely, particularly at this season. Endeavour to keep the newly-potted stock as much together as possible, in order to be able to afford it rather more shade and moisture and less air, until the roots strike into the fresh soil. Queens, intended to furnish the autumn supply of fruit, should by this time be well established in their fruiting pots; and where this is not the case, they should have every possible attention, for it is easier to retard these than to induce growing plants to show fruit. Vineries.—Where it is desirable to retard the breaking of the Vines in the late house as long as possible, and the glass cannot be removed nor the Vines exposed to the open air, they should be let down as far from the glass as can be done, shading the roof, and giving all the air possible. We are not quite certain, however, that there is any decided advantage in retarding Vines by artificial means after this season; nor that Grapes ripened by artificial heat late in autumn will keep longer than those ripened earlier in the season with little or no fire-heat. But it is well known that Grapes ripened by artificial heat late in the season are inferior in quality to those matured while the sun has some power, and fruit of inferior quality is generally so little esteemed, that it is hardly worth having at any season. We would almost invariably allow the buds to start at the bidding of the weather after this season, merely giving all the air possible, and take chance as to the fruit keeping until next March, preferring the certainty of a crop of prime fruit to being able to furnish a very late supply. Weakly or overcropped Vines ought to be very carefully examined for red spider, which may be expected to make its appearance on these, particularly if the weather continues bright, and means should be used to thoroughly eradicate it the moment it is perceived. Probably the best method is to well wash every affected leaf with a sponge, for it is useless trying to overcome it in such cases by syringing, which only serves to keep it in check, and when the fruit begins to colour, and syringing must be laid aside, it will increase with fearful rapidity. Keep the atmosphere moist, sprinkling the floors, &c., frequently on bright days, and take care that inside borders are well supplied with water.

FLOWER GARDEN AND SHRUBBERIES.

The unusually low temperature which has characterised this spring has been very unfavourable for newly planted evergreens, and especially for large plants that have been transplanted lately, for the ground has been so cold that active roots have not been formed so freely as would have been the case had the weather been warmer. And should the bright dry weather which we are now experiencing last long it will be very trying to things that have but few active roots to furnish them with support, and unless prompt attention as to watering, &c., is afforded many of the spring transplanted things will be likely to fail. Those who may have an opportunity this season of judging between September, and winter or spring planting, will probably have ample proof that early in autumn is the best season for removing large shrubs or trees. Look over all recently shifted things sufficiently often to prevent the chance of anything being injured through the want of water, and such as appear to be suffering should be sprinkled over-head with the engine on the evenings of dry days. Newly laid turf will also require attention should the weather continue dry and sunny, but a few waterings and a little finely sifted soil thrown over it and brushed into the joints will generally be sufficient to keep this from injury until the roots get hold of the ground. Persevere with the work of mowing, &c., until the turf is rendered as close and smooth as it is well possible to get it, for if the Grass is not brought thoroughly under early in the spring it is nearly impossible, without disfiguring the place, to get a close velvety turf afterwards, and well kept turf adds so much to the beauty of a garden that it should be secured at any sacrifice.

HARDY FRUIT AND KITCHEN GARDEN.

New plantations of Asparagus and Globe Artichokes should be made at once, choosing good deep rich soil that has been prepared by being heavily manured and trenched 2 or 3 feet deep; also give the Asparagus beds their spring dressing, first lightening up the surface soil with a blunt pronged fork and clearing the beds of weeds. Some seed of Seakale and Asparagus should also be sown to furnish a supply of young plants. Put in successional crops of Peas, and earth up and stake those that are above ground. Protect seeds appearing above ground from birds and slugs. Prick out Celery for succession crops, and attend well to the early plants with water; and if they are under glass see that sufficient air is given to keep them stocky. Seed should also be sown for the late crop. Attend to keeping up a supply of all kinds of small salads by sowing frequently. Stir the surface of the ground among all growing crops to prevent the growth of weeds and keep the soil open.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON
For the week ending April 19, 1855, as observed at the Horticultural Gardens.

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 3 feet deep.	Wind
Friday 13	26	29.607	29.546	57	39	48.0	47	46	S.
Satur. 14	27	30.002	29.844	62	40	51.0	47	47	W.
Sunday 15	28	30.201	30.091	65	41	53.0	47	47	W.
Mon.. 16	[illegible]	30.267	30.219	71	41	56.0	49	48	W.
Tues. 17	1	30.343	30.322	65	32	48.5	51	48	E.
Wed. 18	2	30.342	30.224	66	23	44.5	50	49½	E.
Thurs. 19	3	30.129	30.105	67	36	51.5	49	49	N.E.
Average.		30.127	30.021	64.7	36.0	50.3	48.5	47.6	

April 13—Uniformly overcast; rain; cloudy.
— 14—Foggy; fine throughout.
— 15—Overcast and fine.
— 16—Foggy; cloudless and exceedingly fine.
— 17—Fine throughout; clear with cold wind at night.
— 18—Fine; dry air; clear and frosty at night.
— 19—Frosty; slight haze; very fine; slightly overcast.
Mean temperature of the week 3½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending April 28, 1855.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 22	58.5	39.1	48.7	16	0.32 in.	4	7	4	2	1	1	[illegible]	[illegible]
Mon. 23	58.4	38.4	48.4	15	0.52	1	5	4	—	4	[illegible]	[illegible]	[illegible]
Tues. 24	58.0	35.3	46.7	11	0.60	4	3	5	4	[illegible]	[illegible]	[illegible]	[illegible]
Wed. 25	58.4	38.3	48.3	12	1.40	4	7	4	—	—	[illegible]	[illegible]	[illegible]
Thu. 26	59.2	36.2	47.7	13	0.12	2	7	4	1	1	[illegible]	[illegible]	[illegible]
Frid. 27	59.5	36.2	47.9	14	0.13	9	1	4	2	[illegible]	[illegible]	[illegible]	[illegible]
Satur. 28	60.8	37.2	49.0	12	0.32	2	4	5	4	[illegible]	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the [illegible] 1840—therm. 81 deg.; and the lowest on the 24th, 1854—therm. 18 deg.

Notices to Correspondents.

Books: *J W.* Cuthill's papers on Market Gardening, reprinted from our columns in the shape of a small pamphlet, is the only work that has been written on the subject.‡

Boilers: *R P.* Any of the boilers now generally in use answer very well. The setting and the furnace doors, which should be on Sylvester's patent, are more important than the form of the boiler. It is, however, desirable that it should be of cast iron. The form of the pipe is immaterial, provided you secure a surface not less than that of a 4-inch cylinder. It is a good plan to have troughs cast on the pipes, and in practice this is found much better than open tanks, the evaporation from which cannot be easily prevented when it is not required.

Dracæna indivisa: *An Old Sub.* Plant this on a bank or terrace raised a few feet above the surrounding level, and avoid stiff clay about its roots while young. Also take care that it is well sheltered from dry cold winds. After all, hard winters will injure it, except in our best counties. We presume that Embothrium lanceolatum is to be grown like a Grevillea or Hakea; but we are unacquainted with it in gardens.

Dried Plants: *S S., Cape Town.* In this busy country you will hardly find a botanist inclined to accept your proposal. The books you want are Harvey's "Genera of Cape Plants," Pappe's "Medical Flora of the Cape," and Schultes' edition of Thunberg's "Flora capensis."

Garden Walls: *Tyro.* Your inquiries are so numerous that an answer is necessarily deferred till next week.

Ginger: *J S.* Any respectable nurseryman can supply you with roots, or they may be got sometimes at Italian warehouses. Plant them in 8-inch pots, and grow them in a Cucumber or Melon frame.‡

Lentils: *Old Sub.* Treat them in the same way as you would Vetches.‡

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is only requested that, in future, not more than four plants may be sent us at one time.—*Sub.* 1, Polystichum aculeatum in a young state; 2, Asplenium Filix-fœmina, so far as can be judged by the very imperfect specimen; 3, Polystichum aculeatum; 4, Lastrea dilatata. Several causes may be assigned for your Ferns turning black, such as cold and the soil stagnant during winter. If your case has no artificial heat, then you need not wonder at the Lycopodium arboreum becoming yellow; the cold moist atmosphere inside the case and winter light are sufficient to make it turn yellow. *S.—F H.* Abies taxifolia is hardly even a variety of A. Douglasi. Lists are the best you can get: but they will not bear examination by a well informed critic.—*May.* Plants not in flower cannot be named.—*T T.* Lycaste macrophylla and Oncidium (Cyrtochilum) macrophyllum.—*J C L.* Maxillaria [illegible] Epidendrum variegatum. The little flower that accompanies them is too much shrivelled to be identified. It looks like M. uncata.—*W B, Cantab.* Plants cannot be named from unscientific drawings. We suppose yours to be Genista barbata.

Osage Orange: *J.* You will find the information you want respecting this plant fully given in our volume for last year, p. 299.‡

Strawberries: *A B.* What ails them we are unable to say with certainty; but they look as if they had been injured by [illegible] Have the sides of the pots been exposed? If so, that will account for the failure. Permitting the soil to become saturated with water would also tend to increase the evil.‡

Supposed New Esculent: *C J R.* The Bamean, Gombo, Ochro, which you have received from Bucharest is nothing [illegible] It is the common annual Hibiscus (Abelmoschus) esculentus, whose young pods are employed everywhere, in hot countries, as an ingredient in soups, for the sake of its mucilaginous qualities. It will not succeed out of doors in this country, our summer heat being too low.

Roses. *G B.* Guano dissolved in water is a good manure for Rose trees, as is also night soil and water, but the latter, as rightly state, has the disadvantage of being disagreeable to meddle with.‡

Tan Beds: *W M R.* Put them up just as you would dung beds. They are best without walls, as when their heat declines a lining of dung can be applied to them with more effect than when they are surrounded by brickwork, even though the soil is pigeon holed.‡

Vines: *P J M.* The specimens sent are evidently dead. From what cause it is impossible to say without personal inspection on the spot, if then. Such cases are not uncommon. The best plan is to remove the plant at once, and put a young one in its place.‡

Vinery: *A B C.* We suppose your border to be cold and wet. But all cases like yours require to be examined on the spot. No doubt the fault lies with the border in some way or other.

Vine Borders: *A Labourer.* Concrete the bottom of your border if you like, and are on a cold heavy soil; but on account employ gas tar for the purpose.

Wire Worms: *C W F.* If your land is in the state you describe you will hardly make head against these grubs. All you can do is to catch them with pieces of old Potato. If the crop were ours, we should burn the whole of the top spit.

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made.

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JOHN THOMPSON, Secretary.

3, Watling Street, Shudehill, Manchester, March, 1855.

*** The use of Sewage having for some time been discontinued, the opportunity presented by a change in the late Company has been taken to alter the name to one more characteristic of the actual constituents of the Manure.

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PONTEY, ROWE AND CO. beg to acquaint the Agriculturists in the West of England, that in order to insure a supply of their MURIOPHOSPHATE, which has been tested 12 years, and found far superior to all other Artificial Manures, in the continual support it yields to TURNIPS and the succeeding crops, they have made considerable purchases of BONES and BONE ASH, from South America, Hamburgh, &c., on favourable terms, They will therefore be enabled to render their Muriophosphate the same strength as heretofore, at 7l. per ton, in bags free on board; or 7l. 5s. delivered to the principal Seaports in Devon and Cornwall.

They have obtained reports of the Analysis from the most celebrated Agricultural Chemists, Messrs. Herapath, Nisbet, and Way, and they will guarantee that they supply the same article as reported on. The Analysis referred to will be open to the inspection of purchasers.

P., R. & Co. have constantly on sale BONE MANURE of their own manufacture at their Mills, at Drake's Place, which is open to purchasers. Also best PERUVIAN GUANO from A. Gibbs & Co., GYPSUM, MANURE SALT, &c., prices of which can be obtained at the Manufactory, or of Mr. PONTEY, Seedsman, Cornwall Street. 2½ per cent. off for cash on delivery.

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ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch.

Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

CHEMICAL ANALYSIS.

MR. H. MEDLOCK (formerly Chief Assistant in the Royal College of Chemistry) begs to inform Agriculturists that he undertakes the Analysis of Soils, Manures, &c., on moderate terms. Mr. Medlock also gives instruction to Gentlemen in Agricultural Chemistry at his private Laboratory, 20, Great Marlborough Street, London.

THE CONSULTING CHEMIST of the Royal Agricultural Society of England has removed his Laboratory to 15, Welbeck Street, Cavendish Square, where all communications and substances for analysis should in future be addressed. The Laboratory is open to Gentlemen wishing to study Agricultural Analysis, for which purpose it offers considerable advantages.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A LECTURE, by Professor WAY, "On the Recent Researches on the Composition of the Atmosphere in relation to Agriculture," will be delivered to the Members, at the Society's House, No. 12, Hanover Square, London, at Noon, on Wednesday, the 25th of April. By Order of the Council.

JAMES HUDSON, Secretary.

THE LANDS IMPROVEMENT COMPANY, INCORPORATED BY SPECIAL ACT OF PARLIAMENT FOR ENGLAND AND SCOTLAND.—To Landowners, the Clergy, Solicitors, Surveyors, Estate Agents, &c.—Loans may be contracted for the execution by the proprietor or by the Company of every landed improvement, especially Drainage, Building, Clearing, Enclosing, Warping, Irrigation, Embanking, Reclamation, Roads, Planting, Machinery, &c. The plans (of buildings), specifications, and estimates are prepared by the proprietors, and are submitted to the approval of the Enclosure Commissioners. Proprietors may avail themselves of the powers of the Act to recover from the inheritance their own funds to be expended on improvements. They may also apply jointly for the execution of a mutual improvement, such as a common outfall, &c. For forms of application, &c., apply to the Hon. WM. NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

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CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

ESTABLISHED ABOUT HALF A CENTURY.

AGRICULTURAL SEEDS OF THE FINEST SELECTED STOCKS.—*As the quantity of Mangold, some of the Turnips, &c., are found not so scarce on the market as was expected at the close of harvest, we submit our present prices, in which several will be found lower than quoted in our Spring Catalogue.*

	Per lb.—s.	d.		Per lb.—s.	d.
Mangold Wurzel, Long Red	0	8	Turnip White Decanter, or Norfolk Bell ...	1	2
„ „ Long Yellow	1	0	„ Green Barach ...	1	2
„ „ Yellow Globe	0	8	„ White Tankard ...	0	10
„ „ Red Globe ...	0	9	„ Red Tankard ...	0	10
Carrot, Long White Belgian	2	0	„ Yellow Tankard ...	2	0
Turnips, fine Purple Top	1	9	„ Orange Jelly ...	1	4
„ fine Green Top ...	1	9	„ Purple Top Bullock	1	0
„ Skirving's	1	9	Cabbage, large Drumhead	2	6
„ Laing's Purple Top	1	0	„ Kohl Rabi ...	2	6
„ Norfolk White Round	0	9	Lucerne	1	0
„ „ Green Round	0	9	Furze or Gorse	1	0
„ Lincolnshire Red Globe	1	2	Alsike Clover	2	0
„ Pomeranian White Globe	1	2	Bokhara Clover	2	6

PERMANENT PASTURE AND OTHER GRASSES.—Our Mixtures for Permanent Pastures will be found equal to any which are supplied. Prices per acre, according to the nature of the soil, 24s. to 34s. Wholesale Prices of Grasses and other Seeds to the trade on application.

Finest Mixed Lawn Grasses, per lb. 1s., or 4s. 6d. per peck.

☞ GOODS CARRIAGE FREE (not under 20s.) to all the London termini, or any station on the Colchester and Norwich line.

BASS AND BROWN, Seed Establishment, Sudbury, Suffolk.

GRASS AND AGRICULTURAL SEEDS.

THOMAS GIBBS AND CO., the SEEDSMEN to the Royal Agricultural Society of England, beg to inform their friends and agriculturists generally that they are now prepared to supply the undermentioned in any quantities required.

Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow; Irrigation or Water Meadow Mixtures; Upland Sheep Walk Mixtures; Park and Field Lawn Mixtures; Renovating Mixtures for old Swards; Garden, Lawn, or Grass-plot Mixtures; various Permanent Grass Seeds supplied separately to order; Mixtures for one year's lay, do. for two or three years' lay (commonly called "seeds").

CLOVERS.—Red or broad leaved, white or Dutch, Red Suckling, Alsike or Hybrid, Trefoil, Cow Grass or Perennial.

RYE-GRASSES.—Italian (very fine), Annual, improved Perennial, and other kinds.

CARROTS.—Large White Belgian, large field Altringham, Yellow Belgian, long Orange or Surrey.

PARSNIPS.—Gibbs' large Guernsey Cattle, common large.

MANGOLD WURZELS.—Long Red, Orange or Yellow Globe, Red Globe, long Yellow.

CABBAGES.—Large Drumhead Cattle, Thousand headed.

TURNIPS.—Purple-top Swedes, Green-top Swedes, Skirving's Swedes, Green-top Yellow Hybrid, Red-top Yellow Hybrid, Globes or Rounds, Tankard's sorts, Kohl Rabi.

Lucerne, Broom, Furze or Gorse, Field Parsley, Rape, Seed Barley sorts, Wheat sorts, Rye, Sainfoin, Tares, White Mustard, White Silesian Beet, Peas, Potatoes, and all other seeds for the farm.

KITCHEN GARDEN AND FLOWER SEEDS, including all the new and most approved varieties. Assortments made up to suit different sized gardens, or to any given amount.

Priced Lists of both Agricultural and Garden Seeds sent free by post on application to THOMAS GIBBS & Co., Corner of Half-Moon Street, Piccadilly, London.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their Mixtures of Grass Seeds are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30s. per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32s. per acre.
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Mixtures (finest sorts) for forming Lawns... ... 1s. 3d. per lb.

These Seeds are all new, and have all been properly cleaned and their growing properties fully tested. Directions for sowing accompany the seed.

G. G. and Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

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AGRICULTURAL SEEDS,
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PETER LAWSON AND SON, of Edinburgh and London, the QUEEN'S SEEDSMEN, NURSERYMEN, and WOOD FORESTERS; and to the HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND, beg to intimate to their English Customers and the Public that they are now sending out FARM SEEDS of every description, saved from genuine stocks, and for which they respectfully solicit orders.

Also Garden Seeds, Flower Seeds, Garden Implements, Draining Tools, and everything connected with their trade. Catalogues will be sent on application.

London Branch, 27, Great George Street, Westminster.

P. L. & S. are always able to recommend experienced Bailiffs, Gardeners, and Foresters.

SPECIAL CONTRACTS FOR SEEDS.—*Noblemen, Clergymen, or Yeomen requiring large quantities, special contracts will be made, at a great reduction in price, on application to*
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SUTTON'S LARGE YELLOW GLOBE MANGOLD WURZEL, FROM SELECTED ROOTS, QUITE HARDY.—Seed of this fine large Mangold Wurzel may be obtained genuine of Messrs. SUTTON, price 1s. per lb., or 5l. per cwt.; other sorts cheaper. Early orders are requested and recommended, as the stock is limited.—Address,
JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

The Agricultural Gazette.

SATURDAY, APRIL 21, 1855.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, April 25 { —Agricultural Society of England—Professor Way's Lecture.

THE sales of short-horns next week will make it probably the most remarkable of the year in that respect. Mr. WETHERELL of Durham has two sales and Mr. STRAFFORD three. The Hendon sale on Tuesday to which we referred last week will be followed on Wednesday by a sale of 40 pure bred short-horns from Mr. AMBLER's herd at Watkinson Hall farm, near Halifax, Yorkshire, and on Friday by the auction at Springfield Hall, near Lancaster, when the whole of the herd of the late JOHN

Bolden, Esq., will be submitted without reserve to public competition. Mr. Bolden was a cotemporary of the Collings, and his cattle have been bred chiefly from the herds of Messrs. Bates and Booth. Mr. Ambler's stock is descended from the herds of the Earl of Carlisle, Earl Ducie, and Earl Spencer, and those of Messrs. Bates, Bolden, Booth, Fawkes, Maynard, Tanqueray, Towneley, and others. And we may mention in reference to Mr. Tanqueray's herd, what was omitted last week, that a good portion of the young stock are by the best bulls in the country, namely Duke of Glo'ster and 5th Duke of York.

The idea of a Steam-Rasp for grating down the soil into a fine seed-bed, first enunciated by Mr. Hoskyns in these columns, has been adopted by numerous inventors, so that something of the sort may be expected at Carlisle. Wishing to prepare the agricultural public for the novelties likely to compete for the 200*l.* prize, we would direct attention to the practical objections weighing against some of them.

The theory of the operation of minute and deep pulverisation we leave for future consideration; merely observing that it may be useful for preparing ground for certain kinds of cropping, and at some distant time, when the action of the atmosphere upon fine particles of earth is better understood than at present, may be proved profitable and effectual as a means of fertilisation. But as yet the crops raised from our land seem unable to repay any very costly operation; and it may, therefore, lead to future success if steam power shall first perform something more like present processes. And we believe that Mr. Hoskyns himself—taking into account the necessity for an exposure of the soil in rough clods at some seasons, the spontaneous crumbling of such clods which occurs at others, together with the frequent cleansings from root-weeds which must be provided for—is prepared to welcome any modification of the rotatory rasp capable of tilling heavy land more efficiently than the plough.

What is the general expectation with regard to a successful steam-cultivator? Why, that it will effect the ordinary tillage of our fields—in an improved manner it may be—with greater cheapness and expedition than at present. The earliest idea awakened by the advent of a steam-plough was the extravagant supposition that land would be now prepared in hours instead of days; and we still consider that no invention will answer which does not include economy of time among its advantages. Can a farmer be expected to sell off the most of his teams for the sake of substituting an engine, unless the latter will facilitate the breaking-up of his Turnip land or stubble for spring corn, proceed with unprecedented dispatch in autumn cleaning, and prepare a seed-bed for Wheat or any other crop in double quick time? No data exist by which we can foretell the amount of work due from a steam-rasp; but the very nature of the process of grating or scratching necessitates either an enormous expenditure of power, or a tediously slow rate of performance. One of the most carefully studied inventions of this kind is calculated (according to the specification) to till, with a powerful engine, about 200 square yards per hour, or only 1 acre a day. Mr. Mechi, after constructing and testing one of these mincing or powdering machines, has concluded that the process is altogether impracticable; and that the soil must be dealt with in masses larger than mere dust, and must be cut and raised by a slow, steady motion.

A steam digging machine has been invented in Germany; the power required for all its motions has been ascertained from experiments, and every detail corrected by calculation; and the patentee estimates that the strongest engine which can be efficiently employed in spite of its weight will dig to the depth of 1 foot not more than $1\frac{1}{4}$ acre per day on the average quality of cultivated land. Mr. Usher's steam plough in 1852, according to Professor Wilson, broke up no less than 7 acres per day, the cost of working being only 2*s.* 6*d.* an acre; and though the style and depth of its work may have been far inferior to that made by the German engine, this rapid rate of labour is far more likely to get the farmer's patronage. Our advice to inventors is: however ingeniously you may pulverise, dig, or plough; however perfectly you may accomplish any of the heavier labours of tillage; you must work *economically*, and promise *a saving* to the husbandman, before you can reap success.

I. A. C.

We lately saw the works at Belleisle, near King's Cross, where the Nitro-phosphate, or Blood Manure Company, at present manufacture their fertiliser until their works in Plaistow Marshes are completed. And as blood is used now by several companies advertising in our columns, such as the London Manure Company, the late Manchester Sewage Manure Company, and the Cyanic Manure Company, we may refer to the operation of the last as characteristic, if not of the process as employed by all, at least of the value now set upon a substance most of which used generally to be wasted.

The manner in which it is used at Belleisle is as follows:—Bone-dust and crushed coprolites are placed in a long tub, along the central axis of which is the shaft of a revolving agitator—so many casks full of blood are poured in over the bones and well mixed by the arms upon the working shaft. Sulphuric acid is added to the mixture, which boils and effervesces under the action of the vitriol on the bones and blood, and after thorough commixture for about 10 minutes the liquid mass is allowed to escape through the opened end of the vessel, and it runs in a heap upon the earthen floor, where, as it cools, it hardens and dries. Some 16 or 18 large vessels full of this mixture are thus poured out in the course of the day, forming at the end of it a large mass of probably 40 or 50 tons of manure. It soon hardens, and in a day or two is turned over with the spade and broken small, and is found already dry enough for drilling. This is the Turnip manure of the Nitro-phosphate Company. In their Wheat manure the same materials are used in different proportions, and a larger quantity of blood being used artificial heat is needed to dry the resulting compound. The Turnip manure contains about 2 or 3 per cent. of nitrogen along with 16 per cent. of soluble phosphate of lime; the Wheat manure contains about 7 per cent. of nitrogen and the phosphate is reduced to 10 per cent. The proportion of ingredients needed to produce these results we have, of course, no right to publish, as it is on the determination of these that the relative merits of the plans adopted by the different companies depend. Several thousand gallons of blood are daily using now at Belleisle, and at the works of the other companies which use it very large quantities are being also turned to agricultural uses; so that this may be considered one of the most prolific of the home sources from which the enormous agricultural demand for manure is now supplied.

How rapid the growth of this demand has been appears in the history of the London Manure Company, which sells about 10,000 tons annually of manures of all sorts, and which, from 3 tons of guano in the first year of its formation (sold at 26*l.* per ton), has risen in its transactions to the quantity of 3000 tons, sold last year.

The great room for extension of the manure trade appears also in the number of companies which have latterly engaged in it. To some of these companies we have referred in past numbers of this Paper. The substance manufactured by one of them—the British Economical Manure Company—was fully described in last year's volume from analyses by some of our best chemists, and readers of this Paper were warned both from the recorded experience of those who had used it, and from the recorded opinions of our best writers on the food of plants that the substance was neither worth the sum demanded for it, nor calculated to do the good which it pretended. We regret to find that a repetition of this warning is required, and that the sale of a substance little calculated to be useful is being pushed in Scotland as well as England in spite of the abundant evidence which exists of its low agricultural value.

FARM NEAR CHELMSFORD.

In giving the system of cultivation in detail as carried out upon this farm, we wish to be understood that it is not from any conceit we entertain upon our own management, but rather to convey to your readers at a distance the system pursued, the state of the weather, and the prospects of farming at the particular period at which we are writing, that they may be able to compare notes and ascertain what is our position relatively with their own.

Upon the 18th January we put in 12 acres of Barley upon a light soil, and had purposed upon the following days to have put in a still larger quantity. Upon the 19th, however, rain fell, and upon the succeeding night considerable frost followed, which continued with unusual severity until the 26th of February following, when a rapid thaw took place. During the period alluded to snow fell on two occasions to considerable depth, but which immediately was blown into drifts, filling the roads, and laying the fields bare. The unusual severity of the weather destroyed the white common Turnips entirely, as well as most of the green hardy varieties. The Swedes also exposed were so greatly injured as to become of little value, and the Mangold Wurzel, Potatoes, &c., not well secured by a more than ordinary covering of earth became frozen and spoiled, and to such an extent that the keeping of stock has been since attended with unusual difficulty and expense, and sheep and lambs, as well as hoggets, have fallen greatly in price, the best couples not producing more than 42*s.*, whilst the largest proportion have not realised more than 35*s.*

The frost upon several nights was so severe that the thermometer marked only 3° or 4° above zero, and upon one particular night, the 9th February, in some situations fell to that point, consequently much damage has ensued to crops upon the ground of every description, and most of our tender description of evergreens are destroyed. Even the common Furze is killed to a great extent, and Rye upon our driest description of land is also partially destroyed by the unusual severity of the weather upon portions of the field from whence the snow was blown away.

We had remarked upon the effect of the weather upon the young plants of Wheat before your observations appeared, but we have since made a particular examination, and find that great deficiency of plant is found upon all those pieces of a light gravelly character, or upon other descriptions of soil where not sufficiently consolidated. We feel assured that in most cases the loss of plant is attributable to the effect of frost, as upon this farm two instances occur proving it beyond all doubt; in one a field that had been sown down with Red Clover, and which failed in the spring of 1854, 7 acres upon one side, and 2 acres upon the other, were ploughed up, leaving about 12 acres in the middle in Clover, which was mown twice and a portion three times for foddering. The whole was manured and also drilled the same day in the same manner, and came up together a full plant; the two sides succeeding Oats and Potatoes are now an excellent plant, but much of the plant is destroyed upon the portion that had been Clover and upon which the land remains in a porous state. This proves that it was not to the mineral solution of vermin that was employed in dressing the Wheat that the deficiency is attributable; and if we may be allowed to venture an opinion we shall at once state that we believe the extraordinary dry season that attacked the Wheat sowing, succeeded as it was by a continuation of dry weather until the frost set in, did not produce the usual consolidation of the soil, except upon such portions as had been reduced by tillage to a depth of mould which readily closed round the grains of Wheat; and as the protection by the snow ceased, except upon such portions to which it was drifted and accumulated, those portions as well as the sheltered end of the field, remaining for the most part uninjured. In the early part of this notice we stated that a field of Barley was drilled in January—the field was much exposed, and was divested of the snow—but the severity of the weather led us to expect such a deficiency of plant that we were induced about three weeks since to drill an additional quantity of seed upon the field that the whole might become ripened together; this precaution became more necessary on account of the onslaught upon the field by flocks of rooks from all quarters, and more especially from a neighbouring rookery, where they are protected and encouraged to such an extent to become one of the greatest pests we have ever had to contend with, it having cost us upwards of 10*s.* per week from that period to the present time to protect our crops from their depredations. Rooks, it is true, may sometimes be beneficial in destroying grubs, but under the altered state of society their assistance would now be gladly dispensed with; these black-feathered gentry never feed upon insects if they can procure grain, and are always prone to reap that which they have not sown. The carrying on war against them also, if not so expensive as that before Sebastopol, is equally harassing to the farmer.

Upon the 1st and 2d days of the current month the Barley referred to began to make its appearance above ground, and is now about two-thirds of a full plant upon all those portions of the field protected from the depredations of the vermin referred to, proving that even Barley will stand considerable frost without injury, if the land is well pulverised and the weather succeeding its being sown remains dry. This is corroborated as regards Wheat. A portion of Turnip seed was put in early in January, and has come up since the frost plentifully, and remains excellent and vigorous in plant. Talavera Wheat, also sown in the last week in February, has also come up, and appears a full and healthy plant. Upon the whole we are quite satisfied with the appearance of the young Wheat, not only upon this farm, but also generally throughout this district, and upon the heavy land portion of this county we hear that it has planted unusually well.

A large portion of winter Beans were put in throughout this district, and the plant before the frost set in was excellent; those upon this farm, sown on the 16th October, were mostly killed by it, and the land is now ploughed in preparation for Turnips and Cabbages. We learn that most other persons have lost their plant not only of the winter variety, but also of those sown early in the spring, and a large breadth has necessarily been resown. Peas have, on the contrary, succeeded beyond expectation, where not sown too early in November as to have become advanced into leaf before the winter had set in.

As regards our spring sowing, consisting of Barley and Oats, that has been long completed, unless where Turnips and Rape have not been fed off sufficiently early; but we have had such continual frost at night and such drying winds by day, that it would not be now safe to sow until rain falls, the land at the present moment having become so dry that the land drainers are impeded in their progress; the consequence is, that our land (about 30 acres), prepared for Mangold Wurzel, is all manured, subsoiled, ploughed, and rolled.

ready to receive the seed which will be put in during the current week, and which will be the more important as some of the Cabbage seed sown has, owing to the cold dry state of the atmosphere, at present vegetated. We have within the last few days put in our Potatoes, and to secure them from disease have dressed the rills of the land copiously with an admixture of lime and salt; to this we add about 3 or 4 cwt. of fishery salt per acre, which, of all the various applications made by us last season for that purpose, succeeded better than any other, and such was the effect upon the haulm of the Potato plants when growing that it became several shades darker in colour, and remained untouched by disease throughout to the time of taking up the bulbs, which were also very clear and free from canker.

Our early description of Rye is progressing rapidly, and should rain succeed we shall commence mowing it by the 24th; this operation we have endeavoured to facilitate by sowing from 2 to 3 cwt. of guano per acre, but which the recent dry weather must have to a great extent evaporated.

We are now, in sailor's phrase, on our "beam ends" to know how to provide for our neat stock, horses, and sheep. Hay is purchased at 4*l.* 10*s.* per ton; Grain at 3*s.* per quarter; Turnips and Mangold at 17*s.* to 20*s.* per ton; Clover-hay, 100*s.* to 120*s.* per ton. Most of this has now to be purchased, and with the number to be supplied the expense is alarming, and we have long said good bye to profit for this season.

EFFECT OF TEMPERATURE ON DAIRY PRODUCE.

[Our correspondent "Y" has sent us a paper on this subject the first part of which he had contributed to the useful magazine published in connection with the Albert Training School, but additions to which have been made by him in the following article.]

The dairy practice in this locality is directed to the sale of new milk and of butter and skimmed milk. The price of new milk is nearly uniform, being 2*d.* per quart, that of butter is sometimes as low as 1*s.* per roll of 24 oz., and sometimes nearly double this. The price of skimmed milk is likewise steady, being generally 1*d.* per quart. The cause of the fluctuation in the price of butter, with steadiness of price in that of milk, will be found in the comparative ease of the transport of the one as compared with the other; the former is liable to damage by moving, whilst the latter is regularly brought to market by sea and land, hundreds of miles. Butter is brought from Mecklenburg and from the west of Ireland to London. It will then be obvious that the supply of new milk is limited to populous districts, or to such as have gained easy access to them by the introduction of railways. It is in some measure optional in what state my dairy produce is disposed of—in new milk, or in butter and skimmed milk. In giving attention to this branch of farm economy, I was led at an early period to inquire at what price the two processes afforded a like return. After several trials made during warm weather, my cows being on Grass, I found 16 quarts of milk yielded 26 ounces of butter; the quantity of cream varies with the skill or taste of the dairy-maid in skimming the milk, and in proportion as she mixes milk with the cream. I have frequently found a quart of cream to give 14 to 16 oz. of butter, and this is about the average from the cream used for the trial cheeses at the Royal Agricultural Shows. I have, however, latterly, since December, 1854, found my cream much richer, and am obtaining 22 to 24 ozs. of butter from each quart of cream. I can only attribute this to the quality of the food in which Rape-cake and Bran, materials rich in oil, are components; the production of butter is, however, little influenced, being about 26 to 27 ozs. from 16 quarts of milk. The comparison will be—

16 quarts of new milk, at 2*d.* per quart		2*s.* 8*d.*
16 quarts of milk give a roll of butter of 25* oz., at	1*s.* 6*d.*	2*s.* 8½*d.*
14½ quarts skimmed milk, at 1*d.*	1*s.* 2½*d.*	

(The butter milk covers cost of churning.)

Butter is sold here by the roll of 24 ounces; it is customary to make up the roll to weigh 25 ounces, the odd one being in favour of the purchaser. I thus find an equal gain from new milk sold at 2*d.* per quart, as from butter at 1*s.* 6*d.* per roll, and skimmed milk at 1*d.* per quart. It will scarcely be necessary to observe that with a rise in price above 1*s.* 6*d.* per roll, it is my interest to direct my dairy produce more to butter, whilst with a lower price new milk pays better. In the course of a season or two, and towards the close of a year (date in November), I remarked a considerable falling off in my receipts for the dairy; and as no change had occurred in the number or circumstances of my cows, nor in their food, I was led to inquire into its cause. I found an equal quantity of milk had been brought down to the dairy-maid, a like sum received for new milk, and that the deficiency arose solely from a less quantity of butter. With this change there had occurred a great change in the weather, it having become very cold and frosty. I again tested the quantity of milk, and found the yield of butter 16 ounces from 16 quarts, instead of 26 ounces, as on the former trials: up to this time I had used an under-ground cellar in summer, and a room on the ground floor in winter, during which time this deficiency in my butter occurred. This room is situated on the north side of the house, the in-door opening into my kitchen, where the culinary operations are carried on, and which door was usually kept close by day as well as by night; the room is lighted and ventilated by a trellis window, which gave free access to the frost and cold air. On trying the temperature I found it something below 40°; it then occurred to me that the deficiency of butter must arise from the too low temperature of my dairy, and an easy means of remedy at once suggested itself, namely:—to introduce with a supply of fresh or cold water a supply of hot water, by an apparatus for that purpose. It so happened that the pipes for both hot and cold water passed through my dairy, immediately under the trellis window, and over the stone table on which my milk bowls are placed. This table is about 2 feet in width, and occupies one side and the end of the dairy in which is the trellis window. I ordered a shallow open cistern to be made of wood, with a rim about 3 inches along each side, and lined with thin sheet lead; this cistern thus contained water of 3 inches in depth. At its extremity, and near the window, is a hollow plug, having perforated holes near 3 inches above the bottom, and through which the water escapes as it rises into the common sewer. At the same end of the table, and inside the rim, is a pipe which, being inserted into the one from the hot water apparatus, conducts this to a tap at the other extremity, and then returns along the other side of the table again to the hot water pipe; when the new milk is brought in it is set up warm, and immediately the hot water tap is turned, when the water flows from it and along the cistern, in which the full milk bowls are standing, till it rises to the height of the holes perforated in the tube, and then flows through the same. The tap is open so long as the supply of hot water lasts; when this is exhausted, and the water in the cistern has cooled, the plug is drawn, and the whole of the water escapes, leaving the cistern empty. At this season the trellis window is closed by a wooden shutter, and the in-door communicating with my kitchen is kept open. By these contrivances my dairy attains a temperature in winter of 53° to 55°. I superintended the experiment when first tried one evening. The next morning my dairy-maid thus accosted me:—"Master, it is quite wonderful this morning; I have more cream from standing one meal (12 hours) than before from three." When the churning day came the result was a yield of butter of 26 ounces from 16 quarts of new milk, being equal to what I had found in summer. Thus from a change of temperature solely, and without any change of cows, or in their food, my quantity of butter was increased 50 per cent. But this is not the only advantage of the plan: I have already remarked that along with the hot water pipe, one with cold water passed through my dairy. At the approach of summer a pipe inserted into this with a tap close by that of hot water is turned, allowing the cold water to circulate in the like manner among the bowls of milk, till the cistern is filled to near 3 inches deep, when it again escapes through the perforated tube. This operation is continued through the hot weeks of summer, the tap being regulated so as to discharge a constant trickling of cold water, which is of course escaping through the tube at the other extremity, the milk bowls standing in water of the depth of near three inches during the whole of the summer season. I am thus enabled to allow my milk to remain two or three meals (24 to 36 hours) without becoming sour, and can sell it at the price stated, 1*d.* per quart. The advantage I gain from this is even greater than what I derive from the increased temperature during winter. These arrangements have been in operation for several years, during which I have occasionally tested the yield of butter, and have always found it similar, varying only from 25 to 27 ounces from 16 quarts of milk, the greatest amount being observed in the month of December last, when it was found to be fully 27¼ oz. from 16 quarts. I may here remark that my milch cows are supplied in summer and in winter with food suited to their wants, and to the office they are performing—the production of wholesome and nutritive milk.

Since I adopted this mode of regulating the temperature of my dairy, I have read a lecture given before the Royal Society by Captain Carr, an English gentleman, who resides on an estate which he has acquired in Mecklenburg, in which country the attention of farmers is chiefly directed to the production of butter, which is their main source of money returns, and where, as appears from Captain Carr's description, the arrangements of the dairy, with regard to the production of butter, are carried out with the greatest perfection, and in which regulation of the temperature is one of the chief aims. Captain Carr states that by artificial heat they effect a temperature during winter of 60°. Now, with my present means, I am not able to attain more than 52° to 55°, but as I have not during summer, when the temperature of my dairy sometimes exceeds 60°, found a great proportionate yield of butter, I am led to conclude that the degree of temperature I have stated, 52° to 55°, enables me to acquire the whole of the butter which the milk contains.

Since the foregoing remarks were penned, I have had another opportunity of observing the effects of a lower temperature on the yield of butter. During the keen frost of February my main water-pipes, though laid more than two feet under ground, were reached by the frost, and my supply of water completely stopped. My mode of increasing the temperature by hot water was suspended. The thermometer in the dairy denoted 45°. My yield of butter was again tested, and found to be about 20 oz. from 16 quarts, or for every four rolls of butter, with a temperature of 55°, I had only three rolls from a like quantity of milk, with a temperature of 45°. I now noticed a current of cold air from the crevices along the side of the wooden shutter placed inside the trellis window, of sufficient force to extinguish a lighted candle when held near it; I therefore caused another shutter to be fastened to the outside of the trellis, with a space of 4 inches between, which space I packed closely with straw. From this simple inexpensive contrivance, aided by the fire from the adjoining kitchen, the temperature of my dairy rose to 50°; the amount of the outlay was more than compensated by the increase of butter from the first churning. My observations on dairy husbandry tend to the following conclusions:—

That on a range of dairy cows of similar breed in different stages, some with a full yield of milk, and others with a less quantity or longer after calving, supplied with suitable food and with no excess of watery element, the composition of the milk will be uniform, or nearly so, as far as regards the production of butter, and probably as regards that of casein and other components. That the quality of the cream varies considerably without influencing the comparative yield of butter from a like quantity of milk.

That the proper adjustment of the temperature is of the greatest importance on the comparative production of butter. By a series of carefully conducted experiments at varying temperatures, I am of opinion that a correct scale of the comparative yield of butter at different temperatures might be arrived at. The following may be taken as an approximate to what the result would be:—From a very low degree of temperature, little or no butter; from a temperature of about 38°, 16 oz. from 16 quarts of milk; ditto 45°, 21 oz. from 16 quarts of milk; ditto 55°, 26 to 27 oz. from 16 quarts. 18 quarts 1 gill of cream churned on the 12th of March yielded 450 oz. of butter, nearly 25 oz. per quart; temperature of dairy 50°, without appliance of hot water. On perusing several treatises on dairy produce I find the proportion to range from 12 oz. to 16 oz. of butter from a quart of cream; what I now state appears nearly double the ordinary proportion. *Y.*

* My experiments show 26 ounces.

Home Correspondence.

A North Country Farmer's Opinion of Italian Rye-grass.—In a report dated June 27, 1854, from Inverness-shire, published in the columns of your contemporary, *the North British Agriculturist*, appears the following testimony to the value of Italian Rye-grass, regarding which there seems to exist a wide difference of opinion at present:—"We have experience this year of the benefit to be derived from increasing the usual quantity of Clover seed, and decreasing the Rye grass seed—15 lbs. Red Clover and ¼ bushel of Italian Rye-grass seeds per imperial acre have given a most satisfactory result. The Italian Rye-grass seems to possess great capacity for shooting out when thin sown, for we plucked up a single root from which sprang 50 stems, each approaching to 4 ft. in length." The field, a clayey loam, was in Swedish Turnips in 1852, the manure being dissolved bones, the crop fair, say about 18 tons per acre; the crop of 1853 was Wheat, which turned out badly, nitrogen being apparently deficient for this ammonia-consuming crop. Top-dressed in May, 1854, with 1½ cwt. Peruvian Guano, it afforded 3 heavy cuttings by September, the Red Clover being thick, while the Italian Rye-grass each time rose above it at least 6 inches. *S.*

Steam Cultivation v. *Ploughing.*—We are waiting with eagerness to see what the prize offered for steam cultivators will bring forth, and our expectations waver between hope and fear. If it is successful, which we of course hardly expect at first, it will soon cause a change of no ordinary importance; but if it is far from successful, then we may have to wait for some time before we derive any advantage from it. My object in writing this is to call attention to what I think a mistake into which some of its warmest advocates have fallen—I mean those who go on the assumption that it must be applied only to circular or rotatory cultivation. Now it is true that steam must be first applied in producing revolution, but it does not by any means follow that that revolution may not be converted into a draught power. Do we not see it drawing the carriages on the railway? They run on wheels; but though they were as many sledges, could not the same power be applied to them? It is no doubt delightful to anticipate a field being operated on by a huge scratcher, which at one operation converts it into a vast flower bed; but this is easier said than done. I think it must be allowed that the form of our best ploughs being on the wedge principle require the lightest draught. What is more powerful than the wedge? what less likely to suffer damage from hard resisting substances? It will split stones and timber without being damaged; but what power and strength of materials will it not require to tear or scratch such substances apart. But apart from what I think the impossibility of any substances being strong enough to stand such wear and tear, I think there will be in employing it a great misdirection of power. Not only will the final resistance be great, but the motive power is at the wrong end of the lever, as the speed must be multiplied greatly, and then the chief resistance is at the point of the prongs, so that to carry any breadth to a proper depth, the power must be heavy; whereas the great desideratum seems to be a an efficient light engine. The steam engine has indeed become a giant, but even then it may be overworked. But suppose we can get all this done—though the hardest clays and most stubborn subsoils can be torn to pieces and the field converted into one vast mole heap—do we

want that? We are often told that farm practice must approach more and more to garden practice. But is it the gardener's wish to convert his beds into the finest possible tilth at once? Certainly not; his object is to turn it up as roughly as possible in the autumn; he must have it in ridges, so that the frost can get at it—all ploughing is ridging on a small scale—and it is only when he comes to sow that he wants the fine bed. And is not that what we want? Who would think of working his land allotted for Turnips into a fine tilth in autumn, and leaving it so all the winter? And who wishes to have their Wheat too finely pulverised? The only time that we could use such an implement with advantage would be for spring ploughing and sowing. I fear some of our inventors, if they do not consider the subject again, are likely to defeat their object by trying to give us what we do not want, and that too at a great sacrifice of power. I think they will do best to keep to the plough, however old it may be, and if they can, as "I. A. C." says, pull it well, by the same means we can pull any other field implement. And that we shall sooner or later see steam successfully applied to cultivation I have no doubt; but that it may be delayed by attempting too much with it I have some fear. However, a few months will now inform us whereabout we stand. *S.*

Sand Drainage.—An "Aged Practical Observer" asks, on April 7th, "Can you keep tree roots out of pipe drains, or any drains whatever?" That question, I think, can be satisfactorily answered. By observing and imitating nature, a drain can be formed cheaply to last for ever, that roots of any description shall not choke. Where natural drainage takes place it is by seams of sand or gravel; now, by cutting a drain in the usual fashion, and filling in six or eight inches of pure sand, river sand if possible, and covering in over this, you have a drain that is permanent—in fact, everlasting if undisturbed; for although tree or other roots may run through it, the sand can never be so displaced as to affect the drainage in any sensible degree. I have often wondered why sand drainage is never used, being so cheap and so permanent. *J. L., M. D., Newburgh, Fife.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Special Monthly Council (after the Easter recess), *April* 18. Mr. Miles, M.P., President, in the Chair.

Finances.—Mr. Raymond Barker, Chairman of the Finance Committee, laid before the Council the monthly report on the accounts of the Society, and the usual quarterly statements for the information of the members. He also reported the current cash-balance in the hands of the bankers as 3239*l.*

Prize-Essay.—The President reported from the Journal Committee the following awards already made by the Judges of Essays and Reports:

I. To Clare Sewell Read, of Plumstead, near Norwich: the Prize of Fifty Sovereigns, for the best Report on the Farming of Buckinghamshire.

II. To Henry Evershed, of Albury, near Guildford: the Prize of Fifty Sovereigns, for the best Report on the Farming of Warwickshire.

III. To John Coleman, of Deene, near Wansford, Northamptonshire: the Prize of Forty Sovereigns, for the best Essay on the causes of Fertility and Barrenness in Soils, so far as observation and science have hitherto enabled them to be ascertained.

IV. To Isaac Seaman, Veterinary Surgeon, Saffron Walden, Essex, for the best account of the Nature and Treatment of Lameness in Sheep and Lambs.

The President further reported that the judges had decided that none of the essays sent in to compete for the prize of 20*l.* for the best Essay on the Prevention of Mildew in Corn Crops, possessed sufficient merit for that prize; that one of the essays in the class of Lameness in Sheep and Lambs was excluded from competition on account of its not having been sent in until after the 1st of March; and that adjudications still remained to be made in five other classes of essays than those in which decisions had been announced.

Guano Supply.—The President reported from the Guano Supply Committee that several communications had been received from the Foreign Office, through Lord Wodehouse, since their previous meeting, containing further information of the discovery of new supplies of guano, and assurances that every means would be taken by the Earl of Clarendon to obtain for the farmers of this country as full a participation in the benefits of such discoveries as might be conceded by the respective states within whose territories the guano deposits occurred to the farmers of other countries.

Carlisle Meeting.—Mr. Fisher Hobbs, Vice-Chairman of the General Carlisle Committee, reported the gradual progress of the works for the Carlisle Meeting at the end of July next, and the favourable manner in which the railway companies had received the application of the Council for the concessions they had hitherto so liberally granted to the Society's exhibitions in the transit of their live stock and agricultural implements and machinery.

Steam-power Conditions.—Colonel Challoner, Chairman of the Implement Committee, reported the following results connected with inquiries relating to the conditions of the Implement Prize-sheet for the Carlisle Meeting:

1. Steam-engines worked on the expansive principle will be allowed an expansive valve, worked by a simple excentric, in addition to the ordinary slide-valve, so long as worked under one fixed rate of expansion, and divested of all complicated arrangements intended to vary the rate of expansion.
2. The *true* velocity which each exhibitor of a steam-engine considers best for his particular engine must be stated and adhered to by him in each case—no indefinite, varying, or average statement of velocity being allowed.
3. The attention of the Stewards and Judges will hereafter be particularly called to the clause—"That no force-pump must be fitted with more than two valves, which must be of easy access;" and a special note on the same point will be forwarded to the honorary director of the Show.
4. The Society will not undertake to find the *motive power* for working the Steam-cultivators competing for the Society's Prize of 200*l.* at the Carlisle Meeting.

Ages of Pigs.—Mr. Barnett, Chairman of the Age of Pigs' Committee, submitted to the Council the following report (which was also adopted and confirmed).

1. That all pigs exhibited at the Carlisle Meeting shall be subjected to their mouths being examined by the Veterinary Inspector of the Society.
2. That should the state of the dentition of any pig indicate that its age has not been correctly returned in the Certificate, the Stewards shall disqualify such pig, and shall report the circumstance to the next Monthly Council.
3. That Prof. Simonds shall be authorised to call in an assistant if required; but that the Professor shall be responsible for the correctness of the opinions given; and that the remuneration to be paid to such assistant shall this year not exceed 10 guineas.

Country Meeting of 1856.—A memorial was received, through Mr. Fisher Hobbs, from Mr. Parker, the chairman of a country meeting held at Chelmsford on the 16th inst., inviting the Society to hold its Country Meeting of 1856 in that town, the centre of a purely agricultural county, which comprises upwards of a million of acres of land and nearly half a million of inhabitants, and where every local circumstances would be found to be most favourable for the promotion of the objects of the Society.—Mr. Raymond Barker and Mr. Brandreth Gibbs were requested to form an Inspecting Committee for the purpose of visiting the proposed localities, and reporting to the next Council on their capabilities for the purposes of the country meeting.

Cattle Awards.—On the motion of Mr. Fisher Hobbs, the following resolution was adopted:—"That, in accordance with the resolution passed at the last Council, requiring the judges to give in a reserved number for each class of Live Stock, the judges be instructed to give in such number at the Carlisle Meeting, but only in those cases in which the animal would in their opinion possess sufficient merit for the prize awarded in each class, should the animal to which the prize was awarded become subsequently disqualified."

The Council then adjourned to their weekly meeting at 12 o'clock, on Wednesday, the 25th of April, when Prof. Way would deliver before the members of the Society a lecture on the Influence of the Atmosphere on Vegetation.

Reviews.

The Journal of Agriculture, and the Transactions of the Highland and Agricultural Society of Scotland. March, 1855. Blackwood & Son, Edinburgh and London.

This periodical consists, as our readers know, of two separate publications, paged differently, and though stitched together, intended to be bound in separate volumes. The Edinburgh Quarterly Journal of Agriculture has now for some years been in this way issued along with the Transactions of the Highland Society. Both parts of the work in this issue of it contain useful papers. The Journal commences with an article on Auxiliaries to Farm Dung, in which the merits of the several artificial manures, some of which have been exposed and others recommended in our columns, are discussed, and the real value of the so-called Economic Manure is ascertained. Another important paper is by Dr. Voelcker, of Cirencester, on the relative values of Linseed-cake and of Rape-cake; in this he calls attention to the points already referred to by Mr. Lawrence in this paper, and refers to the researches by which the experience of Mr. Lawrence has been so satisfactorily and carefully explained. We extract the following passage on the subject of the poisonous essential oil of Mustard.

"It is a matter of some practical interest to know the conditions under which the essential oil is developed in Mustard seed. Digested in cold or tepid water, Mustard seed or cake furnishes essential oil, provided it has not been heated in the oil-presses as high as 212° F. Digested in boiling water, or heated by itself to a temperature of 212°, it does not generate this oil. The substances contained in Mustard seed, which give rise to the formation of the volatile or essential oil, are called myron and myronic acid. The latter is peculiar to Mustard, but has no smell; the former (myron) resembles in its chemical characters albumen. In a moist state it readily is transformed into a ferment, which, acting upon the myronic acid, gives rise to the production of the essential oil of Mustard. Heated to 212° F., myron becomes coagulated, and in this state is incapable of effecting this change.

"It is for this reason that the Mustard we eat with our beef loses all strength, or rather has not its pungency developed, if it is made with perfectly boiling water.

"An analogous case we find in Horseradish, which does not contain the substance, which is the cause of its pungency ready formed.

"Bitter Almonds likewise do not contain any essential oil, nor prussic acid, ready formed, but two substances which, acting upon each other when bitter Almonds are digested with water, give rise to the formation of the essential oil of Almonds and of prussic acid. One of the two substances contained in Almonds is a beautifully crystallised compound, which is called by chemists amygdalin; the other resembles in its nature albumen, and is called emulsin. At a temperature of 212° F. emulsin loses all power to change amygdalin into the products just named, and hence boiling water prevents the development of the agreeable smell of bitter Almonds, whilst cold readily calls it into existence.

"Laurel leaves, the leaves of *Prunus padus*, Cherry stones, and the kernel of all drupaceous fruits, do not contain any prussic acid, but readily produce this poisonous acid if they are digested with cold water. Thrown into boiling water, the formation of prussic acid is entirely prevented.

"As Linseed-cake is so high in price at the present time, many persons have now recourse to the cheaper Rape-cake, which, I have pointed out, often contains Mustard seed. It appears to me hazardous to give Rape-cake to beasts, without submitting it to an examination. And as boiling water prevents the formation of the pungent oil of Mustard, it may, perhaps, be advisable to mix all Rape-cake with water at 212°. The recommendation of this practice was suggested to me by the following note of Mr. Lawrence, of Cirencester:—

"'Dear Sir,—We have accidentally discovered, in handling Rape-cake for feeding bullocks, that by putting it into water at 212°, for the purpose of making soup to mix with the chaff, an odour of a strong acrid nature, which renders it unpalatable, is destroyed; whereas when it was put in cold water, or merely heated to a certain extent, it sent forth a strong disagreeable odour, and we had great difficulty in getting the cattle to eat the mixture, except from hunger. Perhaps, from your knowledge of the analysis of Rape-cake, you can explain the *modus operandi*. It is a valuable discovery to those who do not like the present non-paying cost of Linseed-cake.—Yours very truly,

'Charles Lawrence.'

"I am not aware that Rape seed contains substances analagous to those which in Mustard give rise to the formation of volatile oil, and am inclined to think that the pungent smell which Mr. Lawrence observed on mixing his cake with cold water was due to the presence of Mustard in the cake; but whether this is the case or not, Mr. Lawrence's experience will be followed, I have no doubt, with much advantage by others. In conclusion, I would suggest the following easy plan of testing Rape-cake. Powder some of the cake, add cold water sufficient to make it into a thin paste, and preserve this paste until the next day. If Mustard seed is present in the cake, the unmistakeable smell and pungent taste of Mustard will have become developed during this time; whereas good Rape-cake, under these circumstances, will not produce a very strong smell, nor taste pungently."

The Transactions of the Highland Society contain papers on Manures, Fences, and Foods for Cattle, and on the last point we extract the following paper by Dr. Anderson:—

"*On Arachis or Earth-nut Cake.*—Some time since I had occasion to direct the attention of the agriculturist to the use of Cotton-seed cake, which, though received at first with some degree of doubt, has now been used with success by several farmers, and its employment is only limited by the deficiency of the supply. I have on several different occasions referred to the great importance of searching for new substances adapted for the food of cattle, and pointed out that the subject was one which ought to engage the attention of both the farmer and the merchant. It is with some satisfaction, therefore, that I point out another variety of cake, the value of which is likely to bring it very rapidly into use. The cake in question is manufactured in France from the seed of the Arachis Hypogæa or earth-nut. This plant, which is entirely different from the earth-nut of this country, has recently been grown pretty extensively in Algeria, from whence it has been imported into France for the manufacture of oil. It has also, as I am given to understand, been introduced into Spain and into the Cape of Good Hope. The first sample of this cake analysed was sent to this country by Messrs. Maxwell & Co., of Bordeaux. Its composition is—

Water	11.56
Oil	12.75
Albuminous compounds	26.71
Ash	3.29
Fibre, and other matters	45.69
	100.00
Nitrogen...	4.27
The ash contains— Phosphates	1.17
The ash contains— Phosphoric acid	0.08

"Compared with ordinary Linseed-cake we find but little difference between the two. In some cases no doubt the quantity of nitrogen in Linseed-cake reaches 4.8 per cent; but in this case the oil is generally less. In fact, cake produced from the same seed varies in composition according to the extent to which the expression of the oil has been carried; and that this modifies the composition of the earth-nut cake is obvious from the subjoined analysis of a sample imported into Leith:—

Water	10.00
Oil	6.78
Albuminous compounds	33.85
Ash	3.73
Fibre, and other matters	45.56
	100.00
Nitrogen	5.39
In ash— Phosphates	1.14
In ash— Phosphoric acid	0.53

"In this sample the quantity of albuminous compounds is very high. Messrs. Maxwell & Co. have communicated the following information regarding the price of this cake last autumn:—

Its price free on board at Bordeaux, per ton, is,	£4 12s. 6d.
Export duty	1 0 0
Freight per steamer to Liverpool, and insurance	1 5 0
Price in Liverpool ...	£7 1 0

If carried by sailing ship the price will be £6 12s. 6d.

"In addition to this there is the cost of landing, &c. at Liverpool; so that this cake could not be sold at a

profit for less than from 7*l.* 5*s.* to 7*l.* 15*s.* per ton; perhaps somewhat more. Of this price, it is worthy of observation that 1*l.* is the duty charged in France on all oilcake exported from that country, and but for that it might be sold at 6*l.* 5*s.* or 6*l.* 15*s.* per ton. This sum might be saved by importing the nut itself into this country; and as it is probable that freight to a British port would not exceed that to a French one, and the cost of expression would be quite as low, the substance deserves the attention of British oil-pressers. The farmer will at once recognise the importance to him of a cake which has so high a value as this, and which has none of the drawbacks of Rape-cake, the Earth-nut being perfectly palatable, and entirely devoid of purgative properties."

Miscellaneous.

Green Crops in the District of the Lockesley Farmers' Club:—

AVERAGE WEIGHT FOR CROP 1854.

	Per Acre. Scotch. tons	cwt.	Imperial. tons	cwt.
Swedes	25	14	20	8
Yellow	23	11	18	13
Common	27	15	22	0
Mangold	17	8	13	16

AVERAGE WEIGHT OF EACH OF THE LAST SIX CROPS, Per Imperial Acre.

	1849		1850		1851		1852		1853		1854	
	tns.	cwt.	tns.	cwt.	tns.	cwt	tns.	cwt.	ns.	cwt.	tns.	cwt.
Swedes...	21	16	24	9	19	16	23	7	21	19	20	8
Yellow...	20	10	19	14	17	0	17	7	23	4	18	13
Common	22	7	25	14	21	1	23	14	27	13	22	0
Mangold	"	"	"	"	"	"	"	"	13	10	13	16

Mangold Wurzel Leaves.—This experiment was instituted for the purpose of testing an opinion promulgated by some, viz., that by cutting off the tops of Mangold Wurzel in the latter part of summer, and planting a row of Cabbages in each alley or interval, the produce of the Mangold roots would be very little diminished, whilst, without trenching on the succeeding corn crop, a good crop of Cabbages would be obtained. The results of this trial were as follow, viz.:—

		Roots per statute acre. tons cwt. qrs. lbs.	Tops per statute acre. tons cwt. qrs. lbs.
Mixed Crop	Mangold Wurzel	11 15 2 24	4 15 0 26
	Cabbage	Worthless.	
General Crop of Mangold ...		19 15 0 24	4 18 0 10

The foregoing returns show very clearly that mixed culture of this kind is rather chimerical and cannot be recommended. *Mr. Donaghy's Report of Glasnevin to Dr. Kirkpatrick.*

Calendar of Operations.

APRIL.

INVERNESS.—We have heard a traveller in times gone by describe the want of forethought of the Irish peasantry as such that they might be seen at Christmas digging their Potatoes with a pickaxe. *That* was an instrument in general use in this quarter for collecting the cattle's food. Turnips contain about 90 per cent. of water; the odd 10 per cent. of nutritive matter was, therefore, set before them sealed up in a solid ball of ice. Cattle throve, therefore, ill: sheep not much better while the Turnips lasted: now, on the fields, the yellow Turnips are soft as pulp, the Swedes dry as corks. Experience is proverbially a good teacher; we venture, then, to prognosticate that Turnip heaps will be more generally seen in November next than has hitherto been customary. The Wheat plant looks very scorched like, but has not as yet thinned out much, and already a change of colour is beginning to show itself. Potatoes have kept well in the pits, where sufficient precautions were taken to keep out the frost, but they were from the beginning so few in number, that they formed but a supply for the upper and middle classes of the population, with a few cargoes for export, and a residue of small tubers for seed (not a good plan to use those exclusively), the working classes could not afford to use them, which was felt as a privation. We pass on to the staple of the county—sheep. For them the past three months have been of a very trying nature. Fortunately they were in fine condition when the severe weather set in, which has helped to carry them through better than could otherwise have been the case. The stock in the wintering grounds of the upland districts have not been worse off than the hogs on the frozen Turnip fields of the lower country. Deaths have not been excessive in number, but all kinds are sadly out of condition, and they have still a period of hard fare to pass through, for Turnips are exhausted or destroyed by frost, while in the hills snow still covers the herbage, and the heather has been of late years so much subjected to summer burning, that it does not afford the sweet and valuable pickings which it might do were it less interfered with. Wedders, with a good flush of Spring Grass may get into condition before the summer markets, but ewes will be much out of condition at the lambing time. Lowness of condition, besides telling on the future of the stocks, has, it is well known, a detrimental effect on both the quantity and quality of the clip of wool. *Received from the Reporter to the North British Agriculturist.*

Notices to Correspondents.

DOTCH AND COMB: *G P.* The common stable currycomb and brush will do for the byres as well, and may be used once a day with comfort to the animals.

CULTIVATOR, GRUBBER, AND SCARIFIER: *Francis.* The last is more superficial in its operation than the second. The first is a complete tiller of the ground.

FOR BOILING: *A Sub.* The green tops are not likely to poison the cows; but they are certainly not likely to do any good, and may be injurious.

LINSEED FOR CALVES: *Cambrensis.* A half pint of the jelly made by two pints of Linseed in one gallon of water is about half a good allowance. Cattle will take to oilcake perhaps more readily if the hay or hay chaff which they eat be dusted over with some of the oilcake dust, which might be wetted and made somewhat salt.

SUB-IRRIGATION: *R W.* Mr. Telfer informs us that the pipes used are 3 inches diameter, and their present price 1*s.* 10*d.* to 2*s.* per yard. The length of hose is 80 to 100 yards; the size of tanks depending entirely on the supply of water at command.

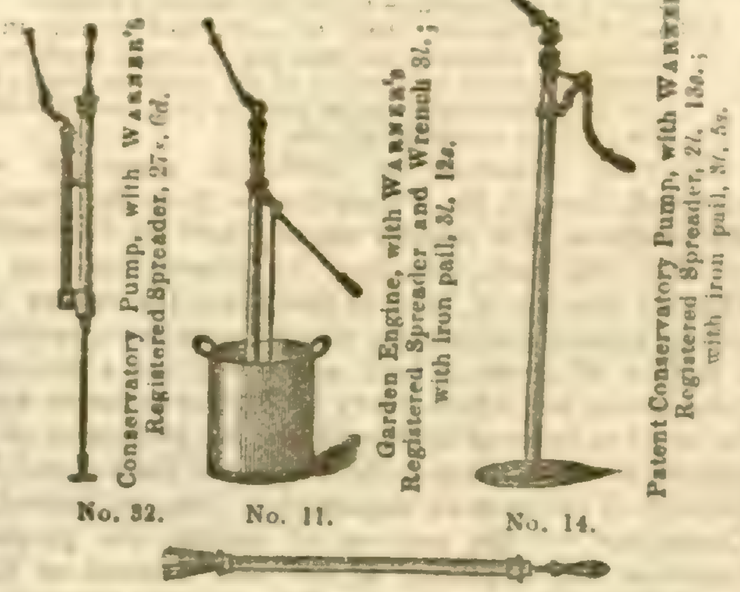
SCYTHES.

BOYD'S PATENT SELF-ADJUSTING SCYTHES may be had of the Manufacturers, WILLIAM DRAY & Co., Swan Lane, London; and of all Ironmongers and Seedsmen. A liberal allowance to the trade.

TREE TRANSPLANTING BY M'GLASHEN'S PATENT.

MR. M'GLASHEN is now prepared to supply Apparatus or give Estimates as to the rate at which he will safely and expeditiously transplant Trees or Shrubs of any dimensions in any part of the United Kingdom.
Canonmills Bridge, Edinburgh.

JOHN WARNER AND SONS, 8, Jewin Crescent, London, Manufacturers of FIRE ENGINES, PUMPS, GARDEN ENGINES, and SYRINGES.



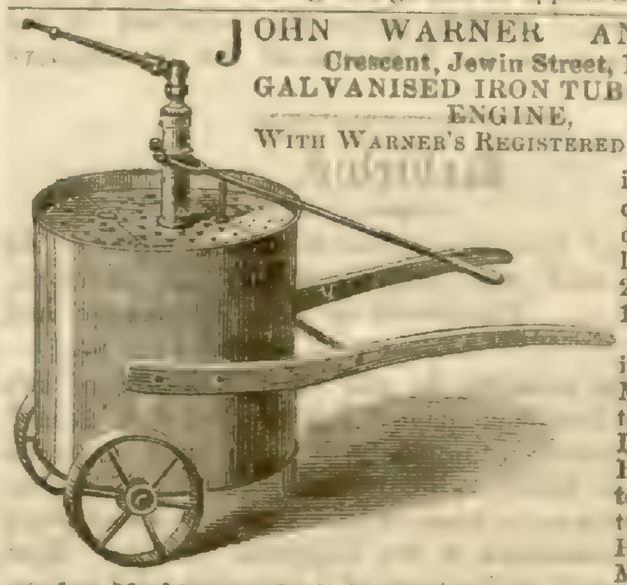
Brass Syringes, 9s. to 18s.

All articles of JOHN WARNER & SONS' manufacture may be obtained of any Ironmonger or Plumber in town or country, at the advertised prices.

JOHN WARNER & SONS having been practical Horticulturists for many years, know exactly the requirements of both Amateurs and Gardeners. A gardener with a properly constructed pump will get through as much work in five minutes as he could with any Syringe in a quarter of an hour, and with half the labour to himself. Syringes are economical for small houses.

No establishment offers such a variety of effective machines for hydraulic purposes, whether to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of liquids.
Fountains suitable for Conservatories, Lawns, &c.
Sheets of Engravings sent on application.

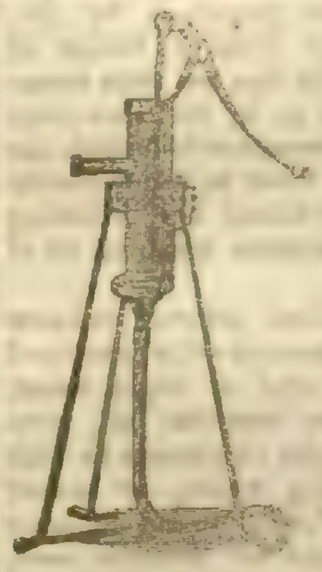
JOHN WARNER AND SONS,
Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
WITH WARNER'S REGISTERED SPREADER,



is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 8*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

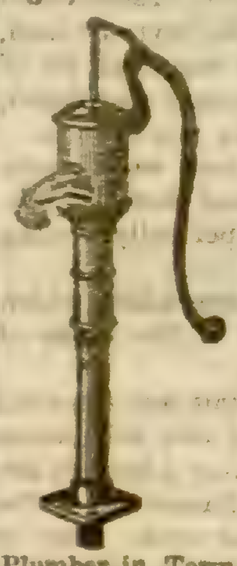
1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.



Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2¼ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ „ long	3 „ 8 „		1	15	0
3 „ ditto	3 „ 6 „		2	12	0
3½ „ ditto	3 „ 6 „		2	18	0
4 „ ditto	3 „ 6 „		3	5	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	12	0
2½ in. long	ditto	ditto ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

TO HORTICULTURISTS, GARDENERS, FLORISTS, ETC.

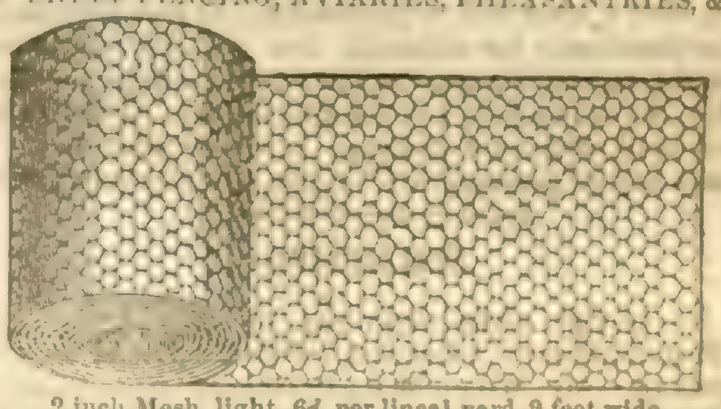
METALLIC WIRE suitable for Training and Fastening Fruit Trees, Shrubs, Flowering Plants, &c., of all sizes (wire guage) is manufactured at our Lead Works in this city at reduced prices.—Samples and prices will be forwarded on application to DAVIDSON and ARMSTRONG, City Lead Works, Manchester.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.* Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

FRUIT TREES, POULTRY, RABBIT, SHEEP, AND LAMB FENCING.—Worsted Netting, to protect the Bloom of Peach, Nectarine, and other Trees, Flower or Seed Beds, from frost, blight and birds, 2 yards wide, 5*d.* per yard. New Twine Netting (tanned if required): 1 yard wide, 2*d* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d*; half inch Mesh do., 2 yards wide, 8*d.* per yard. Tanned Netting, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. Elastic Hexagon Garden Net, or Scrim Canvas, 4½*d.* per square yard. Cocoa-nut Fibre, or Hemp Sheepfolding Net, of superior quality, 4 feet high, 4*d.* to 6*d.* per yard. Rabbit Net, 4 feet wide, 2*d.*, 6 feet wide, 3*d*, 8 feet, 4*d.* per yard. Each edge corded, ½*d.* per yard extra, suitable for Poultry Fencing. Square Mesh Cricketing Net, fix its full width and length, made of stout cord, 3*d* to 4*d.* per square yard; this is the best article for Fencing against Fowls, Cats, &c.—W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Kingsland, London.

A 20-yard Drag Net, with purse complete, 2*l.* 10*s*; a Single Walled Drag Net, any length and depth, 1*s.* per square yard; Casting Nets, complete, 1*s.* per yard, measured round the lead line; Flue Nets, any size, 1*s.* per square yard complete. Minnow Nets, Eel Nets, and Landing Nets equally cheap, all warranted first rate quality and workmanship.

GALVANISED WIRE NETTING FOR GAME AND SHEEP FENCING, AVIARIES, PHEASANTRIES, &c.



2 inch Mesh, light, 6*d.* per lineal yard, 2 feet wide.
" " strong, 8*d.* " " "
Netting of any size or quantity, and Fencing of all kinds, supplied on the shortest notice.—WILLIAM DRAY & Co., Manufacturers, Swan Lane, Upper Thames Street, near London Bridge.

IMPROVED MOWING AND ROLLING MACHINE.

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, Inventors and Sole Manufacturers, respectfully solicit the attention of the Nobility, Gentry, and Gardeners to this Improved Machine for Mowing and Rolling Lawns. The Machine is in operation in the Royal Gardens at Windsor Palace, Buckingham Palace, and at Osborne, in the Botanical Gardens at Kew, Regent's Park, Manchester, Sheffield, &c.; at Blenheim Palace, Trentham, Cleveden, Elvaston, Broadlands, Woburn Abbey, Clumber, Lilleshall, Castle Howard, Shrubland, Eridge Castle, Enville Hall, Tiptree Hall, Chatsworth, and in many other of the principal gardens in the kingdom as well as in the United States, British America, and on the Continent, where its merits have been fully proved, and its success established.

The machine is made to cut the breadth of 42, 30, 26, and 15 inches respectively, is exceedingly durable, easily managed, and adjusted to cut to the length required. The execution of the work is far superior to what may be attained by the most skilful mower, while at the same time a great saving of labour is effected, and the turf much improved. By the largest machine a Scotch acre may be mowed, rolled, and the Grass collected in one hour.

A. S. and SON have much pleasure in stating that they have made considerable improvements in their 15-inch or hand machine this year, by which the draught is considerably lessened. This machine combines all the merits and advantages of the larger machines with firm and secure construction, and is admirably adapted for borders and for lawns of no great extent.

ALEXANDER SHANKS and SON also respectfully solicit notice to "Fleming's Weeding or Salting Machine" for destroying weeds in gravel walks, court-yards, drives, &c. This machine is now in operation in many parts of England, where it has given ample satisfaction as the best and most economical means of thoroughly keeping down weeds or Moss

Further particulars with testimonials and prices, may be had on application.

CLAYTON, SHUTTLEWORTH, AND CO.'S PRIZE PORTABLE STEAM ENGINES, AND COMBINED THRESHING, STRAW SHAKING, RIDDLING AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as threshed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.

C. S. & Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading Agricultural Shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

STEPHENSON AND PEILL, 61, Gracechurch Street, London, and 17, New Park Street, Southwark, Manufacturers of Copper Cylindrical and Improved Conical Iron BOILERS, and Conservatory and Hothouse Builders, either in Wood or Iron, respectfully call the attention of the Nobility, Gentry, and Nurserymen to their simple but efficacious method of warming Horticultural and other Buildings by Hot Water.

From the extensive works they have executed, references of the highest respectability can be given, and full particular furnished on application.

SAMUELSON'S REGISTERED LAWN MOWING MACHINES. To cut 16, 19, 22, and 25 inches wide. The Registered Improvement renders unnecessary the great care requisite in the handling of these Machines on the old plan. All that is now required can be done *by any unskilled labourer*, who has only to push the Machine before him, the Registered Adjustment insuring a clean cut of uniform height, and preventing the knives from cutting into the soil, however uneven the ground may be. Illustrated Price Lists, with copies of Testimonials, and a Catalogue of his other Agricultural Implements, may be procured, post-paid, on application to the Manufacturer,

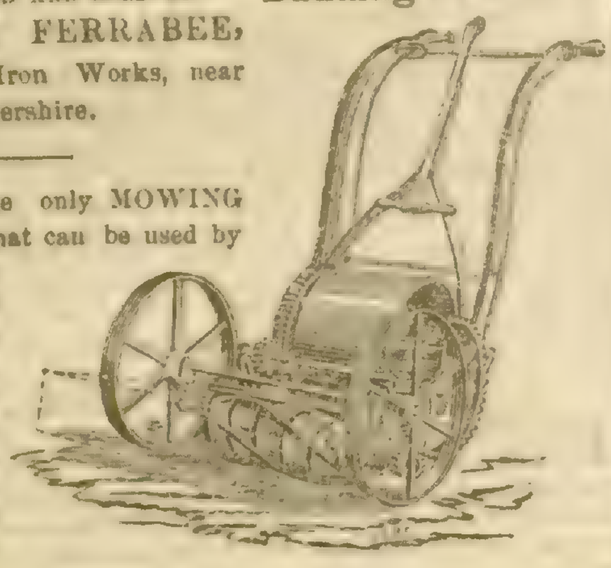
B. Samuelson, Britannia Works, Banbury, Oxon.

The above may also be procured at the principal Agricultural Implement Depôts in London, and of all respectable Ironmongers and Seedsmen in the country.

IMPROVED LAWN MOWING MACHINES,

Manufactured and sold by **Budding's Patent.**

J. and H. FERRABEE, Phœnix Iron Works, near Stroud, Gloucestershire.

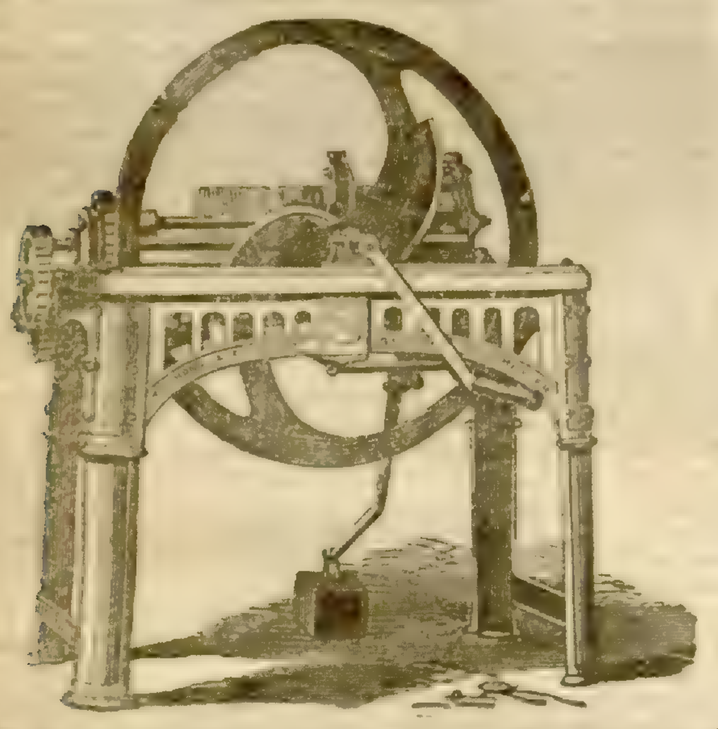


These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds on Bowling Greens, Cricket and Pleasure Grounds; 4500 of them have been sold.

Hand Machine, for One Man, cutting		16 inches wide	£5	10s. 0d.
Ditto	for Two Men	„ 22 ditto	... 6	0 0
Pony Machine (or Donkey)		„ 26 ditto	... 8	0 0
Horse Machine		„ 28 ditto	... 11	0 0
Ditto		„ 36 ditto	... 15	0 0

London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

RICHMOND & CHANDLER'S PATENT CHAFF CUTTING MACHINE.

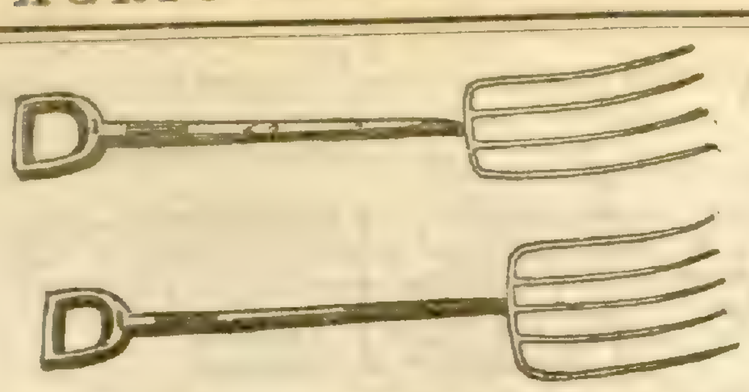


All the various modern Implements of Agriculture manufactured on the most scientific and improved principles, suitable for home use and exportation.—Address, Richmond & Chandler, Salford, Manchester; and 32, South John Street, Liverpool.

☞ Catalogues Gratis.

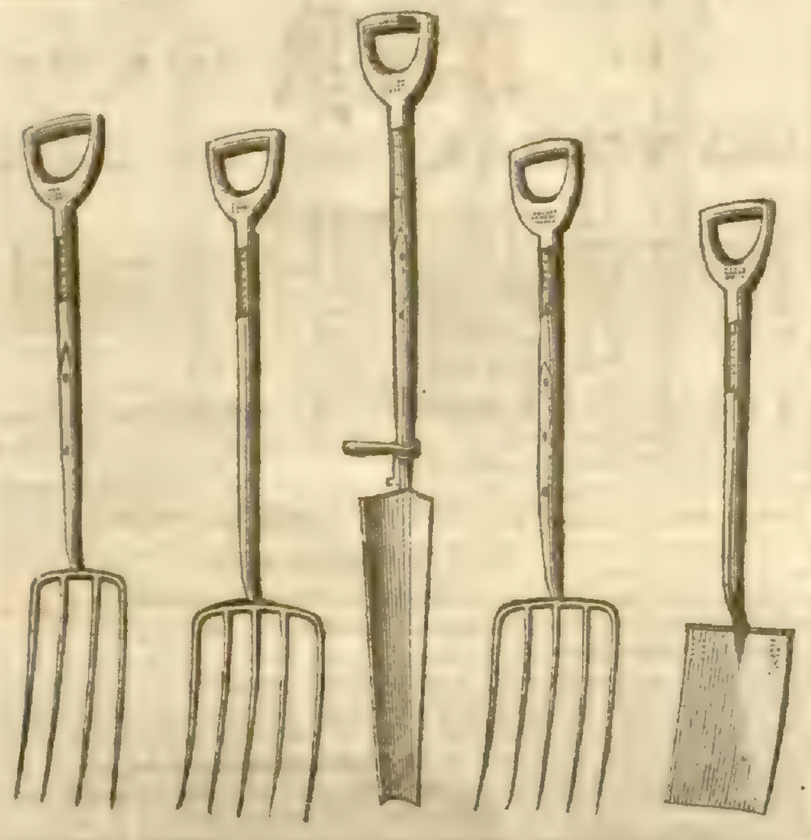
THE CRYSTAL PALACE FLOWER BASKETS made to the original, and a variety of new and elegant Designs for Conservatory, Verandah, Drawing-room, &c., from 3s. 6d. upwards, by W. RICHARDS, Wire-worker, &c., 370, Oxford Street, nearly opposite the Princess's Theatre. Conservatories fitted up, Aviaries, Bird-cages, Flower Stands, and every description of Wire work. Game and Garden Fencing of the best description.

N.B. Holland, Venetian, Wire, and all kinds of Sun shades, and Window Blinds of best quality.



WILLIAM DRAY and CO.'S STEEL DIGGING FORKS are warranted equal, and by many are considered superior, to any in use. Three Tine Forks, 4s. 6d. each; Four Tine Forks, 5s. 6d. each. A liberal allowance on Wholesale Orders.

William Dray & Co., Swan Lane, Upper Thames Street, near London Bridge.

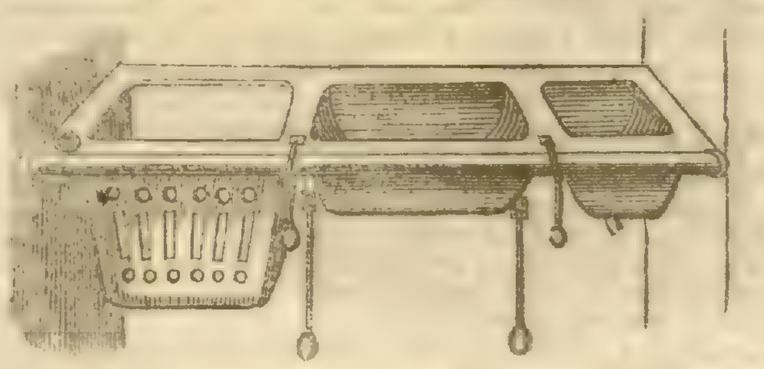


PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS and KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

103, Newgate Street, and 52, Little Britain, London.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THE only Patented invention of this description constructed so as to prevent considerable waste of Hay and Corn, together with all the newest improvements.

NEWLY IMPROVED ECONOMIC STABLE FITTINGS, FORTY SHILLINGS PER SET, to fill up the whole width of Stalls, and can be had enamelled or galvanised. Every description of Mangers, Racks, and Stable Furniture in stock; Iron Hurdles, Gates, Fencing, &c.

Manufacturer of Kite's Patent Noiseless Cast-Iron Smoke-Curing Chimney Caps (200 on Buckingham Palace), price 35s. each. Price Lists and Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, Iron Founder, &c., 370, Oxford Street, few doors east of the Pantheon.

PRUNING.

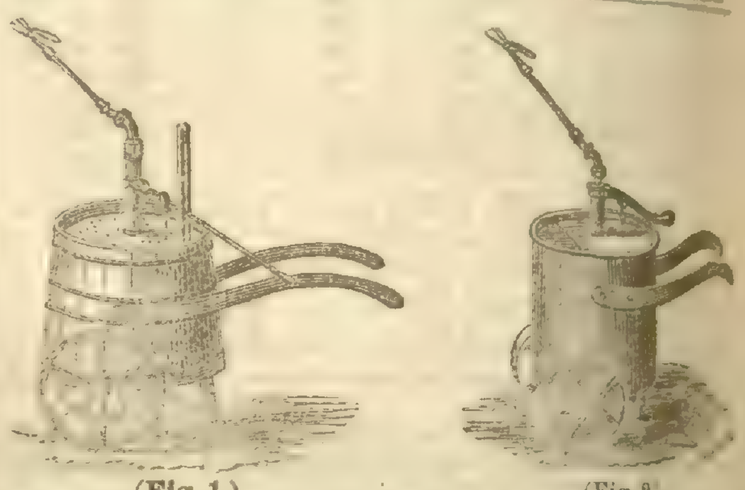
THE GRECIAN PRUNING SAWS are universally acknowledged to be the best for every description of Pruning. They cut faster and cleaner than any other, and do not bend or break. Price 2s. 6d., 3s., and 3s. 6d. each.

Thomas Hill, late W. Coleman, 4, Haymarket, London.

WATER YOUR GARDENS WITH THE PATENT FLEXIBLE GUTTA PERCHA TUBING, from 4d. per foot. Roses, from 4s. Union Joints, from 1s. 6d. each, fitted complete.

Instructions given to affix joints to Taps.—Post Office Orders payable at City Road Branch.

Address James W. Watts, Factory, 27, City Road, London.



(Fig. 1.) (Fig. 2.)

J. TYLOR and SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons,	throws 30 feet high		...	£4 10
No. 2 „ 15 „	„ 45	„	...	5 10
No. 3 „ 28 „	„ 45	„	...	6 13

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons,	throws 25 feet high		...	£2 15
No. 13 „ 12 „	„ 30	„	...	3 5
No. 11 „ 16 „	„ 40	„	...	4 0
No. 12 „ 24 „	„ 45	„	...	5 0
No. 14 „ 30 „	„ 45	„	...	5 15

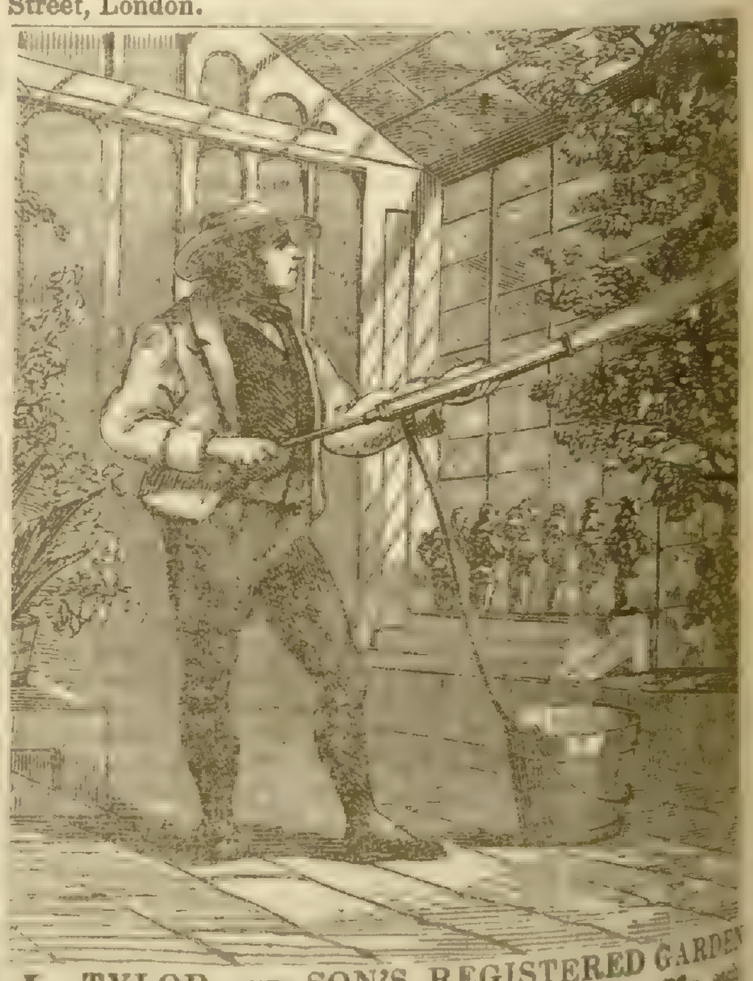
A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

Full size Syringe, on Read's principle, of the very best quality and workmanship, with two roses and one jet, 21s.; Plain Syringes from 10s. 6d. upwards.

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London.

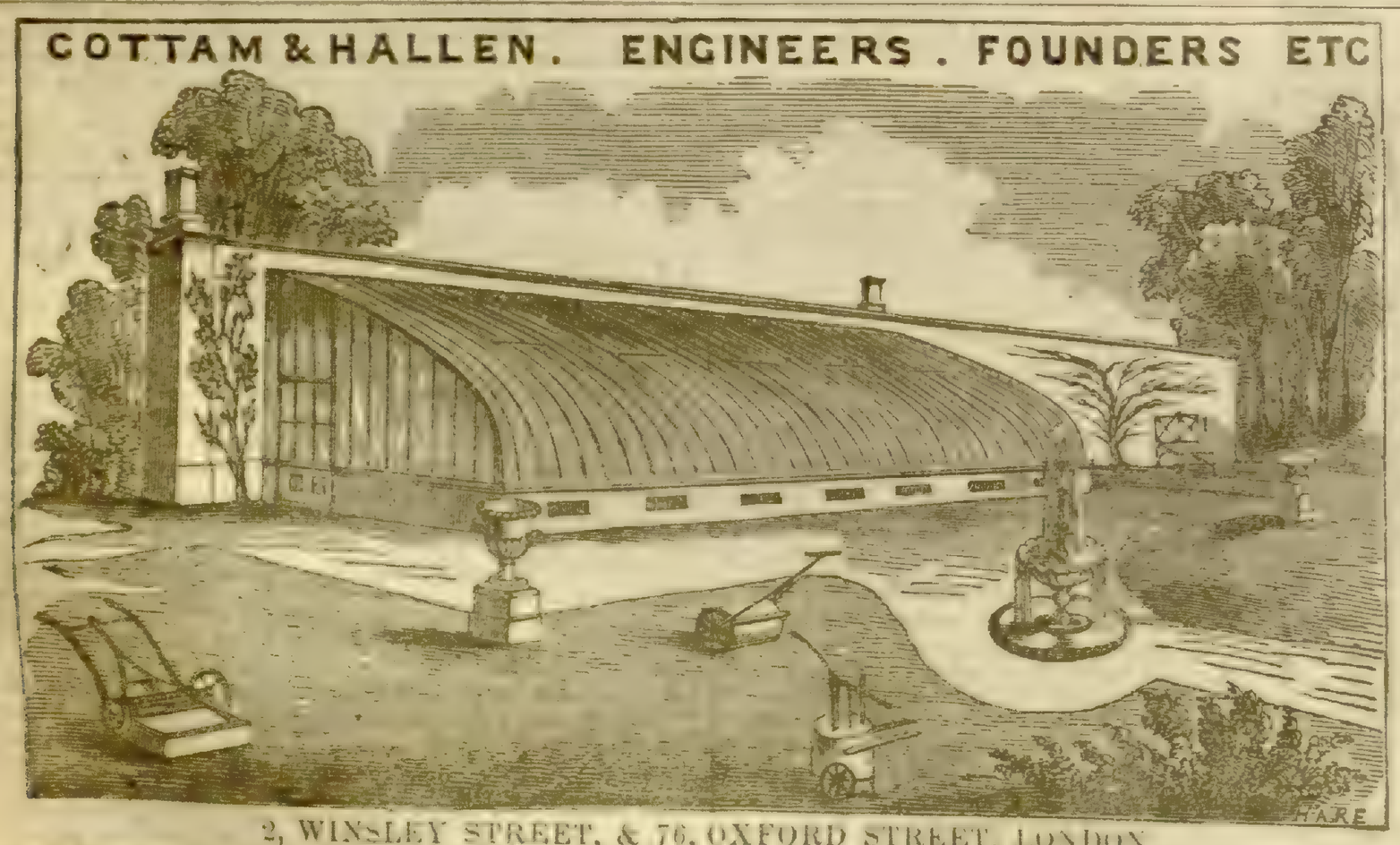


J. TYLOR and SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

GLAZING WITH OR WITHOUT PUTTY.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.—Printed Price Lists supplied on application.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in. ...	...	12*s.* 0*d.*
6½	"	4½	"	7	"	5	...	...	12 6
7½	"	5½	"	8	"	6	...	...	13 0
8½	"	6½	"	9	"	7	...	...	13 6
9½	"	7½	"	10	"	8	...	...	13 6
10½	"	8½	"	11	"	9	...	...	14 0
12	"	9	"	13	"	9	...	...	14 0
10	"	10	"	10½	"	10½	...	...	14 0
11	"	10	"	11½	"	10½	...	...	14 0
11	"	11	"	11½	"	11½	...	...	14 0
12	"	11	"	12½	"	11½	...	...	14 0
13	"	11	"	13½	"	11½	...	...	14 0
13	"	12	"	13½	"	12½	...	...	16 0
13½	"	13½	"	14½	"	13½	...	...	16 0
15½	"	13½	...	...		...	...	...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application. Established more than 100 years.

CLOCHES.

JAMES PHILLIPS AND CO. have the pleasure to inform their friends they are prepared to supply

GLASS CLOCHES,

Similar to those at the Horticultural Society's Gardens at Chiswick, at the following prices, viz.:—

9 inches diameter ...	1*s.* 6*d.*	11 inches diameter ...	2*s.* 0*d.*
10 " ...	1 9	12 " ...	2 3
		14 " ...	2 6

CUCUMBER GLASSES.—Each.

24 inches long	2*s.* 0*d.*	16 inches long	1*s.* 4*d.*
22 "	1 10	14 "	1 2
20 "	1 8	12 "	1 0
18 "	1 6	Made to any length.	

GLASS FERN SHADES AND STANDS.

6 in. diam., with stands	3*s.* 0*d.*	12 in. diam., with stands	8*s.* 0*d.*
7 " "	3 6	13 " "	10 0
8 " "	4 0	14 " "	12 6
9 " "	5 0	15 " "	17 0
10 " "	6 0	16 " "	22 0
11 " "	7 0		

Bee Glasses, Lactometers, Lord Camoys' Milk Syphons, Tiles and Slates, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, and every article in the trade.

HARTLEY'S PATENT ROUGH PLATE GLASS, for Conservatories, Public Buildings, Manufactories, Skylights, &c.

JAMES PHILLIPS AND CO., Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

Extract from *Gardeners' Chronicle*, April 21, 1854.

"The garden also supplied some Neapolitan Cabbage Lettuces, a portion of which had been grown under bell-glasses which differ from the French cloche in having a ventilator at the top in the shape of a neck or chimney, which can be left open or kept close as may be desired, by covering it over or not with another small bell glass, made for the purpose. **The result of this trial** has been very satisfactory."

GARDEN VASES, FOUNTAINS, ETC.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, begs respectfully to inform the nobility, gentry, and his patrons generally, that he has entered into arrangements with an eminent company in Scotland for the sole disposal in London of their highly ornamental and very durable Vases, Fountains, &c., samples of which may be seen at his grounds in the Garden Road, as above.

T. S. has much pleasure in being the first to introduce to the notice of the public a highly ornamental Vase, capable of resisting the most severe weather, and at little more than half the cost of any other possessing the same qualities; and he has no hesitation in stating that a more suitable Vase for the growth of plants cannot be manufactured.

NOTICE.—TO GENTLEMEN WISHING TO DECORATE THEIR GARDENS, TERRACES, OR GROUNDS.—A large and splendid Collection of FOUNTAINS, FIGURES, VASES, &c., selling at nearly half the usual price, at 74, Borough Road, near Blackman Street, Southwark. Packages forwarded to any part of the United Kingdom or Ireland.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Price Lists of Plant Tubs and Boxes forwarded on application.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES, consisting of MATTING, MATS, MATTRESSES, BRUSHES, NETTING, HORSE-HAIR, and BRISTLE SUBSTITUTE, are distinguished for superiority and excellency of workmanship, combined with moderate prices. Prize Medal both of England and America at the Exhibition of all Nations.

T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

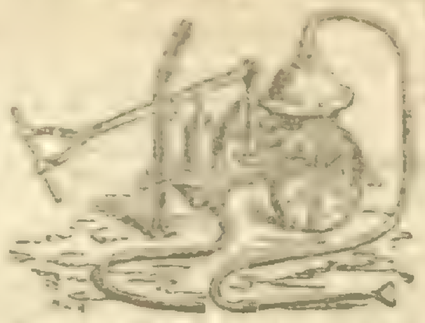
"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley, at the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Hartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, whenever it is applied, a true temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA TRUMAN, sole and sole manufacturer, 7, Trinity Lane, London Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom.

It is more durable than mats as a covering."

WEIR'S IRRIGATORS, LIQUID MANURE PUMPS, FIRE AND GARDEN ENGINES.



	£	s.	d.
Single Cylinder (as engraving) ...	8	8	0
Double Cylinder ...	10	10	0
Horse power size ...	16	16	0

Exclusive of Suction and Delivery Pipes.

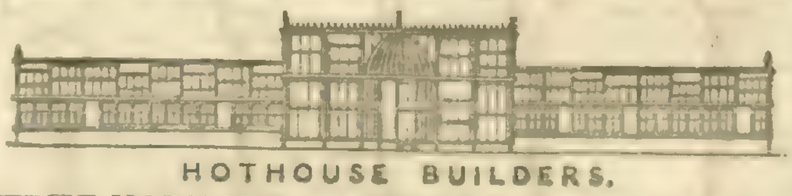
Illustrated Catalogues free, per post.

Terms Cash on Delivery.

EDWARD WEIR, Agricultural Engineer, 16, Bath Place, New Road, London, removed from Oxford Street.

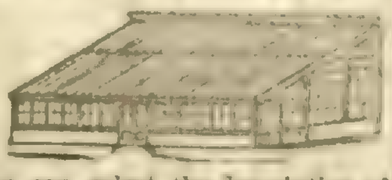
HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,



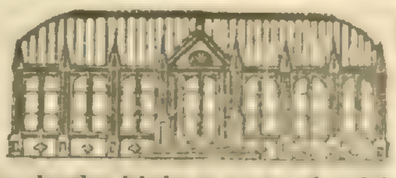
HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings, also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Colebrook Dale Garden Seats and Chairs.

Averuncators	**Gidney's Prussian Hoe**	**Pickaxes**
Axes	Grape Gatherers and Scissors	Potato Forks
Bagging Hooks	Gravel Rakes and Sieves	Pruning Bills
Bills	**Greenhouse Doors and Frames**	" Knives, various
Borders, various patterns	Hammers	" Saws
Botanical Boxes	**Hand-glass Frames**	" **Scissors**
Brown's Patent Fumigator	Hay Knives	" **Shears**
Cases of Pruning Instruments	**Horticultural Hammers and Hatchets**	Rakes in great variety
Daisy Rakes	Hoes of every pattern	**Reaping Hooks**
Dibbles	Hotbed Handles	Scythes
Dock Spuds	Ladies' Set of Tools	Scythe Stones
Draining Tools	Labels, various patterns, in Zinc, Porcelain, &c.	**Shears, various**
Edging Irons and Shears	Lines and Reels	Sickles
Flower Scissors	Marking Ink	Sickle Saws
" Stands in Wires and Iron	Mattocks	Spades and Shovels
Fumigators	Menographs	Spuds
Galvanic Borders and Plant Protectors	Metallic Wire	Switch Hooks
Garden Chairs and Seats	Milton Hatchets	Thistle Hooks
" Loops	Mole Traps	Transplanting Tools
" Rollers	Mowing Machines	Trowels
" Scrapers		Turfing Irons
		Wall Nails
		Watering pots
		Weed Hooks
		Wheelbarrows
		Youths' Set of Tools

DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.

DEANE, DRAY, & CO. (Opening to the Monument), London Bridge.

A RECEIPT FOR THE MILLION.

TO SET CAMELLIAS, with or without artificial heat, by a most simple means. Price 1*s.* 6*d.* by stamps.—Direct, post paid, to R. KEALE, Practical Gardener, 46, Wellington Street, Woolwich.

FARM WITH RESIDENCE.

WANTED TO RENT, upon an improving lease, an ARABLE FARM of not less than 500 acres, with house and garden suited to a gentleman's residence. The situation must be easily accessible from London, and near a first-class railway station south of the Thames will be preferred. The occupation will be very beneficial to the property: most satisfactory references both as to means and agricultural skill will be readily afforded.—Address, with full particulars, to Messrs. DAVIS & VIGERS, 3, Frederick's Place, Old Jewry, London.

CONNEMARA, IRELAND.

TO BE LET, for a term of years and entered upon the 1st of May next, the FARM OF SHANBOOLARD, in the parish of Ballinakill and county of Galway. It consists of about 264 statute acres of Arable, Pasture, and Bog Land, on which a considerable sum has already been spent in permanent improvements. The Farm would be let at a Corn Rent, and, if required, on a long Lease—the rent in proportion. The Farm is bounded on the north by Ballinakill Harbour, affording good sea-bathing; and on the south by Ballinakill Lough, noted for its Brown Trout, and commands extensive views of the Achill and Connemara Mountains. It is within eight English miles of the market-town of Clifden.—For particulars apply to Mr. EDWARD WHITWELL, Letterfrack, Galway.

HIGHLANDS OF PERTHSHIRE.

TO BE LET, CASTLE MENZIES and SHOOTINGS; the House, as furnished, affording ample accommodation for a numerous family and establishment, along with 10,000 acres of Muir and Low Ground Shootings. The stock of Game, which has been strictly protected and well preserved, will be found good, healthy, and of all the usual descriptions; and Salmon Fishing is to be had along the banks of the Tay and Lyon, which bound the property for six miles. The post passes the gate, and from Aberfeldy (two miles distant) coaches proceed in all directions. Supplies are easily procured. The climate is exceedingly good; and the place would be equally suitable as a permanent residence or as a shooting quarter.—Apply to ARCHIBALD CAMPBELL, Camserney Cottage, by Aberfeldy.

HOUSE AND SHOOTING—ISLAND OF MULL.

TO BE LET, CARSAIG HOUSE, beautifully situated on the South Coast of Mull. It contains three public rooms, seven bed-rooms, three dressing-closets, and a bath, ample accommodation for servants, and is well supplied with water. The tenant may have accommodation for two or three horses, and may have a pasture for two cows, or be supplied with dairy produce. There is a good Vegetable Garden. The Shooting extends over about 5000 acres, which have been very little shot over for many years. Other 4000 or 5000 acres adjacent may be obtained. The Game consists of grouse, black game, partridge, hare, and rabbits, and occasionally red deer. The Sea Fishing is excellent, and there are two small Trouting Streams on the Estate. There is a commodious Quay and Landing-place, and Steam-boats pass the house in the summer three times a-week.

TO SPORTSMEN, STOCK FARMERS, ETC.

TO BE SOLD, a range of nearly 6000 acres of easily-travelled GROUSING GROUND, not surpassed in the Lowlands of Scotland for its sporting qualifications, and watered by several small Trouting Streams, having also a comfortable Small Lodge, all situated in the midst of several strictly preserved estates, in one of the most southerly counties, and of easy access from England or elsewhere, from being within five miles of a seaport, as well as forming a very improving and easily-managed investment as a Stock Farm for a moderate capital. The proprietor is ready to treat for a Sale of the same.—Apply, free, to No. 639, N.B.A.O., Edinburgh.

TO BE SOLD CHEAP, by private sale, a GARDEN CHAIR, with back, and scroll elbows, 5 feet 6 inches long, 16 inches seat; a portable foot rest.—Apply to J. P., 2, Churton Place, Pimlico.

TO BE SOLD, BUFF COCHIN CHICKENS, from first class Prize Birds, Brahma Pootra Chickens, from imported American Prize Birds, and Spanish Chickens. Also some very good one-year-old Birds of the above descriptions. Wire, Game, and Poultry Netting, Poultry Hurdles, Hen-houses, Chicken Coops, Flower Stands, and Trainers, Garden Arches, and every kind of Wire Work, useful and ornamental.—T. M. FOX'S, City of London Wire Works, 44, Skinner Street, and 6 & 8, Snow Hill.

Illustrated Catalogues forwarded post free.

DORKING BLUE MOTTLED FOWLS' EGGS, 12*s.* per dozen. Took first Prize at Brighton Exhibition of three counties, 1854.—Address Mr. ED. HENDER, Beehive Inn, Dorking, Surrey.

EGGS FOR SETTING may be had from the Yard of Mr. H. D. Davies, whose stock has been carefully bred and selected from all the best strains, and has already taken upwards of 250 prizes.

Spanish, Dorking, Brahma, and Rangoon Eggs, 2*l.* 2*s.*, and White Cochin and Aylesbury Ducks, 1*l.* 11*s.* 6*d.*, the dozen, to include basket, &c.

Spanish and Dorking Fowls of all ages may be selected from that portion of the stock not required for breeding or exhibition this season.

For Cock and 1 Pullet	... ...	...	£5 5 0
For Cock and 2 Pullets	... ...	...	7 7 0
For Cock and 4 Pullets	... ...	...	10 10 0

Remittances, by Post-office Order, payable to GEORGE KEEBLE, the Bailiff, Spring Grove House, Hounslow, to accompany all orders.

Mr. Davies will feel obliged if persons who wish to see the Poultry will make it convenient to do so between the hours of 10 and 4 on any Wednesday or Saturday.

Sales by Auction.

ORCHIDS FROM INDIA.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 24th April, at 12 o'clock, an importation of 11 cases of ORCHIDS just received per Overland Route; they have arrived in the best possible state, and contain the finest parcel of Saccolabium retusum that has ever reached this country; also large masses of Dendrobium Devonianum, formosum, Cambridgeanum, clavatum, transparens, Falconerianum, and a new yellow species—Coelogyne Walliciana, a new Cymbidium, Vanda Jenkinsoniana, &c. &c.—May be viewed on the morning of sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

TO GENTLEMEN, FLORISTS, AND OTHER.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on FRIDAY, April 27th, at 12 o'clock, a first-class collection of CARNATIONS, PICOTEES, and PINKS, a fine assortment of AMERICAN PLANTS, choice HOLLYHOCKS from a celebrated grower, DAHLIAS in dry roots, PÆONIES, VERBENAS, FUCHSIAS, CAMELLIAS, AZALEA INDICA, GERANIUMS, &c.—On view the morning of Sale. Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

MR. J. WILLMER will sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY, April 26, at 12 o'clock, a choice collection of CARNATIONS, PICOTEES, PINKS, AURICULAS, ROSES, YELLOW PICOTEES, &c.—On view the morning of sale, and Catalogues at the Mart, and of the Auctioneer, Sunbury, Middlesex.

TO MARKET GARDENERS, FLORISTS, AND OTHERS.

MR. J. WILLMER is instructed by Mr. Thorp to Sell by Auction, on the premises, near the Railway Station, Feltham, on TUESDAY, April 24th, at 3 o'clock, 120 PIT LIGHTS and two GREENHOUSES, the whole quite new. On view till the time of sale, and Catalogues had on the premises, and of the Auctioneer, Sunbury, Middlesex.

IMPORTANT SALE OF HURDLES, GATES, CONSERVATORIES, HAND-GLASSES, IRON BUILDINGS, ETC.

TO BE SOLD BY AUCTION, on MONDAY, the 30th of April, on the premises of Boydell and Glasier, Camden Works, Hawley Crescent, near the Canal Bridge, Camden Town, London, about 200 Patent Twisted IRON HURDLES, 14 CONSERVATORIES, 200 Patent HAND-GLASSES, 30 IRON HOUSES, suitable for labourers' Cottages, out-buildings, &c. Arrangements will be made to erect the Conservatories and Houses within a given distance of London.—May be seen, and Catalogues had on the premises, one week prior to the sale.

SEEDS CARRIAGE FREE.

AGRICULTURAL SEEDS.—*Landed Proprietors and Farmers who require* LARGE QUANTITIES *of Turnip, Mangold Wurzel, Carrot, or any other kinds of Agricultural Seeds, will be supplied on the most liberal terms.*—Apply to

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

PRICES FOR THE MONTH OF APRIL.—*The prices quoted in* MESSRS. SUTTON'S *Advertisement of last week, page 237, will not be considered binding for articles ordered after the expiration of the present month.*

ITALIAN RYE-GRASS.—INSTRUCTIONS ON THE CULTIVATION of this useful plant are sent with all parcels of "Sutton's Improved Italian Rye-grass," and "Dickenson's Italian Rye-grass" Seed, supplied by Messrs. SUTTON, who will also be happy to forward a copy of the same to any of their friends on receipt of one penny stamp for postage.—Address,

SUTTON & SONS, Seed Growers, Reading, Berks.

SKIRVING'S IMPROVED TURNIP SEEDS.

W. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his TURNIP SEEDS for the season, as follows:—

SKIRVING'S IMPROVED SWEDE TURNIP, at 1*s.* 9*d.* per lb.

IMPROVED PURPLE-TOP YELLOW BULLOCK TURNIP, at 1*s.* 3*d.* per lb.

All other kinds of Turnip and Agricultural seeds in general, of the most select description, at moderate prices. A remittance, or reference from unknown correspondents, is respectfully requested to accompany orders. W. S. has no agent in town or country.

Liverpool, April, 1855.

SEED POTATOES.

ALSTONE KIDNEY.—*This is perfectly distinct from any other Potato. It is an astonishing cropper, and the tubers are of a large size. It keeps well, and is good flavoured, and is altogether an excellent and profitable variety. 2s. 6d. per peck, or 9s. per bushel.*

PRINCE OF WALES.—*This is an early round white Potato, which, for a general crop, can be highly recommended. It is a sort that gives the most complete satisfaction to every one who sows it. 2s. 6d. per peck, or 9s. per bushel.*

J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

ESTABLISHED IN THE EARLY PART OF THE 18TH CENTURY.

RHODODENDRON CAMPANULATUM (TRUE).

WILLIAM JACKSON AND CO., Bedale, Yorkshire, having a large stock of this most distinct and beautiful species, will supply fine bushy plants, perfect Shrubs on their own roots, 9 inches high, 40*s.* per 100, or 1*s.* 6*d.* each; 12 to 15 inches high, 60*s.* per 100, or 2*s.* 6*d.* each, during the present planting season: afterwards no more will be offered at the prices. Not a leaf is injured by the late severe winter.

BEDDING AND OTHER PLANTS.

F. AND A. SMITH'S Descriptive LIST of the undermentioned is now ready, and may be had, post free, on application:—Antirrhinums, Verbenas, Fuchsias, Scarlet Geraniums, Calceolarias, Petunias, Heliotropes, Pentstemons, Chrysanthemums, Mimulus, Salvias, Lobelias, &c. Climbers in variety, also a miscellaneous Collection of Greenhouse Plants. They have now in bloom Cytisus racemosus, Roses, Verbenas, Fuchsias, spotted Calceolarias, Erica Hybrida, Cactus, Geraniums, &c. The Trade supplied.—Dulwich, Surrey. April 21.

J. COLE begs to inform the admirers of Calceolarias that he is now prepared to supply a few more orders from his Choice Stock of Unblooomed SEEDLINGS; the seed was saved from the choicest spotted and striped varieties, carefully impregnated, at 3*s.* and 4*s.* per dozen, 20*s.* and 25*s.* per 100. Also strong plants of his Fine Bedding Calceolaria Prince of Orange, for habit and profusion of bloom unequalled. Strong Plants without pots, 6*s.* per dozen; well established, 9*s.* per dozen

The Trade liberally supplied. A Remittance solicited from unknown correspondents. Post-office Orders payable at St. Alban's.

Keyfield Nursery.

EUONYMUS; OR, THE "BURNING BUSH" OF NORTH AMERICA.—The advertiser has just returned from America, and brought with him a few Seeds of the above new and beautiful hardy ornamental small tree. It grows from 6 to 10 feet high, and of an uniform bushy, compact habit, quite unlike any of the varieties known in English gardens. For four months in the autumn it is densely studded with its beautiful scarlet seeds, which makes it an object of the most striking and admirable character, and hence the name "BURNING BUSH" has been given to it by the natives. The advertiser's knowledge of plants and their worth enables him to say that hundreds of trees have been sent out as being hardy and ornamental, whose claims to notice were far, very far inferior to those of the "BURNING BUSH." 50 perfect seeds will be forwarded post free, on the receipt of 50 postage stamps, addressed to A. B., 12, Great Pulteney Street, Golden Square.

N.B. Specimens of this charming plant will be shown at the next Monthly Meeting of the Horticultural Society, 21, Regent Street, London.

FARM SEEDS.

W. DRUMMOND AND SONS have implicit confidence in recommending the following Seeds:—

PERENNIAL RYE-GRASS, from the most select growths, and perfectly clean.

ITALIAN RYE-GRASS, direct from Lombardy, and through the same gentleman in that country who has for several years been employed by us in collecting those fine parcels which have hitherto given so much satisfaction to our customers.

GRASSES FOR PERMANENT PASTURE.—*Having been among the first to recommend the use of the* NATURAL GRASSES *in the formation of* PERMANENT PASTURE, *the subject has occupied a large share of our attention. We have carefully noted the species composing the best Natural Pastures, and the results of combinations in culture under varied circumstances of soil and situation; and, as the result of our observations, as well as from the great satisfaction our selections have given, we feel warranted in recommending, in addition to the Grasses usually sown, a variety of such species as are known, not only to yield the greatest bulk of herbage, but the largest amount of milking and feeding properties, varying those species, and the proportions of each, according to the nature of the land to be laid down.* From the increased demand, we are enabled to charge a lower price than formerly. An excellent assortment, and allowing a *liberal supply* of Seeds, may be had at from 24*s.* to 26*s.* per statute acre.

TURNIP, in all the leading varieties, saved by ourselves from full-formed Bulbs.

VETCHES (or TARES), large broad-leaved, a very superior sort.

Priced Lists of the above, with every other description of Farm Seeds, may be had post free on application.

FREE DELIVERY.—All Parcels of Seeds above 2*l.* value (with the exception of Grain and Vetches), delivered free in London, Liverpool, Hull, Newcastle, Belfast, Londonderry, Aberdeen, Inverness, and to all the Stations along the Lines of the Caledonian and North British Railways, &c.

W. DRUMMOND & SONS, Seed and Implement Warehouse, Stirling, N.B.

NEW AND RARE CONIFERÆ.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, Edinburgh and London, have still on hand a small quantity of the Seeds of the following RARE CONIFERÆ, &c.:

	£ s. d.		
Pinus Lambertiana, 50 Seeds	1 5 0	Taxus Lindleyana (quite new) 50 Seeds ...	2 2 0
P. tuberculata, entire cones	2 2 0	Club-headed Wheat (cultivated by the old Californians) 200 grains	1 0 0
P. monticola, 50 Seeds ...	2 2 0	Wheat (a variety of Triticum durum) do.	15 0
P. Jeffreyi do. ...	2 2 0		
P. Beardsleyi do. ...	2 2 0		
Libocedrus decurrens, do.	1 5 0		

Full descriptions will be found in the last page of the *Gardeners' Chronicle*, for Feb. 3.—Orders may be addressed to PETER LAWSON & SON, in Edinburgh; or to their London House, 27, Great George Street, Westminster.

CHARLES TURNER begs to intimate that his New SPRING CATALOGUE is now ready, and contains descriptive lists of—

Dahlias,	Carnations,	Scarlet and Horse-shoe Geraniums,
Fancy Dahlias,	Picotees,	Delphiniums,
Cinerarias,	Pinks,	Mimulus,
Verbenas,	Pansies,	Pentstemons,
Fuchsias,	Auriculas,	Petunias,
Hollyhocks,	Shrubby Calceolarias,	Bedding Plants, &c.,
Chrysanthemums,		

including several new Dahlias, new Verbenas, new White Bedding Calceolarias, &c., offered for the first time. Can be had on application.—Royal Nursery, Slough.

TO THE SEED TRADE.—TURNIP SEEDS, &c.

Skirving's or Liverpool Swede	Orange Globe Wurzel
Laing's	Broccoli, of sorts
White Globe Turnip	Fairbeard's Nonpareil Peas
Green	Cole's Crystal White Celery.
Red Tankard	

W. J. EPPS can with confidence offer the above (not large quantities), having been grown from the best selected stocks possible.—Prices sent on application.

Seed Establishment, High Street, Maidstone, April 21.

GRASS SEEDS FOR PERMANENT PASTURE, 24*s.* to 30*s.* per acre.

IMPORTED ITALIAN RYE-GRASS, 6*s.* per bushel.

PACEY'S PERENNIAL RYE-GRASS, 4*s.* 6*d.* to 5*s.* 6*d.* per bushel.

LAWN GRASS SEED, 1*s.* per lb.

TRUE PERENNIAL RED CLOVER, OR COW GRASS, 10*d.* per lb.—Delivered carriage free.

J. C. WHEELER & SON, Seed Growers, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the 18th century.

SUPERB SHOW CARNATIONS, PICOTEES, PINKS, PANSIES, ETC.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now sending out choice selections of the above, in strong well-rooted plants, package, &c., included.

25 pairs of Show CARNATIONS in 25 different vars.		£1 0 0
25 pairs of PICOTEES	do.	do. ... 1 0 0
25 pairs of PINKS	do.	do. ... 0 10 0
25 fine show PANSIES, in 25 distinct varieties		... 0 12 0

AURICULAS, ALPINES, POLYANTHUSES, &c. Extra fine selected PANSY SEED, 1*s.* and 2*s.* per packet. Priced and Descriptive Catalogues are now ready, and may be had for one postage stamp. Post office orders to be made payable at Middleton, Lancashire.

The FLUKE KIDNEY POTATO, TRUE, 5*s.* per bushel of 56 lbs.

SUPPLEMENT TO MAY'S CATALOGUE OF HARDY HERBACEOUS PLANTS to be had free by post on application at the Nursery. The Catalogue and Supplement contain the most rare and beautiful varieties of this interesting class of Plants, amounting to upwards of 2000 sorts:—

100 fine Herbaceous and Alpine Plants, named ...	£1 10 0
100 do. do. do., Purchasers' selection...	2 10 0
100 fine Double Hollyhocks	1 10 0
12 fine named Calceolarias, new	0 12 0
12 fine do. Shrubby do. do., including "Masterpiece," "Surprise," and "Superba"... ...	0 12 0
12 fine Ericas, named	0 12 0
12 do. Epacris do.	0 12 0
12 do. Cinerarias, do., including "Lord Stamford"	0 12 0

N.B.—A fine collection of Shrubs and Hardy Trees, also Greenhouse Plants, &c. &c. See Catalogue.—Address, HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

ROBERT PARKER begs to inform his friends and the public that his New Spring Catalogue containing Descriptive and Priced Lists of the following:—

Exotic Orchids	Roses in pots [varieties
Ferns—stove, greenhouse, and hardy	Dahlias — show and fancy
Geraniums—show, fancy, scarlet, variegated, and hybrid bedding varieties	Fuchsias
Chrysanthemums—large flowered, and Pompone varieties	Selaginillas or Lycopodiums
Petunias	Gloxinias
Antirrhinums	Cinerarias
	Calceolarias—bedding varieties
	Verbenas
	Miscellaneous bedding plants &c., &c.

Is now ready and can be had Post-free on application.

Paradise Nursery, Hornsey Road, Holloway, London.

GREAT NOVELTIES FOR THE ENSUING SEASON.

FUCHSIAS WITH WHITE COROLLAS.

LUCOMBE, PINCE, AND Co. beg leave to announce that they shall be prepared to send out two splendid and entirely novel Seedling Fuchsias, early in May next, viz.:—

FLORENCE NIGHTINGALE.

Pure white corolla, with brilliant scarlet sepals, finely reflexed; an extremely lovely and novel variety.

GALANTHIFLORA-PLENA.

(The DOUBLE Snowdrop Corolla'd Fuchsia.)

Pure double white corolla, resembling a fine large double Snowdrop, with rich scarlet sepals; altogether distinct from anything of the kind ever yet produced. Price 10*s.* 6*d.* each.

Together with a very beautiful new double Purple variety,

VIOLÆFLORA-PLENA,

Rich double blue corolla, resembling a fine double violet, 7*s.* 6*d.* each.

L., P., & Co. have also fine plants of the following choice kinds of Fuchsias at 18*s.* to 42*s.* per dozen.:—

Aspasia	Glory	Purple Perfection
Apollo	Lucretia	Sir Harry Smith
Brilliant	Orion	Sidonia
Duchess of Lancaster	Prime Minister	Sir Jno. Falstaff
Duke of Wellington	Princess	Telegraph
Dominiana	Kossuth	Resplendent.

They are also now prepared to send out their beautiful new

VERONICA KERMESINA,

Raised by that eminent horticulturist J. Luscombe, Esq., of Coombe Royal, who sent specimens to Dr. Lindley, at the time of its first flowering, who thus pronounces his first opinion of it:—"The variety sent with this was charming, a decided rose colour having mingled with the violet." See also notice of Dr. Lindley in the *Chronicle* for Dec. 2, 1854, as follows:—"L., P., & Co. Your V. Kermesina is a handsome dark variety of V. speciosa; its beautiful large spikes of deep purplish crimson blossoms cannot fail to make it a favourite." Price 7*s.* 6*d.* each. A few extra-sized specimens may be had.

The usual discount to the Trade when three or more are taken.

Exeter Nursery, Exeter.—ESTABLISHED IN 1720.

NEW AZALEA—"ALBA MELIOR."

THIS is the one exhibited by us under the name of "ALBA MAGNA" among our collection to which the First Prize was awarded at the Regent's Park Show; very large pure white, and quite first-rate. Price 7*s.* 6*d.*, 10*s.* 6*d.* & 21*s.* Also a superior stock of Azaleas, for which see Catalogue.

The Spring Catalogue, consisting of Greenhouse and Stove Plants, and the Herbaceous one can be had by enclosing a postage stamp.

H. LANE & SON, The Nurseries, Great Berkhamsted.

CHOICE GERANIUMS.

WILLIAM HUSSEY begs to offer the undernamed collection for 30*s.*, fine healthy plants, package included, viz.:—Alonzo, Ariadne, Belle of the Village, Beauty, Colonel of the Buffs, Conspicuum, Christine, Constance, Cora, Chloe, Diana, Elise, Enchantress, Eurydice, Ganymede, Generalissimo, Gulielma, Lavinia, Lord Mayor, Little Nell, Magnificent, Magnet, Major Domo, May Queen, Mechanna, Nonpareil, Nectar Cup, Narcissus, Ocellatum, Optimum, Old Story, Prince of Orange, Prince Arthur, Pearl, Pulchra, Rosa, Rubens, Roweana, Rosamond, Rachael, Silk Mercer, Virgin Queen.

A remittance or reference to accompany all orders from unknown correspondents.—Horticultural Gardens, Norwich.

PHLOX BEAUTY OF MILRIG.

DREGHORN AND AITKIN, NURSERY and SEEDSMEN, Kilmarnock, N.B., beg to acquaint the Public that they have still a small stock of the above PHLOX, which is considered by all good judges who have seen it in flower to be the best white Phlox in cultivation, both as to size and form of flower. Price 2*s.* 6*d.* each, with one added to every three ordered by the Trade.

D. & A. beg to acknowledge thankfully the large share of patronage they have received for this flower.

Kilmarnock, April 21.

CHEAP NEW FUCHSIAS AND VERBENAS.

JOHN HOADE, Addlestone, near Chertsey, offers the following:—Autocrat, Clio, Charles Palmer, Cyrus, Hero, Duchess of Lancaster, Duke of Wellington, Lucretia, Glory, King Charming, Macbeth, Nil Desperandum, Orion, Omega, Perfection (Standish's), Queen of Hanover, Vesuvius. Post free 8*s.* the dozen; single plants, 1*s.*

VERBENAS.—Avalanche, Fair Rosamond, Iver Rival, Incomparable, King of Scarlets, Hon. Mrs. Gerard Leigh, Prince of Wales, Prince of Orange, Queen of Purples, Rouge et Noir, Sarah, Standard. Post free at 5*s.* per dozen; older sorts, 3*s.* per dozen.

SPRING FLOWERS.—CINERARIAS, good flowering Seedling Plants, 4*s.* to 6*s.* per doz.; fine named varieties, 6*s.* to 9*s.*

HYACINTHS in pots, various colours, just showing flower, 4*s.* per doz.; also a few very fine named flowers, many of which are catalogued at 1*s.* to 1*s.* 6*d.* each, in the same state as the above, 9*s.* per doz.

FINE HERBACEOUS CALCEOLARIAS, from Mason's seed, in large and small 60 pots, 4*s.* to 6*s.* per doz.

WOOD and INGRAM, Nurseries, Huntingdon.

ORCHIDS.

WILLIAM MAULE AND SONS have received their annual importations of ORCHIDS from their collectors in the East, which they beg to offer on the following terms, many of which are one and two years established:—Vanda teres, 1*s.* 6*d.*; Vanda cærulea, 21*s.*, 42*s.*, 63*s.*, 105*s.*; Vanda teres, 1*s.* 6*d.*; Aerides odoratum, 10*s.* 6*d.*; Aerides affine, 42*s.*; Foxbrush, 10*s.* 6*d.*; Dendrobium Devonianum, 10*s.* 6*d.*; Cambridgeanum, 10*s.* 6*d.*; Gibsoni, 10*s.* 6*d.*; densiflorum, 10*s.* 6*d.*; Farmeri, 10*s.* 6*d.*; Pierardi, chrysanthum major, 7*s.* 6*d.*; nobile, mixed with Wallichianum, 7*s.* 6*d.*; Pierardi, mixed with latifolia, 7*s.* 6*d.*; clavatum, 15*s.*; moschatum, 10*s.* 6*d.*; Camarotus purpurea, 10*s.* 6*d.*; Cœlogyne cristata, or Pleome, Wallichi and maculata, in pots, with four or five plants or bulbs, 10*s.* 6*d.* each; Saccolabium ampullaceum (very scarce), small plants, 63*s.* each.—The Nurseries, Bristol.

MR. J. LINDEN, of Brussels, has much pleasure in announcing that his CATALOGUE of NEW and RARE EXOTIC PLANTS is now ready, and may be had on application to his Agents, Messrs. BETHAM and BLACKITH, Cox and Raymond's Quays, Lower Thames Street, London, and at the Office of this Paper.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of them are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and repeated orders from those we had the honour of serving last year. In as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

QUEEN'S GRAPERIES AND NURSERY GROUND.

PARK STREET, AND AT 176, WESTERN ROAD, BRIXTON.

ESPARY, NURSERYMAN, FLORIST, and SEEDSMAN, begs respectfully to return thanks to his numerous patrons and friends for the increasing patronage received, and would direct attention to his extensive collection of Plants, Vines, Seeds, &c., &c., at the above establishments. His new Catalogue of select Dahlias, Plants, &c., for 1855 is now ready and can be had on application.

LANDSCAPE GARDENING, GARDEN ARCHITECTURE AND GENERAL IMPROVEMENT OF DOMAINS, WOODS, PLANTATIONS, ETC.

CHARLES M'INTOSH, F.R.P.S., A.L.S., &c. Author of the "Book of the Garden," and other works on Horticulture, &c., late Curator of the Gardens of his Majesty the King of the Belgians at Claremont and Brussels, and latterly to those of his Grace the Duke of Buccleuch at Dalkeith Palace, begs to inform the nobility, and the proprietors of estates generally, that, in consequence of the numerous applications he has been honoured with for Plans and superintendence of all kinds of Garden Erections, Laying-out Grounds, the Management of Woods and Plantations, and other matters connected with Rural Economy, he has made arrangements which will enable him to dedicate his whole time and attention to these objects.

The practical experience of upwards of 40 years, both in Great Britain and on the Continent, and in a field of operation he believes more extensive and varied than has fallen to the lot of most individuals in his profession, will, he hopes, be sufficient guarantee to those who may honour him with their commands that they will be executed efficiently.

C. M. would particularly direct the attention of the public to his new and important improvements in Hothouse and Conservatory Building, which he flatters himself will in all cases secure economy, elegance, and fitness for the purpose, and of which examples can be referred to.

Address, Lugton, Dalkeith, N.B. After 1st of May, address Newcome Villa, Murryfield, Edinburgh.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. 37, Lower Street, in the Parish of St. Margaret and St. John, Westminster, in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published at the Office, No. 5, Charles Street, in the Parish of St. Paul, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, April 21, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 17.—1855.] SATURDAY, APRIL 28. [PRICE 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The FIRST SUMMER MEETING will take place at the Society's House, 21, Regent Street, on TUESDAY, May 8, from 12 to 5 P.M.

HORTICULTURAL SOCIETY OF LONDON.—GARDEN EXHIBITIONS.

The last day on which Privileged Tickets can be obtained at 21, Regent Street, upon the orders of Fellows, at 3*s*. 6*d*. each, is [illegible] Inst.

The FIRST EXHIBITION of the Season will take place, by permission of her Majesty's Commissioners for the Great Exhibition of 1851, in the GROUNDS of GORE HOUSE, on WEDNESDAY, May 16.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The EXHIBITIONS of PLANTS, FLOWERS, and FRUIT this season will take place on WEDNESDAYS, May 9, June 13, and July 4, and of AMERICAN PLANTS, MONDAY, June 18.

Tickets of admission may be obtained at the Gardens only, by gift from Fellows or Members of the Society—price on or before May 5th, 4*s*.; after that day 5*s*. each.

CRYSTAL PALACE.—HORTICULTURAL FETE.—It is intended to hold a grand Horticultural Exhibition at the Palace on SATURDAY, the 2d of June next. The Rules and Schedules of Prizes are now ready, and can be obtained on application to the Secretary.

April 28. (By Order.) G. GROVE, Secretary.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.—In the Advertisement of this Society, in the last Number of this Journal, for THURSDAY, May 2d, read WEDNESDAY, May the 2d.

CHICHESTER HORTICULTURAL SOCIETY.—The Summer Exhibition will take place on THURSDAY, June 21st, in the Gardens of the Episcopal Palace. Schedules may be had by application to the Secretary,

H. SILVERLOCK, Jun.

COUNTY OF GLOUCESTER AND CHELTENHAM ROYAL HORTICULTURAL SOCIETY.—The First Exhibition of the season will take place on WEDNESDAY, May 2d, at the Royal Old Wells, Cheltenham.

HENRY J. COCHRANE, Secretary.

11, Colonnade, Cheltenham.

GREAT NATIONAL EXHIBITION OF FLORAL AND HORTICULTURAL PRODUCE.

THE CUMBERLAND FLORAL AND HORTICULTURAL SOCIETY OF CARLISLE will hold a GREAT EXHIBITION of FLOWERS, FRUITS, VEGETABLES, &c., in spacious marquees and tents (engaged for the purpose), on the 24th, 25th, and 26th of July (open to the United Kingdom), adjoining to, and during the week of the Royal Agricultural Society's Exhibition, when 200*l*. will be awarded in Prizes.

Schedules of Prizes and every information may be obtained by applying to the Secretary, either personally or by letter. By order of the Council, JOHN PATTERSON, Secretary.

42, English Street, Carlisle.

WILLIAM MASTERS AND SON, LANDSCAPE GARDENERS, Exotic Nursery, Canterbury.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

ROGERS'S AGRICULTURAL CULINARY AND FLOWER SEED DEPOT, GARDENERS' REGISTRY OFFICE, &c., &c., Clock House, Chelsea.—All the new Flower Seeds and everything rare and good supplied at reasonable prices.

BEDDING PLANTS.

JOHN HAYES, FLORIST, Farnham, Surrey, begs to offer the above from 1*s*. to 4*s*., per doz., the latter end of May, when the weather will permit. Catalogues sent on the receipt of the postage stamp.

BEDDING PLANTS.

WOOD AND INGRAM are prepared to send out the following, in fair proportions of each, strong and WELL established Plants of the best standard varieties, at 3*s*. per dozen, package included:—

Verbenas	Senecio	Cineraria amelloides
Pelargoniums	Nierembergia	Scarlet Geraniums
Ageratums	Chrysanthemum porto luteo	Salvias, &c. &c.

W. & I.'s Spring Catalogue is now ready, and may be had on application.—Nurseries, Huntingdon.

SPECIAL CONTRACTS.

SUTTON AND SONS are prepared to make Contracts on very liberal terms to Farmers or others requiring Seeds in considerable quantities.

THE PERENNIAL WHITE CLOVER.—This Clover is included in all Messrs. Sutton's mixtures for Permanent Pasture, and is very superior to the common White Clover; it may be purchased separately, price 1*s*. 6*d*. per pound.

Address—SUTTON & SONS, Seed Growers, Reading.

ALSIKE CLOVER TRIFOLIUM HYBRIDUM.

SUTTON AND SONS have some pure genuine Seed of this superior new CLOVER, which will be found an invaluable Perennial Plant.

MANGOLD WURZEL SEED.

PURCHASERS OF LARGE QUANTITIES will be treated liberally.—For prices apply (stating the quantity required) to SUTTON & SONS, Seed Growers, Reading.

SUTTON'S LARGE YELLOW GLOBE MANGOLD WURZEL, FROM SELECTED ROOTS, QUITE HARDY.—Seed of this fine large Mangold Wurzel may be obtained genuine of Messrs. SUTTON, price 1*s*. per lb., or 5*l*. per cwt.; other sorts cheaper. Early orders are requested and recommended, as the stock is limited.—Address,

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

SPECIAL CONTRACTS FOR SEEDS.—*Noblemen, Clergymen, or Yeomen requiring large quantities, special contracts will be made, at a great reduction in price, on application to*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

CLOVER SEEDS.

GENUINE NEW CLOVER SEEDS *can be had at the lowest market prices of* JOHN SUTTON & SONS, SEED GROWERS, READING, BERKS.

MORTON'S YELLOW GLOBE MANGOLD.—*From Seed grown from the original stock of J. C. Morton, Esq., the Editor of the* AGRICULTURAL GAZETTE. 1*s*. 6*d*. *per lb.*

WILLIAM E. RENDLE & Co., SEED MERCHANTS, Plymouth.

WHITE BELGIAN CARROT, 2*s*. *per lb., or much cheaper by the cwt.*

WILLIAM E. RENDLE & Co., SEED MERCHANTS, Plymouth.

TRUE GUERNSEY PARSNIP.—*This is a large and superior sort, and can be strongly recommended. The Subscribers have just imported a choice lot of Seed from Guernsey, and can supply it at 2s. per lb.*

WILLIAM E. RENDLE & Co., SEED MERCHANTS, Plymouth.

BOSSOM'S CHAMPION OF ENGLAND CELERY.

THE finest Celery yet introduced, beautifully white, very crisp and solid, and withstands a greater amount of frost than any other known variety; it has been blanched in the ground 3 feet.—To be obtained of T. F. WINSTANLEY, Seedsman, 28, Market Place, Manchester, price 2*s*. 6*d*. per packet; prices to the trade on application.

MAY'S MAGNUM BONUM LETTUCE is by far the largest, sweetest, and crispest Lettuce known, in proof of which we possess numerous letters received from parties who had it last season. The addresses of the writers can be had on application. Only a few packets remaining at 1*s*. each.—HENRY MAY, the Hope Nurseries, near Bedale, Yorkshire.

DWARF FRENCH BEANS can be had in any quantity.—Apply to J. G. WAITE, Seed Merchant, 181, High Holborn, London.

ORANGE TREES.—A large number of different sizes—amongst them are perhaps the finest young specimens ever offered for sale in this country. The larger sizes are particularly well shaped, with fine stems, and in perfect health, and are well adapted for producing immediate effect in conservatories.

Height of stem, 1½ feet; diameter of head, 1½ feet.
" " 2 " " " 1½ "
" " 3 " " " 2 "
" " 4 " " " 2½ "

Prices vary from 7*s*. 6*d*. to 105*s*. each.

HUGH LOW & Co., Clapton Nursery, London.

500,000 FLAT-POLE OR DRUM-HEAD CABBAGE PLANTS.

THOMAS MOORE, NURSERY AND SEEDSMAN, Fore Street, Kingsbridge, Devon, begs to call attention to his large Stock of CABBAGE PLANTS, which will be ready in May and June. They are a superior late sort, and raised from seed of his own saving.

SEED POTATOES.

WOOD AND INGRAM, NURSERIES, Huntingdon, having a few more than they want for their own planting, offer the following varieties at the prices annexed for cash.

	Per bushel.		Per bushel.
Mitchell's Albion ...	5*s*. 0*d*.	Lapstone Kidney ...	5*s*. 0*d*.
Forty Fold	5 0	Chapman's ditto ...	5 0
Allen's Early Kidney, extra early	6 0	Martin's Globe ...	5 0
Jackson's Improved do.	6 0	British Queen, extra ...	6 0

THE FLUKE KIDNEY POTATO.—This excellent variety is now planted here as the principal crop, being more free from disease and more prolific than any other in cultivation. It was raised in Middleton, and may be had genuine in any quantity at 5*s*. per bushel of 56 lbs.—Apply to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

Post-office Orders to be made payable at Middleton, Lancashire.

THE LANCASHIRE FLUKE POTATO.—Fine medium-sized SEED of this celebrated variety, warranted true, to be disposed of, at 5*s*. per bushel of 60 lbs., bags included. A reduction will be made when a quantity is ordered.

Post-office orders to be made payable to ROBERT DAVENPORT, Gardener and Seedsman, Union Street, Bury, Lancashire.

SEEDS FOR THE FARM, CARRIAGE FREE.—SEE RENDLE'S "FARMING PRICE CURRENT AND AGRICULTURAL DIRECTORY."

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

GRASS SEEDS.

J. C. WHEELER AND SON'S DESCRIPTIVE PRICED LIST OF GRASSES FOR PERMANENT PASTURE will be forwarded free by post on application.

J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

A GENERAL CATALOGUE OF PLANTS, TREES, AND SHRUBS offered for sale by HUGH LOW & Co., Clapton Nursery, London, is now ready to be sent free by post to any person applying for the same.

PELARGONIUMS, ETC.

HENRY GROOM, Clapham Rise, near London, by Appointment FLORIST TO HER MAJESTY, begs to say that his Spring CATALOGUE OF PELARGONIUMS, &c., is ready, and will be forwarded on application.

T. F. WINSTANLEY'S BEDDING PLANT LIST is now ready, and can be had on application, or free by post.—28, Market Place, Manchester.

NEW AND RARE PLANTS.

MESSRS. VEITCH AND SON respectfully announce that their DESCRIPTIVE LIST OF NOVELTIES for this season is now ready for distribution, and will be forwarded on application.—Nurseries, Exeter and Chelsea, April 28.

PINUS BENTHAMIANA—(TRUE).

MESSRS. VEITCH AND SON having succeeded in raising from Seed a number of this beautiful Pine, which is, doubtless, the finest of the long-leaved Californian kinds, and has proved to be perfectly hardy, are now enabled to offer good established plants on the following terms:—A single plant, 10*s*. 6*d*.; six plants, 50*s*.; twelve plants, 84*s*. Prices to the trade in proportion to the quantity taken, given on application.

Exotic Nurseries, Chelsea and Exeter.—April 28.

NEW ROSES.

H. LANE AND SON, The Nurseries, Great Berkhamsted, beg to inform their Patrons and Customers in general that they possess all the NEW ROSES of the Season, but cannot confidently recommend them until they have bloomed in the autumn. The Rose Catalogue may be had on application.

CHEAP DAHLIAS AND VERBENAS.

H. LEGGE is sending out all the leading Sorts of last Season, 9*s*. to 12*s*. per dozen; Older Varieties, 3*s*. to 4*s*. do. Catalogues can be had on application.

Marsh Side, Edmonton.

OSAGE ORANGE (MACLURA AURANTIACA).

CHARLWOOD AND CUMMINS can supply SEED of the above-named Hedge Plant at 6*s*. per lb., with full directions for treatment. The month of May is the best time for sowing.—14, Tavistock Row, Covent Garden, London.

RHODODENDRON CAMPANULATUM (TRUE).

WILLIAM JACKSON AND CO., Bedale, Yorkshire, having a large stock of this most distinct and beautiful species, will supply fine bushy plants, perfect Shrubs on their own roots, 9 inches high, 40*s*. per 100, or 1*s*. 6*d*. each; 12 to 15 inches high, 60*s*. per 100, or 2*s*. 6*d*. each, during the present planting season; afterwards no more will be offered at the prices. Not a leaf is injured by the late severe winter.

CHOICE PANSIES.

HART AND NICKLIN, FLORISTS, &c., Guildford, offer the following, the set for 12*s*.: Beadle'a, Elegantissima, France Cycole, Sir J. Paxton, Constance, National, Criterion, Alfred the Great, Caroline, Sylvia, Sultan, Marchioness of Bath, Eva, Ophir, Mr. Beck, Duke of Perth, British Queen, Euphemia, Adela, Blanche, Royal Purple, Pompey, Lady Carrington, and Lord Jeffrey.—Choice varieties, 4*s*. per dozen.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks, at 5*s*.; 12 varieties, 2*s*. 6*d*.; and from good double sorts, 1*s*.

Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s*. per packet; separate, 2*s*. Fine Quilled African Marigolds, 6*d*. per packet.—Saffron Walden Nurseries.

BANKS' SEEDLING FUCHSIAS.—1855.

(FOR FULL DESCRIPTION SEE FORMER ADVERTISEMENTS, AND ON APPLICATION).

W. J. EPPS has much pleasure in stating that the above Fuchsias have been proved to be the finest that have been raised by that celebrated grower E. Banks, Esq., Deal. Early orders are solicited. The set of six, 2*l*. 2*s*. The usual discount to the trade.—Bower Nurseries, Maidstone.

NEW SCARLET VERBENA—MRS. WOODROFFE.

ARTHUR HENDERSON AND CO. are now sending out this fine new VERBENA; particulars of which may be seen in their advertisement in the *Gardeners' Chronicle* of March 31. The usual discount to the Trade.

☞ This Verbena is the same as "Conqueror," one offered by another firm.—Pine-apple Place, Edgware Road, London.

LUCOMBE, PINCE AND CO. beg respectfully to announce that they will be prepared to commence sending out their new White Corolla'd Fuchsias Florence Nightingale and Galanthiflora-plena; also their new Double Purple variety Violaeflora-plena, on MONDAY, the 14th May next, when all orders intrusted to their care will receive their best attention.

Exeter Nursery, Exeter.—Established 1729.

BRITISH FERNS.—Good plants of British Ferns including some of the rarer sorts can be supplied, on moderate terms, on application to Mr. SMITH, Post Office, Matlock, Bath.

IPOMŒA RUBRO CŒRULEA.—Seed of this exceedingly beautiful Climbing Annual being now obtainable at a moderate price, all cultivators of flowers having a greenhouse or wall with warm aspect are advised to include it in their spring selection.—Seed supplied to Seedsmen and Nurserymen only, by GEORGE ROBERTS, 32, Moorgate Street, London.

AGRICULTURAL SEEDS, MEADOW & PASTURE GRASSES, &c.

PETER LAWSON AND SON, of Edinburgh and London, the Queen's Seedsmen, Nurserymen, and Wood Foresters; and to the Highland and Agricultural Society of Scotland, beg to intimate to their English Customers and the Public that they are now sending out FARM SEEDS of every description, saved from genuine stocks, and for which they respectfully solicit orders.

Also Garden Seeds, Flower Seeds, Garden Implements, Draining Tools, and everything connected with their trade. Catalogues will be sent on application.

London Branch, 27, Great George Street, Westminster.

P. L. & S. are always able to recommend experienced Bailiffs, Gardeners, and Foresters.

SUTTON'S LAWN GRASS SEEDS,

At the Crystal Palace, Sydenham.

SUTTON AND SONS *have had the honour of supplying to the Crystal Palace Company the Grass Seeds by which so many acres of Arable Land have been converted into the beautiful Park and Lawns, now so much admired at Sydenham.*

The following letter has been received, besides many others:—

From Professor Lindley, Horticultural Society, 21, Regent Street, London.—"We have already made trial of your Lawn Grass Seeds, and it is only justice to say that they have proved the best we have sown for many years."

Price 1*s.* per lb.; 2*s.* 6*d.* per gallon; or 20*s.* per bushel. Quantity required for forming new Garden Lawns, 2½ bushels, or 50 lbs.

Address John Sutton & Sons, Seed Growers, Reading, Berks.

EVERGREEN GRASSES FOR CHURCHYARDS, ETC.

SUTTON AND SONS have had the honour of supplying many clergymen and others with Grass Seeds for Churchyards and Cemeteries, which have given great satisfaction. Price of Seed, 1*s.* per lb., or 18*s.* per bushel.

From many similar letters we present the following:—

From Mr. C. Judd, Gardener to his Grace the Archbishop of Canterbury.

"The Grass Seeds received from you succeeded admirably, and, although sown late, the growth was such that we were enabled to mow the churchyard in the autumn, and it has now the appearance of an established lawn of some years standing; my employer, the Archbishop of Canterbury, is quite satisfied with its appearance.—Addington Park, Jan. 7."

Address, John Sutton & Sons, Seed Growers, Reading, Berks.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS FOR IMPROVING OLD PASTURES.—Many old upland pastures, parks, and meadows are nearly destitute of Clovers, and the finer and more nutritious sorts of Grasses: in which case these seeds should be sown early in the season, when the improvement in the pasture will be very great, and at a small expense.

The following is similar to many other letters received from former purchasers, showing the benefit derived from sowing these seeds.

From Sir David Cunyngham, Bart., Wellesbourne, Warwick.

"*The meadows that were renovated with your seeds are looking very well. I cut nearly two tons of hay to the acre, and three years ago the same land hardly produced half a ton per acre.*"

Quantity of seed required, 8 to 12 lb. per acre. Price, 9*d.* per pound, carriage free.

Address John Sutton & Sons, Seed Growers, Reading, Berks.

THE PAMPAS GRASS "GYNERIUM ARGENTEUM."

LUCOMBE, PINCE, AND CO. have a fine healthy stock of this highly Ornamental Plant, well established in pots, and fit to send out immediately. It is universally admitted that few plants produce a more beautiful effect than this gigantic Grass. See Woodcut and description of it in the *Gardeners' Chronicle* of November 4th, 1854. Sizes, prices, and all particulars may be had on application to Lucombe, Pince, & Co., Exeter Nursery, Exeter.—Established 1720.

GRASS SEEDS FOR PERMANENT PASTURE,

24*s.* to 30*s.* per acre.

IMPORTED ITALIAN RYE-GRASS.
PACEY'S PERENNIAL RYE-GRASS.
LAWN GRASS SEED, 1*s.* per lb.
TRUE PERENNIAL RED CLOVER, or COW GRASS, 10*d.* per lb.—Delivered carriage free.

J. C. Wheeler & Son, Seed Growers, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the 18th century.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their Mixtures of Grass Seeds are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s.* per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre.
Mixtures for improving and renovating old Grass Land, 1*s.* per lb.
Mixtures (finest sorts) for forming Lawns... ... 1*s.* 3*d.* per lb.

These Seeds are all new, and have all been properly cleaned and their growing properties fully tested. Directions for sowing accompany the seed.

G. G. and Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., Seedsmen,
26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS.

THOMAS GIBBS AND CO., the Seedsmen to the Royal Agricultural Society of England, beg to inform their friends and agriculturists generally that they are now prepared to supply the undermentioned in any quantities required.

Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow; Irrigation or Water Meadow Mixtures; Upland Sheep Walk Mixtures; Park and Field Lawn Mixtures; Renovating Mixtures for old Swards; Garden, Lawn, or Grass-plot Mixtures; various Permanent Grass Seeds supplied separately to order; Mixtures for one year's lay, do. for two or three years' lay (commonly called "seeds").

CLOVERS.—Red or broad leaved, white or Dutch, Red Suckling, Alsike or Hybrid, Trefoil, Cow Grass or Perennial.
RYE-GRASSES.—Italian (very fine), Annual, improved Perennial, and other kinds.
CARROTS.—Large White Belgian, large field Altringham, Yellow Belgian, long Orange or Surrey.
PARSNIPS.—Gibbs' large Guernsey Cattle, common large.
MANGOLD WURZELS.—Long Red, Orange or Yellow Globe, Red Globe, long Yellow.
CABBAGES.—Large Drumhead Cattle, Thousand headed.
TURNIPS.—Purple-top Swedes, Green-top Swedes, Skirving's Swedes, Green-top Yellow Hybrid, Red-top Yellow Hybrid, Globes or Rounds, Tankard's sorts, Kohl Rabi.
Lucerne, Broom, Furze or Gorse, Field Parsley, Rape, Seed Barley sorts, Wheat sorts, Rye, Sainfoin, Tares, White Mustard, White Silesian Beet, Peas, Potatoes, and all other seeds for the farm.

KITCHEN GARDEN AND FLOWER SEEDS, including all the new and most improved varieties. Assortments made up to suit different sized gardens, or to any given amount.

Priced Lists of Agricultural and Garden Seeds sent free by post on application to Thomas Gibbs & Co., Corner of Half-Moon Street, Piccadilly, London.

THE FORWARDEST TURNIP KNOWN.

SUTTON'S EARLY SIX WEEKS' TURNIP should now be sown for feeding off early. Excellent new seed 1*s.* 2*d.* per lb., 6*s.* per gallon, or 42*s.* per bushel. Mr T. Hickman, of Brimpton House, near Newbury, in a letter dated February 1, says:—

"*I must mention the Six Weeks' Turnip as the best sort I have ever seen for earliest and latest sowings. I have grown them several years, and have invariably found them to produce more seed in less time than any other Turnip. I have had them after Wheat of a good size, within six weeks from the time of sowing.*"

N.B. Carriage free, except parcels under 20*s.* value.

Address, J. Sutton & Sons, Seed Growers, Reading, Berks.

NEW EARLY SWEDE.

THE YELLOW TANKARD SWEDISH TURNIP is valuable for early sowing instead of the common White Tankard, the root being equal in quality to the best Yellow Swede, although the leaf is similar to a common Turnip. It is of rapid growth, consequently adapted for the earliest and latest sowings. Price 2*s.* per lb. Carriage Free, except very small parcels. 2 lbs. of seed per acre is sufficient.

Address, SUTTON & SONS, Seed Growers, Reading.

MANGOLD WURZEL AND SWEDE SEED.

JOHN SUTTON AND SONS, Reading, Berks, have a fine stock of the best kinds of SWEDES, MANGOLD WURZEL, and CARROT SEED, similar to those supplied last season, the produce of which gained Prizes at all the principal Root Shows throughout the kingdom.

At the Annual Root Show held at Basingstoke, Hants, in December, at which 16 prizes were awarded for root crops, 13 were gained with the produce of our seeds.

SMITHFIELD CLUB.—CHRISTMAS SHOW.

We had the honour of exhibiting at the above show a stand containing some of the finest Roots in the Bazaar, all grown from our own seeds. The Editor of *Bell's Weekly Messenger* in his report of the show says:—

"At Messrs. Sutton's Stand the principal articles exhibited were Sutton's Lincolnshire Red Globe Turnip, Sutton's Green Topt Hybrid Turnip, Yellow Globe Mangold, and Ashcroft Swedes, all of which were particularly fine."

A Priced List, with Hints on Cultivation, may be had post free, in return for two penny stamps.

RENDLE'S IMPROVED SWEDE TURNIP.—*This is the most hardy variety in cultivation, and has stood the late severe winter, in the most exposed situations, without the least injury. The Subscribers have received scores of letters during the past month to confirm this statement.*

It is handsome in form. Small tap roots, will keep longer than any other sort, and is altogether a most valuable variety.

It has been selected with much care for the last seven years, and the present stock has been saved by growers of the first respectability. Price 2s. per lb., or 1s. 9d. per lb. if taken by the cwt. Wholesale Dealers can be supplied with a few bushels.

For Description, Testimonials, and Engraving, see RENDLE'S "FARMING PRICE CURRENT AND AGRICULTURAL DIRECTORY."—Apply to William E. Rendle & Co., Seed Merchants, Plymouth.

TO THE SEED TRADE.—TURNIP SEEDS, &c.

Skirving's or Liverpool Swede	Orange Globe Wurzel
Laing's	Broccoli, of sorts
White Globe Turnip	Fairbeard's Nonpareil Peas
Green	Cole's Crystal White Celery.
Red Tankard	

W. J. Epps can with confidence offer the above (not large quantities), having been grown from the best selected stocks possible.—Prices sent on application.

Seed Establishment, High Street, Maidstone, April 28.

SKIRVING'S IMPROVED TURNIP SEEDS.

W. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his TURNIP SEEDS for the season, as follows:—

SKIRVING'S IMPROVED SWEDE TURNIP, at 1*s.* 9*d.* per lb.
" IMPROVED PURPLE-TOP YELLOW BULLOCK TURNIP, at 1*s.* 3*d.* per lb.

All other kinds of Turnip and Agricultural seeds in general, of the most select description, at moderate prices. A remittance, or reference from unknown correspondents, is respectfully requested to accompany orders. W. S. has no agent in town or country.

Liverpool, April, 1855.

SUPERB SHOW PANSIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, will supply the following set of 20 extra fine varieties, in strong, well rooted, autumn struck Plants, at 10*s.* the set, hamper, package, &c., included.

Argo (Paton & Small)	Lady Carrington (Hunt)
Adela (Turner)	Lord Jeffrey (Lightbody)
Alfred the Great (Turner)	Mesmerist (Veitch)
Boadicea (Fellowes)	Miss Talbot (Dickson & Co.)
Countess of Strathmore (Hampton)	Pandora (Hunt)
Commander-in-Chief (Hooper)	Rising Sun (Turner)
Father Gavazzi (Holland)	Sultan (Hooper)
Fearless (Schofield)	Sir J. Paxton (Betteredge)
Great Western (Hooper)	Thisbe (Hooper)
Lady Emily (Downie & Laird)	Victory (Schofield)

Older varieties, such as Fair Flora, France Cycole, Queen of England, Duke of Perth, Rubens, Caroline, Ophir, Blue Perfection, Euphemia, &c. &c., 4*s.* per dozen, strong plants.

A few packets of very select Pansy Seed at 1*s.* and 2*s.* per packet. Priced and descriptive Catalogues now ready, and will be forwarded on application. Post-office orders payable at Middleton, Lancashire.

BEDDING AND OTHER PLANTS.

F. AND A. SMITH'S Descriptive LIST of the undermentioned is now ready, and may be had, post free, on application:—Antirrhinums, Verbenas, Fuchsias, Scarlet Geraniums, Calceolarias, Petunias, Heliotropes, Pentstemons, Chrysanthemums, Mimulus, Salvias, Lobelias, &c. Climbers in variety, also a miscellaneous Collection of Greenhouse Plants. They have now in bloom Cytisus racemosus, Roses, Verbenas, Fuchsias, spotted Calceolarias, Erica Hybrida, Cactus, Geraniums, &c. The Trade supplied.—Dulwich, Surrey, April 28.

SEED POTATOES.

ALSTONE KIDNEY.—*This is perfectly distinct from any other Potato. It is an astonishing cropper, and the tubers are of a large size. It keeps well, and is good flavoured, and is altogether an excellent and profitable variety. 2s. 6d. per peck, or 9s. per bushel.*

PRINCE OF WALES.—*This is an early round white Potato, which, for a general crop, can be highly recommended. It is a sort that gives the most complete satisfaction to every one who sows it. 2s. 6d. per peck, or 9s. per bushel.*

J. C. Wheeler & Son, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the 18th Century.

SEEDS CARRIAGE FREE.

AGRICULTURAL SEEDS.—*Landed Proprietors and Farmers who require* large quantities of *Turnip, Mangold Wurzel, Carrot, or any other kinds of Agricultural Seeds, will be supplied on the most liberal terms*—Apply to

William E. Rendle & Co., Seed Merchants, Plymouth.

ESTABLISHED ABOUT HALF A CENTURY.

AGRICULTURAL SEEDS OF THE FINEST SELECTED STOCKS.—*As the quantity of Mangold, some of the Turnips, &c., are found to be scarce on the market as was expected at the close of harvest, we submit our present prices, in which some will be found lower than quoted in our Spring Catalogue.*

	Per lb.—s.	d.
Mangold Wurzel, Long Red	0	8
" " Long Yellow	1	0
" " Yellow Globe	0	8
" " Red Globe ...	0	9
Carrot, Long White Belgian	2	0
Turnips, fine Purple Top	1	9
" fine Green Top ...	1	9
" Skirving's	1	9
" Laing's Purple Top	1	0
" Norfolk White Round	0	9
" " Green Round	0	9
" Lincolnshire Red Globe	1	2
" Pomeranian White Globe	1	2

	Per lb.—s.	d.
Turnip White Decanter, or Norfolk Bell ...	1	[illegible]
" Green Barach ...	[illegible]	[illegible]
" White Tankard ...	[illegible]	[illegible]
" Red Tankard ...	[illegible]	[illegible]
" Yellow Tankard ...	[illegible]	[illegible]
" Orange Jelly ...	1	[illegible]
" Purple Top Bullock	1	[illegible]
Cabbage, large Drumhead	[illegible]	[illegible]
" Kohl Rabi ...	[illegible]	[illegible]
Lucerne	[illegible]	[illegible]
Furze or Gorse	1	[illegible]
Alsike Clover	2	[illegible]
Bokhara Clover	[illegible]	[illegible]

PERMANENT PASTURE AND OTHER GRASSES.—Our Mixtures for Permanent Pastures will be found equal to any which are supplied. Prices per acre, according to the nature of the soil, 24*s.* to 34*s.* Wholesale Prices of Grasses and other Seeds to the trade on application.

Finest Mixed Lawn Grasses, per lb. 1*s.*, or 4*s.* 6*d.* per peck.

☞ Goods Carriage Free (not under 20*s.*) to all the London termini, or any station on the Colchester and Norwich line.

BASS AND BROWN, Seed Establishment, Sudbury, Suffolk.

AGRICULTURAL SEEDS.

JOHN SHARPE (late of Sleaford), Seed Grower and Merchant, Bardney, embraces the earliest opportunity of tendering thanks for the extended patronage conferred upon him at Sleaford, in the branches of Nursery Seedsman and Merchant; he trusts the same assiduity will meet a continuance of those favours. He intends connecting with the Seed Trade the Growing, thereby dispensing with all doubt as to genuineness of article.

J. S. is now sending out, of the purest and best selected stocks, Permanent Grass Mixtures, 20*s.* per acre; Upland Sheep Walk, 20*s.* per acre; Field or Lawn Mixtures, 9*d.* per lb.; Improving Mixtures for old Swards.

CLOVERS.—Red, English, Dutch, German, French, 6*s.* to 8*s.* per stone; White, 8*s.* to 10*s.* per stone; Italian Rye-grass, fine imported, 6*s.* to 7*s.* per bushel; Perennial Rye-grass, 25*s.* to 30*s.* per quarter; Mangold Wurzel, 8*d.* per lb., or 7*s.* per stone.

TURNIPS.—Skirving's and Purple-top Swedes, transplanted and of the purest characters, 1*s.* 3*d.* per lb., or 60*s.* per bushel; 50 lbs.; White Globe or Round, 8*d.* per lb., or 30*s.* per bushel; 50 lbs.; Green Globe or Barrel, 8*d.* per lb.; White and Red Tankards, Lincolnshire Red Globe or Round, Early Sixweeks, Yellow Aberdeen, Orange Jelly, and other yellow-fleshed kinds.

Rape Seed or Cabbage Cole, 3*s.* 6*d.* per peck, or 12*s.* per bushel.

White Mustard, Spring Tares, &c.

For quantities, Purchasers treated with liberality.

Bardney Hall, near Lincoln, April, 1855.

FARM SEEDS.

W. DRUMMOND AND SONS have implicit confidence in recommending the following Seeds:—

PERENNIAL RYE-GRASS, from the most select growths, and perfectly clean

ITALIAN RYE-GRASS, direct from Lombardy, and through the same gentleman in that country who has for several years been employed by us in collecting those fine parcels which have hitherto given so much satisfaction to our customers.

GRASSES FOR PERMANENT PASTURE.—*Having been among the first to recommend the use of the* Natural Grasses *in the formation of* Permanent Pasture, *the subject has occupied a large share of our attention. We have carefully noted the species composing the best Natural Pastures, and the results of combinations in culture under varied circumstances of soil and situation; and, as the result of our observations, as well as from the satisfaction our selections have given, we feel warranted in recommending, in addition to the Grasses usually sown, a variety of species as are known, not only to yield the greatest bulk of herbage but the largest amount of milking and feeding properties, mixed those species, and the proportions of each, according to the nature of the land to be laid down.* From the increased demand, we are enabled to charge a lower price than formerly. An excellent assortment, and allowing a *liberal supply* of Seeds, may be had at from 24*s.* to 26*s.* per statute acre.

TURNIP, in all the leading varieties, saved by ourselves from full-formed Bulbs.

VETCHES (or TARES), large broad-leaved, a very superior sort.

Priced Lists of the above, with every other description of Farm Seeds, may be had post free on application.

Free Delivery.—All Parcels of Seeds above 2*l.* value (with the exception of Grain and Vetches), delivered free in London, Liverpool, Hull, Newcastle, Belfast, Londonderry, Aberdeen, Inverness, and to all the Stations along the Lines of the Caledonian and North British Railways, &c.

W. Drummond & Sons, Seed and Implement Warehouse, Stirling, N.B.

A. STANSFIELD AND SON beg to offer the following:—

1000 species and varieties of Herbaceous and Alpine Plants, 4*s.* per dozen, or 30*s.* per 100.

500 species and varieties adapted for Rockwork at 4*s.* per dozen.

200 species and varieties of Hardy Greenhouse and Store Ferns and Lycopods, at from 6*s.* per dozen, and upwards.

Verbenas, Fuchsias, Geraniums, and other Bedding Plants at from 3*s.* 6*d.* per dozen. Catalogues on application.

*** 100 bushels of selected Fluke Potatoes at 4*s.* 6*d.* per bushel of 56 lbs. Dean's Seedling Fluke at 3*s.* 6*d.* per stone of 14 lbs.

Vale Gardens, Todmorden, Lancashire.—April 28.

FLOWER SEEDS.—We have selected out of our large collection of Flower Seeds the most beautiful and showy varieties, each sort distinct in colour, and calculated to produce a fine effect when planted out in beds or groups in the flower border. We have had each variety distinctly marked with the Botanical and English name, height, time of flowering, colour of the flower, manner of growing, whether annual or perennial, &c., the time it should be sown, and other valuable hints as to its cultivation. In selecting these varieties we have taken care to exclude all which are shy bloomers or have an inelegant appearance, so that the collections will comprise only those which are really showy and handsome, and which we believe will prove to the entire satisfaction of any lady or gentleman who might be disposed to order them. The German Stocks and Asters especially are most superb. The Collections will be sent free by post to any part of the kingdom at the following prices:—

20 extra fine varieties, all distinct and beautiful	...	5*s.*
50 do. do.	...	10*s.* 6*d.*
100 do. do.	...	20*s.*

J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the 18th Century.

MESSRS. WILLIAM ROLLISSON AND SONS embrace this medium of announcing that they will commence sending out the first week in May the annexed three new ERICAS which they can with the greatest confidence recommend, and which will doubtless be as universally admired as the sorts previously introduced by them, among which may be named Cavendishii, semiinstilera, Hartnelli, Ventricosa superba, mutabilis, [illegible], Tricolor elegans, Sprengelii.

ERICA AEMULA.—This is a very beautiful hybrid in the Erica Massoni section, of a fine bright crimson colour, after the style of Erica aristata, but very much higher in colour; altogether this is a very distinct variety. 21s.

ERICA EXIMIA SUPERBA.—This variety may really be said to be three times as fine as the parent whose name it bears; it is a very compact grower and excellent habit, with tubular blossoms of a fiery scarlet colour. This charming variety obtained the First Seedling Prize at the Royal Botanic Gardens, 1852 31s. 6d.

ERICA PAXTONI.—A very distinct variety, obtained by hybridising Erica Hartnelli with Erica Massoni. It blossoms in very large whorls, of a soft red colour. This variety will be very useful for autumnal exhibition purposes, as it blossoms from July to October 21.

The Set of the above named Ericas three guineas.

The following choice and new Plants can be seen in blossom at the Nurseries:—

Brassia cinnamomeum (new).	Cypripedium Lowi (rare).
Cattleya Aclandiæ (rare).	Odontoglossum pescatoris (new).
" iantha (new).	" hastilabium (rare).

With several Orchids equally rare.

The Nurseries, Tooting, London.

GERANIUMS.

BASS AND BROWN have the following to offer, strong and healthy plants, well established for a fine and abundant bloom. For descriptive list see their autumn Catalogue.

The following 12 Superb New Show Varieties of last season for 40s., or separately as priced.

Dobson's Eliza ...	... 3s. 6d.	Turner's Duchess of Wellington ...	... 5s. 0d.
" Empress	... 5 0	Topping's Emily Rival	3 6
" Glowworm	... 3 6	Hoyle's Regalis...	... 5 0
Foster's Lucy ...	... 5 0	" Virginia	... 5 0
" Purple Perfection	5 0	" Carlos ...	... 5 0
Turner's Pilot ...	... 3 6	" Tamberlik	... 3 6

The following 20 first-rate Varieties, of previous date, for 30s., or any 12 for 21s.

Admiral, Albion, Ambassador, Astrea, Butterfly, Eleanor, Exhibitor, Ganymede, Harriet, Jupiter, Kulla, Lagoma, Leonora, National, Novelty, Optimus, Portia, Queen of May, Rachel, and Rubescens.

The following 20 first-rate older Varieties for 15s., or any 12 for 12s.

Alderman, Commissioner, Elise, Enchantress, Field Marshal, Flying Dutchman, Gem, Medus, Mochanna, Magnificent, May Queen, Nepaulese Prince, Nandee, Prince Arthur, Painter Improved, Rosa, Rowena, Rubens, Village Maid, and Virgin Queen.

FANCY GERANIUMS.

The following 12 beautiful varieties for 9s.:—Bishop of Winchester, Caliban, Extravaganza, Jehu Improved, Lady Downs, Magnifica, Mazeppa Superbe, Neerée, Odoratissima grandiflora, Odorata Superba, Statiaski, and Superba.

GLOXINIAS.

The following set of 11 new varieties of last season are very fine, and may be had for 33s., or separately 3s. 6d. each:—

Duke of Wellington, rich velvety scarlet of stout substance, throat shaded with violet, and slightly spotted with white.
Eleanor, pure white, blotched with rose, and purple shade.
Elegantissima, French white of great substance, pale lavender centre, spotted with buff.
Erecta Magnifica, fine white, with blue throat, habit of Fyfiana.
Eugenie, rosy pink, centre creamy white, spotted with rose.
Exquisite (Henderson's), pure white, with broad belt of puce, throat creamy white, spotted with puce.
Grand Sultan, a fine Continental variety.
Lady Franklin, extra large rose, stout and robust, shading off to pink, slightly spotted white in the throat.
Magnet, clear rose, with blotch of purple in the throat, large and fine form.
Prince of Wales, white, shading off to lavender.
Sir C. Napier, deep rosy crimson, throat blotched with intense rose, dwarf habit.

The following 12 superb vars. for 20s.:—Belle Clymene, Duchess de Brabant, Dr. Plancheon, Grandis, Hogoveen, Imperialis, Leonie Van Houtte, Petoiana, Princesse de Lamballe, Victoria Regia, Wilsonia, and Wortleyana.

ACHIMENES.

The following three very beautiful new varieties may be had for 17s. 6d.:—

Madame Rendatler, a fine large purplish lilac, with yellowish white throat ... ... 5s. 0d.
Picturata, brilliant rose colour, flowers of the form of multiflora, with darker spots, exceedingly handsome ... 5 0
Gigantea, a novelty beyond comparison, resembling Picta, but twice as large and brighter colours, very free and keeping in flower several months 10 6

Twelve Superb Varieties for 10s., including Louis Van Houtte, Mr. Aparpart, Cerito, &c.; 12 fine older vars. for 6s.

	£	s.	d.
GREENHOUSE PLANTS, 50 fine and select species and varieties	2	5	0
" " 50 do. do., best selection	3	5	0
STOVE PLANTS, 50 superb and select species and vars.	4	0	0
HERBACEOUS PLANTS, 100 fine and distinct vars.	1	10	0
" " 100, including newer "	2	10	0
ROCK PLANTS, 25 fine varieties	0	12	0
DELPHINIUMS, 12 in 6 fine varieties	0	9	0
" very fine seedlings of splendid mixed colours, per 100	1	1	0
DIANTHUS ATRORUBENS, splendid dark crimson for bedding, per doz.	0	6	0
DIANTHUS SPLENDENS, rich bright crimson, for ditto, per doz.	0	5	0
POTENTILLAS, 12 fine varieties, 9s.; 12 extra fine ...	0	18	0
" splendid mixed seedlings, per doz ...	0	9	0
" 5 best new varieties — King of Crimson, Sudbury Gem, Theodore, Shylock, and Juba, for	1	10	0
ROCK CISTUS, dwarf, 24 beautiful vars., very distinct	0	15	0
PHLOX, 25 fine vars., 9s.; 25 beautiful newer vars.	0	12	6
CENTSTEMONS—Grandis, fine blue, improvement on Atrocærulea, and a fine bedding plant, per doz.	0	15	0
" Magnifiora, extra large dark red, 2s. 6d.; per doz.	0	24	0
" Azureum (true), a fine dwarf blue, per doz. ...	0	7	6
" Ovatum, light blue, abundant bloomer, per doz.	0	6	0
Primula involucrata, most lovely white, per doz. ...	0	9	0
Viola arborea, 6s. per doz.; alba, per doz.	0	6	0
" Neapolitan 6s. " Russian "	0	4	0
Berberis Darwini, per doz.	0	15	0
Papaver papaveracea, strong ... ... 1s. 6d. to	0	2	6
Hardy Climbing Plants, 12 fine vars. ... ... 9s. to	0	18	0
Roses, Tea-scented and China, in pots, 12 fine vars.	0	12	0
Wood's New Duchess of Norfolk, Hy. perpetual, each...	0	5	0

Seeds carriage free (not under 20s.) to all the London termini, and all stations on the London and Norwich Colchester Line. Seeds added gratis with orders of 40s. and upwards.

COMPLETE CATALOGUES on application for six penny stamps, or the Spring Catalogues alone for three penny stamps, given gratis to our customers who may not have received them.

Seed and Horticultural Establishment, Sudbury, Suffolk.

NEW SEEDS, CARRIAGE FREE.

	Per lb.—	s.	d.
White Belgian Carrot		2	0
Yellow Globe Mangold Wurzel		1	0
Morton's Yellow Globe do....		1	6
Fisher Hobbs' Yellow Globe do.		1	6
Elvetham Long Red do.		2	0
True Devon Evergreen Grass ... Per bushel	5s. to	6	0
Imported Italian Rye-grass	6s. to	7	0
Dickenson's Improved do.		8	0
True Somerset Cow Grass ... ...Per lb.	9d., 10d., to	1	0
Alsike Hybrid Clover		2	0
Common Red Clover...	6d., 7d. to	0	8
White Dutch do.	9d., 10d., to	1	0

Prices of all kinds of Agricultural Seeds will be found in RENDLE'S "Farming Price Current and Agricultural Directory," just published.—Apply to

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

TWO VERY USEFUL NEW DWARF NASTURTIUMS.

JOHN CATTELL has much pleasure in bringing into notice these two very showy hardy ANNUALS, viz.:—

NASTURTIUM DWARF CRIMSON.—The colour of the common dark crimson.

Ditto DWARF SCARLET.—The colour very rich orange scarlet, with a fiery shade on the upper part of the throat.

They are both of the dwarf compact habit of minimus, and admirably adapted for forming large buds, particularly in any poor soils; the flowers are the size of the common Nasturtium, and thrown well above the foliage, and are a mass of bloom throughout the summer and autumn. Packets, containing 12 seeds, 1s. each, post free.

J. C. has also the following choice Seeds for present sowing, at the prices annexed per packet, post free:—

	s.	d.		s.	d.
Alstræmeria acutifolia ...	1	0	Lychnis fulgens	0	6
Anemone, single Poppy, fine mixed	0	6	Mandevilla suaveolens ...	0	6
Auricula alpini, from fine named varieties	1	0	Nierembergia intermedia .	0	6
Azalea, from finest Greenhouse varieties	1	0	Oxalis rosea...	0	6
Cineraria, from very superb varieties	2	6	Petunia, from finest vars. .	0	6
Celsia arcturus	0	6	Polyanthus, common, from showy varieties for borders, &c.	0	3
Geranium, from new florist varieties, 12 seeds ...	2	6	Do. fine mixed	1	0
" from finest older do., 12 seeds	1	0	Do. from fine named vars. .	1	0
" do. fancy do., 12 seeds	1	0	Saponaria calabrica ...	0	6
Linum grandiflorum, true .	1	0	Verbena teucrioides ...	0	3
			" venosa...	0	6
			" mixed, from finest named varieties ...	1	0
			Zinnia elegans coccinea, fine	0	6

A remittance to accompany all orders from unknown correspondents.—Nurseries, Westerham, Kent.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, &c., which they will forward to any part:—

	s.	d.
Andromeda floribunda, per dozen ... ... 12s. to	18	0
25 Azaleas, new hardy Belgian varieties, one of a sort, by name on their own roots	20	0
25 Azaleas, American varieties, do. do.	16	0
Hardy Heaths, Ledums, and Kalmias, per dozen ...	6	0
25 Hardy American Plants, one of a sort, by name ...	10	6
12 Rhododendrons, including scarlet, white and rose ...	12	0
Fine hardy Scarlet Rhododendrons, 1 to 2 feet, per doz.	12	0
New Yellow Rhododendrons, in pots, each 3s. 6d. to	5	6
6 Fine hardy Magnolias, one of a sort, in pots	10	0
Wistaria sinensis, strong plants, in pots, each	3	6
12 Hardy Climbers, of sorts, in pots	12	0
Fine climbing Roses, of sorts, per dozen, in pots ...	8	0
Bourbon Roses, budded, 1 ft., fine for beds or edgings, do.	10	0
Fitz-Roya, Saxe-Gothæa, Cephalotaxus, Libocedrus, each	5	0
Wellingtonia gigantea, and other choice and cheap hardy Coniferæ (see list).		
Cedar of Lebanon, 2 to 3 ft., well grown, per doz., 12s. to	18	0
Greenhouse Azaleas, choice varieties, per dozen 12s. to	18	0
6 New Achimenes, and 6 Gloxinias	10	0
50 choice Greenhouse plants, one of a sort	45	0
Orchidea Plants, beautiful species, by name, per dozen	40	0
24 choice Ericas, one of a sort	16	0
24 choice Fuchsias, fine proved varieties	12	0
6 Tree Carnations, choice sorts	6	0
Verbenas and Petunias, best sorts, per dozen	4	0
Calceolarias and Cinerarias, in flower, per dozen, 9s. to	12	0
Fancy Geraniums, best sorts ... ... per doz.	15	0
First Class Carnations and Picotees ... ... "	10	0
First-rate sorts of choice Pinks ... ... "	6	0
25 choice Pansies, one of a sort...	10	0
25 choice hardy Herbaceous Plants, named	10	6
Pentstemons, Lobelias, new Phloxes and Potentillas, per dozen	6	0
Dahlias, the best fancy and show sorts, per dozen ...	12	0

Choice Flower Seeds, 20 papers, 5s.; 45 ditto, 10s. Free by post.

Conservatories, Greenhouses, and Gardens furnished on moderate terms.

Albion Nursery, Stoke Newington, London.—April 28.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the following Superb FLOWER SEEDS, saved from the best varieties, post free:—

	Per packet.	
Antirrhinum, from 100 striped and spotted varieties ...	0s.	6d.
Balsam, from 25 best double varieties	0	6
Hollyhock, from 50 best show flowers	0	6
Fancy Pansy, from a choice collection	1	0
Mimulus, from 12 of the most showy kinds	0	6
Verbena, from 100 of the newest and best varieties ...	1	0
Pansy, from 100 best show flowers...	1	0
Gloxinia, from 50 newest varieties	1	0
Double Daisy, from 60 newest varieties	0	6
Sweet William, from 50 fine varieties	0	6

67, High Street, Battle, Sussex.

NEW BEDDING PLANTS.

CHARLES TURNER has much pleasure in introducing the following New Plants:—

CALCEOLARIA "PURITY," a new and beautiful shrubby variety, pure paper white, dwarf free habit, and a most desirable bedding plant. Very highly recommended. 7s. 6d. each.

NEW VERBENAS.

*WONDERFUL (Edmonds), rich plum purple, with very large white centre. This is without exception the finest and most distinct variety yet introduced, and is especially recommended for bedding purposes, continuing fully in bloom until very late in the season. It obtained a Certificate of Merit at National Floricultural Society.

*BLUE BEARD (Edmonds), a decided blue, good shape, large truss, and an excellent bedding variety. Highly recommended.

*LADY LACON (Edmonds), bright rose, with large pale yellow centre, good shape and habit. This also is a first-rate bedding variety. Obtained a First-class Certificate at National Floricultural Society for form.

COMMANDER-IN CHIEF (Edmonds), bright cerise, with yellow eye, free bloomer, and good habit. Very fine.

EMPRESS OF FRANCE (Edmonds), large pale rose, fine truss.

FLORENCE NIGHTINGALE (Edmonds), pink, yellow eye, good shape.

ROSE OF ENGLAND (Edmonds), bright rosy pink, with yellow eye, good form, free and distinct, fine.

TYRIAN PRINCE (Edmonds), deep blue purple, fine and distinct. Received a Certificate at Norwich.

EVA (Turner), pure white, fine truss, and free bloomer.

The above 5s. each, or the Set for 2l. The three varieties marked thus * were figured in the "Florist" for April, 1855.

NEW DAHLIAS.

Pre-Eminent (Fellowes) 10s. 6d.		Glenlyon (Fellowes) ...	7s. 6d.
Lord Path (Wheeler) ...	10 6	Diadem (Fellowes) ...	7 6
Espartero (Turner) ...	10 6	Constancy (Hopkins) ...	7 6
Beauty of Bath (Rush)	10 6	The Nigger (Fellowes)	10 6
Ringleader (G. Holmes)	10 6	Baron Alderson (Perry) a fancy variety ...	10 6
Cossack (Fellowes) ...	10 6		
Agincourt (Fellowes) ...	10 6		

For Descriptions of these varieties see Catalogue, which can be had on application.—Royal Nursery, Slough.

NEW STRAWBERRY—CAROLINA SUPERBA.

JAMES KITLEY begs to inform his friends and the public that he has succeeded in raising from Seed a New Strawberry, the qualities of which have long been a desideratum. It possesses the excellent flavour of the old Carolina, the fruit as large as the British Queen, with all the combined good qualities of productiveness, hardiness of plant, dwarf habit, &c., which tend to make it a general favourite. It was exhibited at the Chiswick Horticultural Exhibition, and obtained a First-class Certificate.—See *Gardeners' Chronicle*, July 15, 1854.

Dr. Lindley's Opinion.

"J. K., the Strawberry which you have named Carolina Superba partakes of the flavour of the old Carolina, but the fruit was bruised by carriage, so that the paper which accompanied the Strawberries was saturated with juice, and this juice dried on the paper like syrup — sweet, adhesive, glossy, and brownish coloured. Strawberry juice does not usually possess these properties."—See *Gardeners' Chronicle*, July 1, 1854.

The undermentioned gentlemen having had opportunities of seeing it growing, and also tasting the fruit, have kindly permitted their Testimonals to be placed before the public:—

"Your Carolina Superba Strawberry, which I saw last summer in bearing, appeared a very hardy and productive kind, with the flavour of the old Carolina, and will prove an acquisition to this class of fruit.

"JOHN SPENCER, Marquis of Lansdowne's, Bowood."

"I feel much pleasure in giving my opinion of your Seedling Strawberry, Carolina Superba. Having had frequent opportunities of seeing it growing and tasting the fruit, I consider it hardy, of good habit, short foliage and fruit-stem. In flavour and crop, I know none that will surpass it: and feel assured it will do you credit, and give satisfaction to all who may purchase it.

"JAMES POND, Devonshire Cottage, Bath."

"The Seedling Strawberry, named Carolina Superba, that I saw in fruit in your nursery last season, appeared to me to be a first-class variety of dwarf foliage, a profuse bearer, and flavour excellent. I have no doubt it will give the greatest satisfaction to all who may possess it.

"D. BUTLER, Widcombe Nursery, Bath."

Strong well-rooted PLANTS are now ready, at 3l. per 100, 10s. per dozen, or 12s. free by Post.

Lyncombe Vale Nursery, Bath.

To Farmers, Potato Growers, and Others.

JACKSON'S PATENT PREPARATION

FOR

PRESERVING POTATOES, WHEAT, AND OTHER SEEDS

FROM DISEASE, the RAVAGES of the SLUG, GRUB, and WIREWORM, in addition to which the CROPS are brought forward in HEALTH AND VIGOUR, and the yield is greatly increased, in proof of which the following extracts are given from numerous letters received by Mr. JACKSON.

EXTRACTS:—

"One of the fields of this farm, the property of MRS. STANBURY, was planted with Regents Potatoes in April last, some of which were prepared by you. The result now is, that the whole of the crop from the unprepared sets is thoroughly diseased, and hardly worth the trouble of taking up: while those raised by the side of them from the prepared sets are not only in a beautiful state of preservation from the disease, but the produce is much greater,—the Potatoes are more numerous than the others; indeed, if there were no such thing as the disease to be feared, it would be worth the trouble and expense of preparing the sets by your process, even for the sake of the improved crops. I shall certainly, for the future, prepare all my Potatoes for seed by your process; and I intend to adopt it for preserving my Wheat from the Smut.

"G. B. BAXTER.

"Pelmont Farm, Eltham, Kent, August 28, 1854."

"Admiral Sir J. A. GORDON, K.C.B., Marlee House, Blairgowrie.

"SIR,—I have received your note of the 16th. The Potatoes that came here from England, prepared by Mr. JACKSON, were planted in a piece of new ground, and according to the directions sent by him along with them as to distance between the plants, &c. They came up well, with strong healthy stems; we have now taken the whole crop up, and there is not the slightest appearance of any disease amongst them. They are of large equal size and very prolific. There were long black unprepared Kidneys planted in the same patch, and a great deal of them are not fit for use, at least a third part are diseased. I hope Mr. JACKSON's process may be widely known, as it is a great boon.—I am, &c.,

JOHN SHANKS,

"Forester, Kildrummy Castle.

"Kildrummy Castle, Aberdeenshire, November 17, 1854."

"I am very much pleased with the result of the experiments have made with your Prepared Potatoes; for I planted them, without any manure, in ground where for several years I have hardly had a sound Potato, and I now find the crop perfectly free from disease, and in a very fine condition: while those of the same sort, unprepared, which were planted at the same time, and next to them, are diseased and eaten by worms.

"The Potatoes from the Prepared Seed were so remarkably good that I was induced to weigh them, and I found, to my great astonishment, that they were as 200 to 150 of the others, or about 25 per cent. in favour of your preparation.

"T. AUSTEN, Nurseryman and Seedsman.

"Blackheath, Kent, 24th August, 1854."

Sold by Messrs. CHARLWOOD & CUMMINS, Seedsmen, Covent Garden; and JOHN KERNAN, Seedsman, 4, Great Russell Street, Covent Garden; all Seedsmen and Chemists; and at the Patentee's, 18, Cannon Street, London Bridge, in Packets of One, Two, Three or Four Pounds, or in Bulk for the use of Farmers and Potato Growers.

NEW AND FIRST-RATE PLANTS.

MITCHELL AND CO., having an extensive stock of the following plants, beg most respectfully to inform the Florticultural public that they are now prepared to supply on and after the 1st of May good healthy bushy plants, which cannot fail to give satisfaction to any purchaser.

GERANIUMS sent out last season in 48-sized pots, good blooming plants, 25s. per dozen, or the whole Collection 45s., consisting of Foster's Attraction, Cloth of Gold, Carlos, Rosa, Lucy, Rhoda, Purple Perfection, Sunrise, Lady Bird, Duchess of Wellington, Pilot, Lord Hardinge, Mogul, Splendidum, Hoyle's Regalia, Carlos, Virginia, Governor-General, Zeno, Mary, Rival Queen, Malcolm, Indian Chief, Tamberlik, Sans pareil, Eugenie; or smaller well established plants, in 60 pots, 18s. per dozen; or the whole Collection for 35s. All the best varieties of the previous season, good blooming plants, 12s. per dozen, or two dozen for 20s.

FANCY VARIETIES of last Season, strongly recommended as being very superior; the whole Collection for 30s., or any 12 for 21s.; good strong plants: Loveliness, Bonnie Lassie, Formosiana, Lady Hume Campbell, Ramosa, Lady Mary Labouchere, Argus, Ocean Queen, Odoratissima punctata, Constance, Madame Sontag, Lady Alice Peel, Bartlett's Dandy, Figaro, and Eminent.

FUCHSIAS.—The best Show Flowers, consisting of Clio, Duke of Wellington, Duchess of Lancaster, Queen of Hanover, Elegans, Fanny Webb, Splendens, Macbeth, Monteith, Omega, Magnifica, Monarch, Telegraph, Vanguard; good established plants, 6s. per dozen.

TREE OR WINTER FLOWERING CARNATION.—Our immense stock of this beautiful flower stands unrivalled in the Trade; good strong plants, our own selection, 6s. and 9s. per dozen.

PENTSTEMONS.—The following new and distinct varieties, 9s. per dozen, strong plants:—Magnifica, Campanulatus, Purpureus, Hybrida, Superbum, Grandis, Formosa, Azureum, Atrocæruleus, Speciosum.

BOUVARDIAS.—The following six distinct varieties are offered at 9s. per dozen:—Jaquini, Levigata, Aurantiaca, Splendens, Angustifolia, Hartelli.

BOUVARDIA LONGIFLORA.—The true white flowering sweet-scented variety, 2s. 6d. each.

PETUNIAS.—The 12 new and distinct varieties for 6s. per dozen:—Napoleon III., Elizabeth, Lady Tournor, Camoens, Pourpre, Royale, Queen of Roses, Crœsia, La Reine, Rotundia, Souvenir de Majestin, Rachen von Thuringen.

PINKS, consisting of Turner's Bragg's best Show Flowers, 4s. and 6s. per dozen; True Crimson Cloves, 6s. per dozen, good plants in pots; Prince of Denmark, fine scarlet Clove, 6s. per doz.

Geranium Flower of the Day, 6s. and 9s. per dozen.

Lysimachia Leschenaultia, 2s. 6d. each, or 18s. per dozen.

Hydrangea japonica variegata, 2s. each, or 18s. per dozen.

Alonso Warcsewiczii, first-rate new plant for bedding, 9s. p. doz.

Heliotrope Beauty of the Boudoir, very fine, 1s. 6d. each, 12s. doz.

GLOXINIAS.—The following 12 first-rate varieties for 21s., viz.:—Amabilis, Duke of Wellington, Repandens, Franki, Jushti, Imperalis, Black Prince, Josephine Beauharnais, La plus Belle, Pulcherrima, Leonie Van Houtte, and Marie Van Houtte.

DAHLIAS.—The new varieties of last season, our own selection, 9s. per dozen; good show varieties of older date, 4s. to 6s. per dozen.

VERBENAS.—The new varieties of 1854, 4s. per dozen, or six dozen for 21s.

The following collection are first-rate bedding varieties of Scarlets, 6s. per dozen—Boule de Neige, Bishopstowe, Commander-in-Chief, Kingsbury Pet, Miss Emily Field, Skeltoni, Trentham Rose, &c.

Shrubby Calceolarias, superior collection, 4s. per dozen, strong plants.

Phlox, General Radetsky, beautifully shaped variety, 6s. per dozen.

Phlox, herbaceous, consisting of the best varieties, 6s. per doz.

Delphiniums grandiflorum and Barlowi, 4s. per dozen.

Post Office Orders are most respectfully solicited from unknown correspondents, made payable to J. FAIRBROTHER.

*** Carriage paid to London, or any Station on the London and South Coast Railway, on all parcels of 20s. and upwards, with plants gratis to compensate for longer distances.

Bristol Nurseries, Kemp Town, Brighton.

GEORGE SMITH has much pleasure in offering the undermentioned strong Plants, which he is now sending out, and feels great confidence in recommending them as possessing first-rate qualities:—

VERBENAS.

BOULE DE FEU (Young), bright orange scarlet, with conspicuous lemon eye; pip large, of fine form, compact truss, of good size, the habit excellent, a most profuse bloomer, the finest scarlet ever offered. First class certificates at the National, Royal South London and North London Floricultural Societies.

LORD RAGLAN (Banks), crimson scarlet, large lemon eye, pip and truss large, of fine form. This will be found a noble variety.

EMPRESS (Smith), pure white, with conspicuous rosy purple centre, pip and truss large, smooth and compact. One of the very finest of the light varieties.

MRS. M'NIEL (Smith), brilliant rose with large lemon eye, truss and pip large, of exquisite form, and very beautiful. In the style of Beauty of Hornsey.

VIOLACEA (Smith), intense violet, with a very conspicuous large white eye, pip and truss large, of good form. This flower will be found most remarkable and beautiful, either for bedding or exhibition. It is something in the way of M. Paquin, with the colour much more intense, and a fine free grower.

SILISTRIA (Smith), pale lilac, shaded with rose, very large and compact. First class at the Royal South London Horticultural Society. The set of six for 24s., or 5s. per plant.

FUCHSIAS.

The following four Fuchsias are fine show flowers, plants of good growth, and very free blooming kinds that must be grown in all good collections:—

OMER PASHA (Smith), tube short and stout, sepals well reflexed, of bright waxy crimson scarlet, corolla deep violet purple, large, of good shape, fine habit, free in growth and profuse bloomer. A fine plant for exhibition. 7s. 6d.

ORLANDO (Smith), dark tube and sepals reflexed, with an intense dark corolla. 3s. 6d.

CORONET (Smith), white tube and sepals, corolla violet, good shape, very free. 3s. 6d.

NIMROD (Smith), white tube and sepals, corolla light purple, good form. Plant of strong growth, and a very free bloomer. 3s. 6d.

SCARLET GERANIUMS.

BEAUTY OF COMB BANK, intense scarlet, eye white, pips large and circular, truss very large, dwarf habit, with horseshoe foliage. A first class bedding variety. 5s.

CHEPSTEAD BEAUTY, fiery crimson scarlet, extra large and fine, foliage very beautiful, habit dwarf, and free bloomer. One of the finest scarlet Geraniums ever offered. 5s.

CERITO, salmon rose, truss and pip large. A novel and pleasing variety. Was exhibited at the National Floricultural Society, where the judges would have awarded it a first class certificate had the plant been exhibited. 5s.

PETUNIA.

SINGULARITY (Smith), a novel and striking variety, corolla two-thirds downward bright green, throat rose, flower extra large, the habit of Prince Albert, a pleasing variety. 5s.

Choice Verbena Seed, 2s. 6d. per packet.

A Priced and Descriptive Catalogue of first-class Verbenas, Geraniums, Fuchsias, Hollyhocks, Dahlias, Chrysanthemums, and Petunias, will be forwarded in exchange for one stamp

Tollington Nursery, Hornsey Road, Islington, London.

SUPERB SHOW CARNATIONS, PICOTEES, PINKS, PANSIES, ETC.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now sending out choice selections of the above, in strong well-rooted plants, package, &c., included.

25 pairs of Show CARNATIONS in 25 different vars.		£1	0 0
25 pairs of PICOTEES	do. do. ...	1	0 0
25 pairs of PINKS	do. do. ...	0	10 0
25 fine show PANSIES, in 25 distinct varieties	...	0	12 0

AURICULAS, ALPINES, POLYANTHUSES, &c. Extra fine selected PANSY SEED, 1s. and 2s. per packet. Priced and Descriptive Catalogues are now ready, and may be had for one postage stamp. Post office orders to be made payable at Middleton, Lancashire.

The FLUKE KIDNEY POTATO, TRUE, 5s. per bushel of 56 lbs.

NORTH AMERICAN HERBACEOUS PLANTS.

HUGH LOW AND CO. have to offer the undernamed, which are all in a very healthy condition. The Trilliums are now in flower, and several others will flower during spring—the Cypripedium and Viola palmata now showing flower buds. Amongst the plants now offered will be found many varieties, and attention is particularly called to the Sarracenias, which are strong and vigorous, imported during the past winter direct from their native localities.

	s. d.		s. d.
Asplenium acrostichoides	2 6	Onoclea obtusiloba...	2 6
" ebaneum	2 6	Parnassia Caroliniana	1 6
" rhizophyllum	2 6	Polypodium Virginicum	2 6
Aspidium intermedium	2 6	Sarracenia flava (fine strong plants)	2 6
Asclepias, white flowering	2 6	" purpurea (fine strong plants)	1 6
Calopogon pulchellum	1 0	" rubra (fine strong plants)	2 6
Cypripedium humile	1 6	" variolaris (fine strong plants)	2 6
Dionæa Muscipula (Fly-trap)	3 6	Trillium grandiflorum	1 6
Gentiana, new species	3 6	" purpureum	1 6
Habenaria fimbriata	1 6	Viola palmata	1 0
Lilium Philadelphicum	2 6	Woodsia, species from Virginia	3 6
Mimulus, blue flowering	2 6		

Clapton Nursery, London, April 28.

ROBERT PARKER begs to inform his friends and the public that his New Spring Catalogue containing Descriptive and Priced Lists of the following:—

Exotic Orchids
Ferns—stove, greenhouse, and hardy
Geraniums—show, fancy, scarlet, variegated, and hybrid bedding varieties
Chrysanthemums—large flowered, and Pompone varieties
Petunias
Antirrhinums
Roses in pots
Dahlias—show and fancy varieties
Fuchsias
Selaginillas or Lycopodiums
Gloxinias
Cinerarias
Calceolarias—bedding varieties
Verbenas
Miscellaneous bedding plants &c., &c.

Is now ready and can be had Post-free on application.

Paradise Nursery, Hornsey Road, Holloway, London.

MESSRS. E. G. HENDERSON AND SON beg to announce that in consequence of their inability to supply plants of sufficient strength so early in the season, two of the new Fuchsias will not be sent out this year, consequently the set will now only be 3l. 3s.

Empress Eugenie.	Lady of the Lake.
Mrs. Story.	Queen Victoria.
Prince Albert.	Raffaelle.
Snowdrop.	Water Nymph.

Orders for the above can only be booked and executed in rotation after the earlier orders are despatched.

THE NEW SPRING CATALOGUE

Will shortly be published and forwarded post free on application. Parties wishing for the same will have their names booked.

A COLOURED PLATE,

Composed of a group of Nine new Flowers belonging to the Stove, Greenhouse, and Garden. It will be sufficient to say that Mr. Andrews, the eminent floricultural artist, has them in course of preparation, and under his superintendence full reliance may be placed on their accuracy; any one wishing for the same will have their names booked for it, to be sent them when finished, by forwarding 12 postage stamps; and if ordered in time will be stitched-in and sent with their new Spring Catalogue. This notice also applies to any nurseryman that may wish to have the Plate.—Wellington Nursery, St. John's Wood, April 28.

NEW AND CHEAP PLANTS.

THE CHEAPEST ESTABLISHMENT IN THE KINGDOM FOR PLANTS IS AT

HENRY WALTON'S, Edge End, Marsden, near Burnley, Lancashire, where there are propagated annually from 20,000 to 30,000 plants for sale, which for cheapness and quality are not to be equalled. Parties desirous of possessing a choice collection of good plants would do well to select from the following:—

GERANIUMS, new varieties, strong autumn-rooted plants, purchasers selection, 30s. per dozen; H. W.'s selection, 25s. per dozen, viz.—Attraction, Carlos, Duchess of Wellington, Empress, Eliza, Glowworm, Helen, Indian Chief, Leah, Lucy, Mrs. Hoyle, Marginata, Mary, Neatness, Picta, Rebecca, Regalia, Rosa (Foster's), Rhoda, Tamberlik, Virginia, and Zeno. Extra strong choice older varieties, 9s., 12s., and 15s. per dozen; 25 for 20s.; 50 for 35s.

FUCHSIAS, new varieties of last season, spring struck, 7s. 6d. per dozen; autumn struck, 9s. per dozen, post free, viz.—Admiral, Autocrat, Clio, Duke of Wellington, Elegans, Fanny Webb, Grandissima, Globosa Splendens, Henry Monteith, Macbeth, Magnifica, Monarch, Mr. Charles Palmer, Omega, Queen of Hanover, Telegraph, Trentham, and Vanguard.

CINERARIAS, choice new varieties, 12s. per dozen, or 6 for 8s., viz.—Advancer, Etoile de Vaise, Estelle, Empress Eugenie, Exquisite, Garland, Lady Camoys, Lord Stamford, Lablache, Mrs. Seagrave, Mrs. Beecher Stowe, Novelty, National, and Polyanthiflora. Choice varieties of previous years, 6s. and 9s. per dozen.

PANSIES, the following choice select varieties, 12s. per dozen, or the set of 22 for 18s.—Duke of Perth, Eldorado, Flower of the Day, Golden Eagle, Kate, St. Andrew, Sovereign, Emperor, Fearless, Lord Walsingham, Ajax, Owen Glendower, Prince Albert, Rubens, Rising Sun, Sir William Wallace, Lady Bute, Miss Jane, Mrs. Oswald, Marchioness of Bath, Yellow Climax, and Charles Turner. Good older show varieties for 4s. 6d. and 6s. per dozen.

VERBENAS, new varieties of last season, 7s. 6d. per dozen.

New PETUNIAS of last season, 9s. per dozen.

CARNATIONS and PICOTEES, 50 superior sorts, named, one pair of each, 2l.; 25 do., one pair of each, 1l.; or 9s., 12s., and 18s. per dozen pairs.

PINKS, 4s. 6d., 6s., 9s., 12s., and 18s. per dozen pairs.

HOLLYHOCKS, a choice selection of strong healthy plants, 12s., 18s., 24s., and 30s. per dozen, H. W.'s selection.

DAHLIAS, in May, new varieties of last season, 9s. and 12s. per dozen; older varieties 4s. 6d. to 6s.

A choice selection of Bedding Plants, including Scarlet and other Geraniums, Heliotropes, Pentstemons, Cupheas, Salvias, &c., equally cheap.

H. W.'s Spring List is now ready, and may be had for one postage stamp.

It is respectfully requested that all Post Office Orders be made payable at Marsden, Lancashire; and a remittance or satisfactory reference expected with all orders from unknown correspondents. All orders to the amount of 25s., carriage free to Liverpool, Manchester, Leeds, and Preston; 2l. and upwards, carriage free to Birmingham and Carlisle; for more distant carriage, extra plants will be given gratis.

PATTERSON'S SCARLET NONPAREIL STRAWBERRY

JAMES VEITCH, JUN., begs to inform the public that he has still on sale a limited number of strong well-rooted plants of the above fine Strawberry. It was exhibited at Chiswick on Saturday, June 3, 1854, and received the Silver Knightian Medal; it has also been submitted to Dr. Lindley, Mr. Marnock, and Mr. Thompson, all of whom report most favourably of its merits. It is a *first-class forcing* Strawberry in character, intermediate between *its parents—Keen's Seedling* and *Pentagon*, of the vigorous habit of the *former*, and fully one week earlier in ripening; and in the quality of its fruit *fully equal* in flavour to, if not superior, to the latter. The fruit is of a large size and handsome shape, of a *bright red colour*, and with a remarkably fine perfume. 100 Plants, 3l.; 50 Plants, 2l.; 12 Plants, 12s.

Exotic Nursery, Chelsea, April 28.

J. CATTELL has much pleasure in informing the admirers of the Heliotrope that he will send out after the 12th of May a superb Seedling, named "HELIOTROPIUM JOHN CATTELL." The colour is a beautiful lively bluish purple, with a light lavender towards the bottom of the cup, the heads of flower stand erect, and are very large: the leaves are broad, and a good green, having none of the objectionable black colour of Voltaireanum and kindred varieties, while the habit is superior to any other. From the size of the flowers, the bold manner in which the head is produced, together with the pleasing colour and excellent habit of the plant, J. C. is quite confident that this variety, when it becomes known, will supersede every other for general purposes. Strong Plants, post free 7s. 6d. each. A liberal discount to the trade.

A remittance or reference in London must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

CHOICE BEDDING PLANTS,

AND

TO THOSE ABOUT PERMANENTLY REPLENISHING THE FLOWER GARDEN.

YOUELL AND CO. beg to submit the following List of desirable PLANTS, suitable for the above purpose. Carriage paid on all Orders of 2l. and upwards to any distance within 150 miles of the Nursery, and good Plants added to compensate for this charge on packages of less value:—

CARNATIONS AND PICOTEES. Per doz. pairs.

Fine selections by name from our extensive and well-known Collection, in strong plants ...	18s. 0d.
Fine mixed border ditto	9 0
True old Clove Carnations	12 0
Tree Carnations, in choice variety ... ... each	1 6

CALCEOLARIAS.—Of this favourite flower the following list contains some of the best varieties for Bedding:—

Ajax (Lucombe, Pince, & Co.), fine large rich-coloured flower, of crimson and yellow, 1s. 6d. each.
Golden Chain, fine golden yellow, 6s. per dozen.
Gold Cap, rich dark maroon yellow cap, 9s. per dozen.
Superba (Constantine's), dwarf, rich crimson plum, 1s. 6d. each.
Surprise " bright orange crimson, ex. fine, 12s per doz.
Sulphurea splendens, fine large yellow, 6s. per dozen.
Mr. White, rich shining bronze red, 6s. per dozen.
Superba (Turner's), fine dwarf, dark crimson (ex. fine), 6s. per doz.
Wellington Hero, rich deep golden yellow, 6s. per dozen.
Magnificent, large and rich crimson, with yellow crown, extra fine, 6s. per dozen.
Viscosissima, deep yellow, 6s.

They will also supply in May next Turner's new shrubby Calceolaria "PURITY," a new and beautiful variety, PURE PAPER WHITE, dwarf, free habit, branching, and a most desirable bedding plant, very highly recommended, 7s. 6d.

SCARLET GERANIUMS.

Tom Thumb, Frogmore, and Trentham Scarlet, 4s. per dozen, 30s. per 100.
Amazon, 12s. per dozen.
Baron Hugel, a dwarf growing variety, with brilliant scarlet flowers, adapted for edging, 12s. per dozen.
Cerise Unique, colour a fine cerise, 9s. per dozen.
Defiance, an immense large flowering variety, 1s. each, 9s. per doz.

VARIEGATED GERANIUMS.

Brilliant ...	... 12s. per doz.	Golden Circle	... 18s. per doz.
Flower of the Day	9s. "	Manglesi variegata	... ... 12s. "
Dandy ...	... 9s. "	Mountain of Light	18s. "
Golden Chain	... 18s. "		

GERANIUM—Boule de Neige, a unique white-flowering, horseshoe leaf variety, producing large trusses of well formed flowers, 9s. per dozen.
" Kingsbury Pet, a striking variety, bearing a fine truss of bright salmon-coloured flowers, 9s. per dozen.
" Manglesi Floribunda, a free blooming light variety, 9s. per dozen.
" Crimson Unique, for bedding purposes, a fine strong growing variety, 9s. per dozen.

LOBELIA Cacemoides, the best dark blue variety, 4s. per dozen.
" lucida do. light do. 4s. "
" compacta alba do. white do. 4s. "
" Lindleyana, a decided lilac do. 6s. "

VERBENAS.—In this class particular attention has been given to introduce only those of the more striking colours and best habits for bedding purposes; these include all the handsomest of the new continental varieties, and we offer them at 4s. per dozen, or 30s. per 100.

PHLOX NELSONI.—An extremely pretty and hardy variety, originated through the zeal of an amateur in this country, whose name it well bears. It is of dwarf trailing habit, producing a dense mass of large pure white flowers with puce-coloured eye, 1s. 6d. each.

TROPÆOLUM—Triomphe de Gand—a handsome variety for trellis work, producing large and brilliant scarlet flowers, 12s. per dozen.

CLEMATIS TUBULOSA MANGLESI, a handsome herbaceous plant bearing numerous heads of blue star-shaped flowers, very hardy, 9s. per dozen.

ROCKETS, new double crimson, 9s. per dozen; old double white, 3s. per dozen.

PRIMROSES, double white, 4s. per dozen; double crimson, maroon, 12s. do.; double yellow, 5s. do.; double purple, 4s. do.

PHLOXES.—The following choice varieties 9s. per dozen: Maria Boulanger, Striata superba, Roi Leopold, Villaret [illegible], Bois Rose, Imbricata, Macrantha, Deuil de la Comtesse de Morny, Anais, Eliza, Mrs. Thompson, Madame Courcelles, Madame Frobel, Madame Lanier, Madame de Pruines, Gen. Lamoricière, Princesse de Cleres, Princesse Marianne, and other fine kinds.

HOLLYHOCKS, extra fine, first-class show varieties by name, 12s. to 18s. per dozen.

BELGIAN DAISIES in 36 best kinds, by name, 4s. per dozen.

PÆONIAS in 20 new and very choice Continental varieties for 1l.

Dielytra spectabilis; this universal favourite, strong flowering plants, 9s. per dozen.

Delphinium Barlowi, 9s. per dozen.
" Mooreanum, an extremely beautiful variety, 12s. per doz.
" grandiflorum maximum, 9s. per dozen.

Saponaria ocymoides, 6s. per dozen.

Statice maritima rosea, a very pretty, hardy herbaceous plant of dwarf habit, producing numerous heads of bright rose-coloured flowers, 6s. per dozen.

MIMULUS in 6 new and choice varieties, 6s. per dozen.

POTENTILLAS in fine variety, 6s. per dozen.

Lilium lancifolium album, 9s. per dozen; rubrum, 20s. per dozen.

Lobelia Feu du Roi, St. Clair, and Aurora, 9s. per dozen.

Herbaceous Plants in very choice variety, 30s. per 100; 4s. per dozen.

YOUELL & Co., Royal Nursery, Great Yarmouth.

AMERICAN NURSERY.

GEORGE BAKER'S DESCRIPTIVE CATALOGUE OF AMERICAN PLANTS, &c., as exhibited by him in the Royal Botanic Gardens, Regent's Park, may be had on enclosing two postage stamps.

G. B. begs to call attention to his fine stock of Weeping Conifers, Coniferous Plants, Ornamental Shrubs, &c.—American Nursery, Windlesham, near Bagshot, Surrey, near Staines Station, South-Western Railway, where conveyances may be obtained.

SUPPLEMENT TO MAY'S CATALOGUE OF HARDY HERBACEOUS PLANTS to be had free by post on application at the Nursery. The Catalogue and Supplement contain the most rare and beautiful varieties of this interesting class of Plants, amounting to upwards of 2000 sorts:—

100 fine Herbaceous and Alpine Plants, named ...	£1 10 0
100 do. do. do., Purchasers' selection...	2 10 0
100 fine Double Hollyhocks	1 10 0
12 fine named Calceolarias, new	0 12 0
12 fine do. Shrubby do. do., including "Masterpiece," "Surprise," and "Superba"... ...	0 12 0
12 fine Ericas, named	0 12 0
12 do. Epacris do.	0 12 0
12 do. Cineraria, do., including "Lord Stamford"	0 12 0

N.B.—A fine collection of Shrubs and Hardy Trees, also Greenhouse Plants, &c. &c. See Catalogue.—Address, HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

J. COLE begs to inform the admirers of Calceolarias that he is now prepared to supply a few more orders from his Choice Stock of Unblooned SEEDLINGS—the seed was saved from the choicest spotted and striped varieties, carefully impregnated—at 3s. and 4s. per dozen, 20s. and 25s. per 100. Also strong plants of his Fine Bedding Calceolaria Prince of Orange, for habit and profusion of bloom unequalled. Strong Plants without pots, 6s. per dozen; well established, 9s. per dozen. The Trade liberally supplied. A Remittance solicited from unknown correspondents. Post-office Orders payable at St. Alban's.
Keyfield Nursery.

NEW DAHLIAS AND OTHER PLANTS.

THOMAS BARNES begs to announce that he will commence sending out (from a very fine healthy stock) on the 1st of May, his new superb Dahlia Warrior, and Ablitt's incomparable, both of which are very fine crimson, though perfectly distinct, 10s. 6d. each, with all the leading Dahlias of last and former years at moderate prices. His Catalogue, with descriptions and prices, may be had on application, which includes Dahlias, Fuchsia, Verbenas, Phloxes, Chrysanthemums, Roses, Pansies, Daisies, Petunias, and Miscellaneous Plants. Also his new Scarlet Pelargonium, Dawn of Day, which T. B. is now sending out.—Dane Croft Nurseries, Stowmarket.

SPLENDID NEW HOLLYHOCKS.

G. SMITH respectfully informs the admirers of the HOLLYHOCK that the following are Seedlings of great merit, and cannot fail to give entire satisfaction. They were raised by Mr. Parsons, the grower of Joan of Arc, and other fine varieties. To be sent out about the middle of April, 1855, in strong healthy plants.

	s.	d.
Zelat, yellow and buff, a nice full flower	3	6
King of Yellows, large, of fine form, flower full, extra fine yellow	7	6
Marchioness, flesh or blush, very double and close, fine for exhibition	3	6
Monarch, a true salmon, very large and fine shape ...	7	6
Mr. Adams, dark salmon pink, a noble show flower ...	5	0
Pearl, blush white, large and distinct	5	0
Pillar of Roses, a beautiful bright rose, a splendid spike, the finest border flower yet offered, and a most attractive show flower	5	0
The Alma, cherry rose, distinct, fine shape	5	0
White Unique, very close and double	3	6
Sarah, a splendid large rose, fine form and spike	5	0

Tollington Nursery, Hornsey Road, Islington, London.

BEDDING PLANTS.—AT 2s. 6d. PER DOZ.

JOHN SCOTT, Merriott Nurseries, Crewkerne, Somerset (established 1728), has nearly 20,000, in 3-inch pots, ready to be sent out. Post-office Orders payable at Crewkerne. (Baskets and Package at the Expense of Purchaser, and not returnable.)

200 Sorts of the best and newest Verbenas.
100 do. Scarlet and other Bedding Geraniums.
[illegible] do. Variegated leaved ditto.
100 do. Fuchsia, all the best; 24 do. Shrubby Calceolarias; 24 do. Petunias; with Anagallis, Ageratums, Cupheas, Heliotropes, Lobelias, Salvias, Senecios, &c. Also the beautiful white flower Pyrethrum.

When a fair proportion of each is taken the price will be 2s. 6d. per dozen; but if only Calceolarias and Geraniums are ordered they will be 4s. per dozen. Catalogues, in which the above are arranged in sections of colour, &c., sent on receipt of a postage stamp. Parties requiring large quantities can have them in larger pots by agreement.

GERMAN ASTER SEED, all saved from the finest double varieties ever yet exhibited, and which have surpassed all others in cultivation for their immense size and different colours, 1s. per packet.

SWEET WILLIAM SEED saved from 50 of the choicest and finest perb varieties, 1s. per packet.

ANTIRRHINUM SEED saved from all the finest shaped and best varieties, 1s. per packet.

SUPERB HOLLYHOCK SEED saved from all the best named flowers, 1s. per packet.

SCARLET GIANT BROMPTON STOCK, extra fine, 1s. per packet.

VERY SUPERIOR FIMBRIATA PRIMULA SINENSIS SEED, saved from six distinct varieties of the largest and most beautiful plants ever grown, 2s. 6d. per packet.

PANSY SEED, a few packets from selected varieties, 1s. per packet.

CALYANTHUS SEED, fine mixed, 1s. per packet.

BROWN GOURD, or CUSTARD MARROW; this variety is the most delicious of all the Marrows grown, 1s. per packet.

AQUILEGIA, or COLUMBINE, of 12 distinct varieties, 1s. per packet.

Any three packets of the above (except the Primula) sent post-free on receipt of 2s. 6d., or the Primula included with two other packets for 3s. 6d., in cash or penny postage stamps by
EDWARD TILEY, NURSERYMAN, SEEDSMAN, AND FLORIST,
14, Abbey Church Yard, Bath, Somerset.

EUONYMUS; OR, THE "BURNING BUSH" OF NORTH AMERICA.—The advertiser has just returned from America, and brought with him a few Seeds of the above rare and beautiful hardy ornamental small tree. It grows from [illegible] feet high, and of an uniform bushy, compact habit, quite unlike any of the varieties known in English gardens. For four months in the autumn it is densely studded with its beautiful scarlet seeds, which makes it an object of the most striking and remarkable character, and hence the name "BURNING BUSH" has been given to it by the natives. The advertiser's knowledge of plants and their worth enables him to say that hundreds of plants have been sent out as being hardy and ornamental, whose value to the "Burning Bush" 50 perfect seeds will be forwarded post free, on receipt of 50 postage stamps, addressed to A. B., 12, Great Pulteney Street, Golden Square.

A Specimen of this charming plant will be shown at the Monthly Meeting of the Horticultural Society, 21, Regent Street, London.

NEW AND RARE CONIFERÆ.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, Edinburgh and London, have still on hand a small quantity of the Seeds of the following RARE CONIFERÆ, &c.:

	£ s. d.		£ s. d.
Pinus Lambertiana, 50 Seeds	1 5 0	Taxus Lindleyana (quite new) 50 Seeds ...	2 2 0
P. tuberculata, entire cones	2 2 0	Club-headed Wheat (cultivated by the old Californians) 200 grains	1 0 0
P. monticola, 50 Seeds ...	2 2 0	Wheat (a variety of Triticum durum) do.	15 0
P. Jeffreyi do. ...	2 2 0		
P. Beardsleyi do. ...	2 2 0		
Libocedrus decurrens, do.	1 5 0		

Full descriptions will be found in the last page of the *Gardeners' Chronicle*, for Feb. 3.—Orders may be addressed to PETER LAWSON & SON, in Edinburgh; or to their London House, 27, Great George Street, Westminster.

GERANIUMS—CHEAP AND GOOD.

W. H. WHEELER, FLORIST, Hendon, Middlesex, offers a choice of the following at 21s. per doz.:—Medora, Enchantress, Sunrise, Governor-General, Pilot, Carlos, Colonel of Buffs, Hero, Supreme, Optimum, Magnet, Mochanna, May Queen, Virgin Queen, Magnificent, Forget-Me-Not, and Village Maid. Older varieties at 6s. per doz.; Scarlet Geraniums, 3s. per doz.; Miss Emily Field (White) 12s. per doz.; Skeltoni and Kingsbury Pet, 9s. per doz.; Verbenas out of pots now, 2s. per doz. All other Bedding Plants equally cheap.

NEW PLANTS IN FLOWER.

MESSRS. E. G. HENDERSON AND SON, of the Wellington Nursery, St. John's Wood, London, beg to announce that the following plants are now in flower, and may be seen in their winter garden:—

Camellia Marie Antoinette	Azalea Juliana
" Ariosto	" alba illustrata
" Mathotiana	" admiration
" alba pleno of Casoretti	" narcissiflora
" alba illustra	Rhododendron campylocarpum
" Catherine Longhi	" Dalhousieanum
" Comte de Paris	" Edgworthi
" Don Michel	" ponticum coccineum
" Innocenza	Cyclamen persicum, new collection
" Madonna	Rhododendron, new seedling
" Ristori	Camellia de la Reine
" Verschaffeltiana	Genetyllis macrostegia (Fuchsioides).
" Sarah Frost	Bouvardia longiflora.
" General Drouot	
Azalea Criterion	

Wellington Nursery, St. John's Wood, London.—April 28.

HUGH LOW AND CO. have now ready for Sale young Plants of the undernamed new VERBENAS, which are the cream of the Continental Collections of the present season. Price 1s. 6d. each:—

Arago, violet bronze	Gloire de France, vermilion, large truss [white eye
Adrienne, pink, purple eye	Jerome, crimson, black centre,
Coleman, velvety crimson	Laurentine, pink, cream eye
Duc d'Almeida, crimson, centre very dark	Mariette, violet, white eye
Eulalie, violet pink, cream eye	Menschikoff, crimson red, white
Flore, rose, red eye [white eye	Paul de Kock, very dark [eye
Florian, crimson, brown centre,	Savenay, lilac, purple centre

Heliotrope climax; this variety, now offered for the first time, is of great merit, and will prove to be the best for bedding out in the Flower-garden. Price 3s. 6d.

H. Low & Co. have now ready a very large stock of Soft-wooded Plants of all kinds suitable for decorating the Flower-garden during summer, at prices which cannot fail to suit purchasers. All the Plants are grown singly in small pots, which can be packed securely in a very small compass.

Parties requiring large quantities will be liberally treated.

Clapton Nursery, London, April 28.

NEW ROSES IN POTS.

WILLIAM WOOD AND SON have to offer fine Dwarf Plants of the following:—

HYBRID PERPETUALS.—	s. d.	HYBRID PERPETUALS.—	s. d.
Baron Laray	7 6	Monsieur Pigeron... ...	10 6
Cicero	5 0	Panaché d'Orléans ...	10 6
Comtesse d'Orléans ...	7 6	President Menoux ...	7 6
" Vaillant ...	7 6	Prince de la Moskowa ...	5 0
Deuil de François Willermoz	7 6	Souvenir de Leveson Gower	5 0
Duchess of Norfolk ...	10 6	" des Braves ...	3 6
Empereur Napoleon (SEMI DOUBLE)	7 6	Triomphe en Beauté ...	2 6
Evêque de Meaux... ...	10 6		
General Bréa	2 0	Bourbon, Ferdinand Deppe	7 6
Jules Margottin, 2s. 6d. to	3 6	" François Henrique	5 0
Julie Guinoisseau ...	10 6	" Omer Pacha ...	7 6
Lafontaine	7 6	Tea, Auguste Vacher ...	3 6
La Ville de St. Denis ...	3 6	" Barillet Deschamps	5 0
Léon Haimann	7 6	" Gloire de Dijon, 3s. 6d. to	5 0
Lord Raglan	10 6	" Laurette (Belle Laure)	3 6
Madame de Cambacères (splendid)	10 6	" Madame Maurin ...	3 6
Madame de Trottaire ...	5 0	China, Lucullus	7 6
" Domage, 2s. 6d. to	3 6	Perpetual Moss, Salét ...	7 6
" Hector Jacquin .	5 0	Noisette, Augusta, 7s. 6d. to	10 6
" Lacour Juric ...	7 6	Moss, Jeanne de Montfort	3 6
" Masson	10 6	" L'éblouissante ...	3 6
" Phelip	5 0	" Vandaël	3 6
" Place	7 6	Hybrid Bourbon, Charles Lawson	7 6
" Theodore Martel	7 6	Gallica, Amphitrite ...	2 6
" Vidos	10 6	" George Vibert ...	2 6

Extra plants will be presented with each order.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

NEW ROSES.

BENJAMIN R. CANT begs to offer strong Dwarf Plants, in pots, of the following NEW ROSES:—

HYBRID PERPETUALS.—	s. d.	HYBRID PERPETUALS.—	s. d.
Alfred Colomb	3 6	Madame Theodore Martel	7 6
Alphonse de Lamartine ...	3 6	" Quetel	3 6
Ceres	3 6	Marie de Bourges ...	3 6
Cicero	5 0	Prince de la Moskowa ...	5 0
Comtesse Vaillant ...	7 6	Sir John Franklin ...	3 6
Conseiller Jordenil ...	3 6	Triomphe en Beauté ...	2 6
Duchess of Norfolk ...	5 0		
Deuil de F. Willermoz ...	7 6	P. Moss, André Thouin ...	3 6
George d'Amboise ...	3 6	Bourbon, Omer Pacha ...	7 6
Gloire de France	3 6	Tea, Louise de Savoie ...	7 6
Gloire de Parthenay ...	3 6	Nois, Augusta	7 6
Lady Milsom	3 6	Moss, D'Arcet	2 6
Lady Shelley	3 6	" Gloire de Mousseuses	5 0
La Ville de St. Denis ...	3 6	" Jeanne de Montfort	3 6
Madame Domage... ...	2 6	" L'Eblouissante ...	3 6
" Hector Jacquin	3 6	" Marie de Blois ...	5 0
" Masson	10 6	" Vandael	3 6
" Lacroix	3 6	Gallica, Amphitrite ...	2 6
" F. Rigaux ...	3 6	" George Vibert ...	2 6
" Place	7 6	H. Bour., Charles Lawson	7 6
" Recamier ...	3 6	" Gervaise Rouillard	3 6
" Rendatler ...	3 6		

N.B. The new Hybrid Perpetual Rose Emperor Napoleon will not be sent out before June; by that time I shall have proved it. If not more than semi-double, I much question if it is worth 7s. 6d. I, however, received a very high character of it, which induces me to offer it to the public, *but not to let it out before proving its worth.*

Carriage paid to any Station on the Eastern Counties Railway.
St. John's Street Nursery, Colchester.

FLOWERING PLANTS.

F. AND A. SMITH beg to offer FLOWERING PLANTS of the following (in quantities to the trade):—Geraniums, Fuchsias, Verbenas, Heliotropes, Calceolarias, Hydrangeas, Roses, Cactus, Ericas, Burchellia, Kalosanthus, Neriums, Scarlet Geraniums, &c. Prices on application. The Plants are stocky and in good condition: an inspection solicited.—Dulwich, Surrey.

NEW AZALEA—"ALBA MELIOR."

THIS is the one exhibited by us under the name of "ALBA MAGNA" among our collection to which the First Prize was awarded at the Regent's Park Show; very large pure white, and quite first-rate. Price 7s. 6d., 10s. 6d. to 21s. each. Also a superior stock of Azaleas, for which see Catalogue.

The Spring Catalogue, consisting of Greenhouse and Stove Plants, and the Herbaceous one can be had by enclosing one postage stamp.

H. LANE & SON, The Nurseries, Great Berkhamsted.

ORCHIDS.

WILLIAM MAULE AND SONS have received their annual importations of ORCHIDS from their collectors in the East, which they beg to offer on the following terms, many of which are one and two years established:—Vanda cærulea, 21s., 42s., 63s., 105s.; Vanda teres, 10s. 6d.; Aerides odoratum, 10s. 6d.; Aerides affine, 42s.; Foxbrush, 105s.; Dendrobium Devonianum, 10s. 6d.; Cambridgeanum, 10s 6d.; Gibsoni, 10s. 6d.; densiflorum, 10s. 6d.; Farmeri, 10s. 6d., 15s.; Chrysanthum majus, 7s. 6d.; nobile, mixed with Wallichi, 7s. 6d.; Pierardi, mixed with latifolium, 7s. 6d.; clavatum, 15s., 21s.; mosohatum, 10s. 6d.; Camarotis purpurea, 10s. 6d.; Cœlogyne or Pleone, Wallichi, and maculata, in pots, with four or five plants or bulbs, 10s. 6d. each; Saccolabium ampullaceum (VERY scarce), small plants, 63s. each. The Nurseries, Bristol.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year; and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

WELLINGTONIA GIGANTEA.—Ample description of this noble tree having appeared in former advertisements or circulars, it is only necessary now to say that it is a Coniferous Tree, of immense dimensions and great beauty. It having withstood the severity of the past winter, without injury, both at Chelsea, Exeter, and various other localities, there can be no doubt of its being a perfectly hardy tree, thus rendering it the most remarkable of recent introductions.

MESSRS. VEITCH & SON can supply healthy well established plants at the following prices:—

A few of the first raised, extra sized plants ...	42s.	0d.
Second size	31	6
Third size	21	0

A reduction will be made on the above prices in proportion to the quantity taken.—Prices to the Trade on application.

Nurseries, Exeter and Chelsea.—April 28.

TO BE SOLD CHEAP, price 60*l.*, a small private Collection of ORCHIDS (180 Plants).—Apply to Messrs. FRASERS' Nurserymen, Lea Bridge Road, Leyton, Essex

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JOHN KERNAN begs to offer the following list of AGRICULTURAL SEEDS:

Agricultural Carrots, Red and White, 1s. per lb.

Mangold Wurzel, of sorts.	Italian Rye-grass (imported).
Skirving's Swedish Turnip.	Mixed Permanent Grasses.
Laing's Purple-topped do.	Parsley for Sheep-walks.
Ashcroft Purple-topped do.	Cattle Cabbage.
Green-topped do.	Thousand-headed do.
Yellow Bullock do.	Clover, Red and White.
White and Red Globe do.	Trefoil and Lucerne.
Dale's Hybrid do.	

The Trade supplied. Seeds carefully packed for all climates. Catalogues may be had on application.

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SUPERIOR WHITE BELGIAN CARROT SEED.

SUTTON AND SONS have some remarkably fine seed of this useful root. Whereas much of the Carrot Seed selling this season is acknowledged to be of inferior quality, Messrs. SUTTON & SONS having tested theirs, find it to germinate as well or better than any they have ever sold. Price according to quantity required.—Address SUTTON & SONS, Seed Growers, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, APRIL 28, 1855.

MEETINGS FOR THE ENSUING WEEK.
TUESDAY, May 1—Horticultural (Anniversary)..... 1 P.M.

WE are authorised to state that Mr. COLE, in charge of the British section of the Paris Universal Exhibition, has prepared cards to admit the correspondents of the *Gardeners' Chronicle* to the opening on the 1st May, and that these cards will be ready for delivery on Monday, the 30th April, at the English Office, No. 14, Rue du Cirque, Paris.

SOME inquiries addressed to us by a correspondent upon the subject of GARDEN WALLS lead us to believe that many besides himself will be glad to have some practical information concerning them, which, if not novel, may be relied upon as being sound.

Various heights have been proposed as the best for garden walls. Some have suggested that they should be as low as 8 feet above the surface of the ground; others that they should be as high as 16 or even 18 feet. For general purposes, however, 12 feet may be considered a good height; it corresponds with that of the fruit walls in the Royal Gardens at Frogmore, and with most of those devoted to fruit trees in the garden of the Horticultural Society. Some are of opinion, however, that a height of 10 feet is sufficient, and for the following reasons, viz., that a wall of that height can be sooner covered by trees than one can possibly be that is as high, or higher, than is above recommended; that

10 feet is a convenient height for training and other operations connected with the management of wall trees; that against a long and comparatively low wall more trees could be planted against a certain amount of brickwork, with the certainty of the whole being covered, some years before this would be the case with the upper portion of a high wall; and certainly all these allegations favour the conclusion that it is better and more economical to have any given amount of brickwork in the form of a long and low wall than the contrary.

In determining the best height for garden walls, however, other considerations must be taken into account besides those just mentioned. For instance, there would be little or no use in building garden walls higher than would constitute a good fence, were it not for the necessity of affording a better climate for fruit trees than that of the open ground. This is the all important point which should be kept in view in the construction of garden walls; and the question may be asked how is this affected by the greater or less height of a wall?

We are not aware that experiments have been made to ascertain by means of thermometers the exact difference of temperature in front of high and low walls in the same locality. It is, however, well known that fruit ripens better against the former than against the latter. In a locality where the Orange tree would die in Britain, planted out against a rock-work terrace of only a few feet in height, it has lived many winters on a rocky steep, in the shape of terrace above terrace to the height of 30 feet or more, surmounted by the mansion, which also reflects heat from a frontage 300 feet in length. In short, the higher the wall, the greater the warmth in front of it, all other circumstances being equal. To produce the desired effect, garden walls should therefore be higher in a cold climate than in the naturally warmer southern counties. A high wall best fulfils the object for which fruit walls are built, and it is therefore to be preferred to a low one; in point of efficiency it is infinitely superior to the latter. A wall 12 or 14 feet high may certainly be naked near the top for a few years longer than one 8 or 10 feet high, but the additional height is not lost whilst it contributes to the perfect ripening of the fruit below. It is, in fact, better to insure perfectly ripened fruit on a wall, say 12 feet high, than to reduce the height one-fourth or one-sixth, and add it to the length, at the same time rendering the whole inadequate to ripen fruit in perfection. Where the means are ample and the climate indifferent, south-aspect walls more especially may be advantageously built higher than 12 feet; but as much as this at least should be generally aimed at. There are many old walls, on good foundations, considerably lower than this, which might have some additional courses of bricks put on them before next winter, in the full assurance that by so doing a permanent improvement would be effected.

With regard to thickness, we should prefer a 14-inch hollow wall built of good bricks and mortar to any other. It is about $\frac{1}{4}$ or $\frac{1}{5}$ cheaper than a solid wall of the same thickness, and it is drier, and consequently warmer than a solid wall. It may be heated by hot-water pipes; but if so, care should be taken to have ready means of access to the joints in case of leakage; and precaution should also be taken to empty the water out of the pipes before winter, otherwise frost might burst them, unless that is guarded against by covering them or by applying a little fire-heat. Hollow bricks do not appear to be either applicable or necessary for garden walls, especially where the latter are built hollow, for in this case the two sides, being only 4½ inches thick, require to be of solid materials.

Contact with any metallic substance is more or less injurious to vegetation, and therefore training to galvanised wire, or to any other kind of wire, should in all cases be avoided as much as possible. In dispensing with these, however, there is no necessity for battering down walls with hammer and nails: the mortar should be good enough to hold the latter, of which as few should be used as possible; most nails are required for the smaller shoots, and to hold wood of that description the nails need only be driven in a very little way, so that the joints may require fresh pointing not oftener than once in 50 years, and then the face of the bricks having been preserved, the wall will be as good as new. If nail-holes are made in the bricks themselves, insects are very apt to choose such cavities for their habitations, from which they cannot easily be dislodged without washing over with cement, and this renders the wall unsightly; but such holes in the mortar joints can be occasionally sealed hermetically by some fine lime-cement without producing any bad appearance.

Excellent concrete for foundations of walls is formed of materials consisting only of lime, gravel, or sand, and water. On such a composition cottages and palaces are founded, and nothing better can be employed for a wall against which trees are to be planted; roots like it, and creep along it with safety. This being the case, there is certainly no necessity for introducing into foundations gas-tar, a pernicious substance which some have thought of using.

As to protection, those who have woollen netting may employ it with advantage; it forms excellent material for the purpose—perhaps the best of any. The coping should project 2 inches, and should have a groove or throating on the under side, so that the drip may fall clear of the face of the wall.

Peaches, Nectarines, Apricots, Cherries, and Plums may be planted against walls, from 15 to 18 feet apart. Pears should stand 20 feet.

Some years ago a discussion arose at the Cambridge Philosophical Society about the transport of certain seeds from island to island. As is usual on such occasions many theories were broached, in the midst of which it was suggested that it would be as well to try first whether the seeds were capable of floating. In a similar spirit of good sound practical sense, Mr Darwin, who is engaged in many interesting matters relative to the distribution of vegetables over the world, both in modern and more distant geological times, has through the medium of our journal requested information as to the capability of germination in seeds after immersion in sea-water, and the nature and affinities of those which are able to endure such immersion. A mass of valuable information might easily be obtained if some ten or more of our readers would comply with Mr. Darwin's request. It is scarcely probable that they will have information on the subject which is at once available; but nothing would be easier than to obtain it if some such plan as the following were adopted—a plan which we have ourselves put in execution.

Sixty bags of strong muslin about 1½ inch square were prepared, with seams sufficiently large to insure the preservation of the seeds. These were divided into three sets, one for Monocotyledons, a second for Dicotyledons, and a third for corn and miscellaneous vegetables. Each bag was accurately numbered and its contents registered, but as the numbers might be washed out by the salt water, the bags were regularly arranged in order, each set of 20 being kept separate, and a button sowed to number one to prevent any possibility of mistake. The seeds were such as would most probably come up in the garden, and in one case consisted of flower and vegetable seeds from the Horticultural Society and of Monocotyledons from Kew. All these have been sown and accurately labelled, with a view to ascertain the fact that they are capable of germination under ordinary circumstances, and the bags are now sent off to the sea, with a request that they may be immersed in some safe place, where they can constantly have a fresh supply of water, without the chance of being injured by the waves. On their return, the whole will be sown, and the result accurately noted, all cases being rejected as useless in which the seeds have not germinated in the garden. It would have been desirable to have experimented with tropical seeds, especially of some of the Leguminous plants, whose fruit is often wafted across the ocean, but materials were not at hand. The experiment, however, will still be useful as regards the distribution of plants in temperate climates.

A similar set of experiments, conducted with care and accuracy, could scarcely fail of leading to some positive results, and we strongly press the matter upon the attention of our more scientific readers. *M. J. B.*

VEGETABLE PATHOLOGY.—No. LXIX.

303. Chlorosis (*Constitutional and Functional*).*—1. Chlorosis of Cacti.—One of the most striking examples which can be adduced under this head is a disease which has been recorded by Meyen as extremely common amongst the Cereus division of the Cacti in Germany. I have had no opportunity of inspecting this personally, and therefore must be content to borrow the account of Meyen, for a somewhat similar affection which is common in England amongst the Phyllanthoid Cacti does not seem to be identical, but appears rather to accord with ordinary cases of chlorosis arising from bad and inattentive cultivation.

304. In Meyen's disease the whole plant seems to have acquired an inveterate condition, which renders it utterly unfit to perform its proper functions. Not only do particular parts assume a yellow tint, and that not by any change of chlorophyll from green to yellow, for parts of every new shoot are equally colourless, and though it increases in dimensions, the constituent cells never attain perfection. Pruning, consequently, does not remedy the mischief, and if an attempt is made to propagate it, the cuttings will not throw out roots, whereas in the Phyllanthoid Cacti mentioned above, aerial roots are thrown out in abundance. Meanwhile the disease is slow in its progress, and it is only after a lapse of some years, after the fashion of those large Cacti imported from South America which refuse to throw out any fresh roots after being placed in our stoves, that the plant has ceased to live, unless indeed it has been subjected to a low temperature, of which these chlorotised plants are peculiarly impatient. The most careful treatment is wholly unavailing; stimulating manures or liquids however judiciously applied are without result, and death seems surely but invariably to ensue. Indeed, as a general rule, all propagation from chlorotic individuals should, if possible, be avoided. Where propagation is possible, which is far from being generally the case, there is little hope of favourable results, at least in all those cases where the evil does not arise from the depravation of existing chlorophyll, but from the inaptitude of the tissues to generate that essential element. The evil, from whatever cause it may originally be induced, seems to be as inveterate as a strumous habit in man, which is almost sure, sooner or later, to develop itself into some external or internal form of scrofula; or even should it by favourable or accidental circumstances be arrested during the life of an individual, it will break out unmistakably in the second or even in the third generation.

305. 2. Chlorosis of Hyacinths.—This disease is reported by Bouché in the "Allgemeine Gartenzeitung" for 1837, but I have in vain attempted to obtain the volume or to get a sight of Bouché's paper, nor had Meyen an opportunity of personally inspecting the disease. I have now, however, before me a Hyacinth which is evidently affected with a modification of the disease, but in too early a stage and imperfect a form to afford any additional information. The disease in an aggravated form is indicated by crumpled, deformed, yellow-striped leaves, which never attain their full development, and gradually communicate their unhealthy condition to the bulb, which eventually perishes. Nothing is said in Meyen's short report as to the condition of the roots or base of the bulb, nor indeed in what manner the plant is affected so as to induce death; the probability, however, is that the original fault was in the reduced stem, for in the majority of instances where death ensues in bulbous plants after the leaves and flowers have made a certain degree of progress, the fault has been originally more deeply seated; and either no roots, or only a few weak ones, and these confined to some isolated part of the plant, have been produced. Should any thing occur worthy of notice in the plant which I have now under observation, I shall have some future opportunity of recording it; but as the disease is evidently present in a very modified form, and the patches which are deficient in chlorophyll are assuming a reddish tint, as if there were a tendency to isolation from those parts which are still in a healthy state, a curative process seems to be going on, and the bulb may ultimately recover. *M. J. B.*

* The last paragraph of No. 299 is too broadly stated. Icterus is only a synonym of chlorosis, so far as icterus albus is concerned. Icterus used without any specific name implies jaundice.

ON THE EFFECTS PRODUCED BY THE FROSTS OF FEBRUARY, 1855, IN THE ROYAL DUBLIN SOCIETY'S GARDEN, GLASNEVIN.

BEING A PAPER READ BY D. MOORE, ESQ., AT THE EVENING MEETING OF THE ROYAL DUBLIN SOCIETY, ON FRIDAY, MARCH 30, 1855.

(*Concluded from p. 261.*)

I shall now detail the principal casualties which have happened, in so far as they are yet observable. During the time the intense coldness prevailed, the wind was mostly from the north-east, which has injured plants more on the side exposed to its influence than on that which is partially sheltered, and the appearance many of them now present is as if they had been subjected for a time to the influence of a flame of fire. The evergreen shrubs, which are usually covered with beautiful foliage at this period of the year, and some even in flower, are brown and scorched, where not completely killed; besides, the number of losses which will yet take place among them can hardly be estimated until after the active-growing season commences, that being the most trying period, when every organ is required to perform the function it is destined for. The following data must, therefore, be considered only the principal results as they have appeared up to the present time, and I shall notice them *seriatim*, as they occur in their natural orders, stating the countries they are natives of:—

Ranunculaceæ.—Pæonia Moutan (native of China), young wood very much injured, so that no flowers will be produced this year; Clematis Nepalensis (native of Nepal), young wood killed; Clematis (two species from the Himalayas), not yet named, a good deal injured.

Magnoliaceæ.—Magnolia grandiflora (Carolina), young shoots and leaves very much injured; M. auriculata (Carolina and Florida), much injured.

Anonaceæ.—Asimina triloba (western states of America), injured.

Berberaceæ.—Berberis Fortuni (China), killed to the ground. Several of the Asiatic species, which generally retain their foliage during our ordinary winters, have had the leaves killed, and in some the young shoots. Berberis Darwini (South America), scarcely touched; Mahonia fascicularis (California), lost all its leaves; M. aquifolium (Nootka Sound), leaves injured much.

Cistaceæ.—Cistus ladaniferus (Spain and Portugal), killed; C. laurifolius (France and Spain), much injured.

Pittosporeæ.—Pittosporum Tobira (China), fine, large

plant, which had stood quite hardy during the last 20 years, very much injured; P. revolutum (New Holland), injured greatly.

Malvaceæ.—Sida vitifolia (Peru), killed.

Coriariaceæ.—Coriaria myrtifolia (south of Europe), much injured.

Celastraceæ.—Euonymus Hamiltonianus (Nepal), young wood killed; E. japonicus (Japan), in some instances killed, and in others very much injured. The variegated variety has suffered equally.

Rhamnaceæ.—Paliurus aculeatus (Asia), young wood killed; Rhamnus alaternus (south of Europe), some fine large plants killed, and all the varieties much injured; R. hybridus, lost all foliage, but not otherwise injured; Colletia horrida (Chili), slightly injured; Ceanothus azureus (Mexico), fine large plants, which have stood many years, trained against walls, killed to the ground; C. divaricatus, killed to the ground; C. americanus (New Jersey), young wood killed; C. papillosus (Mexico), killed.

Aquifoliaceæ.—Ilex aquifolium, common Holly, has had leaves and young shoots killed in some instances; I. ligustrifolia, killed; I. castaneæfolia, killed; I. dipyrena (Nepal), very much injured, but not killed; I. latifolia, leaves and young shoots injured.

Homaliaceæ.—Aristotelia Macqui (Chili), large plants which have stood more than a quarter of a century killed to the ground.

Anacardiaceæ.—Duvaua dependens (Chili), large plants killed, though trained against a wall; D. ovata (Chili), very much hurt.

Leguminosæ.—Cytisus tomentosus, killed; Piptanthus Nepalensis (Nepal), some plants killed, others much injured; Ulex Europæus, common Furze, injured in some cases; Genista triquetra (Spain), young shoots killed; G. sphærocarpa and G. ætnensis have both stood uninjured; Edwardsia microphylla (New Zealand), plants which have stood many years killed to the ground; E. grandifolia (New Zealand), killed to the ground though trained against a wall; E. Macnabiana, very much injured.

Rosaceæ.—Cerasus lusitanica, Portugal Laurel, injured in some cases; C. laurocerasus, common Laurel, injured also; Rosa: many of the hybrid Roses which were budded on hardy stocks have been killed, particularly those which belonged to the tea and Chinese kinds. The common Chinese species have had their wood killed to the ground. Fortune's 5-coloured Rose, from China, has also been killed to the ground. Rosa microphylla, large plants, trained against a wall, killed; R. Banksia, fine plants, killed to the ground; Cratægus crenulata (Nepal), much injured; Photinia serrulata (China), fine large plants, ten feet high, and nearly twice as much in diameter, greatly injured, if not killed.

Philadelphaceæ.—Decumaria sarmentosa (Virginia), nearly killed.

Grossularaceæ.—Ribes speciosum (California), greatly injured.

Escalloniaceæ.—Escallonia rubra (Chili), killed as a standard, and much injured planted against a wall; E. montevidensis (South America), a fine plant of this beautiful species, which had attained to a height of ten feet as a standard, killed to the ground; E. floribunda, killed also; E. viscosa, much injured; E. Oregonensis, young wood killed; E. macrantha (Chili), leaves much browned, but the wood does not appear to be killed.

Saxifragaceæ.—Hydrangea altissima (Nepal), fine plants, which had stood out seven years trained against a wall, killed; others injured.

Araliaceæ.—Helix chrysocarpa (Nepal), very much injured.

Cornaceæ.—Benthamia fragifera (Nepal), fine plants killed to the ground.

Caprifoliaceæ.—Lonicera discolor, L. flexuosa, and L. brachypoda, all considerably injured; Leycesteria formosa (Nepal), young shoots killed; Viburnum tinus, common Laurustine, very much hurt, particularly the shining-leaved variety; the black, or hairy-leaved, not nearly so much injured; V. suspensum, killed to the ground.

Compositæ.—Baccharis halimifolia (Florida), large plants much injured; Iva frutescens (Florida), killed to the ground; Senecio cineraria (south of Europe), killed to the ground.

Ericeæ.—Great loss has been experienced among plants belonging to this order. Fine plants of Erica mediterranea, 8 feet high, and as many feet in circumference, which have probably stood during the last 30 years, have been killed to the ground. Even the Irish variety, which grows naturally in the county Mayo, is killed where it was not covered with snow. Erica arborea (south of Europe), killed to the ground; E. Australis (Spain and Portugal), killed; E. multiflora (south of France), killed, where not covered with snow; Arbutus unedo, very much injured, both in leaves and shoots—many plants killed altogether; A. hybrida, injured, but not so much as the last; A. Andrachne, young plants killed, but one fine specimen, upwards of 20 feet high, not much hurt; Gaultheria hispida, injured where not protected by snow; G. coccinea has suffered equally. Rhododendrons: hybrid varieties have, in general, suffered severely, particularly those between R. arborea and other species, some of which are killed; Azalea mollis alba (China), injured, but not killed.

Styraceæ.—Styrax officinale (south of Europe), injured, though protected by a wall.

Asparagineæ.—Bumel a tenax (Carolina), injured, but not killed.

Jasmineæ.—Ligustrum lucidum (China), one of the first plants of this species which reached Europe, killed to the ground—others much injured; L. japonicum (Japan), scarcely injured; Phillyrea media, some of the varieties injured; Olea Europæa, common Olive, injured, planted against a wall; O. excelsa, much injured, though protected by a wall.

Jasminaceæ.—Jasminum revolutum (Nepal), very much injured.

Solanaceæ.—Solanum crispum (Chiloe), fine plants, which have stood hardy during the last 10 years, much injured; S. jasmininflorum, trained against a wall, killed; Grabowskia duplicata (South Brazil), slightly injured; Fabiana imbricata (Chili), fine plants, 5 feet high, killed to the ground.

Scrophulariaceæ.—Buddlea globosa (South America), large plants, which have stood uninjured many years, killed to the ground; B. Lindleyana, greatly injured though trained against a wall; B. crispa (Nepal), very much injured.

Lauraceæ.—Laurus nobilis (Italy and Greece), fine plants, from 10 to 15 feet high, and probably 30 years old, killed to the ground.

Thymelaceæ.—Daphne pontica (Asia Minor), killed; D. Tartonraira, much injured; D. oleoides, killed; D. gnidium, killed.

Eleagnaceæ.—Elæagnus reflexus, top shoots killed.

Antidesmeæ.—Garrya elliptica (California), slightly injured.

Artocarpeæ.—Borya ligustrina (Illinois), killed.

Ulmaceæ.—Ulmus sempervirens, killed.

Corylaceæ.—Quercus virens (southern states of America), killed to the ground; Q. coccifera (Levant), much injured; Q. pseudococcifera (Algiers), fine plants, much injured; Q. Fontanesi, slightly injured; Q. suber, cork tree, fine plants, much injured.

Taxineæ.—Taxus canadensis (Columbia River), much injured; T. japonica (Japan), quite safe, and very hardy; Taxodium sempervirens (California), upper branches much injured; Cephalotaxus drupacea (Japan), not injured; C. pedunculata (Japan), not injured; C. Fortuni (north of China), safe; Podocarpus Totara (New Zealand), killed.

Coniferæ.—The plants in this order, which have been either killed or much injured, may be considered the greatest losses. Pinus Brunoniana (Nepal), young wood killed; P. religiosa (Mexico), killed; P. Webbiana (Nepal), upper branches injured; P. deodara (Nepal), foliage much browned in some plants, others not injured in the slightest degree; P. Ayacahuite (Mexico), fine plant, killed; P. Lambertiana (Mexico), young plant killed; P. monticola (Mexico), slightly injured; P. Apulcensis (Mexico), foliage injured only; P. Devoniana (Mexico), foliage injured; P. Montezumæ (Mexico), very slightly touched; P. pseudostrobus (Mexico), slightly injured; P. Russelliana (Mexico), foliage greatly injured; P. muricata (Mexico), slightly injured; P. patula (Mexico), foliage much injured; P. Hartwegi (Mexico), one fine plant killed and another a good deal injured; P. palustris (North America), much injured; P. jezoensis (China), killed; Araucaria imbricata (Andes), leaves of some plants a good deal browned, others not injured.

Cupressineæ.—Thuja pendula (China), young shoots injured; Libocedrus Chilensis (Chili), slightly injured only; Cupressus funebris (Chinese Tartary), one fine plant killed, and another killed where not protected by snow; C. Goveniana (California), tops of branches killed; C. thurifera (Mexico), fine plants killed (?); C. Coulteri (Mexico), one fine plant killed (?), and another very much injured; C. Uhdeana (Mexico), injured at points of shoots; C. elegans, or Mexicana (Mexico), much injured; C. lusitanica (Cedar of Goa), some fine plants killed, others much injured.

Juniperineæ.—Juniperus Bermudiana (Bermudas), killed; J. flaccida (Mexico), killed; J. tetragona (Mexico), much injured; J. gossainthanea (Himalayas), much injured; J. Bedfordiana, much injured.

Smilaceæ.—Smilax maculata (Nepal), injured, though planted against a wall; S. aspera (Asia Minor), much injured; S. sarsaparilla (America), injured; S. latifolia (New Holland), injured, but not killed.

Liliaceæ.—Ruscus racemosus (Portugal), branches injured.

Asphodeleæ.—Phormium tenax (New Zealand Flax), much injured, but not killed.

Gramineæ.—Gynerium argenteum (Pampas Grass), foliage killed, as well as some of the plants, and all the others very much injured.

In addition to the foregoing, many fine specimens of New Holland Acacias, and other plants from the southern hemisphere, which had stood out several years, trained against walls, with only slight protection, have all been killed to the ground, including the blue passion-flower (Passiflora cærulea), besides many small rare plants which were growing in the narrow borders fronting the conservatories, have also been killed or much injured.

This long list of casualties will at once show that the commonly received doctrine of plants becoming acclimated rests on a very unstable foundation. The individual plants which are first imported never become hardier, but rather the reverse; but seedlings obtained from them may and do so.

The extreme cold has, however, had its advantages by showing us the plants which are really hardy and never likely to be injured in Ireland. I shall, therefore state the names of a few, which may be reckoned valuable, and well worthy of being planted where rare ornamental trees are desirable, viz.:—

Pinus nobilis, P. ponderosa, P. Sabiniana, P. Coulteri, P. californica, which closely resembles C. Coulteri; P. Benthamiana, P. muricata, P. insignis, P. Pinsapo, P. cephalonica, which is often hurt by late spring frosts, but otherwise very hardy; P. Montezumæ, P. excelsa, P. osteosperma, P. Nordmanniana, very fine; P. Gerardiana, P. cembröides, P. Douglasi, where the soil is not much mixed with the debris of limestone; Taxus japonica or Makoyi, Cephalotaxus pedunculata, C. Fortuni, Cupressus Lambertiana, very fine; C. Tourneforti, C. Goveniana, C. torulosa, very fine; Juniperus excelsa, fine; J. recurvata, J. Chinensis, and I. oxycedrus.

Dr. Mackay said he, too, had losses to deplore, which had occurred in the College garden. Plants which had stood more than 30 years had been either much injured or killed this year; but he specially regretted the loss of a fine plant of Pinus macrophylla, which was nearly 6 feet high and beautifully furnished.

CONSUMPTION OF FUEL IN HEATING THE KEW PALM-HOUSE.

In your columns of 30th December and 27th January last, Mr. John Weeks and Co. advertised a boiler for heating hot-houses, and in order to convince the public of its extraordinary heating power and economy in fuel and labour, they gave a statement showing that if their boilers were to be employed for heating the Kew Palm-house, an annual saving of 1095*l.* would be effected upon fuel and labour connected therewith. In your paper of the 10th February Sir William Hooker contradicted the above statement, showing that the average cost of fuel for the Palm-house was not more than 300*l.* a year. Messrs. Weeks replied to this by doubting the correctness of Sir William Hooker's statement; they did not then, however, give a downright denial of its truth, but in a weekly periodical called the "Cottage Gardener," for April 10th, there appeared an article on the subject signed "John Weeks and Co.," which concludes with the following paragraph:—"We would observe that we are not at all surprised that many of your readers, including 'W. X. W.,' should be astonished at the very contradictory statements which appeared in the 'Cottage Gardener' and other papers from Sir William Hooker and the Messrs. Weeks, relative to the consumption of fuel to heat the Kew Palm-house; but as Sir William has chosen to observe a strict silence on the subject since our reply to his first statement, neither your readers nor ourselves have any other alternative but to fall back on our own judgment; and as practical men of some 36 years' experience, we have no doubt whatever that it is perfectly impossible to work the 12 boilers now in use at the Kew Palm-house and maintain a temperature of 60° for anything like 300*l.* a-year; and that, therefore, some great mistake must have been made by those who gave in such a report of the expenditure to Sir William Hooker." From this it would appear that Messrs. Weeks expected Sir W. Hooker to have given some further statement; but as he could not alter the truth, viz, that the cost of fuel for the Palm-house did not average more than 300*l.* a-year, I therefore do not see what further notice of the subject could be expected, especially seeing that the public position held by Sir William Hooker is a sufficient guarantee that his statement is correct. The paragraph above quoted concludes by saying that "some great mistake must have been made by those who gave in such a report." Now I confess it was I that made the report in question by desire of Sir William Hooker (the whole of the ordering and payments for fuel being checked by me), and in order to show Messrs. Weeks the data by which I arrived at the cost of fuel for the Palm-house, I will here give a detailed account of the sums paid for fuel for the use of the Royal Botanic Garden during each of the following years:—

Year ended 31st March,	1846	...	... £388	10	6
" "	1847	...	... 400	0	2
" "	1848	...	... 507	7	6
" "	1849	...	... 761	9	6
" "	1850	...	... 794	6	6
" "	1851	...	... 817	8	6
" "	1852	...	... 673	1	3
" "	1853	...	... 723	8	9
" "	1854	...	... 769	0	0

No exact separate account of the cost of fuel for the Palm-house has been kept, therefore in order to ascertain that point I took the average cost of the whole garden before and after the Palm-house fires came into operation; the latter took place in June, 1848, and the first payment for fuel on account of the Palm-house is included in the sum of 761*l.* 9*s.* 6*d.*, shown to have been paid in March, 1849, consequently the above table includes six years of the Palm-house (less April, May, and part of June, 1848), the average of these six years for the whole garden is, in round numbers, 756*l.*; and after substracting the average of the sums paid in 1846 and 1847 (394*l.*) there remains 362*l.*, which would be entirely due to the Palm-house, provided there had not been, as Sir William Hooker justly states, many other additional fires in operation during those six years, the cost of which I cannot set down at less than 60*l.*, thus bringing the cost of fuel for the Palm-house to about 300*l.*, which with the wages of stokers amounts to 423*l.* per annum. It will be observed that I have left out in the above computation the sum paid in the year 1848; if I had taken that into account the average cost of the Palm-house would have been less, but it would not have been a just statement, as a portion of the fuel for that year was used for a purpose not before or since required. Now, if Messrs. Weeks, with their "practical experience of some 36 years," will still maintain that a great error has been committed in making

the above calculation, and also that their boilers would have saved 1095*l.* a-year during these six years, then I must say that their practical experience has availed them but little in forming a correct judgment in this instance. I have not the means of proving to Messrs. Weeks the correctness of the above statement otherwise than by entries of payments, and coal merchants' tickets of deliveries; but if what I have shown is not sufficient to convince them of their error, it may be possible for them, on making a proper official application at the office of the Commissioners of her Majesty's Royal Parks, Palaces, and Public Buildings, in Whitehall Place, to be allowed to see the whole of the receipted bills; or a more ready way would be to see the official printed estimates for this garden, which are laid annually before Parliament, for in these estimates Messrs. Weeks will find the sum set down for fuel for the year ended March, 1849, to be for the Palm-house 360*l.*, and for the rest of the garden 400*l.*; in the following five years both services are united in one sum, viz., 800*l.* The expenditure above given, when compared with the estimates of the corresponding years, shows that our first and original estimate for the Palm house has not been exceeded during the six years.

It is to be regretted that Messrs. Weeks should, after their "36 years' practical experience," have made such a statement: for it is to the family of Weeks that horticulturists are indebted for many early improvements in heating by hot-water;—I say early, but I also hope recent, especially in regard to the boiler they have advertised. I have no doubt but that it has merits above its predecessors, and if so it will soon become known and appreciated by the public, even without the extraordinary statement of its power and economy as given in the advertisement. Such statements are often apt to make the cautious public think that they are too good to be true; nevertheless I will venture to assure Messrs. Weeks that if occasion arises for boilers in this garden, the merits of their new boiler will be fully inquired into; but I candidly tell them that the experience I have had of boilers has made me very incredulous as to the economy of this or that boiler, both as regards the consumption of fuel and in not requiring to be looked at for 12 or 16 hours! Most boilers come up to the mark on these two points during the summer half-year, but in the winter half they fall much below par. Another point Messrs. Weeks take credit for, is in having the whole of the houses of their nursery heated by one boiler. I intended to have given my reasons for differing from them on this point, but as the subject has been fully entered into by Mr. Ayres in the *Chronicle* of last Saturday, I therefore do not deem it necessary to do so; his views entirely coincide with my own, and I can bear testimony to the consequences of the alarming words—"Please, sir, the boiler has burst," or I had it often, "The boiler of Number— is leaking, and has put out the fire." There is another paragraph in Messrs. Weeks' article in the "Cottage Gardener" that I will briefly notice; speaking of the extent of the surface of their houses exposed to the action of cold, they say, "if we take the outside measurement of our detached houses and compare them with the Kew Palm-house, it will be found our detached houses measure about twice as much." I will ask, does this include the brick walls as well as the glass, or glass only? I must confess I am somewhat sceptical as regards the correctness of this statement, not yet having forgotten my country's proverb that "it taks mony wees to mak' a muckle." The Kew Palm-house is free to the public; any one may measure and make his own calculations—not so with Messrs. Weeks' establishment, for having a due respect to politeness, I could not think of deliberately entering their premises with measuring tape in hand without their sanction or invitation. *J. Smith, Royal Botanic Garden, Kew, April 23.*

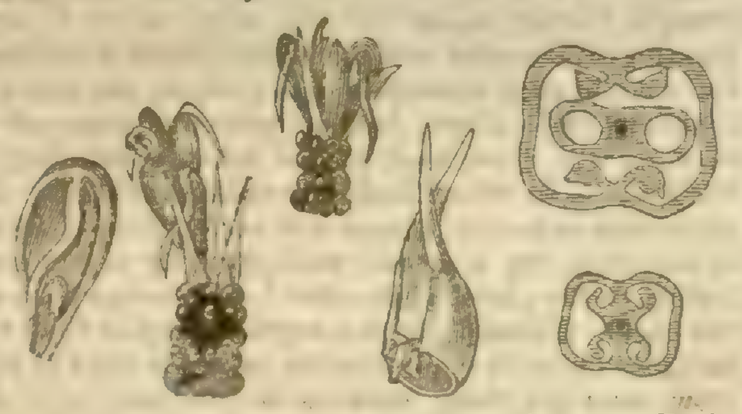
MONSTROUS SWEET WILLIAM.

A few weeks since you published some remarks on a singular state of the common Foxglove, in which the calyx leaves were multiplied at the expense of the inner whorls of the flower, while in a few cases only anything was produced in the shape of carpels. It was shown that parietal and axile placentation occurred in the same capsule, while the axis was prolonged beyond the placentæ and bore at its apex a second whorl of carpellary leaves within the first. I have lately had an opportunity of examining a state of the common Sweet William in an exactly similar condition. Unhappily, from the advanced season of the year, a very few only of the ovaries which had been developed were in a fit condition to yield any certain information; but notwithstanding this inconvenience, results have been obtained which seem of sufficient importance to lay before your readers.

Exactly as in the Foxglove, in advanced ovaries, there was not only the ordinary column studded with ovules arranged evidently on three confluent placentæ, the tips or stigmatic cords of which were free and naked, but the axis was crowned by one or more whorls of carpellary leaves, either so confluent as to form a distinct capsule, or perfectly free to the very base, and exhibiting one or sometimes two ovules attached by peduncles to the edge. A single flower was obtained a few days later, in which the petals though small were tolerably developed and perfectly fresh, as also were the ovary and stigmas. The carpellary leaves of this were disunited above, and only two in number, with the addition of the rudiments of a third, indicated chiefly, as in the Foxglove above mentioned, by an additional style. This ovary proved extremely interesting. In a transverse section half way up, the placentæ were seen springing evidently from the walls, but perfectly united in the centre, and showing a fascicle of vessels marking the position of the axis with which they were confluent. A gentle motion of the dissecting knife easily separated one of the placentæ from the walls, as did the mere act of drying; but the other was so firmly incorporated that it could not be separated without actual violence. There was in fact no real solution of continuity. A section higher up exhibited the placentæ as perfectly marginal without the slightest tendency to meet in the centre, though the axis was prolonged and presented sections of two carpels, within which were three more, disposed spirally, and all of them terminated with a short linear style. In this case, of course, there were no free stigmatic cords.

The inference from this example is precisely the same with that which was derived from a Carnation, of which an account was formerly published (*Gard. Chron.* 1850, p. 612), that the placentation in Caryophyllaceæ is essentially marginal, and the apparently central placentation arises merely from an early solution of continuity between the placentæ and the walls on which they were originally developed. I have had many opportunities of re-examining the Carnation, for all the plants raised from the original plant exhibit the same peculiarity of producing a number of ovules transformed into carpellary leaves, and I had the pleasure during the present autumn of showing growing specimens to Dr. Hooker and Dr. Thomson. I do not deny altogether the possibility of central placentation, but it is very probable that many of the supposed cases will be resolved into parietal.

In the Foxglove the two confluent carpellary leaves, of which you gave a figure, produced a placenta on the line of juncture; but in the present case the placenta was confined to the outer margin of each as exhibited in the woodcut. One figure represents two fertile placentæ with their stigmatic cords. In the one the axis is terminated by three central, in the other by four



oblique and very irregular carpellary leaves. Both of these ovaries were more or less decayed. The left-hand figure presents a single carpel of the second, with a distorted ovule near the base. The two right-hand figures represent the sections described above, of which the upper is the more highly magnified; and the remaining figure shows two confluent carpellary leaves, with an ovule at the outer edge, situated just at the point where the suture with the other carpellary leaf ceases. *M. J. B.*

TREE MIGNONETTE.

Common Mignonette is so well known that it is superfluous to say a word about it. It is to the culture of it as standards for the winter decoration of the conservatory and greenhouse that I would now direct attention.

I generally sow in 4-inch pots, about the end of March or beginning of April, according to the number of standards required. The soil I use is maiden loam and leaf-mould in equal quantities, with a little well rotted manure and sand added. I drain and fill the pots in the usual way, but do not press the soil too firmly; I smooth the surface, and put a pinch of seed in the centre of each pot. I cover thinly with fine sifted soil; water gently; and remove the pots to the stove, or, if that is not available, to a hot-bed, and the plants soon make their appearance. As soon as they have grown a little, I pull all out but three of the strongest near the centre of the pot. After all danger of their damping off has in a great measure passed, I remove the two weakest, and tie the other to a neat stake. I repot as the plants require it, and remove the lateral buds as soon as they make their appearance in the axils of the leaves, at the same time preserving the leaves on the stem carefully. The flower will soon make its appearance on the top of the stem; I remove it at once, and allow the highest lateral bud to grow to form the next leader to be tied to the stake as soon as possible; I remove the lateral buds as before, and so on till the stem is the desired height.

When the stem is of the height required, I cut off the top, and allow four or five of the highest lateral buds to grow. As soon as they have pushed a little I pinch them, leaving only two buds on each; I allow them to start a little, and then remove the plants to a cool greenhouse, where they get plenty of air; I continue to pinch regularly as the plants grow, till the heads are the desired size (which will be about the end of September or the middle of October), when they will require their final shift, using 8 or 9-inch pots according to the size of the plants. I procure some iron wire for supports, or neat wooden stakes. After being inserted into the pots they must stand 2 or 3 inches above the head of the plant, to allow all the laterals forming the head to be suspended from them with small pieces of bast. If they are not tied up carefully they will, as they grow, droop down and break, as Mignonette is a plant of straggling habit.

Treated in the above way, Mignonette will flower freely till the time when there is plenty to be had out of doors, when the plants may be thrown away. I prefer growing from seed every season. The little extra trouble required is amply compensated by the neat compact form of the heads of the young plants.

Amateurs will soon find that there is a great difference in the habit of individual plants of Mignonette when growing for standards. Some of the heads will assume a neat compact form, with fine broad foliage, while others will be of an opposite character. Seed should be saved from the plants having the best habit for next season's growth.

I have little doubt that the common Mignonette will be superseded, so far as the growth of standards is concerned, by the new variety, named grandiflora. It appears to be a very robust grower, with fine broad foliage, and will consequently require less time in forming a standard. *Alpha.*

SIR W. J. HOOKER'S REPORT ON KEW GARDENS.

Royal Gardens, Kew, 31st December, 1854.

In presenting my Report on the Royal Gardens of Kew for the year now closed, I need not dwell much on the Botanic Garden as distinguished from the Pleasure Ground or Arboretum. Its progress has been detailed in former Reports. The arrangement of walks, lawns, clumps, and ornamental flower beds is, so far as regards general features, complete.

In novelties, rarities, and especially in useful plants, we have received as many additions as in any former year, and equally numerous have been our donations to foreign gardens and colonies. The former circumstance (our augmented collections), when taken in conjunction with the constantly increasing growth of the plants, compels me to entreat for more accommodation to our greenhouse plants from temperate climates, and especially those of a large size, such as scarce tender Pines, and Australian trees and shrubs.

Nothing has occurred to lessen the number of visitors, or the interest shown by the public in the Gardens and Collections. As in former years, I submit a statement of the number of visitors annually, commencing with the first year of admission to the Gardens, viz. 1841, 9174; 1842, 11,400; 1843, 13,492; 1844, 16,114; 1845, 28,139; 1846, 46,578; 1847, 64,282; 1848, 91,7[illegible]; 1849, 137,865; 1850, 179,627; 1851 (the year of the Great Exhibition), 327,900; 1852, 231,210; 1853, 331,210; 1854, 339,164.

It will thus be perceived that the numbers are steadily and constantly increasing. The great superiority in the year 1851 must be considered due to the influx of people to the metropolis caused by the Great Exhibition, and that of 1853 to the Sunday admission. In the same proportion has increased the number of individuals who come for study and instruction, especially artists. To various Government Schools of Art and Design we continually send abundant supplies for the use of their pupils in London.

The Pleasure Ground adjacent to the Garden, and occupied during the last four years as an arboretum, devoted to all kinds of foreign trees and shrubs that will bear our climate, while still keeping up its ornamental character, has its growing attractions. The rough ground, bordering on the grand walk, or Sion Vista, has, during 1854, been levelled and formed into lawn, and the planting is finished; and a large proportion of the trees and shrubs have been named, in conspicuous letters on iron tablets, with the genus and species in Latin and English, the name of the author who first described it, and the native country; thus rendering this collection of hardy trees and shrubs immediately available for the instruction of nurserymen, planters, &c.

The Museum of Practical or Economic Botany has prospered, and is a source of usefulness as well as gratification to our merchants and commercial men, as well as to scientific persons. Not a day passes but applicants come for information about the woods, oils, fibres, gums, resins, drugs, and dye-stuffs, of which the stores and greenhouses contain the living sources, and the Museum the products, all authentically named.

A new feature in connexion with the Royal Gardens remains to be noticed.

In all continental and Government botanic gardens it is considered indispensable that an Herbarium and Botanical Library should be appended to them, for the benefit not only of the garden itself, but of students and of all who desire information on the properties and commercial value, and on the correct names of the plants which are employed in trade, in the arts, in medicine, manufactures, and domestic economy, &c., &c. The largest garden can never be sufficiently spacious to contain all the known serviceable plants in a living state, even if they could be procured. But a well-preserved herbarium does, or should, contain dried flowering species of every known plant in the world. Again, in the Library we have figures and descriptions, and historical notices of all plants ready for daily consultation. Thus an Herbarium and Library are essentially part and parcel of a Botanic Garden, and when combined with a Museum leave nothing to be desired.

Till 1853 our Garden was utterly destitute of the two former appendages. During that year and the one now expired it has been my duty to report the presentation of two valuable Libraries and Herbaria. One was the gift of Miss Bromfield: it had belonged to her deceased brother, Dr. Bromfield, of the Isle of Wight; the other was bestowed on us by George Bentham, Esq., of London. Both were presented under condition that they should be available, under proper restrictions, for the public service, and both are safely deposited at Kew.

These presents, together with the entire private herbarium and library, the property of the director, have been made available for public use, and are accommodated and conveniently arranged within the precincts of the Garden. This important arrangement was effected in the early part of the year now ended. The benefits of it have already been experienced by botanists, students, and persons of all grades who desire information about economic and other plants throughout Europe. Many have come to reside at Kew for months at a time, with the sole purpose of study in the herbarium, library, and museum, and among the living plants in the Gardens.

I must mention among the more important contributions to the library during 1854, a splendid collection of drawings, upwards of 1000, given by Miss Cathcart, which had been made in India under the direction of her late brother, Major Cathcart; a set of 2188 drawings of Kew plants, which had been prepared by the order of the late William Townshend Alton, Esq., presented by William Attwell Smith, Esq.; and the entire botanical correspondence of the late Dr. Wallick, during his 28 years superintendence of the Gardens at Calcutta, which that gentleman bequeathed to the Gardens.

Lastly, the country appreciates and acknowledges the service it has received from this establishment: the visitors of all grades (on two occasions exceeding 10,000 a day) evince by their general good conduct their thorough enjoyment of the place. Merchants, manufacturers, travellers, we may even include foreign potentates, testify to the same by their gifts of all kinds of plants, museum objects, and books to the library.

To our own colonies our books show that we have contributed extensively, by the dispersion of useful plants and seeds to climates suited to their growth, wherever our trade and commerce reach. *Parliamentary Paper* 140, 1.

COMMON THINGS.

Neapolitan Violets.—About this time collect a quantity of stones about an inch in circumference, and look over your frame, laying one stone on each runner about an inch from its end; after that mix a barrowful of loam and leaf-mould in equal parts, and with a coarse sieve shake it lightly over them an inch thick, afterwards giving them a gentle watering. The lights may be put on every night, only exposing them in fine days, and during mild showers. The last week in May take the runners up with a ball, and prepare a piece of ground on a north border, with the same soil as used in the frame, viz., equal parts of yellow loam, leaf-mould, well-decayed cow-dung, river sand, and old lime rubbish. Plant them in rows 8 inches apart each way, watering them in dry weather; about the beginning of September prepare your frame in which Primulas or any thing of that kind have been grown during the summer months, by placing at the bottom a layer of bricks, on which coal ashes should be spread within 18 inches of the top. Then fill up within 5 or 6 inches of the glass, with a fresh supply of the above compost, slightly pressed with a rake. After taking up the plants carefully but not with too large a ball, plant them in rows as above, giving them a good watering, and shading them from the hot sun for about a fortnight with garden mats, putting the lights on at night. A good thickness of short dung should be applied round the outside of the frame, to keep out the frost, which must never be allowed to get to the plants. A few with good balls may be taken up even when in full flower large enough to fill an 8-inch pot, to stand in the drawing-room. By acting on the above plan a continual supply of this favourite flower may be had from November till March.

The Camellia may be propagated by cuttings, but the usual nursery practice is to graft or inarch on stocks of the single red and Middlemiss red varieties. Cuttings of these root freely, provided they are taken off in a properly ripened state. After being prepared, and potted in very sandy soil and watered, they should be placed in a cold frame till cicatrised, and then introduced into gentle bottom-heat, where they will soon form roots.

Home Correspondence.

Extraordinary Hail-storm.—Mr. Darwin (Researches, p. 435), gives an account of the destruction caused to deer, ostriches, and other wild animals by a hail-storm in the Pampas, of which he was not indeed himself a witness, but of which he saw the results and was satisfied that the account he received from those who were eye-witnesses was substantially correct, and the more so, inasmuch as a similar account is given by Dobrizhoffer in his History of the Abipores. The hail-storm of which an account has just been received from a young officer stationed at Secunderabad, in a letter dated March 13, is still more striking, and is well worthy of being recorded:—"Vegetation is very abundant here, and consists of large tropical plants and all sorts of small weeds. The jungles are very fine. I believe that there are plenty of fungi in the rainy weather, but there is nothing of the kind now. We have had some heavy storms lately, and during one several natives were killed at Bolarum by the hailstones. The brigadier who was out, calling at Bolarum, had the panels of his carriage knocked in; every pane of glass in my house was broken, and some hailstones came into my room, 5 inches long and of the shape of an egg. About a mile from Secunderabad the hail was so heavy that it stripped all the bark off the trees, and has left a road of broken trees through the jungle. I had a quantity of the ice collected, and it lasted three days. A native on the day of the storm, who saw me eating a piece of ice, asked whether it was good, and immediately took up a mass as large as a pigeon's egg and tried to swallow it whole, but it stuck in his throat and he was very nearly dying, but luckily it was removed in time to save him from suffocation. The people were much astonished, having never seen any ice before, and one of them came up to me with his hands full, shivering and bellowing out, 'Bahot tunda, bahot tunda, sahib,' (very cold, very cold, sir)." *M. J. B.*

The Osage Orange.—The following information respecting this plant was obtained during a short residence in the United States. The Maclura or Bow-wood, as it is more commonly called in America, is a native of Arkansas and Missouri, where it is arborescent, and grows from 50 to 70 feet high, and is considered one of the handsomest trees indigenous to that country. The leaf is ovate-lanceolate, and of a dark glossy green. The shoots are furnished with thorns scarcely less formidable than those of the Gleditschia. The fruit is large, round, and of a golden yellow. The wood when properly seasoned is of great durability, and in the southern states is extensively used for ship-building in preference to the live Oak or Quercus virens, which abounds in America, and forms in the south and far west the main material in the form of timber used for that purpose. Various articles of furniture are also made of the Bow-wood, such as chairs, tables, drawers, bedsteads, &c., and from the shavings, chips, and other refuse, a yellow dye is made. Passing from the south and west to the northern and eastern states, the Maclura becomes a mere bush, and is useful only as a hedge plant; but its value for that purpose is, and must be wherever it will grow, truly great. A hedge properly made of it does, indeed, bid a "sweet defiance" to man or animal. Nothing can pass through it, and to climb over it would be next to impossible. Nature has given it the faculty of being made into an impassable barrier, which, when skilfully and properly made, must from the very formidable nature of the plant, give strength and durability ten or twenty times greater than could be offered by any ordinary Whitethorn or Quickset hedge. But, will it grow—will it succeed in this country? That's the question. I answer—No doubt about it. I have seen it in various parts of the States, and under various circumstances, and I do not hesitate to state that it will not only grow and thrive here, and make a hedge or means of defence far stronger and more secure than anything we now have; but for months after your Whitethorn hedge has been leafless and barren, the Bow-wood will be clothed with its beautiful dark green foliage up to the latest period of the year, which I look upon as a point by no means to be overlooked. For railway companies the Maclura will be of great value, more particularly for the summit of railway embankments. Its roots being very fibrous and having quite an horizontal tendency, they will greatly assist in keeping up the soil, and thus be a means of preventing land slips, which often occur. In another number I will say something of the culture of the Osage Orange. I would inform those who desire to know more of this plant, that I have brought over with me some of the shoots of last year. They may be seen at 21, Regent Street, at the Meeting of May 8th. *A Gardener.*

Effect of Gas-lime, Sand, and Ashes on Lawns.—At the recommendation of one of my neighbours I have applied to my lawn lime from the gas-works mixed with equal quantities of sand and ashes from the kitchen grate. From this application I was led to expect a beautifully firm and green surface; but to my astonishment the Grass is literally burnt up, and I fear completely ruined. Pray what is best to be done with it? *J. W. L., Manchester.* [Let it alone. It may recover when rains and S.W. winds return. If not you must replace it.]

Bedding Plants for a Long Border.—Having a long straight border, about 12 feet wide, which I purpose planting this season with flowering plants in continuous rows, but in such a manner as to produce the best effect, I should feel obliged for the opinion of some of your readers, who have been in the habit of planting such borders, as to what plants are most suitable for it. I may observe that at present it is perfectly clear, its front is margined by a broad walk forming an important feature in the place, while a low Laurel hedge runs along the back. I should not like anything higher than 3 feet, and I do not wish more than six or seven rows of plants. Now what are these rows to be composed of? I am tolerably well off for the bedding-out plants most common in use, such as Geraniums, Calceolarias, Salvias, Fuchsias, &c., but I want to know how to dispose of them to the best advantage; the effect to be produced being for the present season only. *N. W.*

Percepier.—"At Cainsham, on the west bank of the river Avon, about 5 miles above Bristol, grows wild the plant Percepier, peculiar to England. It has a strong bitter and sharp taste, and never exceeds a span in the whole year, having no stalk but herbaceous flowers. It is a powerful and quick diuretic, and water distilled from it is useful in many cases."—*Camden's Britannia.* In a foot-note it is said, "Mr. Ray says it is not uncommon in foreign countries. Hist. Plant. IV. 14. Nor is it uncommon in England." Would you have the goodness to look into Ray, and see what is meant by Percepier, and let us know what is the real name of this strange plant. *A. F.* [The plant is Aphanes (or Alchemilla) arvensis, a common weed in gravelly places, and commonly called Parsley Peart, a corruption we suppose of Percepierre.]

Gas from Green Wood.—Can any of your correspondents (scientific men) inform me what that gas is which escapes from green wood freshly put on the fire. It may easily be perceived if prevented from escaping up the chimney by a side draught or cross current of air, and it is unaccompanied by smoke. It is peculiar, but not disagreeable. It comes abundantly from green Apple wood, but is not, I think, peculiar to that. *X. Q. Q., Leysters.*

Fruit and Potatoes uninjured by Frost (see p. 262).—The cistern in your correspondent's fruit-room doubtless first attracted the frost, and therefore his fruit and Potatoes escaped injury. Our father for many years adopted the practice of placing pails, basins, or dishes of water in his fruit-room during intense frosts, thus preventing his fruit from being frozen whilst the vessels contained water, which always attracted the frost before anything else in the room; when all the water had become ice, of course it was necessary to replenish it. Of late years we have been more successful by introducing something larger, such as wash-tubs or milk-pans, filled with water, in the most draughty part of our fruit-room. No doubt, therefore, tubs of water placed in greenhouses, and probably under or near wall fruit trees, would prove useful. If frozen Apples or Potatoes before they are thawed are put into cold water for a few minutes it will extract the ice from them to a degree remarkable, inasmuch as they may be taken out, all sticking together, a complete mass of ice, and if they are then thawed slowly in the water, and afterwards dried, most of them will be as good as ever. Doubtless frozen plants might sometimes be saved by the same practice. The middle of a room is the safest place for preserving fruit, &c., from frost, the sides being the most draughty and cold. We had Potatoes this winter slightly covered with a cloth in the middle of an out-house, opposite the outward doorway, uninjured; whilst others, coddled and covered with great care at the corners and sides, were much frozen, although adjoining other warm apartments. Sometimes in a walled garden it is colder on the borders under the walls than in the middle quarters. Some greened Potatoes exposed in the middle of our grounds all winter, where all the snow had blown off, are now perfectly sound, springing most vigorously, whilst others, buried a foot under ground, are destroyed. *Hardy & Son, Maldon.*

Nursery Treatment of Young Conifers.—I wish to call the attention both of nurserymen and amateurs to the very careless and injurious manner of growing Pines which prevails in so many nurseries. They are carefully tended for a year or two, and then too often are left in pots of ridiculously small size till somebody chances to buy them. The consequence is, that the roots are to the plant what a child's limbs would be to a man's body; they twist themselves round and round till all healthy circulation is checked, and when planted out they are unable to take firm hold of the ground, to avail themselves of its nutritive qualities, or to resist violent winds. Such plants often grow for a few years till a gale of wind comes and blows them over, when it will be generally found that the roots are rotten from impeded circulation. Of course no one who understands these things would choose such plants from a nursery; but when living at a distance from any good establishment of the kind, a gentleman sends his order by post, it is so vexatious to have to return the plants, or be content with one's bad bargain, and by careful untwisting of the roots, and a few years' attention, to endeavour to undo the mischief which, but for neglect, could never have arisen. The very general admiration for Coniferæ which now prevails amongst English amateurs will show how important this subject is; and I greatly fear that in many at present healthy-looking Pinetums this source of evil will be, a few years hence, abundantly felt and lamented. Why if the Scotch and Spruce and Larch and Oak that we buy for our plantations were grown in this manner, what would be the result? Yet the victims of this system of mismanagement are those very plants which we are looking to as the chief ornaments of our pleasure grounds and woods! I wish that every Pine grower would devote his attention to this point; and by way of putting an end to so great an evil, I would propose that there should be published in your journal the names of all those nurserymen who send out plants in this wretched "pot-bound" state, and the names of those whose plants are healthy, well-rooted, and in a creditable state. Were this plan adopted, one would always know who were the right men to go to in whatever district one chanced to be. It has been my fate to form acquaintance with several nurserymen of the southern and midland districts, and I could tell you pretty well who send out properly-rooted Pines, &c., and who do not; I have now come to reside in a district where nurserymen are scarce, and good ones almost unknown, and I am sorry to say I could now give you the names of two or three whose plants are a perfect disgrace to them, and I am, therefore, obliged to send to the south, or to the neighbourhood of London, in order to procure plants that I can be sure will be sent in such a state as to give me a hope that my Pinetum will prosper. If I could draw, I would give you a picture of a Pinaster supplied by Messrs. —— of —— which would amusingly illustrate what I have said, 4 feet high in a 3-inch pot! But enough. *Pinetum.*

Gooseberry Caterpillar.—The following facts may, perhaps, not be without interest. Gooseberry caterpillars have been in past years particularly destructive here; last year they were very numerous, and although various methods were tried for their extirpation, they were of little avail. This year I determined to stop their ravages if practicable, and so far, I am happy to say, I have been successful. Knowing that the chrysalis is deposited in the ground—where it remains during the winter—and that the first few warm days in spring cause the fly to emerge, I kept watch to note their first appearance, and by employing an hour or two in the morning for a few days, I caught several hundreds of flies. Each of the females, at a rough average, I calculate contained fifty eggs—probably many more. On examining the Gooseberry leaves now I find but very few eggs deposited, consequently they are easily removed. I am persuaded that the above method is the easiest and surest way of getting rid of the ravages of this voracious grub. The following description of the fly may be of use in identifying it:—Wings four, quite transparent; the head and antennæ black, the thorax yellow, with a large black spot above and below, the upper spot generally divided into three; the body is of a delicate yellow colour; the legs yellow, and the feet black. *Robert Grey, Hadzor Gardens, Droitwich.*

Natural Mushrooms in April.—I beg to send you a basket of Mushrooms gathered from an exposed Asparagus bed, and a sample of Mushrooms from a Mushroom-house. A circumstance so unusual as a crop of Mushrooms out of doors at so early a period in the year exposed to the opposing influences of severe night frost and dry dewless weather, appears to me to be sufficiently singular to merit remark; the superior excellence of the natural Mushrooms will be evident by comparison. By way of explaining the appearance of the Mushrooms on an Asparagus bed, I may state that having occasion to form a new Asparagus quarter last year, and the natural soil being clay, I was obliged to make the beds of materials borrowed from various places. A layer of the leaves and dung from my Seakale quarter formed the bottom, the top Grassy sods of a pasture, followed by a quantity

of drift, anciently deposited by a little river adjacent the place; the upper part was mixed with the short dung from an exhausted Mushroom bed. The whole was well salted, the bed was raised about 2½ feet above the surface, and the Asparagus planted. During the summer, and until late in the autumn, the Asparagus was pretty nearly pushed out of the ground by immense clusters of Mushrooms. I regret not keeping an account of the number of bushels gathered. No protection was given to the Asparagus bed during the winter, and I concluded that frost and snow, and other climatic influences, had ended my trouble with Mushrooms, but they have appeared again as vigorously healthful as ever. I think this chance has conveyed a lesson in Mushroom culture, and instead of the usual and annual construction of beds formed of horse-droppings and crusts of soil, why should we not form a permanent bed to last several years, and afford a perennial supply of what M. Soyer calls the Pearl of the Fields? *W. Ingram, Belvoir Castle, April* 26. [The specimens were very fine in all respects, and completely answered to Mr. Ingram's description.]

Foreign Correspondence.

Guatemala, *Dec.* 1854.—You have enclosed a few seeds of the Scarlet Antigonum. It is a glorious creeper, and now in full bloom; but perfectly indescribable for its luxuriance. A plant eight years old has its great elephantine-like bulbs, from which springs, in this instance, a stem as thick as my arm at the elbow, some 30 feet long, turning round and round an Anona tree, and spreading over the top of the tree, some 50 feet high and 14 feet in diameter, a canopy of scarlet and green; while, not content with this, it has caught the corridor of the house, and also covered a space 20 feet long, hanging a curtain of 10 feet deep of scarlet streamers. The old lady in whose house this splendid specimen is growing has given me a couple of bulbs,(!) with their young shoots all in prime order; at this season of the year I have great hopes it will preserve its vegetating properties till it reaches England. I packed them in the identical soil where growing, in a box, along with a yellow Bejuco (probably a Galphimia), equally curious, and sent them off by this packet. These plants are natives of our coasts here, climate about 75°; but they thrive here after 6 years' acclimatation 65° to 68°, which is necessary before they flower, so do not be disappointed if the first year does not produce flowers. One thing I observed in unpotting the present specimen—at the end of the numerous fibres on the bulb were 20 or 30 small bulbs, or literally Potatoes, covered with small fibres. All these, I expect, will produce plants, and if so you will have a supply. My wish is that everything I know here as fine may be common in my native land. Of the Epidendrum myrianthum you mention, I have fine plants to go by next packet. Warcscevicz never saw this plant, or if he did he never could get it to England as its habitat is 60 leagues from this. My impression is that the only plants of it that could ever have gone were some which some other Belgian could not pay the freight on, and which S—— bought for 13*l.*, and sold them by auction at Stevens', and I recollect seeing them there sell for 30*s.* and 40*s.* each as Epid. polyanthum. But you have my drawing of the colours and a specimen in spirits, and remember it is as sweet and as handsome in its beautiful cluster as Vanda suavis. Now I will venture to give you a detail of my journey to the Alatepeque frontier of Honduras—take Mr. Baily's map and I will trace you my route, a hitherto new one to me, and I question if traversed by any interested in horticulture before.

1854, *October* 30.—I started in a southerly direction by Arrasola to Quajiniquilapa, where I breakfasted the following day. Near Arrasola abounds Odontoglossum bicallosum, O. læve, climate 60° and 65°. Towards "los Verdes" I found the evergreen seeds No. 110, the plants dried specimens Nos. 1 (a charming yellow Bignonia), 2 and 3 (a pretty Melastomad), with seeds of the two last under same numbers; the climate of these last getting warmer as I descended the mountain of los Verdes to Cerro redondo, 11 leagues, where I slept. Next morning, 31st October, passed through Mal pais, where the vegetation is almost coast; near a rivulet enormous Marants; and of Orchids only Oncid. sphacelatum, Notylias, and Oncid. roseum, with lots of Pipers and Mosses, Lichens, &c. Getting out of the forest I picked up seeds No. 57, a Leguminosa, but not in flower. Breakfasting in Quajiniquilapa, I saw before the door of the house a fine lump of Oncid. Suttoni; it had a mass of flowers. We now kept an easterly direction to Esclavos, and crossed the river of that name, and on towards El Oratorio, the road through a dense forest: here we have fine plants of Cattleya Skinneri, Epid. Stamfordianum, Cycnoches Egertonianum, Notylias, Oncid. sphacelatum, and Epid. macrochilum roseum, with Stanhopeas venusta and saccata. I put up in a village four leagues from Quajiniquilapa, called the Guapinol, from the circumstance of several trees of that fruit growing here, and, 1st November, started again in a northerly direction up a steep mountain covered with trees and Chids, such as I mentioned yesterday, and in addition Sophronitis cernua. We ascended some 1000 feet into a region of solely Pine trees, and about 200 feet higher came on splendid Oaks all covered with Orchids, principally Oncid. Wentworthianum, Epid. electum striatum, and Lycaste cruenta, with Stanhopea venusta—climate about 68°. As we proceeded we came upon an extensive table land all in pasture to the village of Sacualpa or Asacualpa, a celebrated place for robbers. At either entrance of this town there is a gallows erected to keep the people in remembrance of the reward attending their good deeds. After leaving Sacualpa we came into pretty undulating ravines, in one of which, on a river side, I found the pretty shrub No. 5 (a Malpighiad near Bunchosia), and an immense quantity of Orchids—Brassavolas glauca and venusta, Brassia verrucosa, remarkably fine plants; Cyrtoc. maculatum, Lycaste cruenta, Oncid. leucochilum, &c.—as many of these plants as would load a ship in three miles distance, while, as we ascended a little higher, we found in addition Barkeria Skinneri, now in glorious flower. This plant, however, we can never find in masses, single small plants, but most brilliant in its colours; and I observe the colder the climate the finer the colour, not too shady in its habitat, and yet not much exposed to the sun. The natives make collections and place them on the trees before their doors in masses to sell the flowers for the ornamenting the altars of the churches at Christmas; but principally the day of the Conception, December 8, which gives a vernacular *Flor de la Concepcion* and *Flor de Pascua*, by both of which names this really pretty Orchid is known in this country. About two leagues from Asacualpa we descend a steep hill, and come on very extensive plains, which continue till we reach the river Paz, which crossing we again ascend a slight acclivity of limestone rocks, where the only vegetation is Grasses and Pines. On one side of the road, having dismounted, I found the Mimosa seeds, No. 63, a very pretty sensitive plant, forming a bank which on my approach was all set in motion. Continuing through now a region of scoriæ and Acacias, stunted Mimosas, &c., we crossed another beautiful river, and entered on a magnificent plain with a great many trees of the Crescentiad family, on which I found in immense quantities Lælia acuminata, while the hillocks which from time to time rose on this plain bore quantities of the Maguey, some in flower—climate 69° to 75°. We got to the town of Jutiapa at six o'clock, having ridden 12 leagues this day, 30 leagues from Guatemala.

Nov. 2.—Leaving Jutiapa, which is a considerable town and the head-quarters of the Corregidor of the department, we continued along the plain now in a northerly direction to a village called Achuapa, the country void of trees, and hence no Orchids; but on some fine Acacias in a village called San Chin, I saw enormous masses of Loranths in full flower, the seeds of which I sent by last packet in gum. [They were all dead upon arrival] Near Santa Catarina a curious Umbelliferous plant about 6 to 8 feet high, covered with fruit, attracted my attention much—seeds No. 72. We stopped at Santa Catarina, 8 leagues from Jutiapa.

Nov. 3.—From Santa Catarina to Aguablanca we cross a beautiful river, and now in warm climate pass over scoriated rocks, some places showing beautiful sheets of lava. Principal vegetation Mimosas and Acacias, here and there a solitary Epid. macrochilum roseum. My attention was attracted by a shrub which is really a gem, No. 12 (one of the corollate Euphorbias). This was without seeds yet, but I hope to receive them from the mines, where I also found it abundantly. The hill sides for leagues shone again with this lovely plant—climate 70°. Also exquisitely beautiful is the Bucaro, No. 108 (another fine Bignoniad), very common here; but how much I wish they had this in the conservatory at Chiswick! I send seeds also now, and have often done before; but it is very difficult to preserve them, as you will see, and more so to raise them in Europe. We have no finer thing in this country than this; the flowers are always in such dense masses; it grows about the same size as the Cestrum in the conservatory at Chiswick. From Aguablanca I found nothing particular till I got to Caguasaltepeque, where we slept.

Nov. 4.—Leaving this farm-house, in the intricacy of half a dozen cattle tracks, we lost our way, and I found myself on the summit of a high hill covered with a curious Grass specimen, No. 9 (Ceresia), and also quantities of a pretty pink flower, No. 8 (a Polygala). These I found nowhere else. The faces of the rocks covered with Bromelias and Ferns. Climate about 68°. A few Pinus ochra (!) growing, but stunted for want of soil and great exposure to a burning sun. Waiting an hour till my servant could find a path to extricate me, I amused myself searching for plants, but nothing worthy of preserving except the above. By hauling our mules and climbing we got to a farm-house on the opposite side of the mountain, and thence into the high-road (!) again. Nothing remarkable till we reached la Concepcion, and from there we ascended a league the mountain of Alatepeque to the Mine of San Pantaleon, an elevation of about 5500 feet above the level of the sea. Here I remained inspecting metals under ground for three weeks. The ravines on this mountain contain many examples of rare vegetation, the principal object from its beautiful foliage, the Liquid Amber tree, which grows to all sizes, even to 3 and 4 feet in diameter, and 40 to 60 feet high. But Oak and Pines are also equally abundant. You will find two boards, which embrace the dried specimens, are what we find there most useful for our works. I now refer you to the list of seeds which I collected, where I give a description of their natures and climate, and I feel convinced, from the temperature of the mountains there, a cool greenhouse, if not out of door spring and summer in England, will be found adapted for them. I went to a mountain near, about 1000 feet higher, and amongst enormous trees of Oak and Cedar, but only in Oak trees, where the barks were covered with Moss, Lichen, and Tillandsias, I found Arpophyllum giganteum in bloom; but, as I have often said, until this plant is seen in England as I have seen it no one will ever credit its beauty. A specimen can only be sent in a bottle, as from its habit drying it spoils its appearance. Where I found it luxuriating was in cool damp spots, seldom ever seeing the sun, and certainly subject to frosts at this season, and never warmer in our hottest weather there than 58° and 60° of Fahr., and oh! such colour and such a mass of flower. In this same habitat I found Odont. cordatum, but poor and shrivelled; where 10° warmer it was fine. No. 53, a new [yes] Odont., leaves and bulbs like pulchellum; 54, a plant like E. arbuscula; 55 (a new grassy Epidendrum), and 56, with two other distinct species. I send all the seeds to Mr. James Veitch and the list, and I tell him to send it to you along with the dried specimens, and if there be anything which strikes you as remarkable let me know the number and particulars of it, and I can send seeds afterwards, as our medical man who accompanied me in my expeditions to the Mines I have so far smitten that his leisure time will be given to making collections of plants, insects, &c., and a finer field I never saw; and sure am I if he experiences half the pleasure I have enjoyed in travelling through these countries, he will find his time delightfully employed. *G. U. S.*

Societies.

Linnæan, *April* 3.—The President in the Chair. Specimens of Hierochloe borealis, gathered by Mr. R. Dick, at Thurso, Caithness, presented by W. Gourlie, Esq., and of Epipogium aphyllum, gathered by Mrs. Anderton Smith in a woody dingle on the banks of Saley Brook, Tedstone, Herefordshire, in July, 1854, presented by E. Lees, Esq., were placed on the table; together with pods of Wistaria sinensis, and other fruits from China, presented by D. Hanbury, Esq. The conclusion of Mr. Bunbury's remarks on the botany of Madeira and Teneriffe was read. This portion of the paper referred to the botany of Teneriffe. At Santa Cruz, Mr. Bunbury remarks, a very singular appearance is given to the littoral mountains by the round pale green bushes or clumps of Euphorbia canariensis, which are dotted over them in such a way as to produce a curiously spotty effect, that strikes the eye at a considerable distance. On the rugged cliffs eastward of the town, and at the mouths of the little valleys which intersect them, the peculiarly exotic character of the vegetation—much more strikingly so than that of Funchal—is at once apparent. There is the Euphorbia canariensis, closely resembling the succulents of Caffraria; the singular and graceful Plocama pendula, a thoroughly Canarian type; and the Kleinia neriifolia, and Euphorbia piscatoria. These four plants give the distinctive botanical physiognomy to this part of the coast. The deep valleys on the coast north east of Santa Cruz are full of interest. The steep rugged hills are dotted over with the Euphorbias, Kleinias, &c.; and higher up where the valley narrows the rocks are covered with Selaginella denticulata. Several Ferns grow on the rocks, in particular Nothochlæna Marantæ, Ceterach aureum (which Mr. Bunbury thinks a variety of C. officinarum) Gymnogramma leptophylla, Adiantum capillus Veneris, Davallia canariensis and Polypodium vulgare. Humboldt was certainly misinformed when he restricted the list of Ferns found in the region of the Vine in Teneriffe to two Acrostichums (Nothochlænæ), and an Ophioglossum. The six above-mentioned all grow within the region of Euphorbias, and much below its upper limit. The beautiful neighbourhood of Orotava, on the north-west coast, has quite a different botanical character. As the climate is less dry and more temperate, so the vegetation has less of an African aspect. The great abundance of Date Palms in the valley of Orotava, and some of the other valleys of that coast forms a striking feature in the landscape, though the Phœnix does not appear to be indigenous to Teneriffe. The Dracæna is a scarcely less conspicuous feature in the scenery, but though indigenous to the island, almost all the trees which occur in this valley are cultivated. The famous Dragon tree of Villa de Oratava, so well known through Humboldt's description, is still in existence—a ruin, indeed, but a noble ruin; its foliage is still fresh and flourishing, but the tree has been much shattered, and has lost many branches within the last few years. By Mr. Bunbury's measurement, the part that remains entire of the trunk is 30 feet round. This is from edge to edge of the hollow, and the width across the hollow is 12 feet; this measurement was taken at 8½ feet above the roots. Another tree, flourishing and comparatively young, which stands beside a convent at Realejo de Arriba, had a trunk 14 feet 4 inches in circumference at 4 feet from the ground. There is a still finer one at Icod de los Vinos. About the level of Villa de Orotava (1000 feet), or a little below it, the Ferns begin to be very abundant and beautiful, and in company with Houseleeks profusely adorn the rocky banks and stone walls. Polypodium vulgare and Davallia canariensis are here, as in Madeira, the most abundant kinds; Gymnogramma leptophylla, Nothochlæna Marantæ, Asplenium palmatum, and Nephrodium elongatum, frequent and fine. Some of these occur here and there at a much lower level; and near Garachico, the Asplenium palmatum descends even to the sea-shore. Pteris longifolia is rare, and was seen

only in one spot. Cheilanthes pulchella grows in rather arid rocky spots among the Cistus Montpelensis in the wild rugged country between Icod de los Vinos and the village of La Guancha. The beautiful crimson Cineraria (Senecio Tussilaginis) is one of the greatest ornaments of the lower part of the woody zone. The beautiful forests of Teneriffe have been lamentably wasted, but at Agua Mansa, above Orotava, the woodland vegetation may be seen in all its luxuriance. At Agua Mansa, 4000 feet above the sea, Ferns are abundant and fine, particularly Pteris arguta, Asplenium acutum, and Cystopteris fragilis. Gymnogramma leptophylla ascends to this elevation. On the mountain side, near the wood of Agua Mansa, but separately, not intermixed with the other trees, are a number of fine Pines (Pinus canariensis)—noble and picturesque trees. The representations of this species in the atlas to Webb and Berthelot's work do not give a good idea of its appearance as seen by the writer; it has not the stiff and formal regularity there represented, but rather the free and bold style of branching of the finest states of Pinus sylvestris, while the very long, slender, drooping, and almost pendulous leaves give it a distinct and peculiar character. The beautiful wood of Agua Garcia, of which a glowing but not exaggerated account is given by Webb and Berthelot, is the finest example Mr. Bunbury saw of the forest vegetation of Teneriffe, especially remarkable for the profusion of Ferns and Mosses, and for the gigantic growth of Erica arborea. Here the Woodwardia radicans and Polystichum aculeatum grow to extraordinary size and beauty; and the Trichomanes speciosum mantles the wet overhanging banks with its dark-green glistening fronds. Summing up his observations, Mr. Bunbury adds, "The botanical features in the vegetation of Teneriffe most striking to me were—1, in the coast region, the remarkable forms of Euphorbia canariensis and piscatoria, Kleinia neriifolia, and Plocama pendula; the social growth of the Artemisia argentea, covering great spaces of stony and rocky ground with its whitish foliage; the conspicuous abundance, especially on the Orotava side, of cultivated Date Palms and Dragon trees; and in the ravines the striking and peculiar forms of shrubby species of Rumex, Echium, Solanum and Sonchus. 2, in the woody region the prevalence of trees of the Laurel type of foliage; the vast extent of ground occupied by Erica arborea, and the surprising size to which it grows in favourable localities; the abundance of Ferns and hypnoid Mosses in the more damp and shaded situations, and of Cistineæ and Genisteæ on the dry and open grounds; and the noble form of the Canary Pine in the upper part of this zone. 3. The great zone occupied by the Adenocarpus frankenioides above the region of trees, and that of the Cytisus nubigenus at a still higher level.

April 17.—The President in the chair. E. H. Vinen, M.D., and T. Williams, M.D., were elected Fellows. Mr. Van Voorst exhibited a set of British Algæ, named and presented to him by Prof. Harvey. A memoir on some points of the structure of Crustacean Animals, by C. Spence Bate, Esq, was read.

Notices of Books.

Bryologia Britannica (Longmans, 8vo, pp. 445, and 61 copper plates) is a new edition of Sir Wm. Hooker's Muscologia Britannica, with so many additions and alterations by Mr. Wm. Wilson that the original author thinks it necessary to state in a note in front of the work that he is not the author of the novelties here introduced. And Sir Wm. Hooker is right, for he is naturally unwilling to peril the reputation he so deservedly obtained by the work in its original form, by identifying himself with innovations that are little likely to stand the test of criticism. We especially allude to the numerous new genera adopted from German writers, and often founded upon characters most superficial and trifling. What, for example, can be so unscientific and irrational as to separate the genus (!) Rhabdoweissia from Weissia because it has a furrowed and not an even spore case?

Nevertheless, although we wholly dissent from everything belonging to the most modern changes in the names of the genera of Mosses, and although we have nothing to say in favour of the figures introduced since the last edition of the Muscologia Britannica, we must add that the edition before us has many merits of its own. It is more rich in species and synonyms, and will prove of greater use than ever to the young student who is desirous of exercising his acuteness in distinguishing species till lately unknown to inhabit these islands.

New Map of Europe (Edinburgh, Black, in case) represents a perfectly flat surface, nothing but territorial limits, coasts, rivers, and places being introduced. By this plan great clearness is gained, which compensates for the absence of mountains. Mountain ranges, indeed, best occupy a map by themselves, and at all events are to be found in common atlases laid down with sufficient exactness for most purposes. The map before us is well coloured, forms a large folding sheet 3 ft. by 4 ft. 4 in., represents the telegraphic lines, and is accompanied by some well-written descriptive letter-press.

Garden Memoranda.

Gore House, Kensington.—Active operations are now in progress here, in order to have the grounds in as good a state as possible by the 16th of May next, the day on which the Horticultural Society's first garden exhibition is announced to be held. The borders have been dug, the Grass is being mown, walks fresh gravelled, and altogether a very considerable amount of improvement in the appearance of the place has already been effected. An old wall which separated in part the grounds of Gore House from those of the adjoining house has been removed, thus throwing into one piece a large amount of excellent lawn, on which the tents are about to be placed. As regards access to the latter nothing can be more convenient. Exhibitors' vans have only to turn off the Kensington Road, a very short distance down Gore (Park) Lane, out of which they can readily get into a little paddock, in which they can be arranged not more than 20 or 30 feet from the ends of the principal tents. There will thus be even less labour in loading and unloading than at Chiswick, and the vans after being put into their places at first will not require to be moved until the show is over.

On the lawn are sufficient large trees to keep the place shady and cool, should the day be warm and bright; and altogether the grounds seem to be better adapted for a flower show than any yet applied to such a purpose.

Two new roads are being made between the Brompton and Kensington Roads—one on the London side, the other on the Kensington side of Gore House; of these, the end of the latter next the Kensington Road is in a very forward state, and should it not be formally opened to the public on the day of exhibition will at least afford a most convenient site for carriages.

Bank Grove, near Kingston-on-Thames.—The large Camellia reticulata here is now in flower, and, though a little past its best, is still well worth going miles to see. When in perfection it is said to have had 6000 blooms on it all open at one time! It is planted out in a house by itself, and measures rather more than 14 feet in height, and quite as much in diameter. It is, we believe, the finest plant of the kind in the country. Other Camellias, of which there are great quantities here, are also in good bloom.

Mr. Barnes' Nursery, Southampton Street, Camberwell.—The late severe weather has here, as elsewhere, very much retarded out-door operations, which are, however, now being proceeded with as speedily as possible. Beds are at present being formed for Japan and other Lilies. For these the common garden soil is dug out about 9 inches or so in depth, and a mixture of loam and peat is put in in its place, in which the bulbs are planted out of boxes filled with yellow sand, in which they have been found to winter uncommonly well. These Lilies, we need not say, are perfectly hardy, and might be left in the open ground all the year round were it not that in winter slugs are apt to fix upon and eat out the crowns of the bulbs. Treated as above they never fail to make a fine display every autumn. Tritoma Uvaria is another remarkably handsome autumn flowering plant which is deservedly a favourite here, and which should be extensively cultivated everywhere, for when well grown and bloomed what can be more striking or beautiful? Many have, however, found some difficulty in flowering this Tritoma, a circumstance which Mr. Barnes attributes to their having got T. Burchelli instead of Uvaria, the former being proverbially a shy bloomer. Tritomas are Cape plants, and with us somewhat difficult to winter safely, especially if the autumn is wet and sunless, which causes them to grow late and keep full of sap, and then when frost comes it cuts them down. Mr. Barnes has, however, kept a plant of Uvaria in good condition in the open ground by merely putting a layer of tan round its roots, which has successfully preserved it, and now it is beginning to push afresh. Some take the plants up and winter them in boxes filled with sand, or in pots, like scarlet geraniums, and this is certainly a safe plan. Larkspurs are much cultivated here; one of the handsomest of them is Hendersoni, a blue kind with a white eye. A variety called giganteum is also a pretty sort; it much resembles Hendersoni, but the flowers do not stand the sun so well as those of the last-named kind. Roses, both in pots and out of doors, are grown here to a considerable extent. Those in pots are on the Manetti stock, many dozens of which have just been grafted and placed in frames on a tan bed, which affords them a gentle heat. They are in 3-inch pots, and the scion is placed so low on the stock that after the plants have been shifted into larger pots the soil covers the under part of the scion, which soon strikes root and may thus be termed on its "own bottom," and plants thus treated grow three times faster than those struck from cuttings. Some of the outdoor Roses are being transplanted even thus late; but a mulching of stable-yard manure is being put over their roots, and they will be kept well watered as the spring advances. Of tree Carnations we now have varieties of nearly every colour, and all the sorts are grown in perfection here. By means of frequent stoppings, Mr. Barnes keeps them dwarf and bushy, and in that way large quantities of bloom are obtained from them. Now is a good time for putting in cuttings of them, which must not, however, be too young or soft or they will be sure to "fog" off. Pot roots of Hollyhocks are also now in heat to cause them to push a few cuttings, which, as soon as ready, are taken off and struck in a close frame on a tan bed in which there is a little heat. Other popular plants, such as the better kinds of Sweet Williams, Phloxes, Calceolarias, Pelargoniums, Azaleas, Heaths, &c., are also cultivated here, and on the walls we remarked a stock of well-trained fruit trees. Some of the young shoots of a large Glycine against the end of a house have just been brought down to the ground and layered. These will be ready to separate and take next autumn. All evergreen shrubs here have been greatly injured by the winter. The things that have stood best are Box and Hollies. Sweet Bays appear to be dead, and young Deodars are killed to the ground. Common Bays and Aucubas are also greatly cut up.

FLORICULTURE.

Chrysanthemums.—Until comparatively lately few persons were aware of the perfection to which this plant could be brought by skilful cultivation. Being perfectly hardy it has often been permitted to remain in the open ground throughout the year. This has frequently been a cause of failure, amateurs forgetting that although the winters of its own climate are as cold as our own, yet the summer heat is much greater, and consequently the blooming season is accelerated. It is one thing to grow a plant well, and another to bloom it in perfection. In our variable climate it is impossible to calculate with any degree of certainty upon having fine weather in October and November, without which the buds formed in September will not attain perfection, and frequently the early frosts of October cripple them altogether. In order to overcome this difficulty it is necessary to place the plants under glass as soon as the flower buds expand, but it must be borne in mind that air is as necessary as light or heat. By these means the blooming season may be made to last from October till January. The Chrysanthemum exhibitions at Stoke Newington and Highbury have done much to bring this beautiful autumnal flower into notice; in fact none but those who attend these shows can form any correct idea of the size, beauty, or symmetry to which, under proper treatment, it may attain. Such as intend growing specimen plants, or cut flowers for competition, should very soon now have well rooted cuttings. I am aware that many strike them much later, but I prefer having them early. I plant singly in 5-inch pots in good rich soil, and plunge in a warm airy situation. By the middle or towards the end of May I stop them, and shift them into larger pots, and to ensure dwarf bushy plants they should be again stopped in June, and then shifted into larger pots to bloom. During the summer months they are never allowed to flag; for if this once takes place the lower leaves will assuredly fall, and all hopes of fine specimens will be destroyed. Towards the middle of September the plants will have attained their full growth, and it will then be proper to put them under glass; but at the same time, if the weather is fine, I give as much air as possible. The buds will now begin to show themselves; not more than one or two should be allowed to remain on each shoot; liquid manure may at this time be applied with advantage. Under such treatment a fine show of blooms may be confidently expected, even in the most unfavourable seasons. Those who do not desire specimen plants or cut flowers for exhibition, I would recommend to plant their cuttings in the open ground now, to stop them in May, and again in June. By the end of September they will be fine large plants, and as soon as the buds begin to swell they may be taken up with a good ball of earth and planted in 9 or 11-inch pots, and plunged in the open ground for nine or ten days, during which time they should be well watered every day, to prevent flagging; after that time they may be removed to the greenhouse or conservatory, which they will keep gay till January. *S.*

Carnations.—Where it is desirable to have late flowering beds of these, this is a very good time to propagate them for that purpose. Neither knife nor dibber is required, either in preparing the cuttings or pricking them out where they are to strike, nor any artificial heat, further than placing a hand-glass over them when pricked out. Having fixed upon the stem from which you mean to draw the piping, take the former in your left hand, and the top of the latter, with four or more leaves between the two first fingers and thumb of your right, making a steady gentle pull; the stem will give way at the place most suitable for its making roots. Then, on a south border, where a place has been prepared for their reception by removing the surface equal to the area of the open end of the handlights destined to cover the cuttings, to the depth of 2 inches, and filled with pure sand neatly levelled, but not pressed with a spade or other instrument, the cuttings may be inserted, the sand settled with a gentle watering, and the handlight put over them. Treated in that way, one may safely calculate upon nine-tenths of them taking root. Plants so obtained will flower till the winter sets in. *H.*

SEEDLINGS.

Cacti: *J S.* Crosses between Cereus speciosissimus and C. crenatus are scarce: those we have seen were in the Garden of the Horticultural Society and from Sir Philip Egerton. Yours, though not very novel in colour, are certainly extremely handsome, and we need not say well worth growing. The small but beautiful kind marked No. 4, we are unacquainted with.

Miscellaneous.

The Peach (Amygdalus persica) is, according to the common opinion, of Persian origin. Diodorus Siculus says that it was carried from Persia into Egypt during the time that Cambyses ruled over that country. It is supposed to have been transported from thence into Greece, and, after a lapse of time, into Italy, where it only began to be known about 20 years before the birth

of Pliny, that is, about seven years before the Christian era, and it appears that Columella was the first to treat of its cultivation there. According to Nicander it was brought to Greece by the agency of Perseus from Cepheia, a locality affirmed by some to have been in Persia, by others in Æthiopia or in Chaldæa. The Peach is also spoken of by Theophrastus, Dioscorides, and other Greek writers. We must therefore conclude that this fruit was well known in the East very long before its introduction into Italy. Many ancient writers, including Athenæus and Pliny, and some more recent ones, as, for instance, Marcellus Virgilius, in his Commentaries on Dioscorides, confound the Peach with the persea, a fruit the identity of which is uncertain, some supposing it to be a Cordia, others a Balanites. Macrobius again confounds the Peach with the persicum of Suevius, which is the Walnut, and with that of Cloatius, which is the Citron; all fruits resembling the Peach in nothing but in the name, a clear proof that it cannot have been in their days by any means a common fruit. How few were the varieties of Peach known to the ancients appears from Dioscorides, who only names two; from Pliny, who enumerates five, and Palladius four only, giving at the same time accurate information on the mode of cultivating them. With regard to the introduction of the Peach into Tuscany, it appears that several varieties were known already in the days of the Republic, but that the greater number were, as in the case of other fruits, due to the exertions of the Medici sovereigns. Matthioli, in the 16th century, enumerates a considerable number as then in the possession of Tuscan cultivators; Micheli, under Cosmo III., has 43, and in the drawings of Castello are represented about 30. That called Poppe di Venere (the Late Admirable of our Horticultural Catalogue), is supposed to be one of the most ancient in Italy, and is mentioned by Agostino del Riccio and Micheli, under the name of Pesche Lucchesi. Although all the evidence collected by Professor Tarigoni tends to show that the Peach was originally brought from Persia, and he therefore does not consider it necessary to proceed further with the investigation, yet no traveller whom we can rely upon has ever found it growing really wild there or anywhere else. We are therefore left in doubt whether its native stations remain yet to be discovered, or whether its original wild type must be sought for in some species of Amygdalus known to be indigenous in the East. It has been more than once suggested that this original parent is no other than the common Almond, a conjecture founded perhaps on the similarity in the leaves and in the perforations of the endocarp, but rejected as absurd by those who attach even generic importance to the succulence of the indehiscent pericarp. This point cannot be decided with any degree of plausibility until we shall have a better knowledge of the different forms which the fruits of wild Amygdali may assume under various circumstances; but we may mention, as circumstances in some degree favouring the supposition that some kind of Almond is the parent of the Peach, the ancient tradition referred to by Targioni (with the remark that it is contradicted by Pliny and by common sense), that the Peach in Persia was poisonous, and became innocuous when transported to Egypt; and the case quoted of a supposed hybrid, raised in 1831, in Sig. Giuseppe Bartolucci's garden, at Colle di Val d'Else, from a Peach stone which produced fruits at first exactly like Almonds, but which, as they ripened, assumed the appearance and succulence of Peaches, whilst the kernel remained sweet and oily, like those of Almonds. We might also refer to some bad varieties of Peach with very little juice to their pericarps, although we do not know of any which assume the flattened form of our Almond, a distinctive character which appears to us to be of considerable importance. The foliage and flowers of the two trees show little or no specific difference. *Journal of Horticultural Society.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—While cold drying winds and bright sunshine prevail considerable attention will be necessary to maintain a moist healthy atmosphere in this house, and no effort necessary to secure this should be spared: for it is folly to expect flowers to last in a dry hot atmosphere. A thin shade will of course be used to break the force of the sun, and in giving air every care must be used to avoid drying currents, opening the top ventilators only, so long as these may suffice to prevent too high a temperature, and every available surface of bed or border should be kept constantly moist, in order to secure plenty of evaporation to counteract the drying effects of the external atmosphere. Give frequent attention to climbers in free growth, regulating the young wood before it gets entangled, and see that Hardenbergias, &c., in bloom are properly supplied with water at the root. At this busy season there is great danger of neglecting the winter blooming favourites, such as Epacrises, Daphnes, &c., but if these are to be had in anything like perfection next season they must be properly cared for now. Show houses are generally kept too close and warm for Epacrises and such things, and in this case the plants should be removed to the greenhouse directly they are out to bloom, affording them a rather damp and shady situation for a few weeks. Attend to repotting such as have started into growth after being cut back, and keep them moist and rather close until the roots get hold of the fresh soil. Shift and attend carefully to tree Mignonette for flowering next winter, and see that the tree Violets are not infested with spider. Stove.—The stock here will now be growing freely, and every possible care should be exercised to secure strong vigorous wood. Attend to repotting young stock before the plants sustain any check for the want of pot-room, and see that everything is well supplied with water at the root.

FORCING DEPARTMENT.

Pineries.—Where there is not sufficient means of maintaining a thoroughly moist night temperature the growing stock may be dewed with the syringe in the morning, but where plenty of evaporation can be obtained from tanks or evaporating pans the syringe should be used over the foliage only in the afternoon, and then but lightly. Heavy syringing tends to render the soil about the collar of the plant too wet, and makes it difficult to judge of the state of the ball as to moisture and keeping the axils of the leaves constantly full of water is not favourable to compact sturdy growth. See that none of the young stock is allowed to suffer for want of pot room or to get too dry at the root for a short time's neglect at this season may end in a great many of the plants fruiting prematurely. Maintain a brisk bottom-heat, as near 90° as can be managed, but on no account exceed this, and keep the atmosphere as warm as the plants will bear without growing weakly. Successions, if all right at the root and near the glass, may safely be kept at from 65° to 70° at night and 75° to 85° with sun-heat, and plants swelling their fruit, if afforded a thoroughly moist atmosphere, will enjoy a night temperature of 70°. Give these plenty of manure water at the root. Vineries.—As soon as the fruit is ripe in the early house discontinue the use of fire-heat as far as the state of the weather will admit, and keep the atmosphere cool in order to prevent the increase of spider and preserve the foliage in a healthy state as long as possible. Where the borders have been covered with fermenting materials this should not be removed in the present state of the weather where the fruit is colouring, but where the fruit is ripe the border should be uncovered so as to expose it to the sun and air and prevent the growth of laterals, &c. See that Vines in pots and boxes are well supplied with manure-water at the root. Give timely attention to the work of disbudding, stopping, and tying in the shoots in succession houses, and endeavour to get the fruit thinned directly the berries are sufficiently large. Peaches.—There will be little trouble from insects where the trees are in a healthy vigorous state; but the excessively dry state of the atmosphere and cold nights, rendering fire-heat still necessary, is a very favourable state of things for red spider, and any weakly or overcropped trees should be carefully watched. See that the inside borders are properly supplied with water, keeping the atmosphere moist, and that every means are used to keep the trees in vigour, and if spider makes its appearance give the trees repeated washings with the engine until the enemy is thoroughly eradicated. Thin the crop severely directly the fruit is stoned, and avoid leaving more than the trees can bring to perfection, which would only result in small, flavourless fruit, a continual war with insects, and greatly injure the trees for next season. Keep the young wood thin and neatly tied in, so as to expose all parts of the trees equally to light, &c. Give air freely to houses where the fruit is ripening; but do not let cold winds blow through the house too freely.

FLOWER GARDEN AND SHRUBBERIES.

The long-continued cold northerly winds render the management of bedding stock unusually difficult this season; for it is still dangerous to risk even the hardier kinds from under the protection of glass. All that can safely be done until the weather changes, in the way of hardening the stock, preparatory to its being planted out, is to give as much air as circumstances will admit, without injuring the plants; and to place Calceolarias and the stronger Verbenas in turf pits, where they can be securely protected at nights, and sheltered from the drying winds. Such things, when removed to cold pits, should be planted out in fine very sandy soil, which will save trouble in watering, and be much better for the plants than keeping them confined in small pots. Tender annuals that have been raised in heat should be pricked out in light soil under hand-glasses, in order to get them strong before planting out time. If not already done, hardy annuals should be sown after the first shower, and do not forget plenty of Mignonette and Stocks, the fragrance of which will always render them favourites. Look over the stock of plants at present in flower, and mark the most admired for propagation at the proper season.

HARDY FRUIT AND KITCHEN GARDEN.

Recently transplanted trees, &c., must be carefully attended to with water, giving the ground a liberal soaking when it is found necessary, so as to thoroughly moisten it, and lightening up the surface with a blunt fork when it becomes a little firm. Be prepared with a supply of tobacco-water with which to attack green fly the moment it is perceived upon the Peach trees, when it will be easily eradicated. Clean and loosen the surface soil about Strawberries, and go over any plantations made late last autumn, and make good where the plants have failed. Take advantage of the dry state of the ground to get manure wheeled upon quarters where it will soon be wanted, and see that there is a good supply being prepared for the Celery crop, for without plenty of old rich manure large crisp Celery can hardly be obtained. Directly the weather becomes more favourable get the spring-raised Cauliflowers and Lettuce planted out, if not yet done, selecting for them a sheltered situation and light rich soil. A few branches of evergreens stuck amongst such things after planting, so as to screen them from the sun, is a great protection, and prevents their being dried up until the roots get hold of the ground. Get Scarlet Runners planted, also French Beans, if not yet done, and give the former an open situation and good deep rich soil, of which they are well deserving. Attend to ridge Cucumbers, Vegetable Marrows, Tomatoes, &c., and endeavour to get strong stocky plants, keeping them where they can be placed near the glass and freely exposed to air on fine days, and avoid getting them leggy and tender by too close treatment.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending April 26, 1855, as observed at the Horticultural Gardens.

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind
Friday 20	4	30.379	30.162	67	27	47.0	49	48½	N.
Satur. 21	5	30.485	30.474	54	28	41.0	49	48½	E.
Sunday 22	6	30.473	30.327	52	28	40.0	48	48	E.
Mon. 23	7	30.503	30.422	60	22	41.0	47	48	N.E.
Tues. 24	8	30.321	30.174	69	40	54.5	48	48	N.
Wed. 25	9	30.161	30.134	51	27	39.0	47½	48	N.E.
Thurs. 26	10	30.230	30.212	57	31	44.0	47	48	N.
Average.		30.387	30.272	58.5	29.0	43.8	47.0	48.1	

April 20—Fine; very fine; clear at night; frosty.
— 21—Fine; very clear; frosty.
— 22—Cold dry easterly wind; clear; frosty.
— 23—Cold and dry; fine; clear; sharp frost.
— 24—Clear; fine; overcast at night.
— 25—Densely overcast; cloudy and cold; slight frost.
— 26—Cold and overcast; fine; overcast.

Mean temperature of the week 4½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending May 5, 1855.

April and May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 29	61.1	38.8	50.0	11	0.75 in.	3	3	6	2	4	5	2	4
Mon. 30	62.5	41.3	51.9	11	0.31	5	3	6	1	3	6	3	4
Tues. 1	62.2	40.9	51.6	10	0.51	2	4	5	2	3	3	4	—
Wed. 2	64.3	41.3	52.3	11	0.72	2	6	7	—	3	6	2	1
Thu. 3	62.0	41.6	51.8	15	0.55	1	5	7	1	4	6	3	1
Frid. 4	63.0	40.6	51.8	11	0.70	4	5	8	—	3	4	3	1
Satur. 5	62.7	40.6	51.7	18	1.26	5	5	8	3	7	4	1	—

The highest temperature during the above period occurred on the 4th 1833—therm. 81 deg.; and the lowest on the 2d, 1852—therm. 25 deg.

Notices to Correspondents.

Dry Rot: *An Old Sub.* A good wash of corrosive sublimate effectually stops the progress of dry rot, provided all the wood attacked by the fungus is really cut away.

Fennocue: *R R.* This is written Finocchio. It is a kind of Fennel, sweeter than usual, and is grown like Celery. But in this country it is never eatable, owing to the want of sufficient natural bottom-heat. Seeds, if procurable, can only be had of the great seedsmen.

Heating: *Sub.* By no means use earthenware pipes for hot water; they are continually leaking either at the joints or sides, and otherwise getting out of repair. At the best they are mere make-shifts, which in the end you would find more costly than good iron pipes. ‡

Insects: *J R.* Each of the seeds of Pinus nobilis sent contained an insect in its interior. In one was a minute white footless grub or larva, and in the two others were two minute white pupæ. They appear to be the immature states of a small hymenopterous insect, and in such case must be parasites, each of which has fed upon and destroyed an insect which had previously devoured the interior of the seed. The fact is quite new to us, and we hope to rear the insects, when we shall be able to speak more positively as to their habits. If you have more of the seeds similarly attacked be so good as to forward them to us.—*L G, Bury.* The beetles and larvæ sent with the pieces of perforated timber are the common Anobium pertinax, an insect belonging to the same genus as the Death watch. Pray inform us what is the kind of timber of which the specimens sent are pieces. *W.*

Labels: *D L.* We believe that stamped gutta percha labels answer very well; their great fault is the difficulty of reading them. If they are allowed to swing the wire must not rub upon the hole, but must be tied tightly round them. Lead is much better; no more trouble, and not costly.

Names of Fruits: *S K.* Your Pear is the Easter Beurré.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*S M.* Apparently fragments of Ranunculus bulbosus starved with cold.—*Kentish Man.* Leptospermum scoparium.—*R H P.* Dendrobium fimbriatum.—*W W.* Plants not in flower cannot be named.—*A Lady* 1, Melianthus major. 2, Not recognisable by the leaf. Paint your vases with good white lead, or good anti-corrosion paint.—*Sub.* Corydalis solida.—*W G.* Aphelexis macrantha purpurea. We are unable to name the Azaleas.—*W B.* Saponaria calabrica. It is hardy in all ordinary winters.—*J S.* Acer Negundo.

Orange Trees: *J H.* As we do not know to what insect you allude as infesting your trees we are unable to offer you advice. Many insects of very different habits attack Orange trees, Camellias, and similar plants.

Rhododendrons: *A Scottish Sub.* It is impossible to name the garden varieties of Rhododendrons by mere inspection of their leaves. That which is so much injured with you may have some ponticum blood in it, but it is a far remove. The other appears to have no arboreum in it, but to be one of the innumerable and invaluable forms of R. catawbiense.

Skeleton Leaves: *A Lady.* Steep them for weeks in rain water in a warm place, freely exposed to air; when nearly ready add a small quantity of muriatic acid to it. A great deal of care is however, required in picking out with needles the parts of the leaves that are not rotted away. ‡

The Argan Tree. *W L.* This is a bush or small tree from the N. of Africa, and unable to bear our climate. Its fleshy fruit, something like an Olive in appearance, is eaten by cattle; and the stones, when crushed, yield a good deal of oil. You will find a full account of it in Hooker's "Journal of Botany" for the year 1854. We believe that live plants exist in the Royal Botanic Garden, Kew.

The Mangosteen: *R H.* We shall be happy to give you an order to see the plant if you will favour us with your address.

The "Shamrock": *J S.* The real Shamrock is Oxalis acetosella. Any 3-leaved Clover is the modern apology for it.

Vines: *W W.* You can do nothing better under the circumstances.

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

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The Directors of the above Company beg to call the attention of their friends and the Agricultural Community to their Blood Manures for Corn and Turnips, which have been used with the greatest success in all parts of England, and to assure them that having now erected commodious Works, with every suitable convenience for carrying on the manufacture on a large scale, under the management of an experienced practical Chemist, the Agriculturists of this country may depend upon having a manure of proved high quality, which the Directors guarantee to be genuine. It is sent out in the form of a fine friable powder, which may be sown by the drill or hand with the utmost facility.

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BATH AND WEST OF ENGLAND AGRICULTURAL SOCIETY.—GRAND POULTRY EXHIBITION to be held at Tiverton on the 6th, 7th, and 8th June, 1855. OPEN TO ALL ENGLAND. Prize Lists and Certificates obtained of the Secretary, Mr. KINGSBURY, Hammet Street, Taunton. Entries finally close on the 10th of May.

TESTIMONIAL TO J. B. LAWES, Esq.—The Committee beg to inform those interested in the above undertaking, that the New Laboratory is expected to be ready for presentation in May or June, until which time the Subscription List will remain open, to afford an opportunity to any who may still wish to associate their names with this acknowledgment of Mr. Lawes' services.

Communications to be addressed to
Mr. W. KERL, Hon. Sec., Harpenden.

TO ARTIFICIAL AND CHEMICAL MANURE MANUFACTURERS AND MANUFACTURING CHEMISTS.

MR. COOKE, CHEMICAL ENGINEER & MANUFACTURING CHEMIST, contracts for the erection of Sulphuric Acid Chambers, and Chemical Plant generally on the most approved forms. Practical instructions from 12 years' experience in the trade given in the working of Acid Chambers, and in the manufacture of all kinds of Artificial Manures, Superphosphates, and Guanos. Receipts for the best mixtures furnished, and other information on application.—For terms, &c., apply by letter to 6, St. Thomas Terrace, Newcastle-on-Tyne.

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Illustrated Catalogues and samples free per post. Terms, cash on delivery.—EDWARD WEIR, Agricultural Engineer, 16, Bath Place, New Road (six doors west of the Hampstead Road), London.

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WATERING HOSE fitted up with the necessary *brass joints, stop-cocks, branches,* and *spreaders complete.*

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STEPHENSON AND PEILL, 61, Gracechurch Street, London, and 17, New Park Street, Southwark, Manufacturers of Copper Cylindrical and Improved Conical Iron BOILERS, and Conservatory and Hothouse Builders, either in Wood or Iron, respectfully call the attention of the Nobility, Gentry, and Nurserymen to their simple but efficacious method of warming Horticultural and other Buildings by Hot Water.

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The machine is made to cut the breadth of 42, 30, 20, and 15 inches respectively, is exceedingly durable, easily managed, and adjusted to cut to the length required. The execution of the work is far superior to what may be attained by the most skilful mower, while at the same time a great saving of labour is effected, and the turf much improved. By the largest machine a Scotch acre may be mowed, rolled, and the Grass collected in one hour.

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Further particulars with testimonials and prices, may be had on application.

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True Devon Evergreen Grass.

Apply to WILLIAM E. RENDLE & CO., Seed Merchants Plymouth.

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PERMANENT PASTURE GRASS.—*The very best Selections can be obtained from* WILLIAM E. RENDLE & Co., *Seed Merchants, Plymouth,—all new and carefully selected, from 24s. to 30s. per acre.*

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Clovers and Grasses for one, two, or three years' lay, 12s., 16s., and 22s. per acre.

A Priced List of Mangold Wurzel, Turnips, and other Agricultural Seeds may be had, post free, on application, addressed JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

The Agricultural Gazette.

SATURDAY, APRIL 28, 1855.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, May 2—Agricultural Society of England.

WE learn from Messrs. RENDLE, of Plymouth, that in consequence of the unheard-of demand this year for Italian Rye-grass there is not a bale of foreign seed in all the trade. No doubt seed of the

coming harvest will be imported in large quantities before our own corn harvest is completed, and before therefore the autumn seed-time of this plant, but the exhaustion of the supply at present speaks plainly of the estimation in which the crop is held; and we doubt not that the extent of next year's crop will be vastly greater than the seed had hitherto; large quantities will, however, arrive in autumn, both by itself and as mixture with trifolium incarnatum.

It is a singular fact, but not more singular than true, that the very first step in the Science of Matter is a step into the invisible world! How nearly extremes meet—how closely the simplest rudiment of the most *material* knowledge borders upon the most occult philosophy, is a reflection that in some shape or other finds access into the mind of the very beginner in the great field of chemistry, and never can desert him again during the whole progress of his studies. He takes up a lump of soil, or a piece of metal, or a glass of water, or, if you please, a dose of 'physic,' and says "Teach me what these things be; unriddle me the history of Matter. I see it around me in every shape, colour, and consistency. I learn by degrees something of its uses, through practice; and I see that it has certain *relations*, one thing with another; that heat turns solids into liquids and liquids into gases; and that cold on the other hand congeals them again. I see that vegetables are green when exposed to the daylight, and are blanched by darkness: I see that animals must have air, to breathe, and fire must have air, to burn; I see that coach-wheels commit spontaneous combustion if they are not greased. Tell me something about all this, that I may *understand* as well as see it: what are these substances, and what are the laws, if any, which govern them."

It is true, people do *not* ask these questions, else, all men would become 'chemists.' Nay there are human skulls that do not pick up factology enough in the drama of existence for the very prologue to some of the queries we have hazarded. Certain captains of emigrant ships we wot of who never knew that air was an essential to human life under the battened-down hatches of a crowded cabin; housemaids are proverbial unbelievers in the necessity of air to the laying, lighting, and burning of a fire; and the 'King of Bantam' was a stout infidel to the last, in the matter of ice, since in his climate, wherever that was, water never froze.

But, such notable exceptions apart, no sooner, we repeat, does the inquirer into the history of Matter open the first rudimentary page of reply to his "questioning of visible outward things," than he finds himself at once launched into the *invisible* world, as the only interpreter of the visible, and discovers that his

"eyes are made the fools o' the other senses,"

which he has been accustomed to think "worth all the rest." It is called, and justly, one of the noblest of sights to see the weighty structure of a ship whose solid ribs have consumed the heart-of-oak of some 50 acres of forest-land in the building, glide for the first time down the slips that launch her upon the breast of a new element, where she floats at once in graceful buoyancy, finding in an instant her native home in a quarter the most foreign to her growth and nurture. But not less truly beautiful is the first awakening and *emancipation* of the mind from the slavery of mere eye-sight, into the inner world and history of Matter which chemistry at once begins to unfold. To omit one or two of what may be called the governing elements of Nature which meet the student at the threshold, and to which we have already made allusion, such as Light, and Heat, let us go on to certain other of those *invisible* gentry that claim his earliest acquaintance—namely, the constituents of the atmosphere he has been, almost unconsciously, breathing from the moment of his birth, and employing as an unpaid agent and workman in every field he has tilled and every crop he has grown.

But how vexatious, at the very outset, is the old pedantry of Science! What an inheritance of evil is it that our teeth should be set on edge by the sour grapes our fathers have been chewing, in the names they have given to the very commonest of elements. We remember a worthy and simple-minded clergyman who on inquiring the name by which he should christen the firstborn son of two of his poorer parishioners was somewhat staggered, at the font, by the reply, in a grave sponsorial tone, of the name *Venus!* but being a man of presence of mind and decision he summarily dealt with the case by saying after the thought of an instant, "Nonsense! *John:* I shall baptize him 'John'!" Every practical farmer must wish that that gentleman had presided at the Font of chemistry; for it baulks the very first hopes of a simple narrator of the simplest truths of Nature to be reduced to the bitter confession that every time a man draws his breath he is liable to be choked by such a compound as imagination must attribute to the words Oxygen, Nitrogen, and Carbonic-acid gas! Yet the humiliating fact is literally incapable of statement in shorter or less dangerous terms. We say 'dangerous', in deference to a prejudice: not that we actually believe the stories; but there are those among the foes of science who *will* have it that authentic cases of lock-jaw have occurred from too rapid and ambitious a progress in chemical nomenclature.

But, seriously and truly, is it not a misfortune that the instant you try to *simplify* Nature to a man, (for the object of all *learning* is, surely, to simplify something which was difficult before; not to make it harder;—else, what does knowledge mean?)—that you are *obliged* to begin bowling such skew balls as these! *Oxygen, Nitrogen, Carbonic-acid!* Why, if the theory of Lucretius be true that sounds produce their effect upon the drum of the human ear by virtue of infinitely small but solid atoms, smooth and round in the case of pleasant noises, angular jagged and even barbed in the case of harsh ones; this very first lesson in chemistry must, upon poor Dobson's auditory faculties, have pretty much the effect of a sudden explosion of pins and needles and fish-hooks!

How is he to know by inspiration that Oxygen in plain English signifies 'acid-maker,' or in more expressive Yankee—'Sort o' Sour,' and that it discolors the leaves in autumn, 'making the green one red,' and that this same *red* is in fact its *livery* colour, as he may also see upon any piece of steel or iron exposed to air or moisture, or still more strikingly in the color of the blood of all things which *breathe;* that act of breathing being the inhaling of this oxygen into the lungs, which have the faculty of separating and absorbing it from the air, or, in the case of fishes, from water, which contains it in greater quantity than air does. And how, again, is he to know what 'Carbon' means, unless you can somehow convey to him that it indicates the solid and weight-giving property of wood and coal and charcoal, and other such substances, that its 'livery' colour is dark blue, approaching to black; that whenever it meets with the aforesaid oxygen, especially in the presence of warmth, they begin to fight *consumedly*, and go on fighting, till like the Kilkenny cats, they have eaten each other up; that if the fight be short and violent it produces fire and flame, and is called 'Combustion;' if long and slow, men call it 'Decay.' That the result in either case is a compound substance called Carbonic-acid gas, which, though invisible like one of its parents, retains the obesity of the other, being so heavy that it can be poured out of a tumbler, like water.

So much for 'Oxygen' and 'Carbon;' two substances so common and plentiful, that if a person should happen to say that one-half the world is oxygen and a good proportion of the other half carbon, he would not be very far wrong though not quite right.

And now for the other hard word 'Nitrogen.' Whoever can 'do the like' for this gentleman, 'he is the nonpareil'! And let it not be thought that we have awarded him the title of gentility in vain: for, mystic doubts, not based on mere conjecture, have at times crossed great and learned minds whether he is really one of the '*simples*' of Nature he is held out to be. His lazy exclusiveness, and reluctance to enter into society with other plain bodies, his ancient pedigree, (for he was known by name to the Egyptians, Greeks, and Romans, and dates high enough to be the progenitor of Alchemy and Magic,) his curiously fastidious costliness and inaccessibility, so near to you in person, of such gracious and bountiful-seeming presence, yet so hard to *get at*, and last, not least, a certain obscure and baffling relationship he appears to enjoy with the very Thunder and Lightning, entering capriciously into odd combinations thereanent, generative of quasi-metallic, or, as an ignoramus might say, *silico-metallic* results, (and here we may beg pardon of the Herald's College, for putting a metal upon a metal, —an illustrious error, that first detected the 'Author of Waverley')—all this, and a great deal more which would only get more intolerable as it went on,—marks this 'gentle or simple,' whichever it may be, as worthy our especial notice and study, if it be only for the attractive reason that so many people talk so much, and know so little about it. It is a sort of chemical Sphynx; and 'happy man be his dole' who can act Œdipus to the riddles it propounds to us, the *vital* importance of which we shall presently see.

But first of all, there is one more character we have to introduce, and then we have done for the present with 'proper names';—improper enough, if the mischief they have done to the advance of common sense and common knowledge of common things, be rightly considered: but the truth is that Chemistry (itself a word more thoroughly bad than any it embraces, being of such questionable and far-fetched origin that for all useful purpose it might just as well have no origin, and mean nothing at all)—the truth is that Chemistry is a base-born science that dates its early growth in the blackest darkness of pretentious ignorance, and to this day it has *never* recovered the early taint of its pedantic birth. The exquisite beauty, and charming simplicity, of the knowledge it really unfolds is *the reason* why it has been swathed and swaddled in the folds of mystery and complexity; because it is the nature of man to turn just such knowledge into a 'property,' and to

——"sit like a Cormorant thus
Hard by the tree of knowledge"—

whose fruit he pretends to dispense. *Corruptio optimi est pessima;* which being rather inverted than interpreted, may furnish the remark that the most beautiful things are the things which man has most disfigured.

And so we come, by a very roundabout road, to our fourth long name, which is 'Hydrogen': a word not simpler sounding than its three predecessors, but of much simpler meaning than the last, suggesting simply the idea of Water, which it is not, but which it forms in union with Oxygen, as Air is composed of the latter with Nitrogen: but with a most important difference in the *mode of union*, too important to enter upon at present.

For, the aim and object of our remarks, delayed by this uneasy effort to lift, or penetrate, the fog that scares away so many a goodly simple mind from the study of the properties and relations of Matter (the true and only purport of what we call Chemistry) is to attempt an explanation, intelligible to minds that can understand simple facts when the dust and cobwebs of long words are brushed off them,—of the intercourse that exists between the Air we breathe and the soil we cultivate.

It is an intercourse so immeasurably important to the growth of crops, and it happens to be at the present time the battle-ground of so important a conflict of opinions between great men in England, and great men in Germany, that it is worth knowing something about, if it be only for the fun of watching the fight, and understanding the fight we watch. Besides that, however excellent the crops a man may grow without knowing 'the reason why,' it is open to all who have brains to fill, as well as pockets, to discover that with much less trouble than he thinks, he may add to the pleasure of getting, the happiness of knowing. *H.*

The sale at Hendon on Tuesday last will prove to have been one of the marked days in the history of the short-horn breed. One hundred head of cattle sold for 7447 guineas, averaging 78*l.* 3*s.* 10*d.* each. Seventy-six cows, heifers, and calves sold for 5610 guineas, averaging 73*l.* 7*s.* each; and of these 24 were under 12 months old. Twenty-four bulls and calves sold for 1837 guineas, averaging 76*l.* 11*s.* 3*d.* each, and of these 19 were under one year old.

But the prices reached in particular instances are even more extraordinary than the averages, as will be seen in the list of prices appended to this notice. Oxford 11th, purchased by Mr. Tanqueray at Lord Ducie's sale for 250 guineas, was here bought by Mr. Gunter for 525 guineas. Oxford 16th, sold a calf of a few weeks old at Lord Ducie's sale for 180 guineas, was here sold for 480 guineas. And among the bulls the sixth Duke of Oxford, now a yearling, was purchased by Mr. Gunter for 200 guineas. His dam, Oxford 11th, and himself sold for 725 guineas, she having been bought in calf at Lord Ducie's sale for about one-third that sum—an enormous price as it was then thought, but one which the sale on Tuesday of herself and her produce has certainly more than justified. The competition for this family of short-horns which has led to these extraordinary prices lay chiefly between Mr. Gunter and Messrs. Becar and Morriss, of New York. Mr. Gunter is now the owner of more of the two fashionable short-horn races—the Duchesses and Oxfords—than any other breeder in the country; and though they have been acquired at enormous prices, they will doubtless at any time repay their cost, while American and English judgment unite in attributing to them the high qualities which they undoubtedly possess. The Americans carried off Minerva 2d and Minerva 4th, at 140 guineas each; also Victoria, at 16[illegible] guineas; Surprise, at 80 guineas; Delia, at 6[illegible] guineas, among the cows and heifers. They did not purchase among the bulls. The highest priced bull, Duke of Cambridge, was purchased by Sir C. Knightley for 280 guineas. The seventh Duke of Oxford, which has been expected

to realise the highest price, was dead. We refer for further particulars to the price list below.

The day was clear and bright: Mr. STRAFFORD had a very large audience; and both he and Mr. TANNERAY have, we think, reason to congratulate themselves on the result of the proceedings.

Of the sales at Halifax and Lancaster, also conducted during the past week by Mr. STRAFFORD, we shall be unable to give a report until next week, when reference will be made to the prices reached, and to the way in which connection with the Kirkleavington herd at once raises the market value of the animals sold. There is undoubtedly a real superiority at the bottom of the extraordinary excess in price reached by particular families of the short-horn breed; whether the latter may not be partly owing to temporary fashion, time alone can prove. When a breeder shall, by long success, independent practice, and self-confidence, attain the reputation of the late Mr. BATES, *his* stock, too, will doubtless acquire a market value perhaps higher than its actual merit.

THE HENDON SALE OF SHORTHORNS.

NAMES.	Calved in	Name of Purchaser.	Price in Guineas
COWS AND HEIFERS.			
Honest Mrs. Gwynn ...	1843	Mr. Duckworth ...	29
Delia Gwynn	1844	„ Blathwaite ...	42
Minna	1844	„ Townshend ...	52
Duchess of Cornwall ...	1844	„ Pinder	31
Daphne Gwynn ...	1845	„ Townshend ...	70
Olive Leaf	1846	„ Blathwaite ...	66
Minstrel	1846	Lord Burlington ...	110
Lady Barrington ...	1846	Dead ...	170
New Year's Day ...	1847		
Jenny Lind	1847	Mr. Cartwright ...	55
Jennette...	1847	„ Topham ...	30
Joan	1847	„ Cartwright ...	36
Oakapple	1847	„ Simson ...	71
Lady Emma	1848	„ Slatter	45
Janetta	1848	„ Downs	105
Duchess 2d	1848	„ Walters ...	45
Fidelis	1848	„ Field	40
Oxford 11th	1849	„ Gunter... ...	525
Hyacinth	1849	„ Marjoribanks...	58
Mary	1849	„ Colvin	65
Angela 2d	1849	„ Topham ...	65
Minerva 2d	1850	„ Becar	180
Jardine	1850	„ Stanhope ...	80
Dorcas	1850	„ Kirkham ...	50
Iris	1850	„ Becar	90
Silence	1850	„ Barthropp ...	94
Lady Blanch	1850	„ „ ...	100
Trinket	1850	„ Fisher	40
Cleopatra	1850	Lord Burlington ...	40
Hope	1850	Mr. Spencer ...	200
Dolly Gwynn	1851	„ Fisher	56
Cynosure	1851	„ Combe	50
Ann Gwynn	1851	„ Dormer ...	35
Arabella 3d	1851	„ Walters ...	51
Carmine	1851	„ Abbott	47
Narcissus	1851	Prince Albert ...	72
Bouquet	1851	Mr. Stanhope ...	55
Daffy Gwynn	1851	„ Jonas Webb ...	60
Fancy	1851	„ Fisher	63
Cleopatra 2d	1851	„ Tracey	26
Stately	1852	„ Woodward ...	35
Clematis	1852	„ Hook	35
Astræa	1852	„ Jonas Webb ...	42
Blushet	1852	„ Kirkham ...	40
Olive Branch	1852	„ Angus	47
Noisette	1852	„ Lawford ...	40
Mystery	1852	„ Drake	38
Sympathy	1852	„ Cruickshank ...	46
Dorothea	1852	„ Field	42
Minerva 4th	1853	„ Becar	140
Wildair	1853	„ Atheton ...	38
Victoria	1853	„ Becar	160
Magic	1853	„ Downs	40
Garland	1853	„ Stanhope ...	51
Oxford 16th	1853	„ Becar	480
Dorinda	1853	Brooks & Fuller ...	45
Camilla	1853	„ ...	52
Julietta 6th	1853	Mr. Carrington ...	53
Honesty	1854	„ Guest	53
Surprise	1854	„ Becar	80
Sprightly	1854	„ Crawley ...	60
Rosamond	1854	„ Simpkins ...	30
Darling	1854	„ Topham ...	30
Jewel	1854	„ Hook	70
Lady Bell	1854	„ Sartoris ...	81
Louise	1854	„ Becar	84
Hopeful	1854	„ Spencer ...	140
Alice	1854	„ Hallett... ...	40
Oak Bud	1854	„ Grenfel ...	61
Oak Leaf	1854	Lord Feversham ...	81
Lady Iris	1854	Dead.	
Lady Bates	1854	Mr. Combe	105
Nerissa	1854	„ Robinson ...	81
Fanciful	1854	Lord Feversham ...	51
Delia	1854	Mr. Becar	65
Statira	1854	„ Sartoris ...	40
Surmise	1854	„ „ ...	45
Junia	1855	„ Cartwright ...	36
BULLS.			
Duke of Cambridge ...	1852	Sir C. Knightley ...	280
The Baron	1853	Mr. Cruickshank ...	155
Seventh Duke of Oxford	1854	Dead.	
Sixth Duke of Oxford	1854	„ Gunter... ...	200
Noble	1854	„ Cator	66
Nelson	1854	„ Jepson	34
Governor	1854	„ Brooks	60
Aaron	1854	„ Bostock ...	50
Fitz Derby	1854	„ C. Abbott ...	50
Macdonald	1854	„ Morris ...	81
Friar John	1854	„ Hall	50
Dukedom	1854	„ Moore	110
Barrington	1854	„ Fisher	200
Aurocrat	1854	„ Simpson ...	67
Dauntless	1854	„ Hallett... ...	50
Dundas	1854	„ Guest	65
Captain	1854	„ Duckworth ...	24
Douglas	1854	„ Tracy	35
Harry of Gloster ...	1854	„ Robinson ...	18
John of Gloster ...	1855	„ Dodwell ...	42
St. David	1855	„ Bramston ...	45
Marmaduke	1855	„ Marjoribanks...	100
Napier	1855	Sir J. Lubbock ...	23
Fidelio	1855	Mr. Crump	17
Alliance	1855	„ Chambers ...	15

EXPERIENCES IN LAND DRAINAGE.

No. I. MALTON, YORKSHIRE.—We like to get our drains 4 feet deep if we can get an outfall, but we can only get from 30 to 36 inches in some places: we then put the drains 12 yards apart—where we can get 4 feet we put them 22 yards. Both distances answer perfectly well; indeed we can see no difference—both are equally dry alike, and we have now no difficulty in feeding off the Turnips with sheep, where, before it was drained, you went down every foot you set down as deep as the plough. This land is not more than 50 feet above the sea level; soil alluvial, from 6 to 15 inches deep, lying on gravel and sand to I do not know what depth—we have bored 30 feet and still find nothing but gravel and sand intermixed with "jet." The land is nearly perfectly level, and the spirit level is constantly in use. All gutters are filled up. Our Grass land we drain 4 feet deep, same soil and subsoil as above, but we put our drains 40 yards distant, which answers well. We have drained about 600 acres. We have used 1½-inch pipes; neither collars or sockets are used. We cover the pipes from 4 to 6 inches with our *best soil;* this acts as a filter, and the tiles never discharge either gravel or sand. For main drains for 10 acres we use 3-inch pipes, for 20 acres 4-inch pipes, and for 30 acres 5-inch pipes, which we find quite large enough. We have had only one failure on a piece of land about 2 acres; this is 620 feet above the sea level at the edge of moorland, the moor rises at an angle of about 40° [?] to the height of 400 feet; it is sandstone to that depth, then sandstone rubble. The water comes out here and contains so much carbonate of lime that the pipes in three years are completely choked up, and carbonate of lime is deposited in some places to an unknown depth. On our clay, of which we have very little, we drain 4 feet deep, 21 feet apart, using the same sized tiles; this has also answered well. We have not more than 100 acres of this kind of soil. Under the clay, which is a great thickness, there is a bed of limestone gravel to what depth I do not know. The rest of the estate is perfectly dry, principally resting on the greystone rock and the oolite limestone. *Thomas Hornsey, agent to E. S. Cayley, Esq., M.P., Malton, Yorkshire.*

No. II. GATESHEAD.—The drains have been all placed parallel to each other, but their directions vary with the different inclinations of the field. The prevailing depth of drains is 4 feet, the main drains varying from 4½ feet to whatever depth is necessary to ensure a good delivery for the drains; in some cases I have cut them from 10 to 14 feet in depth. No difference has been made between grass and arable land. I invariably set out the minor or branch drains to face the quickest descent, so that the bottoms of the drains rest on nearly the same plane, and the water is thus conveyed quickly to the main drain, and so to the outlet. I never drain across the fall of the land, the drains would require to be much closer; otherwise the water would flow under the higher drain and reach the surface before being caught by the other drain. I do not pay any attention to furrows: where they answer, well and good, but on light lands you find the ridges across or inclining to the slope or fall of the land, to check any wash by heavy rains or thunder-storms. I have used 2-inch pipes for minor drains, 3-inch, 4-inch, 5-inch, 6-inch for main drains, in proportion to the quantity of rain falling into them. Where there is a large quantity of land delivering at one outlet, I sometimes use two pipes, thus OO, size and proportion according to land; I use well-jointed pipes without collars, and when properly done I have never found them to stop. I have never tried giving access for air to the drains. The soil on this estate is light, subsoil varying, gravel, sand, sandy clay, strong clay mixed with stone, generally having dry backs or bands, like "cat band," or "moor band pan" across the immediate descent, like so many dams to the water in the subsoil. I have sometimes known these to occur within 10 yards of each other. The geological formation is the coal measures. I have now been engaged in works of drainage for some years and to a considerable extent; at present I have under my superintendence the drainage of this the Gibside estate, the property of John Bowes, Esq., for which 5000*l.* is now being laid out under the private money drainage act. On my first becoming acquainted with draining, shallow draining in the furrows was all the practice, but like many others, by practice and the able papers published by Mr. Parkes, the engineer of the Royal Agricultural Society, and others, I was led to see the advantage of deeper draining—say 4 feet—over the shallower 2 feet, since which time I have adopted a uniform system of drainage of 4 feet for branch or minor drains, varying them in width according to the subsoil, as it was more or less retentive, it being the best and cheapest form in which draining can be executed, combining utility, economy, and durability, its utility being that you can place it further apart, thus lessening the cost of tiles and leading where the tile kilns are distant. The drains being at such a depth are out of the reach of injury, yet not too deep but that they can be easily repaired, &c. The distance at which I place the 4 feet drains apart is on an average about 36 feet, the subsoil, as I have before stated, being open and porous; this distance answers well, the main drains vary in depth, so as to ensure a good outfall, which I make a point of first importance, but in all cases ensuring the branch drain a fall of 6 inches into the main drain. Before commencing to cut the main drains or outlets, I have the ground accurately levelled, using Cook's York level, which I find simple and accurate, thus saving any unnecessary cutting or having to go back for fresh level, thus lessening cost. I never use a larger tile than necessary for the main drain; in some fields I use 3-inch main tiles, 4-inch, 5-inch, and 6-inch, in proportion to the volume of water to be delivered, which, if consistent with economy, I bring together to one outlet. The fewer outlets the better, being less liable to be neglected or overlooked. The cutting of the drains is set at so much per rod: an active intelligent man is employed as tile-layer, who sees that all drains are properly cut, of a proper depth, and level at the bottom, with not more width than the tile will fill; the cutter fills in immediately the tile is laid. We find the tiles and all materials required, the superintendence, and every other cost connected therewith, reach an average cost per acre of 5*l.* 2*s.* 6*d.*, having expended up to the present time nearly 3000*l.* On strong clay soils this (width apart) will not answer; in some districts you will find the ridges laid out 18 feet to 24 feet in width, the centre of the ridge being nearly 3 feet higher than the furrow (this is where the land is very flat), the furrow being curved between one end of the field and the other. On such land I have drained 2½ feet to 3½ feet in depth with good results. Great errors have been committed on such land after draining by attempting to level it; in doing so the productive soil or surface of the field was buried in the furrows, and the benefit of draining neutralised. *John Dent, Gibside, Gateshead.*

ON FARM ACCOUNTS.

[At a late Council Meeting of the Royal Agricultural Improvement Society of Ireland a paper on this subject was read by Mr. Hamilton, from which we make the following extracts.]

The day-books are—

1st, *The Steward's Cash-book,* in which he enters, every day, the charge of sums of money received, and the discharge of sums expended, and sees that his balance is correct.

2d, *The Labourers' Account-book.*—This is larger than the usual one, so as to enable the steward to enter, opposite the name of the workman, or horse, what heading the work that they have done is to be posted under; on the opposite side of the book is an arrangement of ruling by which, at the end of the week, there is a space for posting the work done and the cost, under the separate headings contained in the index. Thomas Gannon is entered as three days ploughing, three days carting Turnips, at 1*s.* 2*d.* per diem; the two horses at 4*s.* per diem, and one horse at 2*s.*, are carried out under the headings of

Turnips.	s.	d.	Preparation of land for Oats.	s.	d.
Manual labour	3	6	Manual labour	3	6
Horse labour	6	0	Horse labour	12	0
	9	6		15	6

When the steward has made these entries, which are merely the points which he must know, if he knows anything of how he is expending his master's money, there can be no more complication, and either he, or any good clerk, can post the information so conveyed into the farm-account book under the proper headings.

Mr. Hamilton proceeds as follows:—

3d, I have lately printed a small sheet of letter paper, so ruled, that the steward can, with the greatest ease, fill in every particular of the amount of stock, the food which each class consumes, the cash account, and the register of farming operations; and also a dairy return, of which I lay specimens on the table. These returns are all that are necessary for the steward to furnish; and wherever the establishment is so large as to justify the keeping of a clerk of the yard, whose business it is to see all quantities measured, and given out, and to post the steward's returns into the farm-account book; or where, in smaller establishments, the posting is done by a professional accountant periodically, or the farmer himself, the constant check upon unintentional errors, from having the returns furnished by one, and posted by another, is invaluable, and leads to a wholesome rivalship in accuracy. Having now described the groundwork, I shall proceed to attempt as clear a description as I can give, in general terms, of the Earl of Meath's account-books. The headings comprised in the index are arranged thus, under two distinct classes:—

Farm Account.—Work-horses, milch cows, cattle fattening, store cattle, sheep, swine, poultry, dairy, Wheat, Oats, Barley, Bere, Beans and Peas, Flax, hay, stock, stackyard, Potatoes, Turnips, Mangold Wurzel, Carrots, Parsnip, Vetches, Rape, Rye for soiling, cut Grass, pasturage, roads and yards, fences, drainage, farm-buildings, implements, miscellaneous stock, miscellaneous crops, miscellaneous unraised accounts, bills paid and to be allocated, storeroom, balance sheet; farm-accounts showing the produce of each field, memorandum of stock pasture-fed, memorandum of stock house-fed, memorandum of breeding stock, journal of operations, and general memoranda.

Mansion and Demesne Account.—Carriage and riding horses, mansion, garden, pleasure grounds, woods and plantations, roads, fences, game, cottages, miscellaneous.

The first class comprises all accounts which come under the legitimate heading of farm-account, and the profit on which is to be set against the capital expended by the owner. Under the head of work-horses, there are columns for Oats, Barley, Beans, hay, straw, Potatoes, Parsnips, Carrots, other food produce of the farm, food from the storeroom, or purchased food, price, manual labour, horse labour, other expenditure, total cost. Under these headings are posted merely the figures,

denoting quantities from the steward's weekly returns; the credit side will show the number of days worked during the year; and the total of expense, together with an allowance for wear and tear, divided by that number, gives, at once, the cost per diem of each horse's work, and so checks the arbitrary charge of 1*s.* 6*d.*, 2*s.*, or 7*s.* 6*d.*, usually made. When calculating the cost of farming operations under the next head, milch cows, we have the columns for number, description, age, when, where, and how obtained, folio (this leads the eye, at once, to the account of store cattle, or any other from which they may have been transferred), cost price, live weight, measurement, pasture-fed, as per folio, class; expense of pasture-feeding, house-fed, as per folio, class; expense of house-feeding, cost of attendance, other expenditure, total. The reference to the folio and class is to the memorandum of stock, pasture or house-fed, where any charge is recorded, such as 8 dairy cows, in field No. 2, from May 1 to November 1; from November 1 to May 1 in house, getting 4 stone Mangold Wurzel, 14 lbs. hay, 3 lbs. oil-cake, per diem. This simple record of each change, with the date, makes it an easy calculation, at the end of the year, to give the cost of the cows' feeding. The contra side is arranged under columns —produce, in dairy, average quantity of milk, value, stock, description, value, when, where, and how disposed of, live weight, measurement, price obtained, profit, loss. The dairy account has, on the Dr. side, the number of cows, average supply of milk, value, total—on the contra side, the value of dairy produce disposed of, as cheese, butter, cream, new-milk, skim-milk, butter-milk, when, where, and how disposed of, value total. This is only a posting in of the summary of the sheet filled in by the dairymaid or housekeeper weekly.

We now take one of the crop accounts as an example, and let us begin with Wheat; at the upper part of the left-hand page you will find a place for the name of the field or fields, and the contents; the columns are —manual labour, horses' labour, other expenditure, and total cost of crop of 18 ; same repeated for crop of 18 ; so that each year's crop may be followed out as to the completion of expense and returns into the markets of the succeeding year. The columns on the contra side are—By carried to stackyard account, folio, No. of stacks, cubic yards, estimated value per cubic yard, total estimated value—By value of Wheat distributed as per stack yard account, folio, total. There are two accounts ancillary to those crop accounts, which provide against any confusion. It often happens that the preliminary operations upon which the success of the crop depends—such as autumn ploughing, cleaning, &c.—are performed before it is quite certain whether the season, or convenience of the owner, may lead him to use Wheat, Oats, or Barley; until this is a matter of certainty, the cost of those operations on each field are posted in the unraised account, and when the decision is come to, the first entry in the Wheat or other account will be—to manual and horse labour, and other expenditure from the unraised account; the account is then carried on regularly under its own heading. When once the corn is carried from the field, the farmer enters his calculation of the supposed value of his crop, in order to know the probability of the amount of food and straw that it contains; but this calculation is checked by the certainty of the produce of the stack-yard, where, according as any stack is threshed, the entries of disposal are made under the headings of Wheat and straw, &c.—as stack No. 1, threshed such a day, so many barrels sent to market, so much small corn transferred to poultry account, so much straw sent to the coach-horse stable, so much to the store cattle, &c.; thus we follow each stack and the contents of each field out, until we know exactly what the produce in corn and straw has been.

I shall now take one example of a green crop—Turnips. The left or Dr. side is exactly the same as that of Wheat; on the contra the columns are—quantity sold, given to horses, milch cows, store cattle, fat cattle, sheep, swine, miscellaneous, mansion, total quantity disposed of, value per ton, folio, total. These entries being made weekly, the farmer at the end of the year knows, at one glance, exactly what his Turnip crop has cost him, dividing the number of tons into that cost he gets the cost of each ton; if he adds the rent and interest of money he knows at what price he can supply his cattle with Turnips; and by charging them at that rate, and not a fictitious value, he has one element in the calculation of the cost of house-feeding provided for, the others follow out of these separate accounts as readily.

I need not enter into any detail as to the other accounts, they are all headed so that the Dr. and Cr. sides contain provision for every possible contingency of expenditure upon raising the crop, or allocation of the produce; and all this is obtained without learning the art of the accountant, but only fidelity in entering each transaction at once in its proper place; the tabulation requires no thought, it comes out of itself at the end of the year or half-year. There are six balance-sheets, so as to enable the farmer at any time to make out his accounts, and see how he stands; and this is done simply by striking the balance on each account, and entering the Dr. and Cr. in the balance-sheet. On the debtor side is charged in addition, rent, taxes, and interest, &c.; on the credit side, the value of stock in hands; here a great advantage is gained by the entry of the real value instead of a fanciful one.

And now I recur to the weekly returns, which are the foundation of this minute system of accounts If every act of buying, selling, horse and manual labour, division of produce into the various channels of ordinary consumption on the farm, &c., is noted down at the close of day by the steward faithfully, and classified, at the end of the week, under the very few headings which any one week's work would embrace, there is no longer any danger of confusion—every item falls into its proper place, and the cost of every simple transaction can be at once referred to. I believe that every year the necessity of accuracy in farm accounts will be more felt, and that agriculturists will owe much to the Earl of Meath for having entered on so expensive an undertaking, which, until the public see its importance, would not have found any publishing speculator willing to embark in. Seventy copies were printed, with a view that those most anxious on the subject might have them at a cost of printing, keep them for a year, and then report upon any apparent improvement, so that a future edition might be made quite perfect; several have been kept for above six months, and seem to work as well as possible. [We believe most readers of the above will, after mastering the plan so far as that is possible from a description, agree with us that we still want a simple and efficient system of farm accounts, adapted for ordinary and general use.]

ON REFORMATORY SCHOOLS.

BY T. BARWICK LLOYD BAKER, ESQ.

[The following are extracts from a paper read at the meeting of the British Association at Liverpool.]

THERE is one point to be most zealously watched and guarded against, namely, that we do not allow the warm interest we take in the criminals under our care—or our own natural vanity in turning them out as creditably to ourselves as may be—to induce us to give them superior advantages, and thus make them an object of envy to the innocent.

It must always be difficult to avoid this. We are all prone—the educated more than the uneducated—to think others better off than ourselves: but if there were once raised a general feeling that admission to a school of this kind were a thing to be desired, we should, I fear, have done a positive evil to the many which would outweigh whatever benefits we would give to the few. The deductions from these considerations (whether faulty or not may be a matter of opinion) have led us to adopt our present system. We hope—and so far as we can see, we are borne out in our hope—that the world without—the legally honest—will see little to desire in the system which separates a child from his parents for from two to five years, giving, by the new act, power to put all the machinery of the Poor Law Acts in force to compel the parent to pay all he can towards the support of the child; while the boy himself is set to steady hard work, which will fit him to become, not a proficient in one of the more skilled trades, which are an object of envy to those of the lower classes, but simply a tiller of the soil—a farm-labourer. It is true that we endeavour to make our boys as good farm-labourers as possible. It is true that a good farm-labourer is, we believe, in a really better condition than most artificers. It is true that if his wages are lower, his rent and other expenses are lower in proportion, and that both his temptations to evil and his chance of being thrown out of work are less than they would probably be in any other course of life. Yet still the general feeling is, and probably will be for many years to come, all in favour of the occupation of the tradesmen.

All this appears to point out agricultural employment as the kind peculiarly adapted to institutions whose aim is to unite real advantages to the boy, with the absence of all which may appear even to the ignorant to make the effects of crime desirable. But there are yet other advantages which are quite as important. The mind of a boy fresh from the excitements and passions of the streets of a town—the alternate crime and idleness —the lavish expenditure when lucky, and the cold want when unsuccessful—is in a state of feverish restlessness, which requires to be allayed before it can safely be operated upon. Now, I know of no employment which will allay the excitement and tranquillise the mind, so as to prepare it to be acted upon by a firm kindness, like steady, hard digging. . . . . Now this is one point in which lies, as I think, the great value of agricultural employment. A boy comes to us, usually quick and energetic by nature (for unless he be so he is not likely to have distinguished himself in evil), and with a restless craving for change and excitement caused by long-continued vagabond and lawless habits. Set him at once to tailoring or shoemaking, and while he feels an apparent confinement of his body within four walls, his mind has full liberty to return in imagination to former scenes of excitement. But, on the other hand, put him to hard and unused bodily exertion; his energy expends itself, not only harmlessly but profitably, on the stiff clay; the very feel of the fresh air and the appearance of liberty tend to tranquillise and allay the feverish excitement, and when the labour of the day is over he is disposed rather to enjoy his rest in his new career than to revert to his former courses. He may probably indeed be disgusted at first with the hard work; not unfrequently he declares that he'll run away soon; but the very absence of walls and apparent restraint incline him to put off his intention till by degrees he finds, not only that the bailiff is nearly always in sight, but that even most of the boys would prevent his elopement (for the boys by no means like runaways); and, seeing those around him contented and patient, he finds that a life of labour and regular habits is on the whole more to be desired than the excitement of lawlessness. The kindness, too, with which they are treated—for the bailiff is, and must be, kind and gentle in his manner, though thoroughly firm—and the discovery which they make ere long—though they are slow to believe it at first—that the managers are doing their work not for pay but for love, all tend to soften and subdue the rugged and hardened tempers and to bring them into a state to profit by instruction.

Here also we find a great advantage in farm labour. The greater part of the boys come from towns, and if we taught them trades, to towns they must return. True, we should probably endeavour to place them in other towns than those from which they came; yet still, to a boy used to the vices of the streets, a large town will always have great temptation. Now, if we place him with a farmer in the country, all his habits, all the objects he sees, remind him of his school life where he has been reformed, rather than of his former evil courses, and the broken thread is not likely to be renewed.

We do not either entirely close the door to some light trades. The boys make their own clothes and mend their own shoes very tolerably. They make baskets also in wet weather for the use of the farm, and some few for sale. But this is merely done with the hope that in their future farm service they may be able to employ a wet day or a winter evening more profitably to themselves, their fellow-servants, or their master, than they would otherwise be enabled to do.

I do not come here to talk of my friend and myself, but perhaps you will allow me in a very few words to sketch the history of our own school. About 20 years ago I became acquainted with the two persons who I believe may be considered as the originators, in our country at least, of this movement, namely, Miss Murray and Capt. Brenton. Their views at first appeared to me to be grand but wild; and it was not till I had some years' experience as a visiting magistrate of a large prison that I became convinced of the truth of their opinions, which my later experience has still more confirmed. For many years I longed in vain to see the experiment tried again; till some three years ago (having casually mentioned the subject to him a year or so before) Mr. Bengough offered to join me in the undertaking. Several of the leading magistrates of the county gave us their support, advice, and assistance, but the management remained solely in our hands. I built very little more than a labourer's cottage in the middle of my own property on a small farm of poor land, which happened to be in my own hands because it was in too bad order to let, so that, had the experiment failed at any time, I might have given up the school, let the cottage to a labourer, and sustained no loss. We commenced thus in our inexperience, merely because it was the most convenient plan we could adopt; but our later experience has not shown us any way in which we could have improved it.

Now let me ask, is there any county in England in which there is not to be found a magistrate who wishes for such a school (if it be needed there), and who can find, at a fair rent, a few acres in the middle of his own property, and near his own house, where the experiment may be tried? I shall be told that a magistrate usually has not only the duties of that office but also the other business of a country gentleman to attend to, which leave him not time enough to establish such a school. I know perfectly well that this was my own case; had it been otherwise I should have attempted my favourite scheme long ago. But can the aforesaid magistrate not find some one like my friend Mr. Bengough—a young man who being heir to a good property, does not require a lucrative profession, and yet wishes for employment—who will help him? Numbers of such men now-a-days flock to chambers, and undertake the toil and drudgery of the law to keep them from idleness, and to prepare themselves to become useful country gentlemen in their day. And can none be found who, without giving up their fresh country air and exercise, without leaving altogether the engagements and pleasures of home, will give some three days a week for so extremely interesting and satisfactory, not to say so useful and honourable occupation, as the reforming the youth of a county?

I do not mean to say that Mr. Bengough did nothing uncommon. When he gallantly undertook the work, the chart was unknown—the perils, like all unknown things, were exaggerated. Many expected that he would be murdered, and that my henroost would be robbed. No one could say what difficulties we should have to encounter; and there were perhaps few men who would have had the pluck and perseverance to brave the unknown seas.

We have made it our object not to take all the boys we could, from whencesoever collected, but to endeavour as far as possible to clear our own county from the instigators and instructors in juvenile crime. Not because we hold those of other counties as aliens for whom we care not; but on the same principle that if I were to go all over the county pulling up a weed on every man's farm, I should do next to no good; there would be plenty left everywhere for seed. But if I pull up every weed in my own farm I do a real good to myself and my neighbours, by leaving none to go to seed; and thus I show my neighbours how they may benefit their own farms. The result, so far as we can yet see, has been satisfactory. In the town of Cheltenham, the largest in our county, and formerly the most productive in juvenile crime (though by no means dark in the statistics of general crime), there were reported to be by the police in January, 1852, about 20 boys under the age of 14 who had been once convicted, and about 20 more

who, under the same age, had been twice, or three, or four times convicted."

I believe that I can now say that there is not at present in Cheltenham more than one boy under 16 who has been twice convicted. An old farm-house will hold this number, and be infinitely better than new buildings, for the very reason that it looks more homely and plain. The more simple and unambitious your building can be, the less inducement will it hold out to the honest, and the better will it prepare the boys for the rough life and accommodation which they will afterwards find in a farm-house.

If it be necessary to build, let it be such a building as will in appearance resemble a row of labourers' cottages, and in fact will be convertible into labourers' cottages should circumstances make it desirable to change the locality of a school. I confess I believe that the moment you get a building which will strike the vulgar as ornamental, you to that degree commence a decided evil. Picturesque you may have it. An old half-timbered farm-house is a most pleasing object to the better educated. Our own school, with its plain red brick gables and its low tiled roof, will, when the creepers have got up the walls, be not an objectionable looking building to see on one's estate. But this excites no envy;—no feeling among the honest poor that "there is a grand place built for thieves, while I and my honest wife and children are forced to put up with a wretched cottage." I confess that, while wishing every success to the race of architects in all other ways, I trust that they may find as little employment as possible in designing reformatory schools.

With regard to the locality, I lay great stress and attribute much of the ease of our success to the fact of the school being placed in the middle of my own estate. Had a committee purchased a piece of land it would hardly have been possible to prevent all the neighbours taking fright at the colony of thieves established close to them; and an adverse feeling amongst the neighbours is a moral evil. For the same reason I would not have it near a village, as the less they see of their neighbours the better. At the same time I should much wish that it should be within a reasonable distance—a quarter or half a mile—of the church, as, if it be much further, weather may occasionally prevent their attending it; and a regular habit of church-going I believe to have an important effect on the future character.

These, and such like points, however, though I mention them as worthy of consideration, must vary with circumstances. But the principal points, I think, are, that the school should be rough looking, should begin very small at first, and increase very gradually, not laying down a rule at starting that you are to have a certain number in a certain time, but increasing just as fast as you find that you can get them well under discipline, and going to just such extent as you find suited to your convenience or the wants of your county; and thirdly, that it be managed by a country gentleman, and in the middle of his own property.

The quantity of land required we find to be about half an acre (of stiff clay) to a boy; but after it has been well dug for some years it will become lighter, and they can do more.

Our staff consists of Mr. Bengough and myself as managers. He lives 12 miles from the school; I about one. He comes and spends a few days with me now and then (alas! very rarely). I, when I have an hour or two to spare (very rarely also), go over and look at the boys working, and have a chat with one or another. I should think that I devote on an average four hours a week to looking on and chatting. Such are our arduous labours.

The bailiff is a farmer used to superintending workpeople, who does not treat the boys as a warder would do, according to strict rule, for any deviation from which he is liable to be complained of to the visiting magistrates, exacting a certain amount of work, and weighing out a certain amount of food; but he treats them exactly as experience has taught him to treat his own workpeople or his own children, exacting what labour he sees that each can do, and giving to each what food he finds to be necessary to keep him in hard-working condition. We certainly are fortunate in our bailiff. He has a mild gentle manner, with undeniable firmness. He will readily give us his opinion, which is usually worth having; but he will strictly obey our orders; and, above all, his heart is in it.

A great part of the ease of our success is perhaps to be attributed to our finding so good a bailiff. But in these days, when farming cannot be carried on without a large capital, there is many a man to be found with good plain education, good practical knowledge, and good feeling, but with too small a capital to farm.

The next person is the schoolmaster, and this I confess is a difficult office to fill. We can find many schoolmasters who will take the entire command of a school, and will cram their pupils, so as to gain the approbation of the most fastidious examiner. But to find a man who will teach for two hours and a half per day—so short a time that he will never be able to make them great scholars, fit to make a show of; who can in fact believe and feel that the converting the pests of society into good Christians is as useful and as honourable an occupation as that of giving ploughboys a correct knowledge of the position of the antarctic circle; who has in fact not merely a clever head but a good heart, and that heart in this work, is as yet a difficult person to find. Still I believe that ere long the demand will create a supply. Many a lad in our training schools is unable to pass the high examination required, and not obtaining a certificate of sufficient learning, is disqualified for taking charge of a national school. Yet many of these may have courage, coolness, discipline, and a heart in the right place, and though they have failed in their first intention, yet, in such a line as ours, they may possibly make not less useful, not less honoured men than others who have taken a first-class certificate.

In addition to the bailiff and schoolmaster we have also lately taken a labourer at 1s. per week above labourer's wages, to work and superintend one of the gangs. He in all probability will in fact cost us nothing, as he will earn his wages on the land, and with 36 boys with no fence round them, two superintendents are scarcely enough. Besides this we receive help kindly given us by many of our neighbours. Our vicar and his curate occasionally call in a class from the field, and give that instruction which a layman cannot give with the same authority.

In conclusion, I can only warmly congratulate those who take an interest in the matter, that the act of the last session, affecting young offenders, has placed the matter on such a footing that the Government allowance will, I think, be found sufficient to defray every expense of such a school beyond those of probably the first year; and I trust that ere long the wisdom of that act may be proved, not only by the mere increase of the number of schools, but by a decrease of general crime, remembering that our object is not so much to benefit the individual criminal as to benefit the children of the honest neighbour whom that criminal would corrupt.

Home Correspondence.

Parkes's Steel Digging Forks.—We would that all crops of corn, and more especially Wheat, were planted in rows about 2 feet apart or four rows on a stetch, commonly designated here 8ths, with at most only one quarter the usual quantity of seed per acre, in order for the admission and free use of a horse-hoe, or, what is perhaps better, a scarifier, as the horses would walk in the furrows, thus furnishing an opportunity of cleansing the crops from weeds (a point most essential, though too much overlooked by us all), and attaining to something like perfect cultivation of the soil—important for all grain crops, as well as green, and which the plough is not capable of accomplishing, and which cannot be effected by the process of manual labour with the common hoe, especially on what are termed full crops, or what we call "too thick seeding." But what is to become of the labourers at this season of the year may be asked, if such appliances as these are to be resorted to in lieu of the ordinary hoe? A similar question has been asked by a correspondent in reference to the use of steam threshing machines, &c. In reply we beg to name a salve for all those sores, viz., "Buy each of them one of Parkes's steel digging forks." Ply the use of it by forking up a sound spit between each row of corn, at all seasonable times from the end of September to the middle of April, by which times all kinds of grain should have made their appearance above ground. Labourers ought not, nor need stand still for want of employment, nor our union houses be crammed with able-bodied workmen, except in very inclement weather, as the use of this efficient implement would always doubly repay the employer. Since it has been introduced into our grounds, the spade, notwithstanding its superiority over the plough (one sound digging being allowed to be worth half a dozen ploughings), is cast completely into the shade. The comparative ease too by which the labourer is enabled to perform almost double the amount of work is astonishing. Every workman calls out for "the four or five pronged steel digging fork!" We remark that if those implements were generally put into constant use in the way above described, they would prove a boon to both master and man, and finally to the country at large, and we recommend that every other row of the said thick or full crops of corn now growing be dug up deeply, on a small scale at least, by these or some similar implements, to prove the truth of these observations before the middle of April has passed away, thus testing the utility of Parkes's steel digging forks before steam cultivation can be effected to supersede them. N.B. The free use of this famed implement between rows of Potatoes will amply repay the cultivator, and it may be introduced with certain profit till such time as the plants have appeared above ground a fortnight; or if a mark is drawn with the foot at the time of planting, or any other index showing where the rows are, the operation may be performed a month earlier with great advantage, and this observation will apply equally to the rows of corn. *Hardy & Son, Seed Growers.*

"How are we to find Food for our Flocks?"—In perusing an article in your Paper on this subject, may I beg leave to remark that the last winter has been unprecedented for severity and continuance in the principality for untold years, and still continues, April 20th; and our flocks have suffered immensely—25 to 50 per cent. in the lambs, and 10 to 15 per cent. in the ewes. Since the introduction of Chivas' Orange Jelly Turnip, I need scarcely say that where attention has been paid to its cultivation, no lack of good provision should be wanting for ewes and lambs in the spring. I have sown them on rather a large scale for some years; and this last winter, when my late Swedes gave way to the inclemency of the season, the Orange Jelly Turnip withstood the trial, and I am now drawing them daily, for cattle and the use of the table, in beautiful condition. I feel sorry to trespass upon your time, but should any remark I have made (and from experience) be worthy of an insertion in your valuable *Gazette*, I shall esteem it a great favour. *W. J. Ford, Llyngwern, near Machynlleth, N.W.* [We shall be glad for further information on the value of this root. Experience has varied exceedingly as to its merits.]

Hardy's Plant of Wheat from 8 pints of seed per acre is looking remarkably well, and appears, as they say, to have only one fault, that of being much too thick [!], which, however, they resolve upon remedying this week by thinning it to single plants by the hand. Their earliest, a small portion sown in August, is progressing admirably, and will, notwithstanding the lateness of the season, be in ear by the middle of May, and probably fit for the sickle in July. *A Constant Observer.*

Dairy Management.—I have read the letter from your correspondent "Y." in your last Number with much interest. Every one who has to do with a dairy must have observed the influence of temperature on the quantity of cream produced from a given quantity of milk, and many persons have tried to prevent the loss arising from low temperatures. There are two modes of doing this: 1st, by the application of heat to the vessel containing the milk; and 2dly, by raising the temperature of the dairy. Your correspondent "Y." seems to have availed himself of both these modes, and hence probably arises the difference of opinion as to the requisite temperature of the room between himself and Captain Carr, which he mentions. As in all these manipulations it is of the utmost importance to have an exact description of one that has succeeded, in order to insure success to others, I trust you will excuse me for requesting answers to the following questions:—1st. Having myself tried the application of heat to the vessel containing the milk with complete success as regards quantity, I have been obliged to give it up in consequence of the rank taste in the cream and butter thus obtained. Has your correspondent "Y." observed this in his dairy? 2d. What is the exact temperature at which he applies the hot water to the cistern containing his milk bowls? 3. The hot water being 3 inches deep, what is the depth of milk in the bowl? 4th. Are the bowls of metal or earthenware? 5th. For how long does the flow of hot water into the cisterns continue? *An Original Subscriber.*

Conveyance of Water in Underground Pipes.—In addition to former remarks may I add that at this present time I am intending to lay down a considerable extent of piping, and have secured 1400 yards 3-inch glazed pipes for that purpose, to reconstruct, and, I hope, improve a water-course which supplies my premises with water from the spring head, such spring being situated on an eminence in the midst of a wood rising higher than the cultivated land on millstone grit; having no natural or artificially used lime to be absorbed by the water to render it hard, it is clear, cool, and perfectly soft. Now as it may be of use to others bringing water to their houses and gardens, I will endeavour to explain the plan I intend to pursue. After having excavated the earth to a sufficient depth and impressed upon the cutting the shape of each socket, I shall first pour a small quantity of boiled coal-tar under each socket's mark on the ground, ere cementing the pipes together with some water cement. Afterwards upon the top of every such joint I shall again pour more tar, so as to unite the two together over and under each already cemented joint. All plants having an aversion to coal-tar, I hope by this double precaution to succeed in preventing effectually all future mischief, which has not been the case up to the present time in old-fashioned socket piping; for we have very often to take it up for repairs, and have pulled out roots of trees 60 feet long, resembling the tail of a fox.——Since writing the above I have read the remarks of "J. L., M.D., Newburgh," in your paper of the 21st April. I fear he is not a practical man, and that his project of filling up drains with sand would be too expensive, and would not answer after sufficient accumulation of water to form a run; for broken stones will not remain open long but silt up. Pipes with collars and a good fall are the best; for in theory, all drains after making commence filling up from the top downwards, and unless there is water from behind to sweep them clean they gradually fill up; therefore, if possible, I contrive to finish the top in a hollow that some flood or melting snow may form such an accumulation of water as may flush them clean; if not, it is advisable to have an upright termination, with knowledge of its locality, to do so artificially, as far cheaper to be attended to every few years than cutting and relaying them over again. *An Aged Practical Observer.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, *April 25*: Mr. MILES, M.P., President, in the chair.

ATMOSPHERIC SUPPLY OF MANURING MATTER.—Professor Way, Consulting Chemist to the Society, delivered a lecture before the members on the recent researches connected with this subject, which he regarded by no means a merely theoretical one, as it might at first seem; but one fraught with the most practical results in reference to agricultural operations. He glanced at the germination of seeds on surfaces containing little or no depth of soil, until rocks and towers became covered with vegetation—to the forests of western America, where successive scourging crops of Tobacco and Sugar were required to destroy the accumulated fertility, and to the coal-beds of various countries, which had

their origin in vegetable matter; facts which he thought must strike the most unobservant, that the air, producing as it did these vegetable products, must possess something more than a mere inert mixture of elastic fluids. He referred to the advantages derived by real science, though unintentionally, by the labours of the alchemists in their researches for gold and the elixir of life; but especially to the philosophical and more legitimate investigations of Priestley, Bergman, Scheele, Lavoisier, and De Saussure, whose genius in the direction of their experiments on air was only equalled by their candour and diffidence in deducing their results. These researches had first their application to the phenomena of animal and life, and subsequently to those of vegetation. Prof. Way then proceeded to explain the composition of the atmosphere, and the negative character of the nitrogen it contained, as controlling the active chemical nature of the oxygen. He stated that the carbonic acid gas mixed with the atmosphere, though small in proportion to the oxygen and nitrogen, was sufficient in amount to furnish carbon for the constitution of the whole of the coal-fields of the globe. He had nothing to remark, as new, on the watery vapour in the atmosphere. The most interesting subject of consideration at the present time was the occurrence of ammonia and of nitric acid in the air, and the mode in which their presence could be rendered still more available to the purposes of agriculture. He then explained how everything organic required by plants could be furnished by these four most powerful elements of the atmosphere and its aqueous vapour, namely, oxygen, hydrogen, carbon, and nitrogen. He described the recent experiments of M. Boussingault, and also those of M. Ville (splendidly illustrated in a work presented to the Society by the French Government), referring to the views on scientific principles of agriculture just published by Professor Liebig, the deductions of Mr. Pusey, the elaborate researches of Mr. Lawes, and the experiments of M. Barral. He alluded to the amount of ammonia in rain-water, dew, and fogs, and to the insufficiency of the methods hitherto employed for ascertaining the proportion of nitric acid in the air. He called attention to the large amount of ammonia constantly taken up by the soil, and washing into the land by rain; and to the great importance, consequently, of exposing the soil in such a manner to atmospheric influence as may best tend to this ammoniacal absorption. Fallowing of land, he remarked, had given way to rotation of crops; but that there was no such thing as such a simple resting as fallowing was supposed to imply in this case, for an alteration of the soil under the influence of oxygen was constantly going on. Every interval even, between one crop and another, was in reality a fallow. Land should be laid up as lightly as possible, for the purpose of its aeration. The working of land, with a view to this abundant aeration, was one important means of improvement. He regarded it as indispensable to the full development of the powers of soil that steam-power should be brought to bear effectively upon its cultivation. The amazing bulk of ammonia locked up in the land itself could not be taken up by plants, and would, therefore, remain in a form unavailable for vegetation, unless the management of soil tended to release such manuring matter, and bring it within the reach of the roots. He had calculated, from data furnished by some rich loamy land of tertiary drift, that the soil within available depths contained ammonia at the rate of one ton (equal to six tons of guano) per acre. This was a stock of wealth which would repay the most active measures being taken for its release and distribution. He then passed on to the subject of green manuring, and to that of draining, and the importance of a free aeration of the soil and increased absorption of ammonia, after the water had been duly carried off.—The Rev. L. Vernon Harcourt referred to the manner in which certain fungi absorbed nitrogen and the phosphates during the growth, and yielded ammonia and phosphates to the soil on their death and decomposition.—Professor Way explained the theory of fairy rings, given by him in the Journal some years ago; and his supposition that the development and expansion of the cells of the fungi attracted their air manure.—Dr. Calvert called attention to the electrical effects produced in the atmosphere by thunder-storms, and to the subsequent rapid vegetation in moorland districts; also to the theory of nitrification in nitre-beds.

On the motion of Mr. Raymond Barker, seconded by Dr. Calvert, the best thanks of the Council were given to Professor Way for the able and interesting lecture he had then delivered. The President, on putting the motion (which was carried unanimously), added his tribute of praise, remarking that nothing could more effectually, he thought, call thinking minds into operation than the science and the researches of the able men whose philosophical labours Professor Way had then brought under the review of the meeting. He delighted, as one of the earliest members of the Society, to witness the successful manner in which practice and science were more nearly approaching each other, for the more secure guidance of practical farmers, and for the benefit generally of the agricultural world.

Farm Memoranda.

Dorsetshire.—James John Farquharson, Esq., of Langton, who holds in hand no fewer than 4500 acres, managed by intelligent bailiffs, has the advantage of having, under nearly all that extent of land, a chalk subsoil, which performs, without expense, one of the most necessary, but, in many parts of the county, perplexing offices of good husbandry—drainage. This land is chiefly arable, and the course followed is the five-field shifts, the Clovers staying two years, and Red Clover occurring in the course once in 10 years. The Turnips, as well as the Mangolds, are grown on the ridge, and the clod-crusher is used to bind the Wheat-bands instead of the fold, which was formerly used for that purpose. The horse-hoe is kept actively at work amongst the Turnips, about half the bulk of which is drawn for stall-feeding. The roots to be fed off on the land are left in double drills. A cart of the width of two drills is used, so that the left Turnips are not injured by the wheels, whilst they are distributed evenly over the field. The labourers are paid by "tut" work, the dung-put fillers being paid by the square yard, and the spreaders and ploughmen by the acre. A portion of the ley ground is ploughed early in May and sown to Rape, which is fed off previous to its taking the Wheat in the autumn. From 80 to 100 acres of Italian Ray-grass are sown, and sometimes French Grasses, as a substitute for broad Clover. These are allowed to remain three years, and are fed off, generally by lambs. The stall beasts are kept in the vale during summer, and put up in sheds in October; they are supplied with cut Turnips, bruised Barley, and Linseed, the two latter being made into a "pudding," of which the beasts have half a gallon a day. The breeding cribs are cemented to prevent the intrusion of rats, and between every two cribs is a small trough, which is kept always full of water from a tank regulated by a ball-cock. Here is another excellent steam-engine, which works a useful threshing-machine. The corn is threshed, winnowed, sacked, and weighed, and the straw is cut into chaff when wanted concurrently with the threshing. By a simple but ingenious contrivance a bell rings as soon as the sack reaches its proper weight. Newcastle coal having burnt out the bars of the furnace, a vessel is freighted with coal from Scotland. About 6000 sheep, all pure Downs, are kept on the farms, as also from 40 to 50 fatting bullocks, and 60 working oxen, chiefly driven by reins in pairs. The tenantry on the estate of Henry Charles Sturt, Esq., of Critchell, are said to have been the first who themselves bought fixed engines for threshing, winnowing, &c. One of the first fixed engines was erected by Mr. Ford, of Rushton Farm, whose fat Hereford cattle occupy conspicuous places in the prize lists at Christmas. The general system upon this portion of Mr. Sturt's estates is five-field; but the following course has been found to answer well on stiff soils:—1. Swedes, fed off late in the spring; 2. Rape and Turnips, or Turnips alone, fed off in the following fall, and sown to; 3, Wheat; 4, Barley; 5, Clover; 6, old ley; 7, Wheat. One half of the Wheat stubs are brought into Barley, the other half into Swedes or Turnips; one-half of the Turnip land fed off is sown to Barley, the late-fed land affording another green crop. This course gives great advantages in the working of the land in unfavourable springs. On Mr. Sturt's home-farm there is a very perfect fixed steam-engine, which, besides threshing, winnowing, chaff-cutting, breaking bones, cracking Oats, Beans, &c., and dressing flour, pumps water for the supply of the house, stables, farm-yard, &c., and saws the wood for all buildings erected on the estate, cutting up in a summer's day 1400 feet of Oak or Elm, or 1800 of Fir timber. The engine is equal to this and the grinding of Barley at the same time; the boiler is tubular, and the consumption of coal about 5 cwt. for 12 hours. Mangolds are grown in this manner—During the winter, long dung is carted out, spread, and ploughed in, a subsoil-plough following. In the spring the land is found to work very freely, and it is again ploughed and worked about until reduced to a fine tilth. A sack, or 6 bushels, of bones, mixed with ashes, droppings of fatting beasts, &c., are sown broadcast, at the rate of 80 to 100 bushels per acre. The plough follows close and throws up the land in ridges, about 2 feet apart. A very light roller is drawn along the ridges to plane the surface, and men, women, and boys, follow with the seed in aprons, and dibble three or four seeds in at intervals of 12 inches. Another rolling completes the process. The plants are singled by hand, horse-hoed two or three times, and the soil between the plants is deeply hoed by hand. The crops have always been excellent without exception; the cost of putting in the seed is 5*s.* an acre, exclusive of horse labour and carter's; and last year the crop of Mangolds was about 42 tons per acre; Swedes are sown on the flat. A flock of 350 ewes are kept, the whole of the sheep sold being in a fat condition. The tups are put out about 12th Sept. The ewes seasoned in the first week are marked No. 1; those of the second week, No. 2, and so on. At the time of lambing they are taken into the yard in numerical order, to be under the eye of the shepherd; and it has happened invariably that since this plan has been followed—12 or 15 years—at shearing time, a greater number of lambs were living than there had been ewes put to the ram. As many as from 400 to 500 pigs are kept on the farm. In the five-field course a portion of the ley ground is sometimes broken up and sown to Rape and Turnips. Mr. J. A. Damen, who occupies a chalk farm near to the Bagshot sands at Winfrith, says, it is not unusual to let the sheep run over the Clover after the Barley is off; but it pulls up the plant, and the Clover is not half so good in the ear. Some sow it after the Barley, and give it a tine with the harrows; but he thinks it best to sow it with the Barley, give it one tine and a rolling. Italian Rye is sometimes grown in this neighbourhood, instead of clover; it comes very early in the spring, and the young lambs can be put upon it a month before the Clovers are ready for them. "We very often," says Mr. Damen, "have lambs upon it in January and February. I have fed it twice; then cut it for hay; then seeded it, and had 40 bushels of seed per acre." A good deal of fat beef and many sheep are grazed in this district, and it is computed that where one bullock was grazed 20 years ago there are now a score fattened. The consumption of oil-cake is very large; and artificial manures are extensively applied.—*Journal of the Royal Agricultural Society of England.*

Miscellaneous.

Cabbages.—For the purposes of the dairy 1 acre of Cabbages is considered to be worth 3 of Turnips. They require to be raised from seeds sown in beds in autumn or spring, and transplanted into the field towards the end of May, or in the beginning of June, and will be ready for use in October. One lb. of seed will produce 24,000 plants, and about 8000 plants are required to an acre of ground. The beds must be well sheltered, and have a free exposure to the sun of the whole day.

Calendar of Operations.

APRIL.

West Sussex.—There is little to speak of now but the very dry days, and the cold, and sometimes frosty nights; and, as a matter of course, cattle and sheep have got on short allowance. There is hardly a Turnip to be seen now, and the Clover seeds are not come to hand, so that all kinds of shifts must be tried. To use hay now is out of the question, as the sheep would rather starve than eat it. A little picking of Grass, with a pound of cake, is now their resource: and they apply themselves vigorously to the pond as they did last year. Mangold Wurzel has been more than useful this year in carrying the stock through; but now all is done. As a consequence the sale of lean stock is at a stand: but we cannot yet say that the prices are lower, for it seems to be felt that one little warm shower will put us all afloat again. With fat cattle there is no difficulty in parting at fair prices, and the same with sheep; perhaps a trifle below 5*s.* per stone is the fig . Lambs are a good sale, but they are brought into market be e they are hardly fit; about 6*s.* per stone is their value. Respect g the crops there is nothing to complain of. The Wheat lo s extremely well, and is now growing fast, notwithstanding e frosty nights and east winds. Barley and Oats have come up well; but without rain soon, we cannot expect them to cont e so long. But it will be some time before the Wheat suffers m h, as the frost had so pulverised the top of the soil that it now s fine and close in the best possible state for retaining moisture. The spring has not been favourable for top-dressing the Wheat, as guano (which I expect will after all prove the best dressing would in such weather lose all its good in the air. But it will not yet be too late if rain comes soon. The Turnip land is as easily prepared as it can be; there are no weeds to take out, and by keeping the roller close behind the cross ploughing all tendency to hardening is prevented; so that, though work at one time appeared behind, it will now be got as forward as is desirable. *G.S.*

Notices to Correspondents.

Artificial Guano: *K H.* We do not know the guano of which you send an analysis, and the analysis sent gives no index to its real value. "Organic matter and ammoniacal salts 32 per cent." may mean anything. And unless you actually know the quantity of ammonia capable of evolution from the guano, you cannot judge of its quality. Organic matter *may* be worthless as manure.

Books: *S.* You had better get Dr. Lindley's "Theory of Horticulture."

Cattle Gauge: *Old Subscriber.* Ewart's cattle gauge, by Tree, 22, Charlotte Street, Blackfriars Road, is the best. We regret to have been unable to answer this before Friday, by post, when you say it would have been useless to you.

Chandler's Liquid Manure Drill: *Anon.* You had better apply to Carson, of Warminster, Wilts, and to Tasker & Fowle, of Andover, Hants. The one firm makes Chandler's, and the other Spooner's liquid manure drill. Both sow seed as well as manure, and you can compare the reports you receive and judge for yourself.

Corn Manure: *A Constant Reader.* We should not like to trust to any single dressing of manure to ensure a crop of grain after grain on land that has been cross cropped for several years. Your best chance is to get the whole land thoroughly tilled during the autumn, and manured then with dung to some, however small, extent—to sow Beans after the Wheat, and spring Wheat after the Barley and Oats as early as possible in the spring, top-dressing with guano and hoeing it in in April.

Guardian Society, Manchester: *One who was Duped* will oblige us by his address. This question is in reference to a swindler detected by the Guardian Society.

Nettles: *G W.* Their roots must be forked up. That is the only plan to get rid of them.

Oats for Fodder: *J Irvin.* We would rather sow 3 bushels of Vetches and 1 bushel of Oats in May per acre for cutting green in September than sow Oats for that purpose by themselves. But we do not know how Vetches suit in your country: and perhaps as the land is just broken up it may be worth more to pare and burn it, and sow Rape seed, than to attempt either Vetches or Oats.

Taste of Butter: *Dairymaid.* The principle of all successful attempts to get rid of the taste of roots in milk is to keep the liquid hot for longer time than usual, so as to cause the evaporation of the arema. This and cleanliness will generally succeed.

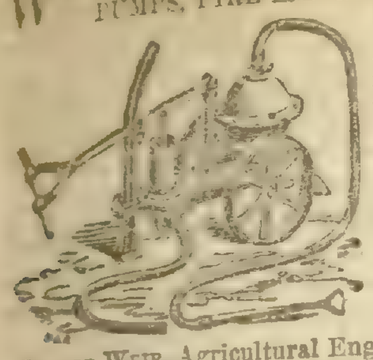
Value of Pigeons' Dung: The following information on this point has just appeared in the Journal of the Agricultural Improvement Society of Ireland, in the form of a letter from Professor Apjohn:—"The best way, I believe, of replying to Mr. Smyth's inquiries in relation to pigeons' dung as a fertilising agent, is to direct his attention to the following equivalent numbers, deduced from the best analyses:—

Farm-yard manure, moist	100
Pigeons' dung, fresh	172
Peruvian guano	38

"From these data, it appears that pigeons' dung in its recent state is, weight for weight, about six times as valuable as farm-yard manure, and that its fertilising influence is to that of best Peruvian guano in the ratio very nearly 1 to 4. In cases, therefore, in which 4 cwt. of guano would be applied to an acre of tillage, 16 cwt. of fresh pigeons' dung may be expected to produce an equivalent action.

"As to 'the best way of managing pigeon manure,' I would say that, while fresh, it should be made into a compost with clay and peat charcoal, to prevent the loss of ammonia which would otherwise occur during its desiccation, and that this compost should be used for green and other crops precisely in the manner in which guano is applied."

WEIR'S IRRIGATORS, LIQUID MANURE PUMPS, FIRE AND GARDEN ENGINES.



	£	s.	d.
Single Cylinder (as engraving) ...	8	8	0
Double Cylinder ...	10	10	0
Horse power size ...	16	16	0

Exclusive of Suction and Delivery Pipes.

Illustrated Catalogues free, per post.

Terms Cash on Delivery.

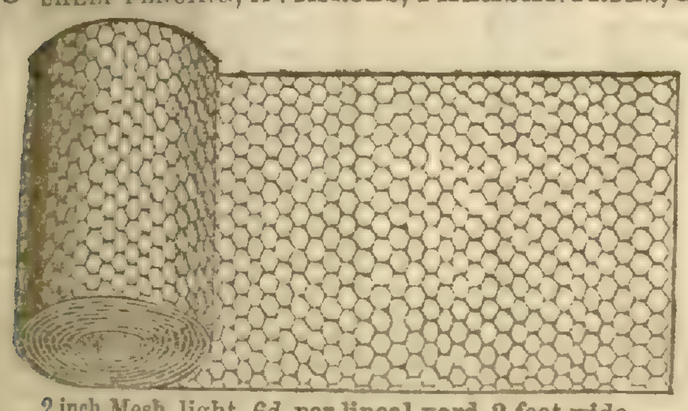
EDWARD WEIR, Agricultural Engineer, 16, Bath Place, New Road, London, removed from Oxford Street.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d.* per square yard: 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.* Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

FRUIT TREES, POULTRY, RABBIT, SHEEP, AND LAMB FENCING.—Worsted Netting, to protect the Bloom of Peach, Nectarine, and other Trees, Flower or Seed Beds, from frost, blight and birds, 2 yards wide, 5*d.* per yard. New Twine Netting (tanned if required), 1 yard wide, 2*d.* per yard: 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.*; half-inch Mesh do., 2 yards wide, 8*d.* per yard. Tanned Netting, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. Elastic Hexagon Garden Net, or Scrim Canvas, 4½*d.* per square yard. Cocoa-nut Fibre, or Hemp Sheepfolding Net, of superior quality, 4 feet high, 4*d.* to 6*d.* per yard. Rabbit Net, 4 feet wide, 2½*d.* 6 feet wide, 3*d.*, 8 feet, 4*d.* per yard. Each edge corded, ½*d.* per yard extra, suitable for Poultry Fencing. Square Mesh Cricketing Net, fix its full width and length, made of stout cord, 3*d.* to 4*d.* per square yard; this is the best article for Fencing against Fowls, Cats, &c.—W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Kingsland, London.

A 20-yard Drag Net, with purse complete, 2*l.* 10*s.*; a Single Walled Drag Net, any length and depth, 1*s.* per square yard; Casing Nets, complete, 1*s.* per yard, measured round the lead line. Flue Nets, any size, 1*s.* per square yard complete. Minnow Nets, Eel Nets, and Landing Nets equally cheap, all warranted first rate quality and workmanship.

GALVANISED WIRE NETTING FOR GAME AND SHEEP FENCING, AVIARIES, PHEASANTRIES, &c.

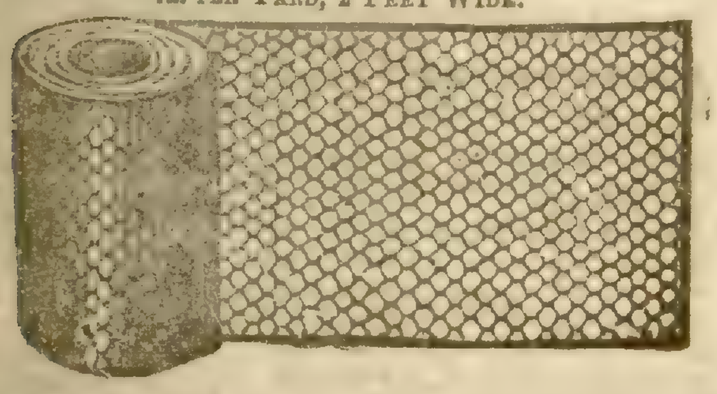


2 inch Mesh, light, 6*d.* per lineal yard, 2 feet wide.
" strong, 8*d.* " "

Netting of any size or quantity, and Fencing of all kinds, supplied on the shortest notice.—WILLIAM DRAY & Co., Manufacturers, Swan Lane, Upper Thames Street, near London Bridge.

GALVANISED WIRE GAME NETTING.—

7*d.* PER YARD, 2 FEET WIDE.



		Galvanised.	Japanned iron.
2-inch mesh, light, 24 inches wide	...	7*d.* per yd.	5*d.* per yd.
2-inch " strong "	...	9 "	6½ "
2-inch " extra strong "	...	12 "	9 "
1½-inch " light "	...	8 "	6 "
1½-inch " strong "	...	10 "	8 "
1½-inch " extra strong "	...	14 "	11 "

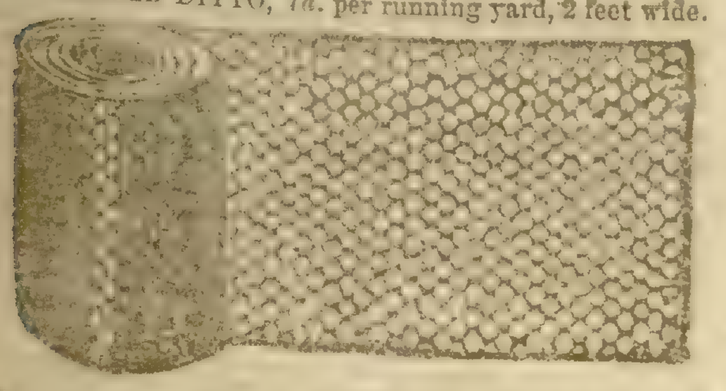
All the above can be made any width at proportionate prices. If the upper half is a coarse mesh, it will reduce the prices one-fourth. Galvanised Sparrow-proof Netting for Pheasantries, 3*d.* per square foot. Patterns forwarded post free.

Manufactured by BARNARD & BISHOP, Market Place, Norwich, and delivered free of expense in London, Peterborough, Hull, or Newcastle.

CHEAP WIRE, GAME, & POULTRY NETTING.

5*d.* per running yard.

GALVANISED DITTO, 7*d.* per running yard, 2 feet wide.



		Galvanised.	Not Galvanised.
24 in. wide, 2 in. mesh,		7*d.* per yard.	5*d.* per yard
30 in. " 2 in. "		9*d.* "	6½*d.* "
36 in. " 2 in. "		10½*d.* "	7½*d.* "
48 in. " 2 in. "		1*s.* 2*d.* "	10*d.* "

Sparrow Proof Netting, Galvanised, 3*d.* per square foot, made to any size for the same proportionate price. This article was shown at the Great Exhibition, where it was so much admired for its light and durable appearance, and acknowledged to be the cheapest and best article of the kind ever offered. Extra strong Wire Sheep Netting, 3 feet high, 1*s.* 6*d.* and 2*s.* 3*d.* per yard. Also every description of Flower Trainers, Dahlia Rods, Garden Arches, Bordering, Flower Stands, Tying Wire, Trellis Work, Invisible Wire Fencing, Hurdles, and every description of Wire Work for Horticultural purposes.—Illustrated Catalogues of Patterns forwarded, post free, on application to T. H. Fox, City of London Wire Work and Iron Fence Manufactory, 44, Skinner Street, and 6 and 8, Snow Hill, London.

TREE TRANSPLANTING BY M'GLASHEN'S PATENT.

MR. M'GLASHEN is now prepared to supply Apparatus or give Estimates as to the rate at which he will safely and expeditiously transplant Trees or Shrubs of any dimensions in any part of the United Kingdom.

Canonmills Bridge, Edinburgh.

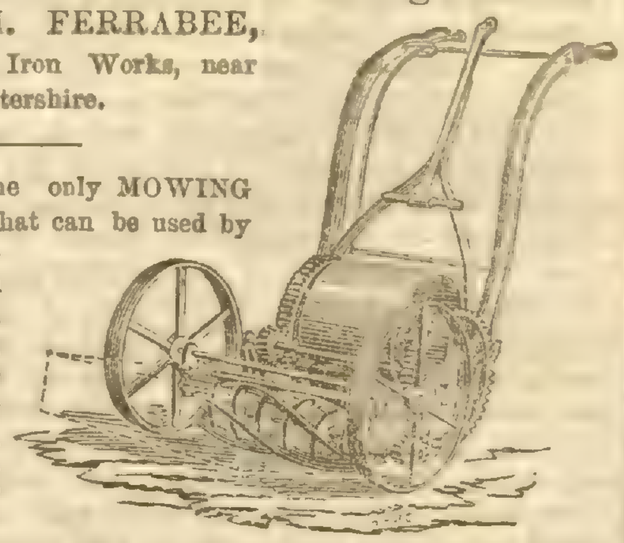
SCYTHES.

BOYD'S PATENT SELF-ADJUSTING SCYTHES may be had of the Manufacturers, WILLIAM DRAY & Co., Swan Lane, London; and of all Ironmongers and Seedsmen. A liberal allowance to the trade.

IMPROVED LAWN MOWING MACHINES,

MANUFACTURED AND SOLD BY **Budding's Patent.**

J. AND H. FERRABEE, Phœnix Iron Works, near Stroud, Gloucestershire.

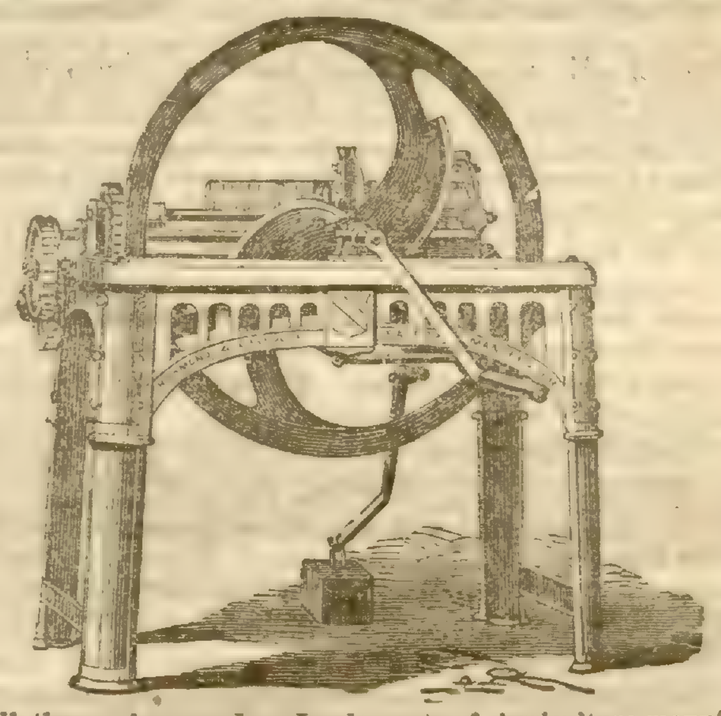


These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 4500 of them have been sold.

Hand Machine, for One Man, cutting	16 inches wide	£5	10*s.*	0*d.*
Ditto for Two Men	" 22 ditto	... 6	0	0
Pony Machine (or Donkey)	" 26 ditto	... 8	0	0
Horse Machine	" 28 ditto	... 11	0	0
Ditto	" 36 ditto	... 15	0	0

London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

RICHMOND & CHANDLER'S PATENT CHAFF CUTTING MACHINE.



All the various modern Implements of Agriculture manufactured on the most scientific and improved principles, suitable for home use and exportation.—Address, RICHMOND & CHANDLER, Salford, Manchester; and 32, South John Street, Liverpool.

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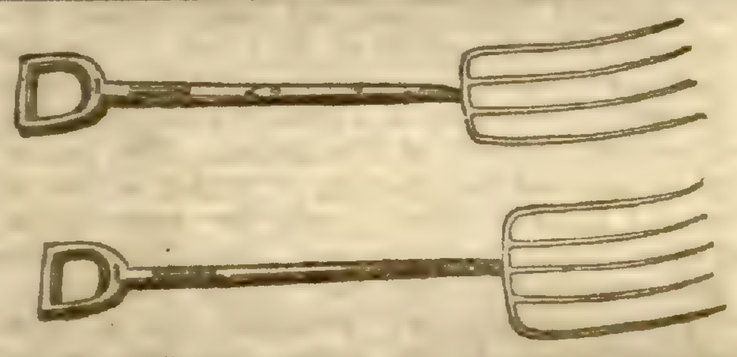
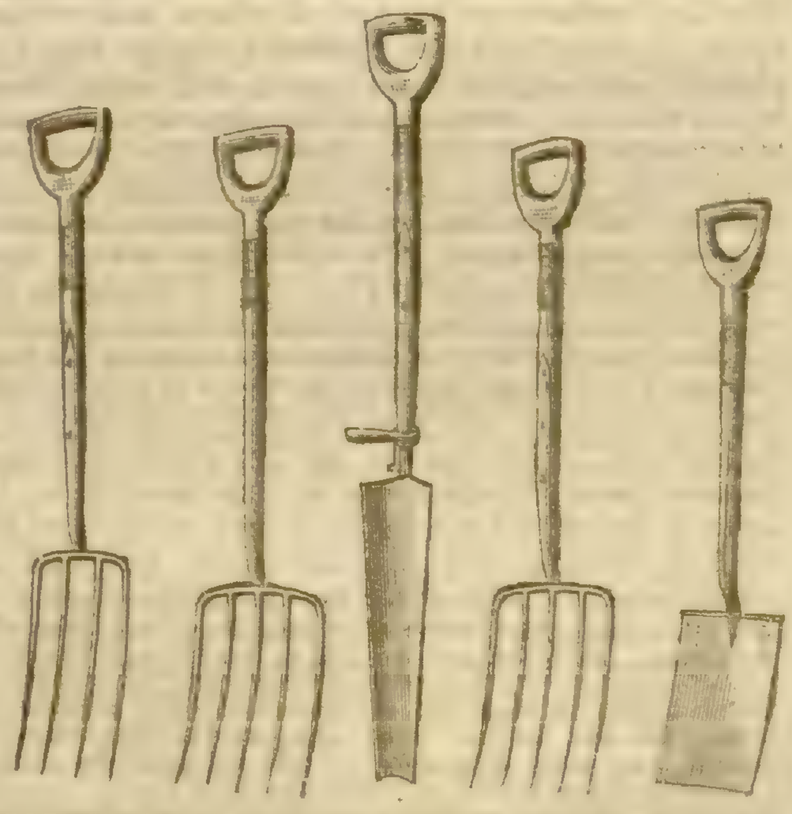


WILLIAM DRAY AND CO.'S STEEL DIGGING

FORKS are warranted equal, and by many are considered superior, to any in use. Three Tine Forks, 4*s.* 6*d.* each; Four Tine Forks, 5*s.* 6*d.* each. A liberal allowance on Wholesale Orders.

WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

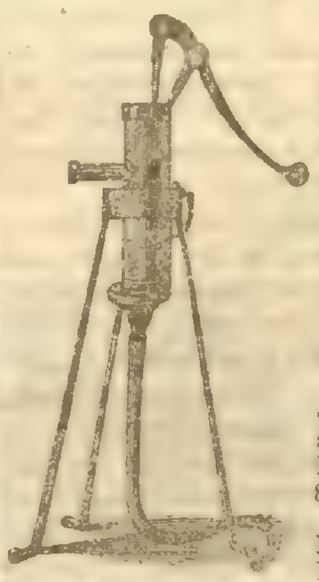
103, Newgate Street, and 52, Little Britain, London.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ "	long 3 " 3 "		1	15	0
3 "	ditto 3 " 6 "		2	12	0
3½ "	ditto 3 " 6 "		2	18	0
4 "	ditto 3 " 6 "		3	5	0
2½ "	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto	ditto ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

JOHN WARNER AND SONS,

Crescent, Jewin Street, London.

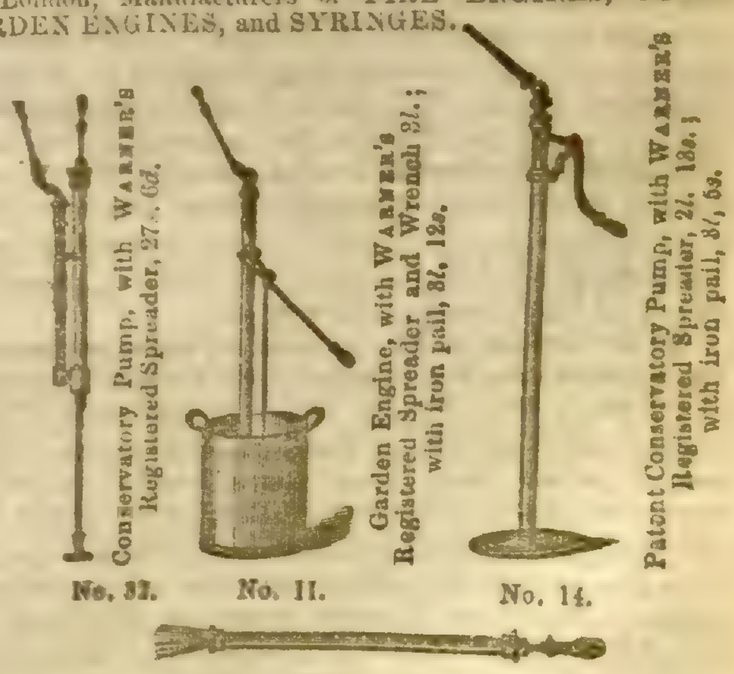
GALVANISED IRON TUB GARDEN ENGINE,

WITH WARNER'S REGISTERED SPREADER,

is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

JOHN WARNER AND SONS, 8, Jewin Crescent, London, Manufacturers of FIRE ENGINES, PUMPS, GARDEN ENGINES, and SYRINGES.



Brass Syringes, 9*s.* to 18*s.*

All articles of JOHN WARNER & SONS' manufacture may be obtained of any Ironmonger or Plumber in town or country, at the advertised prices.

JOHN WARNER & SONS having been practical Horticulturists for many years, know exactly the requirements of both Amateurs and Gardeners. A gardener with a properly constructed pump will get through as much work in five minutes as he could with any Syringe in a quarter of an hour, and with half the labour to himself. Syringes are economical for small houses.

No establishment offers such a variety of effective machines for hydraulic purposes, whether to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of liquids.

Fountains suitable for Conservatories, Lawns, &c.

Sheets of Engravings sent on application.

PRIZE MEDAL—1851.

AT A VERY ECONOMICAL RATE.

SAMUEL CUNDY, Mason and Builder, Pimlico Marble and Stone Works, Belgrave Wharf, Lower Belgrave Place, Pimlico, London.

Marble Chimney-pieces manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price. A good Marble Chimney-piece for 40s. Marble Work in all its branches at a remarkably cheap rate for Halls, Dairies, Larders, &c. Circulars sent on application.

N.B. The "Royal Blue" Omnibuses pass the Works every ten minutes from the Bank.

LINGHAM BROTHERS, No. 170, Hampton Street, Birmingham, sole Manufacturers of the improved WOOD and ZINC MONOGRAPH, or LABELS for Garden Borders, Flower-pots, &c., in boxes of 100 each. The Zinc Labels are highly approved of for their lasting durability, can be written upon with the greatest ease, and when dry a permanent inscription is secured. Directions are sent with each box, including a bottle of metallic ink. Sole Agents in London, Messrs. Drake, Dray & Co., Horticultural Implement Warehouse, 16, King William Street, London Bridge.

(Fig. 1.) (Fig. 2.)

J. TYLOR and SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons, throws 30 feet high				...	£4 10
No. 2	15	"	45	"	... 5 10
No. 3	28	"	45	"	... 6 18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons, throws 25 feet high				...	£2 15
No. 13	12	"	30	"	... 3 5
No. 11	16	"	40	"	... 4 0
No. 12	24	"	45	"	... 5 0
No. 14	30	"	45	"	... 5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

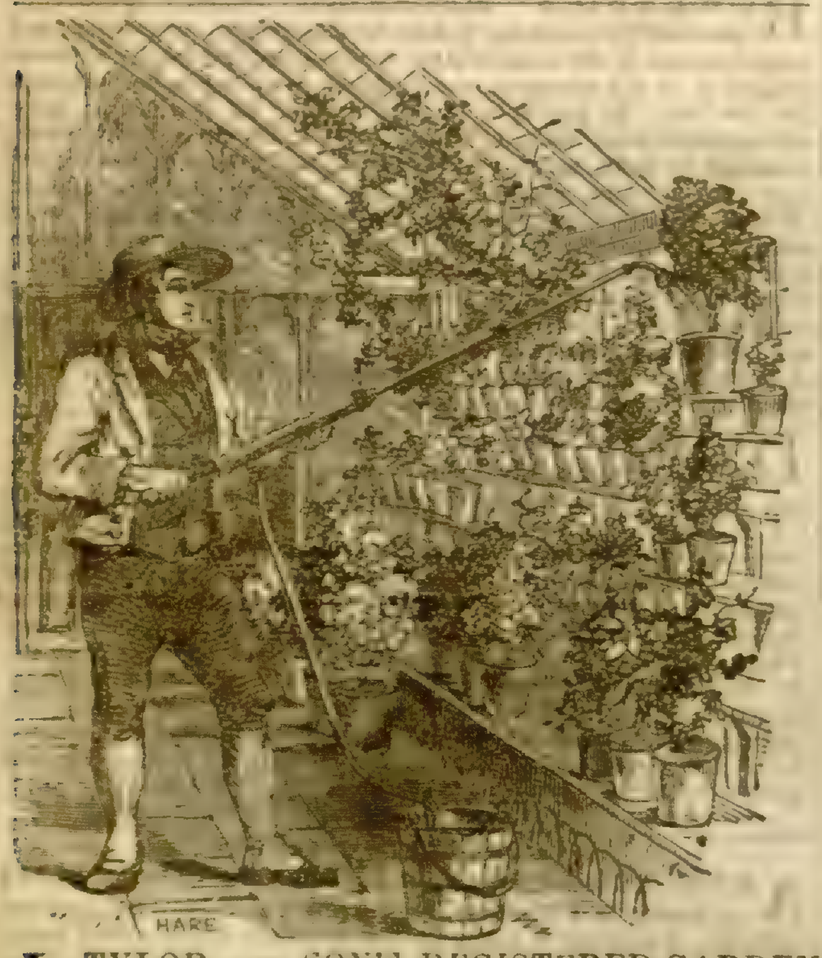
No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1¼ inch, 14s. 3d.; No. 2, do., diameter of barrel, 1⅜ inch, 12s.; No. 3, do., diameter of barrel, 1⅜ inch, 10s. 6d.

Read's Syringe, with two roses and one jet, 19s.

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London.



J. TYLOR and SON'S REGISTERED GARDEN SYRINGE. Small size, for Amateur use, **21s.** each; Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10s.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order: the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expenses of delivery in the country.

BEEHIVES.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by George Neighbour & Sons, with all the recent improvements, glasses, thermometer, &c., price 35s., securely packed for the country.

This unique hive has met with universal commendation, and may be worked with safety, humanity, and profit, by the most timid; its arrangements are so perfect, that the honey may be taken at any time of the gathering season without at all injuring the bees.

Early applications, addressed to Geo. Neighbour & Sons, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention. Their newly arranged Catalogue of other improved Beehives, with Drawings and Prices, sent on receipt of two stamps.

Agents:—Manchester, Hall & Wilson, 50, King Street; Liverpool, James Cuthbert, 12, Clayton Square; Chester, F. & A. Dickson & Sons, 106, Eastgate Street; Glasgow, Austen & M'Aslan, 186, Trongate Street; Dublin, J. Edmundson & Co., 61, Dame Street.

COTTAM and HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.

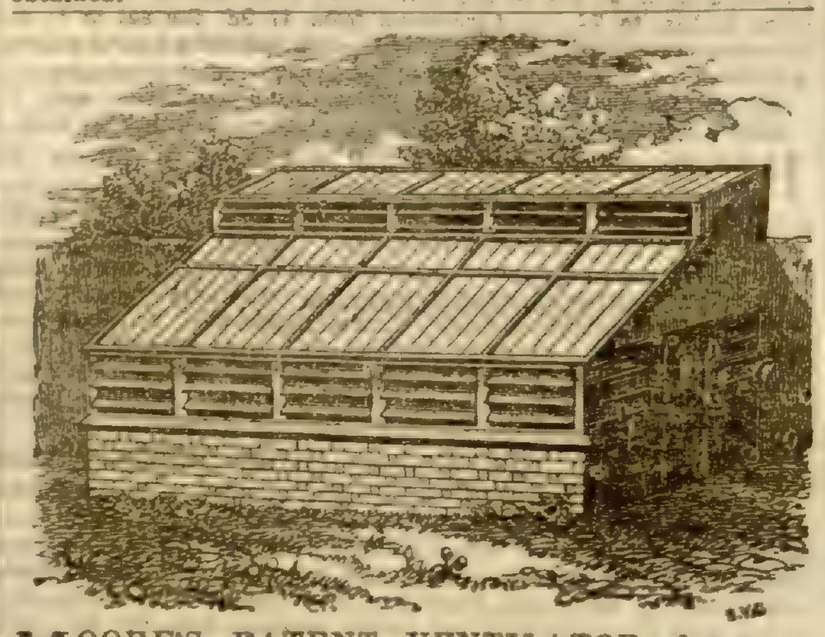
Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

Hand Glass Frames, Cast and Wrought Iron Flower Stakes, Garden Arches, &c.

Strong Iron Hurdles, and best Wire for Strained Wire Fencing.

Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom.

Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.



MOORE'S PATENT VENTILATOR, for every Description of Farm-Buildings, Conservatories, Hot-houses, Warehouses, Market-houses, Bell-turrets, also for Ventilating Shafts, &c.

These Ventilators are fitted to side-slips of wood with iron levers, iron flanges, and brass screws, with rough plate, or 32 oz. sheet glass, at 4s. per foot super. 2s. 6d. extra for necessary fittings to each Ventilator. If with brass levers in place of iron, 4s. per pair extra. It is presumed the accompanying drawing of a Greenhouse will show the advantages obtained (independent of a most perfect system of Ventilation, by admitting any amount of fresh air and distributing equally over the plants, &c., and at the same time emitting the vitiated), viz., a much neater appearance, and an uninterrupted view of the whole interior. Greenhouses at Mr. James Veitch, Jun., Exotic Nursery, King's Road, Chelsea; Messrs. Veitch & Sons, Nursery, Exeter; Messrs. Messrs. Perry, Nursery, Banbury; and the Pleasure Grounds at Hampton Court Palace; having been fitted with these Ventilators with perfect success, the Patentee has obtained permission to refer to the above places all parties desirous of seeing the same.

These Ventilators have been applied to many other Greenhouses, Conservatories, &c., but they are not published, in order to avoid giving unnecessary trouble. Fifty-four of these Ventilators, 5 ft. square (34 on the roof at an angle of 60 degrees), have been fitted at Her Majesty's Saltpetre Works, Waltham Abbey; the success of which has been proved by the fact, that the saltpetre is crystalised in little more than half the time, previously to the light and ventilation obtained by the adoption of these Ventilators.

Moore's double-current Ventilators for External Walls, &c. Ventilators for every description of apartment, from the Cottage to the Palace. Stained and Ornamental Glass if required. In taking the size, the exact opening should be given, stating the height and width distinctly. Tariff Prices of the ordinary Ventilators may be had on application at either of the above addresses. Packing cases allowed full price when returned free.

N.B.—These Ventilators can be readily fitted to Greenhouses already erected, by removing the entire sashes and fixing the Ventilators in their places.

Perfect Ventilation in all Cases Guaranteed.

Church, Turret, Musical and House Clock Makers, to the Lords of the Admiralty, the Hon. Board of Ordnance, the Emperor of China, &c.

London: 81, Fleet Street, London.—Manufactory, Sekford Works, Clerkenwell.

GLAZING WITH OR WITHOUT PUTTY.

E. DENCH, Patent Hothouse Works, King's Road, Chelsea.—Printed Price Lists supplied on application.

GLASS FOR CONSERVATORIES, ETC.

HETLEY and CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to James Hetley & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY.—The Managers beg to inform the Nobility and Gentry, Farmers, Gardeners, &c., that their new List of Prices may be had free on application at the Company's Depôt, 296, Oxford Street, London.

PLATE, CROWN, and SHEET WINDOW GLASS.

HARTLEY'S PATENT ROUGH PLATE for Roofing Conservatories, Halls, and Public Buildings.

Coloured and Ornamental Glass.

CRYSTAL SHADES for covering Ornaments, and

MOORE'S PATENT LOUVRE VENTILATOR, and Lockhead's Patent Perforated Ventilating Glass for Dairies, Greenhouses, Stables, &c.; Glass Milk Pans, Pails, Tests, and Measures; Cream Pots and Syphons; Churns, Butter Tests and Slabs; Tiles and Slates; Bee Hives, &c.

Aquariums, Fern Shades, Propagating Glasses, Fruit Protectors, Preserve Jars, Cucumber Tubes, Hand Lights, Flower Vases, Labels, &c., and all kinds of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, Bishopsgate Street, Without.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. Rivers and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by	4 in. and	6 in. by	4½ in.	...	...	12s. 0d.
6½	" 4½	" 7	" 5	...	...	12 6
7½	" 5½	" 8	" 6	...	...	13 0
8½	" 6½	" 9	" 7	...	...	13 6
9½	" 7½	" 10	" 8	...	...	13 6
10½	" 8½	" 11	" 9	...	...	14 0
12	" 9	" 13	" 9	...	...	14 0
10	" 10	" 10½	" 10½	...	...	14 0
11	" 10	" 11½	" 10½	...	...	14 0
11	" 11	" 11½	" 11½	...	...	14 0
12	" 11	" 12½	" 11½	...	...	14 0
13	" 11	" 13½	" 11½	...	...	14 0
13	" 12	" 13½	" 12½	...	...	16 0
13½	" 13½	" 14½	" 13½	...	...	16 0
15½	" 13½	...	...	...	...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

CLOCHES.

JAMES PHILLIPS and CO. have the pleasure to inform their friends they are prepared to supply

GLASS CLOCHES,

Similar to those at the Horticultural Society's Gardens at Chiswick, at the following prices, viz.:—

9 inches diameter ...	1s. 6d.	11 inches diameter ...	2s. 6d.
10 " ...	1 9	12 " ...	2 8
		14 " ...	3 0

CUCUMBER GLASSES.—Each.

24 inches long	2s. 0d.	16 inches long	1s. 4d.
22 "	1 10	14 "	1 2
20 "	1 8	12 "	1 0
18 "	1 6	Made to any length.	

GLASS FERN SHADES AND STANDS.

6 in. diam., with stands	3s. 0d.	12 in. diam., with stands	8s. 0d.
7 " "	3 6	13 " "	10 0
8 " "	4 0	14 " "	12 6
9 " "	5 0	15 " "	17 0
10 " "	6 0	16 " "	22 0
11 " "	7 0		

Bee Glasses, Lactometers, Lord Camoys' Milk Syphons, Tiles and Slates, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, and every article in the trade.

HARTLEY'S PATENT ROUGH PLATE GLASS, for Conservatories, Public Buildings, Manufactories, Skylights, &c.

JAMES PHILLIPS and CO., Horticultural Glass Warehouse 116, Bishopsgate Street Without, London.

Extract from *Gardeners' Chronicle*, April 21, 1854.

"The garden also supplied some Neapolitan Cabbage Lettuces, a portion of which had been grown under bell-glasses which differ from the French cloche in having a ventilator at the top in the shape of a neck or chimney, which can be left open or kept close as may be desired, by covering it over or not with another small bell glass, made for the purpose. The result of this trial has been very satisfactory."

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES, consisting of MATTING, MATS, MATTRESSES, BRUSHES, NETTING, HORSE-HAIR, and BRISTLE SUBSTITUTE, are distinguished for superiority and excellency of workmanship, combined with moderate prices. Prize Medal both in England and America at the Exhibition of all Nations.

T. Treloar, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 6d. per yard run, of Eustace Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than mats as a covering."

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 12*s.* per ton, 1*s.* 6*d.* per bushel, or 16*s.* per ton, delivered to any of the London Wharfs or Railways, or within a circuit of five miles. Peat and Loam of various qualities. Sacks 2*s.* each.

KENNARD BROTHERS, Swan Place, Old Kent Road.

FULLER'S EARTH WORKS, CHART LODGE, REIGATE, SURREY.

NOTICE.—SILVER SAND.

GAWKROGER AND HYNAM beg to inform the Nobility and Gentlemen, Gardeners, Nurserymen, Florists, and Seedsmen, that they are prepared to supply them with the REIGATE SILVER SAND, which is known by its superior whiteness and fine quality, and is much used in the Propagation and Growth of Greenhouse Plants, &c. It will be sent in fine bags, and delivered to any of the Railway Carriers, or Wharfs in London, in not less than ½ ton lots of 10 bushels, at the rate of 2 per ton. Parties requiring lots of 4 tons and upwards can have the Sand delivered loose or in bags at the Bricklayers' Arms Station, or within five miles of the same, at a very low price.—For further particulars, apply at the Offices of JAMES GAWKROGER, 21, Union Street, Halifax, Yorkshire; and JOHN HYNAM, 7, Princes Square, Wilson Street, Finsbury, London.

TO HORTICULTURISTS, GARDENERS, FLORISTS, ETC.

METALLIC WIRE suitable for Training and Fastening Fruit Trees, Shrubs, Flowering Plants, &c., of all sizes (wire guage) is manufactured at our Lead Works in this city at reduced prices.—Samples and prices will be forwarded on application to DAVIDSON and ARMSTRONG, City Lead Works, Manchester.

HOW TO KILL RATS, MICE, AND MOLES BY HUNDREDS.—A Method will be forwarded with instructions for 30 postage stamps, which will destroy the above vermin quickly and without trouble. 1000 acres may be cleared for a few shillings.

GILBERT DYSON, Hoo, Rochester.

THE CRYSTAL PALACE FLOWER BASKETS made to the original, and a variety of new and elegant Designs for Conservatory, Verandah, Drawing-room, &c., from 3*s.* 6*d.* upwards, by W. RICHARDS, WIRE-WORKER, &c., 370, Oxford Street, nearly opposite the Princess's Theatre. Conservatories fitted up, Aviaries, Bird-cages, Flower Stands, and every description of Wire work. Game and Garden Fencing of the best description.

N.B. Holland, Venetian, Wire, and all kinds of Sun shades, and Window Blinds of best quality.

GARDEN VASES, FOUNTAINS, ETC.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, begs respectfully to inform the nobility, gentry, and his patrons generally, that he has entered into arrangements with an eminent company in Scotland for the sole disposal in London of their highly ornamental and very durable Vases, Fountains, &c., samples of which may be seen at his grounds in the Garden Road, as above.

T. S. has much pleasure in being the first to introduce to the notice of the public a highly ornamental Vase, capable of resisting the most severe weather, and at little more than half the cost of any other possessing the same qualities; and he has no hesitation in stating that a more suitable Vase for the growth of plants cannot be manufactured.

CLAYTON, SHUTTLEWORTH, AND CO.'S PRIZE PORTABLE STEAM ENGINES, AND COMBINED THRESHING, STRAW SHAKING, RIDDLING AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as threshed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.

C. S. & Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading Agricultural Shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Colebrook Dale Garden Seats and Chairs.

Averuncators	Gidney's Prussian Hoe	Pickaxes
Axes	[Scissors	Potato Forks
Bagging Hooks	Grape Gatherers and	Pruning Bills
Bills	Gravel Rakes and Sieves	" Knives, various
Borders, various patterns.	Greenhouse Doors and Frames	" Saws
Botanical Boxes	Hammers	" Scissors
Brown's Patent Fumigator	Hand-glass Frames	" Shears
Cases of Pruning Instruments	Hay Knives	Rakes in great variety
Daisy Rakes	Horticultural Hammers and Hatchets	Reaping Hooks
Dibbles	Hoes of every pattern	Scythes
Dock Spuds	Hotbed Handles	Scythe Stones
Draining Tools	Ladies' Set of Tools	Shears, various
Edging Irons and Shears	Labels, various patterns, in Zinc, Porcelain, &c.	Sickles
Flower Scissors	Lines and Reels	Sickle Saws
" Stands in Wires and Iron	Marking Ink	Spades and Shovels
Fumigators	Mattocks	Spuds
Galvanic Borders and Plant Protectors	Menographs	Switch Hooks
Garden Chairs and Seats	Metallic Wire	Thistle Hooks
" Loops	Milton Hatchets	Transplanting Tools
" Rollers	Mole Traps	Trowels
" Scrapers	Mowing Machines	Turfing Irons
		Wall Nails
		Watering pots
		Weed Hooks
		Wheelbarrows
		Youths' Set of Tools

DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.

DEANE, DRAY, & CO. (Opening to the Monument), London Bridge.

MESSRS. SHOOLBRED AND BRADSHAW, 34, Jermyn Street, PATENTEES—Manufacturers of every description of ELASTICAL SURGICAL BANDAGES, as recommended by all the most eminent surgeons—in acknowledging the very extensive support they have received, beg to call attention to the various improvements they are making in patent Elastic Stockings, Knee Caps, Socks, and Ladies and Gentlemen's Spine Supporters. A new description of Belt, invaluable for prevention of Cholera and the cure of Rheumatism, Lumbago, &c. N.B. Every description of India-rubber Bandages vulcanised on the newest principle.

BASS'S EAST INDIA PALE ALE. BARCLAY'S PORTER and STOUT, in 18-gallon Casks, Bottles, Half-Bottles, and Imperial Pints.

BERRY, BROTHERS, & Co., 3, St. James's Street, London.

GLENFIELD PATENT STARCH, used in the Royal Laundry, and pronounced by her Majesty's Laundress to be the finest Starch she ever used.

Sold by all Chandlers, Grocers, &c. &c.

NO CHARGE FOR WATERPROOFING.

BERDOE'S VENTILATING WATERPROOF LIGHT OVER-COATS, CAPES, SHOOTING JACKETS, &c., for all seasons. These well-known, respectable, and economical garments resist any amount of Rain, without confining Perspiration (the fatal objection to all other waterproofs), are intended, not merely for rainy weather, but general use, at all times. Capes, 30*s.* to 40*s.*; Coats, 40*s.* to 50*s.*—W. BERDOE, 96, New Bond Street, and 69, Cornhill (only).

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MR. MECHI has opened a new Establishment, at 112, Regent Street, opposite Vigo Street, *where the same prices will be charged as at* 4, *Leadenhall Street.* Visitors from the country, and the London public, are respectfully solicited to inspect the entirely New and Elegant Stock of Dressing Cases and Bags, Papier Maché, Cutlery, and a very extensive assortment of Elegancies, suitable for presentation.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, and 4, Leadenhall Street, London, are exhibited the finest specimens of British Manufactures in Dressing Cases, Work-boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed. Superior Hair and other Toilet Brushes.

BUY OF THE MAKERS.—BRUSHES, COMBS, and BROOMS of every description, whether for the dressing table, household, or stable use, 30 per cent. lower than any other house in the trade, at the manufacturers, J. and J. WITHERS, 36, Tottenham Court Road (opposite Bedford Street, Bedford Square).—Warranted Tooth Brushes, 3*d.*; superior ditto, 4*d.*; the best that can be made, 6*d.* each.—N.B. The lowest price asked and no abatement.

SUPERIOR FIRST CLASS CABINET AND UPHOLSTERY FURNITURE can only be obtained at moderate prices by purchasing direct from the manufacturer, thus saving the profit of the middle man, and securing thoroughly seasoned materials with soundness of workmanship, and an elegance of style not to be found at other houses. Families furnishing are respectfully solicited to inspect the extensive stock of Cabinet Furniture, Bedsteads, and Bedding, at JOHN VOLLUM'S old established manufactory, No. 3, Finsbury Pavement. Designs and Estimates made for furnishing a house or single room in any part of the country free of charge. No charge made for packing country orders. Observe—No. 3, Finsbury Pavement, London, and the name most distinctly JOHN VOLLUM.

FENDERS, STOVES, AND FIRE-IRONS.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW ROOMS, 39, Oxford Street (corner of Newman Street), Nos. 1, 2, and 3, Newman Street, and 4 and 5, Perry's Place. They are the largest in the world, and contain such an assortment of FENDERS, STOVES, RANGES, FIRE-IRONS, and GENERAL IRONMONGERY as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with bronzed ornaments and two sets of bars, 2*l.* 14*s.* to 5*l.* 10*s.*; ditto, with ormolu ornaments and two sets of bars, 5*l.* 10*s.* to 12*l.* 12*s.*; Bronzed Fenders complete, with standards, from 7*s.* to 3*l.*; Steel Fenders from 2*l.* 15*s.* to 6*l.*; ditto, with rich ormolu ornaments, from 2*l.* 15*s.* to 7*l.* 7*s.*; Fire-irons from 1*s.* 9*d.* the set to 4*l.* 4*s.* Sylvester and all other Patent Stoves, with radiating hearth plates. All which he is enabled to sell at these very reduced charges,

1st,—From the frequency and extent of his purchases; and,

2dly,—From those purchases being made exclusively for cash.

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THE BEST SHOW OF IRON BEDSTEADS in the Kingdom is WILLIAM S. BURTON'S.—He has two very Large Rooms, devoted to the exclusive show of Iron and Brass Bedsteads and Children's Cots, with appropriate Bedding and Mattresses. Common Iron Bedsteads, 18*s.*; Portable Folding Bedsteads from 12*s.* 6*d.*; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17*s.* 6*d.*; and Cots from 20*s.* each; handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2*l.* 13*s.* 6*d.* to 15*l.* 15*s.*

PAPIER MACHE AND IRON TEA-TRAYS.—An assortment of Tea Trays and Waiters wholly unprecedented, whether as to extent, variety, or novelty.

New oval Papier Maché Trays, per set of three	from 20*s.* to 10 guineas.
Ditto, Iron ditto	from 18*s.* to 4 guineas.
Convex shape, ditto.	from 7*s.* 6*d.*

Round and Gothic Waiters. Cake and Bread Baskets equally low.

WILLIAM S. BURTON has TEN LARGE SHOW ROOMS, all communicating, exclusive of the Shop, devoted solely to the show of GENERAL FURNISHING IRONMONGERY (including Cutlery, Nickel Silver, Plated and Japanned Wares, Iron and Brass Bedsteads and Bedding), so arranged and classified that purchasers may easily and at once make their selections.

Catalogues, with engravings, sent (per post) free. The money returned for every article not approved of.

No. 39, Oxford Street (corner of Newman Street); 1, 2, and 3, Newman Street; and 4 & 5, Perry's Place.

NO CHARGE FOR STAMPING at LOCKWOOD'S, 75, New Bond Street. Good cream-laid Note-paper, five quires for 9*d.*; Thick ditto, five quires, 1*s.*; Albert and Queen's sizes, five quires for 6*d.*, 9*d.*, and 1*s.*; Note-paper made from Straw, 2*s.* 6*d.* per ream; Envelopes, 4*d.* to 1*s.* 6*d.* per hundred; Foolscap paper, 7*s.* 6*d.* per ream; Copybooks 2*s.* 6*d.* per dozen. Card Plate engraved, 2*s.* 6*d.*; 100 Cards printed, 2*s.* 6*d.* Wedding orders promptly executed. A large variety of Writing and Dressing Cases. Envelope Boxes, Blotting Books, Inkstands.—Copy address, LOCKWOOD'S, 75, New Bond Street. Country orders for 20*s.* sent carriage free. LOCKWOOD'S celebrated Nugget (Gilt) Pen 1 doz. post free for 13 stamps.

DINNEFORD'S PURE FLUID MAGNESIA has been for many years sanctioned by the most eminent of the Medical Profession, as an excellent remedy for Acidities, Heartburn, Headache, Gout, and Indigestion. As a mild aperient, it is admirably adapted for delicate females, particularly during pregnancy; and it prevents the food of infants from turning sour during digestion. Combined with the Acidulated Lemon Syrup, it forms an Effervescing Aperient Draught, which is highly agreeable and efficacious.—Prepared by DINNEFORD & CO., Dispensing Chemists (and General Agents for the Improved Horse-Hair Gloves and Belts), 172, New Bond Street, London, and Sold by all respectable Chemists throughout the Empire.

DR. DE JONGH'S

LIGHT BROWN COD LIVER OIL.—This OIL long known, extensively prescribed, and highly appreciated on the Continent, has now, in consequence of its proved superior power and efficacy, acquired the general and entire confidence of the medical profession in this country. It is of the purest and finest quality, free from admixture and adulteration, or the usually repulsive and nauseous flavour, or sickly after-taste of the pale Oil, or of the coarse brown Oil commonly sold, though totally unfit for medicinal use. It is as low in price per ounce as any other genuine Cod Liver Oil, whilst its regular and speedy effects render it incalculably cheaper. Medical and scientific testimonials of the highest character delivered or forwarded gratis on application.—Sold in bottles, capsuled and labelled, with Dr. De Jongh's stamp and signature, WITHOUT WHICH NONE ARE GENUINE, by ANSAR, HARFORD, and CO., 77, STRAND, London, Dr. De Jongh's sole accredited Agents; and by respectable Chemists in Town and Country. Half-pints (10 oz.), 2*s.* 6*d.*; Pints (20 oz.), 4*s.* 9*d.*; Quarts (40 oz.), 9*s.* IMPERIAL MEASURE.

METCALFE, BINGLEY, AND CO.'S OATMEAL and CAMPHOR SOAP, in tablets (registered Nov. 3, 1854). Price 6*d.* each. This soap will be found the purest and most perfect winter soap ever introduced to the public. It preserves the hands from chapping, and renders the skin soft and agreeable.—Sold wholesale and retail by the inventors and sole manufacturers, METCALFE, BINGLEY, & Co., Brushmakers and Perfumers to H.R.H. Prince Albert, 130B and 131, Oxford Street.

CAUTION.—To prevent fraud, each tablet bears the registered mark and the names and address of the inventors, as above.

METCALFE'S ALKALINE TOOTH POWDER, 2*s.* per box.—The above may be obtained of most respectable Chemists, Perfumers, &c.

A CLEAR COMPLEXION.

GODFREY'S EXTRACT OF ELDER FLOWERS is strongly recommended for softening, beautifying, and preserving the skin, and giving it a blooming and charming appearance, being at once a fragrant Perfume and delightful Cosmetic. It completely removes tan, sun-burn, redness, &c., and by its balsamic and healing qualities renders the skin soft, and free from dryness, scurf, &c.; clears it from every humour, pimple, or eruption; and by continuing its use only a short time the skin becomes and continues soft and smooth, and the complexion clear and beautiful. In the process of shaving it is invaluable, as it annihilates every pimple and all roughness, and affords great comfort if applied to the face during cold easterly winds.—Sold in Bottles, price 2*s.* 9*d.*, with directions for using it, by all Medicine Vendors and Perfumers.

ASTROLOGY.—Persons residing in London or elsewhere can send any Address, Christian and Surname, and Age, in a letter containing 13 postage stamps, to Professor MELVILLE, Princes Road, Lambeth, London (the only Acrostic Astrologer in the universe), and they will receive by return of post special poems on their names, in which their Destinies will be revealed.

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To Noblemen, Gentlemen, Nurserymen, and Others.
8000 BEDDING AND OTHER GREENHOUSE PLANTS.
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To Gentlemen, Florists, and Others.
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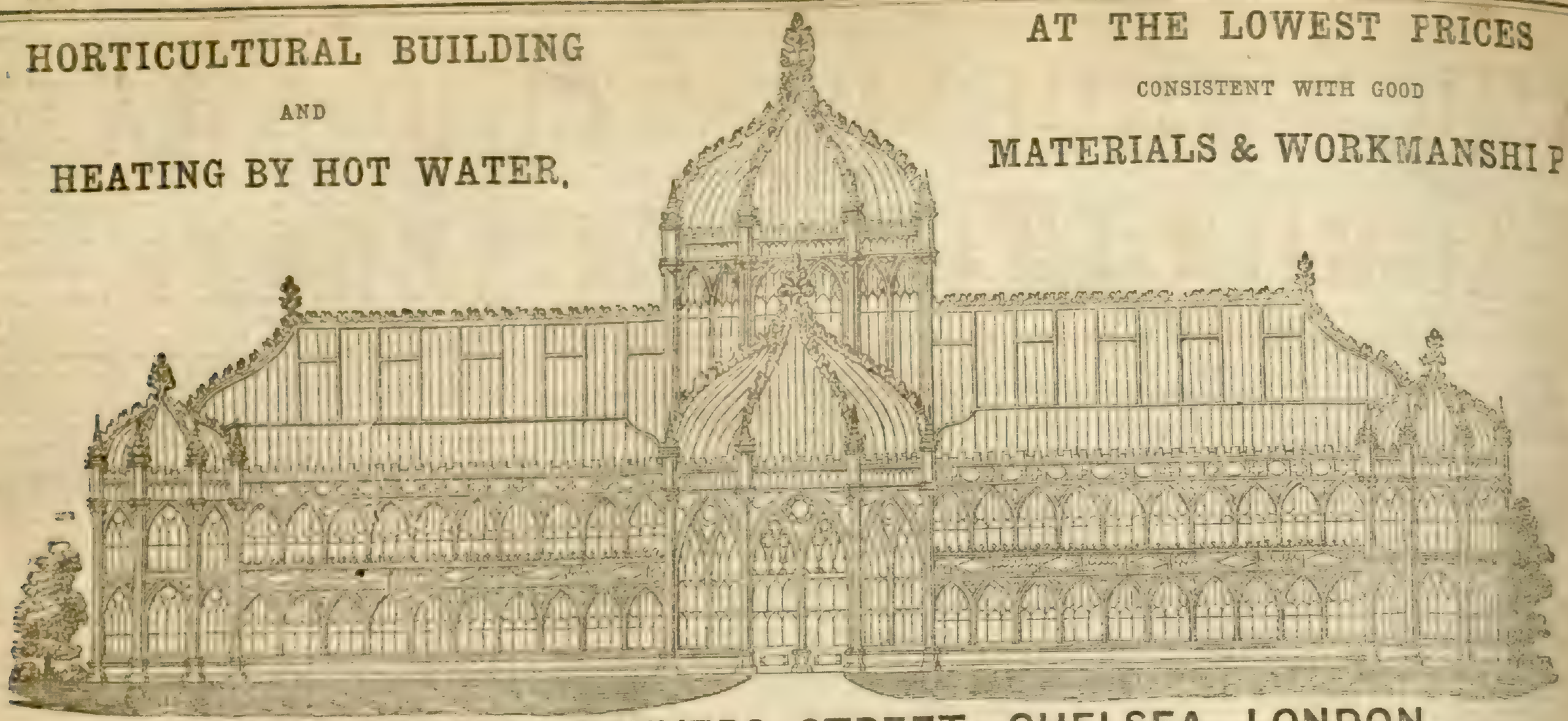

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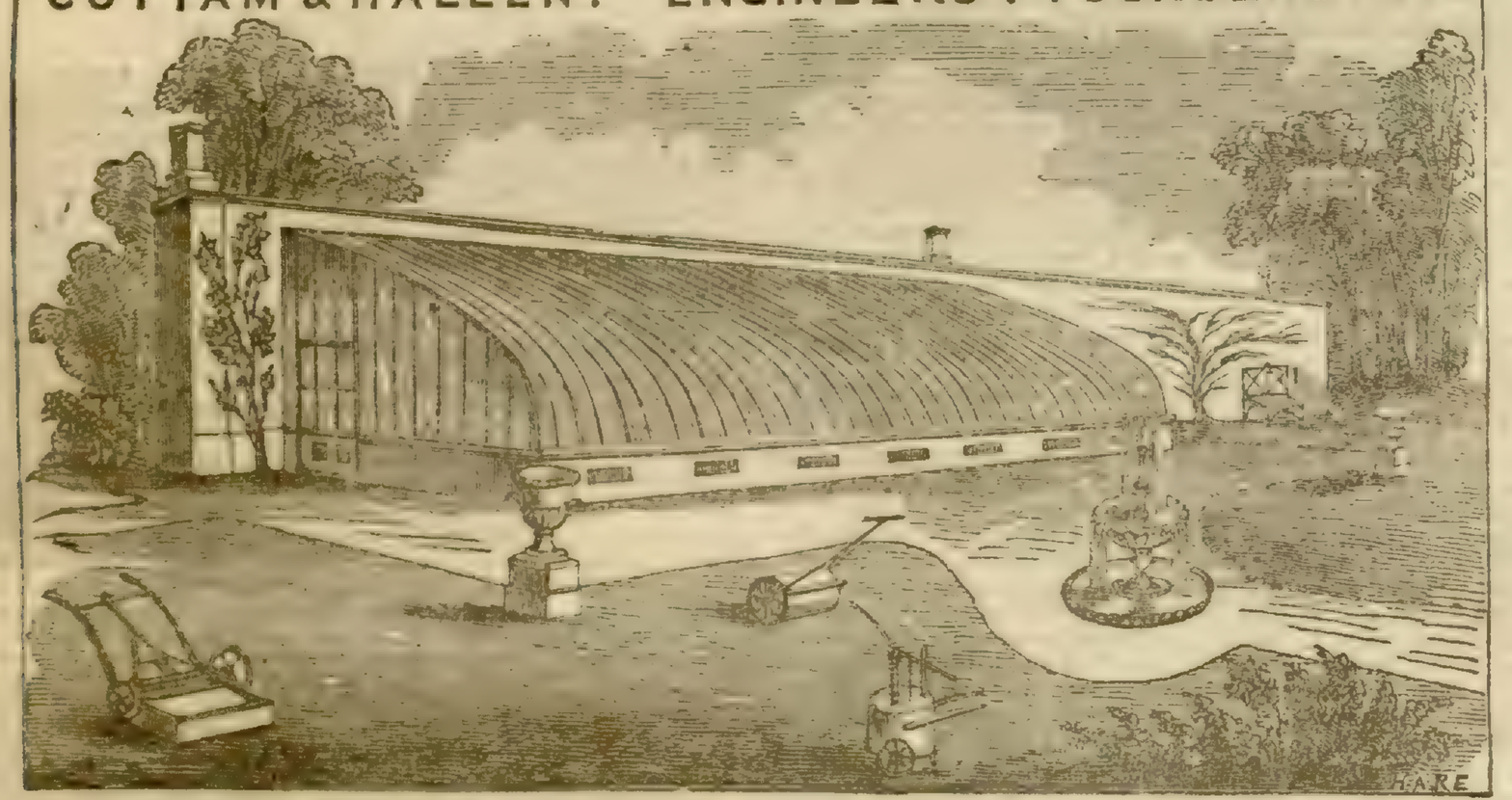

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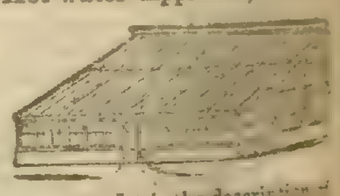

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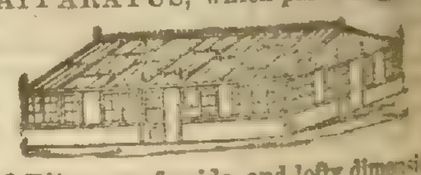

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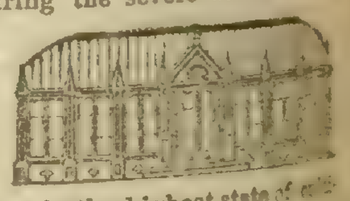

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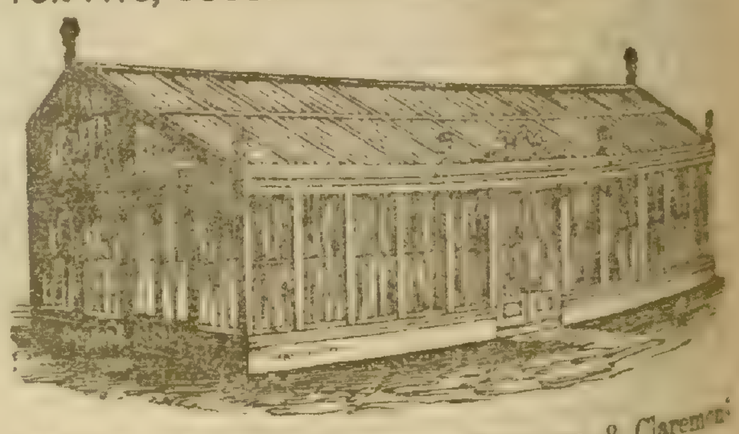

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 18.—1855.] SATURDAY, MAY 5. [PRICE 6*d*.

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[illegible] Society's garden	303 *b*	— and blue vitriol	307 *c*

HORTICULTURAL SOCIETY OF LONDON.—The FIRST SUMMER MEETING will take place at the Society's House, 21, Regent Street, on TUESDAY, May 8, from 12 to 5 P.M.

HER MAJESTY'S COMMISSIONERS FOR THE EXHIBITION OF 1851 having granted the use of the gardens behind GORE HOUSE and GROVE HOUSE to the HORTICULTURAL SOCIETY, for the Garden Exhibition on WEDNESDAY, May 16, Notice is hereby given that Tickets, price 5*s*. each, are issuing at 21, Regent Street, till TUESDAY, May 15. On the day of Exhibition Tickets will be only procurable at Gore House, and at the rate of 7*s*. 6*d*. each.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The FIRST EXHIBITION this season of PLANTS, FLOWERS, and FRUIT, will take place on WEDNESDAY next, May 9. Tickets of admission to be obtained at the Gardens only, by orders from Fellows or Members of the Society, price 5*s*., or on the day of the Exhibition, 7*s*. 6*d*. each.

Gates open at 2 o'clock.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The following EIGHT BOTANICAL LECTURES are to be delivered in the Museum, at 3 o'clock, on the FRIDAYS in May and June.

By Dr. EDWIN LANKESTER.

May 11. On General Physical Conditions that influence the Life of Plants.
18. On Conditions of the Soil that influence the Distribution of Plants.
25. On the Forms of Plants characteristic of particular districts of the Earth's surface.
June 1. On the Distribution of Plants used as Medicines, Food, and Luxuries, or employed in the Arts and Manufactures.

By Professor ROBERT BENTLEY.

June 8. On Vegetable Textile Substances.
15. On Materials used for Paper.
22. On Tanning and Dyeing Materials.
29. On Gums, Resins, and Gum-resins.

Visitors are admitted to the Lectures by Tickets for the Course at one Guinea each person, or a Member of the Family of a Fellow of the Society at Half-a-Guinea, to be obtained at the Gardens. The privilege of the Ivory Tickets does not extend to the Lectures.

J. DE C. SOWERBY, Sec.

CRYSTAL PALACE.—SEASON TICKETS for the ensuing year, available from the 1st May, 1855, to the 1st April, 1856, are now issued, price One Guinea each. These tickets entitle the holders to admission to the Palace and Park whenever they are open to the Public; also to the exclusive privilege of admission at the Grand Horticultural and Floricultural Fête, to be held on Saturday, the 2d June, as well as on the subsequent occasion of playing the whole of the Grand Fountains and Cascades for the first time.

They may be obtained at the Palace; at the Office, 3, Adelaide Place, London Bridge; at the Offices of the Brighton Railway, London Bridge, and 43, Regent's Circus, Piccadilly; at Mitchell's Library, Bond Street; and Sams's Library, St. James's Street. Remittances from the country and Post-office Orders must be payable to George Fasson.

(By Order.)

Crystal Palace, May 5. G. GROVE, Secretary.

GREAT NATIONAL EXHIBITION OF FLORAL AND HORTICULTURAL PRODUCE.

THE CUMBERLAND FLORAL AND HORTICULTURAL SOCIETY OF CARLISLE will hold a GRAND EXHIBITION of FLOWERS, FRUITS, VEGETABLES, &c., in spacious marquees and tents (engaged for the purpose) on the 24th, 25th, and 26th of July (open to the United Horticultural Society's Exhibition, when 200*l*. will be awarded in Prizes.

Schedules of Prizes and every information may be obtained on applying to the Secretary, either personally or by letter. By order of the Council,

JOHN PATTERSON, Secretary.

English Street, Carlisle.

ENROLLED AGREEABLY TO ACT OF PARLIAMENT.

UNITED GARDENERS' BENEFIT SOCIETY, Waterloo Arms, Camberwell, Surrey. Instituted 1839.

This Society, established for Gardeners only under 35 years of age, has proved for 16 years the accuracy and soundness of the principle upon which it is founded, namely, the highest amount of benefits to be received by its Members in Sickness, Superannuation, and Mortality, for the smallest amount of contribution consistent with stability and permanence. The accounts are always open to the inspection of all the members, who have also a control of the expenditure of its funds; it is therefore incumbent on all, by a small monthly contribution, to provide against the casualties of life, from which none are exempt, by enrolling themselves in a Society of this nature, which guarantees 12*s*. per week in sickness; 3*s*. and 4*s*. per week superannuation; 10*l*. at the death of a member, and 8*l*. member's wife, for the small contribution of 2*s*. 3*d*. per month.

Camberwell Green, Surrey. CHARLES STUNELL, Secretary.

GOOD SWEDE SEED.

SUTTON AND SONS *have good new Ashcroft, Skirving's, and other Swede Seeds, true to their kinds, warranted all of last year's growth.* Price, in large or small quantities, 2*s*. per lb. Large quantities CARRIAGE FREE. Remittances or references required from unknown correspondents.

Address, SUTTON & SONS, Seed Growers, Reading.

THE PERENNIAL WHITE CLOVER.—This Clover is included in all Messrs. Sutton's mixtures for Permanent Pasture, and is very superior to the common White Clover; it may be purchased separately, price 1*s*. 6*d*. per pound.

Address—SUTTON & SONS, Seed Growers, Reading.

SUTTON'S LARGE YELLOW GLOBE MANGOLD WURZEL, FROM SELECTED ROOTS, QUITE HARDY.—Seed of this fine large Mangold Wurzel may be obtained genuine of Messrs. SUTTON, price 1*s*. per lb., or 5*l*. per cwt.; other sorts cheaper. Early orders are requested and recommended, as the stock is limited.—Address,

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

MORTON'S YELLOW GLOBE MANGOLD.—*From Seed grown from the original stock of J. C. Morton, Esq., the Editor of the* AGRICULTURAL GAZETTE. 1*s*. 6*d*. *per lb.*

WILLIAM E. RENDLE & Co., SEED MERCHANTS, Plymouth.

WHITE BELGIAN CARROT, 2*s*. *per lb., or much cheaper by the cwt.*

WILLIAM E. RENDLE & Co., SEED MERCHANTS, Plymouth.

TRUE GUERNSEY PARSNIP.—*This is a large and superior sort, and can be strongly recommended. The Subscribers have just imported a choice lot of Seed from Guernsey, and can supply it at 2s. per lb.*

WILLIAM E. RENDLE & Co., SEED MERCHANTS, Plymouth.

TO THE SEED TRADE.—TURNIP SEEDS, &c.

Skirving's or Liverpool Swede	Orange Globe Wurzel
Laing's	Broccoli, of sorts
White Globe Turnip	Fairbeard's Nonpareil Peas
Green	Cole's Crystal White Celery.
Red Tankard	

W. J. EPPS can with confidence offer the above (not large quantities), having been grown from the best selected stocks possible.—Prices sent on application.

Seed Establishment, High Street, Maidstone, May 5.

NEW PLANTS.

A. VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), is now sending out his following New Plants:

Achimenes Ambroise Verschaffelt	8*s*. 0*d*.
" Docteur Flopf	8 0
" Edouard Otto	4 0
" Edmond Boissier	8 0
Tydæa Warscewiczi	15 0
Rhododendron Prince Camille de Rohan (quite hardy)	16 0

All the above Plants are figured in VERSCHAFFELT'S "Illustration Horticole," which can be seen at Mr. R. SILBERRAD'S, 5, Harp Lane, Great Tower Street, London.

BEDDING PLANTS.

WOOD AND INGRAM are prepared to send out the following, in fair proportions of each, strong and WELL established Plants of the best standard varieties, at 3*s*. per dozen, package included:—

Verbenas	Senecio	Cineraria amelloides
Petunias	Nierembergia [luteo	Scarlet Geraniums
Ageratums	Chrysanthemum porto	Salvias, &c. &c.

W. & I.'s Spring Catalogue is now ready, and may be had on application.—Nurseries, Huntingdon.

OSAGE ORANGE (MACLURA AURANTIACA).

CHARLWOOD AND CUMMINS can supply SEED of the above-named Hedge Plant at 6*s*. per lb., with full directions for treatment. The month of May is the best time for sowing.—14, Tavistock Row, Covent Garden, London.

ORANGE TREES.—A large number of different sizes—amongst them are perhaps the finest young specimens ever offered for sale in this country. The larger sizes are particularly well shaped, with fine stems, and in perfect health, and are well adapted for producing immediate effect in conservatories.

Height of stem, 1¼ feet; diameter of head, 1¼ feet.
" " 2 " " " 1½ "
" " 3 " " " 2 "
" " 4 " " " 2½ "

Prices vary from 7*s*. 6*d*. to 105*s*. each.

HUGH LOW & Co., Clapton Nursery, London.

SEED POTATOES.

WOOD AND INGRAM, NURSERIES, Huntingdon, having a few more than they want for their own planting, offer the following varieties at the prices annexed for cash.

	Per bushel.		Per bushel.
Mitchell's Albion ...	5*s*. 0*d*.	Lapstone Kidney ...	5*s*. 0*d*.
Forty Fold	5 0	Chapman's ditto ...	5 0
Allen's Early Kidney, extra early	6 0	Martin's Globe ...	5 0
Jackson's Improved do.	6 0	British Queen, extra ...	6 0

FLOWERING PLANTS.

F. AND A. SMITH beg to offer FLOWERING PLANTS of the following (in quantities to the trade):—Geraniums, Fuchsias, Verbenas, Heliotropes, Calceolarias, Hydrangeas, Roses, Cactus, Ericas, Burchellia, Kalosanthus, Neriums, Scarlet Geraniums, &c. Prices on application. The Plants are stocky and in good condition: an inspection solicited.—Dulwich, Surrey.

500.000 FLAT-POLE OR DRUM-HEAD CABBAGE PLANTS.

THOMAS MOORE, NURSERY AND SEEDSMAN, Fore Street, Kingsbridge, Devon, begs to call attention to his large Stock of CABBAGE PLANTS, which will be ready in May and June. They are a superior late sort, and raised from seed of his own saving.

PINUS BENTHAMIANA—(TRUE).

MESSRS. VEITCH AND SON having succeeded in raising from Seed a number of this beautiful Pine, which is, doubtless, the finest of the long-leaved Californian kinds, and has proved to be perfectly hardy, are now enabled to offer good established plants on the following terms:—A single plant, 10*s*. 6*d*.: six plants, 50*s*.; twelve plants, 84*s*. Prices to the trade in proportion to the quantity taken, given on application.

Exotic Nurseries, Chelsea and Exeter.—May 5.

NEW AND RARE PLANTS.

MESSRS. VEITCH AND SON respectfully announce that their DESCRIPTIVE LIST of NOVELTIES for this season is now ready for distribution, and will be forwarded on application.—Nurseries, Exeter and Chelsea, May 5.

A GENERAL CATALOGUE OF PLANTS, TREES, AND SHRUBS offered for sale by HUGH LOW & Co., Clapton Nursery, London, is now ready to be sent free by post to any person applying for the same.

T. F. WINSTANLEY'S BEDDING PLANT LIST is now ready, and can be had on application, or free by post.—28, Market Place, Manchester.

BEDDING AND OTHER PLANTS.

F. AND A. SMITH'S Descriptive LIST of the undermentioned is now ready, and may be had, post free, on application:—Antirrhinums, Verbenas, Fuchsias, Scarlet Geraniums, Calceolarias, Petunias, Heliotropes, Pentstemons, Chrysanthemums, Mimulus, Salvias, Lobelias, &c. Climbers in variety, also a miscellaneous Collection of Greenhouse Plants. They have now in bloom Cytisus racemosus, Roses, Verbenas, Fuchsias, spotted Calceolarias, Erica Hybrids, Cactus, Geraniums, &c. The Trade supplied.—Dulwich, Surrey, May 5.

WILLIAM MASTERS AND SON, LANDSCAPE GARDENERS, Exotic Nursery, Canterbury.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

ROGERS'S SEED DEPOT AND GARDENERS' REGISTRY OFFICE, Clock House, Chelsea. Seeds of the "THREE GEMS OF THE SEASON," adapted for beds or pot culture, and all the newest and best things supplied reasonably.

TO BE SOLD CHEAP, price 60*l*., a small private Collection of ORCHIDS (180 Plants).—Apply to Messrs. FRASERS' Nurserymen, Lea Bridge Road, Leyton, Essex.

DWARF FRENCH BEANS can be had in any quantity.—Apply to J. G. WAITE, Seed Merchant, 181, High Holborn, London.

MESSRS. JOHN WEEKS AND CO. have now ready a well grown stock of BEDDING PLANTS, selected from the best existing varieties, and at most reasonable prices.

Horticultural Establishment, King's Road, Chelsea; and at Frankfort-on-the-Maine.

CHEAP DAHLIAS AND VERBENAS.

H. LEGGE is sending out all the leading Sorts of last Season, 9*s*. to 12*s*. per dozen; Older Varieties, 3*s*. to 4*s*. do. Catalogues can be had on application.

Marsh Side, Edmonton.

BOSSOM'S CHAMPION OF ENGLAND CELERY.

THE finest Celery yet introduced, beautifully white, very crisp and solid, and withstands a greater amount of frost than any other known variety; it has been blanched in the ground 3 feet.—To be obtained of T. F. WINSTANLEY, Seedsman, 28, Market Place, Manchester, price 2*s*. 6*d*. per packet; prices to the trade on application.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks, at 5*s*.; 12 varieties, 2*s*. 6*d*.; and from good double sorts, 1*s*.

Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s*. per packet; separate, 2*s*. Fine Quilled African Marigolds, 6*d*. per packet.—Saffron Walden Nurseries.

BANKS' SEEDLING FUCHSIAS.—1855.

(FOR FULL DESCRIPTION SEE FORMER ADVERTISEMENTS, AND ON APPLICATION).

W. J. EPPS has much pleasure in stating that the above Fuchsias have been proved to be the finest that have been raised by that celebrated grower E. Banks, Esq., Deal. Early orders are solicited. The set of six, 2*l*. 2*s*. The usual discount to the trade.—Bower Nurseries, Maidstone.

NEW SCARLET VERBENA.—MRS. WOODROFFE.

ARTHUR HENDERSON AND CO. are now sending out this fine new VERBENA; particulars of which may be seen in their advertisement in the *Gardeners' Chronicle* of March 31. The usual discount to the Trade.

☞ This Verbena is the same as "Conqueror," one offered by another firm.—Pine-apple Place, Edgware Road, London.

MAY'S MAGNUM BONUM LETTUCE is by far the largest, sweetest, and crispest Lettuce known, in proof of which we possess numerous letters received from parties who had it last season. The addresses of the writers can be had on application. Only a few packets remaining at 1*s*. each.—HENRY MAY, the Hope Nurseries, near Bedale, Yorkshire.

THE FINEST CRIMSON DAHLIA OF THE SEASON, ABLITT'S "INCOMPARABLE."—It is the brightest of its class, and full size. Perfect outline, very deep, full, compact, and symmetrical; and for a flower so beautifully cupped, well up, and good in the centre.—Mr. GLENNY'S *Opinion.*

☞ Strong healthy plants, at 10*s*. 6*d*. per pair, may now be had of Mr. BARNES, Stowmarket; Mr. TURNER, of Slough; and of EDWARD ABLITT, Onehouse, Stowmarket, Suffolk.

M'ADAM AND CO.'S BLIGHT COMPOSITION, now universally used, is sold in packets (with full directions) at 3*s*. 6*d*. each, sufficient to make 24 gallons of liquid wash. No Grape, Peach, or Plant grower should be without this invaluable remedy (see *Gardeners' Chronicle*, May 27, June 10, July 1, &c.)—Agent, JOHN HAYNE, 8, Liverpool Street, City, London. Paid orders forwarded.

SKIRVING'S IMPROVED TURNIP SEEDS.

W. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his TURNIP SEEDS for the season, as follows:—

SKIRVING'S IMPROVED SWEDE TURNIP, at 1s. 9d. per lb.

IMPROVED PURPLE-TOP YELLOW BULLOCK TURNIP, at 1s. 3d. per lb.

All other kinds of Turnip and Agricultural seeds in general, of the most select description, at moderate prices. A remittance, or reference from unknown correspondents, is respectfully requested to accompany orders. W. S. has no agent in town or country.

Liverpool, May, 1855.

CHOICE BEDDING-OUT PLANTS,

And to those about Permanently Replenishing the Flower Garden.

YOUELL AND CO. beg to submit the following List of desirable PLANTS, suitable for the above purpose. Carriage paid on all Orders of 2l. and upwards to any distance within 150 miles of the Nursery, and good Plants added to compensate for this charge on packages of less value:—

CARNATIONS AND PICOTEES.	Per doz. pairs.
Fine selections by name from our extensive and well-known Collection, in strong plants ...	18s. 0d.
Fine mixed border ditto	9 0
True old Clove Carnations	12 0
Tree Carnations, in choice variety ... ... each	1 6

CALCEOLARIAS.—Of this favourite flower the following list contains some of the best varieties for Bedding:—

Ajax (Lucombe, Pince, & Co.), fine large rich-coloured flower, of crimson and yellow, 1s. 6d. each.
Golden Chain, fine golden yellow, 6s. per dozen.
Gold Cap, rich dark maroon yellow cap, 9s. per dozen.
Superba (Constantine's), dwarf, rich crimson plum, 1s. 6d. each.
Surprise " bright orange crimson, ex. fine, 12s. per doz.
Sulphurea splendens, fine large yellow, 6s. per dozen.
Mr. White, rich shining bronze red, 6s. per dozen.
Superba (Turner's), fine dwarf, dark crimson (ex. fine), 6s. per doz.
Wellington Hero, rich deep golden yellow, 6s. per dozen.
Magnificent, large and rich crimson, with yellow crown, extra fine, 6s. per dozen.
Masterpiece (Constantine's), deep maroon scarlet, dwarf, 12s. p. doz.
Mrs. Beecher Stowe, bright yellow, 6s.
Shankleyana, large orange crimson, extra fine, 9s.
Beauty of Montreal, bright crimson, dwarf, 6s.
Kentish Hero, orange bronze, fine, 6s.
Sultan, fine large crimson, 6s.
Viscosissima, deep yellow, 6s.
Calceolaria "Purity," a new and beautiful variety, pure paper white, dwarf, free habit, branching, and a most desirable bedding plant, very highly recommended, 7s. 6d.

SCARLET GERANIUMS.

Tom Thumb, Frogmore, and Trentham Scarlet, 4s. per dozen, 30s. per 100.
Amazon, 12s. per dozen.
Baron Hugel, a dwarf growing variety, with brilliant scarlet flowers, adapted for edging, 12s. per dozen.
Cerise Unique, colour a fine cerise, 9s. per dozen.
Defiance, an immense large flowering variety, 1s. each, 9s. per doz.

VARIEGATED GERANIUMS.

Brilliant ...	12s. per doz.	Golden Circle	18s. per doz.
Flower of the Day	9s. "	Manglesi variegata ...	12s. "
Dandy	9s. "	Mountain of Light	18s. "
Golden Chain ...	18s. "		

GERANIUM—Boule de Neige, a unique white-flowering, horseshoe leaf variety, producing large trusses of well formed flowers, 9s. per dozen.
" Kingsbury Pet, a striking variety, bearing a fine truss of bright salmon-coloured flowers, 9s. per dozen.
" Manglesi Floribunda, a free blooming light variety, 9s. per dozen.
" Crimson Unique, for bedding purposes, a fine strong growing variety, 9s. per dozen.
" Crimson flowering Ivy leaf, fine, 9s. per dozen.
" White do. do. 6s. "
" Miss Emily Field, 12s. per dozen.
" Skeltoni, 12s. per dozen.

FUCHSIAS.—The following fine varieties, 9s., viz.:—Queen of Hanover, Elegans, Vanguard, Uterpe, Monarch, Trentham, Autocrat, Duke of Wellington, Mrs. Patterson, Princeps, Lady Franklin, England's Glory, Perfection, Model, &c. The best of the older varieties, 6s.
Fuchsia Domminiana, 2s. each.
Petunias, of best kinds, 6s. to 9s. per dozen.
LOBELIA racemoides, the best dark blue variety, 4s. per dozen.
" lucida do. light do. 4s. "
" compacta alba do. white do. 4s. "
" Lindleyana, a decided lilac do. 6s. "
VERBENAS.—In this class particular attention has been given to introduce only those of the more striking colours and best habits for bedding purposes; these include all the handsomest of the new continental varieties, and we offer them at 4s. per dozen, or 30s. per 100.
Anagallis rubra, and grandiflora, 6s. per dozen.
Nierembergia filicaulis, 6s. per dozen.
Pentstemon azureum, 9s. per dozen.
Salvia Hiaciua, 9s. per dozen.
PHLOX NELSONI.—An extremely pretty and hardy variety, originated through the zeal of an amateur in this country, whose name it well bears. It is of dwarf trailing habit, producing a dense mass of large pure white flowers with puce-coloured eye, 1s. 6d. each.
TROPÆOLUM—Triomphe de Gand—a handsome variety for trellis work, producing large and brilliant scarlet flowers, 12s. per dozen.
CLEMATIS TUBULOSA MANGLESI, a handsome herbaceous plant bearing numerous heads of blue star-shaped flowers, very hardy, 9s. per dozen.
ROCKETS, new double crimson, 9s. per dozen; old double white, 3s. per dozen.
PRIMROSES, double white, 4s. per dozen; double crimson or maroon, 12s. do.; double yellow, 5s. do.; double purple, 4s. do.
PHLOXES.—The following choice varieties 9s per dozen:—Maria Boulanger, Striata superba, Roi Leopold Villaret joyeuse, Bois Rose, Imbricata, Macrantha, Deuil de la Comtesse de Marne, Anais, Eliza, Mrs. Thompson, Madame Courcelles, Madame Frobel, Madame Lanier, Madame de Pruines, Gen. Lamoricière, Princesse de Cleres, Princesse Marianne, and other fine kinds.
HOLLYHOCKS, extra fine, first-class show varieties by name, 12s. to 18s. per dozen.
BELGIAN DAISIES in 36 best kinds, by name, 4s. per doz.
PÆONIAS in 20 new and very choice Continental varieties, for 1l.
Dielytra spectabilis; this universal favourite, strong flowering plants, 9s. per dozen.
Delphinium Barlowi, 9s. per dozen.
" Mooreanum, an extremely beautiful variety, 12s. per doz.
" grandiflorum maximum, 9s. per dozen.
Saponaria ocymoides, 6s. per dozen.
Statice maritima rosea, a very pretty, hardy herbaceous plant of dwarf habit, producing numerous heads of bright rose-coloured flowers, 6s. per dozen.
MIMULUS in 6 new and choice varieties, 6s. per dozen.
POTENTILLAS in fine variety, 6s. per dozen.
Lilium Lancifolium album, 9s per dozen; rubrum, 20s. per dozen.
Lobelia Feu du Roi, Sir Clair, and Aurora, 9s. per dozen.
Herbaceous Plants in very choice variety, 30s. per 100; or 6s. per dozen.
Alpine or Rock Plants, in choice variety, 4s. to 6s. per dozen.
YOUELL & Co., Royal Nursery, Great Yarmouth.

GERMAN ASTER SEED, all saved from the finest Globe varieties ever yet exhibited, and which have surpassed all others in cultivation for their immense size and distinct colours, 1s. per packet.
SWEET WILLIAM SEED saved from 50 of the choicest and most superb varieties, 1s. per packet.
ANTIRRHINUM SEED saved from all the finest shaped and best varieties, 1s. per packet.
SUPERB HOLLYHOCK SEED saved from all the best named flowers, 1s. per packet.
SCARLET GIANT BROMPTON STOCK, extra fine, 1s. per packet.
VERY SUPERIOR FIMBRIATA PRIMULA SINENSIS SEED, saved from six distinct varieties of the largest and most superb plants ever grown, 2s. 6d. per packet.
PANSY SEED, a few packets from selected varieties, 1s. per packet.
POLYANTHUS SEED, fine mixed, 1s. per packet.
CROWN GOURD, or CUSTARD MARROW; this variety is the most delicious of all the Marrows grown, 1s. per packet.
AQUILEGIA, or COLUMBINE, of 12 distinct varieties, 1s. per packet.
Any three packets of the above (except the Primula) sent post-free on receipt of 2s. 6d., or the Primula included with two other packets, for 3s. 6d., in cash or penny postage stamps by
EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somerset.

NEW PLANTS.

MESSRS. WILLIAM ROLLISSON AND SONS are now prepared to offer—

BEGONIA SPLENDIDA.—This exquisite plant was discovered in Java by our collector, Mr. John Henshall, during his researches in the Indian Archipelago. It is an extremely beautiful plant of ornamental foliage, the stems and leaves of which are covered over with a bright crimson hirsute down: altogether it presents so striking an appearance, that it is alone much to be desired for its magnificent foliage, for which we are now offering it, the plant not having yet flowered in this country. 42s. to 63s.

RHODODENDRON GRISEWOODIANUM.—This is a most superb large white free-blooming variety, beautifully tinted with blush, and distinctly spotted with large dark brown spots; fine form and large truss, and possessing beautiful foliage. We have no hesitation in saying that this is one of the finest Rhododendrons ever raised, being perfectly hardy, which has been fully tested during the last two severe winters; for while many of the so-called hardy sorts were completely disfigured in their foliage, not a leaf of this variety was injured. 21s. to 31s. 6d.

RHODODENDRON SHAKSPEARE.—A soft rosy purple, intensely blotched with orange yellow on the top petals; a most beautiful and thoroughly hardy free late-flowering variety. 21s. to 31s. 6d.

ERICA ÆMULA.—This is a very beautiful hybrid, in the Erica Massoni section, of a fine bright crimson colour, after the style of Erica aristata, but very much higher in colour: altogether this is a very distinct variety. 21s.

ERICA EXIMIA SUPERBA.—This variety may really be said to be three times as fine as the parent, whose name it bears: it is a very compact grower and excellent in habit, with tubular blossoms of a fiery scarlet colour. This charming variety obtained the first seedling prize at the Royal Botanic Gardens, 1852. 31s. 6d.

ERICA PAXTONI.—A very distinct variety obtained by hybridising Erica Hartnelli with Erica Massoni; it blossoms in very large whorls of a soft red colour. This variety will be very useful for Autumnal Exhibition purposes, as it blossoms from July to October. 21s.

The set of the above-named Ericas, Three Guineas.

CALCEOLARIA VARIABILIS.—As a bedding plant this will make a charming variety, and in some measure supply the deficiency there has been for durable and effective plants of a light colour for the parterre. It is an excellent grower, of very compact, pretty habit, and produces in great profusion immense trusses of blossom, which open of a delicate primrose colour, and change to white. Altogether it is a most desirable acquisition, and a variety thoroughly distinct from any in cultivation. 10s. 6d. each.

NEW PRICED CATALOGUE OF PLANTS.

MESSRS. WILLIAM ROLLISSON will be happy to forward this on application. It can also be forwarded throughout the following countries, post free: America, Austria, Belgium, France, Germany, Holland, Prussia, &c. &c. This Catalogue abounds with novelties and rare plants; also contains priced lists of the following:—

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New Roses	26 & 27
Choice Shrubs, &c.	43
Stove Plants	9 to 11
Tree Carnations	34
Tropical Fruits	9
Variegated Foliage Plants	12
New Verbenas	32

The following Choice and New Plants can be seen in blossom at the Nurseries:—

Cattleya Aclandiæ (rare)
" ianthina (new)
" lobata (rare)
Cypripedium Lowi (rare)
Erica illustris (new)
" affinis (new)
" triumphans carnea (new)
Camellia Empress Eugenie (do.)
" Bilotte (new)
Huntleya cerina (new, extremely rare)
Odontoglossum hastilabium, (rare)
Rhododendron Edgeworthi (Sikkim)

The Nurseries, Tooting, London.

NEW AND CHEAP FIRST-RATE SHOW PLANTS.

The Cheapest Establishment in the Kingdom is at

HENRY WALTON'S, Florist, &c., Edge End, Marsden, near Burnley, Lancashire, where these are propagated annually for Sale from 20,000 to 30,000 Plants, which for cheapness and quality are not to be equalled, being strong and healthy.

GERANIUMS, strong blooming plants of varieties of last season, such as Carlos, Neatness, Glowworm, Regalia, &c. &c., 25s. per doz.; older good show varieties, 9s., 12s., and 15s. per doz.; 25 for 20s.; 50 for 35s., packages included.

FUCHSIAS, new varieties of last season, 6s. to 9s. per doz.

CINERARIAS, choice varieties, such as Advance, Étoile de Vaise, Empress, Empress Eugenie, &c. &c., 10s. 6d. per doz; older varieties, 4s. 6d. per doz.

PANSIES, 12 distinct fine show varieties, 6s.; 25 varieties, 10s.

VERBENAS, new varieties of 1854, 4s. to 6s. per doz.

PETUNIAS, 4s. 6d. to 7s. 6d. per doz.

DAHLIAS, all the leading show varieties of last season, 9s. to 12s. per doz; older varieties, 4s. 6d. to 6s. per doz.

BEDDING PLANTS, including Scarlet and other Geraniums, Salvias, Pentstemons, Heliotropes, &c. &c., equally cheap.

H. W.'s Spring List is now ready, and may be had for one stamp. It is respectfully requested that all post-office orders be made payable at Marsden, Lancashire, and a remittance or satisfactory reference with all orders from unknown correspondents. All orders to the amount of 25s. paid to Liverpool, Manchester, Leeds, and Preston; 2l. and upwards free to Birmingham, Carlisle, and the like distances; for more distant carriage extra plants gratis.

N.B. Parties are particularly requested to see H. W.'s advertisement in *Chronicle* for April 14th and April 28th.

GERANIUMS.

BASS AND BROWN have the following to offer strong and healthy plants, well established for a fine and abundant bloom. For descriptive list see their autumn Catalogue.

The following 12 *Superb New Show Varieties of last season for* 40s., *or separately as priced.*

Dobson's Eliza ...	3s. 6d.	Turner's Duchess of Wellington ...	[illegible]
" Empress	5 0	Topping's Emily Rival	3 6
" Glowworm	3 6	Hoyle's Regalia...	5 0
Foster's Lucy ...	5 0	" Virginia	5 0
" Purple Perfection	5 0	" Carlos ...	5 0
Turner's Pilot ...	3 6	" Tamberlik	3 6

The following 20 *first-rate Varieties, of previous date, for* 30s., *or any* 12 *for* 21s.

Admiral, Albira, Ambassador, Astrea, Butterfly, Eleanor, Exhibitor, Ganymede, Harriet, Jupiter, Kulla, Lagoma, Leonora, National, Novelty, Optimus, Portia, Queen of May, Rachel, and Rubescens.

The following 20 *first-rate older Varieties for* 10s., *or any* 12 *for* 12s.

Alderman, Commissioner, Elise, Enchantress, Field Marshal, Flying Dutchman, Gem, Medus, Mochanna, Magnificent, May Queen, Nepaulese Prince, Nandee, Prince Arthur, Painter Improved, Rosa, Rowena, Rubens, Village Maid, and Virgin Queen.

FANCY GERANIUMS.

The following 12 beautiful varieties for 9s.:—Bishop of Winchester, Caliban, Extravaganza, Jehu Improved, Lady Down, Magnifica, Mazeppa Superbe, Neerée, Odoratissima grandiflora, Odorata Superba, Statiaski, and Superba.

GLOXINIAS.

The following set of 11 new varieties of last season are very fine, and may be had for 33s., or separately 3s. 6d. each:—
Duke of Wellington, rich velvety scarlet of stout substance, throat shaded with violet, and slightly spotted with white.
Eleanor, pure white, blotched with rose, and purple shade.
Elegantissima, French white of great substance, pale lavender centre, spotted with buff.
Erecta Magnifica, fine white, with blue throat, habit of Fyfiana.
Eugenie, rosy pink, centre creamy white, spotted with rose.
Exquisite (Henderson's), pure white, with broad belt of purple, throat creamy white, spotted with puce.
Grand Sultan, a fine Continental variety.
Lady Franklin, extra large rose, stout and robust, shading off to pink, slightly spotted white in the throat.
Magnet, clear rose, with blotch of purple in the throat, large and fine form.
Prince of Wales, white, shading off to lavender.
Sir C. Napier, deep rosy crimson, throat blotched with intense rose, dwarf habit.

The following 12 superb vars. for 20s.:—Belle Chymene, Duchess de Brabant, Dr. Plancheon, Grandis, Hogoveen, Imperialis, Leonie Van Houtte, Petoiana, Princesse de Lamballe, Victoria Regia, Wilsonia, and Wortleyana.

ACHIMENES.

The following three very beautiful new varieties may be had for 17s. 6d.:—
Madame Rendatler, a fine large purplish lilac, with yellowish white throat 5s. 0
Picturata, brilliant rose colour, flowers of the form of multiflora, with darker spots, exceedingly handsome ... 5 0
Gigantea, a novelty beyond comparison, resembling Picta, but twice as large and brighter colours, very free and keeping in flower several months 10 6
Twelve Superb Varieties for 10s., including Louis Van Houtte, Mr. Aparpart, Cerito, &c.; 12 fine older vars. for 6s.
GREENHOUSE PLANTS, 50 fine and select species and varieties 2 5
" " 50 do. do., best selection 3 5
STOVE PLANTS, 50 superb and select species and vars. 4
HERBACEOUS PLANTS, 100 fine and distinct vars. 1 10
" " 100, including newer " 2 10
ROCK PLANTS, 25 fine varieties 6 12
DELPHINIUMS, 12 in 6 fine varieties 6 3
" very fine seedlings of splendid mixed colours, per 100 ... ... 1 1
DIANTHUS ATRORUBENS, splendid dark crimson for bedding, per doz. 0 6
DIANTHUS SPLENDENS, rich bright crimson, for ditto, per doz. 0 15
POTENTILLAS, 12 fine varieties, 9s.; 12 extra fine ... 0 9
" splendid mixed seedlings, per doz ...
" 5 best new varieties — King of Crimson, Sudbury Gem, Theodore, Shylock, and Julia, for 1 0
ROCK CISTUS, dwarf, 24 beautiful vars., very distinct 0 15
PHLOX, 25 fine vars., 10s. 6d.; 25 beautiful newer vars. 0 15
PENTSTEMONS—Grandis, fine blue, improvement on Atrocærulea, and a fine bedding plant, per doz 0 24
" Magniflora, extra large dark red, 2s. 6d.; per doz.
" Azureum (true), a fine dwarf blue, per doz. ...
" Ovatum, light blue, abundant bloomer, per doz.
Primula involucrata, most lovely white, per doz. ... 0 4
Viola arborea, 6s. per doz.; alba, per doz. 0 15
" Neapolitan 6s. " Russian " 0 7
Berberis Darwini, per doz. ... ... 1s. 6d. to 0 18
Pæonia papaveracea, strong ... ... 9s. to 0 12
Hardy Climbing Plants, 12 fine vars. 0 6
Roses, Tea-scented and China, in pots, 12 fine vars.
Wood's New Duchess of Norfolk, Hy. perpetual, each

Goods carriage free (not under 20s.) to all the London stations and all stations on the London and Norwich Railway. Plants added gratis with orders of 40s. and upwards.

COMPLETE CATALOGUES on application for six penny stamps, or the Spring Catalogues alone for three penny stamps, or gratis to our customers who may not have received them.

Seed and Horticultural Establishment, Sudbury, Suffolk.

MESSRS. E. G. HENDERSON AND SON beg to announce that in consequence of their inability to supply plants of sufficient strength so early in the season, two of the new Pelargoniums will not be sent out this year, consequently the set will now only be 3*l.* 3*s.*

Empress Eugenie.	Lady of the Lake.
Mrs Story.	Queen Victoria.
Prince Albert.	Raffaelle.
Snowdrop.	Water Nymph.

Orders for the above can only be booked and executed in rotation after the earlier orders are despatched.

THE NEW SPRING CATALOGUE

Will shortly be published and forwarded post free on application. Parties wishing for the same will have their names booked.

A COLOURED PLATE,

Composed of a group of Nine new Flowers belonging to the Stove, Greenhouse, and Garden. It will be sufficient to say that Mr. Andrews, the eminent floricultural artist, has them in course of preparation, and under his superintendence full reliance may be placed on their accuracy; any one wishing for the same will have their names booked for it, to be sent them when finished, by forwarding 12 postage stamps; and if ordered in time will be stitched-in and sent with their new Spring Catalogue. This notice also applies to any nurseryman that may wish to have the Plate.—Wellington Nursery, St. John's Wood, May 5.

NEW BEDDING PLANTS.

CHARLES TURNER has much pleasure in introducing the following New Plants:—

CALCEOLARIA "PURITY," a new and beautiful shrubby variety, pure paper white, dwarf free habit, and a most desirable bedding plant. Very highly recommended. 7*s.* 6*d.* each.

NEW VERBENAS.

*WONDERFUL (Edmonds), rich plum purple, with very large white centre. This is without exception the finest and most distinct variety yet introduced, and is especially recommended for bedding purposes, continuing fully in bloom until very late in the season. It obtained a Certificate of Merit at National Floricultural Society.

*BLUE BEARD (Edmonds), a decided blue, good shape, large truss, and an excellent bedding variety. Highly recommended.

*LADY LACON (Edmonds), bright rose, with large pale yellow centre, good shape and habit. This also is a first-rate bedding variety. Obtained a First-class Certificate at National Floricultural Society for form.

COMMANDER-IN-CHIEF (Edmonds), bright cerise, with yellow eye, free bloomer, and good habit. Very fine.

EMPRESS OF FRANCE (Edmonds), large pale rose, fine truss.

FLORENCE NIGHTINGALE (Edmonds), pink, yellow eye, good shape.

ROSE OF ENGLAND (Edmonds), bright rosy pink, with yellow eye, good form, free and distinct, fine.

TYRIAN PRINCE (Edmonds), deep blue purple, fine and distinct. Received a Certificate at Norwich.

EVA (Turner), pure white, fine truss, and free bloomer.

The above 5*s.* each, or the Set for 2*l.* The three varieties marked thus * were figured in the "Florist" for April, 1855.

NEW DAHLIAS.

Pre-Eminent (Fellowes)	10*s.* 6*d.*	Glenlyon (Fellowes) ...	7*s.* 6*d.*
Lord Bath (Wheeler) ...	10 6	Diadem (Fellowes) ...	7 6
Espartero (Turner) ...	10 6	Constancy (Hopkins) ...	7 6
Beauty of Bath (Bush)	10 6	The Nigger (Fellowes)	10 6
Ringleader (G. Holmes)	10 6	Baron Alderson (Perry) a fancy variety ...	10 6
Attack (Fellowes) ...	10 6		
Agincourt (Fellowes) ...	10 6		

For Descriptions of these varieties see Catalogue, which can be had on application.—Royal Nursery, Slough.

NEW STRAWBERRY—CAROLINA SUPERBA.

JAMES KITLEY begs to inform his friends and the public that he has succeeded in raising from Seed a New Strawberry, the qualities of which have long been a desideratum. It possesses the excellent flavour of the old Carolina, the fruit as large as the British Queen, with all the combined good qualities of productiveness, hardiness of plant, dwarf habit, &c., which tend to make it a general favourite. It was exhibited at the Chiswick Horticultural Exhibition, and obtained a First-class Certificate.—See *Gardeners' Chronicle*, July 15, 1854.

Dr. Lindley's Opinion.

"J. K., the Strawberry which you have named Carolina Superba partakes of the flavour of the old Carolina, but the fruit was bruised by carriage, so that the paper which accompanied the Strawberries was saturated with juice, and this juice dried on the paper like syrup — sweet, adhesive, glossy, and brownish coloured. Strawberry juice does not usually possess these properties."—See *Gardeners' Chronicle*, July 1, 1854.

The undermentioned gentlemen having had opportunities of seeing it growing, and also tasting the fruit, have kindly permitted their Testimonals to be placed before the public:—

"Your Carolina Superba Strawberry, which I saw last summer in bearing, appeared a very hardy and productive kind, with the flavour of the old Carolina, and will prove an acquisition to this class of fruit.

"JOHN SPENCER, Marquis of Lansdowne's, Bowood."

"I feel much pleasure in giving my opinion of your Seedling Strawberry, Carolina Superba. Having had frequent opportunities of seeing it growing and tasting the fruit, I consider it hardy, of good habit, short foliage and fruit-stem. In flavour and crop, I know none that will surpass it; and feel assured it will do you credit, and give satisfaction to all who may purchase it.

"JAMES POND, Devonshire Cottage, Bath."

"The Seedling Strawberry, named Carolina Superba, that I saw fruit in your nursery last season, appeared to me to be a first-rate variety of dwarf foliage, a profuse bearer, and flavour excellent. I have no doubt it will give the greatest satisfaction to all who may possess it.

"D. BUTLER, Widcombe Nursery, Bath."

Strong well-rooted PLANTS are now ready, at 3*l.* per 100, 10*s.* per dozen, or 12*s.* free by Post.

Lyncombe Vale Nursery, Bath.

TWO VERY USEFUL NEW DWARF NASTURTIUMS.

JOHN CATTELL has much pleasure in bringing into notice these two very showy hardy ANNUALS, viz.:—

NASTURTIUM DWARF CRIMSON.—The colour of the common dark crimson.

Ditto DWARF SCARLET.—The colour very rich orange scarlet, with a fiery shade on the upper part of the throat.

They are both of the dwarf compact habit of minimus, and admirably adapted for forming large buds, particularly in any poor soils; the flowers are the size of the common Nasturtium, and thrown well above the foliage, and are a mass of bloom throughout the summer and autumn. Packets, containing 12 seeds, 1*s.* each, post free.

J. C. has also the following choice Seeds for present sowing, at the prices annexed per packet, post free:—

	s.d.		*s.d.*
Alstræmeria acutifolia ...	1 0	Lychnis fulgens	0 6
Anemone, single Poppy, fine mixed	0 6	Mandevilla suaveolens ...	0 6
Auricula alpini, from fine named varieties	1 0	Nierembergia intermedia .	0 6
Azalea, from finest Greenhouse varieties	1 0	Oxalis rosea...	0 6
Cineraria, from very superb varieties	2 6	Petunia, from finest vars. .	0 6
Celsia arcturus	0 6	Polyanthus, common, from showy varieties for borders, &c.	0 3
Geranium, from new florist varieties, 12 seeds ...	2 6	Do. fine mixed	1 0
„ from finest older do., 12 seeds	1 0	Do. from fine named vars..	1 0
„ do. fancy do., 12 seeds	1 0	Saponaria calabrica ...	0 6
Linum grandiflorum, true .	1 0	Verbena teucrioides ...	0 3
		„ venosa...	0 6
		„ mixed, from finest named varieties ...	1 0
		Zinnia elegans coccinea, fine	0 6

A remittance to accompany all orders from unknown correspondents.—Nurseries, Westerham, Kent.

NEW ROSES.

BENJAMIN R. CANT begs to offer strong Dwarf Plants, in pots, of the following NEW ROSES:—

HYBRID PERPETUALS.—	*s. d.*	HYBRID PERPETUALS.—	*s. d.*
Alfred Colomb	3 6	Madame Theodore Martel	7 6
Alphonse de Lamartine ...	3 6	„ Quetel	3 6
Ceres	3 6	Marie de Bourges ...	3 6
Cicero	5 0	Prince de la Moskowa ...	5 0
Comtesse Vaillant ...	7 6	Sir John Franklin ...	3 6
Conseiller Jordeuil ...	3 6	Triomphe en Beauté ...	2 6
Duchess of Norfolk ...	5 0		
Deuil de F. Willermoz ...	7 6		
George d'Amboise ...	3 6	P. Moss, André Thouin ...	3 6
Gloire de France	3 6	Bourbon, Omer Pacha ...	7 6
Gloire de Parthenay ...	3 6	Tea, Louise de Savoie ...	7 6
Lady Milsom	3 6	Nois, Augusta	7 6
Lady Shelley	3 6	Moss, D'Arcet	2 6
La Ville de St. Denis ...	3 6	„ Gloire de Mousseuses	5 0
Madame Domage... ...	2 6	„ Jeanne de Montfort	3 6
„ Hector Jacquin	3 0	„ L'Eblouissante ...	3 6
„ Masson	10 6	„ Marie de Blois ...	5 0
„ Lacroix	3 6	„ Vandael	3 6
„ F. Rigaux ...	3 6	Gallica, Amphitrite ...	2 6
„ Place	7 6	„ George Vibert ...	2 6
„ Recamier ...	3 6	H. Bour., Charles Lawson	7 6
„ Rendatler ...	3 6	„ Gervaise Rouillard	3 6

N.B. The new Hybrid Perpetual Rose Emperor Napoleon will not be sent out before June; by that time I shall have proved it. If not more than semi-double, I much question if it is worth 7*s.* 6*d.* I, however, received a very high character of it, which induces me to offer it to the public, *but not to let it out before proving its worth.*

Carriage paid to any Station on the Eastern Counties Railway.

St. John's Street Nursery, Colchester.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, &c., which they will forward to any part:—

	s.	*d.*
Andromeda floribunda, per dozen ... ... 12*s.* to	18	0
25 Azaleas, new hardy Belgian varieties, one of a sort, by name on their own roots	20	0
25 Azaleas, American varieties, do. do.	16	0
Hardy Heaths, Ledums, and Kalmias, per dozen ...	6	0
25 Hardy American Plants, one of a sort, by name ...	10	6
12 Rhododendrons, including scarlet, white and rose ...	12	0
Fine hardy Scarlet Rhododendrons, 1 to 2 feet, per doz.	12	0
New Yellow Rhododendrons, in pots, each 3*s.* 6*d.* to	5	6
6 Fine hardy Magnolias, one of a sort, in pots	10	0
Wistaria sinensis, strong plants, in pots, each	3	6
12 Hardy Climbers, of sorts, in pots	12	0
Fine climbing Roses, of sorts, per dozen, in pots ...	8	0
Bourbon Roses, budded, 1 ft., fine for beds or edgings, do.	10	0
Fitz-Roya, Saxe-Gothæa, Cephalotaxus, Libocedrus, each	5	0
Wellingtonia gigantea, and other choice and cheap hardy Coniferæ (see list).		
Cedar of Lebanon, 2 to 3 ft., well grown, per doz., 12*s.* to	18	0
Greenhouse Azaleas, choice varieties, per dozen 12*s.* to	18	0
6 New Achimenes, and 6 Gloxinias	10	0
50 choice Greenhouse plants, one of a sort	45	0
Orchidea Plants, beautiful species, by name, per dozen	40	0
24 choice Ericas, one of a sort	16	0
24 choice Fuchsias, fine proved varieties	12	0
6 Tree Carnations, choice sorts	6	0
Verbenas and Petunias, best sorts, per dozen	4	0
Calceolarias and Cineraria, in flower, per dozen, 9*s.* to	12	0
Fancy Geraniums, best sorts ... ... per doz.	15	0
First Class Carnations and Picotees ... ... „	10	0
First-rate sorts of choice Pinks ... ... „	6	0
25 choice Pansies, one of a sort...	10	0
25 choice hardy Herbaceous Plants, named	10	6
Pentstemons, Lobelias, new Phloxes and Potentillas, per dozen	6	0
Dahlias, the best fancy and show sorts, per dozen ...	12	0

Choice Flower Seeds, 20 papers, 5*s.*; 45 ditto, 10*s.* Free by post.

Conservatories, Greenhouses, and Gardens furnished on moderate terms.

Albion Nursery, Stoke Newington, London.—May 5.

TWO MAGNIFICENT NEW CALCEOLARIAS ADAPTED FOR BEDDING OR POT CULTURE.

"EMPEROR NAPOLEON AND EMPRESS EUGENIE."

YOUELL AND CO. have much pleasure in introducing the above beautiful varieties of this favourite flower, which they do with the greatest confidence of giving the most entire satisfaction. The following will be found a faithful description:—

EMPEROR NAPOLEON.—This is of a peculiar dwarf and compact habit, producing, on stout flower stems, dense heads of large orange-scarlet flowers, the outline of each being distinctly banded with a brilliant gold colour.

EMPRESS EUGENIE.—This, as the former, is of a dwarf but more robust habit, carrying, on extremely stout stems, an enormous head of rich, golden-coloured flowers, which, in point of size, are unequalled.

The foregoing possess the desirable properties of resisting the sun and rain without discolouring the bloom. The above are now ready for sending out at 7*s.* 6*d.* each, with the usual discount to the trade.—YOUELL & Co., Royal Nursery, Great Yarmouth.

SUPERB NEW HYBRID HEATHS.

LUCOMBE, PINCE, AND CO. are now prepared to send out their beautiful well known NEW HYBRID HEATHS; they were exhibited at the Horticultural Society's Meeting in Regent Street, and obtained the large Silver Medal. The following is the description given by the Editor of the *Gardeners' Chronicle*, May 28, 1853:—

"*Messrs.* LUCOMBE, PINCE, & Co. *received a Large Silver Medal for a Collection of New Hybrid Cape Heaths, consisting of*

LINDLEYANA, EXONIENSIS,
INSIGNIS, PULCHERRIMA, EXQUISITA,
METULÆFLORA-SUPERBA,

all fine kinds, possessing large bold flowers and bright clear colours; they were stated to have been raised from Massoni, Ampullacea, Sprengelli, Hartnelli, and Aristata, all, it will be seen, good parents."

L., P., & Co. can assure all cultivators of this beautiful tribe of plants that these fine varieties cannot fail to give satisfaction, as they possess excellent habits, and have large rich coloured flowers of much substance, which are produced in great profusion,—properties that fully justify L., P., & Co. in very strongly recommending them to the public. Price, 3*l.* the set of Six.

Exeter Nursery, Exeter.—Established 1720.

FLOWER SEEDS.

PETER LAWSON AND SON, SEEDSMEN and NURSERYMEN to the QUEEN, Edinburgh, and at 27, St. George Street, Westminster, beg leave to invite attention to their very choice selection of Flower Seeds.

27, St. George Street, Westminster.

The Gardeners' Chronicle.

SATURDAY, MAY 5, 1855.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, May 8—Horticultural ..... 3 P.M.
WEDNESDAY, — 9—Royal Botanic..... 3 P.M.

LAST Tuesday was the fiftieth anniversary of the HORTICULTURAL SOCIETY OF LONDON, and the Council took advantage of the occasion to lay before the meeting a sketch of the rise and progress of this great Corporation up to the present time. The report itself is much too long for our space, and we therefore confine ourselves to condensing portions of it, recommending every one to read the complete report if he can.

The Society was established in the year 1804, since which time great changes have taken place, the face of gardens is entirely altered, and the art of cultivation has been brought to a state of perfection which could not have been anticipated 50 years ago. Probably few persons have any distinct recollection of the real state of gardening in the beginning of the present century. It is however obvious from the writings of those who flourished at that time, that no English garden bore much resemblance to the first-class establishments of the present day. Vegetable physiology had only just begun to be applied to practice; what was good in cultivation did not extend beyond the fruit and kitchen garden, which was scantily supplied with varieties scarcely now remembered, except in the case of a few fruits and esculents little susceptible of change. Flower gardens, shrubberies, and plantations contained little that had not been in them for a century and more. MARSHALL, whose book on gardening had passed through five editions by the year 1813, has even at the last date few trees among his lists beyond such as are natives of Europe, or as form the commonest vegetation of the United States; and his annual and perennial flowers have long since been confined to Botanic Gardens, with the exception of Cockscombs, Balsams, some Convolvuli, Hollyhocks, Stocks, Mignonette, Chinese Pinks, and a small number of other common species.

Of the then state of gardening we may form some idea from an address in April 1805 by the late THOMAS ANDREW KNIGHT, beyond all comparison the most experienced practical gardener, as well as scientific experimentalist, of his day. Speaking of the need there was of some stimulus to horticulture, he made the following observations:—

"Societies for the improvement of domestic animals, and of agriculture in all its branches, have been established with success in almost every district of the British Empire. Horticulture alone appears to have been neglected, and left to the common gardener, who generally pursues the dull routine of his predecessor; and, if he deviates from it, rarely possesses a sufficient share of science and information to enable him to deviate with success. In training wall trees there is much in the modern practice which appears defective and irrational: no attention whatever is paid to the form which the species or variety naturally assumes, and be its

PRESENT PRICES OF FARM SEEDS.

SUTTON'S FARM SEED LIST

BEING NEARLY OUT OF PRINT,

THE FOLLOWING EXTRACT IS PRESENTED, WITH PRICES OF SEEDS FOR PRESENT SOWING.

	Per Bushel— *s.*	*d.*
SUTTON'S IMPROVED ITALIAN RYE-GRASS	7	6
ditto ditto ditto ditto	7	6
IMPORTED ditto ditto ditto	6	6
PERENNIAL ditto ditto ditto	5	6
	Per lb.	
YELLOW GLOBE MANGOLD WURZEL	1	0
RED LONG RED ditto	1	0
WHITE BELGIAN CARROT, excellent	2	6

	Per lb.— *s.*	*d.*
SWEDE SEEDS, OF SORTS	2	0
TURNIPS, of Sorts ... ... 9*d.* to	1	6
CLOVERS, of Sorts ... ... 6*d.* to	1	0
MUSTARD and RAPE, or COLE	0	4½
FRENCH FURZE and LUCERNE	1	0
KOHL RABI and DRUMHEAD CABBAGE	2	6
SUTTON'S EARLY CATTLE ditto	5	0
ALSIKE HYBRID CLOVER	2	6

Natural Grass Seeds and Perennial Clovers, mixed, for Permanent Pasture.

CARRIAGE FREE, EXCEPT SMALL PARCELS.

ADDRESS: SUTTON & SONS, SEED-GROWERS, READING.

growth upright or pendent, it is constrained to take precisely the same form on the wall. The construction of forcing houses appears also to be generally very defective, and two are rarely constructed alike, though intended for the same purposes; probably not a single building of this kind has yet been erected, in which the greatest possible quantity of space has been obtained, and of light and heat admitted, proportionate to the capital expended. It may even be questioned whether a single hotbed has ever been made in the most advantageous form; and the proper application of glass, where artificial heat is not employed, is certainly very ill understood."

It was in March, 1804, in a room in the house of Mr. Hatchard, the eminent bookseller in Piccadilly, that the Society was first organised. On that occasion there were present Mr. Charles Greville, Sir Joseph Banks, Mr. Rich, Anthony Salisbury, a distinguished botanist of the day, Messrs. W. T. Aiton and W. Forsyth, two of them royal gardeners, and Mr. James Dickson, an experienced practical gardener. When organised, which occurred in a week's time, the list of members included the names of all who in those days were most distinguished for their knowledge of horticulture. The mere institution of the Society, therefore, conveyed a distinct declaration, by those best qualified to form an opinion, that the state of gardening stood in very great need of improvement.

In 1810, the first number of the "Horticultural Transactions" made its appearance, a publication which ultimately extended to 10 quarto volumes, replete with horticultural information both theoretical and practical of the highest value, and from which writers on gardening subjects have not failed to extract a large part of their knowledge. The cost of publishing these deservedly celebrated volumes had in 1830 amounted to 25,250*l.*; and they were not finally discontinued till the year 1848.

In the year 1816 (March 5) the first bye-laws were passed, and by May, 1818, the prosperity of the Society had so much increased as to lead to the hire of an Experimental Garden at Kensington. The elections rapidly increased, having risen from 73 in 1818 to 328 in 1821, the largest number ever added to the Society in one year.

About this time the effects of that system of obtaining valuable foreign plants from extra-European countries, by which the Society has conferred such inestimable benefits upon these kingdoms, began to be felt. In the accounts of 1819-20 appears for the first time a charge of 108*l.* 18*s.* 9*d.* under the head of foreign importations. Plants had begun to arrive from China; not the least important of which was the magnificent Glycine (or Wistaria) sinensis, of which the first living plant, now an aged tree in the Society's Garden, arrived in 1818.

By the year 1823 gardeners had been despatched to the coast of Africa, the West Indies, South America, and China, and extensive collections of valuable exotics had been procured from distant colonies. In 1823, 1200 varieties of Roses existed in the Garden; and this assemblage, as well as the importations from China, may be assumed to have led to that elimination of bad sorts, and general improvement of the Rose, which has rendered the modern Rose garden a scene of perpetual enjoyment, instead of a summer display which only lasted for a month or six weeks.

In 1822 the Society obtained a lease of the present Garden at Chiswick; the admission fee was then raised to 6*l.* 6*s.*, and the annual subscription from 3*l.* 3*s.* to 4*l.* 4*s.* At the same time, with a view to defray the cost of the new Garden, a voluntary subscription was opened, which ultimately reached the sum of 7275*l.* 2*s.*

In 1827 it was resolved to discontinue the anniversary dinners previously held in London, and to substitute for them fêtes or public breakfasts. These assemblages were unprofitable, produced dissatisfaction, and were discontinued after 1831. The first was held June 23, 1827. It was attended by 2843 persons; gave rise to a lawsuit between the Council and the purveyor; and produced a profit of 504*l.*, of which however 213*l.* were afterwards consumed in legal proceedings. The second occurred on June 21, 1828; it was attended by 4193 persons, produced a gross sum of 4760*l.*, and a loss estimated at 139*l.* The third took place on June 27, 1829; tickets were sold to the amount of 5185*l.*; the expenses were 5162*l.*, and the balance in favour of the Society 22*l.* 16*s.* 6*d.* The fourth and last was on the 23d June, 1831; on which occasion the balance in favour of the Society was ascertained to be 115*l.* 12*s.*

These experiments, having proved unsuccessful were finally abandoned, and replaced by the Garden Exhibitions, which have formed so great a feature in the recent history of the Society.

By the year 1826 the heavy charges incurred in the formation of the Garden had begun to affect seriously the pecuniary resources of the Corporation, and the floating debt had acquired very formidable dimensions. In addition to this source of embarrassment, differences arose between the Society and the then Secretary, which led to the appointment in February, 1830, of a Committee of Inquiry, which was authorised to investigate the management of the Society. This Committee reported that the debts of the Society amounted to 19,750*l.*, of which 14,200*l.* were on bond (they eventually proved to amount to about 500*l.* more, or 20,243*l.*), and they did not estimate the property of the Society higher than 16,500*l.*, exclusive of the annual subscriptions about to fall due. They found that the cost of the formation and annual expense of the Garden for the eight years from 1822 to 1830 had exceeded the amount of all separate subscriptions and sources of garden revenue, of whatever kind, by the large sum of nearly 29,000*l.* They however added that many objects of the Society had been substantially fulfilled; that the foreign missions for collecting plants had been eminently beneficial, &c., &c. The Committee declared that these results could not have been attained without continued exertion and superintendence, and that whatever errors had been committed, had arisen from mistaken judgment, rather than from want of zeal in promoting the objects of the Society.

Nor, add the Council, could the Committee have said less when it appeared in evidence that a large part of the debt had been incurred upon the faith of a promise made by Government in May, 1825, but not fulfilled, that 5000*l.* should be given to the Corporation in aid of their funds; that 16,464*l.* had been sunk in permanent works in the Garden; that 5737*l.* had been expended upon procuring plants, &c., from abroad for distribution among the Fellows; that more than 880*l.* worth of medals had been given as encouragement to horticultural skill, and that the costly "Transactions" had been distributed gratuitously to the Fellows, during a period of 20 years, without the funds of the Corporation having furnished more than about 4000*l.* for the purpose.

Between 1823 and 1830, the Council observe, the progress of the Society in works of permanent utility had been continual and rapid. The confusion that formerly existed among fruits and esculents had been reduced to order. That system of heating glass structures by hot water, instead of by flues or expensive applications of steam, to which modern gardeners owe so much of their success, although it did not originate in the Garden, was first systematically applied there in the face of great opposition from those who objected to the introduction of a method to which they were unaccustomed; and the rapidity with which it gained public favour must certainly be ascribed in a great degree to the proofs which the Garden furnished of its perfect suitability to cultivation. The importance of regulating the moisture of the atmosphere of glass-houses—never attended to systematically by the older gardeners, but which has become one of the corner-stones of successful horticulture—was first demonstrated in the Garden, after having been pointed out by Daniell in the Society's "Transactions." With instruments of the best construction, procured and placed under the advice of the late Professor Daniell and the present Colonel Sabine, a series of daily observations of the barometer, thermometer, hygrometer, rain gauge, &c., was commenced on the first of May, 1825, and has been continued to the present time; and the Council believe that there does not exist in this country so long, exact, unbroken, and trustworthy a record of the climate of London as the "Meteorological Journal" of the Society has now become. Nor must it be forgotten that in 1830 the country was in full possession of those numerous and now universally cultivated hardy plants, which resulted from the expedition of Douglas to the then almost unexplored regions governed by the Hudson's Bay Company. The Brodiæas, Collomias, Eutocas, Gilias, Gaillardias, Coreopsides, Clarkias, Godetias, Collinsias, Lupines, Escholtzias, the musky Mimulus, numerous Pentstemons, and many another universal favourite in the flower garden owe their origin to the Horticultural Society of that period, as also do the Holly-leaved Berberry, Spiræa ariæfolia, Vaccinium ovatum, Garrya elliptica, Rubus spectabilis, Gaultheria Shallon, the Ribes sanguineum, aureum, and speciosum, the Douglas Fir, and many more of our noblest and hardiest Coniferous trees. To this may be added the names of the Fuchsias, Salpiglotts, Schizanths, Œnotheras, Petunias, Calceolarias, Verbenas, brought from Chili and elsewhere, which laid the foundation of races unrivalled for the brilliant effects produced by their descendants in modern flower gardens.

The Council next allude to the measures taken after the report of the Committee of Inquiry had been received, and give the history of their Garden Exhibitions, which have rendered the modern history of the Society memorable. The experiment was made in 1833 and proved successful; the exhibitions were popular; the number of elections began to increase; a profit of 340*l.* was carried to the credit of the Society, and a reduction of the dead weight to the amount of 951*l.* was immediately effected. Since that time the Garden Exhibitions have yielded about 43,000*l.* of clear profit.

The Council remark that with such means at command the incumbrances of the Society could have been readily liquidated, had there been no other purpose to gain than that of paying off liabilities. But it was obvious that however desirable extrication from debt might be, the managers of the Society were appointed for other purposes. A part of the debt dated as far back as 1824; the whole of it was incurred before 1830; and it seemed unjust to the Fellows elected since that time to apply the funds supplied by them to no other purpose than the discharge of debts, to contracting which they had been no parties. Nor could the various Councils avoid feeling that to discontinue the improvement and encouragement of horticulture would be virtually to abandon the purposes for which the Society was incorporated. They therefore endeavour to combine the liquidation of liabilities with a vigorous prosecution of the objects declared in their charter. Since 1830 nearly 11,000*l.* has been expended in works of permanent utility; and more than 7000*l.* in the introduction of rare plants and seeds; notwithstanding which the debts have been gradually reduced to 8800*l.* In the course of this time the high character of the Society has also been sustained, among other measures by a most liberal distribution of medals and pecuniary rewards for meritorious productions, under which head alone 19,224*l.* has been expended since 1830; by an enormous distribution of seeds, plants &c., amounting to almost a million and a half; and by an impulse given to horticulture to which there is no parallel.

After alluding to some other points the Council refer to the enormous debt *bequeathed* to the Society in 1830. Up to 1852 a pretty steady reduction of this incumbrance continued to take place; but in 1853 and 1854 it was slightly increased, and again in 1855 to the amount of 1250*l.* This has chiefly arisen from the thin attendance at the Garden Meeting in May, when there was an important launch at Woolwich in presence of her Majesty, and from that in June having fallen into unfortunate proximity with the day on which the Queen opened the Crystal Palace.

The Council report that in consequence of this unforeseen event, immediate means were taken to curtail expenditure; his Grace the Duke of Devonshire reduced the Garden rent from 300*l.* to 200*l.* a year, and a valuation of the property of the Corporation was ordered to be made. The result shows a balance of property *over* liabilities, *in favour* of the Society, of more than 15,000*l.*

The Council observe in conclusion that the career of the Society has been, upon the whole, one of much prosperity, and they cannot but look back with pleasure to the important public services which that prosperity has enabled the Corporation to perform. They therefore invite the Fellows each to exercise his influence in recruiting the ranks of the Corporation. "When it is considered that the admission fee is now only two guineas, that the annual subscriptions are retrospective *and not payable in advance*, that ladies are admissible as Fellows, that the publications of the Society are distributed gratuitously, that Fellows have free personal admission to the Garden, and to the Meetings, that at present there is no limit to their power of issuing orders for free admission to the latter, that for Garden Meetings each Fellow has the power of obtaining a considerable number of privileged tickets at a lower rate than the general public, that the distribution of seeds and plants will certainly increase in proportion to the means at our disposal, and is already far more extensive than is generally supposed, and finally, that no personal liability whatever is incurred, the advantages which the Society offers to those who join its ranks are so great that there seems to be every inducement to enter an association from whose continued efforts for half a century the present flourishing state of garden cultivation is unquestionably derived."

We quote the last paragraph literally, and sincerely hope it may be responded to in a manner worthy of the members of so important an institution.

We have received from the author a new pamphlet* on the Potato Disease, in which an attempt is made to show that that calamity arose from the presence of nitrogenous or ammoniacal matter in

* "Facts and Observations relative to the Potato Disease, its probable Cause and Cure." By John Malam, Esq. Longman. A 12mo. pamphlet of 28 pages.

the soil: and that the remedy is to withhold all substances capable of yielding ammonia. At least such appears to us to be the substance of the little treatise before us.

So far as producing evidence obtained by himself as to the advantages of refraining from the employment of rank manure in cultivating the Potato, we are glad to see Mr. Malam's remarks; but we are surprised to find them published in the year 1855 as something new, for the same result was obtained by ourselves several years since, after an examination of the numerous returns from all parts of the United Kingdom, procured with great labour and trouble in the year 1849, and then published in our columns. There has never, indeed, been the least difference of opinion in the minds of well-informed persons that all manures containing ammonia are prejudicial to the crop. This has been stated over and over again in our columns, and no reasonable doubt exists of its perfect truth.

But although ammoniacal matter most unquestionably increases the tendency of the Potato to disease, we are by no means called upon to believe that it caused the disease. It is, indeed, not a little singular that Mr. Malam should not have felt that, to establish his case, it is necessary to show that ammonia in excess was presented to the Potato crop for the first time in the year 1845. Was that so? Surely not. If heavy rains fell then, so had they hundreds of times before without destroying this plant; and it will surely not be pretended that thunderstorms broke over Potato fields for the first time in 1845. It may be very true, and we believe it was so, that the Potato crop in some cases ran into a state of putrefaction immediately after thunderstorms, or when the air was highly charged with electricity; but these were customary events, and they produced no disaster till 1845. There can therefore, be no doubt that something had occurred to the Potato in 1845 which had never occurred before, and which made it prone to become diseased from the operation of causes previously inoperative. This is the answer that we give to all speculators upon this singular visitation, from Prof. Liebig at the top of the scale to Mr. Alfred Smee at the bottom.

On other points we also find matter worth a notice, every word of which has, however, been years ago anticipated in our columns. The most striking is what relates to tar as a preventive of disease. On the 6th of March, 1847, we gave the history of a fisherman who had accidentally smeared his Potatoes with tar, and of the produce which had proved sound. This now appears in the following form of illustration of the value of non-nitrogenised matter as manure for Potatoes. Gas-tar is a hydrocarbon which, according to our author, has no nitrogen in its composition, and which, he thinks, is a singularly good manure for Potatoes.

"To test the disinfecting properties of coal tar, I had three cesspools emptied, the sewerage of them being diluted with 1 gallon of tar (price 3*d.*) to about 100 or 120 gallons of the water. One of the cesspools contained about 1000 gallons of sewerage from the water-closet, and the effect was to render it so completely inodorous, that neither I, nor those employed, could perceive any smell of the water when close to it. The naphtha in the tar, in combining and forming a new compound with the sulphuretted and phosphuretted hydrogen gases, &c., leaves a black sediment at the bottom of the cesspools like coal-dust. Mr. Reed, of Montrose, in his letter in 'The Journal of Gas Lighting' states, 'Although I am unable directly to corroborate its efficacy in preventing the Potato disease, I can with certainty affirm its value generally as a manure. The farmer who made use of the ammoniacal water we sent him frequently obtained quantities of our coal tar, which he valued very highly, but his mode differed from that mentioned by Mr. Malam. While storing up the manure from his stable and cattle sheds in the dung-court, his method was to deposit a layer of about 1 foot deep, and, when levelled, he sprinkled over it a good coating of tar. This was covered over by another layer, and tar similarly applied, and in this manner he made up the heap. The decomposition of the mass did not appear to be retarded in any way, but a singular change in the nature of the tar itself takes place. Its oily character shortly disappears by its absorption in the manure, and a carbonaceous powder remains in its place. Manure thus prepared has invariably been found to produce much richer cereal, and greener crops than ordinary, and abundantly repays the cost.' Mr. Reed here fully points out the value of gas tar as a manure. Considering the value of sewerage water and tar, I have had the mixture applied to all my Peach, Apple, Gooseberry, and Currant trees, and to a small plot of Grass land. I have suggested that different Boards of Health should adopt the plan I point out, for the conversion of the sewerage of towns into a profitable manure, by its dilution with coal tar. The process, so far from being prejudicial to public health, would be beneficial to it. The disinfectant properties of the tar not only neutralise the noxious gases emanating from the sewerage, but give out those volatile properties advantageous to health in a vitiated atmosphere."

Whatever opinion may be formed of the relation of these statements to the Potato, it is at least certain that they possess public interest for reasons of another kind.

New Plants.

123. Escholtzia tenuifolia. *Bentham in Trans. Hort. Soc., Ser.* 2, I. 408. *B.M. t.* 4812.

This is one of the very pretty annuals imported by Messrs. Veitch & Co. Like Esch. californica it is perfectly hardy. Whatever botanical difficulties may stand in the way of a rigorous definition of the plant, no reasonable doubt can, we think, be entertained that it is a perfectly distinct species, without the strong straggling habit

of the common kind, for which is substituted a compact tufted manner of growth. Its leaves too are much finer and somewhat downy, its flowers much smaller and prettier, paler on the under than upper side of the petals, and the calyx-cup destitute of any conspicuous shining horizontal rim.

It is one of the neatest annuals among the novelties of the season.

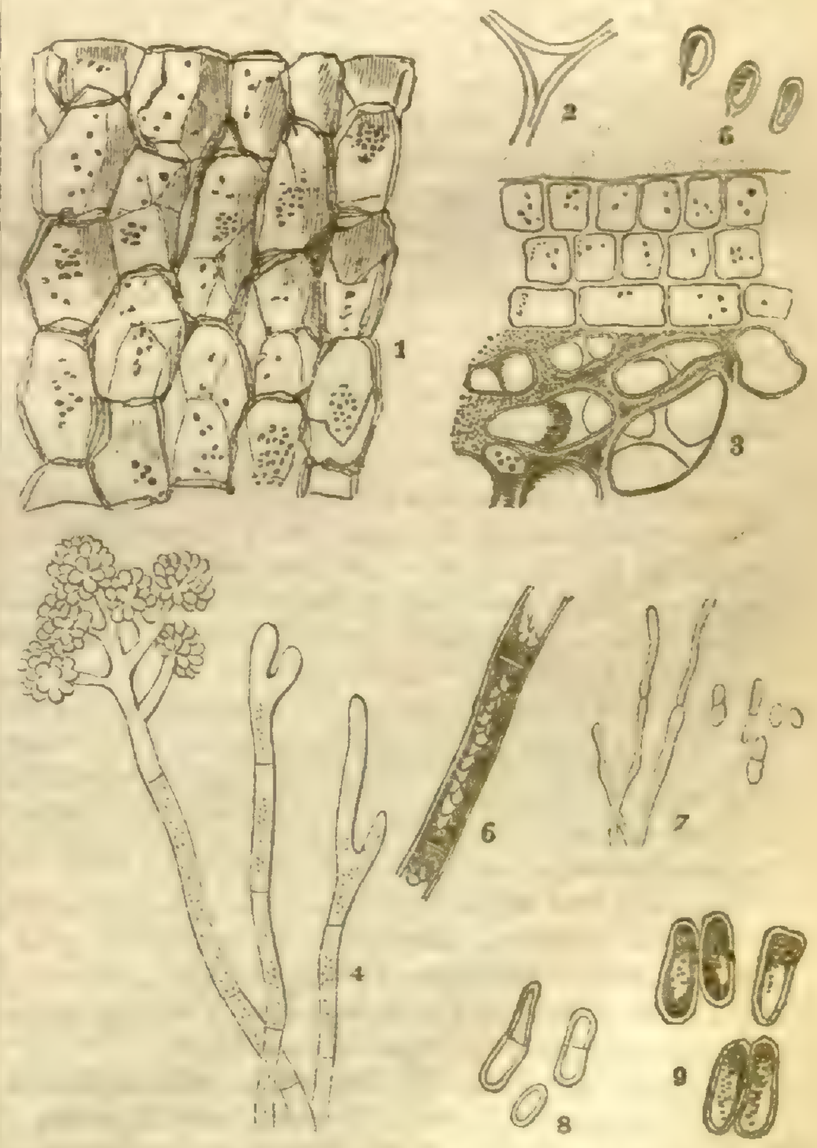
VEGETABLE PATHOLOGY.—No. LXX.

306. 3. Chlorosis of Cucumbers. *Cucumber Disease.*—The first notice that I can find of this disease is in 1844, when complaints were made that Cucumbers were apt to exude a gummy substance from their surface, a circumstance supposed then to be attributable either to excess of moisture or want of bottom-heat, while the superficial temperature was high. In 1846 these complaints were faintly repeated, but in the following year the evil became so widely diffused as to excite a good deal of attention amongst cultivators. Specimens were at that time submitted to me for inspection with an intimation that there could neither be excessive moisture nor defect of bottom-heat from the construction of the frames; and it is now well known that the very best cultivators are scarcely less subject to the evil than those *practical* men with whom everything depends either on chance or inveterate routine. The whole history of the disease shows that it is strictly constitutional, and though the subsequent indications if examined by themselves might lead to a different conclusion, an attentive consideration of its early stages and development point out that it is essentially a case of chlorosis.

307. The Cucumber disease, like most other constitutional maladies, makes its appearance at very different stages of growth. Sometimes the plants are what gardeners call "miffy" from the very first, inclined, that is, to damp off; sometimes they progress rapidly till the blossoms appear, when both the leaves and shoots are affected; but more frequently the malady appears when the young Gherkins are just formed, and attains its height by the time the fruit is fully developed. In all cases, we believe the first symptom of the disease is an unnatural paleness confined to certain spots, in consequence of the chlorophyll being only imperfectly developed or altogether wanting. Meanwhile the neighbouring cells may be in exuberant health, and may in some cases increase so rapidly as to cause distortion, a circumstance which is far from uncommon in the fruit, where the lower part often increases while the tip makes no progress, or even withers up entirely. According to circumstances these chlorotic spots exhibit different phenomena. The cells of which they are composed are equally unfit to resist heat or moisture; in the former case they dry up on exposure, and the foliage exhibits a disagreeable withered aspect, even though the plant itself should not entirely fail. Sometimes, however, especially in the more juicy parts, as in the shoots and fruit, the gummy fluid not being disposed of in the formation of chlorophyll bursts through the walls incapable of exerting much resistance, and as air and moisture are thus admitted to the tissues and the spores of moulds enter with them, decomposition of greater or less rapidity, according to varying circumstances, takes place. These secondary phenomena are, in fact, no part of the disease itself, but only a consequence of it. Further facilities for decomposition are afforded by the condition of the tissues. A vertical section through the diseased fruit in an advanced stage of the malady shows that the intercellular passages are extremely dilated, and in aggravated cases the component cells eventually disunited, circumstances which are highly favourable to decomposition, though even in these cases I have seen an attempt at the formation of new independent cells, containing chlorophyll in the intercellular cavities. In some instances, after the disease has advanced to a certain stage, a curative process commences, arising probably from some favourable condition of external circumstances, by which the diseased matter is isolated, and the fruit, though full of unsightly pits, goes on to maturity without decomposition. In the earlier stages something may certainly be done by attention, maintenance of that degree of light, warmth, and dryness which the particular case may require, and in the Melon disease which has lately been so troublesome, and which seems perfectly identical, I have myself seen cases where a crop has been secured simply by careful vigilance, with nothing beyond a common garden frame and stable manure, while in a neighbour's garden, with every available horticultural means, there has been a total failure.

308. Where the disease advances to that condition in which actual decomposition takes place, there is almost always a development of fungi, such as Cladosporium herbarum and Botrytis capitata, but though they may possibly take their share in producing more rapid decay, they have no primary part in the matter.

309. As the disease is strictly constitutional, the only way to combat it effectually is by securing if possible healthy seed. I have very lately suggested in this journal a method which might easily be pursued, viz. to take the oldest seed which can be procured, and to select from such plants as germinate the very healthiest, rejecting all which show the slightest indication of disease. Meanwhile the fruit intended for seed should be impregnated with pollen from the healthiest plant that can be found. A little attention in this respect would soon produce seed upon which dependance could be placed, and if, as I believe to be the case, the malady is universal,* no other method can give security. The offspring of two animals of a strumous constitution is sure to be weakly, and twice as sickly as its parents, and the same principles hold good amongst vegetables.



Our figure, reproduced from our article 1847, p. 356, represents at 1, 2, 3, the condition of the tissues in a diseased fruit. In Number 3, the cells of the cuticular strata are undisturbed, while those beneath are entirely separated, stained with ulmates and humates, while in one intercellular space a new cell is formed containing chlorophyll. Figures 4, 5, 6, represent Botrytis capitata,

* Plants raised from foreign seed are quite as subject to disease as those from the best English gardens. A white and a green variety from Brussels with extremely small fruit, viz., Concombre de Bonneuil and Concombre vert à petits cornichons, were so diseased last year that I could scarcely secure a single well-formed fruit of each to ascertain its characters.

Fries; 7, 8, Cladosporium herbarum. Fig. 9 represents dead cells attached to the cuticle of the leaves of Portugal Laurel, to which I shall have some future occasion to allude. *M. J. B.*

SARRACENIA DRUMMONDI.

Visitors to Chatsworth, in the summer and autumn of 1849, were scarcely more surprised at the glorious aspect of the Victoria Lily, than at the exquisite beauty of this plant, many large specimens of which decorated a neighbouring stove among rare Orchids of the richest hues and the most interesting forms.

It was, we believe, originally introduced by the late Mr. Drummond, who met with it in Florida, near the town of Appalachicola. It has since been found abundantly, by Dr. Chapman, on the western borders of the river of the same name, below Ocheesee. It, therefore, inhabits the swamps of a region which, during summer, experiences a tropical heat, as in some measure indicated by the presence of Orchidaceous Epiphytes, such as Epidendrum Magnoliæ and tampense.

The pitchers of this plant are from 18 inches to 2½ feet long, perfectly erect and straight, with very much the form of a postman's horn. Their colour is of the most vivid green, except at the upper expanded end, where they are brilliantly variegated with white, red, and green. The rim of the orifice of the pitchers is slightly folded back, from the front towards the back, where it expands into a broad roundish arched cover, much undulated and crisped. In the inside this cover is clothed with long hairs, which partially disappear towards the entrance of the pitcher, at which point there is a considerable exudation of sweet viscid matter, apparently secreted by the hairs which exist there. The flower is of a dingy purple colour, roundish, about 2½ inches in diameter, with five blunt acuminate sepals, five obovate inflexed petals, and a pale green diluted five-angled membranous stigma, which is nearly as long as the flower itself; each angle is divided into two short lobes, beneath which, in a fold, lies the real stigmatic surface. These flowers have little beauty, and are by no means the object of the gardener's care.

The so-called pitchers are in reality the leaves of this plant, in a very singular condition; the pitcher itself being the leafstalk, and the cover its blade. By what mode of development this kind of structure is produced has never yet been conclusively shown. It has been thought that the pitcher is formed by the folding together, in its earliest infancy, of the two sides of a flat leafstalk, the line of which union is indicated by a firm elevated rib, which proceeds from the base to the opening of the pitcher, as if to stiffen and sustain it; but this is not certain, and it is more probable that the pitcher is the result of a hollowing process, coeval with the first growth of the pitcher itself, and analogous to that which produces the hip of the Rose, or the cup at the bottom of the calyx of Eschscholtzia, or the cups that appear accidentally upon Cabbage leaves.

If the exact nature of the pitcher is thus undecided, we are still further from a knowledge for the use for which so singular an apparatus is destined. To the common idea, that nature intended it to hold water, arise these objections: that water is not found in the pitcher except after rains or heavy dews, and that plants which grow naturally in bogs can hardly require any unusual apparatus for supplying them with water. Others think that the pitcher is a contrivance for detaining insects in captivity till they perish and decay, the putrefaction of these creatures conducing to the nutrition of the plant. But there is no apparent reason why the Side-saddle flower should require this sort of special nutriment more than its neighbours in the same bogs, which have no pitchers. This, however, is certain, that if the pitchers were intended for fly-traps, they could hardly have been more ingeniously contrived. It is the honey of the mouth of the pitcher that tempts the insects to their destruction; and, accordingly, they are found in abundance at the bottom. In the plant now before us we count, in the month of February, about a dozen, two of which are wasps; and Mr. Croom says that he found in one of his a large butterfly (*Papilio Turnus*). Reversed hairs keep them there without hope of escape. As the sides of the pitchers consist of very lax cellular tissue, containing large cavities in every direction, and as starch grains in abundance escape from the sides when wounded, it is a question whether this starch, converted into sugar by the vital force of the pitcher, may not serve to sweeten the water in which the imprisoned insects meet a miserable end?

The manner in which the North American Side-saddle flowers are grown at Chatsworth is explained in the following memorandum, which is applicable to the more common species as well as to that which is the immediate object of the present article:—

"The stove is decidedly the most suitable place for these species making and maturing their growth, at which time they require much warmth and moisture. A temperature of from 80° to 100°, with plenty of water at the roots, and syringing three times a day, from March till September, we have found to suit them the best. During their season of rest, a greenhouse would probably answer the ends of cultivation better than the stove; at all events, the plants should be kept in a dry cool atmosphere, from 40° to 60°, not higher. The best time for potting is January, and the best material for that purpose is silver sand and sphagnum, well mixed with a portion of peat and potsherds, broken quite small. It is important to have plenty of drainage, and no fear need be entertained of excess in this particular. It has been customary at Chatsworth to place the pots in saucers which have been kept full of water during the whole of the summer season. We do not, however, attach any importance to this practice. The plants will thrive equally well without saucers. Pitchers are usually formed in October, and continue perfect for three months. The number of pitchers on an individual plant of S. Drummondi varies from 14 to 23. We have measured individual pitchers of this species, and find the maximum length 2 feet 3 inches, and the maximum girth at the *top*, 6 inches. Flowers usually open in March and April. By removing the flower-buds as they appear, the succeeding pitchers become much finer."—*Paxton's Flower Garden.*

CLIMATE OF FOREIGN COUNTRIES.

No. VIII.

Nice, 23*d April*, 1855.—The weather has been splendid here of late, the sky being nearly cloudless since the 4th inst. The temperature has considerably increased, as will be seen from the statement annexed. Various flowers have in consequence come rapidly into blossom, and most of the trees are in full leaf—Whitethorn came into flower on the 9th; Lilacs have been very fine, but are now going off; Banksian Roses (yellow and white) on pillars and on walls are now in perfection, together with the Chinese and several other kinds, which are extensively grown for the purpose of distillation for perfumery; Verbenas are also in flower in the borders, having lived through the winter; the Quince is common in the hedges, and looks quite showy; Strawberries are generally out, and on the 19th inst. I saw several ripe on an open southern bank; the large yellow Antirrhinum, pink Cistus, red Valerian, yellow Coronilla, and Cytisus, growing wild in profusion on the sides of the hills, look very gay; the white Spiræa is in fine bloom in the gardens; also the Judas Trees, one of which, a standard 40 feet diameter, is a splendid object.

The tall Italian Reed (Arundo donax), which often exceeds 20 feet in height, grows very extensively, and, besides forming a pretty addition to the general appearance of the country, is most useful in the various purposes for which it is applied, either in supporting the Vines, for arbour trellises, Pea sticks, Olive threshing, fencing, &c.

Large quantities of Tomatoes are cultivated here, and are now being planted out, as they were raised last month on borders under the walls, with slight reed coverings occasionally.

Daily Temperature.

1855.		7 A.M.	12.	10½ P.M.
March	30	45	49	46
„	31	44	50	46
April	1	47	55	48
„	2	47	60	48
„	3	48	58	50
„	4	50	58	45
„	5	45	59	47
	Mean	46.5	55.5	47.1
„	6	51	64	50
„	7	55	66	51
„	8	54	64	52
„	9	51	65	46
„	10	52	63	50
„	11	56	62	53
„	12	53	64	50
	Mean	53.1	64	51.5
„	13	50	63	51
„	14	55	64	51
„	15	55	66	54
„	16	59	69	59
„	17	64	72	56
„	18	67	73	59
„	19	62	69	60
	Mean	58.8	68	55.7

The minimum of the night temperature during the last fortnight has been 46° to 56°—average minimum 51°. Ground temperature, 1 foot below surface, 57°.
—*E. C.*

COMMON THINGS.

Fruit Tree Protectors.—Pea sticks form a capital protection for fruit trees grown as pyramids, espaliers, or on low walls; they should be stuck in the ground and lean on the trees, so that the spray-like branches are mingled with the blossom-buds—a very small quantity of refuse hay placed among the branches will make the protection still more efficient. It is indeed so like that given by the foliage as not to require removal till the end of May. In the country, where Pea sticks are abundant and can be cut of extra length, they will be found, with a little hay, even for full-grown trees on high walls the cheapest of all protectors.

Broccoli.—The following kinds are especially worthy of cultivation, as they produce heads at a time when, under ordinary circumstances, a succession is usually most required. The Walcheren may be mentioned as one of the most useful in this respect. In order to have a good succession from August to January sow now, although a little earlier would have been better, and afterwards make a small sowing every three weeks, until about the middle of July; in this way a good succession of heads will be furnished until the end of December, and by taking up the plants should the weather be very frosty, and laying them in by the roots in an open shed, and protecting or exposing them as may appear necessary, bearing in mind that they are but little hardier than Cauliflowers, good heads of the last sowing may be kept till the middle of January. This variety is also very useful when sown early in September, and planted under hand-lights, or treated in all respects similar to Cauliflowers. Snow's Superb White Broccoli is also well deserving of general cultivation; from sowings made in May and beginning of June very good compact white heads are produced from the end of November to January, quite superseding Grange's White, which comes in at the same time. Legge's Late White is also an invaluable Broccoli, producing heads at a time when they are most wanted, although the produce is not so fine as that from either of the former. The value of this variety is, however, enhanced by its extreme hardiness, a property which now applies to few other sorts.

Home Correspondence.

Gooseberry Caterpillar.—Your correspondent who has so well described this insect in page 281, will confer a service on his brother gardeners if he will tell them how he managed to catch several hundreds of them in an hour or two in the morning for a few days. Here in Middlesex it was only on the 16th April (the only genial spring day we have yet had) that I observed these flies in any number (a few stragglers having however been previously observed), but their mode of flight prevented me from catching them in any quantity. The following day the wind turned northwards, and though fine, the number of flies was much fewer: since that time, however, they have disappeared with the continued east and north winds; but as they have only hidden themselves, and will again appear as soon as the warm spring weather does come, gardeners ought to be on the look out, and there seems to be all probability of Mr. Grey's reply hereto being in time to be of service. I may mention further that I succeeded in discovering the males of this pest, a circumstance of some little interest, as "Ruricola" in his article on the insect in a former volume of the *Chronicle*, "Rusticus," of Godalming, (who wrote some amusing articles on blight in the "Entomological Magazine"), and Mr. Stephens, in his "Illustrations of British Entomology," have only described the female. The male, instead of having the body of a delicate yellow colour, as is that of the female, has it of a black hue, the tip and sides only pale yellowish; it is also smaller and slenderer than the female. *J. O. Westwood.*

The Osage Orange.—Is it an established fact that this plant is to supersede the Whitethorn as a hedge plant? When I went to South Wales 12 months back, I found there some plants which had been imported from Philadelphia and planted several years; but they had only annually produced a few abortive branches and leaves, and had not made half an inch of wood in 12 months. It is true they were not planted under the most favourable circumstances, nor had they much attention afterwards; but Whitethorn, side by side with them, grew as well as it generally grows, making from 1 to 3 feet of good strong growth every season. In June, last year, I had the ground dug round the Osage Orange, gave it a good coat of dung, and soaked the plants occasionally with manure water. This moved the plants a little, but still I only got a straggling branch here and there, 2 or 3 inches long. I have read the pamphlet on this plant published by an American seedsman 12 or 18 months back, and have seen the representations of hedges, which are certainly first-rate in every respect, but I am sorry my own experience does not accord with that published in America. I fear our summers and autumn are not warm enough to ripen this free-growing plant, that is, if it ever grows freely in this country, and hence it will suffer much from the winter's frost; but I may be mistaken. The examples above specified, however, warrant me in doubting this to be a first-rate plant for our climate, for if it will not grow in a dripping climate like South Wales, or if it will not bear comparison with the Whitethorn there, I fear it will not be of much value through the country generally. *W. P. Ayres, Whittlebury Lodge.* [Is not the "dripping country" the explanation of its unwillingness to thrive?]

Effect of Last Winter on Conifers in Cambridgeshire.—Our situation is high for a particularly lowland country, and the place rather exposed. The subsoil of the district is chalk, but we have a very great depth of loam. P. Hartwegi, planted in 1848, has escaped this and other years' severity. It looks a little yellow during east winds, but has never sustained injury. The following have stood quite untouched this year, viz.: P. Pinea and varieties; P. apulcensis, P. macrocarpa, P. Lindleyana, P. Fremontiana, P. insignis, P. radiata, P. macrophylla, P. monticola, P. maritima, and its varieties; Lemoniana, Mar di Corte, &c.; P. Laricio and its varieties; P. excelsa, P. Lambertiana, P. Montezumæ, P. Russelliana, P. Devoniana, P. Benthamiana, P. rigida, P. inops, P, pungens, P. Sabiniana, P. Ayacahuite, P. brutia, P. Cembra, and variety; P. Mugho, P. Tæda, P. pumilio, P. ponderosa, P. Banksiana, P. Llaveana, P. taurica, P. Gerardiana, P. Nordmanniana, P. tuberculata, Picea Fraseri, P. grandis, P. amabilis, P. Pichta, P. Pinsapo, P. nobilis, Abies Wittmanniana, A. orientalis, A. Douglasi. The three spring tender ones, A. morinda, P. Webbiana, and P. cephalonica, have escaped the winter, and I hope they may escape late spring frosts. P. Teocote, which stood the previous winter, has been killed; P. patula is very much browned; P. Pseudo-Strobus has last year's shoot destroyed, Abies Brunoniana suffered from last year's late frost, and has not at present recovered. The Cypresses have not escaped so well; C. Uhdeana is killed, C. mexicana is injured, but I hope not materially. Some of the C.

Goveniana are injured, and C. funebris; also C. lusitanica more considerably, and C. elegans, but I refer to small plants; Libocedrus chilensis is hardly touched; C. majestica and C. Knighti, both in a rather sheltered position, have stood very well. Juniperus bermudiana is killed to the ground. The following look very well:—Cupressus thurifera, C. glauca, C. Wittmanniana, Juniperus phœnicea, excelsa, J. oblonga pendula, echiniformis, J. ericoides, J. recurva, J. recurva densa, J. chinensis, Thuja pendula, T. aurea, T. flagelliformis, Cryptomeria japonica, varieties Lobbi and nana, Podocarpus coriacea, Cephalotaxus pedunculata and Fortuni, Chamæcyparissias sphæroidea and variegata, Taxus ericoides and Araucaria imbricata. Fitz-Roya patagonica, a young plant put in late in the autumn, has suffered, excepting where protected by snow. At present I have had no success with the P. Grenvilleæ, P. halepensis, P. muricata (which I believe is sufficiently hardy), P. australis, and P. filifolia. The Deodars, excepting those much exposed to the wind, look very well. I venture to add that I must attribute a good deal of damage done in the previous year to having pot-bound plants. Plants have grown and thriven here for some few years, and have afterwards been killed by winter's frost or blown down by a high wind. Upon taking them up I almost invariably find a cause for this in the root. In one case a P. insignis, which had grown from 1½ to 12 feet (and which accomplished 3½ feet in one year), was blown on one side by a high wind in the spring, and the following winter killed. Upon taking it up I found plain symptoms of disease at the roots, all curled up and entangled. It had never taken the least hold of the ground. *Wm. Parker Hamond, Pampisford Hall, near Cambridge.*

Scarlet Geraniums.—Can any of your subscribers account for the following:—Trained to the wall of my greenhouse is a giant scarlet Geranium of three years' growth; about 14 months ago the plant was thinned, and one branch was cut off about 3 feet 6 inches from the ground, and omitted to be taken out. It is now growing vigorously and showing blossom. The branch is about 5 feet 6 inches long. *R. D. Nemill, Wellington, Salop.* [Perhaps the branch has rooted in a mortar-joint.]

Mowing Machines.—Your querist "E. B., Perdiswell," cannot have a better mowing machine than Samuelson's improved Budding's. He says he "has seen this, but it will not suit, in consequence of the travelling wheels not going sufficiently near the edge of the walks." If he looks again he will find that for this purpose these wheels are made so as to be easily removed, after which the machine remains (with the exception of some slight modifications) one of Budding's old machines, and is the best for narrow borders. The great advantage derived from the use of the wheels is in the open lawn; they reduce the power required to work the machine, and, by a simple arrangement of the axle, fix the cutting or revolving knives to any required height, where they are kept, without any care from the operator. Without these wheels the height cut depends on the skill and care of the workman, who cannot help making irregular work, long Grass here and short there, according to the irregularities of the surface. *J. S., Banbury.*

Percepierre (see p. 281).—Allow me to inform your correspondent that Crithmum maritimum is called Percepierre in Guernsey, where it abounds on the rocks surrounding that delightful island. It is often collected for pickling, for which purpose I was told it is excellent. *E. Y.* [And so it is.]

The Argan Tree.—We have at present six healthy plants of Argania sideroxylon in our large tropical house. *I. Vair, Gardener to Lady Dorothy Nevill, Dangstein, Petersfield.*

Frosting Asparagus.—Having noticed early in the winter that a correspondent (see No. 50, 1845) considered it an advantage to expose his Asparagus to the effects of frost, my gardener concluded to try the effect here, and took the covering off two short single rows, set according to the plan recommended in Cuthill's pamphlet. After the unusually hard frost this winter, I may acknowledge that I feared they were much injured; but on examining them on the 13th ult, there were eight heads up, whilst in the two adjoining rows that had been covered, scarcely any were to be seen. Whether it is an advantage or not, I leave to wiser heads to determine, as I purpose sending the whole produce of each of the two beds that were frosted and covered to the meeting of the Horticultural Society, in Regent Street, next Tuesday. At any rate, it will have the effect in future of removing any anxiety I might have in frosty weather, lest the plants were not sufficiently covered. *J. Abell, Limerick.*

Natural Mushrooms in April.—In addition to the account furnished by Mr. Ingram of his early Mushrooms in the open air, I beg to inform you that last year, wishing to grow some ridge Cucumbers under hand-lights upon a slight bottom-heat, I made a bed for that purpose, into which I put some Mushroom spawn, which produced me a moderate crop, principally buttons, and none of more than medium size. Early this spring I distributed half the bed for manure over part of the garden, and left about half the old bed without disturbance. I was surprised to see a crop of Mushrooms springing up in this; and on the 21st of April I gathered a very respectable basketful. Since that time they have continued to appear, and of extraordinary size. This morning I gathered at least half a peck, one measured nearly 9 inches, and several 6 and 7 inches across. That you may see I am not exceeding the truth, I send you an exact copy of the section of one of the stems. *J. B. R. L., Lynn, Norfolk.* [The section in question measured 2¼ inches across.]

Societies.

HORTICULTURAL, *May* 1: ANNIVERSARY.—R. Hutton, Esq., V.P., in the chair. The following new members of Council were elected, viz., his Grace the Duke of Northumberland, Sir S. M. Peto, Bart., and Sir Joseph Paxton, M.P.; *vice* General Fox, G. Rushout, Esq., M.P.; and J. C. Whiteman, Esq., retired. His Grace the Duke of Devonshire was elected president; Dr. Jackson, treasurer; and Dr. Royle, secretary; and as auditors, Messrs. J. C. Stevens and Henry G. Bohn. The annual report from the Council was read, and upon the motion of Sir P. Pole, Bart., seconded by Lord Ravensworth, was adopted and ordered to be circulated among the Fellows,

Reviews.

A Manual of Elementary Geology; or the Ancient Changes of the Earth and its Inhabitants as Illustrated by Geological Monuments. By Sir Charles Lyell, M.A., F.R.S. 8vo, pp. 655. Fifth edition, illustrated with 750 woodcuts. Murray.

This great work stands in the foremost rank of those which are devoted to a consideration of the ancient changes which the earth has undergone. Unlike the author's "Principles," which merely relate to changes of a recent date or now in progress, the volume before us deals with events the nature of which is purely inferential, reveals the causes which led to the formation of the so-called aqueous, volcanic, plutonic, and metamorphic rocks, and thus carries the reader back to the most remote period of the earth's history concerning which we have any positive evidence.

It is superfluous to say that Sir Charles Lyell has renewed his task for the fifth time with consummate ability, and that the reader will find in the work before us all that is most trustworthy in relation to its mighty subject. The account of what geologists call the Wealden formation, that is to say, of the region which comprises within it the whole of Sussex, and part of the counties of Kent, Surrey, and Hants, will be read with peculiar interest, all the facts belonging to that large area having been carefully reconsidered, and embodied in a new description, of which the woodcuts, always good in the volume before us, most especially deserve to be mentioned with high praise. The same may be said of the views now expressed concerning the true geological analogies of the Isle of Wight, in arriving at an opinion concerning which the views of Edward Forbes are expressed in conjunction with those of Sir Charles Lyell.

Works of this nature have too little immediate relation to the main purposes of this Journal to justify us in devoting much space to their consideration. We will therefore only add that, upon the vegetation which existed at the period when coal was formed, we are unprepared to acquiesce in the opinions expressed by the learned author. Adolphe Brongniart calls the carboniferous Flora that of the age of Acrogens, because of the great quantity of Ferns and similar plants now found in the coal measures, and the rarity there of other classes of plants; and this view Sir Charles Lyell thinks may be justified. But we hold to the opinion, formed many years ago, and once supported by experimental investigation, that the remains of coal plants offer no satisfactory evidence concerning the vegetation of England in the remote ages when the beds of coal were formed. All that the remains can be taken to prove is, that at a certain time certain plants existed; but we are not justified in assuming that at the time in question no other plants existed; because under the conditions which enabled Ferns, &c., to resist decomposition, other races as abundant, or infinitely more so, may have utterly disappeared. For ourselves, we regard the whole of the inferences concerning vegetation drawn by geologists from the plants now found in the old rocks, as hasty, and unsupported by anything like sufficient evidence; and we entertain a strong belief that the geological world will one day advocate the same opinion.

Garden Memoranda.

HORTICULTURAL SOCIETY'S GARDEN, TURNHAM GREEN.—No one can doubt that vegetation this spring is at least three weeks or a month behind what it usually is in ordinary years, and therefore there is even thus late in the season little out of doors yet to attract especial notice. The Horse Chesnut is almost the only tree in full leaf. Lime trees have scarcely begun to move. Hawthorns were not in leaf before the 20th ult, and it was the 16th before Standard Almonds were in flower, while in early seasons they are often in blossom in the month of January. The pale variety of Cydonia japonica on the conservative wall is in full flower, and very showy it is, as are also one or two of the earlier hybrid Rhododendrons; but with the exception of these and the red flowering Currant, little else in the open grounds is yet in flower; for although the sun has now become powerful in the middle of the day, easterly winds prevail, and the nights are cold and mostly frosty, while the excessive dryness of the ground which at present exists greatly assists in retarding growth.

Under glass, however, things now begin to wear a different aspect. In the great conservatory both white and red Brugmansias are in full flower, as is also Paulovnia imperialis in the shape of a tree which reaches near the top of the house. The flowers are pale blue, and in form resemble those of a Gloxinia. The tree itself, we need scarcely add, is perfectly hardy; but out of doors its wood never sufficiently ripens to enable it to produce flowers. Camellias are still in blossom, and we also noticed several plants of Salvia gesneræflora covered with multitudes of scarlet flowers of the most brilliant description. This is truly a most useful winter and spring-flowering plant, which requires nearly the same kind of treatment as a scarlet Geranium. Roses are likewise coming into bloom, and trained on the roof was Tropæolum Triomphe de Gand, whose scarlet flowers are extremely showy, and even in a pot this is one of the gayest plants we have, and certainly not so much cultivated as it should be. The shelves were also full of flowering things, such as Heaths, Cytisus, Azaleas, and other plants in pots.

In one of the stoves was the Pilot's cap-like Aristolochia gigas, whose flowers, notwithstanding their disagreeable odour, are prized for the singularity of their shape. The plant is, however, difficult to keep except it is raised from cuttings every year.

In the small greenhouse near the Rose-house a new Clematis, a variety of cærulea, was in flower, and two Sikkim Rhododendrons, glaucum and theæflorum; the former has small pinkish-salmon flowers, each about the size of a lady's thimble, and 24 or so in a cluster at the end of every shoot; the latter has larger buff-coloured blossoms suffused with red, and both are spotted in the upper petals. Even should these not flower out of doors they must be ranked as pretty greenhouse plants at this season of the year. The white R. Gibsoni, *aliàs* formosum, was likewise in blossom, and in addition to the large size of the flowers, they have also the advantage of being exceedingly sweet-scented. Associated with these we remarked the shrubby Calceolaria violacea, a sort with prettily spotted helmet-shaped flowers, quite different from those of the common kinds, and a handsome plant of Imatophyllum miniatum, with a noble head of brilliant salmon-coloured flowers, some 10 or more in number, and these on a plant in an 8-inch pot. The beauty of this fine plant is not near so well known as it deserves to be. In this house were also some well-grown plants of Schizanthus violaceus, and, what is not often met with, an example of Tropæolum azureum. A small plant of Berberis Wallichi was also in blossom here.

Among new things were young plants of Wellingtonia, and we observed several of M. Botteri's seeds coming up; also plants of the Californian Plane tree and Maclura aurantiaca or Osage Orange. Some bulbs from Balaklava were likewise beginning to grow, as were plants of Whitlavia and other new annuals. Some seeds from Mr. Skinner were likewise beginning to vegetate. Eugenia Ugni was coming into flower, and we remarked examples of the White Glycine, which will soon be in flower. We also noticed plenty of young plants of the Palmetto Palm, which is reported to be nearly as hardy as the Chusan Palm, together with offsets of the Gynerium argenteum, or Pampas Grass, which had been separated from the old plant, and struck in a little heat. The old plant, it may be mentioned, though much cut up, is not dead; the outside leaves have been removed, and it is beginning to push again from the centre.

In Ewing's glass wall some of the Acacias and New Holland plants are dead. Tea Roses, however, seem to thrive well in it, and Edwardsia chilensis is now in full bloom. This thrives here perfectly, although it does not succeed on the conservative wall.

In one of the low span-roofed pits erected for Mr. Fortune's Pæonies, were plants of Forsythia viridissima, literally one mass of yellow flowers; these were quite striking, even at a distance; where this plant can have the protection of glass merely to keep its flowers from getting tarnished by the weather, it is certainly one of the most ornamental early flowering shrubs we possess. Camellia reticulata, in a two-light box, has also had some hundreds of blooms on it.

In the orchard-house the young trees in pots are progressing satisfactorily. The red and white flowered Chinese Peaches are in blossom, and very ornamental they are. Apricots, Peaches, and Nectarines are setting their fruit, and the two latter are being disbudded in such a way as to keep their branches near "at home." Figs have a plentiful crop on them, and Cherries and Pears are in flower, as are also Currants. Gooseberries have set their fruit, and appear to be free from both Gooseberry caterpillar and a little red Acarus which has been so destructive to Gooseberry bushes in the open air this year in the neighbourhood of London.

In the Orchard department care is being taken to keep the Peach and Nectarine blooms from frost; in addition to 9-inch coping boards, straw protections, about 4 feet in width, are put under the boards along the top of the wall, off which they are kept by strong twine fixed to the wall at top and to pegs driven into the border about 4 feet from the bottom of the wall. The Harrison woollen net and others of a lighter description are also employed, which will, doubtless, have the effect of saving the bloom, of which there is a fine show. Apricots owing to the late season are not more than 10 days out of flower! Pears on walls are full of blossom, although the latter has been greatly thinned, in order to strengthen what is wanted to remain, and altogether there is every appearance this year of a prolific crop of fruit of all

kinds. The blossoms of standard Pears have not yet begun to expand, and Apples are not even in leaf. Some of the latter have been painted over with a mixture of lime, sulphur, and lamp black, with a view to ascertain whether or not that will keep down American blight. Some young pyramidal Pear trees, presented by Mr. Rivers and Mr. Glendinning, have been planted along the front of the Peach border, together with others from M. de Jonghe.

In the kitchen-garden, collections of different sorts of vegetables have been sown for the purposes of trial, the result of which will be given in succeeding reports. It may be mentioned now, however, that among Lettuces, the hardy Hammersmith Cabbage, the dwarf Black Seeded Cos, and the Bath Cos have stood the best.

FLORICULTURE.

National Floricultural Society, *April 26.*—Mr. Robinson in the chair. On this occasion several seedling Cinerarias were exhibited. Mr. Lidgard sent the following varieties, viz., Blue Beard, small with rather coarse disc; Bridesmaid, white, but no improvement on Kate Kearney; Lady Bathurst, scarcely so good as Mrs. Beecher Stowe; Hector, white with deep lavender edging, but insufficient in breadth of petal; Emperor, white, deep blue edging, deficient in form and substance; Mary Anne, rosy purple, neat second-class flower; Lydia, like Kate Kearney, but hardly so good; Fame, white with rosy purple margin, too much reflexed; Brilliant, pure white, medium margin of delicate azure, compact dark disc, petals slightly indented, good form but rather thin, promising and distinct—a Certificate of Merit was awarded it. Mr. Lockner sent Query, white, broad rosy lilac margin, but only of average merit. Mr. Crockford furnished Morning Star, a flower of little value. Mr. Turner exhibited Emperor of the French, rosy crimson with broad white ring round a dark disc. Rose of England, white, edged with rose. To each of these varieties a First Class Certificate was awarded. From the same Nurseryman also came Lord Cardigan, white, with a broad margin of violet purple; Monarch, shaded plum with brighter centre; Magnum bonum, purplish crimson with a small white ring round a black disc, and Princess Royal. Mr. G. Smith sent Verbena Lord Raglan, bright vermillion, good truss, and habit of Defiance; to this a First Class Certificate was awarded. The same grower also sent four seedling Mimuluses, viz., Portia, Unique, Enchantress, and Lydia; the last, a striking variety, received a Certificate of Merit. Of Pansies there were several. Mr. Turner produced Perfection, yellow ground, with belting of dark maroon, and Constellation, yellow, with broad very dark margin; each of these obtained a First Class Certificate. Two other seedlings, and pans of named varieties, also came from the same exhibitor. Messrs. Henderson, of Pineapple Place, sent a collection of Hyacinths. Mr. Rosher contributed Rhododendron Edgworthi, with large white flowers spotted with lemon, and deliciously fragrant. A Certificate of Merit was awarded to an Epacris named purpurea rosea, a cross between miniata and Tauntoniensis; this came from Mr. Kinghorn. Messrs. Ivery, of Dorking, sent Azalea Admiration, a striped variety.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Look over specimens growing in the borders or beds of this house frequently, in order to regulate the growth, and see they do not become a prey to insects; also keep them properly supplied with water at the root, and in watering be careful to give sufficient to well moisten the soil about the whole of the roots, for mere surface waterings will not serve to keep the plants in a vigorous state, and unless this can be secured weakly growth will be the result. Examine Orange trees carefully for red spider, and if they are found to be at all infested with this pest, lay those in pots or tubs upon their sides, so as to avoid saturating the ball, and give them a liberal washing with the engine; turning them so as to make sure of cleaning every leaf, and this should be done before the blossoms are so far advanced as to be liable to injury. If kept in vigorous health, however, these are by no means subject to red spider, and a liberal supply of manure water at the root, during the growing season, will be of great service in effecting this. Should black fly make its appearance upon the young shoots of those growing in heat, which it is very apt to do, and the plants cannot be conveniently smoked, dip the young shoots in tobacco water made by steeping tobacco in warm water, and straining the decoction through a piece of flannel so as to have it clear, for tobacco water, as frequently obtained from the tobacconist, is so thick and dirty that plants cannot be dipped into it without soiling and disfiguring their foliage. Attend to removing the seed vessels from Azaleas directly the plants go out of flower, and those intended to bloom early next spring should be removed to where they can be kept rather close and warm, in order to induce early growth, and get the flower buds prominent before winter. Such as require more pot room should be shifted before starting them into growth, using good strong rich fibry peat, well broken up and intermixed with plenty of silver sand, which is the most suitable compost for them. Keep young plants of scarce sorts which it is desirable to grow as rapidly as possible near the glass in the cool end of the stove, and attend to regulating the growth by pinching any over-luxuriant shoot, and stopping regularly over when necessary to secure compact growth. Also keep the foliage clear of thrips and afford them plenty of pot-room, and they will make rapid progress and form nice sized plants in course of the season. Young stock of hard-wooded greenhouse plants will now be fairly starting into growth, and in the present unfavourable state of the weather will require very careful attention. Take every advantage of mild days to give air freely, but do not expose the young tender growths to currents of cold drying air by opening the front sashes in every state of the weather. We have invariably found young stock of greenhouse things to do best in cold frames after this season, and their removal from the greenhouse affords more space for the specimen plants; and there is nothing more ruinous to well-grown specimens than the want of sufficient space at this season. Be very careful to give plants of all sizes a proper supply of water at the root, and do not trust this work to any inexperienced hand, but carefully and frequently examine every plant, and see that nothing is either overwatered or allowed to suffer through dryness. In the case of small or moderately-sized plants, there is little difficulty in ascertaining the state of the ball as to moisture, but it is sometimes very difficult to feel certain as to whether a large old specimen is in the right state in this respect; for when a plant becomes weakly through the want of pot-room, or some of the many evils attendant upon age, &c., most of us incline to lay the blame on under or over-watering, and doubtless sometimes judge incorrectly, and the remedy decided upon proves the death of the specimen. With loose bottomed pots this difficulty is avoided, and these are invaluable for large specimens, as the pot can easily be removed in doubtful cases, and the exact state of the soil as to moisture ascertained without the least risk of injuring the ball or roots, and if this was the only advantage gained by the use of these pots they are certainly deserving of the cultivator's preference for large plants wherever they can be obtained. But they are hardly within the reach of the mass of cultivators at present, and if proper care is exercised in the preparation of the soil and potting so that the water will permeate equally through the ball, and moisten the whole of the soil before making its escape by the drainage there will be little danger of the ball becoming either too dry or too wet, provided the old rule of "Water only when necessary, and then thoroughly," is observed.

FORCING DEPARTMENT.

Pineries.—In cases where a regular supply of fruit is required at all seasons of the year, it will be necessary to examine the stock of plants, frequently marking those considered the most likely for fruiting, so as to be able to keep them rather dry at the root for a month or so, which will, in most instances, have the desired effect of checking growth and throwing the plants into fruit. The only effectual method, however, of securing a supply of fruit at any particular time is foresight in the management of the stock, taking care to get the growth well matured in sufficient time to allow of affording the plants a short period of comparative rest, which is the only certain means of inducing them to fruit at any desired season. With plenty of convenience this is easily enough managed, but where the accommodation is limited, it is by far the most difficult part of the culture of the Pine. And in cases where a regular supply of fruit has to be furnished from limited accommodation, it is safer to grow the plants in pots, so as to secure perfect command over the roots, and also be able to move the plants to a cooler pit or otherwise, as may be necessary. Black Jamaicas and Cayennes are the best varieties for winter fruiting, and the stock of these should receive every attention at this season, so as to induce them to make free growth, and a portion of them should be shifted into their fruiting pots as soon as possible. Use every means to afford growing stock a moist atmosphere, which in the present state of the weather is a work that requires much attention, but must be done if the plants are to be kept in first-rate condition. Give air freely, but avoid draughts of cold drying air, and use shading to assist in keeping down the temperature without being under the necessity of admitting cold drying air too freely. Vineries.—In cases where Muscats are grown in the same house with Hamburghs, and other free setting varieties, the temperature must be kept sufficiently high during blooming, and until the berries are fairly set to suit the Muscats; for a crop of these cannot be depended upon from the most healthy Vines, unless they can be afforded a brisk temperature while in bloom and setting their fruit. It will be better, however, to risk having the Muscat bunches somewhat thin than to injure other varieties by maintaining a night temperature of 75°, which is the practice of some good growers: 68° or 70° will be found quite sufficient. Get the borders prepared for planting out young Vines, and if these are started into growth before planting do not keep them too warm, or it will be difficult to prevent their sustaining a check after planting out. Peaches.—Where the fruit is approaching maturity the atmosphere should be kept rather dry, with a free circulation of air, whenever the state of the external atmosphere will admit.

FLOWER GARDEN AND SHRUBBERIES.

Where the beds are filled with spring flowering things the effect of the present arrangement should be carefully examined while the principal part of the plants is in bloom, making a memorandum of any alterations which it may be deemed proper to effect at next planting time. Light well drained soils are already so dry that a good soaking of water will be serviceable to Anemones, Turban Ranunculuses, and many other things which are generally used for the spring decoration of the flower garden. Do not water in the evening when there is the slightest danger of frost, as this might injure the foliage of Ranunculuses, &c.; and give a thorough soaking, which will save labour and be of more use than repeated slight waterings. If the surface can be covered with a thin coat of fine dry soil or sand after watering this will greatly assist in preventing evaporation, and keep the surface of the ground from getting hard and cracking, as is usual in dry weather after heavy waterings. Give every necessary attention to shrubs or trees that have been recently planted, especially large evergreens, keeping the soil about their roots moist by a liberal soaking as often as may be requisite to effect this. In the case of things which are liable to suffer in severe winters when their young wood is not well ripened, watering is sometimes overdone, and we have seen many such things greatly injured through the soil being run together and rendered very unkind for the roots by too heavy and frequent waterings. All such things should therefore be well mulched at once, in order to avoid the necessity of being continually watering. Herbaceous plants lately planted will also require occasional attention with water until they get hold of the soil. If the removal of any large shrubs or trees has been delayed through unfavourable weather, this had better be deferred until we experience a decided change. Get bedding stuffs hardened off as expeditiously as possible, but see that they are perfectly clear of green fly before removing them from the pits and frames, and do not be in too much haste to expose the stock to drying winds and bright sunshine. Encourage any backward plants to make free growth for some time longer, for the beds will be sooner furnished by planting out good strong stock at the beginning of June than by planting weakly ill-prepared plants early in May.

HARDY FRUIT AND KITCHEN GARDEN.

Recently transplanted trees, &c., must be carefully attended to with water. Take advantage of the dry state of the ground to get manure wheeled upon quarters where it will soon be wanted, and see that there is a good supply being prepared for the Celery crop; for without plenty of old rich manure large crisp Celery can hardly be obtained. Directly the weather becomes more favourable get the spring-raised Cauliflowers and Lettuce planted out, if not yet done, selecting for them a sheltered situation and light rich soil. A few branches of evergreens stuck amongst such things after planting, so as to screen them from the sun, is a great protection, and prevents their being dried up until the roots get hold of the ground.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending May 3, 1855, as observed at the Horticultural Gardens.

April and May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain
Friday 27	10	30.222	30.162	60	28	44.0	48	48	N.	
Satur. 28	11	30.091	30.046	57	36	46.5	48	48	N.E.	
Sunday 29	12	30.184	30.054	54	41	47.5	47	47	N.	
Mon.. 30	13	30.224	30.200	53	38	45.5	47	47	N.	
Tues. 1	14	30.063	30.019	52	32	42.0	48	48	E.	
Wed. 2	○	30.047	29.857	62	20	41.0	48½	49	N.E.	
Thurs. 3	16	29.702	29.638	64	35	49.5	48	49	E.	
Average.		30.076	29.996	57.4	32.8	45.1				

April 27—Hazy; fine; frosty at night.
— 28—Dry haze; fine; overcast.
— 29—Densely clouded; cloudy and cold; overcast.
— 30—Uniformly overcast; cloudy.
May 1—Densely clouded; dry haze; clear at night.
— 2—Clear; air very dry; clear; sharp frost, 12 deg. below freezing.
— 3—Frosty; quite clear; fine; overcast and cold.
Mean temperature of the week 5½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 29 years, for the ensuing week, ending May 12, 1855.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 6	60.7	40.3	50.5	12	0.68 in	—	9	3	2	4	6	3	2
Mon. 7	62.4	41.2	51.8	10	0.39	3	6	3	2	5	5	3	2
Tues. 8	62.2	41.0	51.6	12	0.62	—	5	5	—	5	5	6	3
Wed. 9	61.7	40.3	51.0	12	0.60	3	7	4	1	4	8	2	—
Thu. 10	61.6	39.4	50.5	11	0.40	4	5	4	1	2	6	4	3
Frid. 12	62.2	40.8	51.5	10	0.26	5	6	3	1	5	4	3	2
Satur. 13	63.4	41.6	52.5	12	0.40	3	5	8	1	4	4	1	—

The highest temperature during the above period occurred on the 6th, 1830, and 12th, 1833—therm. 81 deg.; and the lowest on the 10th, 1853, and 11th, 1838—therm. 27 deg.

Notices to Correspondents.

Covent Garden Market: *I.* You are allowed to sell personally if you choose; but growers at a distance generally find it more convenient to commission some agent to sell for them. ‡

Insects: *J R.* The eggs were most probably deposited in the seeds of the Pinus nobilis whilst on the tree. Can you learn the particulars of the importation of the cones. Thanks for the specimens.—*J H.* The Orange leaves are infested with a scale different from that which is now doing so much injury to the fruit. The leaves should be sponged with warm water and the scales destroyed by hand. Smoking the house when the young are hatching will be useful.—*H.* We found no insects on your Gooseberry twigs, the leaves of which seem small and withered from some other cause. *W.*

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Const. Sub.* Primula cortusoides.—*Reader.* The Rhododendron is thoroughly out of health. Perhaps it is grafted. The other is Anthyllis cytisoides.—*A R.* Pinus Pinea—or Stone Pine—probably from Italy.—*S H.* Myoporum lætum.

Roof for a Summer-house: *Const. Sub.* We should use thatch made of Heather. Any handy thatcher could employ it. You will hardly get wooden tiles of a good pattern, if at all, or that will stand.

Sarracenia Drummondi: *R W.* You will find the information you seek respecting this plant in another column. All other Sarracenias should be treated in the same way. ‡

Vanilla: *J M.* If you will read the paragraph with attention you will find that you have misunderstood it. Vanilla ripened years ago at Liége.

Vine leaves: *R R.* The small green excrescences you complain of are harmless. They are induced by too damp an atmosphere and want of sufficient ventilation ‡

Weigela: *Yorkshire.* Your plant is probably too luxuriant to bloom; if that is the case try what effect root pruning has on it. The great point is to get it to make wood no stronger than your summers can thoroughly ripen. ‡

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
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PATENT SANITARY SEWAGE COMPANY'S NITRO-PHOSPHATED CARBON OR BLOOD MANURE, 5l. 10s. per ton; delivered in London, bags included. Each ton contains 1350 lbs. Blood and 11 per cent. of Phosphate of Lime.—Agents throughout the country.
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N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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CONCENTRATED URATE FOR GRASS, RAPE, AND ALL ROOT CROPS.
SUPERPHOSPHATE OF LIME.
THE LONDON MANURE COMPANY continue to manufacture the above Manures, which have been used with so much success for the last 14 years.
The London Manure Company also supply PERUVIAN GUANO direct from importers' warehouses), Nitrate of Soda, Sulphate of Ammonia, Fishery and other Salts, Bone Dust, and every artificial manure of known value. EDWARD PURSER, Sec.
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Directions for Use.—From 2 to 3 cwt. per acre, according to the condition of the soil. It may either be drilled in with the Seed, or sown broadcast; if the latter, it should be well harrowed in.
Turnip Manure, 6l. 10s. per ton.
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Communications to be addressed to
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From the extensive works they have executed, references of the highest respectability can be given, and full particulars furnished on application.

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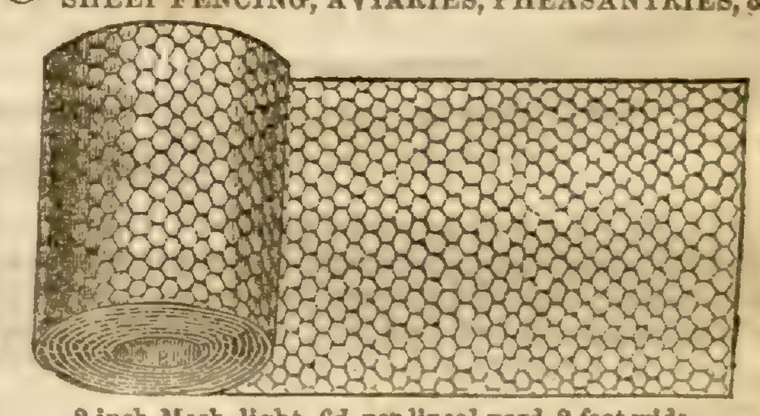
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ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, Inventors and Sole Manufacturers, respectfully solicit the attention of the Nobility, Gentry, and Gardeners to this Improved Machine for Mowing and Rolling Lawns. The Machine is in operation in the Royal Gardens at Windsor Palace, Buckingham Palace, and at Osborne, in the Botanical Gardens at Kew, Regent's Park, Manchester, Sheffield, &c.; at Blenheim Palace, Trentham, Cleveden, Elvaston, Broadlands, Woburn Abbey, Clumber, Lilleshall, Castle Howard, Shrubland, Eridge Castle, Enville Hall, Tiptree Hall, Chatsworth, and in many other of the principal gardens in the kingdom as well as in the United States, British America, and on the Continent, where its merits have been fully proved, and its success established.
The machine is made to cut the breadth of 42, 30, 20, and 15 inches respectively, is exceedingly durable, easily managed, and adjusted to cut to the length required. The execution of the work is far superior to what may be attained by the most skilful mower, while at the same time a great saving of labour is effected, and the turf much improved. By the largest machine a Scotch acre may be mowed, rolled, and the Grass collected in one hour.
A. S. and SON have much pleasure in stating that they have made considerable improvements in their 15-inch or hand machine this year, by which the draught is considerably lessened. This machine combines all the merits and advantages of the larger machines with firm and secure construction, and is admirably adapted for borders and for lawns of no great extent.
ALEXANDER SHANKS and SON also respectfully solicit notice to "Fleming's Weeding or Salting Machine" for destroying weeds in gravel walks, court-yards, drives, &c. This machine is now in operation in many parts of England, where it has given ample satisfaction as the best and most economical means of thoroughly keeping down weeds or Moss
Further particulars with testimonials and prices, may be had on application.

The Agricultural Gazette.

SATURDAY, MAY 5, 1855.

MEETINGS FOR THE ENSUING WEEK.
WEDNESDAY, May 9—Agricultural Society of England.

IT appears that in our report last week of Mr. TANQUERAY'S sale we made two or three slight mistakes, which we now correct. "Lady Barrington," purchased by Lord BURLINGTON for 170 guineas, is put down as "dead"—a misprint of "Do."—Lord BURLINGTON having been the pur-

chaser also of the preceding lot. "Oxford 11th," purchased by Mr. Gunter for 500 guineas, is priced 525 guineas. "Lady Iris," marked "dead," was not so—she was purchased by the American firm, Becar and Morris, for 90 guineas. In calculating the averages, too, we are corrected by our correspondent, Mr. Frere, and with the alterations now made they will stand as follows: 77 cows and heifers at 5634 guineas = 76*l.* 16*s.* 6½*d.* each; 24 bulls at 1837 guineas = 80*l.* 7*s.* 4*d.* each; or 101 head of cattle, 43 of which are under 12 months old, at 7844*l.* 11*s.* 0*d.* = 77*l.* 13*s.* 4*d.* each. And if any further evidence of the estimation in which the short-horn breed is at present held be wanting, it will be found in the circumstance that our contemporary, the *Mark Lane Express*, tells the farmers of this country that this price "is not, for an average, a very extraordinary one." We may be sure of this—that the competition amongst English breeders alone would never have raised it so high. It is the extraordinary demand for certain strains of the breed in America coming into opposition with the sturdy resolution or patriotism, as we may call it, of a few amongst ourselves that has driven prices up so high—and produced this extraordinarily high average—for so we may surely call that which stands fourth in the list of short-horn sales since the breed acquired its name.

Charles Colling's 47 sold for more than 151*l.* each; Robert Colling's 61 fetched 128*l.* 16*s.* each; Lord Ducie's 62 sold for 151*l.* each; and Mr. Tanqueray's 101 fetched 77*l.* 13*s.* each. Both Lord Spencer and Mr. Bates, the one realising 68*l.* 17*s.* and the other 67*l.*, come after Mr. Tanqueray, and the Hendon sale may therefore rank as one of the very few "events" of which the breed can boast.

On Friday of last week Mr. Strafford conducted the sale of the small herd belonging to the late Mr. Bolden, at Hyning, near Lancaster. The sums realised will be found in another column. Amongst them is the sum of 220 guineas for "Lady Hopetown," bought by Mr. Torr—a price which does credit to Mr. Booth's breeding. And there are other particulars to which reference might be made in illustration of the influence of Mr. Bates, such as the average price—53 guineas—of the six calves by the "Duke of Cambridge," the bull sold at Hendon to Sir C. Knightley for 280 guineas; these calves were respectively 5½, 5, 4, 4, 2½, and 2 months old! But to this and some other particulars bearing on this subject we must refer another time.

We have lately received some specimens of Wheat from a rich black loam on a limestone bottom confirmatory of our remarks at page 226, and as our correspondent observes, so neatly cut off at the base as to make it difficult to imagine that the mischief is not due to the attacks of wireworm during the fine weather at the commencement of January. That the wireworm is not to blame we were, however, fully convinced by finding, together with a total absence of wireworms, the connection between the seed and dead stem still retained, where the plants were taken up with sufficient care. Amongst a multitude of cases our correspondent found the connection between them maintained in one case only when the plant was gently drawn out from the ground, and in this the grain had been partially ergoted, and had produced three bright blue fungi, which were undoubtedly the Cordyceps purpurea, Fr.; which, according to the discoveries of Tulasne, detailed some months since in this journal, is the fully developed state of the ergot. Tulasne and others had already observed that partially ergoted grains would germinate, but perhaps the Cordyceps has not been found before under such circumstances.

A portion of the field from which the specimens before us were derived, is sown with winter Beans, of which three-fourths have entirely perished. In that part of the field only which was covered with snow they are bright and healthy. A portion of those from exposed spots which show some signs of vitality accompanied the Wheat, and it is clear that they are affected precisely in the same way as the Wheat. A large portion of the part above ground is dead, and though the heart and a portion of the stem below the first leaf show some life, that part near the cotyledons is either dead or dying, the deep brown tint extending in some cases to the very centre. No weather, however genial, can recover plants whose tissues are decaying from the effect of frost, while the effect of mildew winds is daily more and more evident, where the plant was merely dwarfed, or the herbage only was affected. Whether the diseased condition of the Wheat crop be entirely due to the frost or not, or whether the system of metallic dressing may have aggravated the evil, we do not the less insist on the superior safety of other modes of steeping. Sulphate of copper is perhaps the least harmless of those substances which are commonly used, for seeds which have been steeped in a solution of that salt retain their vitality far longer than those to which arsenic or corrosive sublimate have been applied. The sulphate of soda and lime would probably, if tried carefully, prove so efficacious as to supersede all more questionable and dangerous applications. *M. J. B.*

EXPERIENCES IN LAND DRAINAGE.

No. III.—During the last 30 years I have drained many thousand acres. The result in all cases was highly satisfactory—the tenants being generally willing to pay 6½ or 7 per cent. on the expense, and the advantage to them I am aware greatly exceeds that interest. The drainage I have adopted is the parallel system. For some years I have allowed no drainage under 3½ feet deep in hard land, and in moss or bog 4½ or 5 feet. At one time (20 years ago) our drains were only 27 and 30 inches, but experience has shown us the great advantage of deeper drains. Our present drains are 3½ feet deep at 24 feet distance.—We have no lowland for permanent pasture, our drainage in moor-lands for permanent pasture being only a small open cut for surface water, at an expense of about 3*l.* per thousand rods, but of incalculable advantage in sheep walks.—The direction of our minor drains is *with* the fall. We do not regard the furrows—the land in this district being sown out flat.—I have used 2-inch and 2½-inch pipes for minor drains, and 4-inch to 6-inch tiles with soles for leaders. Collars or socket-pipes have not been used in this district, although I believe they ought to be. We have generally stones thrown out of drains, with which we fix the joints of pipes very firmly.—I have not tried the practice of giving air at places to drains, and do not consider it at all necessary.—The average number of acres to one outlet I cannot accurately say; perhaps 8, 10, or 12 acres, according to circumstances.—We have great variety of soil: peaty soil upon clay or till, or a good red earthy soil with more or less of clay upon rock, till, or clay. We have a great variety of geological formation, but chiefly a second-class retentive soil upon the clay slate formation.—We are from 10 to 400 feet above the level of the sea.—The fall of rain here is, perhaps, as great as any part of Britain. In conclusion I believe there is no expenditure of capital more profitable than that of drainage, and few measures have done more good than the Government grant for that purpose. I believe if the money so absurdly expended in promoting emigration had been laid out in drainage it would have been immensely more beneficial, both in contributing to the comforts of the poorer classes and in promoting the prosperity and wealth of the community. In some cases a tract of land not worth 50*s.* has been, by drainage, made worth 50*l.* a year, and whole farms or estates have been even tripled in value by drainage, followed by a good system of farming. *G. Guthrie, Rephad, Stranraer.*

No. IV.—The greater part of Lord Yarborough's estate in this county that required draining has been drained by his tenants (his lordship providing the necessary tiles) during the last 25 years. Up to about four years ago the drains were put in from 18 to 24 inches from the surface, but during the last four years a great part of these have been taken up, and put in not less than 3 feet deep. No difference is made between arable and Grass land. The soil generally is clay, with the subsoil of the same character; where the latter has sand veins, or is at all gravelly, a greater depth is adopted—in some few cases they are 5, 6, and even 8 feet deep, the object being to go wherever the water is. On the strong soils, 3 feet draining is found so far to be effectual; the system is to drain down each furrow, the lands being generally about 8 yards wide. Egg-shaped pipes, 2¾ ins. by 1½ in., without collars, have been partially used, but open tiles (with sides where necessary) have been more generally used, and are preferred. The average depth of rain-fall in the neighbourhood is a little over 20 inches. *Stephen Gibbons, agent to the Earl of Yarborough, Brocklesby Park.*

No. V.—The result of our drainage operations on all descriptions of land has been most satisfactory. I believe nothing pays better than draining land.—The drainage adopted has been generally on the parallel system, but that must depend a good deal upon the nature of the ground and the fall.—The prevailing depth of the drains is about 3 feet.—I have not laid down the drains quite so near each other on Grass land as on arable.—The direction of the minor drains has been generally with the fall.—I have found 2-inch pipes answer best for the minor drains; I would not advise that smaller should be used on any ground. I have never used collars, as I think they would have a tendency to displace the pipes and destroy the regularity of the channel.—I have not sufficient experience to say if there is any benefit by giving air at places to either main or minor drains.—The average number of acres discharging at the several outlets is about 3 acres, sometimes more.—What is the soil and subsoil? Pebbly gravel, sometimes loamy, for the soil; the subsoil generally a stiff clay.—We are situated here in what is called the London Basin, which consists of a great depth of stiff clay, overlying the chalk which crops out at Ware and Hertford, but is at too great a depth to be worked in this vicinity. The valley of the Lea consists of a great depth (in some places 8 or 10 feet) of loam (brick earth). The sides of the hills are covered in many places with beds of gravel, which dip under the loam, and lay immediately over the clay. This is on the Hertfordshire side of the river. On the Essex side the clay rises again after passing under the river, and there is little or no gravel. The marshes close to the river consist chiefly of black peat or decomposed vegetable matter, intermixed occasionally with beds of gravel, with clay underneath. The surface of these marshes is evidently higher than it was originally, and if drained would contract like a sponge, and sink again. I doubt much whether they can be drained to advantage. The best mode of improving them would be to dig up the clay and spread it on the top, so as to consolidate them. Great injury is done to the land by heading up the water for the navigation and the mills.—We are about 100 feet above the sea level. Hertford is 96 feet above the high-water mark at the Thames.—I am quite convinced, from experience, that nothing pays better than draining if well done, and the drains are not placed at too great a distance. I have one field on my estate which was utterly worthless until drained. It would not grow the poorest Grass. It now produces good crops of corn and roots. But I strongly advise that whatever is done in draining should be well and effectually done, and that the pipes should never be less than 2 inches. I am of opinion, also, that although the water will find its way down to very deep drains, say 4 or 5 feet, this does not obviate the necessity of close draining. We are also less careful than we ought to be in forming the outlets. What is much wanted is a good practical work on drainage, similar to Leclerc's "Traité de Drainage," a French work. *G. T. Bosanquet, Hoddesdon.*

No. VI.—My experience of drainage operations has been quite satisfactory where the drains have been put in sufficiently deep. I have adopted a parallel system generally. The depth of drains has been from 3 ft. 6 in. to 4 ft.; but where springs were to be cut off, oftentimes far deeper. Most of the land in this neighbourhood has been set out in high and crooked ridges; therefore, in draining the arable I have totally disregarded the furrows, and have put in the drains parallel to each other, at distances varying, as the soil might be more or less porous, looking to have the ridges levelled and straightened; but on the pasture I have, for the most, drained up the old furrows, if the land was stiff, and the ridges high; but otherwise, where the land was porous and required fewer drains, at wider intervals. The direction of the minor drains has always been with the fall of the ground, unless the fall was very rapid; in that case they have, in some instances, been placed diagonally with respect to the fall. For the minor drains I have used 1¾ inch pipes, and for the mains 3 inch pipes, unless I had to bring a larger quantity of land than I have usually done into one head; then, in that case, pipes of a larger diameter have been used towards the lower end of the main drain. Collars have been occasionally resorted to, but only in those parts of the drains where spots of running sand or fine gravel were met with. I have not any experience as to giving air, either to the minor or main drains. I did not believe it needful. I have seldom brought more than 5 or 6 acres into one head; perhaps it might have been better had I done otherwise, in which case I should have had fewer outlets to look after. It is certainly desirable, where the main outlet is liable to occasional floods, that a considerable quantity of land should empty itself at one point, whereby a strong under current is created at those times, which will effectually keep the mouth clear of mud till the flood abates. The soil here is blue lias clay, at the foot of the oolite limestone hills, mixed with diluvial sand and gravel in spots. The clays are very calcareous, and even in the stiffest parts, when you go down to the depth of 4 or 5 feet, a grey marl is mostly met with, which is considerably porous and contains a good deal of water. My estate lies at the foot of the oolite ranges of limestone hills in the parish of Haresfield, six miles below Gloucester, on the Bath and Bristol roads, and about two miles from the river Severn. On our hill we have the remains of an ancient British encampment (which gives a name to the parish), a portion of which was fortified in after times by the Romans, where they had a beacon, forming one of a chain of fortifications extending from the lower Avon, near Bristol, to the Cotswold Hills, in Gloucestershire. On the south-west of the island, where we are situated, and exposed to the westerly winds which blow from the Bristol Channel, we probably have our full share of rain—I should think a larger quantity than falls to the lot of those dwelling in the more midland and eastern counties. *Daniel J. Niblett, Haresfield, Gloucestershire.*

No. VII. The system adopted is and has been parallel wherever the land permits. The depth of the drains is not less than 3½ feet. Here are few minor drains; the drains are independent of each other, and their direction is with the fall, and they empty themselves each separately into an open ditch on the lower side of the hedge. But little pipe has been used; the material used being thin slaty stone placed edgeways a foot high at the bottom of the drain, on which is from 10 to 12 inches of stone broken very small; the top of the drain is then filled with soil. There does not appear to be any necessity for air-holes. Our fields are generally not exceeding from 10 to 20 acres, and as each drain is independent of another, the quantity of land drained by each is very small. The soil and subsoil various, perhaps in every field; in some parts loam with a clayey subsoil; or clay with a soft slate stone beneath, such as is used for the drain. The old red sandstone is the geological formation. *John Arkwright, Hampton Court, near Leominster.*

P.S. I tried 1½ inch pipe, but in some places found it choked with a fibrous plant or root-like vermicelli.

TRADE MEMORANDUM.

The information communicated to your readers in the *Gazette* of the 7th inst., relative to the proceedings of certain parties resident in Manchester and its vicinity, seems to me exceedingly like the doings of a correspondent who in 1853 dated his favours from "36, *Lord Street, Hulme, Manchester*," and who succeeded in victimising several parties, inducing them to forward live stock, butter, and other agricultural produce to his kind order. I should have no hesitation in giving his name, or the name he assumed, as it might perhaps save others from being duped, as I own I was by the fellow. But the inquiries I made at the time showed that he had used other names in the course of his transactions. Manchester has acquired a very unenviable notoriety in swindling, and I would strongly advise any one favoured with orders from that quarter to look upon them with a considerable degree of suspicion, as the names, or what are apparently the names, of really respectable people are often assumed for the purpose of deceiving the unwary. *One who was Duped.* [There is a very efficient Trade Protection Society in Manchester, from which information may be obtained.]

ON GREEN FOOD IN FEEDING.

The feeding of bullocks has been of late much discussed in the agricultural journals and elsewhere. It is singular that such a variety of opinions, such a diversity of practice, and so great a difference in expense, should exist at the present day on a subject of every year's experience from time immemorial, and that by thousands of agriculturists. Amongst an eminently practical people, as we are reputed to be, it would have been a natural presumption that the mode and cost of feeding a bullock in the shortest time, and on the most economical plan, would be as well established as any proposition whatever; the only deviation being the time required for the operation; and this would depend on the age, the breed, and the condition of the animal put up. Had this been the occupation of the merchant or manufacturer, instead of the farmer, such a discrepancy would not have existed at this day. Hitherto, exact experiment, carefully noting weight, measure, cost of food, &c., has not been an attribute of the farmer. Such alone will furnish a sound foundation for reliable practice, for which Mr. Lawes has set us an admirable example.

I will presently give some particulars of the feeding of some bullocks last winter; but my immediate object is to repeat a protest I have made from time to time against the prevailing practice of giving to *feeding* animals a very large quantity of roots daily, and that in a neat state. When I commenced feeding bullocks, some years ago, I depended mainly on the experience of others, and was in the habit of noting down the allowances of the different kinds of food recommended in the agricultural periodicals, and otherwise, by men of reputed authority in such matters. The quantity of roots usually recommended I have observed to be from 1 to 1½ cwt. per diem, and for large bullocks even up to 2 cwt., and that without admixture.

Now, what is the object we propose to accomplish? It may be assumed for our present purpose we are dealing with animals at maturity in point of growth, that the skeleton is fully developed, and that we have only to accumulate flesh and fat. The first consideration would seem to be, what is the food which, at the least cost, contains the largest proportion of those elements which build up muscle and fat, and is at the same time palatable to the animal. General experience points to the various roots grown on the farm as best fulfilling the latter condition; but when it is borne in mind they contain on an average somewhere about 88 per cent. of water, the next point for consideration is, how we can combine with this quantity of fluid as much solid food of an ordinary kind (whether hay, straw, or chaff) as may be requisite, having reference to the capacity of the stomach, and that degree of healthy action which is essential to the due assimilation of the more nutritious portions of the food. It must ever be borne in mind that it is not the quantity of food put into the stomach of the animal which accomplishes the object in view, but that which is thoroughly digested and assimilated by the healthy action of the viscera. When animals are in a state of rest, and consuming food so mixed, I have observed that, with water constantly before them, they take very little, unless the more nutritious food superadded be of a heating nature, such as Pea or Bean-meal in too large a proportion: the safest course is to combine crushed Linseed with those articles. Such considerations led me to doubt the expediency of making the chief food of fattening animals *that*, nine-tenths of which consist of water, and more especially mixed with more solid food. The setting before a bullock half a cwt. of neat roots the first thing in the morning, some hours afterwards their allowance of more solid and nutritious food, and repeating the feed of roots in the evening, appeared to me an irrational proceeding; and, on the other hand, that a due mixture of the solid and fluid foods would probably aid the proper digestion of each. I resolved therefore to diminish the quantity of roots which I had generally heard recommended one half—viz., to from 70 lbs. to 80 lbs. per diem, according to the size of the animal, and to give a portion of these with each feed, as intimately incorporated as might be practicable with the more solid food. With this view I obtained Moody's cutter, now sold by Carson, of Warminster, which cuts the roots into thin ribands; these we turn over amongst the chaff, so that the animals cannot avoid eating them together.

I have for some time directed the attention of some of the agricultural implement-makers to the want of a pulping-machine, in order to effect a still more intimate incorporation of the drier food with the roots, for which a prize has lately been offered by the Royal Agricultural Society. Such an article was produced at Lincoln by Mr. Phillips, of Downham. This is an effective machine at 11 guineas. It cannot probably be rendered, as at present constructed, at a less cost; but while the cost of Moody's cutter is only 4*l.* 10*s.*, a machine for pulping must be produced at much less cost than 11 guineas before it will get into the farmers' hands.

I observed that the animals under the change to which I have adverted throve faster, and were kept equally clean with one-third less litter, by weight, than we had found necessary on the former mode of feeding.

In the month of August, 1853, our Swedes and Mangold were struck with some kind of blight, or other not very well defined malady, which nearly stopped their growth, and we were reduced to the alternatives of selling some of the stock or putting the whole on short allowance of roots, and we adopted the latter. We limited the bullocks to 50 lbs. weight, and the sheep to 10 lbs., per head per diem. We had plenty of good Barley-straw, but the hay was very indifferent, having been exposed for several weeks to rain, and put up at last in questionable condition.

I purchased 17 bullocks at the October Hereford fair. For the first four weeks they had little else than the Barley-straw and bad hay cut into chaff, with their 50 lbs. of roots. From that time till they were sold they had 6 lbs. of Linseed and Rape-cakes, mixed in equal proportions and boiled, and the soup poured over the chaff, which was then covered over in a slate-tank until the former was completely absorbed. This destroyed the fungus or mould which had accumulated on the damp hay, and rendered it perfectly sweet, but of course could not restore the nutriment washed out by the rain. The Linseed and Rape-cake together averaged 8*l.* per ton; the cost of this therefore was 2*s.* 7½*d.* per head per week. The attendance I put at 6*d.* per head per week (a man and a boy, at 18*s.*, managed in all respects 24 bullocks, 24 fatting hogs, and the store pigs); the chaff, 2*s.* 4*d.* per head per week; the roots (estimated at 10*s.* per ton), 1*s.* 8*d.* Say, for the first four weeks the cost was 5*s.* per head per week; and for the next 13 weeks 6*s.* 10*d.*: when the animals were sold. The account stands thus:—

17 bullocks, prime cost		£286 17 6	
Feeding 4 weeks, at 5*s.*	£17 0 0		
„ 13 „ at 6*s.* 10*d.* ...	76 1 0		
		93 1 0	
		£379 18 6	

They were sold for 386*l.* 10*s.* The credit balance of 6*l.* 11*s.* 6*d.* would be absorbed by the engine-power in cutting the chaff; and the manure represents the straw cut for litter. The result, I think, shows that bullocks may be fatted, in a reasonable time, at a less cost, and with a much less quantity of roots than are usually given, by the mode of feeding adopted, without actual loss. I may observe, too, in reference to this particular case, that, though beef during the year 1853 bore a good price, lean stock commanded a much higher proportional price in the market. *Mr. Lawrence, of Cirencester, in the Journal of the English Agricultural Society.*

Home Correspondence.

Sale of young Short-horn Bulls bred by Mr. Longmore, of Rettie, Banffshire.—A public sale of young bulls of the stock of the above gentleman, who has a high local reputation as a breeder of short-horns, took place on the 20th April. The prices realised, as noted below, will show that the hardy farmers of north-eastern Scotland are not disinclined to pay liberal prices for such animals as give promise to be useful in upholding—in this case we may perhaps justly say improving—the quality of the stock raised in that cold but well farmed district. The names given to the animals are no less indicative of the popularity of our warriors among those holding "land and beeves." Not that their relative popularity is quite in unison with the prices realised. There is something in a name; and it did us good to hear the shouts of self-gratulation in which the burly farmer who became owner of "Sir Colin Campbell" announced his acquisition of the northern hero's namesake. We may further remark that the purchasers were, we believe without exception, practical agriculturists, men noted for their caution and sharp look-out for what will pay.

List of Bulls sold.

Name.	Age.	Price.
Cardigan	14 months	50 guineas
Raglan	12 „	71 „
Canrobert	11¾ „	61 „
Sir Colin Campbell	11½ „	51 „
Dundas	11 „	44 „
Napier	9½ „	33 „
Burgoyne	8 „	31 „
Balaklava	6¾ „	20 „

A ninth, "Inkermann," was catalogued for sale, but an accident had occurred to him: from choking on a Turnip, the best breeding will not secure exemption. *S.*

Manures.—It would be a great boon to little people like myself if you or any of your correspondents could give us practical information as to the value of some of the manures which we see advertised in your columns. Several of these might suit our purpose, if we could depend on the genuineness of them. To take one instance—I see the "Patent Nitro-phosphate or Blood Manure" most highly recommended *quoad* trustees, directors, &c. Will any one of these trustees tell us the value of this dung from his own experience, or send a recommendation of it from Professor Way? It might be worth his while; and so on with others. And why will not Messrs. Gibbs sell Peruvian guano in rather smaller quantities, or seal their bags, or do something to enable the small consumers to get an honest manure, instead of encouraging the trade of the "rogues in dirt," as is practically the case now? Is not the money of the little man as good as any other? *S. R. E.*

Straw Chaff as Food for Stock.—In reference to a letter on this subject which appeared in our columns lately, Mr. Phillips has written as follows:—It is true I prefer steam as a means of cooking the chaff, but boiling water is a very good substitute where steam cannot be had, or even cold water will do, only with this latter you must adopt the system of spontaneous fermentation, which has, however, this disadvantage, that the process is longer in hand, and further requires a larger expenditure of the minced roots, which in a season like this is a serious consideration, as it requires about one-third of the bulk to be minced roots in order to set up spontaneous fermentation. But whatever mode you adopt of cooking the chaff, the best receptacles for the purpose will be brick cisterns or tanks, which of course may vary in size, according to the quantity of food required for consumption; a good size for these cisterns is 6 feet square, inside measure, by 3 feet 6 inches in depth, or 6 feet by 9 feet inside; if very large quantities of food are required, they must have a perforated false bottom, either of wood or iron, and there should be a wooden plug through the outer wall, inserted between the true and false bottom, to let out superfluous moisture, or, in case of spontaneous fermentation being adopted, to let in atmospheric air, which is highly essential to its production. The outside walls of the cisterns should be 9 inches in thickness and the partition walls 4½ inches; there should also be an Oak kerb on the top of the walls, and lids to cover down the cisterns securely, so that there may be no unnecessary waste of steam. From two to four cisterns will be sufficient on most farms. I, however, make use of five such, and think of erecting two more. Where there is not a steam-engine upon the farm, one of the ordinary steam generators for cooking vegetables would be found useful, and might be had at a moderate price, with which the cisterns might be heated. In mixing your minced roots with the straw chaff, do it when removing it from the cisterns; the roots do not require steaming; and as to the best mode of preparing the roots for mixing, by mincing or pulping, I am not aware that there is any better machine for the purpose than the Royal Agricultural Society's prize pulping or mincing machine, made by Woods, of Stowmarket, Suffolk; who also makes a larger machine, applicable to steam or other power, which will mince from two to four, or even more bushels, per minute. *Frederick Phillips, The Hall Farm, near Brandon.*

Failure of Wheat after Dressing with Blue Vitriol.—A piece of Wheat of mine has lost stock to such an extent that scarcely a plant can be seen in some parts of the field. I attributed this at first to the frost, but I am now inclined to think that the cause is the dressing of the seed in the usual way with blue vitriol, because a small part sown with undressed seed is as thick and flourishing as I could wish. The seed was sown when the ground was dry, after waiting for rain which did not fall till some time after sowing. Much of the seed never grew, and that which did grow was so weak that it could not resist the frost, and has wellnigh all perished. *J. C. C.*

Diseased Meat.—The prevalence of particular diseases in London cannot be a matter of astonishment to those who are aware of the universal adulteration of food of every description, both liquid and solid—nothing escapes the ingenuity of traders; the only wonder is that the mortality in the metropolis is not greater under the amount of poisonous stuff daily swallowed. It will not be necessary to enumerate the various articles, mixed with red lead, sulphuric acid, copperas, &c., &c., which are daily consumed by the public. However there is one fact which will interest the readers of the *Chronicle*, more particularly respectable agriculturists, who will be shocked to be classed amongst vendors of diseased meat—a trade apparently carried on to an immense extent, which the *Gazette* will do well to expose, and put a stop to a traffic so nefarious. The following extracts from the "Quarterly Review," March, 1855, speak for themselves:—Evidence before the Smithfield Market Commission:—"It is purchased by soup shops, sausage makers, the *à-la-mode* beef and meat-pie shops, &c., &c. There is one soup shop, I believe, doing 500 lbs. a week in diseased meat; this firm has a large foreign trade. The trade in diseased meat is very alarming, as anything in the shape of flesh can be sold at 1*d.* per lb., or 8*d.* per stone. I am certain if 100 cows were lying dead in the neighbourhood of London, I could get them all sold in 24 hours: it don't matter what they died of." Again—"The London market is very extensively supplied with diseased meat from the country. There are three insurance offices in London, in which graziers can insure their beasts from disease. It was the practice of one of these offices to send the unsound animals dying from disease to their own slaughter-houses, situate 160 miles from London, to be dressed and sent to the London market. Cattle, sheep, &c., are insured against all kinds of diseases, and one

of the conditions is, that the diseased animal when dead becomes the property of the insurance company, the party insuring receiving two-thirds of the value of the animal, and one-third of the salvage, or, in other words, one-third of the amount the beast is sold for when dead. The Chinese are supposed to be rather gross feeders, because they consider dogs, &c., delicacies, but a well-fed puppy in a pie must be a luxury when compared to a bit of diseased cow covered with dirty crust and well seasoned. "People who live in glass houses," &c., &c." *Falcon.*

To sow Clover Seed.—I have found the following method of sowing Clover seed so successful in producing a good plant the following spring that I beg to offer it, through your columns, to the consideration of those who have the means of availing themselves of it. I always use Cambridge's presser this month to protect my Barley from the ravages of the wireworm, and in the grooves or furrows made by this implement I sow the Clover seed broadcast, and the bush-harrow which follows brushes the seed into the bottom of the grooves, and covers it over at a uniform depth. This method has for the last three years produced excellent crops of Clover—far better than I had before been able to obtain, either by drilling the seed or sowing it broadcast—and seems to combine the advantages of both these systems. To ensure the seed being evenly sown I usually sow it with the drill, the coulters and the principal part of the pikes being removed. *G. P. S.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council, May 2: Mr. Miles, M.P., President, in the Chair.

Finances.—Mr. Raymond Barker, Chairman of the Finance Committee, presented the Monthly Report on the Accounts, from which it appeared that the current cash balance in the hands of the bankers was 3225*l.*

Journal Committee.—The President submitted to the Council the Report of the Journal Committee, containing the following recommendations:—

1. The postponement to a subsequent meeting of the further reports made by the Judges of Essays, in their adjudication of prizes for 1855.
2. The postponement, to a Special Council next week, of the report of the Committee on the prizes for essays, to be offered by the Society for 1856.
3. The election of Dr. Edward Hartstein, Professor of Agriculture in the Royal Academy of Poppelsdorf, as an Honorary Member of the Society.
4. The delivery of Professor Way's Lecture on the Production of Butter, on the 16th of May; and his Lecture on the use of Fish as Manure, on the 13th of June, before the Members in the Council Room of the Society, at 12 o'clock on each of those days.

These recommendations were unanimously adopted by the Council.

Chemical Committee.—Sir John Johnstone presented the report of the Chemical Committee, stating the progress of the researches, undertaken by direction of the committee, and carried on by Professor Way, in his new laboratory, 15, Welbeck Street, Cavendish Square. This report was adopted, and an order made that the amount of the grant for the year ending the 1st May, should be placed at the disposal of the committee.

Carlisle Meeting.—Mr. Fisher Hobbs presented the Report of the General Carlisle Committee, announcing the arrangement of the programme for that occasion, and its preparation for distribution.

Steam-power Conditions.—Mr. Raymond Barker submitted the following recommendations, which were adopted:—

1. *Steam-engine Pumps.*—That no force-pump must be fitted with more than two valves, which must be of easy access. That if two pumps be fitted for the same engine, no more than one be allowed to work at the same time.
2. *Reaping-Machines.*—That the Society find horses for the trial of the reapers, but that exhibitors may, if they think proper, send their own horses for that purpose.

Steward of Implements.—On the motion of Mr. Fisher Hobbs, seconded by Mr. Hamond, Sir Archibald Keppel Macdonald, Bart., was appointed Steward Elect of Implements for the Carlisle Meeting.

Country Meeting of 1856.—The Report of the Inspection Committee having been read, the Council received a deputation from Chelmsford, consisting of the following gentlemen:—Mr. Burch Western (Chairman of the Essex Local Committee), Mr. D. Waddington, M.P., General Hall, Major Skinner, R.A., Mr. Bullock, Mr. Gurdon Rebon, Mr. Kemble, Mr. Mechi, Mr. Hardcastle, Mr. Round, Mr. Parker, Mr. Batard, and Messrs. Meggy and Chancellor (Secretaries to the Committee), who favoured the Council with their explanations of the various local advantages possessed by the town of Chelmsford for the country meeting of the Society. On the motion of Mr. Fisher Hobbs, seconded by Mr. Jonas, Chelmsford was then decided upon as the place of the country meeting of 1856, subject to the completion of the stipulated engagements, and the usual agreement to be entered into by the authorities of the town with the secretary of the Society.

Country Meeting of 1859.—The Council then proceeded to determine the district of the country meeting four years in advance; and Mr. Wren Hoskyns having alluded to the great increase of transit accommodation, furnished by the gradual completion of the railway system of the country, especially in the county of Warwick, and the other central counties of England, since the Society held its country meeting at Oxford in 1839, it was carried, on the motion of Mr. Fisher Hobbs, seconded by Mr. Thompson, that the Country Meeting District for 1859 should comprise the counties of Oxford, Warwick, Northampton, and Berks, and be denominated the "Central District."

Soda.—An important communication was received from Lord Wodehouse, on the part of the Earl of Clarendon, in reference to an abundant supply of native carbonate of soda ascertained to exist in South America; and of which specimens, forwarded from the Foreign Office, had been placed in the hands of Prof. Way for analysis.

Adjourned to May 9.

Farmers' Clubs.

Botley.—*On Agricultural Leases.*—At a late meeting of this Club this subject was again discussed. Judge Gale said—I desired to bring before a body of practical men interested in land, as landowners, as well as tenant-farmers, the question whether a scheme might not be devised by which, while the interests of the landlord should be secured, the tenant might be freed from the restrictions by which he is at present bound. He is frequently, indeed generally, restricted from the sale of root crops and all straw. Now he could, particularly in the neighbourhood of large towns, often sell the former for milch cows for much more than they are worth for feeding purposes; and it frequently happens that he could sell his excess of straw for 40*s.* or 50*s.* a ton, which he is able to convert only into manure, very inferior in value to that which he might purchase with the price of his roots and straw.

Judging from observations made in the *Mark Lane Express*, many farmers prefer a good tenant-right agreement to a long lease. I cannot, however, think that preference is by any means general. It is true by the effect of such an agreement a farmer might be reimbursed for any outlay of improvement in the event of his being ejected from his farm; but I should call that but a poor compensation. In no trade can a man change his locality without a heavy loss, and that is particularly true of farmers. Every farmer must know the reason why. Besides which, if times are good, as I hope they will continue to be, it is not an easy thing for a farmer to find a farm to suit him. A shop-keeper, or a manufacturer, has obviously much greater facilities of locomotion. Farmers, too, are more likely to have strong local attachments, and if there were no pecuniary loss in moving from among his friends and connections, it would be with a great sacrifice of comfort that he would begin the struggle of life again surrounded only by strangers. However, those who prefer a good tenant-right agreement will, of course, get it if they can; but I repeat, that in my opinion, a farmer possessed of capital, which he desires to lay out on the land, would prefer a long lease to any other security. A friend of mine, Mr. John Bullar, a conveyancer in extensive practice in town, has informed me that there are, in the Lothians, leases, known as Lord Kaimes' leases. They are for a very long term—I think 999 years—determinable at septennial periods, by the tenant only, by a seven years' notice. Every seven years the rent is increased. I presume there is a sufficient provision for the landlord's protection. Whatever may be the advantage of such leases, I think it very unlikely that demises for so long a term would be adopted in England. Few landlords would like so completely to part with their interest in, and control over, their land. In the Lothians agriculture is very much assimilated to the manufacturing procedure. On all the farms of any size there is a steam-engine—of course, with its invariable long chimney; and on a great many gas is made, by the light of which the labourers work in the long winter evenings. I should imagine that such a country must have almost lost its rural appearance. Whether we shall ever arrive at such business-like proceedings it is difficult to say; if we ever do, though the land may gain in productiveness, it will lose in the picturesque.

Mr. Wyatt referred to the system of Nottingham, where the custom was that the outgoing tenant was to be paid for what he left, and then he left the farm in such a state that his successor could cultivate it with the best advantage. In that county they had handed the system down from father to son. Mr. Wyatt then read the communication to which he had before referred, sent to him by a friend in answer to his inquiries. The letter was dated from the vicinity of Nottingham, and was as follows:—

"I have been desired by Mr. Potts, of Calverton, to acquaint you with our system of valuing tenant-right in this neighbourhood. In the first place, we pay for all labour done on Turnip land or summer fallows, together with the average rent and rates of the farm, Turnip seed, and hoeing, and for all purchased manures and carriage, and for the labour of manure being the produce of the farm, deducting therefrom one-half the value of the Turnip crop when consumed on the land by sheep, and the whole when drawn off to the yards or consumed by cattle provided the manure belongs to the tenant, but if it belong to the landlord only one-half is deducted, whether it is consumed on the land or in the yards. The allowance for bones is for three crops of corn or Grass in sixths; after a crop of Turnips we allow the whole cost and carriage; after one crop of corn or Grass mown 2-6ths is deducted without carriage; after one crop of corn or Grass mown and one year's pasture half; and after one crop of corn and two years' pasture 4-6ths; and after two crops of corn or Grass mown and one year's pasture 3-4ths, after which the allowance ceases. For lime we allow for two crops the whole value and labour before a crop, and half the value after one crop; this I think too little and should like to increase it. For all artificial manures, such as guano, Rape-dust, superphosphate of lime, &c., one-third without carriage after one crop of corn or Grass mown. For draining, tiles, labour, and carriage, or any part of them for seven years, deducting one-seventh every year. For Linseed cake, one-fourth of the bill for the last two years, and in some cases one-quarter and 1-6th. We have nearly done away with the system of fallowing or way-going crops, substituting in its place the above-mentioned tenant-right. I recommend the manure should invariably belong to the tenant, because it is much better taken care of, and we value to the tenant on quitting the whole of the manure which is made from the last year's produce, together with all the hay and straw unconsumed, and if it is greatly in excess, at a less rate. We also value any hay or fodder of previous years' growth, deducting the value of manure it would be supposed to make. All fixtures which belong to the tenant and have had the sanction of the landlord, must also be valued. All labour in the preparation of the land for seed Wheat or other corn, with the bill for Clover seed and sowing, and all corn sown."

Mr. Blundell said, with regard to the statements made in the communication read by Mr. Wyatt, let them not be misled by the system of Nottinghamshire. What were they met to consider? A proposition was made by Mr. Gale, to provide a remedy for the landlord for what was being done wrong by the tenant; and a compensation to the tenant for the unexhausted manures he left on the land. These were powers that had not been possessed by them before. He did not object to them. If they were beneficial to the tenant they were so also to the landlord. What had been suggested by his friend Mr. Wyatt differed from the practice of this part of the country, but he should not enter into the details of the system described by him, except as to the new position in which they found themselves. Before entering on it he would say that no one would object to tenant-right agreements, yet he thought that the law would never compel parties to submit to one general rule, and he hoped they would all stand upon their own foundation. Let the rates of compensation be law when they have been agreed to by both parties. With respect to the observations of Mr. Gale as to the landlord's obtaining immediate possession of the land—for breach of covenant—to be settled in the county court, he would say that the landlord would have a superior power over his tenant. If that summary power were to exist, the object would, as he took it, be to prevent the tenant doing the injury. He thought that an essential alteration in the lease must be made before this summary power was given to the landlord. He had therefore made a bold hazard, and had proposed a form of, or rather conditions for, a lease, and a scale of payments to be made to the tenant when he leaves, all depending on the supposition that what Mr. Gale proposes shall have been made law—else they might come before the world, asking for power for the landlord over the tenant, without protecting the tenant in his just demands against the landlord. Let them meet on such terms that the public cannot say, "You don't act upon fair principles by having your settlement in a county court."

Proposal for Farm Lease under a New Arrangement, whereby the Landlord should obtain immediate possession by arbitration:—

Lease for Seven, Fourteen, or Twenty-one years, determinable by either party giving two years' notice (in writing) previous to the expiration of either of the before-named periods.

Upon entry, the landlord and tenant both to be represented by their agents, or valuers, who shall inspect the farm, and agree upon the general state thereof between themselves, or by umpirage, and sign a written statement of the condition, &c. of each field, or parcel of land, and also of the state of the farm-buildings, &c. as to repairs.

The tenant to be allowed to cultivate the land, as regards rotation of cropping, &c. as he may deem most advantageous during the whole term, except in the last two years of the lease, whether determined by notice or otherwise, during which two seasons the land shall be managed and cropped according to the four course rotation, or Norfolk, system of cropping, viz.—one-fourth part to be fallowed and seeded for roots, &c. to be fed on the farm: one-fourth to be sown with Barley or Oats; one-fourth to be seeded to Clover and Grass; and the remaining fourth part to be sown with Wheat.

The tenant to be allowed to sell hay and straw, except during the last two years of the term; and, on leaving, to be paid by the landlord for haulm and fodder at consuming price, and for hay at market value, or at consuming price, upon the same principle at the same ratio as the tenant paid upon entry.

Repairs to be done by the tenant, the landlord finding the materials.

The tenant, upon leaving, to be paid for seed and tillages, and purchased manures, from which he has derived no benefit, at the full value.

The tenant to receive from the landlord the value of unexhausted manures and improvements at quitting, according to the rates named in the annexed schedule:—

Rule 1. Purchased manure, either town, yard, or other decomposed manures, to be charged over two years: first year, 20*s.* in the pound; second, 6*s.*

2. Bone manures used for Turnips, &c., to be charged over two years: first year, 20*s.* in the pound; second, 8*s.*

3. Superphosphate of lime, guano, &c., used for Turnips, &c. to be charged over two years: first year, 20*s.* in the pound; second, 6*s.*

4. Grain, Pulse, Linseed, or oilcake, fed during the last year of the tenancy, by fatting stock or sheep, to be charged at 8*s.* in the pound.

5. Lime, if used by itself or with common mould, to be charged over two years: first year, 20*s.* in the pound; second, 10*s.*

6. Chalk, if done by consent of the landlord, the quantity and price per acre to be first agreed by landlord and tenant, to be charged over five years: first and second years, 20*s.* in the pound; third, 15*s.*; fourth, 10*s.*; fifth, 5*s.*

7. Draining (where the landlord finds tiles, the tenant doing the labour), to be charged over six years: first year, 20*s.* in the pound; second, 18*s.*; third, 16*s.*; fourth, 14*s.*; fifth, 10*s.*; sixth, 5*s.*

8. Pipe or tile draining, done by consent between landlord and tenant, tenant finding everything, to be charged over ten years: first year, 20*s.* in the pound; second, 18*s.*; third, 16*s.*; fourth, 14*s.*; fifth, 12*s.*; sixth, 10*s.*; seventh, 8*s.*; eighth, 6*s.*; ninth, 4*s.*; tenth, 2*s.*

9. Any hedge planted, pasture-land converted into tillage, orchards or plantations made by the consent of landlord, to be subject to valuation.

10. Extra buildings required to be subject to a special agreement between landlord and tenant.

11. Temporary buildings.—Any shed put up for sheep, cattle, manure, &c., by the tenant, to be taken by the landlord at valuation, or be allowed to remove it.

12. All consents to be given in writing.

13. If any dispute arise between landlord and tenant respecting any of the abovementioned rules contained in this schedule, to be subject to reference, one referee to be chosen by each party, who are to choose an umpire before proceeding to business, whose decision shall be final.

After a lengthened conversational discussion, Mr. Spooner said their subject was the consideration of agricultural leases, but they had diverged into many others. The object is to have such regulations laid down as conditions of the lease as should be satisfactory to the landlord and the tenant, and beneficial to the country at large, the aim being that the cultivation shall be as good in the last as in the first year of the tenancy. The subject at the last meeting had two objects, first, a recommendation of an Act of Parliament; and second, a recommendation to make an agreement between landlord and tenant. The first was to enable the landlord to get rid of a bad tenant who wanted to get all he could out of the land, and then leave it in its impoverished condition; or that was unable from poverty to do justice to himself or his landlord. Judge Gale seemed to consider it was not desirable the landlord should have the power, for some weak and frivolous reason perhaps, to dispossess the tenant, but that upon

his desiring to do so (to save his land from further deterioration), to leave the power to some valuers, who are to look upon the land, and if they find it as represented, they should have the power to dispossess the tenant from the farm. On the other side, if it could be shown that the land was not injured, or that it would be recovered from its temporary injury, that then they should not be able to dismiss the tenant. Then he understood that the tenant should be paid for unexhausted improvements. It did seem, at first sight, hard, that if power should be given to one party to do himself justice, that it should not be given to the other. The Chairman, after some further disquisition, read the resolutions of the Club as prepared by the Secretary, as follows:—

1st. That it is the opinion of this Club that the numerous restrictions which at present so frequently encumber the leases of farms are absurd and injurious, and should therefore be abolished.

2d. That the tenant should have the power of farming in any manner he may think proper, provided he farms the land during the last two years in such manner as may be specified, and

3d. That he should be compensated for unexhausted manures and improvements, according to a scale laid down and agreed upon.

4th. That the landlord should have the power of dispossessing a tenant for bad cultivation by a more summary process than at present exists, such power to be afforded by an Act of Parliament, and to be exercised only under the sanction of competent valuers, such having been previously agreed to by both landlord and tenant.

5th That in the opinion of this Club the best term for a lease would be 21 years, determinable at the end of 14 years by a two-years notice, given by either landlord or tenant.

Miscellaneous.

The late Mr. Bolden's Herd.—On Friday, April 27th, the sale of the celebrated stock of short-horned cattle, the property of the late John Bolden, Esq., of Hyning, took place at Springfield Hall, Lancaster. There was a remarkably good attendance from all parts of the country, and we noticed the presence of some visitors from Ireland. Mr. Strafford officiated; and the competition was remarkably spirited, as the following prices will show:—

			Gs.
Dowager Queen	1842	Mr. Carr	27
Florence	1845	Mr. Adcock	86
Linda	1845	Mr. Hetherington	34
Pearl 2d	1848	Mr. Cartwright	65
Gertrude	1848	Mr. Torr	100
Roan Twin	1850	Miss Dalton	50
Red Twin	1850	Mr. Vernor	50
Pearletta	1850	Mr. Alexander	70
Isabella Howard	1851	Mr. Bromley	46
Prune	1852	Mr. Alexander	100
Lady Hopetown	1852	Mr. Torr	220
Pearl Powder	1853	Mr. Cartwright	52
Burletta	1853	Mr. Bromley	36
Isabella 2nd	1854	Mr. Knowles	37
Lisette	1854	Mr. Whalley	40
Prunella	1854	Mr. Alexander	50
Miss Warton	1855	Mr. Knowles	20
BULLS.			
Duke of Bolton	1853	Mr. Adcock	105
Vladot*	1854	Mr. Blackstock	57
Hymen*	1854	Mr. Douglas	51
Vocalist*	1854	Mr. Bland	62
Cherry Duke*	1854	Mr. Jefferson	66
Hyning	1855	Mr. Dalzell	20
Bonaparte*	1855	Mr. Bland	80
Petterill	1855	Mr. Whalley	21
Blucher*	1855	Mr. Bland	52
Brilliant	1855	Mr. Cartwright	62
Third Duke of Bolton	1855	Mr. Douglas	40

Calendar of Operations.

MAY.

Cambridge, May 2.—The month of May has arrived, but not with it any Grass, and dairy stocks generally are suffering for want of it. Hay last year was an exceedingly light crop, and many farmers have had to buy hay and other food at a high price for their cattle, and are now, from necessity, turning them out to very bare pastures. Wheat is recovering rapidly from the effects of the severe weather, and where the root has not been too much thinned is very promising for a crop. The sowing of spring corn of all descriptions, and of seeds, has been quickly got over in consequence of the frost having left the ground in beautiful order for their reception. Potato planting has been satisfactorily performed, and the sowing of Mangold Wurzel, which is now so important a crop, is in a forward state. The next step is the preparation for the Turnip crop, but farmers generally are not so anxious as formerly to sow early on account of the increased liability of mildew to early sown Turnips; from the last week in May to the end of the first week in June is now considered the best time on an average of seasons. Vetches and all kinds of spring food for soiling cattle will be much later than usual, consequently the expense of keeping stock will be greatly enhanced. Owing to the very dry summer of last year, and the great scarcity of Grass, the make of cheese was unusually small, and there is now very little in the farmers' hands, consequently prices have ranged rather high at the late fairs; but considering the deficiency, they are not remunerative. Oats are very scarce and dear, and Wheat is rather more in demand at higher prices. *W. P.*

Notices to Correspondents.

Clover: *A Ten Years' Subscriber.* 3 cwt. of Lawes' superphosphate per acre would be a good dressing for old Grass land. It should have been spread early in spring. If you mix the guano you purpose sowing with 10 or 12 times its bulk of garden mould, or good earth of any kind, for a day or two before sowing, and then spread it over the Clover in or after the first rain, you will do good "without any mixture of harm."

Grass: *G S.* Sow ½ cwt. of nitrate of soda, and 1½ cwt. of guano, mixed up with two or three times its bulk of good mould broadcast per acre.

Marl: *J P.* Put it into a wine-glass half full of vinegar. If it effervesces you may conclude it to be a marl. It appears to effervesce very slightly indeed; but may be a useful dressing upon very light land.

Poppy-cake: *W O M* having seen lately in our columns a favourable analysis of Poppy-cake as food for young stock, asks if any of our readers can speak of its feeding qualities from actual experience, and also where it can be procured.

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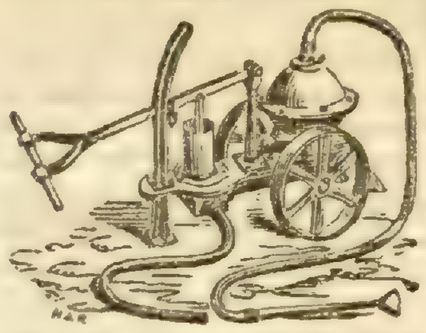

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Horse power size ...	16	16	0

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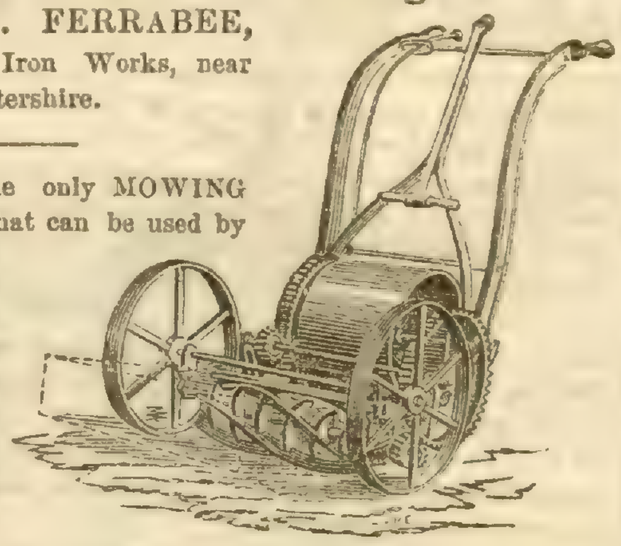

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Ditto	„ 36 ditto	... 15	0	0

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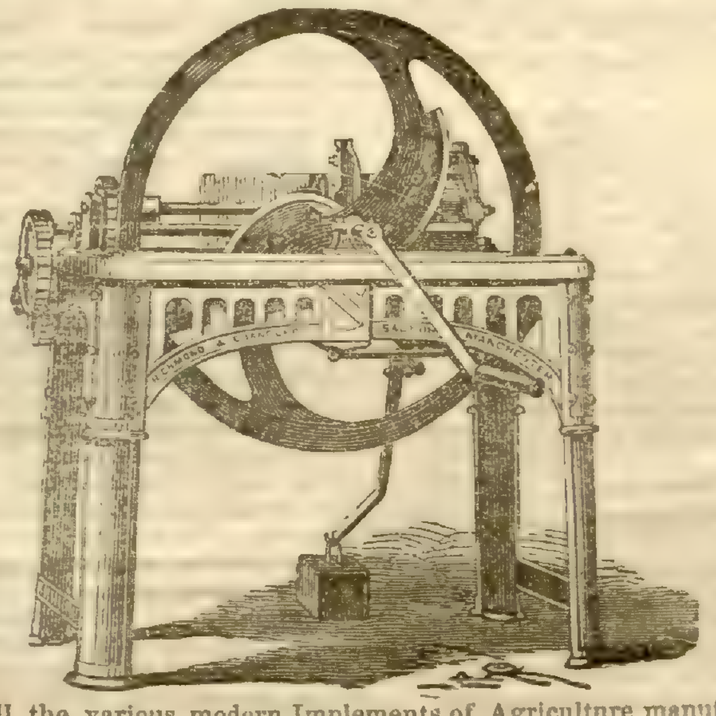

All the various modern Implements of Agriculture manufactured on the most scientific and improved principles, suitable for home use and exportation.—Address, RICHMOND & CHANDLER, Salford, Manchester; and 32, South John Street, Liverpool.

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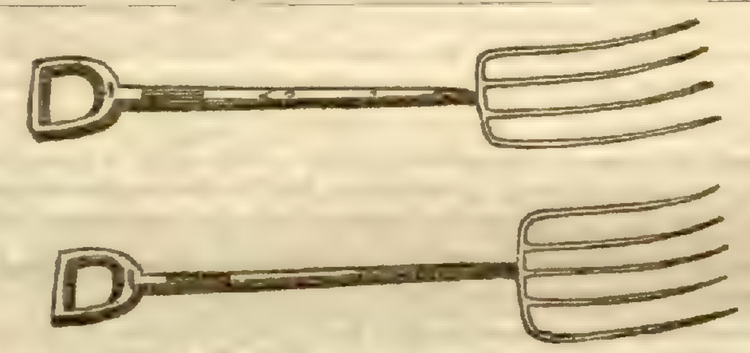


WILLIAM DRAY AND CO.'S STEEL DIGGING FORKS are warranted equal, and by many are considered superior, to any in use. Three Tine Forks, 4s. 6d. each; Four Tine Forks, 5s. 6d. each. A liberal allowance on Wholesale Orders. WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3l. 3s. The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1s. 6d. per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3s. 6d. per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ „ long	3 „ 3 „		1	15	0
3 „ ditto	3 „ 6 „		2	12	0
3½ „ ditto	3 „ 6 „		2	18	0
4 „ ditto	3 „ 6 „		3	5	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	12	0
2½ in. long ditto	ditto	ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

JOHN WARNER AND SONS, Crescent, Jewin Street, London. GALVANISED IRON TUB GARDEN ENGINE, WITH WARNER'S REGISTERED SPREADER,

is strongly recommended, for durability and low price, viz., 2l. 19s., to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9s. upwards. Metallic String from 5d. to 1s. 3d. per lb.

JOHN WARNER AND SONS, 8, Jewin Crescent, London, Manufacturers of FIRE ENGINES, PUMPS, GARDEN ENGINES, and SYRINGES.

Brass Syringes, 9s. to 18s.

All articles of JOHN WARNER & SONS' manufacture may be obtained of any Ironmonger or Plumber in town or country, at the advertised prices.

JOHN WARNER & SONS having been practical Horticulturists for many years, know exactly the requirements of both Amateurs and Gardeners. A gardener with a properly constructed pump will get through as much work in five minutes as he could with any Syringe in a quarter of an hour, and with half the labour to himself. Syringes are economical for small houses.

No establishment offers such a variety of effective machines for hydraulic purposes, whether to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of liquids.

Fountains suitable for Conservatories, Lawns, &c.

Sheets of Engravings sent on application.

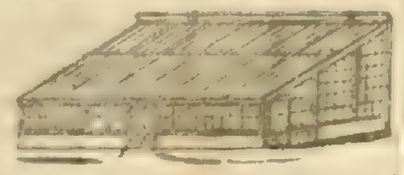
LINGHAM BROTHERS, No. 170, Hampton Street, Birmingham, sole Manufacturers of the improved WOOD and ZINC MONOGRAPH, or LABELS for Garden Borders, Flower-pots, &c., in boxes of 100 each. The Zinc Labels are highly approved of for their lasting durability, can be written upon with the greatest ease, and when dry a permanent inscription is secured. Directions are sent with each box, including a bottle of metallic ink.—Sole Agents in London, Messrs. DRAKE DRAY & Co., Horticultural Implement Warehouse, 46, King William Street, London Bridge.

HORTICULTURE IN ALL ITS BRANCHES.

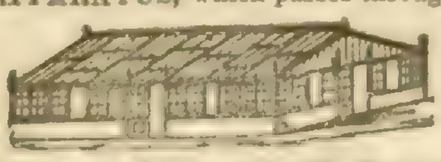
JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

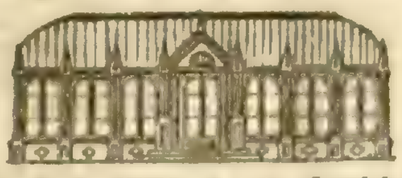
THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.



Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

WARD'S CASES, GAS BOILER, Double Action Galvanised PUMP, with Gun-metal Buckets and Pulpit Branches for sale.—Apply to H. SMITH, 12, Rufford's Row, Islington, London.

COTTAM AND HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.

Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

Hand Glass Frames, Cast and Wrought Iron Flower Stakes, Garden Arches, &c.

Strong Iron Hurdles, and best Wire for Strained Wire Fencing.

Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom.

Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

FOR WATERING GARDENS.

HANCOCK'S IMPROVED VULCANISED INDIA-RUBBER HOSE AND TUBING is now manufactured especially for the above purpose; is of greater flexibility than any other description of Hose; is capable of resisting great pressure, and made suitable for attaching to the mains of water-works, or to tanks of high elevations.

WATERING HOSE fitted up with the necessary *brass joints, stop-cocks, branches,* and *spreaders complete.*

VULCANISED INDIA-RUBBER SUCTION PIPES, made any length or size for Pumps or Garden Engines.

VULCANISED RUBBER WASHERS, and also in Sheet, any thickness, for all kinds of steam and water joints, or made any size or figure to order.

All communications and orders punctually attended to, addressed to the Manufactory, JAS. LYNE HANCOCK, Goswell Road, London.

THE IMPROVED PATENT GARDEN, WATER, AND ROLLING ENGINE may be seen in the Agricultural Department at the CRYSTAL PALACE, SYDENHAM.

The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet, and is so portable that any ordinary domestic may use it. It contains about 20 gallons. Price 5*l.* 10*s.*

May be had at J. DORE's Manufactory, 17, Exmouth Street, Clerkenwell, London.

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NEIGHBOUR'S IMPROVED COTTAGE BEEHIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, glasses, thermometer, &c., price 35*s.*, securely packed for the country.

This unique hive has met with universal commendation, and may be worked with safety, humanity, and profit, by the most timid; its arrangements are so perfect, that the honey may be taken at any time of the gathering season without at all injuring the bees.

Early applications, addressed to GEO. NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention. Their newly arranged Catalogue of other improved Beehives, with Drawings and Prices, sent on receipt of two stamps.

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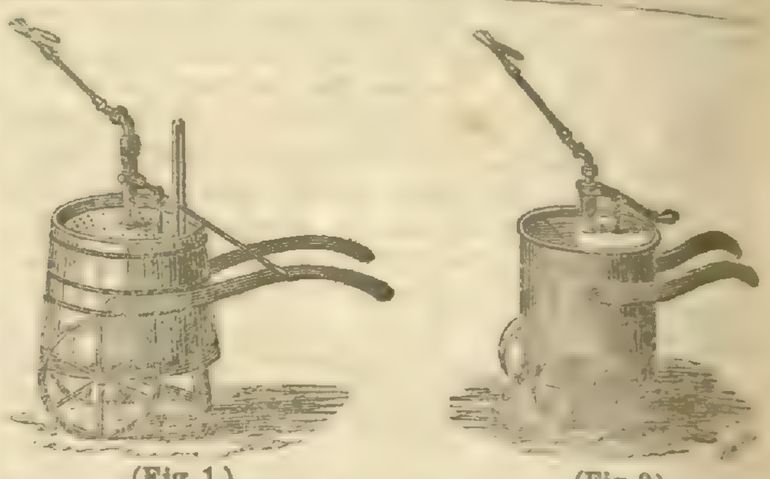
THE CRYSTAL PALACE FLOWER BASKETS made to the original, and a variety of new and elegant Designs for Conservatory, Verandah, Drawing-room, &c., from 3*s.* 6*d.* upwards, by W. RICHARDS, WIRE-WORKER, &c., 370, Oxford Street, nearly opposite the Princess's Theatre. Conservatories fitted up, Aviaries, Bird-cages, Flower Stands, and every description of Wire work. Game and Garden Fencing of the best description.

N.B. Holland, Venetian, Wire, and all kinds of Sun shades, and Window Blinds of best quality.

TREE TRANSPLANTING BY M'GLASHEN'S PATENT.

MR. M'GLASHEN is now prepared to supply Apparatus or give Estimates as to the rate at which he will safely and expeditiously transplant Trees or Shrubs of any dimensions in any part of the United Kingdom.

Canonmills Bridge, Edinburgh.



(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1	holds 10	gallons,	throws 30	feet high		...	£4 10
No. 2	" 15	"	" 45	"		...	5 10
No. 3	" 28	"	" 45	"		...	6 18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10	holds 8	gallons,	throws 25	feet high		...	£2 15
No. 13	" 12	"	" 30	"		...	3 5
No. 11	" 16	"	" 40	"		...	4 0
No. 12	" 24	"	" 45	"		...	5 0
No. 14	" 30	"	" 45	"		...	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each; Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, &c.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected: and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expenses of delivery in the country.

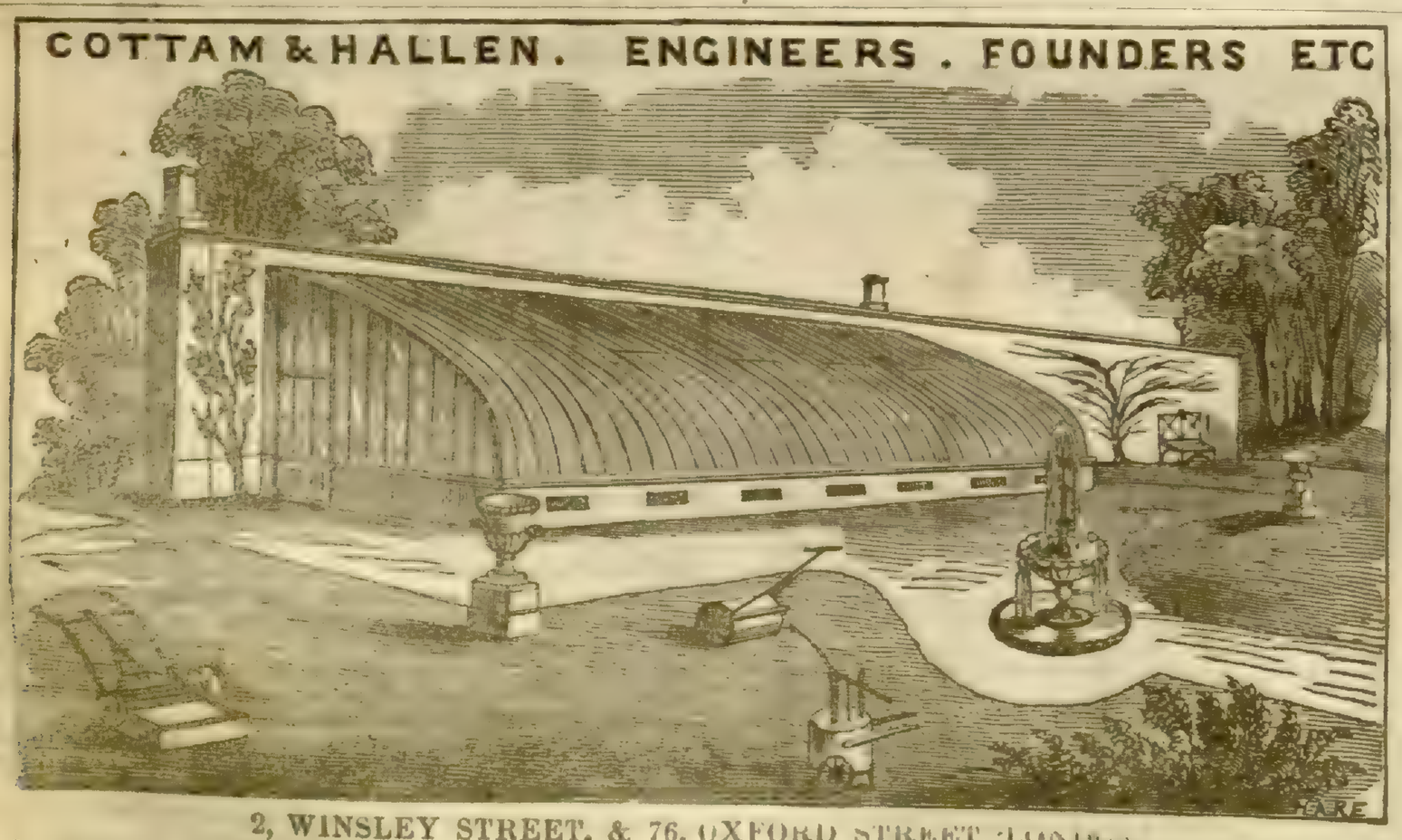
"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ETSEBA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than mats as a covering."

COTTAM & HALLEN. ENGINEERS. FOUNDERS ETC



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

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EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Prices Lists of Plant Tubs and Boxes forwarded on application.

WEIR'S CANVAS HOSE PIPING, for Liquid Manure or Water, protected from rot.

1	1¼	1½	1¾	2	2¼	2½	2¾ 3 inches diameter.
4d.	4½d.	5d.	6d.	7d.	7½d.	8d.	9d. 10d. per foot.

Illustrated Catalogues and samples free per post. Terms, cash on delivery.—EDWARD WEIR, Agricultural Engineer, 16, Bath Place, New Road (six doors west of the Hampstead Road), London.

GLAZING WITH OR WITHOUT PUTTY.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.—Printed Price Lists supplied on application.

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JAMES PHILLIPS AND CO., HORTICULTURAL GLASS MERCHANTS, 116, Bishopsgate Street Without, respectfully beg to direct attention to the price of Glass Milk Pans, the same size as those of German manufacture (17 inches in diameter) but superior in colour, make, and quality.—Packed in cases containing 12 at 12s. per dozen. Case 2s. extra, returnable at full price.

Extract from *Gardeners' Chronicle*.

"All I know about glass milk-pans is this:—When I first took to dairying on a large scale I laid out 20*l.* in glass pans, because they looked so well in a dairy. On further acquaintance with them, I have come to the conclusion that they are the cheapest things (even at 4s. each) that a farmer can use; for they are washed, and wiped, and are kept clean with 300 per cent less trouble than 'leads.'"

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY.—The Managers beg to inform the Nobility and Gentry, Farmers, Gardeners, &c., that their new List of Prices may be had free on application at the Company's Depôt, 296, Oxford Street, London.

PLATE, CROWN, and SHEET WINDOW GLASS.

HARTLEY'S PATENT ROUGH PLATE for Roofing Conservatories, Halls, and Public Buildings.

Coloured and Ornamental Glass.

CRYSTAL SHADES for covering Ornaments, and

MOORE'S PATENT LOUVRE VENTILATOR, and Lockhead's Patent Perforated Ventilating Glass for Dairies, Greenhouses, Stables, &c.; Glass Milk Pans, Pails, Tests, and Measures; Cream Pots and Syphons; Churns, Butter Tests and Slabs; Tiles and Slates; Bee Hives, &c.

Aquariums, Fern Shades, Propagating Glasses, Fruit Protectors, Preserve Jars, Cucumber Tubes, Hand Lights, Flower Vases, Labels, &c., and all kinds of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included. — Per 100 ft.

6 in. by 4 in.	and 6 in.	by 4½ in.	...	...	12*s.*	0*d.*		
6½ " 4½	" 7	" 5	...	...	12	6		
7½ " 5½	" 8	" 6	...	...	13	0		
8½ " 6½	" 9	" 7	...	...	13	6		
9½ " 7½	" 10	" 8	...	...	13	6		
10½ " 8½	" 11	" 9	...	...	14	0		
12 " 9	" 13	" 9	...	...	14	0		
10 " 10	" 10½	" 10½	...	...	14	0		
11 " 10	" 11½	" 10½	...	...	14	0		
11 " 11	" 11½	" 11½	...	...	14	0		
12 " 11	" 12½	" 11½	...	...	14	0		
13 " 11	" 13½	" 11½	...	...	14	0		
13 " 12	" 13½	" 12½	...	...	16	0		
13½ " 13½	" 14½	" 13½	...	...	16	0		
15½ " 13½	...	...	...	...	16	0		

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.	Inches.		Per foot.	Per 100 feet.
From 6 by 4	Under 6 by 4	at 1¼*d.*	is	£0 12 6
7 " 5	" 7 " 5	" 2*d.*	"	0 16 8
8 " 6	" 8 " 6	" 2¼*d.*	"	0 18 9
10 " 8	" 10 " 8	" 2½*d.*	"	1 0 10
	" 12 " 9	" 2¾*d.*	"	1 2 11

Larger sizes, not exceeding 40 inches long.
16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. " 3½*d.* to 5*d.*
26 oz. " 3½*d.* to 7½*d.* " " "

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, equal in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not before manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure.

Pipes, since the removal of the excise duty, reduced one-half.

List of Prices and Estimates forwarded on application to JAMES HETLEY & Co., 35, Soho Square, London.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES, consisting of MATTING, MATS, MATTRESSES, BRUSHES, NETTING, HORSE-HAIR, and BRISTLE SUBSTITUTE, are distinguished for superiority and excellency of workmanship, combined with moderate prices. Prize Medal both in England and America at the Exhibition of all Nations.

T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

TO NERVOUS SUFFERERS.

A RETIRED CLERGYMAN having been restored to health in a few days, after many years of great nervous suffering, is anxious to communicate to others the means of cure; he will therefore send (free), on receiving a stamped envelope, properly addressed, a copy of the prescription used.—Direct Rev. E. DOUGLASS, 18, Holland Street, Brixton, London.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 12*s.* per ton, 1*s.* 6*d.* per bushel, or 16*s.* per ton, delivered to any of the London Wharfs or Railways, or within a circuit of five miles. Peat and Loam of various qualities. Sacks 2*s.* each.

KENNARD BROTHERS, Swan Place, Old Kent Road.

LINCOLN CEMETERY.

TO ARCHITECTS, SURVEYORS, LANDSCAPE GARDENERS, AND OTHERS.

THE BURIAL BOARD offer the following PREMIUMS, namely:—

For the best Set of PLANS for an Episcopal Chapel and a Dissenters' Chapel, in separate and distinct buildings; a Lodge, with a Waiting Room attached; a House for the Reception of the Dead; and Boundary Fences; accompanied by Estimates, 10*l.*

For the second best ditto, 5*l.*

For the best Plan and Estimate for Laying out and Ornamenting the Ground, 10*l.*

For the second best ditto, 5*l.*

In awarding the Premiums economy of construction in some measure will be taken into consideration.

The Site of the New Burial Ground is part of the South Common, on the East side of and adjoining the Turnpike Road leading to Canwik. The Land must be enclosed to the extent of 15 acres in a geometrical, ornamental, and tasteful manner; the Southern boundary to be the diversion of the Turnpike Road leading to Washingboro', next to Canwick Lordship, but the exact line of such road, as well as the other boundaries and fences, will be left to the taste of the competitor; the Northern boundary not to extend beyond the trial hole.

Parties may compete both for the buildings and laying out of the ground, in one or more plans, &c., and it will be competent for one competitor to take both premiums.

The plans, &c., must be distinguished by a mark or motto, and delivered or sent post paid in sealed covers, with a sealed letter, containing a corresponding mark or motto, with the name of the competitor, to the Clerks of the Burial Board, on or before the 5th day of June next. If any name is written on the plans, or any written or verbal communication made, directly or indirectly, to indicate the competitor's name to any member of the board, or the officials, previous to the plans being selected, such plans will be absolutely rejected.

The Burial Board reserves the right to adopt the plans approved either wholly or in part, and to employ the party whose plans are selected to superintend the carrying out such plans or not, as it may think fit; and whether such party shall be employed or not, the plans for which the first premiums shall be awarded are to become the property of the Board.

It is expressly stipulated that the payment of the premiums shall be withheld until the plans selected shall have been carried out, and the works found to be executed at the estimated costs or thereabouts.

The party whose plans are selected must, if required, be prepared to complete and deliver the working drawings and specifications for the inspection of persons willing to tender for carrying out and executing the same, within 14 days after receiving the order for the same.

In case none of the plans should be found to have sufficient merit to justify an award, the Burial Board reserves the right to withhold the premiums.

A Plan of the South Common may be seen, and a tracing taken, and further information obtained, at our Offices.

Lincoln, May 1. WM. ANDREW, THURSTAN G. DALE, } Clerks to the Burial Board.

FARM WANTED TO HIRE.—The Advertiser is in want of a FARM of from 20 to 50 acres of good Arable and Pasture Land, with respectable residence, and ample outbuildings, within a distance of 20 miles from London. Possession to be taken either at once, or at Michaelmas next.—Apply, stating rent and other particulars, to Y. Z., care of Mr. Macaulay, Stationer, Rochester, Kent.

BINFIELD ROAD, STOCKWELL, SURREY.

TO BE LET on Lease, the whole or part of a desirable NURSERY GARDEN, walled round, Cottage containing five convenient rooms on the ground floor, three Greenhouses, and two Sheds.—Particulars of Mr. THOMPSON, 3, Finsbury Chambers, Blomfield Street, London.

CONNEMARA, IRELAND.

TO BE LET, for a term of years and entered upon immediately, the FARM OF SHANBOOLARD, in the parish of Ballinakill and county of Galway. It consists of about 264 statute acres of Arable, Pasture, and Bog Land, on which a considerable sum has already been spent in permanent improvements. The Farm would be let at a Corn Rent, and, if required, on a long Lease—the rent in proportion. The Farm is bounded on the north by Ballinakill Harbour, affording good sea-bathing; and on the south by Ballinakill Lough, noted for its Brown Trout, and commands extensive views of the Achill and Connemara Mountains. It is within eight English miles of the market-town of Clifden.—For particulars apply to Mr. EDWARD WHITWELL, Letterfrack, Galway.

HIGHLANDS OF PERTHSHIRE.

TO BE LET, CASTLE MENZIES and SHOOTINGS; the House, as furnished, affording ample accommodation for a numerous family and establishment, along with 10,000 acres of Muir and Low Ground Shootings. The stock of Game, which has been strictly protected and well preserved, will be found good, healthy, and of all the usual descriptions; and Salmon Fishing is to be had along the banks of the Tay and Lyon, which bound the property for six miles. The post passes the gate, and from Aberfeldy (two miles distant) coaches proceed in all directions. Supplies are easily procured. The climate is exceedingly good; and the place would be equally suitable as a permanent residence or as a shooting quarter.—Apply to ARCHIBALD CAMPBELL, Camserney Cottage, by Aberfeldy.

HOUSE AND SHOOTING.—ISLAND OF MULL.

TO BE LET, CARSAIG HOUSE, beautifully situated on the South Coast of Mull. It contains three public rooms, seven bed-rooms, three dressing-closets, and a bath, ample accommodation for servants, and is well supplied with water. The tenant may have accommodation for two or three horses, and may have a pasture for two cows, or be supplied with dairy produce. There is a good Vegetable Garden. The Shooting extends over about 5000 acres, which have been very little shot over for many years. Other 4000 or 5000 acres adjacent may be obtained. The Game consists of grouse, black game, partridge, hare, and rabbits, and occasionally red deer. The Sea Fishing is excellent, and there are two small Trouting Streams on the Estate. There is a commodious Quay and Landing-place, and Steam-boats pass the house in the summer three times a-week.

TO SPORTSMEN, STOCK-FARMERS, ETC.

TO BE SOLD, a range of nearly 6000 acres of easily-travelled GROUSING GROUND, not surpassed in the Lowlands of Scotland for its sporting qualifications, and watered by several small Trouting Streams, having also a comfortable Small Lodge, all situated in the midst of several strictly preserved estates, in one of the most southerly counties, and of easy access from England or elsewhere, from being within five miles of a seaport, as well as forming a very improving and easily-managed investment as a Stock Farm for a moderate capital. The proprietor is ready to treat for a Sale of the same.—Apply, free, to No. 639, N.B.A.O., Edinburgh.

TO BE SOLD or LET, a MODEL FARM for Amateurs for 21 years, with immediate possession, in a good hunting district, 36 miles from London. Convenient Residence, good Grounds, &c. Two-thirds of Purchase Money can be left on Mortgage.—A. Q., Office of this Paper.

EGGS FOR SETTING may be had from the Yard of Mr. H. D. DAVIES, whose stock has been carefully bred and selected from all the best strains, and has already taken upwards of 250 Prizes. Spanish, Dorking, Brahma, and Rangoon Eggs, 2*l.* 2*s.*, and White Cochin and Aylesbury Ducks, 1*l.* 11*s.* 6*d.* the dozen, to include basket, &c. Spanish and Dorking Fowls of all ages may be selected from that portion of the stock not required for breeding or exhibition this season. For Cock and 1 Pullet, 5*l.* 5*s.*; Cock and 2 Pullets, 7*l.* 7*s.*; Cock and 4 Pullets, 10*l.* 10*s.*—Remittances, by Post-office Order, payable to GEORGE KEEBLE, the Bailiff, Spring Grove House, Hounslow, to accompany all orders.—Mr. DAVIES will feel obliged if persons who wish to see the Poultry will make it convenient to do so between the hours of 10 and 4 on any Wednesday or Saturday.

GOLDEN-SPANGLED HAMBURGH EGGS (fresh) from First-rate Birds, 10*s.* per set of 13.—Apply to Mr. J. COMPTON, Porchester, Fareham, Hants.

TO BE SOLD, BUFF COCHIN CHICKENS, from first class Prize Birds, Brahma Pootra Chickens, from imported American Prize Birds, and Spanish Chickens. Also some very good one-year-old Birds of the above descriptions. Wire, Game, and Poultry Netting, Poultry Hurdles, Hen-houses, Chicken Coops, Flower Stands, and Trainers, Garden Arches, and every kind of Wire Work, useful and ornamental.—T. H. Fox's, City of London Wire Works, 44, Skinner Street, and 6 & 8, Snow Hill.

Illustrated Catalogues forwarded post free.

TO BE SOLD, a young THOROUGH-BRED GUERNSEY BULL, of great size, beauty, and symmetry. Any admirer of this popular breed may secure a very perfect animal on application to JAMES MILEHAM, the Bailiff at Apps Court, two miles from the Hampton Court Station; or by letter addressed to Apps Court, West Moulsey, Surrey.

TULIPS.

TO BE SOLD, a well selected bed, of 60 rows, from the collections of Messrs. Goldham, Sanders, Delaforce, and most growers of celebrity, comprising many first class and new varieties; also the stage complete, cabinet for 168 rows, &c., the property of Mr. Clark, 1, Alpha Place, Coburg Road, Old Kent Road, who is giving up the cultivation on account of ill health.—May be viewed on the 23d, 24th, and 25th May. The stock being too limited to admit of sale by Auction, Mr. C. would treat with any purchaser for all or part.

Sales by Auction.

ORCHIDS ESTABLISHED AND IMPORTED PLANTS.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 8th May, at 12 o'clock, a magnificent Importation of ORCHIDS, just received per Solent, in the finest condition, from Santa Catarina and San Paulo, comprising splendid masses of Lælia purpurata and Brysiana, and a quite new species; Cattleya Leopoldi, elegans, tigrina, Russelliana superba, lobata, and many other species; also some established and flowering plants of Odontoglossum Pescatorei and maculatum; Uropedium Lindeni, and Odontoglossum Reichenheimi, nebulosum, phalænopsis, and hastilabium.—May be viewed on the morning of sale, and Catalogues had.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will sell by Auction, at the Mart, Bartholomew Lane, on FRIDAY, May 11th, at 12 o'clock, a first class collection of Carnations, Picotees, and Pinks, choice Dahlias on dry roots, Verbenas, Fuchsias, Heartsease, &c.; with Geraniums, Azalea indica, and other plants in bloom.—On view the morning of sale. Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

BLACKHEATH.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

8000 BEDDING AND OTHER GREENHOUSE PLANTS.

MESSRS. PROTHEROE AND MORRIS are instructed to sell by Auction, without reserve, in the Lecture Hall adjoining the Blackheath Station of the North Kent Railway, on THURSDAY, May 10, at 1 o'clock, a choice collection of Fancy and other Pelargoniums, Tom Thumb and fine Scarlet Geraniums in varieties, Verbenas, Heliotropes, Calceolarias, Petunias, Fuchsias, Lobelias, Pentstemons, Phlox, Dahlias; also selected assortment of Azalea indica, Ericas, Epacris, Aphlexis, Leschenaultias, Acacias, &c.—May be viewed one day prior, and morning of sale; Catalogues may be obtained at the place of sale; of Mr. DROUET, Crown Inn, Tranquil Vale, Blackheath; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TULIPS IN BLOOM.

MESSRS. PROTHEROE AND MORRIS will sell by Auction, without the least reserve, on MONDAY, May 28, at 1 o'clock precisely, the ENTIRE COLLECTION of TULIPS in BLOOM of Mr. John Edwards, and now growing at the Paradise Nursery, Hornsey, and Seven Sisters Road, Holloway, Middlesex, where by the kind permission of Mr. Robert Parker, they may from time to time be seen. The bed is 200 rows in length, and contains over 2000 full sized first class Blooming Bulbs, including most of the show flowers extant, all of the finest strain, and collected during the last 12 years at a cost exceeding 1000 guineas.

Catalogues may be had for two postage stamps of Mr. R. Parker, as above: of Mr. Turner, Royal Nursery, Slough; Mr. J. Keynes, Salisbury; Mr. Wood, the Coppice, Nottingham: Mr. E. S. Dodwell, Derby; Mr. Lightbody, Falkirk, N.B.; Mr. Slater, Cheetham Hill, Manchester: at the Office of this Paper; and of the Auctioneers, American Nursery, Leytonstone, Essex.

MITCHAM.—TO TULIP FANCIERS.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Goldham to submit to public competition by auction, without reserve, on the premises, Hynder Cottage, Merton Lane, Mitcham, Surrey, on FRIDAY, May 25, at 1 o'clock, a portion of his costly and unrivalled Collection of TULIPS. No comment on this magnificent stock will be equal to an inspection of its striking beauties, for which an opportunity is now offered to the amateur florist, &c. New Flowers and Seedlings of Mr. Goldham's raising—the result of more than 30 years' successful cultivation and competition; among these are—Fanny Kemble, John Kemble, Charles Kemble, Julius Cæsar, Napoleon, Fortunatus, Gem, Duchess of Sutherland, Standard, Lord Byron, Marshal Soult, Marshal Blucher, Emma, Calphurnia, Oliver Goldsmith, Othello, Comet, Biz, Mark Antony, Sir R. Peel, Helen, Lord Nelson, Picturata, Unique, Byb. Belvidera, Juliet, Marquis of Anglesea, Unique Rose, and Mount Hecla. Among Flowers raised by other growers are—Pandora, Thalia, Musidora, Matilda (new), Lord J. Russell, Apelles, Duke of Devonshire, Mrs. Siddons, Feu devorent, Stein's Victoria, Strong's Eliza, St. Neots, Fanny Ellsler, Parmeziano, General Bournonville, Louis XVI., Polydora, Wallace, Rutley's Queen, Duchess of Manchester, Commodora, Lord Collingwood, &c.—May be viewed two days prior to the Sale; Catalogues had on the premises; of the principal Seedsmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

NEW AZALEA—"ALBA MELIOR."

THIS is the one exhibited by us under the name of "ALBA MAGNA" among our collection to which the First Prize was awarded at the Regent's Park Show; very large pure white, and quite first-rate. Price 7*s.* 6*d.*, 10*s.* 6*d.* to 21*s.* each. Also a superior stock of Azaleas, for which see Catalogue.

The Spring Catalogue, consisting of Greenhouse and Stove Plants, and the Herbaceous one can be had by enclosing one postage stamp.

H. LANE & SON, The Nurseries, Great Berkhamsted.

HOLLYHOCKS, HOLLYHOCKS, HOLLYHOCKS!

THOMAS WILD, Ipswich, offers for sale 100 packets, each containing 100 Seeds, saved by a gentleman who grows all the best varieties for Exhibition, 1*s.* per packet. The usual discount to the trade.

Ipswich Standard Cucumber, Primulas, and Golden Chain Geraniums, are sold out.

NOTICE.—Wanted 100 dozen GOLDEN CHAIN GERANIUMS. State size and price to T. WILD, Ipswich.

UNBLOOMED SEEDLING CALCEOLARIAS.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that his UNBLOOMED SEEDLING CALCEOLARIAS are now ready to send out in parcels of 20, at 6*s.* per parcel, or four parcels for 1*l.*, post free. They have been produced from rich and beautiful varieties, therefore good and beautiful colours and markings may reasonably be expected.

A few sets of H. M.'s beautiful new Seedling Calceolarias, so highly spoken of by Mr. Glenny, still remain; price 3*l.* the set. The usual discount to the Trade for cash only. Twelve very choice Calceolarias, to include all his best sorts sent out last year, price 25*s.* A descriptive Catalogue of the new Calceolarias may be had on application. From unknown correspondents a remittance is respectfully requested with the order.

JOHN ELSON is now sending out his new CINERARIA, MASTER ARTHUR UNDERHILL. Colour intense blue and white; good habit, very free bloomer; the admiration of all that have seen it. Was awarded first class Certificate at the Wolverhampton Horticultural Show, June, 1854.

Mr. GLENNY'S *Opinion*:—"A fine large bright flower, and very showy."

Mr. C. TURNER.—"A more showy flower there could not be."

Good strong plants, 7*s.* 6*d.* each, or three for 1*l.* 1*s.*

JOHN ELSON, Gardener to H. Underhill, Esq., Purton Grove, Wightwick, near Wolverhampton, Staffordshire.

J. COLE begs to inform the admirers of Calceolarias that he is now prepared to supply a few more orders from his Choice Stock of Unbloomed SEEDLINGS—the seed was saved from the choicest spotted and striped varieties, carefully impregnated—at 3*s.* and 4*s.* per dozen, 20*s.* and 25*s.* per 100. Also strong plants of his Fine Bedding Calceolaria Prince of Orange, for habit and profusion of bloom unequalled. Strong Plants without pots, 6*s.* per dozen; well established, 9*s.* per dozen.

The Trade liberally supplied. A Remittance solicited from unknown correspondents. Post-office Orders payable at St. Alban's.

Keyfield Nursery.

A. STANSFIELD AND SON beg to offer the following:—

1000 species and varieties of Herbaceous and Alpine Plants at 4*s.* per dozen, or 30*s.* per 100.

500 species and varieties adapted for Rockwork at 4*s.* per dozen.

200 species and varieties of Hardy Greenhouse and Stove Ferns and Lycopods, at from 6*s.* per dozen, and upwards.

Verbenas, Fuchsias, Geraniums, and other Bedding Plants, at from 3*s.* 6*d.* per dozen. Catalogues on application.

*** 100 bushels of selected Fluke Potatoes at 4*s.* 6*d.* per bushel of 56 lbs. Dean's Seedling Fluke at 3*s.* 6*d.* per stone of 14 lbs.

Vale Gardens, Todmorden, Lancashire.—April 28.

ORCHIDS.

WILLIAM MAULE AND SONS have received their annual importations of ORCHIDS from their collectors in the East, which they beg to offer on the following terms, many of which are one and two years established:—Vanda cærulea, 21*s.*, 42*s.*, 63*s.*, 105*s.*; Vanda teres, 10*s.* 6*d.*; Aerides odoratum, 10*s.* 6*d.*; Aerides affine, 42*s.*; Foxbrush, 105*s.*; Dendrobium Devonianum, 10*s.* 6*d.*; Cambridgeanum, 10*s* 6*d.*; Gibsoni, 10*s.* 6*d.*; densiflorum, 10*s* 6*d.*; Farmeri, 10*s.* 6*d.*, 15*s.*; Chrysanthum majus, 7*s.* 6*d.*; nobile, mixed with Wallichi, 7*s.*6*d.*; Pierardi, mixed with latifolium, 7*s.*6*d.*; clavatum, 15*s.*, 21*s.*; moschatum, 10*s.* 6*d.*; Camarotis purpurea, 10*s.* 6*d.*; Coelogyne or Pleone, Wallichi, and maculata, in pots, with four or five plants or bulbs, 10*s.* 6*d.* each; Saccolabium ampullaceum (VERY scarce), small plants, 63*s.* each. The Nurseries, Bristol.

NEW WHITE VERBENA, "MRS. FOSTER."—This very desirable variety was raised by Mr. EDMONDS, Gardener to the Rev. R. FOSTER, of Scratby Hall, and is acknowledged to be the very best pure White Verbena that has yet been originated for bedding purposes, it has also been favourably noticed by the National Floricultural Society. It is of a robust but very compact habit; the heads of bloom (which are produced in profusion) are large and flat; the individual flowers, in point of size and shape, resemble those of a finely-formed Phlox—stout, and of the purest white. This Verbena will supersede all other White Verbenas in commerce. Strong plants are now ready for sending out at 5*s.* each, with one over every three to the trade.—YOUELL & Co., Royal Nursery, Great Yarmouth.

WELLINGTONIA GIGANTEA.—Ample description of this noble tree having appeared in former advertisements or circulars, it is only necessary now to say that it is a Coniferous Tree, of immense dimensions and great beauty. It having withstood the severity of the past winter, without injury, both at Chelsea, Exeter, and various other localities, there can be no doubt of its being a perfectly hardy tree, thus rendering it the most remarkable of recent introductions.

MESSRS. VEITCH & SON can supply healthy well established plants at the following prices:—

A few of the first raised, extra sized plants ...	42*s.* 0*d.*
Second size	31 6
Third size	21 0

A reduction will be made on the above prices in proportion to the quantity taken.—Prices to the Trade on application.

Nurseries, Exeter and Chelsea.—May 5.

WILLIAM BARNES respectfully informs his friends and the public generally, that his SPRING CATALOGUE is now ready for distribution, and will be sent, post free, upon application; it comprises all the leading varieties of Indian Azaleas, Cinerarias, Verbenas, Hollyhocks, Phloxes, Roses, Geraniums, Chrysanthemums, Perpetual Carnations, Liliums, Delphiniums, Antirrhinums, Petunias, Calceolarias, and a good collection of all the most popular plants in cultivation.

Camden Nursery, Camberwell, London.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year; and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

NORTH AMERICAN HERBACEOUS PLANTS.

HUGH LOW AND CO. have to offer the undernamed, which are all in a very healthy condition. Amongst the plants now offered will be found many rarities, and attention is particularly called to the Sarracenias, which are strong and vigorous, imported during the past winter direct from their native localities.

	s. d.		*s. d.*
Asplenium acrosticheides	2 6	Onoclea obtusiloba...	2 6
" ebaneum	2 6	Parnassia Caroliniana	1 6
" rhizophyllum	2 6	Polypodium Virginicum	2 6
Aspidium intermedium	2 6	Sarracenia flava (fine strong plants)	2 6
Asclepias, white flowering	2 6	" purpurea (fine strong plants)	1 6
Calopogon pulchellum	1 0	" rubra (fine strong plants)	2 6
Cypripedium humile	1 6	" variolaris (fine strong plants)	2 6
Dionæa Muscipula (Fly-trap)	3 6	Trillium grandiflorum	1 6
Gentiana, new species	3 6	" purpureum	1 6
Habenaria fimbriata	1 6	Viola palmata	1 0
Lilium Philadelphicum	2 6	Woodsia, species from Virginia	3 6
Mimulus, blue flowering	2 6		

Clapton Nursery, London, May 5.

CHARLES TURNER begs to intimate that his New SPRING CATALOGUE is now ready, and contains descriptive lists of—

Dahlias,	Carnations,	Scarlet and Horse-shoe Geraniums,
Fancy Dahlias,	Picotees,	Delphiniums,
Cinerarias,	Pinks,	Mimulus,
Verbenas,	Pansies,	Pentstemons,
Fuchsias,	Auriculas,	Petunias,
Hollyhocks,	Shrubby Calceolarias,	Bedding Plants, &c.,
Chrysanthemums,		

including several new Dahlias, new Verbenas, new White Bedding Calceolarias, &c., offered for the first time. Can be had on application.—Royal Nursery, Slough.

NEW FUCHSIAS.

STEWART AND NEILSON are now receiving orders for their Twelve NEW FUCHSIAS, advertised in September last, which will be ready to send out on the 1st of May at the following prices, or 3*l.* for the twelve.

Mr. Ewart, dark...	10*s.* 6*d.*	Mrs. E. Hill, light ...	7*s.* 6*d.*
Mr. D. Neilson, do.	10 0	Mrs. Gardner, dark ...	7 6
Mr. G. Lawrance, do.,	10 0	Miss A. J. Wright, do.	5 0
Miss France, do....	10 0	Mrs. Maxwell, do. ...	5 0
Mr. Littledale, do.	7 6	Mrs. Perry, do. ...	5 0
Dr. Parr, do. ...	7 6	Mrs. Bouch, light ...	5 0

A remittance from all unknown correspondents.

Nurseries, Liscard, Cheshire, near Liverpool.—May 5.

ROBERT PARKER begs to inform his friends and the public that his New Spring Catalogue containing Descriptive and Priced Lists of the following:—

Exotic Orchids	Roses in pots [varieties
Ferns—stove, greenhouse, and hardy	Dahlias — show and fancy
Geraniums—show, fancy, scarlet, variegated, and hybrid bedding varieties	Fuchsias
Chrysanthemums—large flowered, and Pompone varieties	Selaginillas or Lycopodiums
Petunias	Gloxinias
Antirrhinums	Cinerarias
	Calceolarias—bedding varieties
	Verbenas
	Miscellaneous bedding plants &c., &c.

Is now ready and can be had Post-free on application.

Paradise Nursery, Hornsey Road, Holloway, London.

JOHN CATTELL has a plentiful supply of PLANTS of the following, autumn-sown and bedded, superior true sorts:

Cauliflower, early and late	4*s.* per 100
Broccoli, Cape (Grange's and Hammond's) ...	3*s.* "
Cabbage, Red	1*s.* 6*d.* "
" Early, of sorts...	7*s.* per 1000
" Drumhead or Cattle	5*s.* "
Savoy, of sorts	5*s.* "

Packages containing Plants to the value of 1*l.* and upwards will be delivered carriage free to London, and to the Edenbridge Station of the South-Eastern Railway, package included. A remittance must accompany orders from unknown correspondents.

Nurseries, Westerham, Kent.

SUPERB SHOW PANSIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, will supply the following set of 20 extra fine varieties, in strong, well rooted, autumn struck Plants, at 10*s.* the set, hamper, package, &c., included.

Argo (Paton & Small)	Lady Carrington (Hunt)
Adela (Turner)	Lord Jeffrey (Lightbody)
Alfred the Great (Turner)	Mesmerist (Veitch)
Boadicea (Fellowes)	Miss Talbot (Dickson & Co.)
Countess of Strathmore (Hampton)	Pandora (Hunt)
Commander-in-Chief (Hooper)	Rising Sun (Turner)
Father Gavazzi (Holland)	Sultan (Hooper)
Fearless (Schofield)	Sir J. Paxton (Betteredge)
Great Western (Hooper)	Thisbe (Hooper)
Lady Emily (Downie & Laird)	Victory (Schofield)

Older varieties, such as Fair Flora, France Cycole, Queen of England, Duke of Perth, Rubens, Caroline, Ophir, Blue Perfection, Euphemia, &c. &c., 4*s.* per dozen, strong plants.

A few packets of very select Pansy Seed at 1*s.* and 2*s.* per packet. Priced and descriptive Catalogues now ready, and will be forwarded on application. Post-office orders payable at Middleton, Lancashire.

NEW PLANTS IN FLOWER.

MESSRS. E. G. HENDERSON AND SON, of the Wellington Nursery, St. John's Wood, London, beg to announce that the following plants are now in flower, and may be seen in their winter garden:—

Camellia Marie Antoinette	Azalea Juliana
" Ariosto	" alba illustrata
" Mathotiana	" admiration
" alba pleno of Casoretti	" narcissiflora
" alba illustra	Rhododendron campylocarpum
" Catherine Longhi	" Dalhousieanum
" Comte de Paris	" Edgworthi
" Don Michel	" ponticum coccineum
" Innocenza	Cyclamen persicum, new collection
" Madonna	Rhododendron, new seedling
" Ristori	Camellia de la Reine
" Verschaffeltiana	Genetyllis macrostegia (Fuchsioides).
" Sarah Frost	Bouvardia longiflora.
" General Drouot	
Azalea Criterion	

Wellington Nursery, St. John's Wood, London.—May 5.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their Mixtures of Grass Seeds are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s.* per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre.

Mixtures for improving and renovating old Grass Land, 1*s.* per lb.

Mixtures (finest sorts) for forming Lawns... ... 1*s.* 3*d.* per lb.

These Seeds are all new, and have all been properly cleaned and their growing properties fully tested. Directions for sowing accompany the seed.

G. G. and Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., SEEDSMEN,

26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS.

THOMAS GIBBS AND CO., the SEEDSMEN to the Royal Agricultural Society of England, beg to inform their friends and agriculturists generally that they are now prepared to supply the undermentioned in any quantities required.

Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow; Irrigation or Water Meadow Mixtures; Upland Sheep Walk Mixtures; Park and Field Lawn Mixtures; Renovating Mixtures for old Swards; Garden, Lawn, or Grass-plot Mixtures; various Permanent Grass Seeds supplied separately to order; Mixtures for one year's lay, do. for two or three years' lay (commonly called "seeds").

CLOVERS.—Red or broad leaved, white or Dutch, Red Suckling, Alsike or Hybrid, Trefoil, Cow Grass or Perennial.

RYE-GRASSES.—Italian (very fine), Annual, improved Perennial, and other kinds.

CARROTS.—Large White Belgian, large field Altringham, Yellow Belgian, long Orange or Surrey.

PARSNIPS.—Gibbs' large Guernsey Cattle, common large.

MANGOLD WURZELS.—Long Red, Orange or Yellow Globe, Red Globe, long Yellow.

CABBAGES.—Large Drumhead Cattle, Thousand headed.

TURNIPS.—Purple-top Swedes, Green-top Swedes, Skirving's Swedes, Green-top Yellow Hybrid, Red-top Yellow Hybrid, Globes or Rounds, Tankard's sorts, Kohl Rabi.

Lucerne, Broom, Furze or Gorse, Field Parsley, Rape, Seed Barley sorts, Wheat sorts, Rye, Sainfoin, Tares, White Mustard, White Silesian Beet, Peas, Potatoes, and all other seeds for the farm.

KITCHEN GARDEN AND FLOWER SEEDS, including all the new and most approved varieties. Assortments made up to suit different sized gardens, or to any given amount.

Priced Lists of both Agricultural and Garden Seeds sent free by post on application to THOMAS GIBBS & Co., Corner of Half Moon Street, Piccadilly, London.

ESTABLISHED ABOUT HALF A CENTURY.

AGRICULTURAL SEEDS OF THE FINEST SELECTED STOCKS.—*As the quantity of Mangold, some of the Turnips, &c., are found not so scarce on the market as was expected at the close of harvest, we submit our present prices, in which several will be found lower than quoted in our Spring Catalogue.*

	Per lb.—*s.*	*d.*		Per lb.—*s.*	*d.*
Mangold Wurzel, Long Red	0	8	Turnip White Decanter, or Norfolk Bell	1	2
" " Long Yellow	1	0	" Green Barach	1	2
" " Yellow Globe	0	8	" White Tankard	0	10
" " Red Globe	0	9	" Red Tankard	0	10
Carrot, Long White Belgian	2	0	" Yellow Tankard	2	0
Turnips, fine Purple Top	1	9	" Orange Jelly	1	4
" fine Green Top	1	9	" Purple Top Bullock	1	6
" Skirving's	1	9	Cabbage, large Drumhead	2	6
" Laing's Purple Top	1	0	" Kohl Rabi	2	6
" Norfolk White Round	0	9	Lucerne	1	0
" " Green Round	0	9	Furze or Gorse	1	0
" Lincolnshire Red Globe	1	2	Alsike Clover	2	0
" Pomeranian White Globe	1	2	Bokhara Clover	2	6

PERMANENT PASTURE AND OTHER GRASSES.—Our Mixtures for Permanent Pastures will be found equal to any which are supplied. Prices per acre, according to the nature of the soil, 24*s.* to 34*s.* Wholesale Prices of Grasses and other Seeds to the trade on application.

Finest Mixed Lawn Grasses, per lb. 1*s.*, or 4*s.* 6*d.* per peck.

☞ GOODS CARRIAGE FREE (not under 20*s.*) to all the London termini, or any station on the Colchester and Norwich line.

BASS AND BROWN, Seed Establishment, Sudbury, Suffolk.

AGRICULTURAL SEEDS.

JOHN SHARPE (late of Sleaford), SEED GROWER and MERCHANT, Bardney, is now sending out, of the purest and best selected stocks, Permanent Grass Mixture, 2*s.* per acre; Upland Sheep Walk, 20*s.* per acre; Field or Lawn Mixtures, 9*d.* per lb.; Improving Mixtures for old Swards.

CLOVERS.—Red, English, Dutch, German, French, 6*s.* to 8*s.* per stone; White, 8*s.* to 10*s.* per stone; Italian Rye-grass, fine, imported, 6*s.* to 7*s.* per bushel; Perennial Rye-grass, 25*s.* to 28*s.* per quarter; Mangold Wurzel, 8*d.* per lb., or 7*s.* per stone.

TURNIPS.—Skirving's and Purple-top Swedes, transplanted, and of the purest characters, 1*s.* 3*d.* per lb., or 60*s.* per bushel of 50 lbs.; White Globe or Round, 8*d.* per lb., or 30*s.* per bushel of 50 lbs.; Green Globe or Barrel, 8*d.* per lb.; White and Red Tankards, Lincolnshire Red Globe or Round, Early Sixweeks, Yellow Aberdeen, Orange Jelly, and other yellow-fleshed kinds.

Rape Seed or Cabbage Cole, 3*s.* 6*d.* per peck, or 12*s.* per bushel.

White Mustard, Spring Tares, &c.

For quantities, Purchasers treated with liberally.

Attendance at Sleaford, Market Rasen, Boston, Louth, Lincoln, and Horncastle, on market days.

Bardney Hall, near Lincoln, May, 1855.

THE FORWARDEST TURNIP KNOWN.

SUTTON'S EARLY SIX WEEKS' TURNIP should now be sown for feeding off early. Excellent new seed 1*s.* 2*d.* per lb., 6*s.* per gallon, or 42*s.* per bushel. Mr T. Hickman, of Brimpton House, near Newbury, in a letter dated February 1, says:—

"*I must mention the Six Weeks' Turnip as the best sort I have ever seen for earliest and latest sowings. I have grown them several years, and have invariably found them to produce more seed in less time than any other Turnip. I have had them after Wheat of a good size, within six weeks from the time of sowing.*"

N.B. Carriage free, except parcels under 20*s.* value.

Address, J. SUTTON & SONS, Seed Growers, Reading, Berks.

TO GENTLEMEN ABOUT TO DECORATE THEIR LAWNS, TERRACES, OR GARDENS.—A very handsome and beautiful Variety of FOUNTAINS, FIGURES, VASES, &c. &c., warranted to stand all weather, are now being offered at greatly reduced prices, at MR. SCOTT'S ARTIFICIAL STONE WORKS, 74, Borough Road, Southwark. Illustrated Catalogues free of charge forwarded to any part of the country.

IMPORTANT SALE.

GRECIAN TAZZA FOUNTAIN, consisting of three Basins, five pair handsome Vases, and two rustic Piers, 7*ft.* high; this lot will be sold very cheap to effect immediate sale.—Apply to Mr. J. VIRGO, High Street, Camberwell.

GARDEN VASES, FOUNTAINS, ETC.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, begs respectfully to inform the nobility, gentry, and his patrons generally, that he has entered into arrangements with an eminent company in Scotland for the sale and disposal in London of their highly ornamental and very durable Vases, Fountains, &c., samples of which may be seen at his grounds in the Garden Road, as above.

T. S. has much pleasure in being the first to introduce to the notice of the public a highly ornamental Vase, capable of resisting the most severe weather, and at little more than half the cost of any other possessing the same qualities; and he has no hesitation in stating that a more suitable Vase for the growth of plants cannot be manufactured.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. 27, Victoria Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, May 5, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 19.—1855.] SATURDAY, MAY 12. [PRICE 6*d*.

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GORE HOUSE, KENSINGTON GORE.

EXHIBITION OF THE HORTICULTURAL SOCIETY, MAY 16.—The Gates at Gore House will be open to the Public at 2 P.M. Tickets, price 5*s*. each, will be issued daily at 21, Regent Street, till the afternoon of May 15.

SPECIAL PRIVILEGE OF FELLOWS.—Fellows of the Society not only enter free at half-past 12, but can also each introduce two friends, with Tickets, at the same hour. Or the Fellow's power may be transferred to a near relative, provided the person to whom the transfer is made be furnished with a ticket signed by that Fellow. That is to say, a near relative, if provided with an admission ticket, may enter at half-past 12, instead of a Fellow, and also introduce two friends.

HORTICULTURAL SOCIETY OF LONDON.—FIRST SUMMER MEETING, MAY 8, 1855.

AWARD OF MEDALS, &C.

NEWLY INTRODUCED PLANTS.—Messrs. Rollisson & Sons, Tooting, C 1; Messrs. E. G. Henderson & Son, Wellington Nursery, C 1; Messrs. Veitch & Son, Chelsea, H M.

PELARGONIUMS.—Messrs. Dobson, Isleworth, S K; Mr. Turner, Slough, S B.

FANCY PELARGONIUMS.—John Allnutt, Esq., S K; Mr. Todman, gr. to Mrs. Buckmaster, S B.

INDIAN AZALEAS.—Mr. Robert Grix, gr. to A. Palmer, Esq., S K; Mr. Thos. Gaines, Battersea, S B; Messrs. Rollisson, C 1.

PANSIES.—Mr. Charles Turner, Slough, S B; Messrs. Dobson, C 1; Mr. Bragg, Slough, C 2.

SINGLE SPECIMENS.—Messrs. Veitch, S B; John Allnutt, Esq., C 1; Mr. Cutbush, Barnet, C 1; Messrs. Rollisson, C 2; Mr. John Maher, gr. to J. M. Strachan, Esq., C 2; Messrs. Standish & Noble, Bagshot, H M.

GRAPES, BLACK.—Mr. Clements, Oak Hill, East Barnet, S K; Mr. Fleming, gr. to his Grace the Duke of Sutherland, S B; Messrs. Mitchell & Co., Brighton, C 1; Mr. Munro, gr. to Mrs. Oddie, H M.

GRAPES, WHITE.—Mr. Munro, gr. to Mrs. Oddie, C 1.

PINE APPLES.—Mr. Robinson, gr. to Lord Boston, S K; Mr. Fleming, gr. to his Grace the Duke of Sutherland, S B; Mr. M'Ewen, gr. to his Grace the Duke of Norfolk, C 1.

MELONS.—Mr. Fleming, gr. to his Grace the Duke of Sutherland, S B.

VEGETABLES.—Mr. M'Ewen, gr. to his Grace the Duke of Norfolk, C 1; Mr. Lewis Solomon, Covent Garden, C 1.

ASPARAGUS.—John Abell, Esq., Limerick, C 1; Mr. M'Ewen, gr. to his Grace the Duke of Norfolk, C 2.

RASPBERRIES.—Mr. M'Ewen, gr. to his Grace the Duke of Norfolk, C 2.

MISCELLANEOUS.—Messrs. Backhouse & Son, York, S K; Mr. Ingram, gr. to his Grace the Duke of Rutland, S B; Messrs. A. Henderson & Co., Pine-apple Place, S B; Mr. G. Tillyard, gr. to the Right Hon. the Speaker, C 1; Mr. C. Turner, Slough, C 1; Messrs. Standish & Noble, C 1; Mr. Frost, gr. to Lady Grenfell, C 1; Mr. M'Ewen, gr. to his Grace the Duke of Norfolk, C 2; Mr. Ingram, gr. to his Grace the Duke of Rutland, C 2; Mr. J. Wiggins, gr. to E. Beck, Esq., C 2; Mr. Taylor, gr. to Watson Wood, Esq., H M; Mr. Mathew, gr. to J. Stearns, Esq., H M; Mr. E. Vivian, Torquay, H M.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The List of Prizes awarded at the Exhibition held on WEDNESDAY, May 9th, will be advertised in the *Gardeners' Chronicle* on Saturday next, the 19th.

NORTH LONDON FLORICULTURAL SOCIETY will hold their ANNUAL EXHIBITIONS this season on TUESDAY, Sept. 18, for DAHLIAS and MISCELLANEOUS; and on MONDAY, Nov. 19, for CHRYSANTHEMUMS; in the Penton Rooms, Pentonville, London. The Schedules are now ready, and can be obtained on application to

GEO. SMITH, Hon. Sec., Hornsey Road, Islington.

SOUTH LONDON SOCIETY OF AMATEUR FLORISTS.—The Second Exhibition of the season will take place at the HORNS TAVERN, KENNINGTON, on THURSDAY, 31st of May, when Prizes will be offered for the following productions, viz.—Tulips, Heartsease, Pelargoniums, Auricula, Fancy varieties ditto, and Miscellaneous Plants. In addition to the Prizes offered by the Society, Mr. R. I. Laurence, of Clapham, offers to Amateurs 5*l*. value in Tulips, to be selected from his best bed when in bloom, to be divided into Four Prizes. Admittance to Non-Members from 2 till 7 o'clock, at 6*d*. each. The Efficient Band will be in attendance. List of Prizes and the Rules of the Society may be obtained from

JOHN BUSHELL, Hon. Sec.

Lower Kennington Lane, Lambeth.

KENILWORTH AND LEAMINGTON FLORAL EXHIBITION.—The Second Grand Horticultural Fête will be held, by permission, among the ruins of Kenilworth Castle, on WEDNESDAY, 4th day of July next, when, in addition to the sum of 80*l*. offered in prizes by the Committee, Silver Cups, of 5*l*. value each, contributed by the inhabitants of Kenilworth, will be awarded to the two most successful competitors. Schedules, and every particular, may be had on application. J. [illegible] Secretary.—Priory Gardens, Warwick.

POSTPONEMENT.

ROYAL NATIONAL TULIP SHOW, under the Gracious Patronage of HER MAJESTY and HIS ROYAL HIGHNESS PRINCE ALBERT.—This Grand National Exhibition will be held, in connection with the May Show of the Cambridge Horticultural Society, at Cambridge, on TUESDAY, May 29th, instead of May 22d, as previously advertised; for which occasion a most liberal schedule of prizes has been announced—larger in amount than has been offered at many of the previous meetings. The Show will be held in the grounds of the Old Botanic Garden, subject to similar regulations to those issued at former exhibitions. Subscriptions and entrance-money to be paid to the Hon. Secretary (CHARLES EDWARD BROWN), by Post Office Order, payable at Cambridge.—All articles to be in the grounds by 10 o'clock on the morning of the Show.

GOOD SWEDE SEED.

SUTTON AND SONS *have good new Ashcroft, Skirving's, and other Swede Seeds, true to their kinds, warranted all of last year's growth.* Price, in large or small quantities, 2*s*. per lb. Large quantities CARRIAGE FREE. Remittances or references required from unknown correspondents.

Address, SUTTON & SONS, Seed Growers, Reading.

THE PERENNIAL WHITE CLOVER.—This Clover is included in all Messrs. Sutton's mixtures for Permanent Pasture, and is very superior to the common White Clover; it may be purchased separately, price 1*s*. 6*d*. per pound.

Address—SUTTON & SONS, Seed Growers, Reading.

SUTTON'S LARGE YELLOW GLOBE MANGOLD WURZEL, FROM SELECTED ROOTS, QUITE HARDY.—Seed of this fine large Mangold Wurzel may be obtained genuine of Messrs. SUTTON, price 1*s*. per lb., or 5*l*. per cwt.; other sorts cheaper. Early orders are requested and recommended, as the stock is limited.—Address,

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

MORTON'S YELLOW GLOBE MANGOLD.—*From Seed grown from the original stock of J. C. Morton, Esq., the Editor of the* AGRICULTURAL GAZETTE. 1*s*. 6*d*. *per lb.*

WILLIAM E. RENDLE & Co., SEED MERCHANTS, Plymouth.

WHITE BELGIAN CARROT, 2*s*. *per lb., or much cheaper by the cwt.*

WILLIAM E. RENDLE & Co., SEED MERCHANTS, Plymouth.

TRUE GUERNSEY PARSNIP.—*This is a large and superior sort, and can be strongly recommended. The Subscribers have just imported a choice lot of Seed from Guernsey, and can supply it at 2s. per lb.*

WILLIAM E. RENDLE & Co., SEED MERCHANTS, Plymouth.

DAVID FERGUSON, LANDSCAPE GARDENER, GARDEN ARCHITECT, and CONTRACTING PLANTER, Stowe, Buckingham. Now is the time to prepare for planting in September, October, and November.

WILLIAM MASTERS AND SON, LANDSCAPE GARDENERS, Exotic Nursery, Canterbury.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

JOHN KERNAN begs to offer the following list of AGRICULTURAL SEEDS:

Agricultural Carrots, Red and White, 1*s*. per lb.

Mangold Wurzel, of sorts.	1*s*. per lb.	Italian Rye-grass (imported).
Skirving's Swedish Turnip.		Mixed Permanent Grasses.
Laing's Purple-topped do.		Parsley for Sheep-walks.
Ashcroft Purple-topped do.		Cattle Cabbage.
Green-topped do.		Thousand-headed do.
Yellow Bullock do.		Clover, Red and White.
White and Red Globe do.		Trefoil and Lucerne.
Dale's Hybrid do.		

The Trade supplied. Seeds carefully packed for all climates. Catalogues may be had on application.

4, Great Russell Street, Covent Garden.

NEW PLANTS.

A. VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), is now sending out his following New Plants:

Achimenes Ambroise Verschaffelt	8*s*.	0*d*.
" Docteur Hopf	8	0
" Edouard Otto	4	0
" Edmond Boissier	8	0
Tydæa Warscewiczi	15	0
Rhododendron Prince Camille de Rohan (quite hardy)	16	0

All the above Plants are figured in VERSCHAFFELT'S "Illustration Horticole," which can be seen at Mr. R. SILBERRAD'S, 5, Harp Lane, Great Tower Street, London.

WILLIAM KNIGHT, FLORIST, &C., begs to offer the following Superb FLOWER SEEDS, saved from the best varieties, post free:—

	Per packet.
Antirrhinum, from 100 striped and spotted varieties	0*s*. 6*d*.
Balsam, from 25 best double varieties	0 6
Hollyhock, from 50 best show flowers	0 6
Fancy Pansy, from a choice collection	1 0
Mimulus, from 12 of the most showy kinds	0 6
Verbena, from 100 of the newest and best varieties	1 0
Pansy, from 100 best show flowers	1 0
Gloxinia, from 50 newest varieties	1 0
Double Daisy, from 60 newest varieties	0 6
Sweet William, from 50 fine varieties	0 6

67, High Street, Battle, Sussex.

BEDDING AND OTHER PLANTS.

F. AND A. SMITH'S Descriptive LIST of the undermentioned is now ready, and may be had, post free, on application:—Antirrhinums, Verbenas, Fuchsias, Scarlet Geraniums, Calceolarias, Petunias, Heliotropes, Pentstemons, Chrysanthemums, Mimulus, Salvias, Lobelias, &c. Climbers in variety, also a miscellaneous Collection of Greenhouse Plants. They have now in bloom Cytisus racemosus, Roses, Verbenas, Fuchsias, spotted Calceolarias, Erica Hybrida, Cactus, Geraniums, &c. The Trade supplied.—Dulwich, Surrey, May 12.

BEDDING PLANTS.

JOHN HAYES, FLORIST, Farnham, Surrey, begs to offer the above from 1*s*. to 4*s*. per dozen, the latter end of May, when the weather will permit. Catalogues sent on the receipt of one postage stamp.

FLOWERING PLANTS.

F. AND A. SMITH beg to offer FLOWERING PLANTS of the following (in quantities to the trade):—Geraniums, Fuchsias, Verbenas, Heliotropes, Calceolarias, Hydrangeas, Roses, Cactus, Ericas, Burchellia, Kalosanthus, Neriums, Scarlet Geraniums, &c. Prices on application. The Plants are stocky and in good condition: an inspection solicited.—Dulwich, Surrey.

MESSRS. JOHN WEEKS AND CO. have now ready a well grown stock of BEDDING PLANTS, selected from the best existing varieties, and at most reasonable prices.

Horticultural Establishment, King's Road, Chelsea; and at Frankfort-on-the-Maine.

FLOWER SEEDS.

PETER LAWSON AND SON, SEEDSMEN and NURSERYMEN to the QUEEN, Edinburgh, and at 27, St. George Street, Westminster, beg leave to invite attention to their very choice selection of Flower Seeds.

27, St. George Street, Westminster.

OSAGE ORANGE (MACLURA AURANTIACA).

CHARLWOOD AND CUMMINS can supply SEED of the above-named Hedge Plant at 6*s*. per lb., with full directions for treatment. The month of May is the best time for sowing.—14, Tavistock Row, Covent Garden, London.

BANKS' SEEDLING FUCHSIAS.

W. J. EPPS begs to say he is now sending out three of the above splendid FUCHSIAS, strong plants, namely, Climax, Maid of Kent, and Omer Pacha; the other three will not be ready till next week. They will be sent carriage free to all orders on hand.—Bower Nurseries, Maidstone.

DWARF FRENCH BEANS can be had in any quantity.—Apply to J. G. WAITE, Seed Merchant, 181, High Holborn, London.

THE FINEST CRIMSON DAHLIA OF THE SEASON, ABLITT'S "INCOMPARABLE."—It is the brightest of its class, and full size. Perfect outline, very deep, full, compact, and symmetrical; and for a flower so beautifully cupped, well up, and good in the centre.—Mr. GLENNY'S *Opinion.*

☞ Strong healthy plants, at 10*s*. 6*d*. per pair, may now be had of Mr. BARNES, Stowmarket; Mr. TURNER, of Slough; and of EDWARD ABLITT, Ohehouse, Stowmarket, Suffolk.

CHOICE PANSIES.

HART AND NICKLIN, FLORISTS, &c., Guildford, offer the following, the set for 12*s*.:—Boadicea, Elegantissima, France Cycole, Sir J. Paxton, Constance, National, Criterion, Alfred the Great, Caroline, Sylvia, Sultan, Marchioness of Bath, Eva, Ophir, Mr. Beck, Duke of Perth, British Queen, Euphemia, Adela, Blanche, Royal Purple, Pompey, Lady Carrington, and Lord Jeffrey.—Choice varieties, 4*s*. per dozen.

MAY'S MAGNUM BONUM LETTUCE is by far the largest, sweetest, and crispest Lettuce known, in proof of which we possess numerous letters received from parties who had it last season. The addresses of the writers can be had on application. It may be sown all the summer, and will stand the winter. Packets 1*s*. each.

HENRY MAY, the Hope Nurseries, near Bedale, Yorkshire.

T. F. WINSTANLEY'S BEDDING PLANT LIST is now ready, and can be had on application, or free by post.—28, Market Place, Manchester.

TO BE SOLD, about 300 strong healthy young PINE PLANTS.—For price and particulars apply to GEORGE THOMPSON, Seedsman, Florist, &c., 136, Northgate Street, Chester.

FERNS.

TO BE SOLD, twelve distinct species of BRITISH FERNS, correctly named, collected from their Natural Habitats, and delivered in the neighbourhood of London or sent by rail. The Set, one of each sort, for 5*s*.; two of each, 8*s*.; four of each, 15*s*.; or 100 plants for 25*s*.—JOHN LLOYD, Post Office, East Hill, Wandsworth, Surrey.

BOSSOM'S CHAMPION OF ENGLAND CELERY.

THE finest Celery yet introduced, beautifully white, very crisp and solid, and withstands a greater amount of frost than any other known variety; it has been blanched in the ground 3 feet.—To be obtained of T. F. WINSTANLEY, Seedsman, 28, Market Place, Manchester, price 2*s*. 6*d*. per packet; prices to the trade on application.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks, at 5*s*.; 12 varieties, 2*s*. 6*d*.; and from good double sorts, 1*s*.

Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s*. per packet; separate, 2*s*. Fine Quilled African Marigolds, 6*d*. per packet.—Saffron Walden Nurseries.

NEW SCARLET VERBENA.—MRS. WOODROFFE.

ARTHUR HENDERSON AND CO. are now sending out this fine new VERBENA; particulars of which may be seen in their advertisement in the *Gardeners' Chronicle* of March 31. The usual discount to the Trade.

☞ This Verbena is the same as "Conqueror," one offered by another firm.—Pine-apple Place, Edgware Road, London.

NEW WHITE VERBENA, "MRS. FOSTER."—This very desirable variety was raised by Mr. EDMONDS, Gardener to the Rev. R. FOSTER, of Scrathy Hall, and is acknowledged to be the very best pure White Verbena that has yet been originated for bedding purposes. It has also been favourably noticed by the National Floricultural Society. It is of a robust but very compact habit; the heads of bloom (which are produced in profusion) are large and flat; the individual flowers, in point of size and shape, resemble those of a finely-formed Phlox—stout, and of the purest white. This Verbena will supersede all other White Verbenas in commerce. Strong plants are now ready for sending out at 5*s*. each, with one over every three to the trade.—YOUELL & Co., Royal Nursery, Great Yarmouth.

UNBLOOMED SEEDLING CALCEOLARIAS.

MR. HENRY MAJOR, Knesthorpe, near Leeds, begs to announce that his UNBLOOMED SEEDLING CALCEOLARIAS are now ready to send out in parcels of 20, at 6s. per parcel, or four parcels for 1l., post free. They have been produced from rich and beautiful varieties, therefore good and beautiful colours and markings may reasonably be expected.

A few sets of H. M.'s beautiful new Seedling Calceolarias, so highly spoken of by Mr. Glenny, still remain: price 3l. the set. The usual discount to the Trade for cash only. Twelve very choice Calceolarias, to include all his best sorts sent out last year, price 25s. A descriptive Catalogue of the new Calceolarias may be had on application. From unknown correspondents a remittance is respectfully requested with the order.

CHOICE BEDDING-OUT PLANTS,

And to those about Permanently Replenishing the Flower Garden.

YOUELL AND CO. beg to submit the following List of desirable PLANTS, suitable for the above purpose. Carriage paid on all Orders of 2l. and upwards to any distance within 150 miles of the Nursery, and good Plants added to compensate for this charge on packages of less value:—

CARNATIONS AND PICOTTES. Per doz. pairs.

Fine selections by name from our extensive and well-known Collection, in strong plants ...	18s. 0d.
Fine mixed border ditto	9 0
True old Clove Carnations	12 0
Tree Carnations, in choice variety ... ... each	1 6

CALCEOLARIAS.—Of this favourite flower the following list contains some of the best varieties for Bedding:—

Ajax (Lucombe Pince, & Co.), fine large rich coloured flower, of crimson and yellow, 1s. 6d. each.
Golden Chain, fine golden yellow, 6s. per dozen.
Gold Cap, rich dark maroon yellow cap, 9s. per dozen.
Superba (Constantine's), dwarf, rich crimson plum, 1s. 6d. each.
Surprise ... bright orange crimson, ex. fine, 12s per doz.
Sulphurea splendens, fine large yellow, 6s. per dozen.
Mr. White, rich shining bronze red, 6s. per dozen.
Superba (Turner's), fine dwarf, dark crimson (ex. fine), 6s. per doz.
Wellington Hero, rich deep golden yellow, 6s. per dozen.
Magnificent, large and rich crimson, with yellow crown, extra fine, 6s per dozen.
Masterpiece (Constantine's), deep maroon scarlet, dwarf, 12s. p. doz.
Mrs. Beecher Stowe, bright yellow, 6s.
Shankleyana, large orange crimson, extra fine, 9s.
Beauty of Montreal, bright crimson, dwarf, 6s.
Kentish Hero, orange bronze, fine, 6s.
Sultan, fine large crimson, 6s.
Viscosissima, deep yellow, 6s.
Calceolaria "Purity," a new and beautiful variety, pure paper white, dwarf, free habit, branching, and a most desirable bedding plant, very highly recommended, 7s. 6d.

SCARLET GERANIUMS.

Tom Thumb, Frogmore, and Trentham Scarlet, 4s. per dozen, [30s. per 100.
Amazon, 12s. per dozen.
Baron Hugel, a dwarf growing variety, with brilliant scarlet flowers, adapted for edging, 12s. per dozen.
Cerise Unique, colour a fine cerise, 9s. per dozen.
Defiance, an immense large flowering variety, 1s. each, 9s. per doz.

VARIEGATED GERANIUMS.

Brilliant ...	12s. per doz.	Golden Circle ...	18s. per doz.
Flower of the Day	9s. "	Manglesi variegata ...	12s. "
Dandy	9s. "	Mountain of Light	18s. "
Golden Chain ...	18s. "		

GERANIUM—Boule de Neige, a unique white-flowering, horse-shoe leaf variety, producing large trusses of well formed flowers, 9s. per dozen.
" Kingsbury Pet, a striking variety, bearing a fine truss of bright salmon-coloured flowers, 9s. per dozen.
" Manglesi Floribunda, a free blooming light variety, 9s. per dozen.
" Crimson Unique, for bedding purposes, a fine strong growing variety, 9s. per dozen.
" Crimson flowering Ivy leaf, fine, 9s. per dozen.
" White do. do. 6s. "
" Miss Emily Field, 12s. per dozen.
" Skeltoni, 12s. per dozen.

FUCHSIAS.—The following fine varieties, 9s., viz.:—Queen of Hanover, Elegans, Vanguard, Uterpe, Monarch, Trentham, Autocrat, Duke of Wellington, Mrs. Patterson, Princeps, Lady Franklin, England's Glory, Perfection, Model, &c. The best of the older varieties, 6s.
Fuchsia Domminiana, 2s. each.
Petunias, of best kinds, 6s. to 9s. per dozen.
LOBELIA racemoides, the best dark blue variety, 4s. per dozen.
" lucida do. light do. 4s. "
" compacta alba do. white do. 4s. "
" Lindleyana, a decided lilac do. 6s. "
VERBENAS.—In this class particular attention has been given to introduce only those of the more striking colours and best habits for bedding purposes: these include all the handsomest of the new continental varieties, and we offer them at 4s. per dozen, or 30s. per 100.
Anagallis rubra, and grandiflora, 6s. per dozen.
Nierembergia filicaulis, 6s. per dozen.
Pentstemon azureum, 9s. per dozen.
Salvia lilacina, 9s. per dozen.
PHLOX NELSONI.—An extremely pretty and hardy variety, originated through the zeal of an amateur in this country, whose name it well bears. It is of dwarf trailing habit, producing a dense mass of large pure white flowers with puce-coloured eye, 1s. 6d. each.
TROPÆOLUM - Triomphe de Gand—a handsome variety for trellis work, producing large and brilliant scarlet flowers, 12s. per dozen.
CLEMATIS TUBULOSA MANGLESI, a handsome herbaceous plant bearing numerous heads of blue star-shaped flowers, very hardy, 9s. per dozen.
ROCKETS, new double crimson, 9s. per dozen; old double white, 3s. per dozen.
PRIMROSES, double white, 4s. per dozen; double crimson or maroon, 12s. do.; double yellow, 5s. do.; double purple, 4s. do.
PHLOXES.—The following choice varieties 9s. per dozen:—Maria Boulanger, Striata superba, Roi Leopold, Villaret joyeuse, Bois Rose, Imbricata, Macrantha, Deuil de la Comtesse de Marne, Anais, Eliza, Mrs. Thompson, Madame Courcelles, Madame Frobel, Madame Lanier, Madame de Pruines, Gen. Lamoricière, Princesse de Cleres, Princesse Marianne, and other fine kinds.
HOLLYHOCKS, extra fine, first-class show varieties by name, 12s. to 18s. per dozen.
BELGIAN DAISIES in 36 best kinds, by name, 4s. per doz.
PÆONIAS in 20 new and very choice Continental varieties, for 1l.
Dielytra spectabilis: this universal favourite, strong flowering plants, 9s. per dozen.
Delphinium Barlowi, 9s. per dozen.
" Mooreanum, an extremely beautiful variety, 12s. per doz.
" grandiflorum maximum, 9s. per dozen.
Saponaria ocymoides, 6s. per dozen.
Statice maritima rosea, a very pretty, hardy herbaceous plant of dwarf habit, producing numerous heads of bright rose-coloured flowers, 6s. per dozen.
MIMULUS in 6 new and choice varieties, 6s. per dozen.
POTENTILLAS in fine variety, 6s. per dozen.
Lilium lancifolium album, 9s. per dozen; rubrum, 20s. per dozen.
Lobelia Feu du Roi, St. Clair, and Aurora, 9s. per dozen.
Herbaceous Plants in very choice variety, 30s. per 100; or 6s. per dozen.
Alpine or Rock Plants, in choice variety, 4s. to 6s. per dozen.

YOUELL & Co., Royal Nursery, Great Yarmouth.

ROBERT PARKER begs to inform his friends and the public that his New Spring Catalogue containing Descriptive and Priced Lists of the following:—

Exotic Orchids
Ferns—stove, greenhouse, and hardy
Geraniums—show, fancy, scarlet, variegated, and hybrid bedding varieties
Chrysanthemums—large flowered, and Pompone varieties
Petunias
Antirrhinums
Roses in pots
Dahlias — show and fancy varieties
Fuchsias
Selaginillas or Lycopodiums
Gloxinias
Cinerarias
Calceolarias—bedding varieties
Verbenas
Miscellaneous bedding plants &c., &c.

Is now ready and can be had Post-free on application.
Paradise Nursery, Hornsey Road, Holloway, London.

NEW PLANTS.

MESSRS. WILLIAM ROLLISSON AND SONS are now prepared to offer—

BEGONIA SPLENDIDA.—This exquisite plant was discovered in Java by our collector, Mr. John Henshall, during his researches in the Indian Archipelago. It is an extremely beautiful plant of ornamental foliage, the stems and leaves of which are covered over with a bright crimson hirsute down: altogether it presents so striking an appearance, that it is alone much to be desired for its magnificent foliage, for which we are now offering it, the plant not having yet flowered in this country. 42s. to 63s.

RHODODENDRON GRISEWOODIANUM.—This is a most superb large white free-blooming variety, beautifully tinted with blush, and distinctly spotted with large dark brown spots; fine form and large truss, and possessing beautiful foliage. We have no hesitation in saying that this is one of the finest Rhododendrons ever raised, being perfectly hardy, which has been fully tested during the last two severe winters; for while many of the so-called hardy sorts were completely disfigured in their foliage, not a leaf of this variety was injured. 21s. to 31s. 6d.

RHODODENDRON SHAKSPEARE.—A soft rosy purple, intensely blotched with orange yellow on the top petals; a most beautiful and thoroughly hardy free late-flowering variety. 21s. to 31s. 6d.

ERICA ÆMULA.—This is a very beautiful hybrid, in the Erica Massoni section, of a fine bright crimson colour, after the style of Erica aristata, but very much higher in colour: altogether this is a very distinct variety. 21s.

ERICA EXIMIA SUPERBA.—This variety may really be said to be three times as fine as the parent, whose name it bears: it is a very compact grower and excellent in habit, with tubular blossoms of a fiery scarlet colour. This charming variety obtained the first seedling prize at the Royal Botanic Gardens, 1852. 31s. 6d.

ERICA PAXTONI.—A very distinct variety obtained by hybridising Erica Hartnelli with Erica Massoni; it blossoms in very large whorls of a soft red colour. This variety will be very useful for Autumnal Exhibition purposes, as it blossoms from July to October. 21s.

The set of the above-named Ericas, Three Guineas.

CALCEOLARIA VARIABILIS.—As a bedding plant this will make a charming variety, and in some measure supply the deficiency there has been for durable and effective plants of a light colour for the parterre. It is an excellent grower, of very compact, pretty habit, and produces in great profusion immense trusses of blossom, which open of a delicate primrose colour, and change to white. Altogether it is a most desirable acquisition, and a variety thoroughly distinct from any in cultivation. 10s. 6d. each.

NEW PRICED CATALOGUE OF PLANTS.

MESSRS. WILLIAM ROLLISSON will be happy to forward this on application. It can also be forwarded throughout the following countries, post free: America, Austria, Belgium, France, Germany, Holland, Prussia, &c. &c. This Catalogue abounds with novelties and rare plants; also contains priced lists of the following:—

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The following Choice and New Plants can be seen in blossom at the Nurseries:—

AZALEA, EMPRESS EUGENIE.—This magnificent variety received a Bronze Medal, as a new plant, on the 9th inst., at the Royal Botanic Gardens, and will be sent out in the autumn at 21s. each. Early orders are respectfully requested, as they will be executed strictly in rotation.

Cattleya ianthina (new).

Odontoglossum hastilabium (rare).

Huntleya cerina.—This received a Silver Medal, as a new plant, on the 9th inst., at the Royal Botanic Gardens; also a First Class Certificate at the Horticultural Society's Rooms on the 8th inst.

Erica illustris (new); do. affinis (new); do. triumphans carnea (new).

Rhododendron Edgeworthi (Sikkim).—This received a Silver Medal, as a rare plant, on the 9th inst., at the Royal Botanic Gardens.

Dendrobium clavatum (rare); do Dalhousianum (rare).

Meyenia erecta.—This received a Silver Medal, as a new plant, on the 9th inst., at the Royal Botanic Gardens.

Lælia purpurata (rare).

Cymbidium species.—This received a Silver Medal, as a new plant, on the 9th inst., at the Royal Botanic Gardens.

The Nurseries, Tooting, London.

NEW AND CHEAP FIRST-RATE SHOW PLANTS.

The Cheapest Establishment in the Kingdom is at

HENRY WALTON'S, Florist, &c., Edge End, Marsden, near Burnley, Lancashire, where there are propagated annually for Sale from 20,000 to 30,000 Plants, which for cheapness and quality are not to be equalled, being strong and healthy.

GERANIUMS, strong blooming plants of varieties of last season, such as Carlos, Neatness, Glowworm, Regalia, &c. &c., 20s. per doz.; older good show varieties, 9s., 12s., and 15s. per doz. 25 for 20s.; 50 for 35s., packages included.

FUCHSIAS, new varieties of last season, 6s. to 9s. per doz.

CINERARIAS, choice varieties, such as Advance, Lord Vaise, Empress, Empress Eugenie, &c. &c., 10s. 6d. per doz. older varieties, 4s. 6d. per doz.

PANSIES, 12 distinct fine show varieties, 6s.; 25 varieties, 12s.

VERBENAS, new varieties of 1854, 4s. to 6s. per doz.

PETUNIAS, 4s. 6d. to 7s. 6d. per doz.

DAHLIAS, all the leading show varieties of last season, 9s. to 12s. per doz; older varieties, 4s. 6d. to 6s. per doz.

BEDDING PLANTS, including Scarlet and other Geraniums, Salvias, Pentstemons, Heliotropes, &c. &c., equally cheap.

H. W.'s Spring List is now ready, and may be had for one stamp. It is respectfully requested that all post-office orders be made payable at Marsden, Lancashire, and a remittance or satisfactory reference with all orders from unknown correspondents. All orders to the amount of 25s. paid to Liverpool, Manchester, Leeds, and Preston; 2l. and upwards free to Birmingham, Carlisle, and the like distances; for more distant carriage extra plants gratis.

N.B. Parties are particularly requested to see H. W.'s advertisement in *Chronicle* for April 14th and April 28th.

GERANIUMS.

BASS AND BROWN have the following to offer, strong and healthy plants, well established for a fine and abundant bloom. For descriptive list see their autumn Catalogue.

The following 12 *Superb New Show Varieties of last season for* 40s., *or separately as priced.*

Dobson's Eliza	3s. 6d.	Turner's Duchess of Wellington	5s. 6d.
" Empress ...	5 0	Topping's Emily Rival	3 6
" Glowworm ...	3 6	Hoyle's Regalia... ...	5 0
Foster's Lucy	5 0	" Virginia ...	5 0
" Purple Perfection	5 0	" Carlos	5 0
Turner's Pilot	3 6	" Tamberlik ...	3 6

The following 20 *first-rate Varieties, of previous date, for* 30s., *or any* 12 *for* 21s.

Admiral, Albira, Ambassador, Astrea, Butterfly, Eleanor, Exhibitor, Ganymede, Harriet, Jupiter, Kulla, Lady Leonora, National, Novelty, Optimus, Portia, Queen of May, Rachel, and Rubescens.

The following 20 *first-rate older Varieties for* 15s., *or any* 12 *for* 12s.

Alderman, Commissioner, Elise, Enchantress, Field Marshal, Flying Dutchman, Gem, Medus, Mochanna, Magnificent, May Queen, Nepaulese Prince, Nandee, Prince Arthur, Painter Improved, Rosa, Rowena, Rubens, Village Maid, and Virgin Queen.

FANCY GERANIUMS.

The following 12 beautiful varieties for 9s.:—Bishop of Winchester, Caliban, Extravaganza, Jehu Improved, Lady Downshire, Magnifica, Mazeppa Superbe, Neerée, Odoratissima grandiflora, Odorata Superba, Statiaski, and Superba.

GLOXINIAS.

The following set of 11 new varieties of last season are very fine, and may be had for 33s., or separately 3s. 6d. each:—
Duke of Wellington, rich velvety scarlet of stout substance, throat shaded with violet, and slightly spotted with white.
Eleanor, pure white, blotched with rose, and purple shade.
Elegantissima, French white of great substance, pale lavender centre, spotted with buff.
Erecta Magnifica, fine white, with blue throat, habit of Pyrame.
Eugenie, rosy pink, centre creamy white, spotted with rose.
Exquisite (Henderson's), pure white, with broad belt of puce, throat creamy white, spotted with puce.
Grand Sultan, a fine Continental variety.
Lady Franklin, extra large rose, stout and robust, shading off to pink, slightly spotted white in the throat.
Magnet, clear rose, with blotch of purple in the throat, large and fine form.
Prince of Wales, white, shading off to lavender.
Sir C. Napier, deep rosy crimson, throat blotched with intense rose, dwarf habit.

The following 12 superb vars. for 20s.:—Belle Cymon, Duchess de Brabant, Dr. Plancheon, Grandis, Hegoveen, Imperialis, Leonie Van Houtte, Petoiana, Princesse de Lamballe, Victoria Regia, Wilsonia, and Wortleyana.

ACHIMENES.

The following three very beautiful new varieties may be had for 17s. 6d:—
Madame Rendatler, a fine large purplish lilac, with yellowish white throat ... ... 5s. 0d.
Picturata, brilliant rose colour, flowers of the form of multiflora, with darker spots, exceedingly handsome ... 5 0
Gigantea, a novelty beyond comparison, resembling Picta, but twice as large and brighter colours, very free and keeping in flower several months 10 6

Twelve Superb Varieties for 10s., including Louis Van Houtte, Mr. Aparpart, Cerito, &c.; 12 fine older vars. for 6s.

GREENHOUSE PLANTS, 50 fine and select species and varieties	2 0
" " 50 do. do., best selection	3 5
STOVE PLANTS, 50 superb and select species and vars.	4 0
HERBACEOUS PLANTS, 100 fine and distinct vars	1 10
" " 100, including newer "	2 10
ROCK PLANTS, 25 fine varieties	0 12
DELPHINIUMS, 12 in 6 fine varieties	0 9
" very fine seedlings of splendid mixed colours, per 100	1 1
DIANTHUS ATRORUBENS, splendid dark crimson for bedding, per doz.	0 6
DIANTHUS SPLENDENS, rich bright crimson, for ditto, per doz.	0 6
POTENTILLAS, 12 fine varieties, 9s.; 12 extra fine	0 9
" splendid mixed seedlings, per doz	0 9
" 5 best new varieties — King Crimson, Sudbury Gem, Theodore, Shylock, and Julia, for	1 0
ROCK CISTUS, dwarf, 24 beautiful vars., very distinct	1 0
PHLOX, 25 fine vars., 10s. 6d.; 25 beautiful newer vars.	1 0
PENTSTEMONS—Grandis, fine blue, improvement on Atrocærulea, and a fine bedding plant, per doz	1 0
" Magniflora, extra large dark red, 2s. 6d.; per doz.	2 0
" Azureum (true), a fine dwarf blue, per doz.	1 0
" Ovatum, light blue, abundant bloomer, per doz.	0 9
Primula involucrata, most lovely white, per doz.	0 6
Viola arborea, 6s. per doz.; alba, per doz. ...	0 6
" Neapolitan 6s. " Russian " ...	0 6
Berberis Darwini, per doz. ... ... 1s. 6d.	0 9
Pæonia papaveracea, strong	0 9
Hardy Climbing Plants, 12 fine vars.	0 9
Roses, Tea-scented and China, in pots, 12 fine vars.	0 9
Wood's New Duchess of Norfolk, Hy. perpetual, each	0 6

Goods carriage free (not under 20s.) to all the London and Norwich Carriers, and all stations on the London and Norwich Railway. Plants added gratis with orders of 40s. and upwards.

COMPLETE CATALOGUES on application for six penny stamps, or the Spring Catalogues alone for three penny stamps, or gratis to our customers who may not have received them.

Seed and Horticultural Establishment, Sudbury, Suffolk.

WILLIAM BARNES respectfully informs his friends and the public generally, that his SPRING CATALOGUE is now ready for distribution, and will be sent, post free upon application: it comprises all the leading varieties of Indian Azaleas, Cinerarias, Verbenas, Hollyhocks, Phloxes, Fancy Geraniums, Chrysanthemums, Perpetual Carnations, Liliums, Delphiniums, Antirrhinums, Petunias, Calceolarias, and a good collection of all the most popular plants in cultivation.
Camden Nursery, Camberwell, London.

J. CATTELL has much pleasure in informing the admirers of the Heliotrope that he will send out after the 12th of May a superb Seedling, named "HELIOTROPIUM JOHN CATTELL." The colour is a beautiful lively bluish purple, with a light lavender towards the bottom of the cup; the heads of flower stand erect, and are very large; the leaves are broad, and a good green, having none of the objectionable black colour of Voltaireanum and kindred varieties, while the scent and habit is superior to any other. From the size of the flowers, the bold manner in which the head is produced, together with the pleasing colour and excellent habit of the plant, J. C. is quite confident that this variety, when it becomes known, will supersede every other for general purposes. Strong Plants, post free, 7s. 6d. each. A liberal discount to the trade.
A remittance or reference in London must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

NEW FUCHSIAS.

STEWART AND NEILSON are now receiving orders for their Twelve NEW FUCHSIAS, advertised in September last, which will be ready to send out on the 1st of May at the following prices, or 3*l.* for the twelve.

Mr. Ewart, dark	10*s.* 6*d.*	Mrs. E. Hill, light	7*s.* 6*d.*
Mr. D. Neilson, do.	10 0	Mrs. Gardner, dark	7 6
Mr. G. Lawrance, do.,	10 0	Miss A. J. Wright, do.	5 0
Miss France, do.	10 0	Mrs. Maxwell, do.	5 0
Mr. Littledale, do.	7 6	Mrs. Perry, do.	5 0
Dr. Parr, do.	7 6	Mrs. Bouch, light	5 0

A remittance from all unknown correspondents.
Nurseries, Liscard, Cheshire, near Liverpool.—May 12.

JOHN CATTELL has a plentiful supply of PLANTS of the following, autumn-sown and bedded, superior true sorts:

Cauliflower, early and late	4*s.* per 100
Broccoli, Cape (Grange's and Hammond's)	3*s.* "
Cabbage, Red	1*s.* 6*d.* "
" Early, of sorts	7*s.* per 1000
" Drumhead or Cattle	5*s.* "
Savoy, of sorts	5*s.* "

Packages containing Plants to the value of 1*l.* and upwards will be delivered carriage free to London, and to the Edenbridge Station of the South-Eastern Railway, package included. A remittance must accompany orders from unknown correspondents.
Nurseries, Westerham, Kent.

IMPORTED ITALIAN RYE-GRASS.

J. C. WHEELER & SON, GLOUCESTER,

Have some fine new Imported Italian Rye-Grass to offer at 6s. 6d. per bushel; or a bale, as Imported, containing about 14 bushels, for 84s.

CARRIAGE FREE.

J. C. WHEELER & SON, SEED-GROWERS, GLOUCESTER.

NEW AND BEAUTIFUL PLANTS.

MESSRS. VEITCH & SON,

OF EXETER, AND THE EXOTIC NURSERY, CHELSEA,

HAVE much pleasure and confidence in offering the following novelties. In making the present selection, Messrs. VEITCH & SON have been guided solely by the determination of submitting only such plants as are of general usefulness and sterling merit.

DESFONTANIA SPINOSA.—A fine hardy evergreen shrub with glossy Holly-like foliage, introduced from the Andes of Patagonia, by Mr. William Lobb, who discovered it in the region of snow. It produces beautiful tubular-shaped blossoms, often 2 inches in length, and of a rich scarlet colour, tipped with yellow. (See figure in Curtis's "Botanical Magazine," for May, 1854.) This plant, having been fully exposed in the open ground during the last severe winter, may now be considered perfectly hardy, and is certainly a great acquisition. Fine established plants, of two sizes, 21*s.* and 42*s.* each. One over on three to the trade.

DIPLADENIA ACUMINATA of HOOKER; *synonyme* DIPLADENIA MAGNIFICA of the "Florist."—This really beautiful Dipladenia was exhibited at Chiswick, at the July Meeting last year, and was awarded the large Silver Medal. Both as an exhibition plant, as well as one for general ornament to the stove, it is scarcely rivalled. (It is figured in Curtis's "Botanical Magazine," for January of the present year, and in the "Florist" for November, 1854.) Strong plants, 15*s.* each, with one over to the trade where three are taken.

BOLLONIA PTEROCLADON.—This pretty hardy shrub, is figured in the "Botanical Magazine" for January last. It was exhibited at Chiswick, at the July Meeting of last year, and received a Silver Medal. It is a dwarf compact habit, with dense dark green foliage, and abundance of pure white Epacris-like flowers, and is altogether a neat and desirable plant. Well established plants, 10*s.* 6*d.* each. One over on three to the trade.

EPACRIS ECLIPSE (STORY'S).—This is a striking flower, of fine habit, and great freeness of bloom; it was raised from Miniata grandiflora, crossed with a fine seedling. Strong plants, 10*s.* 6*d.* each. One over on three to the trade.

EURYBIA ALPINA.—This is a perfectly hardy evergreen shrub (from a high elevation in New Zealand), having stood without any protection the late severe winter. Strong plants, 10*s.* 6*d.* each. One over on three to the trade.

GRISELINIA LITTORALIS.—This is a perfectly hardy evergreen shrub with bright glossy green foliage, and fine habit. It has stood perfectly unharmed during the last severe winter, in situations where the ordinary evergreen shrubs were much injured. Strong plants, 15*s.*; second size, 10*s.* 6*d.* each. One over on the trade on three.

IXORA FLORIBUNDA.—A very neat plant, of dwarf compact habit, and a most abundant bloomer. It was sent from Java by Mr. Thomas Lobb, and is a very pretty plant. Strong bushy plants, 21*s.*; smaller, 10*s.* 6*d.* each. One over to the trade on three.

LAURUS AROMATICA.—A greenhouse plant, with delicately fragrant foliage. Good plants, 10*s.* 6*d.* each. One over to the trade on three.

MAYTENUS FERRUGINEA.—This fine evergreen shrub was sent from Chiloe and Patagonia by Mr. W. Lobb. It attains a height of from 6 to 8 feet, and is remarkable for its beautiful Holly-like foliage. As a fine leaved conservatory plant, it is perhaps without a rival, and no collection of fine foliaged plants should be without it. It has but to be seen to be admired. Fine established plants, of two sizes, 15*s.* to 21*s.* each. One over to the trade on three.

MYRTUS APICULATA.—A very pretty Myrtaceous plant, of the same degree of hardiness as the ordinary Myrtles; fine dark green foliage, and an abundant bloomer. Strong plants, 10*s.* 6*d.* each. One over to the trade on three.

MYRTUS BENTHAMIANA.—Having raised Seedlings of this fine plant, which is doubtless the finest of the long leaved Myrtle kinds, and which has proved to be perfectly hardy), we are now enabled to offer established plants in pots as follows: 10*s.* 6*d.*: for six, 50*s.*; for 12, 84*s.* Prices to the trade in proportion to the quantity taken.

PODOCARPUS NUBIGENA.—This is another perfectly hardy Taxaceous plant, sent from Patagonia, by Mr. W. Lobb. Established plants, 21*s.* each. One over to the trade on three.

RHODODENDRON CALIFORNICUM.—This is a distinct species sent from California by Mr. W. Lobb, and described as having the trusses of rose coloured flowers. It is perfectly hardy, has survived the past winter in the open border, without any protection whatever. The foliage is good, and it is an abundant bloomer, small seedling plants being now in flower buds. It is a late bloomer, and will doubtless be a valuable acquisition to hybridisers. It will be exhibited when in bloom. Strong well established plants, 10*s.* 6*d.* each. One over to the trade.

SONERILA MARGARITACEA.—This lovely plant was exhibited at the Horticultural Society's Rooms, 21, Regent Street, on the 7th of November last, and was the gem of the exhibition. (See report in *Gardeners' Chronicle*). It is perhaps the most chaste of all variegated plants, producing with dark glossy green leaves, dotted all over with silvery white spots, a profusion of beautiful crimson flowers, with yellow stamens. It is a dwarf compact plant, of particularly neat habit, and requires the temperature of a cool stove or warm greenhouse: (It is figured in the "Florist" for March last). Plants, 21*s.* each. One over on three to the trade.

SWAINSONIA LESSERTIFOLIA.—A very pretty shrubby Australian Papilionaceous plant, with spikes of flower resembling in colour Kennedya bimaculata. It is a free growing plant, and profuse bloomer. Strong plants, 7*s.* 6*d.* each. One over on three to the trade.

TORREYA MYRISTICA.—This is a splendid hardy Taxaceous plant, sent from California by Mr. W. Lobb. It is from the Sierra Nevada, at a high elevation, and attains the height of from 100 to 150 feet. The stock of this Plant is very limited. Strong Seedling Plants, 63*s.* each.

WELLINGTONIA GIGANTEA.—Ample description of this noble tree having appeared in former advertisements or circulars, it is only necessary now to say, that it is a Coniferous tree, of immense dimensions and great beauty. Having withstood the severity of the past winter, without injury, both at Chelsea and Exeter, there can be no doubt of its being a perfectly hardy tree. This is doubtless the most remarkable and interesting of recent introductions. A few of the first raised, extra sized plants, 42*s.*; second size, 31*s.* 6*d.*; third size, 21*s.* each. A deduction will be made on the above prices in proportion to the quantity taken.

Prices given to the trade on application.

Messrs. VEITCH & SON can also supply the following good and popular Plants:—

	Each.—*s.* *d.*		Each.—*s.* *d.*
Abies bracteata (seedlings)	63 0	Gesnera Donckelaari	21 0
Aphelandra Leopoldi	7 6	" Leopoldi	5*s.* to 7 6
" Porteana,	5*s.* to 7 6	Hexacentris lutea	5*s.* to 7 6
Achimenes gigantea,	5*s.* to 7 6	Hoya fraterna	7 6
Acacia Drummondi,	5*s.* to 10 6	Impatiens Jerdoniæ,	3*s.* 6*d.*, 5*s.*, and upwards
Anæctochilus argenteus	7 6	Ixora alba	5 0
Do. do. pictus	7 6	" Lobbi	7*s.* 6*d.* to 10 6
Do. Lobbi	21*s.* to 42 0	Lapageria rosea,	10*s.* 6*d.* to 21 0
Do. Lowi	21*s.* to 42 0	Lilium giganteum,	21*s.*, 42*s.*, 63 0
Do. setaceus	21*s.* to 31 6	Lardizabala triternata	5 0
Do. do. cordatus,	31*s.* 6*d.* to 42 0	Lomaria alpina	5 0
Do. do. intermedius,	21*s.* to 31 6	Do. magellanica,	7*s.* 6*d.* to 10 6
Do. do. pictus	21*s.* to 31 6	Lysimachia Leschenaulti	5 0
Do. striatus		Luculia Pinceana,	3*s.* 6*d.* to 7 6
Do. xanthophyllus,	21*s.* to 31 6	Maranta micans	5*s.* to 7 6
Azalea striata formosissima	7*s.* 6*d.* to 21 0	Nepenthes lanata, and several others	
Begonia Thwaitesi,	7*s.* 6*d.* to 10 6	Nymphæa gigantea	
Do. marmorea	7 6	Pernettya speciosa	3 6
Do. Prestoniensis superba	5 0	Philesia buxifolia,	10*s.* 6*d.* to 21 0
Bejaria æstuans,	7*s.* 6*d.* to 10 6	Picea grandis (seedlings)	
Berberis Leschenaulti	21 0	" amabilis "	
Bignonia grandiflora		" nobilis "	
Boronia Drummondi,	3*s.* 6*d.* to 7 6	Rhododendron Jasminiflorum	21*s.* to 63 0
Camellia, Countess of Orkney	10*s.* 6*d.* to 21 0	Do. Javanicum,	5*s.* to 10*s.* 6*d.*, to 21 0
Do. Storyi	10 6	Do. Dalhousiæ,	10*s.* 6*d.* to 21*s.*, to 42 0
Ceratostema longiflora,	7*s.* 6*d.* to 10 6	Do. argenteum,	10*s.* 6*d.* to 21 0
Crytomeria Lobbi,	7*s.* 6*d.* to 15 0	Do. Aucklandi	21*s.* to 42 0
Dipteracanthus spectabilis	3 6	Do. Edgeworthi,	10*s.* 6*d.* to 21 0
Dracæna indivisa,	21*s.* to 42 0	Do. Falconeri	10*s.* 6*d.* to 21 0
Echites Harrisi,	7*s.* 6*d.* to 10 6	Do. Niveum	3*s.* 6*d.* to 5 0
Eugenia Ugni,	2*s.* 6*d.*, 5*s.*, 7 6	Do. Nuttali, and many others	
Eucalyptus coccifera	21 0	Rhodoleia Championi,	3*s.* 6*d.* to 7 6
Fagus antarctica	10 6	Rubus japonicus	5 0
Fuchsia Dominiana,	3*s.* 6*d.* to 7 6	Thrysacanthus rutilans	10 6
Franciscea macrantha,	7*s.* 6*d.* to 10 6	Veronica variegata	2 6
Do. eximia	3*s.* 6*d.* to 5 0		
Do. confertiflora,	3*s.* 6*d.* to 5 0		

N.B. The prices of the Plants to which no quotations are affixed will be given on application.

EXOTIC NURSERIES, CHELSEA AND EXETER.—May, 1855.

TWO MAGNIFICENT NEW CALCEOLARIAS ADAPTED FOR BEDDING OR POT CULTURE.

"EMPEROR NAPOLEON AND EMPRESS EUGENIE."

YOUELL AND CO. have much pleasure in introducing the above beautiful varieties of this favourite flower, which they do with the greatest confidence of giving the most entire satisfaction. The following will be found a faithful description:—

EMPEROR NAPOLEON.—This is of a peculiar dwarf and compact habit, producing, on stout flower stems, dense heads of large orange-scarlet flowers, the outline of each being distinctly banded with a brilliant gold colour.

EMPRESS EUGENIE.—This, as the former, is of a dwarf but more robust habit, carrying, on extremely stout stems, an enormous head of rich, golden-coloured flowers, which, in point of size, are unequalled.

The foregoing possess the desirable properties of resisting the sun and rain without discolouring the bloom. The above are now ready for sending out at 7*s.* 6*d.* each, with the usual discount to the trade.—YOUELL & Co., Royal Nursery, Great Yarmouth.

NEW AZALEA—"ALBA MELIOR."

THIS is the one exhibited by us under the name of "ALBA MAGNA" among our collection to which the First Prize was awarded at the Regent's Park Show; very large pure white, and quite first-rate. Price 7*s.* 6*d.*, 10*s.* 6*d.* to 21*s.* each. Also a superior stock of Azaleas, for which see Catalogue.

The Spring Catalogue, consisting of Greenhouse and Stove Plants, and the Herbaceous one can be had by enclosing one postage stamp.

H. LANE & SON, The Nurseries, Great Berkhamsted.

BEDDING PLANTS.—AT 2*s.* 6*d.* PER DOZ.

JOHN SCOTT, Merriott Nurseries, Crewkerne, Somerset (established 1728), has nearly 20,000, in 3-inch pots, ready to be sent out. Post-office Orders payable at Crewkerne.

(Baskets and Package at the Expense of Purchaser, and not returnable.)

200 Sorts of the best and newest Verbenas.
120 do. Scarlet and other Bedding Geraniums.
20 do. Variegated leaved ditto.
100 do. Fuchsia, all the best; 24 do. Shrubby Calceolarias; 24 do. Petunias; with Anagallis, Ageratums, Cupheas, Heliotropes, Lobelias, Salvias, Senecios, &c. Also the beautiful white Double Pyrethrum.

When a fair proportion of each is taken the price will be 2*s.* 6*d.* per dozen; but if only Calceolarias and Geraniums are ordered they will be 4*s.* per dozen. Catalogues, in which the above are arranged in sections of colour, &c., sent on receipt of a postage stamp. Parties requiring large quantities can have them in store pots by agreement.

ORCHIDS.

WILLIAM MAULE AND SONS have received their annual importations of ORCHIDS from their collectors in the East, which they beg to offer on the following terms, many of which are one and two years established:—Vanda cærulea, 21*s.*, 42*s.*, 63*s.*, 105*s.*; Vanda teres, 10*s.* 6*d.*; Aerides odoratum, 10*s.* 6*d.*; Aerides affine, 42*s.*; Foxbrush, 105*s.*; Dendrobium Devonianum, 10*s.* 6*d.*; Cambridgeanum, 10*s.* 6*d.*; Gibsoni, 10*s.* 6*d.*; densiflorum, 10*s.* 6*d.*; Farmeri, 10*s.* 6*d.*, 15*s.* Chrysanthum majus, 7*s.* 6*d.*: nobile, mixed with Wallich 7*s.* 6*d.*; Pierardi, mixed with latifolium, 7*s.* 6*d.*; clavatum, 15*s.*, 21*s.* moschatum, 10*s.* 6*d.*; Camarotis purpurea, 10*s.* 6*d.*; Cœlogyne or Pleone, Wallichi, and maculata, in pots, with four or five plants or bulbs, 10*s.* 6*d.* each; Saccolabium ampullaceum (VERY scarce), small plants, 63*s.* each.—The Nurseries, Bristol.

PAGE AND CO'S COMPOSITION FOR THE DESTRUCTION OF BLIGHT UPON ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, STOVE AND GREENHOUSE PLANTS.—Extra Strong, 4*s.* per gallon, sufficient to make four (Jars and Barrels extra). Directions for use forwarded. Ten gallons and upwards carriage free to London.

After four years' extensive use by the most eminent Gardener in the kingdom, the superiority of PAGE & Co.'s BLIGHT COMPOSITION is unquestionable, requiring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage) and promoting a luxuriant growth.

See two pages Testimonials, *Gardeners' Chronicle*, March 3, 1855

Can now be obtained of

Messrs. Henderson & Co., Pineapple Place, London
Messrs. Bass & Brown, Sudbury
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Messrs. Sutton & Sons, Reading
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Mr. James Veitch, Exotic Nursery, Chelsea
Messrs. Wheeler & Son, Gloucester
Mr. E. Paul, Derby
Mr. George Wheeler, Nurseryman, Warminster
Messrs. Masters & Son, Canterbury
Mr. Tiley, Bath
Messrs. Downie & Laird, South Frederick Street, Edinburgh
Mr. W. Barratt, St. John's, Wakefield
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Mr. E. Taylor, Malton, Yorksh.
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Messrs. Veitch & Son, Exeter
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Mr. W. F. Smith, Rivershead Nursery, Sevenoaks
Messrs. Wood & Ingram, Nurseries, Huntingdon
Mr. Baskerville, Bristol
Mr. Burham, Hastings
Messrs. Leake & Smith, Bridgenorth
Mr. Davison, St. Peter's Street, Hereford
Mr. W. Garraway, Welwyn, Herts
Mr. Thos. Cridland, Willington, near Taunton
Mr. Henry Horne, Market Place, Henley-on-Thames
Mr. R. M. Mills, Market Place, Bourn
Mr. Husbands, Talbot Street, Nottingham
Mr. Caparn, Seedsman, Newark
Mr. John Cattell, Seedsman, Westerham
Mr. Morgan, Nursery, Kidderminster
Messrs. Ivery & Son, Nurserymen, Dorking and Reigate
Messrs. W. Drummond & Sons, Dawson Street, Dublin
Messrs. Mappleback & Lowe, Birmingham
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And of the Inventors and Manufacturers,
B. PAGE AND CO., SEED MERCHANTS, Oxford Street, and Above Bar, Southampton.

The Gardeners' Chronicle.

SATURDAY, MAY 12, 1855.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, May 16—Horticultural at Gore House, Kensington, 2 P.M.

THE long and excellent report upon the effect of the last winter upon the vegetation near Dublin, which we have lately published, led to some discussion, for which we have not before found room. The question raised was, in what manner does cold act upon plants when it causes death?

Dr. STEELE expressed his opinion that this was not properly understood. To the theory that death ensued from a too great distension of their tissues, caused by the congelation of their fluids, he objected.

On the contrary, he thought that the action was in some way similar to that caused by an electric shock on succulent plants, such as the garden Balsam. That a distension of the tissues did not produce injury, as generally supposed, was sufficiently shown by the well-known fact that the same degree of cold acted very differently on different plants placed in equal circumstances.

Mr. Moore did not consider the reasons given by Dr. Steele for objecting to the generally received opinion on this subject to have been happily conceived, inasmuch as animals which are natives of warm countries are more subject to be destroyed by cold than those which are natives of colder regions. Nature provides both plants and animals with tissues capable of resisting the rigours of the climates they were destined to live in. He had, therefore, no doubt but that the action was of a mechanical nature, and caused by the rupturing of the walls of the tender cells, which he believed was the opinion of the most distinguished botanists both in this country and on the continent of Europe. It was a very common occurrence to see the bark of plants that had been injured by frost part from the wood. Now, every vegetable physiologist knew that a layer of soft mucilaginous matter existed between the wood and bark of all exogenous trees, called cambium, out of which young cells were being formed, which had very long and slender walls at first, and it was known to be the congelation of that substance, and rupture of the tender cells, which causes bark to part from the wood. The chairman also had frequently remarked, when Pelargoniums are destroyed by frost, that the wood separates from the bark, and he believed the effect of frost on plants to be a mechanical action which ruptured their tissues, and not a sudden shock.

This is so interesting a question that we just venture to occupy a brief space with a remark or two which we hope may help to throw some light upon it.

That the action of frost is purely mechanical is an old doctrine which has met with general assent. It has been held that when a plant is frozen the fluids contained in its cells expand, and rupture the tissue, thus producing disorganisation. That this is to some extent true is, we believe, indisputable; some observers have reported that they have *seen* proofs of such an action. It has been therefore suggested that the fluids contained in different species of plants may themselves act differently in the presence of cold; just as oil of turpentine requires a temperature of 14° to freeze, while oil of bergamot freezes at 23°, and Olive oil at 36°. But although this may be true to a limited extent, yet it by no means explains the phenomenon in question. The plant *x*, for instance, perishes from frost, while another, identical with it in nature, lives with impunity within 2 yards of it, both having been exposed to the same temperature. In this case the fluids of the two will be chemically the same, and yet the results are opposite. Again, the Long-leaved Pine (P. longifolia) is quite tender, while the Gerard Pine, exceedingly like it, is hardy; in this case there is no ground for supposing that the fluids contained in these species are different. In fact, except that all plants suffer from cold in proportion to the quantity of water they contain, we have no kind of evidence to show that the quality of their fluids has any material influence upon their power of resisting cold; for it is by no means true, as some too hastily assert, that resinous trees, like Conifers, are rendered hardy by the resin they contain; the Norfolk Island Pine and the Malay Dammar are tender, although both are resinous.

It must be also remembered that plants are killed by cold although their cells are perfectly empty, in which case we need not say that the expansive force of frozen fluid would have nothing to operate upon.

All the experience that 40 years' acquaintance with such phenomena has given us leads to one, and only one, conclusion, which is that the power of resisting frost is the consequence of specific vitality and of nothing else.

That a low temperature, or frost, acts differently upon different plants very nearly allied to each other is notorious; and this even where they are mere varieties of each other. The China Rose, for instance, resists any amount of English cold; the variety called the Tea-scented perishes, or suffers severely, in every ordinary winter. The gay-flowered Senecios of the Canaries, known in gardens under the name of Cinerarias, shrink from the mere approach of frost, and perish upon its first arrival; yet the Ragworts, and Mugworts, and Groundsels, all equally Senecios, can bear a Russian winter. In like manner Oaks, Chesnuts, Conifers, exhibit similar differences in their power of resisting frost.

It is impossible, upon any other principle, to account for the facts that surround us. For example, Genista ætnensis has survived all the cold of this winter. What is there in its constitution, except specific vitality, which can account for the fact? — which can explain why it has endured, without suffering, a degree of cold that has proved fatal to its first cousin the Common Furze? Unhesitatingly we answer—nothing.

It may be asked, what *is* this "specific vitality?" To that we have no reply to give, except that we do not know.

It is an axiom in animal physiology, that "the general effect of cold on living bodies is a diminution of vital activity, which terminates, if the cold be intense, and its application continued, in death." (Pereira.) Hence it is to be inferred, that all living things whatsoever must finally perish beneath the influence of cold, provided it is severe enough and prolonged enough. But living things have each their separate constitutional vitality, the power of which in resisting cold differs between species and species, or variety and variety, and even between individual and individual. It is a peculiarity derived from the great source of all things; a reality; inexplicable but indisputable; like light, and heat, and electricity. We see it manifested among plants between the yellow and the spider Ophrys, and the Tea Rose and the China Rose; as among animals between the ass and the zebra, the Negro and the Esquimaux, the terrier and the Italian greyhound.

And we make this avowal of ignorance in the full conviction that it is the only way of meeting such inquiries. Men may speculate about first causes, and attempt to explain the inexplicable, but they only waste their own time and fatigue the patience of their readers.

It is by attempting to explain every phenomenon of life by the known laws of chemistry, electricity, and similar agencies, that we plunge into a labyrinth of perplexity—

"And find no end, in wandering mazes lost."

But the moment we admit the presence everywhere among all plants of a *vital principle*, and thus recognise a direct analogy between plants and animals, the principle of life in the two kingdoms being identical, but differently manifested, then we tread on the firm ground consolidated by the march of ages, and find in the experience of animal physiology the elucidation of what is obscure in that of vegetables. It is true that we then abandon the pursuit of first causes, and confess the vanity of that curiosity which nothing can satisfy; but we exchange rationalism for materialism, and we learn how to apply experience to daily uses.

Much of this reasoning is taken from the new edition of the "Theory of Horticulture," to which those are referred who seek for further information.

We understand that the Cattleyas from Brazil, advertised for sale by Mr. Stevens on Monday, are fine specimens of fine plants just imported. What is called C. Leopoldi in the sale catalogue is a very striking variety of C. guttata.

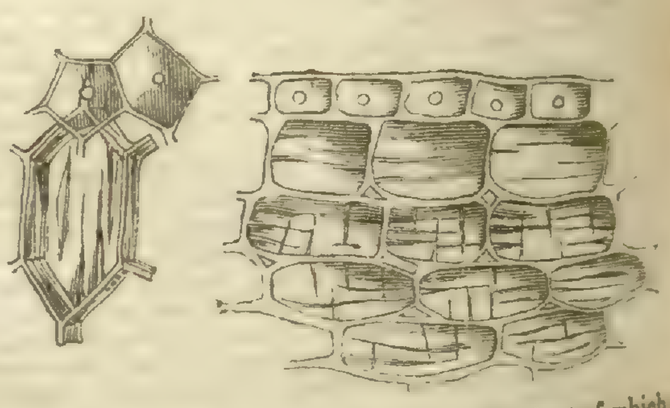
New Plants.

124. Vanda helvola. *Blume Rumphia* iv., *p.* 49. *Folia Orchidacea, no.* 14, *p.* 6 (*Vanda*).

We have received this rare plant from Mr. W. Pass, gardener at the Fence, near Macclesfield, who informs us that it is much shorter in the leaves, and has a dwarfer habit than any state of V. tricolor. We have not seen more than a couple of flowers, which by no means justify the reputation which the species has hitherto enjoyed. Dr. Blume calls it a magnificent species, with wine red flowers shading into pale purple and a brighter purple lip. What we have seen were of a dirty straw colour, tinged with a brownish violet over the upper half of the sepals and petals, while the *triangular* lip, although less yellow, was but little brighter or deeper in colour than the other parts. Perhaps more air and sun will hereafter improve their appearance.

VEGETABLE PATHOLOGY.—No. LXXI.

309. 4. Chlorosis of Orchids.—The very curious affection, of which a notice is now given, was kindly forwarded to me by Dr. Lindley without note or comment, except that the plant on which it was developed grew in a warm moist house, and rather dark. I have no further information from which the probable causes may be conjectured, nor can I assert whether it should be considered as purely constitutional or accidental. I must content myself, therefore, with describing what I have seen. It is the thick fleshy leaves of Phalænopsis amabilis on which it appears. The general aspect of the leaves is at first only very slightly affected; the green is full and of a healthy tint, but here and there pale ill-defined spots are observed, which might be hoped, in process of time, to assume their proper hue. But this is not the case; the cells of which they are composed are almost destitute of chlorophyll, or contain only a few grains reduced in size, and are probably of themselves incapable of performing their functions. In this stage possibly a solution of sulphate of iron might be used with effect, or at any rate would be worth the trial. Things, however, do not long remain in this state. The patches which were at first indefinite become tolerably well defined; and while the neighbouring cells increase and retain all their vivid green, these gradually contract and wither till the leaf is full of deep pits, the substance of which is at last dead and completely dry. No mycelium is found about them, though when submitted to pressure in order to their preservation in the herbarium these spots are peculiarly liable to generate moulds, while the parts which were full of chlorophyll exhibit this tendency in a far less degree. As contraction takes place certain granular points appear, but these are merely cells filled with abundant raphides and have nothing specially to do with the disease. On examination with the microscope the cuticular cells of the upper surface appear unaltered; their cytoblasts to the last are quite as full and perfect as in those parts which are sound: but several layers beneath the cuticular stratum exhibit a multitude of folds both vertical and horizontal, which are singular only for their regular parallelism, as far at least as we have observed, and it is owing to this probably that the surface of the spots is so even and free from distortion. The walls meanwhile are almost colourless, and their death takes place with no other effect than the gradual evanescence of all their fluid contents. As I have had no opportunity of examining the growing plant I am not able to say what proportion the pale spots on the leaves in an early stage of the disease bear to those which may exist at last, but from what takes place in drying I should conceive that the disease is not confined to those parts which were affected on the first development of the leaf, but that parts which were once rich in chlorophyll are liable to contract the disease, and wither equally with those in which it had never been perfectly developed. I have already suggested one remedy, and in similar cases I should feel inclined to try the effect of creating a steam from liquid manure poured upon the hot pipe, a practice which produces sometimes a very vigorous vegetation but which requires caution, as I have seen instances in which a stream of air from highly heated manure has been injurious to Pines. If the affection be strictly constitutional, little assistance from this or from any other measure can be expected, but in our ignorance of the limits between constitutional and accidental maladies it is well to try every scheme which reason or experience may suggest. Though at present my attention has been especially directed to the malady in one case only,* I believe that it is not unfrequent, and Orchids are often so valuable as to make the preservation of well-grown individuals a matter of considerable importance. They grow under such very different circumstances that it is almost impossible that all the epiphytous species should thrive in the warm damp shaded houses which are so favourable to so many of the species.† Some, so far from delighting in the shade, grow only in spots exposed to the full sun, as is the case with our own Liparis Lœselii and Malaxis paludosa, which make an approach to these epiphytes. As regards, however, the particular species before us, there is no reason to believe that it has any peculiar habits which would make it more impatient of such treatment than a thousand others. The figure represents a horizontal and vertical slice, the first of which on the left hand shows the pentagonal cells of the cuticle with their cytoblasts, and the plicate hexagonal cells beneath them; while the second shows portions of the four layers, all more or less plicate, which succeed the cuticle. *M. J. B.*



* A different affection, characterised by some remarkable features occurring on Aërides odoratum, Saccolabium Blumei, &c. will be noticed hereafter. The early stage is in some respects similar, but the cells contain chlorophyll grains, and ultimately assume a deep brown tint.

† The following passage from Hooker's Himalayan Journals, Vol. ii., p. 321, will illustrate this:—"Near the village of Lerwi Oak woods are passed in which Vanda cærulea grows in profusion, waving its panicles of azure flowers in the wind. As this beautiful Orchid is at present attracting great attention from its high price, beauty, and difficulty of culture, I shall point out how totally at variance with its native habits is the cultivation thought necessary for it in England. The dry grassy hills which it inhabits are elevated 3000 to 4000 feet: the trees are small, gnarled, and very sparingly leafy, so that the Vanda which grows on their limbs is fully exposed to sun, rain, and wind. There is no Moss or Lichen on the branches with the Vanda whose roots sprawl over the dry rough bark. The atmosphere is on the whole, humid, and extremely so during the rains, but there is no damp heat or stagnation of the air, and at the flowering season the temperature ranges between 60° and 80°, there is much sunshine, and both air and bark are dry during the day. In July and August, during the rains, the temperature is a little higher, but in winter it falls much lower, and hoar frost forms on the ground. Now this winter's cold, summer's heat, and extreme drought, and, above all, this constant free exposure to fresh air and the winds of heaven, are what of all things we are to expose our Orchids to in England. It is under these conditions, however, that all the finer Indian Orchideæ grow, of which we found Dendrobium Farmeri, Dalhousianum, Devonianum, &c. with Vanda cærulea, whilst the most beautiful species of Cymbidium, Bolbophyllum, and Cypripedium inhabit cool climates at elevations above 4000 feet in Khasia, and as high as 6000 to 7000 feet in Sikkim."

CHOROZEMAS.

Chorozemas are generally considered by amateurs difficult to cultivate; but they can be grown well by pursuing the following method. The soil should be a sandy peat, well broken with the spade, but not sifted. The best time for potting is March or April. Care must be taken not to over-pot the plants, or injure the roots while potting; the soil must be made very firm and compact about the roots, and the pots well drained; then they should be placed in the greenhouse in an airy situation, and not crowded among other plants. It is also well to keep them in the greenhouse during summer; but in hot weather they should be shaded for two or three hours each day during sunshine. They require a reasonable supply of water; that is, they must not be sodden, nor left too dry.

They may be propagated in the following manner: the cuttings should be taken off and carefully prepared while the wood is young; take off the bottom leaves with a sharp knife, and make a clean cut horizontally just through the joint; the cutting-pot should be drained, and then filled to within an inch of the top with the soil above mentioned; on the top of this put a layer of white sand, into which put the cuttings, making a hole for their reception with a small stick. When the pot is full, give them a little water with a fine rose; after which, place a clean glass over them: in this state they may be removed to the propagating house, where the temperature should be 70°. They should be shaded from the sun, which can be done by placing a sheet of coarse paper over the glasses.

As soon as the cuttings are rooted, which may be known by their appearance of growth, they must be potted off; but care must be taken not to injure the roots, and they must be shaded again for a week or ten days, until they make fresh ones; they must then be gradually hardened, and placed with the old plants in the greenhouse. *Alpha.*

COMMON THINGS.

Roses received from nurseries in May, and during the summer months, in a growing state, should, immediately after being unpacked, be placed in a cold frame, and if sunny weather, shaded a few days, syringing them occasionally, or giving them water from a pot with a fine rose. The first three days keep them close, afterwards admit air gradually, taking the lights off at night, if still weather and the nights are dewy. In eight or ten days they may be planted out without any risk of their being checked in their growth. Some little variation is required in the treatment of plants received out of pots, with their balls of earth enveloped in Moss; these, it need not be stated, have been grown in pots, but have been taken out for convenience of packing. If in spring or summer they should be placed in a cold frame, with the Moss tied round them, as they are received, treating them the same as if they were in pots; the Moss must be removed when they are planted out. Without these precautions Roses received in small pots on their own roots are very apt to die after being packed for perhaps a few days in a close basket.

To Stop the Bleeding of Vines.—When cut rather late in the season, take one-fourth of calcined oyster shells, beaten to fine powder in a mortar, and three-fourths of cheese, worked together until they form a sort of paste; this pressed into the pores of the wood, either with the thumb or by any other means, will effectually stop the flow of sap. Sometimes a repetition, however, is necessary if not well forced into the pores, or if the wound is not properly covered. Rubbing the cut parts well with candle grease also greatly assists in preventing Vines from bleeding.

Home Correspondence.

Osage Orange.—Perhaps it may prevent disappointment to experimenters in this part of the country to say that the Maclura grows no better here (Fifeshire), than Mr. Ayres finds it to do in South Wales. As is the case with many other American shrubs, the shoots of the Maclura are always killed back here to a half or a third of their length. In seed pans, indeed, in frames, the young plants grow freely enough, but when set out they make little progress, nor do plants from layers succeed any better. Some stools for layering which were planted here more than 20 years ago, throw up shoots 12 or 18 inches long, but these are invariably injured in winter. To form a good close hedge, a plant must be hardy enough to admit of being trimmed in summer, that is, it must be capable of ripening late growths, and this certainly the Maclura is unable to do in this climate. *W. S., Kirkaldy.*

Gooseberry Fly.—I have experienced little difficulty in capturing the flies which give existence to the Gooseberry caterpillar. It was on the 13th of April they first appeared here (at which time they were not at all lively, and were easily crushed), perched on some leaf, crawling up the stems of the Gooseberries, or on the ground. To make sure that none escaped observation, hidden by leaves or perched on the stems, some fine soil was cast sharply amongst the branches, which had the effect of either making the flies take to flight or knocking them upon the ground; on the latter they were easily crushed, and in the former case their place of rest was noted, if practicable, and they were destroyed. It was by these means that so many were killed during five or six days after the 13th of April. They gradually became thinner, and latterly I have been unable to find one. I attach importance to attending to their destruction early in the morning (say from 6 or 7 to 9 o'clock), because I found as the day advanced, and under the influence of a bright sun, that they became particularly vivacious and agile, and were then caught with difficulty. However, although I did not try it, I entertain no doubt that by means of a fine gauze net they might even then be readily captured. I may add that a considerable number of the male flies were caught also; I shall be putting the estimate low when I say fifty. *Robert Grey, Hadzor Gardens, Droitwich, May* 8.——Through the middle of April my men were engaged before breakfast in catching the sawflies that were nestled in the Gooseberry bushes, and sometimes got nearly a pint of them; they tapped the bushes with a stick, and the fly generally darted to the ground, where it was secured without difficulty. We adopted this plan some weeks before your Droitwich correspondent's account was published, and there cannot be a doubt that it is a very advantageous step to take. Those we killed were full of eggs, and had consequently done no harm, as they lay but once. I am informed a small black fly, which is met with on the bushes about the same time, feeds upon the eggs, and therefore should be encouraged. At present we have only observed one leaf affected with caterpillars in the whole of a large plantation. Should they appear, we shall have recourse to hand picking in the early stages, when the leaves are only eaten in pin-holes, as then they are found in numbers of 20 to 30 on one leaf. Those that escape this operation, and get distributed about the tree, we shall powder with hellebore, as we did last year with very marked success. Eighty pounds weight were used in successive dressings and sufficed to keep upwards of 100,000 young bushes so clean that not 100 were stripped of leaf, and this year they are in full strong leaf and form a striking contrast to those in the neighbouring plantations, where the ravages of the caterpillar were unchecked; many of those trees are dead, and a large portion of the remainder in a sickly state, with but little fruit that can arrive at perfection. Our Pear blossoms are much injured by the late frosts; the Black Currants are considerably affected; the Plum, Apple, Gooseberry, and Red Currant not materially hurt, but in some plantations the Plum is likely to suffer from grub, as it is already preying on the young leaves, but not visible without close inspection. *R. Varden, Seaford Grange.*

Camellias in Cornwall.—In the gardens of J. S. Bedford, Esq., of Pendrea, near Penzance, I noticed a splendid Camellia just coming into full bloom, and bearing upwards of 2000 buds and flowers, all fine and perfect. The size of the plant is 7 ft. high, 11 ft. in diameter, and 33 ft. in circumference. The gardener informed me that it has been in the open air throughout the past very severe winter; but a slight covering is now thrown over it, to protect it from the cold east wind and hoar frost. When planted in 1848 it was only a foot high. *Delta, Penzance, May* 4.

The Crimea.—As any anti-scorbutic is too valuable not to require notice, I beg to recommend the parties at Sebastopol to examine the rocks on the sea-shore, where I have little doubt the Crithmum maritimum will be found, as also at Scutari and other places in those latitudes. During many years' service in the Mediterranean I never failed to find it on the rocks, and made an invariable rule never to go to sea without a jar of it simply preserved in vinegar. It is a fine anti-scorbutic, and one of the very best pickles I know, and a most useful palliative to the salt pork and beef. There is little doubt our soldiers and sailors will be yet more accustomed to salt diet before they have done with that inhospitable shore, and any anti-scorbutic to be procured on the spot will be acceptable to them. *W.*——One of the Crimean scribes has found Dahlias! among the wild plants there. I dread the want of water for our troops if confined to the Heracleotic Chersonese in the summer. *S.*

Rapidity of Growth of Pinus insignis and Black Italian Poplar. — In the early part of the spring of 1852 I had a present made me of a Pinus insignis. It was about 7 feet in height, and in a pot; it was planted in a good soil, a loamy red sand, and sheltered by a plantation from the north. The spring following the leading shoot was 8 feet all but 1 inch; that is, the plant had gained that in height. The next year the growth did not exceed 4 feet, but lateral shoots were strongly sent out, some from 2 to 3 feet. This year an unfortunate occurrence took place, whereby numerous trees suffered, my Pinus amongst others—a fall of rain froze on the branches, to so great an extent as to load the trees with incrustation of crystals of ice, whereby they were torn and injured. One branch of the Pinus broke off, the leading shoot had been long upheld by a strong pole, the growth had been so rapid that my gardener was fearful of its breaking; about 5 feet, however remained unprotected, and this part was bent down by the ice, but not broken; it was braced up, but I have my apprehensions as to whether the leader will show much growth this summer; it is now 4 inches, and may perhaps reach 2 feet; here it is the earliest tree to shoot. Whilst on the subject, I will just give you the growth of a Black Italian Poplar—it was planted by me in the spring of 1821, being about 3 feet high; it was thrown down in February last, and found to contain 92 feet of timber, allowing for the bark; this increase was got in 34 years. *E. Jeffries Esdaile, Cothelstone House, near Taunton.*

Hybrid Rhododendrons.—I send you flowers of three varieties of hybrid Rhododendron:—No. 1, the largest, arboreo-catawbiense, is the one I referred to as equalling catawbiense in size and arboreum in colour. Nos. 2 and 3 are arboreo-maximum. All have stood this winter perfectly, in a very exposed situation. The flowers of No. 1 are not as large this year as last, owing to the plant, a large one, 8 feet high, having been moved last spring. All are free flowers, having this year from 30 to 40 heads, though only the second year of blooming; they are about 20 or 22 years old. *J. R.* [These flowers were exhibited at the meeting of the Horticultural Society on Tuesday last, as specimens of the hybrids to which our correspondent referred in his papers on Hybrid Rhododendrons in our columns a few weeks back. They were all high-coloured kinds, without the least blemish, and extremely handsome.]

The White Mediterranean Heath.—This being, I believe, the first instance of a white variety of the species ever discovered, it is consequently yet without a history, which is the following:—Three years ago, a gentleman from the county of Mayo sent me a specimen of the dark flowered variety, which I now enclose, having every appearance of the true Erica carnea, about which so much doubt existed relative to its being entitled to a place in the Irish Flora. Thinking I had obtained information likely to lead me near the locality of the plant, I started from Dublin for the county of Mayo in April, 1852, when after a long search I found the side of a hill covered with Erica mediterranea, all very dwarf and varying in tints and colour from the dark variety my friend sent me to the ordinary pink state. Finding that the case, I saw there was no chance of the true E. carnea being found, this being, no doubt, the plant taken for it; and, indeed, it is scarcely possible to find any essential characters which will distinguish this dwarf flesh-coloured variety from it. On seeing so many shades of colour, it at once occurred to me that, like our other native species of Heath, a white variety might be found, which resulted in the discovery of the original of the plant I now inclose, after searching two days. I shall hardly ever forget the effect produced by the ordinary state of this Heath on the hill where it grew in such profusion at that early period of the season, which can only be understood by those who have seen Erica cinerea covering a large space of ground in full bloom, lighted up by the rising or setting sun. *D. Moore, Glasnevin.*

Protecting Wall Trees.—The following is an account of the protection I used, and how I fared, during the severe frost of the 4th of May. My walls are 12 feet high; the outside course pitched ashlar'd stone; the inside, excellent brick, with a 6-inch cavity betwixt, and binders every fifth course and fifth brick, the coping projecting 5 inches, and throated 3½ inches from the wall. That portion of the south wall occupied by Apricots is covered every night with woollen sheets, nearly double the thickness of frigi domo, reaching from the top to within 6 inches of the ground at an angle of 16 inches from the wall; the sheets are fixed to rollers in 12 feet lengths, and can be let down or drawn up in a few minutes. Under such a covering you might imagine all is safe, but not so; on the morning of the 5th, when I went at 7 o'clock to draw up the sheets, a most beautiful crop of fruit, varying in size from a pea to that of a marble, was frozen quite black; consequently I let the cover remain down some hours longer, for fear of admitting the sun too suddenly, but all to no purpose; 99 out of every hundred are completely destroyed. I may also add that a Bigarreau Cherry on a different part of the same wall, which had a double hemp net and new Archangel mats hung before it, suffered equally with the Apricots. My own opinion is that no coverings such as are in present use will save fruit from the effects of such a night as the one just mentioned. *Thos. Henderson, Gardener to P. Garforth, Esq., Coniston, Yorkshire.*

Natural Mushrooms, Beurré Rance Pears, &c.—The Asparagus bed, from which I obtained a fine supply of Mushrooms in April (see p. 281), still continues to produce Mushrooms in great abundance, of the quality of which I send you a further illustration. I also send a dish of Beurré Rance Pears, instancing the excellent keeping properties of this Pear; and I may mention that the crop of Beurré Rance was saved last year by the employment of straw mats, which I use extensively. The two samples of kitchen Apples sent are much esteemed in this locality, viz., "Betty Geeson" and Normanton Wonder [Dumelow's Seedling]. They afford in themselves the best proof of their good keeping qualities. *W. Ingram, Belvoir Castle, Grantham, Lincolnshire, May* 7. [The above were all exhibited at the Horticultural Society's meeting last Tuesday. The Mushrooms were extraordinary specimens for this time of the year].——In the spring of last year four trenches were made 4 feet wide and 1 foot 6 inches deep. These were filled with some horse-dung direct from the stables, mixed with some old linings from frames (all horse-dung); these beds were planted with ridge Cucumbers in the usual way, but owing to a disease then prevalent among Cucumbers, they were useless. I therefore had them destroyed and the beds planted with Lettuces intermixed with Borecole. These still remain, and are a great protection to the beds. On the 27th of September we commenced gathering Mushrooms from these beds, and continued to have an abundant supply until the frost in January, which, owing to their not being protected, stopped their growth. During that time we had them in such quantities that many bottles of ketchup were made from the overgrown ones. They began to produce again on the 17th of April, and continue bearing as fine and good flavoured Mushrooms as I have ever seen grown in a regular Mushroom-house. I have now covered them with long litter, and keep

them regularly watered, and to all appearance they will continue in bearing for a considerable time to come. *John Morris, gardener to Thos. White, Esq., Wethersfield, Essex.*

The Manufacture of Caoutchouc, and its application to various useful purposes, were introduced by the late Mr. Charles Macintosh and myself, upwards of 30 years ago, and although the consumption was small at the beginning, it has grown now to a very large amount, and is constantly increasing by numerous new applications, both here and in other countries. The supply has hitherto been equal to the demand, but as the best quality is obtained from South America, and I believe from the Siphonia elastica, I beg to inquire whether this plant may not be cultivated in Jamaica and the East Indies, and if so whether attention should not be called to it in due time, since any chance that may obstruct the trade or diminish the supply, if obtainable only from one source, may cause great inconvenience. Before facilities were discovered for reducing the solid substance, many attempts were made to obtain it in the natural liquid state, as drawn from the tree, and in the year 1824 I succeeded in importing from Guatemala a considerable quantity in a very pure state, of about the colour and consistence of cream. I did not succeed in obtaining any more from that quarter, but I some time after employed a person at Tampico and that neighbourhood to collect it, and two or three hundred barrels of it were sent to me at a great expense, but it all became inspissated during the voyage, separating from a dark liquor, and taking the form of a portion of the barrel in a solid state. I have before me a sample in a perfectly fluid condition, of a much thinner consistence than the above, and which dries much more slowly; this has evidently been diluted with ammonia, to which, I presume, it owes the retention of its fluidity. I have mixed sulphur with this liquid, and when dried exposed it to heat in the ordinary process of vulcanising with perfect success. I also applied to it a solution of the chloride of sulphur, after the patent of Mr. Alexander Parkes, and the conversion was perfect, rendering the substance as insoluble and cold-resistent as if vulcanised. Now, it is clear that whether obtained in the solid or liquid state, this substance is destined to take an important place in the manufactures of this country, and this notice in your Paper might possibly be the means of directing the attention of competent persons to the cultivation of the plant. I some time ago mentioned the subject to Sir W. Hooker, who was so kind as to say that he would at any time render any assistance in his power to parties disposed to make the attempt. If you should wish to have a little of this liquid, I will send you enough to enable you to make any trial of it you may think proper. I have thought it would be useful for covering grafts or green wounds in plants or trees; in all cases when this substance is to be exposed to the atmosphere it should be blackened, or it is soon decomposed. *Thomas Hancock, Stoke Newington.* [We should be much obliged by a little of this liquid; but we do not see how it is to be procured except in tropical countries.]

One Boiler Plan of Heating.—The following are the advantages and disadvantages of heating whole ranges of houses by one boiler. Advantages—neatness and less labour in having only one fire to attend to. Disadvantages—high cost of large boilers; immense consumption of fuel in consequence of the great draught required; and dreadful sacrifice of plants should an accident happen to the boiler during severe weather, when such mishaps generally occur. *Kensingtoniensis.*

Seeds for the Crimea.—It may be interesting to know that our brave countrymen in the East have at least some among them who are anxious to contribute to their comfort and happiness. An order for seeds from a district being ravaged by war is somewhat novel; but such has been given by Captain the Hon. Henry Keppel, of H.M.S. St. Jean de Acre, through the Admiralty, to Messrs. Page and Co., Southampton, for a large supply of permanent Grasses and vegetable seeds sufficient to crop many acres of land. These were shipped in cases of about 4 or 5 cwt. each, on board the R.M.S.S. Medway, which left Southampton on Wednesday last, with Artillery horses and men. *Æstimo.*

The Weather.—On the night of May 2 one of my thermometers 6 feet from the ground fell to 26°, and on that of the 4th to 24°. On this latter night there were 3° of frost at 10 p.m. Such severity in the month of May is, I believe, unprecedented. The Apple blossom in this neighbourhood is fortunately not yet out, but the young shoots of the Lilacs and other shrubs appear many of them as if burnt up, and it will be impossible for some days to discover the extent of mischief done. The wind has now changed to the S.W., and it is to be hoped that we have seen the last of these unseasonable frosts; rain and mild nights are sadly wanted, as the Grass has scarcely began to spring, and the country looks as parched and dry as it usually does in March. *C. B. N. P., Knebworth, Stevenage, Herts, May 7.*—— The neighbourhood of London has again been visited by one of those severe spring frosts which seem now to be constant in their visitations. But the night of the 2d, when the thermometer at Chiswick registered 12° of frost, was more severe than any May frost on record. The blossoms of the Plum trees, although not open, are killed to a great extent; the petals are, however, white and the stamens perfect, but the germ is in nearly all cases black and dead. It will be of interest to know how far this severe frost extended; at Nottingham, as given in the *Times*, the thermometer did not descend below 28°. Formerly the environs of London were reckoned peculiarly favourable for fruit gardening, but for these last eight years the spring frosts have been ruinous to the fruit gardeners. *Pyrus.*

Foreign Correspondence.

Leaves from my Chinese Note-Book: No. IX.—The *Gardeners' Chronicle* reaches me pretty regularly upon the whole, although I sometimes get one month's numbers before the others, or two months' together, as the case may be; but whenever or wherever it comes to hand it is always most welcome. As I am in the habit of making notes upon any subject in its columns connected with the productions of China, I now send you some of these notes for the perusal of your readers.

Chinese Yam (*Dioscorea Batatas*).—This esculent seems to be attracting a good deal of notice in England as well as in France, and is apparently considered by some persons equal, if not superior, to the Potato itself. It is very abundant in China but is not a staple crop, like the sweet Potato, for example. Foreigners, as a body, prefer it when *roasted* to the sweet Potato; but do not dream of putting it on a par with the common Potato. However, I believe there is no vegetable of the kind at present known more likely than this is to take the place of our old favourite, providing it should die out or become so diseased as to render its cultivation uncertain and consequently unprofitable. In making this assertion, I am taking for granted that the climate of England is suitable for the production of the Chinese Yam, which I must confess I have some doubts about. I dare say it will prove hardy enough to withstand an English winter, but are *our summers hot enough?* or does not the want of summer heat account for Mr. Thompson's failure in the garden of the Horticultural Society? Experiments made in glass frames, or with bottom heat, or even in the open air in a summer which may be unusually warm, are all to be guarded against in deciding an important question of this kind. It ought to be kept in mind that the sweet Potato, the Arum esculentum, the Nelumbium speciosum, and such like plants, are cultivated as esculents in the north-eastern provinces of China, along with the Yam. But should the summers of England prove warm enough for its cultivation, I have no hesitation in saying that it is more likely to suit the tastes of the people than anything which has been brought forward since the commencement of the Potato disease.

Mosquito Tobacco.—Some amusing correspondence has appeared upon this subject which I cannot take as very complimentary to my last book, "A Journey to the Tea Countries," &c., or to the retentive memories of the readers thereof. Mr. Prideaux says (Sept. 9th), "In answer to 'R. A. H.' (see p. 565), respecting the passage referred to in Fortune's book on China, I have made the following note unfortunately without the reference. 'For keeping off mosquitos, the Chinese use the resinous saw-dust of the Juniper smeared upon Bamboo, which they find very efficacious.'" Dr. Hooker states "he has somewhere read or heard of the plant in question being a species of Artemisia." The following passage quoted from the book in question will assist the memories of both correspondents, although it will not add much to our information. "Various substances are employed by the Chinese to drive away mosquitos. This which we had just purchased was made from the sawings of resinous woods—I believe procured from Juniper trees—and mixed with some combustible matter to make it burn. A piece of split Bamboo, 3 or 4 feet in length, is then covered all over with this substance. When finished it is as thick as a rattan or small cane. . . . . Various species of wormwood are likewise employed for the same purpose."* Since my arrival in China on this occasion I have been making further inquiries about this curious substance, but have been met with considerable jealousy on the part of the Chinese. One manufacturer more communicative than his neighbours gave me a good deal of information as to the substances employed, but when pressed as to the proportions of each, suddenly changed his tone, and coolly told me he knew nothing about it, that if I wanted to buy it he would supply me with any quantity, that it was cheap enough, and what could I want more. Patience is a *great* virtue in China, and if I can only exercise it, perhaps I may tell you something more by-and-bye about Mosquito Tobacco.

Hardiness of Chinese Plants in England.—I have read with great interest the remarks published from time to time upon the effects of the severe winter of 1853-54 on Chinese plants of late introduction. Such plants as Weigela rosea, Jasminum nudiflorum, Forsythia viridissima, &c, I have always considered as perfectly hardy and suited for our climate, but I confess I was not so sanguine with regard to Cephatolaxus Fortuni, which appears to have proved itself as hardy as any of them. This is a great matter, considering the beauty of both varieties of this Chinese Yew. The Chusan Hemp Palm too seems to have established its claim as a hardy Palm at last. I have long thought that the species might produce the same marked effect upon our scenery as it does in that of the north-eastern province of China, more particularly in the southern counties of England and Ireland, and in the mild climate of Edinburgh. The new Chinese Berberries, in the class to which Berberis Bealei belongs, are no doubt perfectly hardy; they are much more so than Berberis Fortuni. The latter was much injured by the winter of 1852 53 at Shanghai, while the former stood perfectly unscathed. The Hollies I. furcata and cornuta are no doubt as hardy as our common English one. I do not observe it stated how Abies jezoensis stood the winter in England; at Shanghae it did not suffer in the least. This species was discovered on the mountains near Foo-chow in Fokien, but I fancy, from its apparent hardiness, it must have been introduced from Japan. "Dielytra spectabilis requires no further trial;" so says Dr. Lindley in a leading article. This was a great acquisition, and almost worth a journey to China itself. I can hardly credit my eyesight when I read that the Assam tea plant is hardy; is there not some mistake here? [No.] It is a fact worth noticing that while the winter of 1853-54 was a most severe one in Europe, it was particularly mild on the eastern side of Asia. Ice was scarcely formed on the lakes and canals about Shanghae and Ningpo, and all last summer the Chinese were dependent on that which had been housed in 1852-53, and which the plain ice-houses (described in the *Gardeners' Chronicle* for 1845) keep so well. *R. F.*

* "A Journey to the Tea Countries of China and India," p. 179.

Societies.

Horticultural, *May* 8.—J. M. Strachan, Esq., in the chair. The Hon. J. K. Howard, W. Dent, Esq., C. Hulse, Esq., F. C. Chatfield, Esq., J. Leeson, Esq., J. Wicks, Esq., A. F. Paxton, Esq., and Mr. J. Shaw were elected Fellows. There was an excellent exhibition on this occasion, the whole of the rooms belonging to the Society, and even the passages, being again crowded with plants, &c. The most striking objects were the Chinese Azaleas, immense bushes of which, loaded with flowers, came from Mr. Grix, gr. to A. Palmer, Esq., of Cheam. The sorts were Bianca, Falconeri, and lateritia. The same grower also exhibited a large plant of A. magna as a single specimen. Other Azaleas were furnished by Mr. Todman, gr. to Mrs. Buckmaster, and Messrs. Gaines, Rollisson, and Chandler. Among these the best were Perryana, Duke of Devonshire, Iveryana, and alba magna. In addition to the above, Mr. Frost, of Dropmore, had six seedling varieties, all promising kinds; Messrs. Standish and Noble boxfuls of small plants of the white semi-double A. narcissiflora, an example of A. amœna, crowded with small purple flowers, and A. Beallii, a beautiful kind with white blossoms striped and spotted with rosy salmon. These last three were introduced by Mr. Fortune. Messrs. Veitch sent two very fine pyramidal specimens of A. indica alba, and Messrs. E. G. Henderson a pretty kind—salmon edged with white—called Beauty of Europe. Pelargoniums, both fancy and other kinds, were exhibited by J. Allnutt, Esq., of Clapham, Mrs. Buckmaster's gardener, and by Messrs. Dobson and Turner. Mr. Dobson's plants, all of which were large and well bloomed, consisted of Eugenie, delicatum, Harriet, Rosamond, Arethusa, and Vulcan. Mr. Turner had Governor-General, a brilliant variety; Petrichio, Brilliant, Pandora, Lucy, and Rosamond. These, although in less than 6-inch pots, were finely grown and remarkable for the size and substantial texture of their flowers. The last-named exhibitor likewise showed a collection of Pansies in pots, as did also Messrs. Dobson and Bragg. The more striking sorts in these groups were Uncle Tom, Great Western, Emperor, Satisfaction, Comet, Duke of Perth, Earl of Mansfield, Ophir, Sovereign, British Queen, Grand Duke, Sir Joseph Paxton, Mr. Beck, Robert Burns, Fearless, Grace Darling, and Lady Carrington. Some well grown Auriculas and Cinerarias were shown by Mr. Turner and Mr. Wiggins, gr. to Mr. Beck; as the names of the leading sorts of these flowers, however, are given in another column, we need not occupy space with them here.

Of Rare Plants, Messrs. Rollisson had the handsome yellow, brown-streaked Huntleya cerina, and the curious Dendrobium Cymbidioides; Messrs. Veitch the pretty Rhododendron Prince Camille de Rohan; Messrs. E. G. Henderson R. Dalhousieanum badly coloured; Begonia picta, a sort with handsome leaves; and Genetyllis (Hederoma) macrostegia, a greenhouse shrub, with drooping crimson, bell-shaped flowers. The most remarkable plant exhibited, however, was Genetyllis tulipifera, of which there were two examples from Messrs. Backhouse, of York. This species very much resembles an Epacris in all but the blossoms, which are as large as those of the Canterbury Bell, and white or rather pale lemon streaked with bright red. The effect produced by flowers of such size and colours, when the latter are well brought out, as they were in this instance, may therefore be well conceived. The same firm also sent Cattleya ianthina, a small flowered variety of C. intermedia.

Of Miscellaneous Greenhouse Plants, Messrs. Henderson, of Pine-apple Place, had a collection, in which were six Eriostemons beautifully flowered; Elæocarpus reticulatus, and the Blue Trimandra ericifolia. Mr. Maher, gr. to J. M. Strachan, Esq., had an example of one of the best varieties of Cattleya Mossiæ, Mr. Todman a large Erica ventricosa grandiflora, Mr. Cutbush a noble specimen of the Canary Island Statice Holfordii, and Messrs. Standish and Noble Rhododendron glaucum, and Weinmannia tricosperma, an evergreen shrub which has not yet blossomed in this country, but which, even independent of its flowers, must always be prized for the beauty of its foliage. The sweet-scented Sikkim Rhododendron Edgeworthii came from Mr. Whitbread, gr. to C. B. Warner, Esq.; Messrs. E. G. Henderson sent some seedling Heaths and Deutzia gracilis in the form of Standards. Mr. Allnutt produced a remarkably fine specimen of Hovea Celsi, furnished with branches and flowers quite down to the pot.

Of Fruit, Mr. Robinson, gr. to Lord Boston, sent a Providence Pine-apple weighing 7 lbs.; Mr. Fleming, gr. to the Duke of Sutherland, a Moscow Queen, weighing 3 lbs. 4 oz.; and Mr. M'Ewen, gr. to the Duke of Norfolk at Arundel Castle, a Ripley Queen, weighing 2 lbs. 10 oz. Mr. Fleming furnished, moreover, a hybrid white-fleshed Melon, a small yellow skinned variety, said to be of great excellence. Black Hamburgh Grapes, large both in bunch and berry and well coloured, came from Mr. Clements of East Barnet; the Duke of Sutherland's gr. likewise sent good fruit of the same variety; as did also Mr. Mitchell, of Brighton; Black Hamburghs also came from the Duke of Norfolk's garden; from Mr. Munro, gr. to Mrs. Oddie, who also sent good bunches, but unripe, of White Frontignan; from Mr. Hughes, gr. to J. Eaton, Esq.; and from Mr. Hill, gr. at Keele Hall, Staffordshire; the last-named exhibitor also had Black Prince; and three bunches of West's St. Peter's came from Mr. Allport, gr. at Doddington Park. Other fruit consisted of Falstaff Raspberries and Alice Maude Strawberries from the Duke of Norfolk's garden; Keen's seedling Strawberries, from Mr. Taylor, gr. to W. Wood, Esq.; British Queen Strawberries from Mr. Mathew of Dulwich Common; Figs from Doddington Park; "Betty Geeson" and Normanton Wonder, dates Dumelow's Seedling or Wellington Apples, in excellent preservation, and remarkably fine specimens of Beurré Rance Pears from Mr. Ingram, gr. to the Duke of Rutland; also beautiful examples of the same kind of Pear from Mr. Tillyard, gr. to the Rt. Honourable the Speaker; and Easter Beurré Pears, very much decayed, from J. Abell, Esq., of Limerick.

The last-named gentleman likewise sent, as promised last week, see p. 303, some Asparagus (what is termed in the London markets Sprue), frosted and unfrosted, the one quite as good as the other, and along with it 50 heads of ordinary Asparagus, weighing 2 lbs. 5 oz. The Duke of Norfolk's gardener had also 50 heads, weighing 2 lbs. 4 oz., together with six beautiful heads of Broccoli, and a collection of vegetables in which were Kidney Beans, Ash-leaved Kidney Potatoes, and Peas, superior examples of the same kinds of vegetables furnished from France

by Mr. Lewis Solomon. Other French produce from Mr. Solomon consisted of Early Horn Carrots, Globe Artichokes, and 100 heads of very large White Asparagus. From the garden of Mr. Wood came well grown specimens of Taylor's Hybrid and Essex Hero Cucumbers, and Mr. Stearns furnished a dish of very good Mushrooms.

Among Miscellaneous articles was a new self-registering thermometer, from E. Vivian, Esq., of Torquay. Of this some account will be given hereafter. Mrs. Compton, of Collier's Buildings, Blackheath, again furnished specimens of ornamental Indian baskets: Mr. Fred. Rowe showed imported examples of Sago in the shape of straight shoots, some 8 or 10 feet in length, thickly set with long spines, together with other American curiosities, such as dried fruit of the American Date, from which a kind of wine is prepared; a branch of a species of Smilax; seed pods of a Robinia; stalks of Hibiscus esculentus, whose green seed pods are used for thickening soups, and red seed of Burning Bush, Euonymus sp., probably atro-purpureus.

From the garden of the Society came the singularly-shaped Calceolaria violacea, Rhododendron theæflorum, Edgeworthi, and formosum, the double white Prunus sinensis, a useful shrub for forcing; the scarlet-flowered Salvia gesneriflora, one of the most brilliant of plants; the charmingly flowered specimen of Forsythia viridissima alluded to last week, Dielytra spectabilis, and other fine flowering plants.

The list of medals, &c., awarded on the occasion will be found in our advertising columns.

Royal Botanic, Regent's Park, *May* 9.—Although fewer plants were produced on this occasion than usual, yet, upon the whole, there was a fair average show. Her Majesty, his Royal Highness Prince Albert, and other members of the Royal family, honoured the Society with their presence in the morning before the gates were opened to the public. The weather, although cold and somewhat cloudy, kept dry.

Large collections of Stove and Greenhouse Plants were contributed by Mr. May, gr. to H. Colyer, Esq.; Mr. Barter, gr. to H. Bassett, Esq.; Mr. Green, gr. to Sir E. Antrobus, Bart.; and Mr. Rhodes, gr. to J. Phillpots, Esq., of Stamford Hill. In Mr. Colyer's group were immense plants of Epacris grandiflora, Eriostemon neriifolium, Boronia pinnata and serrulata; Ixora crocata, Azalea Murrayana and variegata; Ixora javanica, Vincas, Leschenaultia formosa, Erica elegans, one of the finest plants of the kind perhaps ever seen; Aphelexis macrantha purpurea, Pimelea spectabilis, Chorozema Henchmanni, and Polygala oppositifolia. Mr. Barter also had an admirable collection, in which were fine plants of Ixora javanica and crocata, Eriostemon intermedium, Stephanotis floribunda, Chorozema Lawrenceanum, Polygala acuminata, Azalea Perryana, still one of the best varieties in cultivation; A. coronata, Erica Cavendishi, a fine plant, but insufficiently in bloom; the blue Leschenaultia, Boronia pinnata, Pimelea Hendersoni, very highly coloured; the sweet-smelling Franciscea confertiflora, and a Vinca. Mr. Green sent an immense double red Azalea, Polygala acuminata, Ixora coccinea, Eriostemon intermedium, Ixora crocata, Aphelexis macrantha purpurea, Azalea Iveryana, literally one mass of white blossoms in which were faint stripes of purple; Pimelea spectabilis, P. Hendersoni, Franciscea confertiflora, Leschenaultia formosa, Chorozema Lawrenceanum, Daviesia umbellata, some Cape Heaths, and Epacris miniata. Mr. Rhodes produced Acrophyllum gracile, a useful plant for cutting from for bouquets: the rose-coloured Vinca, an Everlasting, Epacris grandiflora, some Cape Heaths, Boronia serrulata, Eriostemon neriifolium, Stephanotis floribunda, Tetratheca verticillata, Leschenaultia formosa, Polygala acuminata, and Chorozema Lawrenceanum.

Stove and Greenhouse Plants in collections of 12 were exhibited by Messrs. Fraser, Rollisson, Cutbush, Henderson, and Pamplin. Messrs. Fraser sent a huge Pimelea spectabilis, Epacris grandiflora, Leschenaultia formosa, Erica propendens, Eriostemon neriifolium, the more slender E. scabrum, Boronia serrulata, Azalea optima, a glowing red kind; Adenandra speciosa, Aphelexis spectabilis, a fine bush of Boronia tetrandra, and another of the large yellow-flowered Gompholobium barbigerum. Messrs. Rollisson showed Erica Sindryana, an erect-growing free-flowering kind; the sweet-smelling Rhynchospermum jasminoides, Azalea speciosissima and Perryana, Erica propendens, two Everlastings, Eriostemon neriifolium and myrtoides, a variety of Epacris miniata called splendens, a brilliant kind, E. grandiflora, and Pimelea spectabilis. Mr. Cutbush furnished the same Statice Holfordi mentioned already in our report of the Horticultural Society's meeting; a good Stephanotis floribunda, Erica elegans and Hartnelli, both fine plants; Boronia pinnata and serrulata, Leschenaultia formosa, Azalea Exquisite, an Everlasting, the pretty, though rarely seen, pink-flowered Hypocalymma robustum, and Eriostemon scabrum. In the two groups from Messrs. Henderson and Pamplin we remarked Allamanda neriifolia suffering from cold, Medinilla magnifica, a very fine plant of Rhynchospermum jasminoides, Ixora racemosus, a well-grown Hovea Celsi, a large Pimelea spectabilis, and some Azaleas, Boronias, and Cape Heaths.

Collections of 10 Stove and Greenhouse Plants were shown by Messrs. Clarke, Taylor, Dingle, Peed, Hamp, and Morris. Mr. Clarke sent Tetratheca verticillata, Adenandra speciosa, Ixora coccinea, a pyramidal White Azalea, Gompholobium barbigerum (very fine grown and well flowered), Pimelea spectabilis, and a fine specimen Chorozema Dicksoni, a plant now rarely seen. In Mr. Taylor's group were Azaleas, Ixora crocata, Aphelexis sesamoides, Eriostemon intermedium, Erica elegans, two Boronias, and some Cape Heaths. Mr. Dingle had an immense red Azalea, some Eriostemons, the useful Acrophyllum venosum, Azalea Amœna, Franciscea calycina, Pimelea mirabilis, and Leschenaultia formosa. In the collections of Messrs. Peed, Hamp, and Morris, we observed good plants of Gardenia florida, Allamanda neriifolia, Euphorbia splendens, Bossiæa cordata, Erica Sindryana, Eriostemon intermedium, Hovea Celsi, and Cyrtoceras reticulatum.

Of Chinese Azaleas some were in the form of ordinary bushes, others in that of tall standards and pyramids, the whole producing an effect at once striking and beautiful. Groups of 10 plants came from Messrs. Fraser, Lane, and Green; and collections of eight and six from Messrs. Roser, Dingle, Peed, Bray, Barter, Fraser, and Rhodes. Among the different groups were Iveryana and its varieties, Gledstanesi, Semiduplex maculata, Exquisite, Minerva, variegata, optima, Frosti, carnea grandiflora, Iveryana, delicata, Susana, Napoleon, Prince Albert, Excellence, &c. Messrs. Rollisson had a new finely-shaped pink kind, called Empress Eugenie, which was much admired.

Hybrid Rhododendrons were confined to a small collection of Mr. Gaines, all delicate pink-coloured kinds.

The Cacti came from Mr. Green, in whose group was a white Echinopsis called grandiflorum, an interesting variety, which formed a fine contrast with the more common scarlet sorts.

Orchids.—Collections of 20 plants were contributed by Mr. Williams, gr. to C. B. Warner, Esq., Mr. Woolley, gr. to H. B. Ker, Esq., and Mr. Hume, gr. to R. Hanbury, Esq., the Poles, Gunnersbury. In the first group were Dendrobium densiflorum, chrysotoxum, and nobile; Vanda suavis with two noble spikes of flower, V. teres, V. tricolor, and V. insignis; also Phalænopsis grandiflora, Phaius Wallichi, Oncidium ampliatum, Aerides, the white Calanthe veratrifolia, Cattleya intermedia and Mossiæ; three varieties of Aerides, Chysis bractescens, Cypripedium barbatum, and Lycaste Skinneri, the latter with 17 flowers on it. Mr. Woolley sent Epidendrum crassifolium and ciliare, Oncidium sphacelatum, Dendrobium nobile, macrochyum, and Paxtoni; Vanda tricolor and insignis, Cattleya intermedia and Mossiæ, Lycaste Skinneri, Lælia flava with four spikes of flowers on it, Chysis bractescens, Phalænopsis grandiflora, Scuticaria Steeli with three large yellow-spotted blossoms, Calanthe veratrifolia, and two sorts of Aerides. Mr. Hume produced Dendrobium Farmeri and densiflorum, a fine plant of Epidendrum ciliare, Cattleya Mossiæ, Oncidium leucochilum, and altissimum, Vanda tricolor, Phalænopsis grandiflora, a fine plant of Saccolabium guttatum, plants of Cattleya ianthina, and Skinneri in lovely condition, Brassia verrucosa, finely grown and well flowered, Oncidium Hartwegi, Chysis bractescens, the rare ivory white Cymbidium eburneum, and one or two other plants.

In the class of 16 Orchids Messrs. Rollisson sent Phaius Wallichi, a noble plant with 10 spikes of flowers; Dendrobium nobile and chrysotoxum, Vanda suavis, Cypripedium Lowi, with four of its singular blossoms fully expanded; Leptotes bicolor, Cattleya purpurata, an extremely handsome species, white, with a purple lip; Trichopilia coccinea, Phalænopsis grandiflora, and the bearded Lady's Slipper.

Collections of 12 Orchids were contributed by Messrs. Gedney, Clarke, and Summerfield, and Mr. Green produced a group of 8 Orchids. Among Mr. Gedney's plants, which were in beautiful condition, were Lycaste Skinneri, bearing 15 flowers, Vanda tricolor, the Fernando Po Ansellia africana, Calanthe veratrifolia, Dendrobium nobile, Saccolabium retusum, with four charming racemes of flowers; Phalænopsis grandiflora, the brilliant orange Epidendrum rhizophorum, Vanda insignis, Oncidium ampliatum, and Aerides virens. Mr. Clarke produced a fine specimen of Cattleya Mossiæ, also C. Skinneri and intermedia, Phaius grandifolius, Saccolabium retusum, Goodyera discolor, well flowered; and Dendrobium nobile. In the other two groups were Cattleya Mossiæ and Skinneri, the Devonshire and Dalhousie Dendrobes, Cyrtochilum stellatum, two Oncids, and Epidendrum crassifolium.

Roses in Pots were produced in very good order, considering the unfavourable season we have had. Mr. Francis showed an excellent collection, in which were Géant des Batailles, Baronne Prevost, Paul Perras, with 80 blooms on it; Pauline Plantier, with 50; Bougere, with 30; Devoniensis, with 24; Souvenir de Malmaison, with 27; Chenédolé finely coloured; and Coupe de Hebe, with 30 blooms. Messrs. Barter, Sage, Terry, and Ward also had clean well bloomed plants.

Cape Heaths came from Messrs. Fraser, Rollisson, May, Peed, Barter, Dingle, Taylor, and Roser. Among these we remarked the following varieties: pinifolia rosea, a kind seldom seen; viridis (true), also a scarce sort; Sindryana, elegans, vestita alba, mundula, aristata major, Cavendishi, denticulata moschata, favoides elegans, Hartnelli, Macnabiana, perspicua nana, suaveolens, propendens, and Beaumonti.

Of novelty there was little. In addition to the plants shown to the Horticultural Society last Tuesday, Messrs. Rollisson sent Meyenia erecta, a greenhouse shrub with Tyrian purple flowers something like those of an Achimenes. They were in this instance, however, quite withered by the cold; the same nurserymen also sent a Cymbidium in the way of C. pendulum; Messrs. Henderson produced Rhododendron glaucum; and Messrs. Lane Andromeda formosa.

Among Miscellaneous Plants were some Ferns, a collection of Amaryllises, apparently varieties of A. Johnsoni, and a Standard parasol-shaped Fuchsia.

Florist's Flowers, considering the lateness of the season, were shown extensively, and in fine condition. They comprised Pelargoniums, Auriculas, Cinerarias, and Pansies.

Pelargoniums.—Of these Mr. Turner, of the Royal Nursery, Slough, furnished 12 of the best plants we ever remember to have seen; they consisted of the following kinds—Governor-General, Carlos, Lucy, Basilisk, Rosamond, Majestic, Mochanna, Exactum, Rival Queen, Clara, and Petruchio. In the Class of Private Growers, Mr. Windsor, gr. to A. Bligh, Esq., Hampstead, produced old varieties tolerably well grown, but not in good bloom.

Of Fancy Pelargoniums there were seven collections scarcely sufficiently in flower. Here again the best group came from Mr. Turner; it comprised Madame, Delicatum, Gaiety, Formosissimum, Caliban, and Electra. In the Class of Private Growers Mr. Windsor sent Fairy Queen, Magnificent, Duchess d'Aumale, Statinski, John Bull, and Madame Miellez.

Cinerarias were numerous. The best group came from Mr. C. Turner, who sent large dwarf plants of the following—Bousie, Optima, Esther, Loneliness, Sir C. Napier, Lady Paxton, and Picturata.

Of Pansies, in pots, Mr. C. Turner contributed Brilliant, British Queen, Uncle Tom, Monarch, Aurora, Ophir, Lord J. Russell, Marchioness of Bath, Satisfaction, Sovereign, Purple Perfection, and Emperor. Cut Blooms 36 varieties: 1st, Mr. C. Turner; 2d, Mr. Dobson. Among these the best kinds were Perfection, Monarch, Royal Albert, Comet, Sampson, Satisfaction, Nonpareil, Beauty, Sir J. Cathcart, Purple Perfection, Queen of the Isles, Primrose Perfection, Mrs. Marnock, Salamander, Earl Mansfield, and Royal Visit. The Pansies, generally, were very fine.

Mr. Gaines had six Herbaceous Calceolarias; and Mr. C. Turner a collection of 30 Auriculas. The best of these were Lancashire Hero, Oxonian, Bolivar, Ringleader, Lovely Ann, Superb, Attraction, Ne Plus Ultra, Venus, Lady Jane Grey, Smiling Beauty, Duke of Cambridge, and Conspicua.

Mr. Gaines exhibited a collection of Mimulus, both in cut state and in pots, some of which were very prettily marked.

We also observed a rich yellow ground Pansy, named Perfection. This we have before described. It was again fine, as were also Sir W. Scott, Admiral Napier, and Crimson Perfection, all yellow ground varieties, and Sir C. Campbell, a very large dark variety.

Garden Memoranda.

Messrs. Veitch's Nursery, King's Road, Chelsea.—Since we last visited this establishment considerable improvements have been carried out. The wings of the large conservatory near the entrance have recently been heated with hot water, and separated from the central portion of the house by means of folding doors. One of the parts thus partitioned off contained tree and other tender Ferns, Sarracenias, &c., and among them was a very fine specimen of Medinilla magnifica, with 38 drooping spikes of flowers on it; the other end was filled with Palms, large Sobralias, and plants of that description, among which was a young specimen of the Rice-paper plant (Aralia papyrifera). The centre beds in both these compartments have been margined with vitrified masses of brick, which when overrun with Ferns and Lycopods will have an interesting appearance.

Two new glass houses have been added to those at the King's Road end of the nursery, and two more at the Brompton Road end. The latter have ridge and furrow lean-to roofs, and are glazed with Hartley's rough plate glass. They are filled with fruit trees in pots, for the growth of which they have been put up, and for which they seem extremely well adapted. The main walk has been thoroughly drained the entire length of the nursery; the margins have been put in repair, and along a portion of its centre flag-stones have been laid down, which are a great improvement in appearance and comfort. On the borders on either side have been arranged choice Conifers, relieved at intervals with noble standard Bays in tubs, set out after the manner of Orange trees.

In-doors a great many plants are now beautifully in flower; a large portion of one of the Orchid houses is filled with Phalænopsis amabilis and grandiflora, and when we state that we counted 368 glorious blossoms, all open at one time on them, some idea of the kind of display they make may be gleaned. Orchids generally, both in this and other houses, are also in excellent condition, and several are in bloom, but the best are now placed in out-of-the-way houses, to keep them back for Gore House next Wednesday. On one of the rafters of the stove, Lapageria rosea was in flower, but as yet only sparingly, many of its buds being still unexpanded. Although in a stove here, this fine twiner will nevertheless succeed perfectly in a greenhouse. The well-known Stephanotis floribunda, trained along the roof of a low span-roofed stove here, is just beginning to open its sweet-scented blossoms, of which such a crop has not been on it for years. On both sides of the roof are six wiresful of it, running upwards of 70 feet in length, and therefore when the blooms shall have become fully expanded it must certainly be a sight worth seeing. About a year ago last autumn it was taken down, pruned, and well washed with soft soap and hot water, and ever since then it has kept quite clear of insects. Dipladenia acuminata has been planted to run along the centre of the same roof to produce a variety of colour.

At the entrance of the show house—which is gay with flowering things, intermixed with plants remarkable for fine foliage, such as Dracæna indivisa, Norfolk Island Pines, &c.—are cases filled with cones and dried specimens of Wellingtonia gigantea, and other rare coniferous trees, backed by paintings of some of the more remarkable Orchids; here was also a plant of a Belgian Rhododendron named Camille de Rohan, a delicate pink kind, richly spotted with crimson. It is very distinct, with little apparently of the arboreum breed about it, and should it turn out to flower sufficiently late to escape spring frosts, it will doubtless be an acquisition. R. formosum elegans is also a showy kind worth attention.

In a small newly built damp stove were masses of Anæctochilus of different kinds measuring 14 inches in diameter. These were in pans planted in peat, sphagnum, and silver sand, and were covered with bell-glasses. The beautiful Sonerila margaretacea, whose foliage has been described as being "sown with pearls," and the handsome-leaved Begonia Thwaitesi were also here, as were several seedling plants of Platycerium grande, whose seeds sown in peat and sand slightly covered vegetate freely.

In the front of a small greenhouse, now full of flower kept up by Hyacinths, Tulips, Heaths, Cinerarias, the Jasmine and Java Rhododendrons, &c., Moore's patent ventilators have been fixed, and have been found to work satisfactorily. They consist of long panes of glass about 6 inches wide, arranged like Venetian blinds, and moved outwards or inwards by means of a lever acted on by a string. For greenhouses, at least, Mr. Veitch thinks this mode of ventilation perfect.

The large Orange house has been filled with Azaleas, and the Oranges have been moved to one of the new houses which faces the north. Among the Azaleas were plants of the noble Lilium giganteum. The New Holland house was gay with Acacias, Epacrises, and fine plants of Dielytra, which are planted out of doors in summer and lifted and brought under glass in winter. We also noticed here plants of Impatiens Jerdoniæ, which was so much admired at the different exhibitions last year.

Among rarities, in addition to Wellingtonia, which has stood last winter in the open border here, were Abies bracteata, Podocarpus nubigena, from Patagonia; Thuja gigantea, *alias* Libocedrus decurrens, Torreya myristica, Laurus aromatica, a greenhouse plant with very fragrant foliage; Lomatia ferruginea, an evergreen shrub from Chiloe; Escallonia pterocladon, a hardy shrub, which received a Medal at Chiswick in July last; and Desfontania spinosa, also a hardy shrub with fine Holly-like leaves. This stood out of doors last winter in the open ground. In addition to these may be mentioned Story's Epacris Eclipse, which is a very striking variety of the Miniata breed.

Both indoors and out everything is in the best possible order, and well worth inspection.

Miscellaneous.

Poison of the Monkshood.—About two years ago, it will be remembered, a gentleman was accidentally poisoned in Bristol in consequence of eating scrapings of the roots of the Wolfsbane or Monkshood (Aconitum Napellus) in mistake for Horseradish. From a paper that was published in a recent Number of "The Chemist," it appears that Mr. Thornton Herapath, of Bristol, has subjected several specimens of these roots, collected at different periods of the year, to a chemical analysis, and has thus ascertained that the highest proportion of poisonous alkaloid (aconitine) they contain amounts to about a grain and a half in the thousand grains, or more exactly, 10.12 grs. per lb. From these results, and the evidence given at the inquest, Mr. Herapath has satisfied himself that the gentleman in question must have been poisoned by a quantity of aconitine, certainly not exceeding five one-hundredths of a grain in weight. Consequently, the poison of the Monkshood is the most deadly poison known, not even excepting prussic acid. Aconite roots, Mr. Herapath says, may be readily distinguished from those of Horseradish by the scrapings of the former rapidly assuming a pinkish-brown colour on exposure to the air. *Bristol Mercury.*

FLORICULTURE.

Royal South London Floricultural Society, *May* 2.—This was a good show considering the lateness of the season. Pansies in pots were furnished by Mr. Turner, who sent Uncle Tom, Great Western, Crimson Perfection, Constance, Emperor, and Earl Mansfield; Mr. Dobson had Flower of the Day, Lady Emily, Ophir, Fearless, Great Western, and Lady Carrington; these two collections were shown in first-rate condition, the plants being covered with fine large flowers; Mr. August, sent Flower of the Day, Sir J. Paxton, Marion, Sir J. Cathcart, Duke of Perth, and Robert Burns. Twelve Cinerarias: Mr. Turner produced Ringleader, Esther, Kate Kearney, Formosa, Mrs. Beecher Stowe, Estella, Sir C. Napier, Lady Mary Labouchere, Rosy Morn, Lablache, Amy Robsart, and Lady Canoys. These were compact dwarf bushy plants, covered with flowers. Auriculas were in fine health and beauty. An extra prize (Small Silver Albert Medal) was awarded to Mr. Turner, for 3 plants of Ollivier's Lovely Ann. The same exhibitor also furnished Lancashire Hero (Cheetham), Ringleader, Favourite, and Smiling Beauty. An excellent pair of Auriculas was likewise contributed by Mr. Turner, viz., Ne plus Ultra and Apollo (Beestons). Pansies, cut blooms, 24 varieties: of these Mr. Turner sent Earl Mansfield, Monarch, Miss Talbot, Satisfaction, Constance, Comet, Duke of Newcastle, Marion, Emperor, Royal Visit, Ophir, Memnon, Sweep, Royal Albert, Lord John Russell, Queen of the Isles, Victory, Perfection, Red Rover, Marchioness of Bath, Sovereign, Brilliant, Duchess of Sutherland, Sir J. Cathcart; among these, the best were Red Rover, Lord J. Russell, Duke of Newcastle, Perfection, Memnon, Royal Albert, and Satisfaction; Mr. Dobson had Beauty, Emperor, Aurora, Great Western, Marion, Flower of the Day, Gliffe, Albion, Satisfaction, Mr. H. B. Douglas, Father Gavazzi, Lady Carrington, British Queen, Polyphemus, Constance, Lady Emily, Argo, Monarch, Fearless, Charles Cowan, Alice, Marchioness of Bath, Ostrich, Miss Talbot—the above two collections were very good; Mr. August showed Ophir, Samson, Marchioness of Bath, Pandora, Flower of the Day, Mr. T. Samson, Miss Talbot, Sir J. Cathcart, Marion, Meteora, Addison, Aurora, Mr. Beck, Royal Visit, Sir J. Paxton, Sulphurea, splendens, Queen, Joe Miller, Aunt Chloe, Alpheus, Velvet, Thisbe, Duke of Perth, and Adela. A First Class Certificate was awarded to Seedling Pansy Sir Walter Scott (Turner), a yellow ground variety, with clear shield round the eye, fine in form and distinct. Similar award to Admiral Napier (Turner), a large yellow ground flower, with narrow belting of bronze, top petals of same colour, a fine distinct flower for purposes of exhibition. First Class Certificate to Perfection (Turner); this is the finest of the dark yellow ground varieties, the colours are very dense and rich; it also possesses great substance, and is very smooth on the edges. Of other seedling Pansies, there were shown Alpha (Turner), Nonpareil (Turner), and Crimson Perfection (Turner), all yellow ground flowers; the latter is very bright, novel, and smooth. Sir Colin Campbell (Turner) is a large dark variety, an improved Duke of Perth. Of Seedling Cinerarias, Magnum Bonum (Turner) is a large bold flower; Brilliant (Lidgard) is white, tipped with blue, a pretty flower; and Rose of England (Barnes), a beautiful variety, and fine in form. Mr. Roser sent a specimen plant of Azalea, Duke of Devonshire, and three new Azaleas, viz.: Mrs. Barchard, Maria Louise, and Dilecta. Some good collections of miscellaneous plants were also exhibited.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—When this house contains a mixed collection of plants, which it generally does, aphids are frequently very troublesome at this season, and it is always desirable to avoid smoking here, for besides the expense and annoyance to the family, it is no pleasant job to fill a large house with tobacco smoke. Things in pots that require smoking may be removed to a close room, or put under a frame covered with calico or canvas, rendered air tight either by means of a coat of boiled oil, or peat, where the remedy can be much more conveniently and cheaply applied than in a lofty house, and the risk of injuring the blossoms of things which do not require smoking will be avoided. But if the enemy is to be kept under by this means suspicious plants should be frequently examined, and immediate action taken with those that are found to be the least infected, otherwise the pest will spread to an inconvenient extent to allow of its being eradicated without smoking the house. Should the twiners, or specimens planted out in the beds get infested, these should be syringed with the following mixture, viz: ½ lb. soft soap, 1 gallon tobacco-water, and 6 gallons rain-water, properly dissolving the soft soap in a portion of the water. But as there is some uncertainty about the strength of this mixture and its action on different plants, it should not be used without first making sure that it will not injure the foliage or young shoots, and also that it is sufficiently strong to destroy the insects. The beauty of Azaleas and many other hard-wooded plants which are now the principal ornaments here will soon be fading, and every effort should be used to be prepared to supply their places with others in full beauty.

FORCING DEPARTMENT.

Pineries.—For plants intended for winter fruiting we would recommend using a somewhat lighter soil than is generally employed for Pines, as there will not be so much danger of getting this too wet as when a strong tenacious loam is used. We prefer a compost consisting of about two-thirds mellow turfy loam, with one-third good strong turfy peat, adding a liberal sprinkling of clean sharp sand, and some crushed broken bones, when they can be obtained. In this the plants root vigorously, and fruiters can be liberally supplied with manure water without any danger of the soil getting sodden. But the great advantage of a light soil is that it soon parts with its moisture, and the plants are more manageable in the way of getting them into fruit at the proper time. Maintain a thoroughly moist atmosphere, especially where the fruit is swelling, and give plenty of manure water to all growing stock, as well as to plants in fruit. Vineries.—See that inside borders are properly supplied with water, giving sufficient quantities to thoroughly moisten the whole mass of soil. The Vine is a gross feeder, and absorbs vast quantities of water when in vigorous health and swelling a heavy crop of fruit. Also give a liberal supply of manure water from the stable tank to Vines in pots, first diluting it slightly with warm water to bring it to about the same temperature as the house. Attend to the regulation of the growth, stopping laterals, &c., and timely thinning of the bunches and berries, before they injure the principal foliage. And see that the Vines in the late house are tied up in their places before the shoots get too far advanced, as there is considerable danger of breaking these off when they are allowed to get too long before the rods are tied up. Look sharply after red spider, and use every means to keep clear of this pest. Figs.—Attend to stopping and thinning the shoots and aim at securing short-jointed strong growth, by exposing the young wood to all the light possible. This will, of course, necessitate keeping the trees rather thin, but it is useless hoping for a crop of good fruit from trees that are crowded with wood. Keep the atmosphere moist, and give the foliage a good washing with the syringe after shutting up the house in the afternoon, to prevent red spider, and also see that the roots are kept properly moist. Where the fruit is ripening, syringing must, of course, be dispensed with, and the atmosphere kept drier, therefore be careful to have the foliage perfectly clear of insects up to the time the fruit begins to ripen. Melons.—Maintain a rather close, moist, warm temperature to plants recently planted out until they get into full growth, but avoid inducing a gross habit of growth by too much moisture and warmth after the roots fairly get hold of the soil, for it is generally somewhat difficult to secure a crop from wood of this sort. Give air as freely as the state of the weather will admit, in order to secure firm short-jointed wood, and where the crop is setting, as the young fruit is very apt to damp off unless the atmosphere is kept moderately dry. Endeavour to secure a steady bottom heat of about 80° or 85° for plants in all stages, and also to keep the soil in a proper state as to moisture; avoiding having to water while the crop is setting, by well soaking the soil before the principal blossoms begin to expand. Keep a careful look out for insects, and use every precaution to prevent these getting established upon the foliage, for there is hardly any chance of a crop of fruit unless the foliage can be preserved in health.

FLOWER GARDEN AND SHRUBBERIES.

Notwithstanding that the weather has become somewhat more promising than it has lately been, it will be wise to defer planting out the bedding stock, save in very favoured localities, until we experience a more decided change. Meantime take every opportunity of exposing the plants to the open air so as to get them well hardened off, and see that everything is perfectly free from insects, and also have the whole stock nicely arranged, so that when planting out is commenced everything may be in readiness. Push forward late propagated stock, and endeavour to keep the whole growing slowly in their pots. It is a common and very bad practice to allow bedding stock to stand in small pots exposed to bright sunshine and drying winds, and but scantily supplied with water until they get almost dried up, and this with the view of preparing them for planting out. The plants should be exposed to the weather as freely as circumstances will admit; but this should be done by degrees, and never to the extent of browning the foliage and drying up the tissues, and they should never be allowed to suffer for the want of water, for unless the plants are in good health when planted out, they require endless care afterwards, if the beds are to be covered in any reasonable time, and despite every attention are long of getting into a free state. Endeavour to get mowing and other work here as forward as possible, so as to be able when bedding out can be safely commenced to command sufficient strength to properly care for the plants. Take advantage of showery days to give the Grass and gravel a thorough rolling.

HARDY FRUIT AND KITCHEN GARDEN.

Proceed gradually with the disbudding of Peach and Nectarine trees, but remove only a portion of the buds at once, selecting the strongest first, and going over the trees some two or three times, at intervals of about a week. This will avoid checking the trees to the same extent as when disbudding is done all at once. Be prepared with a supply of tobacco water with which to attack insects immediately they make their appearance, and they will doubtless be plentiful after the long continued cold weather which we have experienced this spring. Look carefully over the Apricot trees and destroy the caterpillar wherever it is found. This is sometimes very destructive to the foliage, and also the fruit when neglected but for a few days, and there is good reason to fear that the late frost has so thinned the crop as to render what remains worth any necessary attention in the way of preserving it from insects. Be in no haste to remove the protecting materials, unless where the crop is found to be destroyed, and then they might be removed for use on trees where there is still a chance of a crop. The fruit on Apricot trees which were unprotected in this neighbourhood is quite destroyed, having been frozen through, and is quite black and falling off, and the crop is doubtful where the trees were well protected by covering. Take advantage of showery weather to plant out Lettuce, Cauliflower, &c., and see to getting Tomatoes, Cucumbers, Vegetable Marrows, &c., prepared for planting out. Make a sowing of Sweet Basil, Marjoram, Savory, &c., on a light rich warm border; also get the early Celery prepared for planting out as speedily as possible, and attend to the plants for succession crops, keeping them at all times well supplied with water, &c.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending May 10, 1855, as observed at the Horticultural Gardens.

May.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 3 feet deep.	Wind	Rain in inches
Friday	4	17	29.865	29.704	50	24	37.0	48½	48	N.E.	
Satur.	5	18	29.930	29.914	57	30	43.5	47	48	N.E.	
Sunday	6	19	29.951	29.918	63	41	52.0	49	48½	W.	
Mon.	7	20	29.970	29.719	60	33	46.5	49	49	S.W.	
Tues.	8	21	29.850	29.772	56	21	38.5	50	49	N.W.	
Wed.	9	[illegible]	30.004	29.616	62	43	52.5	50½	49½	S.W.	
Thurs.	10	23	29.508	29.409	63	44	53.5	51	50	S.W.	
Average.			29.865	29.7[illegible]4	58.7	33.7	46.2	49.3	48.8		

May 4—Cloudy and cold; clear, with sharp frost at night.
— 5—Low white clouds with very clear intervals; excessively cold air; cloudy.
— 6—Fine throughout.
— 7—Fine; cloudy; uniformly overcast; boisterous; rain.
— 8—Cloudy and fine; slight hail shower at 6 P.M.; sharp frost.
— 9—Slightly overcast; fine; rain at night.
— 10—Cloudy and fine; overcast; cloudy; rain.

Mean temperature of the week 5 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 29 years, for the ensuing week, ending May 19, 1855.

May.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday	13	63.6	39.5	51.5	13	1.10 in	3	7	4	1	3	5	[illegible]	[illegible]
Mon.	14	63.4	41.1	52.3	11	0.66	3	6	6	1	3	5	[illegible]	[illegible]
Tues.	15	64.8	40.8	52.8	7	0.41	3	7	2	2	3	4	[illegible]	[illegible]
Wed.	16	66.1	42.5	54.3	10	0.34	5	5	6	—	2	3	[illegible]	[illegible]
Thu.	17	65.8	42.7	54.3	11	0.58	1	6	4	1	3	4	[illegible]	[illegible]
Frid.	18	64.7	42.4	53.6	13	0.17	1	6	5	3	2	7	[illegible]	[illegible]
Satur.	19	65.5	42.9	54.2	11	0.50	2	6	6	3	2	5	[illegible]	[illegible]

The highest temperature during the above period occurred on the 19th and 17th, 1833—therm. 86 deg.; and the lowest on the 15th, 1850—therm. 25 deg.

Notices to Correspondents.

Barbe du Capucin: *H.* It is blanched Chicory.

Browning Leaves: *J J S.* If your letter was not post-paid it would, as a matter of course, be refused; and that would account for its having received no notice.

Injured Evergreens: *Ballandyne.* Allow the trees to begin to show new buds; and then cut back to those buds. Orchard Houses, if well managed, and properly constructed, are getting into favour on this side of the Channel. One in the garden of the Horticultural Society is doing capitally. We are surprised to see that on your western coast the evergreens have sustained so much damage.

Insects: *E W M.* We found no grubs in the young Wheat plants sent, but suppose from their appearance that they are infested by the Wheat fly (Chlorops lineata, described in the *Gard. Chron.* 1848, p. 796.) We should think the rain would now cause the roots to throw up side shoots plentifully. Such was the case mentioned by Mr. Markwick.—*R G.* Your Raspberry buds are infested with the larvæ of the pretty little Tinea aubiella, the eggs of which were deposited on the last year's canes. The mischief is done for this year, and all you can do is to prevent future mischief by picking off and burning all the injured buds.—*H.* On looking at your Gooseberry shoots again, we found the paper in which they were inclosed covered with the squashed bodies of numbers of minute red mites, with which the Gooseberry bushes round London have also been much infested. We should advise dipping the ends of the branches in lime water. *W.*

Ivy: *T C.* No doubt your plants are barked by some little animal: mouse? rat? or squirrel? Gas is unfit for heating Greenhouses, unless you can completely prevent the possibility of its finding its way into the houses; and moreover counteract its drying effect by evaporating pans placed where its flame is acting. We never yet saw this accomplished, though many attempts have been made.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*R F H.* It is not possible to say whether the morsel you have sent belongs or not to the Juniperus excelsa of the nurseries. It may. The real plant forms in the Crimea a large tree of great beauty, loaded with black berries. That of Siberia and the N. of India is suspected to be different.—*G B.* "Onion wicks" appear to be the knobs of the Grass called Alopecurus bulbosus. It is probably found in some dry pasture near you.—*C.* Leycesteria formosa is a very common hardy shrub, introduced from the Himalaya mountains and belonging to the natural order of Caprifoils.

Pear Trees: *R J M.* For a rather exposed situation and sandy loam, you may procure as standards the Flemish Beauty, Aston Town, Marie Louise, Louise Bonne (of Jersey), Brown Park, Eyewood, Beurré Bosc, Forelle, Knight's Monarch, Passe Colmar, Fondante du Bois, Ne Plus Meuris.

Primroses: *E F.* We are unable to account for the presence of little spine-like processes on the under side of your leaves from Clevedon. The leaf is in other respects so different from that of a common Primrose that we should like to know more about it. Have you a plant to give away?

The Osage Orange: *J R.* It is very strange that this plant should have been for several years invariably killed nearly down to the ground in the dry soil and warm locality of Chelsea, when it used to thrive well enough for hedge-making in the Horticultural Garden at Chiswick.

Woods and Forests: *X Y Z.* Every man has a right to justice, and we hope we never shall imitate the conduct of Messrs. Gladstone and Wilson, by condemning Mr. Howard without trial as they did Mr. Brown. The honourable gentleman may prove to be efficient, and if so he has nothing to apprehend from the conductors of this journal. If high connections are, as you say, no guarantee of fitness, so *we* say that they in no degree prove incapacity. If a man is not the better for having a handle to his name, surely he is not the worse for it; and in reality there are cases in which it may be a real advantage to the public service.

Yew Hedge. *South Derbyshire.* Transplant in the beginning of September, filling the soil loosely, not treading it, but deluging it with water in order to settle it about the roots. Then cover the whole with earth, and leave the plants to their fate. But very old Yews are hardly worth removal, and are very apt to die. You had better leave them where they are, cutting all the branches to within 6 inches of the trunks. This will, in all probability, make the trunks break out all round with new shoots. Perform such an operation in the month of February. As to the value of Yew wood, that is quite a local question, which can only be answered satisfactorily by the country dealers in timber.

Misc.: *E X.* Mr. Black, Covent Garden.

*** As usual, many communications have been received too late and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.

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PATENT SANITARY SEWAGE COMPANY'S NITRO PHOSPHATED CARBON OR BLOOD MANURE, £6 10s per ton; delivered in London, bags included. Each ton contains 130 lbs. Blood and 11 per cent. of Phosphate of Lime.—Agents throughout the country.

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CONCENTRATED URATE FOR GRASS, RAPE, AND ALL ROOT CROPS.
SUPERPHOSPHATE OF LIME.

THE LONDON MANURE COMPANY continue to manufacture the above Manures, which have been used with so much success for the last 14 years.

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Also on sale, Guano, Nitrate of Soda, Gypsum, Bone-dust, Sulphuric Acid, Salt, and all other Manures of known value. Agents for the sale of Peat Charcoal.—Apply for Prices Current to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London.

PATENT WOOL MANURE. — This new and valuable manure prepared by the artificial decomposition of woollen rags with a due admixture of alkaline salts and phosphates, is now ready for delivery. It is recommended to be applied in the same manner and in the same quantity per acre as Peruvian Guano, to which article it has (in the few experiments already made) proved itself equal, if not superior, in fertilising power, as may now be seen on several farms where the two manures have been applied side by side, at an equal weight per acre; thus effecting a saving of at least 30 per cent. Price 8l. 8s. per ton, or 9s. per cwt., delivered free to any railway station or wharf in London. Terms—cash on delivery.

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Agents—R. R. MANNING, Medbury, near Bedford; G. BELSEY, St. Peter's, near Margate; S. SMITH, 81, Gracechurch Street; L. OLDIS, Clock House, Braintree, Essex; C. J. MACKLIN, Bantingford, Herts.

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SEVEN PER CENT. BONUS.

THE CONSERVATIVE LAND SOCIETY.—Notice is Hereby Given, that WARRANTS for the PAYMENT of the GUARANTEED INTEREST on completed Shares, and on Subscriptions of Shares in progress, of a year in advance and upwards, at the rate of 5 per cent. per annum, will be ISSUED on and after the 26th of April, for the half year ending March 25, and will be forwarded to the respective Members in due course. The Holders of completed Shares will also be entitled to receive an additional 2 per cent., in order to make every payment into the Society, by Shareholders prior to last Michaelmas, realise 7 per cent., being the bonus declared by the Executive Committee of the Conservative Land Society for the second financial year, ending Sept. 29, 1854. (By Order of the Board.)

CHARLES LEWIS GRUNEISEN, Secretary.

Persons who may be desirous of investing capital and savings with complete security and freedom from personal liability may use the Society as a bank of deposit, or savings bank; and the taking of land being quite optional, it will be open to the members at any time to select plots on eligible estates, in various counties, so as to secure the freehold franchise and first rate ground rents. A completed share, which is at once entered on the register of rights, to choose pieces of land, cost 52l. 5s. 6d., including the conveyance of the lot, if taken, and all charges. An uncompleted share, paid a year in advance, so as to be entitled to 5 per cent. interest, payable half-yearly, as on the completed shares, is 5l. 3s. 6d. Monthly subscriptions on shares in progress are 9s. per month, with 1s. quarterly to cover working expenses, and 2s. 6d. entrance fee per share.

Prospectuses and Forms for taking shares will be forwarded, free of expense, on application to the Secretary, at the Central Offices, No. 33, Norfolk Street, Strand, London; or to the Agents for members in the chief towns in the United Kingdom. All subscriptions on shares paid into the Society can be withdrawn, under the rules, at 10 days' notice.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—PROFESSOR WAY'S LECTURE "On the Chemical Principles involved in the Production of Butter," will be delivered before the Members, at the Society's House, in Hanover Square, London, at 12 o'clock, on WEDNESDAY, the 16th of May.

The GENERAL MEETING of the Society will be held at 12 o'clock, on TUESDAY, May 22d. By order of the Council,

JAMES HUDSON, Secretary.

THE CONSULTING CHEMIST of the Royal Agricultural Society of England has removed his Laboratory to 15, Welbeck Street, Cavendish Square, where all communications and substances for analysis should in future be addressed. The Laboratory is open to Gentlemen wishing to study Agricultural Analysis, for which purpose it offers considerable advantages.

YORKSHIRE AGRICULTURAL SOCIETY.—PRIZE SHEETS for the MALTON MEETING may be had of the Secretary, Mr. JOHN HANNAM, Land Agent, Wetherby.

TESTIMONIAL TO J. B. LAWES, Esq.—The Committee beg to inform those interested in the above undertaking, that the New Laboratory is expected to be ready for presentation in May or June, until which time the Subscription List will remain open, to afford an opportunity to any who may still wish to associate their names with this acknowledgment of Mr. Lawes' services.

Communications to be addressed to
Mr. W. KERL, Hon. Sec., Harpenden.

CHEMICAL ANALYSIS.

MR. H. MEDLOCK (formerly Chief Assistant in the Royal College of Chemistry) begs to inform Agriculturists that he undertakes the Analysis of Soils, Manures, &c., on moderate terms. Mr. Medlock also gives instruction to Gentlemen in Agricultural Chemistry at his private Laboratory, 20, Great Marlborough Street, London.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

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TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1d. per square yard; 200 yards, 14s.; 500 yards, 30s.; 1000 yards, 50s. Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

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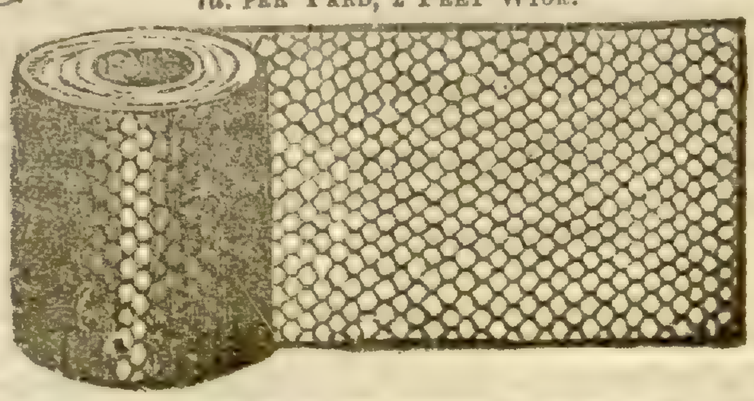

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2-inch " strong "	...	9 "	6½ "
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1⅝-inch " strong "	...	10 "	8 "
1⅝-inch " extra strong "	...	14 "	11 "

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The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

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	Per lb.—s.	d.		Per lb.—s.	d.
Mangold Wurzel, Long Red	0	8	Turnip White Decanter, or Norfolk Bell ...	1	2
" " Long Yellow	1	0	" Green Barach ...	1	2
" " Yellow Globe	0	8	" White Tankard ...	0	10
" " Red Globe ...	0	9	" Red Tankard ...	0	10
Carrot, Long White Belgian	2	0	" Yellow Tankard ...	2	0
Turnips, fine Purple Top	1	9	" Orange Jelly ...	1	4
" fine Green Top ...	1	9	" Purple Top Bullock	1	0
" Skirving's	1	9	Cabbage, large Drumhead	2	6
" Laing's Purple Top	1	0	" Kohl Rabi ...	2	6
" Norfolk White Round	0	9	Lucerne	1	0
" " Green Round	0	9	Furze or Gorse	1	0
" Lincolnshire Red Globe	1	2	Alsike Clover	2	0
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The Agricultural Gazette.

SATURDAY, MAY 12, 1855.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, May 16—Agricultural Society of England.

THE question—How shall we find food for our stock? is happily receiving its best answer by the rapid growth of green food under the refreshing showers of the last few days; for we have at length the sound of abundance of rain. The remedy for the severe drought and cold weather of the last two months has happily come before much mischief has been done, and a somewhat later harvest will probably be the utmost blame that can be laid upon the season hitherto.

AMONG the discouragements which beset, and often arrest altogether the progress of one who is endeavouring, perhaps late in life, to acquaint himself

with the *science* belonging to an art which forms his daily business, none is more mischievous in its first effect upon his mind, or more baffling to the resolution, than to be struck every now and then with the feeling that he is stepping from the land of certainty, or what he *believes* certainty, into a sea of doubt. Like a landsman who for the first time feels the unaccustomed motion of the waves, and experiences a sensation as much the opposite as can be well imagined of the day's 'pleasuring' he had promised himself in the gaily-painted craft to which he had consigned himself and his prog-basket, he begins to register a vow that—let him once set foot on terra firma again, and he'll have nothing more to do with an element that far from sharpening his appetite for *more*, actually seems to put in jeopardy what he had thought he *could* call his own! Many a man has left the first lecture-room he ever attended, of 'agricultural chemistry' with just such a feeling as that here faintly hinted at; and this sensation is due not merely to the chopping sea of hard words and phrases he is sure to find running ahead, but derives its worst qualms from a sort of ground-swell he becomes writhingly conscious of, appearing to affect the whole surface of the lecturer's discourse, —the under-current of *doubt*.

To the practical man this is intolerable. For there is this striking difference between 'practical' and 'scientific' knowledge; that the former leads a man to trust to himself, by concentrating his view upon what he *has* acquired, however limited the field, while it is the melancholy virtue of the latter to teach him to distrust himself and his conclusions, by opening out to his eyes part of the infinite field of the unknown. They look, as it were, through opposite ends of the telescope. Yet, for *action*, the first, for *knowledge* the second frame of mind, is indispensable. For even to her aptest scholars Nature is chary of her secrets, they do but

> "Show his eyes, and grieve his heart,
> Come like shadows—so depart."

and the only wonder is that the man who in his own person has proved the toilsomeness and slow reward of field labour,—how much it takes to earn such small apparent results,—should come into the lecture-room of Science expecting and demanding such instantaneous rewards. Let them come as plenty as blackberries or thick as hailstones, he should bear in mind they must still be *others'* property as well as *his!* Knowledge is no monopolist. He could carve no 'patent' out of it. He must be content to share only with the rest of mankind: so that the *individual* benefit which Practice sometimes petulantly claims at the hands of Science is a mere dream; beyond the general saving of waste, toil, and expense, which knowledge and discovery lead to, and in which all are free to participate alike. The mind directs the hand; the head saves the heels: that is the history and answer of 'scientific' knowledge, like every other kind of knowledge: and surely the former President of the Royal Agricultural Society was wrong to answer folly according to its folly, when he agreed to count up, and even to extenuate, the practical bequests of chemistry to agriculture, as consisting hitherto only in "Liebig's suggestion for dissolving bones in sulphuric acid and Sir Robert Kane's for using flax-water as manure." The Professor of Giessen—we beg his pardon—now of Munich, holds the compliment rather cheaply, and replies that "in a chemical" (we suppose he means a scientific) "point of view such recipes have no greater value than a recipe for good blacking," and denies altogether such a limitation of the gifts of chemistry to farming, declaring that "*dozens* of prescriptions or recipes like that alluded to by Mr. Pusey may be found, in books which treat of the application of Chemistry to agriculture."

So they may; and many of them worthless enough; like that, so confidently put forward, for fixing the volatile ammonia of stables and dung-heaps by means of an insoluble and well nigh impulverable salt, the sulphate of lime. But Baron Liebig seems to have misconceived the tone and spirit of Mr. Pusey's remark, which was not to depreciate the advantages of chemical knowledge to the agriculturist, but to moderate the extravagant expectations of that day, and to mitigate the resulting disappointment of those who looked to "doubtful chemistry" for "good farming," and expected of science what science does not profess, and is not calculated to give, viz., sudden and individual accessions of power or gain. Though it was an odd way of setting about the task, by almost indorsing the very prejudice it was desired to cancel.

Perhaps no instance has occurred, heretofore, in which the actual field practice of the farmer, is so prominently concerned and even implicated in the settlement of a question of 'doubtful chemistry,' as in the discussion now pending, on the Nutrition of Plants, between the advocates and the opponents of what is called Liebig's 'Mineral Theory.' It is a 'pretty quarrel as it stands,' because it embraces some of the very points most important to be known on 'the relation of the atmosphere and the soil:' and to give it what intelligence we may to those who have not penetrated very far into the mysteries of science, we shall weary our learned readers by bringing up the rear from the point we lately reached, after introducing the four great *organic* elements, which worse, by one head, than Cerberus himself, may be said to guard the very portals of agricultural chemistry. When the objection is once surmounted, which the 'natural' mind entertains against the alternation of matter between its *visible* and *invisible* forms; when this difficult and narrow portal of incredulity is once left behind, the road becomes altogether easier: the theory of 'combustion,' once explained, accounts for the sudden *disappearance* of so very large a portion of vegetable or animal matter when burnt, and the term 'burning' no longer suggests the idea of annihilation, but of mere resolution of the plant, or animal, into its visible, and its invisible, elements; the one part of that which seemed corporeal, melting like breath into the wind, as though the earth had bubbles as the water has; the other part remaining in the small and tangible residuum of 'ash.'

Now touching this ash, Liebig lays it down in the most recently published statement of his views, as the 2nd of fifty 'propositions', in which his principles are collected and embodied, that "On the most diversified soils, in the most varied climates, whether in plains or on high mountains, plants invariably contain a certain number of mineral substances, and, in fact, always the same substances; the nature and quality, or the varying proportions of which are ascertained *by finding the composition of the ashes of the plants.* The mineral substances found in the ashes were originally ingredients of the soil: all fertile soils contain a certain amount of them; they are never wanting in any soil in which plants thrive." In his first 'Proposition' he had stated that the organic elements, oxygen and carbon, through their compound, *carbonic-acid;* and nitrogen and hydrogen, through their compound, *ammonia,* are obtained by plants from Air and Water. All this is admitted and understood by men of science.

Now, without entering at present on the enumeration of the mineral substances alluded to in Prop. 2, just noticed, we will plunge at once in *mediam rem,* by taking the passage quoted by Liebig from Mr. Lawes' Essay at p. 2 of Vol. XII., part I. of the Journal of the Royal Agricultural Society, which is as follows: "In the course of this inquiry, the whole tenor of our result has forced upon us opinions different from those of Prof. Liebig on some important points; and more especially in relation to his so-called Mineral Theory, which is embodied in the following sentence, to be found at p. 211 of the 3d edition of his work on 'Agricultural Chemistry,' where he says, 'The crops on a field diminish or increase in exact proportion to the diminution or increase of the *Mineral substances conveyed to it in manure.*'"

Here then, we have what lawyers would call the 'Declaration' and the 'Plea.' In Prof. Liebig's little work just published, and entitled 'Principles of Agricultural Chemistry, with special reference to the late researches made in England,' we have the 'Replication,' together with the 50 'Propositions' above referred to. To this we hope to return, when we have digested some of the ingredients or rather the condiments with which it is flavoured—colloquially speaking, *sauced,*—to the English palate. *H.*

It was of some public interest to ascertain the degree in which the reputation of the short-horn breed of cattle has of late years been maintained, and several articles on that subject will accordingly be found in current numbers and past volumes of the *Agricultural Gazette.* The point is, of course, to be determined by references to sales of herds and individual animals; and remarkable instances of this description have been brought under the notice of our readers as often as they occurred. The last occasion of the kind was the Hendon sale of last month. We considered and believe that the prices realised by Mr. Tanqueray's herd proved the increasing reputation of the breed, and a writer in the *Mark Lane Express,* whom we supposed to utter more than a merely individual judgment, having expressed his opinion that the prices reached, great as they were, had not been, as an average, very extraordinary, we quoted him to show that the character of the breed stood even higher than these prices indicated. It appears, however, that the opinion quoted is not *completely* the opinion uttered—the latter described the sale as being "not for an average a very extraordinary one, *considering the pains and cost at which* Mr. Tanqueray *had collected the herd;*" and our contemporary imagining that our object was to expose his judgment of the value of short-horn cattle, expresses his displeasure at our omission of these words. But this was not our object:—if we had supposed that the writer of that sentence was giving merely his personal opinion we should not have noticed it at all—it was because we imagined that he was uttering the opinion of agriculturists that we referred to it—for our object was to show that the average, high as it was, had not reached the height to which, in *agricultural* judgment, it ought to have attained. Besides, the quotation, though imperfect as to length, *is* perfect as to fairness for the purpose to which we have applied it. We did not, indeed, quote this writer's reference to the circumstances under which, in his opinion, the Hendon sale is not extraordinary; but these circumstances do in reality enhance the value of the event as a testimony to the reputation of the short-horn blood. For what has been the history of the Hendon herd?

Mr. Tanqueray—a gentleman not previously interested in agriculture—did not seven years ago own a single short-horn: during that interval he has gathered a herd together—at great cost no doubt—but at a cost forced upon him at the sales by auction where his purchases were made—a cost therefore which proves not merely the individual enterprize which our contemporary admits, but the general estimation in which the breed is held; and this is the very point to which our remarks were directed. And that this general estimation is proved more incontestably than ever by the circumstances of this sale will appear from an enumeration of some of them which our contemporary does not seem to have been acquainted with. For instance, though collected at such cost, the herd did, we are assured by one able to inform us, realise last month nearly double the sum needed to balance its account. Again: some of the best animals were disposed of privately before the sale—a Duchess heifer, especially, for 500 guineas—and in fact nearly five thousand pounds' worth of animals had been *thus* disposed of during the past two years! Thirdly: some of the animals purchased nominally by Mr. Tanqueray were in reality purchased by him in partnership with Americans, and having passed from his hands cannot be quoted in explanation of the Hendon average (the Duke of Glo'ster, for instance, for which 650 guineas were paid at Tortworth, and for which Mr. Tanqueray would have given 1000 guineas, has since crossed the Atlantic). Lastly: the animals purchased at greatest cost are precisely those which have yielded largest profits: thus, we may take three, and these shall include some of the highest priced animals that Mr. Tanqueray ever purchased —Oxford 11th, for instance, and Oxford 16th, for which 250 and 180 guineas were given at Tortworth; these three, with their produce, sold for 1050 guineas more than had been given for them. The circumstances of the sale we submit, then, make it more than ever the remarkable event which we believe it to have been, and the writer in the *Mark Lane Express* cannot justify his opinion of *it* by any reference to *them.* They constitute a sufficient answer to the first part of his angry notice of our last week's article.

As to the second part of his critique we must simply confess that it is unanswerable. Having lived more in the field than in the street we are happily saved by ignorance as well as choice from bandying personalities in slang phrases.

A DAY WITH THE STEAM PLOUGH.

Having resolved to see for myself what measure of success has attended Lord Willoughby d'Eresby's steam ploughing, I lately paid a visit to Grimsthorpe, his lordship's seat in South Lincolnshire; where, besides the attraction of such a novel mode of tillage, the tourist may find objects of interest in the embattled towers of the castle, in the gardens, the picturesque village, and an extensive park with its noble forest trees, and fine sheet of water 100 acres in extent. My way there lying through a part of the Fens, I had the agreeable opportunity of inspecting in their proper order the separate steps by which steam-power has been successively applied to agriculture. First, I crossed over numerous large drainage canals and wide ditches having no outfall into which they can discharge the land-floods pouring into them; and powerful fixed steam-engines (two of which I passed by), are therefore erected to bale out the rain-water and springs of the entire country. Were they to cease working, tens of thousands of acres now highly cultivated, planted, and studded over with farm buildings and clustered villages would be one vast shallow lake. Next, I observed in the rick-yards of those steam-dried fens portable steam-engines busily threshing; in one yard the farm horses were actually standing unharnessed, and comfortably looking on while their welcome helper, the engine, was panting and perspiring at their hitherto accustomed labour. "Surely," thought I, "as steam has first

drained a whole district while fixed at one corner of it, and then perambulated in a portable form into every farmstead upon it, to do any work required there, the next step will be on to the surface of the fields themselves, to till, manure, or sow there." However, on arriving at Grimsthorpe, I found that a still intervening step has been taken. His lordship, justly noted as "a good landlord," has established some "works," where all sorts of steam-saws, lathes, boring, morticing, and planing machines for wood and metal are always busy, performing work for the tenantry, and practically demonstrating to a rural population the many facilities and advantages of such machinery. A steam flour mill also crushes corn for cattle food, &c., and grinds meal for "the cottagers" at one farthing per bushel. There are four portable engines each of from 24 to 26 horse-power, connected with the establishment; one constantly engaged in driving the above works, two employed in drawing the steam-plough, thrashing on various neighbouring farms, and grinding the clay for three brick-yards; while the fourth is made locomotive for running upon common roads, and forms the next kind of steam application to agriculture above alluded to. The Great Northern railway having a station four miles off, Lord Willoughby constructed a good stone road to it for the use of his tenantry and the public, and contrived an engine to travel to and fro with coal, &c., for his castle. This engine has three cylinders working underneath the boiler, and an ingenious steerage-apparatus, and draws several loaded break-waggons up steep inclines; but his lordship is now converting the common road into a railway by laying down wooden blocks, at an expense (we were informed) of 2000*l.* per mile; a great quantity of Ash timber having been felled for the purpose. When this line is completed the farmers will be saved four miles in the delivery of corn or fetching of coal, and will be charged, it is supposed, a very small amount for carriage.

The history of the steam plough appears to be this: seven years ago Lord Willoughby—who is a skilful amateur in mechanical contrivances—designed an engine and tackle for the traction of ploughs; consulting his enterprising bailiff, Mr. Scott, together with the intelligent foreman of the works, as to the best form and arrangement of the implement itself. The first trials were made with a single engine working an endless chain stretched between it and an anchored pulley at the opposite side of the field; but the slack or return chain proved an insuperable obstacle; and as the anchor would not hold against the ploughs in work, they had to be drawn empty towards it—ploughing only when approaching the engine. The frame of ploughs was intended to travel at the rate of five miles per hour, which was of course impracticable, seeing that it was necessary to have men to guide it. Two engines have been found indispensable, each working and resting alternately, as the implement traverses to or from them; and only a single length of chain is employed, which unwinds itself from the barrel upon one engine, while being gathered by that upon the other. Attempts were made to use common rope, which could not stand the wear. Another method of obviating the great friction of the chain along the ground, was having two boys to follow or precede the implement with small barrows fitted with friction rollers to hold up the chain; this also was abandoned.

The present plan of working is as follows:—one engine, with its "tender" carrying coke and water, stands upon two 20-feet deals laid on the headland; and with two other planks alternately laid down and shifted forward, the engine can travel the whole length of the headland upon a sort of portable railway. At every bout of the implement the engine moves forward a few feet, equal to the breadth of furrows ploughed—propelling itself by gathering up a chain attached to an anchor at the end of the headland. The other engine, similarly mounted upon planks and travelling in a parallel direction, is set 165 yards down the field, and the chain drawing the implement extends between the two engines, being alternately wound and unwound by each. It takes a couple of men to lift and carry one of the planks.

The implement I saw consisted of three ploughs fixed in a long trussed iron frame, having four wheels to steady it, and two handles at each end for steering. One man walks near the fore-end and another follows behind, going at the pace of from three to four miles per hour. The plough is not turned round at the end of the work, but is constructed with double shares, coulter, and mouldboards, so as to throw its furrows in the same direction when going back again. Nothing is necessary but to adjust the ploughs by a shifting movement within their frame in order to follow each other, and then move the whole implement sideways for another three furrows. The first is done by means of handles and screws which slide the ploughs from one side of the frame to the other; the last is effected by hoisting the frame itself with a chain and lever suspended to a strong wooden gallows. The top-bar of the gallows is made slanting, and the chain is hung to a roller travelling upon the bar, so that when the plough is lifted it runs down of its own accord into its required place upon the unploughed land. Of course there is a hoisting apparatus at each end of the work. When the plough is ready for returning the engine at the end where it is gives a whistle as a signal for the other to start.

In order to allow room for the ploughs to slide before and behind each other, the frame is of great length, viz., about 18 feet with the handles; and it is consequently very hard work to guide it. The work is not likely to be so well laid, therefore, as farmers in general would wish; but that which I inspected being cross-ploughing for fallows, I cannot pronounce upon the point. Perhaps two ploughs instead of three in one frame would be more manageable: this plan was formerly adopted, but then, instead of the sidelong shifting of the two, there were additional ploughs lifted out of or lowered into work by rack-and-pinion. The ingenuity displayed in the contrivance of the implement cannot be shown without drawings; but considerable improvements must still be made before it will answer its purpose; as it now occasionally masters its attendants, sometimes tumbling over, and playing other tricks. Light land it will plough pretty well; but tough clays occasion it some trouble. My impression certainly is, that some less cumbersome contrivance than this long implement—little less than *a ton* in weight—may be yet invented. The present draught must be enormous.

Then the chain used for drawing: why, I had expected to find a *wire-rope* in use, after the wonders done with it by Fowler's draining-engine. But the present barrels upon the engines are only a few inches in diameter—too small to wind a wire rope on. I believe that the power wasted in simply drawing the chain is never less than four horses—increasing with the wetness and stickiness of the land it passes over; while, in spite of the clever mechanism for grinding the coils evenly upon the barrel, links are continually catching, and the chain thereby jerking and damaging the engine, so that a day seldom passes without a breakage of more or less importance.

Looking at the engines themselves, I found that the chain-barrels were worked by means of cranks and parallel connecting-rods from eccentrics upon the fly-wheel shaft. Cog-wheel gearing was first employed, then, for convenience, cranks were substituted, with parallel connecting-rods; and now the whole power of the engines is applied through these eccentrics, with an immense amount of friction and diminution of the effective force. I saw at once, therefore, that Lord Willoughby's steam-plough, while demonstrating the possibility of doing what many people have doubted, must not be taken as exemplifying the economical conditions of the operation. Until a wire-rope is employed to drag a lighter form of implement, and the engines are made to turn the drums with greater mechanical efficience, it will not do to calculate the prospects of steam-ploughing from the fact that Lord Willoughby's two engines of 24-horse power each (at more than 100 lbs. pressure), can plough only 4 acres per day.

They have worked for weeks at a time—though generally hindered from day to day with accidents—and their greatest achievement has been to plough 4 acres in a day at a working expense of 35*s.*, employing at least six men. When the number of horses required to carry the apparatus to and from the field, and the incomplete state of the machine itself, are considered, it is not surprising that the neighbouring farmers regard it with distrust, and even ridicule; and that instead of being regularly in work, it is only brought out for special occasions, and for satisfying the curiosity of inquirers. As each engine weighs about 5 tons, three horses are required to draw it—two horses are required for the two tenders and the various tackle; one horse for the plough, which is carried by a "gin," such as timber is borne with; and a man and a horse are kept busy in fetching water and coke for the engines. I heard of one gentleman so taken with the invention, that he actually had two engines constructed like these; but private matters have since prevented his further engagement in it.

In conclusion, my opinion is, that much greater things yet remain to be done with a steam-plough, and this, too, with a single engine, and a better method of anchoring a pulley. Perhaps Lord Willoughby will be able to accomplish this, and so lessen the expense of working, as well as lower the first cost of his apparatus. I may just add that plates and wood-cuts of the steam-plough, with descriptive letter-press, appeared in the *Artisan* for July, 1853, and May, 1854. *Cultor.*

Home Correspondence.

Blue Vitriol for Steeping Wheat.—In answer to your correspondent, "J. C. C.," I can only say that I have used blue vitriol on Wheat for about eight years, and I believe my brother has used it nearly twenty years, and have never seen it damage the corn, but I cannot warrant that it would not do so if used in too large quantities, and if the corn was suffered to remain too long in the wash: we only leave it one night in steep. I really believe, from the description your correspondent "J. C. C." gives of his Wheat, that it must have malted in the ground. I have had this happen to my corn in Canada, where it is not an uncommon thing; in fact, the heat of the vitriol may have assisted the malting effects of the hot dry earth; for in Canada, if you sow Wheat in very dry weather, perhaps after a slight shower the corn begins to vegetate, and if it again sets in dry, it positively malts in the ground. I have been very much puzzled this year to account for the failure of about three quarters of an acre of ground sown in a three acre field of Wheat, and was at first inclined to put it down to the account of paring and burning, until I saw in your Paper that Wheats had failed on light lands: I then put down my failure to about 300 cart-loads of head-land earth, carried out in over zeal for the good of the crop. *B. M. T., Foxdown, Bideford, Devon.*

——On reading the statement of your correspondent "J. C. C." of the suspected failure of his Wheat crop from the use of blue vitriol as a dressing for the seed previous to sowing, I was involuntarily led to a review of my own practice during a long period of years, when, after trying various ingredients as preventives of smut, I settled down to this as not only the most effective, but the safest antidote to this hateful disease. So strongly am I impressed in its favour that I always maintained, and still continue to maintain, that no farmer need have smutty Wheat except through his own negligence in preparing the seed for the drill, dibble, or broadcast. But "J. C. C." objects to it as endangering the germination of the seed, and, in fact, destroying his crop; a serious charge if true, and one which ought not to be made but on good and sure foundations. I for one, at least, am not disposed to rest satisfied without further inquiry as to the strength of the solution, length of time occupied in the immersion of the seed, and various other particulars, of which as yet we are ignorant; for "J. C. C.'s" expression "dressing in the usual way" is far too vague not to require further explanation. What is "the usual way?" I protest I know not; and shall thankfully await information thereupon. I know what my own "usual way" was—not on a very small scale neither—but to the extent of 50 to 60 acres annually. For the accuracy of the operation I can vouch, always making a point of having it conducted under my own eyes, and very often with my own hands. To prove that I wish not to ask for more than I am perfectly willing to impart myself, I beg to submit the following as my "usual way" of preparing seed Wheat, in the firm conviction that if carefully and thoroughly carried out there need be no apprehension of failure. For I may here add that a vast deal more depends on strict attention to the minutiæ of this, as of most other agricultural operations, whether practical or merely experimental, than many, otherwise excellent farmers, may be disposed to think necessary. It is not enough to give general directions to a bailiff or yard-man, that you wish your seed Wheat prepared after such and such a recipe—you must see to it yourself; and even assist at the most important points by your own personal exertions. I say this without meaning the least disparagement of either the care or judgment of your overlooker; who, when once in possession of your plan of operations (only to be obtained directly from yourself) may, and ought, if conscientious and active, to be trusted to do in your absence what he is fully aware would have been done had you been present. But we must get on, or our steep will never be ready for the drill. Take then a tub or vessel of convenient form for holding 3 bushels of Wheat, and a space of some 6 or 8 inches beyond, for skimming, washing, and stirring. Place this tub over a wider but shallower vessel, similar to the underback of a mash-tub; into which the Wheat, when washed and skimmed, may, by a cock or other means, be drawn off from the tub above. But we are forestalling matters. Prepare the steep as follows:—Dissolve about 3 lbs. of blue vitriol in water (hot if wanted for immediate use, otherwise this is immaterial); to this add water enough fairly to swim the quantity of seed you intend to steep—say 3 bushels; into this liquor then sift gradually and lightly, by means of what in some places is called a reeing sieve, the Wheat as above mentioned. The heavy grain will fall to the bottom, leaving the lighter portion, seeds of certain weeds, smut balls (if any), and other rubbish, to float at the top. These must all be carefully skimmed off, and the main body of the Wheat below well stirred from the bottom, to make sure that the whole is thoroughly washed and skimmed. This process over, some recommend a prolonged immersion in the liquid of from one to three or more hours; but I never could see any necessity for this. In the first place its adoption would be attended with great additional inconvenience, to say nothing of the extra expense, from the necessary enlargement of the apparatus for steeping and washing a much larger quantity at a time than I have named. As soon, therefore, as you are satisfied that the washing, skimming, &c., is accomplished, and the liquor drawn off into the underback, empty the Wheat on to the floor, which latter ought to be thoroughly washed and cleaned between the steeps, and, after spreading it about a little, sift over it enough hot slacked lime to facilitate the progress of drying. The Wheat will be fit for drilling or sowing in a few hours, but if even delayed for a day or two will take no harm. The same liquor will serve several steeps, merely replenishing with fresh water and about ½ lb. of blue vitriol to each succeeding bushel of Wheat. Such was my practice during many years of my farming life, nor did I ever experience any failure of plant from the use of this steep, though I certainly have from chamberlye applied too strong and immersed too long. How to account for "J. C. C.'s" failure I know no more than he does; but as he says it was sown when the ground was dry, is it not as fair to presume that the failure was quite as likely to have been occasioned by want of the requisite moisture to cause the seed to germinate properly as by anything in the composition of a steep in such universal use, and, with common care, so harmless as a solution of blue vitriol, even though much stronger than I applied it? *S. Taylor, Gloucester.*

How are we to find Food for our Flocks.—This important query is answered in your Paper of April 28 by Mr. J. Ford, North Wales, who recommends the culture of "Chivas's Orange Jelly Turnip." If this should meet his eye, would he be kind enough to reply to the following:—What time of the year was the seed sown? Was it grown upon "fallow," or on land from which a crop had just been taken? How many tons of sound

bulbs per acre were drawn about the 20th of April? His being as accurate as possible in his replies will greatly oblige *A Subscriber*.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Weekly Council, *May* 9.—Mr. Raymond Barker, V.P., in the chair.

Special Council, *May* 9: Mr. Miles, M.P., President, in the Chair.

Journal.—The President reported from the Journal Committee a schedule of the subjects proposed for the Prize-Essays of next year; and the following recommendation in reference to the editing of the Journal during Mr. Pusey's lamented indisposition: namely,—

"That Mr. Thompson be requested to accept the office of Chairman of the Journal Committee, and that Mr. Acland and Mr. Hoskyns be requested to accept the office of Vice-Chairmen: the Editorship of the Journal to be confided to those three gentlemen, with whom the Journal Committee will co-operate."

This report was adopted by the Council.

Poultry Steward.—The Hon. and Rev. Stephen Willoughby Lawley, of Escrick Rectory, near York, was requested by the Council to accept the appointment of Steward of the Poultry department at the Carlisle meeting.

Management of Dairy-Cattle.—The following communication was read from Mr. Horsfall, of Burnley Hall, near Otley, Yorkshire.

"Burnley Hall, near Otley, May 5.

"In complying with the request of your honourable Council to supply information regarding my treatment of cows for dairy purposes, it seems pertinent that I should enter into some explanation of the motives and considerations which influence my conduct in this branch of my farm operations. I have found it stated, on authority deserving attention, that store cattle of a fair size, and without other occupation, maintain their weight and condition for a length of time, when supplied daily with 120 lbs. of Swedish Turnips and a small portion of straw. The experience of the district of Craven, in Yorkshire, where meadow hay is the staple food during winter, shows that such cattle maintain their condition on 1½ stone of meadow hay each per day. These respective quantities of Turnips and of hay correspond very closely in their nutritive properties; they contain a very similar amount of albuminous matter, starch, sugar, &c., and also of phosphoric acid. Of oil—an important element, especially for the purpose of which I am treating—the stated supply of meadow hay contains more than that of Turnips. If we supply cows in milk of the same size with a like quantity of similar food, they will lose perceptibly in condition. This is easily explained when we find their milk rich in substances which serve for their support when in store condition, and which are shown to be diverted in the secretion of milk. In the neighbourhood of towns where the dairy produce is disposed of in new milk, and where the aim of the dairyman is to produce the greatest quantity, too frequently with but little regard to quality, it is their common practice to purchase in or near calving cows; they pay great attention to the condition of the cow: they will tell you, by the high comparative price they pay for animals well stored with flesh and fat, that condition is as valuable for them as it is for the butcher; they look upon these stores as materials which serve their purpose; they supply food more adapted to induce quantity than quality, and pay but little regard to the maintenance of the condition of the animal. With such treatment, the cow loses in condition during the process of milking, and when no longer profitable, is sold to purchasers in farming districts where food is cheaper, to be fattened or otherwise replenished for the use of the dairy keeper. We thus find a disposition in the cow to apply the aliment of her food to her milk, rather than to lay on flesh or fat, for not only are the elements of her food diverted to this purpose; but to all appearance her accumulated stores of flesh and fat are drawn upon, and converted into components of milk, casein, or butter. It is also probable that a like result will take place in regard to her bones, if a due supply of phosphate be not afforded in her food. As I am differently circumstanced, a considerable portion of my dairy produce being intended for butter, for which poor milk is not adapted, and as I fatten not only my own cows, but purchase others to fatten in addition, my attention was given to devise food for my milch cows adapted to their maintenance and improvement, and with this view I was led to give attention to the composition of milk. From several analyses I have selected one by Haidlen, which I find in publications of repute. Taking a full yield of milk, 4 gallons per day, which will weigh upwards of 40 lbs., this analysis assigns to it of dry material 5.20, of which the proportion with sufficient accuracy for my purpose consists of—

	lbs.
Pure casein	2.00
Butter	1.25
Sugar	1.75
Phosphate of lime }	.09
Chloride of potassium, And other mineral ingredients }	.11
	5.20

It appeared an object of importance, and one which called for my particular attention, to afford an ample supply of the elements of food suited to the maintenance and likewise to the produce of the animal, and that if I omitted to effect this, the result would be imperfect and unsatisfactory. By the use of ordinary farm produce only, I could not hope to accomplish my purpose. Turnips are objectionable on account of their flavour, and I seek to avoid them as food for dairy purposes. I use Cabbages, Kohl Rabi, and Mangold Wurzel, yet only in moderate quantities. Of meadow hay it would require beyond the supply necessary for the maintenance of the cow an addition of fully 20 lbs. to supply the casein in a full yield of milk 16 quarts, 40 lbs. to supply the oil for the butter, whilst 9 lbs. seem adequate for the supply of the phosphoric acid. You cannot then induce a cow to consume the quantity of hay requisite for her maintenance, and for the full yield of milk of the quality instanced. Though it is a subject of controversy whether butter is wholly derived from vegetable oil, yet the peculiar adaptation of this oil to the purpose will, I think, be admitted. I had, therefore, to seek assistance from what are usually termed artificial feeding substances, and to select such as are rich in albumen, oil, and phosphoric acid, or phosphate of lime; and I was bound, also, to pay regard to their comparative cost, with a view to profit, which when farming is followed as a business is a necessary, and in any circumstances, an agreeable accompaniment. I think it will be found that substances peculiarly rich in nitrogenous or other elements have a higher value for special than for general purposes, and it seems to me not improbable that this adaptation of materials characterised by peculiar properties to special purposes has not yet gained the attention to which it is entitled. I have omitted all reference to the heat supplying elements, starch, sugar, &c. As the materials commonly used as food for cattle contain sufficient of these to effect this object, under exposure to some degree of cold, I have a right to calculate on a less consumption of them as fuel, and consequently a greater surplus for deposit as sugar, and probably also as fat, my stalls being kept during winter at a temperature of nearly 60°. I now proceed to describe the means I am using to carry out the purposes which I have sought to explain. My food for milch cows, after having undergone various modifications, has for two seasons consisted of Bean-straw, Oat-straw, and shells of Oats in equal proportion, Rape-cake 5 lbs., and Bran 2 lbs. per day for each cow; these materials are blended together, moistened, and well steamed; they are supplied three times, *ad libitum*, per day in a warm state. The attendant is allowed 1 lb. to 1½ lb. per cow, according to circumstances, of Bean-meal, which he is charged to give to each cow in proportion to the yield of milk, those in full milk getting 2 lbs. each per day, others but little; it is mixed with the steamed food on its being dealt out separately; when this is eaten up, green food, consisting of Cabbages, from October to December, Kohl Rabi till February, and Mangold till Grass time. With a view to nicety of flavour, I limit the supply of green food to 30 to 35 lbs. per day for each. After each feed 4 lbs. of meadow hay, or 12 lbs. per day is given to each cow; they are allowed water twice per day to the extent they will drink. As some of these materials are not commonly used as food, I may be allowed some observations on their properties. Bean-straw uncooked is dry and unpalatable; by the process of steaming it becomes soft and pulpy, emits an agreeable odour, and imparts flavour and relish to the mess. For my information and guidance I obtained an analysis of Bean-straw of my own growth, on strong and high-conditioned land; it was cut on the short side of ripeness, but yielding a plump Bean. The analysis by Professor Way shows a percentage of—

Moisture of	14.47	Brought forward ...	58.92
Albuminous matter ...	16.38	Starch, gum, &c. ...	31.63
Oil or fatty matter ...	2.23	Mineral matters ...	9.45
Woody fibre	25.84		
Carried forward ...	58.92	Total	100

In albuminous matter, which is especially valuable for milch cows, it has nearly double the proportion contained in meadow hay. Bran also undergoes a great improvement in its flavour by steaming, and it is probably improved in its convertibility as food; it contains about 14 per cent. of albumen, and is peculiarly rich in phosphoric acid, nearly 3 per cent. of its whole substance being of this material. The properties of Rape-cake are well known; the published analyses give it a large proportion (nearly 30 per cent.) of albumen; it is rich in phosphate and also in oil. This is of the fluid or elain class of vegetable oils, and it is to its elain property that I call particular attention. Chemistry will assign to this material, which has hitherto been comparatively neglected for feeding, a first place for the purpose of which I am treating. If objection should occur on account of its flavour, I have no difficulty in stating that by the preparation I have described I have quite overcome this. I can easily persuade my cattle (of which 60 to 80 pass through my stalls in a year,) without exception to eat the requisite quantity. Nor is the flavour of the cake in the least perceptible in the milk or butter. During May, my cows are turned out on a rich pasture near the homestead; towards evening they are again housed for the night, when they are supplied with a mess of the steamed mixture and a little hay each morning and evening. During June, when the Grasses are better grown, mown Grass is given to them instead of hay, and they are also allowed two feeds of steamed mixture. This treatment is continued till October, when they are again wholly housed. The results which I now proceed to relate are derived from observations made with the view of enabling me to understand and regulate my own proceedings. For some years back I have regularly weighed my feeding stock, a practice from which I am enabled to form a more accurate estimate of their doings than I could previously pretend to. In January, 1854, I commenced weighing my milch cows; it has been shown by what I have premised that no accurate estimate can be formed of the effect of the food on the production of milk, without ascertaining its effect on the condition of the cows. I have continued this practice once a month almost without omission up to the date of this. The weighings take place early in the morning and before the cows are supplied with food; the weights are registered, and the length of time (15 months) during which I have observed this practice enables me to speak with confidence on the results. The cows in full milk yielding 12 to 16 quarts each per day vary but little, some losing, others gaining, slightly; the balance in the month's weighing of this class being rather to gain. It is common for a cow to continue a yield from six to eight months before she gives below 12 quarts per day, at which time she has usually, if not invariably, gained weight. The cows giving less than 12 quarts, and down to 5 quarts per day, are found when free from ailment to gain without exception. This gain, with an average yield of nearly 8 qts. per day, is at the rate of 7 to 8 lbs. per week each. My cows in calf I weigh only in the incipient stages, but they gain perceptibly in condition, and consequently in value; they are milked till within 4 to 5 weeks previous to calving. I give the weights of 3 of these, and also of one heifer, which calved in March:—

No.		1854				1855				Gain.
			cwt.	qr.	lbs.		cwt.	qr.	lbs	lbs.
1	Bought, and weighed ...	July	10	1	20	April	11	3	0	148
2	" "	"	8	2	10	"	10	2	0	214
3	" "	"	8	2	0	"	10	0	0	184
4	Heifer, which calved also in March, weighed ...	"	7	0	0	"	9	3	0	300

These observations extend over lengthened periods on the same animals, of from 30 to upwards of 50 weeks; a cow, free from calf and intended for fattening, continues to give milk from 10 months to a year after calving, and is then in a forward state of fatness, requiring but a few weeks to finish her for sale to the butcher. It will thus appear that my endeavours to provide food adapted to the maintenance and improvement of my milch cows are attended with success. On examining the composition of the ordinary food which I have described, straw, roots, and hay, it appears to contain the nutritive properties which are found adequate to the maintenance of the animal; the extra food will supply the albumen for the casein, it is deficient in oil for the butter, whilst it will supply in excess the phosphate of lime for a full yield of milk. If I take the class of cows giving less than 12 quarts per day, and taking also into account a gain of flesh, 7 to 9 lbs. per week, though I reduce the quantity of extra food by giving less of the Bean-meal, yet the supply will be more in proportion than with a full yield; the surplus of nitrogen and phosphoric acid, or phosphate of lime will go to enrich the manure. And here I cannot omit to remark on the satisfaction I derive from the effects of this treatment on the fertility of the land in my occupation. My rich pasture lands are not tending to impoverishment but to increased fertility; their improvement in condition is apparent. A cow in full milk giving 16 quarts per day, of the quality analysed by Haidlen, requires, beyond the food necessary for her maintenance, 6 to 8 lbs. per day of substances containing 20 to 25 per cent. of protein. A cow giving on the average 8 quarts per day, with which she gains 7 to 9 lbs. per week, requires 4 to 5 lbs. per day of substances rich in protein beyond the food which is necessary for her maintenance. Experience of fattening gives 2 lbs. per day, or 14 lbs. per week, as what can be attained on an average and for a length of time. If we consider ½ lb. per day as fat, which is not more than probable, there will be 1½ lb. for flesh, which, reckoned as dry material, will be about ½ lb; which is assimilated in increase of fibrine and represents only 1½ to 2 lbs. of substances rich in protein beyond what is required for her maintenance. If we examine the effects on the fertility of the land, my milch cows, when on rich pasture, and averaging a yield of nine quarts per day, and reckoning one cow to each acre, will carry off in 20 weeks 25 lbs. of nitrogen, equal to 30 of ammonia. The same quantity of milk will carry off 7 lbs. of phosphate of lime in 20 weeks from each acre. A fattening animal giving flesh at the rate I have described will carry off about one-third of the nitrogen equal to about 10 lbs. of ammonia, as compared with the milch cow whilst if full grown it will restore the whole of the phosphate. It is worthy of remark that experience states that rich pastures used for fattening fully maintain their fertility through a long series of years. If these computations be at all accurate, they tend to show that too little attention has been given to the supply of substances rich in nitrogenous compounds in the food for our milch cows, whilst we have laid too much stress on this property of such substances in food for fattening cattle. They tend also to the inference that in the effects on the fertility of our pastures used for dairy purposes, we derive advantage not only from the phosphate of lime but also from the gelatine of bones used as manure. On comparing the results from my milch cows fed in summer on rich pasture, and treated at the same time with extra food as I have described, with their treatment on winter food, and whilst wholly housed, and taking into account the yield of milk and the gain of weight, I find these from stall-feeding fully equal to those from depasture. The cows which I buy as strippers, for fattening, giving little milk, from neighbouring farmers who use ordinary food, Turnips without straw or hay, and coming under my treatment, increase their yield of milk, until after a week or two they give 2 quarts per day more than when they came, and that too of a much richer quality. I sometimes observe in the weekly publications which come under my notice accounts of cows giving large quantities of butter; these are usually, however, extraordinary instances and not accompanied with other statistical information requisite to their being taken as a guide, and it seldom happens that any allusion is made to the effects of the food on the condition of the animals, without which no accurate estimate can be arrived at. On looking over several treatises to which I have access, I find the following statistics on dairy produce:—Mr. Morton, in his "Cyclopædia of Agriculture," page 621, gives the results of the practice of a Mr. Young, an extensive dairy-keeper in Scotland. The yield of milk per cow is stated at 680 gallons per year; he obtains from 16 quarts of milk 20 ozs. of butter, or for the year, 227 lbs. per cow; from 1 gallon of cream 3 lbs. of butter, or 12 ozs. per quart. Mr. Young is described as a high feeder; Linseed is his chief auxiliary food for milch cows. Professor Johnstone, "Elements of Agricultural Chemistry," gives the proportion of butter from 16 quarts of milk at 1½ oz. per quart, or from 16 quarts 24 oz., the produce of four cows of different breeds—Alderney, Devon, and Ayrshire, on pasture and in the height of the summer season. On other four cows of the Ayrshire breed he gives the proportion of butter from 16 quarts as 16 oz., being 1 oz. per quart. These cows were likewise on pasture. The same author states the yield of butter as one-fourth of the weight of cream, or about 9 oz. per quart. Mr. Rawlinson, Journal of the Royal Society, No. 29, Vol. 1, 1852, gives the produce of 20,110 quarts of milk churned by hand as 1109 lbs. of butter, being at the rate of fully 14 oz. per 16 quarts of milk, and from 23,156 quarts of milk 1525 oz. of butter, being from 16 quarts nearly 16¾ oz. of butter. The same author states that the yield of butter derived from five churnings of 15 quarts of cream each, is somewhat less than 8 oz. per quart of cream. Dr. Muspratt, in his work on the "Chemistry of Arts and Manufactures," which is in the course of publication, gives the yield of butter from a cow per year in Holstein and Lunenberg, at 100 lbs., in England at 160 lbs to 180 lbs. The average of butter from a cow in England is stated to be 8 oz. or 9 oz. per day, which on a yield of 8 to 9 quarts is 1 oz. per quart, or for 16 quarts 16 oz. The quantity of butter derived from cream is stated as one-fourth, which is equal to about 9 oz. per quart. The richest cream of which I find any record is that brought to the Royal Society's meeting during the month of July, for the churns which compete for the prize. On referring to the proceedings of several meetings I find that 14 oz. per quart of cream is accounted a good yield. I have frequently tested the yield of butter from a given quantity of my milk; as my dairy produce is partly disposed of in new milk, partly in butter and old milk, it became a matter of business to ascertain by which mode my dairy produce gave the best return. I may here remark that my dairy practice has been throughout on high feeding, though it has undergone several modifications. My mode of ascertaining the average yield of butter from milk is to measure over the milk from churning day to churning day, and compute the relative proportions. The results have varied from 24 to 27¼ oz. from 16 quarts of milk; I therefore assume in my calculation 16 quarts of milk as yielding a roll (25 oz.) of butter. As I have at times a considerable number of cows bought on as strippers, and fattened as they are milked, which remain sometimes in my state eight or nine months, and yield towards the close but 5 quarts per day. I am not enabled to state with accuracy and from ascertained data the average yield per year of my cows kept for dairy purposes solely. However, from what occurs at Grass time when the yield is not increased, and also from the effects of my treatment on cows which I buy on, giving a small quantity, I am fully persuaded that my treatment induces a good yield. I may here observe that I pay great attention to the temperature of my dairy, which I use means of keeping at 52° to 55°, my milk being allowed to stand 36 hours. As the yield of butter from a given quantity of cream is not of such particular consequence, I have not given equal attention to ascertain their relative proportions. I have a recollection of having tested this on a former occasion, when I found 14 to 16 oz. per quart, but cannot call to mind under what treatment this took place. On questioning my dairywoman, in December, 1854, as to the proportion of cream and butter, she reported nearly one roll of 25 oz. of butter to one quart of cream. I looked upon this as a mistake. On its accuracy being persisted in, the next churning was carefully observed, with a like proportion. My dairy cows averaged then a low range of milk as to quantity—about 9 quarts each per day: six of them, in a forward state of fatness, were intended to be dried for finishing off in January; but owing to the scarcity and consequent dearness of calving cows, I kept them on in milk till I could purchase cows to replace them, and it was not till February that I had an opportunity of doing so. I then bought four cows within a few days of calving; they were but in inferior condition, and yielded largely of milk. Towards the close of February and March, four of my own dairy cows, in full condition, likewise calved. During March, three of the six which had continued from December were selected by the butcher as fit for his purpose; the other three were dried at the close of March, and are now on hand in a saleable condition. Each churning throughout was carefully observed, with a similar result, varying but little from 25 oz. of butter per quart of cream—on Monday, April 30, 16 quarts of cream having yielded 26 rolls (of 25 oz. each) of butter. Though I use artificial means of raising the temperature of my dairy, by the application of hot water during cold weather, yet my service-pipes being frozen in February, I was unable to keep up the temperature, and it fell to 45°. Still my cream, though slightly affected, was peculiarly rich, yielding 22 oz. of butter per quart. Throughout April the produce of milk from my 15 dairy cows averaged full 160 quarts per day. My cows are bought in the neighbouring markets with a view to their usefulness and profitableness. The breeds of this district have a considerable admixture of the short-horn, which is not noted for the richness of its milk. It will be remarked that during the time these observations have been continued on the proportion of butter from cream, more than one-half of my cows have been changed. Having thus satisfied myself that the peculiar richness of my cream was due only to the treatment of my cows which I have sought to describe, it occurred to me that I ought not to keep it to myself; it appeared to me that these results of my dairy practice afforded matter of interest for the investigation of those who cultivate science, the physiologist and the chemist. Though my pretensions to acquirements in their instructions are but slender, the results are such as enable me to acknowledge benefit in seeking to

regulate my proceedings by their rules. I was thus led to address the note to Professor Way, whose valuable time I should be careful not to occupy with unworthy matter, suggesting, that if he thought proper, he might bring the subject under the notice of your honorable Council. In taking off the cream I use an ordinary shallow skimmer of tin perforated with holes, through which any milk gathered in skimming escapes. It requires care to clear the cream, and even with this some streakiness is observable on the surface of the skimmed milk. The milk bowls are of glazed brown earthenware, common in this district; they stand on a base of 6 or 8 ins., and expand at the surface to nearly twice that width. Four to five quarts are contained in each bowl, the depth being 4 to 5 inches at the centre. The churn I use is a small wooden one, worked by hand, on what I suppose to be the American principle. I obtained it from Messrs. Dray and Co. I have forwarded to Professor Way a small sample of butter for analysis; 15 quarts of cream were taken out of the cream jar, and churned at three times in equal portions—

The first 5 quarts of cream gave	... 127	oz. of butter
The second 5 " "	... 125	" "
The third 5 " "	... 120½	" "
	372½	

At a subsequent churning of 14 quarts of cream—

The first seven gave 7 rolls or ...	... 175	oz. of butter.
The second seven gave 7 rolls 2 oz., or...	177	oz. "
	352	oz. "

On testing the comparative yield of butter and of butter-milk, I find 70 per cent. of butter to 30 per cent. of butter-milk, reversing the proportions given in the publications to which I have referred. The churnings usually occupy half-an-hour, at a temperature of 52°. Having now, as far as I can recollect, supplied every particular of information, I shall look with interest to the discussion on this subject, which, as I observe from the papers, is likely to take place at your next meeting. Since the foregoing was written I have received from Professor Way another analysis of the butter sent to him; it is found to contain:

Pure fat or oil	82.70
Casein or curd	2.45
Water, with a little salt	14.85
Total	100.00

The only analyses of this material which I find in the publication in my hand are two by Professor Way, in the Journal of the Royal Society, vol. xi. part 11, on butter by the common and by the Devonshire method; the result in 100 parts being—

	Raw.	Scalded.
Pure butter	79.72 ...	79.12
Casein, &c.	3.38 ...	3.37
Water	16.90 ...	17.51
Total	100.00 ...	100.00

—*Thomas Horsfall.*

On the motion of the Hon. A. Leslie Melville, seconded by Mr. Hoskyns, the thanks of the Council were voted to Mr. Horsfall for the favour of this communication. Mr. Woodward and Mr. Gadesden fully confirmed, by their own experience, the value of Mr. Horsfall's system of dairy management.—Prof. Way referred to the chemical principles connected with the assimilation of food of different character given to milch cows. Mr. Scott furnished valuable evidence of the improvements effected by him in reference to dairy management in Ireland; and his intention to draw up a statement of the details for the information of the Council. The Rev. Mr. Black, of Otley, favoured the Council with his attendance, and on the part of Mr. Horsfall offered explanations on such points of the communication then read to the Council as the members required.

Reviews.

Small Farms, and how they Ought to be Managed. By Martin Doyle. G. Routledge & Co., Farringdon Street.

This little book contains chapters on farm offices, implements, and enclosures, all of which may be classed together; on the management of the soil, under the headings draining, subsoiling, rotation, paring and burning, and manures; on the culture of crops and management of live stock, and it concludes with a calendar of operations. It is instructive and generally trustworthy, besides being well packed and arranged—and the whole is just such a book of rules and instructions as we are being continually asked for.

Calendar of Operations.

MAY.

Northumberland Farm, *May* 9.—During the month of April, and indeed until yesterday, the weather has been exceedingly dry and cold, the ice in the mornings being frequently a quarter of an inch thick. Yesterday we had a considerable fall of rain, which, though cold, has refreshed us greatly. The long storm threw labour a full month back, and the continuance of cold weather since the snow left has prevented vegetation making up its lee-way. There was little sowing till the last week of March, when from the long frost land ploughed previous to its commencement required very little of the harrow. Spring corn was never, we believe, got into the ground in better order, and had the weather been genial would soon have made up for lost time, but there is now every appearance of a late harvest. The dry weather has favoured the clearing of fallows, where farmers have been able to overtake their work so far as to get at them. Potato planting is now pretty generally got through. Turnips are mostly consumed, and sheep and grazing cattle are turned on Grass. Stock markets are rather heavy from the quantity of cattle and sheep, especially the former, coming out at this time; but corn markets keep brisk. *Tynemouth.*

Notices to Correspondents.

Ayrshire Cows: *W P P.* We have received your own and several other announcements of cattle for sale. We must, however, refer them for publication to the advertising columns of the Paper.

Mangold Wurzel: *Brixton.* Turn the heap over, and break the growths off the bulbs; they will soon become worthless if suffered to grow. The sooner they are consumed now the better.

Non-Phosphated Carbon, or Blood Manure: *J H.* The two companies are distinct. The one referred to the other week has been advertising in our columns.

Sea Farm: *P Q C.* We shall endeavour to overtake arrears on this subject in a week or two.

Swedish Turnips: Sow from the middle of May in the north of England and Scotland, and from the first of June in England.

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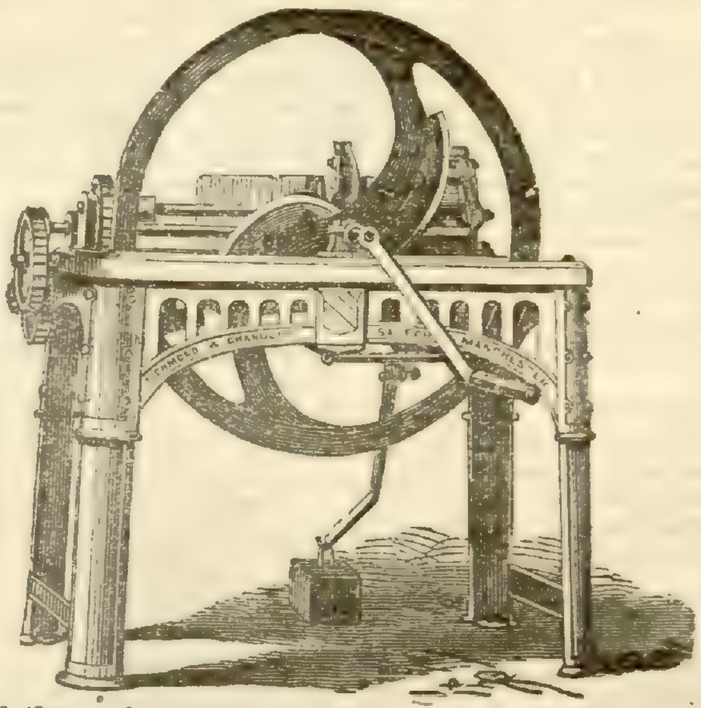

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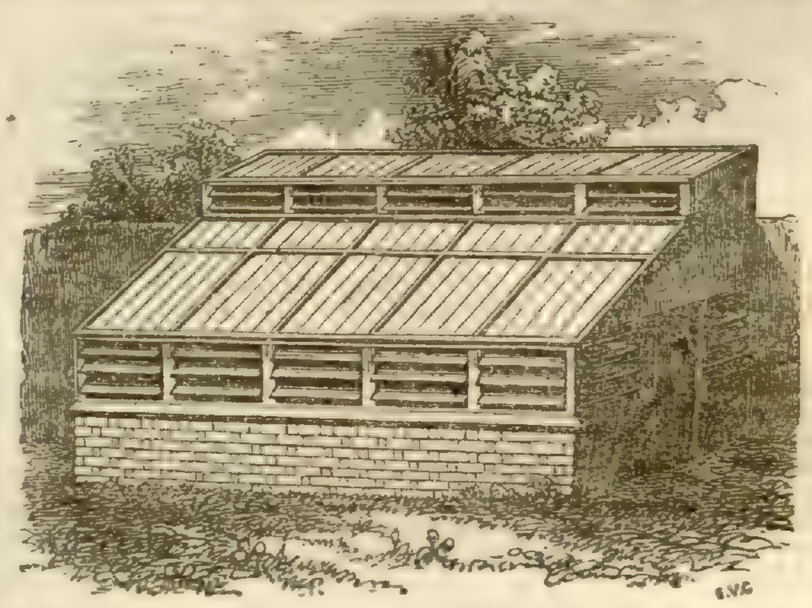

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These Ventilators have been applied to many other Greenhouses, Conservatories, &c., but they are not published, in order to avoid giving unnecessary trouble. Fifty-four of these Ventilators, 5 ft. square (34 on the roof at an angle of 60 degrees), have been fitted at Her Majesty's Saltpetre Works, Waltham Abbey; the success of which has been proved by the fact, that the saltpetre is crystalised in little more than half the time, previously to the light and ventilation obtained by the adoption of these Ventilators.

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1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Sons, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ "	long 3 " 3 "		1	15	0
3 "	ditto 3 " 6 "		2	12	0
3½ "	ditto 3 " 6 "		2	18	0
4 "	ditto 3 " 6 "		3	5	0
2½ "	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto ditto	ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.

GALVANISED IRON TUB GARDEN ENGINE,

With Warner's Registered Spreader,

is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 8*d.* per lb.

JOHN WARNER AND SONS, 8, Jewin Crescent, London, Manufacturers of FIRE ENGINES, PUMPS GARDEN ENGINES, and SYRINGES.

Brass Syringes, 9*s.* to 18*s.*

All articles of John Warner & Sons' manufacture may be obtained of any Ironmonger or Plumber in town or country, at the advertised prices.

John Warner & Sons having been practical Horticulturists for many years, know exactly the requirements of both Amateurs and Gardeners. A gardener with a properly constructed pump will get through as much work in five minutes as he could with any Syringe in a quarter of an hour, and with half the labour to himself. Syringes are economical for small houses.

No establishment offers such a variety of effective machines for hydraulic purposes, whether to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of liquids.

Fountains suitable for Conservatories, Lawns, &c.

Sheets of Engravings sent on application.

STEPHENSON AND PEILL, 61, Gracechurch Street, London, and 17, New Park Street, Southwark, Manufacturers of Copper Cylindrical and Improved Conical Iron BOILERS, and Conservatory and Hothouse Builders, either in Wood or Iron, respectfully call the attention of the Nobility, Gentry, and Nurserymen to their simple but efficacious method of warming Horticultural and other Buildings by Hot Water.

From the extensive works they have executed, references of the highest respectability can be given, and full particulars furnished on application.

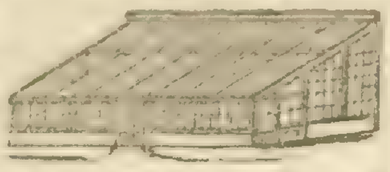
SPOONER'S PATENT WATER AND MANURE DRILL.—Manufacturers: Tasker & Fowle, Andover, Hants; and Garrett & Sons, Saxmundham, Suffolk, to whom orders may be sent; or to the Inventor and Patentee, W. C. Spooner, Eling, Southampton.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

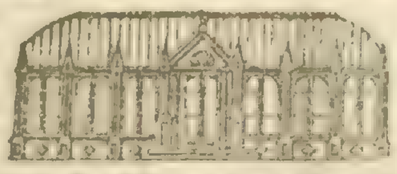
HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings, also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to John Weeks & Co., King's Road, Chelsea, London.

COTTAM AND HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.

Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

Hand Glass Frames, Cast and Wrought Iron Flower Stakes, Garden Arches, &c.

Strong Iron Hurdles, and best Wire for Strained Wire Fencing.

Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom.

Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

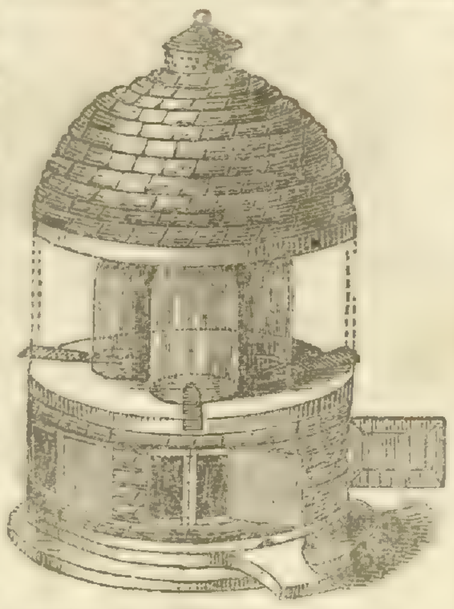
Kensal Green, Harrow Road, London.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

BEE HIVES.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by George Neighbour & Sons, with all the recent improvements, glasses, thermometer, &c., price 35*s.*, securely packed for the country.

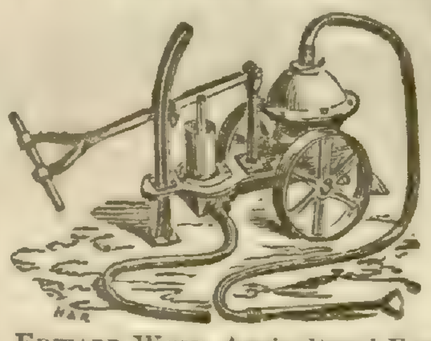


This unique hive has met with universal commendation, and may be worked with safety, humanity, and profit, by the most timid; its arrangements are so perfect, that the honey may be taken at any time of the gathering season without at all injuring the bees.

Early applications, addressed to Geo. Neighbour & Sons, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention. Their newly arranged Catalogue of other improved Beehives, with Drawings and Prices, sent on receipt of two stamps.

Agents:—Manchester, Hall & Wilson, 50, King Street; Liverpool, James Cuthbert, 12, Clayton Square; Chester, F. & A. Dickson & Sons, 106, Eastgate Street; Glasgow, Austen & M'Aslan, 186, Trongate Street; Dublin, J. Edmundson & Co., 61, Dame Street.

WEIR'S IRRIGATORS, LIQUID MANURE PUMPS, FIRE AND GARDEN ENGINES.



	£	s.	d.
Single Cylinder (as engraving) ...	8	8	0
Double Cylinder ...	10	10	0
Horse power size ...	16	16	0

Exclusive of Suction and Delivery Pipes.

Illustrated Catalogues free, per post.

Terms Cash on Delivery.

Edward Weir, Agricultural Engineer, 16, Bath Place, New Road, London, removed from Oxford Street.

WATER YOUR GARDENS WITH THE PATENT FLEXIBLE GUTTA PERCHA TUBING, from 4*d.* per foot. Roses, from 4*s.*

Union Joints, from 1*s.* 6*d.* each, fitted complete.

Instructions given to affix joints to Taps.

Post Office Orders payable at City Road Branch.

JAMES W. WATTS, Factory, 27, City Road, London.

GARDEN ENGINES, SYRINGES, &c.—CAUTION.—The well-known reputation of READ'S Engines, Machines, and Syringes, has led to the nefarious practice of placing Cards in Shop Windows, with the words "Read's Patent" over Syringes of the VERY COMMONEST DESCRIPTION. R. Read begs to Caution the Public against being deceived by such false representations, as many of these Instruments, upon trial, will be found defective and useless.—READ'S Instruments have the Royal Arms and address,

35, Regent Circus, London.

WEIR'S CANVAS HOSE PIPING, for Liquid Manure or Water, protected from rot.

1	1¼	1½	1¾	2	2½	2½	2¾	3 inches diameter.
4*d.*	4½*d.*	5*d.*	6*d.*	7*d.*	7½*d.*	8*d.*	9*d.*	10*d.* per foot.

Illustrated Catalogues and samples free per post. Terms, cash on delivery.—Edward Weir, Agricultural Engineer, 16, Bath Place, New Road (six doors west of the Hampstead Road, London.

FOR WATERING GARDENS.

HANCOCK'S IMPROVED VULCANISED INDIA-RUBBER HOSE AND TUBING is now manufactured especially for the above purpose; is of greater flexibility than any other description of Hose; is capable of resisting great pressure, and made suitable for attaching to the mains of water-works, or to tanks of high elevations.

WATERING HOSE fitted up with the necessary *brass joints, stop-cocks, branches,* and *spreaders complete.*

VULCANISED INDIA-RUBBER SUCTION PIPES, made any length or size for Pumps or Garden Engines.

VULCANISED RUBBER WASHERS, and also in Sheet, any thickness, for all kinds of steam and water joints, or made any size or figure to order.

All communications and orders punctually attended to, addressed to the Manufactory, Jas. Lyne Hancock, Goswell Road, London.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons, throws 30 feet high					...	£4 10
No. 2	„ 15	„	„ 45	„	...	5 10
No. 3	„ 28	„	„ 45	„	...	6 18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons, throws 25 feet high					...	£2 15
No. 13	„ 12	„	„ 30	„	...	3 5
No. 11	„ 16	„	„ 40	„	...	4 0
No. 12	„ 24	„	„ 45	„	...	5 0
No. 14	„ 30	„	„ 45	„	...	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅛ inch, 10*s.* 6*d.*

Read's Syringe, with two roses and one jet, 19*s.*

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London.

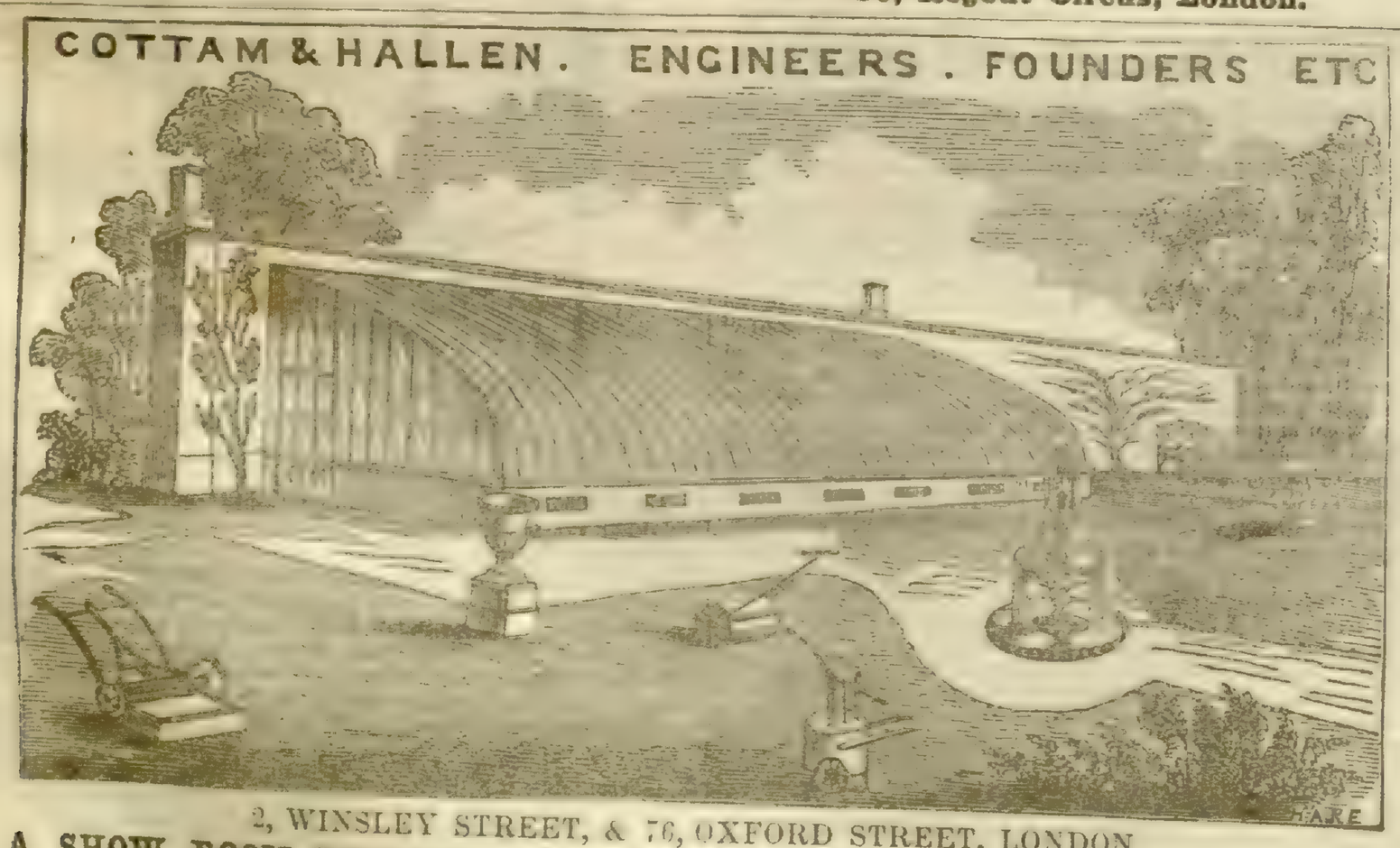
J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expenses of delivery in the country.



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 12*s.* per ton, 1*s.* 6*d.* per bushel, or 16*s.* per ton, delivered to any of the London Wharves or Railways, or within a circuit of five miles. Peat and Loam of various qualities. Sacks 2*s.* each.

KENNARD BROTHERS, Swan Place, Old Kent Road.

SCYTHES.

BOYD'S PATENT SELF-ADJUSTING SCYTHES may be had of the Manufacturers, WILLIAM DRAY & Co., Swan Lane, London: and of all Ironmongers and Seedsmen. A liberal allowance to the trade.

INGLIS AND CHISHOLM, Charles Street, Garratt, Manchester, make STEAM ENGINES for Agricultural and other purposes of the best quality at a reasonable price.—Address INGLIS & CHISHOLM, Charles Street, Garratt, Manchester.

DO YOU BRUISE YOUR OATS YET?—One bushel of Oats when Crushed will make two. Great saving. OAT BRUISERS, Chaff-cutters, Ploughs, Threshing Machines, Flour Mill Carts, Corn Dressing do., Horse and Steam Machinery put up, &c. Book on Feeding, 1*s.*

M. WEDLAKE, 118, Fenchurch Street, London.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective: they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

SAMUELSON'S REGISTERED LAWN MOWING MACHINES. To cut 16, 19, 22, and 25 inches wide. The Registered Improvement renders unnecessary the great care requisite in the handling of these Machines on the old plan. All that is now required can be done *by any unskilled labourer*, who has only to push the Machine before him, the Registered Adjustment insuring a clean cut of uniform height, and preventing the knives from cutting into the soil, however uneven the ground may be. Illustrated Price Lists, with copies of Testimonials, and a Catalogue of his other Agricultural Implements, may be procured, post-paid, on application to the Manufacturer,

B. SAMUELSON, Britannia Works, Banbury, Oxon.

The above may also be procured at the principal Agricultural Implement Depôts in London, and of all respectable Ironmongers and Seedsmen in the country.

GLAZING WITH OR WITHOUT PUTTY.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road Chelsea.—Printed Price Lists supplied on application.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,
87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in.	by	4 in.	and	6 in.	by	4½ in.	...	...	12*s.* 0*d.*
6½	"	4½	"	7	"	5	...	...	12 6
7½	"	5½	"	8	"	6	...	...	13 0
8½	"	6½	"	9	"	7	...	...	13 6
9½	"	7½	"	10	"	8	...	...	13 6
10½	"	8½	"	11	"	9	...	...	14 0
12	"	9	"	13	"	9	...	...	14 0
10	"	10	"	10½	"	10½	...	...	14 0
11	"	10	"	11½	"	10½	...	...	14 0
11	"	11	"	11½	"	11½	...	...	14 0
12	"	11	"	12½	"	11½	...	...	14 0
13	"	11	"	13½	"	11½	...	...	14 0
13	"	12	"	13½	"	12½	...	...	16 0
13½	"	13½	"	14½	"	13½	...	...	16 0
15½	"	13½	...	...	...	...	...	...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.
In Boxes of 100 feet.

6 by 4, and 6½ by 4½			...	...	...	...	...	£0	12*s.* 0*d.*
7 " 5, " 7½ " 5½			...	...	...	...	...	0	14 0
8 " 6, " 8½ " 6½			...	...	...	...	...	0	14 0
9 " 7, " 9½ " 7½, 10 by 6			...	...	...	...	...	0	16 0
10 " 7, 10 by 8			...	...	...	...	...	0	16 0

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, 21s. per 100 feet. If cut to order not exceeding 40 inches long.
16 oz. from 2½*d.* to 3½*d.* | 21 oz. from 3½*d.* to 4½*d.*
26 oz. from 5½*d.* to 7½*d.*

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or boxes of 300 feet, 2½*d.* per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY we supply to Mr. RIVERS, and of various dimensions, always in hand.

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

⅛ of an inch thick	...	...	...	£1 17*s.* 6*d.*	per case of	50
¼ "	...	...	...	2 1 3	"	60
½ "	...	...	...	1 17 6	"	60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

IMPROVED MOWING AND ROLLING MACHINE.

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, Inventors and Sole Manufacturers, respectfully solicit the attention of the Nobility, Gentry, and Gardeners to this Improved Machine for Mowing and Rolling Lawns. The Machine is in operation in the Royal Gardens at Windsor Palace, Buckingham Palace, and at Osborne, in the Botanical Gardens at Kew, Regent's Park, Manchester, Sheffield, &c.; at Blenheim Palace, Trentham, Cleveden, Elvaston, Broadlands, Woburn Abbey, Clumber, Lilleshall, Castle Howard, Shrubland, Eridge Castle, Enville Hall, Tiptree Hall, Chatsworth, and in many other of the principal gardens in the kingdom as well as in the United States, British America, and on the Continent, where its merits have been fully proved, and its success established.

The machine is made to cut the breadth of 42, 30, 20, and 15 inches respectively, is exceedingly durable, easily managed, and adjusted to cut to the length required. The execution of the work is far superior to what may be attained by the most skilful mower, while at the same time a great saving of labour is effected, and the turf much improved. By the largest machine a Scotch acre may be mowed, rolled, and the Grass collected in one hour.

A. S. and SON have much pleasure in stating that they have made considerable improvements in their 15-inch or hand machine this year, by which the draught is considerably lessened. This machine combines all the merits and advantages of the larger machines with firm and secure construction, and is admirably adapted for borders and for lawns of no great extent.

ALEXANDER SHANKS and SON also respectfully solicit notice to "Fleming's Weeding or Salting Machine" for destroying weeds in gravel walks, court-yards, drives, &c. This machine is now in operation in many parts of England, where it has given ample satisfaction as the best and most economical means of thoroughly keeping down weeds or Moss

Further particulars with testimonials and prices, may be had on application.

LINCOLN CEMETERY.

To ARCHITECTS, SURVEYORS, LANDSCAPE GARDENERS, & OTHERS.

THE BURIAL BOARD offer the following PREMIUMS, namely:—For the best Set of Plans for an Episcopal Chapel and a Dissenters' Chapel, in separate and distinct buildings; a Lodge, with a waiting-room attached; a House for the Reception of the Dead; and Boundary Fences; accompanied by Estimates, 10*l.* For the Second best do., 5*l.*

For the best Plan and Estimate for Laying Out and Ornamenting the Ground, 10*l.* For the second best do., 5*l.*

At a Monthly Meeting of the Burial Board, held the 8th day of May, instant, it was ordered—That the Costs of the Chapels are not to exceed 500*l.* each; and that the Costs of the Lodge and other Buildings be left to the discretion of the Architects, having due regard to economy.

A Lithographed Plan of the Site may be had on application at our Office on and after the 14th inst.

For General Instructions and Conditions, see previous Advertisement in *The Builder* of the 5th of May inst.

WM. ANDREW, THURSTON G. DALE, } Clerks to the Burial Board.
Lincoln, May 12.

TULIPS.

TO BE SOLD, a well selected bed, of 60 rows, from the collections of Messrs. Goldham, Sanders, Delaforce, and most growers of celebrity, comprising many first class and new varieties; also the stage complete, cabinet for 168 rows, &c., the property of Mr. Clark, 1, Alpha Place, Coburg Road, Old Kent Road, who is giving up the cultivation on account of ill health.—May be viewed on the 23d, 24th, and 25th May. The stock being too limited to admit of sale by Auction, Mr. C. would treat with any purchaser for all or part.

TO FLORISTS AND GARDENERS.

TO BE SOLD, a great bargain, by valuation or private treaty, a first-class stock of Geraniums, Fuchsias, Roses, Verbenas, Dahlias, Calceolarias, Mimulas, Chrysanthemums, Hollyhocks, Carnations, Picotees, Pinks, Phloxes, and a general good assortment of Plants for any one in the trade; consisting of a very large Greenhouse 150 feet long, Forcing and Propagating Houses, Cold Pits, and Box Lights, with all sorts of Tools for use; likewise three large Water Tanks, and a good supply of Water; Ground well laid-out; and also a good lot of Fruit Trees in full bearing.

N.B. Situated in Surrey, about nine miles from London, adjoining a railway station, and within half a mile of a good market town; a good Dwelling House upon the premises, can be taken by year or lease.

Dahlias from 4*s.* to 9*s.* per doz; good sorts and strong plants.
Fuchsia " 6*s.* to 12*s.* " " "
Verbenas " 4*s.* to 6*s.* " all the best sorts.

Pinks, Picotees, and Carnations, all named, equally cheap. A good assortment of Bedding Plants cheap.—Apply to Mr. HOOK, 21, Brudinell Place, New North Road, Hoxton.

TO AGRICULTURISTS.

TO BE DISPOSED OF, with immediate possession, the interest in a very useful TURNIP and CORN LAND FARM, of about 330 Acres, well situated in the county of Essex, held on lease, 12 years unexpired. To an approved tenant, accommodation as to payment for valuation, stock, &c., would be given if required.—Apply to Mr. PARTRIDGE, Land Agent, Great Braxted Hall, Witham, Essex.

TO BE LET or SOLD, extensive and commodious Premises, exceedingly well situated at Kilburn Gate, London, surrounded by a fashionable and increasing neighbourhood. The premises, which were erected especially to suit the above trades, include a good DWELLING HOUSE, Greenhouses, Forcing-houses, Grounds, and every convenience for carrying on a large business.—For particulars apply to Messrs. FREND & HAMILL, 44, Bedford Row, London.

COUNTY OF KILDARE.—VALUABLE ESTATE.

TO BE SOLD, the HOUSE, DEMESNE, and LANDS of NEWBERRY, in the Parish of Carberry, and County of Kildare, consisting of 580 statute acres, held in fee farm. The House is large and commodious, with attached and detached Offices, Water laid all over the House, an excellent Walled Garden, and handsome Shrubberies and Plantations. The Lands have been thorough drained, are of prime quality, all under Grass, and in high condition, having been for the last 23 years, as they are at present, in the occupation of the proprietor. The fields are well watered, fenced, and sheltered with good hedges and valuable hedge-row Timber; also some fine old ornamental Timber, and a handsome piece of water in front of the house, with a Mill and Miller's House, and good water power, on the public road side. Upon these Lands there is an abundant supply of the best shell marl, limestone, sand, and gravel. Newberry Hall is 24 miles from Dublin, 3 miles from the large Market Town of Edenderry, 4 from the Enfield Station of the Great Midland Railway, 10 from the Curragh, and 2 from the Ticknevin Station on the Grand Canal. The Kildare Hounds hunt the county within 4 miles. The Church, Post Office, Dispensary, and Court House are in the Village of Carberry, immediately adjoining the Demesne, and the Roman Catholic Chapel about a statute mile distance. A purchaser can obtain immediate possession of the entire.—For further particulars, and order to view, apply to Messrs. H. WALLACE & Co., Solicitors, 30, North Great George's Street, Dublin; Victoria Street, Belfast; or Downpatrick.

FOWLS, PIGEONS, RABBITS, PARROTS, SINGING BIRDS, and FOREIGN SEED BIRDS of every description, sold or exchanged for any sort of live stock. Gold and silver-laced Bantams, White-faced Spanish, Brahmas, Black, White, and Buff Cochins, Polands, Dorking, Ptarmigan, Silk Fowl, &c. All sorts of Eggs, warranted to produce Chickens. The Spanish are white over the eye up to the comb, and the Dorkings have taken 12 first prizes last year. Almond Tumblers, Pouters, Carriers, Dragons, Antwerps, Owls, Nuns, Trumpeters, Balds, Beards, Tumblers, Fantails, and every other sort of Pigeon. Wanted, common Blue Pigeons, for shooting. Gold Spangled Hamburgs' Eggs, first prize at Birmingham.—Apply to W. WOODHOUSE, Poultry Salesman, 15, Mansfield Street, Kingsland Road, London.

EGGS FOR SETTING may be had from the Yard of Mr. H. D. DAVIES, whose stock has been carefully bred and selected from all the best strains, and has already taken upwards of 250 Prizes. Spanish, Dorking, Brahma, and Rangoon Eggs, 2*l.* 2*s.*, and White Cochin and Aylesbury Ducks, 1*l.* 11*s.* 6*d.* the dozen, to include basket, &c. Spanish and Dorking Fowls of all ages may be selected from that portion of the stock not required for breeding or exhibition this season. For Cock and 1 Pullet, 5*l.* 5*s.*; Cock and 2 Pullets, 7*l.* 7*s.*; Cock and 4 Pullets, 10*l.* 10*s.*—Remittances, by Post-office Order, payable to GEORGE KEEBLE, the Bailiff, Spring Grove House, Hounslow, to accompany all orders.—Mr. DAVIES will feel obliged if persons who wish to see the Poultry will make it convenient to do so between the hours of 10 and 4 on any Wednesday or Saturday.

Sales by Auction.

FANCY POULTRY.—PERIODICAL SALE.

MR. J. C. STEVENS will sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 15th May, at 12 o'clock precisely, a selection of Choice Poultry from the yards of several breeders of First Class Stock, including Spanish, Dorkings, Brahmas, Cochins, Hamburghs, Polands, &c.; Pigeons; an Incubator.—Catalogues by inclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

ORCHIDS FROM THE BRAZILS.

AN IMPORTATION OF MAGNIFICENT CATTLEYAS.

MR. J. C. STEVENS will sell by Auction, at his Great Room, 38, King Street, Covent Garden, on MONDAY, 14th May, at 1 o'clock precisely, AN IMPORTATION OF ORCHIDS FROM THE BRAZILS, chiefly Cattleyas, in large healthy masses of the following choice varieties:—Leopoldi, crispa superba violacea, lobata, guttata, candida, intermedia and Pinelli. Also several plants of Brassavola fragrans; a supposed new Coryanthes, and a few other sorts.—May be viewed on the morning of sale, and Catalogues had.

TO GENTLEMEN, NURSERYMEN, FLORISTS, & OTHERS.

MR. ALEXANDER will sell by Auction on the premises, Bromley Palace (nearly opposite Bromley Church), Middlesex, at 1 o'clock precisely, on TUESDAY, May 15, 8000 BEDDING and GREENHOUSE PLANTS, comprising Dahlias, Pelargoniums, Verbenas, Fuchsias, Calceolarias, &c., by order of Mr. R. Thorman. May be viewed the day prior to sale. Catalogues may be had on the Premises, and also of the Auctioneer, Shacklewell, Middlesex.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will sell by Auction, at the Mart, Bartholomew Lane, on TUESDAY, May 15th, and THURSDAY, May 17th, at 12 o'clock, a first-rate collection of Dahlias, Verbenas, Fuchsias, Climbing and other Roses, fine Calceolarias, Geraniums, and other Plants in bloom; Carnations and Picotees, with a large assortment of Plants for Bedding.—May be viewed the morning of sale. Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

MILE-END NURSERY, BOW.

To GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed to Sell by Auction, on the Premises, Mile-End Nursery, Bow Road, Middlesex, on MONDAY and TUESDAY, May 21st and 22d, at 12 o'clock, about 12,000 BEDDING and other GREENHOUSE PLANTS, consisting of fine Show and Scarlet Geraniums, Genista, Cactus, Hydrangea, Calla, Verbenas, Fuchsias, Heliotropium, Salvia, Calceolarias sorts, Petunias, Mimulus, Nierembergia, Lobelia, Erinus, Phlox Drummondi, Cuphea, Ageratum, and Gallardia; Dahlias, Chrysanthemums, Intermediate Stocks, Maurandya, Tropæolum, Cobæa, Lophospermum, Ecremocarpus, &c. May be viewed three days previous to the Sale.—Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TULIPS IN BLOOM.

MESSRS. PROTHEROE AND MORRIS will sell by Auction, without the least reserve, on MONDAY, May 28, at 1 o'clock precisely, the ENTIRE COLLECTION of TULIPS in BLOOM of Mr. John Edwards, and now growing at the Paradise Nursery, Hornsey, and Seven Sisters Road, Holloway, Middlesex, where by the kind permission of Mr. Robert Parker, they may from time to time be seen. The bed is 200 rows in length, and contains over 2000 full sized first class Blooming Bulbs, including most of the show flowers extant, all of the finest strain, and collected during the last 12 years at a cost exceeding 1000 guineas.

Catalogues may be had for two postage stamps of Mr. R. Parker, as above; of Mr. Turner, Royal Nursery, Slough; Mr. J. Keynes, Salisbury; Mr. Wood, the Coppice, Nottingham; Mr. E. S. Dodwell, Derby; Mr. Lightbody, Falkirk, N.B.; Mr. Slater, Cheetham Hill, Manchester; at the Office of this Paper; and of the Auctioneers, American Nursery, Leytonstone, Essex.

MITCHAM.—TO TULIP FANCIERS.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Goldham to submit to public competition by auction, without reserve, on the premises, Hynder Cottage, Merton Lane, Mitcham, Surrey, on SATURDAY, May 26, at 1 o'clock, a portion of his costly and unrivalled Collection of TULIPS. No comment on this magnificent stock will be equal to an inspection of its striking beauties, for which an opportunity is now offered to the amateur florist, &c. New Flowers and Seedlings of Mr. Goldham's raising—the result of more than 30 years' successful cultivation and competition; among these are—Fanny Kemble, John Kemble, Charles Kemble, Julius Cæsar, Napoleon, Fortunatus, Gem, Duchess of Sutherland, Standard, Lord Byron, Marshal Soult, Marshal Blucher, Emma, Calphurnia, Oliver Goldsmith, Othello, Comet, Biz. Mark Antony, Sir R. Peel, Helen, Lord Nelson, Picturata, Unique, Byb. Belvidera, Juliet, Marquis of Anglesea, Unique Rose, and Mount Hecla. Among Flowers raised by other growers are—Pandora, Thalia, Musidora, Matilda (new), Lord J. Russell, Apelles, Duke of Devonshire, Mrs. Siddons, Feu devorent, Stein's Victoria, Strong's Eliza, St. Neots, Fanny Ellsler, Parmeziano, General Bournonville, Louis XVI., Polydora, Wallace, Rutley's Queen, Duchess of Manchester, Commodora, Lord Collingwood, &c.—May be viewed two days prior to the Sale; Catalogues had on the premises; of the principal Seedsmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

THE FORWARDEST TURNIP KNOWN.

SUTTON'S EARLY SIX WEEKS' TURNIP should now be sown for feeding off early. Excellent new seed 1*s.* 2*d.* per lb., 6*s.* per gallon, or 42*s.* per bushel. Mr T. Hickman, of Brimpton House, near Newbury, in a letter dated February 1, says:—

"I must mention the Six Weeks' Turnip as the best sort I have ever seen for earliest and latest sowings. I have grown them several years, and have invariably found them to produce more seed in less time than any other Turnip. I have had them after Wheat of a good size, within six weeks from the time of sowing."

N.B. Carriage free, except parcels under 20*s.* value.

Address, J. SUTTON & SONS, Seed Growers, Reading, Berks.

SKIRVING'S IMPROVED TURNIP SEEDS.

W. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his TURNIP SEEDS for the season, as follows:—

SKIRVING'S IMPROVED SWEDE TURNIP, at 1*s.* 9*d.* per lb.

" IMPROVED PURPLE-TOP YELLOW BULLOCK TURNIP, at 1*s.* 8*d.* per lb.

All other kinds of Turnip and Agricultural seeds in general, of the most select description, at moderate prices. A remittance, or reference from unknown correspondents, is respectfully requested to accompany orders. W. S. has no agent in town or country.

Liverpool, May, 1855.

TURNIP SEED AND MANGOLD WURZEL.

MESSRS. J. AND G. SWAILES, NURSERYMEN, SEED GROWERS, &c., offer SWEDE and WHITE TURNIP MANGOLD WURZEL, &c., of the finest selected transplanted stocks grown last season by themselves. Priced Catalogue on application. We have a few sacks of Skirving's improved Purple-top Swede to offer to the trade, grown as above.

Beverley, Yorkshire, May 12.

OLD ESTABLISHED NURSERY AND SEED BUSINESS, SLEAFORD.

CHARLES SHARPE AND CO., NURSERYMEN and SEEDSMEN, Sleaford, beg leave to thank their friends and patrons for the support they still continue to receive in the above business, and to assure them that no effort shall be wanting on their part to merit a continuance of the favours which have been for many years past so liberally bestowed upon them.

C. S. & Co. are now supplying to the trade the following AGRICULTURAL SEEDS, of their own growth:—

MANGOLD WURZEL.—Yellow Globe. Long Red. Long Yellow.
CARROT.—Long Field Altringham. White Belgian.
TURNIP.—Skirving's Improved Swede. Improved Purple-topped.
TURNIP.—Globe, White. Globe, Red. Globe, Green. Tankard, Red. Tankard, White. Tankard, Yellow. Green-topped Yellow Aberdeen. Orange Jelly.
RAPE SEED.

Prices may be had on application.

C. S. & Co. take the present opportunity of informing their friends that they have no connection whatever with Mr. JOHN SHARPE, late of Sleaford, but now of Bardney, Seedgrower and Merchant.—Sleaford, May.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their Mixtures of Grass Seeds are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s.* per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre.
Mixtures for improving and renovating old Grass Land, 1*s.* per lb.
Mixtures (finest sorts) for forming Lawns... ... 1*s.* 3*d.* per lb.

These Seeds are all new, and have all been properly cleaned and their growing properties fully tested. Directions for sowing accompany the seed.

G. G. and Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., SEEDSMEN,
26, Down Street, Piccadilly, London.

AGRICULTURAL SEEDS.

JOHN SHARPE (late of Sleaford), SEED GROWER and MERCHANT, Bardney, is now sending out, of the purest and best selected stocks, Permanent Grass Mixture, 20*s.* per acre; Upland Sheep Walk, 20*s.* per acre; Field or Lawn Mixtures, 9*d.* per lb., Improving Mixtures for old Swards.

CLOVERS. Red, English, Dutch, German, French, 6*s.* to 8*s.* per stone; White, 8*s.* to 10*s.* per stone; Italian Rye-grass, fine, imported, 6*s.* to 7*s.* per bushel; Perennial Rye-grass, 25*s.* to 35*s.* per quarter; Mangold Wurzel, 8*d.* per lb., or 7*s.* per stone.

TURNIPS.—Skirving's and Purple-top Swedes, transplanted, and of the purest characters, 1*s.* 3*d.* per lb., or 60*s.* per bushel of 50 lbs.; White Globe or Round, 8*d.* per lb., or 30*s.* per bushel of 50 lbs.; Green Globe or Barrel, 8*d.* per lb.; White and Red Tankards, Lincolnshire Red Globe or Round, Early Sixweeks, Yellow Aberdeen, Orange Jelly, and other yellow-fleshed kinds.

Rape Seed or Cabbage Cole, 3*s.* 6*d.* per peck, or 12*s.* per bushel.

White Mustard, Spring Tares, &c.

For quantities, Purchasers treated with liberally.

Attendance at Sleaford, Market Rasen, Boston, Louth, Lincoln, and Horncastle, on market days.

Bardney Hall, near Lincoln, May, 1855.

GEORGE ROGERS' NEW SEEDLING CINERARIAS.—Strong plants in bloom now ready to send out, Carriage Paid to London, Liverpool, Manchester, and various smaller stations, when the order contains a remittance.

ALMA.—Pure white, distinctly edged, dark crimson purple disc, dark purple petals, of great substance, very broad and round at the ends, gives the edging a perfect circle; form and size extra, habit and growth all to be desired, very dwarf, not more than 1 foot high, bearing a broad compact head of bloom. One of the finest ever offered. Price 10*s.* 6*d.* each.

EUPATORIA.—Bright Gentiana blue, black disc, around which is a light rosy shade, the petals broad and quite round at the ends, large size, and fine form; a dwarf grower, bearing a broad head of bloom. The blue, &c., of this is most unlike anything before offered. Price 7*s.* 6*d.*

INKERMANN.—Shaded rosy crimson, with a novel bright buff disc, dwarf grower, with compact head of bloom. This is not so good in form, but is offered for its novel and distinct colour, which is conspicuous in a collection. Price 5*s.*

The above have gained the favourable opinion of Mr. Glenny (the only party submitted to), more particularly Alma, which gained a high encomium. G. R. begs to say the cause of their not being offered before was to bloom them a second season, which they are now doing, superior to the first, from which he has the greatest confidence in their merits. The above with nine fine named varieties for 30*s.*

PHLOX ABDUL MEDSCHID KHAN.—Pure white, pink eye, quite hardy, one of the best plants for a white bed, blooming from July to November. Price 9*s.* per dozen.

Fine Collections of Dahlias, Verbenas, Fuchsias, Geraniums.

The above may be had by applying to Messrs. HURST & Co., Seedsmen, &c., 6, Leadenhall Street, London. Catalogues ready.

G. ROGERS, Seedsman & Florist, Uttoxeter.

DAHLIAS.

J. KEYNES is now sending out his New DAHLIAS for this season, and solicits the orders of his friends. Fine Plants may also be had of those splendid Dahlias sent out by him last season, at reasonable prices. Catalogues sent on application.—Castle Street Nursery, Salisbury.

SUPERB SHOW PANSIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, will supply the following set of 20 extra fine varieties, in strong, well rooted, autumn struck Plants, at 10*s.* the set, hamper, package, &c., included.

Argo (Paton & Small)	Lady Carrington (Hunt)
Adela (Turner)	Lord Jeffrey (Lightbody)
Alfred the Great (Turner)	Mesmerist (Veitch)
Boadicea (Fellowes) [ton)	Miss Talbot (Dickson & Co.)
Countess of Strathmore (Hamp-	Pandora (Hunt)
Commander-in-Chief (Hooper)	Rising Sun (Turner)
Father Gavazzi (Holland)	Sultan (Hooper)
Fearless (Schofield)	Sir J. Paxton (Betteredge)
Great Western (Hooper)	Thisbe (Hooper)
Lady Emily (Downie & Laird)	Victory (Schofield)

Older varieties, such as Fair Flora, France Cycole, Queen of England, Duke of Perth, Rubens, Caroline, Ophir, Blue Perfection, Euphemia, &c. &c., 4*s.* per dozen, strong plants.

A few packets of very select Pansy Seed at 1*s.* and 2*s.* per packet. Priced and descriptive Catalogues now ready, and will be forwarded on application. Post-office orders payable at Middleton, Lancashire.

TWO VERY USEFUL NEW DWARF NASTURTIUMS.

JOHN CATTELL has much pleasure in bringing into notice these two very showy hardy ANNUALS, viz.:—

NASTURTIUM DWARF CRIMSON.—The colour of the common dark crimson.

Ditto DWARF SCARLET.—The colour very rich orange scarlet, with a fiery shade on the upper part of the throat.

They are both of the dwarf compact habit of minimus, and admirably adapted for forming large buds, particularly in any poor soils; the flowers are the size of the common Nasturtium, and thrown well above the foliage, and are a mass of bloom throughout the summer and autumn. Packets, containing 12 seeds, 1*s.* each, post free.

J. C. has also the following choice Seeds for present sowing, at the prices annexed per packet, post free:—

	s. d.		s. d.
Alstræmeria acutifolia ...	1 0	Lychnis fulgens	0 6
Anemone, single Poppy, fine mixed	0 6	Mandevilla suaveolens ...	0 6
Auricula alpini, from fine named varieties	1 0	Nierembergia intermedia .	0 6
Azalea, from finest Greenhouse varieties	1 0	Oxalis rosea...	0 6
Cineraria, from very superb varieties	2 6	Petunia, from finest vars. .	0 6
Celsia arcturus	0 6	Polyanthus, common, from showy varieties for borders, &c.	0 3
Geranium, from new florist varieties, 12 seeds ...	2 6	Do. fine mixed	1 0
" from finest older do., 12 seeds	1 0	Do. from fine named vars. .	1 0
" do. fancy do., 12 seeds	1 0	Saponaria calabrica ...	0 6
Linum grandiflorum, true .	1 0	Verbena teucrioides ...	0 3
		" venosa...	0 6
		" mixed, from finest named varieties ...	1 0
		Zinnia elegans coccinea, fine	0 6

A remittance to accompany all orders from unknown correspondents.—Nurseries, Westerham, Kent.

NEW ROSES.

BENJAMIN R. CANT begs to offer strong Dwarf Plants, in pots, of the following NEW ROSES:—

HYBRID PERPETUALS.—	s. d.	HYBRID PERPETUALS.—	s. d.
Alfred Colomb	3 6	Madame Theodore Martel	7 6
Alphonse de Lamartine ...	3 6	" Quetel	3 6
Ceres	3 6	Marie de Bourges ...	3 6
Cicero	5 0	Prince de la Moskowa ...	5 0
Comtesse Vaillant ...	7 6	Sir John Franklin ...	3 6
Conseiller Jordeuil ...	3 6	Triomphe en Beauté ...	2 6
Duchess of Norfolk ...	5 0		
Deuil de F. Willermoz ...	7 6		
George d'Amboise ...	3 6	P. Moss, André Thouin ...	3 6
Gloire de France	3 6	Bourbon, Omer Pacha ...	7 6
Gloire de Parthenay ...	3 6	Tea, Louise de Savoie ...	7 6
Lady Milsom	3 6	Nois, Augusta	7 6
Lady Shelley	3 6	Moss, D'Arcet	2 6
La Ville de St. Denis ...	3 6	" Gloire de Mousseuses	5 0
Madame Domage... ...	2 6	" Jeanne de Montfort	3 6
" Hector Jacquin	3 0	" L'Eblouissante ...	3 6
" Masson	10 6	" Marie de Blois ...	5 0
" Lacroix	3 6	" Vandael	3 6
" F. Rigaux ...	3 6	Gallica, Amphitrite ...	2 6
" Place	7 6	" George Vibert ...	2 6
" Recamier ...	3 6	H. Bour., Charles Lawson	7 6
" Rendatler ...	3 6	" Gervaise Rouillard	3 6

N.B. The new Hybrid Perpetual Rose Emperor Napoleon will not be sent out before June; by that time I shall have proved it. If not more than semi-double, I much question if it is worth 7*s.* 6*d.* I, however, received a very high character of it, which induces me to offer it to the public, *but not to let it out before proving its worth.*

Carriage paid to any Station on the Eastern Counties Railway.
St. John's Street Nursery, Colchester.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, &c., which they will forward to any part:—

	s. d.
Andromeda floribunda, per dozen ... ... 12*s.* to	18 0
25 Azaleas, new hardy Belgian varieties, one of a sort, by name on their own roots	20 0
25 Azaleas, American varieties, do. do.	16 0
Hardy Heaths, Ledums, and Kalmias, per dozen ...	6 0
25 Hardy American Plants, one of a sort, by name ...	10 6
12 Rhododendrons, including scarlet, white and rose ...	12 0
Fine hardy Scarlet Rhododendrons, 1 to 2 feet, per doz.	12 0
New Yellow Rhododendrons, in pots, each 3*s.* 6*d.* to	5 6
6 Fine hardy Magnolias, one of a sort, in pots	10 0
Wistaria sinensis, strong plants, in pots, each	3 6
12 Hardy Climbers, of sorts, in pots	12 0
Fine climbing Roses, of sorts, per dozen, in pots ...	8 0
Bourbon Roses, budded, 1 ft., fine for beds or edgings, do.	10 0
Fitz-Roya, Saxe-Gothæa, Cephalotaxus, Libocedrus, each	5 0
Wellingtonia gigantea, and other choice and cheap hardy Coniferæ (see list).	
Cedar of Lebanon, 2 to 3 ft., well grown, per doz., 12*s.* to	18 0
Greenhouse Azaleas, choice varieties, per dozen 12*s.* to	18 0
6 New Achimenes, and 6 Gloxinias	10 0
50 choice Greenhouse plants, one of a sort	45 0
Orchidea Plants, beautiful species, by name, per dozen	40 0
24 choice Ericas, one of a sort	16 0
24 choice Fuchsias, fine proved varieties	12 0
6 Tree Carnations, choice sorts	6 0
Verbenas and Petunias, best sorts, per dozen	4 0
Calceolarias and Cinerarias, in flower, per dozen, 9*s.* to	12 0
Fancy Geraniums, best sorts ... ... per doz.	15 0
First Class Carnations and Picotees ... ... "	10 0
First-rate sorts of choice Pinks ... ... "	6 0
25 choice Pansies, one of a sort...	10 0
25 choice hardy Herbaceous Plants, named	10 6
Pentstemons, Lobelias, new Phloxes and Potentillas, per dozen	6 0
Dahlias, the best fancy and show sorts, per dozen ...	12 0

Choice Flower Seeds, 20 papers, 5*s.*; 45 ditto, 10*s.* Free by post.

Conservatories, Greenhouses, and Gardens furnished on moderate terms.

Albion Nursery, Stoke Newington, London.—May 12.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year; and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

G. SMITH begs to state that a First Class Certificate was awarded April 26, 1855, by the National Floricultural Society, 21, Regent Street, London, to Verbena LORD RAGLAN. It has the following good properties, viz., Colour, bright scarlet crimson, with conspicuous light eye; Size of truss, large; Pip smooth, average size; habit good. The highest award is made by the Society for its general good qualities. G. S. begs to add that this is one of the finest Verbenas he ever offered to the floricultural world, either for bedding or showing purposes. Strong plants are now ready at 5*s.* each.

Also the following:—Boule de Feu, Empress, Mrs. M'Nab, Violacea, and Silistria, at 5*s.*, or the set of six for 24*s.* For descriptions see Catalogue, and Advertisement in the *Gardeners' Chronicle* of April 7, 14, 21, and 28, also Edwards' "Gardeners' Almanack" for 1855. G. S. has also a few extra strong plants of Petunia Singularity, very novel, at 5*s* each. Also new Fuchsias, and first class Geraniums, &c.

Tollington Nursery, Hornsey Road, Islington, London.

J. P. COGHLAN, late Gardener to Don Manuel Escandon, of the City of Mexico, has on hand in his garden in Orizaba a full Collection of the very interesting ORCHIDS of MEXICO, which he intends to keep in readiness to supply any orders he may receive from England. The plants are grown on the premises so as to enable him to judge of their merits previous to sending home any but those that are really worthy of cultivation. Any persons who may please to honour him with their commands will be certain to approve of the selection of plants and the manner in which their orders will be executed.

Reference can be made to Messrs. WM. WOOD & SON, Maresfield, near Uckfield, Sussex, and any orders intended for J. P. COGHLAN should be addressed to the care of Mr. THOMAS GRANDISON, Cocolappan, near Orizaba.

N.B. J. P. C. will be happy to furnish Collections of Dried Specimens for Herbariums, if required. References required from unknown correspondents.

NEW BEDDING PLANTS.

CHARLES TURNER has much pleasure in introducing the following New Plants:—

CALCEOLARIA "PURITY," a new and beautiful shrubby variety, pure paper white, dwarf free habit, and a most desirable bedding plant. Very highly recommended. 7*s.* 6*d.* each.

NEW VERBENAS.

*WONDERFUL (Edmonds), rich plum purple, with very large white centre. This is without exception the finest and most distinct variety yet introduced, and is especially recommended for bedding purposes, continuing fully in bloom until very late in the season. It obtained a Certificate of Merit at National Floricultural Society.

*BLUE BEARD (Edmonds), a decided blue, good shape, large truss, and an excellent bedding variety. Highly recommended.

*LADY LACON (Edmonds), bright rose, with large pale yellow centre, good shape and habit. This also is a first-rate bedding variety. Obtained a First-class Certificate at National Floricultural Society for form.

COMMANDER-IN-CHIEF (Edmonds), bright cerise, with yellow eye, free bloomer, and good habit. Very fine.

EMPRESS OF FRANCE (Edmonds), large pale rose, fine truss.

FLORENCE NIGHTINGALE (Edmonds), pink, yellow eye good shape.

ROSE OF ENGLAND (Edmonds), bright rosy pink, with yellow eye, good form, free and distinct, fine.

TYRIAN PRINCE (Edmonds), deep blue purple, fine and distinct. Received a Certificate at Norwich.

EVA (Turner), pure white, fine truss, and free bloomer.

The above 5*s.* each, or the Set for 2*l.* The three varieties marked thus * were figured in the "Florist" for April, 1855.

NEW DAHLIAS.

Pre-Eminent (Fellowes) 10*s.* 6*d.*		Glenlyon (Fellowes) ...	7*s.* 6*d.*
Lord Bath (Wheeler) ...	10 6	Diadem (Fellowes) ...	7 6
Espartero (Turner) ...	10 6	Constancy (Hopkins) ...	7 6
Beauty of Bath (Bush)	10 6	The Nigger (Fellowes)	10 6
Ringleader (G. Holmes)	10 6	Baron Alderson (Perry), a fancy variety ...	10 6
Cossack (Fellowes) ...	10 6		
Agincourt (Fellowes) ...	10 6		

For Descriptions of these varieties see Catalogue, which can be had on application.—Royal Nursery, Slough.

NEW STRAWBERRY—CAROLINA SUPERBA.

JAMES KITLEY begs to inform his friends and the public that he has succeeded in raising from Seed a New Strawberry, the qualities of which have long been a desideratum. It possesses the excellent flavour of the old Carolina, the fruit as large as the British Queen, with all the combined good qualities of productiveness, hardiness of plant, dwarf habit, &c., which tend to make it a general favourite. It was exhibited at the Chiswick Horticultural Exhibition, and obtained a First-class Certificate.—See *Gardeners' Chronicle*, July 15, 1854.

Dr. Lindley's Opinion.

"J. K., the Strawberry which you have named Carolina Superba partakes of the flavour of the old Carolina, but the fruit was bruised by carriage, so that the paper which accompanied the Strawberries was saturated with juice, and this juice dried on the paper like syrup—sweet, adhesive, glossy, and brownish coloured. Strawberry juice does not usually possess these properties."—See *Gardeners' Chronicle*, July 1, 1854.

The undermentioned gentlemen having had opportunities of seeing it growing, and also tasting the fruit, have kindly permitted their Testimonals to be placed before the public:—

"Your Carolina Superba Strawberry, which I saw last summer in bearing, appeared a very hardy and productive kind, with the flavour of the old Carolina, and will prove an acquisition to this class of fruit.

"JOHN SPENCER, Marquis of Lansdowne's, Bowood."

"I feel much pleasure in giving my opinion of your Seedling Strawberry, Carolina Superba. Having had frequent opportunities of seeing it growing and tasting the fruit, I consider it hardy, of good habit, short foliage and fruit-stem. In flavour and crop, I know none that will surpass it; and feel assured it will do you credit, and give satisfaction to all who may purchase it.

"JAMES POND, Devonshire Cottage, Bath."

"The Seedling Strawberry, named Carolina Superba, that I saw in fruit in your nursery last season, appeared to me to be a first-class variety of dwarf foliage, a profuse bearer, and flavour excellent. I have no doubt it will give the greatest satisfaction to all who may possess it.

"D. BUTLER, Widcombe Nursery, Bath."

Strong well-rooted PLANTS are now ready, at 3*l.* per 100, 10*s.* per dozen, or 12*s.* free by Post.—Lyncombe Vale Nursery, Bath.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MOLLETT EVANS, of No. 22, Victoria Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, May 12, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 20.—1855.] SATURDAY, MAY 19. [PRICE 6*d*.

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ROYAL BOTANIC SOCIETY, REGENT'S PARK.—An EXHIBITION of PLANTS, FLOWERS, and FRUIT, on WEDNESDAYS, June 13th and July 4th. AMERICAN PLANTS MONDAY, June 18th. Tickets of admission to be obtained at the Gardens only, by orders from Fellows or Members of the Society, price 5*s*., or on the days of Exhibition, 7*s*. 6*d*. each. N.B. By accident some of the Tickets issued are wrongly dated July 5th instead of Wednesday, July 4th.

BRISTOL, CLIFTON, AND WEST OF ENGLAND ZOOLOGICAL SOCIETY.—The HORTICULTURAL MEETINGS advertised to be held at the Gardens of this Society will take place on THURSDAY, the 14th June, and THURSDAY, the 30th August.

On each occasion the sum of 130*l*. will be distributed in Prizes. A List of Prizes, with Rules, can be obtained on application to the Secretary, Clifton. The full Band of the Royal Artillery is engaged for the first Fête.

Terms of Subscription, Half a Guinea for Six Tickets—three to each Fête. Subscriptions received at RIDLER'S Library, Corn Street, Bristol; Messrs. GILES & SON, Royal York Crescent, Clifton; MARDON'S Library, Clifton; Mr. COOPER'S, 1, Princess Mall, Clifton; LANCASTER'S Library, Clifton; and at all the Principal Banks.

☞ The Subscription Books will be closed on the 1st June.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The 12th Anniversary Dinner, in aid of the Funds of this Society, will take place on MONDAY, the 4th June next, at the London Tavern, Bishopsgate Street.

SIR SAMUEL MORTON PETO, Bart., in the Chair.

Stewards.

J. J. MECHI, Esq., *Chairman.*
JAMES THOMSON, Esq., *Vice-Chairman.*

R. L. Betts, Esq.	Robert Marnock, Esq.
Henry G. Bohn, Esq.	Edward Milner, Esq.
Henry Cutler, Esq.	Thomas Moxon, Esq.
D. Dandy, Esq.	Daniel Nash, Esq.
John Edwards, Esq.	Henry Ormson, Esq.
John Lettsom Elleott, Esq.	Alexander Protheroe, Esq.
Robert Field, Esq.	Thomas Rivers, Esq.
F. T. Brandreth Gibbs, Esq.	A. Rowland, Esq.
Thomas Grissell, Esq.	Edward Rosher, Esq.
Thomas W. Gunter, Esq.	Dr. Royle.
Andrew Henderson, Esq.	J. H. Schrœder, Esq.
George Jackman, Esq.	W. B. Smith, Esq.
Robert Low, Esq.	John W. Thomas, Esq.

Tickets 21*s*., to be obtained upon application of EDWARD SESTA-CUTLER, Secretary, 14, Tavistock Row, Covent Garden.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

WILLIAM MASTERS AND SON, LANDSCAPE GARDENERS, Exotic Nursery, Canterbury.

DAVID FERGUSON, LANDSCAPE GARDENER, GARDEN ARCHITECT, and CONTRACTING PLANTER, Stowe, Buckingham. Now is the time to prepare for planting in September, October, and November.

GEORGE TAYLOR, JUN., CHOICE FRUIT and VEGETABLE SALESMAN, St. John's Market, Liverpool. CONTRACTOR and PURCHASER of CHOICE GARDEN PRODUCE. SALESMAN on COMMISSION.

Terms, Cash. Forward as above.

PELARGONIUMS AND FUCHSIAS.

J. DOBSON AND SON have a fine healthy Stock of all the leading varieties of PELARGONIUMS, which they can supply from 18*s*. per dozen. Fuchsias, 12*s*.

Catalogues may be had on application.

Woodlands Nursery, Isleworth.

SHOW AND FANCY PELARGONIUMS, AZALEAS, RHODODENDRONS, MIMULUS, CINERARIAS, HEATHS, EPACRIS, &c.—A Large Collection of above may be seen in flower at GAINES' NURSERY, Surrey Road, Battersea. W. G. begs to inform the nobility, gentry, and public in general that he has a large stock of Bedding Plants ready for sending out at very low prices.

WANTED, a Quantity of SEEDLING YEW and HOLLY (various); also variegated BOX, common ditto, Portugal Laurel and Phylireus, for edging.—Address, with price and size, to G. H. B., Post Office, Chislehurst, Kent.

TO BE SOLD CHEAP, price 60*l*., a small private Collection of ORCHIDS (180 Plants).—Apply to Messrs. LOUCHES, Nurserymen, Lea Bridge Road, Leyton, Essex.

TO BE SOLD, a bargain, TWO BEDS OF CHOICE TULIPS, collected at a great expense by an amateur lately deceased, with Canvas and Frame to ditto.—Apply to 4, Kennington Oval, London.

TO PINE GROWERS AND OTHERS.

TO BE SOLD, about 2000 FRUITING, PINE, and SUCCESSION PLANTS.—For further particulars, apply to Messrs. NORTON, HAGGART, & TRIST, 62, Old Broad Street, Royal Exchange.

THE CHOICEST BEDDING OUT PLANTS FOR THE PRESENT SEASON.

YOUELL AND CO. beg to refer to their Advertisement of the above in the last and two preceding publications of the *Gardeners' Chronicle.*

Royal Nursery, Great Yarmouth.

FLOWERING PLANTS.—TO THE TRADE.

MESSRS. YOUELL AND CO. beg to offer a lot of ERICA VENTRICOSA SUPERBA, TENUIFLORA, BREVIFLORA, &c., about to expand their bloom. Good bushy plants in large 48's, having upon an average about a dozen heads on each. Price on application.

Royal Nursery, Great Yarmouth.

FLOWERING PLANTS.

F. AND A. SMITH beg to offer FLOWERING PLANTS of the following (in quantities to the trade):—Geraniums, Fuchsias, Verbenas, Heliotropes, Calceolarias, Hydrangeas, Roses, Cactus, Ericas, Burchellia, Kalosanthes, Neriums, Scarlet Geraniums, &c. Prices on application. The Plants are stocky and in good condition: an inspection solicited.—Dulwich, Surrey.

FLOWER SEEDS.

PETER LAWSON AND SON, SEEDSMEN and NURSERYMEN to the QUEEN, Edinburgh, and at 27, St. George Street, Westminster, beg leave to invite attention to their very choice selection of Flower Seeds.

27, St. George Street, Westminster.

LUCOMBE, PINCE, AND CO. beg respectfully to announce that they are now sending out their superb new HYBRID HEATHS, for description of which see former Advertisements.

Exeter Nursery, Exeter.—Established 1720.

LUCOMBE, PINCE, AND CO. beg respectfully to announce that they are now sending out their new White Corolla'd FUCHSIAS; also their new double purple variety; for description of which see former Advertisements.

Exeter Nursery, Exeter.—Established 1720.

PELARGONIUMS, ETC.

HENRY GROOM, Clapham Rise, near London, by appointment FLORIST TO HER MAJESTY, begs to say that his Spring CATALOGUE OF PELARGONIUMS, &c., is ready, and will be forwarded on application.

OSAGE ORANGE (MACLURA AURANTIACA).

CHARLWOOD AND CUMMINS can supply SEED of the above-named Hedge Plant at 6*s*. per lb., with full directions for treatment. The month of May is the best time for sowing.—14, Tavistock Row, Covent Garden, London.

NEW PETUNIAS.

DANIEL MONEY having raised Three New PETUNIAS begs to offer them for sale. ROSEA ODORATA, deep rose colour, very sweet scented, and free bloomer. LILAC SUPERB, large flower. QUEEN, cream colour, with purple throat. D. M. has strong plants of the above sorts ready to send out. Rosea odorata, 5*s*. each, or the set 10*s*. 6*d*. Bedding Plants of sorts, 4*s*. per dozen. Post-office Orders to DANIEL MONEY, 4, St. George's Place, Water Lane, Brixton; or to Mr. JOHN KERNAN, 4, Great Russell Street, Covent Garden, London.

BEDDING AND OTHER PLANTS.

F. AND A. SMITH'S Descriptive LIST of the undermentioned is now ready, and may be had, post free, on application:—Antirrhinums, Verbenas, Fuchsias, Scarlet Geraniums, Calceolarias, Petunias, Heliotropes, Pentstemons, Chrysanthemums, Mimulus, Salvias, Lobelias, &c. Climbers in variety, also a miscellaneous Collection of Greenhouse Plants. They have now in bloom Cytisus racemosus, Roses, Verbenas, Fuchsias, spotted Calceolarias, Erica hybrida, Cactus, Geraniums, &c. The Trade supplied.—Dulwich, Surrey, May 19.

BEDDING PLANTS.

A. PAUL AND SON have a large stock of strong Bedding Plants, including VERBENAS, PETUNIAS, GERANIUMS, CALCEOLARIAS, &c., which they are now sending out. Price 4*s*. to 6*s*. per dozen. A Catalogue forwarded on application.—Nurseries, Cheshunt, Herts.

BEDDING PLANTS.

JOHN HAYES, FLORIST, Farnham, Surrey, begs to offer the above from 1*s*. to 4*s*. per dozen, the latter end of May, when the weather will permit. Catalogues sent on the receipt of one postage stamp.

MESSRS. JOHN WEEKS AND CO. have now ready a well grown stock of BEDDING PLANTS, selected from the best existing varieties, and at most reasonable prices.

Horticultural Establishment, King's Road, Chelsea; and at Frankfort-on-the-Maine.

EDWARD PARKE FRANCIS offers the following Bedding-out Plants, strong and vigorous, from 3*s*. to 4*s*. and 6*s*. per dozen:—Scarlet Geraniums, Flower of the Day ditto, Verbenas, Calceolarias, Salvias, Heliotropes, Fuchsias, Petunias, Lobelias, Anagallis, Ageratum, Cupheas, &c. Carriage paid to London.—Rose Nurseries, Hertford.

BEDDING PLANTS.—AT 2*s*. 6*d*. PER DOZ.

JOHN SCOTT, Merriott Nurseries, Crewkerne, Somerset (established 1728), has nearly 20,000, in 3-inch pots, ready to be sent out. Post-office Orders payable at Crewkerne.

(Baskets and Package at the Expense of Purchaser, and not returnable.)

200 Sorts of the best and newest Verbenas.
120 do. Scarlet and other Bedding Geraniums.
20 do. Variegated leaved ditto.
100 do. Fuchsia, all the best; 24 do. Shrubby Calceolarias; 24 do. Petunias; with Anagallis, Ageratums, Cupheas, Heliotropes, Lobelias, Salvias, Senecios, &c. Also the beautiful white Double Pyrethrum.

When a fair proportion of each is taken the price will be 2*s*. 6*d*. per dozen; but if only Calceolarias and Geraniums are ordered they will be 4*s*. per dozen. Catalogues, in which the above are arranged in sections of colour, &c., sent on receipt of a postage stamp. Parties requiring large quantities can have them in store pots by agreement.

GOOD SWEDE SEED.

SUTTON AND SONS *have good new Ashcroft, Skirving's, and other Swede Seeds, true to their kinds, warranted all of last year's growth.* Price, in large or small quantities, 2*s*. per lb. Large quantities CARRIAGE FREE. Remittances or references required from unknown correspondents.

Address, SUTTON & SONS, Seed Growers, Reading.

HARDY GREEN-TOP YELLOW SWEDE.—This Swede has stood the late severe winter remarkably well, and can be strongly recommended for weight of crop and highly nutritive properties.

SUTTON & SONS, Seed Growers, Reading, have some excellent Seed which they can warrant of last year's growth, price 1*s*. 9*d*. per pound, 10*s*. 6*d*. per gallon, or 70*s*. per bushel. As every Seed grows well, 2 lbs. per acre will produce a full crop.

SUTTON'S LARGE YELLOW GLOBE MANGOLD WURZEL, FROM SELECTED ROOTS, QUITE HARDY.—Seed of this fine large Mangold Wurzel may be obtained genuine of Messrs. SUTTON, price 1*s*. per lb., or 5*l*. per cwt.; other sorts cheaper. Early orders are requested and recommended, as the stock is limited.—Address,

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

FINE MANGOLD WURZEL AND BELGIUM CARROT SEED.

JAS. FAIRHEAD, SEED GROWER, Braintree, Essex, begs to offer, at moderate prices, ORANGE GLOBE, RED GLOBE, LONG RED, and LONG YELLOW MANGOLD WURZEL; WHITE and ORANGE GREEN-TOPPED BELGIAN CARROT, of selected Stocks, the growth of 1854.

Carriage paid to any Station on the Eastern Counties Railway.

TURNIP SEED AND MANGOLD WURZEL.

MESSRS. J. AND G. SWAILES, NURSERYMEN, SEED GROWERS, &c., offer SWEDE and WHITE TURNIP MANGOLD WURZEL, &c., of the finest selected transplanted stocks grown last season by themselves. Priced Catalogue on application. We have a few sacks of Skirving's improved Purple-top Swede to offer to the trade, grown as above.

Beverley, Yorkshire, May 19.

SKIRVING'S IMPROVED TURNIP SEEDS.

W. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his TURNIP SEEDS for the season, as follows:—

SKIRVING'S IMPROVED SWEDE TURNIP, at 1*s*. 9*d*. per lb.
" IMPROVED PURPLE-TOP YELLOW BULLOCK TURNIP, at 1*s*. 3*d*. per lb.

All other kinds of Turnip and Agricultural seeds in general, of the most select description, at moderate prices. A remittance, or reference from unknown correspondents, is respectfully requested to accompany orders. W. S. has no agent in town or country.

Liverpool, May, 1855.

T. F. WINSTANLEY'S BEDDING PLANT LIST is now ready, and can be had on application, or free by post.—28, Market Place, Manchester.

MAY'S MAGNUM BONUM LETTUCE is by far the largest, sweetest, and crispest Lettuce known, in proof of which we possess numerous letters received from parties who had it last season. The addresses of the writers can be had on application. It may be sown all the summer, and will stand the winter. Packets 1*s*. each.

HENRY MAY, the Hope Nurseries, near Bedale, Yorkshire.

NEW AZALEA—"ALBA MELIOR."

THIS is the one exhibited by us under the name of "ALBA MAGNA" among our collection to which the First Prize was awarded at the Regent's Park Show; very large pure white, and quite first-rate. Price 7*s*. 6*d*., 10*s*. 6*d*. to 21*s*. each. Also a superior stock of Azaleas, for which see Catalogue.

The Spring Catalogue, consisting of Greenhouse and Stove Plants, and the Herbaceous one can be had by enclosing one postage stamp.

H. LANE & SON, The Nurseries, Great Berkhamstead.

NEW PLANTS.

A. VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), is now sending out his following New Plants:

Achimenes Ambroise Verschaffelt	8*s*.	0*d*.
" Docteur Hopf	8	0
" Edouard Otto	4	0
" Edmond Boissier	8	0
Tydæa Warscewiczi	15	0
Rhododendron Prince Camille de Rohan (quite hardy)	16	0

All the above Plants are figured in VERSCHAFFELT'S "Illustration Horticole," which can be seen at Mr. R. SILBERRAD'S, 5, Harp Lane, Great Tower Street, London.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the following Select Bedding Plants, post free:—

	s.	*d*.
12 fine varieties Antirrhinums, 3*s*.; 12 extra ditto	6	0
12 " Verbenas, 2*s*. 6*d*.; 12 extra ditto	6	0
12 " Phloxs, 4*s*.; 12 extra ditto	6	0
12 " Pansies, 4*s*.; 12 extra ditto	9	0
12 fine Chrysanthemums, Pompones, or large flowered	3	6
12 fine varieties Mimulus, 4*s*.: 12 Belgian Daisies	3	0

67, High Street, Battle, Sussex.

DAHLIAS.

J. KEYNES is now sending out his New DAHLIAS for this season, and solicits the orders of his friends. Fine Plants may also be had of those splendid Dahlias sent out by him last season, at reasonable prices. Catalogues sent on application.—Castle Street Nursery, Salisbury.

NEW SCARLET VERBENA.—MRS. WOODROFFE.

ARTHUR HENDERSON AND CO. are now sending out this fine new VERBENA; particulars of which may be seen in their advertisement in the *Gardeners' Chronicle* of March 31. The usual discount to the Trade.

☞ This Verbena is the same as "Conqueror," one offered by another firm.—Pine-apple Place, Edgware Road, London.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks, at 5*s*.; 12 varieties, 2*s*. 6*d*.; and from good double sorts, 1*s*.

Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s*. per packet; separate, 2*s*. Fine Quilled African Marigolds, 6*d*. per packet.—Saffron Walden Nurseries.

CHOICE CINERARIA SEED.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior CINERARIAS, which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias have given for several successive years, enables them to recommend their Seed of the present season with much confidence. Packets sealed and warranted by them at 2*s.* 6*d.*, free by post.

Exeter Nursery, Exeter.—Established 1720.

BOSSOM'S CHAMPION OF ENGLAND CELERY.

THE finest Celery yet introduced, beautifully white, very crisp and solid, and withstands a greater amount of frost than any other known variety; it has been blanched in the ground 3 feet.—To be obtained of T. F. WINSTANLEY, Seedsman, 28, Market Place, Manchester, price 2*s.* 6*d.* per packet; prices to the trade on application.

G. SMITH begs to state that a First Class Certificate was awarded April 26, 1855, by the National Floricultural Society, 21, Regent Street, London, to Verbena LORD RAGLAN. It has the following good properties, viz., Colour, bright scarlet crimson, with conspicuous light eye; Size of truss, large; Pip smooth, average size; habit good. The highest award is made by the Society for its general good qualities. G. S. begs to add that this is one of the finest Verbenas he ever offered to the floricultural world, either for bedding or showing purposes. Strong plants are now ready at 5*s.* each.

Also the following:—Boule de Feu, Empress, Mrs. M'Niel, Violacea, and Silistria, at 5*s.*, or the set of six for 24*s.* For descriptions see Catalogue, and Advertisement in the *Gardeners' Chronicle* of April 7, 14, 21, and 28, also Edwards' "Garden Almanack" for 1855. G. S. has also a few extra strong plants of Petunia Singularity, very novel, at 5*s.* each. Also new Fuchsias, and first class Geraniums, &c.

Tollington Nursery, Hornsey Road, Islington, London.

TWO VERY USEFUL NEW DWARF NASTURTIUMS.

JOHN CATTELL has much pleasure in bringing into notice these two very showy hardy ANNUALS, viz.:—

NASTURTIUM DWARF CRIMSON.—The colour of the common dark crimson.

Ditto DWARF SCARLET.—The colour very rich orange scarlet, with a fiery shade on the upper part of the throat.

They are both of the dwarf compact habit of minimus, and admirably adapted for forming large buds, particularly in any poor soils; the flowers are the size of the common Nasturtium, and thrown well above the foliage, and are a mass of bloom throughout the summer and autumn. Packets, containing 12 seeds, 1*s.* each, post free.

J. C. has also the following choice Seeds for present sowing, at the prices annexed per packet, post free:—

	s. d.
Alstrœmeria acutifolia, a fine herbaceous greenhouse climber	1 0
Animated Oats	0 3
Anemone, single Poppy, fine mixed	0 6
Azalea, from finest greenhouse varieties	1 0
Cochlearia acaulis	1 0
Cineraria, from very superb varieties	2 6
Celsia arcturus	0 6
Geranium, from new florist varieties, 12 seeds ...	2 6
" from finest older do., 12 seeds	1 0
" do. fancy do., 12 seeds	1 0
Geum coccineum splendens	0 3
" " Wiceii ...	0 3
Gloxinia, fine mixed ...	1 0
Holcus saccharatus... ..	0 6
Hibiscus Manihot	0 6
Leptosiphon lutea	0 6
Lychnis fulgens	0 6
Mandevilla suaveolens ...	0 6
New Giant Mignonette ...	0 3
Nierembergia intermedia .	0 6
Polyanthus, common, from showy varieties for borders, &c.	0 3
Petunia, from finest vars. .	0 6
Polyanthus, from fine named varieties	1 0
Do. fine mixed	1 0
Saponaria calabrica ...	0 6
Verbena teucrioides ...	0 3
" venosa	0 6
" mixed, from finest named varieties ...	1 0
Zinnia elegans coccinea ...	0 6
BEAUTIFUL ORNAMENTAL GRASSES.	
Agrostis capillaris... ...	0 4
" pulchella	0 4
Anthoxanthum gracile ...	0 6
Briza maxima	0 4
" media	0 4
" gracilis	0 4
Chrysurus aureus	0 4
Eragrostis elegans	0 4
" namaquensis ...	0 4
" poæformis ...	0 4
Lagurus ovatus	0 6
Lamarckia aurea	0 6
Pennisetum villotum ...	0 4
" longistylum ...	0 6
Setaria macrochæta ...	0 4
Stipa pinnata	0 6

A remittance to accompany all orders from unknown correspondents.—Nurseries, Westerham, Kent.

BASS AND BROWN have just published a SUPPLEMENT TO THEIR CATALOGUES, with extracts and descriptions of a few new and select plants, which may be had on application.

☞ An extensive Stock of the finest and most popular and showy Bedding Plants, strong and well established, at low prices.

	£ *s.* *d.*
The NEW FUCHSIAS with white corollas—Lucombe and Pince and Story's varieties, each	0 10 6
Fuchsia Banks's Prince Albert, rich dark variety, extra form, each...	0 10 6
" Turner's Thalia, fine formed white, very deep rose corolla, each	0 3 6
Verbena Mrs. Woodroffe, brilliant new scarlet, extra size, per dozen	0 9 0
Geranium Keyne's Pretty Polly, each	0 3 6
Phlox omniflora compacta, new white, very dwarf and compact, each	0 3 6
Calceolaria (Rollisson's) Eclipse, extra rich flowing crimson, each	0 10 6
" (Rollisson's) Variabilis, delicate primrose, fine, each	0 10 6
Escallonia pterocladon, pure white, each	0 10 6
Rhododendron javanicum, each	0 10 6
Rose Duchess of Norfolk, each, 3*s.* 6*d.*; strong flowering, each	0 5 0

For other new and select plants, see Catalogue and Supplement.

For names of the following see Advertisements in GARDENERS' CHRONICLE *of May 1st and 8th.*

	£ *s.* *d.*
GERANIUMS, 12 superb new show varieties of last season	2 0 0
" 20 first-rate vars. of previous date ...	1 10 0
" 20 first-rate older vars.	0 15 0
GLOXINIAS, 11 superb new vars.	1 13 0
" 12 superb vars.	1 0 0
" 12 fine older vars.	0 12 0
ACHIMENES, 3 splendid new vars.	0 17 6
" 12 superb vars., 10*s.*: 12 fine older vars.	0 6 0
GREENHOUSE PLANTS, 50 fine and select... ...	2 5 0
" " 50 do., best selection ...	3 5 0
STOVE PLANTS, 50 superb and select	4 0 0
HERBACEOUS PLANTS, 100 fine and distinct vars.	1 10 0
" " 100, including newer "	2 10 0
ROCK PLANTS, 25 fine varieties	0 12 0

Splendid new Potentillas, Pentstemons, choice vars. of Phlox, &c. &c., see Catalogues.

COMPLETE CATALOGUE free for six penny stamps. The Spring Catalogue alone for three penny stamps.

Post-office orders payable to BASS & BROWN, or to STEPHEN BROWN.

Goods carriage free (not under 20*s.*) to all the London termini, and all stations on the London and Norwich Colchester Line. Plants gratis with orders of 40*s.* and upwards.

Seed and Horticultural Establishment, Sudbury, Suffolk.

CARNATIONS AND PICOTEES.

MESSRS. YOUELL AND CO. beg to offer to the admirers of these elegant flowers a quantity in pots, part of the stock originally intended for their own blooming, at 21*s.* per dozen pairs.

They are fine strong plants, and may be either turned out into the borders immediately, or repotted without suffering the least check, a manifest advantage at this season.

Royal Nursery, Great Yarmouth.

SUPERB SHOW PANSIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, will supply the following set of 20 extra fine varieties, in strong, well rooted, autumn struck Plants, at 10*s.* the set, hamper, package, &c., included.

Adela (Turner)	Lord Jeffrey (Lightbody)
Alfred the Great (Turner)	Marion (Dickson & Co.)
Boadicea (Fellowes)	Mesmerist (Veitch)
Commander-in-Chief (Hooper)	Miss Talbot (Dickson & Co.)
Father Gavazzi (Holland)	Pandora (Hunt)
Fearless (Schofield)	Rising Sun (Turner)
Great Western (Hooper)	Sultan (Hooper)
Jubilee (Dickson & Co.)	Sir J. Paxton (Betteredge)
Lady Emily (Downie & Laird)	Thisbe (Hooper)
Lady Carrington (Hunt)	Victory (Schofield)

Older varieties, such as Fair Flora, France Cycole, Queen of England, Duke of Perth, Rubens, Caroline, Ophir, Blue Perfection, Euphemia, &c. &c., 4*s.* per dozen, strong plants.

A few packets of very select Pansy Seed at 1*s.* and 2*s.* per packet. Priced and descriptive Catalogues now ready, and will be forwarded on application. Post-office orders payable at Middleton, Lancashire.

CHARLES TURNER begs to intimate that his New SPRING CATALOGUE is now ready, and contains descriptive lists of—

Dahlias,	Carnations,	Scarlet and Horseshoe Geraniums,
Fancy Dahlias,	Picotees,	Delphiniums,
Cinerarias,	Pinks,	Mimulus,
Verbenas,	Pansies,	Pentstemons,
Fuchsias,	Auriculas,	Petunias,
Hollyhocks,	Shrubby Calceolarias,	Bedding Plants, &c.,
Chrysanthemums,		

including several new Dahlias, new Verbenas, new White Bedding Calceolarias, &c., offered for the first time. Can be had on application.—Royal Nursery, Slough.

ROBERT PARKER begs to inform his friends and the public that his New Spring Catalogue containing Descriptive and Priced Lists of the following:—

Exotic Orchids	Roses in pots [varieties
Ferns—stove, greenhouse, and hardy	Dahlias — show and fancy
Geraniums—show, fancy, scarlet, variegated, and hybrid bedding varieties	Fuchsias
Chrysanthemums—large flowered, and Pompone varieties	Selaginillas or Lycopodiums
Petunias	Gloxinias
Antirrhinums	Cinerarias
	Calceolarias—bedding varieties
	Verbenas
	Miscellaneous bedding plants &c., &c.

Is now ready and can be had Post-free on application.

Paradise Nursery, Hornsey Road, Holloway, London.

ABM. MARTIN AND SON'S LIST OF PLANTS FOR BEDDING PURPOSES; at 3*s.* and 4*s.* per dozen; by the hundred 21*s.*:—

Calceolaria	Senecio	Anagallis
Nierembergias	Cuphea	Salvias
Geraniums, scarlet	Oenothra	Petunias
" other varieties	Dahlias	Chrysanthemums
Fuchsia	Verbenas	Double crimson Rockets, 6*s.* per doz.
Heliotropes	Gaillardias	Lobellias
Phloxes	Cinerarias	Antirrhinums

Also a Large and Healthy Stock of Azalea indica, Escallonia macrantha, Abelia florabunda, Tropæolum tricolor and Jarrati, Primula sinensis alba pleno, Clematis azurea grandiflora and Sieboldi, Cupressus funebris, Araucaria and Cedar Deodara, from 1 to 5 feet, in pots; Lilium lancifolia, rosea, rubra and alba, Crassulas, Pimeleas, &c., &c., &c. Fuchsias, Geraniums, Hollyhocks, Phloxes and Roses, most of the leading sorts grown. Swede and other Turnip Seeds of the most approved kinds (own growth).—Nursery and Seed Establishment, Cottingham, Hull Branch, Junction Street. ABM. MARTIN & SON, Proprietors.

NEW ROSES.

A. PAUL AND SON beg to offer the following NEW ROSES, which were exhibited by them at Gore House on the 16th inst.

	s. *d.*
Adam Paul, H.P.	3 6
Alexandrine Bachemeteff, H.P.	2 6
Auguste Vacher, T.	3 6
Comtesse Vaillant, H.P. ...	7 6
Duchess of Norfolk, H.P.	7 6
General Castellane, H.P.,	3 6
Jules Margottin, H.P. ...	3 6
Lady Stuart, H.P.	2 6
Leon Plée, H.P.	2 6
Leveson Gower, H.P. ...	3 6
Louise Odier, H.P.	2 0
Madame Andry, H.P. ...	2 0
" Dommage, H.P.,	3 6
" Phelip, H.P. ...	3 6
Paul Dupuy, H.P.	3 6
Paul's Prince Albert, Bourb.	3 6
Prince Leon, H.P.	3 6
Sombreuil, T.	2 0
Triomphe de Paris, H.P....	3 6
Volta, H.P.	2 6

Well established plants carriage free to London, and plants given to compensate for distant carriage. The entire collection of 20 plants will be supplied for 3*l.* 5*s.*

Nurseries, Cheshunt, Herts.

NEW ROSES.

BENJAMIN R. CANT begs to offer strong Dwarf Plants, in pots, of the following NEW ROSES:—

HYBRID PERPETUALS.—	*s.* *d.*
Alfred Colomb	3 6
Alphonse de Lamartine ...	3 6
Ceres	3 6
Cicero	5 0
Comtesse Vaillant ...	7 6
Conseiller Jordeuil ...	3 6
Duchess of Norfolk ...	5 0
Deuil de F. Willermoz ...	7 6
George d'Amboise ...	3 6
Gloire de France	3 6
Gloire de Parthenay ...	3 6
Lady Milsom	3 6
Lady Shelley	3 6
La Ville de St. Denis ...	3 6
Madame Dommage ...	2 6
" Hector Jacquin	3 0
" Masson	10 6
" Lacroix	3 6
" F. Rigaux ...	3 6
" Place	7 6
" Recamier ...	3 6
" Rendatler ...	3 6

HYBRID PERPETUALS.—	*s.* *d.*
Madame Theodore Martel	7 6
" Quetel	3 6
Marie de Bourges ...	3 6
Prince de la Moskowa ...	5 0
Sir John Franklin ...	3 6
Triomphe en Beauté ...	2 6
P. Moss, André Thouin ...	3 6
Bourbon, Omer Pacha ...	7 6
Tea, Louise de Savoie ...	7 6
Nois, Augusta	7 6
Moss, D'Arcet	2 6
" Gloire de Mousseuses	5 0
" Jeanne de Montfort	3 6
" L'Eblouissante ...	3 6
" Marie de Blois ...	5 0
" Vandael	3 6
Gallica, Amphitrite ...	2 6
" George Vibert ...	2 6
H. Bour., Charles Lawson	7 6
" Gervaise Rouillard	3 6

N.B. The new Hybrid Perpetual Rose Emperor Napoleon will not be sent out before June; by that time I shall have proved it. If not more than semi-double, I much question if it is worth 7*s.* 6*d.* I, however, received a very high character of it, which induces me to offer it to the public, *but not to let it out before proving its worth.*

Carriage paid to any Station on the Eastern Counties Railway.

St. John's Street Nursery, Colchester.

EVERGREEN GRASSES FOR CHURCHYARDS, ETC.

SUTTON AND SONS have had the honour of supplying many clergymen and others with Grass Seeds for Churchyards and Cemeteries, which have given great satisfaction. Price of Seed, 1*s.* per lb., or 18*s.* per bushel.

From many similar letters we present the following:—

From Mr. C. Judd, Gardener to his Grace the Archbishop of Canterbury.

"The Grass Seeds received from you succeeded admirably, although sown late, the growth was such that we were enabled to mow the churchyard in the autumn, and it has now the appearance of an established lawn of some years standing; my employer the Archbishop of Canterbury, is quite satisfied with its appearance.—Addington Park, Jan. 7."

Address, JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

THE PAMPAS GRASS "GYNERIUM ARGENTEUM."

LUCOMBE, PINCE, AND CO. have a fine healthy stock of this highly Ornamental Plant, well established in pots, and fit to send out immediately. It is universally admitted that few plants produce a more beautiful effect than this gigantic Grass. See Woodcut and description of it in the *Gardeners' Chronicle* of November 4th, 1854. Sizes, prices, and all particulars may be had on application to LUCOMBE, PINCE, & CO.

Exeter Nursery, Exeter.—Established 1720.

MESSRS. E. G. HENDERSON AND SON beg to announce that their new Spring CATALOGUE for 1855, will be sent post free on application, and for 12 postage stamps a beautiful coloured plate representing the following choice plants:—

Achimenes Ambroise Verschaffelt.	Delphinium Hendersoni.
Acacia Drummondi microphylla.	Genetyllis macrostegia (tricoloides).
Boronia Drummondi.	Fuchsia Queen Victoria.
Bouvardia longiflora.	—— Mrs. Story.
	—— Prince Albert.

Mr. Andrews, the first floricultural artist of the day, has had the getting up of this plate, so that full reliance may be placed on the correctness of the flowers represented and the superior style of the colouring.

GERANIUM SILVER QUEEN.—A valuable plant for bedding, which by accident was brought under our notice last season. Several plants were planted out for trial, and beside them a few of every other variegated foliage Geranium in cultivation: these were Flower of the Day, Mountain of Light, Attraction, Brilliant, Silver King, Mangles' Silver, and others, but the foliage and growth of all proved inferior to this one, and viewing the lot from afar or near, this variety stood out in bold relief from all others of a like character. The foliage is large, round and smooth; habit dwarf and spreading with a free growth, and flowers of a rosy pink, similar in colour to the Geranium Lucia rosea. 7*s.* 6*d.*

TURNIP SEEDS, ETC.

PETER LAWSON AND SON SEEDSMEN to the QUEEN and to the HIGHLAND AGRICULTURAL SOCIETY, beg leave to intimate that they are sending out the following TURNIP SEEDS, for which they respectfully solicit orders. They are all of the most approved kinds of last year's growth.—

SELECT STOCKS.

SWEDISH— Per lb.—	*s.* *d.*
Lothian Purple top ...	1 9
Green-top	1 9
Laing's Purple-top ...	1 9
Skirving's do.	1 9
Matson's do.	1 9
Fettercairn Green-top ...	1 9
White-fleshed	1 9
RED—Round, or Norfolk .	0 9
Tankard	0 10
Globe	0 9
" Woolton (superior variety)	0 9
GREEN—Globe, improved	0 9
Round, or Norfolk ...	0 9
Tankard	0 10
WHITE—Globe	0 9
Do. Pomerain, true ...	0 10
Round, or Norfolk ...	0 9
Six-week, or Stubble ...	0 10
Tankard	0 10
YELLOW—	
Bullock, Green-top ...	1
" Purple-top .	1
Gordon of Ayrshire, Green-top	1
Gordon of Aberdeenshire, do. ...	2
Hood's Imperial, do. ..	1
Laurence-kirk Tankard, do.	2
Cambridgeshire do. do.	2
Skirving's Purple-top Yellow Bullock ...	1
Border Imperial Purple-top do.	1
Dale's Hybrid	1
Tweeddale Purple-top Yellow Bullock	2
Cruicksfield Green-top Hybrid, new (between Swede Turnip and Kohl Rabi)	3 6

27, Great George Street, Westminster.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the following Superb FLOWER SEEDS, saved from the best varieties, post free:—

	Per packet
Antirrhinum, from 100 striped and spotted varieties ..	0s. 6d.
Balsam, from 25 best double varieties	0 6
Hollyhock, from 50 best show flowers	1 0
Fancy Pansy, from a choice collection	0 6
Mimulus, from 12 of the most showy kinds	1 0
Verbena, from 100 of the newest and best varieties ...	1 0
Pansy, from 100 best show flowers	1 0
Gloxinia, from 50 newest varieties	0 6
Double Daisy, from 60 newest varieties	0 6
Sweet William, from 50 fine varieties	0 6

67, High Street, Battle, Sussex.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and repeated orders from those we had the honour of serving last year, and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

GERMAN ASTER SEED, all saved from the finest Globe varieties ever yet exhibited, and which have far passed all others in cultivation for their immense size and distinct colours, 1*s.* per packet.

SWEET WILLIAM SEED saved from 50 of the choicest and most superb varieties, 1*s.* per packet.

ANTIRRHINUM SEED saved from all the finest shaped and best varieties, 1*s.* per packet.

SUPERB HOLLYHOCK SEED saved from all the best named flowers, 1*s.* per packet.

SCARLET GIANT BROMPTON STOCK, extra fine, 1*s.* per packet.

VERY SUPERIOR FIMBRIATA PRIMULA SINENSIS SEED, saved from six distinct varieties of the largest and finest superb plants ever grown, 2*s.* 6*d.* per packet.

PANSY SEED, a few packets from selected varieties, 1*s.* per packet.

POLYANTHUS SEED, fine mixed, 1*s.* per packet.

CROWN GOURD, or CUSTARD MARROW; this variety is the most delicious of all the Marrows grown, 1*s.* per packet.

AQUILEGIA, or COLUMBINE, of 12 distinct varieties, 1*s.* per packet.

Any three packets of the above (except the Primula) sent free on receipt of 2*s.* 6*d.*, or the Primula included with two other packets, for 3*s.* 6*d.*, in cash or penny postage stamps by

EDWARD TILEY, NURSERYMAN, SEEDSMAN, AND FLORIST, 14, Abbey Church Yard, Bath, Somerset.

SUPERIOR EARLY BROCCOLI.

MITCHINSON'S PENZANCE OR EARLY WHITE CORNISH BROCCOLI.—*Celebrated and invaluable for its earliness, coming into use early in February, a full-sized handsome head of excellent quality, but a shy seeder.*

Parties who were too late to procure seeds of this valuable Early Broccoli can now be supplied with good healthy PLANTS at 2s. 6d. per 100, carriage free, by sending immediate orders to the undersigned, or their Agents in London. For testimonials and names of Agents see former advertisements.

JOHN MITCHINSON & Co., Seed Merchants, Truro, Cornwall.

May 19, 1855.

SEEDS OF SELECT HARDY PLANTS.

WILLIAM MOORE begs to offer the following SEEDS, all saved at the establishment, and warranted good, at 6d. per packet, or the collection for 5s. Payment to be made in postage stamps.

Scarlet Poppy Anemone.	Geum splendens.
Alstrœmeria aurea.	Helianthemum, 10 sorts mixed.
Anchusa italica.	Lupinus magnificus.
Antirrhinum, fine striped.	Myosotis sylvaticum, fine sp.
Dianthus montana, rubra & alba.	Potentilla bicolor grandiflora.
German Wall-flower, fine mixed.	Polyanthus from the best sorts.

Norfolk Nursery, East Dereham.

NEW PLANTS.

MESSRS. YOUELL AND CO. beg to offer the following:—

Calceolaria EMPEROR NAPOLEON: a Seedling of our own, resembling "Henderson's Model," but larger, brighter coloured, and finer in every respect: of good habit, and one of the very best bedding varieties in cultivation. 7s. 6d. each.

Calceolaria EMPRESS EUGENIE: another of our Seedlings, of a fine golden yellow, the flower stems stout, as they need be, to support the very large trusses of flowers produced by this variety; the habit is robust, flowers large, and well formed. 7s. 6d. each.—The usual discount to the trade.

VERBENA "MRS. FOSTER."

This fine white variety, raised by Mr. EDMONDS, gardener at Scrathy Hall, is, we confidently assert, the finest ever offered, and will prove to "White Verbenas" what "Robinson's Defiance" was to the scarlet varieties which preceded it. It was forwarded to the National Floricultural Society, and favourably noticed; but unfortunately the blooms were so much damaged in the transit as to preclude the possibility of its being fully estimated. The habit of the plant is all that can be desired, the heads of flowers (which are produced in profusion, large and flat, the individual flowers round and of good substance, resembling some of those fine Phloxes lately introduced, and of the purest white. Strong plants 5s. each, and one over to the trade when three are taken.

YOUELL & Co., Royal Nursery, Great Yarmouth.

JOHN CATTELL has a plentiful supply of PLANTS of the following, autumn-sown and bedded, superior true sorts:

Cauliflower, early and late	4s. per 100
Broccoli, Cape (Grange's and Hammond's) ...	3s. "
Cabbage, Red	1s. 6d. "
" Early, of sorts...	7s. per 1000
" Drumhead or Cattle	5s. "
Savoy, of sorts	5s. "

Packages containing Plants to the value of 1l. and upwards will be delivered carriage free to London, and to the Edenbridge Station of the South-Eastern Railway, package included. A remittance must accompany orders from unknown correspondents.

Nurseries, Westerham, Kent.

JOHN CATTELL begs to announce that his CATALOGUE No. 4 for the Spring of 1855, containing choice selections of GERANIUMS, VERBENAS, MISCELLANEOUS BEDDING PLANTS, &c., is now ready and may be had on application, inclosing a penny stamp. J. C. particularly directs attention to the following selection of very desirable plants:—

VARIEGATED GERANIUMS.	Each—s.	d.
Attraction (Gaines)	1	6
" (Kinghorn) habit and colour of Flower of the Day, with a beautiful deep pink horse-shoe mark 3s. 6d. to	21	0
Brilliant, leaves edged with silvery white, flowers deep brilliant scarlet ... ... 1s. 6d. to	2	6
Favourite ... ... 7s. 6d. to	15	0
Flower of the Day, fine stout plants for bedding ... 6d. to	1	6
Golden Chain, extra strong ... ... 1s. 6d. to	2	6
" " good plants for bedding ... per doz.	12	0
" Admiration	2	6
Mountain of Light	1	6
Mount Hecla	3	6
Silver King, bright scarlet, foliage belted with silvery white	2	6

GERANIUMS OF THE SCARLET HABIT.	s.	d.
Baronne Hugel, very dwarf, light scarlet with white eye, fine dark horse-shoe leaf	1	0
Masterpiece, foliage, habit and truss like Cerise Unique, colour most intense brilliant scarlet, with white eye, 2s. 6d. to	3	6
Princess, white and salmon, horse-shoe leaf, fine	2	6
Rosea superb, rosy red, trusses very large, one of the finest for pots or beds	1	6
Surpass Hydrangæflora, truss and colour like Lady Holmsdale, of dwarf habit	2	6
Trentham Rose, rosy scarlet, extra fine	1	6
Triomphe de Mont Rouge, pale salmon, horse-shoe leaf, fine	2	6
Geranium Unique (Rollisson's) ... ... 1s. to	2	6
" " fine plants for bedding ... per doz.	9	0
" Momus, fine bedding variety, habit and colour of the old Daryana	1	0
Anagallis Breweri, the finest blue each 6d.; per doz.	4	0
" rubra grandiflora, the finest red each 6d.; per doz.	4	0
Heliotropium Beauté de Boudoir each 1s. 6d.; per doz.	12	0
" John Cattell: this in growth, flower, and scent is the finest Heliotrope yet brought into notice ...	7	6
Phlox Drummondi Raditzki, fine, striped like Mayi, but both colours very superior ... each 1s. 6d.; per doz.	12	0
Phlox Drummondi, superb dark varieties, mixed per doz.	4	0
Nasturtium incisum, very pretty, yellow and orange, 9d. to	1	6
" Scheuermanianum (true), a beautiful buff and rich maroon variety of the common Nasturtium	1	0
Both these Nasturtiums are valuable additions to our summer climbers.		
Oxalis Bowi, fine rosy pink, flowers all the summer, and makes a fine bed... ... ... per doz.	6	0
Petunia Purple Perfection, the best of the dark purples for beds ... ... per doz.	6	0
Petunia conspicua, light rose edged with rosy purple, fine, per doz.	6	0

SPLENDID DELPHINIUMS.

Those marked thus * will not be sent out till the first week in June.

		s.	d.		s.	d.
Hendersonia*	each	1	6	Grandiflorum flora pleno, each	0	9
Magnifica*	...	3	6	" maximum	0	9
Hybrida flora pleno*	...	1	6	Chinense Hulmi* ...	1	0
Wheeleri...	...	1	6	" Weltoni* ...	1	6
Barlowi ...	...	0	9	" simplex alba plena*	1	6
Splendidum*	...	2	6			

Wellingtonia gigantea, small, 5s. each.
" " well established plants, 7s. 6d. each.
" " very fine, in 24's, or 8-inch pots; these are some of the finest plants there are for sale, 42s. each.

All orders from unknown correspondents must be accompanied by a remittance or reference.—Nurseries, Westerham, Kent.

NOTICE.

"TO THOSE THIS ADVERTISEMENT MAY CONCERN."—The undersigned having a very extensive connection amongst Noblemen, Gentlemen, their Gardeners, Market Gardeners, and Amateur Growers throughout the country (Lancashire and Cheshire especially), also a shipping connection on an extensive scale amongst the principal leading shipping firms in Liverpool to all Parts of the Globe, will in conjunction with his other business undertake an Agency on Commission or otherwise for the sale of such goods of the very First Class only, as his position and connections would be most likely to effect readily the sale of. His having an establishment of many years' standing in the midst of the daily resort of Gentlemen, Gardeners, and Agriculturists, and also Shipstores situated immediately opposite the principal Docks in Liverpool, where vessels of the largest tonnage sail almost daily to America, Australia, the Crimea, and other parts of the world, offers facilities for the Sale of Genuine Goods rarely to be met with.—Apply, stating terms and description of goods, &c., to GEORGE TAYLOR, jun., Fruit Salesman, St. John's Market, Liverpool. References of the highest class furnished.

PRESENT PRICES OF FARM SEEDS.

SUTTON'S FARM SEED LIST

BEING NEARLY OUT OF PRINT,

THE FOLLOWING EXTRACT IS PRESENTED, WITH PRICES OF SEEDS FOR PRESENT SOWING.

Per Bushel—s. d.		Per lb.—s. d.	
SUTTON'S IMPROVED ITALIAN RYE-GRASS ...	7 6	SWEDE SEEDS, of sorts	1s. 9d. to 2 0
DICKENSON'S ditto ditto ditto	7 6	TURNIPS, of several superior sorts	9d. to 1 6
FRESH IMPORTED ditto ditto	6 6	CLOVERS, of sorts	6d. to 1 0
TRUE PERENNIAL ... ... ditto	5 6	MUSTARD and RAPE, or COLE	0 4½
LARGE YELLOW GLOBE MANGOLD WURZEL, per lb.	1 0	FRENCH FURZE and LUCERNE	1 0

Natural Grass Seeds and Perennial Clovers, mixed, for Permanent Pasture, 24s. to 30s. per Acre.

CARRIAGE FREE, EXCEPT SMALL PARCELS.

ADDRESS: SUTTON & SONS, SEED-GROWERS, READING.

NEW AND BEAUTIFUL PLANTS.

MESSRS. VEITCH & SON,

OF EXETER, AND THE EXOTIC NURSERY, CHELSEA,

HAVE much pleasure and confidence in offering the following novelties. In making the present selection, Messrs. VEITCH & SON have been guided solely by the determination of submitting only such plants as are of general usefulness and sterling merit.

DESFONTANIA SPINOSA.—A fine hardy evergreen shrub with glossy Holly-like foliage, introduced from the Andes of Patagonia, by Mr. William Lobb, who discovered it in the region of snow. It produces beautiful tubular-shaped blossoms, often 2 inches in length, and of a rich scarlet colour, tipped with yellow. (See figure in Curtis's "Botanical Magazine," for May, 1854.) This plant, having been fully exposed in the open ground during the last severe winter, may now be considered perfectly hardy, and is certainly a great acquisition. Fine established plants, of two sizes, 21s. and 42s. each. One over on three to the trade.

DIPLADENIA ACUMINATA of HOOKER; *synonyme* DIPLADENIA MAGNIFICA of the "Florist."—This really beautiful Dipladenia was exhibited at Chiswick, at the July Meeting last year, and was awarded the large Silver Medal. Both as an exhibition plant, as well as one for general ornament to the stove, it is scarcely rivalled. (It is figured in Curtis's "Botanical Magazine," for January of the present year, and in the "Florist" for November, 1854.) Strong plants, 15s. each, with one over to the trade where three are taken.

ESCALLONIA PTEROCLADON.—This pretty hardy shrub, is figured in the "Botanical Magazine" for January last. It was exhibited at Chiswick, at the July Meeting of last year, and received a Silver Medal. It is a dwarf compact habit, with dense dark green foliage, and abundance of pure white Epacris-like flowers, and is altogether a neat and desirable plant. Well established plants, 10s. 6d. each. One over on three to the trade.

EPACRIS ECLIPSE (STORY'S).—This is a striking flower, of fine habit, and great freeness of bloom; it was raised from Miniata grandiflora, crossed with a fine seedling. Strong plants, 10s. 6d. each. One over on three to the trade.

EURYBIA ALPINA.—This is a perfectly hardy evergreen shrub (from a high elevation in New Zealand), having stood without any protection the late severe winter. Strong plants, 10s. 6d. each. One over on three to the trade.

GRIELINIA LITTORALIS.—This is a perfectly hardy evergreen shrub, with bright glossy green foliage, and fine habit. It has stood perfectly unharmed during the last severe winter, in situations where the ordinary evergreen shrubs were much injured. Strong plants, 15s.; second size, 10s. 6d. each. One over to the trade on three.

IXORA FLORIBUNDA.—A very neat plant, of dwarf compact habit, and a most abundant bloomer. It was sent from Java by Mr. Thomas Lobb, and is a very pretty plant. Strong bushy plants, 21s.; smaller, 10s. 6d. each. One over to the trade on three.

LAURUS AROMATICA.—A greenhouse plant, with deliciously fragrant foliage. Good plants, 10s. 6d. each. One over to the trade on three.

LOMATIA FERRUGINEA.—This fine evergreen shrub was found in Chiloe and Patagonia by Mr. W. Lobb. It attains a height of from 6 to 8 feet, and is remarkable for its beautiful Fern-like foliage. As a fine leaved conservatory plant, it is perhaps without a rival, and no collection of fine foliaged plants should be without it. It has but to be seen to be admired. Fine established plants, of two sizes, 15s. to 21s. each. One over to the trade on three.

MYRTUS APICULATA.—A very pretty Myrtaceous plant, of the same degree of hardiness as the ordinary Myrtles; fine dark green foliage, and an abundant bloomer. Strong plants, 21s. 6d. each. One over to the trade on three.

PINUS PENTHAMIANA.—Having raised Seedlings of this beautiful Pine (which is doubtless the finest of the long leaved Californian kinds, and which has proved to be perfectly hardy), we are now enabled to offer established plants in pots as follows: for a single plant, 10s. 6d.; for six, 50s.; for 12, 84s. Prices to the trade in proportion to the quantity taken.

PODOCARPUS NUBIGENA.—This is another perfectly hardy and fine Taxaceous plant, sent from Patagonia by Mr. W. Lobb. Established plants, 21s. each. One over to the trade on three.

RHODODENDRON CALIFORNICUM.—This is a distinct species, sent from California by Mr. W. Lobb, and described as having fine trusses of rose coloured flowers. It is perfectly hardy, having survived the past winter in the open border, without any protection whatever. The foliage is good, and it is evidently an abundant bloomer, small seedling plants being now covered with flower buds. It is a late bloomer, and will doubtless be a great acquisition to hybridisers. It will be exhibited when in bloom. Strong well established plants, 10s. 6d. each. One over to the trade on three.

SONERILA MARGARITACEA.—This lovely plant was exhibited at the Horticultural Society's Rooms, 21, Regent Street, on the 7th of November last, and was the gem of the exhibition. (See report in *Gardeners' Chronicle*). It is perhaps the most chaste of all variegated plants, producing with dark glossy green leaves, dotted all over with silvery white spots, a profusion of beautiful crimson flowers, with yellow stamens. It is a dwarf compact plant, of particularly neat habit, and requires the temperature of a cool stove or warm greenhouse. (It is figured in the "Florist" for March last). Plants, 21s. each. One over on three to the trade.

SWAINSONIA LESSERTIFOLIA.—A very pretty shrubby Australian Papilionaceous plant, with spikes of flower resembling in colour Kennedya bimaculata. It is a free growing plant, and profuse bloomer. Strong plants, 7s. 6d. each. One over on three to the trade.

TORREYA MYRISTICA.—This is a splendid hardy Taxaceous plant, sent from California by Mr. W. Lobb. It is from the Sierra Nevada, at a high elevation, and attains the height of from 100 to 150 feet. The stock of this Plant is very limited. Strong Seedling Plants, 63s. each.

WELLINGTONIA GIGANTEA.—Ample description of this noble tree having appeared in former advertisements or circulars, it is only necessary now to say, that it is a Coniferous tree, of immense dimensions and great beauty. Having withstood the severity of the past winter, without injury, both at Chelsea and Exeter, there can be no doubt of its being a perfectly hardy tree. This is doubtless the most remarkable and interesting of recent introductions. A few of the first raised, extra sized plants, 42s.; second size, 31s. 6d.; third size, 21s. each. A deduction will be made on the above prices in proportion to the quantity taken.

Prices given to the trade on application.

Messrs. VEITCH & SON can also supply the following good and popular Plants:—

	Each.—s.	d.
Abies bracteata (seedlings)	63	0
Aphelandra Leopoldi ...	7	6
" Porteana, 5s. to	7	6
Achimenes gigantea, 5s. to	7	6
Acacia Drummondi, 5s. to	10	6
Anæctochilus argenteus ...	7	6
Do. do. pictus	7	6
Do. Lobbi ... ... 21s. to	42	0
Do. Lowi ... ... 21s. to	42	0
Do. setacens ... 21s. to	31	6
Do. do. cordatus, 31s. 6d. to	42	0
Do. do. intermedius, 21s. to	31	6
Do. do. pictus ... 21s. to	31	6
Do. striatus		
Do. xanthophyllus, 21s. to	31	6
Azalea striata formosissima ... 7s. 6d. to	21	0
Begonia Thwaitesi, 7s 6d. to	10	6
Do. marmorea	7	6
Do. Prestoniensis superba	5	0
Bejaria æstuans, 7s. 6d. to	10	6
Berberis Leschenaulti ...	21	0
Bignonia grandiflora		
Boronia Drummondi, 3s. 6d. to	7	6
Camellia, Countess of Orkney ... 10s. 6d. to	21	0
Do. Storyi	10	6
Ceratostema longiflora, 7s. 6d. to	10	6
Cryptomeria Lobbi, 7s. 6d. to	15	0
Dipteracanthus spectabilis	3	6
Dracæna indivisa, 21s. to	42	0
Echites Harrisi, 7s. 6d. to	10	6
Eugenia Ugni, 2s. 6d., 5s.,	7	6
Eucalyptus coccifera ...	21	0
Fagus antarctica	10	6
Fuchsia Dominiana, 3s. 6d. to	7	6
Franciscea macrantha, 7s. 6d. to	10	6
Do. eximia ... 3s. 6d. to	5	0
Do. confertiflora, 3s. 6d. to	5	0

	Each.—s.	d
Gesnera Danckelaari ...	21	0
" Leopoldi ... 5s. to	7	6
Hexacentris lutea ... 5s. to	7	6
Hoya fraterna	7	6
Impatiens Jerdoniæ, 3s. 6d., 5s., and upwards		
Ixora alba	5	0
" Lobbi ... 7s. 6d. to	10	6
Lapageria rosea, 10s. 6d. to	21	0
Lilium giganteum, 21s., 42s.,	63	0
Lardizabala triternata ...	5	0
Lomaria alpina	5	0
Do. magellanica, 7s. 6d. to	10	6
Lysimachia Leschenaulti	5	0
Luculia Pinceana, 3s. 6d. to	7	6
Maranta micans ... 5s. to	7	6
Nepenthes lanata, and several others		
Nymphæa gigantea		
Pernettya speciosa ...	3	6
Philesia buxifolia, 10s. 6d. to	21	0
Picea grandis (seedlings)		
" amabilis "		
" nobilis "		
Rhododendron Jasminiflorum ... 21s. to	63	0
Do. Javanicum, 5s. to 10s. 6d., to	21	0
Do. Dalhousiæ, 10s. 6d. to 21s., to	42	0
Do. argenteum, 10s. 6d. to	21	0
Do. Aucklandi ... 21s. to	42	0
Do. Edgeworthi, 10s. 6d. to	21	0
Do. Falconeri ... 10s. 6d. to	21	0
Do. Niveum ... 3s. 6d. to	5	0
Do. Nuttali, and many others		
Rhodoleia Championi, 3s. 6d. to	7	6
Rubus japonicus	5	0
Thrysacanthus rutilans ...	10	6
Veronica variegata ...	2	6

N.B. The prices of the Plants to which no quotations are affixed will be given on application.

EXOTIC NURSERIES, CHELSEA AND EXETER.—May, 1855.

OLD ESTABLISHED NURSERY AND SEED BUSINESS, SLEAFORD.

CHARLES SHARPE AND CO., NURSERYMEN and SEEDSMEN, Sleaford, beg leave to thank their friends and patrons for the support they still continue to receive in the above business, and to assure them that no effort shall be wanting on their part to merit a continuance of the favours which have been for many years past so liberally bestowed upon them.

C. S. & Co. are now supplying to the trade the following AGRICULTURAL SEEDS, of their own growth:—

MANGOLD WURZEL.—Yellow Globe.
Long Red.
Long Yellow.
CARROT.—Long Field Altringham.
White Belgian.
TURNIP.—Skirving's Improved Swede.
Improved Purple-topped.
TURNIP.—Globe, White.
Globe, Red.
Globe, Green.
Tankard, Red.
Tankard, White.
Tankard, Yellow.
Green-topped Yellow Aberdeen.
Orange Jelly.
RAPE SEED.

Prices may be had on application.

C. S. & Co. take the present opportunity of informing their friends that they have no connection whatever with Mr. JOHN SHARPE, late of Sleaford, but now of Bardney, Seedgrower and Merchant.—Sleaford, May.

AGRICULTURAL SEEDS.

JOHN SHARPE (late of Sleaford), SEED GROWER and MERCHANT, Bardney, is now sending out, of the purest and best selected stocks, Permanent Grass Mixture, 20*s*. per acre; Upland Sheep Walk, 20*s*. per acre; Field or Lawn Mixtures 9*d*. per lb., Improving Mixtures for old Swards.

CLOVERS.—Red, English, Dutch, German, French, 6*s*. to 8*s*. per stone; White, 8*s*. to 10*s*. per stone; Italian Rye-grass, fine, imported, 6*s*. to 7*s*. per bushel; Perennial Rye-grass, 25*s*. to 35*s*. per quarter; Mangold Wurzel, 8*d*. per lb., or 7*s*. per stone.

TURNIPS.—Skirving's and Purple-top Swedes, transplanted, and of the purest characters, 1*s*. 3*d*. per lb., or 60*s*. per bushel of 50 lbs.; White Globe or Round, 8*d*. per lb., or 30*s*. per bushel of 50 lbs.; Green Globe or Barrel, 8*d*. per lb.; White and Red Tankards, Lincolnshire Red Globe or Round, Early Sixweeks, Yellow Aberdeen, Orange Jelly, and other yellow-fleshed kinds.

Rape Seed or Cabbage Cole, 3*s*. 6*d*. per peck, or 12*s*. per bushel.

White Mustard, Spring Tares, &c.

For quantities, Purchasers treated with liberally.

Attendance at Sleaford, Market Rasen, Boston, Louth, Lincoln, and Horncastle, on market days.

Bardney Hall, near Lincoln, May, 1855.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

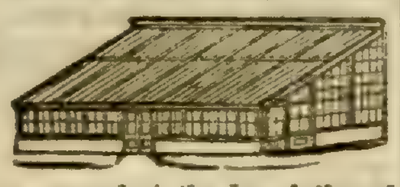
Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HORTICULTURE IN ALL ITS BRANCHES.

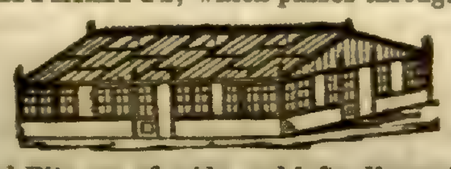
JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



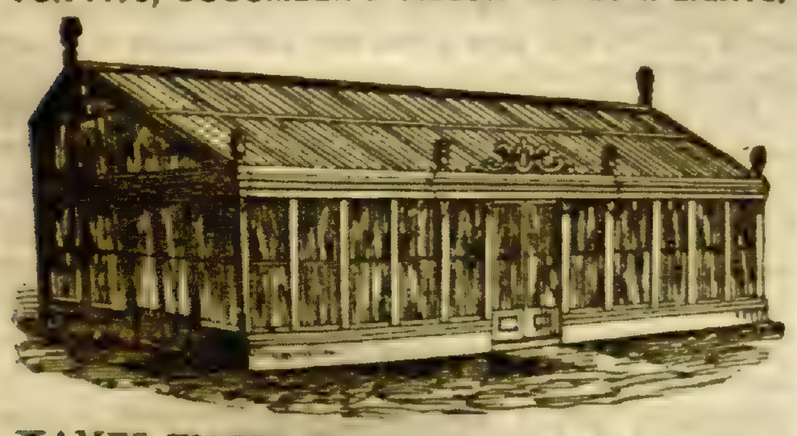
The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.



Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s*. 8*d*. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility Gentry, and the Trade, in most of the counties in England.

LIST OF GARDEN ORNAMENTS MANUFACTURED IN AUSTIN'S ARTIFICIAL STONE, at Nos. 1 to 4, Keppel Row, New Road, Regent's Park, London.

210 varieties of Vases and Tazzas, at prices varying from 15*s*. to 50*l*.
94 Statues and small Figures.
38 figures of Animals.
17 " of Birds.
16 Baskets of suitable Pedestals; prices from 12*s* to 30*l*. Some of these are beautiful ornaments for lawns.
12 different patterns of Flower Boxes for Windows, &c.
4 Garden Seats.
15 Sun-dial Pedestals.
16 Shells for either Water or Rock Plants; the largest size is 12 feet diameter.
Pedestals, square, circular, and octagonal, of almost every size. N.B. These are always perforated, to allow drainage from a vase.
43 Groups of Figures, single Figures, or Architectural Flowers, designed for centre ornaments of fountains.
Ornamental Copings to Ground Basins of Fountains, from 37 feet diameter to any smaller size.

FOUNTAINS.

AUSTIN & SEELEY having erected 218 of these works in various parts of the kingdom since the year 1836, may be presumed to have more experience than any other persons engaged in such work. Their collection now comprises about 200 designs, some of which are of the highest class; and they are now paying special attention to this department of the business, in the expectation that the local water works in course of erection will facilitate the supply of *jets d'eau*. The prices range from 10*l*. to 400*l*.

GARDEN VASES, FOUNTAINS, ETC.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, begs respectfully to inform the nobility and gentry, and his patrons generally, that he has entered into arrangements with an eminent company in Scotland for the disposal in London of their highly ornamental and very durable Vases, Fountains, &c., samples of which may be seen at the grounds in the Garden Road, as above.

T. S. has much pleasure in being the first to introduce to the notice of the public a highly ornamental Vase, capable of resisting the most severe weather, and at little more than half the cost of any other possessing the same qualities; and he has no hesitation in stating that a more suitable Vase for the growth of plants cannot be manufactured.

FOUNTAIN BASINS, VASES, STATUES, FLOWER TRAYS, &c. in TERRA COTTA, by J. M. BLASHFIELD, Praed Street, Paddington.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 12*s*. per ton, 1*s*. 6*d*. per bushel, or 16*s*. per ton, delivered to any of the London Wharfs or Railways, or within a circuit of five miles. Peat and Loam of various qualities. Sacks 2*s*. each.

KENNARD BROTHERS, Swan Place, Old Kent Road.

ROYAL BOTANIC GARDENS, REGENT'S PARK.

LIST OF PRIZES AWARDED AT THE EXHIBITION HELD ON WEDNESDAY, MAY 9, 1855.

PLANTS.

EXTRA GOLD MEDAL.

To Mr. J. May, Gardener to H. Colyer, Esq., Dartford, Kent, for 16 Stove and Greenhouse Plants.
To Mr. Williams, Gardener to C. B. Warner, Esq., Hoddesdon, Herts, for 20 Exotic Orchids.

LARGE GOLD MEDAL.

To Mr. Green, Gardener to Sir E. Antrobus, Bart., Lower Cheam, Surrey, for 16 Stove and Greenhouse Plants.
To Mr. Barter, Gardener to A. Bassett, Esq., Stamford Hill, Middlesex, for 16 Stove and Greenhouse Plants.
To Mr. Woolley, Gardener to H. B. Kerr, Esq., Hoddesdon, for 20 Exotic Orchids.

MEDIUM GOLD MEDAL.

To Messrs. Fraser, Nurserymen, Lea Bridge Road, Leyton, Essex, for 12 Stove and Greenhouse Plants.
To Mr. Clark, Hoddesdon, for 10 Stove and Greenhouse Plants.
To Messrs. Fraser, for 10 Greenhouse Azaleas.
To Mr. Roser, Gardener to J. Bradbury, Esq., Streatham, Surrey, for 8 Greenhouse Azaleas.
To Mr. Hume, Gardener to Mr. Hanbury, Poles, near Ware, for 20 Exotic Orchids.
To Messrs. Rollisson, Tooting, 16 Exotic Orchids.
To Mr. Gedney, Gardener to Mrs. Ellis, Hoddesdon, for 12 Exotic Orchids.
To Messrs. Francis, Hertford Nurseries, Hertford, for 10 Roses.

GOLD MEDAL.

To Messrs. Rollisson & Son, Nurseries, Tooting, Surrey, for 12 Stove and Greenhouse Plants.
To Mr. Taylor, Gardener to J. Coster, Esq., Streatham, for 10 Stove and Greenhouse Plants.
To Messrs. Fraser, Nurserymen, Lea Bridge Road, Leyton, Essex, for 10 Cape Heaths.
To Mr. May, Gardener to H. Colyer, Esq., Dartford, Kent, for 8 Cape Heaths.
To Messrs. Lane, Berkhampstead, for 10 Greenhouse Azaleas.
To Mr. Dingle, Gardener to A. Lawrence, Esq., Bath, for 8 Greenhouse Azaleas.
To Mr. Clark, Hoddesdon, for 12 Exotic Orchids.
To Mr. Turner, Slough, for 12 Pelargoniums.
To Mr. Windsor, Gardener to A. Bligh, Esq., Kidderpore Hall, Hampstead, for 10 Pelargoniums.

LARGE SILVER GILT MEDAL.

To Mr. Rhodes, Gardener to J. Philpot, Esq., Stamford Hill, for 16 Stove and Greenhouse Plants.
To Mr. Cutbush, Nurseryman, Barnet, Herts, for 12 Stove and Greenhouse Plants.
To Mr. Dingle, Gardener to A. Lawrence, Esq., Devonshire Place, Bath, for 10 Stove and Greenhouse Plants.
To Messrs. Gaines, Nurserymen, Battersea, for 10 Greenhouse Azaleas.
To Mr. Peed, Gardener to J. Tredwell, Esq., Norwood, for 8 Greenhouse Azaleas.
To Mr. Bray, Gardener to Baron Goldsmid, Regent's Park, for 6 Greenhouse Azaleas.
To Mr. Summerfield, Gardener to J. S. Venn, Esq., Highbury Park, Islington, for 12 Exotic Orchids.
To Mr. Green, Gardener to Sir E. Antrobus, Bart., for 6 Exotic Orchids.
To Mr. Dobson, Nurseryman, Isleworth, for 12 Pelargoniums.
To Mr. Carrygan, Gardener to C. Lucas, Esq., Clapham Common, for 10 Pelargoniums.
To Mr. Barker, Gardener to A. Rowland, Esq., Lewisham, Kent, for 6 Roses.

LARGE SILVER MEDAL.

To Mr. Green, Gardener to Sir E. Antrobus, Bart., Lower Cheam, Surrey, for 6 tall Cacti.
To Messrs. Rollisson and Son, Tooting, for 10 Cape Heaths.
To Mr. Peed, Gardener to J. Tredwell, Esq., Norwood, Surrey, for 8 Cape Heaths.
To Mr. Taylor, Gardener to J. Coster, Esq., Streatham, for 6 Cape Heaths.
To the same, for 6 Greenhouse Azaleas.
To Mr. Turner, Slough, for 6 Fancy Pelargoniums.
To Mr. Windsor, Gardener to A. Bligh, Esq., Kidderpore Hall, Hampstead, for 6 Fancy Pelargoniums.

SILVER GILT MEDAL.

To Messrs. A. Henderson & Co., Pine-apple Place, for 12 Stove and Greenhouse Plants.
To Mr. Peed, Gardener to J. Tredwell, Esq., Norwood, Surrey, for 10 Stove and Greenhouse Plants.
To Mr. Barter, Gardener to A. Bassett, Esq., Stamford Hill, for 8 Cape Heaths.
To Mr. Roser, Gardener to J. Bradbury, Esq., Streatham, Surrey, for 6 Cape Heaths.

SILVER GILT MEDAL.

To Mr. Gaines, Nurseryman, Surrey Lane, Battersea, for 6 Rhododendrons.
To Mr. Turner, Nurseryman, Slough, for 6 Cinerarias.
To Messrs. Fraser, Lea Bridge Road, for 6 Fancy Pelargoniums.
To Mr. Barter, Gardener to A. Bassett, Esq., Stamford Hill, for 6 Fancy Pelargoniums.
To Mr. Turner, Slough, for 12 Pansies.
To Mr. Sage, Gardener to W. Robinson, Esq., Hill House, Acton, for 6 Roses.

SILVER MEDAL.

To Messrs. Pamplin, Nurserymen, Lea Bridge Road, for 12 Stove and Greenhouse Plants.
To Mr. Hamp, Gardener to J. Thorne, Esq., South Lambeth, for 10 Stove and Greenhouse Plants.
To Messrs. Rollisson & Son, for Orchid plant Cymbidium speciesa.
To Mr. J. May, Gardener to H. Colyer, Esq., Dartford, Kent, for a plant—Genetyllis tulipifera.
To Messrs. Fraser, Lea Bridge Road, for 6 Greenhouse Azaleas.
To Mr. Wiggins, Gardener to E. Beck, Esq., Isleworth, for 6 Cinerarias.
To Mr. Gaines, Battersea, for 6 Fancy Pelargoniums.
To Mr. Weir, Gardener to J. Hodgson, Esq., The Elms, Hampstead, for 6 Fancy Pelargoniums.
To Mr. Terry, Gardener to Lady Puller, Youngsbury, for 6 Roses.
To Mr. Dingle, Gardener to A. Lawrence, Esq., Bath, for 8 Cape Heaths.
To Messrs. Backhouse & Son, Nurserymen, York, for Heteroma tulipifera.

SMALL SILVER MEDAL.

To Mr. Morris, Gardener to Coles Child, Esq., Bromley, Kent, for 10 Stove and Greenhouse Plants.
To Messrs. Rollisson, Nurserymen, Tooting, for an Orchid plant—Huntleya cerina.
To Mr. Green, Gardener to Sir E. Antrobus, Bart., Lower Cheam, for a plant—Tetratheca ericifolia.
To Messrs. Rollisson & Son, Tooting, for Rhododendron Edgeworthi.
To the same for Meyenia erecta.
To Mr. Taylor, Gardener to J. Coster, Esq., Streatham, Surrey, for Correct Labels.
To Mr. Rhodes, Gardener to J. Philpot, Esq., Stamford Hill, for 6 Greenhouse Azaleas.
To Messrs. Cutbush, Nurserymen, Highgate, for 6 Fancy Pelargoniums.
To Mr. Dobson, Nurseryman, Isleworth, for 12 Pansies.
To Mr. Turner, Slough, for 36 Pansies.
To Mr. James, Gardener to W. Watson, Esq., Isleworth, for 24 Pansies.
To Mr. Ward, Gardener to G. Bishop, Esq., Regent's Park, for 6 Roses.
To Mr. Turner, Slough, for 30 Auriculas.
To Messrs. Henderson, Nurserymen, Wellington Road, for Rhododendron Dalhousieanum.
To the same for Genetyllis macrostegia.

BRONZE MEDAL.

To Messrs. Veitch, Nurserymen, King's Road, Chelsea, for a plant—Rhododendron Prince Camillé de Rohan.
To Messrs. Rollisson, Tooting, for Azalea Empress Eugenie.
To Messrs. Standish & Noble, Nurserymen, Bagshot, Surrey, for an Azalea plant—Beali.
To the same for a Rhododendron plant—Glaucum.
To Mr. Lane, Nurseryman, Great Berkhampstead, for a plant—Andromeda formosa.
To Messrs. Henderson & Co., Pine-apple Place, for a Rhododendron—Glaucum.
To Mr. Clark, Hoddesdon, for Correct Labels.
To Mr. Taylor, Gardener to J. Coster, Esq., Streatham, Surrey, for Correct Labels.
To Mr. Dobson, Isleworth, for 36 Pansies.
To Mr. Holder, Gardener to the Rev. E. Coleridge, Eton College, Eton, for 24 Pansies.
To Mr. Gaines, Battersea, for 12 Exotic Ferns.

CERTIFICATE.

To Mr. Clark, Hoddesdon, for Correct Labels.
To Mr. Bray, Gardener to Baron Goldsmid, Regent's Park, for 6 Cinerarias.
To Mr. Turner, Slough, for Pansy Perfection.
To Mr. Windsor, Gardener to A. Bligh, Esq., Kidderpore Hall, for Fuchsia splendidissima.
To Mr. Gaines, Battersea, for 6 Calceolarias.
To Messrs. Henderson, Wellington Road, for 11 varieties of Amaryllis.
To Mr. Turner, Slough, for Azalea Beauty of Dropmore.
To the same for Alba magnifica.

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THOMAS GIBBS AND CO., the SEEDSMEN to the Royal Agricultural Society of England, beg to inform their friends and agriculturists generally that they are now prepared to supply the undermentioned in any quantities required.

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MESSRS. YOUELL AND CO., in offering the following, beg to say that the whole are very healthy and well grown; those marked * are set well for flowering.

ERICAS.—Strong bushy plants in 48's at 12s. per dozen varieties:—*Aggregata, bicolor, Cavendishi, Coventryana, *daphnoidea, denticulata moschata, *echiflora, *hyemalis, hybrida, hyacinthiflora, Linnæoides nova, Metulæflora bicolor, *propendens, *propendens tubiflora, *pyriformis, *rubens, Sindryana, *Ventricosa breviflora, V. coruscans, V. curta rubra, *V. densa carnea, *V. fasciculata rosea, V. fasciculata superba, V. fasciculata longiflora, *V. hirsuta, V. perspicuoides, *V. superba, *V. tumida, *V. tenuiflora, Verticilla *vestita fulgida, *viridiflora, Westphalingi, *Wilmorea superba.

The above are all dwarf bushy plants, and can be supplied to the trade at the usual discount in large quantities.

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EPACRISES, in large 48's, fine plants, 12s. per dozen varieties; ditto in large 60's and small 48's, 9s. per dozen.

The usual discount to the trade.

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HORTICULTURAL SOCIETY OF LONDON.

EXHIBITION AT GORE HOUSE, May 16, 1855.

AWARD OF THE JUDGES.

MIXED COLLECTIONS OF STOVE AND GREENHOUSE PLANTS—IN TWELVES.

G.B.1. Mr. Dods, Gr. to Sir John Cathcart, Bart., F.H.S.
G.B.2. Mr. Green, Gr. to Sir Edmund Antrobus, Bart., F.H.S.
S.G. Messrs. Fraser, Nurserymen, Lea Bridge Road, Leyton.
L.S. Mr. Barter, Gr. to A. Bassett, Esq., Stamford Hill.

MIXED COLLECTIONS OF STOVE AND GREENHOUSE PLANTS—IN SIXES.

S.G. Mr. Carson, Gr. to W. F. G. Farmer, Esq., F.H.S.
L.S. Messrs. Fraser, Lea Bridge Road.
S.K. Mr. Cutbush, Nurseryman, Barnet.
S.B. Mr. Morris, Gr. to Coles Child, Esq., Palace, Bromley.
C.1. Messrs. Rollisson, Nurserymen, Tooting.

GREENHOUSE AZALEAS—IN TWELVES.

L.G. Messrs. Lane, Nurserymen, Great Berkhampstead.
G.K. Messrs. Fraser, Lea Bridge Road.

GREENHOUSE AZALEAS—IN SIXES.

G.B.1. Mr. Carson, Gr. to W. F. G. Farmer, Esq., F.H.S.
G.B.2. Mr. Barter, Gr. to A. Bassett, Esq.
S.G. Messrs. Fraser, Lea Bridge Road.
L.S. Mr. Clarke, Gr. to Mrs. Webb, Hoddesdon.
S.K. Mr. Gaines, F.H.S., Battersea.
S.B. Mr. Bray, Gr. to Baron Goldsmid, F.H.S.
C.1. Mr. Rhodes, Gr. to J. Phillpotts, Esq., Stamford Hill.

GREENHOUSE AZALEAS—SINGLE SPECIMENS.

S.K. Messrs. Fraser, Lea Bridge Road.
S.B. Messrs. Lane, Great Berkhampstead.

INDIAN RHODODENDRONS—IN SIXES.

S.G. Messrs. Lane, Great Berkhampstead.
L.S. Mr. Gaines, F.H.S, Battersea.

ORCHIDS—IN TWENTIES—(Amateurs.)

L.G.1. Mr. Williams, Gr. to C. B. Warner, Esq., F.H.S.
L.G.2. Mr. Woolley, Gr. to H. B. Ker, Esq., Cheshunt.

ORCHIDS—IN TENS—(Amateurs.)

G.B.1. Mr. Gedney, Gr. to Mrs. Ellis, Rose Hill, Hoddesdon.
G.B.2. Mr. Clark, Gr. to Mrs. Webb.
S.G. Mr. Carson, Gr. to W. F. G. Farmer, Esq., F.H.S.
L.S. Mr. Hume, Gr. to Robert Hanbury, Esq., F.H.S.
S.K. Mr. Green, Gr. to Sir Edmund Antrobus, Bt., F.H.S.
S.B. Mr. Summerfield, Gr. to J. S. Venn, Esq.

ORCHIDS—IN FIFTEENS—(Nurserymen.)

G.B.1. Messrs. Veitch, Exotic Nursery, King's Road, Chelsea.
G.B.2. Messrs. Rollisson, Tooting.

CAPE HEATHS—IN TENS.

G.B.1. Messrs. Rollisson, Tooting.
G.B.2. Mr. Barter, Gr. to A. Bassett, Esq., Stamford Hill.
S.G. Messrs. Fraser, Lea Bridge Road.

CAPE HEATHS—SINGLE SPECIMENS.

S.K. Messrs. Veitch, King's Road, Chelsea.
S.B. Mr. Cutbush, Barnet.
C.1. Messrs. Rollisson, Tooting.
C.1. Mr. Rhodes, Gr. to J. Phillpotts, Esq.

SINGLE SPECIMENS—Excluding everything which can be shown singly in other numbers.

S.K. Messrs. Garraway & Co., Nurserymen, Bristol.
S.B. Mr. Cutbush, Barnet.
S.B. Messrs. Standish & Noble, Nurserymen, Bagshot.
C.1. Mr. Tegg, Gr. to Baron Hambro, F.H.S.
C.1. Mr. Turner, F.H.S., Royal Nursery, Slough.

NEW PLANTS IN FLOWER.

L.S. Messrs. Henderson, Pine-apple Place, Edgeware Road (Andromeda formosa).
S.K. Messrs. Veitch, King's Road, Chelsea (Embothrium coccineum).
S.B. Mr. Tegg, Gr. to the Baron Hambro, F.H.S. (Hoya sp.)

NEW PLANTS NOT IN FLOWER.

S.K. Messrs. Veitch, King's Road, Chelsea (Aralia papyrifera).

NEW GARDEN HYBRIDS.

S.1. Messrs. Veitch, King's Road, Chelsea (Rhododendron conspicuum).
S.2. Messrs. Veitch, King's Road, Chelsea (Rhododendron guttatum pictum).

MISCELLANEOUS.

S.K. Messrs. Paul, Nurserymen, Cheshunt, Herts. (30 new Roses in pots.)
S.B. Mr. Green, Gr. to Sir E. Antrobus, Bart., F.H.S. (Tetratheca ericifolia.)
C.1. Messrs. Lee, Nurserymen, Hammersmith (Azalea Leeana).
C.1. Messrs. Rollisson, Nurserymen, Tooting (Azalea Empress Eugenie).
C.2. Mr. Bray, Gr. to Baron Goldsmid, F.H.S. (6 Calceolarias.)
C.2. Mr. Morris, Gr. to Coles Child, Esq., Palace, Bromley (Caladium bicolor splendens).

ROSES IN POTS—IN TWELVES—(Amateurs).

G.K.1. Mr. Busby, Gr. to J. Crawley, Esq., F.H.S.
G.K.2. Alexander Rowland, Esq., F.H.S.
G.B.1. Mr. Terry, Gr. to Lady Giles Puller.

ROSES IN POTS—IN TWELVES—(Nurserymen).

G.K.1. Messrs. Lane, Berkhampstead.
G.K.2. Mr. Francis, F.H.S., Hertford.

TALL CACTI—IN SIXES.

S.G. Mr. Green, Gr. to Sir Edmund Antrobus, Bart., F.H.S.

PELARGONIUMS—IN TWELVES—(Amateurs).

G.B.1. Mr. Windsor, Gr., Kidderpore Hall, West End, Hampstd.
G.B.2. Mr. Todman, Gr. to Mrs. Buckmaster, Clapham Park.

PELARGONIUMS—IN TWELVES—(Nurserymen).

G.B.1. Mr. Charles Turner, F.H.S., Slough.
G.B.2. Messrs. Dobson & Son, Isleworth.
S.G. Mr. Gaines, F.H.S., Battersea.

FANCY PELARGONIUMS—IN SIXES—(Amateurs).

L.S. Mr. Windsor, Gr., Kidderpore Hall, West End, Hampstead.
S.K. Mr. Robinson, Gr. to J. Simpson, Esq., Thames Bank, Pimlico.
S.B. Mr. Barter, Gr. to A. Bassett, Esq.

FANCY PELARGONIUMS—IN SIXES—(Nurserymen).

L.S. Mr. C. Turner, F.H.S., Slough.
S.K. Messrs. Fraser, Lea Bridge Road.
S.B. Mr. Gaines, F.H.S., Battersea.

CINERARIAS.

L.S. Mr. C. Turner, F.H.S., Slough.
S.K. Mr. Wiggins, Gr. to Edward Beck, Esq., F.H.S.
S.B. Messrs. Dobson & Son, Isleworth.

PANSIES IN POTS.

S.B. Mr. C. Turner, F.H.S., Slough.
C.1. Messrs. Dobson & Son, Isleworth.

PINE APPLES, PROVIDENCE, &c.

L.S. Mr. Robinson, Gr. to Lord Boston, F.H.S. (a Providence Pine, 7 lbs. 4 oz.)
S.B. Mr. Clements, Oakhill, Barnet (a Providence Pine, 5 lbs. 5 oz.)

PINE APPLES, JAMAICAS, QUEENS, &c.

L.S. Mr. Price, Gr. to W. Forman, Esq. (Queen Pine, 3 lbs. 5 oz.)
S.K. Mr. Clements, Black Jamaica Pine, 3 lbs.
S.B. Mr. Fleming, Gr. to his Grace the Duke of Sutherland, F.H.S. (Moscow Queen, 2 lbs. 3 oz.)

BLACK GRAPES—SINGLE DISHES.

L.S. Mr. Clements.
S.K. Mr. Slowe, Gr. to W. R. Baker, Esq., F.H.S.
S.K. Mr. Dods, Gr. to Sir John Cathcart. Bart., F.H.S.
S.B. Mr. Fleming, Gr. to his Grace the Duke of Sutherland, F.H.S.
S.B. Mr. Munro, Gr. to Mrs. Oddie.
S.B. Mr. Breadley, Gr. to Sir S. M. Peto, Bart., V.P.H.S.
H.M. Mr. Spary, Queen's Graperies, Brighton (for Colour).

WHITE GRAPES—SINGLE DISHES.

L.S. Mr. Breadley, Gr. to Sir S. M. Peto, Bart., V.P.H.S.
S.K. Mr. Clements.
S.B. Mr. Ward, Gr. to W. Stephens, Esq., F.H.S.

PEACHES AND NECTARINES—IN COLLECTIONS OF THREE.

S.G. Mr. Fleming, Gr. to his Grace the Duke of Sutherland, F.H.S.

PERSIAN MELONS.

S.K. Mr. Fleming, Gr. to his Grace the Duke of Sutherland, F.H.S. (Trentham Hybrid).
S.B. Mr. Robertson, Gr. to Lady Emily Foley (Hybrid Persian).

FIGS.

S.B. Mr. Busby, Gr. to J. Crawley, Esq., F.H.S., Brown Turkey.

CHERRIES—SINGLE DISHES.

S.K. Mr. Fleming, Gr. to his Grace the Duke of Sutherland, F.H.S.
S.B. Mr. Ingram, Gr. to Her Majesty.

RASPBERRIES.

C.1. Mr. McEwen, Gr. to his Grace the Duke of Norfolk, F.H.S.

STRAWBERRIES—IN COLLECTIONS.

L.S. Mr. McEwen, Gr. to his Grace the Duke of Norfolk, F.H.S. (Eleanor | British Queen | Victoria).

STRAWBERRIES—SINGLE DISHES.

S.K. Mr. Cox, Gr. to J. Hodgson, Esq., F.H.S. (Keens' Seedling).
S.B. Mr. Constantine, Gr. to C. Mills, Esq. (Prince of Wales).
C.1. Mr. R. Smith, Twickenham (Keens' Seedling).
C.2. Mr. Lane, Gr. to J. H. Palmer, Esq., F.H.S. (Ditto).
C.2. Mr. Drummond, Gr. to S. L. Stephens, Esq., F.H.S. (Ditto).
C.2. Messrs. Tyne & Son, Hounslow (Ditto).

RARE EXOTIC FRUITS.

G.B.2. Mr. Iveson, Gr. to his Grace the Duke of Northumberland, V.P.H.S. (Fruit of the Mangosteen—Garcinia Mangostana).

MISCELLANEOUS.

S.K. Mr. Fleming, Gr. to his Grace the Duke of Sutherland, F.H.S. (Mandarin Oranges in pots).
S.B. Mr. Constantine, Gr. to C. Mills, Esq. (Grapes, in pots).
C.1. Mr. Roser, Gr. to J. Bradbury, Esq., F.H.S. (Himalaya Cucumbers).
H.M. Mr. Lockyer, Princes Square, Plymouth (Lemons grown in the open air).

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After four years' extensive use by the most eminent Gardener in the kingdom, the superiority of PAGE & Co.'s BLIGHT COMPOSITION is unquestionable, requiring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage) and promoting a luxuriant growth.

See two pages Testimonials, *Gardeners' Chronicle*, March 3, 1855

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Messrs. Thomas Davies & Co., Wavertree, Liverpool
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Messrs. Hooper & Co., Covent Garden, London
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Mr. Davison, St. Peter's Street, Hereford
Mr. W. Garraway, Welwyn, Herts.
Mr. Thos. Cridland, Willington, near Taunton
Mr. Henry Horne, Market Place, Henley-on-Thames
Mr. R. M. Mills, Market Place, Bourn
Mr. Husbands, Talbot Street, Nottingham
Mr. Caparn, Seedsman, Newark
Mr. John Cattell, Seedsman, Westerham
Mr. Morgan, Nursery, Kidderminster
Messrs. Ivery & Son, Nurserymen, Dorking and Reigate
Messrs. W. Drummond & Sons, Dawson Street, Dublin
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M'ADAM AND CO.'S BLIGHT COMPOSITION, now universally used, is sold in packets (with full directions) at 3s. 6d. each, sufficient to make 24 gallons of liquid wash. No Grape, Peach, or Plant grower should be without this invaluable remedy (see *Gardeners' Chronicle*, May 27, June 10, July 1, &c.)—Agent, JOHN HAYNE, 8, Liverpool Street, City, London. Paid orders forwarded.

ITALIAN RYE-GRASS SEED.

SUTTON AND SONS, Reading, having in anticipation of the present great demand for this invaluable article provided an extra large stock of the best quality seed, are still able to execute orders for either Sutton's Improved, Dickenson's, or Fresh Imported Seed, price 7s. 6d. per bushel. Instructions for cultivation are sent with the Seed.—Early orders will be necessary.

The Gardeners' Chronicle.

SATURDAY, MAY 19, 1855.

TILL Wednesday last few persons knew anything of Gore House except that it had once been inhabited by the Countess of BLESSINGTON, and was afterwards desecrated by Monsieur SOYER and his myrmidons. The great Exhibition of Flowers by the Horticultural Society has now explained what the situation really is, and shown how admirably it is adapted for public purposes by extent, by the arrangement of the ground, and, above all, by facility of access from London. And we cannot but express our conviction that the far-seeing wisdom of Her Majesty's Commissioners in obtaining possession of such a site, partly by means of the surplus of the great Exhibition and partly by a Parliamentary grant, will be fully established by the result. The ground in the hands of the Commissioners includes about 86 acres, and is already enclosed on two sides by new roads leading in the direction of Brompton, one of which called "Prince Albert's" will be perhaps the finest near the metropolis. On the north is the Kensington high road, and another is to be made on the south, so that the area in the final occupation of the Commissioners will form an irregular parallelogram, of which the kept ground filled on Wednesday by the Horticultural Society forms a portion of the northern limit. No one who stood upon this spot, and carried his eye over the space bounded by the flags fixed by order of the Royal Commissioners, could fail to see how great are the means at their disposal for the purpose of aiding science and art.

The ground on which the Exhibition took place consisted of the gardens and adjoining field formerly in the occupation of Lady BLESSINGTON and Lady ELIZABETH WHITBREAD, but now thrown into one by command of his R.H. Prince ALBERT, President of the Royal Commission. The space thus obtained was well suited for such an operation as that of the Horticultural Society, and had the day been more favourable, would have formed a charming scene with the large lawns, thinly sprinkled with fine trees, and the numerous tents; but the sun did not shine even once, the air was chilled by a damp atmosphere acted upon by a biting east wind, and the day, although dry, was one of winter not of summer, but we trust the last of such unusual weather as we have experienced.

The QUEEN, accompanied by Prince ALBERT, with

the Duke of Saxe Coburg, the Princess of Hohenlohe, and their suite, visited the garden early, and the exhibitors will gladly learn that her Majesty was graciously pleased, not only to express her satisfaction at the general result of their labours, but at the gradual progress in good cultivation, which their displays annually evince. And even the most critical must admit that such Roses, and such Azaleas, were never seen before, or indeed such fruit in the month of May.

We shall not, on the present occasion, particularise individual exhibitors, of whom a full and separate account will be found in another column, but content ourselves with adding our own humble testimony to that of the distinguished visitors, that such plants and fruits as were on Wednesday produced in spite of every difficulty which could arise out of a most ungenial spring, reflected the highest honour upon the horticulture of England. And this too was the unanimous opinion of the numerous spectators who filled the grounds in the afternoon.

In the last number of the "Quarterly Review," p. 439, in the article "The Forester," the writer offers some advice on the formation and treatment of hedges. For the benefit of such of our readers as may not have perused the article in question, we quote the passage referred to. "If," says the writer, "the last (Quicksets) be selected, it (the hedge) will be rendered more efficacious, though less ornamental, by mixing Beeches with the Thorns, as these trees, when young, retain their withered leaves until spring, affording shelter to the plantation during the budding season, which is the period when their services are most needed. The young Thorns, before being set, should be cut down to about 4 inches above the crown of the root; but the Beeches must be left whole."

Before offering any comment on this passage, we will direct attention to another from the same article, merely requesting our readers to be good enough to compare them. At p. 444, the writer tells us that "The first object is to encourage the trees to root themselves firmly in the ground. A plant should never be required to do two things at once, or one, perhaps both, will be performed imperfectly, and the plant will suffer. On this principle it is a bad practice to prune a young tree severely when transplanted, while to cut it down to the roots is likely to be most pernicious."

Surely the writer must have forgotten the first passage when he wrote the last one. No one will, we think, dispute the very excellent physiological axiom conveyed in the latter; but why it is not as applicable to a Thorn as to an Oak or a Beech, we confess we are unable to perceive. If the act of cutting a Thorn off to within 4 inches of the crown of the root is not severe pruning, what does constitute severe pruning?

The fact is, that when Thorns are planted to form a hedge they should not, except the plants are very large, be cut down, and then but partially. The operation should not be performed till after a year's growth. And we are sure that no one who is desirous of raising effective Thorn hedges would think of mixing Beeches with them; notwithstanding the recommendation of so high an authority as that of the "Quarterly Review." Beeches alone form a very handsome and, if properly managed, efficient hedge; and the same may be said of Thorns, as every-body knows; but if you wish to destroy the efficiency of both combine them in the same fence. If the shelter which a Beech hedge affords, from the circumstance of its retaining the leaves after they are dead, is of value to a young plantation, by all means plant Beeches; there can be no possible reason for destroying its efficiency in this respect by mingling Thorns with them.

We are aware that many persons are in the habit of introducing into the same hedge other plants besides Beech and Thorn; but all such mixtures are to be condemned. Decide upon some one kind of hedge plant most suitable for the particular purpose required, and form your fence of that alone. The practical value of this advice few will dispute. We have said that Thorns when planted to form a hedge should not, except under particular circumstances, be cut down till after they have been established one season. Many excellent cultivators act otherwise we know, but this is more from deference to custom than from any other consideration.

On a large estate with which we are acquainted, where Thorn hedges are planted yearly to a great extent, the practice adopted is as follows. We may add that the hedges there are very rapidly formed, and are highly efficient as fences.

The line of hedge having been marked out, a space 2 feet wide is trenched to the same depth. Upon this 3 or 4 inches of well rotted manure are put, and forked in. Over this forked ground 6 or 8 inches of the soil outside of the trenched ground is cast, so as to give the foundation of the hedge a prominence over the adjacent field. In the ground so prepared the young Thorns, as soon as the leaf is cast in the autumn, are planted, *but not cut down*. Small healthy plants are chosen. Of course a rough fence is placed as a protection. After the plants have, by being planted a season, become well established at root, a handy man with a large pruning knife cuts all the plants down to within an inch or so of the soil. This operation is performed in the spring, just before growth commences. Of course, during the preceding summer no weeds have been allowed to interfere with the growth of the plants. After the first spring pruning is over, all the cut down plants and rubbish are carefully cleared off, and the ground about the plants stirred and "turned in."

During the second season after planting, weeding is carefully attended to. Each plant will of course have made two, three, or more shoots. These are at the pruning season cut hard back, as with the young plants in the previous year. The rich ground will form an admirable foundation for the future hedge, and proper attention only is required to secure an excellent fence.

Common or ordinary plants are unfortunately considered by very many persons as not requiring the same careful treatment as others of greater rarity. Very few cultivators we know think of manuring their hedges. The usual practice of hedge planting, with the subsequent attention which the plants receive, bears out what we have said. A bank of poor soil is thrown up of some 2 feet in height. A number of Thorns, mutilated after the most approved fashion of our reviewer, are stuck in. And this part of the affair, by the bye, is not seldom performed when the plants are in leaf. Upon this bank they dry up, or are starved, constant deficiencies occur, and the misapplied labour of half-a-dozen years produces a hedge in name, but no fence in reality. *G. W. L.*

Our readers cannot but peruse with intense satisfaction the following correspondence, for it shows that political honour and inflexible integrity may find solid support even against influences as powerful as those of an unscrupulous Treasury. The House of Commons has done its duty by compelling the gentlemen who deprived the country of the services of Mr. Kennedy to eat dirt in the most literal sense; and we now see, with admiration, that one of Her Majesty's subjects has nobly stepped forward to proclaim in a most unmistakeable though unostentatious manner that disgust which is everywhere felt at an act of despotism from which even a Turkish Government would have shrunk. We sincerely congratulate the right honourable gentleman and his friends upon so signal a recognition of his wrongs; but we still more congratulate the country upon the continued existence of a public spirit which, though latent, will some day break out and overwhelm those who render good departmental administration impossible:—

"Porthkerry, Cowbridge, South Wales, May 14, 1855.

"Sir,—I shall be obliged if you will be so good as to insert in the columns of the *Gardeners' Chronicle* this note, together with the accompanying copy of a document (the name omitted), the original of which has been recently transmitted to me. I wish to add that I have accepted the gift it confers, and although I am not *permitted* to mention the *name* of the donor, I may state that he is not connected with my family, and that relations of friendship, which have existed between him and myself during the unbroken period of now fifty years, have governed my conduct in this matter.

"I am, Sir, your very obedient Servant,

"T. F. Kennedy."

"To the Editor of the Gardeners' Chronicle."

(*Copy*)

Whereas my friend, the Right Hon. Thomas Francis Kennedy, has been deprived of the office he held as Commissioner of Woods and Forests, mainly, as I believe, from his inflexible zeal in the discharge of the duties of that office, in promoting the welfare of the country, at the sacrifice of influential patronage, and he may not for long, or ever during his life, have that injustice repaired; therefore I, ——, hereby bind and oblige myself, my heirs, executors and successors, and —— to pay to the said Thomas Francis Kennedy an annuity of twelve hundred pounds a year, at two terms in the year, Whitsunday and Martinmas, by equal portions, commencing the first term's payment thereof at the term of Whitsunday, 1855, and so on half-yearly thereafter: Provided always, that in the event of his being appointed to any office, or receiving any pension or allowance in respect of his past services to the country, the said annuity shall be diminished to the extent of the salary of such office, or of such pension or allowance; and I consent to the registration hereof for preservation and execution. In witness whereof I have subscribed these presents, written by ——, at London, the fourth day of May, one thousand eight hundred and fifty-five, before these witnesses, —— and ——.

(Signed) ——.

New Plants.

125. So-called new species of Conifers.

1. *Pinus spinulosa*, Griffith ic. iv., t. 373, is *Abies Morinda*.

2. *Pinus Griffithi*, M'Clelland in Griff. ic. iv., t. 375, is *Pinus excelsa*.

3. *Pinus Khasyanus*, Griff. ic. iv., t. 377, is a very doubtful plant, probably identical with *Pinus sinensis*.

4. Pinus Maderiensis, *Tenore in Ann. des Science, 4 ser. vol.* 2, *p.* 379, is said to differ from the Stone Pine in its very unequal-sided apophysis, with the central tubercle somewhat hooked, not flat, in the leaves being twice as long and occasionally in threes, and in its branches not being upright, but like those of a Pinaster, of which it has the habit. Professor Tenore says he had the seeds 20 years ago from Mr. Fox Strangways as a Pine from Madeira. Is it different from Pinus canariensis?

VEGETABLE PATHOLOGY.—No. LXXII.

310. Chlorosis 5. (*Constitutional and Organic.*) Potato Curl.—It is with some hesitation that I refer this malady to Chlorosis, because I have had no opportunity of studying it properly myself. It is unknown or extremely rare in the midland counties, and indeed does not appear of late years to have been so formidable as at the beginning of the century, though it was said to be very prevalent in 1847 in Potatoes from Bermuda in the gardens of the Horticultural Society, and in other imported varieties. The best account of the disease with which I have been able to meet is in the treatise of Martius, who however knew the disease only from the reports of others, to which I referred some years since in Morton's "Encyclopædia of Agriculture," and in that of Putsche and Bertuch, which I had not seen when that article was written. From an attentive consideration, it seems to me to be a constitutional disease, however it may have been at first contracted. All the accounts are unfortunately deficient in a description of the appearance exhibited by the young shoots, which is the more desirable, as its connection with, or distinction from, a disease described in the following article, which before the occurrence of the Potato murrain was known under the name of the dry rot, and characterised by the frequent decay of the sets, the difficulty with which they shoot, and the imperfection of the shoots when produced, combined with a tendency to produce a few miserable tubers instead of rising into perfect haulm, requires to be satisfactorily ascertained.

311. The curl was first observed in Great Britain in the year 1764, but it soon extended into the provinces on the Rhine, and to other parts of Europe. The most extravagant notions were prevalent as to its cause, one of the most singular of which, and maintained with much violence was that it was due to the impregnation of the finer varieties of Potatoes with the pollen of those kinds which are cultivated for cattle. No more satisfactory result was derived from all the treatises than from the greater part of those with which Europe was inundated in 1845 respecting the Potato murrain. It was, however, observed that settings from crops affected with curl were capable of propagating the malady, and that the safer practice, even where pains were taken to destroy every affected plant, was to obtain seed from a district entirely free from the malady. The disease must, therefore, either be constitutional or must be produced by something inherent in or adherent to the settings, the former of which seems to me the more probable condition on a careful examination of the evidence.

312. The affected plants are at once distinguished by their sickly stunted growth, their simple unbranched stems, their almost sessile leaves, their mottled chlorotic aspect, their distorted shape, and by partial decay of the tissues, affecting not only the external parts but penetrating to the centre, so that the stems perish long before their time. The fruit when produced, which is but rarely the case, for the flowers in general fall off prematurely, is mottled like the stem and leaves, and the tubers which are few in number, if produced at all, insipid and watery, are perfectly useless from the unpleasant effects which they produce. These tubers, like those of Potatoes affected by Potato murrain, do not necessarily reproduce the disease, but together with the greater part of those amongst which they grow they have a tendency to do so.

313. Though the foliage is occasionally much altered and distorted, the name of the disease is quite as much derived from the curved form assumed by the shoots as from the leaves themselves. There is the greater necessity to call attention to this point, because the name is often applied to Potatoes affected by aphis. A few individuals about a plant are quite sufficient to affect the foliage; but even where the appearance of a whole crop is thus affected, the consequences may be altogether immaterial. The aphis is injurious only where it multiplies to excess.*

314. Chlorosis 6. Dry Rot in Potatoes.—Before I proceed to the consideration of this disease, it is necessary to remark that though the popular name is identical in meaning with the affection to which the

* Since the article on the Chlorosis of Hyacinths was written I have had a plant in my possession in which the leaves and stem were distorted with wart-like swellings, the flowers only partially opened, those at the top gradually dying, and the paler portions of the leaves showing a similar disposition. The bulb is unhealthy, but not actually decaying, and the roots, though weak, do not appear unsound. As the decay is beginning to affect the leaves, the whole plant will probably perish.

Germans have given the name of Trocken-fäule, there is no resemblance whatever between the two maladies. It was observed in paragraph (310) that the relation of dry rot to curl has not at present been accurately ascertained. Be this relation, however, what it may, the disease is unhappily too generally known from the great loss which it occasions to the cultivator, and the disastrous consequences which have arisen, more especially in Ireland. The sets when committed to the ground remain either altogether dormant, and then pass into a state of decay, or they produce only weak and distorted shoots which either themselves swell into a miserable tuber, or give rise without any further development to a few diminutive Potatoes, or if the shoot has strength enough to appear above the surface it attains only small dimensions with a yellow chlorotic aspect, and perishes without, however, as far as I have observed, exhibiting any marked distortion. All the tubers from the same seed are not similarly affected; and in consequence the crop in general exhibits a patchy appearance. Now, it is at once evident that every case in which the tubers refuse to germinate is not referrible to the same cause. They may have been heated, salt may have been purposely placed with the Potatoes in the pits to prevent heating, or the Potatoes themselves may be partially decayed from different causes, and in such cases we need not be surprised if the crop fails. The essence of the disease before us consists in the tubers being to all appearance, even on attentive examination, perfectly sound, and yet indisposed to shoot—a condition precisely contrary to that which obtains in tubers affected with the Potato murrain, which are notoriously precocious.

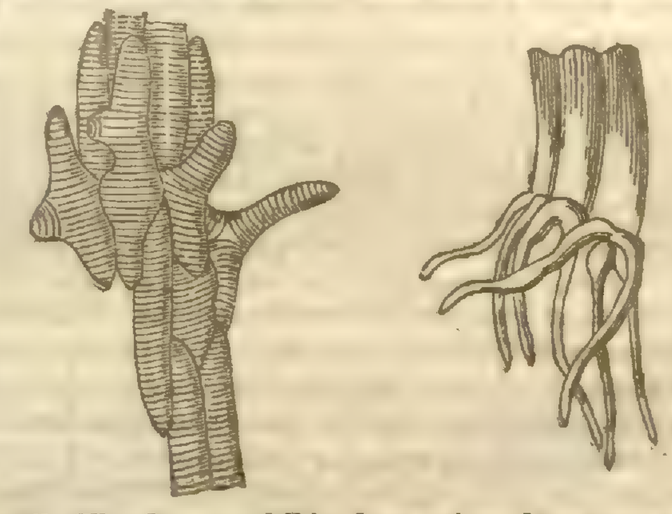
315. One or two of the causes which have been assigned for this affection have already been disposed of. Imperfect ripening of the tubers is one which perhaps would deserve a little notice, if there were any reason to suppose that, in the majority of cases in which it occurs, imperfectly ripened sets were used. This is, however, so far from being the case that the very contrary supposition, of the tubers being allowed to arrive at the most perfect state of growth before their removal from the soil, is a favourite theory with some; founded partly on the fact that imperfectly ripened seeds germinate more readily when committed at once to the ground, than those in which the tissues and their contents have arrived at that condition in which they can retain their vegetative powers the greatest length of time, and partly on the notion that, where the whole or the greater part of the contents of the cells are converted into fecula, there is little or no nitrogenous matter present to facilitate the conversion of the starch grains into a soluble substance capable of affording nourishment with sufficient rapidity to the nascent or dormant eye. It is not, however, observed that where scattered tubers have been accidentally left in the ground, or where whole plants have been left intentionally, there is any difficulty of vegetation, or any want of strength in the young shoots. The practice of greening Potatoes by exposing them to light depends upon this notion; but if it has any effect in producing a flourishing crop, it is probably because such tubers are less liable to decay than others, or less exposed to the attack of such fungi as prey on organisms in which the vital principle is liable to easy derangement. Thus much at least seems certain, that where whole tubers are used in preference to sets, the crops are much less subject to the dry rot. In their natural condition the feculiferous cells are protected not only by the cuticle itself, but by several layers of subcuticular cells, whereas in sets they are completely exposed, and it is very possible that the immediate subjection to the fluids contained in the soil, which may contain matter extremely noxious when absorbed at once by the cells, though harmless when imbibed by the cuticular surface or spongelets, may prove injurious. The whole subject is, however, open to further inquiry; but no result can be expected where preconceived notions or hasty conclusions blind the judgment and prevent a fair examination of comparative phenomena. It is well ascertained by the most careful and competent judges, that in comparison of sets undivided tubers have a great superiority in point of certainty and produce; it is wise, therefore, to follow the experience of such authorities, even though it may entail a little additional outlay; and where parties are obstinately bent on using sets, it may be well to apply lime, or diluted gas-tar, or other matters which appear to protect them from external injury. I have not adverted to the use of raw manure, which, however injudicious it may be in other respects, cannot have any influence in retarding growth. *M. J. B.*

ADVENTITIOUS ROOTS.

It is a fact pretty well established that, in phenogamous plants, adventitious roots are not formed, except where there is vascular tissue under whose vital influence the young rootlet may be developed; and this is no less true of each further division of the root than of the primary axis. An excellent illustration of this was afforded by some Celery leaves which had been accidentally injured, which were forwarded by Mr. William Ford in the early part of 1852, one of which was figured in this journal at the time, producing a mass of roots from a spongy callus generated at the lower lip of the fracture. A single leaf has just occurred to me, producing perfect roots from the fractured surface; but in this case the upper lip of the wound gave rise to the roots, which were uniformly in pairs. A vertical section through the leaf and young rootlet, as in the former instance, exhibited a direct communication of the vascular tissue of the leaf with that of the root, and had nothing more appeared, I should have considered it quite superfluous to call attention again to the matter; but the tissue was so remarkably modified at the point of juncture of their respective fascicles, that it is well worth a few more words.

In the root itself, and in the vascular bundle from which it sprang, the spiral vessels (for true spirals, capable of being unrolled, existed in the fascicles) were straight and showed no peculiarity, but at the point of junction they were highly distorted and branched, often giving off short protuberances, and increased evidently by the swelling out of their sides after the fashion of a branched Conferva, and not by the production of new cells within the parent cell, or the confluence of several, and the subsequent absorption of the dissepiments. The fascicles, too, of each pair of roots were more or less connected. The structure was in fact precisely the same as that represented by Trécul in the abortive adventitious roots of the yellow Water Lily ("Annales des Sciences Naturelles, Nov., Dec., 1854.") though singularly enough those roots which in *Nuphar luteum* break through the bark exhibit no such structure, while their ramifications present merely the obtuse, slightly curved, and incrassated ends of their spiral vessels attached at right angles to the scalariform or reticulated vessels of the main root. As only a single root-bearing leaf occurred in which all the rootlets were well developed, there was no opportunity of observing in what precise manner they were given off, but it is quite clear that the spongy cellular mass produced at the fractured surface had no further part in their production than supplying nutriment and temporary protection to the nascent fascicle from which the new root was ultimately developed.

It is worthy of remark, in connection with the fact of the adventitious roots in the former case arising from ascending fascicles, whereas, in the present, they are due to descending offsets, that in the yellow Water Lily all the adventitious roots are originally ascendant, though eventually those only appear to be in general developed which are on the side which is in contact with



the soil. The figure exhibits four pairs of roots springing from three marginal ribs of the leaf, as seen from the upper surface, the spongy body, in consequence of its obliquity, being completely concealed. The fascicle of vessels alone is represented as seen in a vertical section, not passing directly through the centre, but a little on one side, the bast cells which surround it being entirely omitted as not exhibiting anything peculiar. The outer surface of all the roots was clothed with short delicate hairs, which no doubt are a great assistance to the spongy tissue in imbibing nutriment from the soil. I have nothing to add to the practical inferences which were before deduced from this curious subject. *M. J. B.*

TROPÆOLUM TRICOLORUM.

Than this, few plants possess more real interest; and it is as useful as it is interesting, for it continues to flower nearly the whole season through. It is so easily managed, too, that it may be cultivated successfully in a greenhouse, a pit, or even in a window, if frost is kept from it; and then its curiously formed, lovely red flowers, when once developed, create such a charming display, that any little care bestowed on it during its early growth is amply repaid. Nobody who loves flowers—and who does not!—should be without this valuable little plant, the training of whose tiny shoots over the slender trellis that is destined to support them affords agreeable employment for many an otherwise profitless half hour.

The mode of culture I pursue is as follows. As soon as the plants have done flowering, they are removed to the back of the greenhouse, or to any sheltered place most convenient, and are allowed to dry off gradually. When the stems have become completely dried up, and break from the bulbs, the latter are carefully taken out of the pots in which they have flowered, wrapped in paper, and preserved in a drawer, until the time arrives for their being started again into growth. This will be about the middle of September, when they will have grown a few inches. I then pot them directly into the pots they are intended to flower in. For bulbs from four to five years old, I use 11-inch pots, and smaller in proportion to their size.

The soil which I find to suit them best is a mixture of equal parts of turfy loam and fibry peat, with a portion of well-decomposed cow-dung, and a sufficiency of silver-sand to make the whole gritty. These materials should be well mixed together, and used in a rather rough state. In potting, I employ clean washed pots, and place about 1½ inch of broken crocks over the bottom, with a layer of moss to keep the soil from mixing with the drainage. In filling the pots, I use the rougher portion of the soil first, and the finer as the pots become nearer full. This mode of proceeding secures perfect drainage, which is of the highest importance. My pots filled, and lightly pressed down, I insert my bulbs, leaving their crowns just below the surface; I then give a good watering with a fine-rosed pot, and keep them afterwards moderately damp; but I never allow water to stand in the pans, as they are impatient of much moisture at any time, except when in full flower, and then they require a rather plentiful supply.

I always fix the trellis on the pot at the time of potting, as it saves the roots from being injured, as would happen, if the operation was delayed to a future time. I carefully lay in the shoots as soon as they are produced, and fill every part of the trellis, which is brought over the front of the pot to within 4 or 5 inches of its bottom. This gives them a neat appearance; and a month before they come into full bloom, I contrive to have the shoots equally distributed all over the trellis; for when this is the case, the beauty of the plant is very much enhanced. *Alpha.*

Home Correspondence.

Are Large Boilers Economical?—Messrs. Weeks have, by their advertisement, shown the extent to which they have applied the system of heating numerous houses and pits from a single boiler, and by an assumption of the saving which they calculate would be effected by a more general adoption of it (which, however, has been shown to be not quite correct in the case of the Palm-house at Kew), have re-opened a subject on which discussion has languished since the death of the zealous advocate of the Polmaise plan. But, as I apprehend, the subject can scarcely be considered to be exhausted, if men so practical and of such extensive experience as Messrs. Weeks and Mr. Ayres differ so widely in opinion; and as economy in fuel and attendance cannot be an object of indifference to the many, whatever it may be to the few, especially with the increased price to which these have lately attained, perhaps you will allow me to make a few observations rather with a view to elicit the opinions of the experienced than to express my own, premising, however, that it is a point to which I have given some attention, and that the cost of my experiments, successful and the reverse, falls on my own shoulders. There is perhaps truth in the proverb, that we are apt to attach some, it may be an undue, value to experience which we have acquired at our own expense. The question, then, as far as the public is concerned is (leaving out all extreme cases of very large structures), to what extent a number of separate horticultural buildings may with advantage be heated, hot water being the medium, from a single boiler, as I suppose that few will be found to maintain that each separate house and pit will require a separate boiler. This naturally divides itself into two sections: the first the original cost of one boiler with the additional connecting pipes and stops, in comparison with a less quantity of pipes and stops, and an additional number of boilers and setting; the second, the loss of caloric along the extra conveying pipes in the first, against the escape from the chimneys and furnaces in the other. The objections offered by Mr. Ayres are important; and if they were without remedy the subject would seem to admit of no further discussion. But are they so in reality? Take, for instance, the one to which I attach the most importance, the bursting of the boiler; and as I have not escaped this calamity I know how to sympathise with others in the same predicament. But if instead of one large boiler two of an equal aggregate capacity were placed in juxtaposition, so that the same chimney and one setting were available for both, with stops connecting with the same main flow and return pipes, a precaution against the worst disaster arising from the bursting of a single boiler is secured, and other advantages obtained; for, as both of the boilers could be worked separately or together, the control over the heating power would be much more complete; and as one supply of fuel would serve, scarcely any appreciable extra attendance would be required. I am of course presuming that the houses and pits to be heated are in such proximity that the mains can be connected with each without being carried to wasteful distances. And this brings me to another of Mr. Ayres's objections—the expensive connecting valves, and the trouble of attending to them. If a valve cannot be had for less than 42*s.*, perhaps one might pause to consider; but if the alternative be a valve or a boiler, perhaps the balance might be in favour of the former, even at that price. I think, however, nay, I know, that a simple and effective stop may be had for much less. If it be required to keep several houses and pits at given or varying temperature, it will be as necessary to attend to, and vary the supply of heat as frequently, if each house have a separate boiler, as if they have one in common, always, of course, supposing the command of a sufficient amount of heat for the whole; but where in general practice is this excessive nicety observed? Is it, indeed, essential? If so the almost hourly attention is in either alternative equally so, with our constantly varying changes in the external temperature during the 24 hours. The relative temperatures may easily be secured by the quantity and arrangement of the pipes laid in the respective houses. I do not intend to question the axiom advanced by Mr. Ayres, that a given quantity of fuel

contains a specific amount of caloric (the whole of which, I will add, is evolved in combustion, whether the proce-s of combustion be fast or slow), and that a given body of water requires a certain amount of fuel to heat it to any given temperature (varying, of course, under different conditions); and that that boiler which absorbs or extracts (I should rather say is the medium of conveying to the pipes, not necessarily synyonmous terms), with the least loss of heat from the door and chimney, is the best; no matter the form, nor is it at all material whether one boiler or half a dozen be employed, so that the object be attained. Here, however, the field of discussion begins, as to which form and arrangement will do the most effectually; and although it forms the question at issue, I will not trouble you with any lengthened theory of my own; only observing that as three sorts of material may be used for fuel, perhaps no one form or arrangement is equally best for all, but as local position will determine—whether coals which cake together during combustion; or those which do not, and coke and cinders; and, lastly, wood, and perhaps peat, be the fuel used, so do I incline to think that each will require a different arrangement from the other two for the most effective application of the caloric. The extreme case to which Mr. Ayres alludes, of a pit at Messrs. Weeks's being raised in a few minutes to 60° at a distance of 365 feet from the fire, I suppose is given by them to show that even at that distance they have a command of heating power. There is little fear that under a management far inferior in intelligence to that of Mr. Ayres, such an oversight should occur as to render it necessary to heat a large boiler and 750 feet of pipes for the sake of a solitary pit; indeed there are few establishments where several glass structures are in use, and where bottom as well as atmospheric heat is derived from hot water, where firing can be entirely dispensed with for many days together the whole year round. Surely then a case arises for consideration, to what extent several separate horticultural structures may with advantage be heated from a single source, especially where new buildings are being erected, or old ones rearranged. *T. K.*

Advantage of Larch.—I have not a leaf out of any tree (not even the Sycamore) excepting the Larch, all of which, even 200 feet above the other deciduous trees, are in full leaf. *Somerset, May* 12.

Crithmum maritimum.—Permit me to ask if "Samphire" is not the common English name of this plant. [Yes.] The French call it "Percepierre" or "Fenouil marin." It grows plentifully amongst the rocks on the coast of Brittany, as I once learnt to my cost. Having given a franc to a soldier whogathered a basketful for me, his example was followed by so many of his comrades, that I was forced to stop payment long before their zeal in the "dreadful trade" was exhausted. I was not aware that the name of "Percepierre" was used in England. *J. M. C.*

Vinegar Plant.—I have lately had this plant given me, with the following receipt:—"To 2 quarts of water add ½ lb. of coarse brown sugar, and ¼ lb. of treacle; boil them together; when quite cold throw it into the jar on the plant. Tie perforated paper on the jar, and let it remain undisturbed two months—three months will be better." It strikes me that in some former number of your Paper, when speaking of the adulterated vinegar sold by tradesmen, you recommended the making of vinegar with this plant. Pray is the above receipt a good one—is there a better *modus operandi?* How long after its being separated from the mother plant can the new one remain before being used? If taken out during the time prescribed, for a minute or two, will any evil arise?—this has been the case with a friend of mine. If not encroaching too largely on yonr time, might I ask you for some little description of this plant, as to its genus, &c., and discovery. *N. A. P. B.* [We have no experience in the matter. The plant itself is the mycoderm, or mothery matter of a mould called Penicillium glaucum.]

Result of not Protecting Wall Trees.—Like your correspondent, Mr. Henderson, of Coniston, Yorkshire, I have always covered my Apricot trees with canvas, netting, &c.; but six years out of seven I have failed in obtaining a good crop. I determined, however, this year not to use any covering whatever, and take my chance; I have this day, May 15, looked over my trees, and I am glad to say that I have an excellent crop. I can count 50 in a square foot, not in the least hurt by the spring frost, particularly that of the 5th inst.; they are as fresh and green as any one would wish to see, I have never seen so good a crop before. My Peaches and Nectarines are apparently equally good; our wall is a very old stone one about 12 feet in height, with no projecting coping. *George Archer, Gardener, Finedon Hall.*

The Frost in Italy.—On the 27th of April the frost was so severe at Naples that all the Tomatoes were killed, excepting those few close to the sea, and sheltered by reed screens; even the Vines suffered. At Salerno, still more south, the wind was as cold as in March in London, and snow fell on the lowest hills around. Near Nismes the Olives are all killed as far as the branches go; it is too early to tell if it has reached the stems. The poor farmers are cutting back the trees just as we do Apples for grafting. It thus appears that the severity of the past winter has been widely felt, and the disasters occasioned by it will, in all probability, long live in the recollection of many. *Somerset, May* 12.

Foreign Correspondence.

Guatemala, *March* 2, 1855.—I went on the 5th of last month to Los Nubes (the Clouds), reached them in seven hours, and literally I found myself in the clouds. The altitude of the mountains may range from 7000 to 8000 feet above the level of the sea, or perhaps a little more. The soil is very light, but dark exquisite mould and rich pasture. On the ascent (about 3 miles) were patches of Cypress covering spots on the barrancas, forming triangles and very remarkable from their foliage; not another tree mixing among them, and yet only in two or three spots were distinct or solitary trees observable. As we ascended I was particularly struck with the intense scarlet of a plant of which seeds have gone home, and also of Fuchsias, but only two species, pygmæa and elegans. I took up my quarters in a new rancho building, and fear I passed as uncomfortable a time of it as our Crimean folks. The cold was intense, and in the morning the ground was quite white and the Grass crispy, such as we have in October in England, but, oh! what a glorious day, and how delighted I was with my trip of three days! The Oaks are 100 to 150 feet high, covered with Lichens, Mosses, Tillandsias, and Orchids, Epidendrum vitellinum, Odontoglossum cordatum, and Arpophyllums, with some fine varieties, really very beautiful, of Epid. arbusculum; one species I now send to England, with white lip tipped with brilliant pink. Odontoglossum cordatum was in great beauty. What a glorious free-flowing thing this is!—each bulb has two flower stems, and few less than a dozen to twenty flowers on each, and in masses presenting quite a Chiswick bank; but how to get them down was the difficulty, and I risked my neck two or three times, for I am not so nimble on a tree as I used to be 20 years ago; but the excitement was irresistible. From one tree, the only one with the assistance of ropes and two Indians which was at all scaleable, we culled about 200 fine plants, and then we had to get men to fell the trees—the only means of getting good plants—which costs about five to six hours' hard work to accomplish; but what a store-house these mountains present! I have risked four boxes now to England to Mr. Veitch, and refer you to him for a share for the gardens, as well as of all the seeds I made collections of, evergreens, &c. My advice as to the growing successfully of Odont. cordatum, Epid. vitellinum, and Arpophyllum, is to pot them in fibry peat or light mossy stuff mixed with leaves and woody fragments, and place the pots in a saucer with water, keeping it every evening well supplied. Try some of all these plants in a greenhouse, and some out of doors during the summer, when showing flower, as much exposed to the sun as you can; for I found the most brilliant colours where most exposed and free from shade. The sun during the day was very hot, yet in the shade I am sure the thermometer would never reach 60°, and after sun-down the exhalation from the ground was excessive, even freezing after 8 or 9 o'clock, during my visit; the day I left, however, the whole mountains were again enveloped in their accustomed clouds, and rain for four days succeeded. I was so benumbed the last night with the cold that I caught a touch of rheumatism, and resolved to seek a melter on the coast. A ride of five hours took me into a climate of 80°, and I spent three days at Escuintla, where I made a collection of Oncidium ampliatum, Epid. Stamfordianum, E. macrochilum roseum, three varieties, &c., and many seeds, some very remarkable, particularly in Convolvulaceæ, all of which have gone by this mail. Ascending near St. Pedro de Martyr I observed a remarkable Pitcairnia quite four miles off, of course without knowing what it was; but the intenseness of the scarlet shining out on the bare rock and burnt-up grassy face of the precipice arrested my attention. I spent two hours after the search, and, with a difficulty only such as a determination to get a prize could warrant, succeeded in bagging four plants. I do not think it new; but, never mind, it is a glorious beauty, and may be new, as I never sent it before, for I never saw it accessible. The Epidendrum which I sent last year I now repeat fine specimens of, preserved through the year in barrels to acclimatise them; and as the season is now when it is again in flower, I have sent two Indians to Retalente for more. One of those Indians always has accompanied me, and as he has learned to make a herbarium, he has my boards and drying paper with him to collect all flowers and seeds which I can here weed if I like. The Antigonum grows luxuriantly at Yzabal, and I will conduct it to England in June next, when I hope to shake you once more by the hand, although I only mean to pass a couple of months, as my duties call me imperatively back again. The plant like Odont. cordatum, but larger bulbs, &c., I could not meet with a single example of; my only two plants go now to Mr. Veitch. *G. U. S.*

Societies.

Horticultural: Exhibition at Gore House, *May* 16.—On this occasion there was such a display of perfect gardening as perhaps was never witnessed before. Stove and Greenhouse plants were furnished in abundance, and the brilliancy and beauty of the Orchids have seldom been surpassed. The great banks of Azaleas and Roses struck everybody with admiration, and even fruit, considering the unfavourable spring we have had, was wonderfully good.

In collections of 12 Stove and Greenhouse Plants, the first large Gold Medal was awarded to Mr. Dods, gr. to Sir J. Cathcart, Bart., of Cooper's Hill, Englefield Green, for the following, viz.:—

Adenandra speciosa	Erica Cavendishi
Azalea, double red	Eriostemon myoporoides
" exquisita	Epacris grandiflora
Aphelexis macrantha purpurea	Gompholobium barbigerum
Boronia pinnata	Leschenaultia formosa
Chorozema ilicifolium	Pimelea spectabilis

These were all large and beautiful plants. The Cavendish Heath was an immense bush literally covered with flowers and the same may with justice be said of the Boronia, which was perhaps one of the best plants of the kind ever shown. The Adenandra was an admirable example of good plant growing, and so was the Gompholobium, whose large yellow flowers were much admired. The showy Pimelea was scarcely in full blossom; but it was a fine specimen, as was also the double red Azalea. In short the whole of this group was composed of fine plants.

Mr. Green, gr. to Sir E. Antrobus, Bart., of Cheam, was second. His plants were:—

Aphelexis purpurea	Eriostemon intermedium
" macrantha purpurea	Epacris miniata grandiflora
Azalea, double red	Franciscea calycina
" Iveryana	Pimelea spectabilis
" purpurea	" Hendersoni
Daviesia umbellata	Polygala Dalmaisiana

The most remarkable plant in this collection was decidedly the Ivery Azalea, which was literally one mass of white blossoms, faintly streaked with purple. This was, as well it might be, the admiration of everybody. The double red Azalea was also a remarkable plant, but it was too stiffly trained to please some tastes, and certainly a little more freedom might have improved its appearance. The Pimeleas were fair specimens of the kind, and the Franciscea was also a good plant, as were most of those of which the group consisted. Indeed, the great distinguishing feature of the show was that there was not a bad plant in it.

Another collection of 12 came from Messrs. Fraser, who sent:—

Adenandra speciosa	Eriostemon scabrum
Azalea speciosissima	Erica pinifolia rosea
" Fielderi	Gompholobium barbigerum
Aphelexis spectabilis	Leschenaultia formosa
Boronia serrulata	Pimelea spectabilis
" tetrandra	Polygala Dalmaisiana

These were all evenly-matched plants, and in good condition. The Boronias were healthy and well grown, more especially B. tetrandra, which was one of the best plants of the kind we have seen. The Eriostemon scabrum was also a well cultivated plant of this comparatively slender growing species. The yellow Gompholobium was likewise a handsome bush, and so was the Fielder's white Azalea, which in some respects is considered superior to the common white.

A fourth collection of 12 stove and greenhouse plants was contributed by Mr. Barter, gr. to A. Bassett, Esq., of Stamford Hill. This group consisted of—

Adenandra fragrans	Gardenia intermedia
Clerodendron squamatum	Ixora crocata
Chorozema ilicifolium	Leschenaultia biloba
Erica Cavendishi	Pimelea Hendersoni
Eriostemon neriifolium	Polygala acuminata
Franciscea confertiflora	Stephanotis floribunda

These plants, as a whole, were scarcely in perfection, some of them being insufficiently advanced in bloom, while others were rather past their best. This remark especially applies to the Cavendish Heath and the Gardenia. The best plants were the Stephanotis and Ixora, both of which were well flowered, and the Adenandra was good, though its blossoms were hardly out enough.

Collections of 6 Stove and Greenhouse Plants were contributed by Mr. Carson, gr. to W. F. G. Farmer, Esq. Messrs. Fraser, Mr. Cutbush, Mr. Morris, gr. to Coles Child, Esq.; Messrs. Rollisson, of Tooting; and Mr. Rhodes, gr. to R. Philpots, Esq., of Stamford Hill. In these groups were well grown plants of Stephanotis floribunda, Everlastings, Dipladenia crassinoda, Eriostemons, Leschenaultias, Statice Holfordi, the same which was shown in Regent Street three weeks ago, still fine in bloom; Brachysema acuminata, a grey leaved plant, with deep crimson flowers; Gardenia florida, Boronias of different kinds, Chorozemas, Pimeleas, Tetratheca verticillata, a useful violet flowered plant, Dracophyllum gracile, Epacrises, and Azaleas.

Orchids were numerous, well flowered, and unusually fresh and beautiful. In collections of 20 plants, Mr. Williams, gr. to C. B. Warner, Esq., received the highest award, for—

Aerides Warneri	Dendrobium macrophyllum
" affine var.	Lycaste Skinneri
" virens	Oncidium ampliatum
Calanthe veratrifolia	Phalænopsis grandiflora
Cattleya Mossiæ	Phaius Wallichi
Chysis bractescens	Saccolabium retusum
Cypripedium barbatum	Vanda suavis
Dendrobium densiflorum	" teres
" nobile	" tricolor
" pulchellum	" insignis

Among these, Vanda suavis was an excellent plant with two noble spikes of flowers; V. teres was likewise good for that species. The Lycaste Skinneri had 20 blossoms on it; and the different examples of Aerides, &c., were also well flowered.

Mr. Woolley, gr. to H. B. Ker, Esq., of Cheshunt, produced—

Aerides virens	Dendrobium nobile
" maculosum	" macrophyllum
Calanthe veratrifolia	" pulchellum
Cattleya intermedia	Epidendrum crassifolium
" Mossiæ	" rhizophorum
" Skinneri	Lycaste Skinneri
Cypripedium barbatum	Oncidium sphacelatum
Cyrtochilum filipes	Phalænopsis grandiflora
Dendrobium Paxtoni	Vanda tricolor
" densiflorum	" insignis

The Vandas and Cattleyas in this group were especially remarkable; so were the Dendrobes. The Epidendrum rhizophorum was much admired for its bright orange-scarlet flowers, a colour so scarce among Orchids.

Collections of 10 ORCHIDS were furnished by Mr. Gedney, gr. to Mrs. Ellis, Mr. Clarke, gr. to Mrs. Webb, Mr. Carson, Mr. Hume, gr. to R. Hanbury, Esq., Mr. Green, gr. to Sir E. Antrobus, Bart., and Mr. Summerfield, gr. to J. S. Venn, Esq. In these groups we observed good plants of Phalænopsis amabilis and grandiflora, Brassia verrucosa and maculata, Vanda teres and insignis, Chysis bractescens, Oncidium leucochilum, sphacelatum, ampliatum, flexuosum, altissimum, and phymatochilum, Saccolabium guttatum, retusum, and præmorsum, Aerides virens and crispum, Dendrobium pulchellum, Dalhousieanum, nobile, Calceolaria, and densiflorum, Cattleya Mossiæ, intermedia, Skinneri, and Forbesi, Phaius grandifolius, Epidendrum macrochilum, crassifolium, longipetalum, and aurantiacum, Cyrtochilum stellatum, Cœlogyne asperata, Arpophyllum giganteum, Calanthe veratrifolia, Ansellia africana, and Lycaste Skinneri. The Arpophyll mentioned here had seven flower spikes on it, which, although small, served to show how beautifully the little shell-like blossoms are arranged on the spike. It is seldom that one sees a fine specimen of this plant; but when well grown and bloomed, it is a really handsome Orchid.

Collections of 15 ORCHIDS, both well flowered, and remarkably showy, were contributed by Messrs. Veitch and Rollisson. The former produced:—

Aerides virens	Dendrobium densiflorum
Calanthe veratrifolia	" Farmeri
Cattleya Skinneri	Oncidium ampliatum
" ianthina	Phalænopsis grandiflora
Cypripedium barbatum	Trichopilia coccinea
" villosum	Vanda insignis
Dendrobium nobile	" suavis
" anosmum	

The Dendrobium anosmum in this group had on it two very fine spikes of flowers, which are handsomer than those of D. macrophyllum, which it resembles, and they are without the Rhubarb smell which belongs to the last-named species. The Vandas were all of them well managed plants, more especially V. suavis, and so were the Lady's Slippers (Cypripediums), C. villosum being covered with flowers which, although not very showy, last a long time in perfection. The red Trichopil was extremely well coloured. The blossoms of the Dendrobium nobile, which was large and fine, were scarcely out enough. On the whole, this collection may safely be pronounced to be the best that has been shown this year.

Messrs. Rollisson had—

Cattleya Aclandæ	Maxillaria tenuifolia
Cypripedium Lowi	Oncidium sphacelatum
" barbatum	Phalænopsis grandiflora
Cyrtochilum stellatum	Sobralia macrantha
Dendrobium chrysotoxum	Trichopilia coccinea
" nobile	Vanda insignis
" Dalhousieanum	" teres
Lælia purpurata	

The most conspicuous plants in this group were the Oncidium sphacelatum, which was large and beautifully flowered, and the Sobralia, which had a dozen blossoms on it. The Dendrobium chrysotoxum was also a well-flowered plant, of a beautiful yellow species. The pale lemon-coloured Cyrtochilum was good of its kind, and the beautiful Lælia purpurata was greatly admired. The Low Lady's Slipper had three flowers on it. In short, this was altogether a group of fine plants.

AZALEAS entirely filled one side of a tent upwards of 50 yards long, and as the plants were large bushes, literally masses of flower of nearly every tint and colour, the kind of effect they produced may be easily imagined. Collections of them were furnished by Messrs. Lane, Fraser, Carson, Barter, Clarke, Gaines, Bray, Rhodes, Pamplin, and Wood. Mr. Bray's plants were again in the form of standards. Among the different varieties were good plants of the Chinese yellow and its white variety, the Duke of Devonshire, coronata, Perryana, Carminata, decora, lateritia, variegata, Exquisite, Gledstanesi, Aurora, Broughtoni, Double red, triumphans, speciosissima, grandis, and Fielder's White. In Mr. Carson's collection were some extraordinary plants, more especially one of variegata, which was quite a column of flowers. Mr. Lane's plants were grown in the "natural style," with very little staking or tyeing, and some of them had two or three sorts united in one plant, whose different colours produced a varied and pleasing effect. Messrs. Rollisson had their new Empress Eugenie, whose flowers are well shaped and good in colour, and Messrs. Lee sent a promising white kind with faint purple streaks in it, called Leeana.

Groups of RHODODENDRONS were produced by Messrs. Lane and Gaines. The former had a large and fine specimen of the fragrant R. Gibsoni; also a yellow variety; a buff sort called Sabinianum; primulum elegans, a yellow; nivalis, white; and a pink kind with a good truss named superbum angustum. Mr. Gaines showed Empress Eugenie, a delicate pink sort spotted with crimson; perfection, purplish lilac; triumphans, rosy pink; aureum (Gaines'), delicatissimum, and Marie Taglioni. The last two are both light kinds. Messrs. Standish and Noble showed one of the best flowered plants of the Sikkim R. Edgeworthi ever yet seen. It was in the shape of a standard whose head was furnished with 15 large white blossoms, which are delightfully fragrant. We also noticed from the garden of Mr. Farmer a good plant of the Gibson Rhododendron, called R. formosum; and Messrs. Veitch had trusses of some handsome new hybrids, among which conspicuum and guttatum pictum are especially worthy of mention.

Of tall CACTI, a small group was furnished from the garden of Sir E. Antrobus, Bart. It contained the white Epiphyllum grandiflorum, E. Jenkinsoni, speciosum elegans, Greeni, and a variety of Ackermanni.

ROSES in pots, both from nurserymen and amateurs, were unusually fine. Those from Messrs. Lane were literally pyramids of flower; among them the more remarkable were Coupe d'Hebe, which we need not say is one of the best shaped Roses in cultivation; Chênèdolé, a more brilliant kind, but not so good in form; Lamarque, a free flowering white climbing Rose; Paul Ricaut, whose buds are of the richest crimson, but unfortunately before they are more than three parts open their fine colour begins to lose its brilliancy; Queen was also in fine condition, and so were Lady Stuart and Paul Perras; Géant des Batailles was not in good colour. Mr. Francis's plants were also very full of flower. Mr. Busby, gr. to J. Crawley, Esq., A. Rowland, Esq., Mr. Terry, gr. to Lady Puller, and Mr. Sage likewise had beautifully flowered Roses in pots, although smaller in size than the above.

Of new ROSES Messrs. Paul, of Cheshunt, had a collection of 30 kinds. Conspicuous among them were Paul's Prince Albert, a brilliant coloured Bourbon with large smooth petals, nicely cupped; Adam Paul, rose colour, large and full, and very sweet; General Castellane, brilliant crimson; Jules Margottin, bright cherry colour, apparently a very free hardy Rose; Lady Stuart, flesh colour; Leon Plée, large bright rose; Madame Duchere, blush; Madame Philip, blush, with rosy edges; Paul Dupuy, dark purplish crimson, very velvety; Prince Leon, large bright crimson, a very fine Rose; Leveson Gower, dark ruby red, large; Triomphe de Paris, velvety purple; Volta, large glossy rose; Louise Odier, bright pink, blooming in clusters. All the above, with the exception of the first, are H. Perpetuals. Tea-scented, Auguste Vacher, yellow, shaded with copper colour; and T. Sombreuil, large creamy white, very double. There were also some other fine kinds, such as Baronne de Kermont, Duchess of Norfolk, which may make a brilliant pillar Rose, and Paul's Helen.

Of CAPE HEATHS, excellent specimens were furnished by Messrs. Rollisson, Barter, Fraser, Veitch, Cutbush, and Rhodes. Among the different varieties were propendens, perspicua nana, vasiflora, elegans, favoides elegans, Sindryana, an upright-growing kind, fastigiata lutescens, florida, ventricosa magnifica, mutabilis, Beaumonti, Devoniana, nitida, vestita rosea, mundula, denticulata moschata, pinifolia rosea intermedia, and Bruniades. The latter, a fine plant, came from Messrs. Veitch.

Of NEW PLANTS, Messrs. Henderson, of Pine-apple Place, and Mr. Lane sent Andromeda formosa; Messrs. Veitch, Embothrium coccineum; and Mr. Tegg, gr. to Baron Hambro, a species of Hoya, in the way of the old carnosa. Messrs. Veitch also showed as a plant not in flower, Aralia papyrifera, the Rice paper plant.

Among MISCELLANEOUS THINGS were nice plants of Genetyllis (Hederoma) tulipifera from Messrs. Garraway and Mayes, of Bristol, and Messrs. Veitch; Caladium bicolor splendens, in flower, from Mr. Morris, gr. to Coles Child, Esq.; a profusely-flowered example of the lilac Tetratheca ericifolia from Mr. Green; and various New Holland and other plants from Messrs. Henderson, of Pine-apple Place. In the last-mentioned group were Gastrolobium calycinum and Drummondi, Pultenæa ericifolia, a so-called new Osmunda, yellow and red-flowered Grevillias, some well grown Eriostemons, two Rhopalas, Boronia Drummondi, three kinds of Stylidium, Rhododendron glaucum, Chironia glutinosa, and cut flowers of Verbena "Mrs. Woodruff," a variety in the way of Robinson's Defiance, but with much larger flowers, and very brilliant in colour.

PELARGONIUMS were exhibited in considerable numbers. By far the best collection came from Mr. C. Turner, of Slough. This consisted of 12 large and finely bloomed plants of Carlos, a large bold flower, with dark top petals and white centre, very fine; Basilisk, bright scarlet; Governor-General, rosy scarlet, very fine; Sanspareil, a spotted variety; Lucy, lilac rose, dark top with white centre; Magnet, red, and very showy; Queen of May, a fine plant of bright orange colour; Rival Queen, rose, and very free; Majestic, dark; Clara, rose; Magnificent, a fine specimen; and Exactum, white. Mr. Dobson, of Isleworth, sent 12 nicely bloomed plants, but they were deficient in foliage, and the flowers of many of the kinds were small. They consisted of Harriet, very well bloomed; Vulcan, Exhibitor, Eugenie, Rosamond, Delicatum, a free flowering white kind but deficient in spot; Pacha, Arethusa, Salmon, this should not be shown in the same collection with Harriet; Leah, a good flower, with white centre; Gulielma, Painter improved, and Ambassador. The latter is a dull variety, which can now be well dispensed with. Mr. Gaines, of Battersea, had Flying Dutchman, Admiration, Andover, First of May, Star, Peerless, Queen of Purples, a bad plant of a worthless variety; Triomphe de la Tour, Colonel Fossey, Jaques Duval, Gustave Odier, and Glorie de Belle Vue; the latter five are spotted continental varieties. There were but two collections from private growers. Mr. Windsor, gr. at Kidderpore Hall, Hampstead, sent Enchantress, a fine plant, but not in good bloom; Forget-me-Not, Ajax, Constance, Emily, Ariadne, Conspicuum, Nonsuch, Lallah Rookh, Pearl, Little Nell, and Virgin Queen. Mr. Todman, gr. to Mrs. Buckmaster, sent 12 as follows, but they were but indifferently done, viz., Loveliness, Beatrice, Rolla, Mochanna, Constance, Ariadne, Crusader, Negress, Sparkler, Governor, Virgin Queen, and Aspacia. There were six collections of Fancy varieties, three from nurserymen and three from private growers. Mr. Robinson, of Pimlico, sent 6 clean and nicely bloomed plants of the following kinds: Delicatum, large and well bloomed; Fairy Queen, Erubescens, Mirandum, Formosissimum, and Princess Alice Maud. Mr. Windsor had 6 very large well grown plants, but of inferior varieties, without a good head of blossom. They were Magnificum, Caliban, Madame Miellez, Duchesse d'Aumale, Fairy Queen, and Statiaski. A third collection came from Mr. Barter, gr. to A. Bassett, Esq., of Stamford Hill, but both plants and varieties were much below mediocrity.—In the Nurserymen's Class, Mr. C. Turner contributed 6 finely bloomed specimens, consisting of Madame Sontag, a noble plant of one of the best kinds, being bright rose, with clear white centre; Cassandra, violet crimson; Criterion, crimson; Gaiety, white and maroon; Delicatum, light; and Electra, bright rosy crimson. Messrs. Fraser, of Lea Bridge Road, had 6 small but nicely bloomed plants of the following sorts:—Jenny Lind, Formosissimum, Richard Cobden, Jehu Improved, Exquisite, and Nepaulese Prince. Mr. Gaines had 6 large well-shaped plants, but they were not in good bloom. They were Advancer, Delicatum, Vandyke, Princess Galitzin, Princess Alice Maud, and Signora Castigloni. A wonderfully fine plant of Rosamond was shown by Mr. Turner as a single specimen. It was in an 8-inch pot, and quite a bouquet of flowers.

CINERARIAS were exhibited by Mr. C. Turner, Mr. Beck, and Mr. Dobson. The two first collections consisted of extremely well-grown plants. Mr. Turner had Magnum bonum, rich crimson, with white ring round the disc, a very large variety; Lady Paxton, white tipped with rosy lilac, large, with small black disc; Optima, white tipped with blue, a finely formed flower; Mrs. Sidney Herbert, white and rose; Picturata, white and crimson purple, very attractive, and fine in form; and Teddington, rosy lilac. Mr. Beck produced Lady Camoys, Amy Robsart, Eugenie, Agnes Wakefield, and Exquisite.

PANSIES in pots were shown in very good condition, and were, as they deserved to be, much admired. The blooms on Mr. Turner's collection were particularly large and good in colour. The sorts were Sovereign, yellow; Emperor, yellow ground; Royal Albert, dark self; Ophir, yellow; Earl Mansfield, white ground; Brilliant, yellow ground; Royal Visit, white ground; Sir J. Paxton, straw ground; Flower of the Day, dark; Satisfaction, yellow ground; British Queen, straw ground; and Lord J. Russell, yellow ground. The varieties in Mr. Dobson's collection, dissimilar to the above, were Fanny Kemble, Lady Carrington, Robert Bruce, Aurora, Lady Emily, Marchioness of Bath, Great Western, Marion, and Rising Sun.

Of CALCEOLARIAS there was one collection, which was exhibited by Mr. Bray, gr. to Baron Goldsmid, of Regent's Park. They were well bloomed, but the varieties appeared to be no improvement on kinds we have seen for these last six years.

AURICULAS were produced by Mr. Willmer, of Sunbury, and Mr. C. Turner. Among these there appeared to be a deficiency of good selfs and white edges, and a preponderance of grey and green edges. Of Selfs there were Oxonian and Mango. In white edges, Pillar of Beauty, Smiling Beauty, and Catherina. Grey edges consisted of Chatham's Lancashire Hero, Squire Chilman, Duke of Cambridge, Ringleader, Ne Plus Ultra, Conqueror of Europe, Privateer, Lady Mildmay, Napoleon, and Liberty. Of green edges, there were Smith's Britannia, Lovely Ann, Prince of Wales, Apollo, Lord Nelson, and Conductor. Mr. Gaines sent a large collection of Cut Mimulus, some of which were very prettily marked. Mr. Kinghorn furnished two promising variegated Geraniums; these appeared to be good growers, and possessed good scarlet flowers. Dennis's Alma is also a showy purple.

Of FRUIT there was a fair display, considering the unfavourable season we have had. Of Providence Pine-apples, two good fruit came from Mr. Robinson, gr. to Lord Boston, and Mr. Clements, of Oak Hill, East Barnet. The former weighed 7 lbs. 4 oz., and the latter 5 lb. 5 oz. Mr. Price, gr. to W. Foreman, Esq., had a Queen weighing 4 lbs. 5 oz.; Mr. Clements, a Black Jamaica, weighing 3 lbs.; and Mr. Fleming, gr. to the Duke of Sutherland, at Trentham, a Moscow Queen, weighing 2 lbs. 3 oz. Two Ripley Queens and an Enville came from the Duke of Norfolk's at Arundel; and Mr. Davies, gr. to J. Dixon, Esq., had a Black Jamaica.

GRAPES were good, especially Black Hamburghs. Of these, considerably the best were furnished by Mr. Clements. These were large both in bunch and berry, and finely coloured. Mr. Slowe, gr. to W. R. Baker, Esq., and Mr. Dods, gr. to Sir J. Cathcart, Bart., also had fine bunches of this variety, and so had Mr. Fleming, Mr. Munro, gr. to Mrs. Oddie, Mr. Breadley, gr. to Sir S. M. Peto, Bart., and Mr. Spary, of Brighton. The latter were comparatively small bunches, but remarkably well coloured. Mr. Mitchell had also bunches of Black Hamburgh, and so had Mr. Brown, gr. to Colonel Biddulph, M.P. The latter were stated to have been grown in pots. Black Hamburghs, badly coloured, came from Mr. Sharland, gr. to T. Farmer, Esq., of Gunnersbury, and Mr. Smith, of Roehampton, also sent examples of this variety. Among white Grapes the Frontignans from Mr. Breadley were ripe, but the Sweetwaters from Mr. Clements, and

the Royal Muscadines from Mr. Ward, gr. to W. Stephens, Esq., had scarcely attained that condition. Mr. Constantine had some well fruited Vines in pots, most skilfully dwarfed, and the admiration of everybody. The sort was the white Muscadine.

Peaches and Nectarines came from the Duke of Sutherland's garden at Trentham. The Nectarines were the Murray and Elruge, and the Peaches the Royal George. May Duke Cherries also came from Trentham, and that variety and Black Circassian from Mr. Ingram, gr. to Her Majesty at Frogmore.

Strawberries were plentiful, large, and well coloured. Mr. McEwen, gr. to the Duke of Norfolk at Arundel, contributed a collection in which were Eleanor, British Queen, and Victoria; and of single dishes Mr. Cox, gr. to J. Hodgeson, Esq., sent Keens' Seedling; Mr. Constantine, gr. to C. Mills, Esq., Prince of Wales; Mr. Smith, of Twickenham, Keens' Seedling, and dishes of the same variety were also furnished by Mr. Lane, gr. to J. Palmer, Esq., Mr. Drummond, gr. to S. L. Stephens, Esq., Mr. Iveson of Syon, Mr. Lane of Fulham, and Messrs. Tyne & Son of Hounslow.

Mr. McEwen exhibited a dish of Rivers' Perpetual-bearing Raspberries; small fruit, but well ripened.

Brown Turkey Figs came from Mr. Busby, gr. to J. Crawley, Esq.

Of Melons, Mr. Fleming sent fruit of the Trentham Hybrid, and Mr. Robertson, gr. to Lady Emily Foley, had a Hybrid Persian. Mr. Gray, gr. to W. Ricardo, Esq., sent the Queen Melon.

Miscellaneous Fruits consisted of a collection of Mandarin Oranges, in pots, from the Duke of Sutherland's garden at Trentham. These were nice little plants, each bearing 4 and 5 fruit. Mr. Lockyer, of Plymouth, produced specimens of Lemons grown in the open air; and some very large Cucumbers, called the Himalaya, came from Mr. Roser, gr. to J. Bradbury, Esq., of Streatham.

Mr. Iveson showed a ripe fruit of the Mangosteen from the Duke of Northumberland's garden at Syon, concerning which a full account will be found at p. 259, of a previous number.

Linnæan, *May 1st.*—The President in the Chair. F. Tagart, Esq., was elected a Fellow; and Professor Göppert, M. Hofmeister, and Dr. Planchon, Foreign Members. A memoir "On the White Secretion of Flata limbata, and its relation to the White Wax of China," by Dr. Murchison, communicated by Dr. Hooker, was read. In April, 1854, Dr. Murchison observed the leaves of certain trees and shrubs growing in the jungles in the neighbourhood of Rangoon to have a singular whitened appearance, which proved to be caused by numbers of insects bearing long white pectinated appendages of considerable length. On the slightest motion being communicated to the leaves, these insects sprung off in all directions, leaving, however, the white appendages behind. Dr. Murchison left Burmah without further opportunity of collecting and examining the insects, which appeared to be a little larger than a common house fly. The appendages which remained on the leaves after the flight of the insects were found to be adhering to a number of dried insect cases, each furnished with six legs, and evidently the remains of a former stage of the insect's existence. On examination it was found that this white matter coating the leaves possessed the properties of the insect wax of China. Acting on this suggestion, Dr. Murchison instituted a series of observations which led to the conclusion that the insect he had found, though probably not the same which yields the insect wax that has been imported from China, is yet one which, by some authors, has been described and figured as the true Chinese wax insect; and moreover, it was ascertained that it does yield, in considerable quantities, a substance of a waxy nature, which it seems probably may be employed for economic purposes. It would appear that one of the first notices in any English work of the Chinese wax insect is by Sir G. Staunton, in his account of Lord Macartney's embassy to China; and Sir G. Staunton's insect, the description of which coincides exactly with that found at Rangoon, is stated by Mr. Westwood (*Gard. Chron.*, July, 1853) to be the larva or pupa of the Flata limbata of Fabricius. In the Reports of the Juries of the Exhibition of 1851, the Chinese insect wax is stated to be the produce of the male Coccus ceriferus; but this insect has been shown by Dr. Anderson to yield the substance called white lac in Madras, which presents properties very different from the Chinese wax, being soluble in alcohol and ether, and of higher specific gravity than water. Mr. D. Hanbury has subsequently endeavoured to prove that the Chinese insect wax is the production of a species of Coccus, and not of the Flata limbata, his conclusions being drawn from specimens of the crude wax transmitted from Shanghai, as being employed for obtaining the wax of commerce. In this sample was a number of full-grown bodies of a female Coccus, as well as pieces of stick encrusted with wax, and with the insects still in *situ*. The insect Mr. Westwood had named Coccus sinensis, and subsequently (*Gard Chron.*, 1853,) Coccus Pela. There is every probability that the Coccus Pela contributes, at least, to the formation of the wax of commerce; but Dr. Murchison suggests that not improbably the wax from different parts of China may come from different insects. The Chinese wax of commerce is insoluble in water, and but very sparingly soluble in either alcohol or sulphuric ether, and it does not saponify with an alkali; its specific gravity is ·965, and its melting point has been variously estimated at from 181° to 186° F.; the melting point of common pure white wax being 155°, and its specific gravity ·963. The wax of the Coccus Pela purified was found by Mr. Hanbury to have its melting point at 182°·75 F.; its specific gravity has not been ascertained; it does not dissolve, or at least very sparingly, in alcohol, ether, or in solution of caustic alkali; but it dissolves readily, like the Chinese wax of commerce, in naphtha and fixed vegetable oils; and on cooling after melting indicates the same acicular crystalline structure. The characters of the white secretion of the Flata limbata coincided very closely with that of the substances just noticed; it had the same kind of acicular crystallisation in stellate masses; the melting point was not very accurately made out, owing to the minute quantity operated on, but it appeared to be between 190° and 200° Fahr.; it was insoluble in water, in which it floats, and but sparingly if at all soluble in alcohol, sulphuric ether, or solution of caustic potash, whilst in naphtha and vegetable oils it dissolves readily. From these characters there can be little doubt that the white secretion of the Flata limbata is of the nature of wax, and moreover that this waxy matter is very similar in its properties to the Chinese insect wax of commerce. It further appears probable that the Flata is a source of that substance. That it is not the only source seems proved by the facts adduced by Mr. Hanbury in favour of the Coccus Pela. Considering, indeed, that the annual produce of the insect wax is not far short of 400,000 lbs. per annum, and considering the very small quantity yielded by an individual insect, Dr. Murchison thinks it not improbable that the substance is derived from several species of insect, of which no doubt the Coccus Pela is one, and the Flata limbata another.

Notices of Books.

Loudon's Encyclopædia of Plants. A new edition, by Mrs. Loudon. 8vo., pp. 1574, with a multitude of woodcuts. Longmans.

The first edition of this celebrated work, which is incontestably of the greatest utility to gardeners, and, indeed, to all who have not access to great libraries, consisted of 1159 pages; the latest in our possession filled 1329 pages; that now brought before the public occupies no fewer than 1574, forming a solid, massive volume of small print, comparable to nothing so well as to a dictionary. The great recommendation of the work has always been its woodcuts; which, although only miniatures, were nevertheless drawn by Mr. Sowerby with such happy art, and so skilfully engraved by Branston, that the plants could always be recognised, even by those little acquainted with the vegetable kingdom. The continuation in the form of supplements is executed in a manner more than worthy of the original, and brings down the subject to the latest possible moment. The great feature of the work being thus worthily maintained, we are not inclined to criticise the letterpress, by Mr. George Don, which, as it will never be looked at by botanists, does not call for botanical censure. How many figures the work contains we are unable to ascertain, but we estimate the number of plants actually represented by good woodcuts as amounting to something more than *nine thousand!*

Griffiths' Posthumous Papers, Part IV. Dicotyledonous Plants, and a folio volume of plates. Calcutta.

Of this we have just received a copy by favour of the Court of Directors of the East India Company. We can only repeat our regret that the munificence of the Company should have not been met by a little knowledge and intelligence on the part of the Indian editor. Perhaps we ought to say that the present volumes are in some small degree less slovenly than the former ones. The wrapper informs us that the work, now we presume terminated, constitutes a complete system of Elimentary and Practical Botany, founded on the plants of India. We should say that it forms a memorable example of the possibility, by mere force of editorial negligence and incompetence, of rendering almost useless one of the richest mines of botanical knowledge which has ever been bequeathed to the world. One of the learned editor's latest discoveries is that Abies Brunoniana is a Taxus! (see vol. iv., plate 375). Unless Dr. Thomson can do something to correct such scientific (?) muddling we shall have the botanical student at Calcutta imitating Father Loureiro in calling a Hydrangea a Primrose.

Iconum Botanicarum Index, by George A. Pritzel. 4to., pp. 1184, in double columns. Williams and Norgate, and Pamplin.

This book contains references to eighty-six thousand representations of Phanerogamic plants and Ferns compiled from books published in the present and the last centuries. Although of necessity incomplete, it must be regarded as a marvel of patient industry applied to a most useful purpose; for the volume forms in fact a general index to the plates in any botanical library—no small convenience when we consider how formidable the number of illustrated books has now become.

Dr. Pritzel has avowedly neglected such works as Deakin's "Florigraphia," Jackson's "Pictorial Flora," &c., upon the ground that their "little pictures" have no relation to science, and in this he is perfectly right.

Red-tapeism: its Cause (Ridgway), is a pamphlet "by one behind the scenes." That this is a true description of the writer we entertain no doubt. He is evidently familiar with the secret processes of jobbery, and he exposes them. Among other points discussed in the pamphlet are the shameless dismissal of Mr. Kennedy for his immovable official rectitude, and the flagrant injustice towards Mr. Brown committed by the Treasury. Administrative reformers should study this pamphlet, which is not a tissue of idle declamation, but an able revelation of undeniable facts; and they will then learn why government work is always so inferior to that of private enterprise as one of the Treasury officers is constantly declaring, while he is at the same time doing everything in his power to ensure its inferiority. If government work is wretched it is because Government employs wretched tools, and dismisses those who resolutely set about getting better. That is all.

Garden Memoranda.

S. Rucker's, Esq., West Hill, Wandsworth.—The glass covered promenade, conservatories, and principal stoves at this place are now very gay, and the plants generally are in excellent condition. Camellias, here as elsewhere, have begun to make their young wood; but a few of them nevertheless are still in bloom, and among the latter Duchess of Northumberland was especially remarkable. This has white flowers striped with pink, and of excellent shape. Intermixed with the Camellias were Azaleas in full blossom, and the front shelf was occupied with Roses, Cinerarias, Azaleas, in the form of low flat-headed standards covered with flowers, a handsome variety of Amaryllis vittata called imperialis, an importation from Berlin; Rhododendron campanulatum superbum, a beautiful large white sort spotted in the upper petals with purple; Pelargonium "Parson's Perfection," a showy pink kind, and an excellent forcer; and other showy plants. On a back shelf, where they were partially shaded, were some interesting Ferns, among which we remarked Gleichenia microphylla, Hymenophyllum dilatatum, Trichomanes reniforme, the New Zealand Davallia, Mertensia flabellata, Todea pellucida, and a few pretty little plants of Lycopods. In the stove or warm department of this house Pentas rosea was in bloom; it has more colour, and is altogether a better plant than P. carnea, and it is equally useful. In addition to Orchids and other plants in flower here were some good Gloxinias, the most remarkable of which were Prince de Ligne, perhaps the very best of red kinds; grandis, a white variety blotched with red; and Victoria Regina, white with a blue blotch. Bouvardia longiflora, a species with snow-white flowers, was likewise in full beauty here, as were the showy orange scarlet Begonia Prestoniensis and other useful plants.

Many of the Orchids in the different houses, nay, most of them, are magnificent specimens, and several of them are at present finely in flower. Among the latter were beautiful varieties of Cattleya Mossiæ; also uniflora and intermedia, Dendrobium nobile, Farmeri, albo-sanguineum, and others; the scarce Odontoglossum Pescatorei, in the shape of a small plant purchased the other day at Mr. Linden's sale for 10*l.*; Lælia cinnabarina; Vanda suavis, a capital plant; Phalænopsis, quite masses of snowy white flowers; Chysis bractescens, and many others. A magnificent plant of Cattleya Skinneri has just gone out of bloom. This had been apparently literally covered with flowers.

In the aquarium the leaves of the different kinds of smaller growing Lilies (Nymphæas) are now nearly covering the surface of the water. The Pitcher plants placed round the tank have been cut "hard in;" but they are beginning to push strongly again, and some young plants of Nepenthes in another house are also in a most thriving condition, N. sanguinea, a small plant from a cutting a year ago, having now on it four large pitchers extremely well coloured. In this house the different kinds of Variegated Orchids were also in excellent condition.

The fruit garden here is quite a model of its kind. The trees are all in the form of pyramids, about 6 feet high. Bush fruit is also trained in the same way. Pears, Apples, Plums, and Cherries stand 8 feet apart between the rows and 6 feet asunder in the row, and alternating with them on each side of the beds are rows of Gooseberry and Currant trees, 15 inches from the alleys. The Cherries are in a compartment by themselves, and are netted all over; notwithstanding this, however, the frost has killed a great deal of the blossom and embryo fruit on the upper sides of the branches, but those on the under sides have mostly escaped; sufficient may therefore yet be left for a crop. Pears at present are a sheet of blossom, but Apples are not yet expanded; and, on the whole, there is here still promise of fair crops of most things.

Deodars and other plants on the lawn, which we may mention is in excellent order, have suffered comparatively little or nothing from frost, but we remarked some famous specimens of Sweet Bays in tubs browned by it, although stated to have been protected with canvas.

FLORICULTURE.

Culture of the Dahlia for Exhibition.—The following concise rules, to be observed in the successful culture of the Dahlia for exhibition, are not furnished so much for any novelty which exists in the practice recommended, as to point out a few of the most essential things to be done at the proper time. For economy in carriage, the plants are grown and sent out in small

pots; therefore, on receiving them from the nursery, place them in a close frame for a day and a night to recover them from their confinement; then repot them into 4-inch pots, using rich soil: the pots should be drained with coarse partly decomposed leaf-mould, so that in planting out there will be nothing to abstract from the ball of earth. A good start is of great importance; therefore care should be taken that the plant is grown to a fair size without drawing during the time it is in the pot; the stouter it is the better, without being tall; and it should not be pot-bound at the time of planting out: both the roots and the point of the plant should be in a thriving condition, and free from aphides. It may perhaps be unnecessary to state that the plants must be carefully hardened off before they are turned out. If the soil and plants are in a proper state, the first week in June will be a good time for the general planting, which, with ordinary care and attention, will produce good blooms in time for the earliest exhibition. A short period will suffice to have plants of a good size; but it should be borne in mind that hours lost in repotting them when in a young state will make a difference of days in the time of blooming, and it is important that this should be clearly understood, that no neglect in the matter may be permitted to take place. Examine the plants often to see if any require water; by no means let them become dry so long as they are in pots. Secure them with proper and strong fastenings at the time of planting; water whenever they require it, and sprinkle the foliage slightly almost every evening with soft water. Tie out the branches, and, as the plant increases in size, secure the side-shoots firmly to extra stakes. Cut away all superfluous small shoots. Some varieties have scarcely any to remove, while others have a considerable number. Fearless is of the class which has but few shoots requiring the use of the knife; but such kinds as Shylock require it freely. Indiscriminate pruning must therefore be avoided. Study the habit of the plant, and consider if the flower will be improved by increased size; all varieties need some thinning and disbudding, which should be effected at different periods. Small flowers require it as soon as the young shoots and buds can be removed, while large flowers, such as the Thames Bank Hero, Princess Louisa, and many others, would be rendered coarse and valueless for the purposes of exhibition if a number of buds was not permitted to remain till the plant was coming into bloom. Size in this case would be gained at the expense of quality; besides, there is the advantage of having three blooms where two would be grown. On the other hand, size, in moderation, must not be lost sight of. It was not with small blooms that I have taken first prizes for these last 15 years. I would therefore advise the young grower to avoid the two extremes. In shading blooms for exhibition, as a general rule, they should be one-third blown before they are put under the shade; and take care to secure such as appear to be coming good, and at the time they are required, from injury by friction. Slugs and earwigs are very destructive, and must be perseveringly kept down from the time the plants are put out till the end of the season. If you should be annoyed by a small black insect (which is often the case in July), use every means to encourage the plants to make rapid growths, by watering and syringing them overhead, and by brushing the depredators from the points of the shoots. Snuff, tobacco-water, and various other remedies are often resorted to; but these, if effectual in killing the pests, generally destroy the points of the shoots: if the plants are in a thriving condition, they will soon recover themselves. If the season proves dry, water freely two or three times a week; but never let it be done by driblets: give a good soaking when you do water, if that should not be so often. Employ manure-water once a week as soon as they begin to throw up their buds; but it should be used in a weak state at the commencement. Before concluding these remarks, permit me to bear witness to the increasing interest taken both in the culture of the Dahlia for competition and in the raising of seedlings. The enjoyment and pleasing recreation attending the cultivation of Florists' flowers add numbers to the fancy; and I have much satisfaction in stating that no flower is more generous in repaying the enthusiastic florist for his labour than the Dahlia. *T.*

Miscellaneous.

Sale of Orchids.—The Cattleyas from Brazil alluded to in our last week's Number, p. 316, realised the following prices: viz., C. Leopoldi, from 1*l.* to 5*l.*; C. violacea, 4*l.* 10*s.*; a Cattleya, supposed to be labiata, from 3*l.* 5*s.* to 6*l.* 10*s.*; a supposed new Cattleya or Lælia, 3*l.*; C. intermedia, a large plant, 7*l.*; smaller examples of the same, 2*l.* 8*s.*; other lots, of which there were in all 184, fetched from 1*l.* to 3*l.* per lot.

The Park at Edinburgh.—We understand that the design for this place, sent in by Mr. M'Ewen, gr. to his Grace the Duke of Norfolk, at Arundel, has been pronounced second among 38 competitors, and has been awarded a prize of 25*l.* We take for granted that the design selected is the best, but we can say from an inspection of Mr. M'Ewen's that whatever the merit of his rival, his would also have produced a very fine effect and did much credit to his taste.

Vegetation of Java.—I made a trip into the mountains, remaining nearly a week at Ivegoe, about 4000 feet above the sea. I think, had you been with me, you would have almost gone crazy, as I did, at the Cryptogams; every tree, from leaf to branch, was covered with Mosses, Hepaticæ, and Lichens, to say nothing of Orchids and Ferns; no words can express the beauty of the jungle. The most productive places, however, I found to be the old Coffee plantations, where the scrubby crooked trees were almost borne to the ground by the weight of the parasites; here a great epiphytal Ficus or Fagræa mounted on high, far thicker and stronger than its supporter; and there a perfect blaze of scarlet Æschynanthus, streaming down from the huge matted tufts of Asplenium or Acrostichum, ship loads of Vanda speciosa and odoratissima, Saccolabia, Dendrobia, Ephippia, any one of which would have carried off all the prizes at Chiswick, and sent all the gardeners into fits; and in every damp hollow groves of Dicksonias, Alsophilæ, and Marattiæ, some rising 40 or 50 feet, whose marvellous elegance and beauty, when swept by the wind, neither pen nor pencil can tell. Aroideæ are in great force, and of very various forms, as are also parasitical Rhododendra, Thibaudiæ, and such plants Melastomaceæ are very prevalent here, especially the genus Medinilla; most of them are semi-parasitic trailing plants, and hang in great masses from the trunks of the trees. But the Mosses and the Hepaticæ enticed me most, for these I could collect; while it was impossible, in my hurried trip, to dry other plants. Some of the pendent Hepaticæ and Neckeræ are a foot or more long, and the effect of large masses of them is most beautiful, especially intermixed as they are with long bunches of a white Usnea, like U. florida. I believe I have collected about 200 species of Hepaticæ, Musci, and Lichens, and the greater part of them in fruit. I shall be able, I think, to make 20 to 30 sets when I have time to open them; at present I have just dried and packed them up in a box, which it will be several months before I am able to attack. You shall receive some early specimens when I do get at them. The natives here are very capital intelligent fellows. I had three of them with me each day, with baskets, for which I paid one rupee, or about sixteen pence, and they seemed quite delighted. They soon found out what I wanted, and I owe many of the specimens in fruit to their sharp eyes. When I found a species barren, I just showed it them, and told them where I expected to find the fruit proceeding from, and they rarely failed to find it before long. They seemed, too, to identify themselves so with the matter, and showed such emulation as to who should be the first to find something new, that it was quite pleasant to be with them—I might have fancied myself among botanists. These mountaineers, however, are botanists to an extent you would hardly expect among so-called savages. Every plant has its native name, and given upon the system of generic and specific names. For instance, when I asked a man the name of a little Pavetta, he said at once, "I never saw this before, and I don't know its own name, but its 'mother name' is so and so," mentioning the native generic term for Pavetta Ixora and such plants in general. The authors of the catalogue of the Buitenzorg Garden have thought these names worth recording, and I think they are right; for I saw many plants I should not have seen, especially among the Ericeæ, but by asking for them by such names given in the catalogue; and it is wonderful, on looking these over, to find how well the system is carried out. It is of course imperfect, but remarkable for people with no written language. *Motley, in Hooker's Journal of Botany.*

Enemies to Fish in Fresh-water Aquaria.—Care should be taken in the aquarium for fresh water to exclude the ordinary Polype or Hydra fusca, particularly where certain species of fish are to be preserved, as with the minnow (Leuciscus Phoxinus), for these creatures, insignificant as they may appear, after a short time cause their death, and that under most extraordinary circumstances, as the following observations will tend to show: In a small aquarium that had had gold fish kept in it for a length of time, but which had been removed into one of larger dimensions and more fully exposed to the light, an enormous number of the Hydra fusca were observed to have made their appearance very soon after this removal. Wishing therefore to ascertain if the appearance and rapid increase of these polypes had been prevented by the gold fish, the following experiments were made:—Fifteen individuals of the Hydra fusca were placed in the aquarium containing the gold fish, but they very soon disappeared, having I presume been devoured by the fish; a second 15 were then introduced, but with the same result. At the same time as this experiment was made 15 hydras were placed in a tank containing four minnows (Leuciscus Phoxinus) and a pair of small eels, but as the minnows did not appear to touch them, the same number of polypes being counted over several times during a period of three weeks, they were soon forgotten altogether. After a space of about seven months had elapsed from this time, the minnows were observed to assume a most extraordinary aspect, the head appeared very much swollen, and the eyes of all of them looked as though starting out of their heads, being forced upwards and in an outward direction and much enlarged; by degrees the gills of some of them became streaked with bloody markings, and this gradually extended to the base of the pectoral fins. The whole appearance was most distressing to contemplate, particularly as it was impossible from ignorance of the cause, to adopt any remedial measures. Judging from their appearance my impression was that they had been poisoned, and assuming that it must have arisen from something putrescent which they might have raked out of the materials at the bottom of the aquarium, the whole of the water was drawn off clear by a syphon, the gravel and sand thoroughly washed, and everything replaced in the tank with the fish: no improvement, however, appeared to follow, the fish got worse and ultimately died. This was in June, 1853. Before this extraordinary change came on, the fish had been observed to cluster together in one particular secluded spot, and rarely came out as they had been accustomed to do, and when they did venture forth they rubbed or jerked themselves with much force against the gravel and rockwork, as though something was irritating the skin; nothing, however, was visible. I had had these fish for about 18 months in the same aquarium. As the water was perfectly bright and clear, and free from all odour or unpleasant taste, I procured six fresh minnows and placed them in the tank; for about 10 days, they appeared to be pretty healthy; they did not, however, swim about freely, but herded together in one corner of the aquarium, and then the same extraordinary change gradually came on which had been observed in the others, and after lingering for 17 days they all died. On carefully scrutinising the different parts of the tank with a magnifying-glass, my attention was at once arrested by observing the enormous numbers of the Hydra fusca which were present, particularly on the parts of the aquarium where the fish had been accustomed to feed; that is, along the water line towards the light, at the base of the plants of Vallisneria spiralis, about half an inch above the gravel, and on the whole of the rock-work around the space where the minnows delighted to hide; here they might have been seen stretching out from the sides, hanging down from the top—in fact, in every possible direction; here, then, was a solution of all the evil. It now became a question how these pests were to be eradicated, and, after canvassing in my mind a variety of suggestions, I determined to endeavour to remove them individually, and by this means they were speedily got rid of; from 50 to 100 being taken out daily. The method by which this operation was effected was as follows:—A long glass capillary tube open at both ends was introduced into the water, having the finger kept tightly over the upper orifice, while, with the edge of the lower opening, the polype was detached from its hold; the moment this was effected and the hydra began slowly to fall through the water, the finger was removed, and the water with the polype was thus rapidly driven into the tube by the pressure of the external column of water; on replacing the finger the contained water and polype were removed. By persevering in this course they were caught with the greatest rapidity, and dropped into another vessel before they had time to attach themselves to the interior of the tube, falling through the water like a miniature parachute. When situated in places where this mode of capture could not be employed, as on the leaves of the Vallisneria, or on the under sides of the rock-work, they were pulled off with a jerk by means of a small pair of forceps. In this manner between 400 and 500 polypes were removed from a small aquarium holding about 6 gallons of water. Since this some small carp and also minnows have been placed in the same water, and have continued now for upwards of 16 months in perfect health. It is a curious problem as to the manner in which this destruction of life was brought about; my own impression is that the hydras seized on the minnows whenever their extended tentacula were touched by the swimming fish—stinging them, and causing a great degree of irritation; and that the polypes were torn from their position by the greater strength of the fish, and carried to their places of retreat, where, by consequence, the mischief was continually accumulating. A similar removal from one place to another of an analogous creature, the young of the Actinia, takes place in sea water, from their attaching themselves by their tentacula to some moving denizen, the hold being released very soon after they are forced from their original attachment. *Warington, in Annals of Natural History.*

Australian Cochineal.—The Cochineal is indigenous to the colony of New South Wales; it subsists upon the Mimosa or Wattle, appearing in the form of a blight and thriving best upon the young trees. There are four or five generations of the insect during the year, the first or spring crop (which is the finest) being full grown in the month of September or October, and the others following in succession through the summer and autumn, a few of the insects remaining in the sheltered spots on the trees through the winter sufficient to keep up the stock. After laying its eggs, the insect dies, and the young ones hatch and spread themselves over the tree forming a sort of white film or web over the body which protects, and attaches it to the tree, where it remains stationary, finally laying its eggs inside the web. From the time the eggs are hatched to the full growth of the insect is about seven or eight weeks. The enemy of the Cochineal is the ant, which attacks and devours it before half grown, stripping whole trees of the insect in a very short time. It is considered scarcely necessary to remark that the Cochineal flourishes best in dry weather. *Sydney Herald.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Eriostemons and other New Holland plants should be carefully divested of all seed pods as soon as their beauty for the season is over, cutting back the shoots as much as may appear necessary to secure close compactly formed specimens. Most of these plants enjoy a moist atmosphere while starting into growth, and as this cannot be commanded while drying easterly winds prevail, except by keeping the house

rather close, the plants should be placed in a part of the greenhouse where they can be guarded from cold drying currents, keeping the atmosphere moist by frequently sprinkling every available surface about them and shutting up rather early in the afternoon. Give air freely, however, on mild days, for keeping too warm would cause the plants to break scantily, and this must be avoided if well furnished specimens are to be obtained. Look well to the stock of plants for summer and autumn decoration, and do not allow them to sustain any check for the want of pot room or careless watering, from which under-potted plants often suffer at this season. The Croweas are first-rate subjects for this purpose—lasting longer in beauty than almost any other hard-wooded plant which we possess, and are deserving of being more generally grown than they are. Fuchsias for late blooming must not be allowed to become pot-bound, as any check at this season would throw them into bloom; and they should be afforded a rather cool, moist, shady situation. Stove.—The plants here will now be growing very freely, and will require frequent attention in the way of stopping, training, &c., and every effort should be used to properly direct the growth, for time lost now will not be easily made up. Do not let anything suffer for the want of pot room, and see that insects are kept thoroughly under. Also attend to maintaining perfect cleanliness about the house generally, washing pots, floors, &c., as often as may be necessary to secure a fresh clean appearance, and this will greatly assist in preventing the spread of insects, &c. Twiners, unless frequently looked to at this season, soon get so entwined that it is almost impossible without considerable loss of time and risk of injuring the tender points, &c., to disentangle them, but many of this class of plants bloom much more freely when their shoots are allowed to ramble in a somewhat natural manner until the blooms are fairly set, and this should be attended to in the case of such things as Echites, Stephanotis, &c., allowing them considerable liberty, without letting the shoots entwine about everything within their reach. Allamandas should never be tied into form until they are fairly set for blooming, for we have seen large healthy masses of these, which, instead of being covered with flower, only produced a few stray blooms in course of the season, and from no other apparent cause than the shoots having been always kept closely tied in, and twisted about the trellis. Have a supply of weak clear manure-water at hand, and give a liberal allowance of this to Clerodendrons and other fine foliaged free blooming plants, but do not apply it where there is any chance of its inducing a gross habit at the expense of bloom. Give air freely on mild bright days, but do not admit cold dry east winds too freely, also expose the plants to sunshine as freely as may be found consistent with maintaining a properly moist atmosphere. Shut up early on the afternoons of bright days in order to economise fire heat as much as possible, giving the plants a gentle syringing and sprinkling every available surface so as to saturate the atmosphere with moisture. Orchids.—Those in free growth should be afforded a thoroughly moist atmosphere, giving them a good steaming every bright afternoon by shutting up early, syringing the plants lightly over-head, and sprinkling the passages, walls, and every available surface. Examine the plants individually frequently, watering such as require it, and immersing those in baskets or on blocks in tepid water, when they cannot conveniently be kept sufficiently moist by the syringe. Take care however not to let water lodge too long in the axils of the young tender leaves, as this would probably induce decay. Look sharply after insects of all kinds, and keep these under at any expense of time and attention. Give air rather freely when the weather is favourable, but carefully avoid cold drying currents. Plants in bloom should either be removed to a colder and dryer house, or if they must be kept in the Orchid-house, place them together at the coolest end in order to prolong their beauty, and they should be allowed to remain here until their young shoots begin to make their appearance.

FORCING DEPARTMENT.

Pineries.—Plants swelling their fruit should be divested of all suckers, except as many as may be wanted for stock, directly they make their appearance. This will throw more of the energies of the plant into the fruit, and will also secure stronger suckers than if too many were left. Our more valuable sorts of Pines are not, however, very apt to produce any excess of suckers, but some varieties of Queen still in cultivation produce so many that the fruit never attains any size unless the suckers are thinned early. Guard against any decline of the bottom-heat, and where this is obtained from fermenting materials, a little fresh tan should be added before the heat gets too low; and it will be much safer to add a few inches occasionally as it may be wanted than to follow the old practice of renewing the bed only once or twice in the year. See to keeping the soil about the roots, where the plants are in pots or planted in the open bed in a nice healthy state as to moisture, and give manure-water regularly to fruiters and stock in free growth. Vineries.—Go over the Vines in succession houses, frequently removing laterals, &c., before they shade or interfere with the principal foliage. Where plants must be grown under the Vines the latter should be kept sufficiently thin to allow of a moderate share of light reaching the plants, and neither laterals nor any useless wood should be allowed to obstruct the light. See that none of the plants are infested with red spider or black thrips, especially the latter, which if once allowed to get upon the Vines is very difficult to eradicate, and is most destructive to the foliage. Azaleas are very subject to this pest, and if these are grown under the Vines they must be closely watched, and kept clean at any expense. And see that the Vines in the late house are tied up in their places before the shoots get too far advanced, as there is considerable danger of breaking these off when they are allowed to get too long before the rods are tied up. Look sharply after red spider, and use every means to keep clear of this pest. Figs.—Attend to stopping and thinning the shoots, and aim at securing short-jointed strong growth, by exposing the young wood to all the light possible. This will, of course, necessitate keeping the trees rather thin, but it is useless hoping for a crop of good fruit from trees that are crowded with wood. Keep the atmosphere moist, and give the foliage a good washing with the syringe after shutting up the house in the afternoon, to prevent red spider, and also see that the roots are kept properly moist. Where the fruit is ripening, syringing must, of course, be dispensed with, and the atmosphere kept drier, therefore be careful to have the foliage perfectly clear of insects up to the time the fruit begins to ripen. Melons.—Maintain a rather close, moist, warm temperature to plants recently planted out until they get into full growth, but avoid inducing a gross habit of growth by too much moisture and warmth after the roots fairly get hold of the soil, for it is generally somewhat difficult to secure a crop from wood of this sort. Give air as freely as the state of the weather will admit, in order to secure firm short-jointed wood, and where the crop is setting, as the young fruit is very apt to damp off unless the atmosphere is kept moderately dry. Endeavour to secure a steady bottom-heat of about 80° or 85° for plants in all stages, and also to keep the soil in a proper state as to moisture; avoid having to water while the crop is setting, by well soaking the soil before the principal blossoms begin to expand. Keep a careful look out for insects, and use every precaution to prevent these getting established upon the foliage, for there is hardly any chance of a crop of fruit unless the foliage can be preserved in health.

FLOWER GARDEN AND SHRUBBERIES.

So long as drying winds continue recently transplanted shrubs and trees must be carefully attended to with water. It is frequently the case, however, on heavy badly drained soils, that water is given to such things to such an extent as to sour the soil and render it uncongenial to the young rootlets and the after growth of the plants, and this should be avoided. The soil should be kept constantly moist, but not over saturated, mulching the surface with the mowings of the lawn to prevent too rapid evaporation, and large plants which appear to be suffering should be sprinkled overhead with the engine on the evenings of fine days, which will be of vastly more service in repairing the loss sustained by evaporation than excessive watering at the root while there is a deficiency of active rootlets. If the planting of any tender Roses still remains to be done this should be seen to immediately, taking care to have the soil made deep and very rich, which is the great point towards obtaining a fine display of blooms in autumn. Keep a sharp look out for the grub, and do not allow this pest to destroy the plants; and if green-fly makes its appearance on the young shoots syringe the affected plants lightly with a mixture of tobacco-water and soap-suds, and give the plants a good washing with the engine next morning. See that shrubbery borders, &c., are cleared of weeds, decayed leaves, &c., and rendered neat while the weather is so favourable for such work. The weather is still anything but tempting for commencing bedding out, for the wind is northerly, and a keen frost is a likely enough occurrence any night. But as the season is so far advanced it is to be hoped that we may experience a favourable change, and be proceeding with the planting out of all properly prepared stock under favourable auspices before the appearance of next Calendar. Meantime we would recommend keeping the plants under shelter until the weather becomes warmer, giving them every attention to watering, &c., so as to prevent their sustaining any serious check; for planting out the general order of bedding plants in the present state of the weather would be to run a considerable risk, and this without any decided advantage in prospect, for in the present state of the weather no amount of attention will induce such things to make any progress.

HARDY FRUIT AND KITCHEN GARDEN.

Look keenly after insects on Peach and Nectarine trees, and destroy them immediately they are perceived, so as to afford the young shoots a fair chance of making healthy growth early in the season, and depend upon it that there is little chance of getting the wood well ripened in autumn, save in very favourable localities, unless this is attended to. Also look after the Gooseberry caterpillar, and do not allow the foliage to be injured before adopting means to eradicate it. Perhaps the readiest way of destroying this pest is to give the trees a good washing with a powerful engine, directing the water against the under sides of the leaves as much as possible, which will wash off the caterpillars, and they are then easily destroyed on the ground by means of an iron rake. The little red grub which is so destructive about some places to the young shoots of the Raspberries is more difficult to eradicate, as we know no means of destroying this pest save by searching carefully for it, catching and killing it, and this is tedious work at this busy season. Get trenches prepared for Cucumbers, and filled with stable manure and leaves, or any other materials which will ferment slowly, and afford a gentle heat to assist in starting the plants; and get the plants prepared for planting out by exposing them rather freely to light and air on every favourable opportunity. Attend to putting in succession crops of Peas, Beans, Turnips, Spinach, &c., and secure an unceasing supply of Lettuce and other salads by sowing frequently. Where ground can be spared, and labour is scarce, Lettuce should be sown at this season where they are to stand, sowing in lines about a foot apart, and thinning out the plants, when strong enough, to proper distances in the lines. This is some saving of labour, and avoids checking the plants by removal. Do not allow Cauliflower plants to suffer through dryness at the root, and an occasional soaking of manure water will be useful to these and Cabbage also. Use the hoe among growing crops, and get weeds destroyed wherever they make their appearance. Take advantage of the dry state of the ground to get manure wheeled upon quarters where it will soon be wanted, and see that there is a good supply being prepared for the Celery crop; for without plenty of old rich manure large crisp Celery can hardly be obtained. Directly the weather becomes more favourable get the spring-raised Cauliflowers and Lettuce planted out, if not yet done, selecting for them a sheltered situation and light rich soil. A few branches of evergreens stuck amongst such things after planting, so as to screen them from the sun, are a great protection, and prevent their being dried up until the roots get hold of the ground.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the week ending May 17, 1855, as observed at the Horticultural Gardens.

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain in inches.
Friday 11	24	29.624	29.366	59	34	46.5	51	49½	S.W.	0.20
Satur. 12	25	29.831	29.780	53	28	40.5	50	49½	E.	[illegible]
Sunday 13	26	29.618	29.106	50	38	44.0	49	49	S.E.	[illegible]
Mon.. 14	27	29.678	29.615	57	35	46.0	49	49	N.E.	[illegible]
Tues. 15	28	29.572	29.551	48	41	44.5	49	49	N.E.	[illegible]
Wed. 16	[illegible]	29.832	29.696	50	30	40.0	49½	50	N.	[illegible]
Thurs. 17	1	29.990	29.901	61	30	45.5	49½	50	N.W.	[illegible]
Average		29.735	29.616	54.0	33.7	43.8	49.5	49.4		

May 11—Fine; cloudy; thunder storm in the afternoon; clear at night.
— 12—Fine; low white clouds, with clear intervals; cloudy and cold; clear; frosty.
— 13—Overcast; rain; boisterous, with heavy rain at night.
— 14—Unsettled cloudy sky; overcast; cloudy; uniformly overcast.
— 15—Cloudy; overcast and cold.
— 16—Cloudy and cold; overcast; clear; slight frost.
— 17—Fine; very fine; thunder clouds; slight shower; cloudy.
Mean temperature of the week 9 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.

During the last 29 years, for the ensuing week, ending May 26, 1855.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.
Sunday 20	65.3	44.2	54.8	15	0.64 in	[illegible]
Mon. 21	65.7	45.1	55.4	12	0.36	[illegible]
Tues. 22	65.6	44.2	54.9	13	0.30	[illegible]
Wed. 23	67.3	45.3	56.3	8	0.53	[illegible]
Thu. 24	68.0	45.4	56.7	10	0.54	[illegible]
Frid. 25	66.1	45.2	55.6	11	0.64	[illegible]
Satur. 26	66.2	43.2	54.7	13	0.48	[illegible]

The highest temperature during the above period occurred on the 26th, 1847—therm. 89 deg.; and the lowest on the 25th, 1839—therm. 29 deg.

Notices to Correspondents.

Books: *L T F.* The new edition of the "Theory of Horticulture" is now ready, as you will see by an advertisement in another column.‡

Diseases: *N G.* Your Cucumber seed, for which we are much obliged, shall have a fair trial. It will be valuable should it prove free from disease, though it can scarcely be expected to prove a first-rate variety, considering the quarter from whence it was derived.—*J B.* Your Melons are affected with the disease to which you allude, which will give you a great deal of trouble, with little hope of combating it successfully. Is your soil too light? If so, try what effect a stiffer loam will have.—*J W.* The affection of which you send specimens on Aerides odoratum and Saccolabium Blumei has come under our notice before. The condition of the tissues is very curious, and will be illustrated in the course of our series of papers on "Vegetable Pathology." Unfortunately we are unable to tell you the cause, and consequently to suggest any probable remedy. *M. J. B.*

Evergreens: *J C.* Berberis aquifolium, Gaultheria Shallon, Hypericum calycinum, Vinca major, Cotoneaster microphylla, Savin, and any of the hardier Andromedas, Ledums, or Rhododendrons. The hybrids of the latter will in some cases stand any amount of cold. Plant them in September.

Insects: *J R.* Your Pear tree is badly infested with the usual scale Coccus Conchiformis. If the tree is a choice one, the branches should be scrubbed with a hard nail or tooth brush, or scraped with the nail. Soft soap and tobacco water may be applied when the young active nits appear. *W.*

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is only requested that, in future, not more than four plants may be sent us at one time.—*R B.* Tecoma capensis.—*T D.* Justicia picta.—*W C N.* Veratrum nigrum.—*W S.* Teucrium fruticans.—*E J R.* Eriobotrya japonica, the Loquat.—*G C.* We do not recollect the plant, but will examine it and inform you next week.—*J A.* Lælia purpurata.

Thatching: *A Constant Subscriber.* We should have thought that any thatcher would have suggested the propriety of an underlayer of straw or reeds, over which the Heather could be fastened down. If your thatchers have not brains enough to do this we are afraid your case is hopeless.

Twin Conifers: *P S R.* We will examine them at leisure and mention them next week.

Vine Leaves: *F P.* The small green excrescences on your leaves are induced by a damp atmosphere and imperfect ventilation. They do no harm.‡

Misc.: *J A.* We know of no better way of moistening the air of the room than by employing open evaporating pans.‡

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
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SUPERPHOSPHATE OF LIME AND GUANO.—Merchants, Dealers, and Large Consumers supplied with these valuable Manures of best quality on advantageous terms on application at the Coprolite Mill, Ravenborne Street, Greenwich.

FOR PUBLIC SALE, for Account of the Underwriters, on MONDAY, May 21st, at the New Corn Exchange Tavern, Mark Lane, at 2 o'clock precisely, by order of Messrs. ANTHONY GIBBS & SON, the Importers, 800 Tons (damaged) PERUVIAN GUANO.—J. A. RUCKER & BENCRAFT, Brokers, 20 Commercial Sale Rooms, Mincing Lane.

TURNIP SOWING.—The Undersigned beg to offer their valuable Supherphosphate of Lime (See "Royal Agricultural Society's Journal," Vol. VI., Part 2), Turnip Manure, and Nitro-phosphate or Blood Manure.
Also on sale, Guano, Nitrate of Soda, Gypsum, Bone-dust, Sulphuric Acid, Salt, and all other Manures of known value. Agents for the sale of Peat Charcoal.—Apply for Prices Current to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London.

PATENT SANITARY SEWAGE COMPANY'S NITRO-PHOSPHATED CARBON OR BLOOD MANURE, 10l. per ton; delivered in London, bags included. Each ton contains 1350 lbs. Blood and 11 per cent. of Phosphate of Lime.—Agents throughout the country.
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FOR THE PRICE CURRENT OF MANURES.
NITRO-PHOSPHATE AND AMMONIA PHOSPHATE, manufactured by HODGSON & SIMPSON, Wakefield, and MATTHEWS & Co., Driffield, 8l. per ton.

MANURES.—The following Manures are manufactured by HODGSON & SIMPSON, Calder Soap Works, Wakefield, and MATTHEWS & Co., Manufacturing Agricultural Chemists, Driffield. SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-Dressing for Wheat, Barley, and Oats. SIMPSON'S NITRO-PHOSPHATE for Turnips, Potatoes, and all other bulbous root crops. N.B. Manures specially prepared for Grass and Flax. The above have been successfully tested for the last seven Years by the leading farmers in Yorkshire and Lincolnshire, and other counties, and were applied last season to a breadth of upwards of 15,000 acres of land with the most beneficial results to the crops. A List of Testimonials and other particulars will be forwarded by post on application.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7l. per ton; Superphosphate of Lime, 7l.; Sulphuric Acid and Coprolites, 6l.
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It may also be had from Messrs. G. GIBBS & Co., 26, Down Street, Piccadilly, Agricultural Seedsmen, Agents for London, and from all the other Agents of the Company.

TO SELLERS OF FLAX SEED AND PURCHASERS OF FLAX STRAW.
MR. W. CALDECOTT, late of Frating Lodge, Colchester, and now Old Charlton, Kent, begs to inform struggling English Farmers that he, Mr. C., has at length fixed upon a site and machinery for the much wanted and talked of FLAX FACTORY, and is a buyer of any kind of Flax Straw at liberal prices, adjusted by length and strength; that now is the time for sowing this valuable crop in their clean fallows at two bushels per acre, so as to ensure a TURNIP CROP the same year; and that he is a seller of first-rate seed grown by himself (free from foreign Dodder and other rubbish), once from Riga, at 10s. per bushel, exclusive of sacks.—Apply early, as the quantity is limited.

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TO ARTIFICIAL AND CHEMICAL MANURE MANUFACTURERS AND MANUFACTURING CHEMISTS.
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SPOONER'S PATENT WATER AND MANURE DRILL.—Manufacturers: TASKER & FOWLE, Andover, Hants; and GARRETT & SONS, Saxmundham, Suffolk, to whom orders may be sent; or to the Inventor and Patentee, W. C. SPOONER, Eling, Southampton.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch.
Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

CHEMICAL ANALYSIS.
MR. H. MEDLOCK (formerly Chief Assistant in the Royal College of Chemistry) begs to inform Agriculturists that he undertakes the Analysis of Soils, Manures, &c., on moderate terms. Mr. Medlock also gives instruction to Gentlemen in Agricultural Chemistry at his private Laboratory, 20, Great Marlborough Street, London.

TESTIMONIAL TO J. B. LAWES, ESQ.—The Committee beg to inform those interested in the above undertaking, that the New Laboratory is expected to be ready for presentation in May or June, until which time the Subscription List will remain open, to afford an opportunity to any who may still wish to associate their names with this acknowledgment of Mr. Lawes' services.
Communications to be addressed to
Mr. W. KERL, Hon. Sec., Harpenden.

YORKSHIRE AGRICULTURAL SOCIETY.—PRIZE SHEETS for the MALTON MEETING may be had of the Secretary, Mr. JOHN HANNAM, Land Agent, Wetherby.

The Agricultural Gazette.

SATURDAY, MAY 19, 1855.

MEETINGS FOR THE ENSUING WEEK.
TUESDAY, May 22—Agricultural Society of England.

THE fears and doubts of Paris and its numerous visitors were finally dispelled on Tuesday last (the 15th) by the opening of the Exposition Universelle, which took place with all the forms and ceremonies proper on such occasions. These will be found duly recorded in another part of this Journal; our remarks must be limited to the points which more directly concern the interests of those engaged in agricultural pursuits. The interest which was excited by, and the commercial results which have followed, the Exhibition of 1851, have perhaps been as marked in reference to the agricultural Classes 3, 4, and 9, as in any others. We did well then, and received our reward: we now have to enter the lists with the same competitors, but on a foreign soil.

In the Paris Exposition the classification differs considerably from our own. We therefore think that a brief summary embracing all our agricultural relations with it may be serviceable both to those who intend to visit it and to those who are content to remain at home.

Class 2 comprises forestry, hunting, shooting, fishing, and the gathering of all produce obtained without cultivation. This is subdivided into eight sections:—1. General Statistics, Maps, &c.; 2 and 3. Vegetable Substances used in Arts and Manufactures; 4. Hunting and Shooting (capture of animals); 5. Fisheries; 6. Produce obtained without Cultivation; 7. Destruction of Vermin; 8. Acclimatisation of Plants and Animals. With this class happily we have not much that concerns us to any extent; in each section, however, we may find something to learn; and in none, perhaps, more than in that which relates to the management of woods and forests, still such an unsatisfactory page in our national ledger.

Class 3 is the representative of "productive industry," and comprises within the general term "agriculture" all that relates to the cultivation of plants and animals. Here we have seven sectional divisions:—1. Statistics and general documents; 2. Agricultural Engineering; 3. Implements and machines—fixed plant, &c.; 4. Crops cultivated for general purposes; 5. Crops cultivated for special purposes; 6. Breeding of animals (including poultry and insects) and their produce; 7. Industrial applications of agricultural produce. This class in its comprehensive range will no doubt contain much that will interest and much that will instruct; as yet, however, no indications of its existence are to be met with save in our own department, where the agricultural machinery begins to make a creditable show. Its location, however, is in the annexed building, which, although gradually emerging from the state of confusion which obtained for it the name of Balaklava, is still in a very backward condition.

Some anxiety appears to exist as to the opportunity that will be afforded for a general trial of the agricultural implements exhibited by different countries. The Imperial Agricultural Society, which usually holds a meeting for the trial of ploughs early in June, has this year notified that there will not be one, and the Great Agricultural Meeting (*Concours General Agricole*) to be held in the Champ de Mars from the 1st to the 9th of June, is confined solely to the exhibition of breeding animals, including cattle, sheep, and poultry, but not horses. This doubt, therefore, cannot be decided until the Jury meets, which commences its sittings on the 15th June, and will no doubt at once take into consideration the most suitable arrangements for a full and fair competition, without which no proper estimate of merits, intrinsic or comparative, can be arrived at. In regard to the Great Cattle Show, too, we believe less interest is excited and fewer entries will be made in this country than there would have been had its conditions been made known to us at an earlier date, and through the ordinary medium of communication with the agricultural community. For the first time our neighbours have invited us, and other stranger countries, to send over our cattle to compete for their liberal prizes.

The exhibition is to be divided into 2 sections; the 1st comprising animals *bred in foreign countries*, and belonging *either to foreigners or to natives*; the 2d, comprising animals *bred in France*. In the first section, which alone concerns us, the following prizes are offered:—

	Prize	£.		Prize	£.
CATTLE.—SHORT-HORNS—*Bulls*	1	40	*Cows*	1	28
" "	2	36	"	2	24
" "	3	32	"	3	20
" OTHER BREEDS—*Bulls*	1	40	*Cows*	1	28
" "	2	36	"	2	24
" "	3	32	"	3	20
" "	4	28	"	4	16
SHEEP.—LONG-WOOLS—*Rams*	1	24	3 *Ewes*	1	12
" "	2	20	"	2	11
" "	3	18	"	3	10
" "	4	16			
" SHORT-WOOLS—*Rams*	1	24	3 *Ewes*	1	12
" "	2	20	"	2	11
" "	3	18	"	3	10
" "	4	16			
PIGS.—LARGE BREED—*Boars*	1	12	*Sows*	1	8
" "	2	10	"	2	7
" "	3	8			
" SMALL BREEDS— "	1	12	"		8
" "	2	10	"		7
" "	3	8	"		6

In the four first classes, cattle and sheep, it is required that the males were born before the 1st May, 1854, and the females before the 1st November, 1853; the pigs must have been born before the 1st October, 1854. All entries are, according to the regulations, to be made before the 24th May; this, we are informed, will not be very rigidly interpreted in regard to English stock; but all must be on the ground on the 1st of June. All expenses attendant upon the transport of the animals from and to the Channel ports, and their charge while in Paris, will be borne by the Government; the exhibitors having only to provide the food.

At the termination of the Exhibition on the 8th, a sale will take place, when any animals not previously disposed of may be submitted to public competition.

This Exhibition, we think, offers great opportunities to our farmers for making known some of those breeds of cattle and sheep not generally imported into France, but which may be particularly suited for certain districts. Thus, new sources of demand might be opened up for our agricultural stock, which in a few years might rival in importance the demand which has increased so rapidly for our horses. The natural resources of France are great—her agricultural produce is comparatively small; this can be increased to an enormous extent if the country continues in its present tranquil state. Those who have watched the career of the present Ruler of France, and have seen the vast and important improvements that have been carried out under his Government in the different parts of the country, recognise his policy in now collecting in his capital the choice stock of foreign countries. He thus offers his people a means of comparison with their own and an opportunity of improving their native breeds by an admixture of foreign blood, or of substituting others for them that may present superior advantages. *W.*

DAIRY MANAGEMENT was made the subject of a lecture before the Royal Agricultural Society on Wednesday last, by Professor WAY. His remarks on the theory and practice of the butter and cheese manufactures will, no doubt, hereafter appear in full

detail in the pages of the Society's Journal for the benefit of its readers. A short report is given in another page.

The experience of dairymen is sufficiently various to make the discussion of their differences by a scientific man interesting and important. The weight of butter yielded by a given quantity of cream is a point on which very little agreement exists in published statements. In ordinary experience we do not hesitate to say 1 lb. of butter to a quart of cream is not throughout a herd of cows attainable, and Mr. Horsfall's yield of 25 ozs. to each quart is unprecedented—so much so, that few dairy farmers will believe it, except as a merely exceptional case.

They will not believe that 25 ozs. of well made butter, *i. e.*, with the milk well squeezed out, have been *generally* made from a quart of cream as ordinarily skimmed. Perhaps the best way of stating the result of any particular mode of feeding cows is to name the quantity of butter yielded by the *milk* produced. Mr. Horsfall states his ordinary produce at 25 ozs. from 16 quarts or 40 lbs., *i. e.*, 16 ozs. to less than 24 lbs. of milk. Mr. Telfer tells us that his produce at Cunning Park is 1 lb. from 22 or 23 lbs. when the yield is greatest, to 1 lb. from 30 to 32 lbs. when the yield is least. Mr. Horsfall's ordinary yield, provided there be no mistake, is just Mr. Telfer's extraordinary yield. Whether the experience of the former is attributable to the food he uses, or whether he has with sufficient care and over a long enough period of time determined his results before their publication we cannot say. The subject is no recent investigation of his, and we can therefore hardly suppose that any error fallen into would not have been found out before this; but the facts as stated by him are certainly remarkable, and deserve his closest scrutiny.

But Mr. Telfer's experience as to yield of butter differs from Mr. Horsfall's in other respects than this. His yield of pure butter from a given quantity of milk is larger in winter *without artificial heat* than it is in summer. The warmer milk yields a butter containing more cheesy matter, and heavier on that account; but a gain of 10 per cent. in quantity would be accompanied, he says, by a loss of more than 20 per cent. in quality.

The different statements and opinions given render the subject especially worthy of investigation, and we hope our correspondents will relate their experience on the subject.

The Agricultural Society of England does good service by the useful selection of subjects to which the attention of writers is directed by their prize list. And among them none more full of instructive matter has been named than that on the causes of fertility and of barrenness in soils, the prize for which has, we see, just been carried off by Mr. Coleman. Such a subject is, perhaps, too large for a single paper, as it necessarily occupies the greater portion of the whole agricultural field: but an enumeration of some of the topics which it embraces, with descriptive notices of such instances and illustrations as observation and experience may have furnished cannot fail to be instructive. Such an enumeration and catalogue of cases we shall now attempt to give. And in the first place let us name the limits within which the subject as enunciated confines us.

The words fertility and barrenness, as applied to soils, bear in this country almost universally a merely relative meaning. *Absolute* barrenness exists only on the uncovered rock. Wherever in our island there is soil it is more or less productive; for *that* we thank our climate. Its "fertility," however, is "barrenness" if it be so low as not to bear the expense of cultivation or of management. Between the Heath-bearing bog or moor, and the richest fields of Norfolk, Lincolnshire, or Lothians, there is a contrast certainly; and yet these cases are but different degrees upon a common scale; and the lowest of them are not at its zero, nor will any witness of our agricultural progress hitherto, believe that the highest instances as yet have reached its maximum extreme.

We propose to specify some of the causes of this varying fertility; some of the influences to which the thousand differing degrees of productiveness are owing that form the scale alluded to, which in this country extends between the barest vegetable covering, and the growth of food enough for 50 sheep per acre through the summer.

In the first place, then, what does "observation" teach about fertility and barrenness in soils? On the great scale it discovers and illustrates every grade of each. We have barrenness owing to inclement climate, and we have barrenness owing to a faulty soil—it may be too shallow, or it may be full of stagnant water—it may contain vegetable matter in excess—it may be too adhesive—it may be too light: every one of these causes may be seen in operation over large tracts of country. And we have fertility, as well, extensively exhibited, both as the result of natural conditions of soil and climate, and as the consequence of the energy and skill of the cultivator. Our rich alluvial lands, the meadows and the "marshes" of Somerset and Lincolnshire, and elsewhere, are among the best instances of the former; and there is not a county in the island but will illustrate the latter; and so we see how cultivation is creeping up the sides of the Mendips, and the Lammermuirs, and every other highland in the country; we see the boundary lines of all our moors and bogs and sandy wastes contracting; we see districts, such as Lincoln Heath and much of North and Western Norfolk, formerly rabbit warrens and poor infertile sands, now as productive probably as any others in the kingdom; we see fens, once the home of waterfowl, rivalling the richest specimens of natural fertility.

It is in the agricultural history of those years which divide the present from the past states of these tracts of land, that observation has recorded its best lessons on the causes of barrenness and fertility in soils; and it is along the boundary lines which separate these two conditions now, in districts where the process still remains unfinished, that these lessons can be read with greatest ease and force at present. If the student wish to learn how difficulties of climate may be met, let him visit Devonshire, or East Lothian, or almost any of the border counties of Scotland. Among the last-named he will see how Nature teaches on this subject; how, in the midst of a district suffering from this cause, there occur sometimes localities where she has provided an open subsoil and a freer soil, in which all the difficulties owing to inclemency of climate seem to disappear. And he will find that art has not only applied this lesson with success, but that by the aid of shelter furnished by the planter, as well as by the help of drainage and the selection of appropriate crops, cultivation is gradually extending upwards, successfully contending with climatic hindrances. If it be the treatment of a faulty soil that is the subject of inquiry, instances on every kind of scale may be found in every county of the kingdom. As for injury by stagnant water, we have lying before us a correspondence on that one subject relating to many thousands of acres in the whole, and distributed over nearly every county in England, besides many in Scotland and Wales; and the effects of land drainage are so striking, the injuries which it heals so great, that though all sorts of practices as to depth of drains and interval between the drains are given, while all sorts of soil as to cohesiveness and porousness are named, the answer to the question as to the nature of the result in almost every instance is "most satisfactory."

Then, as regards the improvement of the soil other than by draining, the student will find the practice of burning clays carried on in Gloucestershire and in Essex, and elsewhere; that of claying sands and peaty soils carried on, perhaps most largely, in Norfolk and in Lincolnshire; the addition of chalk to soils common in the practice of many of the eastern and southern counties of England; and the application of lime common everywhere. He will find many an instance everywhere of that greatest of all causes of increased fertility—the liberal application and economical management of manures; and to some of them we shall revert. He will find the opinion becoming pretty general that it is advantageous to deepen soils; and, while the use of the subsoil plough has probably diminished, he will observe in many districts (what the ameliorating influence of drainage has permitted) that ploughing and cultivation generally are becoming deeper—that portions of the subsoil are being mingled with the staple; and even that the digging-fork is being used as an implement of the farm. But fertility is not a condition merely of the soil; *that* is but its enabling cause: and the skill of the cultivator in producing it is shown, not merely in working the land, but in selecting those crops for growth upon it which, under his circumstances of soil and climate—of labour and of markets—shall yield him largest profit. And observation will perceive how, on the great scale, these circumstances have distributed the vegetable covering of Great Britain; how Grass affects the moister districts of the island, and arable farming is more prevalent on its eastern side; and how particular crops have located themselves on fitting soils, near fitting markets, Teazels being grown in the clothing districts of Gloucestershire and Somerset, Hops on rich lands near the capital. The student will indeed observe how this question of demand—this neighbourhood of markets—more and more becomes the sole determining cause of the character of the prevailing agriculture; how in every county there are instances where skilful cultivation having first arranged the fitting circumstances, the selection of the crop is dependant simply on the resolution of the cultivator.

We have supposed the student to examine many counties for these illustrations, but in truth he will rarely need to exceed the limits of the one in which he lives. In the county we are best acquainted with, and, doubtless, in most others, observation will discover illustrations of nearly every cause of fertility and barrenness in soils. It has deep alluvial lands, and sandy loams, in which we have traced the fibres of the Turnip 4 feet downwards; it has soils so shallow too, upon the mountain limestone and the millstone grit, that the pastures wither under a month of summer drought; it has among the stiffest clays and the lightest sands we know; it has highland and lowland sufficiently marked in their character to indicate the influence of climate; it has large tracts of pasture lands yielding dairy produce, and there are within it 100,000 acres in one district almost wholly arable; and as to the influence of manures upon fertility not only does it exhibit instances enough of ability and of indolence among its cultivators, but over its extensive dairy districts observation notices the significant fact that whatever be the geological formation—whatever the character and original quality of the soil—everywhere the *home-grounds* are the greenest in the winter months, and the most productive during summer.

So much for observation of the present merely, but we have known it many years; and the changes thus observed are even more instructive on the causes of fertility and barrenness. We have seen the drainage of the land and the removal of excessive hedgerow timber from it, the construction of good roads, and the erection of good buildings on it, prepare the way for better cultivation; so that from a poor Grass yielding from 15 to 18 cwts. of bad hay per acre, 30 tons of Mangold Wurzel, and even more of Drumhead Cabbages, along with alternate grain crops, have been substituted. All this is in one county; and we believe that few agricultural students, now-a-days, will need to look much farther, or even much beyond the limits of their own horizon for instances as striking of the illustrations which "observation" gives of this important subject.

IRRIGATION BY SUBMERSION, OR BY HOSE AND JET.

There have been animated discussions at the Society of Arts on a paper by Colonel Cotton "On the Public Works for India;" the points of controversy being on the sufficiency of the Company's projected works. The chief point of controversy between the colonel and the Company's engineers, was as to an alleged undue and exclusive preference given to railway over canal and river communication, which it was contended would be cheaper and more extensively available for India under its peculiar circumstances. At a second discussion held on Monday week, Edwin Chadwick Esq., C.B., in the chair, the irrigation works laid out by the Company's engineers were adverted to, when Mr. W. Bridges Adams, the engineer, observed that leaving the problematical question of navigable canals, we come to the question of irrigable canals. Of their value and permanent utility, if India is to make progress, there can be no doubt. Colonel Cotton cannot well over-rate them in this particular. In proportion as irrigation extends, population will thicken, and ultimately it will be found that the whole of the water can be advantageously absorbed to render the dry land fruitful. In hot countries the roots of the plants appear to be the best absorbents. Rain is not favourable to ripening vegetation. But the process of irrigating land by open channels is a costly one. Along the channels there is a thick and tangled growth of weeds, requiring a constant expenditure of labour to keep down. In the beautiful plain of Valencia, in Spain, the whole water of the river falls short of the necessities of the cultivators, and leaves much good land useless, and generates a perennial strife among the peasantry, which rises into an occasional tumult, with loss of life, and has to be put down by the soldiery. There is a proverb about the water:—

> "Una mitad al cielo,
> Otra mitad al suelo."

> "One half to heaven,
> The other half to earth."

Probably of all the water that springs from the mountain, one-third is absorbed by the sun, and another third by the porous channel, to grow weeds, while only one-third reaches the cultivated land.

In hot Spanish countries, with irrigation, it is customary to plant the acequias or irrigation channels with trees, to prevent evaporation. But there is yet wanting a cheap and efficient mode of conducting irrigation water under ground, and when that takes place it will be the most valuable gift that modern science can bestow on India, saving human labour, and preventing the waste of water. The water must be filtered before it enters the channels, to prevent deposit, and the channels must be easily accessible to clear out obstacles. If Colonel Cotton will set himself to work to solve this problem, he

will be a still greater benefactor to India than he has yet been.

The Chairman made some observations to show that this desideratum was practically accomplished by the method of surface distribution which he had got introduced into this country by the hose and jet, or by shedding by means of flexible pipes, with lateral apertures. Of the paramount importance of the proper execution of works for the adjustment of water supplies in India there could be no doubt. One speaker, whilst deprecating generalities in respect to the whole of that continent, had yet stated one general condition under which it was placed, of sudden and immense floods, of torrent-filled rivers, and of prolonged droughts, which certainly demanded works of extensive generality and magnitude for the collection and storage of these sudden falls, and for their regulated distribution. Such works had been commenced by the Company, but in important respects on erroneous principles. It appeared that the water-leading was by open cuttings, in the branches as well as the mains, and that the ultimate distribution was mostly by the method of submersion. Where the mains were not stagnant, and where they could be made to serve the purposes of traffic as well as of water distribution, the method of conveyance by open cuttings had, no doubt, compensating advantages; but in Peru, where the Spaniards raised enormous cereal crops by irrigation, it was a saying, that to lead water in open cuttings, was to lead it into the air; and it must be so, to a greater extent, in India. This appeared to have been formerly well understood. In Colonel Chesney's work might be found the native remains of ancient water-leading, by covered channels under the present arid and desert seats of former populations and civilisation. The method of ultimate distribution by the water meadow, old though it might be, was open to the fatal objection that it created marsh surfaces, and engendered marsh miasma. The chairman, in his sanitary researches in England, had found, and it was abundantly proved, as might be seen in the reports, that the water meadows generated the rot in sheep and the ague in men. His friend, Captain Baird Smith, in his able report on the Italian irrigations, had stated the fact, that from experience of the injurious effects of such irrigations, the formation of such works was in several states prohibited within six miles of towns; but it did not appear to have given to that fact its due and decisive weight. If such were the effects in European climates, it might be expected that they would be aggravated in the east by a more rapid decomposition under a more powerful sun; and so they were. Medical reports which the chairman had seen showed, particularly in the province of Agra, peculiar manifestations of the malarious influence in the enlargement of the spleen. The medical men reported that they could tell by the extent of enlargement of the spleen the extent to which the population had been exposed to the malarious influence. Now he (the chairman) had a large faith that unwholesome processes were not intended, and were not the best for the most economical or the most productive results. One effect of them was almost to necessitate with the inferior labour a depressed, inferior, and expensive population. In some consultations on drainage works for the productive and sanitary improvement of Guiana, he was not surprised to find the slave labour in reality dear, as well as inferior labour, and obstructive of improvement. He had been assured by a large planter that he could afford to give as much as 3*s.* per diem for labour as good as common day labour in England. Then, why not import it? The answer was, that it had been tried, but that the free labourers could not stand the climate, and would have recourse to rum, which destroyed their value as labourers. What was called "the climate" was, in the particular instance, the miasma from the stagnant ditches used to drain the land, and which so closely intersected it, that the plough which might there have been otherwise used could not run. In England he had promoted the use of covered but permeable tile drains in substitution of the open ditch drains, which commonly surrounded our towns as well as lands, and they were now proved to be the most economical; and to remove all sanitary objection, the late Dr. Shier agreed that in the particular instance they would have removed the barrier to the introduction of superior labour, as well as the obstructions to the working of the plough. It appeared that, in consequence of the irresistible evidence in India of the effect of the miasma from the irrigation by submersion, it had been provided that they should not be carried on within such distances as three miles from a town. If, however, six miles distance were required for the protection of the population of Italian towns, three miles was certainly too short a distance in India. He had evidence even in England that marsh effluvium had been perceptible for 15 miles. After a continued prevalence of wind from over the marshes and open ditch drains in Essex and Kent, at Plumstead, comparatively weak as was the power of decomposition here, scattered cases of marsh fever—known as such to medical officers conversant with the marsh diseases—and ague, were found to occur amongst the population to the very extremity of the metropolis. In some of the reports of the Company's officers, it was stated as conclusive and satisfactory, that from the provision made, "only a few" cases of enlarged spleen occurred amongst the adjacent population. To those who understood the subject, however, "the few" developed cases (which usually on examination turned out to be not a few), denoted the prevalence of wider deleterious influences than the particularly developed cases. But this supposed protection wholly disregarded those who were to labour in the artificially created marshy surfaces; it was in ignorance of that to which he must repeatedly call attention as a practical economical principle — that inferior processes, processes which were physically injurious and depressing, made inferior labourers and inferior populations. He was happy in being able to convey confident assurances that these unsanitary consequences were avoidable, and, moreover, were avoidable with a profit. From having been compelled to struggle with the difficulties of dealing with the refuse of towns, he had been led to propose, in substitution of the practice of applying liquid manure by the method of submersion, the principle of pipe distribution, or the application of liquified manure by pipes and hose and jet. This was now in course of increasing application in farms, and its sanitary success would be found to be everywhere demonstrated. As with applications by the horticulturist, or by the gardener's water-pot, no more was given at one time than the soil could at once absorb. Plants whose natural habit was not submersion in liquid were not subjected to it. There was no stagnant surface water and no decomposition. Even where liquified manure was applied, there was an immediate chemical combination with the soil, which it was proved retained it permanently, and there was no loss from decomposition, and no atmospheric pollutions from that cause. There was also a large economy of water. But what perhaps was of the most immediate importance, there was a large economy of original outlay, as well as in working expenses. Captain Baird Smith, in his report on the Italian irrigations, had shown that as much capital as 40*l.* per acre had been expended in the construction of the water meadows and the connected works. The average cost of the Wiltshire water meadows was about 16*l.* per acre. The Chairman held in his hand a tabular view of the comparative outlay and the working expenses of the works for distribution by submersion, and of those for distribution by jet. From this table it would be perceived, that the total cost of the works and apparatus of all the prominent examples examined of irrigation, by bed works and gutters, including the instance of catch-water meadows, had been 31*l.* 14*s.* 7*d.* per acre, and that the total annual charges and working expenses were 3*l.* 7*s.* 1*d.*; whilst the cost of the new works and apparatus on the average of all the examples of distribution by underground pipes had been 2*l.* 7*s.* 1*d.* per acre, and the annual charges and working expenses 8*s.* 11½*d.* per annum per acre. The cheapest instance found of the method of distribution by open gutters, the Pusey catch-water meadows, was 14*s.* 3*d.* per acre, whilst the total annual expenses of the cheapest method of distribution by closed channels and underground pipes, and by jet and hose, was 7*s.* 1½*d.* per acre. The detailed particulars of works from which every competent officer might judge for himself were to be found in the official minutes published on the subject, and one additional advantage would be seen in this, that the works did not confine the cultivation to one method, but were equally applicable to arable and to arboretal cultivations. From what had been stated of the cheap rate at which water was raised in India by simple means, there could be little doubt that the experience here as to economy of construction and working were applicable, *mutatis mutandis*, to India. It should be our mission to introduce into that country the most advanced improvements of modern civilisation, and our dominion should be based on the benefits rendered by it to the population. Care should be taken that in mere routine, and from poverty of resource in adaptation, we did not introduce European defects. This was of primary importance in relation to those works on which the productive powers of the country must mainly depend, namely, those for the adjustment of the supplies of water. At the same time the Company's service, military as well as civil, furnished some of the most brilliant examples of fertility of resource and administrative ability in the empire. It would have enlarged the sphere of their discussion, and presented an example worthy of high regard, as it appeared only imperfectly known in India and almost totally unknown in this country, if, from the papers officially printed by the Company, he might have presented to them in detail the example of the conquest, the reclamation, and the civilisation of the Mairwara, of which the foundation had been laid by Colonel Hall, of the Company's service, but the brilliant superstructure had been worked out by Lieut.-Colonel C. J. Dixon, of the Bengal Artillery, It was the case of a wide range of hilly district, badly cultivated, infested by wild beasts in jungles, and occupied by a robber population, whom it became necessary to subdue, for the protection of the inhabitants of the surrounding districts. Under ordinary routine, it would have been merely garrisoned at a great expense, but Colonel Dixon perceived that the failure of the crops from the irregular supplies of water at times necessitated predatory habits, to which the long intervals of labour from a rude and bad cultivation gave them leisure. To meet this condition Colonel Dixon projected works for the collection, storage, and distribution of water. He obtained government advances of money, and occupied the robber population in their construction. Subsidiary works were designed, money advanced, and the same population was engaged in the reclamation of jungles and in that steady and highly productive cultivation, of which the adjusted water supply and distribution afforded the means. The time of the population was so well occupied, that they had no leisure nor inducement to think of depredation. He succeeded in doing there what our administrators had not succeeded in doing here, in making absolutely condemned criminals prefer honest and productive industry. For the conveyance of produce, roads had to be made for the accommodation of the increased numbers of cultivators; villages had to be constructed; for the supply of the villages a town had to be created, and for the sale of the produce, markets and fairs to be instituted. The Government advances of capital were repaid with interest. Instead of levying black mail on the surrounding population, instead of occasioning the expenditure of a revenue, in maintaining the repressive action of troops, the district now furnished good subjects and good troops, and a good revenue for the maintenance of the local as well as the general government, from a thriving and increasing population. All this had been done in a very few years, and the instance might be cited in proof of the possibility, by similar administrative appliances, of altering completely the condition of that empire within the span of one generation.

The following is the table of the comparative cost and working of the two descriptions of works, as applied to the distribution of liquified manures:—

Name of Place.	No. of English acres.	Mode of Application.	Total cost of works & apparatus per acre.			Annual interest, &c., at 7½ per cent. per acre.			Annual working expenses per acre.			Total annual charges per English acre.			Observations.
			£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
NOTTINGHAMSHIRE. Duke of Portland's Clipstone Meadows	300	Catch-meadow, gravitation, and open gutters.....	120	0	0	9	0	0	0	10	0	9	10	0	Previously worth from 3*s.* to 5*s.* per acre, per annum, produce now upwards of 12*l.*
EDINBURGH. Craigentinny Meadows: High Level	63	Steam engine, pumps, and open gutters and panes...	31	14	11	2	7	7	1	17	4	4	4	11	Average rental, upwards of 16*l.* per English acre.
Sea Meadows	38	Gravitation, open gutters, and panes	18	8	5	1	7	7½	0	10	5½	1	18	1	Worthless 25 years ago, now worth 520*l.* pr English acre.
Old Meadows	228	Gravitation, open gutters, and panes	11	16	10	0	17	9	0	10	5½	1	8	2½	Maximum rental, 25*l.* per English acre.
WILTSHIRE. Wiley Meadows	150	Bed-work of ridge & furrow, gravitation & open gutters	20	0	0	1	10	0	0	7	0	1	17	0	Four heavy crops of Grass per annum.
DEVONSHIRE. Duke of Bedford's Tavistock Meadows	90	Bed-work & catch-meadow, gravitation & open gutters	13	2	10	0	19	8½	0	15	0	1	14	8½	Land more than quadrupled in value after only five years irrigation.
BERKSHIRE. Pusey Meadows	100	Catch-meadow, gravitation, and open gutters	4	9	0	0	6	8	0	7	7	0	14	3	Land not previously worth more than 5*s.* per acre, now yield 6 heavy crops of Grass per annum.
STAFFORDSHIRE. Duke of Sutherland's farm, near Trentham	83	Steam engine, pumps, underground iron pipes, gutta-percha hose, and jet pipe	6	5	5	0	9	5	0	4	4¾	0	13	9¾	Tanks constructed sufficient for 300 acres.
GLASGOW. Mr. Harvey's farm.....	508	Steam engine, pumps, underground iron main pipes, & iron distributing pipes	2	17	1	0	4	3½	0	9	5½	0	13	9	10 feet thick of Grass cut from an acre in 6 months.
GLAMORGANSHIRE. Porth Kerry Farm.....	50	Gravitation, iron pipes, and gutta-percha hose	6	0	0	0	9	0	0	4	0	0	13	0	Tanks constructed sufficient for 300 acres. Upwards of 9 feet of Grass grown.
AYRSHIRE. Mr. Kennedy's Myre Mill farm	508	Steam engine, pumps, underground iron mains, gutta-percha hose, and jet pipe	3	2	6	0	4	8¼	0	6	4¾	0	11	1	70 tons of Grass cut from an acre in 6 months.
Mr. Telfer's Cunning Park farm	50	Ditto	4	4	0	0	6	3½	0	4	4¾	0	10	8¼	14¼ feet thick of Grass cut in 7 months.
LANCASHIRE. Mr. R. Neilson's Halewood farm ...	120	Ditto	4	0	11	0	0	6¼	0	3	3¼	0	9	9¾	One dressing of liquid found equal to 25 to 30 tns. of solid farm-yard manure per acre.
CHESHIRE. Mr. Harrold Littledale's Liscard farm	150	Ditto	4	9	7	0	6	8½	0	2	4¼	0	9	1½	A 4th crop of Grass, equal to 10 tons per acre.
Marquis of Ailsa, Leg or Dunduff farm ...	50	Gravitation, underground iron mains, gutta-percha hose, and jet pipe	3	16	5	0	5	8¾	0	1	4¾	0	7	0¾	12 stacks per an. previously, 80 stacks last year.

The new model farm at Glasnevin, in Ireland, has been laid down on this principle, which has also been adopted by Lord Grey and Lord Kinnaird on farms which will be at work this year.

EXPERIENCES IN LAND DRAINAGE.

No. VIII.—The result of my experience has been generally satisfactory, except in some situations upon strong clay lands, where the drains are 30 feet apart, and which I think should not exceed 18 or 20 feet.—The system adopted has been chiefly parallel, except where the formation of the earth required them otherwise.—The prevailing depth has been 4 feet in all situations where draught could be obtained from that depth.—The only difference in our mode of draining between arable and grass land is that the furrows have been followed on the latter.—Where the ridges are high and of a great width, we have drained with the fall; and the furrows have been followed where they came within the proper distance for which the drains were set out.—Two-inch pipes have been used for minor, and 3 and 4, 5 and 6-inch for main drains; no collar or socket pipes have been used, as the drains are generally of a firm and strong nature.—Cannot speak with any degree of accuracy on the benefit of giving air at places either to main or minor drains.—The average number of acres discharging at the several outlets varies materially as to where outlets can be obtained, say from 2 to 10 acres, the main pipes being proportionately large.—The soil and subsoil is chiefly clay, with an admixture of stones and marl.—*Ryle, Moor House, Durham.*

No. IX.—The result of our drainage operations has been perfectly satisfactory, and generally approved by tenants who were much opposed to deep draining in the first instance.—I have adopted what is commonly called the parallel system.—The prevailing depth of the drains has been 4 feet.—No difference in our mode of draining between arable and grass land when under similar circumstances.—Minor drains taken with the fall in every instance. On strong land where ridges are high I have been compelled to keep to the furrows, urging tenants to level the ridges as soon afterwards as possible.—I have generally used 2-inch pipes for minor drains; and for mains, from 3 to 8 inches capacity, according to circumstances.—I have not used any socket pipes, and collars only where the land is unsound. I dare not lay pipes of a less size than 2 inches without collars.—I have seen instances where air has been required for insuring a rapid and even discharge of the water, but I have never found it necessary in my own practice; I have sometimes made a "well" in a long or important main drain for the sake of satisfaction more than from any existing necessity for air.—What is the average number of acres discharging at the several outlets? This question I cannot answer; I may say from 40 acres to 4. As a general rule I think the square root of the acres in a field will give the size of the outfall pipe required; thus for a 9 acre field 3 inch outfall, 16 acres, 4 inch; in practice I prefer, however, to exceed rather than to be under this rule in the size of an outfall pipe.—The soil and subsoil have been various; from clay of the strongest and most "impervious" quality to gravel.—The geological formation is various.—The draining I have effected being in various parts of the country and under different circumstances I cannot give a satisfactory answer to the questions about height of situation or rain-fall. *G. Beaumont, Bridgeford Hill.*

No X.—The result of our drainage operations on all descriptions of land has been satisfactory.—I have found that all drainage for spring water must be done according to the particular circumstances of the case, and my replies only refer to drainage for surface water on strong clay-land. The plan has been in some cases (where the land was in ridges of 4 and 4½ yards wide) to make a tile drain up every other furrow 2½ to 3 feet deep, taking care that none of the subsoil or clay should be put back into the drain, but spread over the land. As soon as practicable after the draining, say in three or four years, the lands or ridges are ploughed into proper form, the old alternate furrow without a tile-drain being now the ridge, not at all high, but with a gradual fall each way to the furrow. I have land before me which was treated in this manner in 1826, and in nearly every subsequent year, and the result continues to be quite satisfactory—growing 30 tons of Swede Turnips, 10 to 12 quarters Oats, 5 to 6 quarters Wheat, and 5 to 7 quarters of Barley per acre; this latter crop depending so much upon the state of the land when the Turnips were carted off. In March 1850 I drained a field up every furrow at three different depths—2 feet, 2½ feet, and 4 feet. It has grown Barley, seeds pastured two years, and Oats; now sown with Wheat. No person has yet been able to say which was drained 2 feet or 4 feet, and I am thoroughly convinced that where there are no springs, the soil strong, and the subsoil clay, 2½ to 3 feet is more beneficial than any greater depth. Nearly all the land, which since draining grows large crops of roots and of Barley first-rate malting quality, a few years ago grew miserable Turnips and Barley only fit for grinding, besides which the harvest is now as forward as on the hottest part of Sherwood Forest.—The prevailing depth of the drains is 2 to 3 feet.—The mode of draining on arable land is deeper than on Grass.—The direction of the minor drains is with the fall. I have followed the furrows where the land is in ridges generally. In some cases I have set out the drains 9 yards apart, without reference to the old furrows; but in every case I keep the land in very slightly elevated ridges, the tile being always under the furrow and this plan I find far preferable to having the land flat.—I have used 2½ inch pipes, and horse shoe tiles 3½ × 2½ inch for minor drains. The outfall tiles vary.—I have not tried giving air at places to either main or minor drains.—The average number of acres discharging at the several outlets has been 3 to 6 acres.—The soil and subsoil are loam on red and blue clay.—The geological formation is red marl, or red sandstone.—The mean height of the land drained above the sea level is 120 to 150 feet.—The average depth of rain-fall in our neighbourhood is 27½ inches. *Richard Milward, Thurgarton Priory, Southwell, Notts.*

No. XI.—The result of our drainage operations on all descriptions of land as regards work done in the last five years, and under my personal directions, has been satisfactory.—The drainage I have adopted has been a parallel system as a principle.—The prevailing depth of the drains has been 4 feet.—I have made no difference in the mode of draining between arable and Grass land, although I have doubts as to the advisability of so deep draining (4 feet) marsh land when the soil is light.—The direction of the minor drains has been with the fall; I think it an error to be governed by the furrows.—The pipes have been 1½ inch to 3 inches in minor drains, and 3 to 6 inches in mains; I have double piped through quicksands and bogs, but found little occasion for collars elsewhere.—I have found no benefit by giving air at places to either main or minor drains, and cannot see the use, seeing the soil is made porous by draining.—I would not willingly bring above 10 acres to one outlet.—I believe my experience must include nearly all the soils we have in England.—As to the mean height of the land drained above the sea level, I refer to no particular neighbourhood, as I have had to drain across the island. *Hewitt Davies, 3, Frederick's Place, Old Jewry, London.*

No. XII.—The drainage has been satisfactory except in some cases of peat. I have found all drains in peat containing red water to be choked by a sort of ferruginous deposit, in about four or five years. Chemists say lime will counteract this. I have not found it so; having limed a great portion of a drained bog at the rate of 200 bushels of clod lime per acre. The drains were choked exactly in the same manner as the unlimed portion. I have redrained the bog, giving a little more fall in the drains, with pipes 3 inches diameter, at 5½ feet deep, 40 yards apart; each drain being carried up the adjoining hill to gain a supply of pure water in order to dilute the deleterious water of the bog, and to flush the drains. At present the result is deemed satisfactory. Experience has taught me that drainage is effectually done in Grass lands where the subsoil is porous, at 40 yards apart, and 5 to 5½ feet deep; in any subsoil at 20 yards apart and 4½ feet deep, *i.e.*, in the furrows. Ridge and furrow should always be crossed in a slanting direction if possible, *i.e.*, consistent with true levels, in Grass land, unless the ridges are very high old-fashioned ridges.—Parallel drains have been used.—Four to 7 feet deep, 10 yards apart in tillage land, 20 yards apart in Grass land.—Half the number of drains is amply sufficient for Grass land.—Minor drains are laid on these levels (down the steepest part of the hill), so that the bottom of every drain is in the same uniform level as its neighbouring drains.—Pipes 2½ inches in diameter for minor drains; 3 to 9 inches in diameter for mains; collars used when really necessary.—If drainage is properly done there can be no need for giving air at particular places; water of drainage carries air with it.—From 5 to 40 acres run out at one outfall according to circumstances, it being deemed necessary to have as few drain mouths to look after as possible; also the greater the discharge of water from the main the more likely is the outlet to be kept clear.—Almost every description of soil has been drained.—The geological formation is blue mountain limestone, or lead measures.—The height above sea is from 550 to 750 feet.—The rain-fall is unknown. *J. Anderson, Newcastle.*

No. XIII.—The result of my draining operations on all kinds of soil has been satisfactory, excepting in some of the earlier works where the drains were not of sufficient depth.—I have invariably adopted a parallel system.—The prevailing depth may be stated at 4 feet 6 inches.—I have generally placed the drains a greater distance apart in Grass lands than in tillage lands.—The minor drains are placed in the line of the greatest fall, and in some instances where the ridges are much raised (particularly in Grass lands), they have been placed in the furrows.—I have used 2½-inch diameter cylindrical pipes for minor drains, and 4-inch and 6-inch pipes for mains.—I have never tried the effect of openings to admit air, but it strikes me that soil perfectly freed from water requires no such openings.—About 10 acres run out at one outfall.—My experience embraces every variety of soil and subsoil—clay, bog, loam, sand, &c. &c.—The same remarks will apply to the geological formation, but the greatest proportion of the works has been executed over the Northumberland coal formations.—The altitude of the lands drained ranges from 200 feet to 1000 feet above the level of the sea.—There are not (I am sorry to say) any rain-gauges kept in this district.—I may mention that I have directed and superintended an outlay in drainage very little short of if not exceeding 15,000*l.* About 3000*l.* of that amount was expended in 3-feet drains laid down at distances from 18 to 21 feet apart (which has not been quite satisfactory), and the remaining 12,000*l.* of a depth not less than 4 feet. I have had one or two failures in deep drainage, where from a desire to economise I had placed the minor drains at too great a distance apart, and where, from the negligence and ignorance of the farmer, the land had not been laid perfectly level. In very strong clays I place the ordinary drains about 24 feet apart and 4½ feet deep with perfect success; in medium subsoils about 33 feet apart and the same depth; and where the subsoil is very porous as far as 45 feet apart and 5 feet deep. And in some pasture lands I have placed the drains 50 and 60 feet apart with the greatest success. I now find that some of our earlier performances at a depth of 3 feet will require to be redrained at a greater depth. It is painful to see the shallow drainage still going on near Newcastle-on-Tyne and many parts of Scotland. *Thomas Gow, Newcastle.*

Home Correspondence.

The Nitrophosphate Manure.—In reply to "S. R. E." as one of the trustees of the "Nitrophosphate or Blood Manure" Company, I beg to state that last year I used 35 tons, and during the present season I am using [illegible] tons of that valuable manure. I used the nitrophosphate alone for my white and green round Turnip and Rape with great success, but with Swedes and Mangolds in admixture with farm-yard manure (in small quantity), guano, and salt. From the favourable reports of some neighbours as to its use on corn crops, I am this year using it on from 60 to 100 acres of Oats and spring Wheat. My occupation is upwards of 600 acres of light chalk soil, and 380 heavy clay. The nitrophosphate was equally successful on both soils. *H.* [We shall be happy to give our correspondent's address "S. R. E." wishes for further information.]

Temperature of Dairy.—In reply to the inquiries of "An Original Correspondent," the water used for increasing the temperature of my dairy is quite hot; when the tap is opened, the water travels through the cistern to the other extremity, where the outflow pipe is placed, throwing off a considerable quantity of steam. The supply of hot water is exhausted in six to eight minutes, and in about half an hour the water is cooled, and then wholly drawn off. By this application, the temperature of the dairy is increased to 60°. The bowls are of thick glazed earthenware of a dark brown colour. As earthenware is a slow conductor of heat, I think it improbable that the milk, of which there are 4 to 5 quarts in each bowl, attains a temperature equal to that in the dairy, as this begins to lower when the hot water has ceased to flow. The bowls stand on a base of 6 to 8 inches, and expand at the top to double that breadth. I have on no occasion found any unpleasant flavour from this process. When the dairy during summer weather reaches continuously a temperature up to but not exceeding 60°, I find my milk on standing 36 hours affected with a sour taste. If I cannot reduce the temperature by the cold water, I cream after 24 hours, to keep the old milk sweet, in which state alone it is saleable. For my purpose, I am disposed to think a temperature of 52° to 56° the most desirable. *Y.*

Guano Buying.—The following paper by Mr. Prideaux, in the "Journal of the Bath and West of England Agricultural Society," appears to me so important at the present season that, believing your readers will agree with me in this opinion, I would advise its being extracted and published in your columns. *M. S.* "Guano, now become so important to the farmer, is so widely different in quality, that something like a standard of its real and comparative value is very desirable for the buyer, to show him what is best worth his money. Besides the shameful adulterations it has undergone at home, and may do equally abroad, it is liable to unintentional casualty in collecting, by stones, earth, or sand coming up with it. And even when quite genuine its value is very different, according to the degree of moisture and stage of decay. An average analysis of Peruvian guano by Professor Way gave per cent.:—

Moisture ...	... 13		
Organic matter	... 53	containing ammonia	... 17
Phosphates ...	... 24		
Alkaline salts	... 9	containing potash ...	... 3½
Sand, &c. ...	... 1		
	100		

The moisture and sand are, of course, worth nothing: the less of them the better. The organic matter he values only for its ammonia, which is worth full 6*d.* per lb., so that a sample yielding 17 lbs. of ammonia will be worth 1*s.* per 100 lbs., or 22*s.* per ton, more than one containing only 15 lbs. (unless the latter be richer in phosphate or potash). Phosphate of lime is worth about double the price of bone-dust, after deducting the other valuable materials which bone-dust contains. On this principle Professor Way estimates it at ¾*d.* per lb.; and the potash, from the cheapest source (the sulphate or muriate), at 2¼*d.* Hence an average sample of genuine Peruvian guano may be reckoned as follows:—

	lbs.		d.		s.	d.
*Ammonia	17	at	6	=	8	6
Phosphate	24	at	6¾	=	1	6
Potass	3½	at	2¼	=	0	8
					10	8 per 100 lbs.
					or 11	10 per cwt.
					= £11	16 8 per ton;

rising or falling 11*s.* per ton for every pound of ammonia more or less. To which I should add (but without Professor Way's sanction) full 10*s.* per ton for the other organic matters and alkaline salts, making 12*l.* 6*s.* 8*d.* per ton. But how to render this available to the farmer, who cannot assay his guanos, as the publication of any simple tests would immediately lead to their evasion? The most feasible method seems to be, always to buy guano under guarantee of a certificate of analysis given with the invoice: from which the farmer can reckon its value by comparison with the standard. If he has full confidence in the seller, this may be sufficient; but if he wishes to satisfy himself further,

* Professor Voelcker values ammonia at present price at 9*d.*

he may get out an average sample, by drawing a portion from the centre of every bag (or of a sufficient number to ensure a fair sample); mix it all well together, and divide it into two halves. Take one to an experienced chemist, who, for about 7*s.*, can make a rough check assay, sufficient to guide him about purchasing; and put the other in a bottle, cork, and seal it airtight, and keep it with the certificate in a cool place till the season is over; when, if the guano has failed, he can have it regularly analysed, and make his claim upon the dealer in case of fraud or error in the certificate, which, however, would rarely (if ever) happen if the check assay was properly executed. This is thrown out as a rough suggestion for the consideration of scientific agriculturists, to meet any objections, and to facilitate its use, both to the buyer and seller. It is to the interest of both where both are honest. My estimates of ammonia, &c., may be considered too low. But it must be remembered that they are only proportionate, to rise and fall with the market. It may be thought their values are not truly proportionate; if so, they may be corrected. But let us give the farmer some effective guide by which he may know what he is buying, and not have to pay 6*l.* for a sample worth perhaps less than 5*l.*, just because it bears the same name."

Steam Cultivation.—I have been reading the articles of "I. A. C." on the above subject with much pleasure. Without doubt the approaching trial of agri-motives at the Carlisle meeting will prove quite as interesting as the trial of locomotives did on the Liverpool Railway some years ago. Our agricultural mechanists must not be disheartened if they do not succeed in this their first attempt; their chance of success is not so certain as was that of the projectors of the railway; in this latter instance they must bear in mind the roadway or path for the machine whose power was required, was found out and invented: in other words, the method to be pursued to attain a certain end was defined and accepted. All that the company advertised for or wanted was an engine, which would become operative in conjunction with the method discovered, viz., a railroad. Now, unluckily, we have not advanced to this stage in respect to the steam agri-motive advertised for; the pathway or roadway whereby it can be rendered effective and profitable has to be invented as well as the engine. Inventors should reflect on this. If the contrivers of the locomotive had started their engine on the old or common road, they would not have got along at a greater speed than 10 miles an hour, and the invention must have failed. Hence, from this experience of the past, I infer that if intending competitors mean to work their steam agri-motives in the old track or roadway of the plough, they will fail; they will be beaten hollow, both in time and quantity, by a 2-horse plough, and when too late (for this year at least) they will learn this axiom, viz., that a new power geared on to old mechanism demands a new pathway for its more effectual and profitable development. But I desire especially to call attention to the letter of your correspondent "S.," who has touched upon the two essential points connected with the application of steam to cultivation; he comments upon the tillage part of the subject, and also on the mechanical. What is tillage? What is it a farmer wants? What is the object desired by the operation called tillage? Do you want the soil laid up in a series of ridges 12 inches high in lumps and clods, for the frost first to pulverise, that the atmosphere may then act upon it? or do you wish the soil to be first ground up, and then laid up in ridges in a so finely-pulverised state that the atmosphere may at once act upon it? It appears to me the two proceedings would come to precisely the same thing in the end. But there is one thing I know, which is that it requires a much less amount of power to grind up the soil by degrees into the pulverulent state than it does to break it up in lumps all at once, or by one upheaving stroke. The first process would require more time to effect it, hence the machine must be larger than the tool which would accomplish the latter. I do not at all disapprove of the process of ploughing or shaving the soil; quite the reverse. I consider that a certain number of ploughing points (mechanically combined and mechanically used in operating on the soil) would make a very good and simple steam-driven cultivator for abrasion or pulverisation. But I do disapprove of the implement called a plough, and utterly condemn the method of operating with it in the field. It is not a machine and is not worked mechanically; it is only a hand-saw, and is worked like a hand-saw—up and down—and yet our best machine-makers will stick to this up-and-down and method of operating. Several years ago I came to the conclusion that the soil was neither more nor less than an aerial-manure trap, and that hence if you succeeded in laying up such soil in ridges, any how and by any means, you would have gained the great end sought for by tillage; the atmosphere would then breathe through the ridge, naturally breathing into it the breath of life, vivifying and fertilising it; the soil would filter the atmosphere of its fertilising particles and appropriate them. Based on this conclusion, I projected a tillage machine. I threw overboard all the routine of the old methods, and sought solely to attain a certain end, and to fulfil certain required mechanical conditions. Unluckily my investigations terminated in the discovery that my new machine involved a new method of operating in the field; hence it has never been patronised, but probably will be when all other schemes have been tried and shall have failed. "S." is evidently versed in mechanics, and I beg particularly to call his attention to the fact that to all our field machinery there is no such thing as a fixed point whereby, or rather wherefrom, it can operate on the raw material. Now, I think he will agree with me that mechanism is not machinery at all unless it has a point of attachment (*point d'appui*, as our allies would term it). I hold that for machinery to become operative on a material to be manufactured with accuracy and effect without a fixed point of attachment is simply impossible. After all their efforts, the ingenious mechanism we see displayed in Garrett's hoe or in Hornsby's drill is as good as thrown away; for it will be observed, the capability of execution of each of these pieces of mechanism depends wholly upon the caprice of a horse or the fallible guidance of a man. What can be more humiliating than the knowledge that for all our tillage mechanism there is no other point of attachment than the tail-end of a horse? I should like to hear what "S." has to say about the necessity for a fixed point for our field machinery, because if he grants there ought to be one to insure accuracy and efficiency in working, by a natural consequence the introduction of the fixed point would lead to a revolution in the whole *modus operandi* of hoeing, sowing, and ploughing. *Charles Burcham, London.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, *May* 16.—Mr. RAYMOND BARKER, V.P., in the chair.

DAIRY MANAGEMENT.—Mr. Horsfall informed the Council that the greatest amount of butter obtained in his dairy from a given quantity of milk was in December, 1854, from cows on stall food, when it reached 27¼ oz. of butter from 16 quarts of milk. He took that opportunity of correcting an error in his communication of last week, in which it was stated: "On Monday, April 30, 16 quarts of cream having yielded 26 rolls (of 25 oz. each) of butter. The "26 rolls" should have 16 rolls.

LECTURE.

CHEMICAL PRINCIPLES INVOLVED IN THE PRODUCTION OF BUTTER.—Professor Way, consulting-chemist to the Society, delivered a lecture before the members on "the Chemical Principles involved in the production of Butter." The subject, he said, naturally divided itself under two heads—the 1st, that of so treating cows as to cause them to produce a large quantity of milk rich in butter; the 2d, that of so treating the milk as to separate as fully as possible, and in the greatest perfection, the butter which it contains. The first is a question of physiology; the second one dependent partly upon chemical, partly upon physical principles. The one involves the phenomena of animal life, and is materially influenced by race and breed in the individual animal, and to a certain extent, therefore, is beyond our control; the other an affair of matter with which we may deal at our pleasure, and in the treatment of which we may perfectly control the results, inasmuch as we have full command of the conditions. He did not, on the present occasion, intend to enter at any length upon the former branch of the subject, which might be much more ably handled by his colleague, Prof. Simonds. Mr. Way called attention to the great and fundamental doctrine from whence all our reasoning on the subject of animal nutrition now started, namely, the identity, or almost identity, between the principles of the vegetable and animal body. The conclusion founded upon this identity, and which he said was natural enough, was, that with slight modifications the vegetable principles were assimilated by the animal frame; the albuminous matters being converted into flesh and muscle, the oily ingredients into animal fat, and the mineral salts of the food into bone and other solid parts of the animal body. Still he would wish to guard them against the conclusion, that because milk is an animal product of well-defined chemical composition, and because, again, the composition of various plants which serve as food for cows is well known, that, therefore, we might select food most rich in the vegetable principles analogous to cheese or butter, and using the body of the animal as a machine, might convert this food into so much cheese or butter at our pleasure. Such a conclusion was inconsistent with our knowledge of the laws of animal nutrition; not that it could be doubted that the nature of the food influenced materially and under like conditions absolutely the production of these animal products, but that we must admit a subordination of this supply to the functions of the animal—the formation of certain animal principles presupposing a supply of similar principles in the food, but a greater or less supply of these principles not being necessarily attended with a corresponding increase of their representatives in the product; indeed, the balance of evidence on the subject of the production of butter seemed to be in favour, for this purpose, of that class of substances which contained the greatest proportion of nitrogenous, or cheese-forming principles. Something of the kind had certainly been found to be the case in the artificial feeding of plants, in which, greatly through Mr. Lawes' experiments, we had found that the Wheat crop, by no means the most rich in nitrogen, benefited more than most others by manures containing this element, and was not sensibly affected by phosphoric manures, although eminently a phosphate-containing plant; whilst Turnips, on the other hand, not containing any great quantity of phosphates, are successfully cultivated by this artificial addition. Mr. Way remarked that if the time at his disposal, by the indulgence of the members, should allow of it, he would have a few remarks to make before he sat down on the subject of the treatment in regard to food, &c., of cows, but that it seemed more conducive to the right understanding of the subject that he should first draw their attention very shortly to the composition of milk, and the circumstances affecting the successful extraction of the butter from it. The milk of an animal was intended to form the sole food of its young for a certain period after birth. We should expect it therefore to contain all the principles necessary, not only for the support of life, but for the growth and increase of the animal frame. Milk should be, and indeed was, the type of a perfect food. We found in it therefore a representative of those substances fitted for the production of flesh, another of those adapted to form fat, a third suited to support respiration, which is the proximate cause of animal heat, and lastly the various earthy and alkaline salts which form the bones and are necessary to the constitution of the blood and animal fluids generally, these substances being all mixed up into a comparatively homogeneous liquid by the presence of a large quantity of water. Mr. Way now called attention to the different constituents of milk, namely, curd, called by the chemists casein, butter, sugar of milk, &c. Commencing with the latter, he explained how, under the influence of ferments, it was capable of conversion into an acid substance called lactic (or milk) acid. He stated that butter contained two or three fatty substances, having different melting points, and consequently more or less fluid at given temperatures, hence the different solidity of butter according to food and other conditions of its production. One or more of these fatty matters were liable under the influence of fe ments, or by the action of the air, to pass into other compounds of a rank disagreeable smell and flavour. The curd of milk was a substance unlike the others, containing nitrogen, and was liable by exposure to the air to the putrefactive changes to which all other similar animal matters were subject. In the commencement of these changes the casein became a ferment, having the power rapidly to convert milk sugar into lactic acid—hence the spontaneous coagulation of milk: the altered casein had also the property of converting the fatty matter of butter into the varied products to which he had alluded, and which were so objectionable in bad butter. In the changes to which these three substances were subject would be found the key to all the phenomena observable in a dairy, and to every precaution which experience had dictated. Mr. Way shortly adverted to the processes for the preparation and preservation of butter. The first of these was the creaming of the milk—a mechanical process chiefly, but possibly involving some slight chemical change of the casein. The milk, being an emulsion as it were of oil and water, would of course after a time tend to separate, upon standing, into two portions, the lighter rising to the surface. The butter did not, however, as they well knew, separate altogether in this way, but the cream was a kind of concentrated milk, in which the proportion of butter was largely increased. Although it was an axiom in the dairy that perfect stillness of the milk was essential to successful creaming, he was not quite sure whether the communication of a very gentle combined centrifugal and ascending motion of the fluid might not conduce to much greater rapidity in the rising of the cream. Such a motion might readily (by means of weights or springs) be given to the milk pans themselves by placing them on slowly rotating tables; the sides of the pans having flanges on the inside sloping from the top to the bottom, which would communicate an ascensional motion to the liquid. Mr. Way thought that this movement would be likely to be beneficial. The oily particles would more readily receive the upward impetus which was favoured by their own buoyancy, whilst in the descending current the reverse would be the case. Of course he meant that the movement of the pans should be of the very gentlest nature. The second operation, namely, churning the cream, was also a mechanical one, but it was attended with chemical changes. In the process of churning heat was produced, partly no doubt from friction, but also from other and not mechanical causes. The cream, too, if sweet when put into the churn became sour during the agitation; and this was evidently due to an absorption of oxygen by the casein and the conversion, under its influence, of the milk sugar into lactic acid. Indeed the souring of the cream seemed an essential part of the process. He could not help believing, however, that all or nearly all the mischief that happened to butter on keeping was due to the alteration of casein then taking place during the churning. Butter always contained a portion of casein, in some cases not exceeding a half per cent., in others as much as 3 per cent. of its weight. It was to the presence of this substance in butter that the difficulty of keeping it was to be attributed. He had before explained what changes might be expected under the circumstances. If the casein, however, were as yet unaltered when it was included in the butter, it would require the presence of air to enable it to make the butter rancid. Now, supposing the souring of cream to be important in churning, why not obtain it artificially by the addition of lactic or acetic acid; at the same time, as far as possible, excluding air from the churning? There could be no reasonable doubt that this small quantity of altered casein was the insidious enemy which, for butter that was to be kept any length of time, it was so important to guard against. Butter after being melted in water and strained whilst hot through cloths to separate the curd might be kept any length of time without change, but of course it had lost all the agreeable flavour of ordinary fresh butter. With regard to the preservation of butter by salting, Mr. Way wished to show the great difficulty which must exist of mixing three or four per cent. of salt intimately with butter by the ordinary methods of hand treatment. The salt was intended to render the cheesy matter inactive, but it could only do this by absolute contact with every particle, and such contact he was convinced could not be attained manually. A machine had been invented in America for butter curing, the butter, enclosed in an endless bag, being drawn between grooved rollers immersed in a vessel of water, the salt being at the same time added by a hopper. This machine, however, did not seem to him fitted to ensure a perfect mixture of the butter and salt, and the water was objectionable because it destroyed the flavour of the butter. He had several years ago thought that a machine somewhat like Clayton's clay-screening cylinder would be admirably adapted to mix the salt with butter—a cylinder, with a disc perforated with small holes placed at equal distances from its end, through which the butter might be forced, like vermicelli, backwards and forwards by pistons at either end, acting alternately, would readily be arranged. At the same time, by connecting this cylinder with an exhausting pump, the air might very effectually be removed, so that finally, when the process was complete, the butter might before removal be pressed into a solid mass, and immediately received in a proper tube for preservation. Mr. Way believed that butter so preserved, with an intimate admixture of salt and free from air, would keep good and sweet for any length of time. He hoped that the principles he had endeavoured to put before them would bear out the practical experience of those present. The management of a dairy might be summed up in three words—temperature, cleanliness, ventilation. Temperature, because all the changes to which he had referred were very much enhanced in activity by every degree of temperature above a certain point. Cleanliness, because everything that assisted the decomposition of casein, which all animal matters did, would promote decay in the milk and its contents. Ventilation as a part of cleanliness—cleansing, in fact, the atmosphere—and in respect to this latter point, he would suggest the use of freshly burnt charcoal as likely to be of the greatest service in the dairy. It had lately been shown by Dr. Stenhouse that charcoal absorbed from the air decaying matters with great rapidity. The removal of such matters from the air was one of the great objects of ventilation in a milk-house, and he would strongly recommend a trial of it spread in baskets or thin layers in different parts of the dairy.

On the motion of Lord Berners, seconded by Mr. Slaney, the best thanks of the Council were voted to Professor Way for this interesting and scientfic lecture; Lord Berners taking that opportunity of dwelling upon the importance of ventilation in dairies and stables, and of appropriate feeding of dairy cattle, as derived from his own experience; and Mr. Slaney of suggesting that a little work for cheap distribution might be drawn up easily and with much advantage, stating plainly and concisely the points of our knowledge on essential conditions connected with dairy subjects.—Mr. Caird bore testimony to the practical value of Mr. Horsfall's dairy arrangements, he having visited his establishment in Yorkshire four years ago.—On the motion of Mr. Jonas Webb, the best thanks of the Council were voted to the Chairman for the kind and efficient manner in which he had presided over the meeting on that occasion.

The Council adjourned over Wednesday the 23d, (being the Derby-day), to Wednesday the 30th of May, when the discussion would be resumed.

Farmers' Clubs.

LONDON:—*The General Application of Steam Power to Agricultural Purposes; and, if practicable, what would be its natural results?* This subject was intro-

duced at the meeting last week by Mr. J. Williams, of Baydon, Wilts. The following is an abridged report of his remarks:—There can be no doubt that the manufacturing interest owes its hitherto flourishing condition to the unlimited power of steam. Equally apparent to all who are practically acquainted with agricultural pursuits is the expensive mode of cultivation that farmers have been obliged to adopt—viz., manual and horse labour. Portable steam-engines now being at our command, I will attempt to describe the purposes to which they have been applied, and then call attention to the possibility of cultivating the soil by means of this gigantic power. With respect to threshing machines, grinding-mills, chaff-cutters, and any other purpose to which steam power has hitherto been applied about a homestead, I have never had a doubt, since I saw the first portable engine practically at work, that it was the engine best adapted for general farm purposes. A fixed engine, it is true, has its advantages, requiring less fuel, having its water at hand, and being always ready for work, while the work is done to the best advantage under cover; but against these advantages must be placed the immense cost of hauling the whole produce of the farm to one point, and then drawing the whole of the manure back again. [Mr. Williams then described his plan for avoiding this cost.]

I will imagine a farm of 300 acres in extent, and whether the homestead be at one end (which is too often the case) or in the centre. I will assume the produce of the 100 acres nearest the homestead to be drawn thereto. The produce of the other 200 acres can then be stacked near to where it grew. If the four-field system be adopted the very land which produced the Lent straw crop will require the manure next year, either for a green crop or for Wheat; and, assuming that a crop of Turnips or Swedes is growing in an adjoining field, the rick can be placed close to the piece, that the fodder may be consumed with the Turnips; the steam-engine being taken there for threshing the corn when required. Of course a pen or yard of hurdles must be made for the sheep; and when they have finished, the straw left will be of little value, provided it is left in that state; but by doubling the hurdles with straw between, and having an old waggon-carriage lengthened and roofed, containing a small granary over the hind part similar to this model on the table, a temporary yard for pigs, with a house, will be obtained, and with good feeding the straw will be converted into excellent manure. The pigs, likewise, will consume any stray corn which may be left in the same, and will be far more healthy while shifting from place to place than they are when continually kept in one yard at home. A portion of the animal manure made at the homestead could be drawn and mixed with that which was thus obtained; and the heap would be as good in quality as if the bulk of the straw had been drawn home to the fixed engine; the expense and time of double cartage being, moreover, saved.

Returning more immediately to the subject of steam power, I will next notice Mr. Mechi's irrigation by steam. The system of irrigation appears to be adopted in some few instances in Scotland, and with very great success; but how far it will answer the purpose in a general way, except where an unlimited supply of liquid manure can be obtained, I am not prepared to say, and I doubt if (except in few cases) it would ever repay the outlay required to bring it practically to bear. Mr. Mechi has written to me respecting his steam-engine:—

"My steam-engine is at 30 lbs. pressure per inch, and 70 revolutions per minute, of six-horse power; but as we work at 70 lbs. per inch, and evaporate 70 gallons of water per hour, we get 11-horse power out of her; she works a pair of 4 feet 4 inch mill-stones, drives the chaff-cutter, threshing machine, and dressing machine, pumps all the water for the live stock, works a pair of force pumps for irrigation, 20-inch stroke, and 6 inches diameter, throwing 100 gallons per minute: a Linseed-crusher and an air pump are also depending on the steam-engine. It has been in use eight years, and is likely to last many more; the consumption of fuel is 10 cwt. of coal per diem of 10 working hours; without it we should be in a poor predicament."

Fowler's draining plough is another instance of the practical application of steam power to agricultural purposes. I made a journey into Hertfordshire about two months since to witness its operation; and I feel convinced, from what I there saw, backed by my own experience, that the bringing of steam power into general use is only a question of time.

I saw there an eight-horse power engine, made by Clayton and Shuttleworth, drawing not less, in my opinion, than 200 horse power, including the friction of the machine, wire rope, &c. The engine was stationary at one end of the field, and the distance at which it appeared capable of working the plough at the further end was nearly, if not quite, half a mile. It did its work in a most practical manner, drawing in the pipe tiles, and finishing the work to the satisfaction of all who saw it.

I now come to that part of my subject which has reference to what is most to be desired, but what also there is no question is the most difficult, viz., the ploughing and cultivating of the soil by steam power. [Mr. Williams then referred to the history of the subject.] Lord Willoughby D'Eresby has been somewhat successful with his ploughs. His steward, Mr. Scott, writes me word:—

"We now use three ploughs at once, and they work right and left-handed, alternately; we can plough in eight hours about four acres of land, at a cost of about 35*s.* per day, including men's wages, fuel, oil for engines, and a horse and watercart to convey water to the engines." You will observe this is somewhat less than 9*s.* per acre, and considering that Lord Willoughby uses two engines, one at each end of the field, which must be a great expense as regards fuel (it being necessary to keep up two fires, whilst only one engine at a time is at work), if the land is well ploughed at that cost, it is a step in the right direction.

The Marquis of Tweeddale, at Yester, in Scotland, has been ploughing by steam-power. I am informed by his Lordship—

That with two 14-horse-power engines he propels two ploughs at the rate of 2½ miles per hour, ploughing the immense furrow each of 14 to 15 inches in depth, whilst the two furrows take a breadth of 30 inches, or 15 inches each. The soil is generally a stiff tenacious clay; so you may imagine the immense strain of two such furrows, with the friction of the rope going at the rate of 2½ miles per hour! His lordship mentions some of the difficulties he has had to contend with; amongst which are stones, pan, and roots of trees, which from the circumstance of his ploughing to the depth of 15 inches, of course renders him the more liable to meet with. But he has overcome these obstructions by ploughing with horses in the localities where they existed, and having once been surmounted the difficulty no longer exists.

Mr. Usher, of Edinburgh, who has invented a steam-plough to travel over the surface of the soil and plough the ground by a rotary motion, states, in reply to a letter which I wrote to him:—

"The drawbacks I had in my first machine were want of steam-power and too much weight. The first of these I have obviated in the new one by having 210 feet of heating surface in the boiler, against 130 feet in the last one, which gives six horses' more steam; and the latter objection I think will be entirely overcome by this additional power. The work done I think is nearly perfect, being exactly such as C. W. Hoskyns has set forth so vividly in the little volume 'Talpa,' and the expense per acre is about one-third of the cost by horses."

I will now add that, having been studying this subject for the last three years, I have succeeded in bringing out a very different implement from any of those which have been before described, viz., "a ploughing machine;" and so satisfied am I of its practicability that I have taken out a patent for the invention.

I came to the conclusion that steam-ploughing ought to be done by the simple 4, 5, or 6 horse-power engines, which are generally used for farm purposes. Such an engine would be quite sufficient to propel from three to six ploughs at a time, according to the nature of the soil, inasmuch as my engine (one of five-horse-power), which drove a strap nearly at the rate of 20 miles per hour, by reducing the speed to about two miles per hour would increase her power exactly in the same ratio as the speed was diminished. I immediately set about constructing a machine, to be driven by the engine, which will plough a 20-yard land without moving, and draw the ploughs in furrow backwards, as well as to her, by means of a pulley fixed in a frame at the other end of the field. If steam-ploughing is brought about, it should be done by the same engine that does the other work of the farm; and, as a six-horse engine is the outside power that is generally required for that work, so it will be quite sufficient for all field purposes. Remember, one of the difficulties the Marquis of Tweeddale has met with is the weight of the engine; and Mr. Usher has written to the same effect. And again, there is another grand consideration, viz., the cost of the engines, more especially where two are used, which would put it out of the power of most farmers to meet so great an outlay. I am certain, that with a six-horse-power engine driving a machine I am now about to make, considerably lighter than the one I have tried, I shall be able to draw, at the rate of two miles an hour, from four to six ploughs at once at the ordinary depth which is ploughed in the west of England, to plough both to and from the engine, draw out the spare rope, plough from 10 to 20 yards in width without moving the engine; and when required to move, the engine shall propel both herself and the machine on to the next land. As far, then, as I have been enabled to observe, I do not hesitate to give it as my opinion that it is or will be practicable to cultivate the bulk of the soil by means of steam-power, and that it is only a question of time as to the best mode of doing it. The remainder of the question which I have undertaken to introduce is, 'if this great work should be practical, what would be its natural results?' There are three especial objects which I have no doubt will be affirmed if this gigantic undertaking can be accomplished. In the first place, the work on all wet soils will be much better done, as the treading of the horses will be avoided; and again, with regard to a wet season, when the farmers, afraid of getting behind with their work, often go to plough when they ought not to do so, thereby doing as much harm as good. In the second place, I will allude to the individual benefit which the farmers and labourers will in all probability derive from this system. The farmers would require a considerably less amount of horse-power, which is always a sinking fund; they would be enabled to do their work at the best seasons, and I imagine at considerably less cost. I am not prepared to say at what cost; but I will assume, from what I can judge of my own proceedings, and looking forward to a more perfect system, that I should be able to plough 6 acres per day of nine hours with a 6-horse engine. The expenses, as far as I can look into them, from the number of hands required, would be about as follows:—

Dr.	£	s.	d.	Cr.	£	s.	d.
6 cwt. of coal	0	6	0	By ploughing six acres of land, at 5*s.* 6*d.* per acre	1	13	0
Oil	0	1	0				
Water-carting... ...	0	2	6				
Engineer	0	3	0				
Steersman	0	3	0				
Conductor	0	3	0				
Four men, at 2*s.* each	0	8	0				
Two stout lads ...	0	2	0				
	1	8	6				
Wear and tear, 15 per cent.	0	4	6				
	£1	13	0		£1	13	0

If these figures of mine at all approach to what may hereafter prove a fact, it will require but little argument to convince any farmer that to plough or cultivate the land for 5*s.* 6*d.* per acre is what he has never been able to do before. With respect to the labourers, I am satisfied that the more machinery and steam power are introduced, the better will be their position in society. It is a mistaken notion to suppose that the introduction of steam power will displace the demand for manual labour; for facts prove the contrary. Those who employ the greatest amount of machinery employ likewise the largest number of hands. Lastly, I shall place before you a statistical account of the immense benefit the nation at large would derive from the practical accomplishment of this herculean task. If I fix the horse-power necessary to cultivate the land of Great Britain at four to every 100 acres, I cannot be far wrong; and taking the number of cultivated acres at 47,000,000, and multiplying them by four to every 100, I arrive at the enormous quantity of 1,880,000 horses kept for the purpose of tilling the soil! They cannot, in my opinion, taking the prices of the past year, be kept for a less sum than 30*l.* each, to which must be added 5*l.* per horse for casualties (depreciation), wear and tear, shoeing, and harness. There are various opinions as to the cost of maintaining a horse for a twelvemonth, but in 99 cases out of 100 it is all assumed. By not reckoning strictly everything horses consume, people are led to suppose that they can be kept for a less sum than I have named: but where a regular account is kept the case is different. I can mention an instance of a gentleman who is present (Mr. Thomas, of Bedfordshire), who is noted for the admirable accounts which he keeps, and who has written to me to the effect that his horses cost him, with corn at the present price, not less than 14*s.* per week, or 36*l.* 8*s.* per annum, besides casualties, wear and tear, &c. I do not take his figures, because I think the bulk of the horses alluded to are not kept so well as his; but it is a question whether such keeping is not the cheapest in the long run. Reckoning, therefore, the maintenance of each horse at 30*l.*, the annual amount is the same as the cost price before mentioned, viz., 56,400,000*l.*! It has likewise been asserted by our friend Mr. Baker and others, that the horses consume from a fifth to a fourth of the whole produce of the soil. It now remains to consider what portion of this horse-power could be dispensed with, provided steam could be applied as a substitute? If the bulk of the soil could be tilled by steam, I am inclined to think half the horses might be spared, by stacking the corn in harvest where it grew, as I mentioned at the commencement of my remarks; but as I wish to keep within bounds, I will only take a third, which would amount to the number of 626,666 and a fraction, and then the annual cost of maintaining them would be 18,800,000*l.*, which would be saved, not only to the farmer but to the kingdom at large, inasmuch as the food previously consumed might and would be turned to a better account. I have been often asked, "If you do away with your horses what will you do for manure?" The question might as well be put, "What will you do with the food the horses now consume?" As this is the last and most interesting part of the question, let me state, though I shall probably astonish many of my hearers in doing so, the amount of animal food which might be produced with the farm produce thus saved. It will be seen from the above calculation that by dispensing with the horse power necessary to cultivate the soil, a saving in corn and fodder would be effected to the amount of 18,800,000*l.* Now, if I take the price of beef and mutton at 7*d.* per lb., or 4*s.* 8*d.* per stone of 8 lbs., the food so rescued from consumption by the horses would produce, assuming that they would not be fed at a loss, 80,571,500 stones of meat; or 805,715 oxen, of 1[illegible] each, or 8,057,150 fat sheep of 10 stones each. Such, sir, would be the result if this desirable object were practically carried out.

Mr. Mechi said that on level land there could be no doubt that steam-ploughing, as conducted by Lord W. D'Eresby, was perfectly successful; and as to cost, so far as he could discover it would be about the same as that which had been stated by Mr. Williams. But there was one material objection wherever a field happened to have an elevation, and that objection arose not from the ploughs, but from the form of the engines. They had all horizontal tubes, and the moment they were off level ground a part of the tubes would of course be without water, and liable to be burnt out. The result was that in the field in which he saw them operating the parts on the slope could not be ploughed. If vertical boilers could be used, that difficulty might be overcome; but, unfortunately, success in this respect had not yet been attained. As to his (Mr. Mechi's) acquaintance with steam-power, he believed that Mr. Romaine's engine would have succeeded, and he had spent some money in making one. The revolving wheels performed 240 revolutions in a minute, and the earth and stones were made to fly in all directions; but in the process an amount of power was consumed which was altogether disproportionate to the quantity of land moved. There was not time for the prongs to get into the ground; and he really thought that with 15 revolutions a minute he should have done better than with 240. How far the engine would have the power of propelling itself he was unable to prove, because he adopted an improved system of boiler; and in order to get over the hills the tubes were made vertical instead of horizontal; but with the high-pressure the first attempt sent the water and steam in a shower out of the boiler over the horses. The boiler that would do a great deal of work in a horizontal form would, when the tubes were placed vertically, throw out the water with the steam and soon become emptied. His experiment failed, therefore, because there was too much velocity and too little steam, and he did not continue it, inasmuch as it would have required a large expenditure of time and an enormous outlay of capital, and it was certainly not his wish to spend another 500*l.* upon it. He had seen the model of Mr. Usher's steam-cultivator, and he had a strong opinion that, on account of its slow motion, it would effect the perfect cultivation of the soil. One very useful invention he observed on Lord Willoughby D'Eresby's farm. Finding that his chains almost always broke from the concussion of iron with iron, his lordship provided a remedy by the introduction of a thick collar of vulcanised Indian rubber, which acted as a spring, received the blows, and enabled the operation to be performed satisfactorily. With regard to fixed engines, he knew not what might ultimately be done by them. At the extensive manufactory of Mr. Salt, in the neighbourhood of Leeds, the extent of shafting would reach two miles; which proved that the time might come when the small amount of friction which arose from fixed shafting might carry the farmers' ideas much further than they had yet gone upon the subject of working by means of steam-power. The friction arising from shafting was very small when properly attended to, and 640 square acres were only a square mile, if the farmery were placed in the middle of that farm, then the extremities of the farm would be only half a mile distant; thus it became a question of importance to what extent shafting or pulleys with fixed engines might be used for the purposes of cultivation.

Mr. R. Baker had never thought it desirable that the steam-engine should operate over a very large space of land at one time; but rather that it should be kept to a certain limit, within which it would work with advantage; consequently, a large enclosure would require to be worked in portions, rather than in the whole of its extent at once. In that case the engine ought to move in a transverse direction across the field on a tramway; the rails to be so arranged that they might be taken up and laid down again as the engine was moved forward. Where great resistance was offered, a slow action was obviously preferable; and, in his opinion, it would be more advantageous in point of utility and advantage, that the engine when fixed should move a large number of cutting implements or ploughs slowly, than that it should work quickly, and move a plough at an accelerated rate.

Mr. Williams's plan, as he saw it at the Smithfield Show, with three ploughs in continuous succession, seemed to be a step in the right direction. An engine that would move three ploughs at once would move six, nine, or twelve, provided only the power employed was sufficient. Thus, when once the engine was there it would accomplish a great deal of work without the necessity of removal; but the motive power must be contrary to that which was produced in a locomotive engine. The latter was made for the purpose of propelling itself in a straight direction. The operations of an engine used for cultivating the land must be in an opposite direction from that which the engine would be propelled, so that to move it on the tramway must be effected by horse power, or a power independent of the engine itself. When he saw the various processes that were accomplished by steam in large manufactories, he could not imagine that the mere turning over the land 6 or 8 inches in depth presented insuperable mechanical difficulties.

Mr. J. Howard (Bedford) came for information, and to learn the "doom of the plough"—at least, so far as the implements now in use are concerned; but he confessed that he was as much as ever in the dark as to how the cultivation of the land can be effected by steam-power, that is, as to how it can be done economically and efficiently; for there is no engineering impossibility in the way. Any sanguine gentleman may have 100 acres, or any quantity, ploughed by steam if he will only pay for it. Engineers could be found also, if an order were given and payment guaranteed, who would soon accomplish the work. There could be no question as to the desirability of employing steam-power to the tillage of the land, and any practical method of applying this powerful agent would be the greatest boon to agriculture; but as to the mode of doing so, at present, we appeared to be totally in the dark. Mr. Mechi has alluded to the success of Lord Willoughby D'Eresby's experiments in steam-ploughing, and, lest the public should be misled by the statements made to-night, he (Mr. Howard) would just say, that he had seen the plough operation at Lord Willoughby's, and the clod

would judge of the "success" when they heard, that to plough 4 acres per day required two portable steam-engines with double cylinders of 26 or 28-horse power each, six men, and a horse and cart to fetch water and fuel. With all these to pay for, it was difficult to conceive how the cost of ploughing could be so little as that quoted this evening; he himself had made a calculation at the time, that the expense was more than a pound per acre. This calculation was based upon 4 acres per day, which, he was told, was about the quantity that could be done if no breakages occurred; and accidents, he learned, were the rule, and not the exception.

Mr. Mechi: There must be some mistake about what you say as to Lord Willoughby D'Eresby's farm, for Mr. Williams has read a report from Mr. Scott, his intelligent manager, which states the exact cost per acre.—Mr. Williams: Yes, that it was less than 8s. an acre.—Mr. Mechi had asked the man who was driving one of the engines, and he stated that it was 8s. an acre; but certainly the engines could not have been of 28-horse power.—Mr. Howard knew that they were double cylinder engines of 28-horse power each, manufactured by Couch.—Mr. Williams: They were described to me as 28-horse power.—Mr. Howard would leave the meeting to judge, then, whether two 28-horse power engines could be driven for 8s. a day.—Mr. Mechi: That depends very much upon how they are driven.—Mr. Howard had made a calculation, and, sinking the interest on the money, had come to the conclusion that the cost was, at least, 1l. per acre.

Mr. Swaine said that in discussing the applicability of steam-power to agricultural purposes, they should carefully bear in mind the expense at which it was to be worked. In the case of light land, he could not conceive that ploughing by steam could be done at much less cost than ploughing with horse-power. He would suppose that he had to plough an acre of light land with horse-power. The keep of two horses, at 1s. 9d. a day, would of course be 3s. 6d.; and one man, whose wages were 1s. or 1s. 2d. a day, would plough the acre within the day. This gave an expense of from 4s. 6d. to 5s. an acre. Mr. Williams, indeed, reckoned that there was a loss of 5l. a year on a horse. He, on the other hand, contended that under good management no such loss would be incurred; and keeping in view the question of profit, he was inclined to rest contented with horse-power.

Mr. Thomas thought with respect to the relative advantages of fixed or portable engines for barn work, he had supposed that two years ago the club were almost unanimously of opinion that for all such work fixed engines were by far the most economical. The reports from East Lothian, which was always looked upon as a model farming district, all supported that view; and Lord Kinnaird, in a valuable paper which he had sent to the Royal Agricultural Society, had, he thought, expressed a similar opinion. He (Mr. Thomas) hoped they would never get into the habit of using portable pig-styes and similar contrivances; and, indeed, if such a practice were to prevail, what would be the use of asking landlords to build good homesteads? If the plan proposed by Mr Williams were the most profitable one, there would be no need of farm-buildings. With regard to the application of steam power to ploughing, he was inclined to leave that matter at present to Mr. Williams, who appeared sanguine as to the result; and the more so because in a paper which he introduced some time ago, having reference to the employment of farm-labourers, he observed that the best mode of promoting their employment was, not to wriggle along on the old jog-trot system, but to aim at introducing improvements, in order that there might be as large a growth of corn as possible, and that it might be disposed of to the public at a cheap rate. Therefore, he heartily wished Mr. Williams success. He believed that, in the calculations which he made with regard to the expense of horses, he was rather under than over the mark. There was no part of his expenditure which he paid so unwillingly as that which was connected with the keep of his horses. Every shilling expended upon horses for work that could be done as cheaply by steam was lost to the country. It might, he thought, be laid down as an axiom that whatever could be done as well and as cheaply by horses as by men should be done by horses; but that if it could be done equally well and cheaper by steam, it should in that case be done by steam.

On the motion of Mr. J. Payne, seconded by Mr. Mechi, it was resolved:—

"That this meeting expresses its conviction of the benefits that would accrue to agriculture by the introduction of any invention by which the land of this country could be economically and scientific cultivated by steam-power; but at present the club not sufficiently informed upon the subject to recommend any particular method."

Notices of Books.

The Yester Deep Land Culture. By Henry Stephens, F.R.S.E. Blackwood and Son.

This is a detailed report of the farms cultivated by the Marquis of Tweeddale—of the implements which his lordship has invented and employed—and the processes by which poor land in an unkindly climate has been made productive.

The work deserves a detailed examination, which we shall give it. At present we may merely mention that it is well worth perusal by those anxious to know the particulars of an extensive experience in the deep and thorough cultivation of the soil.

Notices to Correspondents.

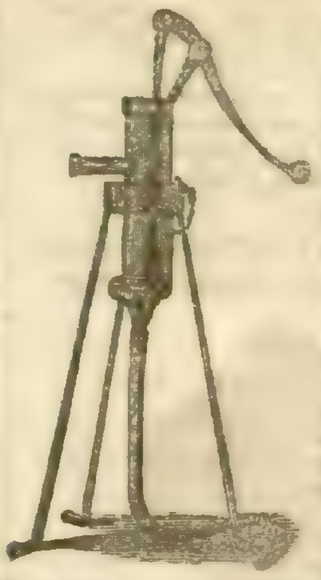
John Cathartikum: *Cambrian.* It grows on poor sandy pastures and may yield to pasturing and the use of clayey composts.

Farm-servant: *S S.* If you bought superphosphate, and it is not superphosphate, you cannot be made to pay. If you bought X. a "manure for Turnips," you will have to pay him for it whatever it may be.

Tom Hall: *P.* We have no doubt it will be useful—we never made it, or knew it made. Cut it when in full flower, or nearly in seed.

Erratum. In the Report to the Agricultural Society, p. 321, col. c, line 58 from bottom, for "state" read "stalls;" col c, line 22 from bottom, "26 rolls of butter" should be "16 rolls."

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3l. 3s. The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe 1s. 6d. per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3s. 6d. per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Sons, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1	12	0
2½ „	long 3 „ 3 „	gutta percha,	1	15	0
3 „	ditto 3 „ 6 „	or cast iron	2	12	0
3½ „	ditto 3 „ 6 „	flanged pipe,	2	18	0
4 „	ditto 3 „ 6 „	as required.	3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto ditto	ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.

GALVANISED IRON TUB GARDEN ENGINE, With Warner's Registered Spreader,

is strongly recommended, for durability and low price, viz., 2l. 19s., to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9s. upwards. Metallic String from 5d. to 1s. 3d. per lb.

JOHN WARNER AND SONS, 8, Jewin Crescent, London, Manufacturers of FIRE ENGINES, PUMPS, GARDEN ENGINES, and SYRINGES.

Brass Syringes, 9s. to 18s.

All articles of John Warner & Sons' manufacture may be obtained of any Ironmonger or Plumber in town or country, at the advertised prices.

John Warner & Sons having been practical Horticulturists for many years, know exactly the requirements of both Amateurs and Gardeners. A gardener with a properly constructed pump will get through as much work in five minutes as he could with any Syringe in a quarter of an hour, and with half the labour to himself. Syringes are economical for small houses.

No establishment offers such a variety of effective machines for hydraulic purposes, whether to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of liquids.

Fountains suitable for Conservatories, Lawns, &c.

Sheets of Engravings sent on application.

STEPHENSON AND PEILL, 61, Gracechurch Street, London, and 17, New Park Street, Southwark, Manufacturers of Copper Cylindrical and Improved Conical Iron BOILERS, and Conservatory and Hothouse Builders, either in Wood or Iron, respectfully call the attention of the Nobility, Gentry, and Nurserymen to their simple but efficacious method of warming Horticultural and other Buildings by Hot Water.

From the extensive works they have executed, references of the highest respectability can be given, and full particulars furnished on application.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. Burgess & Key, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. Francis Parkes & Co.

SCYTHES.

BOYD'S PATENT SELF-ADJUSTING SCYTHES may be had of the Manufacturers, William Dray & Co., Swan Lane, London; and of all Ironmongers and Seedsmen. A liberal allowance to the trade.

CLAYTON, SHUTTLEWORTH, AND CO.'S PRIZE PORTABLE STEAM ENGINES, AND COMBINED THRESHING, STRAW SHAKING, RIDDLING AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as threshed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.

C. S. & Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading Agricultural Shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

SAMUELSON'S REGISTERED LAWN MOWING MACHINES. To cut 16, 19, 22, and 25 inches wide. The Registered Improvement renders unnecessary the great care requisite in the handling of these Machines on the old plan. All that is now required can be done *by any unskilled labourer*, who has only to push the Machine before him, the Registered Adjustment insuring a clean cut of uniform height, and preventing the knives from cutting into the soil, however uneven the ground may be. Illustrated Price Lists, with copies of Testimonials, and a Catalogue of his other Agricultural Implements, may be procured, post-paid, on application to the Manufacturer,

B. Samuelson, Britannia Works, Banbury, Oxon.

The above may also be procured at the principal Agricultural Implement Depôts in London, and of all respectable Ironmongers and Seedsmen in the country.

IMPROVED LAWN MOWING MACHINES, Budding's Patent.

MANUFACTURED AND SOLD BY

J. AND H. FERRABEE, Phœnix Iron Works, near Stroud, Gloucestershire.

These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 4500 of them have been sold.

Hand Machine, for One Man, cutting	16 inches wide	£5	10s.	0d.
Ditto for Two Men	„ 22 ditto	... 6	0	0
Pony Machine (or Donkey)	„ 26 ditto	... 8	0	0
Horse Machine	„ 28 ditto	... 11	0	0
Ditto	„ 36 ditto	... 15	0	0

London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

IMPROVED MOWING AND ROLLING MACHINE.

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, Inventors and Sole Manufacturers, respectfully solicit the attention of the Nobility, Gentry, and Gardeners to this Improved Machine for Mowing and Rolling Lawns. The Machine is in operation in the Royal Gardens at Windsor Palace, Buckingham Palace, and at Osborne, in the Botanical Gardens at Kew, Regent's Park, Manchester, Sheffield, &c.; at Blenheim Palace, Trentham, Cleveden, Elvaston, Broadlands, Woburn Abbey, Clumber, Lilleshall, Castle Howard, Shrubland, Eridge Castle, Enville Hall, Tiptree Hall, Chatsworth, and in many other of the principal gardens in the kingdom as well as in the United States, British America, and on the Continent, where its merits have been fully proved, and its success established.

The machine is made to cut the breadth of 42, 30, 20, and 15 inches respectively, is exceedingly durable, easily managed, and adjusted to cut to the length required. The execution of the work is far superior to what may be attained by the most skilful mower, while at the same time a great saving of labour is effected, and the turf much improved. By the largest machine a Scotch acre may be mowed, rolled, and the Grass collected in one hour.

A. S. and Son have much pleasure in stating that they have made considerable improvements in their 15-inch or hand machine this year, by which the draught is considerably lessened. This machine combines all the merits and advantages of the larger machines with firm and secure construction, and is admirably adapted for borders and for lawns of no great extent.

Alexander Shanks and Son also respectfully solicit notice to "Fleming's Weeding or Salting Machine" for destroying weeds in gravel walks, court-yards, drives, &c. This machine is now in operation in many parts of England, where it has given ample satisfaction as the best and most economical means of thoroughly keeping down weeds or Moss.

Further particulars, with testimonials and prices, may be had on application.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES, consisting of MATTING, MATS, MATTRESSES, BRUSHES, NETTING, HORSE-HAIR, and BRISTLE SUBSTITUTE, are distinguished for superiority and excellency of workmanship, combined with moderate prices. Prize Medal both in England and America at the Exhibition of all Nations.

T. Treloar, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

RICHMOND & CHANDLER'S PATENT CHAFF CUTTING MACHINE.

All the various modern Implements of Agriculture manufactured on the most scientific and improved principles, suitable for home use and exportation.—Address, Richmond & Chandler, Salford, Manchester; and 32, South John Street, Liverpool.

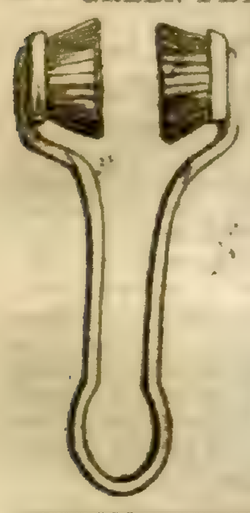
☞ Catalogues Gratis.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS and KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

IMPORTANT TO GROWERS OF ROSES.

NEWLY-INVENTED APHIS BRUSH, or GREEN FLY DESTROYER.—The attention of Florists is particularly called to this Cheap and Ingenious Instrument, invented by the Rev. E. S. Bull, of Colchester, which, in a very simple and easy manner, instantly cleanses the Rose from that destructive insect the Green-fly (or Aphis), without causing the slightest injury to the bud or foliage.



Price 2s. 6d. each, or free by post, 3s. 6d.

Manufactured by
JOSLIN AND SONS,
Ironmongers, Colchester.

Retailed by all the principal Ironmongers.
Wholesale Agents:
W. Thompson & Son, 15, Upper North Place, Gray's Inn Road, London.

BEEHIVES.

MILTON'S IMPROVED COTTAGE HIVE, price 1l. 2s. The only Beehives for which the Exhibition Prize Medal of 1851 was awarded, with all the latest improvements to obtain pure honey without killing the bees; also every kind of Patent and Wooden Hives, Glasses, Feeders, &c.

"The Practical Bee Keeper," the most useful book of the day, a complete Guide to Bee-management, by John Milton; price 2s. Likewise his Illustrated Catalogue, price 3d.; per post, 4d.

Beehive Warehouse, 10, Great Marylebone Street, London.

BEE HIVES.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by George Neighbour & Sons, with all the recent improvements, glasses, thermometer, &c., price 35s., securely packed for the country.

This unique hive has met with universal commendation, and may be worked with safety, humanity, and profit, by the most timid; its arrangements are so perfect, that the honey may be taken at any time of the gathering season without at all injuring the bees.

Early applications, addressed to Geo. Neighbour & Sons, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention. Their newly arranged Catalogue of other improved Beehives, with Drawings and Prices, sent on receipt of two stamps.

Agents:—Manchester, Hall & Wilson, 50, King Street; Liverpool, James Cuthbert, 12, Clayton Square; Chester, F. & A. Dickson & Sons, 106, Eastgate Street; Glasgow, Austen & M'Aslan, 186, Trongate Street; Dublin, J. Edmundson & Co., 61, Dame Street.

COTTAM and HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.

Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

Hand Glass Frames, Cast and Wrought Iron Flower Stakes, Garden Arches, &c.

Strong Iron Hurdles, and best Wire for Strained Wire Fencing.

Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom.

Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

THE CRYSTAL PALACE FLOWER BASKETS made to the original, and a variety of new and elegant Designs for Conservatory, Verandah, Drawing-room, &c., from 3s. 6d. upwards, by W. RICHARDS, Wire-worker, &c., 370, Oxford Street, nearly opposite the Princess's Theatre. Conservatories fitted up, Aviaries, Bird-cages, Flower Stands, and every description of Wire work. Game and Garden Fencing of the best description.

N.B. Holland, Venetian, Wire, and all kinds of Sun shades, and Window Blinds of best quality.

GARDEN NETS, FISHING NETS, and SHEEP NETS, made by machinery; of excellent quality, and at very low prices.—R. Richardson, 21, Tonbridge Place, New Road, London.—N.B. Old Fishing Nets Tanned and Repaired, 6s. 3d. per 100 yards.

HOSE PIPING.

TO ENGINEERS, AGRICULTURISTS, GARDENERS, SHIP CHANDLERS, AND FIRE BRIGADES.

WAITHMAN'S PATENT FLAX TUBING (1 in. to 3 inches in diameter) will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe. Manufactured only by Waithman & Co., Bentham, Lancaster.

Inches in Diameter and Price Per Yard.—¾, 9d.; 1, 1s. 1d.; 1¼, 1s. 3d.; 1½, 1s. 7d.; 1¾, 1s. 9d.; 2, 2s.; 2½, 2s. 4d.; 2¾, 2s. 6d.; 3, 2s. 9d.

Testimonial from Mr. Wright, Lancaster.—I beg to inform you that I yesterday tested your piece of 2½ inch Patent Flax Tubing connected with the Lancaster Waterworks, in the presence of the Mayor, Mr. Rawlinson, Government Inspector, Professor Owen, &c. The column of water at which the tubing was tested was equal to 340 feet in height, or about 150 lbs. on the square inch, and I have pleasure in stating that the hose sustained the pressure most admirably.

Testimonial of Captain Martin, of the Great Britain Steam Ship.—I have much pleasure in being able to tell you that your hose supplied to the Great Britain and other ships, is well worth the attention of shipowners. It gives us great satisfaction.

Testimonial from Fairbairn & Co., of Leeds.—We have tested your hose, 2½ inch in diameter, with the pressure of the Leeds Waterworks, and found it highly satisfactory.

(Fig. 1.)

(Fig. 2.)

J. TYLOR and SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons,	throws 30 feet high			...	£4 10
No. 2 „ 15 „	„ 45	„		...	5 10
No. 3 „ 28 „	„ 45	„		...	8 18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons,	throws 25 feet high			...	£2 15
No. 13 „ 12 „	„ 30	„		...	3 5
No. 11 „ 16 „	„ 40	„		...	4 0
No. 12 „ 24 „	„ 45	„		...	5 0
No. 14 „ 30 „	„ 45	„		...	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1¼ inch, 14s. 3d.; No. 2, do., diameter of barrel, 1⅜ inch, 12s.; No. 3, do., diameter of barrel, 1⅜ inch, 10s. 6d.

Read's Syringe, with two roses and one jet, 19s.

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR and SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, 21s. each. Large size, for Gardeners' use, 25s. each.

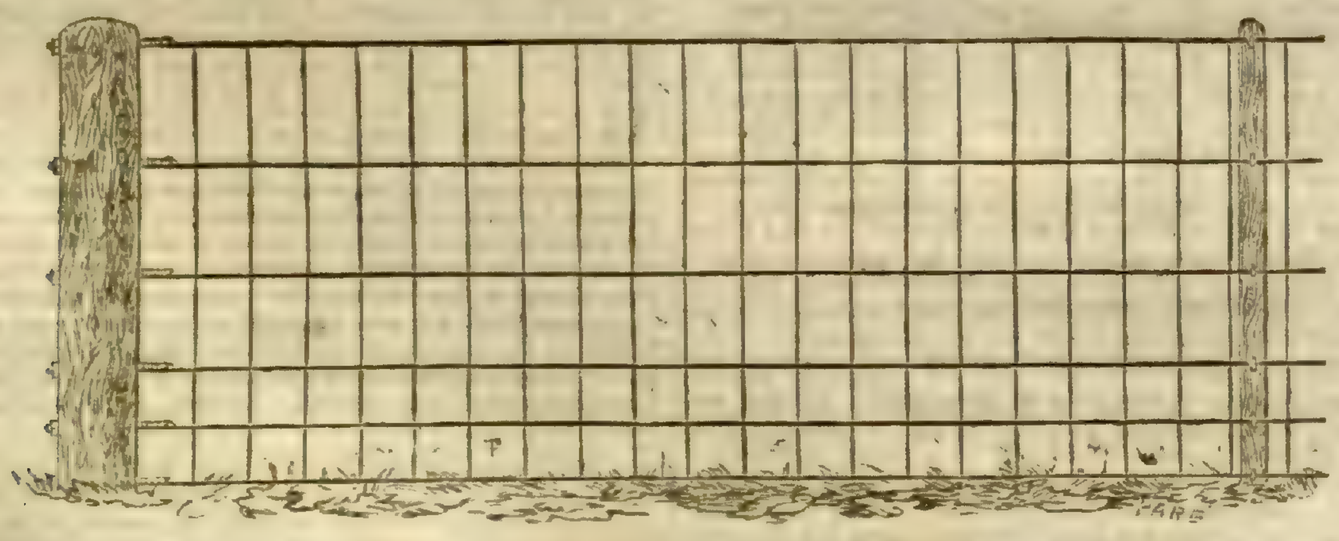
Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump now offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

BY HER MAJESTY'S ROYAL LETTERS PATENT.



TO AGRICULTURISTS.

B. GREENING AND CO.

BEG to call attention to the Wire Fencing they are now offering at ONE SHILLING PER LINEAL YARD. It is 3 feet 9 inches high, very strong, exceedingly durable, and perfectly efficient, being warranted to turn Horses, Cattle, and Sheep. It is stronger than the common strained Wire Fencing, over which it possesses many considerable advantages. It may be firmly and effectively erected by farm labourers, it requires fewer supports than any other fence, and when fixed, although it is decidedly one of the firmest and most stable fences, yet it does not constitute that impediment to improvement that the strained fence or a hedge does, as it can be removed to another line without the expense of sending for skilled workmen.

Manufactured by Patent Machinery by B. GREENING and Co., Agricultural Iron Works, 1 & 3, Church Gate, Manchester.

N.B. Catalogues, Pattern Sheets, and Price Lists, sent per Post, on receipt of four Stamps (cost of postage).

GARDEN TENTS, without lines, iron frame work, and covered with wire. The Canvas can be removed in winter, and having double roofs and deep eaves, the wet shoots off, and the sides of the Tent are kept dry. They are well adapted for standing flowers in, being ornamental. Price 5*l.* each. Umbrella and all other kinds of Tents and Marquees for sale or hire.—R. RICHARDSON, 21, Tonbridge Place, New Road, London.

LINGHAM BROTHERS, No. 170, Hampton Street, Birmingham, sole Manufacturers of the improved WOOD and ZINC MONOGRAPH, or LABELS for Garden Borders, Flower-pots, &c., in boxes of 100 each. The Zinc Labels are highly approved of for their lasting durability, can be written upon with the greatest ease, and when dry a permanent inscription is secured. Directions are sent with each box, including a bottle of metallic ink.—Sole Agents in London, Messrs. DEANE, DRAY & Co., Horticultural Implement Warehouse, 46, King William Street, London Bridge.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d.* per square yard: 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.* Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

SIXTEEN OUNCE SHEET GLASS cut to any size up to 44 inches in length, at 2*d.* per foot.
HICKSON'S Foreign Glass Warehouse, 46, Long Acre. (CASH.)

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY.—The Managers beg to inform the Nobility and Gentry, Farmers, Gardeners, &c., that their new List of Prices may be had free on application at the Company's Depôt, 296, Oxford Street, London.

PLATE, CROWN, and SHEET WINDOW GLASS.

HARTLEY'S PATENT ROUGH PLATE for Roofing Conservatories, Halls, and Public Buildings.

Coloured and Ornamental Glass.

CRYSTAL SHADES for covering Ornaments, and

MOORE'S PATENT LOUVRE VENTILATOR, and Lockhead's Patent Perforated Ventilating Glass for Dairies, Greenhouses, Stables, &c.; Glass Milk Pans, Pails, Tests, and Measures; Cream Pots and Syphons; Churns, Butter Tests and Slabs; Tiles and Slates; Bee Hives, &c.

Aquariums, Fern Shades, Propagating Glasses, Fruit Protectors, Preserve Jars, Cucumber Tubes, Hand Lights, Flower Vases, Labels, &c., and all kinds of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by 4	in. and 6	in. by 4½	in. ...	...	12*s.*	0*d.*
6½ "	4½ "	7 "	5 ...	...	12	6
7½ "	5½ "	8 "	6 ...	...	13	0
8½ "	6½ "	9 "	7 ...	...	13	6
9½ "	7½ "	10 "	8 ...	...	13	6
10½ "	8½ "	11 "	9 ...	...	14	0
12 "	9 "	13 "	9 ...	...	14	0
10 "	10 "	10½ "	10½ ...	...	14	0
11 "	10 "	11½ "	10½ ...	...	14	0
11 "	11 "	11½ "	11½ ...	...	14	0
12 "	11 "	12½ "	11½ ...	...	14	0
13 "	11 "	13½ "	11½ ...	...	14	0
13 "	12 "	13½ "	12½ ...	...	16	0
13½ "	13½ "	14½ "	13½ ...	...	16	0
15½ "	13½ "	... ...	... ...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.
In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12*s.* 0*d.*
7 " 5, — 7½ " 5½ }	
8 " 6, — 8½ " 6½ }	0 14 0
9 " 7, — 9½ " 7½, 10 by 6 }	
10 " 7, 10 by 8 }	0 16 0

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18*s.* per 100 feet. If cut to order not exceeding 40 inches long.
16 oz. from 2¼*d.* to 3¼*d.* | 21 oz. from 3¼*d.* to 4¼*d.*
26 oz. from 5¼*d.* to 7¼*d.*

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½*d.* per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand.

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.
¼ of an inch thick ... ... £1 17*s.* 6*d.* per case of 50
⅜ " ... ... 2 1 3 " 60
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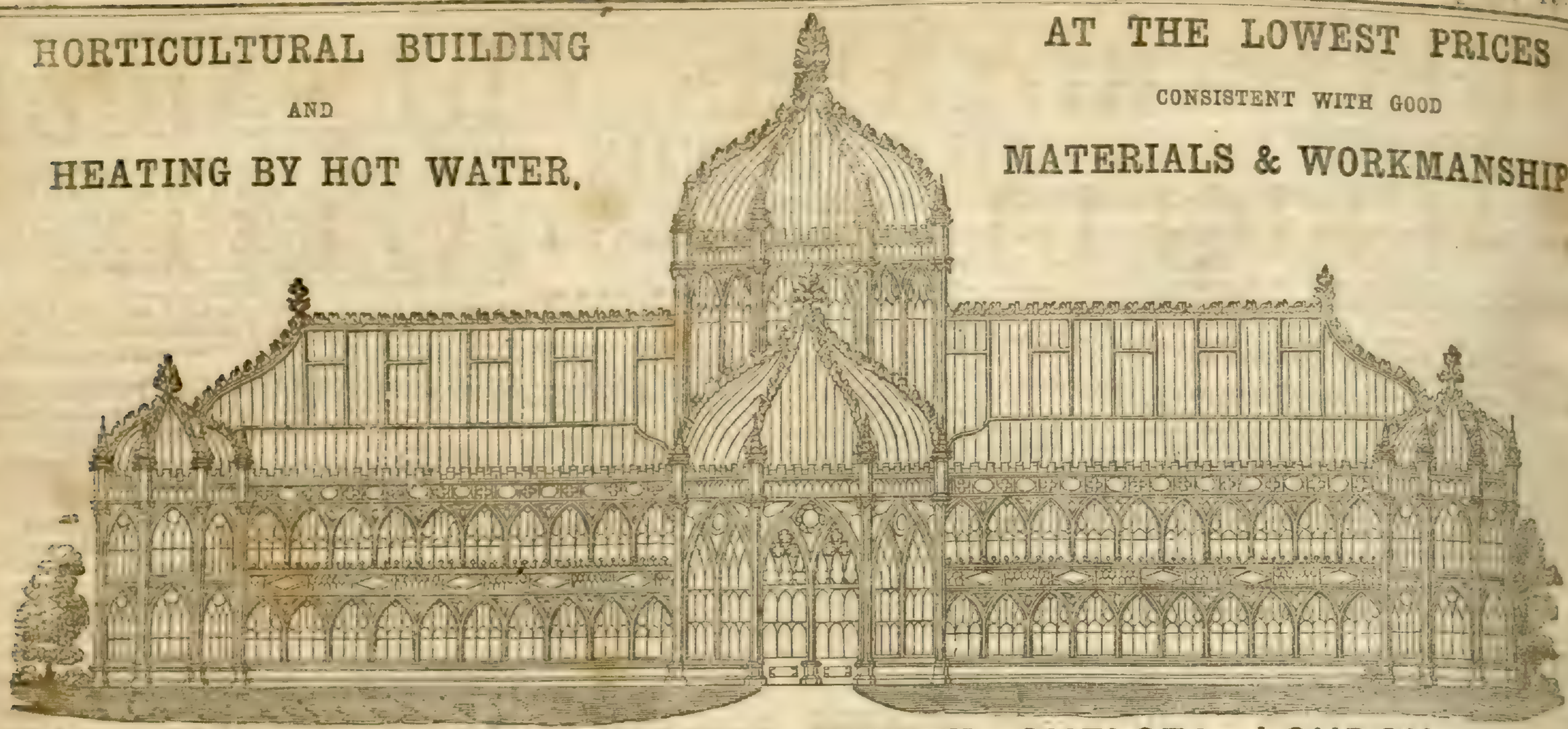

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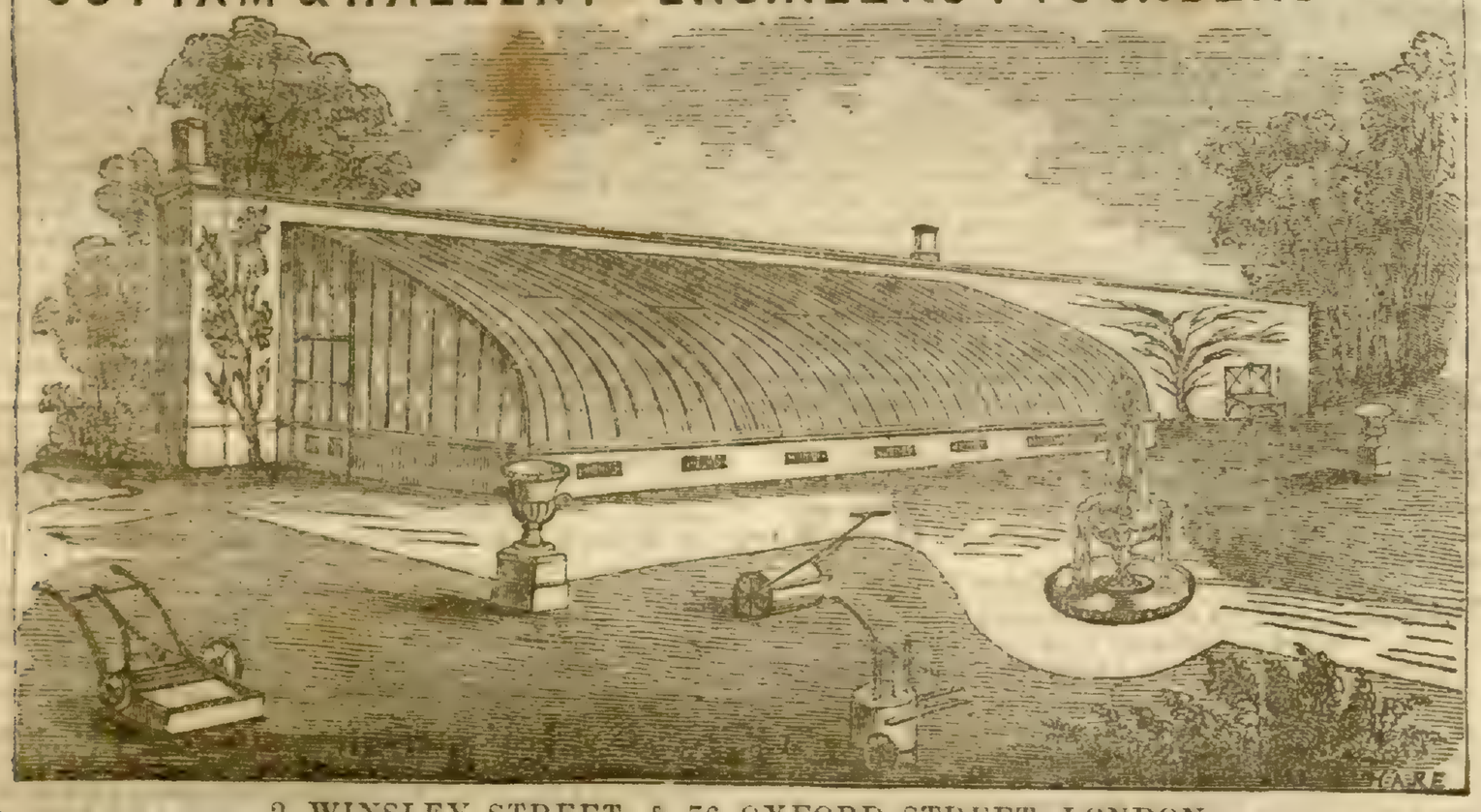

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THE IMPROVED PATENT GARDEN, WATER AND ROLLING ENGINE may be seen in the Agricultural Department at the CRYSTAL PALACE, SYDENHAM.

The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about a fine and is so portable that any ordinary domestic may use it; it contains about 20 gallons. Price 5*l.* 10*s.*

May be had at J. DORE's Manufactory, 17, Exmouth Street, Clerkenwell, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruit and Flowers from the scorching rays of the sun, from wind from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of Messrs. THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey, and of all Nurserymen and Seedsmen throughout the kingdom.

"It is much cheaper than mats as a covering."

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. 27, Vincent Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, May 19, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 21.—1855.] SATURDAY, MAY 26. [PRICE 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—THE SECOND SUMMER MEETING will take place at the Society's House, 21, Regent Street, on TUESDAY, June 5, from 12 to 5 P.M.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS, June 13th and July 4th. AMERICAN PLANTS, MONDAY, June 18th. Tickets of admission to be obtained at the Gardens only, by orders from Fellows or Members of the Society, price 5*s*., or on the days of Exhibition, 7*s*. 6*d*. each. N.B. By accident some of the Tickets issued are wrongly dated July 5th instead of Wednesday, July 4th.

CRYSTAL PALACE HORTICULTURAL FETE, JUNE 2nd, 1855.—GARDENERS who are not Exhibitors will be admitted on this occasion on payment of Five Shillings at the doors. Application for this privilege must be made in writing, on or before TUESDAY, the 29th instant, to the Secretary, by whom a Ticket will be forwarded to the Applicant. Without such Tickets, no money will be taken on the 2nd of June.
By order, G. GROVE, Secretary.

EXHIBITION OF TULIPS.
HENRY GROOM, Clapham Rise, near London, by appointment FLORIST to HER MAJESTY, respectfully announces that his EXTENSIVE COLLECTION OF TULIPS is now in flower, and may be viewed every day from 9 o'clock until 6 (Sunday excepted). Admittance 1*s*.; children half price.

ROYAL NURSERY, SLOUGH.
EXHIBITION OF TULIPS, GERANIUMS, FANCY GERANIUMS, CINERARIAS, PANSIES, AURICULAS, &c.
CHARLES TURNER begs to announce that his extensive COLLECTIONS of these popular FLOWERS will be in perfection from May 25th until the end of the month. CHARLES TURNER particularly invites attention of them on WEDNESDAY, May 30th, when the BAND of the 2d LIFE GUARDS will attend and perform from Three till Seven o'clock. Admission Free.

IPSWICH RACES, SPRING MEETING, MAY 17. Latest Intelligence per Telegraph. Twenty-five brace started. Mr. WILD'S thoroughbred 2-yr-old colt IPSWICH STANDARD, by Browston Hybrid ... ... (T. Latter) 1
Won in a canter.
LONG PRICKLEY, Clerk of the Course.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.
*** Plans and Estimates furnished.

WILLIAM MASTERS AND SON, LANDSCAPE GARDENERS, Exotic Nursery, Canterbury.

DAVID FERGUSON, LANDSCAPE GARDENER, GARDEN ARCHITECT, and CONTRACTING PLANTER, Stowe, Buckingham. Now is the time to prepare for planting in September, October, and November.

GEORGE TAYLOR, JUN., CHOICE FRUIT and VEGETABLE SALESMAN, St. John's Market, Liverpool. CONTRACTOR and PURCHASER of CHOICE GARDEN PRODUCE. SALESMAN on COMMISSION.
Terms, Cash. Forward as above.

WANTED TO PURCHASE, a few Plants of CACTI EPIPHYLLUMS. They must be good sized plants, and not consist of Speciosissimum, speciosum, Ackermanni, Jenkinsoni. Good sized specimens of MACDONALDIA SCOTTI wanted.—Particular lists, stating size and price, to be forwarded to A. B., Messrs. FRASER'S, Nurserymen, Lea Bridge Road, Essex.

CHEAP BEDDING PLANTS.
TO BE SOLD, several Thousand of VERBENAS, PETUNIAS, and other BEDDING PLANTS. Price according to quantity taken.—Apply to J. and J. FRASER, Nurserymen, Lea Bridge Road, Essex.

OSAGE ORANGE (MACLURA AURANTIACA).
CHARLWOOD AND CUMMINS can supply SEED of the above-named Hedge Plant at 6*s*. per lb., with full directions for treatment. The month of May is the best time for sowing.—14, Tavistock Row, Covent Garden, London.

NEW AZALEA—"ALBA MELIOR."
THIS is the one exhibited by us under the name of "ALBA MAGNA" among our collection to which the First Prize was awarded at the Regent's Park Show; very large pure white, and quite first-rate. Price 7*s*. 6*d*., 10*s*. 6*d*. to 21*s*. each. We have a superior stock of Azaleas, for which see Catalogue. The Spring Catalogue, consisting of Greenhouse and Stove Plants, and the Herbaceous one can be had by enclosing one village stamp.
H. LANE & SON, The Nurseries, Great Berkhamstead.

GOOD SWEDE SEED.
SUTTON AND SONS *have good new Ashcroft, Skirving's, and other Swede Seeds, true to their kinds, warranted all of last year's growth.* Price, in large or small quantities, 2*s*. per lb. Large quantities CARRIAGE FREE. Remittances or references required from unknown correspondents.
Address, SUTTON & SONS, Seed Growers, Reading.

HARDY GREEN-TOP YELLOW SWEDE.—This Swede has stood the late severe winter remarkably well, and can be strongly recommended for weight of crop and highly nutritive properties.
SUTTON & SONS, Seed Growers, Reading, have some excellent Seed which they can warrant of last year's growth, price 1*s*. 9*d*. per pound, 10*s*. 6*d*. per gallon, or 70*s*. per bushel. As every Seed grows well, 2 lbs. per acre will produce a full crop.

PRESENT PRICES OF
MANGOLD WURZEL, TURNIPS, WHITE CARROT, &c.
FOR
BASS AND BROWN'S Advertisement of present prices, see *Gardeners' Chronicle* of April 28th, and May 5th and 12th. Reduced prices for large quantities.
ERRATA.—For "Laing's Purple-top Swedes, 1*s*. per lb.," *read* "1*s*. 9*d*. per lb." the same price of the other three Swedes.
TO THE TRADE.—Prices will be supplied on application.
Seed Establishment, Sudbury, Suffolk.

ROBERTSON, PANE AND CO., 78 and 80, Candleriggs Street, Glasgow, can supply the following TURNIP SEEDS, per bushel, terms cash:—

Skirving's Purple-top Swede	50*s*.	Green Purple-top Aberdeen	30*s*.
Purple-top do.	50	Dale's Hybrid	30
Green do. do.	40	White Globe	23

ENGLISH GROUND RAPE AND COLE SEED.
CHARLES SHARPE AND CO. beg to acquaint the Trade that they can supply any quantity of the above; prices and samples forwarded on application.
Nursery and Seed Establishment, Sleaford, May 26.

LUCOMBE, PINCE, AND CO. beg respectfully to announce that they are now sending out their superb new HYBRID HEATHS, for description of which see former Advertisements.
Exeter Nursery, Exeter.—Established 1720.

LUCOMBE, PINCE, AND CO. beg respectfully to announce that they are now sending out their new White Corolla'd FUCHSIAS; also their new double purple variety; for description of which see former Advertisements.
Exeter Nursery, Exeter.—Established 1720.

FLOWER SEEDS.
PETER LAWSON AND SON, SEEDSMEN and NURSERYMEN to the QUEEN, Edinburgh, and at 27, St. George Street, Westminster, beg leave to invite attention to their very choice selection of Flower Seeds.
27, St. George Street, Westminster.

CHOICE FLOWER SEEDS,
FOR PRESENT SOWING.

Per pckt.—				*s*.	*d*.
Pansy,	saved from	100 of the best varieties, by name	...	2	6
Polyanthus,	do.	50 do.	" ...	2	6
Verbena,	do.	50 do.	" ...	2	6
Hollyhock,	do.	60 of the most superb kinds	" ...	2	6
Calceolaria,	do.	24 do., spotted varieties	...	2	6
Gloxinia,	do.	30 newest varieties	...	2	6
Daisy,	do.	50 of the new Belgian do. do.	...	1	6
Antirrhinum,	do.	20 best named varieties ...	...	1	0
Anemone, from the most showy and brilliant kinds			...	1	0
30 packets of new and choice Flower Seeds			...	5	0

The above, per post, free. Postage stamps received in payment.
YOUELL & CO., Royal Nursery, Great Yarmouth.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the following Select Bedding Plants, post free:—

	s.	*d*.
12 fine varieties Antirrhinums, 3*s*.; 12 extra ditto ...	6	0
12 " Verbenas, 2*s*. 6*d*.; 12 extra ditto ...	6	0
12 " Phloxes, 4*s*.; 12 extra ditto	6	0
12 " Pansies, 4*s*.; 12 extra ditto	9	0
12 fine Chrysanthemums, Pompones, or large flowered ...	3	6
12 fine varieties Mimulus, 4*s*.: 12 Belgian Daisies ...	3	0

67, High Street, Battle, Sussex.

MESSRS. J. AND H. BROWN will forward to any part of the kingdom the following 50 various CHOICE GREENHOUSE PLANTS, one of a sort ... ... 45*s*. 0*d*.

12 Orchidea plants, choice species	40	0
24 choice Fuchsias, fine proved varieties	12	0
Azaleas Greenhouse varieties, per dozen	12*s*. to 18	0
25 hardy Belgian Azaleas, superb sorts	20	0
100 best Bedding Plants	30*s*. to 40	0
100 choice hardy Herbaceous Plants	30	0

100 various plants, Stove, Greenhouse, and Hardy. Price and Catalogue, on application, by post.
Albion Nursery, Stoke Newington, London.—May 26.

NEW PLANTS.
A. VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), is now sending out his following New Plants:

Achimenes Ambroise Verschaffelt	8*s*.	0*d*.
" Docteur Hopf	8	0
" Edouard Otto	4	0
" Edmond Boissier	8	0
Tydæa Warscewiczi	15	0
Rhododendron Prince Camille de Rohan (quite hardy)	16	0

All the above Plants are figured in VERSCHAFFELT'S "Illustration Horticole," which can be seen at Mr. R. SILBERRAD'S, 5, Harp Lane, Great Tower Street, London.

SUPERIOR EARLY BROCCOLI.
MITCHINSON'S PENZANCE OR EARLY WHITE CORNISH BROCCOLI.—*Celebrated and invaluable for its earliness, coming into use early in February, a full-sized handsome head of excellent quality, but a shy seeder.*
Parties who were too late to procure seeds of this valuable Early Broccoli can now be supplied with good healthy PLANTS at 2*s*. 6*d*. per 100, carriage free, by sending immediate orders to the undersigned, or their Agents in London. For testimonials and names of Agents see former advertisements.
JOHN MITCHINSON & Co., Seed Merchants, Truro, Cornwall.

PELARGONIUMS, ETC.
HENRY GROOM, Clapham Rise, near London, by appointment FLORIST TO HER MAJESTY, begs to say that his Spring CATALOGUE OF PELARGONIUMS, &c., is ready, and will be forwarded on application.

DAHLIAS.
J. KEYNES is now sending out his New DAHLIAS for this season, and solicits the orders of his friends. Fine Plants may also be had of those splendid Dahlias sent out by him last season, at reasonable prices. Catalogues sent on application.—Castle Street Nursery, Salisbury.

SUPERB HOLLYHOCKS, SEEDS, ETC.
WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks at 5*s*.; 12 varieties, 2*s*. 6*d*.; and from good double sorts, 1*s*.
Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s*. per packet; separate, 2*s*. Fine Quilled African Marigolds, 6*d*. per packet.—Saffron Walden Nurseries.

BOSSOM'S CHAMPION OF ENGLAND CELERY.
THE finest Celery yet introduced, beautifully white, very crisp and solid, and withstands a greater amount of frost than any other known variety; it has been blanched in the ground 3 feet.—To be obtained of T. F. WINSTANLEY, Seedsman, 28, Market Place, Manchester, price 2*s*. 6*d*. per packet: prices to the trade on application.

JOHN HOLLAND has Superb SHOW PANSIES at 4*s*. and 6*s*. per dozen plants.
Selected PANSY SEED, 1*s*. and 2*s*. per packet.
Descriptive Catalogues now ready.
JOHN HOLLAND, Bradshaw Gardens, Middleton, Lancashire.

NEW WHITE VERBENA, MRS. HOLFORD.—This is the largest and most noble flower ever offered to the public, a single pip measuring an inch in diameter; the habit of the plant is good, with large truss; it is a free blooming variety. To be sent out first week in June, at 5*s*. per plant. The stock is very limited, therefore early orders are solicited to prevent disappointment. Also a large stock of Pelargoniums, Azaleas, Calceolarias, Mimulas, &c., are now in flower.
N. G. has a very large quantity of Bedding Plants ready for sale at low prices.
N. GAINES, Nursery, Surrey Lane, Battersea, near London.

MAY'S MAGNUM BONUM LETTUCE is by far the largest, sweetest, and crispest Lettuce known, in proof of which we possess numerous letters received from parties who had it last season. The addresses of the writers can be had on application. It may be sown all the summer, and will stand the winter. Packets 1*s*. each.
HENRY MAY, the Hope Nurseries, near Bedale, Yorkshire.

NOTTING HILL, KENSINGTON.
W. TOWNSEND having a large stock of BEDDING PLANTS, consisting of Verbenas, Heliotropes, Fuchsias, Calceolarias, Lobelias, Petunias, &c., &c., is enabled to supply strong plants in 4-inch pots at 1*l*. per 100, delivered free at any of the London Railways, packing not included.

T. F. WINSTANLEY'S BEDDING PLANT LIST is now ready, and can be had on application, or freely post.—28, Market Place, Manchester.

EDWARD PARKE FRANCIS offers the following Bedding-out Plants, strong and vigorous, from 3*s*. to 4*s*. and 6*s*. per dozen:—Scarlet Geraniums, Flower of the Day ditto, Verbenas, Calceolarias, Salvias, Heliotropes, Fuchsias, Petunias, Lobelias, Anagallis, Ageratum, Cupheas, &c. Carriage paid to London.—Rose Nurseries, Hertford.

STRONG BEDDING AND OTHER PLANTS.
F. AND A. SMITH'S Descriptive LIST of the undermentioned is now ready, and may be had, post free, on application:—Antirrhinums, Verbenas, Fuchsias, Scarlet Geraniums, Calceolarias, Petunias, Heliotropes, Pentstemons, Chrysanthemums, Mimulus, Salvias, Lobelias, &c. Climbers in variety; also a miscellaneous Collection of Greenhouse Plants. They have now in bloom Verbenas, Fuchsias, spotted Calceolarias, Cactus, Geraniums, Nerium splendens, Hydrangea hortensis, Mignonette &c. The Trade supplied.—Dulwich, Surrey, May 26.

CABBAGE PLANTS.
THOMAS WELLAND, Surrey Gardens, near Godalming, Surrey, offers fine Garden Plants and Drumheads for cattle, safely packed for any part of Great Britain, at 3*s*. 6*d*. per 1000. Crates, &c., delivered at station free.

HART AND NICKLIN, FLORISTS, &c., Guildford, offer the following Plants (free by post) at 8*s* per doz.:—
FUCHSIAS.—Omega, Vanguard, The Perfect Globe, Commodore, Duke of Wellington, Telegraph, Queen of Hanover, Charmer, Glory, Mrs. Patison, Premier, and Princess.
PANSIES.—Great Western, National, Sultan, Adela, Sir J. Paxton, British Queen, Duke of Perth, Marchioness of Bath, Alfred the Great, Boadicea, Pompey, and Pearl.

NEW SCARLET GERANIUM—EMPEROR NAPOLEON.
JOHN BUTCHER is now sending out the above splendid Geranium, a very decided improvement upon the great favourite Tom Thumb; the habit is more compact, the trusses of flowers very much larger, and for brilliancy of colour far superior; sending up the truss of flower finely above the foliage. Fine for Bedding or Vases. Good Plants, fit for immediate Bedding, 18*s*. per doz.; extra, 2*s*. 6*d*. each, basket included.
Nursery, Stratford-on-Avon, May 26.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name: and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.
We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of supplying last year, and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

CHOICE BEDDING-OUT PLANTS,

And to those about Permanently Replenishing the Flower Garden.

YOUELL AND CO. beg to submit the following List of desirable PLANTS, suitable for the above purpose. Carriage paid on all Orders of 2*l.* and upwards to any distance within 150 miles of the Nursery, and good Plants added to compensate for this charge on packages of less value:—

CARNATIONS AND PICOTEES. Per doz. pairs.

Fine selections by name from our extensive and well-known Collection, in strong plants ...	18*s.* 0*d.*
Fine mixed border ditto	9 0
True old Clove Carnations	12 0
Tree Carnations, in choice variety ... ... each	1 6

CALCEOLARIAS.—Of this favourite flower the following list contains some of the best varieties for Bedding:—

Ajax (Lucombe, Pince, & Co.), fine large rich-coloured flower, of crimson and yellow, 1*s.* 6*d.* each.
Golden Chain, fine golden yellow, 6*s.* per dozen.
Gold Cap, rich dark maroon yellow cap, 9*s.* per dozen.
Superba (Constantine's), dwarf, rich crimson plum, 1*s.* 6*d.* each.
Surprise „ bright orange crimson, ex. fine, 12*s* per doz.
Sulphurea splendens, fine large yellow, 6*s.* per dozen.
Mr. White, rich shining bronze red, 6*s.* per dozen.
Superba (Turner's), fine dwarf, dark crimson (ex. fine), 6*s.* per doz.
Wellington Hero, rich deep golden yellow, 6*s.* per dozen.
Magnificent, large and rich crimson, with yellow crown, extra fine, 6*s.* per dozen.
Masterpiece (Constantine's), deep maroon scarlet, dwarf, 12*s.* p. doz.
Mrs. Beecher Stowe, bright yellow, 6*s.*
Shankleyana, large orange crimson, extra fine, 9*s.*
Beauty of Montreal, bright crimson, dwarf, 6*s.*
Kentish Hero, orange bronze, fine, 6*s.*
Sultan, fine large crimson, 6*s.*
Viscosissima, deep yellow, 6*s.*
Calceolaria "Purity," a new and beautiful variety, PURE PAPER WHITE, dwarf, free habit, branching, and a most desirable bedding plant, very highly recommended, 7*s.* 6*d.* each.

SCARLET GERANIUMS.

Tom Thumb, Frogmore, and Trentham Scarlet, 4*s.* per dozen, [30*s.* per 100.
Amazon, 12*s.* per dozen.
Baron Hugel, a dwarf growing variety, with brilliant scarlet flowers, adapted for edging, 12*s.* per dozen.
Cerise Unique, colour a fine cerise, 9*s.* per dozen.
Defiance, an immense large flowering variety, 1*s.* each, 9*s.* per doz.

VARIEGATED GERANIUMS.

Brilliant ...	12*s.* per doz.	Golden Circle ...	18*s.* per doz.
Flower of the Day	9*s.* „	Manglesi variegata ...	12*s.* „
Dandy	9*s.* „	Mountain of Light	18*s.* „
Golden Chain ...	18*s.* „		

GERANIUM Kingsbury Pet, a striking variety, bearing a fine truss of bright salmon-coloured flowers, 9*s.* per dozen.
„ Manglesi Floribunda, a free blooming light variety, 9*s.* per dozen.
„ Crimson Unique, a fine strong growing variety, 9*s.* per dozen.
„ Crimson flowering Ivy leaf, fine, 9*s.* per dozen.
„ White do. do. 6*s.* „
„ Miss Emily Field, 12*s.* per dozen.
„ Skeltoni, 12*s.* per dozen.

FUCHSIAS.—The following fine varieties, 9*s.*, viz.:—Queen of Hanover, Elegans, Vanguard, Uterpe, Monarch, Trentham, Autocrat, Duke of Wellington, Mrs. Patterson, Princeps, Lady Franklin, England's Glory, Perfection, Model, &c. The best of the older varieties, 6*s.*
Fuchsia Domminiana, 2*s.* each.
Fuchsias, the best hardy kinds for bedding, in strong last year's plants, 6*s.* per dozen.
Petunias, of best kinds, 6*s.* per dozen.

LOBELIA racemoides, the best dark blue variety, 4*s.* per dozen.
„ lucida do. light do. 4*s.* „
„ compacta alba do. white do. 4*s.* „
„ Lindleyana, a decided lilac do. 6*s.* „

VERBENAS.—In this class particular attention has been given to introduce only those of the more striking colours and best habits for bedding purposes; these include all the handsomest of the new continental varieties, and we offer them at 4*s.* per dozen, or 30*s.* per 100.
Pansies, first class varieties, by name, 9*s.* per dozen.
Anagallis rubra, and grandiflora, 6*s.* per dozen.
Nierembergia filicaulis, 6*s.* per dozen.
Pentstemon azureum, 9*s.* per dozen.
„ of sorts, 6*s.* per dozen.
Salvia Lilleana, light blue, quite hardy, 9*s.* per dozen.
„ of sorts, 6*s.* per dozen.
Campanula corallina, hardy trailing plant, bearing in profusion light blue star-shaped flowers, 6*s.* per dozen.
Silene maritima pleno, hardy plant, of trailing habit, producing large double white flowers, 6*s.* per dozen.
Genista tinctoria flore pleno, another very hardy showy herbaceous plant, of trailing habit, producing large quantities of double flowers of deep orange colour, 6*s.* per dozen.
TROPÆOLUM—Triomphe de Gand—a handsome variety for trellis work, producing large and brilliant scarlet flowers, 12*s.* per dozen.
CLEMATIS TUBULOSA MONGOLICA, a handsome herbaceous plant bearing numerous heads of blue star-shaped flowers, very hardy, 9*s.* per dozen.
Clematis azurea grandiflora, Sieboldi, Hendersoni, and montana, these favourite hardy Climbers, in flowering plants, 1*s.* 6*d.* each.
ROCKETS, new double crimson, 9*s.* per dozen; old double white, 3*s.* per dozen.
PRIMROSES, double white, 4*s.* per dozen; double crimson or maroon, 12*s.* do.; double yellow, 5*s.* do.; double purple, 4*s.* do.
PHLOXES.—The following choice varieties 9*s.* per dozen:—Maria Boulanger, Striata superba, Roi Leopold, Villaret joyeuse, Bois Rose, Imbricata, Macrantha, Deuil de la Comtesse de Marne, Anais, Eliza, Mrs. Thompson, Madame Courcelles, Madame Frobel, Madame Lanier, Madame de Pruines, Gen. Lamoricière, Princesse de Cleres, Princesse Marianne, and other fine kinds.
HOLLYHOCKS, extra fine, first-class show varieties by name, 12*s.* to 18*s.* per dozen.
BELGIAN DAISIES in 36 best kinds, by name, 4*s.* per doz.
PEONIAS in 20 new and very choice Continental varieties, for 1*s.*
Delphinium Hendersoni, this magnificent bright blue variety, in flowering plants, 2*s.* 6*d.* each.
Dielytra spectabilis; this universal favourite, strong flowering plants, 9*s.* per dozen.
Delphinium Barlowi, 9*s.* per dozen.
„ Mooreanum, an extremely beautiful variety, 12*s.* per doz.
„ grandiflorum maximum, 9*s.* per dozen.
Saponaria ocymoides, very hardy rock plant, with pink flowers, 6*s.* per dozen.
Statice maritima rosea, a very pretty, hardy herbaceous plant of dwarf habit, producing numerous heads of bright rose-coloured flowers, 6*s.* per dozen.
Statice latifolia, fine hardy species, with blue flowers, 6*s.* per doz.
Hardy Heaths, 6*s.* per dozen.
MIMULUS in 6 new and choice varieties, 6*s.* per dozen.
POTENTILLAS in fine variety, 6*s.* per dozen.
Lilium lancifolium album, 9*s.* per dozen; rubrum, 20*s.* per dozen.
Lobelia Feu du Roi, St. Clair, and Aurora, 9*s.* per dozen.
Herbaceous Plants in very choice variety, 30*s.* per 100; or 6*s.* per dozen.
Alpine or Rock Plants, in choice variety, 4*s.* to 6*s.* per dozen.

YOUELL & Co., Royal Nursery, Great Yarmouth.

SEEDS OF SELECT HARDY PLANTS.

WILLIAM MOORE begs to offer the following SEEDS, all saved at the establishment, and warranted good, at 6*d.* per packet, or the collection for 5*s.* Payment to be made in postage stamps.

Scarlet Poppy Anemone.	Geum splendens.
Alstroemeria aurea.	Helianthemum, 10 sorts mixed.
Anchusa italica.	Lupinus magnificus.
Antirrhinum, fine striped.	Myosotis sylvaticum, fine sp.
Dianthus montana, rubra & alba.	Potentilla bicolor grandiflora.
German Wall-flower, fine mixed.	Polyanthus from the best sorts.

Norfolk Nursery, East Dereham.

BASS AND BROWN have just published a SUPPLEMENT TO THEIR CATALOGUES, with extracts and descriptions of a few new and select plants, which may be had on application.

☞ An extensive Stock of the finest and most popular and showy Bedding Plants, strong and well established, at low prices.

	£	s.	d.
The NEW FUCHSIAS with white corollas—Lucombe and Pince and Story's varieties, each	0	10	6
Fuchsia Banks's Prince Albert, rich dark variety, extra form, each...	0	10	6
„ Turner's Thalia, fine formed white, very deep rose corolla, each	0	3	6
Verbena Mrs. Woodroffe, brilliant new scarlet, extra size, per dozen	0	9	0
Geranium Keyne's Pretty Polly, each	0	3	6
Phlox omniflora compacta, new white, very dwarf and compact, each	0	3	6
Calceolaria (Rollisson's) Eclipse, extra rich flowing crimson, each	0	10	6
„ (Rollisson's) Variabilis, delicate primrose, fine, each	0	10	6
Escallonia pterocladon, pure white, each	0	10	6
Rhododendron javanicum, each	0	10	6
Rose Duchess of Norfolk, each, 3*s.* 6*d.*; strong flowering, each	0	5	0

For other new and select plants, see Catalogue and Supplement.

For names of the following see Advertisements in GARDENERS' CHRONICLE *of May 1st and 8th.*

GERANIUMS, 12 superb new show varieties of last season	2	0	0
„ 20 first-rate vars. of previous date ...	1	10	0
„ 20 first-rate older vars.	0	15	0
GLOXINIAS, 11 superb new vars.	1	13	0
„ 12 superb vars.	1	0	0
„ 12 fine older vars.	0	12	0
ACHIMENES, 3 splendid new vars.	0	17	6
„ 12 superb vars., 10*s.*; 12 fine older vars.	0	6	0
GREENHOUSE PLANTS, 50 fine and select... ...	2	5	0
„ „ 50 do., best selection ...	3	5	0
STOVE PLANTS, 50 superb and select	4	0	0
HERBACEOUS PLANTS, 100 fine and distinct vars.	1	10	0
„ „ 100, including newer „	2	10	0
ROCK PLANTS, 25 fine varieties	0	12	0

Splendid new Potentillas, Pentstemons, choice vars. of Phlox, &c. &c., see Catalogues.

COMPLETE CATALOGUE free for six penny stamps. The Spring Catalogue alone for three penny stamps.

Post-office orders payable to BASS & BROWN, or to STEPHEN BROWN.

Goods carriage free (not under 20*s.*) to all the London termini, and all stations on the London and Norwich Colchester Line. Plants gratis with orders of 40*s.* and upwards.

Seed and Horticultural Establishment, Sudbury, Suffolk.

JOHN CATTELL begs to announce that his CATALOGUE No. 4 for the Spring of 1855, containing choice selections of GERANIUMS, VERBENAS, MISCELLANEOUS BEDDING PLANTS, &c., is now ready and may be had on application, inclosing a penny stamp. J. C. particularly directs attention to the following selection of very desirable plants:—

VARIEGATED GERANIUMS. Each—*s.* *d.*

Attraction (Gaines)	1	6
„ (Kinghorn) habit and colour of Flower of the Day, with a beautiful deep pink horse-shoe mark 3*s.* 6*d.* to	21	0
Brilliant, leaves edged with silvery white, flowers deep brilliant scarlet ... ... 1*s.* 6*d.* to	2	6
Favourite ... ... 7*s.* 6*d.* to	15	0
Flower of the Day, fine stout plants for bedding ... 6*d.* to	1	6
Golden Chain, extra strong ... ... 1*s.* 6*d.* to	2	6
„ „ good plants for bedding ... per doz.	12	0
„ Admiration	2	6
Mountain of Light	1	6
Mount Hecla	3	6
Silver King, bright scarlet, foliage belted with silvery white	2	6

GERANIUMS OF THE SCARLET HABIT.

	s.	*d.*
Baronne Hugel, very dwarf, light scarlet with white eye, fine dark horse-shoe leaf	1	0
Masterpiece, foliage, habit and truss like Cerise Unique, colour most intense brilliant scarlet, with white eye, 2*s.* 6*d.* to	3	6
Princess, white and salmon, horse-shoe leaf, fine	2	6
Rosea superb, rosy red, trusses very large, one of the finest for pots or beds	1	6
Surpass Hydrangeaflora, truss and colour like Lady Holmsdale, of dwarf habit	2	6
Trentham Rose, rosy scarlet, extra fine	1	6
Trentham Scarlet Gem, truss and petals extra large, intense bright scarlet, strong habit, very free bloomer ...	2	6
Triomphe de Mont Rouge, pale salmon, horse-shoe leaf, fine	2	6
Geranium Unique (Rollisson's) ... ... 1*s.* to	2	6
„ „ fine plants for bedding ... per doz.	9	0
„ Momus, fine bedding variety, habit and colour of the old Davyana	1	0
Anagallis Breweri, the finest blue each 6*d.*; per doz.	4	0
„ rubra grandiflora, the finest red each 6*d.*; per doz.	4	0
Heliotropium Beauté de Boudoir each 1*s.* 6*d.*; per doz.	12	0
„ John Cattell: this in growth, flower, and scent is the finest Heliotrope yet brought into notice ...	7	6
Phlox Drummondi Radetzki, fine, striped like Mayi, but both colours very superior ... each 1*s.* 6*d.*; per doz.	12	0
Phlox Drummondi, superb dark varieties, mixed per doz.	4	0
Nasturtium Incisum, very pretty, yellow and orange, 9*d.* to	1	6
„ Scheuermanianum (true), a beautiful buff and rich maroon variety of the common Nasturtium	1	0

Both these Nasturtiums are valuable additions to our summer climbers.

Oxalis Bowi, fine rosy pink, flowers all the summer, and makes a fine bed... ... ... per doz.	6	0
Petunia Purple Perfection, the best of the dark purples for beds ... ... per doz.	6	0
Petunia conspicua, light rose edged with rosy purple, fine, per doz.	6	0

SPLENDID DELPHINIUMS.

Those marked thus * will not be sent out till the first week in June.

		s.	*d.*			*s.*	*d.*
Hendersonia*	... each	1	6	Grandiflorum flora pleno, each		0	9
Magnifica*	... ...	3	6	„ maximum		0	9
Hybrida flora pleno*	...	1	6	Chinense Hulmi*	...	1	0
Wheeleri...	... ...	1	6	„ Weltoni*	...	1	6
Barlowi ...	... ...	0	9	„ simplex alba plena*		1	6
Splendidum*	... ...	2	6				

Wellingtonia gigantea, small, 5*s.* each.
„ „ well established plants, 7*s.* 6*d.* each.
„ „ very fine, in 24's, or 8-inch pots; these are some of the finest plants there are for sale, 42*s.* each.

All orders from unknown correspondents must be accompanied by a remittance or reference.—Nurseries, Westerham, Kent.

BEDDING PLANTS.—At 2*s.* 6*d.* per Doz.

JOHN SCOTT, Merriott Nurseries, Crewkerne, Somerset (established 1728), has nearly 20,000, in 3-inch pots, ready to be sent out. Post-office Orders payable at Crewkerne. (Baskets and Package at the Expense of Purchaser and not returnable.)

200 Sorts of the best and newest Verbenas.
120 do. Scarlet and other Bedding Geraniums.
20 do. Variegated leaved ditto.
100 do. Fuchsia, all the best; 24 do. Shrubby Calceolarias; 24 do. Petunias; with Anagallis, Ageratums, Cupheas, Heliotropes, Lobelias, Salvias, Senecios, &c. Also the beautiful white Double Pyrethrum.

When a fair proportion of each is taken the price will be 2*s.* per dozen; but if only Calceolarias and Geraniums are ordered they will be 4*s.* per dozen. Catalogues, in which the above are arranged in sections of colour, &c., sent on receipt of a postage stamp. Parties requiring large quantities can have them in store pots by agreement.

NEW PLANTS.

MESSRS. WILLIAM ROLLISSON AND SONS are now prepared to offer—

BEGONIA SPLENDIDA.—This exquisite plant was discovered in Java by our collector, Mr. John Henshall, during his researches in the Indian Archipelago. It is an extremely beautiful plant of ornamental foliage, the stems and leaves of which are covered over with a bright crimson hirsute down; altogether it presents so striking an appearance, that it is alone much to be desired for its magnificent foliage, for which we are now offering it, the plant not having yet flowered in this country. 42*s.* to 63*s.*

RHODODENDRON GRISEWOODIANUM.—This is a most superb large white free-blooming variety, beautifully tinted with blush, and distinctly spotted with large dark brown spots; fine form and large truss, and possessing beautiful foliage. We have no hesitation in saying that this is one of the finest Rhododendrons ever raised, being perfectly hardy, which has been fully tested during the last two severe winters; for while many of the so-called hardy sorts were completely disfigured in their foliage not a leaf of this variety was injured. 21*s.* to 31*s.* 6*d.*

RHODODENDRON SHAKSPEARE.—A soft rosy purple intensely blotched with orange yellow on the top petals, a most beautiful and thoroughly hardy free late-flowering variety. 21*s.* to 31*s.* 6*d.*

ERICA ÆMULA.—This is a very beautiful hybrid, in the Erica Massoni section, of a fine bright crimson colour, after the style of Erica aristata, but very much higher in colour: altogether this is a very distinct variety. 21*s.*

ERICA EXIMIA SUPERBA.—This variety may really be said to be three times as fine as the parent, whose name it bears; it is a very compact grower and excellent in habit, with tubular blossoms of a fiery scarlet colour. This charming variety obtained the first seedling prize at the Royal Botanic Gardens, 1852. 31*s.* 6*d.*

ERICA PAXTONI.—A very distinct variety obtained by hybridising Erica Hartnelli with Erica Massoni; it blossoms in very large whorls of a soft red colour. This variety will be very useful for Autumnal Exhibition purposes, as it blossoms from July to October. 21*s.*

The set of the above-named Ericas, Three Guineas.

CALCEOLARIA VARIABILIS.—As a bedding plant this will make a charming variety, and in some measure supply the deficiency there has been for durable and effective plants of a light colour for the parterre. It is an excellent grower, of very compact, pretty habit, and produces in great profusion immense trusses of blossom, which open of a delicate primrose colour, and change to white. Altogether it is a most desirable acquisition, and a variety thoroughly distinct from any in cultivation. 10*s.* 6*d.* each.

NEW PRICED CATALOGUE OF PLANTS.

MESSRS. WILLIAM ROLLISSON will be happy to forward this on application. It can also be forwarded throughout the following countries, post free: America, Austria, Belgium, France, Germany, Holland, Prussia, &c. &c. This Catalogue abounds with novelties and rare plants; also contains priced lists of the following:—

	Page
Choice Achimenes	12
„ Alpine Plants	37 to 41
„ Azaleas, Ghent varieties	44
„ indica	23
„ „ species and hybrids	24
„ Bedding Plants	35
New Shrubby Calceolarias (bedding varieties)... ...	24 to 26
Choice Camellias	33
New Pompon Chrysanthemums	30
New Chrysanthemum Précoces	13
Choice Stove Climbers	22
„ Greenhouse ditto	44
„ Hardy ditto	45
New and Choice Coniferæ	17
Epacris	20 to 22
Ericas	14 & 15
Choice Exotic Ferns...	42
„ Hardy ditto	31
Fuchsias, new sorts	27 & 28
Geraniums, new show flowers	30
„ new fancy	29
„ new French	
„ scarlet, white, pink-flowering, and horse-shoe marked leaf varieties, also kinds with variegated foliage	31
„ hybrid bedding...	13
New Gloxinias	16
Greenhouse Plants	37 to 44
Herbaceous ditto	15
Lycopodiums	3 & 4
New Plants	5 to 7
Choice Orchidaceous Plants	40
New Fruits	34
New Herbaceous Phloxes	46
Rhododendrons, choice hybrids	47
„ „ Sikkim and Bootan species ...	48
„ „ Conservatory kinds	2 to 4
New Roses	49
Choice Shrubs, &c.	8 to 11
Stove Plants	34
Tree Carnations	9
Tropical Fruits	12
Variegated Foliage Plants	32
New Verbenas	

The following Choice and New Plants can be seen in blossom at the Nurseries:—

AZALEA, EMPRESS EUGENIE.—This magnificent variety received a Bronze Medal, as a new plant, on the 9th inst., at the Royal Botanic Gardens, and will be sent out in the autumn at 21*s.* each. Early orders are respectfully requested, as they will be executed strictly in rotation.

Cattleya ianthina (new).

Odontoglossum hastilabium (rare).

Huntleya cerina.—This received a Silver Medal, as a new plant, on the 9th inst., at the Royal Botanic Gardens; also a First Class Certificate at the Horticultural Society's Rooms, on the 8th inst.

Erica illustris (new); do. affinis (new); do. triumphans.

Rhododendron Edgeworthi (Sikkim).—This received a Silver Medal, as a rare plant, on the 9th inst., at the Royal Botanic Gardens.

Dendrobium clavatum (rare); do Dalhousianum (rare).

Meyenia erecta.—This received a Silver Medal, as a new plant, on the 9th inst., at the Royal Botanic Gardens.

Lælia purpurata (rare).

Cymbidium species.—This received a Silver Medal, as a rare plant, on the 9th inst., at the Royal Botanic Gardens.

The Nurseries, Tooting, London.

NEW PLANTS.

MESSRS. YOUELL AND CO. beg to offer the following:—

Calceolaria EMPEROR NAPOLEON; a Seedling of our own, resembling "Henderson's Model," but larger, brighter coloured, and finer in every respect; of good habit, and one of the very best bedding varieties in cultivation. 7s. 6d. each.

Calceolaria EMPRESS EUGENIE; another of our Seedlings, of a fine golden yellow, the flower stems stout, as they need be, to support the very large trusses of flowers produced by this variety: the habit is robust, flowers large, and well formed. 7s. 6d. each.—The usual discount to the trade.

VERBENA "MRS. FOSTER."

This fine white variety, raised by Mr. EDMONDS, gardener at Scratby Hall, is, we confidently assert, the finest ever offered, and will prove to "White Verbenas" what "Robinson's Defiance" was to the scarlet varieties which preceded it. It was forwarded to the National Floricultural Society, and favourably noticed; but unfortunately the blooms were so much damaged in the transit as to preclude the possibility of its being fully estimated. The habit of the plant is all that can be desired, the heads of flowers (which are produced in profusion) large and flat, the individual flowers round and of good substance, resembling some of those fine Phloxes lately introduced, and of the purest white. Strong plants 5s. each, and one over to the trade when three are taken.

YOUELL & Co., Royal Nursery, Great Yarmouth.

SPLENDID NEW GERANIUM.

DENNIS'S ALMA, the very first in its class. Habit, very robust and bushy, flowering in the same proportion as "Alba multiflora," more early and better for forcing; the flowers are produced in umbels of 6 to 12 on very strong footstalks, which require no artificial support, and the flowers last a considerable time after they are all open. Colour, bright rosy crimson, with large dark spots, and in shape it resembles "Dennis's Perfection." Large strong Plants, just opening their flowers, in 48-inch pots, 10s. to 15s. each; in 4 or 5-inch pots, 5s. to 7s. 6d. A few extra large Plants, 21s. each.

See the remarks on the above Geranium, as exhibited at the Horticultural Society's Meetings, in this Paper, and the "Cottage Gardener" of May 15th. A specimen bloom sent to parties requiring it on receipt of three postage stamps. Post Office orders, on Chelsea, payable to WILLIAM DENNIS, King's Road, Chelsea, London.

ROBERT PARKER begs to inform his friends and the public that his New Spring Catalogue containing Descriptive and Priced Lists of the following:—

Exotic Orchids	Roses in pots [varieties
Ferns—stove, greenhouse, and hardy	Dahlias — show and fancy
Geraniums—show, fancy, scarlet, variegated, and hybrid bedding varieties	Fuchsias
Chrysanthemums—large flowered, and Pompone varieties	Selaginillas or Lycopodiums
Petunias	Gloxinias
Antirrhinums	Cinerarias
	Calceolarias—bedding varieties
	Verbenas
	Miscellaneous bedding plants &c., &c.

Is now ready and can be had Post-free on application.

Paradise Nursery, Hornsey Road, Holloway, London.

ABM. MARTIN AND SON'S LIST OF PLANTS FOR BEDDING PURPOSES; at 3s. and 4s. per dozen; by the hundred 21s.:—

Calceolaria	Senecio	Anagallis
Nierembergias	Cuphea	Salvias
Geraniums, scarlet	Oenothra	Petunias
" other varieties	Dahlias	Chrysanthemums
Fuchsia	Verbenas	Double crimson Rockets, 6s. per doz.
Heliotropes	Gaillardias	Lobellias
Phloxes	Cinerarias	Antirrhinums

Also a Large and Healthy Stock of Azalea indica, Escallonia macrantha, Abelia florabunda, Tropæolum tricolor and Jarrati, Primula sinensis alba pleno, Clematis azurea grandiflora and Sieboldi, Cupressus funebris, Araucaria and Cedar Deodara, from 1 to 5 feet, in pots; Lilium lancifolia, rosea, rubra and alba, Crassulas, Pimeleas, &c., &c., &c. Fuchsias, Geraniums, Hollyhocks, Phloxes and Roses, most of the leading sorts grown. Swede and other Turnip Seeds of the most approved kinds (own growth).—Nursery and Seed Establishment, Cottingham, Hull Branch, Junction Street, ABM. MARTIN & SON, Proprietors.

PAGE AND CO.'s BLIGHT COMPOSITION.—To meet the extraordinary demand PAGE & CO. were compelled to despatch a portion of their Composition in a warm state, which having caused fermentation has nullified its effects! It is particularly requested that all who have procured such from themselves or their agents will allow the quantity to be sent again Gratis, and they have instructed their agents accordingly.

Oxford Street, Southampton, May 26.

PAGE AND CO'S COMPOSITION FOR THE DESTRUCTION OF BLIGHT UPON ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, STOVE AND GREENHOUSE PLANTS.—Extra Strong, 4s. per gallon, sufficient to make four (Jars and Barrels extra). Directions for use forwarded. Ten gallons and upwards carriage free to London.

After four years' extensive use by the most eminent Gardeners in the kingdom, the superiority of PAGE & CO.'S BLIGHT COMPOSITION is unquestionable, requiring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage) and promoting a luxuriant growth.

See two pages Testimonials, *Gardeners' Chronicle*, March 3, 1855.

Can now be obtained of

Messrs. Henderson & Co., Pine-apple Place, London
Messrs. Biss & Brown, Sudbury
Messrs. F. & A. Dickson & Sons, 140, Eastgate Street, Chester, and 14, Corporation Street, Manchester
Messrs. Sutton & Sons, Reading
Messrs. Rennie & Co., Plymouth
Mr. James Veitch, Exotic Nursery, Chelsea
Messrs. Wheeler & Son, Gloucester
Mr. R. Paul, Derby
Mr. George Wheeler, Nursery-man, Warminster
Messrs. Masters & Son, Canterbury
Mr. Thos. Bath
Messrs. Downie & Laird, South Frederick Street, Edinburgh
Mr. W. Barratt, St. John's, Wakefield
Messrs. Thomas Davies & Co., Wavertree, Liverpool
Mr. R. Tayler, Malton, Yorksh.
Messrs. Chandler & Son, Wandsworth Road, London
Mr. Freeman, Woburn
Mr. Lanford, Shefford, Beds
Messrs. Veitch & Son, Exeter
Messrs. Hooper & Co., Covent Garden, London
Messrs. Fisher, Holmes, & Co., Handsworth Nursery, Sheffield
Mr. J. Perkins, Northampton
Mr. W. F. Smith, Rivershead Nursery, Sevenoaks
Messrs. Wood & Ingram, Nurseries, Huntingdon
Mr. Baskerville, Bristol
Mr. Burham, Hastings [north
Messrs. Leake & Smith, Bridge-
Mr. Davison, St. Peter's Street, Hereford [Herts.
Mr. W. Garraway, Welwyn,
Mr. Thos. Cridland, Willington, near Taunton
Mr. Henry Horne, Market Place, Henley-on-Thames [Bourn
Mr. R. M. Mills, Market Place,
Mr. Husbands, Talbot Street, Nottingham
Mr. Caparn, Seedsman, Newark
Mr. John Cattell, Seedsman, Westerham
Mr. Morgan, Nursery, Kidderminster
Messrs. Ivery & Son, Nurserymen, Dorking and Reigate
Messrs. W. Drummond & Sons, Dawson Street, Dublin
Messrs. Mappleback & Lowe, Birmingham
Mr. W. Bower, Moorgate House, East Retford
Mr. James Allen, sen., Bothwell Street, Glasgow.

And of the Inventors and Manufacturers,

PAGE AND CO., SEED MERCHANTS, Oxford Street, and Above Bar, Southampton.

CHOICE CINERARIA SEED.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior CINERARIAS, which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias have given for several successive years, enables them to recommend their Seed of the present season with much confidence. Packets sealed and warranted by them at 2s. 6d., free by post.

Exeter Nursery, Exeter.—Established 1720.

THE PAMPAS GRASS "CYNERIUM ARGENTEUM."

LUCOMBE, PINCE, AND CO. have a fine healthy stock of this highly Ornamental Plant, well established in pots, and fit to send out immediately. It is universally admitted that few plants produce a more beautiful effect than this gigantic Grass. See Woodcut and description of it in the *Gardeners' Chronicle* of November 4th, 1854. Sizes, prices, and all particulars may be had on application to LUCOMBE, PINCE, & Co., Exeter Nursery, Exeter.—Established 1720.

ITALIAN RYE-GRASS SEED.

SUTTON AND SONS, Reading, having in anticipation of the present great demand for this invaluable article provided an extra large stock of the best quality seed, are still able to execute orders for either Sutton's Improved, Dickenson's, or Fresh Imported Seed, price 7s. 6d. per bushel. Instructions for cultivation are sent with the Seed.—Early orders will be necessary.

SUTTON'S GRASS SEEDS.—

EXTRACT OF A LETTER FROM DR. LINDLEY:—

"Messrs. SUTTON,—*We have already made trial of your Lawn Grass Seeds, and it is but justice to say they have proved the best we have sown for many years.*

(Signed) "JOHN LINDLEY.

"*Horticultural Society, 21, Regent Street, London, Nov. 9, 1853.*"

Messrs. SUTTON are continually receiving similar letters of commendation of their Lawn Grass Seeds. Price of seed, 1s. 3d. per lb., 3s. per gallon, or 21s. per bushel, CARRIAGE FREE, except very small quantities. The quantity required is 40 lbs. per acre, for forming new lawns, or from 10 to 20 lbs. per acre for improving old lawns.

SUTTON'S GRASS SEEDS *for forming Permanent Pasture, 24s. to 30s. per acre;* SUTTON'S RENOVATING MIXTURE *for Improving Old Pastures, 9d. per lb.*

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

N.B. No Agents appointed.

CARNATIONS AND PICOTEES.

MESSRS. YOUELL AND CO. beg to offer to the admirers of these elegant flowers a quantity in pots, part of the stock originally intended for their own blooming, at 21s. per dozen pairs.

They are fine strong plants, and may be either turned out into the borders immediately, or repotted without suffering the least check, a manifest advantage at this season.

Royal Nursery, Great Yarmouth.

The Gardeners' Chronicle.

SATURDAY, MAY 26, 1855.

MEETINGS FOR THE ENSUING WEEK.

SATURDAY, June 2—Crystal Palace Horticultural Fête.

The GRITTINESS OF PEARS is the chief circumstance which diminishes their value at the dessert. Some are more subject to the affection than others; but all are occasionally deteriorated by it. The proximate cause is known to consist in the deposit of hard matter in certain cells of the flesh, analogous in all respects to that which gives its bony texture to the stone of Plums, Cherries, &c. In all these cases the tissue is originally soft and pulpy, and if it were to remain so the whole of a Plum would be as perfectly eatable as a berry of the Grape. But in stone fruits gritty matter is gradually deposited within the pulpy cells of the lining of the flesh, as constantly and naturally as phosphate of lime in the gelatinous tissue of the bones of animals. In the Pear, on the contrary, there is no special part set aside for the reception of the grit, which manifests itself accidentally here and there among the soft flesh, sometimes in large sometimes in small quantities. In fact, in the Pear the grittiness may be regarded as an unnatural secretion, induced by unknown causes, while in stone fruits it is part and parcel of their nature.

We say induced by unknown causes, for we are not aware that any attempt has been made to show out of what circumstances the grittiness arises, or by what it is diminished or prevented. We are now, however, assured that it is entirely owing to the exposure of the Pear fruit to too much cold. It appears that on the 16th of last November, Mr. A. DELAVILLE, gardener at the Château de Fitz-James, near Clermont (Oise), exhibited before the Imperial Horticultural Society of Paris some St. Germain Pears, a part of which were covered with spots and full of grittiness, while the others were remarkable for their beauty, and wholly exempt from grittiness. We are assured that both samples came from the same tree, and that the only difference consisted in the fine ones having been protected, while the others had been exposed to the weather without any shelter. In fact, Mr. DELAVILLE is of opinion that the external spots and the internal grittiness were wholly caused by the cold rain which had fallen on the fruit during its growth, and had arrested the free circulation of sap.

With reference to this hypothesis, he remarks that the sorts which are most subject to spotting (*tavelage*) and grittiness are those which have the finest skin, such as the St. Germain, Crasanne, Brown Beurré, and Winter Bonchretien. The effect of aspect also supports this view, it being notorious that the affections in question are most common with Pears on open standards or exposed to the east and south, the quarters whence (at Clermont) the coldest rains always come.

The manner in which M. DELAVILLE protects his Pears is thus described:—As soon as the fruit is completely set he encloses every cluster in a cornet of paper, fixed to the top of the stalk by a piece of rush (bast). This cornet must be large enough to cover all the upper part, so as to guard the fruit perfectly from the direct action of exterior agencies. If a tree is trained to a wall the same degree of protection is not necessary, because the wall affords a natural shelter on one side, but where pyramid or other openly trained trees have to be dealt with the cornet must be very wide, and the small end placed upwards, so as to leave nothing uncovered except the bottom of the fruit stalk.

These cornets remain in their places during the whole season, and are not disturbed till about a fortnight before gathering, at which time they are removed, in order to give the fruit colour and to complete the ripening, "just as Peaches and Grapes are unleafed a short time before gathering them." M. DELAVILLE concludes by assuring the public that by this simple method his whole crop of Pears is very fine, instead of a third or more being unmarketable, as is often the case.

The effect of these precautions should certainly be tried here, now that Pears are getting into the condition when paper cornets are first applied.

THE Honorary Secretary of the Torbay Horticultural Society has invented a very useful instrument for gardeners, which he calls a SELF-REGISTERING HYGROMETER.

It is needless to say that the hygrometrical condition of the air is as important to the horticulturist as the thermometrical; and it is desirable that the instruments used in determining either humidity or temperature should be self-registering, in order that we may ascertain their condition, not only at the moment of observation, but also their fluctuations during any preceding period.

Self-registering thermometers have long been in general use, with the most beneficial results, but no self-registering hygrometer has hitherto been constructed, and those which have been adopted for time observations have either been very imperfect, or not sufficiently simple and inexpensive for horticultural purposes.

The new instrument which Mr. VIVIAN submitted on the 8th inst. to the Horticultural Society, and from whose report this account is chiefly taken, is a combination of LESLIE'S wet-and-dry-bulb hygrometer and the differential thermometer, with steel indexes, which may be adjusted either by gravitation or the magnet. The degree indicated by the spirit or index in the tubes is the amount of difference between the temperature of the air and evaporation; when it stands at zero (0) the air is completely saturated, and the *sensible* humidity of the air becomes less as this difference increases. Thus, observes Mr. VIVIAN, in an Orchid house the instruments should never register more than 1° or 2°, whilst Ericas will require 8° or 10°.

For meteorological purposes the *actual* humidity may be readily ascertained from Mr. GLAISHER'S tables, or the dew point may be approximately deduced by doubling the amount of difference between the wet and dry bulb. For instance, if the reading of the hygrometer is 5°, whilst the thermometer is 50°, the dew point will be 45°, below which fog, rain, or the precipitation of dew will occur.

As a weather-glass the instrument promises to be also very useful, as without a knowledge of the hygometrical condition of the atmosphere the barometer is of little service.

The instrument, as exhibited by Mr. VIVIAN, although imperfectly and hastily constructed, appeared highly deserving of especial notice, and received an honourable mention, as it well deserved; for hitherto, we believe, there has been no instrument for registering the extremes of dryness or moisture—a point of the utmost importance in exotic culture.

We understand that perfect instruments are nearly ready for sale, and we fully anticipate their being soon regarded as not less essential in gardens than the thermometer itself. No care being required in their use, nor any quick and dexterous observation, the indications of Mr. VIVIAN'S hygrometer may be read off with as much facility as those of the thermometer itself, which is a point greatly in its favour.

In Dr. SCHMITZ'S admirable translation of NIEBUHR'S "Lectures on Ancient History," occurs the following passage (vol. 1, p. 16): "Man was first created at Babylon: *corn there grew wild*, and the new race of beings there found the first necessary

food, especially Wheat. This tradition is the more remarkable because several naturalists have made the observation that corn does not grow wild in any part of the world. I do not know whether by a process of improvement our garden fruits can be derived from wild fruit; *it is well known, however, that the noble Vine Grapes grow wild in Colchis.* Whence, then, does corn come? My opinion is that God made direct provision for man; something was given to all, real Wheat to the Asiatics, and Maize to the Americans."

Can any scholar among our readers throw light upon the sentences printed in italics? They well deserve a commentary.

New Plants.

126. Zebrina pendula. *Decaisne in Revue Horticole, 4 ser., vol. 4, p. 141, t. 8.*

This is the common trailing Tradescantia-like plant so much cultivated in our greenhouses for the sake of its foliage, stained with purple beneath and striped with broad bands of white on the upper side. It was described in the *Journal of the Horticultural Society* in 1850, under the name of *Cyanotis vittata*, from which genus we see no sufficient reason for excluding it.

127. Taxus adpressa. *Carrière in Revue Horticole, ser. 4, vol. 18, p. 96, i.e. aliàs* Cephalotaxus adpressa *of Gardens.*

M. Carrière has shown that this beautiful hardy plant is a true Yew, and by no means a Cephalotaxus, as has been supposed. It has long been known that the species before us will not stand when worked upon the latter genus, although it does perfectly well on the common Yew, and it now appears that its fruit is precisely that of a Taxus.

VEGETABLE PATHOLOGY.—No. LXXIII.

316. Chlorosis 7. (*Accidental and Functional.*) Yellowness.—The form of Chlorosis which now comes under consideration is that to which the name of Icterus has been given by some authors, from the dull yellow green which is assumed by a large portion of the plant. It arises from various causes, or rather from conditions unfavourable to health, as from stagnant water, depressed temperature, especially when accompanied by deficiency of light, from deficiency of light itself, or from want of proper nutritious matter in the soil. The vital powers of the plant are depressed, but more especially those of the particular parts affected, insomuch that more favourable circumstances seldom produce a more healthy tint in the older plants, but only enable the plant to produce more healthy organs, by which the general end for which it is cultivated may be at length effected. Where there is mere absence of colour, as in bleaching, without any derangement of general health, exposure to light, if it be not too abrupt or accompanied by unfavourable conditions of dryness, whether of the soil or surrounding air, will soon remedy the evil, but in Chlorosis the tissues of the organs already formed are so affected that they are seldom in a condition to assume fresh energy. One of the most familiar examples is that of yellowness in Wheat crops, which in some seasons is so prevalent, and unless it be alleviated in good time is so prejudicial to the general produce. Other things being equal, want of strength in the soil, whether original or from defect of manure, is a most important circumstance in connection with the disease. A season like the present, of unusual cold and dryness, has afforded many opportunities of examining the circumstances under which the plant has suffered most, and it has been impossible to glance over two or three contiguous crops without observing that its intensity is in direct proportion to the natural deficiency of the soil or the negligence of the cultivator.* In wet seasons, accompanied by a constant prevalence of north-east winds, the effect is still more striking and more universal. In every case the only hope of a good harvest depends upon an amendment of the conditions which have induced the malady. If the soil is really in good heart, warm showers or an increase of temperature will ultimately remedy the evil, but if the sickly tint has arisen from poverty of soil, it can scarcely be expected that better weather will entirely mend the evil. In such cases the only practicable remedy is to apply some top-dressing, as soot or pigeon-dung properly mixed, which may be rapidly absorbed by the foliage itself or by the roots. Even where the plant has grown well at first and looked healthy, in consequence of no unfavourable conditions of climate, if the staple of the land is not good or there has been a deficiency of proper manure, the crop is sure to fall off just before the flower stem is produced, even under the most favourable external conditions.

317. Where plants are cultivated in pots it is often very difficult to secure a proper drainage, and much more frequently no due attention is paid to the subject. The surface of the soil, too, becomes compressed, so that the air does not penetrate into the pores, its original texture is not good, or algæ grow upon the surface, which are inconsistent with health; where the pots are very bibulous, evaporation is going on rapidly from the surface of the pot, and the temperature in consequence of that part which is in contact with the most active roots is depressed, where the pot is not sunk into the soil. Under such conditions many plants, as Calceolarias, Pelargoniums, Fuchsias, &c., are very apt to acquire a yellow hue, which is sometimes very difficult to remedy, and which renders such plants very unfit for propagation. The first point towards their recovery is to repot them with greater care as regards drainage and the texture of the soil; and if there is reason to believe that the evil has at all arisen from poverty, guano can be administered cautiously, or a little old and very rotted cow-dung may be mixed with the soil. The very best effect is also produced in some cases by the insertion of two or three small crystals of sulphate of iron in the soil, which gradually dissolve, and act probably as a tonic. Fuchsias which were apparently past all hope of recovery will sometimes revive rapidly under this treatment. *M. J. B.*

* Close to the place where I am writing are three contiguous fields, the first of which has not been fallowed for nine years, nor was the ground manured for Wheat; the second of inferior staple, with a Wheat crop following Oats; the third of much the same quality as the second, but manured with the refuse of skins used by hat-makers, with an intermediate patch under common cultivation. The difference is very striking. The manured crop is most luxuriant, the unfallowed land of rich staple covered with an excellent plant of a very healthy aspect: the patch under ordinary cultivation is yellow, and that succeeding Oats on poor land extremely yellow with little hope of recovery.

BEDDING PLANTS AND BOTTOM-HEAT.

The remark recently made by the writer of the Calendar relative to the propriety of planting out strong plants in June rather than weak plants in May is very judicious in a season like the present, when the ground temperature is excessively low, and when, too, in many instances from the losses of the winter, plants are not so strong as they are wont to be in more favourable seasons. I have frequently, both privately and publicly, pointed out the impropriety of early planting, that is before the 20th of May, and, except in very rare situations and in the case of unusually forward springs, I am quite convinced that there is not a day gained by planting before the first week in June. I have had several thousands of Geraniums and other plants bedded out since the middle of April, but they are standing on sheltered south and west borders, and have been nightly, and sometimes during the day too, covered with Spruce branches and mats, to protect them from the severity of the weather. These plants look well, are making root, have healthy green foliage, and have quite recovered the check they experienced at the time of putting out; but had they been planted in the flower garden at the same time, their safe protection would have been far more difficult, and the nuisance of the protecting material in a dressed garden quite intolerable. The advantages of this system of bedding out all established plants are very great; for you not only get a plant with an improved constitution, but one-third of the pots necessary under other circumstances will be found quite sufficient. The trouble of planting and transplanting will of course be urged as an argument against the plan by the advocates of the old system; and though I admit there is a good bit of trouble and time occupied, the saving in watering more than counterbalances it, while the rapid progress the plants make is another decided advantage. Cold as the weather has been, these plants I find are making root into an inch or two of leafy dung which was placed under them, and I have no doubt that they will remove to the flower-beds almost without sustaining any check, and will be in bloom in a week or two without presenting any of that rusty appearance so general in newly-planted things.

But independently of the risk we run in planting out before we have settled mild-growing weather, it is also of great import in a season like the present, that the ground should attain its natural heat before tender plants are committed to its fostering care. A week or two back we were told that Nettle seed would not vegetate at the same temperature as Groundsel, and that the generality of exotic seeds would not vegetate in a temperature below 46°. I have just been testing the temperature of the soil in the flower garden here, and I find it range from 44° to 46° at from 9 to 12 inches deep, according to the exposure and the time the beds were last digged, the highest temperature, that of 46°, only being found in a bed that was dug on a sunny day a fortnight back. Now, the mean temperature of the earth at 1 foot deep, as explained by an important table in Dr. Lindley's "Theory of Horticulture," just published, is April 46°, May 53°, and June 60°. The lowest temperature for May was in 1845, viz., 50°, the highest for the same month in 1848 56°; the lowest temperature for June is 56° in 1852, the highest 64° in 1846. Thus it will be seen that the ground at the present time is 4° colder than it has been known since 1844, and 10° below the highest temperature during the same period. Need we then be surprised if plants make slow progress? It is physically impossible that they could do otherwise until the earth attains something like its natural temperature, and the more plants are watered under such circumstances, except with water very considerably warmer than the soil in which they are growing, the greater the injury they must receive. To drench plants with cold water at the present time is labour worse than lost. But what is to be done? To plant even now until the earth has attained a temperature of 55° will not be a wise proceeding, yet plant we must. Fifteen years back, in my treatise on Cucumbers in pots, I recommended the "digging in" of solar heat for ridge Cucumbers, and I should now advise the same process to be observed with all flower-beds that are not stocked with plants. By forking the beds over after 4 o'clock every sunny afternoon for a few days, making or raking the surface of the ground tolerably fine, its temperature may be raised from 6° to 10° in a very short time, and it is I think quite unnecessary for me to explain that an increase of bottom-heat at the time of planting to that amount is a matter of much greater importance than hurrying the roots of plants into the ground the first fine day, just because the sun is shining or the air overhead is a little genial. What I am recommending is just what I have practised for many years, and if those who do not happen to think on this matter as I do will please to make the experiment, I know they will be satisfied with the result. Let them get heat into the soil, then plant and give a sufficient watering with warm water, and when it has soaked in leave the surface of the soil loose, fine, and smooth, and little after-watering, unless the weather is very dry, will be found necessary. Daily dribblings of water may be all very well to occupy the leisure hours of amateurs "who have nothing else to do;" but gardeners, and those under them, may spend their time far more profitably. *W. P. Ayres, Whittlebury Lodge, May 22.*

DOES SEA-WATER KILL SEEDS?

As you have done me the honour to notice favourably my wish to ascertain experimentally the power of resistance in seeds to the injurious action of sea-water, you may perhaps like to have a report. As such experiments might naturally appear childish to many, I may be permitted to premise that they have a direct bearing on a very interesting problem, which has lately, especially in America, attracted much attention, namely, whether the same organic being has been created at one point or on several on the face of our globe. As geologist I feel a special interest on the possibility of plants being transported by sea to distant islands, owing to the great influence which it is very obvious the views of the late ever-lamented Edward Forbes have had on the subsequent writings of botanists and zoologists. Forbes, as is well known, boldly supposed that the north coast of Spain had formerly been directly continuous with Ireland, and he extended the continent of Europe as far as and beyond the Azores. To imagine such enormous geological changes within the period of the existence of now living beings, on no other ground but to account for their distribution, seems to me, in our present state of ignorance on the means of transportal, an almost retrograde step in science—it cuts the knot instead of untying it. Weighty objections might, I think, be urged against Forbes' hypothesis as applied in the above and many other cases, but this is not the proper place to discuss such a question. As I had not the least notion when I began, whether or not the seeds would be all killed by a single week's immersion, I at first took only a few, selecting them almost by chance from the different great natural families; but I am now trying a set chosen on philosophical principles by the kindness of Dr. Hooker.

The sea-water has been made artificially with salt procured from Mr. Bolton, 146, Holborn Bars, which has been tested by better chemists than men, namely, by numerous sea animals and algæ having lived in it for more than a year. The seeds were placed in separate bottles, holding from 2 to 4 oz. each, out of doors in the shade: the mean temperature has during the period been about 44°, rising during one week to a mean of nearly 48°. Most of the seeds swelled in the water, and some of them slightly coloured it, and each kind gave to it its own peculiar and strong odour. The water in which the Cabbage and Radish seeds were placed became putrid, and smelt offensively in a quite extraordinary degree; and it is surprising that any seeds, as was the case with the Radish, could have resisted so contaminating an influence; as the water became putrid before I had thought of this contingency, it was not, and has never been, renewed. I also placed seeds in a quart bottle in a tank filled with snow and water, to ascertain whether the seeds kept at the temperature of 32° would better resist the salt water; this water, like that in the small bottles, to my surprise became turbid and smelt rather offensively. In the following list I have no reason to suppose, except in the cases where so stated, that the seeds have endured their full time.

(1) Seeds of common Cress (Lepidium sativum) have germinated well after 42 days' immersion; they give out a surprising quantity of slime so as to cohere in a mass. (2) Radishes have germinated less well after the same period. (3) Cabbage seed: after 14 days' immersion only one seed out of many came up; I think this is rather strange considering that the Cabbage is a sea-side plant; in the ice-cold salt water, however, several have come up after 30 days' immersion. (4) Lettuce seed has grown well after 42 days; (5) of Onion seed only a few have germinated after the same period; (6) Carrot and (7) Celery seed well after the 42 days; (8) Borago officinalis, (9) Capsicum, (10) Cucurbita ovifera, have germinated well after 28 days' immersion; the two latter, rather tender kinds, were also tried in the ice-cold water, and have germinated after 30 days' immersion. (11) Savory, or Satureja, has grown somewhat less well after 28 days. (12) Linum usitatissimum: only one seed out of a mass of seeds (which gave out much slime) came up after the 28 days, and the same thing happened after 14 days; and only three seeds came up after the first seven days' immersion, yet the seed was very good. (13) Rhubarb, (14) Beet, (15) Oracle, or Atriplex, (16) Oats, (17) Barley, (18) Phalaris canariensis, have all germinated excellently after 28 days; likewise these six latter after 30 days in the ice-cold water. (19) Beans and (20) Furze, or Ulex: of these a few survived with difficulty 14 days; the Beans were all killed by 30 days in the ice-cold water. (21) Peas germinated after seven

days, but were all dead after 14 days' immersion out of doors, and likewise after 30 days in the ice-cold water. (22) Trifolium incarnatum is the only plant of which every seed has been killed by seven days' immersion; nor did it withstand 30 days in the ice-cold salt water. (23) Kidney Beans have been tried only in the latter water, and all were dead after the 30 days.

As out of these 23 kinds of seed, selected almost at hap-hazard, the five Leguminosæ alone have as yet been killed (with the exception of the Cabbage seed, and these have survived in the ice-cold water), one is tempted to infer that the seeds of this family must generally withstand salt water much worse than the seeds of the other great natural families; yet from remarks in botanical works, I had expected that these would have survived longest. It has been really curious to observe how uniform, even to a day, the germination has been in almost every kind of seed, when taken week after week out of the salt water, and likewise when compared with the same seeds not salted—all of course having been grown under the same circumstances, namely, in glasses on my chimney-piece, so that the seeds from the day of being planted have been always under my eye. The germination of the Rhubarb and Celery alone has been in a marked degree altered, having been accelerated. With respect to Convolvulus tricolor, not included in the above list, I may mention that many of the seeds germinated and came out of their husks, whilst still in the salt water, after six or seven days' immersion.

To return to the subject of transportal, I may state that in "Johnston's Physical Atlas" the rates of 10 distinct currents in the Atlantic (excluding drift currents) are given, and the average of them is 33 nautical miles per diem; hence in 42 days, which length of immersion seven out of the eight kinds of seed as yet tested have already stood, a seed might be readily carried between 1300 and 1400 miles.

I will conclude this too lengthy communication by observing that all the 40—50 seeds which I have as yet tried sink in sea-water: this seems at first a fatal obstacle to the dissemination of plants by sea currents; but it may be doubted whether most seeds (with the exception of the winged kinds), when once shed, are so likely to get washed into the sea as are whole or nearly whole plants with their fruit by being carried down rivers during floods, by water-spouts, whirlwinds, slips of river-cliffs, &c., continued during the long lapse of geologically modern ages. It should be borne in mind how beautifully pods, capsules, &c., and even the fully expanded heads of the Compositæ close when wetted, as if for the very purpose of carrying the seed safe to land. When landed high up by the tides and waves, and perhaps driven a little inland by the first inshore gale, the pods, &c., will dry, and opening will shed their seed; and these will then be ready for all the many means of dispersal by which Nature sows her broad fields, and which have excited the admiration of every observer. But when the seed is sown in its new home then, as I believe, comes the ordeal; will the old occupants in the great struggle for life allow the new and solitary immigrant room and sustenance? *Charles Darwin, Down, Farnborough, Kent, May* 21.

COMMON THINGS.

Preparing Scarlet Geraniums for Bedding. — The season has been so peculiar that the usual routine system of treating bedding plants has been completely upset. Few things have yet been planted out, and therefore considerable care has been required to keep them so long in a thriving state. To give Scarlet Geraniums intended for beds artificial heat after they have been struck and potted off, as is often done, would not answer this year; that would very much frustrate the end every good cultivator ought to have in view, viz., plants sufficiently healthy and hardy to profit by the naturally increasing warmth of the weather at planting out time, instead of, as is too frequently the case, receiving a check from which it takes them a long time to recover. If the plants are kept cool and properly hardened off by exposure to sun and air during the spring months whenever the weather will permit they will show more flowers in proportion to the size of the plants in June than similar ones which had been subjected to heat would in July. The same remarks are applicable to all other kinds of plants kept over winter for bedding purposes. In short artificial heat is unnecessary, even although the plants had been kept in the cutting pots during winter and required shifting in the spring; this can be easily accomplished without forcing them to make premature growths, which never get hardened before planting time. Too much shade, after they are kept in temporary quarters out of doors where accommodation is limited, also aggravates the evil. The result in both cases is that the plants shed their foliage, and for a long time look shabby.

Scillas.—These should be as common as Snowdrops and Crocuses in every garden where early spring flowers are sought for. They have many recommendations. Growing but a few inches high, and bearing for the most part blue flowers, they form beautiful beds, or margins to beds, in situations where now such plants as Crocuses and Snowdrops are almost exclusively depended on for the earliest bloom. The Snowdrop, as is well known, furnishes white blossoms only, and the Crocus supplies various tints of orange, white, yellow, and purple; but in neither is the pure blue colour to be found. Those, therefore, who desire to render their gardens ornamental at the earliest dawn of spring, should procure and plant Scillas largely; there are several kinds adapted for that purpose. S. bifolia grows about 3 or 4 inches high, and when growing freely, throws up several flower spikes, each of which bears from four to eight blue flowers, during April and May. S. verna grows about the same size, and bears a roundish head of purplish blue flowers, in May and June. S. amœna is also about the same stature, and produces largish drooping light blue flowers, in April and May. S. sibirica, another of these dwarf species, has drooping blossoms, of a beautiful clear light blue, which are borne in April. Of S. bifolia there are at least two very distinct varieties, one having white and another blue blossoms. They are easily cultivated.

CHINESE FLOWER POTS.

We have certainly made wonderful progress in plant culture during these last 25 years, and this may have induced us to cling so stoutly as we have done to the old stereotyped form of flower-pot; another reason why we have confined ourselves so much to that kind of pot may be the great convenience it affords in shifting plants from small pots into larger ones, and also the facility it furnishes of examining at any time the state of the roots. Besides there may be another reason, the most potent of all, for using almost exclusively our common form of flower pots, and that is their inexpensiveness. For some purposes, however, they may with advantage be dispensed with; *cultivate* plants in them if you please, but keep them out of the drawing-room, where they are anything but models of taste, and take a lesson from the Chinese. In the accompanying sketch you have a perspective drawing of a common Chinese garden flower-pot, which was sent me by Mr. Fortune embedded in the soil of a Wardian case, having some seeds sown in it. When cleaned it appeared to me to be very superior to our common pots. It is very smooth on the surface, and the colour that of a cake of Indian red paint. The ornaments are white and very agreeably relieve the tone of the Indian red; in fact, in point of form and finish it is an exceedingly tasteful article and fit for any drawing-room window. I am aware that attempts have been made to improve our common garden pots, but the forms hitherto recommended, and the offensive colour of the clay of which they were manufactured, rendered them anything but drawing-room ornaments. If something more classical and artistic in design were invented worthy of a place in a lady's sitting room, we should soon see the ugly green baskets with their covering of yellow sickly moss now employed vanish. Besides such huddling of plants together and smothering them in sphagnum is altogether as unnatural as it is at variance with good taste. *R. Glendinning.*

Home Correspondence.

Annuals.—A few words respecting this useful class of flowers may probably not be out of place, as I am of opinion that they are not encouraged as their merits deserve, chiefly perhaps from the almost general impression that their blossoms are but short lived. It cannot be denied that such is often the case, but I wish it to be known that this is owing more to mismanagement than to the real deficiencies of the plants. Some of them may be noticed in the parterres of our nobles, in the small gardens of the citizen amateur, and in the borders surrounding the humble cottage; but owing to carelessness or injudicious management they are rendered of ephemeral duration, although many of them have good recommendations, such as colour, habit, and profusion of bloom. The Zinnias even dazzle the eyes when looking on them beneath a hot summer's sun; the glittering Portulaccas, the dwarf and lovely Mesembryanthemum bicolor, the nice Calandrinia splendens, the beautifully veined Salpiglossis, the rich dark and light blue of Eutoca viscida, and Nemophila insignis, the splendid Platystemon californicum, Phlox Drummondi, Campanulas, Stocks, Lobelias, Gilias, Asters, Indian Pinks, and a great quantity of others, arise in my memory and claim a notice, but particularly the truly handsome Sphenogyne speciosa. When well managed, a bed of this plant cannot be equalled for the richness of its peculiar colour—viz., orange yellow, with a dark eye, each flower being larger than a half-crown piece. Annuals are too often sown so thickly in the open border that the plants choke each other in growing, and are starved into a premature maturity. In this case the real resources of the plants are not developed, and premature decay is the natural result; the blossoms are no sooner partially produced than their career is run. The duration of some annuals, I must acknowledge, is brief, and to have a summer's display constant forethought must be exercised to keep up a succession, but still they are capable of a much greater degree of usefulness than they in general afford; many of them being of easy culture and soon out of bloom, we are careless in recognising the fact that they demand attention to induce them to fully develope their beauties. It often happens that annuals sown early under the protection of frames are kept too warm and thereby rendered weakly, and they are mostly too thick and in small pots; those placed in the borders or beds are either sown and left to grow without attention, or are transplanted from the frames in weak tangled masses, unable to struggle successfully with their change of circumstances, which renders their brief duration a great deal more limited. As a general rule, annuals should be treated as individual plants, at least this course should be adopted in the early stages of their growth; the greater length of time they flower, size of their blooms, strong and healthy habit are the best recommendations I can offer in favour of such a system. For some of the later annuals a good plan is to sow their seeds in some convenient situation, in a light shallow soil, well incorporated with fine leaf mould in order to induce an abundance of fibres. It is well to render the natural surface perfectly solid, and add artificially all the soil required. As soon as the plants are of sufficient size, they should be transplanted into a situation similarly prepared to that where the seeds were sown, and at sufficient distances from each other, to allow their removal with as little mutilation of the roots as possible. If a constant succession of plants is provided in this way they can be moved at any time in the summer months, and often without a leaf flagging. As a matter of course a cloudy day is desirable for the operation, but if they are grown as I have suggested, bright weather need be no obstacle to their removal. Leaf-mould is the best soil for growing them in until their final removal, as the fibres ramify so thickly in the decaying leaves, that in the process of shifting to their final destination little or no damage is sustained, and where a few beds or vacancies in the borders have to be filled up, a couple of young men with trowels and hand-barrow will soon accomplish the desired effect. Annuals that are required to remain as long a period as possible in bloom should never be allowed to perfect seeds; it should be remembered, as a physiological fact closely bearing upon practical gardening, that the great end of all organic life is to perpetuate its kind, and that by taking advantage of this principle and retarding such a consummation, a more protracted existence can be procured. By this practice plants naturally annuals are often rendered perennials. *John McArdell, late Gr. to H. Sharples, Esq.*

The Vinegar Plant (see p. 336.)—If your correspondent will try the undermentioned receipt he will find it answer. To three-quarters of a pound of coarse sugar add half a pound of treacle; put them into a stone or glass pot that will hold about two gallons, and is about 1 foot in diameter; its mouth should not be less than 8 inches in diameter with a rim, for the convenience of tying down. Having prepared the above, pour one gallon of boiling water on the sugar and treacle; stir well to dissolve them, and when cooled down to about blood-heat add your plant, keeping the part that was separated from the parent uppermost. Then get a piece

of strong brown paper, place it over the jar and tie it down in the manner in which preserves, &c., are done; do not perforate the paper, but rather make it air-tight. This done remove the pot to a place whose temperature varies from 50° to 70°. If all goes on well the liquor will become good vinegar in eight or ten weeks. Your correspondent may keep the young plants in a plate with a little vinegar for several days before it will begin to decompose. I do not recommend disturbing it often when in the liquor. *Edward Morse.*——I have used no other vinegar than that of my own making for these last two years. On half a pound of treacle and a quarter of a pound of sugar-foots I pour five pints of boiling water. I mix them well, and when lukewarm put in the plant. I use a soup tureen and find the cover to admit air sufficient (the quality might be better for standing three months, but the quantity would be less). After seven weeks I strain the vinegar, bottle it, and in about three days cork it up, and it is fit for use. The plant will be fit for use after laying out for a fortnight: how much longer time it might bear I cannot say. If the new plant (which is generally formed in the seven weeks) is very thin I use the old one as well. *S. B., the Lodge, Watford House, Watford, Herts.*

Hint to Naturalists.—At Ischia, Capri, and other lofty islands on the coast of Naples, quantities of birds are caught in April, often very rare species, and exposed for sale at Naples. At Ischia you find the traps by hundreds up at the top of the mountain, 2500 feet, at Capri 1900; many are knocked over by stones, either they are stupid or tired out. On coming to Marseilles in a steamer, the day wet and calm, the swallows settled on the bulwarks and boats of the steamer, and were so tired or tame that I caught in my hand three or four, and a sailor caught two in each hand. Some finches were more shy, but kept flying round and pitching on out-of-the-way parts of the vessel; one seemed like a small bright yellow-hammer or canary. This happened opposite Hyeres on the 30th April; we had nearly 100 souls on board, and not far from land, from about 7 o'clock, a.m., for several hours. *Somerset.*

Roots on the Stems of Vines.—I have been induced to offer the following facts relative to this subject from having been repeatedly asked the cause of roots appearing on the stems of Vines. The importance of bottom heat to the roots of Vines is now all but universally acknowledged. Were it generally applied, roots on stems would disappear. Of this I had what I consider satisfactory proof during the past season. Three Vineries under my care seemed to be equally affected with these unsightly appendages. During winter, when the pruning was performed, these roots were all removed, being then in a dead state. On the border of the earliest house a quantity of fermenting material was placed, which raised the temperature of the surface of the border to 100°, and even some inches below the surface it was at that temperature. Operations in the interior of the house were conducted very gradually—the Vines broke well, matured a good crop of fruit—the berries were particularly large, and generally well coloured. In this house no roots appeared on the stems of the Vines. The Vines in the other houses subject to precisely the same treatment, with the exception of having no fermenting material on the borders over their roots, had, as usual, their stems covered with a profusion of roots; hence I conclude that the cause of roots on the stems of Vines is due to the inactive state of the roots in the borders, owing to an insufficiency of heat there, while the stems in the interior of the house are being subject to a high moisture temperature. In short, these stem roots are the result of an effort on the part of the Vine to draw supplies from the moisture of the house for the support of the young branches and leaves, the natural roots being too cold a medium to furnish the demands made upon them. I may further state that, although the temperature of the border in the foregoing instance was raised to 100°, yet I do not consider this by any means necessary; 70° will be found ample; 100°, however, do not seem to have any injurious effects upon the roots of Vines, and I have been told of an instance in which the temperature was raised to 116°, and yet no injury followed. *Robert Grey, Hadzor Gardens, Droitwich.*

Libocedrus decurrens.—I inclose you two plants of this Libocedrus which have come in twins. We have observed several cases this year of the same sort, but only among the seedlings of this plant, and what has been named Pinus Beardsleyi. I have never before seen this happen, though I have looked for it. The seeds were brought to this country by William Murray, Esq., and they are now being grown in Messrs. Lawson's nursery here. *P. S. Robertson, Bangholm Nursery, Edinburgh.* [We are not acquainted with any similar case. The specimens were united for the greater part of the length of the first joint of the young stem below the cotyledons.]

Result of not Protecting Apricots.—I have given my Apricots no protection either this season or last. The Moor Parks were a famous crop last year, and they are equally good now, not having been damaged in the least by spring frosts. In the spring of 1853 I covered them with double mats, but had an indifferent crop. *J. Stevens, Malvern Hall, Solihull.*

The Spring in Dorset.—The late rains have revived a number of plants that were, to all appearance, dead last week, such as Azaras, Lagerstrœmia, Lonicera japonica, the New Zealand evergreen Clematis, &c. Ilex Cunninghami and dipyrena seem perfectly hardy, more so than the American Hollies; and Laurus glauca (against a wall) is perfectly untouched; these are great acquisitions. Your Berberis coriaria is covered with blossom, while tinctoria seems killed. Rhododendrons, Camellias, Azaleas, and all hardy bulbous plants, are flowering more luxuriantly than I ever saw them. Beschorneria yuccoides is again throwing up a handsome scarlet spike and bracts. *S.*

Forcing of Small Fruits.—Gardeners whose employers are fond of high-flavoured fruits will do well to cultivate the Hautbois Strawberry largely for forcing. I find it most excellent. The small fruits, as Raspberries, Currants, and Gooseberries, bear forcing well. I hope to show them at the Crystal Palace on June the 2d. I was glad to observe by your report of the exhibition at Gore House that high-coloured fruit met with some attention. This in my opinion is the best test of excellence. *G. M'Ewen, Arundel.*

"*They manage things better in France.*"—Any one passing by the Tuileries at this time will see the fresh mark of the knife where the dead or rotten branch has been carefully cut away. Any one passing by our parks will see the dead or broken branches of last autumn's gales hanging in the trees. To particularise, opposite the end of Albion Street, Bayswater Road, there are several trees of no greater age than 30 years suffering at this moment from this disgraceful neglect; even at Naples you may see them cutting out the dead wood at this very time, but then the gardeners were bred gardeners, and not, as in our Woods and Forests, butlers, valets, or gamekeepers. *Somerset.*

Gooseberry Caterpillar.—In confirmation of my former recommendation to gather the pin-hole leaves with a view to get rid of this pest, I may mention that I am just come in from looking over 100 bushes—the operation has taken half an hour; I have found very few. My crop is large and safe, and even this late season I hope to partake of a green Gooseberry pudding in May. Having followed this plan several years, I am inclined to think the fly is nearly extinct in my garden. *T. C. Brown, Cirencester, May* 23.

Plant Stealers.—I think that you would be rendering a public service if you would put your readers on their guard against the depredators, who at this season rob the gardens of plants which are prepared for bedding out, or have just been put into the ground. I am led to write to you in consequence of my Fernery having been stripped of every scarce or fine plant on the morning of the 18th. The thief must have had a thorough knowledge of Ferns, as he left all the common sorts which to an ignorant eye would have appeared the most desirable. Great mischief arises from the readiness with which persons buy of itinerant dealers, who steal in one part of the country and carry their booty to sell in another. If ladies and gentlemen would only buy rare plants from parties of known respectability, the robbers would soon be driven to seek a more honest way of gaining a livelihood. *H., Beckenham.*

Societies.

Botanical of Edinburgh, *April* 12.—The President in the chair. The following papers were read:—1, On Placentation, by J. Cleland, Esq.; 2, Notes on the Flora of the neighbourhood of Castle Taylor, in the County of Galway, by A. G. More, Trinity College, Cambridge; 3, Notes on the Flora of the Bass Rock, by Prof. Balfour; 4, Notice of Plants collected during a trip to Loch Lomond, in July, by Prof. Balfour; 5, Register of the Flowering of Spring Plants in the Royal Botanic Garden, as compared with the four previous years, by Mr. M'Nab,

	1855	1854	1853	1852	1851
Tussilago alba ...	Mar. 15	Feb. 14	Mar. 1	Feb. 27	Jan. 26
Symplocarpus fœtidus	" 20	Mar. 3	" 16	" 20	Feb. 4
Corylus Avellana	" 21	" 10	" 9	Jan. 25	Jan. 16
Narcissus pumilus	April 2	" 10	" 21	Mar. 11	Mar. 5
Scilla bifolia, alba	" 5	" 13	" 27	" 21	" 8
" " rubra	" 6	" 14	" 30	" 28	" 17
Rhododendron atrovirens	" 6	Feb. 18	Feb. 1	Jan. 14	Jan. 2
Daphne Mezereum	" 6	" 18	" 1	" 21	" 28
Primula denticulata	" 7	" 27	Mar. 25	Feb. 19	Feb. 15
Arabis albida ..	" 8	" 15	" 15	" 18	" 7
Aubrietia grandiflora	" 8	" 17	Feb. 1	Mar. 18	Mar. 1
Nordmannia cordifolia	" 9	Mar. 1	Mar. 24	" 10	Feb. 20
Dondia Epipactis ...	" 9	" 11	" 25	" 8	Jan. 4
Primula nivalis ...	" 10	" 4	" 15	Feb. 20	Mar. 16
Scilla bifolia, cærulea	" 10	" 15	" 27	Mar. 20	" 6
Pulmonaria angustifolia	" 10	" 19	" 30	" 1	...
Symphytum caucasicum	" 10	" 11	" 26	Feb. 2	" 23
Doronicum caucasicum	" 11	" 11	" 26	...	" 25
Draba aizoides ...	" 11	" 20	April 1	Mar. 26	" 14
Erythronium Dens canis	" 11	" 10	Mar. 19	" 12	" 1
Anemone Pulsatilla	" 11	" 14	April 18	Feb. 21	April 15
Tussilago Farfara...	" 11		" 4	...	Feb. 19

Note.—Between 10th March and 12th April, 1854, 65 spring flowering species were recorded, and during the same period this year only 22 of the species have come into bloom.

Mr. Evans stated that the first expanded flowers of the Apricot were observed in the Experimental Garden on 24th March, being about three weeks later than last year.

Entomological, *May* 7.—J. Curtis, Esq., F.L.S., President, in the chair. Various rare British insects presented to the Society's collection by Messrs. Bates and Plant, of Leicester, and books forwarded to the library by the Royal Society, the Entomological Societies of Paris and Stettin, the Natural History Society of Vienna, &c., were announced as having been received since the last meeting. Mr. Douglas read a notice by Dr. Boisduval on the nomenclature of the Indian silk moth, recently introduced into the south of Europe, and which had been considered as identical with Saturnia Cynthia, but which he considered as distinct, and accordingly named Sat. Ricioni, from the Castor-oil plant, upon which the caterpillar feeds. Mr. Douglas also called attention to a paper recently published by Herr Horning, giving an account of the early states of various species of micro-Lepidoptera, especially of the genus Phycita. Mr. Stainton called attention to the new work upon the Coleoptera of France, recently commenced by M. L. Fairmaire, and to the Bibliographical Report for 1851 and 1852 by Prof. Bohemann. Mr. Newman exhibited several rare Australian beetles, also a very remarkable variety of Cynthia Cardui captured at St. Lawrence, in the Isle of Wight, by Mr. G. Ingall; also Athous campyloides, a new species of Elateridæ, taken by Messrs. Forster and Dawson upon Elders in flower at Ramsgate. Specimens of the very rare moths Lophopteryx cucullina and L. carmelita, reared from the egg state, were exhibited by Messrs. Creed and S. Stevens. The latter gentleman also exhibited specimens of the Dicranocephalus, sent from China by Mr. Fortune, and which was considered in Paris as distinct from D. Wallichii. Mr. Stainton exhibited leaves sent from Calcutta by the Rev. Mr. Atkinson, infested by the minute mining larvæ of a Lithocolletes. The distribution of minute Lepidoptera, and other minute insects in tropical countries, led to a considerable discussion. Mr. Henry Doubleday communicated the description of a new and beautiful British species of Noctuidæ, from North Wales, which had been erroneously considered as Spælotis Valesiaca. A memoir by Mr. Lubbock was read, upon the entomostracous Crustacea of South America. The species described belonged to the genera Cypris, Diaptomus, and Daphnia. The president announced that M. Yersin, of Switzerland, was engaged on a monograph of the Gryllidæ and Locustidæ, and requested species from this country. The death of M. De Haan, of Leyden, one of the foreign honorary members of the Society, was also announced.

Reviews.

Principles of Agricultural Chemistry, with special reference to the late researches made in England. By Justus v. Liebig. 12mo, pp. 136. Walton and Maberly.

One object of this work, which may be regarded as the best of those which Professor Liebig has written on practical agriculture, is to show that the so-called "Mineral manures" manufactured by the advice of that eminent chemist, and which so signally failed to produce the effect expected, were right in principle and ought to have succeeded. Another object is to show that the conclusions arrived at by Mr. Lawes in his experiments upon agricultural chemistry, are not only not supported by evidence, but that the evidence produced goes to show the very contrary of what has been supposed.

"Of all the memoirs," says the author, "which have as yet appeared on this subject, that of Mr. J. B. Lawes, of Rothamsted, is the most remarkable, on account of the extent and duration of the experiments undertaken by him; and as the conclusion at which he has arrived, and the consequences which he has deduced from it, are in contradiction to the principles which I have laid down, I consider what he calls his practical criticism on scientific views as peculiarly adapted to serve as an example, by which agriculturists may be convinced how necessary it is to choose a correct method in the institution of experiments, if such experiments are designed either to convey instruction or to confirm or to refute views already promulgated.

"In fact, all the experiments of Mr. Lawes prove exactly the reverse of that which in his opinion they ought to demonstrate. Nay, I regard them as the most incontestable proofs in favour of that very doctrine, which they were originally intended to disprove; and the facts which he has established yield so many important lessons, in regard to the cultivation and manuring of the various soils, that I consider these facts of most especial value for the theory of agriculture."

We leave our learned and skilful friend at Rothamsted to reply at his leisure to these strictures, which have little or no horticultural application. If they had, we should, perhaps, feel inclined to say that although Professor Liebig may have been right, his advice was not suited to a highly cultivated country like England, however valuable it might have been in some impoverished districts, and could not well have been appreciated by those to whom it was addressed. We must, however, leave our agricultural friends to fight their own battle, and confine ourselves to a couple of extracts relating to general horticulture. The first is an explanation, in the concisest form possible, of the learned author's present views of the manner in which plants feed.

"The growth of a plant is preceded by a germ, which is contained in the seed. Land plants require a soil; and without *air* and *moisture* no plant can grow. The words soil, air, and moisture are not in themselves an expression of necessary conditions, for there are calcareous, clay, and sandy or siliceous soils, soils derived from granite, gneiss, clay slate or mica slate, and others, which are very different in their composition and quality. The word soil is a collective term for a large number of conditions; a fertile soil contains these in the due proportion required for the nourishment of plants; in a barren soil, some one or more of these conditions are wanting. In like manner, the words *manure* and *air* include a plurality of conditions. The chemist, with the means at his disposal, analyses all kinds of soils; he analyses also manures, the air, and

water; he decomposes the collective terms which express the sum of the necessary conditions into a number of single conditions, and in his explanations he substitutes these, in their proper place, for the collective terms. Now it is easy to see that in all this there is nothing hypothetical. If it be an established truth, that soil, air, water, and manure exert an influence on the growth of plants, it is no less certain that they can only do this by means of their constituent parts; and the duty of the chemist is to make known to the man who is occupied in the culture of plants these constituents, their properties, and their chemical action or behaviour.

"I now proceed to lay down the following propositions, which contain the views I hold and have taught on this subject.

"1. Plants in general receive their *carbon* and *nitrogen* from the air, the carbon in the form of *carbonic acid*, the nitrogen in that of *ammonia*. The *water* (and ammonia) yield to plants their *hydrogen*; the *sulphur* of those parts of plants which contain that element, such as the sanguigenous bodies, is derived from *sulphuric acid*.

"2. On the most diversified soils, in the most varied climates, whether cultivated in plains or on high mountains, *plants invariably contain a certain number of mineral substances, and, in fact, always the same substances; the nature and quality, or the varying proportions of which are ascertained by finding the composition of the ashes of the plants.* The mineral substances found in the ashes were originally ingredients of the soil; all fertile soils contain a certain amount of them; they are never wanting in any soil in which plants thrive.

"3. In the shape of the agricultural produce of a field, or in the crop, the entire amount of these ingredients of the soil which have become ingredients of the plants are removed from the soil. The soil is richer in these matters before seed-time than after harvest; or, in other words, *the composition of the soil after harvest is found to be changed.*

"4. After a series of years, and a corresponding number of harvests, the fertility of the soil or field diminishes. While all the other conditions have remained the same, the soil alone has not done so; it is no longer what it was at first. *The change which is found to have taken place in its composition is the probable cause of its diminished or lost fertility.*

"5. *By means of solid and liquid manure, or the excreta of men and of animals, the lost or diminished fertility of the soil is restored.*"

Forty-five other propositions follow, which may be regarded as a commentary upon the five here quoted, and must be studied in the work itself. To ourselves it is particularly satisfactory to see that Professor Liebig entertains the same opinion as we have always advocated, that on the whole there is nothing like farm-yard manure. Unfortunately it is impracticable to obtain anything like enough of it.

The second extract is the following:—

"Since the air contains a very limited amount of carbonic acid and ammonia, for 2500 volumes (cubic feet, miles, &c.) of air contain only one volume of carbonic acid, and a far smaller proportion of ammonia, the quantity of atmospheric food conveyed to the plants essentially depends on the change of the strata of air in contact with the plants. The air which has yielded up and lost its carbonic acid and ammonia must be replaced by fresh air, if a further absorption of these constituents is to take place. This change of air demands a certain time."

Here we have, expressed in the language of science, and supported by all the weight of chemical authority, a declaration that nothing can be more sound than the advice which we have never failed to offer to gardeners for many a long year in speaking of the ventilation of glass houses, and more recently while pointing out the unfitness of Ward's cases for cultivation, however well adapted they may be for preservation. Nine or 10 years ago it was asserted in these columns that plants require a continual change of the atmosphere which surrounds them, just as is the case with animals. "Give us air or we shall die!" was shown to be an exclamation which plants would not fail to utter had they the power of expressing feeling; all experience supports that opinion; gardeners are now impressed with its importance; and the great problem which has so long waited, and still waits, for a satisfactory solution, is how we are to effect that "change of the strata of air in contact with plants," which is absolutely indispensable to their healthy existence. To gardeners the sentence we have quoted would render Prof. Liebig's work acceptable even if it contained nothing further horticultural.

The Theory and Practice of Horticulture, by Professor Lindley. 8vo, pp. 606, with numerous woodcuts. Longmans. 24*s.*

This is a second edition of the "Theory of Horticulture," with the addition of a large quantity of practical matter, introduced to show how entirely scientific principles and good cultivation correspond. The volume contains about four times as much matter as the first edition, and for this increase the author is, as he states in his preface, largely indebted to the correspondents of this Journal;—it may indeed be regarded as an abridgment of all the more important horticultural evidence to be found in our volumes, put together in systematic order. Although very large additions are made to every chapter, while many passages in the first edition have been wholly struck out, it may be proper to say that the greatest changes are those which relate to vitality, climate, domestication, ventilation, propagation, pruning, resting, and soils and manures; such being the subjects in which practical men are most interested. The whole work has, indeed, assumed such a form as to make it evident that the great object of the author has been, not to produce a work suited to men of science, but one which every well-informed gardener may understand and apply. As the volume concludes with a very copious index of matter, there is no difficulty in ascertaining where any given subject is treated of.

We must not omit the words of the dedication, which are as follows:—"To the Right Honourable Thomas Francis Kennedy, lately one of her Majesty's Commissioners of Woods, Forests, and Land Revenues, who endeavoured to reform a public department in which unskilful management has been most disastrous, this edition of a work on the principles of cultivation is inscribed, as a mark of respect for high official character and ill-requited public services, by his faithful servant, the Author."

Garden Memoranda.

Messrs. E. G. Henderson's Nursery, Wellington Road, St. John's Wood.—The show-house here is at present gay with Pelargoniums, Calceolarias, Roses, Tropæolums, Verbenas, Rhododendrons, Azaleas, &c. Amongst the Verbenas was a scarlet one called Orb of Day, apparently an excellent sort for pot culture, as it grows little if any higher than common Mignonette, and it flowers most profusely. It is stated to be an American variety, four cuttings of which placed in a pot make a brilliant display. The Rhododendrons consisted of some good yellow, or rather buff, varieties, suffused with orange, and an almost pure white-flowered sort called Bianca. Among the Azaleas the most conspicuous was Iveryana, which is certainly one of the best of the striped kinds. The common yellow Flax (Linum flavum) was also flowering freely here; it makes a pretty plant for a greenhouse shelf at this season of the year.

A kind of winter garden has been made here by removing the partition between two houses, and thus throwing them into one, taking away the stages, and arranging the plants in groups on the floor, which is traversed by a 3-feet broad gravel walk that winds in a zig-zag manner from one end of the house to the other. At present Camellias form the bulk of the clumps which, when in bloom, must have had a brilliant appearance, and here and there where they can be seen to most advantage, some very fine standard and pyramidal Bays have been introduced, as well as Araucarias and other Conifers, among which we remarked a fine specimen of Libocedrus Doniana and L. chilensis grafted on the common Arbor-vitæ, on which it was more bushy and healthy looking than plants raised from seed. The flowering plants here consisted of the sweet-scented Rhododendron Gibsoni; Deutzia gracilis, in the form of standards with heads loaded with white flowers; Azaleas, among which the most striking was perhaps Beauty of Europe, a variety in the way of variegata but with more red in it; Bouvardia longiflora, a greenhouse shrub with snow-white heads of Jasmine-like flowers, which continue to be developed in succession the whole year round; and some plants of Dielytra placed on rock-work round a cistern in the centre of the house. The above arrangement has had many admirers, and at the same time it has afforded means of wintering under glass many tall plants which it would otherwise have been difficult to know how to conveniently accommodate.

A span-roofed house for New Holland plants has also lately been erected here. It is 120 feet long, about 8 feet high, and 11 feet wide, and has a sunk path down the middle. It is ventilated at top and through apertures (fitted with wooden shutters) in the brickwork at the sides, and a 3-inch hot-water pipe has been carried all round it. The beds on which the plants stand are surfaced with gravel, which can be moistened and kept cooler in summer than shelves. The roof is upheld by iron supports in the form of arches placed over the footpath. Among plants in it, all of which are yet young, were some examples of the beautiful Boronia Drummondi, covered with brilliant rosy flowers. The common Spiræa japonica was also finely in blossom. This, lifted out of the borders in spring and potted, forces well, and will be found extremely useful where a good display of flowers has to be kept up. We also observed here plants of a dwarf-growing Hibbertia called Reidi, gay with a profusion of yellow flowers, together with Pimeleas and other plants more commonly met with. In another house was a sweet-smelling Cytisus in the way of filipes; also Acacia Drummondi, one of the handsomest of all the Acacias for pot culture; and a fine specimen of Hederoma tulipiferum, which has been shown so finely this year.

In one of the stoves we noticed the Rice paper plant, numerous seedlings of Lapageria rosea, and among other plants remarkable for fine foliage, two Begonias, one called picta, a handsome sort; the other an unnamed kind (imported from Java by Messrs. Rollisson), covered all over so thickly with long red hairs as to give the leaves and stems a rich crimson appearance.

As regards Geraniums, after trying all the variegated varieties for bedding, Messrs. Henderson have arrived at the conclusion that Silver Queen is the best; it grows and flowers freely, and its leaves do not crumple up so much as those of the others; its flowers are rosy pink. Cloth of Silver is one of the best light fancy varieties of the season, and Evening Star one of the best dark sorts; the latter is an improvement on Caliban. Among scarlets with horse-shoe leaves, Baron Hugel *aliàs* Princess Royal is dwarf and useful for bedding purposes, as are also Pretty Polly, a scented cut-leaved variety, of the old Fair Helen class, but larger and much brighter in colour; and Nutans, a crimson flowered kind, which is very neat and dwarf.

Among rare Conifers were Wellingtonia gigantea, Libocedrus decurrens *aliàs* Thuja gigantea, Torreya myristica, and Cephalotaxus Fortuni, which has withstood the winter out of doors in places near London.

Of Bootan and Sikkim Rhododendrons there are great quantities here; but as yet none of them have flowered except R. Dalhousieanum and Edgeworthi; the former has had six blooms in a truss which, when they first open, are pale green, but afterwards they change to white.

Out of doors early Tulips were in full bloom, and among hardy plants in pots Primula involucrata was a mass of white flowers.

FLORICULTURE.

Ranunculuses.—In a dry season like the present, the following advice by Messrs. Tyso regarding the watering of Ranunculuses will doubtless be acceptable:—Genial showers in April and May are essential to a vigorous and healthy growth. The Ranunculus delights in a moist soil, and if there be a deficiency of rain in May, water must be plentifully supplied, just at the time the flower buds are appearing. This is a critical period, and for lack of moisture many plants fail to bloom, and send up only an abortive flower stem. Water from a pond or brook is better than from a well; if such cannot be obtained fill a large vessel with water from a pump, and expose it to the sun and air before use. It should be applied (morning or evening, according to the state of the temperature) between the rows, from a spouted pot, and not over the foliage, except in cloudy and showery weather. It may appear an anomalous direction to water in wet weather, but advantage should be taken of a shower falling to give a generous watering, as the plants are then naturally in a better state to receive moisture than in dry weather, when their pores are contracted. As a general observation, it is better to water copiously three times a week, than to administer a small quantity every morning and evening. To obtain fine blooms for exhibition a little weak manure water may be occasionally given. We have tried numerous natural and artificial guanos, &c., in some instances without perceptible benefit, and in others with positive injury. The most simple and useful agent we know of is superphosphate of lime, reduced to fine powder, and mixed with the water. We are aware that many connoisseurs have been at first delighted with the luxuriant foliage of their plants, traceable to potent doses of liquid manures of varied name, but the apparent benefit has in almost all instances been realised at the future risk of the health of the tubers. We are not adverse to novelties, because they are such, but to the experimentalist we would speak the language of caution. Try your hand on a small scale only; never apply a new nostrum on a larger portion of stock than you can afford to lose.

Running of the Carnation.—The experience and observation of some years incline me to reject the idea that compost can in any material degree either induce or prevent the propensity to sport observable in the Carnation, which we term running. I have, by way of experiment, grown them in soils of various degrees of richness, from pure sandy loam to unalloyed decomposed animal manures, with about equal results in that respect. Take a given number of plants propagated from the same original, pot them in the same pot, and some will probably be run. I cannot, therefore, understand why, if the compost were in fault, the effect should be partial. I have also observed, that in some summers the complaint of an unusual number of run flowers will be pretty general in a particular district; and it is scarcely possible to suppose that the composts used by several growers could all be precisely the same. It appears to me that we must look elsewhere for a solution of the mystery. I view it simply as a natural tendency to sport (observable in other flowers besides the one in question), and though that inclination most frequently is to return to the natural self colour of the original type, yet instances are not wanting of its taking an opposite direction. Thus Ely's Lady Ely (R.F.) is a sport from Ely's Duke of Bedford (C.B.), as Fletcher's Duchess of Devonshire (R.F.) is also from Gregory's King Alfred; while Puxley's Prince Albert, classed as a P.B., is often a very high coloured C.B., and has positively sported to an S.B. Moreover, it does not follow that because the one or two leading blooms which the plant is alone suffered by florists to bear happen to run, that the lower ones, if they had been permitted to remain, would have been in that condition. I have seen a leading bloom of Beauty of Woodhouse (P.F.), a purple self, or clove, and the second flower on the same stem a pure white; I turned out, a season or two ago, into the border what I supposed from the bloom in the pot to be a run Ward's Sarah Payne, but late in autumn it produced a bloom low down on the stem perfectly clean. Flaked flowers are not to be condemned as run if you can perceive the smallest stripe of pure white in them. I have observed that the progeny of such is usually finely marked the ensuing season. Do not, however, mistake white spots caused by thrips for the natural white of the flower. Many sorts supposed to be run will return; this has happened with Martin's

President (P.F.), Sharp's Defiance (S.B.), and many others. The chances of clean flowers are not equal, whether you propagate from run or clean flowers, by which I mean to intimate that as many plants will probably return to fineness from the one as from the other. As for compost, I should pronounce half dung, which some use, to be excessive, keeping in view the ultimate soundness of the stock. By no means should the loam employed be deprived of any of its fibrous rooty matter; that I consider the most valuable part of it. *N.*

Mr. Groom's Tulips.—These are now in perfection, and we can promise our readers that a sight of them will amply repay a visit. The bed, 150 feet long, and containing not less than 2000 flowers, is as fine, notwithstanding the severe winter and spring we have had, as ever we remember to have seen it. Next week we hope to be able to offer a few remarks on some of the varieties in this, as well as in some other beds in the neighbourhood of London.

SEEDLINGS.

Pelargoniums: *J. Dennis.* Your new variety called Alma is bright rosy pink, with a dark spot on the upper petals; it is apparently a profuse bloomer, has good foliage, and will doubtless be found useful for all ordinary purposes of decoration.

Miscellaneous.

The cultivated Beets are referred by Italian botanists to two species, of which one only, Beta cicla, is admitted to be of native origin, whilst the true Beta vulgaris is stated to be indigenous to Central Asia, Egypt, and the shores of the Mediterranean, to the exclusion of Italy. Moquin-Tandon has, however, more correctly reunited the whole under the Linnean name of Beta vulgaris, of which he reduces the numerous forms to three principal races: First, the Wild Beet, with a slender, hard root, sparingly introduced into kitchen gardens for the foliage, occasionally cooked with sorrel to diminish the acidity of the latter. Second, the White Beet, poirée, or poirée-carde of the French, with a thicker, but still hard root, with enlarged leaves and a great tendency to succulence in the petioles, which are blanched like Cardoons for culinary purposes. This vegetable is frequently mentioned by ancient Greek and Roman writers. Third, the Beet root, Barbabietola of Italian gardens, Betterave of the French, so well known for its sweet and succulent root, was first introduced into Italy in the sixteenth century, from Germany, where it was probably first produced. A sub-variety of the Beet-root, with a somewhat coarser and larger root, now become so important an article in agriculture, was originally put forward under the name of root of scarcity, racine de disette in French, or Mangel Wurzel in German, which latter translation is now adopted by our farmers, absurdly corrupted into Mangold Wurzel. *Journal of Horticultural Society.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—As soon as the cold frames and pits can be got cleared of the bedding stuff they should be occupied as far as circumstances will admit with young stock of hard-wooded plants for the summer growth, of which they are much more suitable than large houses, however well arranged. These humble structures will also be found very suitable for the growth of the dwarf Lobelias, Balsams, Salvia splendens, S. gesneræflora, and many other things which are generally grown for flowering in the conservatory in summer and autumn; and indeed most things which require only a moderate temperature will be more manageable here and thrive better than they will in lofty houses with double the attention. But the great advantage of having plenty of spare pits and frames at command for the summer growth of plants is that it allows of a greater division of the plants, and arranging them so that the treatment may be adapted to the circumstances and requirements of the plant with greater nicety than it is possible to do when plants from many very different habitats have to be managed in the same house. And besides the difference of treatment, which it is necessary to observe in the case of different plants which are similar in every respect, merely through the one being making vigorous growth, while another may be ripening its wood, &c., there is more advantage in being able to classify things during the growing season than is generally supposed, save by our best growers. Roses are, perhaps, the most generally admired of all winter flowering plants, and where there is not a stock of established plants for this purpose, if a lot of young plants can be procured and placed in a frame they will make nice stuff by autumn if properly attended to, especially if the frame can be placed on a bed of leaves or tan to afford a gentle bottom-heat, which will greatly assist in inducing a vigorous root action. Now that the weather has become somewhat milder, air should be given more liberally, and when there is no danger of frost, a little back air may be left on for the night. Attend to former directions as to keeping insects under, and supplying beds and borders liberally with water. Greenhouse.—If any of the young stock has not yet been examined for the purpose of ascertaining whether it requires more pot room, this should be done the first possible opportunity, repotting such as require it, and a liberal shift may be given with propriety at this season to things in a vigorous state. Great care should be used, however, to have the balls in a nice healthy state as to moisture, and also the soil to be used; and the plants should be exposed as little as possible to sunshine, or drying currents of air, for a fortnight or so after potting. Careful and judicious watering is at all times essential to successful plant growing; but at no period of a plant's existence is this so important as while the roots are surrounded with fresh soil, and many a promising plant has been ruined by one or two inadvertent applications of water while in this state. If both the ball and soil are in a properly moist state when potting is performed, water need not be given for two or three days; and when it is deemed necessary to water, enough should be given to thoroughly soak the whole of the soil. Large specimens of Heaths and other hard-wooded things must also be very carefully supplied with water, and every precaution should be used to make sure that the ball is in an equal state as to moisture throughout; for it sometimes happens that the surface of the ball will appear quite wet, while below (where the greater part of the roots is) is too dry. This is the result of practising the dribbling system of watering, and is not likely to occur where watering is done properly. The readiest and safest way of moistening the lower part of the ball, when this is found to be dry while the upper part is wet, is to place the pot in a saucer or tub of water for a few hours, letting the water stand about an inch above the drainage.

FLOWER GARDEN AND SHRUBBERIES.

In ordinary seasons the planting out of bedding stock has been finished in most parts of the country by this time, but notwithstanding the advanced period of the season the weather is yet anything but settled or promising, and save in favourable localities there is still considerable apparent risk in planting out such things as have not been well hardened off, or those that are very easily injured by frost, as Heliotropes, &c. And we would recommend that these should be kept where they can be securely covered in case of need until there is a fair prospect of fine weather, repotting them if necessary to prevent their getting into a hard state. Bedding stock has been considerably more troublesome and expensive this season than usual, and it would be folly to risk such things as cannot be replaced should they be destroyed, for we shall doubtless have summer weather soon, and the owners of gardens expecting to see them in full beauty; and if gardeners can exercise sufficient patience to defer planting out until the right time, there is good reason for hoping that things will start away freely, and under the influence of fine weather soon cover the beds with flower. Those who can command covering may doubtless plant out anything at once with safety, provided the plants are in proper condition for planting out; but weakly stock should not be risked out under any conditions until the weather becomes warm, and appears settled. A sprinkling of evergreen branches stuck into the beds will afford the plants considerable protection from cold winds and bright sunshine. These should be cut rather short, and stuck firmly into the ground, so as to prevent their being blown about and injuring the plants. And every shoot of Verbenas, &c., which is long enough to be liable to be blown about should be pegged down before leaving them. Keep the work of this department as forward as possible, so as to be able to command sufficient strength for planting out the bedding stock expeditiously, and avoid having the litter and confusion consequent on this work about longer than can be avoided. In the present dry state of the ground a good watering should be given after planting, to thoroughly moisten the bed, but this should not be done at night when there is the least chance of frost.

HARDY FRUIT AND KITCHEN GARDEN.

Continue to watch for and destroy insects on fruit trees directly they make their appearance, and examine weakly Peach trees for mildew, and apply sulphur immediately this pest is perceived. Also attend to disbudding in a gradual manner, so as not to check the trees by removing too many shoots at once, and regulating the growth of trees intended to be trained in any particular form by timely stopping, so as to secure growth where it is wanted. Asparagus can hardly have too much manure-water at this season, and in the present state of the ground, and a liberal supply should be given once or twice a week from the farm or stable-yard tank. Save on heavy clayey soils a liberal dressing of salt may be used instead of manure-water, and will be equally beneficial; but salt should not be used on very heavy soils, for although it may improve the present crop, it is very apt to cause the roots to decay in winter through keeping the soil too wet. Attend to plantations lately made, giving sufficient water to keep the soil moist. Get in a good breadth of Knight's Dwarf Green Marrow Pea, or some other hardy variety that will be likely to resist the attacks of mildew, and produce a late crop. At this season the soil can hardly be too deep and rich for Peas; and it is a very good plan to plant in trenches prepared as for Celery, only the manure should be incorporated with the soil and the trenches filled up nearly to the level of the ground. Get Tomatoes planted out against parts of the walls not otherwise occupied as soon as the weather may be considered safe; also ridge Cucumbers, vegetable Marrows, &c., in the places prepared for them, protecting with hand-glasses until the plants get into full growth. Sow Cauliflowers for late autumn use, and give every attention in the way of watering, &c., to those recently planted out.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending May 21, 1855, as observed at the Horticultural Garden.

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind	Rain.
Friday 18	2	30.109	30.078	64	39	51.5	50	50	S.W.	
Satur. 19	3	30.025	29.860	69	48	58.5	52	51	S.	
Sunday 20	4	29.853	29.800	68	35	51.5	53	51	N.W.	
Mon. 21	5	29.862	29.830	55	46	50.5	53	51	W.	
Tues. 22	6	29.810	29.779	64	31	47.5	52	51	N.	
Wed. 23	7	29.819	29.780	60	40	50.0	53	52	S.W.	
Thurs. 24	8	29.761	29.760	71	44	56.0	54	53	S.	
Average.		29.899	29.841	64.4	40.0	52.2	52.4	51.5		

May 18—Fine; very fine throughout.
— 19—Fine; very fine; clear at night.
— 20—Foggy; very fine; overcast.
— 21—Overcast throughout.
— 22—Uniformly overcast; cloudy; rain; slight frost.
— 23—Clear and fine; light clouds; very fine.
— 24—Fine; very fine; cloudy and fine at night.
Mean temperature of the week 3 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending June 2, 1855.

May and June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
Sunday 27	67.7	45.2	56.5	15	0.44 in.	2	9	8	1	1			
Mon. 28	67.2	45.1	56.2	12	0.97	—	8	7	1	5	2	2	—
Tues. 29	66.1	45.0	55.5	12	0.97	2	10	1	—	—	3	4	—
Wed. 30	68.0	45.2	56.6	10	0.34	2	5	6	—	3	2	2	—
Thu. 31	69.5	45.3	57.4	9	0.38	1	6	5	—	3	3	3	—
Frid. 1	70.3	46.7	58.5	11	0.27	1	9	2	—	5	3	—	—
Satur. 2	69.2	46.6	57.9	13	0.33	1	5	2	2	3	6	—	—

The highest temperature during the above period occurred on the 28th, 1847—therm. 91 deg.; and the lowest on the 27th, 1836—therm. 33 deg.

Notices to Correspondents.

Azaleas: *A Van Geert.* Your Indian Azalea is distinct, of good form and substance, and better than many of the recent novelties. *G.—J C.* All pretty, but not different from kinds we already possess.‡

Allamanda neriifolia: *H O.* It was introduced into this country from South America.

Books: *R S.* Roberts on the Vine is a very good book, with the exception of what relates to carrion, which should never be used for Vines.‡

Broccoli: *Melville.* It was too far gone before it reached us, for us to offer any opinion on it.‡

Cockroaches: *W M C.* A basin with water in it let into the floor in their runs makes the best trap we know of. By perseverance in the use of it they may be got rid of.

Diseases: *Amicus.* It is an aggravated case of rust, remarkable for the development of the tissue between the little discs into which the cuticle is broken up. Rust equally arises in the first instance from some substance rubbing against the fruit, when the cuticle is very delicate. With this hint you will possibly be able to discover the cause, and prevent the recurrence of the affection. You cannot do anything this year, now the Grapes are formed.—*A B.* This is an ordinary case of the disease which is so prevalent amongst Melons and Cucumbers. It seems almost universal, and the cause is wholly unknown. We are trying what can be done with old seed, but we are not very sanguine as to the result.—*J W.* Your leaves appear to have been injured by frost; they were, however, so crushed that we can say little about them. The plants which accompanied them are Luzula campestris and Carex præcox. *M. J. B.*

Greenhouse Climbers: *N.* Clematis azurea grandiflora, Dolichos lignosus, Hardenbergia macrophylla and monophylla, Kennedya Marryattæ, Mandevilla suaveolens, and Tropæolum Triomphe de Gand may possibly answer your purpose.‡

Hollies: *X Y Z.* The most complete account of these is, we believe, in the *Allgemeine Gartenzeitung* of 1854.

Lizard's Eggs. If any of your readers could obtain for me some eggs of the Lacerta agilis, I should be greatly obliged. Lizards are most widely distributed, and I want to ascertain whether the eggs will float in sea-water, and, if so, whether they will retain their vitality. A reward of a few shillings (which I would gladly repay as well as postage) offered to schoolboys, would perhaps get these eggs in the proper districts collected. *Ch. Darwin, Downe, Farnborough, Kent.*

Insects: *E K S.* Your Peas are attacked by the common weevil, Curculio (Sitona) lineatus (see *Gardeners' Chronicle*, 1844, p. 38[illegible] for figure and description), which the long dry spring has brought forth in vast numbers everywhere. Watering the plants with lime-water and strewing soot thickly along the rows are advantageous; sticks or twine fastened close over the rows, daubed with bird-lime, would also catch multitudes.—*J G.* Thanks for the note about the Anobium pertinax attacking the Spanish Chesnut timber; all kinds of wooden structures seem, however, to come alike to these devastators. *W.*—[illegible] There is no poisonous preparation that we know of which, mixed with water and applied with the syringe, would be effectual in killing "the grub" on your Plum trees. White Hellebore powder, if good, appears to be fatal to the Gooseberry Caterpillar.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is only requested that, in future, not more than four plants may be sent us at one time.—*B M.* Epidendrum aromaticum, a Mexican, not Brazilian plant.—*G Chambers.* We believe there is no doubt that your plants are seedling Rushes with the remains of the seed sticking to the end of the lengthened cotyledon.—*Constant Reader.* If the plant came from Brazil somebody must have taken it there from New Holland. It is Callistemon rigidum.—*H Beddard.* Allosorus flexuosus.—*E J W.* Lastrea sylvatica.—*A Sub.* Polygala cordifolia.—*P F.* Asplenium Filix-fœmina. *S.*—*O H P.* 1, Asplenium ebeneum; 2, Lastrea decomposita; 3, Doodia caudata; 4, Nephrolepis pectinata. *S.*—[illegible] *Beginner.* The name is quite right.

Plant Showing: *A K.* Although the Allamandas you name may be considered "distinct species," yet four of them would be too many to show in a group of ten plants; if they did so, it would absolutely disqualify your collection from gaining a prize, as many plants of one colour would at least greatly damage its value.‡

Trees and Horseradish: *Staines.* There is nothing in Horseradish that we know of poisonous to trees. The dying of the latter in your case may be owing to the Horseradish above their roots having exhausted the soil.‡

Vine Leaves: *R B W.* Little injury need be apprehended from the excrescences on the under sides of your Vine leaves, though it is not good to feed Vines till they break out to the extent that yours have done. They are over fed, and have broken out in eruptions. Over luxuriance, too damp an atmosphere and imperfect ventilation cause the mischief.‡

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

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Advertisements for insertion in the "Transactions of the Society," which will be published in June, must be sent to the Printer, Mr. Coultas, York. JOHN HANNAN, Sec.
Kirk Deighton, Wetherby, May 26.

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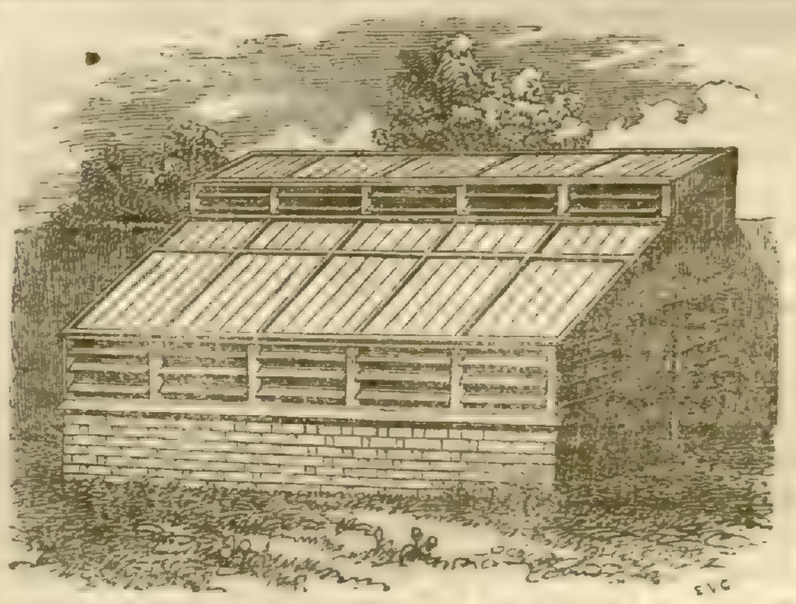

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The above may also be procured at the principal Agricultural Implement Depôts in London, and of all respectable Ironmongers and Seedsmen in the country.

CLAYTON, SHUTTLEWORTH, AND CO.'S PRIZE PORTABLE STEAM ENGINES, AND COMBINED THRESHING, STRAW SHAKING, RIDDLING AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as threshed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.
C. S. & Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading Agricultural Shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

The Agricultural Gazette.

SATURDAY, MAY 26, 1855.

THERE is probably never any case of agricultural improvement so well defined that the contrast between the past and present conditions of the land shall exhibit the influence of but one particular source of infertility apart from others. Many causes conspire no doubt to every result we see in Nature; but in most instances some one cause preponderates; and our cases may be classified according to the preponderating influences which they respectively illustrate, so as to bring out the effects respectively of climate and of soil, of drainage and manuring, and of the other means of fertility that may be enumerated.

Our first case—one of a successful compromise with climate, for that is all the farmer can accomplish—has been already referred to in our columns. Of course the individual cultivator cannot alter climate, but he can render the soil less liable to its severity and more open to what is good in it, and he can with his altered soil select crops for cultivation which shall turn the possibilities of his case to a better account than is attained by the natural vegetation of the district; and this is what has been done by Mr. FOWLER, of Princehall, in Dartmoor. This property contains about 400 acres on the granite, between Two Bridges and Ashburton, in the very centre of the moor. It was purchased by Mr. FOWLER about seven years ago in as nearly as possible its natural condition. Over most of the land there was a thin layer of peat, in some places, however, deep enough to be cut for fuel; underneath this was the decomposing granite, and above it, scattered in some places so thickly as to occupy most of the ground, were an immense number of blocks of this rock either partly imbedded or lying loose upon the surface. A very wet climate, both as regards quantity of rain and number of rainy days per annum, seemed to forbid the attempt to grow anything but the Grasses, Sedges, and Rushes which with Heather and with rocks made up the acreage of the estate. Since 1847 these rocks have been removed, piled up in enormous walls around the enclosures into which the land has been divided, forming masses 6 feet high and 6 feet wide, at a cost in some cases of 30s. to 40s. per chain in length. All the holes have been filled

up, and the land has been levelled and trenched and trench-ploughed to the depth of 12 inches, in some cases more, mingling the peaty soil with the gravelly granitic rubble of the subsoil. The land has been drained, and instead of the dead black appearance of the peat, it has now a dark brownish grey colour. Where it is under cultivation all the natural plants have disappeared, and excepting three fields, which last year were in Turnip and Rape, all the land is now laid down to Grass. In fact, the contrast between 1846 and 1854 is perfect: six years ago the whole surface was covered with stony blocks and peat holes filled with water, and the only plants were Heaths and Carices and Bents. All this has now disappeared, and in its place there is rich and luxuriant pasture in every inclosure, and the fields are covered with sheep and oxen grazing in them. As to the details of management by which this result has been obtained, we may mention that whether in trenching or trench-ploughing, care was taken to mix the decomposing granitic gravel with the peat; that the land was well cultivated and manured with guano; that in most cases, two crops of roots were taken, followed by Oats with Grass seeds; and in this Grass it will be allowed to remain as long as it produces good keep for the stock now kept on it. In September last the Clover and Italian Rye-grass sown the previous spring were being cut a third time—a very thick close crop; the red Clover in blossom, and 18 inches high, and the Italian Rye-grass 30 inches high. That one crop had kept five cows per acre for 20 weeks. The one-year, two-year, and three-year old pastures presented a thick close covering of fine Grass, and the white Clover over the whole was abundant. The following letter, just received from Mr. Fowler, describes the present condition of the land:—

"*Reclamation of Waste Land* must at the present moment be regarded as a subject of very great importance, and, I may add, one most lamentably neglected by our senators. In 1846 I purchased and in the following year took possession of about 376 acres here; the tenant was then paying about 3*s.* 6*d.* per acre rent. In April, 1847, I commenced operations, viz., draining, subsoiling, &c.; my improved land has gone through a rotation of crops, and it is now in pasture. Last Monday I had an auction here for letting part of it for grazing only until the 8th of November next. About 100 farmers attended, and the first two lots, containing 20 acres in the two fields, brought 54*l.* 10*s.*; in 1846 they were worth 3*l.* 10*s.* One of the fields was a complete quagmire when I first had it; the other mostly dry, but, lacking deep cultivation, produced very little. The other improved fields which were let had, or I may say, have little Grass in them, ewes and lambs having been over them, but the rents they brought were satisfactory. It is most shameful that Parliament should not throw without delay the waste lands into public competition on encouraging terms. The 'dog in the manger' principle should cease."

The cause of this luxuriant pasture is to be found in the perfect drainage of the land, and the intimate mixture of the peaty surface with the subsoil. We may mention that at Princetown, close by Princehall, cultivation is being carried on (similarly in spite of climate), with every promise of success, by the convicts in the prison grounds.

In the Princehall estate, then, we have an illustration of infertility under which, as it was apparently the result of climate, the owner might have been imagined helpless, yielding nevertheless to means skilfully applied at that link in the chain connecting climate with the produce of the soil, where the direction and effect of its influence may be most effectually modified; and an altered soil is made to yield an altered produce, notwithstanding that heat and light, and rain and cloud—the same duration and intensity of each—play upon it as before.

Of course many instances similar to Princehall can be adduced in Scotland and the north of England, which indeed are themselves almost throughout an illustration of the way in which climatic difficulties have been overcome. The influence of shelter as well as drainage in modifying the effects of climates are shown both on Dartmoor and on many Scottish estates. The high enclosures on Mr. Fowler's land have this effect both on the vegetable produce and on the live stock which consume it, and planting has been carried on to a great extent in many districts of Scotland with the best influence of this kind. We remember 20 years ago instances in proof of this being pointed out to us upon the Abbotsford estate: and in almost every volume of the Highland Society's Transactions illustrations of it will be found. Thus, in the last issue, January 1855, we see Mr. Stuart Mac Kenzie, of Seaforth, referring to the recently formed plantations of Fairburn in the county of Ross, specifies the shelter of the arable land in their neighbourhood as among the advantages obtained, forming as they will upon the west a long line of shelter to several farms which collectively extend beyond 1000 acres.

If the Continent contribute a steam cultivator at Carlisle, it will most probably be the one invented in 1853, by "Joseph Bauer, captain to his Majesty the Emperor of Austria's 57th Regiment of Foot, and a native of Vienna." Let us try to give a general description of this contrivance. Suppose a rectangular carriage-frame mounted upon four wheels, carrying a steam-boiler, with fly-wheels and cog-wheels on both sides, and a complicated mass of machinery underneath it. The digging apparatus is fixed not behind but beneath the middle part of the machine; the hinder carriage-wheels being set wide enough apart to travel on each side the strip of tilled ground. These are the steerage wheels; their axle being moveable like the front axle-tree of a waggon; the machine is propelled by the fore-wheels, which sustain the principal weight, and are closer together than the others, so as to run always upon hard ground immediately in advance of the diggers. We will not attempt a clear description of the mechanism by which the digging blades are actuated and the whole machine propelled, for without diagrams our words would appear only so much confusion about cams, wipers, eccentrics, oval toothed-wheels, cranks, hooks, chains, and levers. We have to do simply with the resulting action produced; it is an engineer's province to speak to the merit of the mechanical means employed in obtaining it. Under the boiler is a horizontal lever frame about 6 feet in length, having its fulcrum at the hinder end of the machine, and capable of rising and falling about 1½ feet at its other end, which is near to the front wheels. A number of spades side by side (or a single broad blade), are suspended from the free end of this frame; and can also be swung backward and forward into a slanting position as a spade is in manual digging. The motions are these—at the commencement of a stroke, the sharp, lower edges of the spades are about 3 inches above the ground; the machinery urged by the engine depresses the lever-frame, thus forcing down the spades almost vertically into the soil; the spade handles being then pulled down forwards, the spade-blades rise in a slanting position, breaking off a slice of earth the whole breadth of the work, and throwing it back some 2 or 3 feet. The frame then rising, lifts up the spades, while the machine advances for another stroke. A vibrating harrow is attached behind, so as to reduce the upper portion of the dug soil.

The inventor states that several trials made by him on diverse qualities of land gave 75 pounds as the weight required to drive a spade 1 foot broad, 1 foot deep into soil in one second of time. The cohesion of the ground, or the resistance against the slice or spit breaking loose, did not exceed (even in tough ground) 2½ ounces for every square inch included in the length and width of the slice. From these data, and taking the weight of earth to be lifted at 95 to 105 pounds per cubit foot, he estimates that a machine built for 8 feet breadth of work, 1 foot depth and 5 inches thickness of slice or spit will require 6 horse-power (effective) when making 30 strokes per minute. The machine thus advancing $5 \times 30 = 150$ inches per minute, will perform at the rate of 100 square feet per minute; or 1 acre in about seven hours and a quarter. As regards the quality of the work, the inventor says that the strips or slices are completely inverted; the lower edge of the piece falling from the spades being first to light on the ground already dug, is held up, while the upper (or stubble or sod) end drops into the trench formed by the spades. He also says, that when working very slow, the pieces remain nearly unbroken; but when the machine makes 20 or more strokes per minute, they are cast for a distance of 2 or 3 feet, and are entirely crumbled by the heavy fall.

Now, from experiments we have ourselves made, we do not believe that this complete turning of the slices can be generally effected in this manner; the pieces once free of the cutters, and left to the chances of mere *falling*, will not so regularly accommodate themselves to our wish; so that we have long ago concluded that, to be thoroughly accurate in burying every portion of the surface, *each piece that is cut must be laid by force in its required posture.* We may assure Captain Bauer that if the best he can do is to *throw* backward the strips or spits of soil cut by his blades, he must offer to accomplish a great extent of work in order to compensate us for so imperfect a performance: we cannot afford the various expences of a six or eight-horse engine upon only 1½ acre per day, unless the digging be well done—the surface weeds and rubbish buried, and the subsoil exposed more completely than this machine is calculated to do it, and at least more efficiently than by our present deep ploughing. Thinking thus lightly of the capabilities of this invention we need not add anything as to its unwieldy and intricate character, which will forbid its practical employment in the field. *I. A. C.*

ON A PROCESS FOR THE DETECTION OF CERTAIN ADULTERATIONS OF OIL-CAKE, FLOUR, AND BREAD.

By Thornton J. Herapath, of Bristol.

From statements that have been made in the Gazette and other periodicals, it would appear that the Rape and Linseed cake which are now so much used for feeding cattle are often purposely adulterated by unprincipled manufacturers with Mustard-cake; and even the less costly varieties of oilcake which are employed in this country as manures are said to be sometimes sophisticated with cheaper materials.

Having been called upon lately to examine several specimens of Rape-cake which were supposed to be adulterated with Mustard, I long experienced considerable difficulty in detecting the presence of the latter, as I found that the results afforded by the ordinary method of analysis were not in every instance perfectly satisfactory. The usual mode of examination, as is well known, consists in reducing the cake to a fine powder, and mixing it with cold water, when the presence of Mustard is supposed to be evinced by the pungent taste of the resulting solution, as well as by the lighter colour of the Mustard husk as compared with that of the Rape.* The process of analysis, however, that I was at last induced to adopt is undoubtedly much more conclusive, and will henceforth, I am satisfied, be invariably employed by agricultural chemists in investigations of this nature. It consists in treating the cake, previously broken up into small pieces, with repeated portions of boiling water, and squeezing the insoluble remainder in a linen cloth, so as to obtain the husk of the seed in a separate state, and then to act upon the latter with hot diluted nitric acid, and examine its structure under a microscope. By means of the nitric acid the starch grains, &c., are dissolved, and the husks themselves are rendered so transparent as to readily admit of their structure, and the form of their constituent cells, being observed. The form of the cells in the husks of the various oleaginous seeds is so essentially different, that a simple examination by this process will immediately convince us that a better means of detecting the adulteration of the oil-cake could not be devised. Thus, for example, the cells in the Mustard-husk are

a.—Portion of Rape-husk. *b.*—Portion of Mustard-husk. *c.*—Portion of Linseed-husk.

very small, whilst those of the Rape and Linseed husk are considerably larger, and differ from them in shape. The Mustard husk has, moreover, so to speak, a hexagonal net-work of thicker tissue, which is very characteristic, and is not observed in either of the others.

A somewhat similar method of analysis will also enable the chemist to detect the adulteration of wheaten flour with the flour of the *leguminosæ* (Beans, Peas, &c.), and of Buckwheat, and of cereals, as Rice, Barley, Oats, Rye, and Indian Corn; and also that of bread with mashed Potatoes. M. Donny has shown that the cellular matter of leguminous flour is very different in its microscopic characters to that of wheaten flour, and of the cereals generally. The mode, therefore, in which I proceed to separate this cellular matter for examination is to heat about two or three hundred grains of the suspected flour or bread in a small evaporating dish, with a sufficient quantity of dilute nitric acid, composed of about one part of ordinary nitric acid with six or seven parts of water, until the whole of the starchy and glutinous matters are dissolved; and then to collect the yellow cellular particles which float as a scum on the surface of the acid liquid, and submit them to examination by a microscope of moderately high power between two pieces of glass. A series of comparative experiments with good Wheat flour, &c., will then immediately convince the operator if any adulterating ingredient is present. When the chemist is often called upon to perform such analyses, it is advisable for him to set up several specimens of the cellular matter from the different varieties of flour, &c., in glass cells in the acid solution, so that he may always have them at hand when required for comparative examination. By this process I find one or two per cent. and even less of adulteration

* See Professor Johnston's "Instructions for the Analysis of Soils," &c., p. 90.

may be easily detected. This method of analysis possesses, moreover, the additional advantage of taking up but a short time for its completion—a matter which is often of no slight consequence to the analytical chemist. *Bristol Laboratory, May* 18.

MR. CHADWICK ON INDIAN IRRIGATION.

You have inserted an extract from the speech of Mr. Edwin Chadwick on Indian Irrigation at the Society of Arts, in which that gentleman, true to his fixed idea, recommended the substitution of underground channels, pipes, hose, jet, and I presume steam-power, for the present simple means by which at a trifling expenditure of public money, and a trifling application of native labour, the Indian cultivators manage to apply in the Godavery district the exact quantity of water required to their crops, slightly moistening the earth by repeated applications for dry grains, fruit trees, &c., and covering the land with a sheet of water many weeks in succession, where Rice is to be grown. And in apparent support of his views, Mr. Chadwick gives a table of the comparative expenses of open and underground irrigation, extracted from "Minutes of the Board of Health," which have already been widely circulated at public expense.

As regards Indian cultivation the recommendation is perfectly absurd. In less than six years the irrigation works of the Godavery, at an expense of some 200,000*l.*, have irrigated 1,200,000 acres of delta land, levelled as flat as a billiard-table. Thousands on thousands of acres grow Rice, and make the people fat where previously they starved on uncertain crops of dry grain. Let a governor-general, of Mr. Chadwick's choosing, order all irrigation works to be covered, and 60, not six, years would be needed to obtain the skilled labour for the work. When the pipes were laid they would be immediately choked. The Indian rivers most valuable for irrigation are charged with alluvial mud; they moisten and manure the land at the same time. If Colonel Cotton had "contrived a plan for filtering" and piping his irrigation works, small would have been the value of his labour. Suppose, however, the mechanical and financial difficulties overcome, and the channels for 1,000,000 acres intersected with glazed or iron pipes of the Board of Heath pattern; suppose — and it requires a very lively imagination to suppose anything of the kind—the richest Indian peasants, who never possessed 10*s.* in cash in their lives, who handle a hoe and draw water through long channels with hereditary skill, all furnished with the hose, jet, and steam-engines necessary for showering water over a dead flat; it is quite certain that except as a most expensive imitation of rain the expedient would be of no value whatever. It would not give the quantity.

I appreciate fully the value of the hose, pipe, and jet distribution of manure over newly-cut green crops, especially Rye-grass. I heard with great pleasure the candid, comprehensive, and most instructive paper on the Liquid Manure Farms of Scotland, read at our London Farmers' Club in March last by Mr. J. C. Morton. But Mr. Morton took care not to recommend the adoption of the system to other than dairy farms, and made no wholesale comparison between the cost of water meadows and hose and jet irrigation. With a garden engine I may easily water an acre or two of garden ground; but if I have a water meadow of 100 acres, with the channel of a stream running along its upper side, I have only to stop that stream until it flows over to cover my Grass with a sheet of water of the same breadth as the length of the channel; and that water will go on running without any cost for labour in pumping or handling pipes. Mr. Chadwick might just as well propose that rails and locomotives should be fitted to every parish road in England, and that all the market gardens round London should be covered with glass. As for the table of the comparative cost of water-meadows and underground irrigation, it is worth nothing as a piece of evidence. Mr. Lee, the gentleman who prepared it, gallopped through the country at railway speed, first selected the most expensive specimens of open irrigation (a process which, as I have before shown, is meant to do quite a different operation from the hose and jet); then he went to the Duke of Sutherland's, Mr. Littledale's, Neilson's, and other farms on the underground irrigation plan (an excellent plan, undoubtedly, under certain circumstances), and guessed at the expenses. At Trentham and at Liscard "the official inspector" had no data for the calculations he puts down so positively—either as to the cost of execution or the cost of working—that is shown by his report. Why, sir, in the report of Messrs. Ackland and Sturge on the agriculture of Somersetshire, you will find that certain hill side water-meadows are constructed at from 20*s.* to 30*s.* an acre; and if I wrote in the spirit of the Board of Health minutes, I might collect a table of such exceptional instances, and thence prove that under all circumstances nothing was so cheap, so profitable, and so advisable in farming as an open water-meadow!

I protest against this new plan of sending sub-inspectors and other such officials to collect evidence to support a preconceived theory, of arranging that evidence like the evidence on a lawyer's brief, and circulating it with the stamp of official authority in a form which allows of neither contradiction nor criticism. I hope to see soon in your Journal an account of the annual expense of steam driven liquid irrigation, taken from the experience of a series of years, drawn up as carefully as Mr. Morton's paper on the crop results of that plan in Scotland. *Sam. Sidney, Farmers' Club, Blackburn.*

Home Correspondence.

Dairy Statistics.—I scarcely know how to treat your criticism of my statement to the Royal Agricultural Council. It occurred to me to invite Professor Simonds or some other individual of known competency to examine on the spot my proceedings and mode of testing results. On consideration I prefer introducing a more detailed account of this at the next meeting of the Council, when the subject is again to be discussed. I adhere to the statement that the whole of the cream skimmed by the ordinary process from December up to the present has throughout yielded, with little variation, 25 oz. of butter from each quart, and I may add that this butter obtains the preference in this neighbourhood. In my experience of dairy practice I have never observed so low a produce of butter from a given quantity as the lower range instanced by you in Mr. Telford's dairy. With the attention I am giving to this matter, such a relation of milk and butter would not occur a single week without attracting my notice. *Thomas Horsfall, Burnley Hall, Otley.* [We are glad that our criticism has induced Mr. Horsfall to give in further detail the account of his dairy experience. Our remarks were not intended to convey any further doubt of the accuracy of his statement than what may be thrown upon it by the mere fact of its extraordinary nature. We believe for ourselves that his research has been persevered in long enough and that its results have been carefully enough recorded to justify confidence in his accuracy. They are nevertheless so far beyond ordinary experience that for a long time to come, and until supported by the testimony of additional experience, either on his own farm or, still better, elsewhere, Mr. Horsfall must expect dairymen to attribute them to accident or error rather than to causes which they can wield at all times as he appears to have done.]

Facts on the Food of Rooks.—In your last week's Paper your correspondent near Chelmsford asserts, when speaking of rooks, "these black-feathered gentry never feed on insects if they can procure grain." In this respect I must beg to differ from him, though I have suffered from them perhaps as much as most people. My first essay at farming on my own account was a field of Peas, at 24*s.* per bushel for seed; my idea was to get off these new Peas and sow Turnips. The experiment went on well till the Peas podded, when, as was the case with your correspondent's Barley, the rooks made an onslaught on the field and entirely destroyed them, so that I sold what had cost me about 30*l.*, in seed and manure, for 7*s.* 6*d.* My next was a piece of Potatoes, about 3 acres, planted on Mr. Johnson's plan. Well! the rooks had a few of them when planted, and all the residue soon after young tubers were as large as eggs. You will say this is no plea for the rooks; true, but it is a proof, to me at least, that it will not pay a farmer to attempt to sow when all his neighbours have their corn safe in the barn, or to attempt to ripen his crops when all the others are growing. It happened, I think, on Thursday last, just as I had been reading the paper referred to, that we had begun to "stifle-burn" a piece of land, about 6 acres, which had been lying rough since its autumn ploughing; we had collected on this small plot 13 men, 4 women, 2 boys, and 2 horses; we had no sooner begun operations than myriads of rooks came flocking to our assistance—you may easily suppose what they were after—the grubs and insects exposed by the removal of the clods and Couch. From this spot we can see no fewer than 5 rookeries, and there are 2 more within three quarters of a mile from this place; the fields immediately adjoining were (1) spring Wheat, just peeping out; (2) Oats sown yesterday; (3) Potatoes planted only a few days; (4) Vetches ditto; allotments with Potatoes and grain just being planted; and I think I should be speaking within compass if I say we could see 30 fields of grain from the same spot, and scarce a rook near them. Now, generally, the rook is a very shy bird, and I think nothing but an intense craving for this sort of food would have induced them to venture amongst such a host of persecutors as we then presented. The boys slung stones, the women halloaed, but all to no purpose—they would have their grubs, and that at a time when they might have plenty of corn without being molested. I think it would be about as well to say that a thorough true-bred old Saxon would never eat beef if he could get bread. Although we are surrounded with so many rookeries, we suffer much more from the depredations of the wood pigeons. I remember reading a leading article of your paper in the autumn of last year on Trifolium incarnatum, and I think you then stated that its only enemy was a small white slug. I sowed a piece as nearly as possible according to your recommendation; it came up and looked very promising till since the frost passed away, when all of a sudden it began to disappear, and is now nearly all gone. I had observed some wood pigeons about the field, but it did not strike me that they had the Clover, and I was just about to lay it on the back of the rabbits and hares, when I shot one of the pigeons; it seemed remarkably heavy and large; its crop was very full, and on opening it I found it entirely made up of the leaves of Trifolium. I made an attempt to count the number of young leaves, but on arriving at the number of 300 I found my heap did not much diminish, and I gave up the task as a bad job, and began to measure; I found I had just leaves enough to fill a pint cup when put loosely in; this is new to me. I had several years endeavoured in vain to get a field of Rape for the lambs in spring from the same cause, and the few Turnips that remained green this spring after the frost were very speedily stripped; and since that they have, in company with the larks, nearly destroyed all our Vetches. From this experience I have arrived at the conclusion that the pigeon is really more the farmer's enemy than the rook. *Henry Cox, Longford House, Minchinhampton.*

Small Holdings.—Any advocate of small holdings need only travel by rail to Paris to see the lamentable effects of too great a subdivision of land, even among an industrious and intelligent race such as are the northern French. I only noticed one field well covered with manure, whereas very many had simple, untrodden, untouched straw, which they were ploughing in. Very few can afford a farm steading, or have cattle to make sufficient manure, so that the straw is carried bodily from the rick to the field. I hardly noticed a single stack or rick, and this alongside of a rail established some years. So that they do not always "do things better in France." *Somerset.*

Education.—"What provision is made for the education of those intended to follow the agricultural profession?" is a question which seems certainly not out of place in these days, when so much is being said about farming and gardening. A picture might easily be drawn of the young farmer on the one hand and the gardener on the other. The former is sent to a boarding or grammar school, and learns Latin and Greek perhaps; while the latter is often obliged to rest contented with what he can pick up at a national school. It is obvious that in neither case is the youth receiving the education he requires for the highly practical art he is about to pursue. I cannot but think that it would be a great boon if there were establishments (scholastic I mean) where the science of practical agriculture could be blended with the ordinary routine of school life, so that the young farmer or gardener might be instructed for his profession before actually entering upon it. I mean nothing more than that such youths be taught when at school how to use a spade, a hoe, and rake; how to plant, tend, and rear the common vegetables and flowers; the care of cows, horses, pigs, and poultry; and that they also be made acquainted with the outlines of agricultural chemistry as applied to our gardens and farms. By these means I think much good would be done to the rising generation of small farmers and gardeners. *J. J.*

Blue Vitriol as a Steep for Wheat.—I have reason to thank your correspondents for noticing my communication on the failure of my Wheat, because it has led me to close investigation of the manner in which the vitriol was used. After a close cross-examination I found to my astonishment that the person to whom my orders were given did not attend to them, a misfortune to which those who cannot look to everything themselves are too liable. The "usual way" of dressing the Wheat here is, as I directed, to dissolve 1 lb. of blue vitriol in 2 gallons of water; either to place the Wheat in a tub or on a floor; to saturate the Wheat and dry it with lime. I find that the Wheat was wetted, and that the vitriol reduced to a powder was sprinkled over the Wheat. I really believe that this was the cause of the failure in my crop,; the seed not so dressed came up on the same soil vigorously, and is vigorous still. I ought to apologise for giving you and your correspondents so much trouble; but I think it will be an additional lesson to all who can to follow the example of Mr. Taylor, and superintend in person, as I shall do for the future, operations which, if not properly managed, may lead to disastrous results. I asked before I wrote first whether the Wheat was dressed as usual; the ready answer was—yes. *J. C. C.*

Land Drainage.—As I merely gave a brief reply to a question put by "Aged Practical Observer" on a point of some importance, viz., the persistency of a drain apt to be choked with roots, and as the subject seems worthy of some attention, permit me to enter on it a little more at length. Although I have been a practical horticulturist for 35 years, and a pretty close observer of agricultural operations all that period, yet I would take no credit to myself on that account; many a one has travelled far and wide with his eyes open, but never awake all the time; and some one has observed that experience to a person without genius is like light to the blind. I would, therefore, permit the question to rest on its own merits, and not derive any factitious aid either from my age or experience. In making these remarks I do not intend to be discourteous to your correspondent; I hope they will be taken in good part. I recollect 30 years ago, in sinking a well through red till, the diggers came to a thin seam of sand about 6 feet deep, and half an inch thick; water oozed out of this, and although the well was sunk 26 feet none else appeared. This well has never run dry since; even in '23 enough gathered to supply the family. Observe: here is a natural drain of half an inch of sand permanent and efficient. I have often observed the farmer cutting drains, in every description of soil, and so sure as the operator came on a seam of sand so certainly did he catch the water which had shelved out with the sand to the surface soil, and carry it away in his drain. So much for seams of sand being the natural drains and conductors of water where they exist. "Aged Practical Observer" cannot be acquainted with sand drainage or sand filters when he compares them to stone drains The openness of the stones permits muddy water, that is water containing fine particles of soil, to enter their interstices, and by deposition gradually choke these up and destroy the drain; this does not and cannot take

place with sand—the interstices are so small that the finest particles are arrested on its surface, and the body of sand beneath kept quite clean. The expense in some quarters no doubt would be considerable, but in many places like this abundance can be had for the cartage alone, and a cubic yard would furnish 10 or 12 yards of drain. I have heard complaints from some farmers that in certain descriptions of soil their drainage was too perfect, running off the rains so quickly that in droughts their soil was too dry. This could not be the case in sand drainage; the outpour would be slow and constant. To sum up, it remains to be proved on a considerable scale whether or not sand drainage may be advantageously substituted for the ordinary descriptions of drains; and it is exceedingly probable that in the neighbourhood of trees and other plants which insinuate their roots so pertinaceously into all open drains they shall thereby be excluded, and the continuity of a drain kept up. *J. L., M.D., Newburgh, Fife.*

Steam.—All attempts to use steam carriages on a common road have failed, the friction on the wheels being great from the roughness of the turnpike road, and its want of surface resistance to the weight of the engine, which sinks deeply into the soft material, the wheels turning round on their own ground when the steam is up. Experiments on the highway having been unsuccessful, how will they answer in the field? Steam power to be made available for tillage will, in all probability, have to call in the aid of horses, the latter to draw the machine, the former to work the grubber. The great advantage of steam would be to stir wet damp stiff soil deeply in winter or summer to benefit by the frost, air, and sun, and afterwards pulverise it thoroughly, ready for the drill. Should the first operation be accomplished how would the second be carried out? The strength required to force a heavy apparatus ever rough ground to finish it off would be enormous, if possible. So many difficulties present themselves without the assistance of a railway, which appears out of the question in small enclosures, that agriculturists should remain satisfied with making steam useful in thrashing, crushing grain, cutting chaff and Turnips, pumping water, &c. A portable engine would meet all these wants on a farm, and might be shared with neighbours by a little amicable arrangement. The subsoil plough, spade, and long steel fork, will be found, where judiciously applied, the best tools for working the land deeply and effectually. It will be said, how can a large holding be cultivated by manual labour? The answer is, it is not necessary or advisable to dig or fork the whole of the arable portion of a farm; depending upon the acreage, it may be divided into either a fifth, seventh, or tenth part, to be turned up with the fork and spade annually during the idle months in the winter, when hands are plentiful and labour scarce. Again, it may be said the expense is an obstacle. The system will pay itself the second year; and in after seasons the gain, if the soil has been fairly broken up, will be great, and compensate the tenant for money laid out. The influence of the atmosphere on the land is well known: can it then be doubted how immense the advantage must be of exposing 14 inches instead of 6 to be acted upon? *Falcon.*

Fowler's Steam Plough.—The above plough is now at work in one of the midland counties, on the new red sandstone. With regard to the plough, I saw it at the Exhibition, but it was then an infant, and had many imperfections (so I thought at the time, and so they turned out to be); but it is a giant now, and at draining is perfect. It is at work on a farm yielding miserable crops (6 bushels of Wheat per acre) [?] and the landlord is draining the land against the tenant's will. The land is undulating, and faces the north, so that the fall of the land, and the slip of the soil are the same way. The first field done lay rather bad for the drains, many had to be put in by hand, and many, or most of those done by the plough in this field would be catch drains, 9 yards apart; the next field lies well for work, and the plough did its part well. Nearly all the holes that were dug to put in fresh lengths of pipes, had water standing in them from 8 to 12 inches deep, and within about 30 inches of the surface, on the 7th of May, and after the very long dry time we have had. Who could farm such land in such a state? *A Visitor.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Audit of Accounts, *May* 18.—Mr. Raymond Barker, Chairman of the Finance Committee; and Mr. Knight, Mr. George Raymond Barker, and Mr. Dyer, Auditors on the part of the Society, examined, audited, and certified as correct the accounts for the half-year ending December 30, 1854.

Special Council, *May* 18.—Mr. Raymond Barker, V.P., in the chair. On the motion of Mr. Milward, seconded by Mr. Fisher Hobbs, the report to be made by the Council to the ensuing General Meeting of the Society was taken into consideration and agreed to.

General Meeting, *May* 22.—Mr. Miles, M.P., President, in the Chair.

On the motion of Colonel Challoner, seconded by Mr. Raymond Barker, Lord Portman was unanimously elected President of the Society for the year ensuing the rising of the Carlisle meeting in July next.

The Trustees and Vice-President were re-elected for the year, and Mr. Dyke Acland, Lord Feversham, Mr. Mainwaring Paine, Mr. Allen Ransome, and Mr. Burch Western, new members of Council for the two years, ensuing the Carlisle Meeting.

The Secretary read the following Report from the Council:

REPORT.

Since the last half-yearly meeting in December, the Society has lost, by death and otherwise, 227 of its members, and has gained by election 132 new members. The Council, on the recommendation of the finance committee, have also removed from the list of the Society the names of 285 members who have made no payment during the last seven years. They have unanimously elected Dr. Edward Hartstein, Professor of Agriculture in the Royal Academy of Poppelsdorf, an honorary member of the Society. The Society accordingly now consists of—

89 Life Governors,
141 Annual Governors,
795 Life Members,
3838 Annual Members, and
19 Honorary Members

making a total of 4882 names on its list at the present date. The funded property of the Society stands at 9264*l.* 8*s.* 11*d.* in the stock, which has now become the new Three per Cents.; the current cash-balance in the hands of the bankers being 3225*l.*, which includes 1400*l.* as a contribution from the authorities of Carlisle towards the expenses of the country meeting of this year. Since the date in November last when the Council ordered the sale of 1500*l.* from the invested capital, the following payments have been received:—

Arrears of subscription	£1677
Current subscriptions	1847
Life compositions	389
	£3913

while every claim against the Society has been duly discharged. The continued indisposition of Mr. Pusey, and the consequent suspension of his long and invaluable labours to the Society as the Chairman of the Journal Committee, have rendered some temporary arrangements in that department necessary. The Council have accordingly requested Mr. Thompson to act as the Chairman, and Mr. Wren Hoskyns and Mr. Dyke Acland as Vice Chairmen, of the Journal Committee. The new number is now in progress, and will be published on the 1st of July. Prizes have been awarded to reports on the Farming of Buckinghamshire and Warwickshire, and also to essays on the causes of Fertility and Barrenness in Soils, and Lameness in Sheep and Lambs: a paper in the latter class has been disqualified, on account of its delivery not having been made by the 1st of March; and the prize in the class of Mildew in Wheat withheld, in consequence of the want of sufficient merit in the competing essays; while adjudications have still to be reported in the five remaining classes. The following subjects for the Essays of next year have already been adopted:—

1. Farming of Bedfordshire.
2. On the Production of Turnips possessing good keeping qualities.
3. Spring-feed Crops: with special reference to early growth.
4. The different mechanical modes of deepening the Staple Soil, in order to give it the full benefit of atmospheric influence.
5. The Chemical results superinduced in newly-deepened soil by atmospheric action.
6. The construction and maintenance of Farm Roads: with special reference to clay lands.
7. The Roots of the Wheat Plant: the history of their growth and development.
8. Essay and Plans for the construction of Labourers' Cottages: with special reference to domestic convenience.
9. Account of the different modes of bringing Moorland into cultivation, based on practical experience; and specifying the methods pursued, the expense incurred, and the results as far as ascertained, regard being had to the subsoil, locality, and elevation.

Two distinct and improtant investigations are in progress by the Consulting Chemist of the Society, namely—1. On the chemical effects of the atmosphere on the soil and vegetation; 2. On the value to the farmer of different substances sold to him for manuring purposes. Professor Way has already, in the course of this session, delivered before the members two lectures: the first, On the relation between the atmosphere and agriculture: and the second, On the chemical principles involved in the production of butter: for which he has received the cordial thanks of the Council. He also consented to deliver a lecture on the 13th of June, On the use of fish as manure; and Professor Simonds, as the Veterinary Inspector of the Society, has expressed his willingness to elucidate before the members, at a Weekly Council in the course of next month, the physiological conditions affecting the quantity and quality of milk secreted by the cow under different circumstances of feeding and management. The Governors of the Royal Veterinary College have made a most satisfactory report to the Council of the successful manner in which the special objects of the Society in reference to domesticated animals have been carried out in that establishment under the inspection of Professor Simonds. The programme of the Country Meeting, to be held in the city of Carlisle, in the week commencing Monday the 23d of July next, has just been issued, and the arrangements are nearly completed. At this meeting, so favourably situated in reference to the south of Scotland and the north of Ireland, additional prizes are offered for reaping machines and steam cultivators, as well as for Scotch and Galloway cattle, Cheviot and Herdwick sheep, and for Clydesdale and other horses. The entries for implements closed on the 1st inst.; and though the number is not equal to that of either of the last two years, it has been ascertained that the covered shedding, 20 feet wide, engaged by exhibitors in that department, will extend to very nearly three-quarters of a mile in length. The entries for live stock, which will not close till the 1st of June, are already numerous. The Council have again to acknowledge the liberality and ready co-operation of the railway companies, in promoting the objects of the Society in the transit of live stock and implements to the Country Meeting. The principal companies have already signified their consent to a renewal of their concessions of last year, in favour of the exhibitors at the Carlisle Meeting. The Council have decided to hold the Country Meeting of 1856 in the district comprising the counties of Bedford, Buckingham, Cambridge, Essex, Hertford, and Huntingdon, at Chelmsford, the county town of Essex. They have also determined that the Country Meeting shall be held, four years hence, in the Central District, which will comprise the counties of Oxford, Warwick, Northampton and Berks: and thus, after a circuit of 20 years, the Society will return to that part of the kingdom in which at the city of Oxford, under the most favourable circumstances, it held its first meeting. The Council have viewed with much interest the progress of measures adopted by the Government of France to stimulate and improve its agriculture. At the request of the French and English Foreign Departments, for Council have taken every means to make known in this country the inducements held out and the facilities afforded to the exhibitors of the United Kingdom, at the agricultural meeting to be held next month in Paris; and they have decided that six of their members shall form a deputation, to be present on that occasion. The Council trust that this international gathering will be attended with the most favourable results to the agriculture as well as to the cordial understanding now so happily subsisting between the two nations. The Council have continued to be favoured by the Earl of Clarendon with copies of successive despatches received at the Foreign Office from her Majesty's Ministers and Consuls abroad, reporting the result of their inquiries and researches connected with the occurrence of guano or the nitrates in tropical districts. Some of these communications have been of an important character, and have referred to discoveries of extensive deposits of those valuable manures, as well as to the occurrence of an unlimited supply of native carbonate of soda in South America. His lordship has coveyed to the Council an assurance that whatever facilities or privileges are granted to other countries by the Governments within whose territories these newly-discovered deposits occur, will be claimed by her Majesty's Government on behalf of the agricultural and commercial communities of the United Kingdom.

By order of the Council, James Hudson, Secretary.

This Report was unanimously adopted by the meeting.

Mr. Raymond Barker, chairman of the Finance Committee, having read the auditors' balance-sheet, the best thanks of the meeting were voted to the auditors for their care in auditing the Society's accounts; when Mr. Knight, on the part of himself and his colleagues, acknowledged the compliment, taking that opportunity of bearing testimony to the clear, simple, and exact manner in which the accounts of the Society were kept.

On the motion of Lord Feversham, seconded by Mr. Druce, the cordial thanks of the meeting were expressed to the President for the great services he had through so long a period and on so many occasions rendered to the Society. Mr. Miles acknowledged that expression of the friendly sentiments of the members towards him, and hoped that they would one and all endeavour to be present with him at the Carlisle Meeting in July.

Notices of Books.

Professor Johnston's Instructions for the Analysis of Soils, &c. Third edition. Blackwood & Son.

No one has had a larger experience than Professor Johnston, whether as an agricultural chemist or as teacher of agricultural chemistry. His instructions are of the greater value on this account; and the agricultural student will find in this little volume a guide to this department of his studies as explicit and trustworthy as could be desired.

The Journal of the Bath and West of England Society.—The table of contents of this issue of the journal is as various and instructive as ever, with as much on the general subject of agriculture combined with its special adaptation to the district of the society, to secure for the work a general as well as a local circulation. We have already made some extracts from its pages, and have other articles in type, of which our readers shall have the benefit as soon as possible.

We observe that Mr. Acland, to whom the renovated character of this society is so much due, acts now as one of the Journal Committee of the English Agricultural Society during the lamented illness of Mr. Pusey.

Miscellaneous.

The New Markets, Copenhagen Fields, were to have been opened on June 1; H. R. H. Prince Albert has, however, signified his intention of being present at the opening ceremony, and that has, therefore, been postponed to suit his convenience. Everything is now ready for the permanent use of the new market.

Calendar of Operations.

MAY.

Berwickshire Mere Farm, *May* 21.—After a long period of cold, drying east winds, we had a regular wet day on Wednesday, the 10th inst., which put a stop to our fallow work for that week. The wind, however, soon dried the land, and operations were resumed last Monday. The three past days have been fine, mild, and growing, but to-day our old enemy, that "eternal" Nor'-easter has returned in full force and as cold as ever. The Wheat plant is strong and healthy, as is generally observed in a dry spring, indeed late sown spring Wheat has grown faster than the Barley, which looks very "blae" after the late frosty nights. Oats have all along reaped the benefit of a fine seed bed. Beans and Peas are up. Potatoes having been sound last year, though but a middling crop, a considerable breadth (for this district) has been planted in the end of last month. Winter Tares look very poor indeed, and will not be ready when most wanted—before "seeds" afford a cutting. The latter crop is well planted and green; but we cannot expect to cut any for three weeks at least. Young Grass having been full stocked at an early date, the Clovers have suffered much from the nightly hoar frosts: in many places it looks no better than bare stubble. Old pastures, being closer in the bottom, have stood the drought better. Lambs are a middling crop, but have done well. Fat hogs require an allowance of cake and Beans to keep them in condition. Want of keep has overstocked the fat markets with clipped hogs, and caused a languor in the mutton trade; lean and half fat are almost unsaleable. Owing to the remote prospect of Grass for horses and cattle, the price of hay, which fell greatly after the storm, has again reached its former high figure: and the fortunate few, who happen to possess any of it, have been enabled to secure grazing cattle at a very moderate price, which is more than could be done for some time past. A portion of Swedes have been sown last week in good order; but of course they are doing no good in this cold weather. Light land works beautifully; but clays, previously reduced, were considerably run together by the rain of the 10th, which has caused much additional labour. Stackyards are all but cleared out; and the local demand consequently better than that for metropolitan markets. *J. T.*

Border of the Fens, *May* 21.—The present spring will be memorable for four months of continued frost and north-easterly winds, not gentle breezes but mighty storms which on more than one occasion darkened the air with the dusty fen soil, filled the dikes, and drifted it in heaps like snow, laying bare the roots of corn, and sometimes lifting them, seed and roots, from one field or part of a field, to another; therefore, although dry weather is seldom injurious to Wheat, yet the absence of rain for so long a time has prevented the Wheat plant on light soils getting firmly established, and a great deal has been ploughed up: much of what remains is exceedingly thin, and there must occur a combination of unusually favourable circumstances to make the Fen Wheats turn out a productive crop. On the 17th ult. a pleasing change took place in the weather; south winds and fine showers have already had a most beneficial effect, in which the pastures have largely partaken, and though late in growth it is probable that the food for stock may soon be plentiful, and once more relieve our anxiety on that score. Hoeing is usually the great business of the month of May, and is an operation which most people deem necessary, but from this creed there are some dissentients, persons who argue that it lessens the yield of corn, and they contend that

hand-weeding is greatly preferable, inasmuch as hoeing cuts so many of the horizontal fibres of the roots of Wheat as to check its growth and do mischief: now there may be some soils to which this argument may apply, but our practice differs so much from this theory that we have had a horse-hoe at work over all our Wheat, Barley, and Oats, and we have an impression that the horse-hoe acts better than the hand-hoe by not dividing the roots, merely moving them, but moving them so regularly and thoroughly as to admit air and light and warmth to the roots, moulding up the plant and strengthening it. It is truly beautiful to see the horse-hoe well worked, and it is much easier afterwards to weed the crop where weeding is required, and although some folks are so lucky as to have few weeds, yet we regard weeds as inevitable when much manure is employed. When the land is in good condition, the seed blown from a foul neighbour is sometimes sufficient to find occupation for a gang; clean farming is essential, but with good liberal treatment is not quite so easy as some folks would make you believe; for instance, what a pest is Chickweed among Clover, and how hard to eradicate? Sow-thistles in the Fens are a great plague, and cannot be always guarded against; Twitch and Hariff may be reduced to a narrow compass by care and labour, but inattention for a short time will spread them beyond control. The dry weather has been very useful for cleaning land, and everywhere great activity has been manifested. Twitch is inquired for to make paper, and if the process should succeed we may expect shortly to see a prize essay on its cultivation; or, perhaps, when it is known to be a profitable "crop," those who now exhibit its rank growth among their Wheat will then be less careful to preserve it than at present. Potatoes, Carrots, and Mangolds have been got in well this year, and they may be expected to succeed well. The blossom of the fruit trees is late but abundant, and surely these sharp nights of 10° and 12° below freezing will terminate shortly, then welcome "a warm June to put all things in tune." *J. W., Peterborough.*

South Devon, *May* 21.—Although now in the middle of the month of May the late cold winds and scarcity of rain have given to vegetation an appearance quite unnatural to the season of the year. For the last fortnight, however, we have been favoured with an abundance of rain, but the good it does is considerably lessened by the frequent frosty nights: this and the extreme scarcity of keep for cattle, which causes the Grass lands to be overstocked, is a sufficient reason for the want of luxuriance in our pastures. The very cold weather, so unfavourable to vegetation, proved, however, in other respects a boon to the agriculturist, as it enabled him to get in all his spring corn in good time as well as in good order, generally speaking. The Mangold crop was also finished sowing before the rain set in, so we may this season expect the young plants to come up well and regular. In speaking of the general appearance of the crops we may state that the Wheat crop has suffered much in many places from the severe weather, and particularly in exposed land looks thin. Barley and Oats came up well, but were checked by the cold winds; they have, however, improved much by the late rains, and only now require a little warm weather. In farming operations the preparation of land for Turnips is now the main feature, and progresses satisfactorily. The scarcity of keep for cattle is much felt in this part of the country, and has been the cause of the enormous prices given for Grass land this season. Much corn has also been consumed by cattle since the roots were finished. Our orchards now begin to present a gay appearance, and, from the blossom on the trees lead one to hope favourably of the crop. Prices of agricultural produce keep well up, and may be quoted as follows:—Beef, 60*s.* to 63*s.* per cwt.; sheep in their wool, 7½*d.* to 8*d.* per lb.; lambs, 8*d.* per lb.; Wheat, 80*s.* per qr.; Barley, 34*s.* per qr.; Oats, 28*s.* per qr.; yolk wool, 8½*d.* per lb.

Wester Ross, *May* 15.—A colder or more backward season the oldest farmer scarcely remembers to have seen. It is now well nigh six months since this peculiarly adverse weather commenced: and since then we have had, first, a redundancy of wet, then a continuation and intensity of frost, and now a continuation of cold easterly winds quite uncommon and alarming. Wheat looks as if it had lost all hopes of getting forward, and had turned brown in despair; yet, in well drained fields it looks pretty thick, and, I doubt not, were it coaxed by the return of genial weather it might yet reach something respectable. In ill-drained fields it looks thin, and must necessarily be light in harvest. Lack of Grass is a general complaint. Our anxiety to give over as many Turnips as possible to be eaten off by sheep often leads us into the error of reserving too few for our cattle, and the consequence is that, in such a year as this, our stock is put by far too early to Grass, and find themselves all too speedily on miserably stinted rations. We have now had a few weeks of dry weather, and out-door labour has advanced satisfactorily, and now, on the earlier farms, work is about as far forward as in ordinary seasons. In the later districts labour and vegetation are far behind. On this farm Oat-sowing was concluded on the 26th of March; Barley-sowing, 21st of April; and Potato-planting about a week thereafter. Nearly the whole of the remaining Potatoes in the north have been planted, so the Highlander, much against his will, must bid them farewell for a few mouths. We have now been for the last fortnight engaged preparing ground for Turnips, for accomplishing which the weather has been very favourable. Mangold Wurzel is scarcely grown in the north. It has been repeatedly tried, but the result has not been such as to lead to its general cultivation. Sowing of Swedes will be commenced in a few days. This kind of Turnip is now a general favourite, and is now largely cultivated. About this season the farmer selects his supply of supplemental manure, and having formerly got rapped over the fingers for meddling with stuffs which though highly puffed he knew nothing of, he has now grown wonderfully wary, and will scarcely buy anything but what has been proved, and found not wanting. We feel ourselves not a little indebted to the *Agricultural Gazette* for its manly exposure of some of those manures with high-sounding titles, and with little else to boast of. The competition amongst purchasers at our Muir of Ord markets this season has not been so great as at some of our last year's markets; but it is an easy matter to get rid of stock, in fair condition, at very high prices. Horses are very scarce, and uncommonly dear.

Notices to Correspondents.

Fertility and Barrenness: *W Barnes.* Mr. Coleman's essay will probably be published with the next issue of the Royal Agricultural Society's Journal.

Guano: *K H.* Four cwts. per acre, with a load of ashes, is a full dose per acre. Its usefulness depends on your having rain enough. You had better sow it broad-cast over the land *before* ploughing it for the Turnip drill. That will mix up the manure well and sufficiently.

Limestone: *J Kirsopp.* Limestone can be burnt with wood or peat either alone or mixed with coal. Will any one describe the best way to make a sow kiln—that is, one built in a temporary way each time it is filled.

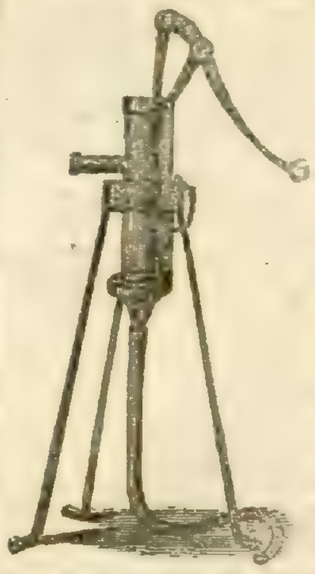
Nitrate of Soda: *R V* We would mix nitrate of soda with wool in your inland county with greater confidence than elsewhere. It may be applied with good effect for Beans; and for a rapid growth, such as that of Rhubarb, we imagine that it and guano applied at frequent intervals in the liquid way would be the best plan to adopt.

Roofs: *H W.* We do not know the present condition of the roof you allude to. We know of one roof on a lunatic asylum near Tetbury, Gloucester, in which paper over cement was successfully employed.

Manure: *J B.* You may get rid of the smell by strewing fresh mould dust over the floor; and possibly by flinging some powdered gypsum powder about.

Grass: *S P.* The Green Globe and the old-fashioned Green are originally identical. But the Green Globes of different seedsmen differ according to the attention paid in selection for seed.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Sons, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1	12	0
2½ „	long 3 „ 3 „	gutta percha,	1	15	0
3 „	ditto 3 „ 6 „	or cast iron	2	12	0
3½ „	ditto 3 „ 6 „	flanged pipe,	2	18	0
4 „	ditto 3 „ 6 „	as required.	3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto	ditto ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
With Warner's Registered Spreader,

is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

JOHN WARNER AND SONS, 8, Jewin Crescent, London, Manufacturers of FIRE ENGINES, PUMPS, GARDEN ENGINES, and SYRINGES.

Brass Syringes, 9*s.* to 18*s.*

All articles of John Warner & Sons' manufacture may be obtained of any Ironmonger or Plumber in town or country, at the advertised prices.

John Warner & Sons having been practical Horticulturists for many years, know exactly the requirements of both Amateurs and Gardeners. A gardener with a properly constructed pump will get through as much work in five minutes as he could with any Syringe in a quarter of an hour, and with half the labour to himself. Syringes are economical for small houses.

No establishment offers such a variety of effective machines for hydraulic purposes, whether to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of liquids.

Fountains suitable for Conservatories, Lawns, &c.

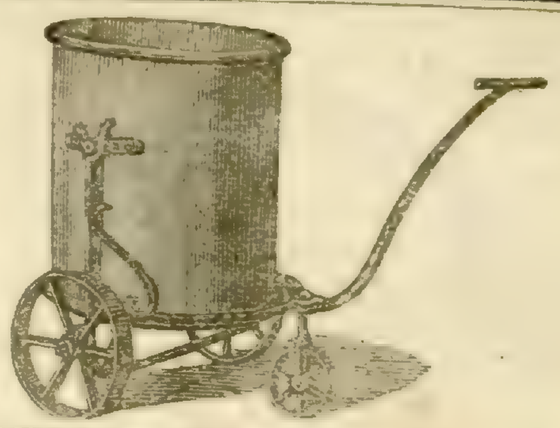
Sheets of Engravings sent on application.

PRIZE MEDAL—1851.
AT A VERY ECONOMICAL RATE.

SAMUEL CUNDY, Mason and Builder, Pimlico Marble and Stone Works, Belgrave Wharf, Lower Belgrave Place, Pimlico, London.

Marble Chimney-pieces manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price. A good Marble Chimney-piece for 40*s.* Marble Work in all its branches at a remarkably cheap rate for Halls, Dairies, Larders, &c. Circulars sent on application.

N.B. The "Royal Blue" Omnibuses pass the Works every ten minutes from the Bank.



WARNER'S SWING WATER-BARROW is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l.* 3*s.*

Manufactured by
John Warner & Sons, 8, Crescent, Jewin Street, London.

(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds	10 gallons,	throws	30 feet	high	...	£4	10
No. 2 „	15 „	„	45	„	...	5	10
No. 3 „	28 „	„	45	„	...	6	18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds	8 gallons,	throws	25 feet	high	...	£2	15
No. 13 „	12 „	„	30	„	...	3	5
No. 11 „	16 „	„	40	„	...	4	0
No. 12 „	24 „	„	45	„	...	5	0
No. 14 „	30 „	„	45	„	...	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

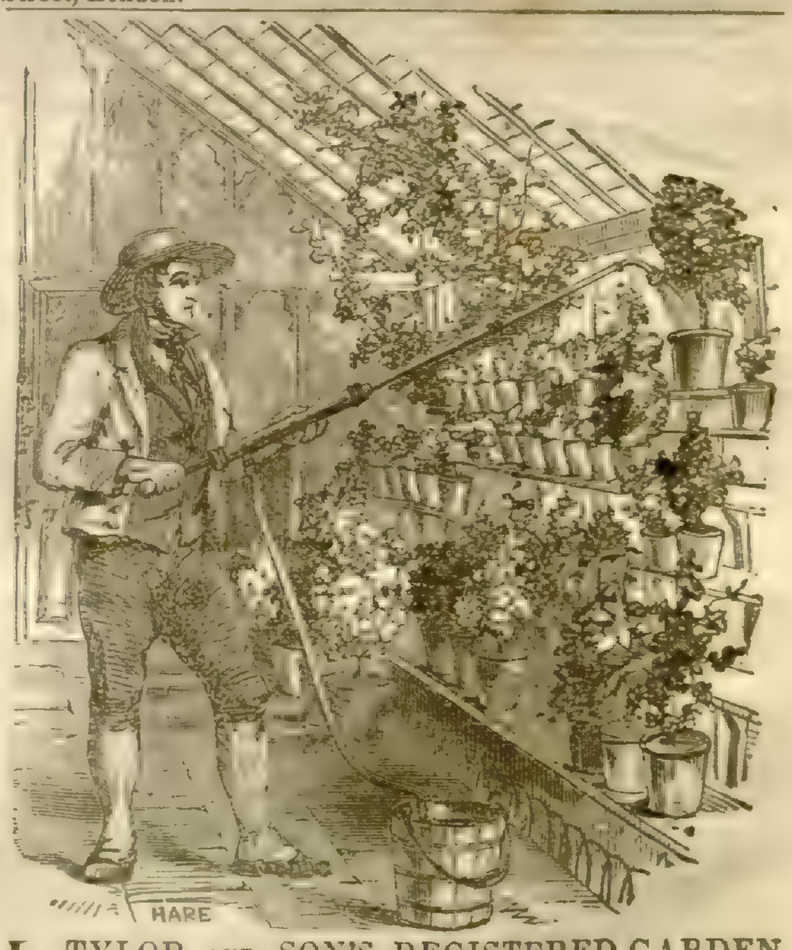
No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅝ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

Read's Syringe, with two roses and one jet, 19*s.*

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London.



J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each Large size, for Gardeners' use, **25s.** each.

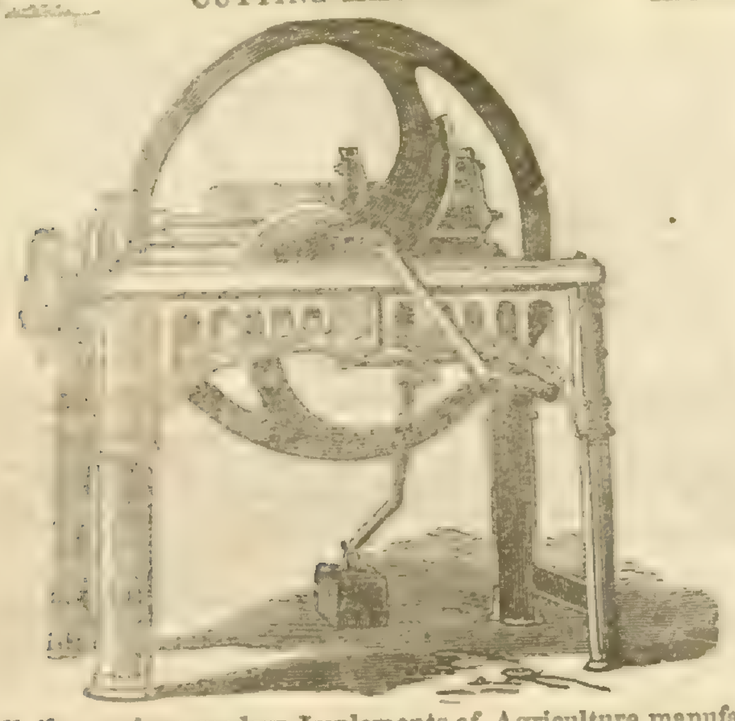
Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expenses of delivery in the country.

RICHMOND & CHANDLER'S PATENT CHAFF-CUTTING MACHINE.



All the various modern Implements of Agriculture manufactured on the most scientific and improved principles, suitable for home use and exportation.—Address, Richmond & Chandler, Salford, Manchester; and 32, South John Street, Liverpool.

☞ Catalogues Gratis.

IMPORTANT TO GROWERS OF ROSES.

NEWLY-INVENTED APHIS BRUSH, or GREEN FLY DESTROYER.—The attention of Florists is particularly called to this Cheap and Ingenious Instrument, invented by the Rev. E. S. Bull, of Colchester, which, in a very simple and easy manner, instantly cleanses the Rose from that destructive insect the Green-fly (or Aphis), without causing the slightest injury to the bud or foliage.

Price 2*s.* 6*d.* each, or free by post, 3*s.* 6*d.*

Manufactured by
JOSLIN AND SONS,
Ironmongers, Colchester.

Retailed by all the principal Ironmongers.
Wholesale Agents:
W. Thompson & Son, 15, Upper North Place, Gray's Inn Road, London.

COTTAM AND HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.

Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

Hand Glass Frames, Cast and Wrought Iron Flower Stakes, Garden Arches, &c.

Strong Iron Hurdles, and best Wire for Strained Wire Fencing.

Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom.

Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

BEEHIVES.

MILTON'S IMPROVED COTTAGE HIVE, price 1*l.* 2*s.* The only Beehives for which the Exhibition Prize Medal of 1851 was awarded, with all the latest improvements to obtain pure honey without killing the bees; also every kind of Patent and Wooden Hives, Glasses, Feeders, &c.

"The Practical Bee Keeper," the most useful book of the day, a complete Guide to Bee-management, by John Milton; price 2*s.* Likewise his Illustrated Catalogue, price 3*d.*; per post, 4*d.*

Beehive Warehouse, 10, Great Marylebone Street, London.

BEE HIVES.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by George Neighbour & Sons, with all the recent improvements, glasses, thermometer, &c., price 35*s.*, securely packed for the country.

This unique hive has met with universal commendation, and may be worked with safety, humanity, and profit, by the most timid; its arrangements are so perfect, that the honey may be taken at any time of the gathering season without at all injuring the bees.

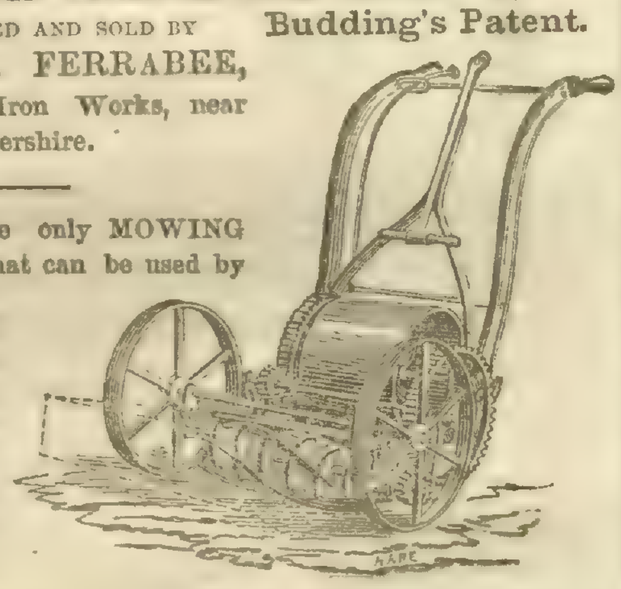
Early applications, addressed to Geo. Neighbour & Sons, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention. Their newly arranged Catalogue of other improved Beehives, with Drawings and Prices, sent on receipt of two stamps.

Agents:—Manchester, Hall & Wilson, 50, King Street; Liverpool, James Cuthbert, 12, Clayton Square; Chester, F. & A. Dickson & Sons, 106, Eastgate Street; Glasgow, Austen & M'Aslan, 186, Trongate Street; Dublin, J. Edmundson & Co., 61, Dame Street.

IMPROVED LAWN MOWING MACHINES, Budding's Patent.

MANUFACTURED AND SOLD BY

J. AND H. FERRABEE,
Phœnix Iron Works, near Stroud, Gloucestershire.



These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 4500 of them have been sold.

Hand Machine, for One Man, cutting	16 inches wide	£5	10*s.*	0*d.*
Ditto for Two Men	„ 22 ditto	... 6	0	0
Pony Machine (or Donkey)	„ 26 ditto	... 8	0	0
Horse Machine	„ 28 ditto	... 11	0	0
Ditto	„ 36 ditto	... 15	0	0

London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

FOUNTAINS, BASINS, VASES, STATUES, FLOWER TRAYS, &c. in TERRA COTTA, by J. M. Blashfield, Praed Street, Paddington.

GARDEN VASES, FOUNTAINS, ETC.

THOMAS SOMMERVILLE, Landscape Gardener, Nurseryman, Seedsman, and Florist, Garden Road, St. John's Wood, London, begs respectfully to inform the nobility gentry, and his patrons generally, that he has entered into arrangements with an eminent company in Scotland for the sole disposal in London of their highly ornamental and very durable Vases, Fountains, &c., samples of which may be seen at his grounds in the Garden Road, as above.

T. S. has much pleasure in being the first to introduce to the notice of the public a highly ornamental Vase, capable of resisting the most severe weather, and at little more than half the cost of any other possessing the same qualities; and he has no hesitation in stating that a more suitable Vase for the growth of plants cannot be manufactured.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY,

Kensal Green, Harrow Road, London.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

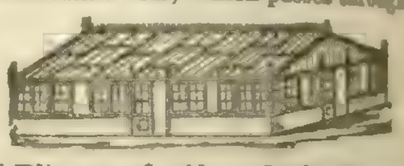
HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea.

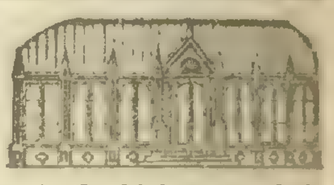
HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.

The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.

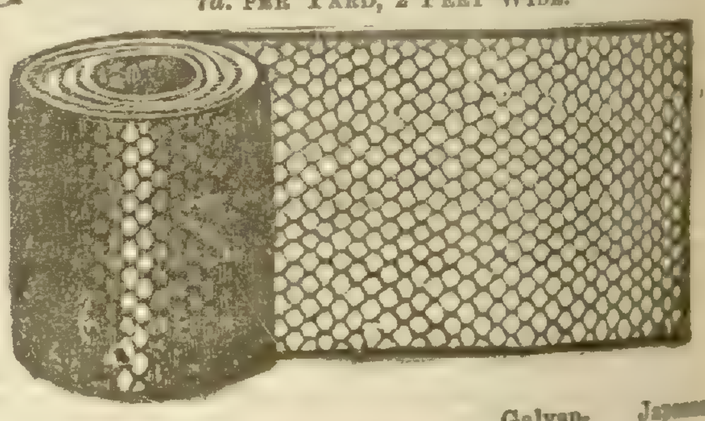


Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to John Weeks & Co., King's Road, Chelsea, London.

GALVANISED WIRE GAME NETTING.—7*d.* per Yard, 2 Feet Wide.



		Galvanised.	Japanned iron.
2-inch mesh, light, 24 inches wide	...	7*d.* per yd.	5½*d.* per yd.
2-inch „ strong „	...	9 „	6¾ „
2-inch „ extra strong „	...	12 „	9 „
1⅝-inch „ light „	...	8 „	6 „
1⅝-inch „ strong „	...	10 „	8 „
1⅝-inch „ extra strong „	...	14 „	11 „

All the above can be made any width at proportionate prices. If the upper half is a coarse mesh, it will reduce the prices one-fourth. Galvanised Sparrow-proof Netting for Pheasantries, 8*d.* per square foot. Patterns forwarded post free.

Manufactured by Barnard & Bishop, Market Place, Norwich, and delivered free of expense in London, Peterborough, Hull, or Newcastle.

IMPROVED MOWING AND ROLLING MACHINE

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, Inventors and Sole Manufacturers, respectfully solicit the attention of the Nobility, Gentry, and Gardeners to this Improved Machine for Mowing and Rolling Lawns. The Machine is in operation in the Royal Gardens at Windsor, Palace, Buckingham Palace, and at Osborne, in the Royal Gardens at Kew, Regent's Park, Manchester, Sheffield, &c. at Blenheim Palace, Trentham, Cleveden, Elvaston, Broadlands, Woburn Abbey, Clumber, Lilleshall, Castle Howard, Shrubland, Eridge Castle, Enville Hall, Tiptree Hall, Chatsworth, and in many other of the principal gardens in the kingdom as well as in the United States, British America, and on the Continent, where its merits have been fully proved, and its success established.

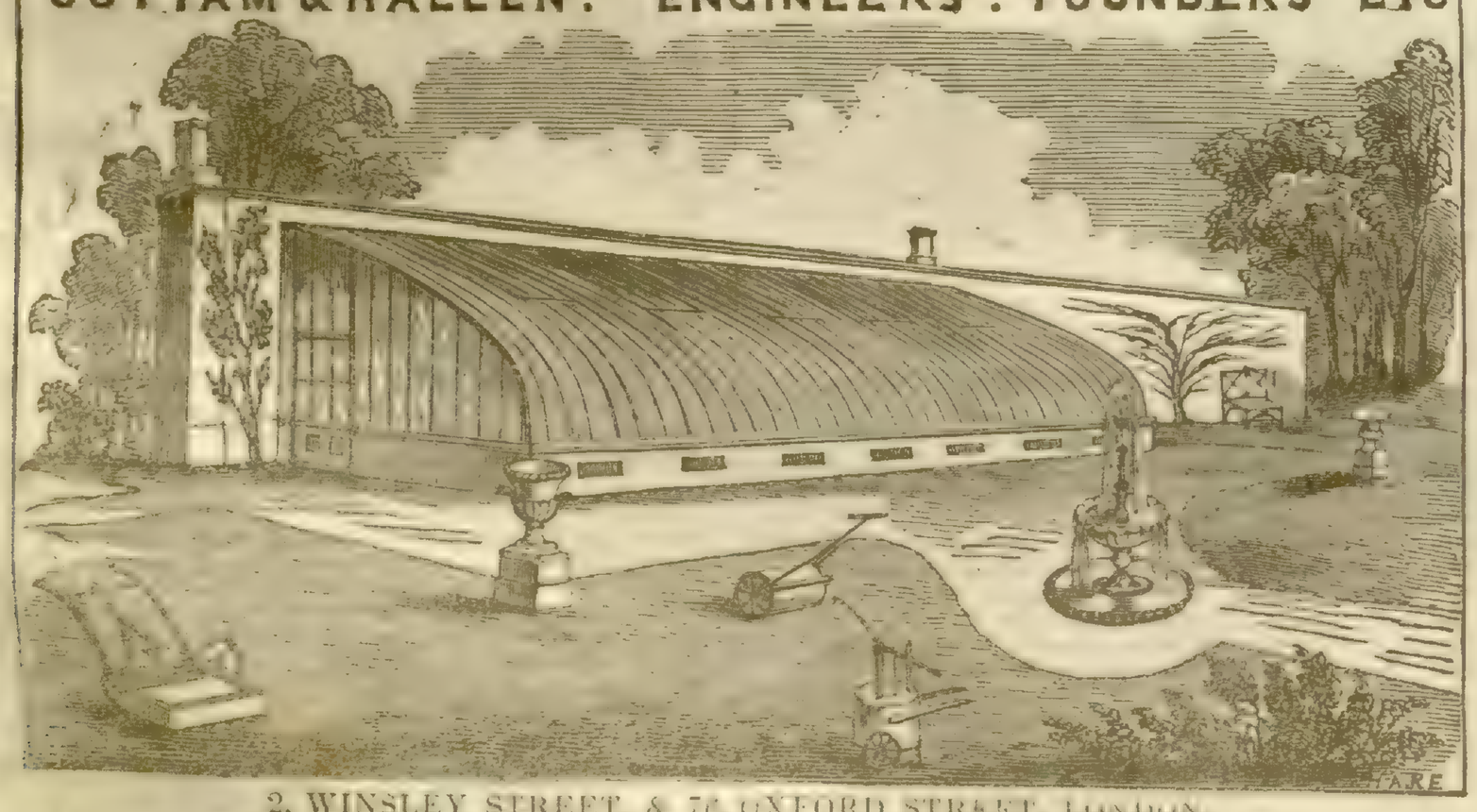
The machine is made to cut the breadth of 42, 30, 21 and 15 inches respectively, is exceedingly durable, easily managed and adjusted to cut to the length required. The execution of the work is far superior to what may be attained by the most skilful mower, while at the same time a great saving of labour is effected, and the turf much improved. By the largest machine a Scotch acre may be mowed, rolled, and the Grass collected in one hour.

A. S. and Son have much pleasure in stating that they have made considerable improvements in their 15-inch or hand machine this year, by which the draught is considerably lessened. This machine combines all the merits and advantages of the larger machines with firm and secure construction, and is admirably adapted for borders and for lawns of no great extent.

Alexander Shanks and Son also respectfully solicit notice to "Fleming's Weeding or Salting Machine" for destroying weeds in gravel walks, court-yards, drives, &c. This machine is now in operation in many parts of England, where it has given ample satisfaction as the best and most economical means of thoroughly keeping down weeds or Moss.

Further particulars, with testimonials and prices, may be had on application.

COTTAM & HALLEN. ENGINEERS. FOUNDERS ETC



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

CLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See Gardeners' Chronicle first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY.—The Managers beg to inform the Nobility and Gentry, Farmers, Gardeners, &c., that their new List of Prices may be had free on application at the Company's Depôt, 296, Oxford Street, London.

PLATE CROWN, and SHEET WINDOW GLASS.

HARTLEY'S PATENT ROUGH PLATE for Roofing Conservatories, Halls, and Public Buildings.

Coloured and Ornamental Glass.

CRYSTAL SHADES for covering Ornaments, and MOORE'S PATENT LOUVRE VENTILATOR, and Lockless's Patent Perforated Ventilating Glass for Dairies, Greenhouses, Stables, &c.: Glass Milk Pans, Pails, Tests, and Measures; Cream Pots and Syphons; Churns, Butter Tests and Slabs; Tiles and Slates; Bee Hives, &c.

Aquariums, Fern Shades, Propagating Glasses, Fruit Protectors, Preserve Jars, Cucumber Tubes, Hand Lights, Flower Vases, Labels, &c., and all kinds of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in. ...	...	12*s.* 0*d.*
6½	"	4½	"	7	"	5	...	...	12 6
7½	"	5½	"	8	"	6	...	...	13 0
8½	"	6½	"	9	"	7	...	...	13 6
9½	"	7½	"	10	"	8	...	...	13 6
10½	"	8½	"	11	"	9	...	...	14 0
12	"	9	"	13	"	9	...	...	14 0
10	"	10	"	10½	"	10½	...	...	14 0
11	"	10	"	11½	"	10½	...	...	14 0
11	"	11	"	11½	"	11½	...	...	14 0
12	"	11	"	12½	"	11½	...	...	14 0
13	"	11	"	13½	"	11½	...	...	14 0
13	"	12	"	13½	"	12½	...	...	16 0
13½	"	13½	"	14½	"	13½	...	...	16 0
15½	"	13½	...	...	...	...	...	...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

CLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.
In Boxes of 100 feet.

6 by 4, and 6½ by 4½	... ...	£0 12*s.* 0*d.*
7 " 5, — 7½ " 5½ / 8 " 6, — 8½ " 6½	... ...	0 14 0
9 " 7, — 9½ " 7½, 10 by 6 / 10 " 7, 10 by 8	... ...	0 16 0

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18*s.* per 100 feet. If cut to order not exceeding 40 inches long.

16 oz. from 2½*d.* to 3½*d.* | 21 oz. from 3½*d.* to 4½*d.*
26 oz. from 5½*d.* to 7½*d.*

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½*d.* per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand.

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¾ of an inch thick	... ...	£1 17*s.* 6*d.* per case of 50	
1 "	... ...	2 1 3 "	60
1¼ "	... ...	1 17 6 "	60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

TO BE SOLD, several Copper CONICAL BOILERS, with union joints and underwork complete.—For price, &c., apply to THOMAS WEBB, Gardener, Beamhurst Hall, Uttoxeter, Staffordshire.

HOSE PIPING.

TO ENGINEERS, AGRICULTURISTS, GARDENERS, SHIP CHANDLERS, AND FIRE BRIGADES.

WAITHMAN'S PATENT FLAX TUBING (1½ to 3 inches in diameter) will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe. Manufactured only by Waithman & Co., Bentham, Lancaster.

PRICES IN DIAMETER AND PRICE PER YARD.—½, 11*d.*; ¾, 1*s.* 3*d.*; 1, 1*s.* 7*d.*; 1¼, 1*s.* 9*d.*; 2, 2*s.*; 2½, 2*s.* 3*d.*; 3, 2*s.* 9*d.*

Testimonial from Mr. Wright, Lancaster.—I beg to inform you that I yesterday tested your piece of 2½ inch Patent Flax Tubing, connected with the Lancaster Waterworks, in the presence of the Mayor, Mr. Rawlinson, Government Inspector, Professor Clapham, &c. The column of water at which the tubing was tried was equal to 340 feet in height, or about 150 lbs. on the square inch, and I have pleasure in stating that the hose sustained this pressure most admirably.

Testimonial of Captain Martin, of the Great Britain Steam Ship.—Liverpool, I take pleasure in being able to tell you that your hose, supplied to the Great Britain and other ships, is well worth the attention of shipowners. It gives us great satisfaction.

Testimonial from Fairbairn & Co., of Leeds.—We have tested your hose, 2½ inch in diameter, with the pressure of the Leeds Waterworks, and found it highly satisfactory.

FOR WATERING GARDENS.

HANCOCK'S IMPROVED VULCANISED INDIA-RUBBER HOSE AND TUBING is now manufactured especially for the above purpose; is of greater flexibility than any other description of Hose: is capable of resisting great pressure, and made suitable for attaching to the mains of water-works, or to tanks of high elevations.

WATERING HOSE fitted up with the necessary *brass joints, stop-cocks, branches,* and *sprinklers complete.*

VULCANISED INDIA-RUBBER SUCTION PIPES, made any length or size for Pumps or Garden Engines.

VULCANISED RUBBER WASHERS, and also in Sheet, any thickness, for all kinds of steam and water joints, or made any size or figure to order.

All communications and orders punctually attended to, addressed to the Manufactory, JAS. LYNE HANCOCK, Goswell Road, London.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Colebrook Dale Garden Seats and Chairs.

Averuncators	Gidney's Hoe	Prussian Pickaxes
Axes	Grape Gatherers and [Scissors	Potato Forks
Bagging Hooks	Gravel Rakes and Sieves	Pruning Bills
Bills	Greenhouse Doors and Frames	" Knives, various
Borders, various patterns.	Hammers	" Saws
Botanical Boxes	Hand-glass Frames	" Scissors
Brown's Patent Fumigator [strument	Hay Knives	" Shears
Cases of Pruning In-	Horticultural Hammers and Hatchets	Rakes in great variety
Daisy Rakes	Hoes of every pattern	Reaping Hooks
Dibbles	Hotbed Handles	Scythes
Dock Spuds	Ladies' Set of Tools	Scythe Stones
Draining Tools	Labels, various patterns, in Zinc, Porcelain, &c.	Shears, various
Edging Irons and Shears	Lines and Reels	Sickles
Flower Scissors	Marking Ink	Sickle Saws
" Stands in Wires and Iron	Mattocks	Spades and Shovels
Fumigators	Menographs	Spuds
Galvanic Borders and Plant Protectors	Metallic Wire	Switch Hooks
Garden Chairs and Seats	Milton Hatchets	Thistle Hooks
" Loops	Mole Traps	Transplanting Tools
" Rollers	Mowing Machines	Trowels
" Scrapers		Turfing Irons
		Wall Nails
		Watering pots
		Weed Hooks
		Wheelbarrows
		Youths' Set of Tools

DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.

DEANE, DRAY, & CO. (Opening to the Monument), London Bridge.

FENDERS, STOVES, AND FIRE-IRONS.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW ROOMS, 39, Oxford Street (corner of Newman Street), Nos. 1, 2, and 3, Newman Street, and 4 and 5, Perry's Place. They are the largest in the world, and contain such an assortment of FENDERS, STOVES, RANGES, FIRE-IRONS, and GENERAL IRONMONGERY as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with bronzed ornaments and two sets of bars, 2*l.* 14*s.* to 5*l.* 10*s.*; ditto, with ormolu ornaments and two sets of bars, 5*l.* 10*s.* to 12*l.* 12*s.*; Bronzed Fenders complete, with standards, from 7*s.* to 3*l.*; Steel Fenders from 2*l.* 15*s.* to 6*l.*; ditto, with rich ormolu ornaments, from 2*l.* 15*s.* to 7*l.* 7*s.*; Fire-irons from 1*s.* 9*d.* the set to 4*l.* 4*s.* Sylvester and all other Patent Stoves, with radiating hearth plates. All which he is enabled to sell at these very reduced charges,

1st,—From the frequency and extent of his purchases; and,
2dly,—From those purchases being made exclusively for cash.

BATHS AND TOILETTE WARE.—WILLIAM S. BURTON has ONE LARGE SHOW ROOM devoted exclusively to the DISPLAY of BATHS and TOILETTE WARE. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country. Portable Showers, 7*s.* 6*d.*; Pillar Showers, 3*l.* to 5*l.*; Nursery, 15*s.* to 32*s.*; Sponging, 15*s.* to 32*s.*; Hip, 14*s.* to 31*s.* 6*d.* A large assortment of Gas Furnace, Hot and Cold Plunge, Vapour, and Camp Shower Baths. Toilette Ware in great variety, from 15*s.* 6*d.* to 45*s.* the Set of Three.

THE BEST SHOW OF IRON BEDSTEADS in the Kingdom is WILLIAM S. BURTON'S.—He has two very Large Rooms, devoted to the exclusive show of Iron and Brass Bedsteads and Children's Cots, with appropriate Bedding and Mattresses. Common Iron Bedsteads, 18*s.*; Portable Folding Bedsteads from 12*s.* 6*d.*; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17*s.* 6*d.*; and Cots from 20*s.* each; handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2*l.* 13*s.* 6*d.* to 15*l.* 15*s.*

PAPIER MACHE AND IRON TEA-TRAYS.—An assortment of Tea Trays and Waiters wholly unprecedented, whether as to extent, variety, or novelty.

New oval Papier Maché Trays, per set of three	from 20*s.* to 10 guineas.
Ditto, Iron ditto	from 13*s.* to 4 guineas.
Convex shape, ditto.	from 7*s.* 6*d.*

Round and Gothic Waiters, Cake and Bread Baskets equally low.

WILLIAM S. BURTON has SIXTEEN LARGE SHOW ROOMS, all communicating, exclusive of the Shop, devoted solely to the show of GENERAL FURNISHING IRONMONGERY (including Cutlery, Nickel Silver, Plated and Japanned Wares, Iron and Brass Bedsteads and Bedding), so arranged and classified that purchasers may easily and at once make their selections.

Catalogues, with engravings, sent (per post) free. The money returned for every article not approved of.

No. 39, Oxford Street (corner of Newman Street); 1, 2, and 3, Newman Street; and 4 & 5, Perry's Place.

METCALFE, BINGLEY, AND CO.'S OATMEAL and CAMPHOR SOAP, in tablets (registered Nov. 3, 1854). Price 6*d.* each. This soap will be found the purest and most perfect winter soap ever introduced to the public. It preserves the hands from chapping, and renders the skin soft and agreeable.—Sold wholesale and retail by the inventors and sole manufacturers, METCALFE, BINGLEY, & Co., Brushmakers and Perfumers to H.R.H. Prince Albert, 130n and 131, Oxford Street.

CAUTION.—To prevent fraud, each tablet bears the registered mark and the names and address of the inventors, as above.

METCALFE'S ALKALINE TOOTH POWDER, 2*s.* per box.—The above may be obtained of most respectable Chemists, Perfumers, &c.

DORKING FOWLS.

TO BE SOLD, a COCK and SEVEN HENS of a favourite breed.—For price, &c., address D. L., *Essex Gazette* Office, Colchester.

GOLDEN SPANGLED HAMBURGHS.—Eggs (fresh) from first rate Birds, at 10*s.* per set of 13.—Address Mr. JOHN COMPTON, Portchester, Fareham, Hants.

DORKING BLUE MOTTLED FOWLS' EGGS 12*s.* per dozen. Took first Prize at Brighton Exhibition of three counties, 1854.—Address Mr. ED. HENDEN, Beehive Inn, Dorking, Surrey.

TO BE LET, with immediate possession, within ten miles of London, and only five minutes' walk from a railway station, a SMALL NURSERY, with a good Business attached, and a Dwelling-house on the premises. Also two Greenhouses, Pits, and Frames.—For particulars apply to RICHARD WOOD, Bedford Nursery, Haverstock Hill, London.

TO FLORISTS AND GARDENERS.

HER MAJESTY'S COMMISSIONERS for the EXHIBITION of 1851 are prepared to receive TENDERS for a large GREENHOUSE, in the Gardens of Grove House, Kensington Gore.—Particulars can be obtained by applying to Mr. WADE, at the Office of the Commissioners, Grove House.

TO NURSERYMEN, SEEDSMEN, AND FLORISTS.

TO BE SOLD, in consequence of the Proprietor retiring from Business through ill health, a capital BUSINESS in the above line, with a first rate connection, and of 17 years standing. The Premises, which are convenient and well situated, will be sold together with the business. Such an opportunity seldom occurs.—For particulars apply to Mr. LENDON, Nurseryman, &c., Wellington, Somerset.

VALUABLE ESTATE.

TO BE SOLD, a FIRST-CLASS ESTATE of the richest land, with a clear rental of near 500*l.* a year; no expensive place to keep up, close to a Railway and Seaport, and about 60 miles from London.—Apply to Mr. JAMES CAIRD, 6, Serjeant's Inn, Temple.

COUNTY OF KILDARE.—VALUABLE ESTATE.

TO BE SOLD, the HOUSE, DEMESNE, and LANDS of NEWBERRY, in the Parish of Carberry, and County of Kildare, consisting of 580 statute acres, held in fee farm. The House is large and commodious, with attached and detached Offices, Water laid all over the House, an excellent Walled Garden, and handsome Shrubberies and Plantations. The Lands have been thoroughly drained, are of prime quality, all under Grass, and in high condition, having been for the last 23 years, as they are at present, in the occupation of the proprietor. The fields are well watered, fenced, and sheltered with good hedges and valuable hedge-row Timber; also some fine old ornamental Timber, and a handsome piece of water in front of the house, with a Mill and Miller's House, and good water power, on the public road side. Upon these Lands there is an abundant supply of the best shell marl, limestone, sand, and gravel. Newberry Hall is 24 miles from Dublin, 3 miles from the large Market Town of Edenderry, 4 from the Enfield Station of the Great Midland Railway, 10 from the Curragh, and 2 from the Ticknevin Station on the Grand Canal. The Kildare Hounds hunt the county within 4 miles. The Church, Post Office, Dispensary, and Court House are in the Village of Carberry, immediately adjoining the Demesne, and the Roman Catholic Chapel about a statute mile distance. A purchaser can obtain immediate possession of the entire.—For further particulars, and order to view, apply to Messrs. H. WALLACE & Co., Solicitors, 30, North Great George's Street, Dublin; Victoria Street, Belfast; or Downpatrick.

TO FLORISTS AND GARDENERS.

TO BE SOLD, A GREAT BARGAIN, by valuation or private treaty, a first-class stock of Geraniums, Fuchsias, Roses, Verbenas, Dahlias, Calceolarias, Mimulus, Chrysanthemums, Hollyhocks, Carnations, Picotees, Pinks, Phloxes, and a general good assortment of Plants for any one in the trade; consisting of a very large Greenhouse 150 feet long, Forcing and Propagating Houses, Cold Pits, and Box Lights, with all sorts of Tools for use; likewise three large Water Tanks, and a good supply of Water; Ground well laid-out; and also a good lot of Fruit Trees in full bearing.

N.B. Situated in Surrey, about nine miles from London, adjoining a railway station, and within half a mile of a good market town; a good Dwelling House upon the premises, can be taken by year or lease.

Dahlias from 3*s.* to 6*s.* per doz.; good sorts and strong plants.
Fuchsias " 6*s.* to 12*s.* " " "
Verbenas " 4*s.* to 6*s.* " " "
Pinks, Picotees, and Carnations, all named, equally cheap.

A good assortment of Bedding Plants cheap.—Apply to Mr. HOOK, 21, Brudinell Place, New North Road, Hoxton.

Sales by Auction.

FANCY POULTRY.—PERIODICAL SALE.

MR. J. C. STEVENS will sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 5th June, at 12 o'clock precisely, POULTRY of very choice quality, comprising Dorkings from First Prize Birds, Birmingham, 1854; Spanish, from Captain Hornby, Mr. Fox, and Timothy Mason's stocks; Hamburghs, from Manchester Prize Birds; Cochins of large size and good colour; Brahmas, Polands, and Bantams; Ptarmigans, &c.—Catalogues by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

POSTPONEMENT OF SALE.
TULIPS IN BLOOM.

MESSRS. PROTHEROE AND MORRIS beg to intimate that Mr. J. Edwards's COLLECTION OF TULIPS will not be sufficiently in flower on the 28th instant to enable intending purchasers to have a full inspection of them. P. & M. therefore deem it imperative to announce that the sale will take place at the Paradise Nursery, Hornsey Road, on MONDAY, JUNE 4th, at 1 o'clock, instead of on the day hitherto stated. Catalogues may be had for two postage stamps.—American Nursery, Leytonstone, Essex.

SALE ON MONDAY, JUNE 4, 1855.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will sell by Auction, at the Mart, Bartholomew Lane, on WEDNESDAY and FRIDAY, May 30th and June 1, at 12 o'clock, a first-class collection of Dahlias, Choice Roses, Petunias, Fuchsias and Verbenas; Calceolarias, Azalea Indica, Choice Geraniums, and other Plants in bloom; with a variety of Ornamental Plants for Bedding.—May be viewed the morning of Sale: Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

WIMBLEDON HOUSE, SURREY.
FINE COLLECTION OF ORCHIDACEOUS, STOVE, AND GREENHOUSE PLANTS.

MESSRS. RUSHWORTH AND JARVIS beg to notify that the seventh day's sale of the effects of the late Mrs. Marryat, on the premises, Wimbledon House, on WEDNESDAY, June 6th, will comprise the collection of Orchids, including some rare and valuable specimens, large Orange and Lemon Trees, Camellias, Azaleas, Ferns, Aloes, Cacti, &c., a large quantity of healthy Bedding Plants, also handsome Stone and Composition Vases and Pedestals, Wire Borders and Trainers, Garden Implements, Frames, and Hand Glasses. Catalogues on the premises, and at the Offices of Messrs. RUSHWORTH & JARVIS, Saville Row, Regent Street; and 19, Change Alley, Cornhill.

CHOICE AND VALUABLE COLLECTION OF TULIPS.

TO BE SOLD BY AUCTION, without the least Reserve, at the Lea Bridge Gardens (adjoining the Lea Bridge Station of Eastern Counties Railway on MONDAY, June 4th, at 1 o'clock precisely, a first-rate collection of TULIPS, comprising all the gems in cultivation. May be viewed two days prior to sale and catalogues had.

THE FORWARDEST TURNIP KNOWN.

SUTTON'S EARLY SIX WEEKS' TURNIP should now be sown for feeding off early. Excellent new seed 1*s.* 2*d.* per lb., 6*s.* per gallon, or 42*s.* per bushel. Mr T. Hickman, of Brimpton House, near Newbury, in a letter dated February 1, says:—

"I must mention the Six Weeks' Turnip as the best sort I have ever seen for earliest and latest sowings. I have grown them several years, and have invariably found them to produce more feed in less time than any other Turnip. I have had them after Wheat of a good size, within six weeks from the time of sowing."

N.B. Carriage free, except parcels under 20*s.* value.

Address, J. SUTTON & SONS, Seed Growers, Reading, Berks.

SUTTON'S LINCOLNSHIRE RED GLOBE TURNIP, the largest and heaviest cropper in cultivation, well adapted for sowing after Vetches, and the main winter crop. This Turnip endured the drought of last summer better than any other, and those crops which were sown later stood the severe winter remarkably well. Price 1*s.* 2*d.* per lb., also Pomeranian, White Globe, Green Globe, Yellow Aberdeen, Skirving's Purple Top, Yellow Bullock, Orange Jelly, Skirving's Swede, Hardy Green-top Swede, and Ashcroft Swede.

Lowest cash prices per bushel may be had on application post free. Address,

SUTTON & SONS, Seed Growers, Reading.

N.B. No Agents appointed.

SKIRVING'S IMPROVED TURNIP SEEDS.

W. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his TURNIP SEEDS for the season, as follows:—

SKIRVING'S IMPROVED SWEDE TURNIP, at 1*s.* 9*d.* per lb.

" IMPROVED PURPLE-TOP YELLOW BULLOCK TURNIP, at 1*s.* 2*d.* per lb.

All other kinds of Turnip and Agricultural seeds in general, of the most select description, at moderate prices. A remittance, or reference from unknown correspondents, is respectfully requested to accompany orders. W. S. has no agent in town or country.

Liverpool, May, 1855.

TURNIP SEEDS, ETC.

PETER LAWSON AND SON SEEDSMEN to the QUEEN and to the HIGHLAND AGRICULTURAL SOCIETY, beg leave to intimate that they are sending out the following TURNIP SEEDS, for which they respectfully solicit orders. They are all of the most approved kinds of last year's growth:—

SELECT STOCKS.

	Per lb.—*s.*	*d.*		*s.*	*d.*
SWEDISH—			YELLOW—		
Lothian Purple top ...	1	9	Bullock, Green-top ...	1	0
Green-top	1	9	" Purple-top ...	1	0
Laing's Purple-top ...	1	9	Gordon of Ayrshire, Green-top	1	0
Skirving's do.	1	9	Gordon of Aberdeenshire, do.	2	0
Matson's do.	1	9	Hood's Imperial, do. ...	1	0
Fettercairn Green-top ...	1	9	Laurencekirk Tankard, do.	2	0
White-fleshed	1	9	Cambridgeshire do. do.	2	0
RED—Round, or Norfolk .	0	9	Skirving's Purple-top Yellow Bullock ...	1	2
Tankard	0	10	Border Imperial Purple-top do.	1	2
Globe	0	9	Dale's Hybrid	1	0
" Woolton (superior variety)	0	9	Tweeddale Purple-top Yellow Bullock	2	0
GREEN—Globe, improved	0	9	Cruicksfield Green-top Hybrid, new (between Swede Turnip and Kohl Rabi)	3	6
Round, or Norfolk ...	0	9			
Tankard	0	10			
WHITE—Globe	0	9			
Do. Pomerain, true ...	0	10			
Round, or Norfolk ...	0	9			
Six-week, or Stubble ...	0	10			
Tankard	0	10			

27, Great George Street, Westminster.

AGRICULTURAL SEEDS.

JOHN SHARPE (late of Sleaford), SEED GROWER and MERCHANT, Bardney, is now sending out, of the purest and best selected stocks, Permanent Grass Mixture, 20*s.* per acre; Upland Sheep Walk, 20*s.* per acre; Field or Lawn Mixtures, 9*d.* per lb.. Improving Mixtures for old Swards.

CLOVERS.—Red, English, Dutch, German, French, 6*s.* to 8*s.* per stone; White, 8*s.* to 10*s.* per stone; Italian Rye-grass, fine, imported, 6*s.* to 7*s.* per bushel; Perennial Rye-grass, 25*s.* to 35*s.* per quarter: Mangold Wurzel, 8*d.* per lb., or 7*s.* per stone.

TURNIPS.—Skirving's and Purple-top Swedes, transplanted, and of the purest characters, 1*s.* 3*d.* per lb., or 60*s.* per bushel of 50 lbs.; White Globe or Round, 8*d.* per lb., or 30*s.* per bushel of 50 lbs.; Green Globe or Barrel, 8*d.* per lb.; White and Red Tankards, Lincolnshire Red Globe or Round, Early Sixweeks, Yellow Aberdeen, Orange Jelly, and other yellow-fleshed kinds.

Rape Seed or Cabbage Cole, 3*s.* 6*d.* per peck, or 12*s.* per bushel.

White Mustard, Spring Tares, &c.

For quantities, Purchasers treated with liberally.

Attendance at Sleaford, Market Rasen, Boston, Louth, Lincoln, and Horncastle, on market days.

Bardney Hall, near Lincoln, May, 1855.

NEW BEDDING AND OTHER PLANTS
OFFERED BY

JOHN SCOTT, of the Merriott Nurseries, Crewkerne, Somerset.

VERBENA MISS LUCY.—A beautiful pink, with large truss, and a fine bedder.

" DAVIESI.—A first-rate variety, like Mrs. Mills, but large truss, and fine bedder.

" GENERAL PELISSIER.—Dark plum, very large, flat truss, finer in all its qualities than Andrew.

" ADMIRAL LYONS.—Light lilac, dark eye, extra large and fine.

" CERISE UNIQUE (STEWART'S).—A splendid cherry coloured flower, the finest of its class; 2*s.* 6*d.* each, or the set for 10*s.*

PETUNIA EMPEROR NAPOLEON.—Large, smooth dark crimson flower, with violet throat, the finest crimson yet raised, should be in every garden where a fine crimson bed is wanted.

" EMPRESS EUGENIE.—Bright ruby crimson, and peach, well worthy a place by the side of the Emperor; 3*s.* each, or 5*s.* the pair.

PELARGONIUM TRIANGULARE.—An interesting and rare species, of a climbing habit, will grow several feet in a year, and produces an abundance of beautiful and curious flowers, unlike any other species of this beautiful and numerous family; it is a native of the Cape of Good Hope, and will form a fine pillar in the flower garden during summer; 10*s.* 6*d.* each. One over to the trade when three are ordered.

RHODODENDRON GIBSONI.—The most beautiful white flowering kind in existence, far surpassing the White Azalea in size and form of its flowers: is perfectly hardy, having stood the test of last winter unharmed in small pots, the severest test a plant can have; 1*s.* 6*d.* to 5*s.* each. Also,

LUPINUS CALIFORNICUS.—A beautiful and new tree Lupin, with flowers like a Laburnum, and sweet scented; 5*s.* each. And

ALONSOA WARSCZEWICZI ... ... 12*s.* per dozen } Two
SABBATIA CAMPESTRIS ... ... 12*s.* " } gems.

J. S. would call attention to his List of Bedding Plants in to-day's *Chronicle*, and begs to say that he has still left many thousands; but these are being rapidly sold off, so that early application is necessary to procure fine plants.

J. S. has also now saved his Cineraria Seed from a splendid collection of flowers of unsurpassed beauty, and offers the same at 1*s.* 6*d.* per packet, post free. Now is the best time to sow to obtain large plants for winter and spring flowering.—May 26.

GRASS AND AGRICULTURAL SEEDS.

THOMAS GIBBS AND CO., the SEEDSMEN to the Royal Agricultural Society of England, beg to inform their friends and agriculturists generally that they are now prepared to supply the undermentioned in any quantities required.

Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow; Irrigation or Water Meadow Mixtures; Upland Sheep Walk Mixtures; Park and Field Lawn Mixtures; Renovating Mixtures for old Swards; Garden, Lawn, or Grass-plot Mixtures; various Permanent Grass Seeds supplied separately to order; Mixtures for one year's lay, do. for two or three years' lay (commonly called "seeds").

CLOVERS.—Red or broad leaved, white or Dutch, Red Suckling, Alsike or Hybrid, Trefoil, Cow Grass or Perennial.

RYE-GRASSES.—Italian (very fine), Annual, improved Perennial, and other kinds.

CARROTS.—Large White Belgian, large field Altringham, Yellow Belgian, long Orange or Surrey.

PARSNIPS.—Gibbs' large Guernsey Cattle, common large.

MANGOLD WURZELS.—Long Red, Orange or Yellow Globe, Red Globe, long Yellow.

CABBAGES.—Large Drumhead Cattle, Thousand headed.

TURNIPS.—Purple-top Swedes, Green-top Swedes, Skirving's Swedes, Green-top Yellow Hybrid, Red-top Yellow Hybrid, lobes or Rounds, Tankard's sorts, Kohl Rabi.

Lucerne, Broom, Furze or Gorse, Field Parsley, Rape, Seed Barley sorts, Wheat sorts, Rye, Sainfoin, Tares, White Mustard, White Silesian Beet, Peas, Potatoes, and all other seeds for the farm.

KITCHEN GARDEN AND FLOWER SEEDS, including all the new and most approved varieties. Assortments made up to suit different sized gardens, or to any given amount.

Priced Lists of both Agricultural and Garden Seeds sent free by post on application to THOMAS GIBBS & CO., Corner of Half-Moon Street, Piccadilly, London.

NEW AND CHEAP FIRST-RATE SHOW AND BEDDING PLANTS.

THE CHEAPEST ESTABLISHMENT IN THE KINGDOM IS AT

HENRY WALTON'S, FLORIST, &c., Edge End, Marsden, near Burnley, Lancashire, where there are propagated annually for sale from 20,000 to 30,000 plants, which, for cheapness and quality, are not to be equalled, being robust and healthy.

GERANIUMS.—Strong blooming plants, of varieties of 1853, such as Empress, Carlos, Neatness, Glow-worm, &c., 25*s.* per dozen; older show varieties, 9*s.*, 12*s.*, and 15*s.* per dozen; 25 for 20*s.*; 50 for 30*s.*, good plants.

FUCHSIAS, new varieties of last season, 6*s.* to 9*s.* per dozen.

CINERARIAS, choice varieties, such as Advancer, Etoile de Vaise, Empress, &c., 10*s.* 6*d.* per dozen; older varieties, good show kinds, 3*s.* 6*d.* per dozen.

PANSIES, 12 distinct fine show varieties, 6*s.*; 25 fine vars., 12*s.*

VERBENAS, new varieties of last season, 4*s.* to 6*s.* per dozen.

DAHLIAS, all the leading show kinds of last season, 9*s.* to 12*s.* per dozen; older varieties 4*s.* 6*d.* to 6*s.* per dozen, extra strong plants.

Bedding Plants, including Scarlet and other Geraniums Salvias, Heliotropes, &c., equally cheap.

ACHIMENES.—Carl Walforth, 1*s.* 6*d.*; Cherita, 2*s.*; Louis Van Houtte, 1*s.*; Gigantea, 5*s.*; Madame Randatler, 5*s.*; Mr. Parparet, 1*s.*; Sir Traherne Thomas, 1*s.*, or the lot post free for 14*s.*; fine older kinds, 6*s.* per dozen.

GLOXINIAS, choice varieties, 1*s.* 6*d.* to 3*s.* 6*d.* each.

H. W.'s Spring List may be had for one penny stamp.

It is respectfully requested that all Orders be accompanied with a Post-office Order, payable at Marsden, Lancashire, unless a reference is given. Orders to the amount of 25*s.* paid to Liverpool, Manchester, Leeds, and Preston; 2*l.* and upwards free to Birmingham and Carlisle; and the like distance, or more distant, extra plants gratis.—Edge End, Marsden, May 26.

MESSRS. E. G. HENDERSON AND SON beg to announce that their new Spring CATALOGUE for 1855 will be sent post free on application, and for 12 postage stamps a beautiful coloured plate representing the following choice plants:—

Achimenes Ambroise Verschaffelt.	Delphinium Hendersoni.
Acacia Drummondi microphylla.	Genetyllis macrostegia (fuchsioides).
Boronia Drummondi.	Fuchsia Queen Victoria.
Bouvardia longiflora.	——— Mrs. Story.
	——— Prince Albert.

Mr. Andrews, the first floricultural artist of the day, has had the getting up of this plate, so that full reliance may be placed on the correctness of the flowers represented and the superior style of the colouring.

Description and Price of the following New Plants will be seen on reference to the Catalogue.

Fuchsia Queen Victoria.	Fuchsia Empress Eugenie.
" Prince Albert.	" Lady of the Lake.
" Water Nymph.	" Snowdrop.
" Raffaelle.	" Mrs. Story.
" Rouge et Blanc.	" Princess of Prussia.
" Miellezi.	" Souvenir de la Reine.
" Dominiana.	" Climax.
" Maid of Kent.	Geranium Favourite (bedding).
Geranium Rubens (bedding).	" Silver Queen.
" Virginium.	" Pretty Polly.
" Masterpiece.	" Quercifolium eximium.
" Rose d'Amour.	" Glow-worm.
Calceolaria Surprise.	Calceolaria Brunettia.
" Purity.	" Corregio.
" Maggiore.	" Minnie.
" Norma.	" Red Rover.
" Vezzosa.	" Wildfire.
" Ajax.	Phlox Queen Victoria.
Hydrangea hortensis flore pleno.	Tyrethrum Delhayi.
Lychnis Sieboldi.	" Duchesse de Brabant.
Veronica imperial blue.	Achimenes Hendersoni.
" Andersoni fol. variegata.	" gigantea.
Begonia prestoniensis superba.	Scuttellaria villosa.
Lobelia Antwerpiensis.	Verbena la Deese, and others recommended.

Chrysanthemum Hermine, Bole, and others recommended.

May 26th.

NOTICE.

"TO WHOM THIS ADVERTISEMENT MAY CONCERN."—The undersigned having a very extensive connection amongst Noblemen, Gentlemen, their Gardeners, Market Gardeners, and Amateur Growers throughout the country (Lancashire and Cheshire especially), also a shipping connection on an extensive scale amongst the principal leading shipping firms in Liverpool to all Parts of the Globe, will in conjunction with his other business undertake an Agency on Commission or otherwise for the sale of such goods of the very First Class only, as his position and connections would be most likely to effect readily the sale of. His having an establishment of many years' standing in the midst of the daily resort of Gentlemen, Gardeners, and Agriculturists, and also Shipstores situated immediately opposite the principal Docks in Liverpool, where vessels of the largest tonnage sail almost daily to America, Australia, the Crimea, and other parts of the world, offers facilities for the Sale of Genuine Goods rarely to be met with.—Apply, stating terms and description of goods, &c., to GEORGE TAYLOR, jun., Fruit Salesman, St. John's Market, Liverpool. References of the highest class furnished.

BEDDING PLANTS.

J. WOOD AND SONS have a Large Stock of Established BEDDING PLANTS, including Scarlet and other Geraniums, Calceolarias, Verbenas, Petunias, Heliotropiums, Ageratums, Salvias, Gaillardias, Double Senecio, &c. &c., at 1*s.* per dozen. Also a large variety of Pompone and large flowering Chrysanthemums, selection left to ourselves, at 4*s.* per dozen. Strong Rollisson's Unique Geraniums, 9*s.* per dozen.

Address, Nursery Place, Old Kent Road, and Bowyer Place, Camberwell.

NEW ROSES FOR 1855.—Strong flowering Plants of the following 12 New Perpetual Roses for 3*l.* No charge for packing.

Madame Theodore.	Jules Margottin.
Beauté de Lyonnais.	Salet (Moss).
Comtesse Vailliant.	Madame Place.
Madame de Cambacères.	Panaché d'Orleans.
Madame Vidot.	Souvenir de Leveson Gower.
Prince de la Moskowa.	Madame Domage.

Apply to J. and S. FRASER, Nurserymen, Lea Bridge Road, Essex.

NEW SCARLET VERBENA—"MRS. WOODROFFE."

ARTHUR HENDERSON AND CO. can now supply fine strong plants of this very fine new Scarlet Verbena, 4 to 6 inches high, with numerous side branches, and all well hardened, fit for immediate planting out, at the following reduced prices, viz.:—

1 Plant	...	...	1*s.* 6*d.*
12 Plants	...	...	12 0
25 Plants	...	...	22 0
50 Plants	...	...	40 0
100 Plants	...	...	70 0

Specimens of blooms can be sent per post in tin cases (on receipt of 6 Postage Stamps) to those who are desirous of seeing and judging for themselves of the merits of this splendid variety.

Pine Apple Place, Edgware Road, May 26.

ROGERS'S SEED DEPOT AND GARDENERS' REGISTRY OFFICE, Clock House, Chelsea.—A fine collection of PERENNIAL and BIENNIAL Flower Seeds, including choice Geranium, Primula, Calceolaria, Cineraria, &c. for June Sowing.

TO SELLERS OF FLAX SEED AND PURCHASERS OF FLAX STRAW.

MR. W. CALDECOTT, late of Frating Lodge, Colchester, and now Old Charlton, Kent, begs to inform the struggling English Farmers that he, Mr. C., has at length fixed upon a site and machinery for the much wanted and talked of FLAX FACTORY, and is a buyer of any kind of Flax Straw at liberal prices, adjusted by length and strength; that now is the time for sowing this valuable crop in their clean fallows at two bushels per acre, so as to ensure a TURNIP CROP the same year; and that he is a seller of first-rate seed grown by himself (free from foreign Dedder and other rubbish), once from Riga, at 10*s.* per bushel, exclusive of sacks.—Apply early, as the quantity is limited.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 12*s.* per ton, 1*s.* 6*d.* per bushel, or 16*s.* per ton, delivered to any of the London Wharfs or Railways, or within a circuit of five miles. Peat and Loam of various qualities. Sacks 2*s.* each.

KENNARD BROTHERS, Swan Place, Old Kent Road.

HOW TO KILL RATS, MICE, AND MOLES BY HUNDREDS.—A Method will be forwarded with instructions for 30 postage stamps, which will destroy the above vermin quickly and without trouble. 1000 acres may be cleared for a few shillings.

GILBERT DYSON, Hoo, Rochester.

LINGHAM BROTHERS, No. 170, Hampton Street, Birmingham, sole Manufacturers of the improved WOOD and ZINC MONOGRAPH, or LABELS for Garden Borders, Flower-pots, &c., in boxes of 100 each. The Zinc Labels are highly approved of for their lasting durability, can be written upon with the greatest ease, and when dry a permanent inscription is secured. Directions are sent with each box, including a bottle of metallic ink.—Sole Agents in London, Messrs. DRAY & CO., Horticultural Implement Warehouse, 46, King William Street, London Bridge.

CHEAP WIRE GAME & POULTRY NETTING.

Wide.	Mesh.	Plain.	Galvanised.
24 inches by	2 inches	... 3*d.* to 4*d.* per yard.	... 6*d.* per yard.
36 "	2 "	... 6*d.* per yard.	... 9*d.* "
48 "	2 "	... 9*d.* "	... 1*s.* "

Sparrow Proof Netting, Galvanised, 3*d.* per square foot, made to any size. This article is shown at the Sydenham Exhibition, where it is much admired.—W. CULLINGFORD, 1, Edmund Terrace, Ball's Pond Road, near the Gate, Kingsland.

RIPE FRUIT, STRAWBERRIES, AND SEED BEDS.

NEW TWINE NETTING (Tanned if required), 1 yard wide, 2*d.* per yard; 2 yards wide, 6*d.* per yard, 4 yards wide, 8*d.* per yard. Half-inch MESH do., 2 yards wide, 8*d.* per yd. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c., from fruit trees, flower, or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard, 4 or 6 yards wide, 3*d.* per yard, at W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, London.

Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.* Scotch Canvas, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrants' Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

PARK-FENCING, Barns, all Outside Wood and Iron Work,—The best and cheapest preservative is Messrs. MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17*s.* 6*d.* per cwt. Used largely, now and for many years past by the West India Dock Company, for Fencing, Lock-gates, Barges, &c. Recommended to the nobility and gentry, stewards, land-agents, &c. Allowance on large orders.—Manufactory, Kennington Lane, Lambeth, London.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES, consisting of MATTING, MATS, MATTRESSES, BRUSHES, NETTING, HORSE-HAIR, and BRISTLE SUBSTITUTE, are distinguished for superiority and excellence of workmanship, combined with moderate prices. Prize Medal both in England and America at the Exhibition of all Nations.

T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. 27, Victoria Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, May 26, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 22.—1855.] SATURDAY, JUNE 2. [PRICE 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—THE SECOND SUMMER MEETING will take place at the Society's House, 21, Regent Street, on TUESDAY, June 5, from 12 to 5 P.M.

HORTICULTURAL SOCIETY OF LONDON.—NOTICE IS HEREBY GIVEN, that the NEXT EXHIBITION of FLOWERS and FRUIT, in the SOCIETY'S GARDEN, will take place on WEDNESDAY, June 20, at 2 P.M.

Tickets, price 5*s*. each, can be procured at this Office, upon presenting the order of a Fellow; or on the day of the meeting, at Turnham Green price 7*s*. 6*d*. each.

PRIVILEGE OF FELLOWS.—Each Fellow of the Society has free personal admission to these Exhibitions without a Ticket. A Fellow may also personally introduce a friend with an Admission Ticket at half-past Twelve, at Gate No. 4, in the Duke of Devonshire's Road; or, if unable to attend personally, the privilege may be transferred to a brother, sister, son, daughter, father, mother, or wife, residing in the Fellow's house, provided the person to whom the transfer is made be furnished with a Ticket signed by that Fellow.—21, Regent Street, London.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY. Under the Patronage of Her Most Gracious Majesty the Queen.—The SECOND EXHIBITION of the Season will be held in the ROYAL CREMORNE GARDENS, Chelsea, on THURSDAY, the 14th of June, 1855 (open to all Exhibitors), when Prizes will be awarded for the following productions, viz., Collections of Miscellaneous Plants, Pelargoniums, Fancy Pelargoniums, Cape Heaths, Orchideous Plants, Variegated Plants, Roses in Pots, Specimen Plants, Cut Roses, and Pinks. Also extra Prizes offered by Members for Pelargoniums, &c. Lists of Prizes and the Rules of the Exhibition may be obtained at the Royal Cremorne Gardens, and of the Secretary,

JOHN TAYLOR NEVILLE.

Ebenezer House, Peckham, Surrey.

COUNTY OF GLOUCESTER AND CHELTENHAM ROYAL HORTICULTURAL SOCIETY.

NOTICE.—The SECOND EXHIBITION of the season will be held at the Royal Old Wells, Cheltenham, on WEDNESDAY and THURSDAY, June 6 and 7. Schedules and every information on application to

HENRY COCHRANE, Sec.

14, Colonnade, Cheltenham.

EXHIBITION OF TULIPS.

HENRY GROOM, Clapham Rise, near London, by appointment FLORIST to HER MAJESTY, respectfully announces that his EXTENSIVE COLLECTION OF TULIPS will be in flower, and may be viewed every day from 9 o'clock to 6 (Sundays excepted). Admittance 1*s*.; children half price.

GREAT EXHIBITION OF AMERICAN PLANTS.

JOHN WATERER begs to announce that his unrivalled collection of Hardy, Scarlet, and other RHODODENDRONS, is now on view at the Royal Botanic Gardens, Regent's Park, London. Orders of admission are granted exclusively by Fellows of the Society. The Plants at the Nursery are coming finely into bloom, and will continue in perfection throughout the month of June.—The American Nursery, Bagshot, Surrey, June 2.

WOODLANDS NURSERY, ISLEWORTH.

JOHN DOBSON AND SON beg to announce that the FOURTH ANNUAL EXHIBITION of their unequalled collection of Pelargoniums, Calceolarias, Fuchsias, Pansies, &c., will be held on Thursday next, June 7, 1855, from One o'clock to Dusk. The Band of the Royal Horse Guards Blue will attend. Admission free, by tickets only, which may be had on application. Trains leave Waterloo Station for Isleworth every hour.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

WILLIAM MASTERS AND SON, LANDSCAPE GARDENERS, Exotic Nursery, Canterbury.

DAVID FERGUSON, LANDSCAPE GARDENER, GARDEN ARCHITECT, and CONTRACTING PLANTER, Stowe, Buckingham. Now is the time to prepare for planting in September, October, and November.

JOHN HARRISON, NURSERYMAN, SEEDSMAN, FLORIST, LANDSCAPE GARDENER, &c.

Plans and Estimates furnished; Experienced Gardeners recommended: also several Young Men in the Nursery waiting for Gardeners' Situations.—Darlington, June 2

R. BRYAN begs leave to offer his fine Seedling PANSY UNIQUE, it being the finest yellow Pansy yet offered to the public. It is a remarkably strong grower and will prove a great favourite for years to come, on account of its fine appearance in the garden, and as a show flower it is unequalled.

Turner's opinion of it in "The Florist," for December last:—"Bryan's (Whitton Unique), a rich yellow, with large dark eye; shape and substance good, also smooth on the edge; if as lasting in spring as it is in autumn it is both first rate and the best of its class."

Pots of plants of the above first-rate Pansy are now ready, and will be sent free by post at 5*s*. per plant. Post-office orders to be made at Hounslow.—Whitton, near Hounslow, Middlesex.

PRESENT PRICES OF MANGOLD WURZEL, TURNIPS, WHITE CARROT, &c. FOR

BASS AND BROWN'S Advertisement of present prices, see *Gardeners' Chronicle* of April 28th, and May 5th and 12th. Reduced prices for large quantities.

ERRATA.—For "Laing's Purple-top Swedes, 1*s*. per lb.," *read* "1*s*. 9*d*. per lb." the same price of the other three Swedes.

TO THE TRADE.—Prices will be supplied on application.

Seed Establishment, Sudbury, Suffolk.

GOOD SWEDE SEED.

SUTTON AND SONS *have good new Ashcroft, Skirving's, and other Swede Seeds, true to their kinds, warranted all of last year's growth.* Price, in large or small quantities, 2*s*. per lb. Large quantities CARRIAGE FREE. Remittances or references required from unknown correspondents.

Address, SUTTON & SONS, Seed Growers, Reading.

HARDY GREEN-TOP YELLOW SWEDE.—This Swede has stood the late severe winter remarkably well, and can be strongly recommended for weight of crop and highly nutritive properties.

SUTTON & SONS, Seed Growers, Reading, have some excellent Seed which they can warrant of last year's growth, price 1*s*. 9*d*. per pound, 10*s*. 6*d*. per gallon, or 70*s*. per bushel. As every Seed grows well, 2 lbs. per acre will produce a full crop.

IMPORTED ITALIAN RYE-GRASS.—In consequence of the scarcity of this article, THOMAS WHALLEY has imported an additional supply per *Tiber* steamer arrived this week. Price to the trade on application.

2, St. George's Crescent, Liverpool, June 2.

S. WALTERS, Hilperton and Trowbridge, Wilts, begs to say that his Nineteenth Annual Catalogue of Geraniums, Fuchsias, Dahlias, Verbenas, Chrysanthemums, Bedding Plants, &c., containing new and popular varieties only, may be had on application.

GEORGE TAYLOR, JUN.,

CHOICE FRUIT and VEGETABLE SALESMAN,

St. John's Market,

Liverpool.

CONTRACTOR and PURCHASER of CHOICE GARDEN PRODUCE.

SALESMAN on COMMISSION.

Terms, Cash.

Forward as above.

MESSRS. J. AND H. BROWN will forward to any part of the kingdom the following 50 various CHOICE GREENHOUSE PLANTS, one of a sort ... ... 45*s*. 0*d*.

12 Orchidea plants, choice species	... 40	0
24 choice Fuchsias, fine proved varieties	... 12	0
Azaleas Greenhouse varieties, per dozen	12*s*. to 18	0
25 hardy Belgian Azaleas, superb sorts	... 20	0
100 best Bedding Plants	... 30*s*. to 40	0
100 choice hardy Herbaceous Plants	... 30	0

100 various plants, Stove, Greenhouse, and Hardy. Price and Catalogue, on application, by post.

Albion Nursery, Stoke Newington, London.—June 2.

NEW PLANTS.

A. VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), is now sending out his following New Plants:

Achimenes Ambroise Verschaffelt	8*s*. 0*d*.
" Docteur Hopf	8 0
" Edouard Otto	4 0
" Edmond Boissier	8 0
Tydæa Warscewiczi	15 0
Rhododendron Prince Camille de Rohan (quite hardy)	16 0

All the above Plants are figured in VERSCHAFFELT'S "Illustration Horticole," which can be seen at Mr. R. SILBERRAD'S, 5, Harp Lane, Great Tower Street, London.

CHARLES TURNER begs to intimate that his New SPRING CATALOGUE is now ready, and contains descriptive lists of—

Dahlias,	Carnations,	Scarlet and Horse-shoe Geraniums,
Fancy Dahlias,	Picotees,	Delphiniums,
Cinerarias,	Pinks,	Mimulus,
Verbenas,	Pansies,	Pentstemons,
Fuchsias,	Auriculas,	Petunias,
Hollyhocks,	Shrubby Calceolarias,	Bedding Plants, &c.,
Chrysanthemums,		

including several new Dahlias, new Verbenas, new White Bedding Calceolarias, &c., offered for the first time. Can be had on application.—Royal Nursery, Slough.

T. F. WINSTANLEY'S BEDDING PLANT LIST is now ready, and can be had on application, or free on post.—28, Market Place, Manchester.

NOTTING HILL, KENSINGTON.

W. TOWNSEND having a large stock of BEDDING PLANTS, consisting of Verbenas, Heliotropes, Fuchsias, Calceolarias, Lobelias, Petunias, &c., &c., is enabled to supply strong plants in 4-inch pots at 1*l*. per 100, delivered free at any of the London Railways, packing not included.

BEDDING PLANTS.

J. WOOD AND SONS have a Large Stock of Established BEDDING PLANTS, including Scarlet and other Geraniums, Calceolarias, Verbenas, Petunias, Heliotropiums, Ageratums, Salvias, Gaillardias, Double Senecio, &c. &c., at 3*s*. per dozen. Also a large variety of Pompone and large flowering Chrysanthemums, selection left to ourselves, at 4*s*. per dozen. Strong Rollisson's Unique Geraniums, 9*s*. per dozen.

Address, Nursery Place, Old Kent Road, and Bowyer Place, Camberwell.

STRONG BEDDING AND OTHER PLANTS.

F. AND A. SMITH'S Descriptive LIST of the undermentioned is now ready, and may be had, post free, on application:—Antirrhinums, Verbenas, Fuchsias, Scarlet Geraniums, Calceolarias, Petunias, Heliotropes, Pentstemons, Chrysanthemums, Mimulus, Salvias, Lobelias, &c. Climbers in variety; also a miscellaneous Collection of Greenhouse Plants. They have now in bloom Verbenas, Fuchsias, spotted Calceolarias, Cactus, Geraniums, Nerium splendens, Hydrangea hortensis, Mignonette &c. The Trade supplied.—Dulwich, Surrey, June 2.

FLOWER SEEDS.

PETER LAWSON AND SON, SEEDSMEN and NURSERYMEN to the QUEEN, Edinburgh, and at 27, St. George Street, Westminster, beg leave to invite attention to their very choice selection of Flower Seeds.

27, St. George Street, Westminster.

JOHN HOLLAND has Superb SHOW PANSIES at 4*s*. and 6*s*. per dozen plants.

Selected PANSY SEED, 1*s*. and 2*s*. per packet.

Descriptive Catalogues now ready.

JOHN HOLLAND, Bradshaw Gardens, Middleton, Lancashire.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks at 5*s*.; 12 varieties, 2*s*. 6*d*.; and from good double sorts, 1*s*.

Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s*. per packet; separate, 2*s*. Fine Quilled African Marigolds, 6*d*. per packet.—Saffron Walden Nurseries.

LUCOMBE, PINCE, AND CO. beg respectfully to announce that they are now sending out their superb new HYBRID HEATHS, for description of which see former Advertisements.

Exeter Nursery, Exeter.—Established 1720.

LUCOMBE, PINCE, AND CO. beg respectfully to announce that they are now sending out their new White Corolla'd FUCHSIAS; also their new double purple variety for description of which see former Advertisements.

Exeter Nursery, Exeter.—Established 1720.

PELARGONIUMS, ETC.

HENRY GROOM, Clapham Rise, near London, by appointment FLORIST TO HER MAJESTY, begs to say that his Spring CATALOGUE OF PELARGONIUMS, &c., is ready, and will be forwarded on application.

MAY'S MAGNUM BONUM LETTUCE is by far the largest, sweetest, and crispest Lettuce known, in proof of which we possess numerous letters received from parties who had it last season. The addresses of the writers can be had on application. It may be sown all the summer, and will stand the winter. Packets 1*s*. each.

HENRY MAY, the Hope Nurseries, near Bedale, Yorkshire.

NEW SCARLET GERANIUM—EMPEROR NAPOLEON.

JOHN BUTCHER is now sending out the above splendid Geranium, a very decided improvement upon the great favourite Tom Thumb; the habit is more compact, the trusses of flowers very much larger, and for brilliancy of colour far superior; sending up the trusses of flower finely above the foliage. Fine for Bedding or Vases. Good Plants, fit for immediate Bedding, 18*s*. per doz.; extra, 2*s*. 6*d*. each, basket included.

Nursery, Stratford-on-Avon, June 2.

THE PAMPAS GRASS "GYNERIUM ARGENTEUM."

LUCOMBE, PINCE, AND CO. have a fine healthy stock of this highly Ornamental Plant, well established in pots, and fit to send out immediately. It is universally admitted that few plants produce a more beautiful effect than this gigantic Grass. See Woodcut and description of it in the *Gardeners' Chronicle* of November 4th, 1854. Sizes, prices, and all particulars may be had on application to LUCOMBE, PINCE, & Co., Exeter Nursery, Exeter.—Established 1720.

ENGLISH CROWN RAPE, OR COLE SEED.

CHARLES SHARPE AND CO. beg to acquaint the Trade that they can supply any quantity of the above; prices and samples forwarded on application.

Nursery and Seed Establishment, Sleaford, June 2.

SKIRVING'S IMPROVED TURNIP SEEDS.

W. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his TURNIP SEEDS for the season, as follows:—

SKIRVING'S IMPROVED SWEDE TURNIP, at 1*s*. 9*d*. per lb.

" IMPROVED PURPLE-TOP YELLOW BULLOCK TURNIP, at 1*s*. 3*d*. per lb.

All other kinds of Turnip and Agricultural seeds in general, of the most select description, at moderate prices. A remittance, or reference from unknown correspondents, is respectfully requested to accompany orders. W. S. has no agent in town or country.

Liverpool, June, 1855.

BEDDING PLANTS.—AT 2*s*. 6*d*. PER DOZ.

JOHN SCOTT, Merriott Nurseries, Crewkerne, Somerset (established 1728), has nearly 20,000, in 3-inch pots, ready to be sent out. Post-office Orders payable at Crewkerne. (Baskets and Package at the Expense of Purchaser and not returnable.)

200 Sorts of the best and newest Verbenas.
120 do. Scarlet and other Bedding Geraniums.
20 do. Variegated leaved ditto.
100 do. Fuchsia, all the best; 24 do. Shrubby Calceolarias; 24 do. Petunias; with Anagallis, Ageratums, Cupheas, Heliotropes, Lobelias, Salvias, Senecios, &c. Also the beautiful white Double Pyrethrum.

When a fair proportion of each is taken the price will be 2*s*. 6*d*. per dozen; but if only Calceolarias and Geraniums are ordered they will be 4*s*. per dozen. Catalogues, in which the above are arranged in sections of colour, &c., sent on receipt of a postage stamp. Parties requiring large quantities can have them in store pots by agreement.

SPLENDID NEW GERANIUM.

DENNIS'S ALMA, the very first in its class. Habit, very robust and bushy, flowering in the same proportion as "Alba multiflora," more early and better for forcing; the flowers are produced in umbels of 6 to 12 on very strong footstalks, which require no artificial support, and the flowers last a considerable time after they are all open. Colour, bright rosy crimson, with large dark spots, and in shape it resembles "Dennis's Perfection." Large strong Plants, just opening their flowers, in 6 to 8-inch pots, 10*s*. to 15*s*. each; in 4 or 5-inch pots, 5*s*. to 7*s*. 6*d*. A few extra large Plants, 21*s*. each.

See the remarks on the above Geranium, as exhibited at the Horticultural Society's Meetings, in this Paper, and the "Cottage Gardener" of May 15th. A specimen bloom sent to parties requiring it on receipt of three postage stamps. Post Office orders, on Chelsea, payable to WILLIAM DENNIS, King's Road, Chelsea, London.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 12*s.* per ton, 1*s.* 6*d.* per bushel, or 16*s.* per ton, delivered to any of the London Wharfs or Railways, or within a circuit of five miles. Peat and Loam of various qualities. Sacks 2*s.* each.

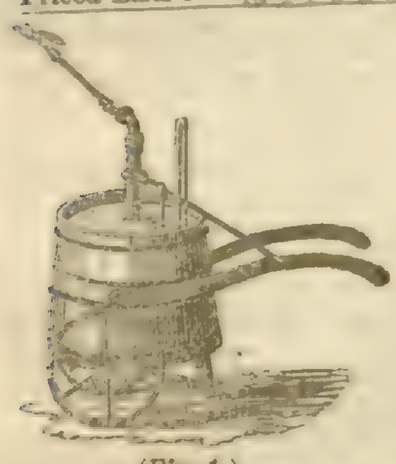
KENNARD BROTHERS, Swan Place, Old Kent Road.

LINGHAM BROTHERS, No. 170, Hampton Street, Birmingham, sole Manufacturers of the improved WOOD and ZINC MONOGRAPH, or LABELS for Garden Borders, Flower-pots, &c., in boxes of 100 each. The Zinc Labels are highly approved of for their lasting durability, can be written upon with the greatest ease, and when dry a permanent inscription is secured. Directions are sent with each box, including a bottle of metallic ink.—Sole Agents in London, Messrs. DRANE, DRAY & Co., Horticultural Implement Warehouse, 46, King William Street, London Bridge.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.



(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons, throws 30 feet high						...	£4 10
No. 2	„	15	„	„	45	„ ...	5 10
No. 3	„	28	„	„	45	„ ...	6 18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons, throws 25 feet high						...	£2 15
No. 13	„	12	„	„	30	„ ...	3 5
No. 11	„	16	„	„	40	„ ...	4 0
No. 12	„	24	„	„	45	„ ...	5 0
No. 14	„	30	„	„	45	„ ...	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1¼ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

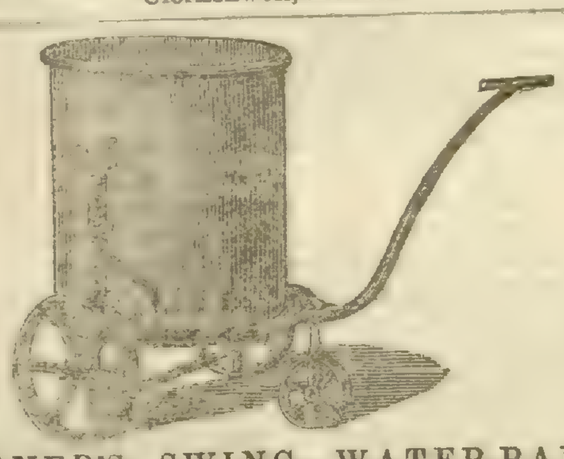
J. TYLOR & SONS, Manufacturers of Horticultural Apparatus Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense, of delivery in the country.

THE IMPROVED PATENT GARDEN, WATER AND ROLLING ENGINE may be seen in the Agricultural Department at the CRYSTAL PALACE, SYDENHAM.

The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet, and is so portable that any ordinary domestic may use it. It contains about 20 gallons. Price 5*l.* 10*s.*

May be had at J. DORE'S Manufactory, 17, Exmouth Street, Clerkenwell, London.



WARNER'S SWING WATER-BARROW (TO HOLD THIRTY GALLONS)

Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l.* 3*s.*

Manufactured by

JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

WATER YOUR GARDENS WITH THE IMPROVED FLEXIBLE GUTTA PERCHA TUBING.

Half-inch, 4*d.* per foot, light; 4½*d.* per foot, strong; larger sizes in proportion, for manuring land, &c.

Brass-hand tubes, with rose, jet, and tap, from 4*s.* 6*d.* each.

Union Joints, 1*s.* 6*d.* each, fitted complete.

Instructions given to affix joints to Taps.

Garden Engines, of great power, 4*l.* 4*s.* each; Self-supplying do., 4*l.* 10*s.* each.

Post Office Orders payable at City Road Branch.

JAMES W. WATTS, Gutta Percha Factory, 27, City Road.

THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

PARSEY'S PATENT REVOLVING PUMP lifts three times the quantity of water with the same labour, than any other Pump.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

W. F. RAE (late FREEMAN RAE), Hydraulic Engineer, 70, Strand, London.

FOR WATERING GARDENS.

HANCOCK'S IMPROVED VULCANISED INDIA-RUBBER HOSE AND TUBING is now manufactured especially for the above purpose; is of greater flexibility than any other description of Hose; is capable of resisting great pressure, and made suitable for attaching to the mains of water-works, or to tanks of high elevations.

WATERING HOSE fitted up with the necessary *brass joints, stop-cocks, branches,* and *spreaders complete.*

VULCANISED INDIA-RUBBER SUCTION PIPES, made any length or size for Pumps or Garden Engines.

VULCANISED RUBBER WASHERS, and also in Sheet, any thickness, for all kinds of steam and water joints, or made any size or figure to order.

All communications and orders punctually attended to, addressed to the Manufactory, JAS. LYNE HANCOCK, Goswell Road, London.

HOSE PIPING.

TO ENGINEERS, AGRICULTURISTS, GARDENERS, SHIP CHANDLERS, AND FIRE BRIGADES.

WAITHMAN'S PATENT FLAX TUBING (1 in. to 3 inches in diameter) will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe. Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

INCHES IN DIAMETER AND PRICE PER YARD.—¾, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d.*; 1½, 1*s.* 7*d.*; 1¾, 1*s.* 9*d.*; 2, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

Testimonial from Mr. Wright, Lancaster.—I beg to inform you that I yesterday tested your piece of 2½ inch Patent Flax Tubing, connected with the Lancaster Waterworks, in the presence of the Mayor, Mr. Rawlinson, Government Inspector, Professor Owen, &c. The column of water at which the tubing was tried was equal to 340 feet in height, or about 150 lbs. on the square inch, and I have pleasure in stating that the hose sustained this pressure most admirably.

Testimonial of Captain Martin, of the Great Britain Steam Ship.—I have much pleasure in being able to tell you that your hose, supplied to the Great Britain and other ships, is well worth the attention of shipowners. It gives us great satisfaction.

Testimonial from Fairbairn & Co., of Leeds.—We have tested your hose, 2½ inch in diameter, with the pressure of the Leeds Waterworks, and found it highly satisfactory.

SIXTEEN OUNCE SHEET GLASS cut to any size up to 44 inches in length, at 2*d.* per foot.

HICKSON'S Foreign Glass Warehouse, 46, Long Acre, (Cash).

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY.—The Managers beg to inform the Nobility and Gentry, Farmers, Gardeners, &c., that their new List of Prices may be had free on application at the Company's Depôt, 296, Oxford Street, London.

PLATE, CROWN, and SHEET WINDOW GLASS.

HARTLEY'S PATENT ROUGH PLATE for Roofing Conservatories, Halls, and Public Buildings.

Coloured and Ornamental Glass.

CRYSTAL SHADES for covering Ornaments, and

MOORE'S PATENT LOUVRE VENTILATOR, and Lockhead's Patent Perforated Ventilating Glass for Dairies, Greenhouses, Stables, &c.; Glass Milk Pans, Pails, Tests, and Measures Cream Pots and Syphons; Churns, Butter Tests and Slabs; Tiles and Slates; Bee Hives, &c.

Aquariums, Fern Shades, Propagating Glasses, Fruit Protectors, Preserve Jars, Cucumber Tubes, Hand Lights, Flower Vases, Labels, &c., and all kinds of Agricultural, Horticultural Architectural, Domestic, Scientific, and Ornamental Glass.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE. 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in. ...	...	12*s.* 0*d.*
6½	„	4½	„	7	„	5	...	...	12 6
7½	„	5½	„	8	„	6	...	...	13 0
8½	„	6½	„	9	„	7	...	...	13 6
9½	„	7½	„	10	„	8	...	...	13 6
10½	„	8½	„	11	„	9	...	...	14 0
12	„	9	„	13	„	9	...	...	14 0
10	„	10	„	10½	„	10½	...	...	14 0
11	„	10	„	11½	„	10½	...	...	14 0
11	„	11	„	11½	„	11½	...	...	14 0
12	„	11	„	12½	„	11½	...	...	14 0
13	„	11	„	13½	„	11½	...	...	14 0
13	„	12	„	13½	„	12½	...	...	16 0
13½	„	13½	„	14½	„	13½	...	...	16 0
15½	„	13½	...	...	...	...	...	...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.				
Ditto, not exceeding 1 foot	...	2½	„	
Ditto „ 2 feet	...	3½	„	

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.

In Boxes of 100 feet.

6 by 4, and 6½ by 4½						...	£0 12*s.* 0*d.*
7 „ 5, — 7½ „ 5½						...	0 14 0
8 „ 6, — 8½ „ 6½						...	
9 „ 7, — 9½ „ 7½, 10 by 6						...	0 16 0
10 „ 7, 10 by 8						...	

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15 at 18*s.* per 100 feet. If cut to order not exceeding 40 inches long.

16 oz. from 2½*d.* to 3½*d.* | 21 oz. from 3½*d.* to 4½*d.*

26 oz. from 5½*d.* to 7½*d.*

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½*d.* per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand.

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	...	...	...	£1 17*s.* 6*d.* per case of 50	
⅜	„	...	...	...	2 1 3 „ 60
½	„	...	...	...	1 17 6 „ 60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.						Per foot.	Per 100 feet
	Under 6	by 4	at	1½*d.*	is	£0 12 0	
From 6	by 4	„ 7	„ 5	„	2*d.*	„	0 16 0
7	„ 5	„ 8	„ 6	„	2¼*d.*	„	0 15 [illegible]
8	„ 6	„ 10	„ 8	„	2½*d.*	„	1 [illegible]
10	„ 8	„ 12	„ 9	„	2¾*d.*	„	1 [illegible]

Larger sizes, not exceeding 40 inches long.

16 oz. from 3*d.* to 3½*d.* per square foot, according to size.

21 oz. „ 3½*d.* to 5*d.* „ „ „

26 oz. „ 3½*d.* to 7½*d.* „ „ „

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede the other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced to half. List of Prices and Estimates forwarded on application.

JAMES HETLEY & Co., 35, Soho Square, London.

AT MR. MECHI'S ESTABLISHMENT, 112, Regent Street, and 4, Leadenhall Street, London, are exhibited the finest specimens of British manufacture, Inlaid Dressing Cases, Work-boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shaving orders executed. Superior Hair and other Toilet Brushes.

THE CHOICEST BEDDING OUT PLANTS
FOR THE PRESENT SEASON.

YOUELL AND CO.

BEG to refer to their Advertisement of the above in the last and three preceding publications of the GARDENERS' CHRONICLE.

ROYAL NURSERY, GREAT YARMOUTH.

PLANTS OF CABBAGE, SAVOY, KAIL, BROCCOLI, AND CAULIFLOWER.

JOHN CATTELL begs respectfully to inform the public that he has a plentiful supply of Plants of his superior true sorts of the above, which will be forwarded to order on receipt of Postage Stamps, or Post Office Order made payable here, at the following prices, package included:—

All the sorts of Early Cabbage, Savoy, and Kail, including Brussels Sprouts, 6*d.* per 100, 4*s.* 6*d.* per 1000; all the sorts of Broccoli, 8*d* per 100, 5*s.* 6*d.* per 1000; Cauliflower, early and late, 10*d.* per 100: Red Cabbage, 1*s.* per 100; Drumhead, or Cattle Cabbage, 4*s.* per 1000. A fine stock of autumn-bedded early Cabbage still to dispose of, 6*s.* per 1000; for large quantities, price on application. Packages containing plants to the value of 1*l.* and upwards will be delivered carriage free to London and to the Edenbridge Station of the South Eastern Railway. A remittance must accompany orders from unknown correspondents. Seed of Cattell's Dwarf Barnes, and of his superior Dwarf Reliance Cabbage, may be had in packets by post, for 12 penny stamps per packet, the former containing one ounce, and the latter half an ounce.

Nurseries, Westerham, Kent.

NEW AND CHEAP PLANTS.

HENRY WALTON, FLORIST, &c., Edge End, Marsden, near Burnley, Lancashire, has now on hand a fine stock of the following, which may be had at the extremely low prices annexed:—Achimenes Carl Walforthi, 1*s.* 6*d.*; Cherita, 1*s.* 6*d.*; Louis Van Houtte, 1*s.*; Gigantea, 5*s.*; Madame Randatler, 3*s.*; Mr. Parparet, 1*s.*; Sir Traherne Thomas, 1*s.*; Henderson, 2*s.*; or the lot post free for 12*s.* Gloxinias, choice varieties, 1*s.* 6*d.* to 3*s.* 6*d.* each. Verbenas of this season, viz., Wonderful, Blue Beard, Lady Lacon, Commander-in-Chief, Empress of France, Florence Nightingale, Rose of England, Tyrian Prince, Eva, Boule de Feu, Lord Raglan, Empress, Mrs. M'Neil, Violacea, Sillistria, and Mrs. Woodroffe, 1*s.* 6*d.*, or 18*s.* per dozen post free. Cilanthus magnifica, 2*s.* 6*d.* each. Begonia Prestoniensis, superb, 2*s.* 6*d.*; extra strong, 5*s.* Eugenia Ugni, 2*s.* 6*d.* Fine Show and Fancy Geraniums, 60*s.* per 100, or 50 for 32*s.* 6*d.* Scarlet and White, and older kinds of Geraniums, 3*s.* 6*d.*, 4*s.* 6*d.* and 6*s.* per dozen. Dahlias, strong plants, 3*s.* 6*d.* per dozen. Bedding Plants, of sorts, equally cheap. Descriptive List may be had for one stamp.

It is respectfully requested that orders be accompanied with Post Office Order payable at Marsden, Lancashire, unless reference is given.

NEW AND CHEAP FIRST-RATE
SHOW AND BEDDING PLANTS.

THE CHEAPEST ESTABLISHMENT IN THE KINGDOM IS AT

HENRY WALTON'S, FLORIST, &c., Edge End, Marsden, near Burnley, Lancashire, where there are propagated annually for sale from 20,000 to 30,000 plants, which, for cheapness and quality, are not to be equalled, being robust and healthy.

GERANIUMS.—Strong blooming plants, of varieties of 1853, such as Empress, Carlos, Neatness, Glow-worm, &c., 25*s.* per dozen; older show varieties, 9*s.*, 12*s.*, and 15*s.* per dozen; 25 for 20*s.*, 50 for 30*s.*, good plants.

FUCHSIAS, new varieties of last season, 6*s.* to 9*s.* per dozen.

CINERARIAS, choice varieties, such as Advancer, Etoile de Valois, Empress, &c., 10*s.* 6*d.* per dozen; older varieties, good show kinds, 3*s.* 6*d.* per dozen.

PANSIES, 12 distinct fine show varieties, 6*s.*; 25 fine vars., 12*s.*

VERBENAS, new varieties of last season, 4*s.* to 6*s.* per dozen.

DAHLIAS, all the leading show kinds of last season, 9*s.* to 12*s.* per dozen; older varieties 4*s.* 6*d.* to 6*s.* per dozen, extra strong plants.

Bedding Plants, including Scarlet and other Geraniums Salvias, Heliotropes, &c., equally cheap.

H. W.'s Spring List may be had for one penny stamp.

It is respectfully requested that all Orders be accompanied with a Post-office Order, payable at Marsden, Lancashire, unless a reference is given. Orders to the amount of 25*s.* paid to Liverpool, Manchester, Leeds, and Preston; 2*l.* and upwards free to Birmingham and Carlisle; and the like distance, or more distant, extra plants gratis.—Edge End, Marsden, June 2.

PAGE AND CO'S COMPOSITION FOR THE DESTRUCTION OF BLIGHT UPON ROSES, WALL- AND GREENHOUSE PLANTS, MELONS, VINES, STOVE FRUIT TREES, CUCUMBERS.—Extra Strong, 4*s.* per gallon, sufficient to make four (Jars and Barrels extra). Directions for use forwarded. Ten gallons and upwards carriage free to London.

After four years' extensive use by the most eminent Gardeners in the kingdom, the superiority of PAGE & CO.'S BLIGHT COMPOSITION is unquestionable, requiring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage) and promoting a luxuriant growth.

See two pages Testimonials, *Gardeners' Chronicle*, March 3, 1855.

Can now be obtained of

Messrs. Henderson & Co., Pine-apple Place, London
Messrs. Bass & Brown, Sudbury
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester
Messrs. Sutton & Sons, Reading
Messrs. Rendle & Co., Plymouth
Mr. James Veitch, Exotic Nursery, Chelsea
Messrs. Wheeler & Son, Gloucester
Mr. E. Paul, Derby
Mr. George Wheeler, Nurseryman, Warminster
Messrs. Masters & Son, Canterbury
Mr. Tilley, Bath
Messrs. Downie & Laird, South Frederick Street, Edinburgh
Mr. W. Barratt, St. John's, Wakefield
Messrs. Thomas Davies & Co., Wavertree, Liverpool
Mr. E. Taylor, Malton, Yorksh.
Messrs. Chandler & Son, Wandsworth Road, London
Mr. Freeman, Woburn
Mr. J. Linford, Shefford, Beds
Messrs. Veitch & Son, Exeter
Messrs. Hooper & Co., Covent Garden, London
Messrs. Fisher, Holmes, & Co., Handsworth Nursery, Sheffield
Mr. J. Perkins, Northampton
Mr. W. F. Smith, Rivershead Nursery, Sevenoaks
Messrs. Wood & Ingram, Nurseries, Huntingdon
Mr. Baskerville, Bristol
Mr. Burham, Hastings
Messrs. Leake & Smith, Bridgenorth
Mr. Davison, St. Peter's Street, Hereford
Mr. W. Garraway, Welwyn, Herts.
Mr. Thos. Cridland, Willington, near Taunton
Mr. Henry Horne, Market Place, Henley-on-Thames
Mr. R. M. Mills, Market Place, Bourn
Mr. Husbands, Talbot Street, Nottingham
Mr. Caparn, Seedsman, Newark
Mr. John Cattell, Seedsman, Westerham
Mr. Morgan, Nursery, Kidderminster
Messrs. Ivery & Son, Nurserymen, Dorking and Reigate
Messrs. W. Drummond & Sons, Dawson Street, Dublin
Messrs. Mappleback & Lowe, Birmingham
Mr. W. Bower, Moorgate House, East Retford
Mr. James Allen, sen., Bothwell Street, Glasgow.

And of the Inventors and Manufacturers,
R. PAGE AND CO., SEED MERCHANTS, Oxford Street, and Above Bar, Southampton.

NEW ROSES FOR 1855.—Strong flowering Plants of the following 12 New Perpetual Roses for 3*l.* No charge for packing.

Madame Theodore.	Jules Margottin.
Beauté de Lyonnais.	Salet (Moss).
Comtesse Vailliant.	Madame Place.
Madame de Cambacères.	Pauaché d'Orleans.
Madame Vidot.	Souvenir de Leveson Gower.
Prince de la Moskowa.	Madame Domage.

Apply to J. and S. FRASER, Nurserymen, Lea Bridge Road, Essex.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the following Select Bedding Plants, post free:—

		s.	d.
12 fine varieties Antirrhinums, 3*s.*; 12 extra ditto	...	6	0
12 „ Verbenas, 2*s.* 6*d.*; 12 extra ditto	...	6	0
12 „ Phloxes, 4*s.*; 12 extra ditto ...	...	6	0
12 „ Pansies, 4*s.*; 12 extra ditto ...	...	9	0
12 fine Chrysanthemums, Pompones, or large flowered	...	3	6
12 fine varieties Mimulus, 4*s.*: 12 Belgian Daisies	...	3	0

67, High Street, Battle, Sussex.

ROBERT PARKER begs to inform his friends and the public that his New Spring Catalogue containing Descriptive and Priced Lists of the following:—

Exotic Orchids	Roses in pots
Ferns—stove, greenhouse, and hardy	Dahlias — show and fancy [varieties
Geraniums—show, fancy, scarlet, variegated, and hybrid bedding varieties	Fuchsias
Chrysanthemums—large flowered, and Pompone varieties	Selaginillas or Lycopodiums
Petunias	Gloxinias
Antirrhinums	Cinerarias
	Calceolarias—bedding varieties
	Verbenas
	Miscellaneous bedding plants &c., &c.

Is now ready and can be had Post-free on application.

Paradise Nursery, Hornsey Road, Holloway, London.

NEW SCARLET VERBENA—"MRS. WOODROFFE."

ARTHUR HENDERSON AND Co. can now supply fine strong plants of this very fine new Scarlet Verbena, 4 to 6 inches high, with numerous side branches, and all well hardened, fit for immediate planting out, at the following reduced prices, viz.:—

		s.	d.
1 Plant	... ...	1	6
12 Plants	... ...	12	0
25 Plants	... ...	22	0
50 Plants	... ...	40	0
100 Plants	... ...	70	0

Specimens of blooms can be sent per post in tin cases (on receipt of 6 Postage Stamps) to those who are desirous of seeing and judging for themselves of the merits of this splendid variety.

Pine Apple Place, Edgware Road, June 2.

TURNIP SEEDS, ETC.

PETER LAWSON AND SON SEEDSMEN to the QUEEN and to the HIGHLAND AGRICULTURAL SOCIETY, beg leave to intimate that they are sending out the following TURNIP SEEDS, for which they respectfully solicit orders. They are all of the most approved kinds of last year's growth:—

SELECT STOCKS.

SWEDISH— Per lb.—	s.	d.	YELLOW—	s.	d.
Lothian Purple-top ...	1	9	Bullock, Green-top ...	1	0
Green-top	1	9	„ Purple-top ...	1	0
Laing's Purple-top ...	1	9	Gordon of Ayrshire, Green-top	1	0
Skirving's do.	1	9	Gordon of Aberdeenshire, do.	2	0
Matson's do.	1	9	Hood's Imperial, do. ...	1	0
Fettercairn Green-top ...	1	9	Laurencekirk Tankard, do.	2	0
White-fleshed	1	9	Cambridgeshire do. do.	2	0
RED—Round, or Norfolk .	0	9	Skirving's Purple-top Yellow Bullock ...	1	2
Tankard	0	10	Border Imperial Purple-top do.	1	2
Globe	0	9	Dale's Hybrid	1	0
„ Woolton (superior variety)	0	9	Tweeddale Purple-top Yellow Bullock	2	0
GREEN—Globe, improved	0	9	Cruicksfield Green-top Hybrid, new (between Swede Turnip and Kohl Rabi)	3	6
Round, or Norfolk ...	0	9			
Tankard	0	10			
WHITE—Globe	0	9			
Do. Pomerain, true ...	0	10			
Round, or Norfolk ...	0	9			
Six-week, or Stubble ...	0	10			
Tankard	0	10			

27, Great George Street, Westminster.

MESSRS. E. G. HENDERSON AND SON beg to announce that their new Spring CATALOGUE for 1855 will be sent post free on application, and for 12 postage stamps a beautiful coloured plate representing the following choice plants:—

Achimenes Ambroise Verschaffelt.	Delphinium Hendersoni.
Acacia Drummondi microphylla.	Genetyllis macrostegia (fuchsioides).
Boronia Drummondi.	Fuchsia Queen Victoria.
Bouvardia longiflora.	——— Mrs. Story.
	——— Prince Albert.

Mr. Andrews, the first floricultural artist of the day, has had the getting up of this plate, so that full reliance may be placed on the correctness of the flowers represented and the superior style of the colouring.

Description and Price of the following New Plants will be seen on reference to the Catalogue.

Fuchsia Queen Victoria.	Fuchsia Empress Eugenie.
„ Prince Albert.	„ Lady of the Lake.
„ Water Nymph.	„ Snowdrop.
„ Raffaelle.	„ Mrs. Story.
„ Rouge et Blanc.	„ Princess of Prussia.
„ Miellezi.	„ Souvenir de la Reine.
„ Dominiana.	„ Climax.
„ Maid of Kent.	Geranium Favourite (bedding).
Geranium Rubens (bedding).	„ Silver Queen.
„ Virginium.	„ Pretty Polly.
„ Masterpiece.	„ Quercifolium eximium.
„ Rose d'Amour.	„ Glow-worm.
Calceolaria Surprise.	Calceolaria Brunettia.
„ Purity.	„ Corregio.
„ Maggiore.	„ Minnie.
„ Norma.	„ Red Rover.
„ Vezzosa.	„ Wildfire.
„ Ajax.	Phlox Queen Victoria.
Hydrangea hortensis flore pleno.	Pyrethrum Delhayi.
Lychnis Sieboldi.	„ Duchesse de Brabant.
Veronica imperial blue.	Achimenes Hendersoni.
„ Andersoni fol. variegata.	„ gigantea.
Begonia prestoniensis superba.	Scuttellaria villosa.
Lobelia Antwerpiensis.	Verbena la Déesse, and others recommended.

Chrysanthemum Hermine, Bole, and others recommended.

June 2.

BASS AND BROWN have published a Supplement to their Catalogues, with extracts and descriptions of a few new and select plants, which may be had free on application.

BEDDING PLANTS.—An extensive stock of the finest and most popular, strong and well established, at low prices.

GERANIUMS, GLOXINIAS, ACHIMENES, STOVE, GREENHOUSE, and HERBACEOUS PLANTS, in splendid collections, for which see advertisements in *Gardeners' Chronicle* of April 21 and 28, and May 5 and 12.

Seed and Horticultural Establishment, Sudbury, Suffolk.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year; and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

CHOICE CINERARIA SEED.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior CINERARIAS, which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias have given for several successive years, enables them to recommend their Seed of the present season with much confidence. Packets sealed and warranted by them at 2*s.* 6*d.*, free by post.

Exeter Nursery, Exeter.—Established 1720.

The Gardeners' Chronicle.

SATURDAY, JUNE 2, 1855.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, June 5—Horticultural ..... 3 P.M.

THE opinion of practical men concerning the merit of bringing the MANGOSTEEN fruit to maturity in this country has now been pronounced in the strongest manner possible by the award of the experienced Judges of the Horticultural Society on the 16th ult., when a Gold Banksian Medal was assigned to the beautiful specimen sent from Syon to Gore House by order of his Grace the Duke of NORTHUMBERLAND. We believe there is no other instance of a medal equal in value to the Horticultural Society's Gold Banksian having been awarded to a single fruit, nor could anything have justified so great a departure from custom except the combination of the greatest skill in gardening with results as important as those obtained by the production of a fruit like the Mangosteen. Had the horticultural difficulties been fewer, or the quality of the fruit been below the highest, the advent of the Mangosteen could not have been celebrated in such a manner.

It is not surprising that those who have had no opportunity of tasting this delicious fruit should be incredulous as to its excellence. It is difficult indeed to speak of it without an appearance of exaggeration. Nevertheless it will be found that the statements of every traveller who has written about the Malay island assign it the highest place at the dessert; and, so far as our own taste can be trusted, we wholly concur in that opinion. Not to occupy space with quotations from English works we will merely cite the words of RUMPHIUS, the celebrated Dutch Governor of Amboyna, who speaks of it in these terms: "When ripe the fruit is as delicate and agreeably sweet as the finest Lansehs (another famous Malay fruit tree, of which a variety called the *Duku* is the domesticated representation which ought next to engage the attention of the wealthy), and may even be mistaken for ripe Grapes. It is at the same time so juicy, that many people can never eat enough of it, so delicious is its fragrance and agreeable its sweetness; and it is believed that the sick, when appetite or the power of eating has wholly gone, are nevertheless delighted with this fruit; or at least if they will not take to Mangosteens their case is indeed hopeless."*

The question still to be considered is whether—the ducal garden at Syon having proved equal to the ripening this fruit, and its excellent quality having been ascertained beyond dispute—it is likely to engage the attention of others, and to become of importance as a general addition to the dessert.

To this, we think, one answer only can be returned; and that in the affirmative. Now that the great preliminary difficulties are overcome, there should be no more reason for failing in obtaining a crop of Mangosteens than of Peaches; the difference consists in the expense, which however most certainly need not exceed that of a house of Pine Apples. During a period of 22 years the Dukes of NORTHUMBERLAND have patiently awaited the result of various costly experiments instituted to determine under what conditions the plant can be kept in health, well knowing that in the end it would bear its fruit; for it is as certain as any

* *Maturi sunt adeo delicati et gratè dulces ac optimæ Lansia vel uvæ maturæ excogitari possunt. Simulque adeo succosi ut multi vix satiari hisce fructibus possint, ob excellentem odorem gratamque dulcedinem, putaturque, quum ægrotus nullum alium amplius appetat, vel edere possit cibum, hoc delectari adhuc fructu; si vero hunc non desiderat de ejus salute desperandum esse, &c.—Herbarium Amboinense, vol.* 1.

other fact in natural history, that all trees will do so when they have acquired sufficient age, although the length of time demanded by Nature to produce fertility is uncertain, and varies from species to species. In the course of these experiments it has been ascertained that the conditions necessary to the Mangosteen in a domesticated state are abundance of warmth, moisture, light, and above all FRESH AIR, skilfully regulated as is described by Mr. JOHN IVISON, the present gardener at Syon, at page 819 of our volume for 1854; where the manner in which FRESH AIR, that most important of all agents, is admitted is fully explained. These conditions anybody can imitate. The difficulty is to obtain fruiting plants, and for these we must look either to supplies in Wardian cases from Penang, or to propagation in this country by cuttings or layers. Perhaps grafting on such stocks as *Xanthochymus pictorius* may also succeed, but it is doubtful whether specimens so obtained will either thrive or "stand." Plants "on their own bottom," as gardeners say, are alone to be trusted. If such could be produced, they will come into bearing immediately, for that maturity of organisation which is necessary to the formation of fruit is transmitted by subdivision, along with every other quality.

That the Syon Mangosteen tree has really attained complete vigour, and a power of bearing fruit hereafter regularly, is proved by the fact that the fruits hitherto ripened are perfectly organised. It is true that no seed was found in the fruit that was first gathered; but one lobe had a seed in the third specimen which has been examined, and RUMPHIUS expressly declares that in Amboyna, where it arrives at perfection, usually only one lobe contains a seed, and very often no seed at all is formed.

One thing which will always give the Mangosteen a peculiar value at the tables of the great, beyond its incomparable quality, is the impossibility of rendering it common. There is no country within reach of our shores that can produce it naturally; it must always, therefore, be a tender exotic, and confined to the wealthy, as Pine Apples once were. It possesses the valuable property of keeping well and travelling well. That which was shown at the meeting of the Horticultural Society had been gathered several days, and yet proved excellent when opened.

We take the present opportunity of repeating that it is no small triumph to the Duke of NORTHUMBERLAND that his Grace's garden at Syon should be the only one in the world in which Vanilla, Cloves, Nutmegs, Litchis, and Mangosteens have been brought to equal perfection. We do not mean that no one has fruited Vanilla and Litchis except the noble proprietor of Syon: for the first has long ago been produced in other gardens, and the Litchi ripened formerly in the forcing-house of Mr. JOHN KNIGHT, of Lee Castle. What we do say, and what we think is a most striking illustration of what wealth, intelligence, and skill may effect, is that all the five important productions we have enumerated were never before brought to perfection in one and the same establishment; unless perchance in some Dutch island in the Malay Archipelago.

WE find in the "Revue Horticole" an account of two NEW ESCULENTS, which are said to deserve notice. Having no personal acquaintance with them we confine ourselves to a translation of what is said about them by Mr. MÜLLER, superintendent of the Botanic Garden, Upsal, who sent the seeds to the Botanic Garden, Hamburgh.

"I particularly recommend to your notice these two new kitchen garden plants, *Chærophyllum Prescotti* and *Rumex vesicarius*. We received the first from St. Petersburgh in the spring of 1852, but it did not occur to me till last autumn that its fleshy root, as large as a Parsnip, might be worth cooking. The seeds being then ripe it was to have been expected that the roots would prove woody; but I was agreeably surprised to find it tender and very nice (*de très-bon gout*). In flavour it is not unlike the Turnip-rooted Chervil (*Chærophyllum bulbosum*), but as it is much larger and good even after seeding, it is a much more useful plant. Cultivation will probably increase its size. In my case the seeds were sown in spring, but I should expect the roots to become larger if the seeds are sown in autumn, like those of *Chærophyllum bulbosum*. The plant is perennial and not biennial like that plant. As it is a native of Siberia, cold has no power over it, and it succeeds perfectly in good damp garden soil. It might be called the Turnip-rooted Siberian Chervil."

The other plant, *Rumex vesicarius*, is a kind of Sorrel. "When dressed like Spinach," says Mr. MÜLLER, "it is very nice. The leaves are slightly acid, and if mixed with common Spinach greatly improve it. The plant is an annual, with great fleshy leaves, and grows perfectly in any rich moist soil."

These two plants seem to deserve the attention of seedsmen.

New Plants.

128. ABIES HOOKERIANA. *A. Murray, in Edinb. new Phil. Journal*, i., 289, t. 9.

129. ABIES PATTONIANA. *Ibid.*

"This species is allied to *A. alba*. The cones have considerable resemblance. They are of the same colour, and the scales in both are somewhat saucer-shaped, and have their edges smooth; but *Hookeriana* has the cone, and more especially the scale, seed and wing larger. These, as well as the bract at the back of the scale, are differently shaped, as will be seen from the figures in the etching. The habit of the tree, and the manner of growth of the leaves, is also different. In *A. alba* the leaves are inserted pretty regularly along the branch. In *Hookeriana* they are crowded together, curling upwards a little, after the fashion of *A. nobilis*.

"This *Abies* has also considerable resemblance to *A. Pattoniana*, introduced three or four years ago by Jeffrey, the collector sent out by the Edinburgh Oregon Expedition, and as that species is little known (having only been described and figured in a private circular issued by the Association), I shall enter a little more at length into the distinctions between the two than I have done with *A. alba*.

"Both *A. Pattoniana* and *A. Hookeriana* are trees of exceeding beauty, but the former is described by Jeffrey as being 150 feet in height, and towering over the rest of the forest. The height of *A. Hookeriana* was only about 50 feet. One tree that my brother cut down measured 47½ feet in height, and was 20 inches in diameter at the stump. The timber is hard and tough. It is more distinguished by its gracefulness than its size. With the exception of *Cupressus Lawsoniana* (to be presently mentioned), my brother describes this as the most beautiful of the new discoveries which his expedition produced. Its gracefulness and elegance were the qualities on which he particularly dwelt. The cones of the two trees give many points by which to distinguish them. They do not differ much in size, but those of *A. Pattoniana* are of a dark brown colour, and those of *A. Hookeriana* of a light fawn colour, somewhat of the hue of the cone of our common Larch, or of *Abies alba*. The scales of *A. Pattoniana* are a third or a half smaller than *A. Hookeriana*. They are deeply crenulated quite down to the place which the bract covers, and that place is smooth and prominent. The scales of Hookeriana are not crenulated, an evanescent raised line only shows itself here and there. The shape of its scale also is not regular; it is cut out on each side, but one side is always more cut out than the other; where the cutting-out has commenced, the scale has thinned off, so as to be membraneous. In *A. Pattoniana* there is no such thinning off nor cutting out. In its scale the place where the two next scales have lain over it is not, or at least is scarcely, to be distinguished from the exposed part. In *A. Hookeriana* it is very marked, there being an immediate rising or thickening in the line of the scale just beyond where they lay, showing the exposed part very distinctly of a curved triangular shape. The surface of the covered part in *A. Hookeriana* is duller and more opaque than the exposed part, and the streaks or raised lines are less perceptible. In *A. Pattoniana* no such difference exists. The bract in *A. Pattoniana* contracts at about two-thirds of its length from the top, and has a projecting purple ear immediately before the contraction. *A. Hookeriana* has no such ear, and the contraction takes place at one-third from the top instead of two-thirds. This ear is not to be confounded with a sort of projection which both have at the top angles. The seed and the wing of *A. Pattoniana* are both about one-third shorter than in *A. Hookeriana*, and the wing of the former has a purplish-brown tinge at the top and back, which does not exist in the latter. This species was found high up the Californian mountains, about lat. 41° N., where the ground was already covered with snow, on the 16th of October.

"We have named this species in honour of Sir W. Hooker, who has done so much for the botany of this country. The species *A. Pattoniana* was justly named by the committee of the Oregon Botanical Association after Mr. Patton, of the Cairnies, in Perthshire, a gentleman who is following out with equal zeal and discrimination a series of experiments, having for their object the ascertainment of what new Pine and other forest trees can be grown with most advantage in our climate."

130. CUPRESSUS LAWSONIANA. *A. Murray, in Edinb. new Phil. Journal*, i., 292, t. 10.

"This was the handsomest tree seen in the whole expedition. It was found on the banks of a stream in a valley in the mountains; it is about 100 feet high, and 2 feet in diameter. The foliage is most delicate and graceful. The branches bend upwards at the end like a Spruce, and hang down at the tip like an ostrich feather. The top shoot drops like a Deodar. The timber is good, clear, and workable.

"This species has been named after Messrs. Lawson, the enterprising nurserymen of the Scottish capital, who after having distributed and made generally known so many species of this family of trees, are well entitled to have their names connected with a species likely to prove a general favourite; and the attention comes well from my brother, who, if he has received praise and commendation from others for the extent and excellence of his collection, has received from these gentlemen the solid pudding, they having purchased the whole of his collection at a liberal price."

This has singularly small cones, and branches so closely covered with blunt convex whole-coloured scales, not depressed at the sides, as to resemble those of *Juniperus phœnicea* or some such plant. The curved ends of the twigs remind us of *Juniperus incurva*. It appears to be very handsome.

VEGETABLE PATHOLOGY.—No. LXXIV.

318. CHLOROSIS 7. (*Accidental and Functional*) YELLOWNESS.—Before leaving this subject, which might be greatly extended if different species of plants affected by the diseases were treated separately, it may be well to say a few words on the Chlorosis of Vines. It is not uncommon in badly-managed houses to see the foliage of Vines either wholly or in part of a sickly yellow tint. Where it is partial it may arise sometimes from keeping the branches too thick, and if this is the case it is easily remedied, but the evil often extends further, and scarcely a single vigorous leaf is to be seen on the plant. If the disease is much aggravated the shoots are weak, the blossoms if produced at all set badly, and the Grapes when formed do not arrive at full perfection; and if it is of less immediate urgency, shanking and other bad effects are sure to follow. In almost every case the evil arises not so much from the construction of the house as from the condition of the roots, and it is there that the remedy must be applied. In general the condition of garden soil is such that it is a great mistake to plant deeply. It is true that in Madeira and some other Vine countries where the soil is rocky, and is subject to burning heat, it is found that the cuttings can scarcely be made too long. Moisture can only be found at considerable depths, and the soil is so porous that there is no fear that the air should not penetrate sufficiently, much less that there should be any stagnant fluid, impregnated with noxious matter to impede the growth. The conditions, however, are totally different in our gardens, and after a proper drainage has been secured it is often desirable, with a view to prevent the penetration of the roots too deeply, to place a course of stones or some other obstacle, taking care, however, that it shall not interfere with the drainage. It is easy enough to supply moisture or nutriment from above if these be requisite; or, if there be any fear that the heat shall injure the superficial roots, to mulch the ground to such a depth as may be necessary. If these conditions are secured there is no fear that the foliage within the house will be unhealthy, except some palpable cause exist within; and if the foliage is good, at once free from rank luxuriance and meagre yellowness, the crop is almost sure to succeed.

319. The same principles apply to fruit trees, which often suffer from Chlorosis induced by bad draining. It is quite useless and unreasonable to expect that an orchard will be profitable if the temperature of the subsoil be constantly depressed by stagnant water, which is loaded at the same time with matter injurious to health. It is true that trees may thrive on the banks of a running stream, but then there is a constant succession of fresh fluid. In the other case the growth will be miserable; the branches, in consequence of the sluggishness of the bark, will soon be covered with Moss and Lichens; the young shoots will not be properly exposed to the effect of light, and the whole tree will gradually decline, producing less and less every year, till it perishes altogether.

320. CHLOROSIS 8. *Yellowness produced by parasitic Fungi.*—It has already been remarked that the effect of some fungi is to stimulate plants and induce a more intense growth of chlorophyll, and Bunt was adduced as the most familiar instance. But this is by no means the case with a large tribe of fungi, which live at the expense of the tissues of the matrix. The chlorophyll in such cases may have originally been produced in great perfection, even in greater quantity than usual, as in Potatoes attacked by Botrytis infestans, but this is not always the case. The Anemone leaves which are attacked by Æcidium leucospermum may be recognised at a glance by their chlorotic aspect, independent of their change of form from the first moment of their appearance above the surface of the soil. In many cases, however, the evil arises from the appropriation by the parasite of chlorophyll already elaborated, and thus it is that in our pastures and cornfields multitudes of plants, as Poppies, Crowfoots, &c., exhibit a chlorotic appearance by which a practised eye may at once recognise the presence of some parasite. Happily the evil is more prevalent amongst what are commonly called weeds, and it is one amongst the many means provided by the Almighty for the suppression of noxious species, or for preserving the balance of creation. Sometimes, however, crops such as Lucerne, Tares, &c., are attacked, and a good deal of mischief is done without any means of materially repressing the evil. An early application of sulphur in some form or other would no doubt be efficacious, but the evil is seldom discovered till it is too late to apply a remedy.

321. CHLOROSIS. 9. (*Yellowness produced by Insects*) —The pale unhealthy tint assumed by Hops attacked by the fly is an instance in point. The consideration of this and like cases must, however, be reserved till we consider the effects of insects on vegetation. *M. J. B.*

POLYGALAS.

AMONG these are some of the gayest and most useful inmates of our greenhouses. And the best varieties are plants of easy culture, which, with even ordinary care, soon form fine large symmetrical bushes, bloom most profusely, and remain longer in beauty than most hard-wooded plants. But, although all the more desirable

varieties are of free growth, persons commencing their culture should be careful to procure good healthy promising young plants, avoiding pot-bound leggy things, which are very unfit for beginners. If plants are procured at once, the best situation for them for the next two months will be near the glass in a cold pit or frame, where they can be secured from bright sunshine, and afforded a free circulation of air. If they appear to require more pot room, this should be seen to at once, in order to get them well established in their pots before winter; and it will not be advisable to give a very large shift after this season. Attention should be paid to having the ball in a nice moist healthy state; for no plant should be repotted except this is the case, and particularly hardwooded plants. For soil, use good strong rich fibry peat, with a small proportion of rich mellow turfy loam, well intermixed with plenty of sharp silver sand, and some lumpy bits of charcoal, or clean small potsherds to keep it open and permeable to water, and ensure good drainage. If stopping is required, this should be done as soon after potting as the roots appear to have taken to the fresh soil; or in the case of plants that do not require repotting, it should be done at once, and the shoots should be kept nicely tied out, in order to induce a bushy habit of growth.

The best situation for the plants in winter is near the glass in the greenhouse, where they will have all the light possible and a free circulation of air on every favourable opportunity. At that season water must be adminstered very carefully, never giving any until it is absolutely wanted, and then sufficient to thoroughly moisten the ball. Turn the plants occasionally, to prevent their getting one-sided through the shoots turning to the sun, and give the leaves a gentle washing with the syringe occasionally, to clear them of dust, &c.; but do this on a bright morning, so as to avoid damp. About the middle of March the plants should be cut back, if necessary, to secure a sufficiently close growth—for they will be too small to be of any service for flowering—and placed in the warmest end of the house, or removed to where the night temperature may average about 45°, syringed over-head on bright days, and kept rather moist. Here they will soon push their buds and start into free growth, and when this is the case the roots should be examined, giving a liberal shift if the ball is covered with healthy roots. Afford the same careful attention after repotting as recommended above, keeping the atmosphere moist, and watering sparingly until the roots strike into the fresh soil. Perhaps the best directions that can be given as to temperature during spring would be to regulate it according to the amount of light, keeping the plants growing as freely as can be done without inducing weakly growth; but by all means avoid this, which would spoil the specimens. Remove to a cold frame as soon as the weather becomes at all favourable, and treat them during the summer as recommended for last season, remembering that minute attention and careful management is the only way of securing handsome specimens. If a second shift should be required in course of the summer see to this as early as can properly be done, in order to have the pots pretty full of roots; also discontinue shading early in autumn, and expose the plants freely to light and air, so as to get the young wood rather firm before winter.

The same treatment as recommended for last winter will be suitable again, but if the plants are considered sufficiently large for flowering, they should be kept in a cool airy part of the greenhouse until they come into bloom, when they may be removed to the conservatory, where, if they are shaded from bright sunshine, they will last some two months in beauty. *Alpha.*

GARDENERS FOR THE CRIMEA.

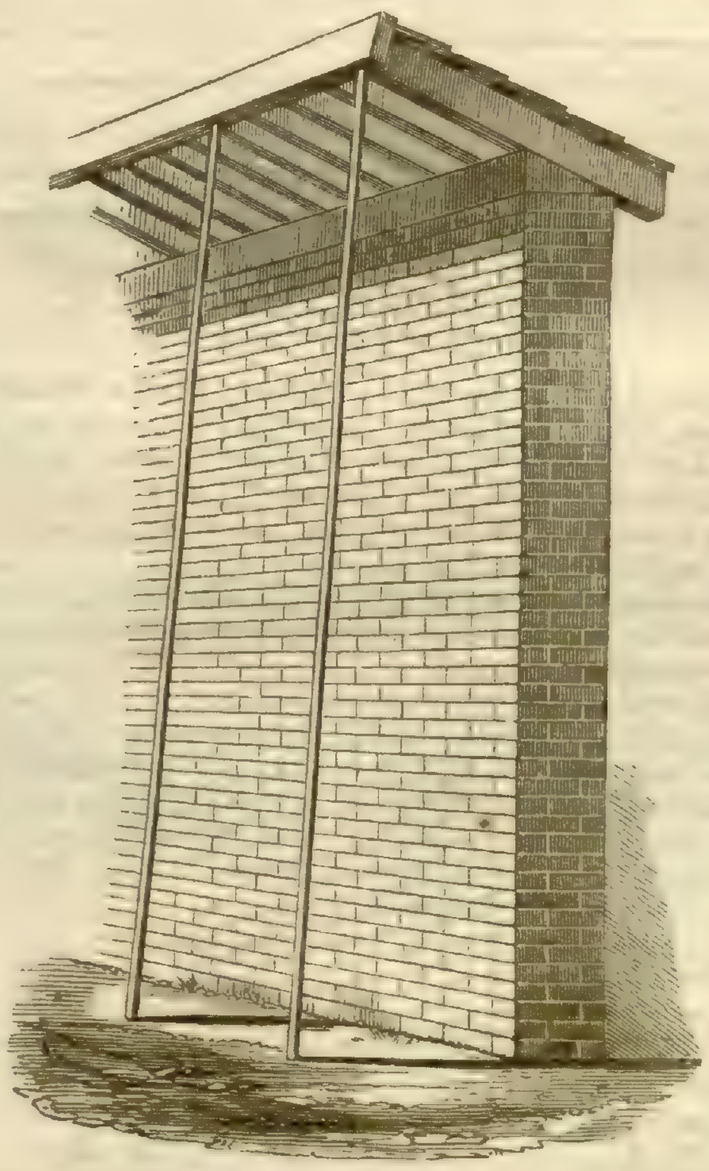
While Government has been lately exerting itself in behalf of our brave army in the East by sending out engineers to erect huts, &c, for its convenience and comfort—"navvies" to lay down railways for the more speedy transmission of provisions and materials of war—cooking apparatuses for use in the camp—nurses for the sick and wounded, and a celebrated cook to teach the soldiers how to make the best use of their tea, coffee, and arrow-root in the hospitals, and how to dress to the best advantage their rations in the field, there has, nevertheless, been something overlooked which ought to be supplied without longer delay, and which, if it had been thought of, and acted on three months ago, would have been so much the better, but which might yet be attended with advantage, if the siege of Sebastopol and the war in the East are likely to last six months longer, and that is sending gardeners to the Crimea. Now that cooks have gone gardeners ought to follow, and I am not sure that the latter ought not to have preceded the former. Gardeners to raise abundance of vegetables would promote the health and comfort of the army, instead of depending for its supply on uncertain markets situated at too great a distance from where the articles are required.

Admitting that vegetables could be obtained in abundance at different places on the shores of the Black Sea, and that they could be conveyed in steamers in a comparatively short time to Balaklava, and thence by rail to the camp, a very considerable period must elapse from the time when they were gathered till they could be delivered for the use of the troops; and, consequently, they would become very much deteriorated in quality. All I think will allow that a very short time is required to spoil green vegetables when closely packed, even in this country. Few will dispute the fact that vegetables sold in the London markets are inferior in point of quality to those sent into a gentlemen's house in the country, simply from their having been for a short time packed closely together. For the market, they must necessarily be gathered and packed the previous day, travel to town during the night, and in warm weather they are often sold in a heated state, even in that short space of time. But how do matters stand when they are closely packed in a ship in large quantities for a much longer period? They must be in a state of incipient fermentation at least, before they can reach their destination, and I much doubt if any medical man would recommend vegetables to be eaten in that state, or consider them wholesome. But independent of the great luxury it would be to officers and men to have a proper supply of fresh vegetables every day, or of how it would minister to their health, comfort, and efficiency, and possibly be the means of keeping many out of the hospitals, the plan may be recommended upon economical grounds, it being cheaper to provide the articles on the spot than to trust to an uncertain supply from a great distance. Large quantities of Peas, Beans, Kidney Beans, Scarlet Runners, Cabbages, Cauliflowers, Radishes, Lettuces, Cucumbers, Carrots, Onions, &c., might be produced in a short time, and would doubtless be looked upon as a God-send by the troops. A few good kitchen gardeners, with a staff of some 15 or 20 men each, placed in different localities, within reach of the camp, and out of range of the Russian guns, would produce an enormous amount of vegetables in a few weeks in such a climate as that of the Crimea. Great quantities of suitable manure could be easily procured from the cavalry encampment, which being trenched into the ground at a proper depth would greatly tend to meet the difficulties attending dry weather during the summer months. The principal gardeners would find suitable employment in directing the labour of the men under their superintendence, sowing all the seeds with their own hands, and seeing that the vegetables were gathered in the state most fit for use.

Perhaps some would raise objections to what has been here suggested on the ground of the great uncertainty of all warlike movements, and because the scheme has somewhat too domesticated, easy, and comfortable an appearance about it. But why not make even camp life as comfortable as circumstances will admit, and deprive war of as many of its horrors as possible. I am certain that, should the authorities at the War Office ever entertain the idea of sending gardeners to the Crimea to raise vegetables for the use of the army, the organisation of such a scheme could be speedily and easily effected; and once the machinery was in motion with such an object in view, it would doubtless be found to work as satisfactorily as ever did the "navvies" at Balaklava. *A. D.*

Home Correspondence.

Protection of Fruit Trees, &c.—My trees having borne such abundant crops of Apricots for three successive years I was rather fearful that this year there might be a failure, and those fears were augmented by the unusual severity of the season. There was a prodigious



bloom, and every thing seemed to promise as large a crop as last season, but the frosts continued every night. On the 3d of May the thermometer was down to the freezing point, and on the 5th of May there was ice here as thick as a penny piece, and my gardener, Mr. Evans, was met by wet fogs, which penetrated into every corner. After feeling much for the severe losses of my brother gardeners during this severe spring I feel thankful that my own losses have been but trivial; and I have the pleasure of informing you that my canopy, represented by the accompanying woodcut, has secured a moderate crop of Apricots; last year we counted on my walls 1800 Apricots before thinning, but this year we must be contented with 2184 (*sic*) before thinning—more than we expected. But it is not wholly a loss, for when there is a moderate crop the fruit generally swell to a larger and finer size, and it must never be forgotten 100 Apricots well thinned-out will greatly exceed in weight 200 left in bunches in a slovenly manner, and have a far superior flavour. Those sheltered in the Apricot-house, without any artificial heat, promise a fair crop, but will ripen later than those on the walls. The amazing swarms of wasps which visited this country last August must not pass without observation. In this vicinity there was scarce a field that had not two or more nests. They destroyed all the wall-fruit—devouring the Nectarines and Plums even when as hard as stones. Happily an early frost checked their career, and saved a fine Pear crop. We used to destroy these noxious insects with sulphur and gunpowder, but this year we adopted an easier and more effectual remedy, using coal-tar at 4*d.* per gallon. We poured about a pint of coal-tar, from the gas-works, into the mouth of each hole, and digging even the next day, not a single wasp was found alive. This year I have offered a reward of a penny for each queen wasp brought me during May and June, and I have already received a considerable number—114. They are mostly found amidst the Gooseberry bushes, feeding on their buds as they open. The great collection of Evergreens and scarce and variegated plants at my summer residence, 6 miles distant, must not be passed over. My Evergreens got through the first frost without receiving scarce any injury; but the second frost—thermometer 13° to 15°—scorched two Cedars of Goa, 15 feet high, a variegated Aristotelia, a numerous variety of Phillyreas, and a variety of Laurustinus; while the varieties of French Holly 30 feet, Arbutus 33 feet, another Goa Cedar 8 feet, variety of White Cedar 6 feet, Thuja pendula, Arbutus andrachne 4 feet, and a very great number of others, withstood the severity of both frosts in the open air, and were as fresh and green as ever. About 10 years ago I bought a fine Deodara 3½ feet high, and at the same time turned another out of a pot about a foot. They are both now 15 feet high, but the latter one will speedily outstrip its rival; and it shows us the advantage of choosing small plants, and reminds me of a letter which I wrote in 1826 to the Bath Society, strongly urging the use of Acorns in making plantations of Oaks. I conclude my letter with a toast—"Milder seasons and success to gardening." *W. B. M. Lisle, L.L.D., St. Fagan's, Cardiff.*

Lolium temulentum or Darnel.—Being aware that this Grass has always been considered poisonous, I was induced, while living in Lancashire about two years ago, to make some inquiries as to whether any instances were known of its having exercised any deleterious effects upon persons who might have partaken of it, as it seemed impossible from the great quantities of it that were very generally found growing in the fields amongst the Wheat that the two could be thoroughly separated when they came to be reaped, and the grain prepared for food. I ascertained, however, that it was customary where Darnel was much intermixed with Wheat to put the latter through a sieve, whose meshes were of such a size as to retain the larger grains of the Wheat, allowing only the smaller grains and the seed of the Darnel to pass through. My informant told me of an instance in which this mixture had been ground, and part of the flour used in making a pudding, of which a number of persons partook; the effects were nausea, vomiting, and staggering, as if inebriated. The above particulars, although they do not make us acquainted with the quantity that will produce a certain effect, still go to establish the fact that Darnel is poisonous, and may perhaps serve to elicit from some of your other correspondents something more conclusive on the point. *Robert Grey, Hadzor Gardens, Droitwich.* [We should be very glad of further evidence upon this doubtful point.]

The Potato Disease again!—I herewith submit to your inspection specimens of Potatoes called here the early Dutch. I planted them on the 20th of March, and a slight covering at night is all the protection that has been given them. Is it the disease they are attacked with? One of the stalks is much rotted at the base, as is the tuber growing to it. We have had a return of cold east wind, with frost and hail, this morning, after a few days' fine growing weather. *E. K. S., Pembrey, Llennelly, South Wales.* [This is a bad state of the Potato disease.]

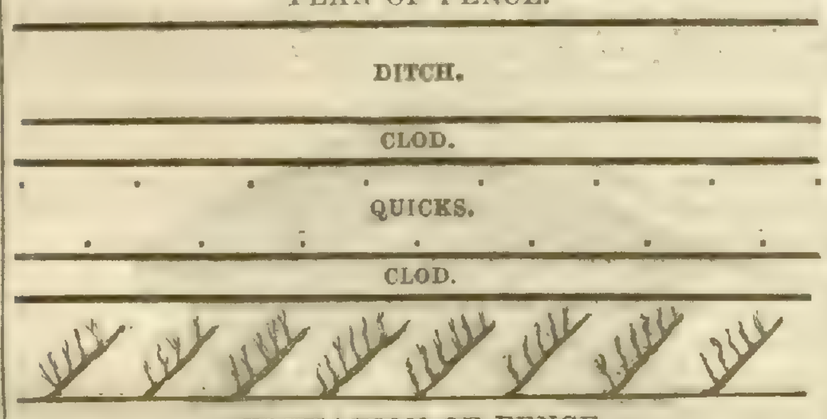
Rhododendron Dalhousiæ.—A fine plant of this beautiful Rhododendron is now in flower in the garden of James Hunt, Esq., of Pittencrieff. This is the first of the kind that has flowered in Scotland on its own roots. *W. W. E.*

The Balsam.—Few indoor annuals are more striking or showy than a well-grown Balsam, which is quite a boon to us in the decoration of the greenhouse and conservatory during the late summer and autumn months. It is often, however, badly managed, and allowed to remain in the seed pot till the young plants are drawn up like straws. They are then potted off, two in a pot, and put into some out-of-the-way corner in the forcing-houses, where they again "draw" and become so lanky as not to be able to support their own weight. The order then is, "Get those Balsams potted off into single pots and staked up." Now, this is mismanagement, for on no account should stakes be applied to Balsams; sometimes, however, you may find weaker varieties than others, and in that case a short stick should be used to keep the plant steady in the

pot. The mode of culture I adopt is as follows. I generally make my first sowing about the middle of April. I get a 6-inch pot and fill it half up with broken crocks; I then fill up to within half-an-inch with a fine-sifted compost of leaf soil and old decayed manure (equal parts), with an admixture of sand to keep the whole porous. I now put in my seed (two dozen and a half seeds will be plenty in the pot), and cover them over lightly with the above-named compost, giving a gentle watering with a fine-rosed watering pot, so as not to disturb the seeds. I finish by plunging them in a mild bottom heat, so placed that they can be kept close to the glass, when the seeds will soon germinate. As soon as the plants have made a proper start from the seed leaf I get a compost made up of the following materials: Two parts sifted rotten dung and one of leaf soil, and a little loam sifted with it, together with a liberal quantity of sand to keep the whole open, so as to ensure a speedy root action. I mix the whole well, and prepare as many 3-inch pots as I require, and pot off singly. It will not be out of place to notice here that some use larger pots, and put two plants in them, thinking thereby to save a little room. This is, however, a mistake. Nothing is more inconsistent with the well-being of Balsams then cramming two of them in a pot; the roots get woven together, and in parting them at repotting time they get injured and the plants are thrown into bloom before anything like half their size has been attained. Having potted them off singly at first, I give them a slight sprinkling with water and remove them to a hot-pit or any other convenient place where they can be kept close to the glass, and where the temperature does not fall below 65° at night. As soon as the pots are nearly full of roots I repot into 4-inch pots, using the same soil as before, except in a rougher state, and containing rather more dung; a little of which is also mixed with the potsherds, among which the roots love to creep. A bed is now made up for them with materials in which there is a slight declining fermentation; in this the pots are plunged, and kept rather close for a day or two, and a slight shade is used should the weather be sunny. I repot again when I see the roots coming through the hole in the bottom of the pot, using an 8-inch pot, in which they are bloomed. The soil now employed is very rich, viz., two parts of old decomposed night-soil and one of leaf mould, and rich fibry loam and peat in equal portions, with a free supply of silver sand thoroughly incorporating the whole together. The plants are again plunged, and air admitted freely on fine days, syringing early in the afternoon and shutting close up; the atmosphere is thus kept moist, which, with the ammonia arising from the dung, gives them a fine strong healthy appearance, and when in flower they are removed to the conservatory, and supplied with liquid manure twice a week. By sowing at intervals, Balsams may be had during the whole of the autumn. *W. F.*

Hedges.—In an article which appeared in your Paper of the 19th ult. regarding the editor of the "Forester" giving advice on the formation and treatment of hedges, the writer "G. W. L." appears to have missed the point. If he will read the "Forester" again, he will find that Mr. Brown, the editor, only recommends a mixture of Thorn and Beech where wished for by way of ornament. This is a matter of taste, but where soil is of a light gravelly nature on a dry bottom Beech will thrive well where Thorns would scarcely succeed. Of this I have ample experience. As regards treating every tree alike, how can your correspondent compare the treatment of Thorns with that of young Oaks—the one to be reared for a hedge, the other for a timber tree? The less pruning hard woods receive the better, provided the top can always be kept ascending; on the contrary, the more side branches one can get on Thorns for a fence the more compact will the latter be. Let "G. W. L." pull out his pocket knife, prune a few Thorns, and let a few remain unpruned, the same with Beech, and he will soon see his problem solved as to the accuracy of cutting over of Thorns and not of Beech. His system of planting on raised up dykes, unless in extreme cases, I do not remember the "Forester" recommending. If he would appeal to some of the Lincolnshire farmers about planting on raised ridges, they would soon satisfy him on that point, for I must say that that county has probably done more than many others in that branch of rural economy. The manuring of land for hedges is impracticable unless it could be kept up by rotation. It would do more harm on bad land than on good. How would "G. W. L." like to be nursed for a few years on carnivorous principles and afterwards be fed like a Russian soldier on black rye bread and water? Would not this alter the entire system? If poor thin land is to be made to rear good Thorn hedges, trench it 4 or 5 feet broad and 2 feet deep, reject all bad subsoil, and make all well up with good soil from a distance, if that can be had. Let this lie for a time, and then plant your Quicks, when they will push rapidly, remembering to cut them all over 1½ inch above the ground; if not cut they will have enough to do to make leaves, but by the former system I have seen shoots the first year 3 and 4 feet long. *A Reader.* [We did not understand the remarks by "G. W. L." to refer to "Brown's Forester," but to the writer of an article in the "Quarterly Review."]——I am surprised that the notions of hedge management to which "G. W. L." refers have not been set to rights by some of your correspondents, for in every statement the "Quarterly" is quite sound, and quite in accordance with the practice of the best hedgers, who have tried many methods of growing fences. "G. W. L." appears to be perplexed at one plant receiving different treatment in its pruning from another; but pruning, as well as soil, manure, situation, temperature, &c., should be varied to suit the nature of the plant. Everything judiciously managed, Hawthorn plants should be cut down to within a few inches of the ground-mark, on being planted out into the line of fence. There are just three cases in which these plants had better be allowed to stand for a year without heading down: 1st, when they are very small plants; 2d, when the plants have been injured from drought, lateness in transplanting, or any other cause which has the effect of reducing their growth; 3d, when the ground is not congenial from being newly trenched, and want of exposure to atmospheric influence, &c.; but in neither of these cases is it wise to insert the plants where the cost of fencing and management is greater than in the nursery. Let every thing be in proper trim, and your headed plants will rise from 16 to 24 inches the first season. Several mixtures of plants form hedges both compact and permanent. *W. R., Aberdeen.*——I quite agree with the remarks on the "Quarterly's" plan of forming a hedge by cutting down Quicks quite close, and mixing them with Beech, and I may add that the shade and noxious drip of the latter would, probably, kill the shoots of the former as they spring up. Having planted during the last 36 years many, many miles of Quick fences, and tried various modes of doing it, I have found the following plan most successful. I make a trench about 2 feet wide and 2 feet deep, and border it with one clod on each side, and cast into it the best of the soil taken out of the ditch made 2 feet wide on one side and manure it. I then place Quicks, three or four years transplanted, in two rows (each 8 inches from the clod), and each plant 9 inches from, and sloping at an angle of 45° towards the next in the row, and zig-zag with the Quicks in the opposite or parallel row. On this plan the new shoots, when breaking out, spring upwards, and making angles with the stems soon supply a great width of fence, and form a sort of natural pleaching. Towards winter, or in spring, before the new buds push out, I cut the top of the fence, lowering it to about 2 feet high, and trim up the sides from the bottom into a wedge-edge at the top, by which the whole side of the fence is exposed to the sun and air, and no gaps can be formed below by the over-hanging and drip of projecting branches above. At the same period I weed the fence, and, if requisite, water it with liquid manure. I trim the fence every year, keeping it finally at the height of 4 or 5 feet. I put up, at 4 feet outside of each clod of the fence, posts (not morticed) with three rails, or four towards a road, fastened with T nails; and in two or three years I widen the ditch to 3 feet, casting the best of the soil into the trench with the Quick. I always season my posts and rails, as well as timber for other purposes, by placing them for a fortnight or three weeks in the lime-pit, of which you inserted the particulars in the *Gardeners' Chronicle*, July 9, 1853. I think I adopted this plan from a statement in the "Edinburgh Quarterly Journal of Agriculture," 1828, giving an account of its successful

PLAN OF FENCE.



ELEVATION OF FENCE.

practice at Closeburn Hall, Dumfries, by the late Sir Charles Menteith; and my carpenters have been much struck with the hardness and density imparted by the process to the softest woods during the two last years, when it has been in constant use. *L. A. Lloyd, Leaton Knolls, Shrewsbury, May* 30.

The Weather during the month.—The following is a return of the minimum of my self-registering thermometer (seven miles south-east of York, Lat. 53° 54′, Long. 0° 57′ west, about 28 feet above the level of high water in the adjacent river Derwent; thermometer 5 ft. 6 in. from the ground, outside a window facing north-east), during most of the nights, up to this day (May 30) of this unusually cold month. You will observe that during no night has the decimal figure been 5; that on nine it has been 3, and on three 2!

Greatest cold of the preceding night.

May	2	35°		May 13	33½
"	4	27!		" 14	32
			Asparagus in open ground killed.	" 15	34
"	5	23!		" 16	41
				" 21	42
"	6	44		" 22	42
"	7	36		" 23	35
"	8	36		" 27	48½
"	9	25½	Asparagus killed	" 28	42
"	10	41		" 29	41
"	12	34		" 30	36

The thermometer is examined in the morning, and the greatest cold is that of the night preceding the day entered. I will add, with reference to the cold season, that the Blackthorn was nearly a month later than its usual time of flowering, and the swallows, like wise birds, deferred their arrival for about the same period. As I am writing, I will take the opportunity of asking your advice respecting the transplanting of an Araucaria imbricata, which I wish to remove, at the time you may recommend, a few yards from its present position; and I am anxious to take every care of it from its having been presented to me by a gentleman now no more. The soil is a good hazel loam, and I have at command leaf-mould, sharp sand, and bog-earth from an ancient wood, should you think it desirable to make a compost of these materials. The plant is 2 ft. 7 inches high, and the tips of most of its branches have suffered from the late severe winter. *A Ten Years' Subscriber.* [Dig, with a draining spade, a narrow trench round your Araucaria, about 2 feet deep, and far enough off the stem not to cut through more than the ends of the roots. Fill up the trench with leaf-mould and sand, or sandy loam. Leave the plant till September, then transplant it carefully, and you will find the trench full of fine new roots, which will not easily break off in the lifting.]

Mushrooms.—West of Hereford, a great crop of Mushrooms sprang up in the fields last week, during the few warm days. *C., May* 30.

Societies.

Caledonian Horticultural, *May* 12.—On this occasion prizes were awarded as follows:—To Messrs. Dickson & Co., for four stove or greenhouse plants, the kinds being Calceolaria violacea, Azalea Fioni, A. phœnicea alba, and Bossiæa linophylla. To Mr. Lockhart, gr. to R. Dundas, Esq., for Tetratheca verticillata, Pultenæa stricta, and P. subumbellata; to Mr. Ritchie, gr. to A. Duncan, Esq., for Boronia tetrandra, Aphelexis speciosissima, and Adenandra speciosa; to Mr. Cameron, gr. to S. Hay, Esq., for Rhododendron aureum hybridum; to Mr. Lockhart, for Erica elegans and mutabilis; to Mr. Ritchie, for E. ventricosa, coccinea minor, and perspicua nana; to Mr. Lockhart, for a trained plant of Torenia asiatica, 3 feet 6 inches high by 2½ feet broad; to Mr. Cameron, for Azalea magnifica purpurea and lateritia alba; to Mr. Pender, gr. to D. Anderson, Esq., for Triumphans and Gledstanesi excelsa; to Mr. Ritchie, for Optima and Phœnicea; to Mr. Cameron, for Duke of Devonshire, Coronata, and Liliiflora. To Mr. Reid, gr. to W. Wilson, Esq., for well-grown plants of Cinerarias Bessy, Queen of Beauties, Lady Hume Campbell, and Climax; to Mr. Walker, gr. to J. Moody, Esq., for Angelique, Lady Gertrude, Cerito, and Lady Hume Campbell. To Mr. Walker, Rosehall, for Auriculas Fletcher's Mary Ann, Leigh's Colonel Taylor, Taylor's Glory, Fletcher's Ne Plus Ultra, Lightbody's Star of Bethlehem, and Lady Ann Wilbraham; to Mr. Woolley, gr. to C. M'Laren, Esq., for Morning Star, Taylor's Glory, Rule-all, Ruler of England, Oliver's Lovely Ann, and Conqueror of Europe. The prize of one guinea, offered by Messrs. Dicksons & Co., for the four newest and best Indian Azaleas, was awarded to Mr. Pander, for Optima, Praestantissima, Lateritia superba, and Liliiflora. A Certificate was granted to Messrs. Cunningham, Fraser, & Co., for Viburnum macrocephalum in profuse bloom. Mr. Stark sent a basket of rare Ferns, with Viola palmata and Primula capitata in flower. From Mr. Handasyde came a basket of the new Coniferæ and other ornamental trees and shrubs, including Berberis japonica intermedia, new gold-leaved Ivy, Thujs gigantea (or Libocedrus decurrens), T. plicata, and Pinus Parryana. Mrs. Carstairs had a bunch of Grayson's Giant Asparagus (25 heads) weighing 27 oz. From the garden of Sir W. Gibson-Craig, Bart., were Dodecatheon californicum in flower, and a variegated variety of Picea Webbiana. From Mrs. Fraser, Canonmills Cottage, good specimens of Alpine plants, including Arenaria balearica, Draba pilosa, with Trillium grandiflorum and Athyrium Filix-fœmina var. crispa. From Mr. Sirling, Moray Park Gardens, Viola palmata, Ajuga pyramidalis, Hutchinsia stylosa, and other Alpine plants. The exhibition was enhanced by some fine plants from the Society's garden, including the sweet-scented Rhododendron Edgworthi, R. Gibsoni, glaucum, and lepidotum.

Notices of Books.

Practical Meteorology. By John Drew, Ph.D., F.R.A.S. Van Voorst.

This little volume, which professes to teach "how to observe" meteorological phenomena, is stated by the author to be the result of seven years' experience as an observer and student. The work consists of three parts: the first, which is introductory, is on the laws of heat as affecting atmospheric changes; the second contains descriptions of instruments of observation, deductions from observations on the thermometric, hygrometric, barometric, and electric condition of the air; the third part relates to the present state of meteorological science in England; and an appendix contains various useful tables for meteorological calculations.

In the first part, the composition of the atmosphere, its mechanical properties, weight, and elasticity, the laws of heat, expansion, conduction, good and bad conductors, reflection, latent and specific heat, evaporation, &c., are all explained in much the same way as they usually are in elementary treatises on such subjects. The construction of thermometers is well given. The principle of their action, viz., the expansion of mercury, alcohol, or other substance, is generally known; but "to adapt a correct scale to the thermometer is a matter of the utmost consequence. The civilised world

has agreed on fixing two points on the scale; viz., that to which the mercury rises when the instrument is plunged in boiling water, and that to which it descends when placed in melting ice. The space between these points is not, however, divided by all nations into the same number of equal parts," there being 180 according to Fahrenheit, 80 Réaumur, and 100 according to Celsius, or the Centigrade scale. "The first point to be determined is the freezing-point of water, which is the same under all temperatures, and every variety of barometric pressure, provided the water is free from salts of every kind. The thermometer tube—not the bulb only—is plunged into melting ice" [it would have been more explicit to have said the bulb and likewise the tube of the thermometer are plunged into melting ice], "and a mark is made across the glass of the tube at the point to which the mercury sinks or withdraws towards the bulb: this is the zero-point of every scale except Fahrenheit's. It is a remarkable fact that this zero-point is not permanent; when thermometers have been made for some time a very perceptible difference is found between the point to which the mercury descends and the original zero of the scale; hence the necessity of determining it anew from time to time, and applying the difference as an index correction. Mr. Sheepshanks, who did not desist from his labours in the structure of the thermometers used in connexion with the experiments to determine the length of the national standard yard, till he felt assured of being able to reach the second decimal of a degree, used ice found in tubs of rain-water, in which the thermometer was placed horizontally, and the intersection of the mercurial column with the tube was read off by a vertical telescope carrying a wire moved by a micrometer screw; he obtained identical results when he made use of newly fallen snow; and he recommends the determination of the zero to be performed in winter when the air around is but little above the freezing point, and the ice or snow melts but slowly."

We would direct especial attention to the preceding paragraph; for, although it may be true that gardeners do not require instruments of such extreme nicety as those adjusted by the gentleman above mentioned for a particular purpose, and although, on the contrary, tolerably good common instruments answer their purpose, yet we know that common thermometers are more especially liable to vary from the truth, even if they were originally in accordance with it; it therefore becomes necessary that they should be occasionally examined; and any one who chooses can do this, in the way pointed out by Mr. Sheepshanks, sufficiently exact for most purposes without the telescope and micrometer screw.

Various kinds of maximum and minimum thermometers are described and illustrated. Of Sixe's Register Thermometer it is said:—"Unfortunately this elegant instrument can hardly be trusted for very nice observations, and is very liable to get out of order. Rutherford's Register Thermometer, or rather thermometers, for his registering maximum and minimum ones are quite distinct, acting independently of each other, are, for the sake of more elegant appearance, generally both fixed on the same plate of box-wood or metal." We, however, prefer to have them separate, for this reason —if one gets out of order, it can be put right without disturbing the other; but when fixed on the same scale, if one wants repair the other (although acting perfectly well) must accompany it, and, not unlikely, returns disordered by the journey. "After reading off, and to prepare the instruments for future observations, both indices are brought to the extremities (the one of the column of spirit, the other of that of the mercury,) by gently inclining the plate on which the thermometers are fixed, downward from the horizontal position. This must be done with great care, or the indices will get entangled with the liquids, from which they will be with difficulty extricated. For three years the author has used a register thermometer of this description without any mishap whatever, though he ruined a great many before he discovered the very careful treatment they required."

We have had long experience of Rutherford's thermometer, and, improved, perhaps they are the best for the purpose of registering. The steel index is apt to get entangled in the mercury. To prevent this, Mr. Newman has introduced a small bit of enamel between the two, so that they cannot come in contact; but whether the instrument be furnished with this or not, the index should be drawn back by a magnet, so that the thermometer need not be turned up at all. A small horse-shoe magnet, 2 or 3 inches in length, will be sufficient, and we avail ourselves of this opportunity of strongly recommending to our readers the adoption of this mode of bringing back the index of a mercurial thermometer.

Negretti and Zambra's Maximum Thermometer, and also one by Professor Phillips, are described in the work before us. These have no indices to get out of order, but we have not proved their accuracy, which indeed appears from their principle of action to be very doubtful.

We must refer the reader to the book itself for information respecting the modes of registering observations, the position of instruments, climate, &c. General considerations on the hygrometric state of the air are followed by descriptions, with plates, of different kinds of hygrometers, some of which have been invented for obtaining the dew-point by direct observation; three of these are described, namely Daniell's, Regnault's, and Connell's. The last two are too complicated for general use. Daniell's, on the contrary, is comparatively simple, and might be usefully employed in horticultural practice.

We have at p. 227 of the work an account of the recently discovered principle in the atmosphere called ozone, the nature of which is not however perfectly understood. It has been found that it combines energetically with deleterious gases, and neutralises their effects. Schönbein, who discovered it, has proved by experiment that air containing $\frac{1}{6000}$ of ozone can disinfect 540 times its volume of air produced from highly putrid meat; that is to say, such a fœtid atmosphere may be completely purified by a quantity of ozone equal to $\frac{1}{3240000}$ of its volume. "Now, in bad localities, it is evident that we may expect the test to show little or no ozone, while, as Faraday found at Brighton, the pure air from the ocean abounds with it. Schönbein met with it in abundance during a storm on the Jura, and could even recognise its smell; so that the purification of the air by storms would seem now to be philosophically proved. The electric discharge, of which thunder and lightning are the sensible indications, produces in large quantities this valuable disinfecting agent." What effects its presence in greater or less quantity in the atmosphere, or its total absence, may have on animal and vegetable life remains to be ascertained. From an excellent abstract of results of a meteorological table, kept at Uckfield, Sussex, by C. Leeson Prince, Esq., with which we have been favoured by that gentleman, it appears that in the unhealthy month of last August, the mean amount of ozone was comparatively small.

Our limits do not permit us to allude further to the many subjects treated of in the work before us; we therefore recommend those engaged in meteorological pursuits to the book itself, which will be found well worth perusal.

Garden Memoranda.

Horticultural Society's Garden, Turnham Green.—Except in a few particular cases, such as that of the Mexican Pines — apulcensis, macrophylla, Teocote, Devoniana, Russelliana, and patula—which have either been killed altogether, or suffered most severely, the garden has now apparently quite recovered from the effects of the extraordinary winter and spring we have experienced. Many of the ornamental trees and shrubs in the arboretum are now in full blossom. The different kinds of Lilacs are at present in perfection, Horse Chesnuts are blossoming profusely; the various varieties of Pyrus, and some Cratæguses, are in full beauty, as are also a few of the earlier Azaleas and Rhododendrons; but the great mass of the latter, as well as Laburnums and scarlet-flowering Thorns, are not yet in flower.

The large Glycine sinensis on the conservative wall and the white variety of this charming wall plant in another part of the garden are at present both in full blossom. The latter appears to flower quite as profusely as the blue kind, with which it forms a good contrast. The freedom with which these plants are blooming this year may be attributed to their young wood having got thoroughly ripened last autumn, which it will be remembered was very warm and dry.

The rocky banks of the American garden are now gay with masses of Iberis gibraltarica, Alyssum saxatile, Ajuga reptans, different kinds of Squills, Phlox setacea, and Aubrietia deltoidea, &c., all of which are in full bloom; and these will be speedily followed by Dianthus suavis and other plants of that description, which so eminently serve to keep such places gay in spring and early summer. The double flowering bluish lilac Rhododendron fastuosum is likewise now in flower here; but with the exception of this and Ledum palustre, the great mass of the American plants will not, as we have already stated, be at their best for some time yet. Other shrubs in flower here were Spiræas chamædrifolia and prunifolia; Ceanothus verrucosus, which has wintered safely, while C. papillosus and dentatus have been much cut up; Berberis Darwini, the common purple-leaved Berberry (B. vulgaris purpurea), and Lonicera punicea, a crimson-flowered shrub of considerable beauty; on a wall the white Atragene alpina is at present very ornamental, as is also Clematis montana, which flowers so profusely every year about this time.

On a border outside the American garden, some common purple flowering herbaceous Pæonies were in bloom; these are grown here for the purpose of furnishing stocks for Moutans, for which they are well adapted, the latter when grafted on them succeeding perfectly, and making good plants. Of Moutans, Mr. Fortune's fine kinds are now in flower, and extremely handsome they are. The darkest among them is atrosanguinea, a deep crimson variety, and atropurpurea is also a valuable dark purple kind. Versicolor is a large showy changeable purple; picta is a fine rosy salmon, and salmonea and parviflora are also salmon-coloured sorts. All these must be regarded as valuable introductions to English gardens.

In the greenhouses, which are gay with Schizanthus violaceus raised from seeds sown last August, Calceolaria angustifolia, rugosa, and Ajax, the last a showy yellow kind with a large deep orange brown spot, fancy and Cape Pelargoniums, Cytisus, and other shrubs, we remarked the double yellow or rather buff Datura, quite a curiosity in its way, and the pretty double white flowered Clematis Sieboldi, a free flowering species which can be kept within small bounds, and is a very ornamental plant for common purposes.

In the Rose house the different varieties will soon be covered with flowers; Fortune's yellow, a climbing sort, is already very showy, and some of the other kinds are beginning to expand their flowers. All of them have made most satisfactory growth and are literally loaded with flower-buds. The bushes too are quite clear both of aphides and mildew, the latter having as yet been prevented by dusting sulphur liberally over the plants in winter and early spring.

In the great conservatory both the red and white Brugmansias are just in perfection; the latter more especially is one mass of large, sweet scented, trumpet-shaped flowers. Among numbers of other plants likewise in blossom here we remarked a hybrid Aquilegia, a cross between the Scarlet Californian kind and A. fragrans. It appeared to be a stronger grower than either of its parents, from both of which it differed in colour, being purple and yellow, and very handsome. It will, therefore, doubtless be found a good addition to this class of plants.

Among novelties we noticed a fine stock of Tecoma velutina, which has been raised from seeds sent from Guatemala by Mr. Skinner. It is said to be a handsome yellow flowered shrub. Dolichos luteus has also been raised plentifully from seeds, as has also the Bahama Palmetto, which, however, is not likely to be as hardy as the Chusan Palm. Statices, Cobæas, and many other recently imported seeds, have likewise germinated freely.

In the orchard house the different little trees in pots are bearing full crops. Peaches, Nectarines, Plums, Cherries, and Figs are loaded with fruit, and even Currants and Gooseberries are swelling abundantly, and altogether this plan of fruit growing promises to be satisfactory.

In the Orchard, Pears and Apples, to all appearance, will be a good crop this season, more especially on standards, which have apparently suffered less than dwarfs. Some of the blossoms of Cherries and Plums have been injured; but it is thought that there may still be enough for the trees to carry. On walls Pears look well, and so do Peaches and Nectarines; the latter are clean and very clear of aphides, which are kept in check by powdering the parts affected with tobacco dust. It is applied with a pair of bellows, on whose tube or nozzle is fixed a little canister with a perforated bottom, which allows the dust to pass into the nozzle, out of which it is blown on the trees. This operation is performed when the trees are wet, which causes the tobacco dust to adhere to them. The latter is made of home-grown Tobacco leaves dried, powdered, and sifted, and is found to answer the purpose better than tobacco water.

Potato Yams (Dioscorea) are now being planted out. The stems are not supported on sticks; but are allowed to creep on the ground. In short they are managed very much in the way in which ridge Cucumbers are treated.

FLORICULTURE.

Pompon Chrysanthemums.—I will say but little about the cultivation of these, as the general culture of the large-flowering kinds is equally applicable to this small class; a few cursory remarks are therefore all that are necessary. About April select good suckers or cuttings from the old plants, giving the preference to such as appear stout and short-jointed; put one in a pot, say a 3-inch one; mix together a good rich soil, taking equal proportions of loam, rotten dung, and leaf-mould, to which may be added a sufficiency of rough sand to make the whole porous. When potted, put them in a house or frame, and keep them close for some time, say three weeks, by which period most of them will be well rooted; then gradually harden them off, and about the middle of May give a shift into larger pots, say 5-inch ones; after which place them in the open air, in a situation sheltered from the easterly winds, and at a sufficient distance from each other to admit of free circulation of air. About the middle of June give them their final shift into 8-inch pots, using the same compost as before; they should then be plunged in an open border, where they can receive the full influence of the sun, two-thirds of the pot being buried, and placed at from 2 to 3 feet apart each way, which allows plenty of room for watering, tyeing, &c., and attention must now be paid that a liberal supply of water be given as occasion requires, for if the plants are allowed to get too dry, besides receiving an unnatural check, they will lose a portion of their foliage. Care must now be taken to continually top them, as the plants will grow very fast and luxuriantly; their first topping should take place when about 4 inches high, and be repeated until July or August. One great feature worthy of remark in the Pompon varieties is, that they can be constantly topped until a much later period than the large-flowering kinds, without retarding or diminishing their blossoms; thus they are easily made into handsome and ornamental specimens, and when covered with their innumerable beautiful double Ranunculus-like flowers, they may be truly said to be perfect little gems. Before the blossoms expand, the plants may be taken from the ground and removed to the greenhouse, which will be of great assistance to their development; no check will be experienced by the removal, if plenty of water be given them. I had nearly forgotten to mention one very beautiful characteristic of these Lilliputians, which is, that they blossom much earlier than any of the other kinds, thus obviating the great complaint against Chrysanthemums when grown in the open borders; namely, that

the frost destroys the plants before the flowers have time to develope themselves. *W. B.*

SEEDLINGS.

Calceolarias: *J W & Co.* 1 is the best, but both may make good bedding sorts.

Pansies: *B H.* A yellow ground variety, with very dark top petals and margin. It should be double its present size, and then it would be no better than many already out, being of a class in which we abound in good kinds.

Polyanthuses: *J W.* A large, and to all appearance, a very good flower, but too much pressed in the transit for us to fully judge of its merits.

Miscellaneous.

On the Diseases of Plants: by M. F. E. Guerin Meneville.—Some observations recently made tend to confirm an opinion expressed last year to the effect that the great epidemic from which so many plants, and Vines more especially, have been suffering, is due, if not solely at least principally, to influences of temperature. The observations upon which this opinion was based have become during this last year very numerous, and have been made in the departments of the Var, Bouches du Rhône, Basses-Alpes, Vaucluse, Gard, Drôme, Ardèche, Isère, &c. After having examined the epidemic in the Basses-Alpes during the whole time that the silk-worms were hatching, I determined to extend my inquiries to the ten departments just named, proceeding from the south northwards. I thus ascertained that the disease disappeared not only, as I had formerly ascertained, in proportion to the height of the plants above the sea, but also in proportion to their northern situation. Neither in the Alps nor in Paris was there any disease. In the Alps, as in Paris, the disease, when it existed at all, was only to be found on plants sheltered by walls and exposed to the south or east, or on plants in small town gardens where, in consequence of the artificial atmosphere, the disease made its appearance whatever aspect the plants had. I noticed it principally in fields of Saintfoin, on cereals, Melons, Gourds, Tomatoes, &c., Vines, Roses, Mulberries, Walnuts, and other fruit trees, and even on the Alders in our valleys. The Saintfoin, for example, after progressing admirably from December to February, languished, and became covered with Oidium to such an extent that the strong smell of diseased Vine which it emitted when being cut, caused alarm, lest the crop should prove injurious to cattle fed upon it. All the corn, and especially that on well exposed hills, looked admirably at the same period of the year when vegetation ought to have been stationary, and the plans perhaps covered with snow; but the corn in the plains, in the large valley of the Durance, as well as that of the higher land in the department, remained small, low, and exhibited no unusual development. Later, during the months of April, May, and even June, the corn on the hills with fine aspects, and which was already in ear and about to flower, became exposed to a low temperature and a cold damp; the plants became covered with rusty black spots, their leaves curled, and in spite of incessant cold rain, appeared to suffer from drought. The corn in the plain, in cold soil, with harvests almost always a fortnight late, developed slowly, and as usual; the bad weather had no effect on it, and the harvest was good, whilst the corn on the hills and intermediate lands, although so fine in December, January, and February, did not even yield the seed from which it sprung. A curious circumstance, showing that the disease of the corn is due to a too high winter temperature, is that all those growers who sowed their corn late had fair crops. The Mulberry trees were out early and exposed to all those cold rains which destroyed the early silkworms. Some of the trees were seen in full leaf as early as Easter. Later, all the leaves became covered with rusty spots, which I examined with great care. In some cases the disease was so bad that the leaves curled up and dried, and became utterly useless as food for silkworms. Walnut, and many other trees were just as bad, their leaves also being covered with rusty spots. The Vine was worse than ever. The cold rains of May caused the disease to appear a fortnight late, and this gave some hopes that the malady had, if not disappeared, at all events greatly decreased; but it soon appeared that the plants were seriously affected, more so even than in the preceding years. Nevertheless such was the variety of circumstances under which my observations were made that I was able to ascertain by examinations, as well on a large as on a small scale, that my theory of caloric influence explained every phenomenon satisfactorily established. Thus it appears quite certain that all valleys having large streams of water, and so situate as to be exposed during winter to cold northerly winds, are more or less free from the ravages in question. The north slopes of hills are generally free also, and certain elevated tracts of country, whether in the south or middle of France, suffer but little, unless it be in those spots which are sheltered by irregularities in the soil. *Comptes Rendus.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—As soon as cold frames and pits can be got cleared of bedding stuff they should be occupied with young stock of hard-wooded plants. These humble structures will also be found suitable for dwarf Lobelias, Balsams, Salvias, and many other things which are generally grown for flowering in the conservatory in summer and autumn. Roses, as was stated last week, are perhaps the most generally admired of all winter flowering plants, and where there is not a stock of established plants for this purpose, if a lot of young plants can be procured and placed in a frame they will make nice stuff by autumn if properly attended to, especially if the frame can be placed on a bed of leaves or tan to afford a gentle bottom-heat, which will greatly assist in inducing a vigorous root action. Now that the weather has become milder, air should be given more liberally, and when there is no danger of frost, a little back air may be left on for the night. Attend to former directions as to keeping insects under, and supplying beds and borders liberally with water.

Greenhouse.—If any of the young stock has not yet been examined for the purpose of ascertaining whether it requires more pot room, this should be done the first possible opportunity, repotting such as require it, and a liberal shift may be given with propriety at this season to things in a vigorous state. Great care should be used, however, to have the balls in a nice healthy state as to moisture, and also the soil to be used; and the plants should be exposed as little as possible to sunshine, or drying currents of air, for a fortnight or so after potting. Careful and judicious watering is at all times essential to successful plant growing; but at no period of a plant's existence is this so important as while the roots are surrounded with fresh soil, and many a promising plant has been ruined by one or two inadvertent applications of water while in this state. If both the ball and soil are in a properly moist state when potting is performed, water need not be given for two or three days; and when it is deemed necessary to water, enough should be given to thoroughly soak the whole of the soil. Large specimens of Heaths and other hard-wooded things must also be very carefully supplied with water, and every precaution should be used to make sure that the ball is in an equal state as to moisture throughout; for it sometimes happens that the surface of the ball will appear quite wet, while below (where the greater part of the roots is) is too dry. This is the result of practising the dribbling system of watering, and is not likely to occur where watering is done properly. The readiest and safest way of moistening the lower part of the ball, when this is found to be dry while the upper part is wet, is to place the pot in a saucer or tub of water for a few hours, letting the water stand about an inch above the drainage.

FLOWER GARDEN AND SHRUBBERIES.

The weather is extremely unfavourable for trees and shrubs that have been recently shifted, and these should be frequently examined, to see that they are not suffering through dryness at the root; and when watering is deemed necessary, have the surface loosened with a blunt pronged fork, giving a thorough soaking, and then mulch to prevent rapid evaporation. Young things which have not got fairly established since planting must also be attended to with water as they may seem to require it, until they get proper hold of the ground. As to planting out the bedding stock the weather has been such this week that those who have not commenced will not regret having their plants where they can be afforded some shelter, and at present there is no appearance of any change for the better. It is of course needless to advise parties to defer planting out until the change comes, for to plant out in the present state of the weather would be about as reasonable as to do so in March; and it is to be hoped that any advice as to the management of the stock until it can be committed to the ground will be too late, for surely the present winterly weather will not last many more days. We have kept our stock as close as circumstances would admit, covering that in skeleton frames with mats, &c., and shading that under glass, and giving very little air, which has been a great saving of labour in watering, and the plants have no doubt suffered less than if they had been exposed to the drying winds. What the effects of the present week will be upon things that were planted out remains to be seen; but they will, doubtless, have sustained a very serious check, and will require much attention to get them round in any reasonable time. Meantime they must not be allowed to get too dry at the root; but watering should be done in the morning, so as to have the surface of the beds dry before night, for a sharp frost is probable enough any night. But when warm weather comes, things that have suffered from the winds should be sprinkled every evening with water that has been exposed to the sun, and a good watering given as often as may be necessary to keep the beds moist; and they should also be shaded from bright sunshine, by sticking plenty of evergreen branches into the beds. There is a very sensible article on bedding plants by Mr. Ayres in last week's *Chronicle*, to one part of which we beg to direct attention, and advise parties to adopt the plan there recommended for storing heat in the ground before planting out the bedding stock, which is worth the trouble any season, and much more so this, when the ground is so unusually cold.

HARDY FRUIT AND KITCHEN GARDEN.

Trees that have been shifted this season must be attended to with water, and see that standards are securely fastened against the wind. Continue the war against all kinds of insects, particularly green-fly on Peach trees, and do not allow these pests to injure the young shoots, for they are already very late, and unless the season should prove very fine indeed there will probably be some difficulty in getting the young wood ripened before winter, and every care should be used to prevent the trees sustaining any check. We find that shallow light borders are already inclining to dryness, and should the weather become warm before we have a good soaking of rain it will probably be necessary to water where the borders are shallow and of a dry nature. But watering in the present state of the weather would probably do more harm than good. Strawberry beds should be carefully cleaned, loosening up the surface, and thoroughly soaked with pond water first warm day, giving a good watering with manure water a few days after the ground has been well soaked, when it will be more useful than if given while the ground is in a dry state. Attend well to Cauliflowers and other crops with water. See to keeping up a succession of Kidney Beans, Turnips, Spinach, &c. In putting in seeds at this season when the ground is in a dry state the drills should be well watered before sowing.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the week ending May 31, 1855, as observed at the Horticultural Garden.

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain.
Friday 25	9	29.802	29.789	78	42	60.0	54	53	S.E.	
Satur. 26	10	29.876	29.759	82	58	70.0	55	53½	E.	
Sunday 27	11	29.749	29.723	75	52	63.5	57	54½	S.E.	
Mon. 28	12	29.856	29.789	56	35	45.5	57	54½	N.E.	
Tues. 29	13	29.893	29.872	59	37	48.0	55	53½	N.	
Wed. 30	14	29.949	29.879	50	40	45.0	54	53	N.	
Thurs. 31	○	29.683	29.450	54	47	50.5	52	52½	N.E.	
Average		29.8[illegible]9	29.751	64.8	44.4	54.6	54.8	53.5		

May 25—Fine; cloudy and fine; very fine.
— 26—Very fine; very hot and dry; fine; windy at night.
— 27—Dry haze; overcast; cloudy; slight rain.
— 28—Rain; cloudy and cold at night.
— 29—Cloudy throughout; showery at night.
— 30—Low clouds; cold showers with northerly wind.
— 31—Cold rain; cloudy at night.

Mean temperature of the week 2½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 29 years, for the ensuing week, ending June 9, 1855.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 3	70.5	45.3	57.9	11	0.91 in.	—	3	4	1	5	9	3	4
Mon. 4	70.7	46.0	58.3	11	0.76	1	5	2	2	3	7	5	4
Tues. 5	70.3	47.1	58.7	15	0.64	2	4	2	1	5	6	6	3
Wed. 6	68.2	47.4	57.8	14	0.28	5	4	1	2	3	9	2	3
Thu. 7	68.0	47.5	57.8	11	0.53	3	6	0	3	4	6	3	4
Frid. 8	70.0	47.1	58.6	11	0.45	3	6	1	0	4	9	4	2
Satur. 9	70.3	48.2	59.3	13	1.48	1	5	1	2	3	11	3	3

The highest temperature during the above period occurred on the 7th, 1846—therm. 90 deg.; and the lowest on the 3d, 1837, and 8th, 1838—therm. 35 deg.

Notices to Correspondents.

Ants: *A L.* We are unable to advise you. If you can find their run stuff rags dipped in turpentine or gas tar into the holes, or pour them in. As to killing them by catching, it is a hopeless task. Of course you must not put turpentine or gas tar into the pots.

Arum: *A S L M.* This, like all such plants, is easily extirpated by handpicking the leaves as soon as they are a few inches long in the spring: and again picking them as fast as they reappear. It must be a very large park that would not be quickly cleared thus by a few women and children. Even now there would be an advantage in pulling up all the leaves and Lords and Ladies that can be found.

Asparagus Broccoli: *M W.* We do not recognise this. Could you not send a plant to the Horticultural Society, 21, Regent Street, with a request that it may be planted and reported on?

Cauliflower: *J M.* Certainly your plant will be ruined by every Cabbage or Broccoli that may be in flower within a mile of it, unless you prevent the access of pollen brought by wind or by bees and other insects. A shirt of muslin drawn over the plant will probably preserve it from contamination if tied close round the stem, and put on before any of the flowers have opened.

Diseases: *E E.* There seems to be nothing wrong about the Vine leaves, except that perhaps they are too luxuriant. The young bunches were so much injured by pressure as not to exhibit their natural appearance. We have never seen such an affection before. If you will send by post two or three in a strong box, with a leaf to keep them fresh, directed Rev. M. J. B., King's Cliffe, Wansford, we will examine the matter more minutely.—*H W.* There is no fungus on your Vine leaves. The little warts upon them are very common, and arise from some bad condition of the roots. At least a set of Vines in pots, which were affected last year, when the roots were in a very bad condition, are perfectly free now that the drainage of the pots is good and the roots healthy. *M. J. B.*

Insects: *J M.* The Pine plantations in Scotland are occasionally severely injured by the inclosed insects, which are the Curculio (Hylobius) abietis. Stumps of old trees and branches of felled trees left on the ground are the chief harbours and breeding places of those insects, and ought to be removed and destroyed. Some foresters recommend decoy-trees, that is, trees placed in open spaces and left for the attacks of these insects, which should be sought for on them from time to time, and destroyed.—*J G.* The Cherry leaves were infested by the larvæ of one of the leaf-rolling small moths (Tortricidæ), which were crushed on the post. The best remedy is to pinch sharply such leaves as exhibit rolls or cases of the larvæ, which are thus easily killed. *W.*

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*W Pass.* We believe the Cattleya to be the specimen of one sold under the name of C. Warczewitzi, but we are not certain. If not, we are unable to identify it.—*A* 1, Allium ursinum.—*T U V.* 1, Edwardsia chrysophylla; 2, Polygala speciosa; 2, Baptisia mollis—as far as we can judge from such fragments.—*Erzroum.* No box has yet arrived. We do Messrs. H. and Z. know anything of it.—*Amateur.* Campanula hederacea.—*E K.* Mitraria coccinea starved.—*P N.* 1, Monolopia major; 2, some Sisyrinchium not in flower; 3, Veronica chamædrys; 4, Asperula taurina.

Showing: *J G.* We see no reason why a double Wallflower should not be shown as a herbaceous plant.

Vine Roots in Air: *A Grape Grower.* You are undoubtedly wrong, and Mr. Grey is right. As to crops, that is not the question before us.

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
WM. INGLIS CARNE, 10, Mark Lane, London.

GUANO (for Account of the Underwriters).—For Public Sale, at the New Corn Exchange Tavern, Mark Lane, on MONDAY, June 4th, at 2 o'clock precisely, by order of Messrs. ANTONY GIBBS & SONS, the Importers, ONE THOUSAND TONS OF DAMAGED GUANO.—Catalogues in due time from J. A. RUCKER & BENCRAFT, Brokers, 26, Commercial Sale Rooms, Mincing Lane.

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NITRO-PHOSPHATE AND AMMONIA PHOSPHATE, manufactured by HODGSON & SIMPSON, Wakefield, and MATTHEWS & Co., Driffield, 8*l.* per ton.

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THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*
Office, 69, King William Street, City, London.
N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

TURNIP SOWING.—The Undersigned beg to offer their valuable Supherphosphate of Lime (See "Royal Agricultural Society's Journal," Vol. VI., Part 2), Turnip Manure, and Nitro-phosphate or Blood Manure.
Also on sale, Guano, Nitrate of Soda, Gypsum, Bone-dust, Sulphuric Acid, Salt, and all other Manures of known value. Agents for the sale of Peat Charcoal.—Apply for Prices Current to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London.

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CONCENTRATED URATE FOR GRASS, RAPE, AND ALL ROOT CROPS.
SUPERPHOSPHATE OF LIME.
THE LONDON MANURE COMPANY continue to manufacture the above Manures, which have been used with so much success for the last 14 years.
The London Manure Company also supply PERUVIAN GUANO (direct from importers' warehouses), Nitrate of Soda, Sulphate of Ammonia, Fishery and other Salts, Bone Dust, and every artificial manure of known value. EDWARD PURSER, Sec.
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It may also be had from Messrs. G. GIBBS & Co., 26, Down Street, Piccadilly, Agricultural Seedsmen, Agents for London, and from all the other Agents of the Company.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch.
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The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

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GARDEN VASES, FOUNTAINS, ETC.
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He has much pleasure in being the first to introduce to the notice of the public a highly ornamental Vase, capable of resisting the most severe weather, and at little more than half the cost of any other possessing the same qualities; and he has no hesitation in stating that a more suitable Vase for the growth of plants cannot be manufactured.

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The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe 1*s.* 6*d.* per foot.
1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.
May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 12 0
2½ „	long 3 „ 3 „		1 15 0
3 „	ditto 3 „ 6 „		2 12 0
3½ „	ditto 3 „ 6 „		2 18 0
4 „	ditto 3 „ 6 „		3 5 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 12 0
2½ in.	long ditto	ditto ditto	2 15 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE, WITH WARNER'S REGISTERED SPREADER,

is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.
Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

JOHN WARNER AND SONS, 8, Jewin Crescent, London, Manufacturers of FIRE ENGINES, PUMPS, GARDEN ENGINES, and SYRINGES.

Brass Syringes, 9s. to 18s.

All articles of JOHN WARNER & SONS' manufacture may be obtained of any Ironmonger or Plumber in town or country, at the advertised prices.
JOHN WARNER & SONS having been practical Horticulturists for many years, know exactly the requirements of both Amateurs and Gardeners. A gardener with a properly constructed pump will get through as much work in five minutes as he could with any Syringe in a quarter of an hour, and with half the labour to himself. Syringes are economical for small houses.
No establishment offers such a variety of effective machines for hydraulic purposes, whether to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of liquids.
Fountains suitable for Conservatories, Lawns, &c.
Sheets of Engravings sent on application.

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May be obtained through any ironmonger; or of JOHN WARNER & SONS, 8, Jewin Crescent, London.
N.B. Sold in casks containing 28, or 14 gallons, at 2*s.* per gallon. Casks (which cannot be returned), 5*s.* each.

IMPROVED MOWING AND ROLLING MACHINE.

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, Inventors and Sole Manufacturers, respectfully solicit the attention of the Nobility, Gentry, and Gardeners to this Improved Machine for Mowing and Rolling Lawns. The Machine is in operation in the Royal Gardens at Windsor Palace, Buckingham Palace, and at Osborne, in the Botanical Gardens at Kew, Regent's Park, Manchester, Sheffield, &c.: at Blenheim Palace, Trentham, Cleveden, Elvaston, Broadlands, Woburn Abbey, Clumber, Lilleshall, Castle Howard, Shrubland, Eridge Castle, Enville Hall, Tiptree Hall, Chatsworth, and in many other of the principal gardens in the kingdom as well as in the United States, British America, and on the Continent, where its merits have been fully proved, and its success established.
The machine is made to cut the breadth of 42, 30, 20, and 15 inches respectively, is exceedingly durable, easily managed, and adjusted to cut to the length required. The execution of the work is far superior to what may be attained by the most skilful mower, while at the same time a great saving of labour is effected, and the turf much improved. By the largest machine a Scotch acre may be mowed, rolled, and the Grass collected in one hour.
A. S. and SON have much pleasure in stating that they have made considerable improvements in their 15-inch or hand machine this year, by which the draught is considerably lessened. This machine combines all the merits and advantages of the larger machines with firm and secure construction, and is admirably adapted for borders and for lawns of no great extent.
ALEXANDER SHANKS and SON also respectfully solicit notice to "Fleming's Weeding or Salting Machine" for destroying weeds in gravel walks, court-yards, drives, &c. This machine is now in operation in many parts of England, where it has given ample satisfaction as the best and most economical means of thoroughly keeping down weeds or Moss.
Further particulars, with testimonials and prices, may be had on application.

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B. SAMUELSON, Britannia Works, Banbury, Oxon.
The above may also be procured at the principal Agricultural Implement Depôts in London, and of all respectable Ironmongers and Seedsmen in the country.

CLAYTON, SHUTTLEWORTH, AND CO.'S PRIZE PORTABLE STEAM ENGINES, AND COMBINED THRESHING, STRAW SHAKING, RIDDLING AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as threshed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.
C. S. & Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading Agricultural Shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

The Agricultural Gazette.

SATURDAY, JUNE 2, 1855.

MEETINGS FOR THE ENSUING WEEK.
WEDNESDAY, June 6—Agricultural Society of England.

THE effort made last autumn to collect the agricultural statistics, for the harvest of 1854, of the counties Hants, Wilts, Leicester, Norfolk, Suffolk, Berks, Worcester, Brecknock, Salop, Denbigh, and York (West Riding), by the union clerks, relieving officers, and other agencies under the superintendence of the Poor-law Inspectors in those counties, has resulted in the publication of a blue book in May, 1855, containing information of a very imperfect, and, therefore, unsatisfactory character. It appears that of 570,000 schedules issued to occupiers, barely 450,000 have been returned with the information asked; and of the remainder no fewer than 40,000 remain altogether unaccounted for, 82,000 having been filled up by the enumerators with information obtained independently of the tenants concerned. The counties of Berks (where of 4300 schedules issued 1800 were returned blank) and of Hants (refusing in upwards of 30 per cent. of its tenancies) are noteworthy as indicating the unpopularity of the proceeding: while Norfolk and the Welsh counties are remarkable for the completeness of their returns. The general impression on the minds of those who have superintended the experiment is, that the machinery employed is unsuitable, and that the voluntary plan of obtaining the information required is *necessarily* unsuccessful. The one view is illustrated in the cases in which boards of guardians have declined to undertake the labour proposed to them, and the other in the large number of refusals met with from individual tenants. The reports of the inspectors contain embodied in them extracts from numerous letters by tenant farmers and others, giving the grounds on which the ill success of the experiment is believed by the writers to rest, and stating their belief, in many instances, that an enactment rendering those returns compulsory upon the

tenantry, would be not only successful but much more popular. Mr. Caird, in a letter published in yesterday's *Times*, refers to this view of the subject, proposing, however, to make the matter compulsory only in reference to the acreage of crops. His plan suggests the employment of responsible officers, appointed specially for the purpose of collecting the returns and determining the character as well as the extent of the harvest.

The results of the present inquiry, such as they are, must be presented hereafter—though owing to their imperfect character and the late period of their publication they can be but of little value; and must afford the most unsatisfactory datum on which to build any such estimate of the whole produce of the country as is attempted to be deduced from them.

We resume the subject of fertility and barrenness in soils:

There is perhaps no form in which the force of climate so obviously appeals to observation as in the accumulation of bog and peat which in certain localities is due to it. The vegetable matter present in soils is one of the topics to which reference has been made in the enunciation of this subject. The necessity of its presence in some form and to some extent, in order to fertility, is a question rather for scientific investigation than for decision by the farmer. Mere agricultural observation would, however, confidently answer it in the affirmative, although to its presence in excess, and to the form in which it occurs, we must attribute the infertility of large districts in Ireland, Scotland, and in England. And around the edges of these districts will be found illustrations of the way in which this infertility is being overcome. The ordinary steps are drainage, levelling, burning the vegetation, Heath, and coarse Grass which occupy the surface, adding mineral matter—gravel, clay, marl, and lime; and then with the addition of some portable manure, and such rough cultivation as the first attempt amounts to, sowing or planting such crops as do not need a very fine tilth, to ensure a tolerable result. Thus Potatoes among green crops, or Oats among grain crops, are commonly first attempted. These are followed by Oats in the former case and perhaps Rape in the latter; and Rape is followed by Oats again, and the land is sown down with such Grasses as will suit a boggy soil. The following mixture is well adapted:

Agrostis stolonifera	3 lbs.
Alopecurus pratensis	2
Festuca pratensis	3
Lolium italicum	5
,, perenne...	8
Phalaris arundinacea...	2
Phleum pratense	4
Poa trivialis	3
Lotus major	2
Medicago lupulina	2
Trifolium repens	6
In all per acre	40 lbs.

In the course of four or five years the land becomes consolidated, and, after a dressing with lime compost, may be broken up for regular cultivation. The way in which (1) drainage and after drainage, (2) mere lapse of time, (3) earthen and calcareous dressings, and (4) cultivation overcome the infertility arising from peaty, boggy accumulations will be considered hereafter. The facts enumerated are all that agricultural observation can bear witness to; and on how large a scale they are visible in some counties has been abundantly recorded in our agricultural literature. In Lincolnshire especially extensive tracts which were formerly a waste of peaty bog and moor, a wilderness, as Mr. Clarke describes them, "of pools and bogs and reedy shoals," are now among the most fertile and productive districts in the kingdom. The fertility which these former wastes exhibit now may doubtless be attained elsewhere by the means which have been efficient there. What those means have been is admirably illustrated in the history of Deeping Fens. Between Spalding and Market Deeping, bounded by the Welland and the Glen, there are upwards of 20,000 acres of the lowest land in Lincolnshire. The particulars of its history are given by Mr. Clarke in the Journal of the English Agricultural Society. In the reign of Charles II. the first attempt was made to drain the district by means of windmills, the water being thus lifted out of the main drains. In the beginning of the present century an Enclosure Act was obtained, by which the north and south drove drains were cut. The fen was after this generally under water during winter, but in a tolerably dry spring the farmer managed to sow Oats by the end of April. When we were through this fen in July last the land was covered with heavy crops of Wheat, Oats, and Flax, with good Clover and Potatoes, and promising young Rape. Thirty years ago two steam engines, together of 140 horse-power, were erected at Podehole, near Spalding, the drains were deepened and the water lifted some 8 feet into the Vernatt's cut running into the Welland, a few miles below Spalding. The improvement of the outfall of the Welland would now enable the wheels at Podehole to be set somewhat deeper, so that, with the same lift, a drainage of the district could now be accomplished to a lower level than that at which it at present is. And how desirable this is, appears from the circumstance that the tenant of one of the farms in this fen has erected an engine and wheel especially for his own occupation, and by lifting from some 18 inches below the level to which the Podehole engines reduce the water he has obtained for the lowest of this land a drainage of 30 inches instead of 12. To drainage, marling, and subsequent spirited cultivation, the contrast between the present and the past of Deeping Fen is due. We are acquainted with one farm in this fen which has been in the hands of the same tenant since the erection of the Podehole engines. It is 680 acres in extent, the level of the lowest part of it is 6 feet below high-water mark, and its history, with most of which we are acquainted, is an illustration of the way in which fertility is attainable, notwithstanding excess of vegetable matter in the soil. When first occupied by Mr. Aitken the rotation adopted was 1st, fallow; 2d, Oats; 3d, Wheat; 4th, seeds; 5th, seeds pared and burned and sown with Rape in June; 6th, Oats; 7th, Wheat. In the course of a few years this was altered to 1st, fallow; 2d, Oats; 3d, Wheat; 4th, seeds; 5th, Wheat; the fallow being sown with Rape the first and second week in June, and fed off with sheep, commencing about the middle of September. The rotation that has latterly been adopted and followed now for some years, is 1st, fallow; 2d, Wheat, 3d, seeds; 4th, Wheat; 5th, Beans, Mangold Wurzel, or Flax; 6th, Wheat. And for keeping the land clean and in good condition it is much the best rotation of the three, The only inconvenience being that you are obliged to consume all the Rape early in the season to enable you to sow the land with Wheat. An average crop of Wheat is now fully 8 bushels per acre more than it was during the previous rotations; and this Mr. Aitken attributes to (1) not having two white crops in succession; (2) to under draining and *better* drainage by means of their own private engine; and (3) to an enlarged outlay for cattle food, 500*l.* a-year being spent on oilcake.

The soil of this farm 30 years ago was a light spongy peat, varying from a foot to 30 inches deep lying upon a subsoil of blue buttery clays, varying from this to a strong silty clay, with occasional beds of silt, and until clayed it was not adapted for Wheat culture at all, and from 30 to 40 acres sown in spring was all the farm could yield. But drainage has consolidated the peat, and by cultivation and burning it has wasted; and by the direct application of clay it has had substance given to it, so that it is more and more becoming a loam adapted to the growth of Beans and Flax. We saw 50 acres of Flax upon it, in July last, promising an abundant profitable yield. The process of claying was performed by cutting trenches 2 feet wide at intervals of 20 feet, and taking 1 or 2 feet of clay out, and spreading it on either side, according as the land appeared to need it. Some 200 cubic yards per acre were an ordinary dressing, and the labour cost from 30*s.* to 33*s.* per acre. Where the clay is near the surface it is better to make the cuts at shorter intervals, and take less out of each, as the levelling afterwards is more easily accomplished. Burning is given up in this fen; the peat wastes fast enough without it, and it is rather the object now to retain it than to lose it. The clay applied is a marl; it is a calcareous clay, and lime is not applied except experimentally, and then without results good enough to encourage its use. The means by which this farm has been made so fertile are drainage, application of clay, and expenditure in cattle food. The mineral and the animal matters needed for vegetable production are supplied by the two last; the first ensures both their preparation for use in the soil and the ready access to them of the roots of plants.

The Wheat crop of 1853 was abundant on this farm, when all the farms around it were complaining. The autumn of 1852 was so wet that the Podehole engines could barely keep the level of the water in the drains below the surface of the land, and the lowest portions of the fen were flooded. The seed time, generally, was one of the worst ever known since those Podehole engines had been used. But the six-horse engine and its little wheel on Mr. Aitken's farm just supplemented the deficient means furnished by the general drainage of the district, and the seed time of 1852 was good enough for him. Night and day, during that dreary time, was that little wheel contending for the mastery with the watery supplies, often 40 or 50 thousand tons a-day, which fell upon this 600 acre plot, and it was often a moot point which should gain the victory. The power employed, however, was successful ultimately; and while the neighbours' fields were soaked with water in the ditches following the plough sole in its furrow, these had never less than 18 inches drainage. It was a good seed time, therefore, here, though wretched everywhere around it, a good harvest time also, therefore, eight or nine months afterwards, when every other farm had reason to complain.

ECONOMY OF HARVEST WORK.

As almost all industrious and unremitting labour is grounded on self interest, this powerful principle should be brought to our aid in every operation on the farm, but particularly in harvesting the grain, in carting the harvest home and in harvesting roots.

Before I begin harvest I put a price per acre to every field according to my idea of the labour; and I put a paper with those prices into the hands of any company of four or more men who come for harvest work. The following are the prices for mowing, bagging, or reaping the several fields; those which are to be reaped, bagged, or mown are mentioned in the agreement which each company of men is requested to sign, and they also agree to work till all the fields are cut down; those fields which are mown have to be raked, and all of them are to be tied up in small sheaves, and set up in stooks of four sheaves two and two across, and the four sheaves to have a band around their head, so as to tie them together to prevent the wind blowing them down.

	Acres.		s.	d.			£	s.	d.
Field No. 2	11·717	Wheat	10	0	per acre reaped		5	12	3
,, 4	10.309	,,	8	6	,,	mown	4	7	10
,, 6	10.901	,,	8	6	,,	,,	5	9	0
,, 7	9·388	Beans	8	0	,,	bagged	4	15	4
,, 8	11·33	Wheat	8	6	,,	,,	4	18	1
,, 10	10·74	,,	8	0	,,	mown	4	7	11
,, 12	10·42	,,	8	6	,,	,,	4	8	8
,, 14	10·73	,,	9	0	,,	bagged	4	16	3
,, 15	10·48	Beans	8	0	,,	,,	4	4	8
,, 16	10·11	Wheat	9	6	,,	,,	4	16	1
,, 18	11·41	Oats	7	6	,,	mown	4	10	1
,, 20	8·65	,,	7	6	,,	,,	3	5	7
,, 22 and 24	12.21	Wheat	8	0	,,	,,	4	8	3
,, 23	4·5	Beans	7	0	,,	bagged	1	10	9
Brookside	1·37	,,	8	0	,,	,,	0	11	0
	144·79						62	9	7

There is no beer or cyder given to any of the workers. This averages 8*s.* 8*d.* per acre for cutting, binding, and stooking the crop of 144·79 acres.

I adopt the same principle in carting the harvest home to the rick-yard.

The carriage of grain from the fields to the rick-yard is performed in this way:—I bargain with one or two stout active men to find other two equally stout and active, and two stout active lads. Two of the men pitch the sheaves to the carts to the boys who build the corn in the carts, and the other two men pitch the sheaves from the carts in the rick-yard to the ricks. There are two ricks being built at the same time, so that there are two sets of carts, and I furnish as many carts and boys or women to drive them as keep the six men in full employment; and they bargain with me to do all this work at the rate of from 11*d.* to 1*s.* 2*d.* per acre over the whole, 11*d.* being the least sum paid, and 1*s.* 2*d.* per acre being the greatest. In 1849 I bargained with these men to do this work over the 144¾ acres for 8*l.*, or 1*s.* 1½*d.* per acre.

Two sets of carts, three in each set, and two ricks are being built at the same time; the ploughmen build the ricks, one man and a boy hand the sheaves to them on each rick, and a man to each rick is below keeping the rick in a proper form as it is being built. The man below, when the rick is above the eaves, gets on the next staddle on the other side of the cart, and part of the load is pitched to him while he begins to build the next rick, so that the pitcher may pitch one sheaf to the high rick and the next to the low one, and thus the rapid emptying of the carts is effected when the rick is high as well as when it is low. There are two boys driving the carts, so that there are two carts on the road, two carts being filled in the field, and two in the rick-yard being emptied; thus six one-horse carts are employed—two boys driving, the two boys on the ricks, and four men building. The ploughmen are yearly servants, and have 12*s.* per week, and the boys 5*s.* per week; but during the harvest the men have 1*s.* and the boys 6*d.* per day more, and as we frequently work during the night when there is anything ready to carry, I give the men I employ in building and the boys double the wages per hour during the night which they get during the day; and with this force of men and horses we have carried home 144 acres in 100 to 120 hours' work, which have been built in from 45 to 50 ricks, measuring about 120 cubic yards each, about 12 cart-loads of 200 sheaves each, so that each rick contained about 2400 sheaves. Each of these ricks produce from 80 to 200 bushels, averaging 120 bushels or 3 tons of Wheat and 5 tons of straw.

The staddles in the rick-yard are 14 feet in diameter and they are placed in two rows, with a cart road between them 20 feet wide, and the staddles are 20 feet from centre to centre in each row, so that the ricks are about 18 feet in diameter, and 15 feet high, measuring about 120 cubic yards each of unthrashed corn. As the ricks are being made I bargain with one or two men to thatch them with straw, for 1*s.* 6*d.* per rick, and 6*d.* per rick for shearing. The carting of the corn from the fields to the yard required 60 days of one horse, and 40 days of a boy

either on the rick or driving the cart. The money cost of the corn harvest will stand thus :—

	£	s.	d.
To cutting, tying, raking and stacking 144 acres of Wheat, Oats, and Beans	62	9	7
To pitching the corn to the carts and the ricks, and building the carts	8	0	0
To 4 days of a man building the ricks, say 3s. ...	6	0	0
To 4 days of a boy on the ricks or driving the cart, 1s.	2	0	0
To 4 days of a boy driving the cart, 1s.	2	0	0
To thatching 9 ricks, at 1s. 6d.	3	15	0
To shearing the sides of 44 ricks at 6d.	1	2	0
To 60 days of one horse and cart, say 3s. a day	9	0	0
Or 12s. 9½d. per acre over 144 acres	£94	6	7

Home Correspondence.

Steam Cultivation.—In common, doubtless, with many of your readers, I read with considerable interest the graphical account of "A day with the Steam Plough," by your correspondent "Cultor," which appeared in the *Agricultural Gazette* of May 12. True it is not, nor does it profess to be, a narrative of successful results, totally irrespective of the cost at which they have been attained, and which, however unimportant to the pocket of a noble projector, is a matter of life or death to the agricultural implement maker, or his usual employer, the tenant farmer. This affair of steam-ploughing may as yet be reckoned one of the unsuccessful cases in our agricultural practice ; but let us not be disheartened ; for though—thanks to Lord Willoughby d'Eresby and others—we know that the subject is beset with difficulties of no common order and magnitude, has not this been the case with mechanical inventions from the earliest periods of the world's history to the present day ! Take that of the steam-engine itself as an example. It is now nearly 200 years since the Marquis of Worcester promulgated his theories on the capability of turning this powerful but hitherto impracticable agent to account. Crude enough they undoubtedly were, yet they were the pioneers of all the wonders that have been since enacted by its means. Still it is not perfect. There are things it cannot or will not do, and steam-ploughing is as yet of them. The opinions of Mr. Hoskyns on cultivation *versus* ploughing—the two being different in his view of the case both in operation and result—are so well known as hardly to require more than a brief allusion to by me. All who have read—as who has not ?—his "History of Agriculture," and the still more recent and highly interesting "Chronicles of a Clay Farm," need but refer to page after page in each to obtain the fullest and most lucid exposition of his views as to the difference in the meaning of the terms ; nay, the very title of one of the vignettes in the "Chronicles" will amply suffice to indicate his peculiar and favourite maxim that cultivation can be carried on by other and better means than the plough. "Steam-power—no more to do with the plough than a horse has to do with a spade." Perhaps his objections to ploughs in general, and to steam-ploughs in particular, may by some be regarded as rather overstrained ; but certainly no one can deny the validity of those objections, especially on stiff clays—as he well and truly observes, "the mere invention of the subsoiler is a standing commentary on the mischief done by the plough." I suspect, after all, that our agricultural machinists have as yet shown on this subject, as on too many former occasions, but a small modicum of mechanical invention. The point in question is not how best to draw a plough through a stubborn clay, but whether on such a soil, or indeed any soil, a plough should be drawn at all ! Whether, in short, our author is not perfectly correct when he asserts that "a new power requires a new process." I well recollect the astonishment with which I heard (some 45 years ago) the observation of an ingenious old farming friend near Liverpool, who, after a discussion with me on the merits of various ploughs then in use, wound up by observing, in the coolest manner possible,—"After all, I very much doubt whether the plough is the best implement for breaking up the ground !" But Mr. Hoskyns has long since relieved my mind on that point, and I now never dip into his works without thinking of my old Liverpool friend and his theory of cultivation, a good half century in advance of his age ! So I make up my mind to this, that to set a steam-engine merely to pull a plough along is to begin at the wrong end ; and, not to mince matters, a downright misapplication of its power ; an operation wholly and entirely *infra dig.* The day will come, though I may not live to see it, when our cold clays will be better cultivated than by glazing and panning down the bottom of each furrow with ploughs, whether worked by horse or steam power, in order, as it seems to me, to give the subsoiler a job, viz., undoing what the plough had just been doing. Why all this doing and undoing ? Mr. Hoskyns has told us—and I for one am disposed to pin much agricultural faith on his sleeve—that the two-fold operation may be, and probably will be, at no very distant period, performed by one implement ; of course when steam shall have had fair-play, and our Ransomes, and Garretts, and Crosskills shall have done as much for steam cultivation as they have done for steam-thrashing and and steam-chaffcutting, to say nothing of what may be achieved by their machinery in the harvest field—a work which, though far from complete, has of late made considerable way towards a satisfactory development. Looking at our first crude attempts at railways, who could have anticipated that the cumbrous locomotives formerly to be seen near Leeds, "working by a cogged wheel and rack, at a very slow rate," we are told, should have been the precursors of those mighty leviathans of the Great Western, now daily and nightly traversing between London and Exeter—a space of nearly 200 miles—in little more than five hours ? *S. Taylor, Gloucester.*—I think we shall before long have the steam up, and be able to shout "Off she goes !" But the engine, it seems, will not go upon our clumsy roads ; by common consent it is not such a good walker in the rough field as a horse or ox—for the horse has the discretion to step over a hole. But if the engine is conveyed to the field, there seems a probability that it will do some heavy work when once there, if it gets the proper implement to do it with. But a word more about the implement that is to do the cultivation—what is it to be ? Authorities seem sadly divided about it. They cannot (some of them) think of putting such a noble power as steam before such an antiquated implement as the plough ; but will they ever find anything that will do such hard work, and go through such an ordeal uninjured ? When I take hold of a plough in some extra hard clay corner or headland, for a short time, and see it turning up dry, hardened material, almost like rock, I cannot help thinking that to scratch up such soil (if soil you can call it) would defy the most powerful engine that we can have brought into the field. I have no intention as yet of dropping the motto "speed the plough." We have a machine that will work well in all soils, and all sorts of weather ; and if we feed the land well, we shall have as good crops after it as can stand upright. What we want is a power strong enough to draw this at a cheaper rate than horses or cattle. For we must have horses to do carting work, which is no small part of our labour ; and ploughing perhaps is mostly done when we have not much else to set horses about. However, if it recommend itself in point of economy, it will soon be patronised. It is with pleasure I notice the plan proposed by Mr. Williams, given in your report of the London Farmers' Club on the 19th of May. If he is to use four or six ploughs, they of course must go one before the other, and of necessity there will be some considerable distance from the first to the last. This had better be lessened as far as possible, and that I think might be done by making each plough upon the principle of the most improved skim coulters, so that immediately behind the share the turn-furrow shall turn off, and nothing be in the way of the succeeding furrow being thrown into the bosom of the preceding turn-furrow, and so I think the furrows would clear up behind each other in less distance than a foot; even then the length of the whole working parts of the machine would be over 8 feet. All the fixings can be above the level of the furrow ; and I do not see what use handles can be to such a thing. A steerage, such as that on Hornsby's drill, seems to me best adapted for the purpose. And there must be some more ingenious method of fixing anchors at the ends of the field than that of digging great holes. *S.*

The Pheasant.—When these birds are taken young into keeping they become as familiar as chickens, and when they are designed for breeding they are put into a yard, five hens to a cock. In her natural state the female makes her nest of dry Grass and leaves ; the same must be laid in the pheasantry, and she herself will properly dispose them. But I keep bantam hens to supply her place, which task she will perform with great perseverance and success; by this means I get two broods in one year. The young ones are very difficult to be reared, and they must be supplied with ants' eggs—which is the food the old one leads them to gather when wild in the woods—eggs boiled hard chopped small, with curds or other meats ; and the young ones are to be fed with great exactness, both as to the quantity and the time of their supply. This food is sometimes also to be varied, and woodlice, earwigs, and other insects are to be made a variety. The place where they are reared must be kept extremely clean ; their water must be changed twice or thrice a day ; they must not be exposed till the dew is off the ground in the morning, and they should always be taken in before sunset. When they become adult, feed them on Buckwheat, Barley, with occasionally Jerusalem Artichokes, of which they are very fond, Cabbages, Lettuces, and other vegetables. The pheasant is a very bold bird when first brought into the yard among other poultry, not sparing the peacock, or even such young cocks and hens as it can master, but after a time it will live tamely among them, and at last be brought to couple with a common hen. The breed thus produced take much stronger after the pheasant than the hen ; and in a few successions, if they be left to breed with a cock pheasant—for the mixture is not barren—there will be produced a species more tame, stronger, and more prolific; so that it is strange why most of our pheasantries are not stocked with birds produced in this manner. *A Young Sportsman.*

Crops in Yorkshire.—I have recently inspected a great quantity of land in Yorkshire and the adjoining counties, and beg to forward you a few notes on the present appearance of the forthcoming crops. Autumn-sown Wheat, on land in fair cultivation, though rather backward in growth, looks well. Spring-sown Wheat generally looks puny, and is a bad colour. A good deal of Wheat, sown upon Clover lea, has utterly failed, and the land has had to be ploughed up and sown with Oats or Barley. It is at present impossible to speak positively as to the result of this most important crop, but two negative points may, I think, be safely foretold—there cannot be a great crop like that of last year, neither can there be an early harvest. Oats and Beans have come up well, and in general look tolerably healthy. Barley on much land has come up patchy. Pastures are generally without Grass, and thus far the prospect of the hay crop is a very bad one. *Roaldus.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

SPECIAL COUNCIL, *May* 30 : Mr. MILES, M.P., President, in the Chair.

DEPUTATION TO PARIS.—The following letter from the Consul-General of France having been laid before the Monthly Council on the 2d of May, when preliminary arrangements were made in reference to the formation of a Deputation to the Agricultural Meeting to be held at Paris in the first week of June, was again submitted to the members at this meeting, specially summoned for making the final appointments :—

"Londres, le 28 Avril, 1855.

"Monsieur — J'ai l'honneur de vous informer que M. le Ministre de l'Agriculture, du Commerce et des Travaux Publics vient de me faire savoir qu'il verrait avec la plus vive satisfaction que la Société Royale d' Agriculture d' Angleterre envoyât en France des délégués pour la représenter au Concours Général Agricole qui doit avoir lieu à Paris. Son Excellence me charge d'assurer la Société Royale de toute la sympathie qu'une pareille démarche de sa part inspirerait au Gouvernement de l'Empereur.

"Je vous prie donc, Monsieur, de vouloir bien faire part au prochain Conseil de la communication que j'ai l'honneur de vous adresser. Je suis d'autant plus heureux d'être ici l'interprête du Gouvernement de S. M. I., que connaissant les dispositions favorables de la Royal Agricultural Society of England, je ne doute pas de l'accueil empressé que recevra de ses membres l'invitation de son Excellence M. Rouher.

"Veuillez agréer, Monsieur, les nouvelles assurances de ma considération la plus distinguée,

"Votre très obéissant serviteur,

"Le Consul Général de France,

"ED. HERBET.

"James Hudson, Esq.,
"Secretary to the Royal Agricultural Society of England,
&c. &c. &c."

The following Deputation was then appointed—Mr. Miles, M.P. (President), Mr. Garrett, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Hudson (Castleacre), Mr. Hudson (Secretary), Mr. Jonas, Mr. Milward, Professor Simonds, and Professor Way.

The Counsul-General also communicated to the Council the request of the Minister of Agriculture and Commerce, that they would kindly undertake to name two jurors to act on the part of this country, at the Paris Agricultural Show, in the classes of Short-horned and other cattle, and in those of Pigs and Sheep. The Council decided accordingly that Mr. Milward, of Thurgarton Priory, should be requested to act in the former, and Mr. Fisher Hobbs in the latter, of those classes.

WEEKLY COUNCIL, *May* 30,—Mr. MILES, M.P., President in the chair.

DAIRY MANAGEMENT.—Mr. Horsfall, of Burley Hall, favoured the Council with the following additional communications, which (with the former ones) were referred to the Journal Committee :—

"Burley Hall, May 23, 1855.

"As I observe from the papers that the subject of dairy produce is again to be discussed at your next council meeting, I beg to introduce the following observations confirmatory of my former statement. From December, 1854, when the peculiar richness of my cream was first noticed up to the date of this, my dairy proceedings have been closely watched by myself, and more particularly by one of my family, whose care and exactness may be relied on; the result throughout has been a yield of 25 oz. of butter from each quart of cream, with but slight variations. During the same time frequent experiments have been made on the proportion of butter from milk : these have shown a yield, also with little variation, of 2 quarts from 32 of milk, or 3 from 48, and in like proportion. When the churning took place of the butter, from which the sample was sent to Prof. Way for analysis, I personally superintended the process of 15 quarts churned at three times in equal quantities ; the first five gave 127 oz. of butter. I measured the butter milk, and found it to be barely 3 pints ; the proportion will be per cent. :—

Butter	70
Butter milk	30
	100

The remaining two churnings varied but little, as will be seen from my former statement. Up to the close of April the diet of my cows underwent little change, Mangold being substituted for Kohl Rabi. I then added the following ingredients to my steamed mixture :—1½ lb. of Rape seed per day for each cow, ground with an equal quantity of Barley, together 3 lbs.; after this, a like quantity of Linseed treated in the same manner. These experiments were continued nearly three weeks. I did not find any increase in the quantity of cream, nor in its richness in butter. My cows have now been more than a week on depasture, during daytime; they are supplied with two full feeds of the steamed mixture evening and morning, whilst in stall; my most recent churning gave fully 24 oz. from each quart of cream. The weight of the butter is ascertained after it has been made up, and in the state in which it is disposed of. My observations on dairy treatment tend to the conclusion that if you afford a cow an ample supply in her food of each element, both mineral and organic, suited to her requirements, constitution, and produce, she will use them to the greatest advantage, and with the most complete result ; that if you go beyond this by an excessive supply of material suited for butter or for curd, the result will not show a greater proportion of these substances. Having now explained my *modus operandi*, and the results at which I have arrived, I beg leave to state to your honourable Council, that if it should appear that I have omitted anything calculated to arrive at a sound and correct conclusion, I should be most willing to receive and attend to instructions which may be deemed serviceable ; of if it should appear that inquiry on the spot would better serve the purpose, I beg to express my willingness to afford any one your honourable Council might depute the freest and fullest information I am possessed of. I am quite aware of the caution and mistrust with which remarkable or extraordinary statements are viewed by the agricultural mind. As some proof of this, I may instance the recent remarks of an ably conducted weekly publication, whose editor has certainly no interest in trying to impugn or weaken the statements of one whose communications he has frequently admitted in the pages of his journal.

May 28, 1855.

The following detailed relation of my mode of testing the results of my produce, and of other regulations of my dairy, will, I am led to think, not be deemed uninteresting. The observations are on my most recent churning, early this morning,

Monday, May 28th, and are on the milk skimmed during one half of the week. I make butter twice a week.

	Skimmed milk	Cream.
1st meal	36 quarts ...	2¼
2d "	32 " ...	2
3d "	36 " ...	2¼
4th "	36 " ...	2¼
5th "	36 " ...	2¼
6th "	50 " ...	3½
7th "	48 " ...	3
Total skimmed ...	274 Cream ...	17½
	Cream for families ...	1¼
	Total cream from 274 quarts ...	18¾

A considerable portion of my milk is sold when new. The sale of this varies in quantity, and leaves less or more each day for butter. My average yield per day is 145 quarts from 15 cows, from which I obtained in April 160 quarts per day. Before the cream was churned I tried to ascertain its quantity by observing to what height it reached in the cream jar, and then filling this with water to the same height, when 18 quarts were required, the jar being more than 12 inches wide at the top, a slight deviation in ascertaining the height of the cream would account for the difference of the ½ quart, 17½ quarts being shown by the separate measurement. The consistency of the cream after having stood till churning is such that a piece of wood 2 feet 3 inches long, 1 inch by ½ inch, on being dipped to half its length in the cream, retains, according as its is immersed, its upright or oblique posture; to measure it out by separate quarts is therefore troublesome. The churning commenced at an early hour this morning, before 4 o'clock. Temperature of dairy 49°, of cream 52°. The cream was churned in quantities of about 6 quarts at three times. The first churning cream alone occuped 30 minutes; with the second and third 1 quart of fresh water was added to each. The time occupied was 45 minutes for each churning. The whole of the butter was of firm good quality, that with the addition of fresh water having the preference. The result of these three was 17 rolls 6 ozs., 25 ozs. to the roll, of well made butter. On deducting the 2 quarts of water, there appeared full 5 quarts of butter-milk, without taking into account that portion washed out in making up the butter. These remarks confirm what I have previously stated; indeed, under like conditions of temperature, &c., there have been but slight variations during the six months in which these tests have been applied. Taking the cream as measured separately, 17½ quarts yielding 17 rolls 6 ozs. of butter, show one roll of 25 ozs. per quart of cream, minus 6½ ozs. on the whole. As computed on the aggregate, 18 quarts yield 17 rolls 6 ozs., show 24 ozs. of butter per quart of cream, minus 1 oz. on the whole. The comparison of butter to milk will be—

	Quarts.		Rolls	oz.
Skimmed milk... ...	274			
Cream churned... ...	17½	Produce of butter ...	17	6
Cream used	1¼	From cream used ...	1	6
	292¾		18	12

Gives from 16 quarts 25½ oz. of butter on the morning of the 26th inst. The whole of my milk which had stood 36 hours became sour; the temperature on the previous day ranged at 60°. Early on the 26th I, in consequence, adapted my dairy to summer temperature, by supplying a shallow cistern of 3 inches deep, in which my milk bowls stand with cold instead of warm water, which latter I use during cold weather. The water enters the cistern at one end, and, after travelling through the bowls, and filling the cistern to the depth of nearly 3 inches, escapes through a hollow perforated tube at the other end of the cistern; the taps are then adjusted so as to allow a constant trickling through the clay; besides this, a blind or curtain of strong calico or cotton fabric is hung before the trellis window, on to which cold water is spirted several times during the day, through a rose attached to a small gutta percha tube, so as to keep the curtain wet throughout the day. A thermometer with the bulb immersed in the water denoted a temperature of 51°; one out of the water even with the top rim of the milk bowls, 55° 30'; one on a shelf of wood, 2 feet above the bowls, a temperature of 60°. A thermometer placed on the utside wall to the north, and in the shade, denoted a temperature during a great part of the day of 72°. I need scarcely add that the result of the summer adaptation is most satisfactory; indeed, the experience of former seasons leaves me no room to expect any recurrence of sour milk during this summer season. Having satisfied myself that with a temperature much under 50° I lose perceptibly in gain of cream and butter, and also with a temperature of 60° I suffer from my milk turning sour, I cannot but remark on the lack of attention evinced in this country to the proper regulation of temperature in dairies, not only in small but, as far as I am aware, also in large ones. In the several treatises on dairy husbandry in the Journal of your Society, I do not recollect having observed any allusion to the policy of regulating the temperature of dairies. During the present season, certainly an uncommon one, I found it advisable to continue the warming process almost without interruption till the first week in May, when the thermometer ranged low—frequently during the night at some degrees below freezing point. Within less than a month I am necessitated to resort to means of subduing the temperature by the process I have described.

"Thomas Horsfall."

Agricultural Improvement of Ireland.—At the late meeting of this Society the half-yearly report was read, from which we make the following extracts. Sixty new members have been added to the Society since the last half-yearly meeting in December.

Twenty-eight local farming societies are in connection with the central body, and others on the eve of revival, which promise to form an important auxiliary to those already in operation.

At the Carlow meeting of the Society, to be held on the 8th, 9th, and 10th of August next, the Council anticipate a large and important agricultural exhibition. The implement class in the premium sheet have received their most careful consideration; money prizes to a large amount have been substituted for medals in order to meet the wishes of exhibitors.

Chemical Analysis.—This department forms one of the most useful and important objects of the Society, and the Council have to report the increased desire of members to avail themselves of the services of Dr. Apjohn, particularly in the analysis of guano and other manures, so necessary as a prevention against adulteration.

The remainder of the report related to the office of secretary, and was followed by a long discussion, in which the discharge of the duties of that office, and the arrangement for the future of weekly and monthly meetings of the Council were considered. It resulted in the adoption of the same rule as that which directs the meetings of the English Agricultural Society.

Notices of Books.

Instructions for growing Italian Rye-Grass. By William Dickinson. J. Ridgway, Piccadilly.

This pamphlet is from the pen of one of the most successful growers of the plant. Mr. Dickinson has introduced good sorts of seed, and grown enormous crops; and now he gives his experience this public form for the benefit of English agriculturists. We shall not quote the extraordinary statements of profit derived from its cultivation given at the end of his book, but confine ourselves to an extract in which he describes the treatment of the land and of the crop previous to its maturity:—

"I advise the preparation of the land to be made for an August or September sowing (the earlier month to be preferred), which is well understood by the general terms of plough, clean, dress, and pulverize; Grass seeds cannot vegetate upon clods, sow two bushels of seed per acre each way of your land, two this and two that way across, from the broadcast machine, the long trough and barrow, bush harrow lightly, and wait for a crop. If weeds grow, hand weed the first crop, and you will not be troubled again during the two years the plant stands. If your plant is vigorous, it wants nothing till you have a cutting; if it be weak, mix two cwt. of guano to the acre with some earth or damp ashes, and give it a dressing while it is young. It is important to have a large crop the first cutting; almost all your success depends upon it. It is better to give two dressings if your land is poor, than to have a light crop the first time. If you cut a small piece of land for your daily supply of Grass, you have but a small piece of land to water, your liquid will suffice; but if you have to cut a large piece of land, you will have that large piece to water, and your liquid may be insufficient. Be assured of this, that the plant will repay you for any extravagant dressing you may give it. You may grow 5 tons to the acre, or 15, or you may grow 25 in one crop. I once grew a much larger crop, but it could not stand; it was 5 feet 10 inches high, and was borne down by its own weight. Urine is the very essence of all manures, but it wants using with great judgment. The specific gravity of it differs in different animals. Water being 1000: that from pigs is the lightest I have tested, it is about 1006; that from sheep next; from cattle, 1015; that from horses and human beings is the heaviest, about 1020 to 1025, according to the quantity of salts they contain, all being influenced by the food taken. Urine being collected from various animals without water will weigh about 1018; one part of this to two of water will reduce it to 1006, which is, I think, the most economical method of using it to the plant. It may be given stronger, if it can be afforded, but should not be given weaker. An acre will require for one watering about 3500 gallons. One watering produces one crop upon tenacious lands; very open light soils might require two, if so, it would well repay the cost. I must not mislead those who have not used the liquid. Urine and water, of the specific gravity of 1006, would be too strong for common Grasses, and would entirely destroy Clover. Common Grasses should have one of urine, four of water; Clover, one urine, six water. I do not think it a first-rate dressing for Clover. I must also observe that dung water from yards open to rain should only be used as water to reduce the urine, to be tested with the urine meter. Where pipes under ground and the steam engine are used I have known a plunge pump inserted to stir up effectually all the deposit in the tank of putrid flesh and animal dung, to be forced through the pipes and cover the plant with it. This I think a mistake. The food is rendered filthy for the animals to eat; they walk over it again and again when turned out to graze, eating as little as possible, and tread it to waste. It is unfit for the plant to digest; although it will be filtered in some degree passing through the earth, according to the tenacity of the soil, it will not be rendered sufficiently clear for the immediate reception of the plant. If the plant cannot take up the liquid immeately it is applied, a great portion of it is wasted. The object of liquid is an immediate effect upon the crop of Grass, to be grown in three or four or six weeks. I should not use liquid manure for any crop that was to be six months in the land; I should use the substance which would not be dissipated before the plant be perfected. I think they have two different merits; the liquid for the present, the solid for the future. They should no more be huddled up together than our sovereigns and shillings should be in our pockets."

No plant probably is so gross a feeder as the Italian Rye-grass, and by none can so large a quantity of powerful manure be economically assimilated. The above quotation describes a plan of management of which our readers can avail themselves for the cultivation of the crop after Tares, Winter Beans, or even after the grain harvest of this season.

The following extract, from Mr. Martin Doyle's little book on "Small Farms" (Routledge & Co.), on haymaking, will soon be appropriate to the season:—

"*Clover and Haymaking.*—If you have a due proportion of Clover from the sowing of the preceding year, you will have to convert the principal part of it into hay about the middle of June. I shall suppose that some of it has been previously mown for soiling: mow the main crop before the blossoms are ripe, particularly if any Rye-grass is mixed with it, else the stems of this will be hard and wiry, and deprived of their nutritious qualities. If you can seize upon a favourable time, with the wind N. or N.E., the probability is that you will cut and carry the crop without its receiving a drop of rain. Never wait beyond a week of propitious weather, even if the Clover be a little under-ripe, on the chance of the continuance of such season. By cutting early, too, the second growth will be accelerated and more abundant, and the land less exhausted than if the flowers had been allowed to ripen. Instead of saving seed from the second, and therefore twice-mown, crop—a frequent practice—feed off a portion of the first until the end of May, and reserve the second growth of that part for your seed. By letting the first crop mature their blossoms, the second crop may be too late for ripening favourably; besides, the plants will be more vigorous from not having suffered the exhaustion of a second maturity.

"Clover will not bear tedding like common Grasses; the leaves crumble, or become discoloured, if exposed to too much weather. The best mode of saving it is to turn it over with a hay-fork, until, by the evaporation of superfluous succulence, it has shrunk at least 2 inches in thickness.

"From the small cocks in which it should be saved, it may be ricked on the fourth* day in real summer weather, but in our uncertain climate, rain will often interrupt the process; nothing then can be done; wait with due patience for a dry day. The self-fermentation of the Clover, by which it retains its nutritious juices, and only loses its watery particles, is the true principle by which the process of converting Clover into hay should be conducted. The Rev. Mr. Klapmeyer, of Courland, has made both his theory and practice known in England through Mr. Taylor, who some years ago, in a very lucid manner, conveyed the communication to the Editor of the *Irish Farmer's Journal*. By his process the sap-vessels are expanded by the circulation of the juices through the agency of heat, and the excess of humidity is dissipated; on cooling, the sap-vessels contract, and thus future internal fermentation is prevented, and the nutritive elements are preserved. Mr. Klapmeyer allowed his Clover to remain in the swathe until 4 o'clock P.M. of the day following the morning of cutting; it was then raked into little cocks, and afterwards put together for fermentation into very large ones, trampled down by one or two men's feet to accelerate fermentation, which, if the night be warm, will commence in a few hours. After a sufficient fermentation arose,—proved by the usual appearances of smoke in opening out the Clover, and some change of colour, it was spread out, and in the afternoon (of the third day) carried into the barn without danger of a second fermentation. This is an excellent mode of producing the fermentation by which the saccharine qualities are developed; 'it resembles,' observes Mr. Taylor, 'in some degree, the process of making malt from Barley, and requires similar attention.'

"Heavy rains fall in Belgium, as in England; therefore the intelligent gentleman who has made known the details of the process in favourable weather gives ample directions for saving Clover in unfavourable seasons, when partial fermentations will occur amidst delays and interruptions. His principle seems to be, that intestine fermentation should be induced, though it may be by slow degrees; he recommends, therefore, the separation of the unfermented portions from those which have heated, for the purpose of undergoing the process at some time of the course. The closing remark of minute and lengthened details is important:—'The fermented Clover remains good, even if it continues some weeks exposed to the rain, provided it is at last suffered to dry before it is put into the barn, otherwise the wet from the rain will render it musty and bad. The Clover which has been for so long a time exposed to the rain will not, however, be so nutritious as that which has been well fermented and sooner dried, but it will be superior to that which has been exposed to the rain and got up in the common method.'

"As you may have some part of your lawn, or a field not included in the regular farm department, under meadow, I shall briefly notice the ordinary haymaking process, though not a part of the Norfolk system, in order to dismiss the subject of which Clover haymaking is a branch. For your carriage-horses, hunters, and roadsters for fast work, if you have any of these, for which Clover-hay would be too foggy, hay of a less succulent quality will be necessary.

"In England, the art of haymaking is admirably understood, though from the rapidity with which it is sometimes ricked, to obtain early fermentation, much hay is often destroyed by spontaneous combustion, and never more frequently than in very bright weather, when the sun produces in it a deceptive appearance of its having sufficiently parted with its moisture; the consequence is that it heats excessively, emits smoke, takes fire, and is consumed, or, if saved from combustion, is so fire-fanged as to be deprived of all its alimentary properties.

"Meadow Grass is tedded out and separated as much as possible, a few hours after the mower has cut it down, and turned at intervals to expose it equally and thoroughly to the influences of the sun and air. If the weather be fine, that which was cut before breakfast hour may be gathered into windows, and put into little cocks on the same day. On the ensuing day these cocks should be opened out when the dew has evaporated, and the already half-made hay repeatedly turned during the day; in the evening the rows may be doubled, and made into much larger cocks than on the preceding day. On the fourth day, what was first mown may be carried for the rick; and by having a tarpaulin with a suitable framework and ropes, the succeeding quantities of hay, according as they are saved, can be ricked; or, if rain falls, left out for a favourable time, while the portion under the tarpaulin is safe.

"When a few acres only are in question, these should

* Irrigated meadows, and all heavy crops on low lands, may require a great deal more time.

be cut down, as in the preceding instance, as rapidly as possible, one good mower cutting an acre as his day's work; and the cost of a tarpaulin may be dispensed with, though it is very useful in any case, to protect the hay from dew or rain during the formation of the rick; and where one is available the field cocks can be brought to the rick as fast as they are saved. Unless for horses which may require to be limited in their allowance of water, it is desirable to sift salt very evenly through each course of hay, at the rate of 14 lbs. to the ton, and some people add coarse sugar to it, which gives it a flavour of which horses are very fond.

"If there be any reason to apprehend danger from atmospheric moisture in hay, layers of straw may be introduced with good effect. A neat farmer will thatch his rick immediately after it is finished."

Miscellaneous.

Rain during January, February, March, and April, 1855.—

Locality.	January and February.	March.	April.	Total each locality.	Average fall during four months.
ENGLAND.	In.	In.	In.	In.	In.
Greenwich	2.36	1.46	0.09	3.91	3.98
Nottingham	1.91	0.82	0.83	3.56	
Hawarden	1.70	1.65	0.45	3.80	
Exeter	2.01	2.03	0.61	4.65	
IRELAND.					
Dublin	3.93	1.44	0.55	5.92	6.19
Cork	2.53	3.05	1.30	6.88	
Portarlington	1.57	3.10	0.88	5.55	
Armagh	2.18	2.58	2.22	6.98	
Sligo	1.77	2.27	1.62	5.66	
SCOTLAND.					
Glasgow	0.57	1.04	1.10	2.71	5.02
Annat, Perthshire	1.98	3.61	1.74	7.33	

Average amount of Rain in the United Kingdom from 1st January to 30th April, 1855—5.06 inches.

—*Allnutt's Irish Land Schedule.*

Calendar of Operations.

MAY AND JUNE.

WEST SUSSEX, *May* 29.—Saturday the 26th will be memorable as the first warm day of the season. The atmosphere was completely changed. For the previous three weeks we had frequent showers, but though it kept the corn green, yet the Grass made but little progress. And we may now put down the Clover crop as a complete failure, come what will, as it is now coming in flower, and hardly long enough to mow even where it does cover the ground, which it does in few places, and it is no uncommon thing to see the mowers in the field cut, not the Clover, but the Groundsel and other weeds that have established themselves where it should have been. As may be expected, feed has been very scarce, and we have heard of high prices being given for it. And as a consequence little hay will be made, and it will be dear next year, as there is little of the old stock left. The Wheat is said to look but indifferently in some places, but in this part of the country, where the land is good, it is doing well. We shall have no Wheat ears in May, but though late it is all right in other respects. Barley and Oats look well, and the young Clovers in them have struck root better than usual. Mangold Wurzel was generally got in, with the land in the best order—too dry for their growth, but the rain came just as sowing was finished, and has brought them all up together, and for their cultivation in clay land nothing could have been better than the season. This week will be the commencement of Swede sowing; the land has been ready for some time, and (a thing that rarely happens) we have waited till we thought the proper time has come, although we have doubts if it is not too early. Among early Turnips that have been sown for eating up before Wheat sowing, we have found the fly very busy. But it is seldom that it comes to do much harm where superphosphate of lime has been used. Where it has been used I have never but once had to sow a field twice, and that was where we used home made superphosphate; and I believe the bones were not dissolved enough so as to be quickly available for the plants, to push them up. And another cause that combined perhaps with this circumstance was sowing too early—the 24th of May—when the land was not sufficiently warm. We often hear, and indeed see, that early sowing is not so safe; and that I believe is not that the fly is less ready in the middle of June to destroy, but that the crop by the heat of the soil is driven up more quickly, and so defies it. Our country markets are not over supplied with fat stock, and it goes off rapidly at high prices over 5*s.* per stone for beef and mutton, and nearly 6*s.* for lamb. Lean stock are not cheap, but there is but little sale for them, as keep is so short; but they will no doubt soon be wanted. *G. S.*

Notices to Correspondents.

ANALYSIS OF TWO SAMPLES OF SUPERPHOSPHATE: *Agricola*—

	No. 1.	No. 2.
Moisture	10.00	21.76
Organic matter and salts of ammonia ...	12.01	7.16
Sand, &c.	6.45	20.75
Biphosphate of lime	7.67	10.41
equal to		
Soluble phosphate	11.31	15.36
Insoluble phosphate	26.67	8.60
Hydrated sulphate of lime	37.20	31.32
	100.00	100.00

	No. 1.	No. 2.
Nitrogen	1.02	0.30
equal to Ammonia	1.18	0.35

Value the ammonia at 8*d.* per lb., the soluble phosphate at 2*d.*, and the insoluble phosphate at ¾*d.*, and No. 1 comes out worth about 4*l.* 15*s.*; and No. 2, 3*l.* 12*s.* per ton.

LUPINE SALT: *Clathrus celatus.* Is it of any use to the Swede crop? Will any one state his *experience?* It is especially useful for Mangold Wurzel, but not that we are aware for Turnips.

ECONOMICAL MANURE: *C.* We believe the two are the same.

LIQUID MANURE: *W W L.* If very much diluted you may use it in a liquid manure drill, which deposits the liquid on the top of the drill immediately before the seed. But for use by your implement we would apply it undiluted along with whatever artificial manure you propose in the furrows before splitting the drills previous to hoeing.

A SICK COLT: *J W S.* Your letter has not yet been replied to by our veterinary referee; but we presume that treatment similar to that of a calf will be proper. Only give it milk oftener, say every two or three hours, as much as it will take.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

DO YOU BRUISE YOUR OATS YET?—One bushel of Oats when Crushed will make two. Great saving. OAT BRUISERS, Chaff-cutters, Ploughs, Threshing Machines, Flour Mill Carts, Corn Dressing do., Horse and Steam Machinery put up, &c. Book on Feeding, 1*s.*

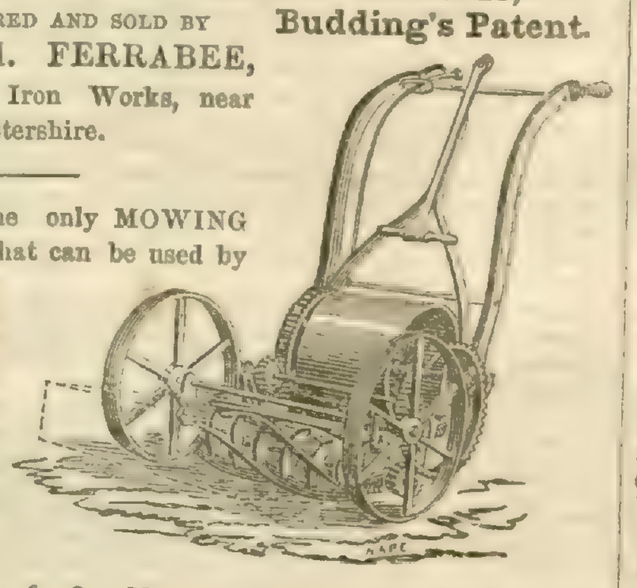
M. WEDLAKE, 118, Fenchurch Street, London.

WEDLAKE'S NEW HAY-MAKER, only 10*l.* 10*s.* 6*d.*, cash in advance. Wedlake's New Horse Hay Rake, cash in advance, 3*l.* 15*s.* 6*d.* Book on Making Hay Cheap, 1*s.* Book on Feeding Horses Cheap, 1*s.* List of 260 Cuts of Machines, 1*s.*—118, Fenchurch Street, City.

IMPROVED LAWN MOWING MACHINES,

MANUFACTURED AND SOLD BY J. AND H. FERRABEE, Phœnix Iron Works, near Stroud, Gloucestershire.

Budding's Patent.



These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 4500 of them have been sold.

Hand Machine, for One Man, cutting	16 inches wide	£5	10*s.* 0*d.*
Ditto for Two Men "	22 ditto	... 6	0 0
Pony Machine (or Donkey) "	26 ditto	... 8	0 0
Horse Machine "	28 ditto	... 11	0 0
Ditto "	36 ditto	... 15	0 0

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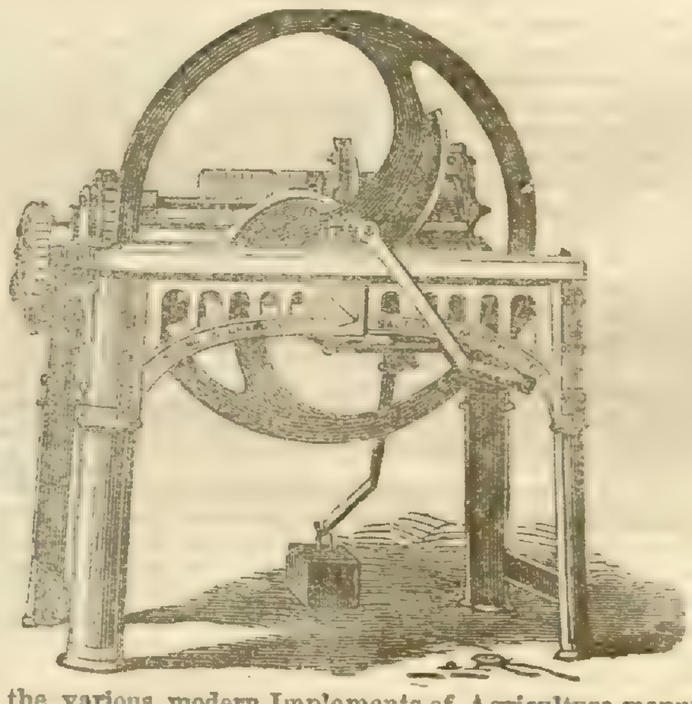

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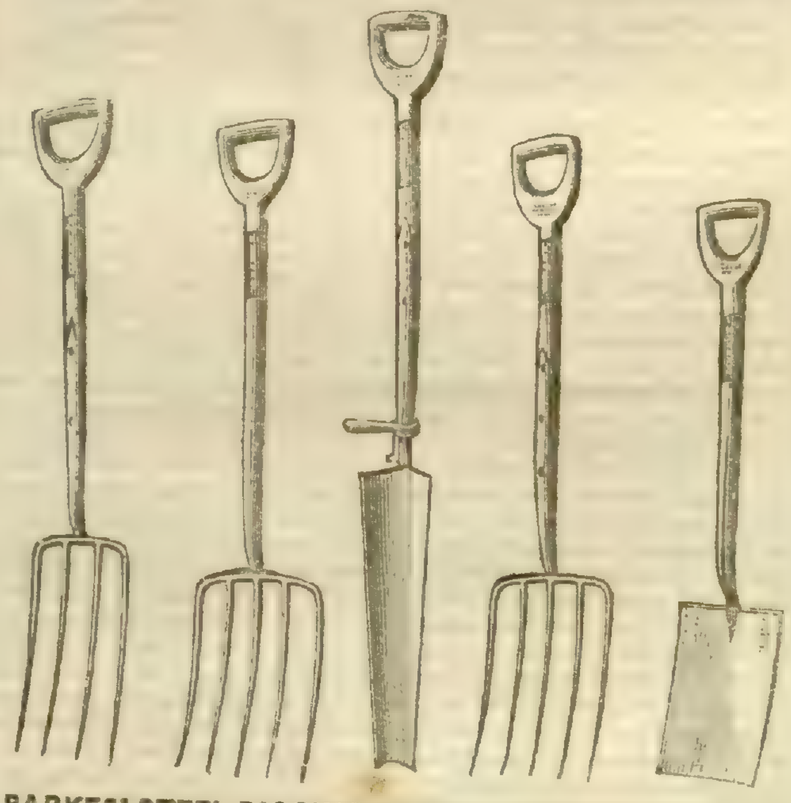

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By J. M. BLASHFIELD, Praed Street, Paddington, London.

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MILTON'S IMPROVED COTTAGE HIVE, price 1*l.* 2*s.* The only Beehives for which the Exhibition Prize Medal of 1851 was awarded, with all the latest improvements to obtain pure honey without killing the bees: also every kind of Patent and Wooden Hives, Glasses, Feeders, &c.

"The Practical Bee Keeper," the most useful book of the day, a complete Guide to Bee-management, by JOHN MILTON; price 2*s.* Likewise his Illustrated Catalogue, price 8*d.*; per post, 4*d.*

Beehive Warehouse, 10, Great Marylebone Street, London.

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This unique hive has met with universal commendation, and may be worked with safety, humanity, and profit, by the most timid; its arrangements are so perfect, that the honey may be taken at any time of the gathering season without at all injuring the bees.

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NEW TWINE NETTING (Tanned if required), 1 yard wide, 2*d.* per yard; 2 yards wide, 6*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch MESH do., 2 yards wide, 8*d.* per yd. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c., from fruit trees, flower, or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard, at W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, London.

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24 inches by	2 inches	... 3*d.* to 4*d.* per yard.	... 6*d.* per yard.
36 "	2 "	... 6*d.* per yard.	... 9*d.* "
48 "	2 "	... 9*d.* "	... 1*s.* "

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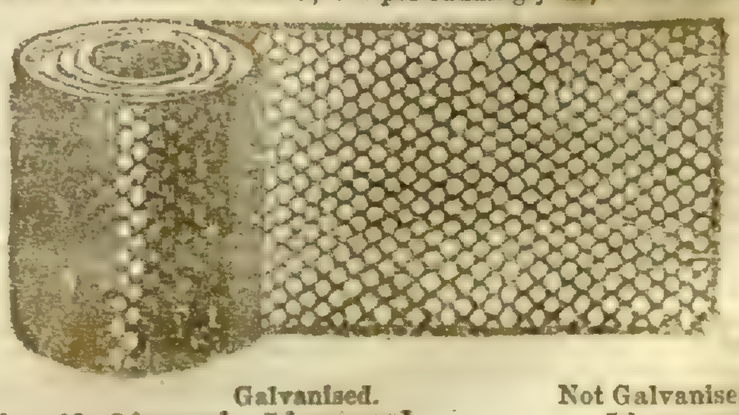

		Galvanised.	Not Galvanised.
24 in. wide,	2 in. mesh,	7*d.* per yard.	... 5*d.* per yard
30 in. "	2 in. "	9*d.* "	... 6½*d.* "
36 in. "	2 in. "	10½*d.* "	... 7½*d.* "
48 in. "	2 in. "	1*s.* 2*d.* "	... 10*d.* "

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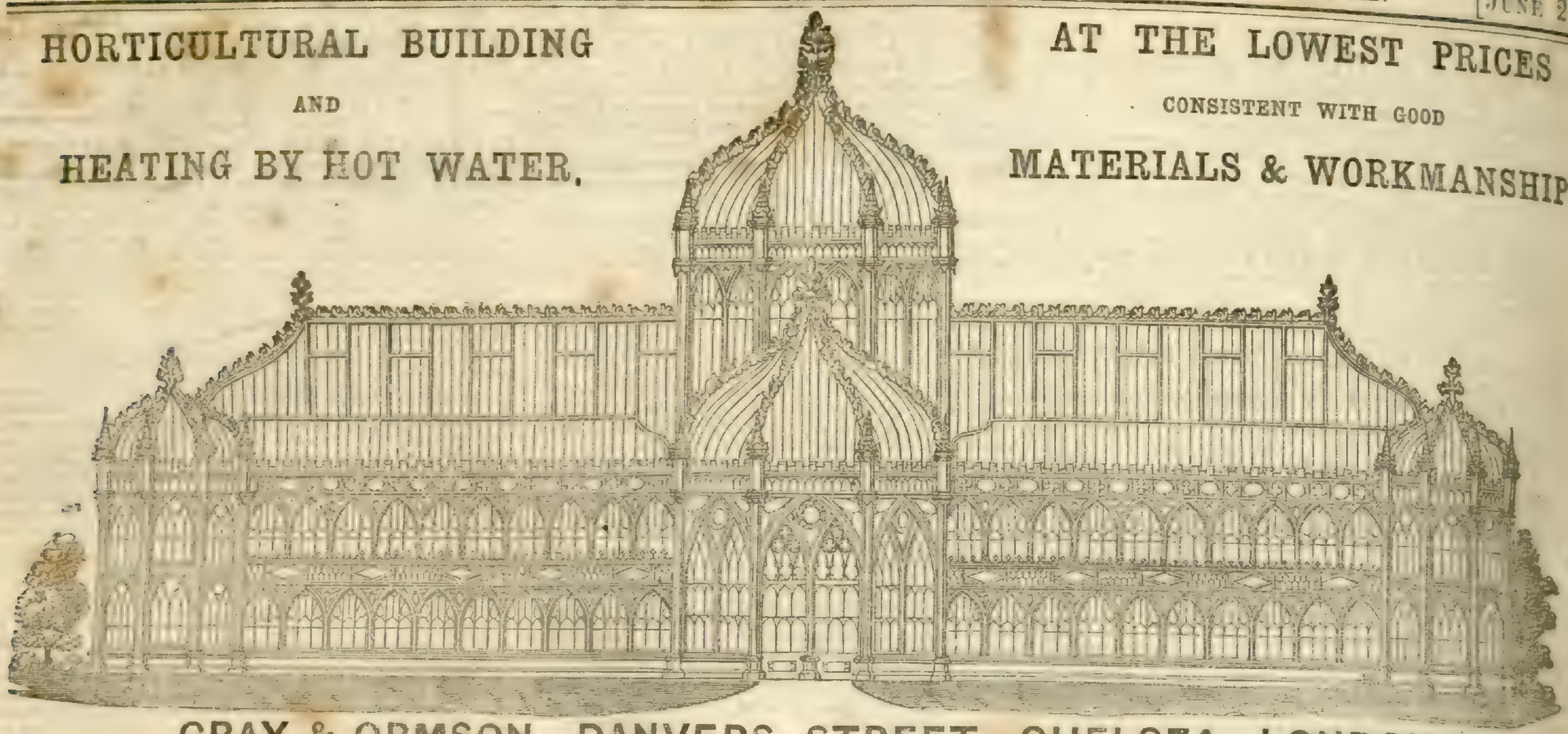

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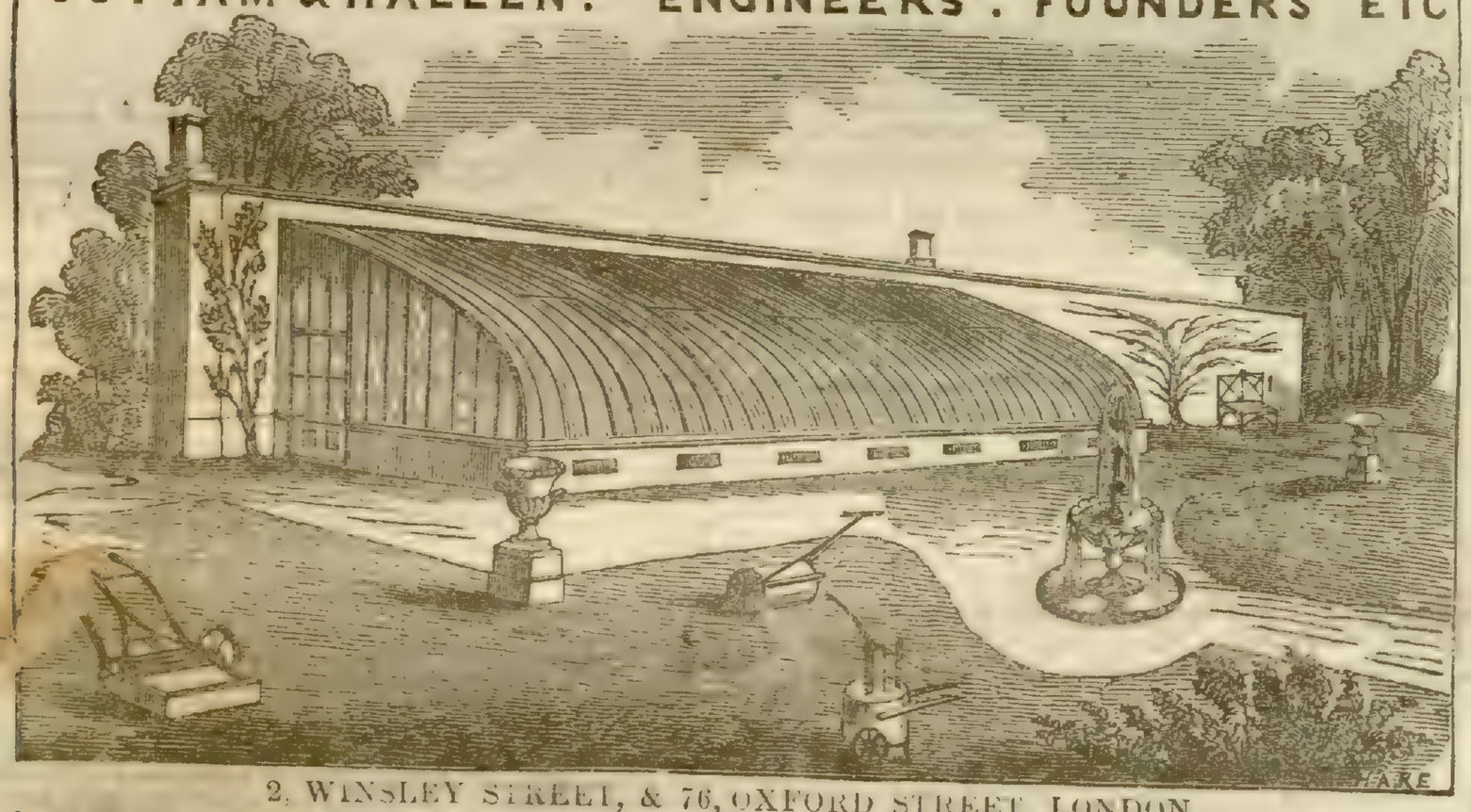

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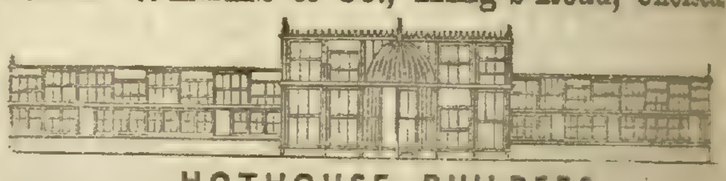

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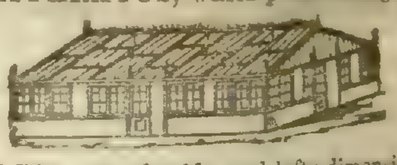

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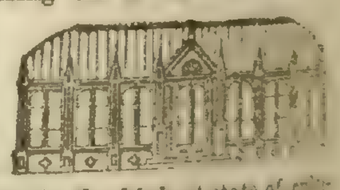

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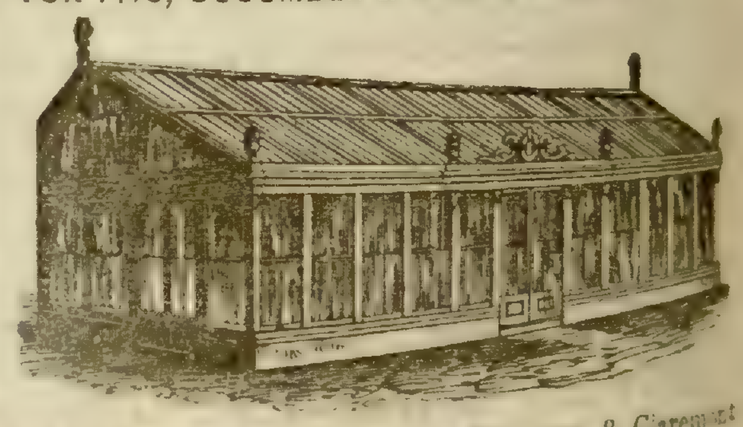

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 23.—1855.] SATURDAY, JUNE 9. [PRICE 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—NOTICE IS HEREBY GIVEN, that the NEXT EXHIBITION of FLOWERS and FRUIT, in the SOCIETY'S GARDEN, will take place on WEDNESDAY, June 20, at 2 P.M.

Tickets, price 5*s* each, can be procured at this Office, upon presenting the order of a Fellow; or on the day of the meeting, at Turnham Green, price 7*s*. 6*d*. each.

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HORTICULTURAL SOCIETY OF LONDON.—SECOND SUMMER MEETING, JUNE 5, 1855.

AWARD OF MEDALS, &c.

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GRAPES.—Mr. George Tillyard, gr. to the Right Honourable the Speaker, S K.

PINE APPLES.—Mr. Barron, gr. to Mrs. Vivian, Swansea, S B; Mr. Dodds, gr. to Colonel Baker, Salisbury, C 1; Mr. R. Davies, gr. to J. Dixon, Esq., Astle Park, C 2.

MELONS.—Mr. Peter Boreham, gr. to Sir Fitzroy Kelly, C 1; Mr. Thomas Frost, gr. to E. L. Betts, Esq., C 2

STRAWBERRIES.—Mr. Dunsford, Chingford, S B; Mr. Ingram, gr. to J. J. Blandy, Esq., C 1; Mr. William Chesher, gr. to Samuel Ware, Esq., C 1; Mr. M'Ewen, gr. to His Grace the Duke of Norfolk, C 1; John Allnutt, Esq., C 2; Mr. Thomas Pestridge, gr. to E. H. Reynard, Esq., C 2.

ASPARAGUS.—Mr. M'Ewen, gr. to His Grace the Duke of Norfolk, C 2.

MISCELLANEOUS.—Mr. Fleming, gr. to His Grace the Duke of Sutherland, S B for Nectarines, C 1 for Cherries; Messrs. A. Henderson & Co., Pine Apple Nursery, S B; Messrs. Toyne & Son, Hounslow, C 2; Mr. W. Kestall, Burnham, Bucks, H M.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The SECOND EXHIBITION this Season of PLANTS, FLOWERS, and FRUIT, will take place on WEDNESDAY next, June 13th. Tickets of admission to be obtained at the Gardens only, by orders from Fellows or Members of the Society, price 5*s*., or on the days of Exhibition, 7*s*. 6*d*. each.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY. Under the Patronage of Her Most Gracious Majesty the Queen.—The SECOND EXHIBITION of the Season will be held in the ROYAL CREMORNE GARDENS, Chelsea, on THURSDAY, the 14th of June, 1855 (open to all Exhibitors), when Prizes will be awarded for the following productions, viz., Collections of Miscellaneous Plants, Pelargoniums, Fancy Pelargoniums, Cape Heaths, Orchideous Plants, Variegated Plants, Roses in Pots, Specimen Plants, Cut Roses, and Pinks. Also extra Prizes offered by Members for Pelargoniums, &c.

Lists of Prizes and the Rules of the Exhibition may be obtained at the Royal Cremorne Gardens, and of the Secretary,

JOHN TAYLOR NEVILLE.

Ebenezer House, Peckham, Surrey.

GRAND FLORAL AND HORTICULTURAL EXHIBITION AT MALTON (open to the United Kingdom), on WEDNESDAY and THURSDAY, the 1st and 2d days of August next, during the Show of the Yorkshire Agricultural Society in that town. President, the Right Honourable the Earl of Zetland, K.G.; and under the distinguished patronage of the Nobility and Gentry of Yorkshire. Schedules of the Prizes, &c. are now ready, and may be obtained gratis on application to

Malton, June 1855. MATTHEW B. SLATER, Hon. Secretary.

BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY, Royal Pavilion. The SECOND ANNUAL SUMMER EXHIBITION of PLANTS, FLOWERS, FRUITS, &c., will be held on WEDNESDAY and THURSDAY, the 27th and 28th of June next, on the same grand scale as last year. Schedules can be had by application to E. SPARY, General Superintendent of the Exhibition, or of the Secretary, E. CARPENTER, 45, Lavender Street, Brighton.

By the liberality of the London, Brighton, and South Coast Railway Company all plants will be conveyed to the exhibition and back carriage free from all stations on the lines.

By order of the Committee, EDWARD CARPENTER.

N.B. The Autumn Exhibition will take place on the 12th and 13th of September next.

CHERTSEY HORTICULTURAL SOCIETY.—The First SHOW of the above Society will take place on THURSDAY, June 21, 1855, in the grounds of the Rev. J. C. Clark, Cowley House, Chertsey, when Prizes will be awarded for the best collections of Plants, Flowers, Fruits, and Vegetables. The Band of the Royal Horse Guards will attend.—Admittance from two to seven o'clock, at One Shilling each.

Schedules, &c., may be had on application to H. LAMB, Secretary, Chertsey.

GREAT EXHIBITION OF AMERICAN PLANTS.

JOHN WATERER begs to announce that his unrivalled collection of Hardy, Scarlet, and other RHODODENDRONS, is now on view at the Royal Botanic Gardens, Regent's Park, London. Orders of admission are granted gratuitously by Fellows of the Society. The Plants at the Nursery are coming finely into bloom, and will continue in perfection throughout the month of June.—The American Nursery, Bagshot, Surrey, June 9.

CRYSTAL PALACE.

LOST, at the Exhibition, on the 2d inst., ERICA SUAVEOLENS PALLIDA, a small plant in an 11-inch pot of Wakeman's make. Information of which will be thankfully received by JOHN EDWARDS, Priory Cottage, Seven Sisters' Road, Holloway.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

WILLIAM MASTERS AND SON, LANDSCAPE GARDENERS, Exotic Nursery, Canterbury.

DAVID FERGUSON, LANDSCAPE GARDENER, GARDEN ARCHITECT, and CONTRACTING PLANTER, Stowe, Buckingham. Now is the time to prepare for planting in September, October, and November.

JOHN HARRISON, NURSERYMAN, SEEDSMAN, FLORIST, LANDSCAPE GARDENER, &c.

Plans and Estimates furnished; Experienced Gardeners recommended; also several Young Men in the Nursery waiting for Under Gardeners' Situations.—Darlington, June 9.

GEORGE TAYLOR, JUN., CHOICE FRUIT and VEGETABLE SALESMAN, St. John's Market, Liverpool.

CONTRACTOR and PURCHASER of CHOICE GARDEN PRODUCE.

SALESMAN on COMMISSION.

Terms, Cash.

Forward as above.

MESSRS. J. AND H. BROWN will forward to any part of the kingdom the following 50 various CHOICE GREENHOUSE PLANTS, one of a sort ... ... 45*s*. 0*d*.

12 Orchidea plants, choice species	40 0
24 choice Fuchsias, fine proved varieties	12 0
Azaleas Greenhouse varieties, per dozen	12*s*. to 18 0
25 hardy Belgian Azaleas, superb sorts	20 0
100 best Bedding Plants	30*s*. to 40 0
100 choice hardy Herbaceous Plants	30 0

100 various plants, Stove, Greenhouse, and Hardy. Price and Catalogue, on application, by post.

Albion Nursery, Stoke Newington, London.—June 9.

NEW ROSES FOR 1855.—Strong flowering Plants of the following 12 New Perpetual Roses for 3*l*. No charge for packing.

Madame Theodore.	Jules Margottin.
Beauté de Lyonnais.	Salet (Moss).
Comtesse Vailliant.	Madame Place.
Madame de Cambacères.	Panaché d'Orleans.
Madame Vidot.	Souvenir de Leveson Gower.
Prince de la Moskowa.	Madame Domage.

Apply to J. and S. FRASER, Nurserymen, Lea Bridge Road, Essex.

NEW PLANTS.

A. VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), is now sending out his following New Plants:

Achimenes Ambroise Verschaffelt	8*s*. 0*d*.
" Docteur Hopf	8 0
" Edouard Otto	4 0
" Edmond Boissier	8 0
Tydæa Warscewiczi	15 0
Rhododendron Prince Camille de Rohan (quite hardy)	16 0

All the above Plants are figured in VERSCHAFFELT'S "Illustration Horticole," which can be seen at Mr. R. SILBERRAD'S, 5, Harp Lane, Great Tower Street, London.

GRAPE VINES.

WANTED to Purchase some strong Vines. Plants which have been forced this season in pots would suit the advertiser.—Address, with kinds and prices, to A. PRING, Gardener, Pashley House, Hurst Green, Sussex.

FINE HAMBURGH GRAPES.

TO BE SOLD, in one or more lots, a house of these magnificent Grapes, in fine order.—Apply to Mr. BAKER, Gardener, Backwell Hill, West Town, near Bristol.

CHEAP BEDDING PLANTS.

TO BE SOLD, several Thousand of VERBENAS, PETUNIAS, and other BEDDING PLANTS. Price according to quantity taken.—Apply to J. and J. FRASER, Nurserymen, Lea Bridge Road, Essex.

ORCHIDS.

TO BE SOLD, by Private Contract (the property of a gentleman), a most valuable collection of ORCHIDS; it contains large specimens of all the most esteemed and rare varieties, and is, it is believed, not excelled by any other collection in the kingdom. The plants are in the finest health.—For further particulars address by letter, to F. H. S., Messrs. C. & E. Layton, 150, Fleet Street, London.

FLOWER SEEDS.

PETER LAWSON AND SON, SEEDSMEN and NURSERYMEN to the QUEEN, Edinburgh, and at 27, St. George Street, Westminster, beg leave to invite attention to their very choice selection of Flower Seeds.

27, St. George Street, Westminster.

PRESENT PRICES OF MANGOLD WURZEL, TURNIPS, WHITE CARROT, &c. FOR

BASS AND BROWN'S Advertisement of present prices, see *Gardeners' Chronicle* of April 28th, and May 5th and 12th. Reduced prices for large quantities.

ERRATA.—For "Laing's Purple-top Swedes, 1*s*. per lb.," *read* "1*s*. 9*d*. per lb." the same price of the other three Swedes.

TO THE TRADE.—Prices will be supplied on application.

Seed Establishment, Sudbury, Suffolk.

ENGLISH GROWN RAPE, OR COLE SEED.

CHARLES SHARPE AND CO. beg to acquaint the Trade that they can supply any quantity of the above; prices and samples forwarded on application.

Nursery and Seed Establishment, Sleaford, June 9

AZALEAS AND ERICAS.

W. J. EPPS has much pleasure in offering the following fine, bushy, well-grown plants, and of the choicest and best varieties, in large 48 and 32-size pots.

AZALEAS 18*s*. per dozen; 5*l*. per 100.

ERICAS 12*s*. and 18*s*. per dozen; 4*l*. and 5*l*. per 100.

These will make very pretty specimens for the ensuing season; all orders to be accompanied with a remittance from unknown correspondents.—Maidstone, June 9.

NEW PETUNIAS.

DANIEL MONEY having raised three new PETUNIAS, begs to offer them for Sale:—Rosea odorata, deep rose colour, very sweet scented and free bloomer. Lilac superb large flower. Queen, cream colour, with purple throat.

D. M. has strong plants of the above sorts ready to send out. Rosea odorata, 5*s*. each; or the set 10*s*. 6*d*. Bedding plants of sorts, 4*s*. per dozen.—Post Office Orders to DANIEL MONEY, 4, St. George's Place, Water Lane, Brixton, or to Mr. JOHN KERNAN, 4, Great Russell Street, Covent Garden, London.

DAHLIAS.

E. SPARY, FLORIST, &c., Queen's Graperies, Park Street, and at 176, Western Road, Brighton, having a surplus stock of the best varieties sent out last year, and of older sorts, well established plants, begs to offer them at from 4*s*. to 10*s*. per dozen, E. S.'s selection. Also Bedding Plants at moderate prices. Hothouse Grapes, Bouquets, and Choice Flowers cut to order.

JOSEPH NORRIS, Osterley Park, Hounslow, Middlesex, having an immense Stock of PANSIES, including all the finest and newest in cultivation, offers them at 6*s*., 9*s*., and 12*s*. per dozen, package included, sent to any address on the receipt of a Post Office Order, payable at Hounslow.

The Trade supplied.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks at 5*s*.; 12 varieties, 2*s*. 6*d*.; and from good double sorts, 1*s*.

Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s*. per packet; separate, 2*s*. Fine Quilled African Marigolds, 6*d*. per packet.—Saffron Walden Nurseries.

GERANIUMS—CHEAP AND GOOD.

W. H. WHEELER, FLORIST, Hendon, Middlesex, offers a choice of the following at 21*s*. per doz.:—Medora, Enchantress, Sunrise, Governor-General, Pilot, Carlos, Colonel of Buffs, Hero, Supreme, Optimum, Magnet, Mochanna, May Queen, Virgin Queen, Magnificent, Forget-Me-Not, and Village Maid. Older varieties at 6*s*. per doz.; Scarlet Geraniums, 3*s*. per doz.; Miss Emily Field (White), 12*s*. per doz.; Skeltoni and Kingsbury Pet, 9*s*. per doz.; Verbenas out of pots now, 2*s*. per doz. All other Bedding Plants equally cheap.

STRONG BEDDING AND OTHER PLANTS.

F. AND A. SMITH'S Descriptive LIST of the undermentioned is now ready, and may be had, post free, on application:—Antirrhinums, Verbenas, Fuchsias, Scarlet Geraniums, Calceolarias, Petunias, Heliotropes, Pentstemons, Chrysanthemums, Mimulus, Salvias, Lobelias, &c. Climbers in variety; also a miscellaneous Collection of Greenhouse Plants. They have now in bloom Verbenas, Fuchsias, spotted Calceolarias, Cactus, Geraniums, Nerium splendens, Hydrangea hortensis, Mignonette &c. The Trade supplied.—Dulwich, Surrey, June 9.

EXTRA STRONG BEDDING PLANTS, 2*s*. 6*d*. per doz. INCLUDING PACKAGE, WHEN 10 DOZ. ARE ORDERED.

WOOD AND INGRAM beg to offer, at the above price, fine well-established plants of Anagallis, Ageratum, Calceolaria, dark, Cineraria ameloides, Heliotropes, Lobelia ramosoides, Nierembergia gracilis, Petunias, Senecios, Tagetes lucida, and Verbenas, all of the best kinds, and in great variety. Also a large quantity of good flowering plants of Show and Fancy GERANIUMS, and Show and Fancy DAHLIAS, of well-known leading kinds, at from 4*s*. to 6*s*. per doz. The varieties to be sent may be seen in W. & I.'s Catalogue, which may be had on application.—Huntingdon Nurseries.

OPEN AIR CULTURE OF THE MUSHROOM FOR KETCHUP.

PRESTOE'S IMPROVED MUSHROOM SPAWN.—The only acknowledged improvement in this article from the time of Oldaker. Sold in packages containing a sufficient quantity to plant 50 feet of bed for 5*s*., with printed description and cultural directions for the shed, the cellar, the garden, or the field. Post-office orders indispensable. Payable to WILLIAM PRESTOE, Basingstoke, Hants.

NEW SCARLET GERANIUM—EMPEROR NAPOLEON.

JOHN BUTCHER is now sending out the above splendid Geranium, a very decided improvement upon the great favourite Tom Thumb; the habit is more compact, the trusses of flowers very much larger, and for brilliancy of colour far superior; sending up the truss of flower finely above the foliage. Fine for Bedding or Vases. Good Plants, fit for immediate Bedding, 18*s*. per doz.; extra, 2*s*. 6*d*. each, basket included.—Nursery, Stratford-on-Avon, June 9.

MRS. CONWAY begs to offer the undermentioned choice Variegated Geraniums, &c., at the following reasonable prices:—

Brilliant ... 12s. to 18s. per doz.
Mountain of Light, 18s.
Kingsbury Pet, 9s. to 18s.
Trentham Rosy Scarlet, 1s. 6d. each.
Ivy-leaf Etoile de Vaise, 1s. do.
Flower of the Day, 6s. to 9s. per dozen.
Golden Chain, 12s. to 18s. do.
Skeltoni, 12s. do.
Scarlet Unique (Gaines), 5s. each.
Scarlet Ivy-leaf, 9s. per doz.
Impatiens jerdonice, 5s. each.
Philesia buxifolia, 10s. 6d. each.
Hydrangea japonica variegata, 1s. 6d. each.

Verbenas, Heliotropes, Calceolarias, Fuchsias, &c., 4s. to 6s. per dozen.—Earl's Court Nursery, Old Brompton.

ROBERT PARKER begs to inform his friends and the public that his New Spring Catalogue containing Descriptive and Priced Lists of the following:—

Exotic Orchids
Ferns—stove, greenhouse, and hardy
Geraniums—show, fancy, scarlet, variegated, and hybrid bedding varieties
Chrysanthemums—large flowered, and Pompone varieties
Petunias
Antirrhinums
Roses in pots [varieties
Dahlias — show and fancy
Fuchsias
Selaginillas or Lycopodiums
Gloxinias
Cinerarias
Calceolarias—bedding varieties
Verbenas
Miscellaneous bedding plants &c., &c.

Is now ready and can be had Post-free on application.
Paradise Nursery, Hornsey Road, Holloway, London.

MESSRS. E. G. HENDERSON AND SON beg to announce that their new Spring CATALOGUE for 1855 will be sent post free on application, and for 12 postage stamps a beautiful coloured plate representing the following choice plants:—

Achimenes Ambroise Verschaffelt.
Acacia Drummondi microphylla.
Boronia Drummondi.
Bouvardia longiflora.
Delphinium Hendersoni.
Genetyllis macrostegia (fuchsioides).
Fuchsia Queen Victoria.
——— Mrs. Story.
——— Prince Albert.

Mr. Andrews, the first floricultural artist of the day, has had the getting up of this plate, so that full reliance may be placed on the correctness of the flowers represented and the superior style of the colouring.

Description and Price of the following New Plants will be seen on reference to the Catalogue.

Fuchsia Queen Victoria.
" Prince Albert.
" Water Nymph.
" Raffaelle.
" Rouge et Blanc.
" Miellezi.
" Dominiana.
" Maid of Kent.
Geranium Rubens (bedding).
" Virginium.
" Masterpiece.
" Rose d'Amour.
Calceolaria Surprise.
" Purity.
" Maggiore.
" Norma.
" Vezzosa.
" Ajax.
Hydrangea hortensis flore pleno.
Lychnis Sieboldi.
Veronica imperial blue.
" Andersoni fol. variegata.
Begonia prestoniensis superba.
Lobelia Antwerpiensis.
Fuchsia Empress Eugenie.
" Lady of the Lake.
" Snowdrop.
" Mrs. Story.
" Princess of Prussia.
" Souvenir de la Reine.
" Climax.
Geranium Favourite (bedding).
" Silver Queen.
" Pretty Polly.
" Quercifolium eximium.
" Glow-worm.
Calceolaria Brunettia.
" Corregio.
" Minnie.
" Red Rover.
" Wildfire.
Phlox Queen Victoria.
Pyrethrum Delhayi.
" Duchesse de Brabant.
Achimenes Hendersoni.
" gigantea.
Scutellaria villosa.
Verbena la Déesse, and others recommended.

Chrysanthemum Hermine, Bole, and others recommended.
Wellington Nursery, St. John's Wood.

PLANTS OF CABBAGE, SAVOY, KAIL, BROCCOLI, AND CAULIFLOWER.

JOHN CATTELL begs respectfully to inform the public that he has a plentiful supply of Plants of his superior true sorts of the above, which will be forwarded to order on receipt of Postage Stamps, or Post Office Order made payable here, at the following prices, package included:—

All the sorts of Early Cabbage, Savoy, and Kail, including Brussel Sprouts, 6d. per 100, 4s 6d. per 1000; all the sorts of Broccoli, 8d. per 100, 5s. 6d. per 1000; Cauliflower, early and late 10d. per 100; Red Cabbage, 1s. per 100; Drumhead, or Cattle Cabbage, 4s. per 1000. A fine stock of autumn-bedded early Cabbage still to dispose of at 6s. per 1000; for large quantities, price on application. Packages containing plants to the value of 1l. and upwards will be delivered carriage free to London and to the Edenbridge Station of the South Eastern Railway. A remittance must accompany orders from unknown correspondents. Seed of Cattell's Dwarf Barnes, and of his superior Dwarf Reliance Cabbage, may be had in packets by post, for 12 penny stamps per packet, the former containing one ounce, and the latter half an ounce.—Nurseries, Westerham, Kent.

NEW BEDDING AND OTHER PLANTS
OFFERED BY

JOHN SCOTT, of the Merriott Nurseries, Crewkerne, Somerset.

VERBENA MISS LUCY.—A beautiful pink, with large truss, and a fine bedder.
" DAVIESI.—A first-rate variety, like Mrs. Mills, but large truss, and fine bedder.
" GENERAL PELISSIER.—Dark plum, very large, flat truss, finer in all its qualities than Andrew.
" ADMIRAL LYONS.—Light lilac, dark eye, extra large and fine.
" CERISE UNIQUE (Stewart's).—A splendid cherry-coloured flower, the finest of its class; 2s. 6d. each, or the set for 10s.
PETUNIA EMPEROR NAPOLEON.—Large, smooth dark crimson flower, with violet throat, the finest crimson yet raised, should be in every garden where a fine crimson bed is wanted.
" EMPRESS EUGENIE.—Bright ruby crimson, and peach, well worthy a place by the side of the Emperor; 3s. each, or 5s. the pair.
PELARGONIUM TRIANGULARE.—An interesting and rare species, of a climbing habit, will grow several feet in a year, and produces an abundance of beautiful and curious flowers, unlike any other species of this beautiful and numerous family; it is a native of the Cape of Good Hope, and will form a fine pillar in the flower garden during summer; 10s. 6d. each. One over to the trade when three are ordered.
RHODODENDRON GIBSONI.—The most beautiful white flowering kind in existence, far surpassing the White Azalea in size and form of its flowers; is perfectly hardy, having stood the test of last winter unharmed in small pots, the severest test a plant can have; 1s. 6d. to 5s. each. Also,
LUPINUS CALIFORNICUS.—A beautiful and new tree Lupin, with flowers like a Laburnum, and sweet scented; 5s. each. And
ALONSOA WARSCZEWICZI ... ... 12s. per dozen } Two
SABBATIA CAMPESTRIS ... ... 12s. .. } gems.

J. S. would call attention to his List of Bedding Plants in former Numbers of the *Gardeners' Chronicle*, and begs to say that he has still left many thousands; but these are being rapidly sold off, so that early application is necessary to procure fine plants.

J. S. has also now saved his Cineraria Seed from a splendid collection of flowers of unsurpassed beauty, and offers the same at 1s. 6d. per packet, post free. Now is the best time to sow to obtain large plants for winter and spring flowering.—June 9.

MAY'S MAGNUM BONUM LETTUCE is by far the largest, sweetest, and crispest Lettuce known, in proof of which we possess numerous letters received from parties who had it last season. The addresses of the writers can be had on application. It may be sown all the summer, and will stand the winter. Packets 1s. each.

HENRY MAY, the Hope Nurseries, near Bedale, Yorkshire.

ROGERS'S SEED DEPOT AND GARDENERS' REGISTRY OFFICE, Clock House, Chelsea.

A fine collection of PERENNIAL and BIENNIAL FLOWER SEEDS, including Choice CINERARIA, CALCEOLARIA, PRIMULA, &c., for JUNE SOWING.

N.B. Seed of the interesting BURNING BUSH Plant.

PAGE AND CO'S COMPOSITION FOR THE DESTRUCTION OF BLIGHT UPON ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, STOVE AND GREENHOUSE PLANTS.—Extra Strong, 4s. per gallon, sufficient to make four (Jars and Barrels extra). Directions for use forwarded. Ten gallons and upwards carriage free to London.

After four years' extensive use by the most eminent Gardeners in the kingdom, the superiority of Page & Co.'s BLIGHT COMPOSITION is unquestionable, requiring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage) and promoting a luxuriant growth.

See two pages Testimonials, *Gardeners' Chronicle*, March 3, 1855.

Can now be obtained of

Messrs. Henderson & Co., Pineapple Place, London
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Messrs. Rendle & Co., Plymouth
Mr. James Veitch, Exotic Nursery, Chelsea [cester
Messrs. Wheeler & Son, Glou-
Mr. E. Paul, Derby
Mr. George Wheeler, Nurseryman, Warminster [bury
Messrs. Masters & Son, Canter-
Mr. Tiley, Bath
Messrs. Downie & Laird, South Frederick Street, Edinburgh
Mr. W. Barratt, St. John's, Wakefield
Messrs. Thomas Davies & Co., Wavertree, Liverpool
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Messrs. Veitch & Son, Exeter
Messrs. Hooper & Co., Covent Garden, London
Messrs. Fisher, Holmes, & Co., Handsworth Nursery, Sheffield
Mr. J. Perkins, Northampton
Mr. W. F. Smith, Rivershead Nursery, Sevenoaks
Messrs. Wood & Ingram, Nurseries, Huntingdon
Mr. Baskerville, Bristol
Mr. Burham, Hastings [north
Messrs. Leake & Smith, Bridge-
Mr. Davison, St. Peter's Street, Hereford [Herts.
Mr. W. Garraway, Welwyn,
Mr. Thos. Cridland, Willington, near Taunton
Mr. Henry Horne, Market Place, Henley-on-Thames [Bourn
Mr. R. M. Mills, Market Place,
Mr. Husbands, Talbot Street, Nottingham
Mr. Caparn, Seedsman, Newark
Mr. John Cattell, Seedsman, Westerham
Mr. Morgan, Nursery, Kidderminster
Messrs. Ivery & Son, Nurserymen, Dorking and Reigate
Messrs. W. Drummond & Sons, Dawson Street, Dublin
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Mr. W. Bower, Moorgate House, East Retford
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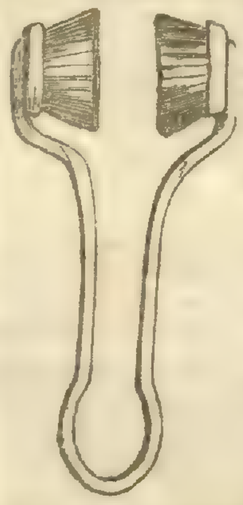
And of the Inventors and Manufacturers,
B. PAGE AND CO., Seed Merchants, Oxford Street, and Above Bar, Southampton.

IMPORTANT TO GROWERS OF ROSES.

NEWLY-INVENTED APHIS BRUSH, OR GREEN FLY DESTROYER.—The attention of Florists is particularly called to this Cheap and Ingenious Instrument, invented by the Rev. E. S. Bull, of Colchester, which, in a very simple and easy manner, instantly cleanses the Rose from that destructive insect the Green-fly (or Aphis), without causing the slightest injury to the bud or foliage.



Price 2s. 6d. each, or free by post, 4s.

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JOSLIN AND SONS,
Ironmongers, Colchester.

Retailed by all the principal Ironmongers.
Wholesale Agents:
W. Thompson & Son, 15, Upper North Place, Gray's Inn Road, London.

GARDEN VASES, FOUNTAINS, ETC.

THOMAS SOMMERVILLE, Landscape Gardener, Nurseryman, Seedsman, and Florist, Garden Road, St. John's Wood, London, begs respectfully to inform the nobility, gentry, and his patrons generally, that he has entered into arrangements with an eminent company in Scotland for the sole disposal in London of their highly ornamental and very durable Vases, Fountains, &c., samples of which may be seen at his grounds in the Garden Road, as above.

T. S. has much pleasure in being the first to introduce to the notice of the public a highly ornamental Vase, capable of resisting the most severe weather, and at little more than half the cost of any other possessing the same qualities; and he has no hesitation in stating that a more suitable Vase for the growth of plants cannot be manufactured.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Colebrook Dale Garden Seats and Chairs.

Averuncators
Axes
Bagging Hooks
Bills [terns.
Borders, various pat-
Botanical Boxes
Brown's Patent Fumigator [struments
Cases of Pruning In-
Daisy Rakes
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Edging Irons and Shears
Flower Scissors
" Stands in Wires and Iron
Fumigators
Galvanic Borders and Plant Protectors
Garden Chairs and Seats
" Loops
" Rollers
" Scrapers
Gidney's Prussian Hoe [Scissors
Grape Gatherers and
Gravel Rakes and Sieves
Greenhouse Doors and Frames
Hammers
Hand-glass Frames
Hay Knives
Horticultural Hammers and Hatchets
Hoes of every pattern
Hotbed Handles
Ladies' Set of Tools
Labels, various patterns, in Zinc, Porcelain, &c.
Lines and Reels
Marking Ink
Mattocks
Menographs
Metallic Wire
Milton Hatchets
Mole Traps
Mowing Machines
Pickaxes
Potato Forks
Pruning Bills
" Knives, various
" Saws
" Scissors
" Shears
Rakes in great variety
Reaping Hooks
Scythes
Scythe Stones
Shears, various
Sickles
Sickle Saws
Spades and Shovels
Spuds
Switch Hooks
Thistle Hooks
Transplanting Tools
Trowels
Turfing Irons
Wall Nails
Watering pots
Weed Hooks
Wheelbarrows
Youths' Set of Tools

DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.—DEANE, DRAY, & CO. (Opening to the Monument), London Bridge.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.
Kensal Green, Harrow Road, London.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

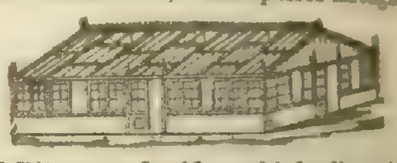
HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.

The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.



Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3s. 8d. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings, and Catalogues of Plants, Vines, Seeds, &c., forwarded on application to John Weeks & Co., King's Road, Chelsea, London.

MOORE'S PATENT VENTILATOR, for every Description of Farm-Buildings, Conservatories, Hot-houses, Warehouses, Market-houses, Bell-turrets, also for Ventilating Shafts, &c.

These Ventilators are fitted to side-slips of wood with iron levers, iron flanges, and brass screws, with rough plate, or 21oz. sheet glass, at 4s. per foot super. 2s. 6d. extra for necessary fittings to each Ventilator. If with brass levers in place of iron, 4s. per pair extra. It is presumed the accompanying drawing of a Greenhouse will show the advantages obtained independent of a most perfect system of Ventilation, by admitting any amount of fresh air and distributing equally over the plants, &c., and at the same time emitting the vitiated), viz., a much neater appearance, and an uninterrupted view of the whole interior. Greenhouses at Mr. James Veitch, Jun., Exotic Nursery, King's Road, Chelsea; Messrs. Veitch & Sons, Nursery, Exeter; Messrs. Perry, Nursery, Banbury; and the Pleasure Grounds at Hampton Court Palace; having been fitted with these Ventilators with perfect success, the Patentee has obtained permission to refer to the above places all parties desirous of seeing the same.

These Ventilators have been applied to many other Greenhouses, Conservatories, &c., but they are not published, in order to avoid giving unnecessary trouble. Fifty-four of these Ventilators, 5 ft. square (34 on the roof at an angle of 60 degrees), have been fitted at Her Majesty's Saltpetre Works, Waltham Abbey, the success of which has been proved by the fact, that the saltpetre is cry-talised in little more than half the time, previously to the light and ventilation obtained by the adoption of these Ventilators.

Moore's double-current Ventilators for External Walls, &c. Ventilators for every description of apartment, from the Cottage to the Palace. Stained and Ornamental Glass if required. In taking the size, the exact opening should be given, stating the height and width distinctly. Tariff Prices of the above Ventilators may be had on application at either of the above addresses. Packing cases allowed full price when returned free.

N.B.—These Ventilators can be readily fitted to Greenhouses already erected, by removing the entire sashes and fixing the Ventilators in their places.

Perfect Ventilation in all Cases Guaranteed.

Church, Turret, Musical and House Clock Makers, to the Lords of the Admiralty, the Hon. Board of Ordnance, the Emperor of China, &c.

London: 81, Fleet Street, London.—Manufactory, Sekford Works, Clerkenwell.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES, consisting of MATTING, MATS, MATTRESSES, BRUSHES, NETTING, HORSE-HAIR, and BRISTLE SUBSTITUTE, are distinguished for superiority and excellence of workmanship, combined with moderate prices. Prize Medal awarded in England and America at the Exhibition of all Nations.

T. Treloar, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

TURNIP SEEDS FOR PRESENT SOWING.

As some kinds of Turnips produce much heavier crops and of more nutritive properties than others, Messrs. Sutton desire at this sowing season to recommend the undermentioned in preference to all others.

A GALLON OF TURNIP SEED WEIGHS ABOUT 6½ lbs.

PRICES FOR THE MONTH OF JUNE.

SUTTON'S EARLY SIX-WEEKS TURNIP, the earliest Turnip known.—To be sown in June, July, August, and September, for early feed, and for winter and spring. 1*s.* per lb., 6*s.* per gallon.

POMERANIAN WHITE GLOBE, very large.—Sow in June and July. 1*s.* per lb., 6*s.* per gallon.

IMPROVED ORANGE JELLY (from selected roots).—If sown in June or July, this produces a heavy crop of highly nutritive Turnips, but it is uncertain if sown later. 1*s.* 2*d.* per lb., 7*s.* per gallon.

SUTTON'S PURPLE TOP YELLOW HYBRID, an excellent substitute for Swedes.—Sow in June and July for winter or spring feeding, 1*s.* 6*d.* per lb., 9*s.* per gallon.

SUTTON'S GREEN TOP YELLOW HYBRID, equal to a fine Yellow Swede.—Sow in July and August for winter and spring feeding. 1*s.* 6*d.* per lb., 9*s.* per gallon.

SUTTON'S IMPERIAL GREEN GLOBE, very fine, best for the main crop.—To be sown in June and July for autumn and winter use. 1*s.* 2*d.* per lb., 7*s.* per gallon.

SUTTON & SONS, SEED GROWERS, READING.

NEW SCARLET VERBENA—"MRS. WOODROFFE."

ARTHUR HENDERSON AND Co. can now supply fine strong plants of this very fine new Scarlet Verbena, 4 to 6 inches high, with numerous side branches, and all well hardened, fit for immediate planting out, at the following reduced prices, viz.:—

1 Plant	... ...	1*s.* 6*d.*
12 Plants	... ...	12 0
25 Plants	... ...	22 0
50 Plants	... ...	40 0
100 Plants	... ...	70 0

Specimens of blooms can be sent per post in tin cases (on receipt of 6 Postage Stamps) to those who are desirous of seeing and judging for themselves of the merits of this splendid variety.

Pine Apple Place, Edgware Road, June 9.

BASS AND BROWN have published a Supplement to their Catalogues, with extracts and descriptions of a few new and select plants, which may be had free on application.

BEDDING PLANTS.—An extensive stock of the finest and most popular, strong and well established, at low prices.

GERANIUMS, GLOXINIAS, ACHIMENES, STOVE, GREENHOUSE, and HERBACEOUS PLANTS, in splendid collections, for which see advertisements in *Gardeners' Chronicle* of April 21 and 28, and May 5 and 12.

Seed and Horticultural Establishment, Sudbury, Suffolk.

NEW WHITE BEDDING CALCEOLARIA.

CHARLES TURNER begs to recommend this beautiful new plant for bedding purposes or for conservatory decoration; colour pure snowy white, dwarf habit, and an abundant bloomer. 7*s.* 6*d.* each.

C. T. can also supply good plants of the following NEW VERBENAS:—

WONDERFUL.—The finest and most attractive variety ever offered; rich plum-purple, with large white centre. Fine truss, and a superb variety for bedding. 5*s.* each. Also—

Blue Beard	Lord Raglan
Commander-in-Chief	Boule de Feu
Empress of France	Silistria
Florence Nightingale	Violacea
Tyrian Prince	Mrs. Woodroffe
Rose of England	Empress

and all the new continental varieties. Prices on application.

Royal Nursery, Slough.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year; and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

NEW AND CHEAP PLANTS.

HENRY WALTON, FLORIST, &c., Edge End, Marsden, near Burnley, Lancashire, has now on hand a fine stock of the following, which may be had at the extremely low prices annexed:—Achimenes Carl Walforthi, 1*s.* 6*d.*; Cherita, 1*s.* 6*d.*; Louis Van Houtte, 1*s.*; Gigantea, 5*s.*; Madame Ransdatier, 3*s.*; Mr. Parparet, 1*s.*; Sir Traherne Thomas, 1*s.*; Henderson, 2*s.*; or the lot post free for 12*s.* Gloxinias, choice varieties, 1*s.* 6*d.* to 3*s.* 6*d.* each. Verbenas of this season, viz., Wonderful, Blue Beard, Lady Lacon, Commander-in-Chief, Empress of France Florence Nightingale, Rose of England, Tyrian Prince, Eva, Boule de Feu, Lord Raglan, Empress, Mrs. M'Neil, Violacea, Silistria, and Mrs. Woodroffe, 1*s.* 6*d.*, or 18*s.* per dozen post free. Clianthus magnifica, 2*s.* 6*d.* each. Begonia Prestoniensis, superb, 2*s.* 6*d.*; extra strong, 5*s.* Eugenia Ugni, 2*s.* 6*d.* Fine Show and Fancy Geraniums, 60*s.* per 100, or 50 for 32*s.* 6*d.* Scarlet and White, and older kinds of Geraniums, 3*s.* 6*d.*, 4*s.* 6*d.* and 6*s.* per dozen. Dahlias, strong plants, 3*s.* 6*d.* per dozen. Bedding Plants, of sorts, equally cheap. Descriptive List may be had for one stamp.

It is respectfully requested that orders be accompanied with Post Office Order payable at Marsden, Lancashire, unless reference is given.

NEW AND CHEAP FIRST-RATE SHOW AND BEDDING PLANTS.

THE CHEAPEST ESTABLISHMENT IN THE KINGDOM IS AT HENRY WALTON'S, FLORIST, &c., Edge End, Marsden, near Burnley, Lancashire, where there are propagated annually for sale from 20,000 to 30,000 plants, which, for cheapness and quality, are not to be equalled, being robust and healthy.

GERANIUMS.—Strong blooming plants, of varieties of 1853, such as Empress, Carlos, Neatness, Glow-worm, &c., 25*s.* per dozen; older show varieties, 9*s.*, 12*s.*, and 15*s.* per dozen; 25 for 30*s.*; 50 for 30*s.*, good plants.

FUCHSIAS, new varieties of last season, 6*s.* to 9*s.* per dozen.

CINERARIAS, choice varieties, such as Advancer, Etoile de Vaise, Empress, &c., 10*s.* 6*d.* per dozen; older varieties, good show kinds, 3*s.* 6*d.* per dozen.

PANSIES, 12 distinct fine show varieties, 6*s.*; 25 fine vars., 12*s.*

VERBENAS, new varieties of last season, 4*s.* to 6*s.* per dozen.

DAHLIAS, all the leading show kinds of last season, 9*s.* to 12*s.* per dozen; older varieties 4*s.* 6*d.* to 6*s.* per dozen, extra strong plants.

Bedding Plants, including Scarlet and other Geraniums, Salvias, Heliotropes, &c., equally cheap.

H. W.'s Spring List may be had for one penny stamp.

It is respectfully requested that all Orders be accompanied with a Post-office Order, payable at Marsden, Lancashire, unless a reference is given. Orders to the amount of 25*s.* paid to Liverpool, Manchester, Leeds, and Preston; 2*l.* and upwards free to Birmingham and Carlisle; and the like distance, or more distant, extra plants gratis.—Edge End, Marsden, June 9.

TURNIP SEEDS, ETC.

PETER LAWSON AND SON SEEDSMEN to the QUEEN and to the HIGHLAND AGRICULTURAL SOCIETY, beg leave to intimate that they are sending out the following TURNIP SEEDS, for which they respectfully solicit orders. They are all of the most approved kinds of last year's growth:—

SELECT STOCKS.

SWEDISH— Per lb.—	*s.*	*d.*
Lothian Purple top ...	1	9
Green-top	1	9
Laing's Purple-top ...	1	9
Skirving's do.	1	9
Matson's do.	1	9
Fettercairn Green-top ...	1	9
White-fleshed	1	9
RED—Round, or Norfolk .	0	9
Tankard	0	10
Globe	0	9
„ Woolton (superior variety)	0	9
GREEN—Globe, improved	0	9
Round, or Norfolk ...	0	9
Tankard	0	10
WHITE—Globe	0	9
Do. Pomerain, true ...	0	10
Round, or Norfolk ...	0	9
Six-week, or Stubble ...	0	10
Tankard	0	10

YELLOW—	*s.*	*d.*
Bullock, Green-top ...	1	0
„ Purple-top ...	1	0
Gordon of Ayrshire, Green-top	1	0
Gordon of Aberdeenshire, do.	2	0
Hood's Imperial, do. ...	1	0
Laurencekirk Tankard, do.	2	0
Cambridgeshire do. do.	2	0
Skirving's Purple-top Yellow Bullock ...	1	2
Border Imperial Purple-top do.	1	2
Dale's Hybrid	1	0
Tweeddale Purple-top Yellow Bullock	2	0
Cruicksfield Green-top Hybrid, new (between Swede Turnip and Kohl Rabi)	3	6

27, Great George Street, Westminster.

The Gardeners' Chronicle.

SATURDAY, JUNE 9, 1855.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, June 13—Royal Botanic..... 2 P.M.

WE presume that the Directors of the CRYSTAL PALACE are satisfied with their experiment in flower-showing, for they collected a very great crowd of visitors last Saturday; there were objects in abundance to look at, and, to do the spectators justice, they appeared to marvel at the many things that were set before them.

Never did the Palace itself look to greater advantage; everything was clean and in its proper place; the painting was fresh, the gilding untarnished, the trees and shrubs belonging to the place full of health and vigour; the tanks were well filled with water plants, and while there was nothing to offend good taste, except the ethnological absurdities, the spectator encountered at every step something upon which the eye could rest with pleasure.

The gardens and terraces, green with the first burst of foliage, exhibited the ground to much advantage, and were the resort of thousands during the afternoon, for there was no cold air to chill, nor long hours of sunshine to oppress. Even the beautiful landscape, spreading away into indefinite distance, was less hazy than usual. The fountains were the admiration of all who saw them; but they played for so short a time that although they began only at half-past 4 those who arrived at 5 saw nothing of them. Let us hope that it is not the intention of the directors, after their enormous outlay upon hydraulic works, to limit their water display to a few minutes' sparkle.

The quantity of plants collected for exhibition from all quarters was prodigious, and for the most part creditable to the growers. It is said that the lines of specimens extended for more than a mile in length. We by no means answer for the accuracy of this calculation, but it does not strike us as improbable. Who contributed most successfully to the display will be seen in another column; who they were that failed in the contest it boots not to declare. Nor, indeed, is it possible, even were it desirable, to enter into details when so large a subject has to be commented on. Let us hope that our reporter has done substantial justice in the account published in another column.

After such a statement, the reader will be surprised to hear that, notwithstanding all this splendour, the exhibition was undoubtedly a great failure. We mean that it produced no such effect as a thousand guineas offered for prizes, and a prodigious quantity of plants might have been expected to secure. With the single exception of the line of Orchids, which was unequalled, all the rest disappointed us. No such banks of Roses and Indian Azaleas as were formed at the last Horticultural Society's exhibition could be found. Scattered here and there, broken into detached lines, and placed in extended order, that breadth of colour and form which is produced by skilfully grouped masses was lost. The eye had nothing to rest upon; in the language of artists there was neither keeping nor repose in the picture; the scene was one of scattered points; it would have reminded us of a multitude of precious gems thrown over a gaudy carpet, had not many of the plants been garden rubbish.

Another circumstance which must always spoil the effect of a horticultural exhibition in such a place as the Crystal Palace is the magnitude and splendour of the surrounding objects. The eye is irresistibly withdrawn from little plants in pots to the brilliant decorations of Alhambras and Mediæval Courts, and the gigantic forms that meet the observer wherever he goes. The eye cannot but compare one thing with another; and a plant which seems a noble specimen of cultivation beneath a tent, in a garden, where nothing equal to itself can be found, is lost among lofty columns and high over-arching roofs, covering lines of glittering palaces. The same bad effect upon plants was observed in the original building in Hyde Park, and is inseparable from all combinations of the gaudy and gigantic with the small and unpretending. We see it in another shape in even the usual garden exhibitions, where Tulips and Pansies, however beautiful in themselves, are lost in the neighbourhood of great bushes loaded with brilliant flowers.

If an exhibition is to be effective, every surrounding object must be subordinate to it. In the Crystal Palace it is impossible but that the exhibition should be subordinate to surrounding objects.

To fruit we have not yet adverted. When we saw that so large a sum as 250*l.* was offered for fruit on this occasion, we certainly thought that the power of English gardeners would be shown in a manner before unheard of. Judge then of our surprise when we found that for this 250*l.* there was nothing to show beyond a very shabbily arranged shelf in a back court, crowded with no very considerable quantity of specimens, one half of which ought to have been refused admission. Some excellent examples of growth were, doubtless, present, as there always is; and we presume that the prize list will indicate from whom they came; but as for the "ruck" the greatest favour that can be shown them is to be silent.

Two inferences of practical value may be drawn from this experiment, looked at in the only way in which it can possibly interest any body except the proprietors of the Crystal Palace, and the effect which such an affair may have upon their funds; firstly, that mere money will not bring forth excellence; and, secondly, that the really good gardeners, who are permitted to exhibit their productions, are far fewer than is supposed. To offer extravagant rewards for any branch of gardening is therefore sure to bring before the public demerit which would more advantageously remain in obscurity. Premiums upon want of skill operate like protecting duties, and repress the interests they are intended to promote.

GUERNSEY has long been famous for its LILIES; it now promises to become equally celebrated for its Ixias. We have before us a handful of the most charming flowers of that kind which it is possible to imagine, for which we are indebted to Mr. CARRÉ, a gentleman fond of gardening resident on the island. They are mules between *conica*, *longiflora*, we believe *scillaris*, and others, and look as if they had been gathered an hour ago at Cape Town, such is their vigour, such their perfect health. Some are white with a crimson eye, some wholly crimson; others are white and rose-coloured, golden yellow with crimson backs, pure yellow, or cream-coloured with a chocolate eye. Their fragrance is that of Roses. All are from the open ground, no shelter being required in Guernsey. Can we have them here?

Hitherto the cultivation of Ixias and similar Cape Bulbs has been a failure. The plants grow feebly, flower languidly, and perish. Now and then, at the foot of the front wall of a hothouse, where they find damp in the spring and dry heat in autumn, they maintain a wretched existence for a few years; but as ornaments they are valueless. And yet in their native plains they are among the most brilliant of the brilliant, springing up in myriads after rain has fallen, and drying up when the parching sun of Southern Africa again begins to tell. In Guernsey they behave in the same manner, and we entirely believe in Mr. CARRÉ's eulogium of these exquisite flowers as they appear with him.

And are we indeed so poor in invention, so resourceless, so barren in expedients that we cannot do artificially in London what is done naturally in

Guernsey? We who boast of victory over races as rebellious as Orchids, Heaths, and Roses in pots! Surely not. We have only to make the attempt, and success must follow.

Ixias may be had in any quantity of the dealers at Cape Town; so may species of *Babiana*, *Anomatheca*, *Sparaxis*, *Tritonia*, and *Gladiolus*. And nothing can better deserve a new trial. The last genus, indeed, sufficiently shows how willingly these southern plants lend themselves to domestication: how well and how gracefully they wear their chains. The Ghent Gladioli are the glory of our autumn;—why should not the Ixias be the gems of our spring?

What is wanted in managing them is rapid growth when growing, dryness and high temperature when ripening, absence of frost, and plenty of fresh air. It is the neglect of these conditions that has led to failures. When bursting into leaf they are chilled and checked; as they slowly advance in the face of such an obstacle they are cooped up in suffocated greenhouses, or put upon a shelf near the glass, to be killed before they are half grown. As to air, that is never thought of; or if they chance to stand for an hour or two, in a dried-up porous pot, in the dry draught from an open sash, they are expected to repay our barbarous treatment with smiles instead of a shudder. Give them warmth and moisture when growing, plenty of room for their roots, and an incessant renewal of air; give them when ripening more heat, more light, more air, and less moisture, till at last they sink to repose in absolute dryness, and we shall treat these graceful strangers as nature treats them at home.

What gives Guernsey an immense advantage over England is, that in that favoured spot gardeners can do in the open air what can here be effected only under glass. Frost is little known; and greenhouse plants are hardy there. Mr. Carré gives us the following list of plants that passed the last severe winter without protection of any sort:—Abelia uniflora; Abutilon striatum and venosum; Acacia dolabriformis (in bloom June 3), A. armata, A. verticillata, and tenella (against wall); Araucaria excelsa and Braziliensis; Azalea indica—many varieties (in bloom from May 18); Aster argophyllus; Begonia Evansiana; Bletia hyacinthina; Benthamia fragifera; Cactus hyb. between Eyresii and oxygonus; Camellias (bloomed superbly during the dry cold winds); Chamærops humilis (showing bloom); Cheirostemon platanifolium (only young wood injured); Citrus decumana (against wall); Chorozema varium; Clianthus puniceus (against wall); Dacrydium Mayi and Franklini; Deutzia gracilis; Diosma uniflora (in full bloom June 1); Epacris paludosa; Erica cruenta, cerinthoides, and intermedia (scarcely protected); Erythrina crista galli (10 feet high); Gnidia simplex; Grevillea sulphurea; Habrothamnus fasciculatus and elegans; Kennedya inophylla; Melia sempervirens; Mitraria coccinea; Pinus filifolia; Polygala Dalmaisiana (injured where exposed to the wind) and angustifolia (against wall); Primula sinensis (in full bloom May 15), Rhododendron arbor. roseum (bloomed in perfection in February).

In such an island almost anything may grow without assistance;—and so may almost anything in such a climate as ours with the aid of protection assisted by skill.

There is now to be seen in the Museum of Œconomic Geology in Jermyn Street a part of the trunk of a Willow tree lately felled in Battersea Fields, in the centre of which was found an aerolite, or meteoric stone, of very large size, which seems to have fallen on the tree many years ago and to have embedded itself in its substance. It is a prodigious curiosity, and well worth examination.

NEW GARDEN FERNS.—No. I.

[Now that Ferns are becoming so very popular, and cultivators of ornamental plants are learning to appreciate the decorative capabilities, in many instances exhibited by their graceful foliage—capabilities which by contrast serve to enhance the beauties of those plants which bear gorgeous flowers, it has been thought that a brief notice of the recent additions to garden Ferns may be useful to those who are forming collections of the choicer of these plants. It is proposed, therefore, under the above head to notice from time to time some of the most interesting of the additions made to our collections within the last few years. The importers of novelties of this class are invited to aid the writer in carrying out this object. *Thos. Moore, Botanic Garden, Chelsea.*]

1. Nephrolepis davallioides, T. M. (Aspidium davallioides, *Swartz, Syn. Fil.* 48 and 247; *Hooker, Ic. Plant.* t. 395-6).

Fronds pinnate, glabrous; pinnæ sessile, the lower barren, lanceolate acuminate, obtusely serrate, the upper fertile, narrower, and much elongated, deeply crenato-lobate, the lobes rounded and bearing at the apex a single sorus; rachis clothed with small narrow scales.

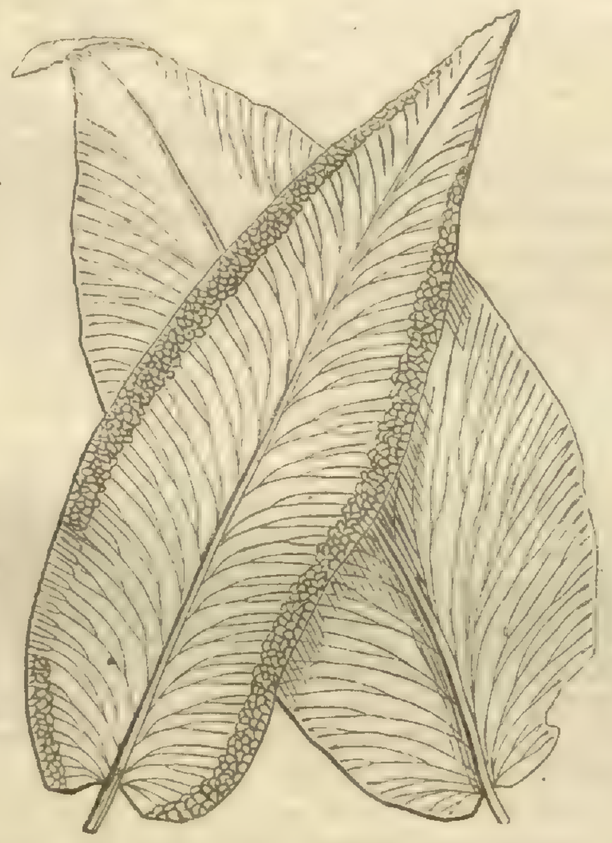
This is a very handsome evergreen stove Fern, producing gracefully pendent fronds, upwards of 3 feet in length, and 8—10 inches in breadth, the pinnæ rather distant, horizontal, the lower ones broad, the upper narrower, longer, and very evenly and conspicuously lobed, the lobes narrow, rounded at the apex, and there bearing each a single sorus, the reniform indusium of which is placed just within the margin of the lobe. A somewhat similar structure occurs in the Dicksonia abrupta,

Bory, a plant separated by Presl as a new genus under the name of Leptopleuria, but the fructification of Bory's plant is in reality that of Dicksonia, having the two-valved indusium proper to that genus; whilst in the present plant, which is associated by some pteridologists with that of Bory, the margin of the lobe is unaltered, and the indusium is truly that of Nephrolepis. It agrees with Nephrolepis, too, in the development of a peculiar wiry stoloniferous scaly rhizome, to which the fronds are adherent in fascicles. This very elegant plant was introduced from Java by Messrs. Rollisson in 1852.

2. Platyloma Brownii, J. Smith. Hook. Journ. Bot., iv. 160 (Adiantum paradoxum, *R. Brown, Prod. Nov. Holl.*; Allosorus paradoxus, *Kunze*; Pteris latizona, *A. Cunningham, MS., in Herb*).

Fronds ovate pinnate; pinnæ few, oblong-ovate, or lanceolate, falcate, stalked, rounded or subcordate at the base; veins not apparent; sori broad, linear, marginal; indusium narrow, herbaceous; rachis and pedicels puberulous, and as well as the long stipes ebony coloured, and bearing a few narrow scales.

This fine and rare greenhouse Fern is most nearly allied to Platyloma falcatum, but it differs essentially from that species in its long stipes and short broad fronds, in the different form of the pinnæ, and their fewness (7-12), and in the nature of the scales which clothe



the stipes and rachis. It is a handsome species, growing about 2 feet high, the fronds being lateral, and adherent to a creeping rhizome. The cultivated plant, which was introduced in 1853 by Messrs. Henderson, of the Pine-apple Nursery, is reported to have been received from New Zealand. It had been hitherto only known as a native of New Holland.

3. Polypodium (Arthropteris) filipes, *T. M.*

Fronds simple, elliptic-lanceolate, or oblong-ovate; or pinnate, with about 1-3 pairs of small oblong obtuse pinnæ, and a terminal lanceolate-acuminate one several times larger; sori submarginal; rachis and stipes downy; rhizome filiform, clothed with spreading fuscous lance-shaped scales.

This curious little plant, which has the appearance of a creeping Ficus, was imported along with Platyloma Brownii by Messrs. Henderson, of the Pine-apple Nursery. Its fronds, which are articulated with the creeping rhizome, are from 2 to 4 inches high, sometimes elliptic-lance-shaped and quite entire, or oblong-ovate with a small lobe or two at the base, or distinctly pinnate, with one, two, or three pairs of small obtuse pinnæ, and a terminal lanceolate-acuminate one many times larger, obscurely crenate, and slightly hairy on the veins beneath. The rachis and stipes are clothed with short curved hairs; the rhizome is very slender, and covered with lance-shaped tawny scales. The veins are once or twice forked, and terminate within the margin in club-shaped heads. The plant has fruited sparingly during the past summer in the garden of the Royal Botanic Society, and proves to be a Polypodium of the Arthropteris group, abundantly differing in its slender rhizome and dwarf habit from the other member of this section of the genus.

VEGETABLE PATHOLOGY.—No. LXXV.

322. Præcocitas (*Forwardness*).—Amongst a large number of seedlings, plants are found endowed with various qualities, without our being in the least degree able to assign the causes from which such differences arise. These qualities may either be good or bad, according as they answer the purposes of the cultivator, and they may be considered as real maladies, according to the influence they have in promoting or obstructing the main ends of vegetation. The condition before us may have great influence on the produce of the plant, but can scarcely be called a malady. In many cases it is a quality highly beneficial to the cultivator, because it enables him to extend the period through which he can supply a certain fruit or vegetable. He depends, for instance, on particular varieties of Peas, Potatoes, Apples, Pears, Plums, &c., for early produce, and one of his main efforts in producing new varieties is to produce such as will enable him to meet the demands of the market a few days earlier than he has hitherto had it in his power to do. In some cases, however, demand will be made upon his skill to ward off the evil effects of a depressed temperature upon such early varieties, and as precocity in budding or flowering is not necessarily accompanied by proportioned speed in maturing the crop, however good may be the qualities of the produce, in a cold climate like our own, subject to late frosts and other external causes which prevent impregnation, one of the worst qualities that such a variety can have is a tendency to expand its blossoms and foliage too early. A skilful cultivator will pay attention, therefore, to this point amongst others in the choice of the varieties which he cultivates. All will depend upon the object he has in view. An early variety of Rhubarb, for instance, may afford him a crop at least a month sooner than others, and such a variety will be extremely valuable, while a fruit tree which has a disposition to flower early may be ineligible because of its liability to suffer from the usual inclemency of spring.

323. This precocity is not confined to cultivated plants, but instances occur very frequently amongst forest trees, where nature has been left to take her own course without any interference. The Horse Chestnut in the garden of the Tuilleries, which outstrips all its companions, has been noticed by many authors, and I have myself had an opportunity of observing its peculiar forwardness. This, however, is scarcely a case in point, as the trees have all been brought to the spot, but the same thing occurs in natural forests. A particular Oak standing on the border of a wood in the parish of Cotterstock, Northamptonshire, and conspicuous to everybody who travels through the district, has been noticed for many years in consequence of its peculiar forwardness. The present season has given an excellent opportunity of observing its unvarying precocity.* A month ago when the buds of other Oaks were almost as dormant as in the midst of winter, this tree stood out from the rest, covered with luxuriant foliage; and it is by no means a solitary example.

324. This constitutional precocity, it should be observed, is entirely distinct from that tendency which plants possess to retain old habits when transplanted into a new locality. This is a circumstance which makes many objects so difficult of cultivation, because they do not accommodate themselves to new circumstances. The process of acclimatisation is very slow if it takes place at all, and in general it is attained only by the production of new varieties with new habits. Plants like Forsythia viridissima, or Calycanthus præcox, can scarcely be expected to become plants, even of the latter part of spring, and can only become general objects of cultivation where they are themselves regardless as to temperature, or where there is peculiar protection from climate or locality. *M. J. B.*

MISTLETOE OF THE OAK.

Professor Schleiden, in a note in his "Studies," says, "The Mistletoe of the south of Europe, or the Viscum of the ancients, is undoubtedly the same plant as that which grows principally on Quercus cerris, and which Linnæus named Loranthus Europæus. This plant, however, is not met with north of the Alps, or in the West of Europe. The only plant like it which grows in these parts is the common Mistletoe, Viscum album L., from the leaves, bark, and berries of which birdlime is obtained. Nearly all botanists agree that Viscum album L. is never found growing on Oaks, whilst we know from the mythology of the Celtic and German nations that the Oak-mistletoe was the one and the only one regarded with veneration. This creates a difficulty by no means easy to solve. An Englishman of the name of Beaton states that he once found the common Mistletoe on an Oak in the neighbourhood of Ledbury, and that he succeeded in making it grow on Oaks. It is possible that the veneration with which the

* For nearly 50 years this tree has been the resort of school-boys in late seasons to procure a supply of Oak leaves for the 29th of May, to my own knowledge, and I have no doubt it has furnished its contribution during the present backward season.

Oak-mistletoe was regarded was connected with its great rarity."

In the latest Flora of Vienna we find with respect to Loranthus Europæaus the following observations :—"On Oaks, especially on Q. pedunculata and Q. sessiliflora, scarce. In the Oak forests of Schönbrunn, on the Gallicin, at the back of New Waldeck here and there, much more common on the Bisamberg, and in the woods of Schwadorf and Prankenwerth." In the appendix to the same Flora it is stated to be "common on the Oaks in the Laxenburg Park, on the Laithagebirge, and on the Hochleiten." In the flora of Niähren the Loranthus is said to occur "in woods and pastures on Oaks, wild Apple and Pear trees, near Muschau, on the mountains of Polau, and near Blansko." Garcke says it is found "near Teplitz." Viscum album is also found on Oaks, according to Hausmann ("Flora of the Tyrol"), Gaudin ("Flora of Switzerland"), and Borckhausen (Holzgew, &c.) *Linnœa, May* 4.

CLIMATE OF FOREIGN COUNTRIES.

No. IX.

Having now returned from Nice I can give some few particulars as to the state of vegetation at various places on the journey homewards. I left on the 1st of May, and at that time the white Acacias were in full flower, though here (Chelmsford) they are not yet in leaf. The white Scotch Roses, Pittosporum, and Habrothamnus, were also in blossom in the open air. Just before I came away I saw a woman with a large tray of Alpine Strawberries for sale in the streets. They were also, I found at Marseilles, sold in the market there in earthen jars ; a striking difference was soon observable in the appearance of the vineyards after leaving Italy. There the Vineshoots were more than a foot long ; but before reaching Marseilles they were hardly visible. The Banksian Roses, were, however, very beautiful there.

In the southern parts of France the Olive trees seem to have severely suffered from the late winter, and for about the breadth of a mile before their cultivation ceases they were killed and quite brown.

At Grenoble, which is surrounded by splendid ranges of mountains covered with snow, on the 5th May the Lilacs were in fine bloom on the Bastion Hill, and a large plant of Wistaria sinensis in the Jardin des Plantes, also Spiræa prunifolia, and Magnolia purpurea ; as these are now only just in flower here, it would seem that Grenoble is about a month forwarder than this part of England. Here I first recognised Gooseberry trees, which had not been seen in Italy. In Switzerland, between Lausanne and Fribourg, there are Gooseberry hedges by the road-side. The Judas trees, which grow wild in the vicinity of Grenoble, looked very gay.

On crossing over the high hills on the south side of Geneva, May 8th, the blossom of the Apple and Pear trees, which had continued from Nice, gradually disappeared, as it is there very cold, and there was scarcely any foliage on the trees, whilst around the city, which is lower and warmer, spring was again in full beauty. In the Botanic Garden the various greenhouse plants were being placed on stages out of doors, and the large collection of Pæonies, &c., was in full blossom. In the meadows, near the junction of the Rhone and the Arve, Narcissus poeticus was found wild, and a brown-looking Cotoneaster. Lilies of the Valley were also in blossom, and likewise at Berne. These show that vegetation in the valleys of Switzerland was about three weeks before that of England.

In the level country, on the German side of Basle, Cherries and Walnuts are extensively grown, considerable quantities of oil being made in Switzerland from the latter. It was stated that these had sustained much injury from recent frosts.

At Mannheim, on the Rhine, the Horse Chesnuts were in flower on the 14th May, whilst here they are hardly yet out.

Annexed is a statement of the Temperature at the various places passed through in the Morning and Evening, taken by the same Thermometer.

1855.		7 A.M.		10½ P.M.
May 1	Nice	56	Draguignan	52
" 2	Estrelles ...	49	Marseilles ...	56
" 3	Marseilles...	56	Valence ...	56
" 4	Valence ...	57	Grenoble ...	56
" 5	Grenoble ...	57	Ditto	56
" 6	Ditto	54	Ditto	49
" 7	Ditto	53	Aix le Bains	52
" 8	Aix le Bains	53	Geneva ...	49
" 9	Geneva ...	46	Ditto	42
" 10	Ditto	45	Lausanne ...	49
" 11	Lausanne ...	49	Berne	46
" 12	Berne	45	Basle	45
" 13	Basle	47	Ditto	49
" 14	Ditto	50	Mannheim ...	50
" 15	Mannheim	48	Cologne ...	48
" 16	Cologne ...	50	Ghent	44
" 17	Ghent... ...	47	Dover	44
" 18	Dover... ...	47	Chelmsford...	44

E. C.

Home Correspondence.

Spring Protection for Wall Fruits.—I was actually going to refer your readers to the volume for 1854, p. 389, when, on opening my *Chronicle* by this morning's post, I perceived that you had reproduced the sketch of Dr. Lisle's pantile coping for fruit walls Surely when a correspondent, who must now be 90 years of age, bequeaths to the world the experience gained by him at the close of a long life, of the advantage of some protection (to Apricot trees especially), your readers are not likely to be led away by the discoverers who insinuate that such protection is all wrong, and who have got, *mirabile dictu*, an accidental crop without even a coping. I have a curious corroboration to give you of the value of your editorial article in April last, which explained by diagram the laws of radiation. An amateur near me (the most successful gardener whom I know) told me that for 35 years he has never "lost a crop." Now, it so happens that he has precisely carried out your conditions, though perhaps without being aware of his acting so philosophically. His protection is old net, two or three-fold, placed against the trees at so acute an angle as to prevent excessive radiation from below, and to intercept all rime from above. He does not use a nail, and his nets, once hung, are not removed till the fruit is of some size. Long Hazel rods are stuck in the ground, and just bent or pinched in under the coping ; a thinner rod is tied to these parallel to and immediately under the coping ; the nets are tied with bast to this horizontal rod and to the upright poles ; each tree has its separate netting, so that in every case there is very free access of air at each side and at the bottom, for the nets do not reach the ground by about two feet. I remember reading in old Forsyth that nets three-fold will keep out any ordinary English frost. I have tried my friend's plan in the last two years, and found it perfectly successful ; and I may say I have Apricots "where I never had them before." Let it not be supposed that the continuous success of an individual for 35 years is owing to some favoured locality ; he has lived during that time in various places. I can state that in his present residence he has made a productive garden out of a bare unpromising field, on high ground, with no natural shelter. And now a word to your correspondents of May 21st and 28th. May we not from the success of this airy covering, and of Dr. Lisle's pantile roof, unriddle what to them is so mysterious, and suspect them very gently of "coddling" their trees ? I infer from what one says so carefully of his canvas, and another that even "double mats" did not keep out spring frosts, that open netting placed steep enough before the trees, and left there day and night, would have procured a crop in 1853, and many previous years. I have heard that in villages on the Wiltshire Downs wall trees are safe under a projection of a foot of thatch ; this would corroborate Dr. Lisle's idea ; acting upon it, I last year placed deal planks as an additional coping of about a foot over two trees, and with great success. One, an old Greengage tree (after having its decayed trunk almost cut through and "collodionised"), bore me a crop for the first time since I have lived here, 19 years, and this year it is again covered with healthy fruit. *G. W., Bradford, Wilts.*—— I am induced to bear testimony to the utility of Dr. Lisle's plan of protecting wall trees, having ripened an immense number of Peaches and Nectarines under a very similar covering. I have 300 feet protected in the manner he recommends. The walls, which are 2 feet thick and 12 feet in height, are built of rag or refuse from a slate quarry, faced with bricks. The canopy or bonnet (as I term it) is 4 feet 6 inches in width, and projects 2 feet on the south side, and 6 inches on the north, in order to carry the drip well off. The brackets or supports are 9 feet apart, 4 feet long, and secured by a bolt to the covering, and a long nail to the wall ; the wall plate on the north-side is fixed by means of clamps, 15 inches long and 15 feet apart. On the under side of the projecting edge of the canopy there are small hooks, 15 inches from each other, for the purpose of hanging a net on, which is of twine, inch-mesh, 4 yards wide. It is put up in the latter end of March and taken down as soon as the weather will permit. Being suspended 2 feet from the wall, it does not afford sufficient warmth to encourage insects or weaken the young shoots, and, at the same time, plenty of room is left for working under it, such as disbudding, nailing in, or thinning fruit, all of which are immediately attended to when required, every lateral that may be considered unnecessary for future purposes being removed by the thumb nail, leaving as little as possible for the knife. In my opinion the ripening of the young wood is the principal object to be attained ; that done successfully, a crop will naturally follow. I would likewise mention the treatment my border receives, as gardeners appear to differ respecting the disturbing of roots ; it is about 10 feet wide, and the 3 feet nearest the wall are kept at rest, and constantly covered with saw-dust. The remainder is manured and cropped with small vegetables. Under this management we have an abundant crop every year, and although we have had the past winter and spring very severe, the whole of the trees are covered with fruit, not hung in bunches, here and there, at the points, but distributed all over equally, and the trees are looking clean and healthy, without insect or curled leaf. The soil is what is called rag. The varieties grown are the Noblesse, Royal Kensington, Royal George, Chancellor, Admirable, Barrington, &c., Peaches and white Nectarines. They are mostly trained on the fan system. *Henry Bellew, Oakhampton House, Somerset, June* 5.

Mineral Coal Tar.—I received for many years from Messrs. Cassell, Mill Wall, Poplar, the above tar in casks of from 360 to 410 lbs., containing about 30 gallons, and costing about 12*s.*, but since the destruction of their manufactory by fire some years since, I can learn nothing of Messrs. Cassell. Can any one inform me where such tar is to be had ? Its great merits are that it is laid on well in temperate weather without any heating, and retains a good black colour. *L.*

Nursery Names of Plants.—Having often suffered annoyance by purchasing the same plant under different names, I venture to ask for your powerful assistance in putting an end to so great an evil. I therefore call your attention to a case at the Crystal Palace on Saturday last. Three different nurserymen exhibited the same plant under three different names. The plant was a Maranta, evidently only a fine variety of M. roseo-lineata. I have found on inquiry that it was introduced from Lima by the Royal Garden at Kew, and thence liberally distributed to different nurserymen. 1. It was exhibited by Messrs. Jackson, of Kingston, as Maranta, species from Java ! ! 2. It was exposed by Messrs. Rollisson, of Tooting, under the grand name of M. regalis. 3. It was exhibited by Messrs. Veitch and Son as M. roseo-lineata, variety elegans of Kew Gardens. Now any person not seeing the plants would easily consider them to be three distinct kinds, and buy perhaps one of each. It is too much the habit of some men to give grand names to mere varieties, treating them as species. But my opinion is that while we have botanists in England such as Sir William Hooker and Dr. Lindley, willing at all times to determine the names of new introductions, there is no excuse for furnishing plants with names which only lead to annoyance and confusion. The object is evidently to catch the eye or ear and so the pocket of unwary purchasers, among whom is to be included *One who has Suffered.*

Grape Growing.—I have been waiting 12 long years for Grapes, and had only two bunches about three years back. My gardener promised me Grapes this year for certain, but alas ! there is not a single bunch. There are shoots from 3 to 4 feet long, and plenty of wood but rather weak : the roots are good—I have had them brought to the surface three times. My gardener proposes turning the Vines out until this time next year. Do you approve of this ? *M. K.* [Discharge your gardener.]

Fern Judging at the Crystal Palace Show.—There are several of our British Ferns that are not hardy. Among these I will confine my attention, for reasons to be mentioned presently, to Adiantum Capillus Veneris, Asplenium marinum, and Trichomanes radicans ; neither of these will bear the brunt of exposure to the climate of London at any rate, nor have I either heard or read of their being found or planted in such situations as would entitle them to the designation of hardy plants. Mr. Moore, speaking of the first named ("Handbook of Ferns," p. 198), says :—"Adiantum Capillus Veneris.—This Fern does not bear exposure, but flourishes in a confined damp atmosphere, attaining its greatest luxuriance when supplied with a moderate degree of warmth." Mr. Williams, speaking of the same plant ("Hints on the Cultivation of British and Exotic Ferns," p. 36), says :—"A rare species, found growing in moist caves and on damp rocks by the side of the sea. It is rather tender, and should be planted in a sheltered part of the fernery, similar to the stations in which it is found wild." And Mr. Newman ("History of British Ferns," p. 7) says :—"It grows freely in a greenhouse, without any artificial heat beyond that which the protection of the glass supplies ; it should never be exposed to the rays of the sun." Of Asplenium marinum, Mr. Moore writes (p. 161) :—"No one, as far as we are aware, has been successful in cultivating the Sea Spleenwort in the open air in the climate of London, exposed unsheltered to which it perishes." Mr. Williams says (p. 33) :—"This is a tender species, requiring to be planted in a sheltered part, as, for instance, in a cave." Mr. Newman says (p. 241) :—"This is a most difficult Fern to deal with in cultivation, unless carefully protected from exposure ;" and page 242, "I find this plant invariably killed by severe frost ; I lost every plant in the frost of January 1854." And of Trichomanes speciosum, Mr. Moore writes (p. 202), "This Fern requires a damp calm atmosphere, without which it will not thrive, hence all attempts to cultivate it artificially, other than under close confinement, have failed." Mr. Williams (p. 37), "This is a tender evergreen species." And Mr. Newman (p. 294), "The main object to be achieved in the cultivation of this beautiful Fern is an atmosphere loaded with moisture. In the drier counties of England this can only be maintained by a constant covering of glass." The experience of every cultivator of Ferns fully bears out the statements of the above writers, so that the fact, that the above-named plants will not bear exposure to our climate, may be said to be fully established. These remarks have been provoked by the erroneous decisions of the judges of the Ferns at the Crystal Palace on Saturday last. First, second, and third prizes were awarded to collections containing each of them the above-named plants, while a fourth collection containing none but the most hardy kinds was entirely passed over, for you will recollect that in the schedule of the Company collections of hardy (not British) Ferns were invited. Now in order that you may be assured of the perfect hardiness of the plants in the overlooked collection, I will insert the names of those of which it was composed. Athyrium filix-fœmina, Lastræa dilatata, L. filix-mas, L. spinulosa, L. Thelypteris, L. rigida, Polypodium dryopteris, Asplenium Ruta-muraria, Ceterach officinarum, Polystichium aculeatum, Blechnum spicant, Allosorus crispus, Scolopendrium vulgare, var. crispum, with the seven following North American species :—Asplenium Thelypterioides, Aspidium acrostichoides, Osmunda cinnamomea, O. interrupta, Onoclea sensibilis, Lastræa intermedia, and Struthiopteris pennsylvanica. Possibly the judges were unacquainted with the North American species, or might have thought, because they were foreign, they must necessarily be tender. *William Chitty, Stamford Hill.*

Ants (see p. 376).—It may be useful to "A. L." to know that a small quantity of arsenic mixed about the thickness of paint, and put into a saucer with a little sugar and water or milk, will soon destroy his troublesome companions. I have stuffed rags in their holes, and soon had others made in the place of them. *Constant Reader.*

Vinegar Plant.—The following is an excellent receipt for making vinegar from this plant. To five pints of water add half a pound of treacle, heat to boiling, and then pour it on half a pound of coarse brown sugar, let it cool until about milk warm, and then put the plant into it, and set it in a moderately warm place; a cupboard in a recess by the kitchen fire is the best situation for it. A young piece taken from the mother plant should be used as soon as possible, but it may be kept an hour without injury. *J. R. M., The Cottage, Duxford.*

Bedding Plants and Bottom heat.—I quite agree with Mr. Ayres' plan of keeping flower-beds systematically turned or forked-up during seasonably warm weather, not only as a means of obtaining a considerable amount of bottom heat, but also as affording an opportunity of breaking up and exposing the soil to those atmospheric influences which are now so well known to be essential to the healthy development of plants. The plan of nursing young plants in prepared beds so early as April speaks for itself. A moderate quantity of heating material should be placed below the compost which is intended to adhere to the roots on taking up. This will encourage quicker growth. For I do hold that the larger we can get young plants for bedding out, so as to cover or nearly so the beds at once, the better. On coming to England some six years ago I was surprised to see so generally adopted the system of bedding out small plants, which in some cases took all the season to fill the beds. This seemed so much at variance with all my installed and preconceived ideas of bedding, that I could scarcely comprehend the reason of it till I discovered that no desire existed to have the plants so small but that there was no accommodation to grow them larger. Necessity is said to be the mother of invention, and probably this is the reason why people in cold climates are made more alive to their wants than those of more favourable climes. One thing I know is that until of late years I never saw small plants bedded out, but plants that filled the beds at once, and such as required it were pegged down in their place. Of the various modes, therefore, of getting bedding plants prepared for the parterre, that best fitted for the purpose well deserves our attention. *Peter M'Phail, Hammersmith.*

Hybrid Rhododendrons.—On the 8th of last month I sent you three flowers of hybrid Rhododendrons, the earliest then in bloom. I now send you 12 heads of flowers from as many different plants, to show their varieties of form and colour. Among them are umbels from the same plants from which the former flowers were gathered, and which are still in bloom. Some of these plants have had from 60 to 80 heads expanded upon them at one time. I send also a small and somewhat damaged branch to show the freedom with which they flower, and have selected for this purpose a branch whose flowers are not yet expanded. I would have sent many similar branches, the flowers of which were fully blown, but they would occupy too much room in the basket. The duration of the individual umbels is very remarkable; some have lasted in flower fully 10 days, whilst a succession of bloom keeps the plants in beauty for at least a month, during which time the splendour of their appearance can hardly be surpassed. The flowers are unquestionably more lasting than those of the American varieties, perhaps because they bloom at a cooler season. These plants have not received the slightest protection, either recently or during the winter. *J. R.* [These flowers were intended to have been shown at the Horticultural Society's meeting last Tuesday, but they arrived too late for that purpose. All of them were brilliant crimson kinds, and extremely handsome.]

Societies.

Horticultural, *June* 5.—The Rev. W. B. L. Hawkins in the chair. Mrs. J. H. Vivian, J. Stewart, Esq., W. E. D. Cumming, Esq., J. L. Ricardo, Esq., M.P., J. D. Cooper, Esq., G. Field, Esq., and Mr. J. Young, Elm Cottage, Taunton, were elected Fellows. There was again an excellent exhibition on this occasion. Of rare plants, Messrs. Veitch showed the golden Rhododendron Brookeanum, and R. californicum, mentioned in another column; also R. purpureum splendens, a purplish lilac kind, very much spotted in the upper petals; a large purple Moutan, and a branch of Embothrium coccineum. Messrs. Rollisson had the beautiful Indian shrub Meyenia erecta, alluded to in the report of the Crystal Palace Show. Of cut Rhododendrons there were several exhibitions. Mr. Ingram, gr. to J. J. Blandy, Esq., sent a boxfull, among which were Blandyanum, one of the best of the high-coloured kinds, Towardi, Ignescens, Elegans, Eminent, Captivation, Everestianum, &c.; and Messrs. Moore and Son, of Birmingham, also had a collection of 24 trusses, all numbered, but not named. J. Allnutt, Esq., of Clapham, showed Rhododendrons, both cut and in pots; but both were disqualified, owing to non-compliance with the regulations. Mr. Gaines sent a white and two pink and yellow coloured Ghent Azaleas. Pelargoniums, both fancy and other kinds, came from Messrs. Fraser, Dobson, Gaines, and Baron Goldsmid's gardener, Bray. All of them were well-flowered; but those from Messrs. Fraser were better covered with foliage and more perfectly grown than the others. Mr. Gaines also had examples of scarlet Unique, a useful variety for bedding purposes. Of Orchids six of the beautiful plants shown by Messrs. Veitch, at Sydenham, were reproduced here, and the same remark applies to the group from Messrs. Rollisson. The flowers on both these collections were perfect, and even as fresh and beautiful as if they had only newly expanded. Not a bruise could be seen on any of them, a remarkable fact considering the moving and travelling about to which they have been subjected. Messrs. Henderson, of Pine-apple Place, had a collection of stove and greenhouse plants, among which was a good specimen of Medinilla magnifica, and along with them Isolepis gracilis, an interesting little plant found on rushy moors in Germany, and extremely useful for hanging up in baskets, over the sides of which the foliage falls like masses of green hair. This plant was stated to stand smoke and dust better than most others; it may therefore prove suitable for windows. Mr. Ingram, gr. to her Majesty at Frogmore, sent cut specimens of Paulovnia imperialis literally loaded with blue Gloxinia-like flowers. They were stated to have been taken from a tree about 15 feet high, growing near the Terrace at Windsor. It had had no protection whatever; on the contrary it must have been much exposed, and yet its flowers wrapt up all last winter in their woolly envelopes have come out perfectly unscathed. To the dry warm autumn of last year and to the vigour of youth in the tree having settled down into more moderate growth, may, doubtless, be attributed its blossoming so finely this season. Now, however, that a flowering habit has been induced it will probably keep it, and certainly a tree in the condition in which the one in question is must be extremely handsome. Some small Tea, Noisette, and Hybrid Perpetual Roses grown in pots were shown by Mr. Wilkinson, of Ealing, in order to prove how well suited the Celine stock is for Roses cultivated in this way. Mr. Glendinning showed a seedling Heath, a dwarf and doubtless very useful kind. It had been raised between E. depressa and E. hybrida. Messrs. Veitch had a small plant of Lilium giganteum. Messrs. Rollisson produced one of the finest specimens of Erica ventricosa magnifica perhaps ever seen. It was literally a ball of flowers and healthy foliage nearly 4 feet in diameter. The same firm had also a potfull of the New Holland Pitcher plant mentioned in another column.

Among Fruits there were some good things. Mr. Dodds, gr. to Col. Baker, had a smooth-leaved Cayenne Pine, weighing 4 lbs. 5 oz; Mr. Davis, gr. to J. Dixon, Esq., a Jamaica Pine, weighing 3 lbs. 2 oz.; and Mr. Barron, gr. to Mrs. Vivian, of Singleton, a Queen, weighing 4 lbs. 9 oz. Mr. Tillyard, gr. to the Right Hon. the Speaker, exhibited three bunches of Black Hamburgh Grapes, well swelled and finely coloured. Murray Nectarines, and a dish of very fine May Duke Cherries came from Mr. Fleming, gr. to the Duke of Sutherland, at Trentham. Messrs. Toyne & Son, of Hounslow, had two pots of Cutbush's Prince of Wales Raspberry bearing fruit pretty freely. They appeared to have been last year's canes potted in autumn, and were very well done. Of British Queen Strawberries Mr. Dunsford had some very fine fruit, well coloured to the very points. This variety and also Myatt's Eleanor, famous specimens, came from Mr. M'Ewen, gr. to the Duke of Norfolk; but as only 30 of each sort were sent, instead of 50, the number required by the schedule, they were disqualified. The same grower had also a dish of Hautbois, which is still a favourite Strawberry with many. Mr. Allnutt showed Keens' Seedling, as did also Mr. Ingram, gr. to J. J. Blandy, Esq., and Mr. Chesher, gr. to S. Ware, Esq. Mr. Pestridge, gr. to E. H. Heyward, Esq., sent examples of Elton Strawberries. Of Melons the best, a green-fleshed variety, came from Mr. Boreham, gr. to Sir Fitzroy Kelly; it was incorrectly named Ispahan. Mr. Frost, gr. to E. L. Betts, Esq., had what was called the Preston Hall, hybrid green fleshed, apparently a good Melon. Finally, Mr. Ferguson, of Stowe, sent some 6000 green Peaches and Nectarines, the thinnings of trees that had never borne fruit till they were covered with glass, and now the crops they are producing were stated to be immense. So much for glass protections.

From Arundel Mr. McEwen showed 50 heads of Asparagus about 7 ins. in length, which weighed 2¼ lbs.

Of Miscellaneous subjects, Mr. Glendinning produced the Chinese garden pot, of which a representation was given the week before last, at p. 357. Mr. Kestell, of Burnham, Bucks, showed specimens of his labels, which have proved so useful at Frogmore, Dropmore, and other places about that quarter. They are made of iron with sunk faces, on which the names are written or printed; after some patent preparation glass is then put on, leaving no vacancy between it and the letters, and the whole is thus hermetically sealed. They are warranted by the patentees to stand all extremes of heat, cold, and moisture, and are manufactured in different forms and sizes to suit the different purposes to which they may be applied. They are uncommonly nice, and as regards prices were said to vary from 2*d.* to 1*s.* 6*d.* each.

From the garden of the Society came Viburnum macrocephalum and plicatum, the double yellow Datura, a singular looking herbaceous plant, and some other things, together with flowers of Mr. Fortune's Moutans, and of the white Glycine. The same establishment likewise furnished three pots each of four varieties of Strawberries, which have been treated exactly alike, with the view of ascertaining whether or not there would be any difference in their period of ripening. The sorts were Keens' Seedling, Ingram's Prince of Wales, Alice Maud, and British Queen. The result is that the three first had ripe fruit on them, ripe in the order in which they are mentioned, while the last had not begun to colour.

The list of medals, &c., awarded on the occasion will be found in our advertising columns.

Horticultural Show at the Crystal Palace, Sydenham, *June* 2.—How far the interior of this wonderful building is suited to the exhibition of plants will be explained in a leading article. Portions of what were shown there were accommodated in the nave, up the centre of the east end of which ran a double bank 281 feet in length and three stages deep, and in the west end was a similar stage full 156 feet in length. The rest of the exhibition was arranged in the tropical end of the building and in the open corridors facing the terrace gardens and park. Over the whole awnings were fixed, a few feet above the plants, serving to screen them from the sun. When we state that there were banks of Orchids 240 feet in length, Ferns and Lycopods 40 feet, Stove and Greenhouse plants 690 feet, plants remarkable for fine foliage 92 feet, Cape Heaths 200 feet, Azaleas 100 feet, Pelargoniums 180 feet, Calceolarias 66 feet, Fuchsias 40 feet, and "odds and ends" 72 feet, some idea of the magnitude of the show may be conceived. Its different parts were, however, so much scattered about that the general effect produced by so many plants was less striking than might have been anticipated.

The Azaleas, with the exception of a magnificent collection from Sir E. Antrobus's gardener, Mr. Green, were decidedly past their best, and some of them were even miserable specimens of cultivation. In this respect, indeed, the whole exhibition formed a striking contrast with that at Gore House, whose great distinguishing characteristic was that there was not a bad plant to be found, while here in nearly every class, to say the least of it, instances of indifferent cultivation might have been pointed out. This is the more remarkable when we know that the majority of the exhibitors kept back their plants as much as possible, in order that they might bring them forward on this occasion in the best condition of which they were capable.

The most important feature of the show was certainly the Orchids, which were, notwithstanding their great numbers, just in perfection, and altogether as fresh and beautiful as if it had been the middle of May. Messrs. Veitch had a remarkably fine group, in which were such masses of Phalænopsis, Dendrobiums, Aerides, Vandas, Lady's Slippers, Lælias (among which purpurata was conspicuous), and Anguloas, as have rarely been seen together before. Messrs. Rollisson also sent, among other fine things, a noble bush of Oncidium sphacelatum in admirable condition, Cypripedium Lowi, with two blooms on it; two large Sobralias, the rare Cattleya Aclandæ, and the curiously formed buff-flowered Bolbophyllum Lobbianum. Mr. Mylam, gr. to G. Reed, Esq., had some extremely good plants of the Moss Cattleya, the Fox-brush Aerides, the White Butterfly plant (Phalænopsis), Anguloa Clowesi, Cattleyas Skinneri and intermedia, Cypripedium Lowi with five flowers on it, and others in equally fine condition. These may be said to form the *élite* of the exhibitions of Orchids produced on Saturday last. Other groups demand little remark, having for the most part been fully noticed this season elsewhere. Some fine specimens of Phalænopsis in wire baskets, constructed on the principle of those permanently employed for "hanging plants" in the Palace, must not however be forgotten. These were furnished by Messrs. Veitch, and for the purpose of placing plants of this description in for exhibition they seemed perfect, their light and elegant forms associating well with the waving masses of flowers that overhung them.

The offering prizes for plants grouped for effect in or out of flower was a move in the right direction; but it was badly responded to by gardeners. Nurserymen did better, and the collections produced by Messrs. Veitch and Rollisson were really very skilfully and effectively staged. On the top shelf Messrs. Rollisson had a Norfolk Island Pine some 8 ft. in height, a Rhopala corcovadensis of similar altitude, with a pyramidal Erica Sindryana between them. In front of these were Nepenthes distillatoria loaded with pitchers; Cissus discolor clothed with foliage of remarkable beauty, and between them Oncidium flexuosum, while on the front or bottom shelf were Platycerium grande mounted on inverted pots (which, however, would have looked better had they been hid among Moss or Lycopods), and on one side of it was Aphelexis macrantha purpurea, and on the other Erica ventricosa magnifica—one of the very best of the class to which it belongs. On the left side of this centre piece were Gardenia Fortuni, with white flowers, large and double, and emitting a most delicious perfume; Angiopteris erecta, and Nephrolepis davallioides, a purple-coloured Azalea, a yellow Heath, two variegated Screw-Pines (Pandanus), the scarce Nepenthes lævis, Erica elegans, Lycopodium stolonferum, the rose-flowered Adenandra fragrans, and Caladium pictum, while on the right side were the Box and Oleander-leaved Eriostemons, Philodendron pertusum, Polygala oppositifolia (not in flower), a yellow Heath, a variegated Screw-Pine, Erica Westphalingii, Caladium hæmatostigma, a species with leaves spotted

with red, and Dendrobium nobile. The two sides of this group gradually fell from the centre to the extremities, and it will at once be seen that they were nicely balanced as regards colour.

Messrs. Veitch's collection was placed on the end of a stage with its wings extended on either side. On the top was the noble-looking tree Fern Dicksonia squarrosa, and in front of that a magnificent Cissus discolor, supported on both sides by Phalænopsis grandiflora, literally masses of flower. These last were backed—one by a yellow Oncid, the other by Dendrobium nobile. Each corner was furnished with a Norfolk Island Pine, associated with which were the yellow Dendrobium densiflorum, Azalea lateritia and coccinea, Philodendron pertusum and pinnatifidum, Aerides virens, and Cattleya Mossiæ. On the left of these were the fan-leaved Palm Livistona borbonica, Medinilla magnifica in the shape of a standard; Lilium giganteum, rising some 6 feet in height, and bearing a glorious head of a dozen large dropping white flowers, streaked with red; together with a yellow Heath, Platycerium grande, and Coleus Blumei, with reddish brown leaves, edged with pale green. The right wing comprised nearly the same plants as those just mentioned, in addition to which were a variegated Screw-Pine, and the Dragon tree, Dracæna Draco. The above were certainly the two most interesting groups exhibited, the intermixture of plants out of blossom, but with fine foliage, having the effect of setting off the others to more advantage than could otherwise have been the case.

Mr. Colyer's (of Dartford) collection consisted altogether of flowering plants, which exhibited little pretension of having been grouped for effect. The collection from Mr. Peed, gr. to Mrs. Tredwell, of Norwood, was tolerably well put up, but still its arrangement, compared with that of the two nurserymen just alluded to, was extremely deficient.

Of collections of Stove and Greenhouse plants, Mr. May, gr. to H. Colyer, Esq., of Dartford, had some immense bushes, among which the best were the fine Erica elegans which we have mentioned before; Leschenaultia formosa; Gompholobium polymorphum, a beautiful bush, trained so as to allow it to exhibit more of its natural habit of growth than usual; huge Epacrises, Boronias, Everlastings, Pimeleas, Eriostemons and Azaleas. Of these kinds of plants Mr. Green, gr. to Sir E. Antrobus, Bart., also had an exhibition, the chief feature of which was its Azaleas. Sir John Cathcart's gardener (Dods) and Mr. Farmer's gardener (Carson) likewise showed wonderfully fine specimens of stove and greenhouse plants; but these, as well as others produced on this occasion, were not sufficiently different from what have been already exhibited this season to render it desirable to occupy room with a detailed account of them.

Of plants with fine foliage Messrs. Veitch showed a large and striking collection. It contained Zamia pungens, Philodendron pinnatifidum, the Nepaul Berberry, Plectocomia elongata, Calamus viminalis, Sabal umbraculifera, Musa Cavendishi, Ceroxylon Andicola, and Dracæna Draco and indivisa; the last with a noble head of Yucca-like leaves mounted on a stem quite 3 feet in height. This, associated as it was with good-sized Palms and Cycads, had a very imposing effect. Much smaller than the foregoing, but still very handsome were the plants shown by Messrs. Rollisson. The more remarkable among them were perhaps Aralia integrifolia, Rhopala Estrellensis and magnifica, Dracæna gracilis and indivisa, and Lomatia australis. Other plants, with fine foliage, were Cissus discolor, Dioscorea zebrina, Maranta bicolor, Dracæna terminalis, Coleus Blumei, Canna discolor, and a Caladium or two.

Variegated plants were numerous; but being all, or very nearly so, small things, they produced no sort of effect. Messrs. Veitch had the best group, which contained Physurus pictus and argenteus, Coleus Blumei, Cissus discolor, a handsome variety of Maranta roseo-lineata, variegated Yuccas, Hydrangeas, Vines, and Screw-pines (Pandanus), Anæctochilus setaceus intermedius, Lowi, and xanthophyllus, Vriesia speciosa, Calathea zebrina, Caladium pictum, Maranta Warzewiczi, Dracæna terminalis, a variegated variety of Aspidistra lurida, and Ruellia maculata. Mrs. Lawrence's gardener (Franklin,) had Caladiums, Phryniums, Cissus, Marantas, Dieffenbachias, Crotons, the beautiful white-veined Aphelandra Leopoldi, Vriesia speciosa, with a long feather-like spike of scarlet bracts, and Eranthemum leuconervium. We also noticed some variegated Fuchsias, Ageratums, and hardy plants.

Ferns, both hardy and tender, were shown in abundance, and were much admired. The best came from Mr. Fletcher, gr. to J. F. Young, Esq., and from Messrs. Veitch. Of tender kinds the latter had fine plants of Nephrolepis davallioides, Asplenium nidus avis, an admirable plant; Adiantum cuneatum, trapeziforme, and pentadactylon, &c., all handsome; Acrostichum grande, Dicksonia Antarctica, Darea diversifolia, Blechnum braziliense, and one or two others. The hardy varieties were also well grown, and their peculiar colour and forms contributed greatly to the interest of the exhibition.

Lycopods were numerous, and some of them in their way extremely handsome. It is remarkable what fine forms have been introduced among these plants of late years. Mr. Williams, gr. to C. B. Warner, and Messrs. Veitch had both exhibitions of this singular tribe. Among them were L. braziliense, Willdenovi, denticulatum, cordatum, stoloniferum, cæsium and its arborescent variety, umbrosum, formosum, and apodum, the last a neat close-growing kind.

Cape Heaths, on this occasion, were in beautiful condition, more especially the fine plants shown by Messrs. Rollisson. Rhododendrons and Roses were also present, but the display they made was extremely poor. The latter, in fact, seemed almost lost in a corner by themselves. Tall Cacti were scarcely more effective, and we must not forget a large breadth of Gloxinias, among which, however, we saw nothing very new either in name or colour.

Of Pitcher plants there were some glorious examples from Messrs. Veitch. They consisted of Nepenthes ampullacea, Rafflesiana, Hookeri, lanata, and two unnamed sorts. Messrs. Rollisson also had a large pot full of the singular looking Australian Cephalotus follicularis, whose curious form attracted particular notice. Its rosettes of leaves and little pitchers half hid in a carpet of green moss were covered over with a bell glass.

Among new plants Messrs. Veitch had the golden Rhododendron Brookeanum from Borneo. It has glossy green foliage, and is altogether a fine addition to the genus. The same firm also showed R. californicum, a delicate pink kind, very different in appearance from those of the eastern mountains of America, or from any we have at present in cultivation, together with Weigela amabilis, and a branch of Embothrium coccineum from a wall literally loaded with brilliant orange scarlet flowers. This fine new Protead is said to be hardy in Devonshire, having stood these four last winters out of doors. This does not imply, however, that it will be hardy in other parts; but it may be expected to succeed with very little protection, and that much its beauty will amply repay. Messrs. Rollisson had Meyenia erecta, a shrub with a good habit, and covered all over with violet purple Achimenes-like flowers with a yellow eye. This will make an excellent addition to our present races of stove plants. Messrs. Jackson had a large flowered Clematis in the way of Azurea grandiflora; Messrs. Standish and Noble some Chinese Berberries, Azalea crispiflora, and Spiræa grandiflora; and Messrs. Veitch had Lomatia ferruginea, the Rice paper plant, a Sarracenia, and some variegated Orchids.

Florist Flowers were shown most extensively, and to think of alluding to the plants that made up the different exhibitions by name would be a hopeless task. Let it suffice to say that they formed no inconsiderable portion of the show. Pelargoniums were unusually abundant, and there were also Fuchsias, Calceolarias, Pansies, and Tulips; sufficient we should hope to satisfy the most ardent admirer of such things. What is wanted in these classes of flowers is variety, and this is a point to which exhibitors should pay attention when making up their collections, which should be varied in colour as much as possible. This seemed to have been very much overlooked on Saturday last.

The exhibition of fruit, as a whole, was a poor affair, and what was produced was most unskillfully arranged. Collections were furnished by Mr. Fleming, gr. to the Duke of Sutherland; and Mr. M'Ewen, gr. to the Duke of Norfolk. The most remarkable feature of Mr. Fleming's contributions was his Peaches and Nectarines, which were extremely good. He had also excellent Grapes, May Duke Cherries, and Melons. Mr. M'Ewen had well-ripened Grapes, a Queen Pine, Melons, Gooseberries, Currants, Raspberries, and some very fine Strawberries, among which was a dish of Hautbois.

Pine Apples, with one or two exceptions, were discreditable to the skill of British gardeners. Mr. Bailey, of Shardiloes, sent some well swelled fruit, especially a Providence, as did also Mr. Robinson, gr. to Lord Boston; and Mr. Barron, gr. to Mrs. Vivian, had a good Queen; but with these exceptions and perhaps a Queen from Mr. Constantine, there was nothing worthy of remark.

Grapes, as a whole, were better. Mr. Davis, of Oak Hill, had 12 lbs. of well swelled and beautifully coloured Black Hamburgh; Mr. Turnbull, gr. to the Duke of Marlborough, sent large and fine bunches of Muscat; but they were far from being ripe. Mr. Hill, gr. to R. Sneyd, Esq., had bunches of Black Prince well ripened and coloured. Black Hamburghs large, both in bunch and berry, and finely coloured, came from Mr. Dods, gr. to Sir J. Cathcart, Bart.; and Mr. Munro, gr. to Mrs. Oddie, had good fruit of the same variety. Very fine white Frontignans were communicated by Mr. Ayres, gr. to Lord Southampton; and Mr. Preller, of Ada Lodge, Tulse Hill.

Of Peaches and Nectarines the Duke of Sutherland's gr., Mr. Fleming, sent by far the best exhibition. It contained large and finely-coloured specimens of Violet Hative and Murray Nectarines, and Royal George and Grosse Mignonne Peaches. Mr. Constantine also produced well-ripened Royal George Peaches, and so did Mr. Gardiner, gr. to Sir G. P. Phillips, Bart. Of Nectarines, Mr. Fleming, Mr. Ayres, and Mr. Spencer, gr. to the Marquis of Lansdowne, all contributed good fruit. Among the sorts were the Violet Hative and Downton. Mr. Hill, gr. to R. Sneyd, Esq., had also fair fruit of the Elruge.

Melons were pretty plentiful. The heaviest (hybrid Persian) came from Mr. Munro, gr. to Mrs. Oddie. Mr. Boreham, gr. to Sir Fitzroy Kelly, sent a green-fleshed kind, which was considered second. Mr. Fleming had Trentham Hybrid. The best green and scarlet-fleshed fruits were exhibited by Mr. Munro, gr. to Mrs. Oddie, and Mr. M'Ewen, gr. to the Duke of Norfolk.

Figs came from Mr. Busby, gr. to J. S. Crawley, Esq.; Mr. Bean, gr. to H. Perkins, Esq.; Mr. Bailey, gr. to G. Harcourt, Esq., M.P., and Mr. Cotterill, gr. to the Earl of Lisburne.

Cherries, May Duke, Black Eagle, and Elton were furnished in beautiful condition by Mr. Fleming, from Trentham. The single dishes of this fruit were inferior.

Strawberries were excellent, especially the fine dishes of them from the Duke of Norfolk's garden at Arundel. The varieties were British Queen, not quite coloured to the point, Keens' Seedling, Myatt's Eleanor, and Trollop's Victoria. These were large and well coloured. Mr. Turnbull also furnished good dishes from Blenheim. Mr. Constantine sent Dickson's Pine and Sir Charles Napier. Other varieties of Strawberry were Nimrod, Alice Maude, British Queen, Mammoth, and Goliath.

Of Vines in pots Mr. Constantine had some remarkably dwarf plants, with fine bunches of fruit on them. Other exhibitions of this kind were anything but good.

Other fruit consisted of Oranges, Citrons, Prickly Pears, Bananas, and Winter Cherries.

Reviews.

On Human Longevity and the Amount of Life upon the Globe. By P. Flourens. Translated from the French (second edition), by Charles Martel. London: Bailliere. 12mo, pp. 180, price 3s.

Our readers will perhaps be surprised at being told that the normal age of man is 100 years, and that old age does not begin until threescore years and ten have been actually accomplished. And yet so it is according to one of the greatest of living physiologists, who, moreover, does not speak dogmatically, but rests his opinion upon many carefully observed facts. It has long been known that the duration of life bore a certain ratio to the duration of growth, but the certain sign that marks the term of growth was not known. M. Flourens finds this sign in the union of the bones with their epiphyses. "As long as the bones are not united to their epiphyses, the animal grows; when once the bones and their epiphyses are united, the animal grows no more."

"The relation pointed out by Buffon is very near the truth. He says that every animal lives nearly six or seven times as long as the term of his growth. The true relation is five, or very nearly. Man being 20 years growing, lives five times 20, that is to say, 100 years. The camel is eight years growing, and lives five times eight, or 40 years. The horse is five years growing, and he lives five times five, that is to say 25 years; and so with the rest. We have then finally a precise characteristic which gives us accurately the duration of growth; the duration of growth gives us the duration of life. All the phenomena of life are united by the following chain of relations:—The duration of life is given by the duration of growth; the duration of growth is given by the duration of gestation; the duration of gestation, by the height, &c. The larger the animal, the longer is the time of gestation. The gestation of the rabbit is 30 days; that of man is nine months; that of the elephant is nearly two years," &c.

Many other statements equally curious and interesting are to be found scattered throughout this little work. The most valuable portion of it is perhaps that which relates to species, and in which the *coup de grâce* is given to the metaphysical notion of the *pre-existence of germs;* but for the author's views on these matters we must refer to the book itself, which we venture to say no one will regret having perused with attention.

FLORICULTURE.

Pyramidal Fuchsias.—As decidedly the best collection of Fuchsias shown at Sydenham on Saturday last consisted wholly of plants of this shape, I give you my plan of growing them, and I hope that Mr. Bousie, the exhibitor of the group in question, will favour your readers with his mode of cultivation next week. I put a few old plants in a warm pit or Vinery, where the temperature ranges about 55°, about the end of January or beginning of February, in order that they may have pushed out plenty of young wood by the middle of March. I then take off what cuttings I can get from each sort, preferring the shortest jointed wood. First prepare as many 4-inch pots as you may require, taking care that they are well drained, and the compost of a sharp open nature—coarse river sand intermixed with leaf-mould will be found to answer very well with about one inch of silver sand on the top for the purpose of inducing the cuttings to root freely. Water gently with a fine rosed pot, then plunge the pots in the propagating pit, where there is a gentle moist bottom-heat, where in the course of three weeks they will have made roots enough to stand potting off. You may now pot off singly into 3-inch pots in a light open sifted compost of rich loam, leaf-soil, and sand, equal parts, and if you have any bottom-heat to spare they will be the better to be plunged in it for a day or two, to give the young roots a start. They may now be removed to a warm pit or Vinery, or whatever you find most convenient, where the atmosphere is kept moist, which will ensure a strong, healthy, and vigorous growth. When you find the pots full of roots repot into 6-inch pots, using for this shift a good rich compost of turfy loam two parts, one of old rotten cow droppings, leaf-soil and sand. As this will be their last shift this season, care must be taken to provide good drainage; this can be secured by putting in plenty of potsherds, with two or three bits of open turf or Moss

over all. As the plants will now be pushing strongly, they must be tied to a neat stake, as they will be sending out laterals or side shoots. As the making of these side branches secures the formation of the plant, a little weak sheep dung liquid manure will be found very beneficial at this period of their growth. As the first tier of laterals has made their first joint, pinch it at that; this will not only enable you to have two shoots from each lateral, but will cause the leader to push away, and furnish you with plenty of side wood. The four first tiers of laterals will be enough to pinch this season, the rest may be allowed to grow on. They will be forming nice little plants now, so they may as well be taken to the greenhouse or conservatory, where, with a gay profusion of flowers, they will assist in keeping the house "dressy" for a short time. By the middle of November water should be withheld gradually, in order to ripen the wood, and they may be placed in a dry cold pit, or any out-of-the-way place, such as under the greenhouse stage, for instance, where they must remain all winter, as they will require no more attention till the end of February, when a little water may be applied sparingly to induce them to start; the knife must now be applied to cut back the side shoots that were pinched last year, to the second joint on the wood they made after they were pinched, and a couple of tiers of single shoots to the second joint, the rest to the first, and the leader to within 4 inches; thus you will have a pyramidal basis to work on. Place them now in a warm Vinery, and they will soon show indications of rapid growth. After they are fairly started turn them out of their pots, and shake off all loose soil, and examine the roots; repot now in 10-inch pots, using strong fibry loam of a rich texture, old cow dung, leaf soil and sand, equal parts well mixed. As stated for last season, attend well to drainage, as they will require no more pot room this season; replace them again in heat, and pinch in according to the directions laid down for last season, always aiming at having the plant broad and full at the pot, and tapering to the top. Pinching should, however, be stopped after the 1st of June, for by the middle of the month they should get a prominent place in the conservatory, where, by July, they will be the objects of greatest admiration in the house; liquid manure must not be omitted upon any account, at least three times a week, as this is now the only thing the plant will derive its nourishment from, and will cause it to bloom right on till October, when it will be getting unsightly, and may be removed out of doors to make room for some other favourite. When cold nights set in remove them as before to a cold pit, &c. No more attention will be necessary till spring, when they may be pruned and started according to the time they are wanted in bloom. They can be had in bloom by putting a few into heat by the beginning of January, about the middle of May; others, started accordingly, will enable you to have them in flower all the summer. Mr. Bousie's plants to be so fine now were doubtless struck in autumn; mine are chiefly for display late in summer. *W. F.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Many of the twiners in this house, as Passifloras, Tacsonias, Bignonias, Mandevilla suaveolens, Tecoma jasminoides, &c., will be growing rapidly, and will require frequent attention to keep them properly trained. The young shoots must not be tied in too close, however, but should be carefully directed until the space allotted to each plant is fairly covered; and after this is accomplished, training and stopping should be done merely with a view to equalise the growth, allowing the shoots to ramble in a natural manner as far as due regard to space and the admission of light to the plants under them will admit; for these things never produce so pleasing an effect as when allowed to hang in graceful festoons, or to ramble in their own natural way. The blooming of the choicer varieties of Passion-flowers, Tacsonias, &c., will be considerably accelerated by stopping the shoots, but this should not be done until part of the branch is tolerably firm and ripe, otherwise the effect would be the opposite of that desired.

FORCING DEPARTMENT.

Pineries.—Where the quality of the fruit is the first consideration, which it is or should be in every instance, care must be observed to have the soil about the roots in a rather dry state during the ripening period, and where it can be done without injuring the rest of the stock the atmosphere should be kept rather dry, admitting air more freely while the fruit is colouring: for there is no chance of fruit of prime quality if the soil is very wet about the roots, and the atmosphere kept close and saturated with moisture during the ripening period. In the case of plants growing in pots the trouble of collecting and placing together those approaching ripeness, so as to be able to treat them properly, would be well repaid. Now that we have something like summer weather give air freely to the growing stock, particularly in the case of plants that may have been making rather weakly growth, but shut up early in the afternoon, dewing the plants lightly with the syringe, and sprinkling every available surface, so as to secure a thoroughly moist atmosphere. Use fire heat as sparingly as may consist with maintaining the proper degree of temperature. Be very careful to keep the plants properly supplied with water at the root, and give plenty of manure-water to those in vigorous growth, and also to plants swelling their fruit.

Vineries.—Where Muscats are grown for a late crop the night temperature of the house must not be allowed to fall too low after the bunches begin to appear, and a temperature of from 65° to 70° must be maintained while the fruit is setting to ensure good sized, close bunches. Keep a sharp look out for red spider in houses where the fruit is colouring, and if this pest makes its appearance lose no time in coating the hot-water pipes with sulphur. If not already done get the litter removed from the outside borders, but if it is found that the roots have crept up into it, which will probably be the case where the Vines were started early in the season, the decayed portion at the bottom should be left, and every caution used not to disturb the young roots. And if many roots are found at the surface it will be necessary, after removing the litter, to top-dress the border to prevent these getting dried up; a slight coat of turfy loam, leaf soil, and horse-droppings will answer very well for this purpose. See that the borders of houses, where the fruit is swelling, are not allowed to get too dry.

FLOWER GARDEN AND SHRUBBERIES.

The weather for some days past has been just such as we like for planting out the bedding stock—warm and rather cloudy, with occasional showers—and, of course, the work of planting-out should be well nigh if not altogether finished before this appears. Get Verbenas, Petunias, and other things liable to be injured by wind pegged down as soon after planting out as possible, placing the shoots so as to cover the soil equally; and let Dahlias be securely tied to sufficient stakes at once, if not already done. No labour should be spared which may be necessary to properly care for the plants until they get fairly established, when, if the beds have been properly prepared, they will care for themselves during the rest of the season. See that plants in vases are properly supplied with water, as, if allowed to get too dry at the root but for a single day in bright weather, before they get well inured to exposure and fairly established, the foliage is sure to be injured and the appearance of the plants spoiled for some considerable time. And should the weather prove warm and dry the whole stock of bedded out things must be well attended to with water, and will be greatly benefited by a liberal sprinkling every evening, but to water a large stock every evening is next to impossible where the amount of labour is limited and water not within reach; but those who expect their flower-beds to be as well filled and covered with flower in July as any in the country must make up their minds to maintain a successful contest with dry weather at any necessary expense. And in most situations proper arrangement and a trifling outlay in laying down pipes fitted with union-joints would, with a hose, render any amount of watering which might be necessary in the dry seasons a very trifling affair. We would not be understood, however, as recommending frequent heavy waterings, but merely that the soil should be kept in a healthy moist state, and any labour bestowed in the way of moistening the surface of the beds on the evenings of bright days will be well repaid. Use every possible dispatch to bring up any arrears of work in this department which may have accumulated during the time the hands have been employed in planting out; and now that the weather is such that the owners of gardens can enjoy them, let everything be in the most perfect order that circumstances will permit.

HARDY FRUIT AND KITCHEN GARDEN.

Now that we have nice growing weather, see that every shoot on the Peach and Nectarine trees is free from insects, and otherwise lose no time in getting them cleaned. If not yet done, disbudding should be completed at once, in order that the strength of the trees may be thrown into what is to be the bearing wood for next season. Where covering of any kind has been used, this should also be removed, if not previously done. See that Cherries are not allowed to suffer from their enemy the black fly, and endeavour to keep all fruit trees perfectly clear of insects. The early Celery should be planted out without loss of time, and this must be well supplied with water until it gets established, and indeed throughout the summer. If not planted between lines of Peas, or in a shady situation, the plants should be protected from bright sunshine for a week or so after planting, and see that there are plenty of plants coming on for the succession and late crops. Give all necessary attention to Tomatoes, ridge Cucumbers, &c., until they get fairly established. After well soaking the Strawberry beds with water the surface should be mulched in order to keep the ground cool and prevent evaporation. It is a very usual practice to use the mowings of the lawn for this purpose; but this is the very worst article that could be used, as it spoils the fruit by adhering to it, and in damp weather imparts to it an unpleasant flavour, and hastens decay. Next to tiles or slates clean straw is the best article for this purpose, and where this cannot be obtained the rankest portion of the litter from the stable-yard may be used instead, and there need be no fears entertained about this spoiling the flavour of the fruit for exposure to the air, and a few showers will perfectly sweeten it, and although more troublesome to apply it will be found to answer the purposes as well as clean straw. Give Asparagas beds a liberal supply of manure-water, and where there is plenty of this at command it may be given with advantage to such things as Cauliflowers, Lettuces, &c. Keep the surface soil frequently stirred among all growing crops, which will prevent the growth of weeds and strengthen the plants.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the week ending June 7, 1855, as observed at the Horticultural Garden.

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Winds	Rain in inches.
Friday 1	16	29.924	29.718	55	36	45.5	52	52	S.W	
Satur. 2	17	30.002	29.918	61	35	48.0	52	53	S.W	
Sunday 3	18	29.917	29.874	67	51	59.0	53	53	S.W	
Mon.. 4	19	29.870	29.859	69	50	59.5	55	54	S.W	
Tues. 5	20	29.893	29.876	76	54	65.0	56½	54½	S.W	
Wed. 6	21	29.809	29.693	86	53	69.5	57	56	S	
Thurs. 7	[illegible]	29.881	29.826	71	47	59.0	59	55	S.W	
Average.		29.899	29.823	69.3	46.5	57.9	54.9	53.9		

June 1—Densely overcast; cold at night.
— 2—Overcast; cloudy and fine; clear at night.
— 3—Fine; cloudy; overcast; rain.
— 4—Heavy clouds; very fine; cloudy and fine.
— 5—Cloudy throughout; fine at night.
— 6—Very fine; hot, and air excessively dry; thunder clouds; rain at night.
— 7—Cloudy and fine; very fine throughout.

Mean temperature of the week ½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 29 years, for the ensuing week, ending June 16, 1855.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N	NE	E	SE	S	SW	W	NW
Sunday 10	71.0	48.4	59.7	13	0.95 in.	1	6	1	2	3	[illegible]	[illegible]	[illegible]
Mon. 11	71.8	49.4	60.6	10	0.47	—	7	2	1	3	[illegible]	[illegible]	[illegible]
Tues. 12	71.3	50.3	60.8	13	0.78	—	5	3	1	5	[illegible]	[illegible]	[illegible]
Wed. 13	72.0	49.3	60.6	13	0.77	1	5	3	1	2	[illegible]	[illegible]	[illegible]
Thu. 14	72.8	49.7	61.2	13	0.36	1	2	4	1	6	[illegible]	[illegible]	[illegible]
Frid. 15	72.5	50.2	61.3	13	0.38	1	4	5	2	4	[illegible]	[illegible]	[illegible]
Satur. 16	72.1	49.5	60.8	12	0.20	2	3	5	1	7	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the 12th and 13th, 1842—therm. 90 deg.; and the lowest on the 15th, 1850—therm. 30 deg.

Notices to Correspondents.

Broccoli: *Melville.* The heads you have sent appear to be those of Dillcock's Bride, which is one of the most useful Broccolies we possess.

Deodar Seed: *M G.* Sow it like Larch or Cedar of Lebanon—nothing can be easier.

Diseases: *Colo.* It is almost impossible to ascertain the nature of disease from specimens subject to the pressure of stamping which destroys every character. Morbid specimens should be sent in little boxes whose walls are strong enough to resist a heavy blow. The foliage of your Onions, and their roots, were utterly destroyed. The growth of the first leaf is similar to that which usually occurs in what are called thick necked Onions; but, besides this, the whole plant is in a chlorotic state, accompanied by an unnatural succulence. The affection is new to us, and we should have been glad to have seen more perfect specimens. The only alteration we can suggest is to change your ground, and if you are in the habit of saving your own seed, do not trust to it, but get a supply from some other quarter. Had you sent your address, we should have communicated with you directly.—*W S.* The Peach leaves are very curious. It is not an ordinary case of curl, a disease which is usually attributed to cold; but though in general very common in this neighbourhood, I am unable to obtain a single specimen of the true curl for comparison. The white substance efflorescence is due to a very curious species of Ascomycon, of which we shall have more to say upon some future occasion. In the meantime we should strongly advise you to dredge your trees with sulphur. *M. J. B.*

Heating: *Barnstaple.* There is no objection to using gas for this purpose, provided you can secure the stove from leakage or allowing the gas to escape into the house. This is very difficult to accomplish. If you do use gas you should place an evaporating pan of water near the source of heat, with a view to preventing the air of your house becoming over heated.

Insects: *J S* says the early buds on a great number of young Plum trees in a nursery at Malton have been in a great measure destroyed by a small beetle, Sitona ruficlavis, one of the Curculionidæ, and he would be glad if any one can point out any method by which its devastations may be prevented.—*A Constant Subscriber.* 1, Curculio (Nemoicus) oblongus, occasionally injurious by eating Apple bloom; 2, Telephorus pallidus, harmless, larva in earth feeds on small insects; 3, Curculio (Phyllobius) Pyris, harmless; 4, Dilophus femoratus, harmless; 5, Bibio Johannis, harmless.—*T L, Broadstairs.* The branch has been weakened by the burrows of the caterpillar of the Wood Leopard moth (Zeuzera Æsculi). You do not state what tree it is?—*Even.* Your young Pears are infested with the larvæ of the Sciara pyri, a little gnat; the eggs of which were most probably deposited in the flowers. You will oblige us by sending a dozen or two more of the infested Pears that we may try to rear the fly.—*W W F.* The Sycamore leaves show minute blotches, which may either be incipient galls or exudations arising from the bites of aphides or spots resulting from diseased cells of the leaf. Mr. Waterhouse never supposed that the stag beetle sucks with its large horny jaws. W.

Names of Fruits: *W B.* Probably the Stone Pippin.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*W B.* 1, Omphalodes verna: 2, probably Boldoa fragans, but it has no flowers.—*Ashford.* Euphorbia Lathyris, a poison!—*M J B.* Pernettya mucronata.—*Constant Reader.* Lonicera tatarica.—*Buxton.* 2, Asclepias curassavica. 1 cannot be named without a better specimen.—*J P.* Plants not in flower cannot be named. It may be a leaf of Funkia ovata, *alias* Hemerocallis cærulea.—*Q.* 1, Some Gardenia or Tabernæmontana; not ascertainable from such a miserable morsel. 2, Cyanotis vittata.

Paris: *An Old Sub.* We can only answer horticultural inquiries. Since you can't speak French you must get an interpreter—that is indispensable. Then visit the nurseries of Cels, Mathieu, Noisette, Jamin, &c., the Peach gardens of Montreuil, and the Vine gardens of Fontainebleau. Look at Versailles for its Orange trees and Potager, the Garden of Plants for its rarities and capital Pear growing, the market gardens generally, and Père la Chaise to see how the French manage cemetery plants. If you return by Brussels look at the Botanic Garden there, and the establishments of Linden and de Jonghe. They will tell you what else to seek for on your passage homewards. Provide yourself with Murray's "Handbooks."

Vines: *Bradford.* Certainly not oidium; probably nothing more than blisters (or vegetable pimples) brought on by over-feeding.

Water: *G R.* The use of water from an artesian well is not prejudicial in watering plants of any kind, flowering or fruiting, either at the root or leaf, unless it is charged with lime, in which case it is fatal to Heaths, Rhododendrons, and all such calcareous races. It is, however, in every respect inferior to pond-water.

*** As usual, many communications have been received too late and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
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THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7l. per ton; Superphosphate of Lime, 7l.; Sulphuric Acid and Coprolites, 6l.
Office, 69, King William Street, City, London
N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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Professor Nesbit's Analysis given with Invoice.
Apply to CHARLES TOTHILL & Co., Manufacturers, Plaistow Marsh, Essex.

TURNIP SOWING.—The Undersigned beg to offer their valuable Supherphosphate of Lime (See "Royal Agricultural Society's Journal," Vol. VI., Part 2), Turnip Manure, and Nitro-phosphate or Blood Manure.
Also on sale, Guano, Nitrate of Soda, Gypsum, Bone-dust, Sulphuric Acid, Salt, and all other Manures of known value. Agents for the sale of Peat Charcoal.—Apply for Prices Current to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London.

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CONCENTRATED URATE FOR GRASS, RAPE, AND ALL ROOT CROPS.
SUPERPHOSPHATE OF LIME.
THE LONDON MANURE COMPANY continue to manufacture the above Manures, which have been used with so much success for the last 14 years.
The London Manure Company also supply PERUVIAN GUANO (direct from importers' warehouses), Nitrate of Soda, Sulphate of Ammonia, Fishery and other Salts, Bone Dust, and every artificial manure of known value. EDWARD PURSER, Sec.
Office—40, Bridge Street, Blackfriars.

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UNIVERSITY COLLEGE, TORONTO, UPPER CANADA.
AGRICULTURAL DEPARTMENT.
THE PROFESSOR OF AGRICULTURE, who resides on the Experimental Farm attached to the College, is prepared to receive into his family a small number of Pupils, who will have the advantage of entering on an extensive course of Collegiate Studies in connexion with Agriculture, on very easy terms.—Particulars and References may be obtained of Mr. H. G. AUSTEN, 259, High Street, Borough, London; or by addressing Professor BUCKLAND, University College, Toronto, Upper Canada.—June 1855.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.
Professor WAY'S LECTURE, "On the Use of Fish as a Manure," is postponed from the 13th to the 27th of June, at 12 o'clock.—By Order of the Council, JAMES HUDSON, Secretary.

SMITHFIELD CLUB, 1855.—The CHRISTMAS SHOW of FAT CATTLE, SHEEP and PIGS, will take place on TUESDAY 11th, WEDNESDAY 12th, THURSDAY 13th, and FRIDAY, 14th of December, at the Carriage Bazaar, King Street, Baker Street, Portman Square.

HIS GRACE THE DUKE OF RICHMOND, K.G., *President.*

Vice-Presidents.
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DRAFTS AND LONG-WOOLLED SHEEP: Mr. L. Willmore. Mr. Thomas Greetham. Mr. James Hole.
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Office of the Honorary Secretary, at Messrs. Thomas Gibbs & Co., the Seedsmen to the "Royal Agricultural Society of England," &c., Corner of Half-Moon Street, Piccadilly, London.
A sum of nearly 800l. will be awarded in prizes and medals as under:—

	£.
Devon Steers, Oxen, Heifers, and Cows	120
Hereford " " " "	120
Short-horn " " " "	120
Scotch or Irish Steers and Heifers	15
Welsh Oxen and Runts—Heifers and Cows	30
Pure-bred Steers, Oxen, Heifers, and Cows, of any other breeds	20
Cross or mixed bred Steers, Oxen, and Heifers ...	40
Long-woolled Wether Sheep	80
Cross-bred " "	25
Short-woolled " "	80
Pigs of all Breeds	45
5 Gold Medals | 35 Silver Medals	

MEMBER'S SUBSCRIPTION.—The Annual Subscription to the Club is One Guinea, payable in advance for the year ensuing. Any Member of the Club who has paid up all Arrears of his Subscription, or any New Member upon his Admission, may compound for all future Annual Subscriptions, by the payment of Ten Guineas.
NON-MEMBER'S FEES.—All Non-Members wishing to exhibit at the Club's Show must pay a Fee of One Guinea towards the funds of the Club: such Fee to be paid to the Honorary Secretary previously to his furnishing the Admission Order, &c.
The last day for Certificates to be received by the Honorary Secretary is SATURDAY, November 10.
Prize Sheets are now ready, containing the Rules of Exhibition and all particulars, and may be had, free by post, on application to B. T. BRANDRETH GIBBS, Hon. Secretary,
Corner of Half-Moon Street, Piccadilly, London.
N.B. It is particularly requested that all communications to the Hon. Secretary bear *outside* the words "Smithfield Club."

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The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

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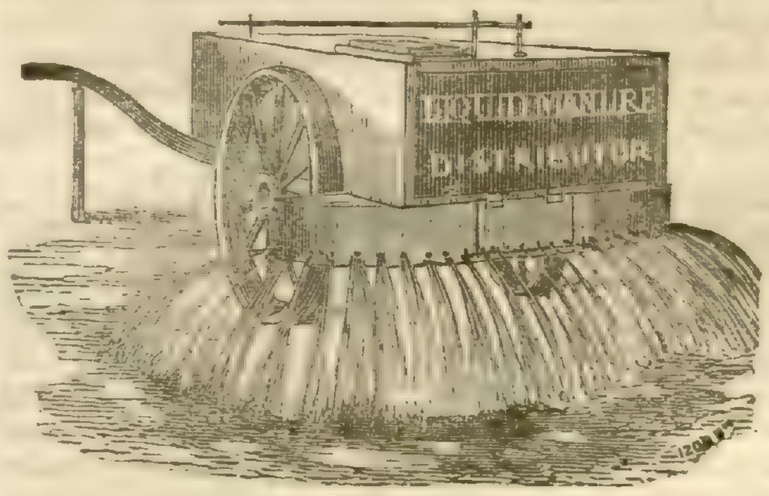
IMPORTANT TO AGRICULTURISTS.



PATENT
LIQUID-MANURE DISTRIBUTOR OR WATER-CART.
ISAAC JAMES, Tivoli, Cheltenham, begs most respectfully to solicit the attention of Agriculturists and others, to his newly-invented Patent Liquid-Manure Distributor, or Water-Cart. The advance of science having so exhibited to Agriculturists the superior advantage of using Liquid-Manure, as to induce its almost general adoption, a great want was felt for a Distributor, so constructed, as to answer the purpose of equally distributing any quantity, without being liable to clog up, and thus hinder the progress of the work, and waste the time of the workman, and yet produced at a price alike available to the small farmer or gardener, as to the more wealthy and extensive cultivator.
I. JAMES warrants his Distributor to supply the desideratum so long felt. Its superiority consists in possessing the following advantages:—
1. It has two Strainers, so arranged as to prevent anything but liquid entering into the Distributor, so that it is impossible for it to clog up. 2. The liquid is forced through the Distributor so as scatter any quantity on the land, in a copious shower from 10 to 15 feet wide (according to size), which saves a great amount of time and labour. 3. It has waterproof joints, so that the liquid may be carted to any distance without wasting it. 4. It will work equally well on hilly as on level land, without any alteration. 5. It can be advantageously adapted for the Distribution of Guano, &c., on either Drilled Crops or Pasture Land. 6. It is so constructed as to be thoroughly adapted for Watering Streets. 7. It works so simply that even a boy can superintend it.
PRICES:—
250 gallons, suitable for working by horse, £22 weight of cart, 8¼ cwt., tire 4 inches.
150 do. do., £18 weight of cart, 6½ cwt., tire 3 inches.
70 do. by pony, 11 " 3½ cwt., tire 2½ "
40 do. by man, 9 " 2½ cwt., tire 2 "

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

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Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

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B. SAMUELSON, Britannia Works, Banbury, Oxon.
The above may also be procured at the principal Agricultural Implement Depôts in London, and of all respectable Ironmongers and Seedsmen in the country.

BUDDING'S GRASS-CUTTING MACHINE, nearly new and in first-rate condition, to be Sold a bargain. Cuts, Rolls, and Sweeps the Grass whether wet or dry at one operation. Admirably adapted for lawns, pleasure grounds, &c. On view at W. S. MULLINGER'S, General and Furnishing Ironmonger, Enfield, Middlesex.
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The Agricultural Gazette.

SATURDAY, JUNE 9, 1855.

MEETINGS FOR THE ENSUING WEEK.
WEDNESDAY, June 13—Agricultural Society of England.

WE direct the attention of our readers to the notice in another page of the Great Cattle Show at Paris.

Agriculture is not yet, nor will it ultimately be so fully illustrated in the Great French Exhibition as it was in our own Crystal Palace of 1851. The long supplementary gallery by the northern bank of the Seine has however its eastern end devoted to machines and products of the farm; and, thanks to English agricultural mechanists, it has, already placed, a well arranged series of specimens of farm implements and machinery—the only sign indeed of anything like completeness in the building. To Messrs. GARRETT, HORNSBY, CLAYTON, CLAYTON and SHUTTLEWORTH, HOWARD, RANSOME, and several other well-known names, we are indebted for this representation of a branch of industry now so important. We noticed, too, specimens of seeds and plants partly arranged in their cases by VILMORIN, and other seedsmen of Paris, and the only other suite of specimens in place are importations from Canada, which has sent a series of casks full of grain and seeds and flour. An immense number of chests lying still unpacked, and labelled as from different districts of France, indicate that an exhibition technically interesting to the agriculturist will yet make its appearance.

No true lover of the Soil can help wishing for the day when the interesting topics it hides within its bosom shall have become more common property, and more capable of common speech. None but the pedant or the sciolist can find pleasure, or indeed anything but pain, in talking over the heads of his audience, or in carrying on a discussion in language unfamiliar to a large proportion of those who should be not listeners only, but earnest partakers in the question. That a great, though gradual, change is stealing over the agriculture of this country in this particular, scarcely any one who has had long opportunities of observation will deny. The number is vastly increased, within the last 10 or 15 years, of those to whom the toil and tedium of

farming business are varied if not relieved by a livelier insight into the why and wherefore of things, and an awakening interest in the inner history and philosophy of the art. Still it is slow; slow to the eye that counts with eagerness years that roll with speed, and indulges the ever too sanguine expectation of seeing Discovery and its Consequence so far at least contemporaneous in generation, as parent and child walking hand in hand, and not separated by a gulf too broad for prescience to see across, or for hope to span.

Never was there a moment when a little, and even a very little cultivation of the chemistry of farming would be more pleasantly and amply rewarded than the present: for, never was a subject of more everyday interest to the practical man handled in the lists of science, or between champions better qualified for the task, than in the controversy now waging and at its height between—let us say England and Germany. Not at Vienna or Berlin! Thank Heaven for that. No world-shaming Christian slaughter roars and howls out o'doors a running accompaniment of blood and broken bones to the 'polite pauses' of our 'Conference.' The nitrates and sulphates we talk of don't mean Gunpowder, nor do our hottest disputes involve any such extra-super-phosphate as that which saturates the soil of the Crimean peninsula. Some sharp phrases and stinging words, there be; just enough to make men of science stare, and wonder, and rouse themselves to the recollection that it is war-time; but the chemistry of our profession with all its heat and transmutations keeps no laboratory for the manufacture of fatherless children and widows, and in the trenches it digs and defends, and the ground it gains from the foe, not even a tear bedews the furrow.

So, hoping for quieter times, let us return to the 'soil and the atmosphere,' and to the particular question on the nutrition of plants which has called forth, and is still calling forth such brisk reply and rejoinder between the advocate and the opponent of the 'so-called' (and, as far as we can see, properly so-called) "Mineral Theory."

We shall attempt, at all risk of apparent inadequacy of language, to reduce this question to its very simplest terms, to disrobe it down to its commonest dress; a fate that surely enough awaits it, as it becomes more talked of, and better known; and which, if it be true that contraries beget each other, no question ever better deserved; darkened as it has been by an involution and prolixity of language, that might be almost intended to hide all meaning from the common world.

Certainly to those who read the first translation of the Works of Baron Liebig that appeared in this country, the doctrine of that distinguished writer appeared to be plainly and distinctively this: that the analysis of the *ashes* of a plant, disclosing as they do its *mineral* constituents, afforded the formula, so to speak, of its specific *manure:* that in these lay as it were the skeleton of its structure, its earthy and earth-derived part. That the organic portion of its composition, obtained *chiefly* from the carbonic acid and ammonia of the atmosphere, and returned thereto by combustion, not being limited in quantity as the mineral constituents are, by the nature of the soil, but existing within reach of the roots and the leaves of the plant, and to the latter in unlimited amount; the conclusion plainly deduced was that the restoration to the soil of the *mineral constituents* carried off by the crop was the true aim and object of manure; and that every addition of *these* enabled the plant to take up a proportionately larger dose of organic food, and in a shorter space of time; thus answering in every way the special object of the farmer.

In the case of Wheat, for instance, the phosphates, sulphates, silicate of potash, and other mineral elements of its structure, in grain and straw, would be, according to this principle, the proper components of its specific manure: and so of every other plant in like manner. It was not said that additional supplies of ammonia and carbonic acid to those obtainable from natural sources, would be useless or inoperative, but that their appropriation by the plant would entirely depend upon the degree in which the *mineral* elements were available in equivalent proportion in the soil. So that in fact, doses of the former class (such as ammoniacal salts, for instance) were to be regarded as 'stimulant' or 'flogging' applications, taking up or exhausting the mineral 'equivalents,' and so far as these should be deficient, or not available, remaining as mere surplusage, unproductive of any addition to the crop.

This we believe to be a not unfair, though it may be a very inadequate statement of the mineral theory, as conveyed in Liebig's former works; nor can we gather any material qualification or variation of it from the volume lately published in answer to Mr. Lawes.

It will be in the memory of many of our readers that this 'Theory' had a sort of counter-reflection out-of-doors in public opinion for several years. Farmers of the elderly school, on the one hand, denounced the newly-introduced 'artificial' manures as 'mere stimulants,' 'exhausters of the soil'; and distrusted the use of dressings that yielded up all their virtue to a single crop; while authorities of the more scientific school were advising the application of guano (then regarded, erroneously enough, as the type of the 'artificials') to the Turnip-crop, and not to the cereals.

The experiments carried on at Rothamsted, and the doctrine deduced from them by Mr. Lawes, led him to conclusions very different from those on which Baron Liebig's theory had been constructed, and which had been carried into trial upon a sand-pit at Giessen. "Previous experiments, which I had made in my garden in the town," says Liebig, "had yielded no result. This induced me to purchase the land alluded to, a Sand-pit to the east of the town, which I found to surpass all others, in its nearly complete barrenness for the ordinary cultivated crops. I do not believe that, in a whole year, there grew naturally on the whole ten acres as much Grass or other fodder as would have sufficied for a single sheep. The land, therefore, was of the quality adapted to *the object I had in view.*"

We fear this would be an inauspicious opening of the Baron's case before a jury of English farmers. But it is impossible to pass over *ground* so important to the question at issue as that on which the experiments are respectively tried, on both sides.

What *was* the 'object in view'? Was it to prove that the mineral constituents of plants were the *first* essential of their growth upon an area (a *soil* you cannot say) *entirely* barren of them? If so the spot was well chosen. *e. g.*—To prove that the mineral parts of their structure, and not the ammoniacal and carbonaceous, are the proper *manure* of plants, take a piece of ground in which the former are totally wanting, and where the atmosphere will supply the latter!

But, surely, this was *not* the object. What agriculture wanted to know was whether in an ordinarily constituted soil, poor,—not by original denial of everything but "sand and quartz pebbles," but by the common infirmity of over-cropping,—the growth of cereal crops, whose scanty foliage derives less than others from the atmosphere, would be best promoted by mineral, or by nitrogenous applications to their roots.

Now, on this question, Baron Liebig furnishes us in his last work (p. 55) with the following condensed statement of his meaning, viz., "*that ammoniacal salts alone have no effect;* that, in order to be efficacious, they must be accompanied by the mineral constituents, and that *the effect is then proportional to the supply—not of ammonia, but of the mineral substances.*"

In the following page we have the counter-statement (given by Liebig) of the conclusion drawn by Mr. Lawes from his experiments on Wheat as follows.

1. *That the* mineral *constituents of Wheat cannot by themselves increase the fertility of land.*

2. *That the produce, in grain and straw, is rather proportional to the supply of* ammonia.

This is a clear issue. Now let us look at the land on which Mr. Lawes' experiments were made.

A field of 14 acres was divided into equal portions, of which one was without any manure whatever: one manured annually with 14 tons of stable-dung; the rest with different artificial manures, in various mixtures, viz., bone earth, bones with sulphuric acid, phosphate of magnesia, phosphate of soda, phosphate of potash, silicate of potash, and 'Liebig's mineral manure.'

The result of *seven years' experiments* was, that the lot manured with stable-dung yielded one half more than the unmanured lot; which, however, produced as much as either of those with the artificial (mineral) manures, except that which had 'Liebig's manure,' on which there was an increase of about 3 bushels of grain and 2 cwt. of straw; "a result," says Liebig, "which Mr. Lawes is inclined to ascribe to *the presence of a small quantity of ammonia in this manure, which he says he distinctly perceived by its smell.*"

Probably, Baron Liebig, not being himself the manufacturer, was not in a position to contradict this, from personal knowledge. It is *not* contradicted; and it is important. For ourselves meanwhile, we perfectly believe the tale told by the sand-pit at Giessen and have entire faith in the seven-years' chronicle of the fourteen-acre-piece at Rothamsted; and we hope, shortly, to exemplify, with their help, the logical warning, that 'there is a wide difference between *Contraries*, and *Contradictories.*' *H.*

EXPERIENCES IN LAND DRAINAGE.

No. XIV.—Result satisfactory, with some trifling exceptions, where much oxide of iron exists.—Parallel drainage generally, but following as much as practicable the declination of land.—Four feet (min.) depth.—Drains on Grass lands a little further apart.—With the fall; land laid as flat as possible, removing ridge and furrow.—Full-sized 2-inch pipes used for minor drains, $1\frac{3}{4}$ to 8-inch mains; collars in bog and unsound ground.—I have not kept air vents permanently open, but pits uncovered for months.—Perhaps 12 acres run out at one outfall, but this is altogether dependent on shape of ground, allowing more than an inch for outlet.—Soil—clay, gravel and peat, clay and gravel.—Rock basaltic and limestone; Newbrough lime and freestone. Height 450 feet; Newbrough is 350 feet (or thereabouts).—Rainfall 25 to 30 inches; Newbrough 20 inches.—I have had some very difficult drainage to execute on bog lands, but have fully succeeded by dint of care and time; proceeding step by step, allowing months to elapse between each successive "spading." In some instances there has been an average fall of surface of 3 or 4 feet on an extent of 30 or 40 acres; and in spots where the level has subsided into "basins" (the great danger to be apprehended and guarded against in rapid execution of similar works), has been much greater; on one considerable portion the drains were bled off, and kept open upwards of a year; on another double that time before they could be safely laid and closed. Two to 6-foot drains were, at 50 yards apart, quite effective, when the peat was black and fully decomposed. When the bog consists of partially decayed Mosses, &c. (which I have found to be the case to the depth of 3 or 4 feet), it is more difficult and expensive to cut than stiff and stony clay and gravel, and "draws" very badly; of course collars were used even with 4-inch pipes. It would be a great advantage were the Drainage Commissioners empowered to authorise limeing and soiling bogs. The only serious difficulty I have experienced in draining operations, is dealing with water charged with oxide of iron; I have known 3-inch pipes to be choked in one year by it, and this where there was a considerable flow of water. Where much lime is held in solution, it will sooner or later ruin the drain. In one instance I found pipes laid in open gravel stopped at the end of 3 years by small fibrous roots, in meadow land, depth 4 feet; no collars. After some years' experience I have no doubt as to the comparative inutility of shallow draining, and the great advantage, in the most tenacious clays, of at least a depth of 4 feet. *Gustavus H. Coulson, Newborough, Northumberland.*

No. XV.—I have the singular privilege, in reporting on the result of my drainage operations here, of being able to preface my own statements by a report from a high authority on the chemical and structural condition of the soil in which these operations have been effected, as it lay previous to their commencement. A specimen of the soil and subsoil having been submitted, in the year 1845, to Professor Johnston, he furnished the following analysis, appending thereto some valuable remarks and instructions (partially quoted below) which have been of much service in directing the processes of culture and management followed out.

Analysis of Trawig.	Soil.	Subsoil.
By Washing—Clay, fine sand, and organic matter	93.07	97.12
" Coarse sand and small stones ...	6.93	2.88
	10.10	2.44
By Analysis—Organic matter	0.91	0.15
" Alkaline salts soluble in water ...	0.19	trace.
" Gypsum, sulphate of lime	3.22	3.79
" Oxide of iron	2.13	2.61
" Alumina, soluble in acids	1.22	0.67
" Carbonate of lime	0.87	0.51
" Carbonate of magnesia	81.17	90.25
" Insoluble silicious matter		
	100.01	99.92

Remarks.—It is a stiff clay, formed, as your geological position would intimate, from the *debris* of the mica slate rocks, with a little assistance from the granite and from the old red sandstone. The proportion of oxide of iron, derived chiefly from the latter, is not excessive; and in a proper condition of the soil, properly drained, thoroughly opened and well tilled, would add to its productive character; but I observe that this oxide has formed itself into little red lumps indicating an unwholesome condition of the soil, that the air is not properly admitted, and that there exist among the soil particles of ochrey matter with which it will not be wholesome for the roots of plants to come in contact. The small quantity of organic matter in the subsoil would seem to imply that it has hitherto been in a condition in which very few roots would willingly descend into it. These facts all recommend thorough drainage and subsoiling as necessary to render available to the plant the different kinds of food which the soil so abundantly contains."

These remarks were written in July 1845. Perhaps their accuracy could not be better supported than by the simple statement that the Wheat crop of the outgoing tenant of that year was estimated by valuators at $14\frac{1}{2}$ bushels per acre, an estimate which was somewhat in excess of the produce actually harvested by me, the incoming tenant. The whole farm has been thoroughly drained, and the effects are eminently satisfactory, the produce being now in the aggregate fully three-fold of what it was prior to draining and deep tillage, though the ochrey matter which the learned Professor described as "not wholesome for the roots of plants to come in contact with," is not yet quite washed out or neutralised, hence the produce of Wheat and Oats disappoints expectation, while green crops are satisfactory.

Before entering on a brief description of the methods of draining adopted, I must advert to the rapidity with which agricultural improvement has developed itself. To many it will seem strange to see it stated that 10 years ago a pipe tile was a thing unknown and unthought of. Smith of Deanston's system of furrow draining was then beginning to be accepted by the more advanced agriculturists as a proved and practicable improvement; and his plan of 2½ feet drains, filled from a fork with broken stones, was the *ne plus ultra* of drainage engineering. Such was the system followed in the major part of the drainage I effected. My first change was to 3 feet deep, with 8 inches of broken stones; then came tiles with boards below for soles, and broken stones above. It was in 1848 that I put down the first pipe tiles, 3 feet in depth. Increasing that depth to 3½ feet, and placing 1½-inch pipe drains in the line of descent, at intervals of 8 yards, we attain to what may well and truly be termed "thorough drainage."

Drainage on each of these systems has, I must say, been efficacious, whatever preference I may give to one system over another. No water, even after heavy rain, lies for above a few hours on the least perfectly drained field. It is true that the run through stone drains is not so rapid as it is through tiles; that, therefore, the dissolving power of the percolating water is less active, but though this is a deficit in soils like mine containing deleterious substances, in a soil free from these and full of manure the slow percolation is advantageous, inasmuch as it carries off less of the fertilising substances. Those who have observed the results obtained by Mr. Hope, of Fenton Barns, which are largest from land drained on what the enthusiasts for deep draining would consider very faulty principles, are cautious about trying to "make good better" by going again over their drained ground; therefore I am content to allow my land, stone-drained at 2½ and 3 feet depth, to lie as it is. Pipe tiles I have uniformly used without collars; and I see no reason for their use. Having last year occasion to open a conduit through a field drained with pipes in 1848 (and these pipes of very indifferent make, the manufacture being then a novel one), I cut through many drains, and found no tendency to silt up with sand, though the "subsoil when dry was found to crumble into a state of very fine powder, containing an admixture of very fine quartz sand partially rounded and mixed with abundant scales of mica" (Professor Johnston's Report). I must say that collars appear to me a totally useless expense and complication of work. Having quarries of red sandstone in my immediate neighbourhood, the rubbish stones in which I had for the carting away, all my conduits and outfalls have been built with them. These vary from 6 inches broad by 9 inches high, to 9 inches broad by 12 inches high, and through a conduit of this last size I would not hesitate to conduct the drainage of 100 acres, provided there were a good outfall. The labour of opening, building, and filling in such conduits is paid for at less than 6*d.* per yard, a sum below the simple cost of pipes of much less capacity. This is a point worthy of the consideration of those having somewhat of the same advantages in proximity to stones. It is true that the cartage of such is a considerable item, if paid for, but when done by the horses of the farm, it is not more felt than the cartage of tiles from a not very distant work. Moreover, danger from breaking and consequent sinking in, which in pipes of large dimensions is considerable, is, by this plan, all but entirely guarded against; and this is an object well worth some extra labour. I have not made vent holes to give a circulation of air through the drains; indeed, with stone-built conduits, such as I have described, the covers of which at frequent hollows come within 2 feet of the surface soil, I am satisfied that a circulation of air takes place without this assistance. *Alex. Simpson, Teawig Farm, Inverness-shire.*

Home Correspondence.

Adulterated Guanos.—The shameless frauds practised by some dealers have been long known and exposed, but how are such to be detected by practical farmers, who are not chemists, and yet want a supply just at a time when a dealer is at hand and ready to sell? A case of this kind came under my knowledge some time since, when the sale and terms of purchase had been settled between the parties. It was then understood that the money was to be paid on the day following (10*l.* per ton); I therefore had little enough time to effect even a slight quantitative analysis. The sample I received was about four ounces. Having been accustomed to experimentalise with several varieties, it occurred to me that, by a few simple processes, it would be possible to attain to a pretty correct idea of the moisture contained in a given weight (which ought not to exceed 10 to 12 per cent.) of the quantity of ammonia in the soluble salts, of the insoluble matters, the most valuable of which is the bone phosphate, in its state of extremely minute division. I now, therefore, endeavour to recite, in the most simple terms, the processes adopted by me, and which I now venture to recommend to those who have not at command a more refined analysis:—50 grains of the sample to be examined are dried in a paper, placed upon the hob of a grate, then weighed to ascertain the loss of water, and rubbed in a small mortar to a fine powder; two-thirds of the quantity (say 36 grains) of fresh air-slaked lime are, in like manner, placed on the hob of the grate, and equally dried and weighed, and both are then triturated together. The weight being accurately noted, they are transferred to a small balanced saucer, moistened with a dessert spoonful of rain water, and stirred with a pointed quill. Ammoniacal gas is immediately developed, but in much greater volume when placed upon the warm grate till dry. The mixture is then to be treated with boiling water sufficient to bring it to a paste, stirred repeatedly, and left in heat till dust dry, when the volatile ammonia will have been totally expelled by the lime. The loss of weight will be found to vary according to the quality of the guano. In one experiment made by me it was proved that a mixture of 50 grains of dry guano, and only 26 of lime = 76 grains, so treated, had lost 6½ grains. This loss, if assigned to ammonia only, would indicate 13 grains in the 100 of the ammonia actually existing as a base to some or all of those acids which are found in the soluble ingredients of pure and sound guano. If by repeated experiments of the kind, with different samples, certain definite quantities are left, and the loss of weight ascertained, a pretty correct idea of the actual quantity of potential ammonia will be attained, sufficient, at all events, to guide the judgment of a discerning practical agriculturist. Professors Anderson and Way concur in the opinion that "there are only two constituents which practically require to be considered in the estimate of the commercial value of guano and the phosphates." This is admitted, for the phosphates which exist in some of the salts soluble in water contain ammonia. Yet the one most available in Turnip culture is the bone earth (phosphate of lime), which remains in the insoluble matters after water has taken up all that it can dissolve. These insoluble substances include more or less urate of ammonia—a valuable ingredient, but requiring time and accuracy for its development. Estimating it at 12 per cent., and the bone phosphate at 23 per cent.; also other organic and saline matters at 16 per cent., with 2 or 3 per cent. of sand in all; 47 per cent. may be taken (including from 6 to 10 parts of moisture) as the mean average of all the ingredients soluble in rain or distilled water. *John Towers, Croydon, May* 10.

Gas Water as a Manure for Grass Lands.—I have this year seen at the rate of 10 tons per acre of gas water applied against 20 tons of good rotten dung. I was surprised to see it on April 3d, the Grass where the water was applied having a fine green and grassy appearance, and the other parts of the field as brown as when the dung was put on. I have also seen gas lime used at the rate of 5 cwt. per acre with great advantage. *R. Gilbert, Haxby.*

Mangold Wurzel.—I forked up and left in ridges during the winter some land where I intended to plant some Mangold Wurzel; put on the land a good dressing of farm-yard manure, and at the end of April planted it with Mangold seed by dibbling it in. Here and there patches of the seed have come up, but very weakly, and on using my knife in places where no plants appear, but where the seed was sown, I have found worms, some of them in the seed and the seed generally eaten through. I send you two of these worms. Can you tell me their names, whence they arise, and acquaintance with a suitable preparation in which to steep the seed for the future, so as to prevent their ravages? I propose to sow again those portions where no plants have come up, first of all using guano, then covering the guano with a little of the soil, and soaking the seed in water, so as to expedite the growth of the plant and recover lost time. *G. P.* [We did not receive the specimens sent. Soak the seed in dilute liquid manure so as to hasten its growth.]

The Wheat Plant.—From various parts of England and Scotland have been reported the loss of Wheat plants from effects of the late excessive frosts and droughts, inasmuch as hundreds of acres have been ploughed up as not worth standing. Judging from similar cases in our own neighbourhood, such alarms and proceedings may have been out of place. Many in this district, who have here and there on arable land lost some half or three-fourths of their plants from frost, drought, wireworms, maggots, &c., and who have had recourse to sowing afresh or ploughing the rest up, will no doubt have cause at the fall of summer to repent of their folly in not first rolling it with a heavy roller, and turning on to it a flock of sheep for a day or two, and then keeping it perfectly clean, thus securing the chance of getting some 5 or 6 quarters per acre. It may appear an anomaly, but the very circumstance last season, 1854, of the universality of lost or thin plants of Wheat, occasioned from extraordinary wet, &c., was without doubt the chief cause of so unusual an abundant crop; for in many other respects it had to fight through various unusual vicissitudes never before heard of, and, on the whole, was not expected to prove a good Wheat year. We allude to the circumstances of violent storms, blights, fungus and rust in the blade, and other strange atmospheric visitations, together with more abortive ears than in ordinary seasons. So far as appearances go, to inexperienced persons, at the present time the magnificence, luxuriance, fulness of the plants, and verdure of Wheat generally in this district, present themselves much more favourably than in the corresponding month of May, 1854, and augur well so far for a more abundant yield. But all is not gold that glitters, and we cannot forbear to remark that no such productions as last year can be reasonably expected from the very unusual and extravagant full crops which now appear; on the contrary, we must indulge our confidence that such as those which are called partial or misplants will in the fall of summer prove very far in advance, provided that such thin crops are kept clear of weeds. In confirmation of the folly of sowing too much seed, we respectfully invite to the notice of our agricultural friends our present crop of Wheat, growing on common ploughed land, planted at the extremely small quantity of from 6 to 8 pints per acre, which we venture to back against anybody else's full plants from 128 pints, or above 20 times the quantity. *Hardy & Sons, Seed-growers.*

Societies.

THE GREAT CATTLE SHOW AT PARIS.

France is proving that she is as capable as ourselves of directing attention to the arts of War and Peace at the same time. Her great Palais de l'Industrie, which is gradually becoming filled with her own handiwork and that of other nations, is not the only proof of this; an even more direct conversion of the sword into the ploughshare is seen in the allotment of a portion of the Champ de Mars for the purpose of a cattle show. A large collection of animals (very fully illustrative of our own breeds of cattle and sheep and pigs, and those of France, Holland, and Switzerland) is here gathered together. The scheme is admirably adapted for usefulness, especially, we think, to agriculturists of France, as our own breeds certainly approach the nearest to the ideal of form on which all are agreed as the proper goal for which to strive, but also to English visitors, most of whom must have been surprised at the distinctness and uniformity of character possessed by many of the French breeds of cattle. There was certainly nothing for us to learn in the pigs exhibited by Frenchmen—coarse, ill-formed, ugly specimens, such as might have been seen half a century ago with us, were alone exhibited in the native classes. And the English breeds, though furnishing many good animals, were far from being so satisfactorily represented as they are at Birmingham or Leeds. Mr. Williams, Mr. Northey, and H. R. H. Prince Albert are among the prize holders in this class.

Our sheep were fairly represented: four classes were exhibited,—1, Merinoes; 2, Long-wools, including Leicesters, Romney Marsh, &c.; 3, the Dutch races—also long-woolled, along with which were placed the Cotswold sheep; and 4, South Downs.

There were a great many pens of Merinoes of so very even a character that they had quite the appearance of one flock, but they came from widely distant parts, and thus proved the very uniform and definite character of the breed. The 2d class was due almost wholly to English exhibitors, among whom were the names of Kingdon, Radmore, Creswell, Watkins, Ashley, and George Turner. The 1st prize for young rams was awarded to Mr. Kingdon, of Thorverton, Devonshire; the 2d to Mr. Creswell, of Raventon, Leicestershire; the 3d to Mr. Radmore, of Thorverton, Devonshire. There were 22 animals exhibited. For old rams, of which 24 were shown, the 1st prize went to Mr. Watkins, the 2d to Mr. Creswell, the 3d to Mr. Turner. For pens of three sheep Mr. Turner, Mr. Watkins, and the Vicomte de Curzay carried off the prizes, the last as well as the others being English sheep. Among other long-woolled sheep, Mr. Beale Browne and Mr. Ruck, near Cricklade, carried off the prizes with young Cotswold rams; Mr. Handy and Mr. B. Browne with old Cotswold rams; Mr. B. Browne, Mr. Burgess, and Mr. Ruck with pens of Cotswold, Romney Marsh, and Cotswold sheep. Of the 83 pens of sheep in these two classes 68 were from England, and all the prizes, except one, and that was for sheep imported from Worcestershire, have also come to us. There is a very good show of South Downs, as there always must be when such men as Messrs. Jonas Webb, Rigdon, and Ellman choose to exhibit. Six young rams are shown by Mr. Webb, to whom was awarded the first prize in that class, while M. Bella, of Grignon, took the second with a ram, also imported from Worcestershire. The first prize was not awarded according to English judgment—other sheep of Mr. Webb's lot being considered superior to the one which received the prize—the aim of the French breeder is somewhat different from that of the English, and their opinions of merit thus do not agree. For old rams the first prize was awarded to Mr. Rigdon; the second to M. Allier, père, for sheep of Mr. Jonas Webb's breeding. The pens of three sheep in this class were all exhibited by foreigners, the first prize being, however, awarded to sheep of Mr. Webb's breeding.

The show of sheep is eclipsed by that of cattle, which is especially interesting to English visitors from the very complete and satisfactory illustration it affords of the native breeds of France. The first section, however, relating to foreign breeds, is extremely interesting, and very well represented also. In it are, of course, included the Short-horns, Herefords, Devons and Sussex, Ayrshire, and other dairy breeds; together with the Dutch and Swiss breeds. Among our own breeds most of the prizes are, of course, carried off by Englishmen, though foreign breeders have been successful to some extent with all excepting the Devons. In Short-horns the young bulls were all English but one, the first prize being awarded to the Marquis de Talhouet, for an animal of Mr. Richard Stratton's breeding, Mr. Marjoribanks carrying off the second, and the third being awarded to Mr. Botton-Levêgues, for an animal of Mr. Towneley's breeding. Among the old bulls the prizes were awarded to Lords Feversham and Talbot, Messrs. Crisp and Stratton, and H. R. H. Prince Albert—the first to Lord Feversham for a red and white bull, bred by Lord Ducie (by Duke of Gloster out of Beatrice), and bought by his Lordship at the Tortworth sale.

He is a very fine specimen of the short-horn race—the finest specimen of the genus Bos, we heard it stated, ever shown in France, and well worthy of his high rank in this great national exhibition. For heifers of the short-horn breed, the prizes were awarded to Captain Ball, le Comte d'Aspiemont (for an English heifer), and H.R.H. Prince Albert; and for cows, to Mr. Stratton, Captain Ball, le Marquis de Talhouet (for a cow of Mr. Stratton's breeding), and Mr. Cartwright. The Hereford breed is remarkably well represented; as fine a lot of animals being shown here as will be, we doubt not, at Carlisle next July. Lord Berwick takes the first prize with a remarkably well made large bull; Mr. Price is second, and M. le Vicomte de Curzay is third, with a bull of Mr. Yeoman's breeding (Stratton House, Herefordshire). Messrs. Perry and Walker, of Leominster, take the prizes for Cows. The Devon and Sussex breeds are shown in a class together, and Mr. Turner, Mr. Farthing, and H.R.H. Prince Albert take the prizes, all with Devon animals. The Ayrshire cattle are not very well represented, neither are the Scotch, Alderneys, &c., shown along with them. The first prize among bulls is given to Lord Talbot for a large polled Angus bull, and the second to a small Ayrshire; the prizes for cows and heifers are all given to Ayrshire cattle.

And now we come to the breeds of Holland, Switzerland, and France, which must be characterised generally, without any special reference to the prize animals, in which our readers are not likely to be interested. The Dutch breed is chiefly useful as dairy stock—they are large coarse animals, of black and white colour, with tight skins, handling very hard, and anything but attractive to those who have Short-horns, Herefords, and Devons to draw from; nevertheless importations have, we understand, been made by Irish breeders—not, we imagine, with any probability of improving the native stock. Two classes of Swiss cattle were exhibited, the one chiefly from Canton Berne, the other described as of the Schwitz race, both large and generally well-made animals, the former chiefly red or black and white, the latter of a dun or mouse colour of various shades, both very well made and good dairy breeds. Their *entrée* on Friday of last week decorated (both to eye and ear) with the large bells that are part of their constant dress at home, must have been something remarkable. Upwards of 80 animals of these two breeds are shown, and their Swiss attendants and owners, fine, tall, well-made men, with intelligent thoughtful faces, reminding one of the men one meets on market days in country towns of Scotland, were as striking a feature of the gathering as the cattle they have brought. These large animals—such large-framed heavy cattle—are the breeds characteristic of the mountain districts of Switzerland!

Among the French races represented in the Champ de Mars are, (1) the Normandy, a large, coarse, parti-coloured breed, chiefly dark brindled brown and dun. (2.) The Flemish, chiefly red, dark red, and red and white, reminding one in form of short-horn cows, and in colour frequently of the Herefords or more often of the Devons and the Sussex; they are a large and useful dairy race. (3.) The Charolaise, a pure white breed of great beauty and remarkable symmetry: many among the bulls exhibited would have passed for very decent shorthorns, and French agriculture need not depend upon imported blood for improvement, having the excellent stock of this race as the groundwork of a breed which may become as good as any we possess. (4.) The Garonnaise, a light dun-coloured breed of remarkable uniformity of character, some of which, with their remarkable horns, are imported for sale at Smithfield. (5.) The Comtoise, chiefly white, a well formed breed of moderate size; and—besides other classes from the mountain districts of France—(6.) the little black and white breed of Brittany, reminding one exactly of our own small breed of the Shetland Islands. Almost all of these races are shown in considerable numbers. Besides these classes there is one for short-horns of French breeding, in which, however, the race is not as well represented as it is in the English specimens shown. The cattle classes include not fewer than 643 entries, and have well justified the interest excited by them. One very interesting feature of the exhibition is the number of cattle shown by the Emperor and by the National School of Agriculture. His Majesty does not enter into competition with his subjects—his cattle are shown in a class by themselves; and among them are some good Ayrshires, Short-horns, and cross-bred stock—the result of experiments between the native breeds and our own Devons, Durhams, Ayrshires, &c.

The show of poultry includes many very fine kinds, but is not equal to what we have in England, either in the merit of individual specimens or still more in the classification and arrangement of them, which would have made the work of comparison easy to the visitor.

As a whole we should imagine that the result of the prize list offered by the French Government will be considered satisfactory by the promoters of this movement. The animals exhibited must be a useful lesson to the agriculturists of France and of the other countries from which their visitors and exhibitors have come. It is to be regretted that a larger number have not availed themselves of the opportunity of examining so varied a collection. The English visitors are not so numerous as might have been expected, and the whole are far from equalling in number those that flock to the annual gatherings of our own national societies. A larger number availed themselves of the free admission given on the Wednesday, and the pavilion in which the prizes were distributed to exhibitors by the Minister of Agriculture was crowded with spectators.

Farmers' Clubs.

London: *Economy and Cost of Good Roads.*—This was the subject of a lecture last Monday evening by Mr. J. Bailey Denton, of Stevenage. After a few words of introduction from the chairman,

Mr. Denton said,—I believe, with the late Sir Robert Peel, that true economy in road management consists in that combination of care and judgment which shall ensure the best result from the least comparative outlay, without any other consideration whatever; but as superiority in result is only one element in that combination, and as the occupiers of land (that class especially represented by this Club) are by far the largest contributors towards the cost and maintenance of roads, it becomes quite as much our duty to check ill-advised expenditure in all its details as it is the object of the general public to have good roads at any price. Perhaps nothing could more appositely preface our discussion than the definition of what a perfect road is, as it will enable us to comprehend how far from perfect our roads still are, though so vastly superior to what they were 50 years ago, and how susceptible they are of further improvement. "A road, to be theoretically perfect," says Dr. Lardner, "should be—first, perfectly straight; second, perfectly level; third, perfectly smooth; and fourth, perfectly hard. If it possessed all these qualities in absolute perfection, the consequence would be that it would require no tractive power at all—an impulse given to a load at one end would carry it to the other by its inertia alone. This is the ideal limit to which it is the business of a road maker to approximate as nearly as he can, all practical circumstances being considered." But the doctor further observes "that it is obviously impracticable to make roads in the country which would be perfect; there arises in most cases the extremely difficult inquiry as to the best possible compromise which can be made between all the inevitable imperfections, the existence of which we are forced to admit."—See evidence before Committee of the House of Commons, 1836. Now, although this definition will serve the good purpose of showing us our defects, it is not my intention to rest upon anything that savours of theoretical and impracticable perfection, but to proceed with the subject in that way which shall most pointedly and in the shortest manner bring us to a true understanding of our own position as tenant farmers, who are not only maintaining for the most part the public thoroughfares of the country, but are necessarily obliged to maintain the private or farm roads within our own occupations, where we are fortunate enough to possess them. In the first place we will have regard to the turnpike and parish roads—those roads which are called "public," and are supported by tolls and rates; and in the next place, we will refer to those roads which afford internal accommodation to farms, which are called "private," and which are solely maintained by those who possess them. When treating of public roads, the question of their economy and cost has reference to their maintenance, rather than to their formation, and to this view of them we must confine ourselves on this occasion. It is in consequence of the vast change that has recently taken place in the system of our national intercommunication that the consideration of the matter should not be delayed. Railways are in fact fast superseding or detracting from the use of the principal coach roads, and we shall therefore be better employed in considering their future support and management than in discussing any improved means of making new ones, particularly as we find by every day's experience that the more railways are extended and appreciated, fresh lines of existing highways are opened up radiating to the numerous railway stations, by which neglected parish roads are brought into use and their imperfect character brought to light. The effect of this vast change is becoming gradually known to us all in one way or another. If we are trustees and bondholders of turnpike roads, we know it by the insolvent condition of our trusts, although the annual expenditure on turnpike-roads has been reduced in eight years to an extent of more than 400,000*l.* per annum. As rate-payers we know it by the increased amount of the highway rates, which, in the same period of eight years, have increased above 600,000*l.* per annum, with the outlay disproportionately increased in those particular parishes lying nearer the railway stations, and through which the traffic from the more distant must pass without contributing to that extra cost; and, as part of the general public, we know it by the total neglect of those roads which have had their traffic diverted, and by the unequal condition and the absence of judicious control of the roads generally. Of course there is no rule without an exception, and districts may exist where turnpike trusts are still thrifty, and where uniform good management by parochial authorities is prevalent, but I think there is no one here present who has failed to observe the ill consequences accumulating throughout the country from the bankrupt state of turnpike trusts through the neglect of irresponsible trustees, and from the fact that parish roads still remain under the control of unpaid and unpractised surveyors serving only for a single year. With respect to such roads, we have all I dare say, had some experience, and I am not misrepresenting the fact, when I say that there are not a few who have felt the necessity of acting as surveyor of highways in our several parishes, as a means of self-preservation, as a means in fact of remedying the omissions of preceding surveyors who may, perhaps, have been more liberal near their own occupations than ours. I will freely confess that it was the total neglect of the roads in that part of the parish in which I resided that induced me a few years back to seek the office, and then I did not fail to make the best use of the opportunity to give the neglected roads a dressing which I believe my successors have considered so abundant that they have done nothing to them ever since. But leaving individual cases out of consideration, we must all acknowledge that unpaid services are generally of little value, and that no man whose income depends upon a profitable use of his time ought to be called upon to devote a part of that time to periodical business without compensation, and further if we examine the matter attentively, we shall find that the knowledge and application essential to a good management and economical maintenance of roads is comparatively rare. It is too frequently believed that any parishioner who can be trusted to collect and dispense the highway rates is qualified to act as stonewarden of his parish, and it is this unfortunate theory that trustworthiness is synonymous with knowledge, supported by erroneous notions of economy, that has led to the defeat of every measure which has been proposed for the improved management and union of public roads in districts. It may be true that a person may be a good manager of existing roads without being able to enter into such refined calculations, for instance, as the resistance of friction and collision of material, the force of gravity in impeding draught on roads at different gradients, and the amount of impediment arising from elasticity of formation. These, however, are elementary data indispensable to a good road maker, and though, perhaps not so necessary to a road manager, it is manifest that a knowledge of the whole subject in its various details must better qualify him for his duties than the possession of accidental information, acquired in the pursuit of another business. Under any circumstances we shall all agree that any one taking the management of our parish roads should at least appreciate the advantage of a perfect surface draining and under draining roads, and the benefit of sun and of air; the proper sectional formation for different roads according to circumstances of position; the relative value of materials in comparison with the cost of procuring them; the proper size of material by which to maintain the bottom stratum as well as the surface covering; the quantity to be applied to the best advantage at each dressing, and the best time of applying it; and particularly the economical application of labour in a broad engineering sense, not as meaning the crowding of men on the roads when it is not possible to find work for them on the farm:—these and such like practical considerations, we must all admit it is necessary a surveyor of the highways should be able to apply in all the details of his office. How few there are who at the present time undertake the duties possess even this essential knowledge, or if they possess it how few will give the necessary time to its profitable application! But as we have now arrived at the critical period when the trustees of turnpike roads are taxing the parishes through which they pass, under Sir Charles Burrell's act, to contribute to the roads they undertook to maintain, and when the whole traffic of the country is being changed from former channels to courses at right angles to them, I venture to hope the farmers of England will see it is time we changed the system of management also, that, in fact, we should look to our own interests as ratepayers, and abandon the unsatisfactory, and in the main costly, agency of paid surveyors and paid clerks to turnpike roads, and unpaid and annual parish surveyors of parish roads, and adopt the more consistent and, in the end, less costly machinery of consolidated authority. It will hardly be credited that although there are only 10,700 parishes in England and Wales, there are 15,841 distinct places levying highway rates, and that, although the turnpike roads are constantly less every year to maintain, the expenditure on highways, which in 1827 was 1,000,000*l.*, and in 1839 was 1,1[illegible] amounted in 1845 to 1,717,334*l.*, without any appreciable increase in length of the highways themselves; but all this is true, and it is to the expediency of consolidating these numerous jurisdictions into unions with an equalisation of expenditure that I hope you will address yourselves this evening. In the year 1850 Sir George Cornewall Lewis, now the Chancellor of the Exchequer, introduced a bill into the House of Commons having in view the union of parishes in districts and the concentration of the unpaid officers of parishes into one paid officer for each union. As you are aware it did not become a law simply, I presume, because the time was not then ripe for the acceptance by the country authorities of the principles distinguishing that measure. But five years have since elapsed and the country, as well as town, is rapidly acknowledging the union of extended management as the most effective and most economical system of management. I shall, therefore, not be outstepping the duties I have taken upon myself in this discussion in placing before you the scheme of Sir George Cornewall Lewis, with such additions as shall retain in the hands of the rate-payers certain powers of appeal and scrutiny, which, I would submit, it is desirable they should continue to hold. Under any circumstances, although there may be difference of opinion in details, it will serve to bring into comparison with the present divided and unsatisfactory mode of management the principles of union management. The main points of the scheme are these:—1st. The districts of road management shall be coextensive with the unions. 2d. That a competent surveyor of roads shall be appointed to each union, or to two or more unions, according to the extent of mileage of roads within such union. 3d. That directly any portion of the highway rates of a parish is applied to the maintenance of a turnpike road, that turnpike road shall be placed under the management of the surveyors of the union. 4th. That the surveyor shall be nominated by the board of guardians, and if approved (after examination of his qualification for the office) by a central board of examiners appointed by the Board of Trade, shall receive the appointment. The board of examiners will be similar in character to the official referees of the metropolis where the district surveyors for buildings undergo examination as I propose here. 5th. That there shall be a select committee of the board of guardians to be called the roads committee to whom all complaints of ratepayers, and all accounts respecting the roads shall be referred, whose decision on such complaints shall be binding on the surveyor, except in such instances as the surveyor may elect to appeal to the central board of examiners. 6th. That the salary of the surveyor shall be regulated by the mileage of, and duties upon the roads under his management. 7th. That such surveyor shall make half-yearly statements, showing the length and cost of maintaining each public highway within the several parishes distinguishing the cost of labour and materials, and such half-yearly statements shall be affixed to the church door in each parish within a month of the termination of each half-year for the inspection of the ratepayers. 8th. That such surveyor shall furnish the board of guardians with a complete annual statement of the total cost of the maintenance and management of the roads under his charge, together with an estimate of the works required for the next year, which having been audited as part of the accounts of the union, the clerk of the board of guardians shall reduce the whole into an abstract form, and forward it to the clerk of the peace of the county, in order that it may be published in the county newspapers and forwarded to the Board of Trade once in every year concurrently with the other unions throughout the country. This will enable all persons to compare the cost of management and maintenance of the several unions and will prevent jobbery. 9th. That the several abstracts so published shall be formally collected by the Board of Trade from the several unions throughout the country, and presented annually as a parliamentary paper to the House of Commons. These suggestions will be found to differ in some few particulars from the *modus operandi* set forth in Sir George Cornewall Lewis's bill, though the principles involved in both are the same. They have in view the constitution of an uniform system of management with such security on the score of competency that, as the several turnpike-trusts expire or turnpike-roads are thrown on parishes to support, we shall have in existence an executive conducting the maintenance of highways superior to, and much less costly than, the divided and responsible system which prevailed in the management of turnpike-roads in their most palmy days, and which had the effect even before railways robbed them of much of their incomes of gradually bringing the majority of those trusts into irrevocable debt. I have laid great stress upon the perfect competency of the surveyor, for although there should be in each union a road committee, so as to preserve the English principles of leaving local affairs to local management, still it will be found in practice that the real onus will rest with the surveyor who should be obliged to devote the whole of his time to the duties of his office, and you will have observed that I have suggested by an appeal to the road committee a summary mode of redress for inattention on the part of the surveyor. This is desirable in order to avoid the expenses of an indictment. It is estimated that a person fully understanding the business of road management may look after from 150 to 250 miles of roads of ordinary character, and that this latitude in figures will represent the roads with an area 10 miles square, containing 64,000 acres. There are in England and Wales 104,772 miles of highways and 57,805 square miles of country, so that we may see at once that there is not on an average a length of 2 miles of highway to a square mile of country. In Westmoreland there is hardly one mile of highway to a square mile of country, whereas in Devonshire there are nearly three miles to the same area. Competent persons are to be found who will undertake the duties for from 150*l.* to 200*l.* a year, to which, if 40*l.* were added for keep of a horse, the average salary would be raised to about 250*l.* This would be equal to about 1*l.* per mile of ordinary country roads; or, to place the matter tangibly before you, so that we may see how such a salary would affect our pockets as ratepayers, it is estimated that from ¾*d.* to 1*d.* in the pound would satisfy the salary of the surveyor under such an improved mode of management. We can each of us compare this with the salaries paid to and duties performed by surveyors of turnpike-trusts, and with those isolated instances where salaries are paid to stonewardens in parishes where payment is made for superintending the highways, and I think we shall admit that, looking forward to the time when turnpike roads will come under the management of the surveyors of roads in unions, and the expenses attending the present management

of such turnpike roads may be saved, there will be little or no loss in the item of salaries by the change of system. To make this may be well to state that there are nearly 1200 turnpike trusts in England and Wales, having a management of a length of between 23,000 and 24,000 miles, of which a considerable number do not receive sufficient in tolls to cover the cost of repairs, and pay the interests of their debts (which amount in the aggregate to about 7½ millions), and must sooner or later receive assistance from the highway rates, if they do not do so already. These bankrupt trusts, however, are still represented by paid surveyors, whose salaries have to be paid; and though those salaries have been reduced, the aggregate amount of what is still paid would go far towards the cost of road management in districts. The salaries paid to clerks and surveyors for the superintendence, law, printing, advertising, &c., amounted, I find, in 1834 to above 180,889*l.*, or 8*l.* per mile. Now, as there appears to be in England and Wales about 130,000 miles of public roads of all kinds, the amount paid to lawyers and road surveyors for the 23,000 miles of turnpike roads alone would under consolidation more than pay the salaries of all the surveyors required for the management of the 130,000 miles of public roads of all kinds, assuming that the estimate of 1d. per mile is sufficient payment to the surveyor, with 25 per cent. added for costs and expenses attending the machinery of concentration. You will observe that I have said little about the financial position of turnpike trusts; it is too difficult a subject to introduce into this discussion; I am content to assume that as soon as any turnpike trust applies for parochial relief it shall be treated as a pauper and sent to the union, by which the expense of management attending such trust will be saved for the district through which it passes. I find the highway rates levied in England and Wales for the repairs of parish roads vary very considerably. In Lancashire, Lincolnshire, and Cambridgeshire the rates appear highest, and the cost of the repairs correspond. The rates in these counties are about 10*d.* to 11*d.* in the pound, and the cost of repairs from 17*l.* to 21*l.* per mile. In Westmoreland, Cumberland, Devon, and Norfolk, the rates are lowest. In these counties they vary from 3*d.* to 6*d.* in the pound, and the cost of repairs is as low as 4*l.* 6*s.* to 5*l.* 7*s.* per mile. The average cost of repairs of highway is 11*l.* 3*s.* These figures will enable us to contrast the single item of effective superintendence at 1d. in the pound, or 1*l.* per mile with the present cost of imperfect reparation, under management partly gratuitous and partly paid for, and it will not be difficult to believe that the gain in the cost of maintenance to be secured by consolidated management in qualified hands will be 10 per cent., which is more than enough to pay the whole cost of superintendence. In closing this part of the subject I have only to express the hope that the resolution which shall emanate from this Club will convey an acknowledgment of the evils attending the present mode of managing public roads and the advantage to be gained by consolidation. The experience or rather the want of experience we have had of the 5th and 6th William IV., cap. 50, (which enabled parishes to combine voluntarily and has remained a dead letter) will oblige us, I think, to add that legislative measures to be operative must be compulsory. Time will admit of my saying but little upon the second part of the subject now presented for discussion. I refer to the economy and cost of private roads, those internal communications within the farm which serve to reduce the cost of labour in the traffic through and upon it. It has fallen to my lot when acting as engineer to the General Land Drainage and Improvement Company, to hear all kinds of opinions of the value of farm roads. I have known good heavy land farms vacated and remain unoccupied for the want of internal roads; and as the very opposite of this fact I heard one farmer in the Vale of Belvoir assert last week, when the question was asked him, what additional rent he was willing to pay for the accommodation of a road through the middle of his land from the public highway to his homestead, that he could do as well without the road as with it, if he was to be charged anything for it. Now when I state that the farm referred to was entirely on lias clay, and that there was only a field track marked by ruts in which a dog could run without being seen, and that the homestead was 70 chains from the highway referred to, I am sure there is no one here but who will admit that if the tenant was paying a fair rent for the land without any road whatever, he could very well afford to pay something for a good one.

(*To be continued.*)

Miscellaneous.

The New Market at Copenhagen Fields is to be opened formally on Wednesday next, when H.R.H. Prince Albert will be present at an entertaiment given by the City of London.

Calendar of Operations.

JUNE.

Farm near Chelmsford, *May* 30.—Since our last communication we have had a continuance of cold northerly and north-easterly winds, with some showers about the 11th, and a few days of milder weather, from the 24th to 27th; but vegetation progressed slowly, and a week ago the best pasture land would not afford a good bite for cattle, and unless a large amount of rain falls, with warm weather, within the ensuing fortnight, the crop of hay, both of Grass and Clover, must be unusually light. Such has been the cold state of the weather by night, and the absence of sunshine by day, that although the rain which fell upon the 13th and succeeding days was sufficient to cause all descriptions of seeds to vegetate, yet here, on the 24th, Oats, Mangold, Carrots, &c., were but just appearing, and are consequently one month more backward than in ordinary seasons. This, however, would have been of little moment provided genial weather had ensued; plants at such periods making rapid strides, and in the end recovering the time lost in the early spring. Upon this farm the Wheat is unusually promising; the plant is generally good, it tillers remarkably well, is of a healthy green colour, and grows compactly and closely to the surface of the ground. Upon all the well farmed lands of this district it also promises well, and although deficient upon light gravelly soils and some of the strong clay lands after Clover, may upon the whole be considered as looking well; it is, notwithstanding, later than in ordinary years, which it will recover under a warmer state of atmosphere. Barley and Oats are also promising, and greatly exceed in appearance that of other seasons. Winter Beans are for the most part a failure upon this farm, as we before stated; they have been ploughed up, and the land fallowed, and, reduced to admirable tilth, is now planted with Potatoes, or sown with Mangold Wurzel and Swede Turnips. In our last communication we adverted to our Mangold Wurzel seed being sown; it has only recently appeared above the surface, but is a full plant, and although the plants are smaller than we recollect having seen them before, are healthy and free from attack by insects. Owing to some deficiency of plant on several previous occasions we this year took the precaution to mix a little Swedish Turnip seed with the Mangold seed, and it appears of itself almost sufficient for a plant. What are not required can be easily hoed out, but wherever the Mangold plants are deficient will be left. Before running it should be moistened with some clammy substance, such as treacle, to prevent its separating from the Mangold seed, as it has a tendency to do so, and to come up irregularly. But the better plan where a manure drill is used, is to incorporate it with the superphosphate or some other portable manure. From the scarcity of cattle food experienced this season this root must become more extensively grown in succeeding years, and perhaps as we are successful in its production a few hints may not be now out of place upon its cultivation. As early in autumn as possible plough up a Wheat stubble, to the depth of 4 or 5 inches if it requires cleaning from Couch and weeds. Then harrow and scarify it, and give a deep cross-ploughing or two before winter, make it into ridges or baulks of 30 or 32 inches in width, subsoil the furrows 5 inches more, and whenever the weather is suitable plough the ridges again and subsoil the furrows, but unless the weather is very suitable this last ploughing should be deferred until March or April. Carry on about 12 tons of partially decomposed manure of good quality, sow 2 cwt. of fish, or hide salt, if procurable, or common salt instead, with 2 cwt. of guano; plough the soil over the manure, roll closely if sufficiently dry, so as not to squeeze compactly; drill 3 to 4 lbs. of seed mixed with a little Swede Turnip seed and 1 cwt. of superphosphate of lime per acre, or it may be dibbled 16 inches from hole to hole at about 1 inch in depth, in either case taking care not to deposit the seed more than an inch in depth; roll lightly afterwards, but if the weather is showery leave the drills uncovered, horse hoe the furrows as soon as weeds appear, previously forking out by hand process every particle of Couch, Docks, or root weeds. Take care never to let weeds grow so as to choke the young plants; when 2 inches high single them out, selecting the best plants and pulling away the root, at 16 inches intervals, or chop out with a hoe and single afterwards by hand. This is best done by having a sufficient number of boys or women to keep close up to the hoers. Keep entirely free from weeds by the horse-hoe, and by hand-hoeing the earth from the plants. About the middle of September commence using the leaves by cutting up with straw into chaff, pulling and storing the roots soon afterwards This process may be continued until December, if it is desirous to economise the leaves, but the roots should be immediately pulled and stored also, or frost may injure them; pack them in oblong heaps 6 to 8 feet wide, with the crowns outwards, bringing them to a ridge similar to the roof of a thatched or tiled building to about the height of 6 feet, cover with Wheat-straw, then dig the surrounding earth and cover over 6 inches thick, leaving about 1 foot on each side for a week or two uncovered for the heated air to escape, and when earthed up afterwards a twisted bunch of straw should be inserted about every 5 feet, for the ventilation of the mass. The earth should be beaten compactly and stoutly thatched over with Barley or Wheat straw to keep out severe frosts. The roots ought not to be used until after January, or until their second vegetation has commenced, a chemical action upon the juices taking place at that time, so that the sugar becomes fixed; it should be plucked into small pieces or bruised with a heavy wooden mallet, pulped or sliced, and mixed with cut straw chaff, feeding cattle with from 40 to 80 lbs. per diem, as it consists of nearly four-fifths of its weight of water. This precaution is necessary to prevent scouring of the neat cattle, to which it has a great tendency in the early spring months; it improves gradually till July, up to which time it may be used for every description of live stock; it however should not be given to breeding ewes, &c., before lambing, or to sows whilst breeding, to little pigs it is also injurious, but those of five or six months old thrive remarkably well upon it. Much of the success attending its production depends upon the quality of the seed; there is little if any difference, as regards quality or value, betwixt the Long and Globe Red, and the Long Orange and Globe varieties. Upon the best and heaviest descriptions of mixed soils the Long Red is most productive, upon the lighter descriptions the Globe Orange is the best; the produce varies from 20 to 30 tons per acre. The roots should be selected for seed of a clear uniform colour, fine crowns, with bright glossy leaves, the root should end in a single top to each without fangs, and abundance of small fibres, and having such slight hold of the soil as to be pulled easily without the assistance of any implement, and by twisting, not cutting, off the leaves, which if not required for cattle should be ploughed in for manure. Upon strong soils it is usual to manure plentifully with long stable dung, ploughing deeply before winter and merely scarifying the land in the spring, about the middle of April drilling in the seed with about 1 cwt. of artificial manure or superphosphate of lime per acre. We have dwelt at so great a length upon this subject that your space will not allow much further remark, but as we sometimes in our experiments succeed well and sometimes on the contrary, it behoves us alike faithfully to mention those of the unsuccessful character. It will be recollected that we mentioned having applied lime combined with salt to our Potatoes at the time of planting to prevent disease, and so far as appearances lead us to judge, we fear most of the Potato cuttings are killed by the preparation accelerated by the dry state of the soil. We obtained the hint from the observations of an experienced farmer at the London Farmers' Club, and after having escaped miraculously from a conflagration of our premises by the lime and salt having caused ignition of portions of the building, we shall in addition forfeit the crop, wholly or nearly so, by this experiment. At present it is impossible to say what the result may be upon portions planted without the application of the lime and salt. The Potatoes are looking vigorous and healthy, whilst those so prepared cannot yet be seen. In your columns a correspondent remarks upon our having stated "that rooks never feed upon insects if they can procure grain," and proceeds to establish the facts to be otherwise, by showing that they have fed upon the larvæ of insects during the past month, but admits that his earliest grown crops have been devoured by them. Rooks, like most other birds, feed their young upon grubs and insects, but wherever grain is to be had, they prefer living entirely upon it. They doubtless effect a great deal of good at certain seasons, but like the sparrow it is certain that they effect much injury. The question is therefore whether under the present state of cultivation of our lands they should be suffered, as in the instance to which we alluded, to increase to such an extent as to lay the whole surrounding district under contribution of black mail for their support, as it is only when in great numbers that they become emboldened to do great acts of mischief, and in such instances it is next to impossible to prevent them accomplishing it, by reason of their vigilance and early and late habits. We have cultivated farms upon which rooks were never seen for many months together, but we have not any recollection of being more injured by insects than at present where they abound. Upon arable lands well farmed and kept clear of decaying vegetable matter and sour Grasses, scarcely any insects will be found to exist so as to be injurious, and in such cases the rooks would be better away. In the winter months they resort to marshes, and live principally upon grubs found at the roots of the decaying Grasses, especially those of the large gnat called "daddy-long-legs," so prevalent in autumn. Next to these grubs they appear to prefer the wireworm, but neither worms or slugs are ever eaten by them except in seasons of great drought. The advocates for their preservation inquire naively for what purpose except that of good were they designed? We do not deny the fact, and inquire in return, for what good purpose were rats designed? and pause for a reply. We shall have neither Grass, Clover, or Vetches; unless abundance of rain follows, these crops will be exceedingly deficient. Wheat and Barley, however, would doubtless be injured by rain; they are now over-luxuriant, and would ill succeed with any continuance of showery weather.

Notices to Correspondents.

Legal Questions: *J K and X Y Z.* We do not give professional answers except to purely agricultural questions. Unprofessional opinions as to what is justice do not always correspond with professional opinions of what is law. If any one, owing to faults in *his own* fence, suffers by the straying in upon him of his neighbour's cattle—*those cattle being of the kinds ordinarily grazed in fields*—we imagine he has no remedy against his neighbour, but is himself alone to blame.——As to the sheep sold to the butcher, if he bought a certain lot of sheep and had a certain time allowed him for their removal, the death of any during that time is his loss, not yours.

Steaming Apparatus: *G C* asks Mr. Horsfall to be kind enough to tell an intending imitator of his dairy management, whose steaming apparatus he employs.

SCYTHES.

BOYD'S PATENT SELF-ADJUSTING SCYTHES may be had of the Manufacturers, William Dray & Co., Swan Lane, London; and of all Ironmongers and Seedsmen. A liberal allowance to the trade.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS and KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

RICHMOND & CHANDLER'S PATENT CHAFF-CUTTING MACHINE.

All the various modern Implements of Agriculture manufactured on the most scientific and improved principles, suitable for home use and exportation.—Address, Richmond & Chandler, Salford, Manchester; and 32, South John Street, Liverpool.

☞ Catalogues Gratis.

IMPROVED MOWING AND ROLLING MACHINE.

ALEXANDER SHANKS and SON, Arbroath, Forfarshire, Inventors and Sole Manufacturers, respectfully solicit the attention of the Nobility, Gentry, and Gardeners to this Improved Machine for Mowing and Rolling Lawns. The Machine is in operation in the Royal Gardens at Windsor Palace, Buckingham Palace, and at Osborne, in the Botanical Gardens at Kew, Regent's Park, Manchester, Sheffield, &c.; at Blenheim Palace, Trentham, Cleveden, Elvaston, Broadlands, Woburn Abbey, Clumber, Lilleshall, Castle Howard, Shrubland, Fridge Castle, Enville Hall, Tiptree Hall, Chatsworth, and in many other of the principal gardens in the kingdom as well as in the United States, British America, and on the Continent, where its merits have been fully proved, and its success established.

The machine is made to cut the breadth of 42, 30, 20, and 15 inches respectively, is exceedingly durable, easily managed, and adjusted to cut to the length required. The execution of the work is far superior to what may be attained by the most skilful mower, while at the same time a great saving of labour is effected, and the turf much improved. By the largest machine a Scotch acre may be mowed, rolled, and the Grass collected in one hour.

A. S. and Son have much pleasure in stating that they have made considerable improvements in their 15-inch or hand machine this year, by which the draught is considerably lessened. This machine combines all the merits and advantages of the larger machines with firm and secure construction, and is admirably adapted for borders and for lawns of no great extent.

Alexander Shanks and Son also respectfully solicit notice to "Fleming's Weeding or Salting Machine" for destroying weeds in gravel walks, court-yards, drives, &c. This machine is now in operation in many parts of England, where it has given ample satisfaction as the best and most economical means of thoroughly keeping down weeds or Moss.

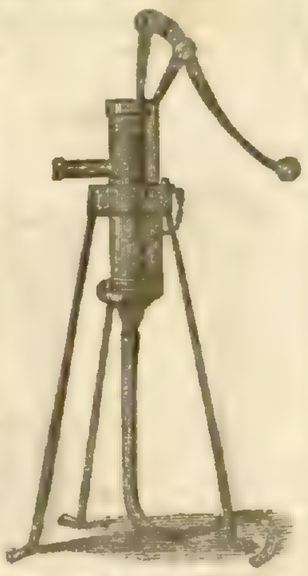
Further particulars, with testimonials and prices, may be had on application.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of Elisha Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Sons, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 12 0
2½ „	long 3 „ 3 „		1 15 0
3 „	ditto 3 „ 6 „		2 12 0
3½ „	ditto 3 „ 6 „		2 18 0
4 „	ditto 3 „ 6 „		3 5 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 12 0
2½ in.	long ditto	ditto ditto	2 15 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

JOHN WARNER AND SONS,

Crescent, Jewin Street, London.

GALVANISED IRON TUB GARDEN ENGINE,

With Warner's Registered Spreader,

is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

JOHN WARNER AND SONS, 8, Jewin Crescent, London, Manufacturers of FIRE ENGINES, PUMPS, GARDEN ENGINES, and SYRINGES.

Brass Syringes, 9*s.* to 18*s.*

All articles of John Warner & Sons' manufacture may be obtained of any Ironmonger or Plumber in town or country, at the advertised prices.

John Warner & Sons having been practical Horticulturists for many years, know exactly the requirements of both Amateurs and Gardeners. A gardener with a properly constructed pump will get through as much work in five minutes as he could with any Syringe in a quarter of an hour, and with half the labour to himself. Syringes are economical for small houses.

No establishment offers such a variety of effective machines for hydraulic purposes, whether to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of liquids.

Fountains suitable for Conservatories, Lawns, &c.

Sheets of Engravings sent on application.

BLACK JAPAN VARNISH.—This article will be found from its durability and cheapness of the greatest utility for Painting Hurdles, Wire-work, Palings, Gates, Fences, &c., and out-door work of every description, whether of Wood or Iron. Its value has been proved by the test of time. It should be well stirred up before using and applied cold. This Varnish will retain its quality for any length of time, provided the cask be kept closed.

May be obtained through any ironmonger; or of John Warner & Sons, 8, Jewin Crescent, London.

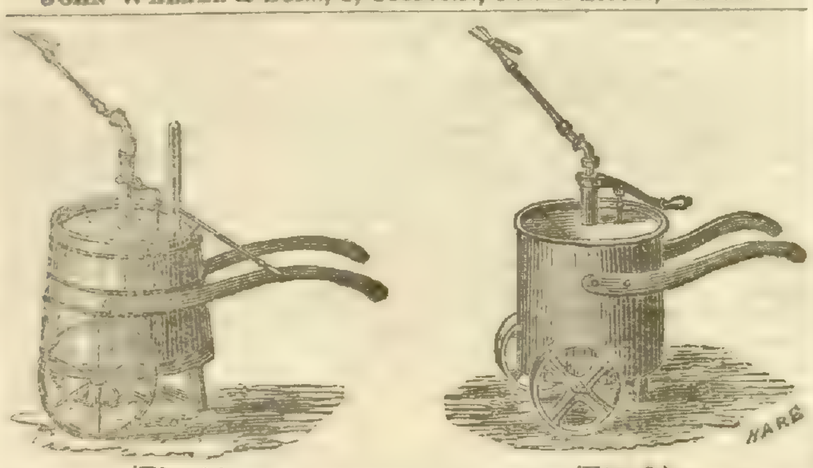
N.B. Sold in casks containing 28, or 14 gallons, at 2*s.* per gallon. Casks (which cannot be returned), 5*s.* each.

WARNER'S SWING WATER-BARROW (TO HOLD THIRTY GALLONS)

Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l*, 3*s*.

Manufactured by

John Warner & Sons, 8, Crescent, Jewin Street, London.



(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons, throws 30 feet high	...	£4	10
No. 2 „ 15 „ „ 45 „	...	5	10
No. 3 „ 28 „ „ 45 „	...	6	18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons, throws 25 feet high	...	£2	15
No. 13 „ 12 „ „ 30 „	...	3	5
No. 11 „ 16 „ „ 40 „	...	4	0
No. 12 „ 24 „ „ 45 „	...	5	0
No. 14 „ 30 „ „ 45 „	...	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

Read's Syringe, with two roses and one jet, 19*s.*

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

FOR WATERING GARDENS.

HANCOCK'S IMPROVED VULCANISED INDIA-RUBBER HOSE AND TUBING is now manufactured especially for the above purpose: is of greater flexibility than any other description of Hose: is capable of resisting great pressure, and made suitable for attaching to the mains of water-works, or to tanks of high elevations.

WATERING HOSE fitted up with the necessary *brass pipes, stop-cocks, branches,* and *spreaders complete.*

VULCANISED INDIA-RUBBER SUCTION PIPES, made any length or size for Pumps or Garden Engines.

VULCANISED RUBBER WASHERS, and also in Sheet, any thickness, for all kinds of steam and water joints, or made any size or figure to order.

All communications and orders punctually attended to, addressed to the Manufactory, Jas. Lyne Hancock, Goswell Road, London.

WATER YOUR GARDENS WITH THE IMPROVED FLEXIBLE GUTTA PERCHA TUBING.

Half-inch, 4*d.* per foot, light; 4½*d.* per foot, strong; larger sizes in proportion, for manuring land, &c.

Brass-hand tubes, with rose, jet, and tap, from 4*s.* 6*d.* each.

Union Joints, 1*s.* 6*d.* each, fitted complete.

Instructions given to affix joints to Taps.

Garden Engines, of great power, 4*l.* 4*s.* each. Self-supplying do., 4*l.* 4*s.* each.

Post Office Orders payable at City Road Branch.

JAMES W. WATTS, Gutta Percha Factory, 27, City Road.

HOSE PIPING.

TO ENGINEERS, AGRICULTURISTS, GARDENERS, SHIP CHANDLERS, AND FIRE BRIGADES.

WAITHMAN'S PATENT FLAX TUBING (1 in. to 3 inches in diameter) will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe. Manufactured only by Waithman & Co., Bentham, Lancaster.

Inches in Diameter and Price Per Yard.—⅝, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d.*; 1½, 1*s.* 7*d.*; 1¾, 1*s.* 9*d.*; 2, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

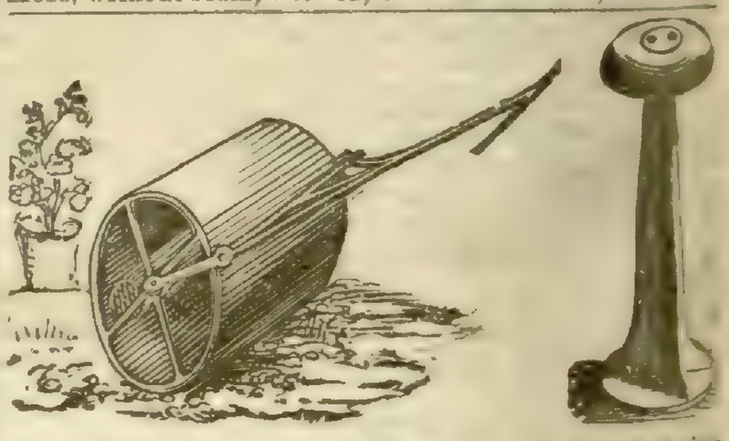
Testimonial from Mr. Wright, Lancaster.—I beg to inform you that I yesterday tested your piece of 2½ inch Patent Flax Tubing connected with the Lancaster Waterworks, in the presence of the Mayor, Mr. Rawlinson, Government Inspector, Professor Owen, &c. The column of water at which the tubing was tried was equal to 340 feet in height, or about 150 lbs. on the square inch, and I have pleasure in stating that the hose sustained the pressure most admirably.

Testimonial of Captain Martin, of the Great Britain Steam Ship.—I have much pleasure in being able to tell you that your hose supplied to the Great Britain and other ships, is well worth the attention of shipowners. It gives us great satisfaction.

Testimonial from Fairbairn & Co., of Leeds.—We have tested your hose, 2½ inch in diameter, with the pressure of the Leeds Waterworks, and found it highly satisfactory.

FOR LIQUID MANURE AND AGRICULTURAL PURPOSES.

EDWARDS' IMPROVED CANVASS SUCTION HOSE, is the Cheapest and Best in use. Wove Canvas Hose, without seam, &c.—32, Great Sutton Street, Clerkenwell.



COTTAM AND HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.

Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

Hand Glass Frames, Cast and Wrought Iron Flower Stakes, Garden Arches, &c.

Strong Iron Hurdles, and best Wire for Strained Wire Fencing.

Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom.

Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

GALVANISED WIRE GAME NETTING.—7*d.* per Yard, 2 Feet Wide.

		Galvanised.	Japanned iron.
2-inch mesh, light, 24 inches wide	...	7*d.* per yd.	5*d.* per yd.
2-inch „ strong „	...	9 „	6½ „
2-inch „ extra strong „	...	12 „	9 „
1⅝-inch „ light „	...	8 „	6 „
1⅝-inch „ strong „	...	10 „	8 „
1⅝-inch „ extra strong „	...	14 „	11 „

All the above can be made any width at proportionate prices. If the upper half is a coarse mesh, it will reduce the price one fourth. Galvanised Sparrow-proof Netting for Pheasantries, 3*d.* per square foot. Patterns forwarded post free.

Manufactured by Barnard & Bishop, Market Place, Norwich, and delivered free of expense in London, Peterborough, Hull, or Newcastle.

HARTLEY'S PATENT ROUGH PLATE GLASS, (1 8th thick, or 2 lbs. to the foot; 3-16ths, or 3 lbs.; and 1-4th, or 4 lbs. to the foot,) for Ridge and Furrow Roofs, Greenhouses, Railway Stations, Engine Sheds, Mills, Market Halls, and Public Buildings generally.

Packed in boxes of 50 feet each.

6 by 4, and 6½ by 4½	... ...	10s. 6d. per box.
7 „ 5, — 7½ „ 5½	... ...	12 0 „
8 „ 6, — 8½ „ 6½	... ...	13 6 „
9 „ 7, — 9½ „ 7½, and 10 by 8	... ...	15 0 „

For larger sizes a full List of Prices will be sent on application.

JAMES PHILLIPS & Co., London Agents, 116, Bishopsgate Street Without.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See Gardeners' Chronicle first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY.—The Managers beg to inform the Nobility and Gentry, Farmers, Gardeners, &c., that their new List of Prices may be had free on application at the Company's Depôt, 296, Oxford Street, London.

PLATE, CROWN, and SHEET WINDOW GLASS.

HARTLEY'S PATENT ROUGH PLATE for Roofing Conservatories, Halls, and Public Buildings.

Coloured and Ornamental Glass.

CRYSTAL SHADES for covering Ornaments, and

MOORE'S PATENT LOUVRE VENTILATOR, and Lockhead's Patent Perforated Ventilating Glass for Dairies, Greenhouses, Stables, &c.; Glass Milk Pans, Pails, Tests, and Measures; Cream Pots and Syphons; Churns, Butter Tests and Slabs; Tiles and Slates; Bee Hives, &c.

Aquariums, Fern Shades, Propagating Glasses, Fruit Protectors, Preserve Jars, Cucumber Tubes, Hand Lights, Flower Vases, Labels, &c., and all kinds of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included. — Per 100 ft.

6 in. by 4 in.	and 6 in. by 4½ in.	...	...	12s.	0d.
6½ „ 4½	„ 7 „ 5	...	...	12	6
7½ „ 5½	„ 8 „ 6	...	...	13	0
8½ „ 6½	„ 9 „ 7	...	...	13	6
9½ „ 7½	„ 10 „ 8	...	...	13	6
10½ „ 8½	„ 11 „ 9	...	...	14	0
12 „ 9	„ 13 „ 9	...	...	14	0
10 „ 10	„ 10½ „ 10½	...	...	14	0
11 „ 10	„ 11½ „ 10½	...	...	14	0
11 „ 11	„ 11½ „ 11½	...	...	14	0
12 „ 11	„ 12½ „ 11½	...	...	14	0
13 „ 11	„ 13½ „ 11½	...	...	14	0
13 „ 12	„ 13½ „ 12½	...	...	16	0
13½ „ 13½	„ 14½ „ 13½	...	...	16	0
15½ „ 13½	... ...	...	...	16	0

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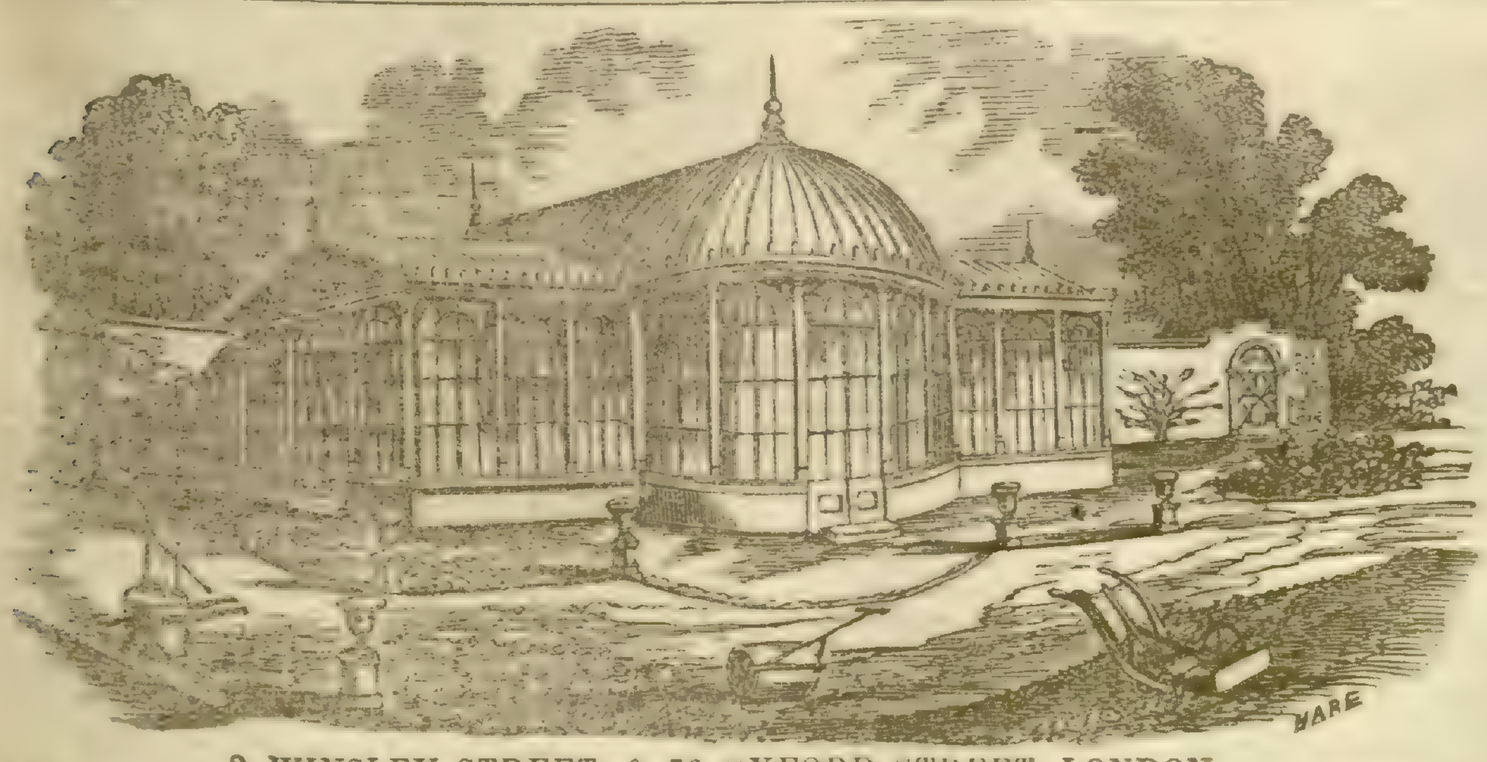

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HOW TO KILL RATS, MICE, AND MOLES BY HUNDREDS.—A Method will be forwarded with instructions for 30 postage stamps, which will destroy the above vermin quickly and without trouble. 1000 acres may be cleared for a few shillings.

GILBERT DYSON, Hoo, Rochester.

BEEHIVES.

MILTON'S IMPROVED COTTAGE HIVE, price 1*l.* 2*s.* The only Beehives for which the Exhibition Prize Medal of 1851 was awarded, with all the latest improvements to obtain pure honey without killing the bees: also every kind of Patent and Wooden Hives, Glasses, Feeders, &c.

"The Practical Bee Keeper," the most useful book of the day, a complete Guide to Bee-management, by JOHN MILTON; price 5*s.* Likewise his Illustrated Catalogue, price 3*d.*: per post, 4*d.*

Beehive Warehouse, 10, Great Marylebone Street, London.

PARK-FENCING, Barns, all Outside Wood and Iron Work.—The best and cheapest preservative is Mason's MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17*s.* 6*d.* per cwt. Used largely, now and for many years past by the West India Dock Company, for Fencing Lock-gates, Barges, &c. Recommended to the nobility and gentry, stewards, land-agents, &c. Allowance on large orders.—Manufactory, Kennington Lane, Lambeth, London.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.* Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s, Sack Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Scarbrefield Bars, City, and Old Kent Road, Southwark; Emigrants' Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

RIPE FRUIT, STRAWBERRIES, AND SEED BEDS.

NEW TWINE NETTING (Tanned if required), 1 yard wide, 2*d.* per yard; 2 yards wide, 6*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch MESH do., 2 yards wide, 8*d.* per yd. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c., from fruit trees, flower, or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard, at W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, London.

Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

CHEAP WIRE GAME & POULTRY NETTING.

Wide.	Mesh.	Plain.	Galvanised.
24 inches by	2 inches ...	3*d.* to 4*d.* per yard. ...	6*d.* per yard
36 "	2 " ...	6*d.* per yard. ...	9*d.* "
48 "	2 " ...	9*d.* " ...	1*s.* "

Sparrow Proof Netting, Galvanised, 3*d.* per square foot, made to any size. This article is shown at the Sydenham Exhibition, where it is much admired.—W. CULLINGFORD, 1, Edmund Terrace, Ball's Pond Road, near the Gate, Kingsland.

STEPHENSON AND PEILL, 61, Gracechurch Street, London, and 17, New Park Street, Southwark. Manufacturers of Copper Cylindrical and Improved Conical Iron Boilers, and Conservatory and Hothouse Builders, either in Wood or Iron, respectfully call the attention of the Nobility, Gentry and Nurserymen to their simple but efficacious method of warming Horticultural and other Buildings by Hot Water.

From the extensive works they have executed, references of the highest respectability can be given, and full particulars furnished on application.

THE COMFORT OF A FIXED WATER-CLOSET FOR £1.—Places in gardens converted into comfortable Water-closets by the PATENT HERMETICALLY SEALED PAN, with its self-acting valve, entirely preventing the return of cold air or effluvia. Any carpenter can fix it in two hours. Price 1*l.* Hermetically-sealed Inodorous Chamber Commodes, 1*l.* 2*s.*, 2*l.* 4*s*, and 3*l*; also Improved Portable Water-closets, with pump, cistern, and self-acting valve. A Prospectus, with Engravings, forwarded by enclosing two postage stamps.

At FYFE & Co.'s Sanatorium, 46, Leicester Square, London.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. 2, Vincent Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, June 9, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 24.—1855.] SATURDAY, JUNE 16. [PRICE 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—NOTICE IS HEREBY GIVEN, that the NEXT EXHIBITION of FLOWERS and FRUIT, in the SOCIETY'S GARDEN, will take place on WEDNESDAY, June 20, at 2 P.M.

Tickets, price 5*s*. each, can be procured at this Office, upon presenting the order of a Fellow; or on the day of the meeting, at Turnham Green, price 7*s*. 6*d*. each.

SPECIAL PRIVILEGE OF FELLOWS.—Fellows of the Society not only enter free at half-past 12, but can also introduce two friends, WITH TICKETS. Or the Fellow's power may be transferred to a brother, sister, son, daughter, father, mother, or wife, residing in the Fellow's house, provided the person to whom the transfer is made be furnished with a ticket signed by that Fellow. That is to say, the power of entering early may be transferred, but not the right to FREE admission.

ROYAL BOTANIC GARDENS, REGENT'S PARK—THE EXHIBITION OF AMERICAN PLANTS will take place on MONDAY next, June 18. Tickets to be obtained at the Gardens only, by orders from Fellows or Members of the Society. Price 5*s*., or on the day of Exhibition, 7*s*. 6*d*. each.—Gates open at 2 o'clock.

AN EXTRAORDINARY MEETING OF THE BRITISH POMOLOGICAL SOCIETY will be held at the Rooms, 20, Bedford Street, Covent Garden, on MONDAY, July 2, at 1 o'clock. The object of this Meeting is to report upon the comparative merits of the fruits submitted for examination; and it is therefore hoped that all who have it in their power to contribute collections or single specimens of fruits will aid the Society in promoting its objects by forwarding them on this occasion. All packages should be delivered at the Rooms not later than 9 o'clock on the day of meeting, and addressed to

ROBERT HOGG, Secretary.

BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY, Royal Pavilion. The SECOND ANNUAL SUMMER EXHIBITION of PLANTS, FLOWERS, FRUITS, &c., will be held on WEDNESDAY and THURSDAY, the 27th and 28th of June next, on the same grand scale as last year. Schedules can be had by application to E. SPARY, General Superintendent of the Exhibition, or of the Secretary, E. CARPENTER, 45, Lavender Street, Brighton.

By the liberality of the London, Brighton, and South Coast Railway Company all plants will be conveyed to the exhibition and back carriage free from all stations on the lines.

By order of the Committee, EDWARD CARPENTER.

N.B. The Autumn Exhibition will take place on the 12th and 13th of September next.

SLEAFORD FLORAL AND HORTICULTURAL SOCIETY.—At the Annual Exhibition of this Society at Sleaford, on THURSDAY, the 26th of July next, an Extra Prize of Five Guineas, open to all England, will be awarded for the best collection of Twelve Stove and Greenhouse Plants, in addition to the usual Members and Cottagers' Prizes. The rules of the Society, with Schedules of Prizes, may be obtained on application to Mr. WARWICK, the Treasurer; or to Mr. PEAKE, Honorary Secretary.—Sleaford, June 16.

GARDENERS' BENEVOLENT INSTITUTION.—THOMAS JACKSON & SON respectfully recommend to the subscribers of the above Institution GEORGE KIDD, aged 70, who has followed gardening for 54 years, was a subscriber to the Institution 9 years, and now, from a fall rendering one hand useless, combined with age, he is unable to work. His case is strongly recommended by Messrs. OSBORN & SONS, Fulham; Mr. T. GAINES, Battersea; Mr. F. KINGHORN, Isleworth. Proxies will be gratefully received by T. JACKSON & SON, Kingston, Surrey.

EXHIBITION OF AMERICAN PLANTS.

KNAP HILL NURSERY, WOKING, SURREY.

WATERER AND GODFREY beg to announce that the AMERICAN PLANTS at this Nursery are now in great beauty, and may be seen daily gratis. The Nursery is readily reached by Railway to the Woking Station, where capital conveyances may always be obtained.

GREAT EXHIBITION OF AMERICAN PLANTS.

JOHN WATERER begs to announce that his unrivalled collection of Hardy, Scarlet, and other RHODODENDRONS, is now on view at the Royal Botanic Gardens, Regent's Park, London. Orders of admission are granted gratuitously by Fellows of the Society. The Plants at the Nursery are now in full bloom, and will continue in perfection throughout the month of June.—The American Nursery, Bagshot, Surrey, June 16.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks at 5*s*.; 12 varieties, 2*s*. 6*d*.; and from good double sorts, 1*s*. Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s*. per packet; separate, 2*s*. Fine Quilled African Marigold, 6*d*. per packet.—Saffron Walden Nurseries.

MAY'S MAGNUM BONUM LETTUCE is by far the largest, sweetest, and crispest Lettuce known, in proof of which we possess numerous letters received from parties who grew it last season. The addresses of the writers can be had on application. It may be sown all the summer, and will stand the winter. Packets 1*s*. each.

HENRY MAY, the Hope Nurseries, near Bedale, Yorkshire.

TURNIP SEED OF PURE SELECTED STOCKS.

FOR

BASS AND BROWN'S Advertisement of present prices, see *Gardeners' Chronicle* of April 28th, and May 5th and 12th. Reduced prices for large quantities.

ERRATA.—For "Laing's Purple-top Swedes, 1*s*. per lb.," *read* "1*s*. 9*d*. per lb." the same price of the other three Swedes.

TO THE TRADE.—Prices will be supplied on application.

Seed Establishment, Sudbury, Suffolk.

BASS AND BROWN have published a Supplement to their Catalogues, with extracts and descriptions of a few new and select plants, which may be had free on application.

BEDDING PLANTS.—An extensive stock of the finest and most popular, strong and well established, at low prices.

GERANIUMS, GLOXINIAS, ACHIMENES, STOVE, GREENHOUSE, and HERBACEOUS PLANTS, in splendid collections, for which see advertisements in *Gardeners' Chronicle* of April 21 and 28, and May 5 and 12.

Seed and Horticultural Establishment, Sudbury, Suffolk.

FLOWER SEEDS.

PETER LAWSON AND SON, SEEDSMEN and NURSERYMEN to the QUEEN, Edinburgh, and at 27, St. George Street, Westminster, beg leave to invite attention to their very choice selection of Flower Seeds.

27, St. George Street, Westminster.

ENGLISH CROWN RAPE, OR COLE SEED.

CHARLES SHARPE AND CO. beg to acquaint the Trade that they can supply any quantity of the above; prices and samples forwarded on application.

Nursery and Seed Establishment, Sleaford, June 16.

MESSRS. J. AND H. BROWN will forward to any part of the kingdom the following 50 various CHOICE GREENHOUSE PLANTS, one of a sort ... ... 45*s*. 0*d*.

12 Orchidea plants, choice species	40	0
24 choice Fuchsias, fine proved varieties	12	0
Azaleas Greenhouse varieties, per dozen	12*s*. to 18	0
25 hardy Belgian Azaleas, superb sorts	20	0
100 best Bedding Plants	30*s*. to 40	0
100 choice hardy Herbaceous Plants	30	0

100 various plants, Stove, Greenhouse, and Hardy. Price and Catalogue, on application, by post.

Albion Nursery, Stoke Newington, London.—June 16.

NEW WHITE BEDDING CALCEOLARIA.

CHARLES TURNER begs to recommend this beautiful new plant for bedding purposes or for conservatory decoration; colour pure snowy white, dwarf habit, and an abundant bloomer. 7*s*. 6*d*. each.

C. T. can also supply good plants of the following NEW VERBENAS:—

WONDERFUL.—The finest and most attractive variety ever offered; rich plum-purple, with large white centre. Fine truss, and a superb variety for bedding. 5*s*. each. Also—

Blue Beard	Lord Raglan
Commander-in-Chief	Boule de Feu
Empress of France	Silistria
Florence Nightingale	Violacea
Tyrian Prince	Mrs. Woodroffe
Rose of England	Empress

and all the new continental varieties. Prices on application.

Royal Nursery, Slough.

NEW AND RARE PLANTS to be seen in blossom at the Tooting Nurseries:—

Azalea indica, gem, new
Barkeria melanocaulon, new
Cypripedium caudatum purpureum, new
" species; this truly magnificent new plant has been discovered by our collector, Mr. John Hensball, in Java, growing at an elevation of 7000 feet above the level of the sea
Erica obbata pulchella, new
" tricolor magnifica, new
" ventricosa flava, new
Ærides Larpentæ, rare
Geranium Empress, new. This variegated variety far exceeds both in foliage and blossom any other of this class, and is admirably adapted either for bedding or pot culture
Gloxinia Adamis oculata, new
Meyenia erecta; this unquestionably is the gem of the season in new plants
Rhododendron Stamfordiana, new
" pavonia, new
" Shakespeare, new
Uropedium Lindeni, rare

Messrs. WILLIAM ROLLISSON & SONS will be happy to forward their Priced Catalogue of New and Rare Plants, post free on application. They will also be forwarded throughout the following countries, post free:—America, Austria, Belgium, France, Germany, Holland, Prussia, &c.

STRONG BEDDING AND OTHER PLANTS.

F. AND A. SMITH'S Descriptive LIST of the undermentioned is now ready, and may be had, post free, on application:—Antirrhinums, Verbenas, Fuchsias, Scarlet Geraniums, Calceolarias, Petunias, Heliotropes, Pentstemons, Chrysanthemums, Mimulus, Salvias, Lobelias, &c. Climbers in variety; also a miscellaneous Collection of Greenhouse Plants. They have now in bloom Verbenas, Fuchsias, spotted Calceolarias, Cactus, Geraniums, Nerium splendens, Hydrangea hortensis, Mignonette &c. The Trade supplied.—Dulwich, Surrey, June 16.

EXTRA FINE BEDDING PLANTS.

R. PARKER having a large surplus stock of the finest varieties of Fuchsias, Verbenas, Calceolarias, Dahlias, Petunias, Scarlet and Variegated Geraniums, and all the other popular varieties of bedding plants, is prepared to treat with purchasers on the most liberal terms. Prices forwarded upon application, per return of post.

Paradise Nursery, Hornsey Road, Holloway.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year; and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

WILLIAM MASTERS AND SON, LANDSCAPE GARDENERS, Exotic Nursery, Canterbury.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

DAVID FERGUSON, LANDSCAPE GARDENER, GARDEN ARCHITECT, and CONTRACTING PLANTER, Stowe, Buckingham. Now is the time to prepare for planting in September, October, and November.

JOHN HARRISON, NURSERYMAN, SEEDSMAN, FLORIST, LANDSCAPE GARDENER, &c.

Plans and Estimates furnished; Experienced Gardeners recommended; also several Young Men in the Nursery waiting for Under Gardeners' Situations.—Darlington, June 16.

GEORGE TAYLOR, JUN., CHOICE FRUIT and VEGETABLE SALESMAN.

St. John's Market,
Liverpool.

CONTRACTOR and PURCHASER of CHOICE GARDEN PRODUCE.

SALESMAN on COMMISSION.

Terms, Cash.

Forward as above.

IRIS GERMANICA.

JOHN SALTER'S unrivalled collection of these beautiful flowers is now in bloom, and may be seen every day except Sunday.—Versailles Nursery, William Street, Hammersmith Turnpike.

ERICA VENTRICOSA, 12 distinct varieties.—A large quantity of very fine Plants in 48 pots, well set with Flowers, and now in fine condition for travelling. Price per 100 or per dozen on application to HUGH LOW & CO., Clapton Nursery, London.

GARCINIA MANGOSTANA.—Healthy plants from seed of the true fruiting MANGOSTEEN at 63*s*. each.—HUGH LOW & CO., Clapton Nursery, London, June 16.

ORANGE TREES of different sizes, on stems varying in height from 1 to 4 feet, all in vigorous health, and many full of flower. Prices from 21*s*. to 105*s*.—HUGH LOW & CO., Clapton Nursery, London.—June 16.

ORCHIDS.

TO BE SOLD, by Private Contract (the property of a gentleman), a most valuable collection of ORCHIDS; it contains large specimens of all the most esteemed and rare varieties, and is, it is believed, not excelled by any other collection in the kingdom. The plants are in the finest health.—For further particulars address by letter, to F. H. S., Messrs. C. & E. Layton, 150, Fleet Street, London.

AZALEAS AND ERICAS.

W. J. EPPS has much pleasure in offering the following fine, bushy, well-grown plants, and of the choicest and best varieties, in large 48 and 32-size pots.

AZALEAS 18*s*. per dozen; 5*l*. per 100.

ERICAS 12*s*. and 18*s*. per dozen; 4*l*. and 5*l*. per 100.

These will make very pretty specimens for the ensuing season; all orders to be accompanied with a remittance from unknown correspondents.—Maidstone, June 16.

CABBAGE PLANTS.

THOMAS WELLAND offers fine and true Drumhead for Cattle at 3*s*. 3*d*. per 1000; also fine Garden Plants, 3*s*. 6*d*. per 1000; crates and conveying to the station included.

Surrey Gardens, Godalming, Surrey.

EXTRA STRONG BEDDING PLANTS, 2*s*. 6*d*. per doz., INCLUDING PACKAGE, WHEN 10 DOZ. ARE ORDERED.

WOOD AND INGRAM beg to offer, at the above price, fine well-established plants of Anagallis, Ageratum, Calceolaria, dark, Cineraria amelloides, Heliotropes, Lobelia ramosoides, Nierembergia gracilis, Petunias, Senecios, Tagetes lucida, and Verbenas, all of the best kinds, and in great variety. Also a large quantity of good flowering plants of Show and Fancy GERANIUMS, and Show and Fancy DAHLIAS, of well known leading kinds, at from 4*s*. to 6*s*. per doz. The varieties to be sent may be seen in W. & I.'s Catalogue, which may be had on application.—Huntingdon Nurseries.

WILLIAM DENYER, SEEDSMAN AND FLORIST, offers the following RARE AND CHOICE SEEDS, suitable for present sowing:—

AQUILEGIA, 6 distinct and beautiful colours, 2*s*. These are quite hardy, and when planted out will last and flower for several years.

CALCEOLARIA, saved by an amateur from the most superb show flowers, 1*s*. per paper.

CINERARIA, from a splendid collection, 1*s*. per paper.

HOLLYHOCKS, from Chater's best varieties, 6 sorts, 2*s*.

STOCKS, Autumnal, or late flowering, 6 varieties, 2*s*.

" Emperor, or Perpetual, 6 vars. splendid, 2*s*. These are quite new, and different to any other Stock, being very double and of large growth, lasting and flowering for several years.

WALLFLOWERS, 6 gigantic double varieties, bright and singular colours, 2*s*. These are from a continental grower, who has gained many 1st class prizes.

ANTIRRHINUM, from a superb collection, 1*s*. Saved by an amateur.

PRIMULA SINENSIS FIMBRIATA, 1*s*. Saved from the best fringed flowers.

PANSEY, from the best flowers, 1*s*. Saved by Thompson and other eminent growers.—82, Gracechurch Street, London.

GARDEN VASES, FOUNTAINS, ETC.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, begs respectfully to inform the nobility, gentry, and his patrons generally, that he has entered into arrangements with an eminent company in Scotland for the sole disposal in London of their highly ornamental and very durable Vases, Fountains, &c., samples of which may be seen at his grounds in the Garden Road, as above.

T. S. has much pleasure in being the first to introduce to the notice of the public a highly ornamental Vase, capable of resisting the most severe weather, and at little more than half the cost of any other possessing the same qualities; and he has no hesitation in stating that a more suitable Vase for the growth of plants cannot be manufactured.

CRYSTAL PALACE.

GRAND HORTICULTURAL EXHIBITION,

Saturday, June 2, 1855.

AWARD OF THE JUDGES.

PLANTS.

CLASS I.—Thirty Stove and Greenhouse Plants, Grouped for effect, in or out of Flower.
1st prize to W. Rollisson & Sons, Tooting, 30*l*.
2d prize to Messrs. Veitch & Sons, Exeter and Chelsea, 15*l*.
3d prize to Mr. James May, Gr. to H. Colyer, Esq., Dartford, 10*l*.
4th prize to Mr. O. Rhodes, Gr. to J. Phillpot, Esq., Stamford Hill, 7*l*.

Extra Prizes.
C. Peed, Gr. to T. Treadwell, Esq., Lower Norwood, 5*l*.
J. Morris, Gr. to Coles Child, Esq., Bromley, 5*l*.

CLASS II.—Twenty Stove and Greenhouse Plants in Flower.
1st prize to Mr. James May, Gr. to H. Colyer, Esq., Dartford, 30*l*.
2d prize to Mr. Green, Gr. to Sir E. Antrobus, 20*l*.
3d prize to Messrs. T. & J. Fraser, Lea Bridge Road, 10*l*.

Extra Prizes.
G. Barter, Gr. to A. Bassett, Esq., Stamford Hill, 5*l*.
Messrs. Pamplin & Son, Lea Bridge Road, 5*l*.

CLASS III.—Twelve Stove and Greenhouse Plants in Flower.
1st prize to Mr. Dods, Gr. to Sir J. Cathcart, Bart., Cooper's Hill, Surrey, 18*l*.
2d prize to Mr. Carson, Gr. to W. F. G. Farmer, Esq., Nonsuch Park, 12*l*.
3d prize to Mr. Frost, Gr. to E. L. Betts, Esq., Preston Hill, 6*l*.

Extra Prizes.
W. Cutbush, Barnet, 6*l*.
W. May, Gr. to Mrs. Lawrence, Ealing, 5*l*.
R. Dingle, Gr. to A. Lawrence, Esq., Bath, 4*l*.
W. Carmichael, Gr. to G. C. Tugwell, Esq., Bath, 3*l*.
W. Taylor, Gr. to J. Coster, Esq., Streatham, 2*l*.
R. Roser, Gr. to J. Bradbury, Esq., Streatham, 1*l*.

CLASS IV.—Six Stove and Greenhouse Plants in Flower.
1st prize to Mr. Williams, Gr. to Miss Trail, Hayes, Kent, 10*l*.
2d prize to Mr. Rhodes, Gr. to J. Phillpot, Esq., Stamford Hill, 6*l*.
3d prize to Mr. Hamp, Gr. to Jas. Thorne, Esq., South Lambeth, 3*l*.
4th prize to Mr. Girdler, Gr. to Miss Wilson, Snaresbrook, 2*l*.

Extra Prizes.
Mr. Clarke, Brixton Hill, 2*l*.
Mr. Brush, Gr. to F. Tritton, Esq., Norwood, 2*l*.
Mr. C. Smith, Norwood Grove, 1*l*.

CLASS V.—Twenty Variegated Plants.
1st prize to Messrs. Veitch & Son, Exeter and Chelsea, 7*l*.
2d prize to Mr. Franklin, Gr. to Mrs. Lawrence, Ealing Park, 5*l*.
3d prize to Mr. Young, Gr. to W. Slam, Esq., Dulwich Hill, 4*l*.
4th prize to Messrs. J. & C. Lee, Hammersmith, 3*l*.

CLASS VI.—Ten Plants with fine Foliage.
1st prize to Messrs. Veitch & Son, Exeter and Chelsea, 5*l*.
2d prize to Messrs. Rollisson & Sons, Tooting, 3*l*.
3d prize to Mr. Oubridge, Gr. to J. Foster, Esq., Stamford Hill, 2*l*.

CLASS VII.—Twenty Orchids, of Exotic Species—(Amateurs.)
1st prize to Mr. Mylam, Gr. to G. Reed, Esq., Burnham, Somerset, 30*l*.
2d prize to Mr. Williams, Gr. to C. B. Warner, Esq., Hoddesdon, 20*l*.
3d prize to Mr. Hume, Gr. to R. Hanbury, Esq., Poles, Ware, 10*l*.

Extra Prize.
Mr. Woolley, Gr. to H. B. Ker, Esq., Cheshunt, 7*l*.

CLASS VIII.—Twenty Orchids, of Exotic Species—(Nurserymen.)
1st prize to Messrs. Veitch & Sons, Exeter and Chelsea, 30*l*.
2d prize to Messrs. Rollisson & Sons, Tooting, 20*l*.
3d prize—No competition.

CLASS IX.—Twelve Orchids, of Exotic Species—(Amateurs.)
1st prize to Mr. Bassett, Gr. to A. Kendrick, Esq., West Bromwich, 18*l*.
2d prize to Mr. Schroder, Stratford Green, Essex, 12*l*.
3d prize to Mr. Clarke, Hoddesdon, 6*l*.

CLASS X.—Six Orchids, of Exotic Species.
1st prize to Mr. Carson, Gr. to W. F. G. Farmer, Esq., Nonsuch Park, 10*l*.
2d prize to Mr. Dods, Gr. to Sir J. Cathcart, Bart., Cooper's Hill, Surrey, 6*l*.
3d prize to Mr. Green, Gr. to Sir E. Antrobus, Bart., 3*l*.

CLASS XI.—Orchid, Single Specimen.
1st prize to Messrs. Veitch & Son, 3*l*.
2d prize to Messrs. Veitch & Son, 2*l*.
3d prize to Mr. Carson, Gr. to W. F. G. Farmer, Esq., Nonsuch Park, 1*l*.

CLASS XII.—Twelve Greenhouse Azaleas.
1st prize to Mr. Green, Gardener to Sir E. Antrobus, Bart., 20*l*.
2d prize to Messrs. Fraser, Lea Bridge Road, 15*l*.
3d prize to Mr. Clarke, Brixton Hill, 10*l*.

Extra Prize.
Messrs. Lane & Son, Great Berkhampstead, 5*l*.

CLASS XIII.—Six Greenhouse Azaleas—(Amateurs).
1st prize to Mr. Carson, Gr. to W. F. G. Farmer, Esq., Nonsuch Park, 10*l*.
2d prize to Mr. W. Taylor, Gr. to J. Coster, Esq., Streatham, 7*l*.
3d prize to Mr. Keele, Gardener to J. Butler, Esq., Woolwich, 4*l*.

CLASS XIV.—Six Greenhouse Azaleas, of new kinds—(Open.)
1st prize to Mr. Green, Gr. to Sir E. Antrobus, Bart., 10*l*.
2d prize to Mr. Taylor, Gr. to J. Coster, Esq., Streatham, 7*l*.
3d prize to Mr. Kinghorn, St. Margaret's Gardens, Isleworth, 4*l*.

Extra Prize.
Messrs. Lane & Son, Great Berkhampstead, 3*l*.

CLASS XV.—Greenhouse Azalea, Single Specimen.
1st prize to Messrs. Ivery & Son, Dorking and Reigate, 2*l*.
2d prize to Mr. Calder, Gr. to Mrs. Horstman, Thames Ditton, 1*l*.

CLASS XVI.—Ten Cape Heaths.
1st prize to Messrs. Rollisson & Sons, Tooting, 10*l*.
2d prize to Messrs. Fraser, Lea Bridge Road, 7*l*.
3d prize to Mr. Frost, Gr. to E. L. Betts, Esq., 4*l*.

Extra Prizes.
Mr. Williams, Gr. to Miss Traill, Hayes, Kent, 4*l*.
Mr. Peed, Gr. to T. Treadwell, Esq., Norwood, 3*l*.
Mr. Clarke, Brixton Hill, 2*l*.
Messrs. Jackson & Son, Nurserymen, Kingston, 1*l*.

CLASS XVII.—Six Cape Heaths.
1st prize to Mr. Breadley, Gr. to Sir S. M. Peto, Bart., 6*l*.
2d prize to Mr. Roser, Gr. to J. Bradbury, Esq., F.H.S., Streatham, 4*l*.
3d prize to Mr. Taylor, Gr. to J. Coster, Esq., Streatham, 3*l*.

Extra Prizes.
Mr. Barter, Gr. to A. Bassett, Esq., Stamford Hill, 3*l*.
Mr. Rhodes, Gr. to J. Phillpot, Esq., 2*l*.
Mr. Green, Gr. to Sir E. Antrobus, Bart., 1*l*.
Mr. Harlock, Gr. to R. W. Nutter, Esq., Wanstead, 1*l*.

CLASS XVIII.—Six Tall Cacti, Species or Varieties of, in Flower.
1st prize to Mr. Green, Gr. to Sir E. Antrobus, Bart., 7*l*.
2d prize to Mr. Grix, Gr. to A. Palmer, Esq., Cheam, 5*l*.
3d prize to Mr. Mortimer, Gr. to J. R. Scott, Esq., Leyton, 3*l*.

CLASS XIX.—Six Rhododendrons, Distinct Kinds.
1st prize to Messrs. Lane & Son, Great Berkhampstead, 8*l*.
2d prize to Mr. Gaines, Battersea, 6*l*.
3d prize—No competition.

CLASS XX.—Twelve Roses in Pots, Distinct Kinds.
1st prize to Messrs. Lane & Son, Berkhampstead, 10*l*.
2d and 3d prize withheld.
4th prize to Mr. Wilkinson, Ealing Common, 4*l*.

CLASS XXI.—Six Roses in Pots, Distinct Kinds.
1st prize to Mr. Busby, Gr. to J. S. Crawley, Esq., Luton, 5*l*.
2d prize to Mr. A. Rowland, Lewisham, 4*l*.
3d prize.—No competition.

CLASS XXII.—Six Calceolarias in Pots, Distinct Varieties.
1st prize to Mr. James, Gr. to W. F. Watson, Esq., Isleworth, 6*l*.
2d prize to Mr. Gaines, Surrey Lane, Battersea, 4*l*.
3d prize to Mr. Lilley, Gr. to E. King, Esq., Eden Bridge, Kent, 3*l*.

Extra Prizes.
Mr. Carmichael, Gr. to G. C. Tugwell, Bath, 2*l*.
Mr. M. Clarke, Hoddesdon, 1*l*.

CLASS XXIII.—Six Fuchsias in Pots, Distinct Varieties.
1st prize to Mr. Bousie, Stoke Park, Bucks, 6*l*.
2d prize to Mr. Carroll, Gr. to F. C. Hills, Esq., Denmark Hill, 4*l*.
3d prize to Messrs. Dobson & Son, Isleworth, 3*l*.

Extra Prizes.
Mr. J. Wiggins, Gr. to E. Beck, Esq., Isleworth, 2*l*.
Mr. E. A. De Grave, Fetcham, near Leatherhead, 1*l*.

CLASS XXIV.—Twelve Pelargoniums, Distinct Varieties.
1st prize to Mr. Turner, Slough, 12*l*.
2d prize to Messrs. Dobson & Son, Isleworth, 8*l*.
3d prize to Messrs. Fraser, Lea Bridge Road, 6*l*.
4th prize to Mr. Gaines, Battersea, 4*l*.

Extra Prizes.
Mr. Wiggins, Gr. to E. Beck, Esq., Isleworth, 2*l*.
Mr. Maher, Gr. to J. M. Strachan, Esq., Twickenham, 1*l*.

CLASS XXV.—Six Pelargoniums, Distinct Varieties.—(Amateurs).
1st prize to Mr. Nye, Gr. to E. Foster, Esq., Clewer, 6*l*.
2d prize to Mr. Windsor, Gr. to A. Blyth, Esq., Hampstead, 4*l*.
3d prize to Mr. Hoyle, Sidney Villa, Reading, 3*l*.

Extra Prizes.
Mr. Holder, Gr. to Rev. E. Coleridge, 2*l*.
Mr. Mockett, Gr. to J. Allnutt, Esq., Clapham, 1*l*.

CLASS XXVI.—Twelve Fancy Pelargoniums, Distinct Varieties.
1st prize to Mr. C. Turner, Slough, 12*l*.
2d prize to Mr. Gaines, Battersea, 8*l*.
3d prize to Messrs. Fraser, Lea Bridge Road, 6*l*.

CLASS XXVII.—Six Fancy Pelargoniums, Distinct Varieties—(Amateurs).
1st prize to Mr. Bousie, Stoke Park, Bucks, 6*l*.
2d prize to Mr. Windsor, Gr. to A. Blyth, Esq., Hampstead, 4*l*.
3d prize to Mr. Wackrill, Gr. to H. Wheeler, Esq., Wandsworth Common, 3*l*.

Extra Prizes.
Mr. Weir, Gr. to J. Hodgson, Esq., Hampstead, 2*l*.
Mr. Robinson, Gr. to J. Simpson, Esq., Thames Bank, 1*l*.
Mr. Mockett, Gr. to J. Allnutt, Esq., Clapham Common, 1*l*.

CLASS XXVIII.—Twelve Pansies, Distinct Kinds, in 8-inch Pots—(Amateurs).
1st prize to Mr. James, Gr. to W. F. Watson, Esq., 3*l*.
2d prize to Mr. Holder, Gr. to Rev. E. Coleridge, Eton, 2*l*.
3d prize to Mr. Lovesey, Tulse Hill, 1*l*.

Extra Prize.
Mr. August, Beddington Lane, 10*s*.

CLASS XXIX.—Twelve Pansies, Distinct Kinds, in 6-inch Pots—(Nurserymen).
1st prize to Mr. Turner, Slough, 3*l*.
2d prize to Messrs. Dobson & Son, Isleworth, 2*l*.
3d prize to Mr. Bragge, Slough, 1*l*.

CLASS XXX.—Twelve Ferns, Exotic Species, Three, Cultivated in Pots.
1st prize to Mr. Fletcher, Gr. to J. F. Young, Esq., Upper Kennington Lane, 5*l*.
2d prize to Messrs. Veitch & Son, Exeter and Chelsea, 3*l*.
3d prize to Mr. Hume, Gr. to R. Hanbury, Esq., Poles, Ware, 2*l*.
4th prize to Mr. Bassett, Gr. to R. S. Holford, Esq., Weston Birt, 1*l*.

CLASS XXXI.—Twenty Ferns, Hardy, Cultivated in Pots.
1st prize to Mr. Fletcher, Gr. to J. Young, Esq., Kennington Lane, 3*l*.
2d prize to Mr. Williams, Gr. to C. B. Warner, Esq., Hoddesdon, 2*l*.
3d prize to Mr. Bixley, Gr. to Lord Down, 1*l*.

CLASS XXXII.—Twelve Lycopodiums, not less than Six Species.
1st prize to Mr. Williams, Gr. to C. B. Warner, Esq., 3*l*.
2d prize to Messrs. Veitch & Son, Exeter and Chelsea, 2*l*.
3d prize to Mr. Bassett, Gr. to R. S. Holford, Esq., 1*l*.

CLASS XXXIII.—Newly Introduced, or extremely Rare Plants, remarkable for their Beauty, in Flower.
1st prize to Messrs. Veitch & Son, for Rhododendron, yellow, 5*l*.
2d prize to Messrs. Veitch & Son, for Embothrium coccineum, 3*l*.
3d prize to Messrs. Veitch & Son, for Weigela amabilis, 2*l*.

CLASS XXXIV.—Newly Introduced, or extremely Rare Plants, remarkable for their Beauty, not in Flower.
1st prize to Messrs. Veitch & Son, for Lomatia ferruginea, 3*l*.
2d prize to Messrs. Veith & Son, for Aralia papyracea, 2*l*.
3d prize to Messrs. Rollisson & Sons, for Sonerila margaritacea.
4th prize to Messrs. Veitch & Son, for Anæctochilus Veitchi, 1*l*.

CLASS XXXV.—New, or extremely Rare, Orchids, in Flower.
1st prize to Messrs. Rollisson & Sons, Tooting, 3*l*.
2d prize to Mr. Williams, Gr. to C. B. Warner, Esq., 2*l*.
3d prize—Withheld.

CLASS XXXVI.—Six Plants of Nepenthes, with Pitchers.
1st prize to Messrs. Veitch & Son, Exeter and Chelsea, 10*l*.
2d and 3d prize—No competition.

CLASS XXXVII.—Six Plants of Anæctochilus and Physurus.
1st prize to Messrs. Veitch & Son, Exeter and Chelsea, 3*l*.
2d prize to Mr. Hume, Gr. to R. Hanbury, Esq., Poles, Ware, 2*l*.
3d prize to Mr. Woolley, Gr. to H. B. Ker, Esq., Cheshunt, 1*l*.

CLASS XXXVIII.—Six Begonias, not less than Four Species.
1st prize to Mr. Frost, Gr. to E. L. Betts, Esq., 4*l*.
2d prize to Mr. Young, Gr. to W. Slam, Esq., Dulwich Hill, 3*l*.
3d prize—No competition.

CLASS XXXIX.—Six Gloxinias of Distinct Varieties.
1st prize to Mr. Pullen, Gr. to W. D. Adams, Esq., Lower Sydenham, 4*l*.
2d prize to Mr. G. Young, Gr. to W. Slam, Esq., Dulwich Hill, 3*l*.
3d prize to Mr. A. Young, Gr. to John Edwards, Esq., Holloway, 2*l*.

Extra Prize.
Mr. Taylor, Gr. to J. Williams, Esq., Stamford Hill, 1*l*.

CLASS XL.—Miscellaneous.
1st prize to Messrs. Rollisson & Sons, for Cephalotis follicularis, 3*l*.
2d prize to Mr. Taylor, for Aphelexis macrantharosea, 2*l*.
3d prize to Mr. Henchman, Edmonton, for Calceolarias, 1*l*.

Extra Prizes.
Mr. E. Collins, Gr. to E. H. Chapman, Esq., Hornsey, for Callistemon cupressiformis, 3*l*.
Mr. Hamp, Gr. to James Thorne, Esq., South Lambeth, for a collection of Amaryllis, 2*l*.
Mr. W. Dennis, Chelsea, for Dennis's Alma Geranium, 1*l*.
Mr. James Wood, Norwood, for Alpine Plants, 1*l*.
Mr. E. Edmonds, Gr. to the Duke of Devonshire, Chiswick, for Yellow Hybrid Rhododendron, 1*l*.

FRUIT.

Note.—A Dish of Grapes to consist of Three Bunches; Peaches and Nectarines, Six Fruits; Cherries and Strawberries, of Fifty Fruits. All Fruit must be perfectly ripe and sound.

CLASS A.—Collections of Fruit in Twelve Dishes, consisting of at least Eight Distinct Kinds.
1st prize to Mr. G. Fleming, Gr. to the Duke of Sutherland, 10*l*.
2d and 3d prize—No competition.

CLASS B.—Collections of Fruit in Eight Dishes, consisting of at least Five distinct kinds.
1st prize to Mr. M'Ewen, Gr. to the Duke of Norfolk, Arundel Castle, 8*l*.
2d prize to Mr. Watson, Market Gardener, Ealing, 6*l*.
3d prize—Not awarded.

CLASS C.—Collections of Six Pine-apples.
1st prize to Mr. Bailey, Shardeloes Garden, Amersham, Bucks, 10*l*.
2d prize to Mr. Robinson, Gr. to Lord Boston, Hedsor, Maidenhead, 7*l*.
3d prize to Mr. Turnbull, Gr. to the Duke of Marlborough, Blenheim, 4*l*.

CLASS D.—Collections of Three Pine-apples, viz., Providence, Trinidad, and Black Prince.
1st, 2d, and 3d prize—No competition.

CLASS E.—Single Fruit of the Providence.
1st prize to Mr. Robinson, Gr. to Lord Boston, Hedsor, Maidenhead, 4*l*.
2d prize to Mr. Bailey, Shardeloes Garden, Amersham, Bucks, 3*l*.
3d prize—Not awarded.

CLASS F.—Single Fruit of the Queen, any Variety.
1st prize to Mr. Barron, Gardener to Mr. Vivian, Singleton, Swansea, 3*l*.
2d prize to Mr. Constantine, Gr. to C. Mills, Esq., Hillingdon, Uxbridge, 2*l*.
3d prize—Not awarded.

CLASS G.—Grapes in Boxes, Twelve Pounds—(Market Gardeners only).
1st prize to Mr. John Davis, Oak Hill, East Barnet, 3*l*.
2d prize to Mr. Samuel Solomon, Peckham Rye, 4*l*.
3d prize to Mr. Hughes, Shacklewell, 3*l*.

Extra Prize.
Mr. Harrison, Oatlands Palace, Weybridge, 2*l*.

CLASS H.—Grapes, Collections of Three Dishes, of Three Distinct Kinds.
1st prize to Mr. Turnbull, Gr. to the Duke of Marlborough, Blenheim, 8*l*.
2d prize to Mr. Hill, Gr. to R. Snoyd, Esq., Keele Hall, Staffordshire, 6*l*.
3d prize—No competition.

For continuation see next page.

CRYSTAL PALACE GRAND HORTICULTURAL EXHIBITION—Continued.

FRUIT.

CLASS I.—Grapes, Black, Single Dish.
1st prize to Mr. Dods, Gr. to Sir J. Cathcart, Bart., Cooper's Hill, Surrey, 3*l*.
2d prize to Mr. Monro, Gr. to Mrs. Oddie, Colney House, St. Alban's, 2*l*.
3d prize to Mr. Rosar, Gr. to J. Bradbury, Esq., Streatham, 1*l*.
Extra Prize.
Mr. Martin, Gr. to Sir H. Fleetwood, Bart., Hill House, Windsor Forest, 10*s*.

CLASS J.—Grapes, White, Single Dish.
1st prize to Mr. Ayres, Gr. to Lord Southampton, Whittlebury Lodge, Towcester, 3*l*.
2d prize to Mrs. C. A. Preller, Ada Lodge, Tulse Hill, 2*l*.
3d prize to Mr. Busby, Gr. to J. S. Crawley, Esq., Stockwood Park, Luton, 1*l*.

CLASS K.—Grapes, Muscat, Single Dish.
1st prize to Mr. Turnbull, Gr. to the Duke of Marlborough, Blenheim, 4*l*.
2d and 3d prize not awarded.

CLASS L.—Peaches and Nectarines, in Collections of Four Dishes, Two Distinct Kinds.
1st prize to Mr. G. Fleming, Gr. to the Duke of Sutherland, 8*l*.
2d and 3d prize—No competition.

CLASS M.—Peaches, Single Dish of One Kind only.
1st prize to Mr. Constantine, Gr. to C. Mills, Esq., Hillingdon, Uxbridge, 4*l*.
2d prize to Mr. Gardiner, Gr. to Sir G. P. Phillips, Bart., Weston House, near Shipston-on-Stour, 3*l*.
3d prize—Not awarded.

CLASS N.—Nectarines, Single Dish of One Kind only.
1st prize to Mr. G. Fleming, Gr. to the Duke of Sutherland, 4*l*.
2d prize to Mr. Ayres, Gr. to Lord Southampton, Whittlebury Lodge, Towcester, 3*l*.
3d prize to Mr. Spencer, Gr. to the Marquess of Lansdowne, Bowood, 2*l*.

CLASS O.—Melons, Persian, or Hybrids from it, the Heaviest.
1st prize to Mr. Monro, Gr. to Mrs. Oddie, Colney House, St. Albans, 3*l*.
2d prize, to Mr. Boreham, Gr. to Sir F. Kelly, Chantry, Ipswich, 2*l*.
Extra Prize.
Mr. G. Fleming, Gr. to the Duke of Sutherland, 1*l*.

CLASS P.—Melons, Green Fleshed.
1st prize to Mr, Monro, Gr. to Mrs. Oddie, 3*l*.
2d prize to Mr. Boreham, Gr. to Sir F. Kelly, 2*l*.
Extra Prize.
Mr. G. Fleming, Gr. to the Duke of Sutherland, 1*l*.

CLASS Q.—Melons, Scarlet Fleshed.
1st prize to Mr. M'Ewen, Gr. to the Duke of Norfolk, Arundel Castle, 3*l*.
2d prize to Mr. Bennett, Gr. to J. Beech, Esq., Brandon Lodge, Coventry, 2*l*.

CLASS R.—Figs, Single Dish, consisting of ten Fruits.
1st prize to Mr. Busby, Gr. to J. S. Crawley, Esq., Stockwood Park, Luton, 3*l*.
2d prize to Mr. Bean, Hanworth Park, 2*l*.
Extra Prizes.
Mr. Bailey, Gr. to G. Harcourt, Esq., M.P., Nuneham Park, Oxford, 1*l*.
Mr. Gotterill, Gr. to the Earl of Lisburne, Crosswood Park, Aberystwith, 1*l*.

CLASS S.—Cherries, in Collections of three Kinds, one dish of each, in Fifties.
1st prize to Mr. G. Fleming, Gr. to the Duke of Sutherland, 4*l*.
2d and 3d prize—No competition.

CLASS T.—Cherries, Single Dish (White) in Fifties.
1st and 2d prize—No competition.

CLASS U.—Cherries, Single Dish (Black) in Fifties.
1st prize to Mr. G. Fleming, Gr. to the Duke of Sutherland, 2*l*.
2d prize to Mr. Shuter, Gr. to the Earl of Wilton, Heaton Park, Manchester, 1*l*.
Extra Prize.
Mr. Evans, Gr. to C. N. Newdegate, Esq., M.P., Arbury, Warwickshire, 10*s*.

CLASS V.—Plums, Single Dish.
1st and 2d prize—No competition.

CLASS W.—Strawberries, Collections of Three Dishes, distinct varieties.
1st prize to Mr. M'Ewen, Gr. to the Duke of Norfolk, Arundel Castle, 6*l*.
2d prize to Mr. Turnbull, Gr. to the Duke of Marlborough, Blenheim, 4*l*.
3d prize to Mr. Dunsford, Chingford, Essex, 2*l*.
Extra Prize.
Mr. Barrow, Gr. to Mrs. Vivian, Singleton, Swansea, 1*l*.

CLASS X.—Strawberries, Single Dish, in Fifties.
1st prize to Mr. M'Ewen, Gr. to the Duke of Norfolk, Arundel Castle, 3*l*.
2d prize to Mr. Constantine, Gr. to C. Mills, Esq., Hillingdon, Uxbridge, 2*l*.
3d prize—Not awarded.

CLASS Y.—Vines, in Pots, with Ripe Fruit, not less than Four Plants.
1st prize to Mr. Constantine, Gr. to C. Mills, Esq., Hillingdon, Uxbridge, 6*l*.
2d and 3d prize—Not awarded.

CLASS Z.—Tropical Fruit, fit for the Dessert, and not included in any other Letter.
1st prize to Mr. Williams, Gr. to C. B. Warner, Esq., Hoddesdon, Herts, 6*l*.
2d prize to Mr. G. Fleming, Gr. to the Duke of Sutherland, 4*l*.
3d prize—Not awarded.

NEW SCARLET VERBENA—"MRS. WOODROFFE."

ARTHUR HENDERSON and Co. can now supply fine strong plants of this very fine new Scarlet Verbena, 4 to 6 inches high, with numerous side branches, and all well hardened, fit for immediate planting out, at the following reduced prices, viz.:—

1 Plant	... ...	1*s*. 6*d*.
12 Plants	... ...	12 0
25 Plants	... ...	22 0
50 Plants	... ...	40 0
100 Plants	... ...	70 0

Specimens of blooms can be sent per post in tin cases (on receipt of 6 Postage Stamps) to those who are desirous of seeing and judging for themselves of the merits of this splendid variety.
Pine Apple Place, Edgware Road, June 16.

ROBERT PARKER begs to inform his friends and the public that his New Spring Catalogue containing Descriptive and Priced Lists of the following:—

Exotic Orchids
Ferns—stove, greenhouse, and hardy
Geraniums—show, fancy, scarlet, variegated, and hybrid bedding varieties
Chrysanthemums—large flowered, and Pompone varieties
Petunias
Antirrhinums
Roses in pots
Dahlias — show and fancy varieties
Fuchsias
Selaginillas or Lycopodiums
Gloxinias
Cinerarias
Calceolarias—bedding varieties
Verbenas
Miscellaneous bedding plants &c., &c.

Is now ready and can be had Post-free on application.
Paradise Nursery, Hornsey Road, Holloway, London.

NEW AND CHEAP FIRST-RATE SHOW AND BEDDING PLANTS.
The Cheapest Establishment in the Kingdom is at
HENRY WALTON'S, Florist, &c., Edge End, Marsden, near Burnley, Lancashire, where there are propagated annually for sale from 20,000 to 30,000 plants, which, for cheapness and quality, are not to be equalled, being robust and healthy.

GERANIUMS.—Strong blooming plants, of varieties of 1853, such as Empress, Carlos, Neatness, Glow-worm, &c., 25*s*. per dozen; older show varieties, 9*s*., 12*s*., and 15*s*. per dozen; 25 for 20*s*., 50 for 30*s*., good plants.
FUCHSIAS, new varieties of last season, 6*s*. to 9*s*. per dozen.
CINERARIAS, choice varieties, such as Advancer, Etoile de Vaise, Empress, &c., 10*s*. 6*d*. per dozen; older varieties, good show kinds, 3*s*. 6*d*. per dozen.
PANSIES, 12 distinct fine show varieties, 6*s*.; 25 fine vars., 12*s*.
VERBENAS, new varieties of last season, 4*s*. to 6*s*. per dozen.
DAHLIAS, all the leading show kinds of last season, 9*s*. to 12*s*. per doz.; older vars. 4*s*. 6*d*. to 6*s*. per doz., extra strong plants.
Bedding Plants, including Scarlet and other Geraniums Salvias, Heliotropes, &c., equally cheap.
H. W.'s Spring List may be had for one penny stamp.
It is respectfully requested that all Orders be accompanied with a Post-office Order payable at Marsden, Lancashire, unless a reference is given. Orders to the amount of 25*s*. paid to Liverpool, Manchester, Leeds, and Preston; 2*l*. and upwards free to Birmingham and Carlisle; and the like distance, or more distant, extra plants gratis.—Edge End, Marsden, June 16.

CINCHONA TREES, ORCHIDACEOUS EPIPHYTES, and other EXOTICS.
The undersigned, having obtained from the Government of New Granada a grant of an extensive district in which the above valuable plants are indigenous, has now well established and ready for sending to England fine young specimens of Cinchona (Lancifolia Mutis), C. cordifolia, and of a hitherto unnamed species, C. pubescens (Vahl.), the "tercio pelo" of the natives. Also ORCHIDACEÆ in numerous varieties, FERNS, &c. Prices as follows:—

	£	s.	d.
Packages containing 10 Cinchona trees, species assorted to order	25	0	0
Ditto 20 Orchideæ, various	15	0	0
Ditto 20 Epidendra, do.	15	0	0
Ditto 20 Ferns, the root-stocks	25	0	0
3 to 5 Tree Ferns	30	0	0
Ditto Lichens and Mosses in varieties	10	0	0

The state in which the plants may be expected to arrive in England may be inferred from the following extract of a letter from C. Loddiges & Sons, Hackney, near London.
"Dr. Blagborne, Bogota, Feb. 10, 1844. Dear Sir,—We have safely received your kind letter, also the plants in pretty good order, for which we are much obliged to you. . . Of the Espiritu Santo (Peristeria ittata) we will not trouble you for more, you having so liberally supplied us, but, &c."
The above prices include the heavy expenses to the coast, packing, &c., leaving nothing to be arranged by the purchaser in England but the maritime transit, which is trivial. All persons sending orders are requested to give their address with the greatest perspicuity, and, on receipt of bill of lading, to make immediate application for their plants to Messrs. Dunlop & Co., office of the Royal West India Mail and Steam Packet Company, Southampton. Orders from unknown correspondents must contain remittance in Bank of England paper, and be addressed Dr. Blagborne, Bogota, under cover to George B. Fisk & Co., Bogota, New Granada, South America, and lastly envelopped to Edward Herring & Co, Alkaloid Works, Trinity Street, Southwark, London.

JOSEPH NORRIS, Osterley Park, Hounslow, Middlesex, having an immense Stock of PANSIES, including all the finest and newest in cultivation, offers them at 6*s*., 9*s*., and 12*s*. per dozen, package included, sent to any address on the receipt of a Post Office Order, payable at Hounslow.
The Trade supplied.

H. LOW and CO. have to offer healthy plants of the undernamed. The list comprises many recent novelties of great merit, which are still rare:—

	s.	d.
Aphelandra Portearia ...	5	0
Anopteris glandulosa ...	15	0
Aralia integrifolia	21	0
" quinquefolia ...	21	0
Begonia Prestoniensis superba	2	6
Begonia zanthina	5	0
" gandavensis ...	5	0
" marmorea ...	5	0
Berberis Neubesti, very distinct foliage	7	6
Berberis Leschenaulti, extra fine	21	0
Clematis Helena	3	6
" monstrosa, a great curiosity.		
Clematis Sophia	3	6
Clianthus magnificus ...	2	6
Dracæna nobilis	7	6
" Sieboldti	10	6
Diplacus grandiflorus ...	2	6
Dionæa muscipula (fly trap	3	6
Gesneria Donkelaari ...	15	0
" Leopoldi	3	6
Glycine sinensis alba ...	5	0
Geraniums Medaille d'or, and six other new continental 5-spotted varieties of present season—each	7	6
Gloxinia Grand Sultan...	3	6
" Wilsoni	2	6
Hydrolea azurea	2	6
Hederoma, or Genetyllis tulipifera	21	0
Hederoma, or Genetyllis fuchsioides	21	0
Hydrangea japonica variegata	2	6
Impatiens Jerdoniæ ...	3	6
Isoloma Decaisniana, superior to Achimenes gigantea	5	0
Lapageria rosea, from seed	10	6
Leschenaultia biloba grandiflora, true dwarf variety	5	0
Lilium giganteum 21*s*. to	63	0
Libocedrus decurrens (Thuja gigantea) ...	31	6
Mandirola picturata, most beautiful new gesneriaceous plant	7	6
Medinella magnifica ...	10	6
Nepenthes ampullacea ...	42	0
" lævis	15	0
" phyllamphora	15	0
" Rafflesiana ...	63	0
[Fine established plants, with pitchers.]		
Passiflora Gontieri.		
Quercus pendunculata asplenifolia, most beautiful and striking foliage	10	6
Rhopala corcovadensis ...	21	0
" elegans	7	6
" organensis, true	42	0
Sonerila Margaritacea, 10*s*. 6*d*. to	21	0
Sarracenia flava	2	6
" purpurea ...	1	6
" rubra	2	6
" variolaris ...	2	6
Salisburia incisa, a new variety of the Maiden Hair Tree, with most distinct and beautiful foliage	21	0
Veronica Kermesina ...	2	6

Clapton Nursery, London.—June 16.

MESSRS. E. G. HENDERSON and SON beg to announce that their new Spring CATALOGUE for 1855 will be sent post free on application, and for 12 postage stamps a beautiful coloured plate representing the following choice plants:—

Achimenes Ambroise Verschaffelt.
Acacia Drummondi microphylla.
Boronia Drummondi.
Bouvardia longiflora.
Delphinium Hendersoni.
Genetyllis macrostegia (fuchsioides).
Fuchsia Queen Victoria.
——— Mrs. Story.
——— Prince Albert.

Mr. Andrews, the first floricultural artist of the day, has had the getting up of this plate, so that full reliance may be placed on the correctness of the flowers represented and the superior style of the colouring.

Description and Price of the following New Plants will be seen on reference to the Catalogue.

Fuchsia Queen Victoria.
" Prince Albert.
" Water Nymph.
" Raffaelle.
" Rouge et Blanc.
" Miellezi.
" Deminiana.
" Maid of Kent.
Geranium Rubens (bedding).
" Virginium.
" Masterpiece.
" Rose d'Amour.
Calceolaria Surprise.
" Purity.
" Maggiore.
" Norma.
" Vezzesa.
" Ajax.
Hydrangea hortensis flore pleno.
Lychnis Sieboldi.
Veronica imperial blue.
" Andersoni fol. variegata.
Begonia prestoniensis superba.
Lobelia Antwerpiensis.
Fuchsia Empress Eugenie.
" Lady of the Lake.
" Snowdrop.
" Mrs. Story.
" Princess of Prussia.
" Souvenir de la Reine.
" Climax.
Geranium Favourite (bedding).
" Silver Queen.
" Pretty Polly.
" Quercifolium eximium.
" Glow-worm.
Calceolaria Brunettia.
" Corregio.
" Minnie.
" Red Rover.
" Wildfire.
Phlox Queen Victoria.
Pyrethrum Delhayi.
" Duchesse de Brabant.
Achimenes Hendersoni.
" gigantea.
Scutellaria villosa.
Verbena la Déesse, and others recommended.

Chrysanthemum Hermine, Bole, and others recommended.
Wellington Nursery, St. John's Wood.

PLANTS OF CABBAGE, SAVOY, KAIL, BROCCOLI, CELERY, AND CAULIFLOWER.
JOHN CATTELL begs respectfully to inform the public that he has a plentiful supply of Plants of his superior true sorts of the above, which will be forwarded to order on receipt of Postage Stamps, or Post Office Order made payable here, at the following prices, package included:—
All the sorts of Early Cabbage, Savoy, and Kail, including Brussel Sprouts, 6*d*. per 100, 4*s*. 6*d*. per 1000; all the sorts of Broccoli, 8*d*. per 100, 5*s*. 6*d*. per 1000; all the sorts of Celery, bedded plants, 8*d*. per 100, 5*s*. 6*d*. per 1000; Cauliflower, early and late 10*d*. per 100; Red Cabbage, 1*s*. per 100; Drumhead, or Cattle Cabbage, 4*s*. per 1000. A fine stock of autumn-bedded early Cabbage still to dispose of at 5*s*. per 1000; for large quantities, price on application. Packages containing plants to the value of 1*l*. and upwards will be delivered carriage free to London and to the Edenbridge Station of the South Eastern Railway. A remittance must accompany orders from unknown correspondents. Seed of Cattell's Dwarf Barnes, and of his superior Dwarf Reliance Cabbage, may be had in packets by post, for 12 penny stamps per packet, the former containing one ounce, and the latter half an ounce.—Nurseries, Westerham, Kent.

NEW AND CHEAP PLANTS.
HENRY WALTON, Florist, &c., Edge End, Marsden, near Burnley, Lancashire, has now on hand a fine stock of the following, which may be had at the extremely low prices annexed:—Achimenes Carl Walforthi, 1*s*. 6*d*.; Cherita, 1*s*. 6*d*.; Louis Van Houtte, 1*s*.; Gigantea, 5*s*.; Madame Randatler, 3*s*.; Mr. Parparet, 1*s*.; Sir Traherne Thomas, 1*s*.; Hendersoni, 2*s*.; or the lot post free for 12*s*. Gloxinias, choice varieties, 1*s*. 6*d*. to 3*s*. 6*d*. each. Verbenas of this season, viz., Wonderful, Blue Beard, Lady Lacon, Commander-in-Chief, Empress of France, Florence Nightingale, Rose of England, Tyrian Prince, Eva, Boule de Feu, Lord Raglan, Empress, Mrs. M'Neil, Violacea, Silistria, and Mrs. Woodroffe, 1*s*. 6*d*., or 18*s*. per dozen post free. Clianthus magnifica, 2*s*. 6*d*. each. Begonia Prestoniensis, superb, 2*s*. 6*d*.; extra strong, 5*s*. Eugenia Ugni, 2*s*. 6*d*. Fine Show and Fancy Geraniums, 60*s*. per 100, or 50 for 32*s*. 6*d*. Scarlet and White, and older kinds of Geraniums, 3*s*. 6*d*., 4*s*. 6*d*. and 6*s*. per dozen. Dahlias, strong plants, 3*s*. 6*d*. per dozen. Bedding Plants, of sorts, equally cheap. Descriptive List may be had for one stamp.
It is respectfully requested that orders be accompanied with Post Office Order payable at Marsden, Lancashire, unless reference is given.

The Gardeners' Chronicle.

SATURDAY, JUNE 16, 1855.

MEETINGS FOR THE ENSUING WEEK.
Wednesday, June 20—Horticultural Gardens ..... 2 p.m.

A question was asked some time since by one of our correspondents, whether sulphuret of potash* had ever been employed as a remedy against mildew? We cannot say whether it has been so applied in this country, but it has been used in France successfully, and if an acid be added a fine precipitate of sulphur is deposited from the aqueous solution upon the leaves of the Vine or Hop, in a manner which would not be effected by any dredging.† It is, in fact, when properly diluted, precisely what is used very frequently for baths in certain cutaneous disorders. In all such applications the main question is how does the sulphur act? This is evidently a point of great importance, and from the insolubility of sulphur under ordinary circumstances not very easy of explanation.

We do not profess to be in a condition to answer this satisfactorily, but the observations we have to offer may induce some one to attend a little more closely to the matter. Sulphur has evidently a very prejudicial effect on fungi, as it has indeed on all organic beings if exposed to it in a proper form and in a sufficient degree of concentration. The use of sulphur in cutaneous disorders whether arising from insect or vegetable parasites; the effect of hypo-

* We suppose by sulphuret of potash, or more properly sulphuret of potassium, is meant what is known by chemists under the name of liver of sulphur. This is not a definite substance, but consists of tersulphuret of potassium, hyposulphite of potash, and sulphuret of potassium.

† Sulphuretted hydrogen is evolved at the same time.

sulphite of soda on the curious vegetable production known by the name of Sarcina, from its resemblance to little corded bales, which is so common in cancerous affections of the human stomach; and the destructive power which it has over parasitic moulds are all evidences of this fact. One particular instance may perhaps afford a clue to its action over the latter. It is well known that if a bundle of brimstone matches be burnt in a barrel, the fermentation of wine when placed in that barrel will be arrested. Now the fumes of brimstone consist of sulphurous acid, and as the whole body of the wine placed in the cask is affected, the quantity of the acid which is capable of arresting the growth of the yeast fungus must be almost infinitisimal. Now if the leaves of plants infested with mould are dusted with sulphur, though the sulphur is insoluble in water and may be exposed to ordinary air for a long time without change, it is very possible that the oxygen just separated from the foliage by the action of light in effecting the decomposition of carbonic acid, or arising from other chemical processes taking place within the plant, being in a nascent state, may readily combine with a portion of the sulphur, and thus form sulphurous acid, and still more in the application of a solution of sulphuret of potash with the addition of an acid, where the sulphur is in the act of being eliminated, and can combine at once, under the most favourable circumstances, with the nascent oxygen.

It would be easy for a good chemist to ascertain precisely whether sulphurous acid is really formed under such circumstances, or whether some other combination of sulphur and oxygen is given out, and it would be doing good service to the horticulturist to ascertain the point. Where sulphur is used to combat disease in the human frame, especially when applied inwardly, more than one combination takes place, and a large portion of the substance, when taken in a crude state, passes away unaltered. In its application to the purposes of cultivation it is likewise a small portion only in all probability which is effectual; and if the action could be precisely ascertained the results might be of great importance, in an economical point of view, where it is used largely, as in Hop gardens. *M. J. B.*

Botanical Gardens are on the Continent attached to all universities or collegiate establishments where the medical portion of the instruction imparted is considered as of any importance. For it is there universally admitted that botany, or the knowledge of plants from which the great majority of the most valuable medicaments are prepared, as well as chemistry, which teaches the mode of extracting the medicinal principle to the best advantage, are two most essential branches of a medical and especially of a pharmaceutical education; and a botanical garden, when well conducted with reference to its special object, is found to be of essential service in such a course of botanical lectures as the student in medicine requires. It is also of great assistance to the professor who would give to his pupils such an interest in botany as should induce them more or less to pursue it beyond the lecture-room, either as an independent science, or as a branch of general knowledge to be applied as occasion may point out in the various paths of life and business they may follow.

Personal visits, in many cases several times repeated during the last 20 or 30 years, to upwards of 60 of these continental botanic gardens from Barcelona and Palermo to Upsala and Petersburgh, from Paris and Brussels to Constantinople and Odessa, have led us to take much interest in the question of the real objects and practical working of these establishments. Watching such accounts of them as appear more especially in the German journals, official reports or extra-official complaints, we have been led to an examination of the causes why, notwithstanding the recognised utility of many of them, there are yet others which appear far from answering the expectations entertained respecting them as helps to useful instruction in medical or general botany.

One of these reports, recently published in the "Botanische Zeitung," that of Professor H. Hoffmann on the garden of the University of Giessen in Hesse-Darmstadt, contains more than usual of statistical detail, accompanied by an explanation of the principles laid down for its management, which might be usefully consulted by directors of other continental establishments much more liberally supplied with funds. This is not indeed one of the 60 gardens above mentioned, and we have no personal means of attesting that the directors' rules are practically carried out. But as the report appears to be fairly drawn up, without the usual desire to show off the garden, a condensed summary is given in another column as conveying an idea of what are the ways and means which the directors of the gardens of the minor universities have to work with.

Leaving out of the question such large establishments as the Botanic Gardens of Paris, Berlin, Petersburgh, Vienna, &c., where we every now and then hear of splendid outlays (not even then always backed by corresponding annual expenditure), the universal complaint at all these gardens is want of funds. But is the best use always made of the funds which they have? Are not sometimes the main objects interfered with or entirely lost sight of in the vain attempt to supply commercially the deficient means? And is there not, generally speaking, a desire rather to do much than to do well?—to crowd into the smallest space every variety of arrangement, scientific or practical, that has been thought of in the most magnificently appointed establishment, and above all to swell their lists with as large a number of names as possible, without caring for the reality or correctness of these names, or for the value or worthlessness of the articles represented? These are topics upon which it may be useful to enter into some further details. *G. B.*

New Plants.

131. Rhododendron Brookeanum. *Low in Journal Hort. Soc.*, iii. 82.

We have ascertained that the beautiful golden yellow Rhododendron which has been lately exhibited by Messrs. Veitch is one of those of which figures were published some years since in the Journal of the Horticultural Society, from materials sent to England by Mr. Low, jun. The drawing, however, represents the species with wider leaves than has been observed in cultivated plants, or even in the dried native specimens in our herbarium; so that we must conclude either that the foliage is variable or that the cultivated plant is not able to produce the perfect form of its leaves. The latter are bright green above, pale green below, and unstained with other colour; but according to drawings sent home by Mr. Low, there is a supposed variety with fiery red flowers of a much larger size, and leaves stained with red at the edge.

The ovary of this species, not mentioned in the Hort. Soc. Journal, is tomentose, 5-celled, with a large 5-lobed stigmatic surface (stigma) lying in the centre of a very conspicuous cup (indusium or termination of the carpellary organism). Botanists will understand the value of this fact.

The following account and figure are borrowed from the work above quoted:—

"This noble plant not only grows on trees but, according to one of Mr. Low's memoranda, is occasionally met with 'on Moss-covered limestone rocks, flowering from November to July.' Another note upon it is the following:—'I shall never forget the first discovery of this gorgeous plant; it was epiphytal upon a tree which was growing in the water of a creek. The head of flowers was very large, arranged loosely, of the richest golden yellow, resplendent when in the sun; the habit was graceful, the leaves large. The calyx of this and the other Borneo species is so small as to be scarcely perceptible. The roots are large and fleshy, not fibrous as those of the terrestrial Rhododendrons. It is the least common of all the genus in the island, and has many varieties, which differ in having larger flowers and leaves; the former of a more or less red colour. Very high and large trees in damp forests are its favourite haunts.'

"In his 'Sarawak' we find it mentioned in the following paragraph:—'The still river, winding its way amidst the limestone, which is shaded with overhanging trees, is nevertheless very pretty; and the hill opposite to which we now lie rises in a precipice 200 feet above our heads, its face being covered with climbing plants, and the projections of the rocks clothed with Ferns and other plants, among which I observed the bright flowers of the beautiful and new yellow *Rhododendron Brookeanum*, and the elegant Fern-like foliage of a large-leafed stemless Palm.'—P. 374.

"This species is allied to *R. javanicum*, from which it differs in having larger flowers, and nearly sessile, not long-stalked, leaves, the under side of which is entirely destitute of the rusty specks which characterise the Java plant. Coloured drawings of two varieties are before me—one yellow, the other rich red. The yellow is represented with 14 flowers in a loose cluster, of a rich buff colour, and 2 inches across the limb. The colour, however, is stated by Mr. Low to be incorrect, and it is probably much too dull. The annexed cut represents this variety diminished. The red has larger leaves, and only five flowers in a cluster, in colour resembling the *Azalea indica lateritia*, but richer. They are more than 3 inches across the limb.'

VEGETABLE PATHOLOGY.

No. LXXVI.

325. Senectus (*Old age*).—This is of all complaints to which organic beings are subject the most formidable and unavoidable. Vital structures have to a certain extent a power of reparation, and by judicious treatment dissolution may be deferred; but it is only for a short period; the vital energies sooner or later become impaired, the tissues thickened or consolidated so as to be unfit for their functions, and in the absence of all other disease death at length ensues by their gradual cessation.

326. The more independent each individual is, and the more complete the separation of new individuals from the parent stock, the more palpable are the effects of age. Both in the animal and vegetable world, where each individual is perfectly independent, the functions of life are limited within certain fixed bounds. The minute mould or day-fly, though differing so greatly in degree of organisation, springs up, full life in the morning, and has passed away before the sun has set. But in either kingdom again, where there is an external growth of new individuals, though they may be closely connected for a time with the older portions of the common mass, life may be prolonged almost indefinitely, as in the giant madrepores, or the primeval Oak. The annual and biennial plant ends its course with the perfection of its seed crop, while the Oak may yield its harvest for a thousand years with little decrease of fertility.

327. There are, however, unequivocal testimonies that even these aged relics of times long past are obliged to submit at last to the general law. According to the supply of nutriment in the soil, or in proportion to other favourable circumstances, is the time during which full vigour is retained in every part without flagging. The topmost branches are the first to give way, so that the tree presents at length a dead top, while the surrounding branches are in full vigour; contemporaneous with the failure of the top, and often in consequence of it, the central portion of the wood decays, letting in the wet, and communicating the taint to the surrounding rings of newer tissue. The decayed matter, consisting of humates and ulmates, is not however confined very rapidly outwards. Vegetation proceeds with almost as much vigour as ever; the fruit still comes to perfection; a new ring is added with every new year, and we have thus after a series of years a hollow trunk, long

which almost the whole of the central wood and harder tissues have gradually vanished, though there is life without. The shell at length is too thin to bear the weight of the branches, which in consequence give way; a fresh ingress of moisture leads to further decay, till after a thousand years' growth, a mere tuft of leaves * may be left, testifying that the struggle between life and death is still undetermined. The same process goes on in many other trees, the decay when once commenced being accelerated by boring insects, and the larger fungi. In many cases decay is far more rapid than in the Oak, from the facility with which the putrefactive ferment penetrates the neighbouring tissues. In most cases it is greatly accelerated by the large fungi which find a fitting matrix in the decaying matter, and rapidly exhaust the languid and almost exolete tissues which surround it. It is curious that in many instances the highest part is the first to suffer, as though the first sign of failing vital energy were a difficulty in conveying the nutritive fluid to the extremities, presenting thus a marked coincidence with phenomena common in extreme age to the most long-lived being in the animal world ;† and this failure of the extremities is quite independent of and distinct from the decay of multitudes of branches which takes place even in the most vigorous trees. If every shoot which is produced retained its vitality, the tree would be a crowded mass utterly unfitted to perform its functions, but by a sort of natural pruning those shoots which were originally weaker give way to their stronger and more vigorous neighbours, or decay from want of proper exposure to light and air; or from their want of vigour are less able to resist the cold. Though, however, this decay is often a sign of old age, it is sometimes due to other causes, as peculiarities of soil, as, for instance, where nourishment is abundantly supplied, until the roots penetrate into some barren or noxious stratum, or where they reach some impervious matter, having exhausted the nutriment in the superincumbent soil. In this case the effects are the same with those of direct old age, which indeed may be said to have come on prematurely. When once there is decay amongst the upper branches, the quality of the timber is sure to grow worse every day, and the only safe course is at once to fell the tree. Where the affection is general after the trees have attained but small dimensions, it is best to destroy the plantation altogether, and apply the land to some more profitable use.‡ *M. J. B.*

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The twelfth anniversary of this charity was held at the London Tavern on Monday last, the 11th inst., Sir S. M. Peto, Bart., in the chair, supported by Sir Joseph Paxton, M.P., E. L. Betts, Esq., A. Rowland, Esq., J. H. Schröder, Esq., Thos. Moxon, Esq., Henry A. Hunt, Esq., R. Wrench, Esq., E. Purser, Esq., H. G. Bohn, Esq., G. Reed, Esq., J. J. Mechi, Esq., and about 120 nurserymen and gardeners.

The usual preliminary toasts were proposed and responded to. The chairman then proposed the health of the Duke of Devonshire. Sir Joseph Paxton returned thanks. He afterwards proposed "Success to the Gardeners' Royal Benevolent Institution," and made a warm appeal to the company in its behalf, hoping that they would show by their subscriptions the interest they took in the charity. Sir Joseph Paxton proposed the "Health of the Chairman;" and after some other toasts were drank, the Secretary announced, among many others, the following subscriptions which had been handed in on the occasion.

	£.	s.	d.		£.	s.	d.
The Duke of Devonshire	21	0	0	Mr. Rivers	6	6	0
Sir S. M. Peto, Bart.	10	10	0	Minier, Nash, & Nash	5	5	0
Sir Joseph Paxton ...	10	10	0	Messrs. Lee	5	5	0
Edw. L. Betts	10	10	0	Alex. Rowland, Esq.	5	5	0
C. Dixon, Esq.	10	10	0	Henry G. Bohn, Esq.	5	5	0
Mrs. Deacon	10	10	0	Henry A. Hunt, Esq.	5	5	0
Miss Schröder	10	10	0	Robert Field, Esq. ...	5	5	0
Baron Rothschild ...	10	10	0	Messrs. Wrench & Sons	5	5	0
J. J. Mechi, Esq. ...	5	5	0	Mr. S. Thompson ...	5	5	0
Mr. Milner	10	10	0	Messrs. Gray & Ormson...	5	5	0
Mr. Eyles	10	10	0	Messrs. Veitch & Son	5	5	0
R. Low, Esq.	8	8	0				

The Chairman then proposed the health of the Stewards, which was responded to by Mr. Nash, and after two or three other toasts the meeting separated.

We may add that the room was tastefully decorated with beautiful specimens of Pelargoniums and other plants, brought there for the occasion by Mr. Turner and Messrs. Henderson and Fraser at their own expense. There was also a plentiful supply of fruit from Trentham, Chatsworth, Arundel, Somerleyton, Preston Hall, &c.

THE GIESSEN BOTANIC GARDEN.

The Botanical Garden of the University of Giessen was first laid out by Dr. Jungermann, in the year 1609, two years after the foundation of the University itself. In the year 1617 it was removed to its present site on the north-east side of the town, within the town walls. In the years 1824-5 it was enlarged by the addition of a shrubbery or promenade called the Herrngarten, and of a portion of the glacis beyond, obtained by the demolition of the city walls, so as to acquire its present dimensions. It now consists of 10¾ Hesse-Darmstadt morgens, or about 6⅔ British acres.

The funds for its support consist solely of the annual grants voted by the States and granted by the Government, as no sale of plants is allowed. These annual grants have for the last seven years (from 1848 to 1854) varied from about 1300 to about 2100 florins (105*l.* to 170*l.*). In the ten preceding years they seldom exceeded 100*l.*, and before that they were usually under 80*l.* All payments are made on the director's written order.

The direction is entrusted to the professor of botany for the time being, under the superintendence of the administrative council of the academy. In the commencement of the present century his emoluments consisted of a salary of 300 fl. (about 24*l.*), besides corn, wood, hay, and poultry, delivered in kind, which the professor either consumed or sold, and of the students' fees. The present amount is not stated. Among the professors named are Jungermann, the founder; Wilbrand, from 1817 to 1846; and A. Braun, the present distinguished professor at Berlin, who was a twelvemonth at Giessen before the appointment of H. Hoffmann, the present professor *; Rupp, Dillenius, and Borkhausen, who are among the best known botanists educated at Giessen, never professed there.

The head gardener with the title of University Gardener has a salary of 500 florins (about 40*l.*) direct from the university fund. He is allowed an assistant at 250 florins (20*l.*), and two day-labourers in winter, and as many as seven in summer, at a daily pay of 34, 30, and 22 kreutzers severally (11½*d.*, 10*d.*, and 7½*d.*).

The original or front portion of the garden, close behind the lecture-room, contains the plant-houses; the middle portion (the old promenade) is still a plantation; the hinder garden eastward is laid out for the cultivation of hardy plants. To vary the exposition a large mound was raised in 1825, forming at the same time a pond and a marsh. The herbaceous beds are planted according to the natural system with perennial, chiefly officinal plants; there are also beds for annuals, for biennials, and some miscellaneous ones. In 1851 Professor Braun established a shady quarter for Rhododendrons, &c., which has proved successful. An alpine collection was formed in 1852 on the north-east side of the mound. There are also a border for Orchideæ strewed with limestone, a bed for wild Roses and other shrubby Rosaceæ, for Liliaceæ, for Ferns, for Evergreens, and in 1854 an *œconomico-technicum* was planted with specimens of the more important herbaceous plants of central Europe which are used in the arts or for food. Moreover beds of showy flowers are scattered about for ornament.

There are three plant-houses: the oldest, attached to the gardener's house, was a narrow glazed passage, in which a number of tropical plants were already cultivated in 1788. It was enlarged in 1824 to its present size, and divided into three portions, of which the central one is a hothouse with some fine specimens of Dracæna, Papyrus, Chamædorea, Scitamineæ, Maranta zebrina, Rhaphis, Phœnix, Chamærops, &c. A second house was built in 1826, and filled in 1827; it is also in three compartments, in the centre one of which is perhaps the finest specimen of Ficus elastica in Germany. In 1836-7 a low pit was added, and first heated in 1851. It is used for tropical Orchideæ, &c., and includes an aquarium consisting of a large wooden vessel sunk in the bed, and containing a few hothouse aquatics surrounded by tropical Ferns. The houses contain also a Ward's case and a propagating frame. All the beds are filled with sawdust, in which the pots are immersed. The heating of the two last-mentioned houses is by hot water in copper pipes, which has answered admirably during the two last severe winters. The flues, on the contrary, of the older house are badly constructed, and not only require frequent repair, but injure the plants by the escape of smoke. The houses are generally too high and dark, being lighted only from the S.E. and early shaded by the high buildings adjoining. For this cause many plants will not blow, and others (such as the Australian Acacias, Mimosa pudica, Astrapæa, &c.) set no seed. The same want of light is felt for the hotbeds, which are, moreover, made of sandstone instead of wood, and are anything but warm. The garden is allowed annually 24 loads of dung from the university stables.

The garden is exclusively devoted to the cultivation of plants of scientific worth or for ornament. Their number, according to the general catalogue, is at present (March, 1855) 4500 species, of which 4217 are Phanerogams. These plants are obtained—

1. *By Exchange of Seed.*—The garden is in correspondence with the greater number of similar establishments on the Continent. In 1855, seed lists have been sent to 42 public and to many private gardens, and lists of desiderata received from 36 establishments. This interchange began about 30 years since. Unfortunately it does not supply what it ought to do, the seeds received are often old or unsound; species really wanted seldom occur among them; whilst a number of worthless fill-gaps are repeated in most catalogues year after year with wearisome uniformity. Lastly, very many of the seeds turn out to be different from what their names import. But little pains is generally bestowed on the determination of plants; the only attempt is to increase the number with perfect indifference as to whether the articles themselves are valuable or worthless, true or false. The correction of names in the Giessen garden is in progress, and for the great mass will be terminated in a few years.

2. *By purchase*, on which are expended annually from 16 to 20 florins (26*s.* to 32*s.*)

3. *By excursions* in the neighbourhood and journeys to a greater distance, as for instance into Switzerland.

4. *By presents*, to which the garden owes the best of its contents. In some recent journies, of which the Government defrayed the expense, the University gardener Weiss brought as presents many valuable exotics from several of the German and Swiss capitals. Other donations are recorded from Dr. Juritz of the Cape, Prof. Liebig, Dr. Sundheim, &c.

The leading principles adopted as to the plants cultivated is a limitation to the extent of the borders, and especially to the number of species; but, on the other hand, so far as the funds will allow, the greatest attention is bestowed upon raising of vigorous specimens, and their good cultivation; few but good and useful species, weeded out with great care; but those that are left maintained in the best state and in a sufficient number of individuals to answer the end sought for—aid to instruction; and this whether they be in the houses or in the open air. Thus the garden keeps ordinarily 14 or 15 specimens of the Cotton and eight of the Tea plant. And as to the use of the garden, the rule is to give the greatest possible accessibility to everything the garden possesses. Since this has been adopted experience has shown here, as at Kew, that the garden far from being thus exposed to robbery is only the better for publicity, by the opportunities it gives for improved correspondence, and by the increasing number of visitors who take an interest in it.

The garden is open to the public the whole day with the exception of the dinner hours (from 11 till 1), the plant-houses on Wednesdays from 1 till 2. It is subservient—

1. *To Self-instruction.*—With this view the old numbers attached to the plants have within the last few years been replaced by their names written in black upon white metal, or in the case of plants in pots, the names are written on the pots themselves in black lead upon a white ground painted in oil. Since this has been done students may be seen in summer, almost daily, book in hand, occupied amidst the borders. The majority of the plants in pots are, as elsewhere, brought out of doors in summer, and the greater number arranged in groups, which it has been the endeavour to render as instructive as possible with designating tablets. Thus, in 1852, were established groups of New Holland plants, Coniferæ, succulent plants, Fuchsias, Ericaceæ, Cacteæ, and Pelargonia; in 1853, African succulent plants opposite the American ones, tropical groups, characteristic Mediterranean plants, herbaceous and ligneous forms from one and the same family contrasted; in 1854, an Orangery, chief types of monocotyledons, the Alpine flora, types of the flora of the coal formation, &c. These groups attract, more especially, the attention of the public, and by their arrangement, the position of the garden-seats, &c., afford very inviting resting-places.* The garden takes part also in the Horticultural Exhibitions, which are held sometimes in the large hall, and sometimes in the Riding School of the University.

2. *To Public Instruction.*—For this purpose, for all lectures on morphology and on the natural orders, a sufficient number of specimens is provided (of four or five species each lecture) to give one to every student before the lecture. They are calculated to serve, after having been examined during the lecture, for forming afterwards for each of the audience a small specimen herbarium of the chief types of the natural order. It required many years before it became possible to accommodate the collection to this system. The garden supplies also for each lecture characteristic specimens of typical groups of plants in pots, such as Cacteæ, Coniferæ, Orchideæ, Proteaceæ, Ericaceæ, &c. Unfortunately the want of a proper lecture-room is on these occasions much felt.

The botanical audience consists almost exclusively of medical and pharmaceutical students; foresters and financial students generally attend the lectures on forest botany, which are supplied with materials partly also from the botanical garden, but mainly from the forest-botanical establishment, lying at a distance from the town, and planted in 1825. The greatest number who have attended the botanical lectures within the last 30 years has been 47. If we consider that this number of instructive specimens must be supplied of all the more important plants, the above-mentioned principle of restriction in the number of species attempted to be grown will be fully justified. We have already succeeded in providing in sufficient abundance many which we much wanted, such as Rice, Lobelia inflata, Gratiola, Gentiana lutea, &c., and we shall soon have enough of Coffee, Cotton, and several others. Some which only flower in winter—such as Tea, Ipomœa purga, Helleborus niger, &c.,—are then dried in sufficient numbers to distribute to the students at the lectures; so also in the case of Mosses, Lichens, &c.

The garden possesses, moreover, a small Herbarium, arranged according to the natural system of which Professor Wilbrand's, containing 5700 species, chiefly

* The Oaks at Morehay Lawn, in Northamptonshire, were certainly of full growth in the reign of King John. Specimens may be seen there in every stage, from full maturity to extreme decay. I have myself watched one year after year, till it produced at last a mere tuft of leaves, from an active eye near the base.

† This appearance in trees is what is called popularly stag's head, and is identical with what is named in France *couronnement*.

‡ In my own neighbourhood there are whole woods where the Oaks are uniformly stag-headed. Some of these have lately been grubbed up, and the produce of corn has been extremely good. Such woods do not pay the expenses in their natural condition, and are valueless except for the production of game.

* Professor Baumer (who died in 1788) used to go out botanising with his pupils, all, as was then the custom, in bag-wigs and swords; one day in an excursion on the Bieber, they were set upon by the peasantry, who mistook them for a band of robbers which then infested the neighbourhood.

* The great taste displayed in the arrangement of the greenhouse plants when brought out of doors in summer, is especially observable in several of the German gardens.

garden plants, formed the basis, to which have been gradually added various private donations, amongst which may be mentioned a *Herbarium normale* of the Hessian flora, formed by the present director, and a general collection of duplicates from the Grand Duke's private herbarium, presented by him to the University. There is also a small museum of fruits, seeds, wood specimens, monstrosities, and botanical curiosities; a library, containing but very few works of any importance; an excellent microscope, by Keller, of Wetztlau, purchased in 1853, and a set of meteorological instruments. The meteorological observations are regularly made and published in the "Proceedings of the Upper Hessian Society of Naturalists and Physicians;" "For," observes Professor Hoffmann, "public botanic gardens are peculiarly adapted for making these observations, both as to locality and the necessary *personnel*, and no one is so dependent on weather as the gardener."—(Abridged from Professor H. Hoffmann's Report in Mohl and Schlechtendahl's *Botanische Zeitung*, April 1855). *G. B.*

Home Correspondence.

The Mangosteen.—Having resided for some years in a tropical country not many degrees from that where the Mangosteen flourishes, I am induced to mention the idea entertained there, that it will only prosper within 3° of the equator. I have seen the fruit produced in Ceylon, but which was said to be very inferior to that in its native clime. Greater skill in gardening might perhaps have had better success. There is however another fruit, I believe a native of Java, which bears freely in Ceylon, and which, if it has not yet been cultivated in England, would be well worth trying. The Rambutan, the only name for it with which I am acquainted, is a pretty plant as to foliage. The fruit grows in bunches. The shell or rind bright red and rough, almost prickly; and when that is opened, the *fac simile* of a plover's egg prepared for aspic jelly presents itself, and is of a very pleasant sweet acid. *Constant Reader.* [The so-called Mangosteens of Ceylon and of the Ghauts are not Mangosteens at all, but merely inferior species of Garcinia. The Rambutan is very nearly the same as the Litchi; no doubt it ought to be tried here, and so should the Lansch and Duku.]

Mistletoe on the Oak.—From an article in your last number there appears to be still a doubt as to the fact of the Mistletoe growing upon the Oak-tree. I remember having seen it once, and but once, growing upon that tree. Having (about 17 years ago) occasion to walk from Glanusk Park, in Breconshire, to Abergavenny, I took the foot-path along the bank of the Newport and Brecon canal, and in the course of my walk was most agreeably surprised at finding an old Pollard Oak completely covered with Mistletoe. I took great pains to examine the tree, and I am quite satisfied of the fact. I do not at this distance of time recollect the precise spot, but any gentleman residing in that locality who has leisure and would feel sufficient interest in the case, might set the matter at rest by procuring a portion of the tree with the Mistletoe growing upon it and sending it to your office. The Mistletoe grows plentifully upon the Apple tree in Breconshire. *T. Ann, Redland Court, Bristol.* [We should be very much obliged for such a specimen of the Mistletoe on Oak.]

Spring Protection of Apricots.—Allow me to correct a misprint in my communication of the 28th May. I should not have troubled you about it had not "G. W." accused me in common with another correspondent of "coddling." My words were, "In 1853 I used double netting as a protection." Double mats, in my opinion, are a worse than useless protection for Apricots, and I think that if the foliage is kept healthy and the trees divested of all unnecessary wood, so as to allow what is left to get perfectly ripened, a better crop of fruit will be produced without protection than can be had from badly matured wood, as is often the case, protected on the most approved principles. *John Stevens.*

Epidendrum bicornutum.—This truly fine Orchid is so seldom seen in perfection at our metropolitan exhibitions that I am led to infer its cultivation must be insuperably difficult. I will, therefore, endeavour to lay before your readers the method I have adopted with it, and which I am happy to say has proved successful. In the first place, I will just mention the climate of the country from which it has been introduced; and then recur to the treatment it should have in an Orchid-house. If we take into consideration the climate of Guyana (Guiana of some), Trinidad, and other places from whence it comes, we at once see the treatment it requires. Its natural habitat, I am credibly informed, is upon rocks and stumps of old trees, contiguous to the sea; and is constantly washed with salt water, particularly when the tides are high; which is very different treatment from what it receives in England. Guyana possesses two rainy and two dry seasons. The long rainy season sets in about the middle of April, and torrents of rain descend until June, when the long dry season commences, and continues to November; December is generally showery, and in January much rain falls. February and March constitute the short dry season. The mean temperature of the year, according to Mr. Thompson's invaluable tables published in the Journal of the Horticultural Society, is 81° 38′; which is not so high as might reasonably be expected, considering the position of the island to the equator. The trade winds, which cross the Atlantic, probably reach the coast impregnated with moisture which no doubt keeps the temperature comparatively low. Having described the climate, I will now make a few remarks upon the cultivation of this plant. It should be potted in a compost of good fibry peat, plentifully intermixed with soft sandstone and river sand, and then suspended close to the glass. As soon as it commences growth it should be well supplied with tepid water, and occasionally syringed with salt water, or, what is preferable, fill a pan with salt water and suspend it immediately under the plant; the saline vapour constantly and gradually ascends, and it is surprising to see the effect it produces upon the constitution of the plant. During winter the temperature and dryness of the air should be considerably reduced, but not to the extent generally recommended by some writers upon Orchids. There are many other very fine Orchids, which are seldom seen in perfection, and upon which I may at some future time offer a few remarks. *H. M., Axmouth, Devon.*

Hardiness of the white Indian Azalea.—It may interest some to know that I have four plants of Azalea indica alba in very fair blossom, which have stood in my garden on the borders of Kent and Sussex without any protection for the last seven years at least. They have been planted among and treated like the common Rhododendrons and Azaleas. *W. C. M.*

Grape Growing (see p. 389).—I should advise "M. K." to get some information on this subject by visiting the numerous houses recently built by gentlemen, whose gardeners have shown more practical knowledge than "M. K.'s." Having been permitted to examine a great many houses, I have not seen anything to equal one built about three years ago at North Frith, near Tunbridge, by Sir Jasper Atkinson, whose gardener, Mr. Webb, very kindly gave me every information how he has been enabled to secure this season such an extraordinary abundance of six different sorts of Grapes in so short a period. I would recommend "M. K.," and in short, any person who feels an interest in these matters, to pay him a visit; it would fully compensate his trouble; the inspection would not only gratify him, but he would obtain some useful and practical hints on the subject of Grape growing. *A. B., County of Kent.*——Your correspondent who has "waited 12 long years for Grapes and had only two bunches about three years back," would have been doing an act of justice to himself and to all connected with horticulture if he had taken your advice "discharge your gardener" nine years ago. If he had done so it might perhaps have been the means of putting a stop to so many garden labourers setting themselves up as gardeners, and doing what no one who had served a regular apprenticeship would do. Perhaps "M. K.'s" gardener is one of that sort. *O. P.*

Fern Judging at the Crystal Palace Show.—I observe (see p. 389) that Mr. Chitty, of Stamford Hill, finds fault with the judges of Ferns at the Crystal Palace. He is of opinion that certain beautiful collections of hardy Ferns there ought to have been disqualified because they contained several of our rare and most beautiful native species which he declares are not hardy enough to bear exposure to our climate, at least that of London. Now every experienced cultivator knows that many herbaceous plants (which everybody calls hardy), including Ferns and Alpines, will not bear this test, and it is mainly owing to the very varied and humid climate of the British Islands, that our flora is comparatively rich in Ferns. It is quite clear that three out of the four exhibitors in question were of the same opinion as the judges about the propriety of calling our native Ferns hardy. The collection which Mr. Chitty patronises was not overlooked, but examined and found to be wanting, both as regards good cultivation and choice species. Let us hope that the exhibitor of it may be more successful next time. *A. S., One of the Judges.*

Nursery Names of Plants.—We notice, at p. 389, a complaint from a correspondent that the same plants are frequently sold by different nurserymen under different names, and referring particularly to the case of a "Maranta" exhibited at the late Crystal Palace Show by Messrs. Jackson of Kingston, Messrs. Rollisson of Tooting, and ourselves. We join most heartily in repudiating the system of nurserymen or any other persons not duly qualified giving fancy names to newly imported introductions. We appeal confidently to Dr. Lindley and Sir W. J. Hooker if it be not our custom to submit to them our new plants for naming, so that there may be no confusion, and that plants of our own introducing at least may not, as far as it is in our power to prevent it, be sold out under different and erroneous names. In this particular instance we made a point of getting from Sir W. J. Hooker the name under which we showed the plant, viz., Maranta roseo-lineata, variety elegans of Kew Gardens. Sir W. J. Hooker does not consider it a species but merely a fine variety of M. roseo-lineata. It may be, and no doubt is, all very well for persons who raise Hybrid Geraniums or Fuchsias, or indeed any kinds of cross-bred plants to name them Queen Victorias, or Almas, or any fancy name they like, but we join your correspondent in repudiating imported plants being sold out under names not sanctioned by botanical authority. We have thought it right to explain our authority for the name we used on the occasion referred to and leave the other nurserymen named by your correspondent to do likewise. *James Veitch & Son.*

Societies.

Royal Botanic, Regent's Park, *June 13.*—This Society's second exhibition took place on Wednesday last under rather unpropitious circumstances as regards weather, heavy rain falling at intervals during the whole afternoon. The exhibition itself was in all respects a good one. Stove and greenhouse plants were abundant, and the same may be said of Orchids, Roses, too, were excellent, and of Pelargoniums, Fuchsias, and other florist flowers there was a large display.

Of Stove and Greenhouse Plants, Mr. May, gr. to H. Colyer, Esq., sent a collection, whose distinguishing feature was its beautiful examples of Allamandas and Dipladenias. These were in admirable condition. It also contained some well-managed Everlastings, a famous Pimelea decussata, Dracophyllum gracile, the blue Leschenaultia and a pyramidally trained Stephanotis floribunda. Mr. Barter, gr. to A. Basset, Esq., of Stamford Hill, also had a good group, in which were Phænocoma proliferum, well grown, but with no open flowers on it; Stephanotis floribunda, Pimelea decussata, a very fine Statice Holfordi, together with Vinceas, Franciseas, and other plants. From Mr. Green, gr. to Sir E. Antrobus, Bart., came good specimens, among which the more remarkable were Polygala Dalmaisiana, Pimelea spectabilis, Aphelexis purpurea macrantha, the yellow Azalea sinensis, the glowing red A. optima, and Rondeletia speciosa.

In collections of 12 Stove and Greenhouse Plants, Messrs. Fraser contributed Phænocoma proliferum, Pimelea Hendersoni, the fine variety of Erica tricolor called Wilsoni, Adenandra fragrans, and a charming Stephanotis floribunda. Messrs. Rollisson had Gardenia Fortuni beautifully flowered; Mitraria coccinea, finely grown but not well flowered; some admirable Cape Heaths, and Acrophyllum venosum. Mr. Cutbush exhibited two well bloomed Everlastings, Pimelea spectabilis, Dipladenia crassinoda, and the Cavendish Heath. Messrs. Pamplin also sent a group in which the most attractive plant perhaps was Stephanotis floribunda.

In the class of 10 Stove and Greenhouse Plants Mr. Frost, gr. to E. L. Betts, Esq., had the best group. It contained a lovely Echites splendens, also excellent plants of Allamanda cathartica, Polygala Dalmaisiana—one of the best of the genus—a well-flowered Kalosanthe, and Statice Holfordi. Mr. Taylor, gr. to J. Coster, Esq., produced small, but well grown plants of Boronia pinnata, Pimelea Hendersoni, Leschenaultia formosa, Dipladenia crassinoda, the pretty Azalea Iveryana, and an Everlasting. Mr. Peed, gr. to J. Tredwell, Esq., sent a white Vinca, a Cape Heath or two, Clerodendron fallax, Allamanda neriifolia, Gardenia intermedia, and Boronia pinnata.

In collections of 6 Stove and Greenhouse Plants, Mr. Williams, gr. to Miss Traill, of Bromley, furnished admirable examples of Boronia tetrandra, Pimelea decussata, and Allamanda neriifolia, the latter a neat little bush covered with yellow flowers. Mr. Morris, gr. to Coles Child, Esq., produced Aphelexis purpurea macrantha, in good condition; a well-flowered Hoya imperialis, a white Azalea, Vinca rosea, and Kalosanthes versicolor. Mr. Roser, gr. to J. Bradbury, Esq., sent Erica ventricosa magnifica, certainly one of the very best of the class to which it belongs; an Everlasting, Pimelea Hendersoni, and a handsome variety of Chorozema varium.

Tall Cacti were contributed in good condition, and to some extent supplied the place of Azaleas, of which there were only a few plants present, and those much past their best. Of the former Mr. Grix furnished well-flowered plants of Epiphyllum speciosum and Jenkinsoni, Cereus speciosissimus and Egertoni, the latter a handsome small-flowered hybrid. Mr. Mortimer and Mr. Green also showed examples of these showy plants, among which was the white-flowered Cereus crenatus.

Orchids were more numerous, and appeared to better advantage than they did at this Society's exhibition in May last. In groups of 20 plants Mr. Williams, gr. to C. B. Warner, Esq., sent beautiful specimens of Aerides odoratum, Calanthe veratrifolia, Saccolabium guttatum and præmorsum, the lovely Cattleya superba, and the Bearded Lady's Slipper (Cypripedium barbatum). Mr. Woolley, gr. to H. B. Ker, Esq., produced some good Saccolabiums, Dendrobium Paxtoni and formosum, Barkeria spectabilis, a remarkable plant, some Cypripediums, &c. Mr. Hume, gr. to R. Hanbury, Esq., furnished Aerides odoratum, Cattleya ianthina, which as we have said before, is merely a bad variety of C. intermedia; Barkeria melanocaulon, Oncidium pulchellum, some of the best varieties of Cattleya Mossiæ, and Dendrobium Dalhousieanum.

In collections of 16 plants, Messrs. Veitch produced Oncidium ampliatum, the Fox-brush Aerides, Dendrobium anosmum, and formosum; an extremely well-flowered Sobralia macrantha, the best variety of Cypripedium barbatum, two very fine examples of Phalænopsis, and some Saccolabiums. Messrs. Rollisson had large bushes of Sobralia, Dendrobium nobile, Cattleya Mossiæ and Aclandæ; also C. Leopoldi, Phalænopsis grandiflora, Oncidium sphacelatum, Vanda insignis, and Brassia verrucosa, the latter an extremely well-flowered plant of the kind.

In the class of 12 Orchids, Mr. Gedney, gr. to Mrs. Ellis, sent fine plants of Saccolabium guttatum and præmorsum, a very fine white Butterfly plant (Phalænopsis), Aerides odoratum, Calanthe masuca, and handsome plants of Cattleya Mossiæ. Mr. Clarke, gr. to Mrs. Webb, contributed Phalænopsis grandiflora, Aerides affine, Saccolabium præmorsum, Cattleya Mossiæ, and an Oncid. Mr. Keel, gr. to A. Butler, Esq., of Woolwich, sent Epidendrum verrucosum, the yellow Cattleya citrina, Brassia verrucosa, Phaius Wallichi, Dendrobium tortile, and Cattleya Mossiæ.

The best group of 6 Orchids came from Mr. Green,

who sent Dendrobium densiflorum, D. nobile, Aerides odoratum and crispum, Cattleya Mossiæ, and Oncidium divaricatum.

Roses in pots were in admirable condition, and we need not say contributed greatly to the beauty of the show. Messrs. Lane had Coupe de Hebe, Paul Perras, Baronne Prevost, and Chénédolé literally beset with blooms just in perfection; also Souvenir d'un Ami, not so well grown perhaps, but with flowers matchless in point of shape and richness of colour. Messrs. Paul had likewise extremely well managed plants, and so had Mr. Francis; Mr. Terry, gr. to Lady Puller; A. Rowland, Esq.; and Mr. Sage, gr. to W. R. Robinson, Esq. These groups contained some of our most favourite Roses, among which Mrs. Bosanquet, Solfaterre, and Souvenir de Malmaison were conspicuous. Mr. Francis had a collection of well-flowered small plants of R. Devoniensis on the Manetti stock. These, as they deserved to be, were much admired.

Cape Heaths were contributed in good condition by Messrs. Rollisson, Fraser, May (gr. to H. Colyer, Esq.), Williams (gr. to Miss Traill), Frost, Roser, &c. Among the different varieties were tricolor Wilsoni, metulæflora, ventricosa grandiflora (a fine kind), Cavendishi, Bergiana, Westphalingia, mutabilis, Massoni, perspicua nana, and gemmifera.

Of Miscellaneous Plants Messrs. Henderson, of Pine-apple Place, had a collection in which small flowering New Holland and other shrubs were intermixed with Rhopalas and other plants possessing fine foliage, the whole producing an excellent effect.

Of novelty there was little beyond what was shown at the Crystal Palace on the 2d inst. Rhododendron formosum elegans. Veronica Luscombeana, a kind in the way of Andersoni, Embothrium coccineum, and Achimenes gigantea, a sort like picta, came from Messrs. Veitch. Messrs. Rollisson sent Meyenia erecta, and A. Farrie, Esq., of Liverpool, furnished a flowering plant of what was called Rhododendron Keysi, from Bootan. It had clusters of little orange tubular blossoms very much like those of a Manettia on the ends of the last year's wood, the young shoots of the present season extending beyond them some 5 or 6 inches; altogether it looked very unlike a Rhododendron. Messrs. Veitch had a handsome Gloxinia with upright flowers like those of Fyfiana, but white with a carmine throat. It was called Comte de Talleyrand.

Pelargoniums, as might be expected in the middle of June, were produced in large numbers, and generally in fine condition. Among new varieties, *i. e.*, those sent out in the autumn of 1853 and 1854 there were some good flowers. Mr. Turner, of Slough, had Governor-General, Carlos, Omer Pacha, Serena, Zeno, and Majestic. These were all extremely well bloomed plants. Mr. Nye, gr. to E. Foster, Esq., of Clemer Manor, sent nice plants of Attraction, Phaeton, Purple, Perfection, Rosa, Carlos (Hoyle), Pandora (Turner). The first four are of Mr. Foster's raising; Attraction and Phaeton were particularly fine. Messrs. Dobson sent Conqueror, a bright crimson, with dark top petals; Empress, Rebecca, Laura, Gem of the West, and Lucy. The first four are varieties raised by Mr. Beck. Mr. Holder, gr. to Rev. E. Coleridge, Eton College, sent a fourth collection, which contained Fair Ellen, Attraction, Carlos, Mary, Governor-General, and Seraskier.

Of 12 plants (Nurserymen) there were 4 collections. Mr. Turner's were large and striking plants, evenly matched in size, and covered with bloom. They consisted of Topsy, Rosamond, Mochanna, Portia, Esther, Leonora, Achilles, Sanspareil, Virgin Queen, Rosena, Majestic, and Astrea. The two next collections were considered to be equal by the Judges. These were contributed by Messrs. Dobson and Messrs. Fraser. Those varieties shown in good condition, and not in the first collection were Delicatum, Enchantress, Magnet, Vulcan, Magnificent, and Lucy. Mr. Gaines, of Battersea, had 12 plants, which included several of the French spotted varieties.

Of 10 plants from private growers there were many collections; by far the best came from Mr. Nye, gr. to E. Foster, Esq., all the plants in which, with one exception, were raised by that gentleman. It contained Phaeton, very fine, Lucy, Rosa, Queen of May, Ariel, Optimum, Purple Perfection, Enchantress, Eleanor, and Magnet. Mr. Holder had 10 large well-bloomed plants, but they were badly tied and put up; the best plant was Carlos. Mr. Wiggins, gr. to Mr. Beck, sent 10 neat well-bloomed plants.

Fancy Varieties of Pelargonium were also numerous. The most remarkable plant of this class was Perfection, an old kind, shown by Mr. Turner as a single specimen. This was more than 2 feet through, loaded with flowers, and yet in an 8-inch pot. The collection of six varieties by the same grower were also excellent examples of skilful management. These were Celestial, Gulnare, Jenny Lind, Electra, Richard Cobden, and Formosissimum. Messrs. Fraser sent Advancer, Celestial, Queen Victoria, Miss Sheppard, Madame Rosati, and Reine des Français. Messrs. Dobson and Mr. Gaines each exhibited six plants. In the Amateur's Class Mr. Wier sent Formosissimum, Hero of Surrey, Jenny Lind, Princess Alice Maude, Fanny, and Fairy Queen. Mr. Bousie, gr., Stoke Park, sent the next best collection; the plants in which were not large, but they were well bloomed.

Calceolarias.—These were shown in good condition by Mr. James, gr. to F. W. Watson, Esq., Isleworth. Their names were Antoinette Marie, St. Margaret, California, Chieftain, and Duke of Northumberland. Mr. Cole, St. Alban's, sent six nicely bloomed plants, all shrubby, a class that should be encouraged. These were King of Yellows, a fine bright rich yellow; Grandis, in the way of Kentish Hero; Negro, a small rich dark, and three others less attractive.

Fuchsias were shown rather extensively by Mr. Bousie, Mr. Gray, Mr. George, gr. to — Nicholson, Esq., Stamford Hill; Mr. Bishop, South Villa, Regent's Park, and Messrs. Dobson. The two first named collections were by far the best. The finest light varieties shown were Queen of Hanover, Duchess of Lancaster, Miss Haastrey, Pearl of England, England's Glory, and Elizabeth. In dark kinds, Vanguard, Macbeth, Glory, Verrio, and Autocrat were fine.

Passifloras were not very good, the season having now become too far for them. 36 blooms were shown by Mr. Turner. Mr. R. Bryan, Hounslow; and Messrs. Dobson. 24 blooms (private growers) were sent by Mr. James, Mr. Holder, and Mr. Thorpe, Fulham. What are called selfs appear to stand the hot weather best: far superior to the other kinds were Royal Albert, Member, Sovereign, Sir Colin Campbell, Purple Perfection, Uncle Tom, and some good seedlings of self colours.

Show and Florists' Flowers were numerous. The judges awarded the certificates Pelargoniums: Meteora (Foster), a bright orange variety, very fine, showy, and free flowering; Pallas (Foster), rose, with crimson spot, white centre: Quadroon (Beck), a very dark painted or spotted flower, small, but very attractive. There were several others we thought good and new, viz., Admiration (Hoyle), Leopard (Hoyle), and Corsair (Hoyle); also Edith (Foster), and Admirable (Turner). Mr. Turner sen 12 kinds of Seedling Fancy varieties: the best were Beauty of Slough, Masterpiece, Sir J. Paxton, Warrior, Purpureum album, Naomi, Carminatum, and Nonsuch. The judges selected the two first named for awards.

There were several good things in the way of bedding plants, particularly Geraniums. Mr. Kinghorn sent three of the scarlet class, the best being General Pelissier, the others, Countess of Warwick and Annie. Emperor Napoleon, shown by Mr. Butcher, Stratford-on-Avon, is a dwarf good scarlet for beds. Mr. Cole sent several good kinds of shrubby Calceolarias, Compacta, Leo, and a spotted kind, not named, were very good.

Messrs. Henderson, of the Wellington Road, sent a miscellaneous collection of small plants in bloom, containing some new things, amongst which we noticed six plants of the pretty free blooming fancy Geranium Cloth of Silver. This is a free flowering light kind, an improvement on Delicatum. Also six plants of Evening Star, a good shaped sort of the class, but more white than R. Cobden. This is very good.

Of Fruit there was a tolerably good display, but owing to the crowded state of the tent we only found opportunity to notice some of the best of it. Mr. M'Ewen, gr. to the Duke of Norfolk, at Arundel Castle, furnished a collection in which were very good white and black Grapes, Peaches and Nectarines, Melons, Apples in a state of good preservation, red and white Currants, and Raspberries. One of the Melons, a green-fleshed sort, on being cut was found to be extremely good; the Grapes were perfectly ripe and well-coloured.

Of Pine-apples there were nearly three dozen; but among them were no remarkably fine specimens. The best Providences came from Mr. Chapman, gr. to J. B. Glegg, Esq., and Mr. Robinson, gr. to Lord Boston; the heaviest of these, however, as far as we could ascertain, did not much exceed 7 lbs., and we saw no Queens above 4 lbs. The best examples of the last description of Pine came from Mr. James, gr. at Pontypool Park, and Mr. Turnbull, gr. to the Duke of Marlborough at Blenheim.

Among Grapes, Mr. Munro, gr. to Mrs. Oddie, had beautiful bunches of Black Hamburgh, extremely well ripened; Mr. Frost, gr. to E. L. Betts, Esq., also sent fine fruit of this variety; but the colouring was imperfect. Mr. Davis, of Oak Hill, and Mr. Harrison both had good Black Hamburghs; and so had Mr. Dods, gr. to Sir J. Cathcart, and Mr. Slowe, gr. at Bayfordbury. Mr. Tillyard, gr. to the Right Hon. the Speaker, produced good bunches of the same kind of Grape, and so did Mr. Turner, of Streatham. Very fine examples of Black Prince came from Mr. Hill, gr. to R. Sneyd, Esq., Mr. Turnbull, and Mr. Constantine, gr. at Hillingdon. Mr. Turnbull had Muscats, large both in bunch and berry, but not nearly ripe. Mr. Cook, of Tulse Hill, also showed Muscats, as did likewise Mr. Solomon, but the latter were unripe. Frontignans came from Mr. Parr, of Gloucestershire, and Mr. Henderson, gr. to Sir G. Beaumont, Bart.; the latter showed the Grizzly variety. Good Muscadines came from Mr. Williams, gr. to C. B. Warner, Esq., Mr. Ayres, Mr. Tillyard, and Mr. Bailey of Shardeloes; the exhibitions from the two last-named growers were, however, unripe.

Peaches.—Royal George, large and well coloured, came from Mr. Hill, Mr. M'Ewen, and Mr. Brown; and very fine examples of Grosse Mignonne were furnished by Mr. James, from Pontypool Park, and Mr. Tegg, from Roehampton. Mr. Raxton sent White Magdalen. Mr. Fleming, gr. to the Duke of Sutherland at Trentham, had Murray Nectarines, large and in every way excellent; and Mr. Ayres sent Elruge.

Of Figs, Mr. Constantine had good fruit of the Nerii.

Cherries may be said to have been confined to a dish of May Duke, large and well ripened, from Mr. Fleming.

Of Strawberries the best came from Mr. M'Ewen, who furnished beautiful dishes of British Queen, Trollop's Victoria, and Myatt's Eleanor. Mr. Constantine also sent examples of British Queen. Among other kinds we noticed Sir Harry, which was so well spoken of last year.

Melons were numerous, and generally speaking we understand good. Among the very best were the Bromham Hall and Golden Drop.

Mr. Williams, gr. to C. B. Warner, Esq., had dishes of Oranges, Lemons, and Shaddocks.

Entomological, *June* 3.—J. Curtis, Esq., F.L.S., President, in the chair. In addition to the various donations of publications presented by the Natural History Society of Ratisbonne, the Royal Society, the Entomological Society of France, &c., an extensive series of beautiful insects from India, selected from a very extensive collection recently formed in that country, was presented by S. P. Pratt, Esq., F.R.S. Among these were many nocturnal Lepidoptera of very considerable interest, including a number of Micro-Lepidoptera and five species of Pterophorus. A certificate in favour of Professor Pictet, of Geneva, as one of the honorary foreign members of the Society was read, and Herr Dohru, President of the Entomological Society of Stettin, was elected a member of the Society. Various interesting Coleoptera and Lepidoptera, collected by Mr. Foxcroft at Loch Rannoch, were exhibited; amongst the beetles was the very rare Dendrophagus crenatus, and amongst the moths was Anarta cordigera, with illustrations of its transformations. A specimen of the splendid new butterfly from Borneo, named after the Rajah Brooke by Mr. Wallace, was exhibited by Mr. Stevens. Mr. Stainton communicated a note by Mr. D'Urban concerning the cocoons of Saturnia cecropia, a species of large size common in Canada, which might easily be collected and employed in the manufacture of silk. Specimens of the cocoons were also presented to the Society by Mr. D'Urban. Mr. Curtis presented, on behalf of Mr. Spence, various interesting insects collected in Ceylon by Mr. Thwaites, including a small species of beetle allied to Polystichus, which he had found with its larvæ in the nest of a small black ant; likewise the pupa of a very small butterfly. Mr. Curtis also exhibited specimens of Langelandia anophthalma, a blind beetle collected near Paris under a water-butt at a considerable depth under-ground, by Mr. Charles de la Rouzée. A paper by Mr. Newman was read upon the rays in the wings of insects considered as nerves, veins, ribs, or tracheæ by previous authors, but which Mr. Newman regarded as simply organs of support analogous to those of the wing of the bat or flying dragon. Mr. Newman's views were opposed by Messrs. Curtis, Westwood, and Waterhouse.

Linnean, *May* 24. Anniversary.—The President in the chair. At the ballot for the election of officers for the ensuing year, Thos. Bell, Esq., President; W. Yarrell, Esq., Treasurer; J. J. Bennett, Esq., Secretary; and Richard Taylor, Esq., Under-Secretary; were severally re-elected: and the following were elected members of the Council, namely—G. Bentham, Esq.; G. Busk, Esq.; A. Henfrey, Esq.; W. W. Saunders, Esq.; and Dr. Seemann; in the place of Drs. Hooker, Thomson, Wight, and Burchell, and F. Walker, Esq. The auditors reported a balance in favour of the Society on the year's account of 38*l.* 10*s.* 6*d.*

June 5.—The President in the chair. Mr. S. Stevens exhibited a splendid new butterfly, named Ornithoptera Brookeana, collected in Borneo by Mr. Wallace. G. E. Dennes, Esq., exhibited fresh specimens of Orchis fusca, collected near Maidstone, in Kent. N. B. Ward, Esq., exhibited flowering specimens of Gentiana verna from Galway, and Cerastium latifolium and Draba frigida from the Dovre range of mountains in Norway; these species, in company with Andromeda tetragona, were flourishing on some peaty banks in his garden at Clapham. The following papers were read:—1. The first of a series of memoirs entitled "Horæ Carcinologicæ, being a paper on Leucosiadæ," by the President. 2. "Notice of a species of Carabideous insect found by G. H. K. Thwaites, Esq., together with its larvæ in ants' nests, in Ceylon," by J. Westwood, Esq.

Notices of Books.

Clark's Mollusca testacea (8vo, Van Voorst, pp. 536), describes minutely in a fair 8vo volume the marine testaceous animals of our islands. For many years Mr. Clark has devoted himself to this subject; he tells us that nearly every animal has undergone, in a living state, his personal examination; that he has had his own dredger, and that few individuals can have had better opportunities of observation than himself. The volume before us bears ample witness to the care and skill with which such opportunities have been employed. It is an invaluable magazine of facts in this department of natural history. We particularly recommend to the attention of our species-mongering friends the following observations, which apply to botany with as much force as to any branch of systematical natural history, and, we fear, to all in some degree.

"Before I give the descriptions of the types of the genera of the Littorinidæ, I will make some remarks on the prevalent practice of naturalists to create species from mere varieties: this anxiety can only be attributed to their wish to extend our knowledge of new and interesting objects. That these views are desirable and laudable cannot be questioned, but it is to be feared that the zeal of these gentlemen, combined with the ardour of rivalry in the race with their brethren in the same pursuits, have been the cause of a departure from those principles and laws which are considered indispensable to arrive at just conclusions in the establishment of genera and species; or, in other words, in laying down the true bases of the differential features of the families, genera and species of a class, so as to enable the student to deposit his objects with certainty in their natural position, and to distinguish them from others, however numerous, of the same family, by concise and well-defined specialities. If these rules were rigorously attended to, we should have fewer complaints of the almost impossibility of identifying many of the objects of natural history. The inconveniences that have arisen from the neglect of these precepts are so great and pressing, that I propose to attempt to point out their origin, and suggest a remedy as far as regards malacology and conchology, and to evidence and illustrate my arguments by references to the present state of certain groups of the Mollusca. If conchologists are determined to form numerous species from the same animal because it happens to present certain shell-variations, they must have their way, but malacologists will not concur with them in giving a dozen names to the same object. These gentlemen cannot escape having the phrase *dies docebit* verified; the day of retractation will assuredly arrive; it will therefore be better for the interests of science and their *amour propre*, at once to apply the remedy for this singular creative monomania,

. . . . 'O medici mediam pertundite venam.'

I apologise for my irreverent quotation, and trust I may claim for this once,

. . . . . 'Liberius si
Dixero quid, si forte jocosius, hoc mihi juris
Cum veniâ dabis.'

"The practice I have just described is fraught with great detriment to the advancement of science, because in many instances it destroys every attempt at identity, and renders our books bulky and expensive by the

insertion of worthless synonyms, which have no existence as objects; and every writer feels obliged to notice all, because he has not the means of separating the rigorously-defined and well-founded species from the pseudo and unsubstantial articles. It results from this false position of the science, that when a student, with his object in hand, consults the authorities, he finds 10 or 12 others so nearly resembling his, that he becomes bewildered in the mazes of distinctions, often without differences, despairs of identifying his object, and perhaps retires altogether from a rational and highly important pursuit, under the idea that the science is full of perplexities, which he, as a tyro, has neither time nor inclination to unravel."

Miscellaneous.

Northern Region of Russia.—"In the extreme north the corn is sowed and reaped in a few weeks. It is remarkable that the further north corn can be made to thrive, the shorter is the period of time in which it comes to maturity; it has also been observed that corn grown in the extreme north, when used as seed in a southern country, gives its first produce more speedily, ripening in a much shorter time, although at a second sowing it loses this quality," p. 347. "The heat and vivifying influence of the sun, and the quantity of organic matter, call into existence a prodigious amount of insect life, which is the case even where the water drowns the larger plants. Clouds of mosquitos, so large and dense that their humming can be heard for many miles, rise frequently into the air like huge columns of smoke. Everywhere in the woods the number of large bluebottle flies and other insects renders one's passage through them quite maddening, and explains why the elk, the rein-deer, and the bear, spend most of the day plunged up to the neck in the pools of the forests, or wallowing in its mire. The further northward one travels, the more annoying these tormentors grow." P. 348, v. 1, 2d edit., 1845.—*Revelations of Russia in 1844, by an English Resident.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

It is a very common practice in the management of the show-house to huddle the plants thickly together in order to produce a dense mass of bloom; but this should never be done with hard-wooded plants, especially at this season when they are starting into growth, and most things, if they are to be of any farther service, require a fair share of light and air while in bloom. Valuable specimens of hard-wooded things, particularly Heaths, should be frequently examined, turning them partly round in order that their shoots may be equally exposed to the light; and if anything appears to be suffering from confinement, it should be removed at once to more airy quarters. Should the weather continue bright, the beds and borders of this house will require a liberal supply of water to keep them properly moist; and the soil about strong-growing plants should be occasionally examined to see that it is not too dry towards the bottom of the bed, for the amount of moisture absorbed by such things at this season is much greater than inexperienced persons are apt to imagine. Greenhouse.—Now that many of the inmates can with safety be removed to the open plant ground, where they will do quite as well or better during summer than under glass, there will be no necessity for crowding the specimens left; therefore see that every plant stands quite clear, so that all its parts may be fully exposed to light and air. In placing greenhouse plants out of doors, care should be taken not to rashly expose them to bright sunshine, particularly if they are at all tender through having been kept close, or are in a growing state. Indeed, the plant ground should be so situated that the plants will not be exposed to the mid-day sun, for few things in pots will do much good if exposed to the full force of the summer's sun. Stove.—Where this house is principally used to furnish a supply of flowering plants for the summer and autumn decoration of the conservatory, some foresight and care will be necessary in order to have the things in a fit condition for removal to the conservatory when they may be wanted there; for until the weather becomes warmer than it has hitherto been this summer, plants must not be removed from a warm close moist atmosphere to a cool airy house without some preparation. And plants that have been grown in the stove should either be removed to an intermediate house, or placed in the coolest end of the stove.

FORCING DEPARTMENT.

Vineries.—Borders that have been lately uncovered should be carefully examined, and if found too dry give a liberal soaking of good strong manure water from the stable or farm yard tank. It will be advisable however to mix the manure water with sufficient warm water to bring the temperature to from 70° to 90°. Take advantage of bright days to admit air freely where the Grapes are colouring, and avoid moisture in the atmosphere by removing all plants from under the Vines. Attend carefully to young Vines recently planted, keeping the soil about their roots in a healthy moist state, maintaining a moderately moist atmosphere, and shading, if necessary, until the Vines get a fair start. Melons.—Where the fruit is swelling, endeavour to keep the soil in a nice healthy state as to moisture, avoiding either extreme. Give air freely whenever the weather admits, and use every means to preserve the foliage in health. Keep the Vines thin, and prevent their being encumbered with useless laterals, and remove any decaying leaves immediately they are perceived, which, when left, only serve as nurseries for insects. There is yet a fair chance of obtaining a good crop in "dung frames," and if any of the frames which have been used for getting up the bedding out stock can be spared for this purpose, the beds should be made and the plants got in without loss of time. Very little artificial heat will be necessary at present, and the bed should not be made to heat too strongly, otherwise there will be time lost before the plants can be safely put in. The bed should be made high enough, however, to allow of applying a lining, if necessary, later in the season, but this will be easily managed by making the bed some two feet high with any useless material which will not ferment, and placing upon this sufficient well worked stable dung to afford a gentle heat.

FLOWER GARDEN AND SHRUBBERIES.

The weather during the last ten days has been very favourable for the newly planted-out stock and well prepared plants, which have only been planted this time, are rooting into the fresh soil freely, and those who delayed planting out until the first week in June, and were then prepared with strong plants in good condition, will probably have their beds covered before those who planted out earlier; should the weather continue dry and warm, however, the plants must be regularly attended to with water, for it will not do to leave them to take their chance because they have made a few roots since planting out. But daily waterings will not be so essential now that the plants have made some progress at the root, as the increased root action will balance the extra drain upon the system of the plant resulting from full exposure to sun and air; but the soil must be well supplied with water until the beds are fairly covered, by which time, if the soil is deep and open as it should be, the plants will find sufficient moisture in the soil. See that everything liable to be injured by a sudden storm of wind is well secured by pegging, or staking, as may be proper, and keep the surface soil about all recently planted things loose and open by frequent stirrings, which will greatly assist in promoting rapid growth. Where there is a large demand for cuttings for spring propagation, a number of plants of each variety proportionate to the probable demand for cuttings should be selected from the reserve stock, potted in 7-inch pots in light soil, and plunged in the reserve garden. These, with very little attention, will make nice stocky plants in course of the summer, and there is no risk of losing in winter plants prepared in this way, and this can hardly be said of autumn rooted cuttings of many things, and by repotting and placing them in growing circumstances early in spring, each plant will furnish a large number of cuttings sufficiently early to make good strong plants before planting out time. Young specimens of ornamental shrubs and trees which it is desirable to get to grow rapidly should be thoroughly soaked with water at once, especially coniferous plants. A liberal supply during the growing season is more beneficial to such things, particularly specimens on lawns, than is generally understood. In proof of this the authority of Mr. Barron may be cited, and probably no man has had as much experience in the management of out-door ornamental plants, or understands it better; and he regularly practised not watering, but flooding valuable specimens during their growing season, and states that the large Araucaria at Elvaston Castle, which under this treatment had made something like 2 feet of growth a season was altogether neglected with water one year, and made hardly any perceptible progress that year.

HARDY FRUIT AND KITCHEN GARDEN.

Trees that have not got fully established since replanting will be benefited by mulching over their roots, which will prevent rapid evaporation, and keep the soil in a healthy state as to moisture. And the same attention will be useful to trees in shallow borders, especially Peaches and Nectarines, which are very subject to the attacks of mildew if allowed to get too dry at the root in summer. Where it can be procured, a thin coat of half rotten leaves should be used for mulching, and in the case of trees inclined to weakness, a portion of good rotten dung might be mixed with the leaf soil, and would be of great service in strengthening the trees. Do not give up the war upon insects until they are entirely eradicated, and give timely attention to the stopping of gross shoots, &c., on pyramidal and other trees which it is desired to keep in form. Those who are fortunate enough to have a heavier crop of fruit set than the trees are likely to bring to perfection should thin at once, in order to secure fine fruit with a prospect of a crop next season; and in this neighbourhood Apples are set so thickly that without thinning there will be no chance of a crop next season. See that there is plenty of Peas planted for furnishing a late autumn supply, and also attend to keeping up a succession of French Beans, Spinach, and all kinds of salad. Where it can be done Lettuces should be planted on a north border at this season, as it is difficult, without more watering than can always be afforded, to have them crisp and tender in hot weather, unless they are in a cool situation. Sow Onions for drawing young for salad, also Endive for autumn use, and see that there is plenty of Parsley provided to furnish a supply in winter. Keep the soil loose and open among all growing crops by means of frequent stirrings.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending June 14, 1855, as observed at the Horticultural Gardens.

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind
Friday 8	23	29.941	29.929	72	46	59.0	55½	55	S.W.
Satur. 9	24	30.019	29.991	66	42	54.0	59	56	S.W.
Sunday 10	25	30.227	30.191	73	41	57.0	58	55½	N.E.
Mon. 11	26	30.195	30.189	72	46	59.0	59	56	E.
Tues. 12	27	30.107	29.856	70	54	62.0	59	56	N.E.
Wed. 13	28	29.686	29.435	74	51	62.5	59	55	E.
Thurs. 14	29	29.517	29.485	61	51	56.0	58	56	S.W.
Average		29.956	29.875	69.7	47.3	58.5	58.6	55.6	

June 8—Cloudy; very fine throughout.
— 9—Fine; low white clouds, with very clear intervals; showery.
— 10—Very fine throughout; cold at night.
— 11—Very fine; dry easterly wind; fine at night.
— 12—Very fine; overcast; clear at night.
— 13—Hazy; overcast; heavy rain in the evening.
— 14—Overcast; rain; fine; rain at night.

Mean temperature of the week 1½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending June 23, 1855.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds						
Sunday 17	73.0	49.8	61.4	16	0.80 in.	1	4	2	[illegible]	[illegible]	[illegible]	[illegible]
Mon. 18	72.7	50.9	61.8	15	0.30	2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Tues. 19	70.8	49.2	60.0	14	0.37	1	3	1	[illegible]	[illegible]	[illegible]	[illegible]
Wed. 20	72.5	50.7	61.6	12	0.21	1	1	1	1	6	[illegible]	[illegible]
Thu. 21	73.9	51.0	62.4	13	0.68	2	3	3	2	1	[illegible]	[illegible]
Frid. 22	72.9	49.3	61.1	12	0.59	2	1	1	1	3	[illegible]	[illegible]
Satur. 23	73.4	49.4	61.4	12	0.44	1	1	3	10	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the [illegible] and 22d, 1846—therm. 93 deg.; and the lowest on the 17th, 1850, and [illegible] 1851—therm. 35 deg.

Notices to Correspondents.

Books: *J St. J.* We are not surprised at your complaints. A large library is a great inconvenience to a small man. You should do what we do, weed your book-shelves every two or three years, and send duplicates, or old editions, or what are obsolete, to the auctioneer. It is true the price you will get is low, and that there is loss to sustain; but recollect that you have had the use of the books, and the difference between purchase and sale is the price you pay for that advantage.

Diseases: *E E.* Thanks for your second supply of specimens which arrived in good condition. The racemes of flowers are extremely imperfect, and a large proportion of the few scattered buds abortive. The branches have in fact run to tendril. As your foliage is so luxuriant, it is probable that the roots have access to improper nutriment. There is no fungus about your plants, and you must therefore look to other causes. If we are wrong in our supposition you will probably be able yourself to assign some cause from a careful consideration of the circumstances under which the Vines are placed. Since it appears that all the Vines were somewhat overcropped, the abundant fruiting of last year would have equally affected the whole house, and we should scarcely expect such a complete failure from such a cause.—*J B.* There is not the least doubt that the pitting at the lower side of the Melon where it touched the ground is due to the same disease with that which has affected the leaves you sent a fortnight since. The vine attached to the fruit is dead except close to the stalk, but it may have withered since the plant was packed. The brown cavity at the top of the Melon is different from anything we have seen before, and the subjacent flesh is differently affected. In the paler pits the walls of the cells are nearly in their natural condition, but in the brown spot, which resembles the canker of certain trees, the cell walls are greatly thickened and infiltrated with brown matter. It seems to be a distinct disease. Both Melons and Cucumbers should be grown in a good stiff loam, without much admixture of manure. We feel sure that where much manure is mixed with the soil the disease is aggravated.—*H F.* Your Grapes are affected with an aggravated form of rust, like that mentioned a week or two since. Nothing can be done for them now.—*J R M.* Your plant, as far as we can judge from the two leaves, is a variegated variety of Mentha rotundifolia. *M. J. B.*

Eriobotrya Japonica: *R.* This will flower and bear fruit in a common greenhouse if its roots have plenty of room. It may be treated like a Camellia. It flowers in winter time.

Feather Hyacinths: *E H.* Your plant is Muscari comosum, not monstrosum. The latter is a monster of the former, and it appears that in your case, owing to altered soil, the monster has reverted to its natural state.

Guano: *Clapham.* What *can* we say which has not been repeatedly said already. In gardens it is best applied in solution, the insoluble parts being scattered over the borders and slightly dug in. It suits everything which manure suits. Like all liquid manures it should be given in very weak doses, often repeated, while plants are in a state of growth. Upon this point you will find detailed information in the "Theory and Practice of Horticulture," chapter xxi., where 40 pages are occupied by manure.

Insects: *K W.* The insects you have sent are both scale insects of the two sent the white ones are most injurious; they are now full of eggs, and require immediate attention, or your plants will swarm with the active young. Crushing them with the nail is as good a receipt as any.—*A R.* The grub has neither cork nor insect in it when it arrived.—*A Jardener.* Your Peach tree is infested with the large scale insect (Coccus Persicæ): their appearance is in no way attributable to the twine nets, but they are produced from young which were hatched last summer. You must immediately destroy them, or your trees will swarm with the young brood. The ants were engaged in sucking the saccharine matter exuded by the scale.—*Mary Elizabeth.* Your Peach trees are also infested with the large scale. See the preceding reply. *W.*

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*J F.* Anagyris indica.—*Tyro.* 1, Spurge Laurel, Daphne Laureola; 2, Daphne pontica.—*A Sub.* We know nothing about Hyacinthus belgicus cœruleus, much less which name we suppose some ignorant dealer has sold it to you. Its real name is Scilla campanulata.—*Constant Reader.* Bifrenaria vitellina.—*M C.* 1, Genista hispanica; 2, Pinguicula grandiflora; 3, Asplenium viride; 4, Jungermannia Blasia.—*R S Yates.* Oncidium crispum.

New Pea: *A Salisbury Paper* tells lately of "experiments being about to be made in several departments of France to naturalize a species of Pea, peculiar to China, which yields both oil and flour. The oil, like Colza or Rapeseed, is used largely for culinary purposes. It is also made into paste, and after fermentation is seasoned with pepper, salt, &c. Every year thousands of junks, freighted with paste and oil, leave Canton for the different parts of the Celestial Empire." Can any one say what this is?

Roses: *G P., London.* Your buds are attached by the fungus called Uredo Rosæ.

Misc.: *R T C.* Your inquiry has no relation to horticulture or rural economy, and we answer no questions except those which have.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
WM. INGLIS CARNE, 10, Mark Lane, London.

TURNIP MANURE.—Superphosphate of Lime delivered to any Warehouse in London at 6*l.* per ton.
Professor Nesbit's Analysis given with Invoice.
Apply to CHARLES TOTHILL & Co., Manufacturers, Plaistow Marsh, Essex.

TURNIP SOWING.—The Undersigned beg to offer their valuable Supherphosphate of Lime (See "Royal Agricultural Society's Journal," Vol. VI., Part 2), Turnip Manure, and Nitro-phosphate or Blood Manure.
Also on sale, Guano, Nitrate of Soda, Gypsum, Bone-dust, Sulphuric Acid, Salt, and all other Manures of known value. Agents for the sale of Peat Charcoal.—Apply for Prices Current to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London.

PATENT SANITARY SEWAGE COMPANY'S NITRO-PHOSPHATED CARBON OR BLOOD MANURE, 5*l.* 10*s.* per ton; delivered in London, bags included. Each ton contains 1350 lbs. Blood and 11 per cent. of Phosphate of Lime.—Agents throughout the country.
22, Lincoln's Inn Fields, London.

CORN MANURE FOR SPRING SOWING.
CONCENTRATED URATE FOR GRASS, RAPE, AND ALL ROOT CROPS.
SUPERPHOSPHATE OF LIME.
THE LONDON MANURE COMPANY continue to manufacture the above Manures, which have been used with so much success for the last 14 years.
The London Manure Company also supply PERUVIAN GUANO (direct from importers' warehouses), Nitrate of Soda, Sulphate of Ammonia, Fishery and other Salts, Bone Dust, and every artificial manure of known value. EDWARD PURSER, Sec.
Office—40, Bridge Street, Blackfriars.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*
Office, 69, King William Street, City, London
N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

MANURES.—The following Manures are manufactured by HODGSON & SIMPSON, Calder Soap Works, Wakefield, and MATTHEWS & Co., Manufacturing Agricultural Chemists, Driffield. SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-Dressing for Wheat, Barley, and Oats. SIMPSON'S NITRO-PHOSPHATE for Turnips, Potatoes, and all other bulbous root crops, price 8*l.* per ton. N.B. Manures specially prepared for Grass and Flax. The above have been successfully tested for the last Seven Years by the leading farmers in Yorkshire and Lincolnshire, and other counties, and were applied last season to a breadth of upwards of 15,000 acres of land with the most beneficial results to the crops. A List of Testimonials and other particulars will be forwarded by post on application.

SEWAGE CHARCOAL MANURE.—This highly fertilising Manure, which is Peat Charcoal completely saturated with London Sewage, will be found most efficient for every species of crop; more especially for Peas, Beans, Turnips, Mangold Wurzel, and other root crops. It will produce a greater return for the outlay than Guano or any other manure at an equivalent value: it also possesses the property of retaining its fertilising power longer than other Manures now in use. It may be obtained at the SEWAGE MANURE WORKS, Stanley Bridge, Fulham, at 4*l.* per ton, and in quantities less than half a ton, at 5*s.* per cwt., for ready money only; and in quantities not less than a ton will be delivered at the London Termini of the Railroads free of charge for cartage. No charge for sacks.
It may also be had from Messrs. G. GIBBS & Co., 26, Down Street, Piccadilly, Agricultural Seedsmen, Agents for London, and from all the other Agents of the Company.

TO ARTIFICIAL MANURE MANUFACTURERS.
TO BE SOLD, from 10 to 15 tons of GREAVES, to sample, at 4*l.* 5*s.* per ton, net cash, delivered at a wharf in the Pool. The sample to be seen and applications made to KINGSBURY & WHITMORE, Advertising and General Agents, 14, Tavistock Street, Covent Garden.—June 16.

UNIVERSITY COLLEGE, TORONTO, UPPER CANADA.
AGRICULTURAL DEPARTMENT.
THE PROFESSOR OF AGRICULTURE, who resides on the Experimental Farm attached to the College, is prepared to receive into his family a small number of Pupils, who will have the advantage of entering on an extensive course of Collegiate Studies in connexion with Agriculture, on very easy terms.—Particulars and References may be obtained of Mr. H. G. AUSTEN, 259, High Street, Borough, London; or by addressing Professor BUCKLAND, University College, Toronto, Upper Canada.—June 1855.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
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The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.
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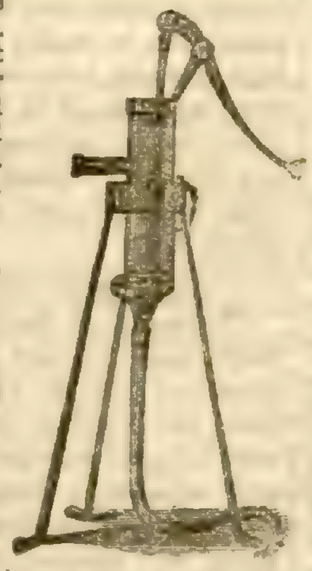
May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.



WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ „	long 3 „ 3 „		1	15	0
3 „	ditto 3 „ 6 „		2	12	0
3½ „	ditto 3 „ 6 „		2	18	0
4 „	ditto 3 „ 6 „		3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto	ditto ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
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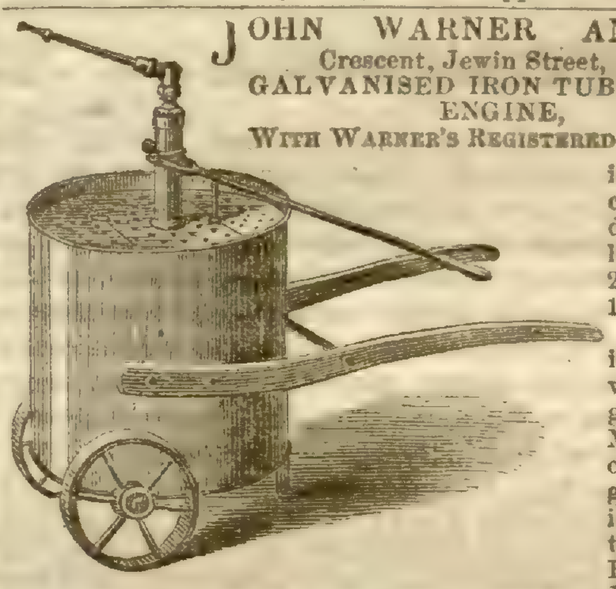
WITH WARNER'S REGISTERED SPREADER,



is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.
Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

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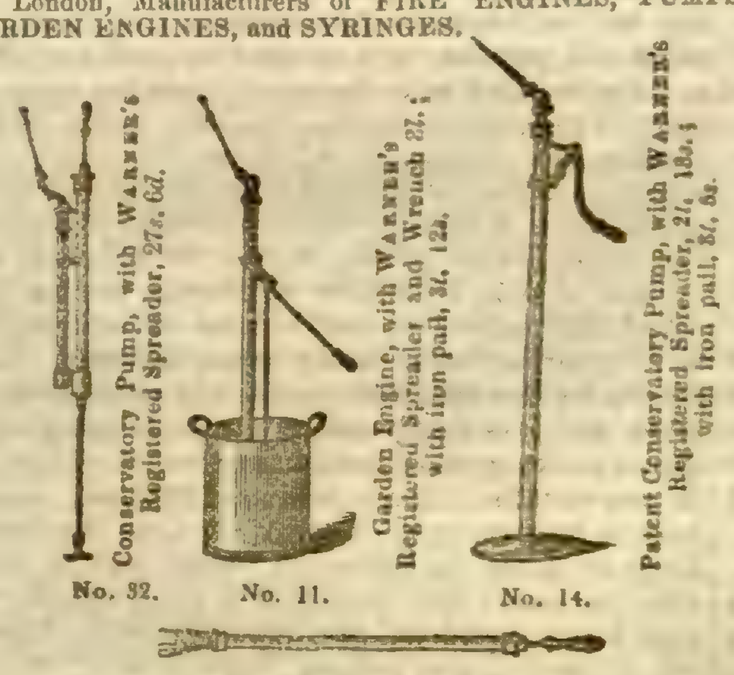

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JOHN WARNER & SONS having been practical Horticulturists for many years, know exactly the requirements of both Amateurs and Gardeners. A gardener with a properly constructed pump will get through as much work in five minutes as he could with any Syringe in a quarter of an hour, and with half the labour to himself. Syringes are economical for small houses.
No establishment offers such a variety of effective machines for hydraulic purposes, whether to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of liquids.
Fountains suitable for Conservatories, Lawns, &c.
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PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.
Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

TURNIP SEEDS, ETC.
PETER LAWSON AND SON SEEDSMEN to the QUEEN and to the HIGHLAND AGRICULTURAL SOCIETY, beg leave to intimate that they are sending out the following TURNIP SEEDS, for which they respectfully solicit orders. They are all of the most approved kinds of last year's growth:—
SELECT STOCKS.

SWEDISH— Per lb.—	s.	d.	YELLOW—	s.	d.
Lothian Purple top ...	1	9	Bullock, Green-top ...	1	0
Green-top	1	9	„ Purple-top ...	1	0
Laing's Purple-top ...	1	9	Gordon of Ayrshire, Green-top	1	0
Skirving's do.	1	9	Gordon of Aberdeenshire, do.	2	0
Matson's do.	1	9	Hood's Imperial, do. ...	1	0
Fettercairn Green-top ...	1	9	Laurencekirk Tankard, do.	2	0
White-fleshed	1	9	Cambridgeshire do. do.	2	0
RED—Round, or Norfolk .	0	9	Skirving's Purple-top Yellow Bullock ...	1	2
Tankard	0	10	Border Imperial Purple-top do.	1	2
Globe	0	9	Dale's Hybrid	1	0
„ Woolton (superior variety)	0	9	Tweeddale Purple-top Yellow Bullock	2	0
GREEN—Globe, improved	0	9	Cruicksfield Green-top Hybrid, new (between Swede Turnip and Kohl Rabi)	3	6
Round, or Norfolk ...	0	9			
Tankard	0	10			
WHITE—Globe	0	9			
Do. Pomerain, true ...	0	10			
Round, or Norfolk ...	0	9			
Six-week, or Stubble ...	0	10			
Tankard	0	10			

27, Great George Street, Westminster.

ANERLEY POULTRY SHOW.—
President—The Right Hon. the Earl of VERULAM.
Vice-President—Sir JOHN PETER BOILEAU, F.R.S., Vice-President of the Zoological Society.
The FIRST EXHIBITION will be held in the Anerley Gardens, adjoining the Anerley Station of the London and Croydon Railway, and near the Anerley entrance to the Crystal Palace grounds, on TUESDAY, WEDNESDAY, and THURSDAY, August 28, 29, and 30.
The value of the Prizes will exceed 300 guineas. A detailed List of the Prizes and Certificates of Entry may be had on application to the Secretaries at the Office, Anerley, Surrey.
EDGAR SMALLFIELD } Hon. Secretaries.
HENRY F. WELLS }

The Agricultural Gazette.

SATURDAY, JUNE 16, 1855.

MEETINGS FOR THE ENSUING WEEK.
WEDNESDAY, June 20—Agricultural Society of England.

The value of phosphate of lime as a manure has been long an established fact. The history of the use of bonedust, of the use of coprolites in its place, of Dr. DAUBENY's travels in Spain in search of the mineral phosphate, of Mr. PAINE's discoveries in the beds immediately under the chalk, furnishes abundant proof of the estimation in which this mineral is justly held by agriculturists. It was, therefore, with great interest that we read the following letter, communicated to us by Mr. WHITWELL, of Kendal, in reference to his discovery of the mineral phosphate in Connemara. He says:—

"In 1851 or 1852, I was led to suspect that there might be phosphate of lime in Connemara; this arose from reading an article in the *Agricultural Gazette* on the localities and circumstances in which mineral phosphate of lime is found, especially in the United States.

"I accordingly examined the district with great care, and especially the beds of primitive limestone and the neighbouring strata, and got several specimens analysed, and below I give you the result. Some of the old lands, where the rocks are found, were for sale; but the price asked was too high to have made it worth the risk of purchase. You see that the following table shows a considerable amount of phosphate of lime, which might be made very useful, and perhaps more valuable beds might be found which would be worth exporting.

	1	2	3	4	5	6	7	8
Phosphate of Lime... ...	7.16	13.8	3.5	14.8	8.5	8.3	13.7	2.
Silica	...	46.5	82.3	20.2	2.6	41.4	8.4	44.
Sulphate of Magnesia ...	...	3.0	...	...	...	.9	...	...
Chloride of Sodium... ...	...	2.	...	...	...	...	...	...
Potash	...	5.	...	...	4.6	...	...	...
Carb. of Lime	...	...	8.	43.8	49.3	...	74.3	..
Carb. of Magnesia	...	31.8	4.2	21.2	35.0	49.4	3.6	5.
Moisture	...	...	2.		...	...	...	...

"No. 1 was only examined to find out the proportion of phosphate of lime. No. 7 strikes me as the most valuable; it exists in large quantities on one of the townlands of the Martin estate. As I was not likely to become a purchaser, and did

not wish to prevent others enjoying the benefit of this information, I have this spring communicated to the different proprietors the facts which I have ascertained on this subject as they referred to their several estates.

"As to the localities in which the rocks containing phospate of lime occur, you will remember that veins of primitive limestone run through the district of Connemara in a direction nearly east and west; that most of these veins consist of vertical beds alternating with micaceous limestone or sometimes mica slate, the latter rock constituting the prevailing rock of the district, excepting the mountain tops, which are generally formed of granular quartz rock. There is one range of mountains separating the baronies of Ross and Ballinahinch in which the primitive limestone is found in horizontal strata, and capped by mica slate and quartz rock.

"I was led by the hints given in the article of the *Agricultural Gazette*, on Mineral Phosphate of Lime, to examine carefully the different veins of primitive limestone which can be traced for several miles by following the direction of the strike of the beds. After considerable research I discovered No. 7, which is situated in the valley of Glencaghan, about two miles to the north of the Galway and Clifden road, and about 11 miles from Clifden, near what is called the Canal stage. The beds in which it occurs may be traced from near the half-way-house between Galway and Clifden to the promontory which separates Kingston and Streamstown bays.

"It is in this vein of rocks that the Connemara marbles are found, several of which were analysed.

"The first specimen that was analysed was part of one of the beautiful ornaments made of the Lessonter marble (near to Recess); it gave 7.16 of phosphate of lime.

"The next specimen, No. 2, was from the same quarry, and you have the result above.

"The results were encouraging, but the large proportions of silica and magnesia led me to look for purer combinations of lime, and I examined the rocks at the western extremity of these beds, and got No. 3 from Knockbaun, between Kingstown and Streamstown Bays; the analysis was discouraging, but Nos. 5 and 6, from the marble quarries of Letternoosh, at the head of Streamstown Bay, were promising, especially No. 5, from its containing 4.6 per cent. of potash, in addition to 8.5 per cent. of phosphate of lime. The next analysis was of a piece of marble from the Barnanoraun Quarries, and it had too great a proportion of silica and magnesia to be useful.

"I then made Recess once more my head quarters, and having given up the hope of finding the large proportion of phosphate of lime I was looking for in the Connemara marbles, I carefully examined all the beds of limestone in the neighbourhood, and the accompanying strata as well as the igneous dykes which crossed them.

"Having travelled round several of the lakes, including most of Derryclare, I visited the gloomy and roadless valley of Glencoaghan, where I discovered extensive beds of No. 7, apparently underlying the Connemara marbles, which are here found almost horizontal, cropping out beneath the mica slate and quartz rock.

"No. 7 is, I think, also to be seen near to Ballinahinch Lake, and at the Barnanoraun marble quarries. I have also discovered it since near to Clifden, and also in small quantities near to the half-way house; but all the specimens were got from the same beds, which run nearly parallel with and to the north of the Clifden road. No. 8 was also obtained from the same beds, but afforded only two per cent. of phosphate of lime. Another specimen was submitted to analysis, but the report given by the chemist was, that it had only a trace of phosphate of lime."

The above le ter will be an encouragement to landowners in situations geologically the same as the district here referred to, to examine the limestones to which they may have access. A limestone is so easily reduced to the condition in which it becomes available as a manure, that the comparatively small per centage of phosphoric acid here indicated will be agriculturally of great value, which it would not have been had it occurred in a siliceous or claystone rock.

We hear of at least two Steam Cultivators being entered for Carlisle, namely, Usher's and Boydell's. The latter invention consists of the patentee's "Endless Railway" applied to the driving-wheels of a locomotive engine. Many ingenious contrivances have been devised to enable a carriage to carry its own railway. Thus, in 1821, a Mr. Barry patented a machine of the kind, in which a number of carriage-wheels and friction-wheels were mounted upon endless chains passed around drums at the back and front of the vehicle; and each pair of wheels being taken up behind and set down in front in its turn, the carriage could be drawn smoothly along upon the friction-rollers, while the wheels in contact with the ground *stepped* (as it were) instead of rolling over stones or other obstacles. In 1825 Sir George Cayley patented a locomotive apparatus on the same principle, but differing in practical details. Mr. Gordon, in 1822, patented an endless railway, consisting of a large hollow cylinder with belted racks or rails upon its internal circumference; and a locomotive engine being placed inside the cylinder and climbing up its internal railway, caused it to roll forward. A large drum of this kind was once employed with great advantage to transport heavy goods over an American swamp. One of the first steam-ploughs (Heathcote's) had the same principle differently applied. Instead of a drum, an endless platform passing round two great wheels at each end, carried a steam-engine within it: and while by means of gear-work and traction-tackle the ploughs were drawn up and down the field, the engine shifted itself and its moveable hard roadway from time to time along the headland. Mr. Boydell has endeavoured to supersede all such ponderous and unwieldy expedients by shoeing a carriage-wheel with short straight pieces of rail. It is unnecessary to describe this ingenious invention, as full details appeared in the papers, and public trials were repeatedly made during the past winter. As far as the surmounting of obstructing stones, crossing holes and travelling over rough uneven ground are concerned, the performances were satisfactory; the principal doubt remaining with us relates to the action of the rails in a deep, muddy, "founderously" bad clay road. However, in cultivating land, the apparatus would seldom have to venture upon very wet and sticky ground; the surface of any soil in a cultivable state will always be tolerably dry, and either firm and smooth, in large clods, or soft, deep and spongy. The rails cannot work well with a very rapid speed, and for tillage purposes this would never be required.

The steam cultivator, already constructed, consists (as we understand) of a common seven-horse portable engine, with reversing gear; to one of the hind wheels (each of which is 6 feet in diameter, and fitted with the endless railway) a spur-wheel of 5 feet diameter is attached: and this is driven by a pinion on the crank shaft. The forewheels are steered by means of a pole, with wheel, chain and pulleys, like those of a steamboat; and one man at this wheel has entire control over the engine, which can be turned in a circle of 40 feet diameter. It is intended that this engine shall *traverse a field, dragging ploughs or other implements behind:* the endless railway preventing it from sinking in soft earth, and laying hold of the ground so as to give a strong purchase for pulling. If the engine be only a common portable one, we suppose that it must prove useless upon sloping ground, but the merits and defects will quickly appear in the field. Mr. Boydell has been connected with agriculture and the management of landed property, and should therefore be a competent judge of the husbandman's requirements; but we think that when it has once become practicable and *admissible* for a locomotive engine to *travel over the land*, something more perfect than an old-fashioned horse implement ought to be actuated by it.

We will add a few words upon Mr. Usher's invention. Every one knows that it consists of *a locomotive engine having a revolving tiller mounted behind.* This tiller, driven by the engine, and rotating in the same direction as the paddle-wheel of a steamboat, not only digs up the soil, but in so doing urges forward the whole machine upon its carriage wheels; and so far from any extra power being needed for this propulsion, the propelling action of the tiller owing to the resistance of the earth is greater than is required. By this arrangement a great economy of power, and therefore of weight in the engine is obtained. The trials in 1852 were made with a machine of 10-horse power, and weighing 6½ tons; but Mr. Usher has lately completed an improved one of 14-horse power at 50 lbs. pressure, and weighing only 5½ tons. The breadth of work taken at once is 4 feet 2 inches; the rate of advance 1900 yards per hour, which accomplishes 2635 superficial yards per hour, or 6½ acres in a day of 12 hours. There need be little lost time in turning on the headlands, for the work may proceed round and round instead of up and down the field. The engine will ascend acclivities of one in ten, and turn in a circle of 16 feet diameter.

The quality of the work performed by it is the point of most interest to the farmer; and this appears to be very efficient for certain purposes, though not adapted for breaking up leas or any ground where the perfect burying of the surface is a matter of necessity. The cutters consist of curved *ploughs*, with coulters, shares, and mould-boards, only the latter do not twist over so much as those of a common plough. Each of these cuts off a sort of curved flake or slice of soil, turning it over sideways, and of course considerably crumbling and dividing it; but as the piece is thrown immediately before another cutter, it is again broken up and further comminuted. The tiller makes 30 revolutions per minute, and each plough takes a "bite" (or advance) of 9½ inches, the depth varying, according to the pleasure of the operator, from 6 or 7 to 9 inches: from these dimensions and this speed, the farmer may form some idea of the nature and appearance of any particular soil when dug by this engine; and he may also consider what would be the effect of pressing down every 4 feet breadth of his land with a roller more than 5 tons in weight.

We shall soon have three real steam-cultivators in the field, constructed upon as many distinct principles: there is Mr. Williams', ploughing by traction with a stationary engine; Mr. Boydell's, ploughing by traction with a travelling engine; and Mr. Usher's, tilling by a revolving apparatus attached to a travelling engine. Surely the true principle and the best practical embodiment of it may be educed from such a competition. *I. A. C.*

SHORTHORNS, THEIR PEDIGREES, AND MILKING POWERS.

In my last letter to you on the subject of short-horns, I mentioned that I had a cow in calf to the Duke of Glo'ster (11382). On Saturday last, the 9th of June, she produced a fine roan calf, which to my great satisfaction proved to be a bull. As the births of thorough-bred foals are recorded as they occur, so it would not be uninteresting if the births of the highest bred calves of the short-horn race were chronicled in like manner. In modern times, the latter have fetched prices quite as high as the former, and they certainly are as well worth them, since they conduce in an equal degree to the improvement of their race. In order to sustain the claim of my calf to the honour of his name appearing in your columns, I add the pedigree of his dam:—Ferret-Roan, of 1849 (bred by Mr. G. Bell), by 4th Duke of York (10167); dam, Fancy by Duke of Northumberland (1940); grandam, Fanny by Shorttail (262); gr.-g.-dam, Fletcher the 2d by Belvidere (1706); gr.-gr.-g.-dam, by a son of Young Winyard (2859), descended from Mr. J. Brown's old Red Bull.

It will be evident to any one conversant with the pedigrees of Mr. Bates' herd, that there is much very close breeding in that of my calf, and yet he far exceeds any calf I have bred this year in size and stoutness; in fact, his size is considerably above the average. This is another confirmation of the truth of Mr. Bates' view, that although to breed in and in from bad stock was, to use his own expression, "ruin and devastation," yet that the practice may be safely followed within certain limits where the animals so related are descended from first-rate parents, and are themselves of undeniable excellence. In this, as in every other point, success or failure depend upon the judgment of the breeder. It is, however, so much more common for men to over-estimate the merits of their own stock than to rate them too low, that it cannot but be useful to breeders carefully to guard against this tendency in themselves. It is certain that he who keeps his eyes open to excellence, wherever it exists, and avails himself of it whenever it is within his reach, will in the end have a better herd than he who, taking it for granted that his stock is perfection, never troubles himself to look beyond it. The history of short-horn breeding affords abundant evidence of the truth of this maxim, from the time when Mr. C. Colling purchased Hubback, which though of unknown pedigree, is an ancestor of many of our best short-horns, down to the introduction of Cleveland Lad by Mr. Bates into his herd.

I think that Mr. Horsfall, in his interesting record of his dairy practice, does not state whether he adheres to any one breed of cows, or whether he purchases such as he conceives best adapted for milking, irrespective of any other consideration. It would be both useful and interesting, however, if he and other agriculturists would state the results of their experience of the milk-producing powers of the principal breeds of cattle in the kingdom. As regards the short-horns, there is, I believe, a prevalent notion that they are indifferent milkers. Although facts may seem to lend a certain degree of support to this opinion, it is nevertheless a mistake which an impartial investigation must dispel. In the first place, the principal ancestors of the improved short-horns—the old Holderness cows—were, and are still, the deepest milkers in the kingdom. Is it likely, then, that these descendants should wholly have lost this valuable property? It may, indeed, be alleged that the celebrated cross with the Galloway cow resorted to by Mr. C. Colling may have produced injurious consequences in this respect. I think that the effects of this "alloy," whether for good or the reverse, have been over estimated, inasmuch as the cow "Lady," from which this family is descended, had only ⅛th of the Galloway blood in her veins. As Favourite (252) was quite unconnected with the "alloy," as were also several other celebrated originals of the short-horns, it is

evident that the union of them with the cow Lady would give ½d of that cross in the next generation. Except, therefore, in those herds where the "alloy" has been purposely followed out, it may be estimated that from th to th of Galloway blood is the utmost proportion which exists in modern short-horns, and it is obviously insufficient to obliterate any well established property belonging to the original race.

But leaving the domain of speculation to pass to that of fact, are the improved short-horns good dairy cows or not? From a considerable mass of evidence which I have collected to prove the affirmative of this proposition, my limits here only allow me to refer to the pamphlet of the Rev. H. Berry, who gives a long list of cows of the highest pedigree, with the measured quantity of milk given by each. Several of these gave 24 quarts daily; one 32, another 36, and one as much as 38 quarts. From this authentic testimony as to the early character of the breed, I must pass on to the valuable article of Mr. Dickenson (Journal of the Royal Agricultural Society, vol. xi.) on the farming of Cumberland, and the perusal of which I recommend to all who are interested in this subject. He mentions a high-bred cow called Kate, which gave 13 quarts at a meal, and from this quantity yielded at the end of a week 26 lbs. of butter! About the fact itself there can be no doubt, noting as it does on the testimony of her owner, Mr. Fisherson, of Harker Lodge. Another cow mentioned by Mr. Dickenson produced in 32 weeks 373 lbs. of butter, being at the rate of 11⅔ lbs. per week! My own experience on the subject is, that while their milking powers are at least equal to those of any other breed, they possess over all others the great advantage of keeping their condition on food on which common cows would starve. I am far from maintaining that all short-horns are good milkers. Two causes have contributed to injure them in this respect: 1st. That being a point to which many breeders are indifferent, they have selected their originals and continued to breed solely with reference to symmetry, size, and the propensity to early maturity. As therefore not only good qualities but the lack of them descend, it cannot be surprising that many short-horns give but little milk. 2d. From the emulation of breeders to show the finest animal at the earliest age, a system of pampering is begun at birth and carried on until the animal is either sold or slaughtered, which from the premature development of fat which it produces, tends to depress every other vital function. This system, unfavourable as it is for allowing the milk producing powers to develop themselves in any individual subjected to it, is fatal when pursued for generation after generation. After a time, "function," to use the words of Dr. Playfair, "begins to react on organisation," and a tribe of bad milkers is formed, among which individuals may even occur which will give no milk. Most sincerely do I wish that the forcing system were utterly exploded, injurious as it is alike to the short-horns themselves and their reputation. If they will not thrive on the ordinary keep of other breeding stock, the sooner they are abandoned the better. But it is their pre-eminent merit that they are the best thrivers in existence. As milkers, when well selected and rationally treated, it is not easy to find cows which will excel them. Sometimes even they will at one and the same time give large quantities of milk, and carry a great deal of flesh, although this is not in general desirable.

When I think of the number of good milkers I have known among the short-horns, and remember that it was an original characteristic of the tribe, it appears to me of great consequence, considering the national importance of dairy produce, to use every exertion to render so valuable a quality permanent. Good milkers are not over abundant among any variety of the vaccine species, and are most scarce among ill-bred mongrels. Mr. Atten, of Longcroft, had two or three years a white cow of the name of Penguin, descended from the stock of Mr. Robertson, of Ladykirk, which was an extraordinary milker. Colonel Kingscote's cow Honeysuckle is remarkable even in his herd, where this point is so successfully cultivated, for the same quality. Mr. Sainsbury is strenuous in attaining high excellence here as in every other point. Among my own cows, which are milking better this year than I ever knew them before, I may be allowed to name one which at nine years old is a most extraordinary milker, viz., Jessy, bred by Mr. R. Bell. She is by Napoleon (10552) dam by Cleveland Lad (3407), &c., and has bred a prize heifer. She may therefore be cited as a proof that is possible to combine the quality for which I am contending with the best short-horn blood. In conclusion I may add that I am preparing for publication an article on the breeding of short-horns, and shall therefore feel obliged for any communications from breeders containing facts in reference to this or other points worthy of notice. I shall also be glad to show my small herd to any breeder who may happen to be visiting this neighbourhood. They are as hardly kept as those of any neighbouring farmer, and as my object is to make cheese, the calves are weaned from new milk at an earlier age than is usual among the breeders of short-horns. *Willoughby Wood, Holly Bank, Burton-on-Trent, June* 12.

THE NEW MARKET AT COPENHAGEN FIELDS.

On Wednesday the opening of the new market was inaugurated by an entertainment given by the Lord Mayor and Corporation, at which H.R.H. Prince Albert was present. His Royal Highness arrived about 1 o'clock, and accompanied by a numerous suite proceeded to make the circuit of the market, and to inspect the arrangements which have been provided for the accommodation of cattle, sheep, pigs, calves, with their buyers and sellers. On reaching the pavilion an address was presented in which allusion was made to the benefits conferred on the metropolis by the transfer of its principal market from a central to a suburban locality, and to the interest shown by His Royal Highness Prince Albert in this, as in every other thing affecting the happiness and prosperity of her Majesty's subjects. His Royal Highness replied as follows:—

"My Lord Mayor and Gentlemen,—Accept the expression of my hearty thanks for your kind welcome, and for the gratifying assurance of your loyal and affectionate attachment to the Queen and her family. I have been much pleased by the opportunity which your kind invitation has afforded me of seeing and admiring the great work which you this day open to the public, a work which not only deserves all admiration in itself on account of the excellence of the arrangements and the magnificence of the design, but which will, I trust, be found eminently conducive to the comfort and health of the City of London. That its success will be commensurate with the spirit in which it has been undertaken and carried out, I cannot doubt. A certain dislocation of habits and interests must inevitably attend the removal of the great city market from the site it has occupied for so many centuries, and this may possibly retard for the moment the fullest development of the undertaking. But any opposition arising from such causes will soon cease, and the farmers will doubtless soon learn to appreciate the boon thus conferred upon them by the London corporation, in the increased facility which will be afforded to them for the transaction of their business, and the comparative security with which they will be enabled to bring up and display their valuable stock in this great metropolitan cattle-market."

Loud cheers followed his Royal Highness's reply. The procession then re-formed, and shortly afterwards the company, amounting to some 1100 persons, sat down to a most sumptuous cold collation, supplied by the Messrs. Staples.

The Lord Mayor gave the toast of "Her Most Gracious Majesty the Queen," which, it is scarcely necessary to state, was drunk with the greatest enthusiasm. The Lord Mayor next proposed "The Health of his Royal Highness Prince Albert, Albert Prince of Wales, and the rest of the Royal Family," and alluded to the affectionate regard in which his Royal Highness was held by all classes of her Majesty's subjects, as the promoter of the arts and sciences, and of the general welfare of the people of this country. —Prince Albert rose to acknowledge the toast amidst the most enthusiastic cheering. His Royal Highness said: My Lord Mayor and Gentlemen,—I beg to thank you for the very kind and flattering manner in which you have done me the honour to drink my health. I assure you it has given me great pleasure in being able to accept the kind invitation of the Lord Mayor, and to be present at the opening of this splendid and useful work. I can only add that the oftener he shall invite me to similar ceremonies the better I shall be pleased. Great works of this nature can only be undertaken by public bodies, and carried out with success by public spirit; and I hail the present instance as an earnest of your determination to accept the duties which your position has imposed upon you. Its future success, I will only add, will depend upon the bold and conscientious execution of those duties. Gentlemen, I again thank you, and beg to conclude by proposing "The Health of the Lord Mayor and Corporation of the City of London, and Prosperity to the New Metropolitan Cattle Market." His Royal Highness then departed, accompanied by the Lord Mayor, &c.

On Friday the market opened for the usual transaction of business. There was a much smaller market than usual; and it may be supposed that it will be some time ere trade flows freely in its new channel. The space enables all the arrangements of the market to be more orderly; and the lairage and other accommodation for both cattle and sheep will, no doubt, contribute to make the Copenhagen Fields more a market for store, as well as fat stock, than ever Smithfield was.

Home Correspondence.

Waste Land.—I was very glad to see your remarks, p. 361, on reclaiming or improving inferior land. It is a subject especially applicable to the Highlands of Scotland, where thousands on thousands of acres of good land are left in a state of nature and annually deteriorating, by the encroachment of Heather, Birch, Alder, &c., on what little Grass there is. As a general rule, sheep farmers do nothing to improve the pasture except now and then a surface drain or two, and of course it gets worse every year. In many places the ground would bear ordinary farm crops, and at any rate Mr. Fowler's plan might be adopted, or even cheaper modes of improvement; anything is better than going backwards. A large breadth is also cleared for deer forest. We read of the barbarity exhibited when the New Forest was made, but it seems the same thing in the nineteenth century is all right and proper when done by Highland lairds or English sportsmen. I wish some English agriculturist of Mr. Fowler's school would pay an agricultural visit to the Highlands, and give the world his opinion of the state of matters, leaving sporting out of consideration for the time being. *A. C.*

The Farmer's Rain Gauge.—The instrument on which I propose to furnish a few concise remarks has of late come greatly into vogue, and is constantly referred to in the leading periodicals. The object of a rain gauge is to ascertain the almost exact quantity of rain which has fallen in certain places, and within a precise period of time. Therefore, if the quantity be discovered, the depth of ground into which the rain has penetrated after a few hours' quiet interfiltration may be inferred with sufficient accuracy. The writer of these lines was applied to soon after the measures adopted by the sanitary Board of Croydon had been undertaken, and as some instruments were subsequently procured by parties interested in the inquiry concerning the quantity of rain which usually falls in this reputed dry locality, he resolved to prepare two instruments for his own experiments, the results of which have been so satisfactory as to induce him to offer the following simple directions, by which any intelligent person can possess himself of a good and trustworthy gauge at the outlay of from 3*s.* 6*d.* to 5*s.* It is customary to employ a round funnel as the recipient of the falling rain, made often 8 or 9 inches wide (with an upright, strong, and wired rim of the same width at the top) contracting to a neck an inch wide at the top, half or three quarters of an inch at the bottom, and about 5 inches long. This funnel is passed into a rather wide mouthed glass bottle, and adapted firmly to its neck by a linen compress wrapped round the junction of the tube. Safety from fracture is thus provided, and the funnel remains secure in its position even during a strong wind; evaporation is also prevented. As the quadrature or squaring of a circle is a problem which has never been absolutely solved, a square funnel 8 inches in diameter is recommended; and this can be made with great accuracy by a clever workman who appreciates the object and understands his business. The square of 8 inches (*i.e.* 8 × by 8) is 64; and therefore a divisor is at once provided by which the volume of water obtained can be accurately measured; whereas if the funnel be round and of the same width, its diameter must be multiplied by 3.142 decimal fractions to obtain an approach to a correct estimate of its superficial square inches. A cubic inch of rain water weighs 252½ grains, and this forms the basis of every calculation. A standard measure can be prepared by correctly weighing an ounce glass phial with so much rain water in it as will exactly balance the scales, the 252½ grains being added to the tare weight in the one scale. The water level should be marked either by a sharp file or by the point of a fine camel-hair pencil and a little paint. Thus also, the weight of any portion of a cubic inch can be ascertained and marked on the phial, and by this standard a glass vessel (with a lip) or an ounce medicine phial may be graduated from two to any number of cubic inches, with much accuracy. The apothecary's measure glasses might be used, provided allowances were made for a slight deficit in their capacity to the extent of 10 to 15 drops in each fluid ounce measure. It now remains to describe the method of fixing the rain guage. It should be premised that the instrument must be situated as nearly as possible to the surface of the ground, otherwise no just comparison can be drawn between the water in the bottle and that absorbed by the ground, for it has been proved that in proportion to the increased elevation of a guage, is the volume of water therein diminished. (See Dr. Charles Hutton's "Philosophical Dictionary," vol. 2, article Rain, p. 279). A flower pot of 24th or 16th size, sunk to its rim in any open spot of ground near the dwelling, may receive the bottle, which will be secured and protected by half a gallon of moist sand placed round it. The total fall of rain during the five months of this year, to June 1, amounted to no more than 5.62 inches. This deficiency of more than one-half of the usual average could not have been ascertained by other instruments or registers; and thus the utility of a simple gauge upon every farm is substantianted. And, in addition to this argument, we have a right to infer that were the land thoroughly broken up and pulverised from 9 to 12 inches in depth, the rain which falls upon its surface—be it redundant or under the average volume—would in one case pass freely into artificial drains or a natural absorbent subsoil; or, in the other, would permeate with facility the land prepared and rendered fertile by appropriate machinery. The greatest fall of rain that we have registered at Croydon fell on the 13th May, when 13 fluid ounces were found in the bottle, and proved by the standard measure to be equivalent to 26 cubic inches. The surface of a round funnel, measured by its girth, was 27 inches, the diameter 8½ inches, or more nearly 8.6 inches, the square of which =73.96 inches. The divisor so given may be taken as 74; therefore 26 cubic inches falling upon a circular surface of ground, equal to that which would be marked by the rim of the funnel inverted, and pressed upon it, would have entered and filtered through that small portion, had it not been intercepted and retained by the bottle. Now the decimal process by which the result was obtained, consisted solely in dividing 26 inches by 74, the presumed square capacity of the funnel rim—the product being 0.35 inch. Mr. Glaisher gives a fall of 0.7 inch on the 31st May, being double the quantity found here. Such are the uses of and valuable products detected by rain guages. They prognosticate nothing of the future, but they record local facts, which tend to the advancement of agriculture, as we hope has now been rendered apparent. *Croydon, June* 7.

Mangold Wurzel.—I notice in your Paper for Saturday, June 9, the statement that Mangold Wurzel is injurious to breeding sows and to little pigs; this was also asserted some years back in your Journal, but afterwards contradicted by another correspondent. The present reassertion of the statement has startled me, as I have just some 5 acres of Mangold for breeding sows' winter food and their young ones. I, as an old subscriber and occasional correspondent, would feel greatly obliged by some authentic information on the matter—that is to say, an answer grounded on experience whether Mangold is injurious to breeding sows and little pigs, and why; whether cooking or souring the roots prevents their injurious action. *M. R.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council, *June* 6.—Mr. Raymond Barker, V.F., in the chair. Forty-five new members were elected.

Finances.—The Chairman reported the result of the

Monthly examination of the accounts, from which it appeared that the current cash-balance in the hands of the bankers was 2876*l.*

Journal.—Mr. Thompson, Chairman of the Journal Committee, reported the following adjudications :—

I. To the Rev. W. R. Bowditch, of St. Andrew's, Wakefield, Yorkshire: the prize of 30*l.*, for the best essay on the chemical changes which occur in the decomposition of dung.

II. To Robert Vallentine (land-surveyor), of Burcott Farm, Leighton Buzzard: the prize of 10*l.*, for the best essay on the retention of moisture in Turnip soils.

The Committee also reported the following recommendation, which was adopted by the Council :—

That in future, under the head of "Miscellaneous Communications," a portion of the journal be allotted to short papers from such members of the Society as may favour the Journal Committee with an account of any matter of special interest which has come under their notice, in the management of their farms, or in their immediate neighbourhood.

Chemical Investigations.—Mr. Thompson also reported from the Chemical Committee the following recommendation, which was adopted by the Council :—

That in future, the one or more subjects of lectures to be given by the Society's consulting-chemist, in the following spring, be fixed before the Council adjourns over the summer vacation; and that the subjects for chemical lectures in 1856 be fixed at the Monthly Council in July.

Carlisle Meeting.—Mr. Raymond Barker reported from the General Carlisle Committee the progress of the arrangements for the Society's Meeting to be held at Carlisle in the last week of July next.

Special Council, *June* 13.—Mr. Miles, M.P., President, in the chair.

Carlisle Meeting.—Mr. Raymond Barker reported the further arrangements made by the general Carlisle Committee in reference to the ensuing country meeting at Carlisle.

Judges.—The Council appointed the Judges of live-stock for the Carlisle meeting, deferring the appointment of Judges of implements and machinery until the next monthly Council, when the report of the Implement Committee would be received, and their recommendations taken into consideration.

Papers and Lectures.—The President, in referring to the resumption of the business of the weekly meetings of the Council, announced the following arrangements :—

1. That on Wednesday the 20th of June, at 12 o'clock, Mr. Thomas Scott's Paper on the Production of Butter and the management of Dairies, would be read; and Mr. Slaney's statement on a simple and economical mode of removing soil from one part of a farm to another.
2. That on Wednesday the 27th of June, at 12 o'clock, Professor Way would deliver before the members a lecture on the use of Fish as manure.
3. That on Wednesday, the 11th of July, Professor Simonds would deliver before the members a Lecture on the Physiological Conditions affecting the quantity and quality of Milk secreted by the Cow under different circumstances of Feeding and Management.

Bath and West of England.—At Tiverton, last week, this Society had a very successful annual gathering. On the Thursday, especially, a multitude of people visited its well-filled show-yards. The Devon breed of cattle was not so well represented as might surely always be expected at the meeting of a West of England Society; the Herefords were entirely awanting! There was a very admirable show of implements, most of our principal implement-makers contributing specimens.

The public meeting on the show day was well attended and signalised by a useful address from Lord Ebrington on Agricultural Education.

His lordship offers for three years a prize of 20*l.* "to the sons of the yeomanry of Devonshire, between the ages of 18 and 25, just entering upon life, upon obtaining a certificate of competency in scriptural knowledge, and who should pass the best examination in that acquirement; also in the English language, and in the Geography and History of the British Empire, and in practical mathematics. And he announced that he had the assistance of three gentlemen who had consented to aid him, namely, the Rev. Chancellor Martin, Sir Stafford Northcote, and R. Dymond, Esq., who had promised to conduct the examination for him, and to go carefully through the candidates' papers, also making *viva voce* examinations of each candidate and arranging them in classes, and placing every individual, as at Cambridge, according to the manner in which he had answered at his examination."

We doubt not that this offer will produce some degree of emulation among those who are already securing to themselves the education which Lord Ebrington desires to extend. Whether its main purpose, that of exciting anxiety on the subject of education where it does not as yet exist, shall be served by it, we very much doubt.

Among the prize holders for Devon cattle are Mr. Davy, of North Molton, for the best three-year old bull; J. W. Buller, Esq., for the 2d best three year and two year old bulls; also for the 2d best pair of yearling heifers; Mr. J. Bodley, of Crediton, for the best two year old and yearling bulls; Mr. W. Farthing, of Bridgewater, for the 2d best yearling bull, and for the 2d best cow and the best heifer; Mr. J. C. Halse for the best cow; Mr. F. Webber, of Tiverton, for the 2d best heifer and the best three cows in calf. Many of the best known breeders of Devon cattle were absent—owing, it is understood, to their refusal to submit to the decision of any other judges than those of their own opinion on the character of the pure Devon breed.

The prizes under short-horns were carried off by Messrs. Widdicombe, of Hay Ugborough; Rev. T. G. Smith, of Uffculme; Mr. Stratton, of Swindon; Mr. Bowley, of Cirencester; Mr. Abbot, of Long Ashton. There was a fair show of sheep, especially of Longwools, Leicester, and Cotswold; and, as we have said, a very full competition in the implement yard, where the prizes for ploughs were divided between Messrs. Ransome and Howard, as usual, and the awards for steam-engines were made to Mr. Hornsby and Mr. Tuxford. The wet weather of the first days was succeeded by sunshine on the Thursday, and the principal day of the meeting was thus a most successful one.

The Poultry Exhibition in connection with this Society's show of stock experienced a due share of attention, and proved that good birds will still realise good prices. Two hundred and eighty pens of poultry were entered for competition, besides 71 pairs of pigeons. The arrangements were with a few exceptions good, the useful poultry being placed in one large tent, and the bantams and pigeons in a small or what may be termed "fancy" tent. On the first day we noticed that cards were very properly placed over the pens, stating the variety of their occupants and the name of the owner, thus saving the visitor the unnecessary trouble of constantly referring to the catalogue. On the following morning, however, that part of the card on which the name of the owner was written had disappeared; and for what purpose, unless to effect a compulsory sale of catalogues, we are at a loss to imagine. Anyhow, the general opinion (in which we heartily coincide) was that such a proceeding ought not to have received the sanction of the directors. In consequence of the severity of the weather at the commencement of the year, the chicken classes were not well represented, and the entries were but few. The following is a list of the successful competitors :—

Class I.—Spanish: 7 entries. Mr. Daniel Parsley, Bristol; Mr. H. D. Davies, Spring Grove House.

Class II.—Spanish Chickens: 1 entry. Mr. Buckley, Llanelly, Carmarthenshire.

Class III.—Dorking: 19 entries. Mr. H. D. Davies; Mrs. H. Fookes, Blandford.

Class IV.—Dorking Chickens: 5 entries. Owner unknown; Mr. H. D. Davies.

Class V.—White Dorking: 10 entries. Mr. W. Symonds, Milbone St. Andrew; Mr. Coleridge, Ottery St. Mary.

Class VI.—White Dorking Chickens: 2 entries. Mr. Manfield, Dorchester, 2d prize.

Class VII.—Cochin China, cinnamon, buff, and lemon. Mrs. Fookes, Blandford; Mr. Crane, Tolpuddle.

Class VIII.—Cochin China Chickens. Mr. Rodbard, Aldwick Court; Captain Snell, London.

Class IX.—Cochin China, brown, partridge, and grouse. Rev. G. F. Hodson, North Petherton; Mr. G. C. Adkins, Edgbaston.

Class X.—Cochin China Chickens: 2 entries. Rev. G. F. Hodson; Mr. Kingdon, Exeter.

Class XI.—White Cochins. Mr. Cyrus Clark; Rev. J. H. Gandy, Taunton.

Class XII.—White Cochin Chickens: 2 entries. Mr. J. R. Rodbard, 1st and 2d prizes.

Class XIII.—Black Cochins: 3 entries. Mr. Cyrus Clark, 2d prize.

Class XIV.—Brahma Pootra. Mr. H. W. Davies; Mr. R. H. Bush, Clifton.

Class XV.—Game, white and piles. Rev. T. L. Fellowes, Beighton Rectory; Mr. Jos. Symonds, Gorwell.

Class XVI.—Game, black breasted and other reds. Mr. G. C. Adkins; Mr. J. R. Rodbard.

Class XVII.—Game, duckwing and other greys. Mrs. R. Fookes, Blandford; Mr. W. V. Drake, Lockwood.

Class XVIII.—Game, black and brassy winged. Mr. W. V. Drake; Mr. E. Farmer, Greet.

Class XIX.—Malay. Mr. J. Leighton; Miss King, Taunton.

Class XX.—Hamburghs, gold pencilled. Mr. Thos. M'Cann; Mr. J. B. Chune.

Class XXI.—Hamburghs, silver pencilled. Rev. T. L. Fellowes; Mr. Edward Archer.

Class XXII.—Hamburghs, golden spangled. Mr. Hugo; Rev. T. L. Fellowes.

Class XXIII.—Hamburghs, silver spangled. Mr. Chune, Coalbrookdale.

Class XXIV.—Polands, black with white crests. Mr. G. C. Adkins; Mr. P. P. Edwards, Lyndhurst.

Class XXV.—Polands, gold spangled. Mr. R. H. Bush, Clifton; the same, 2d prize.

Class XXVI.—Polands, silver spangled. Mr. G. C. Adkins; Rev. G. H. Gandy.

Class XXVII.—Special Prizes. Mr. H. D. Davies, for Rangoon; Rev. T. L. Fellowes, for Black Hamburgh.

Bantams. Messrs. Adkins, Ballance, Bayly, Loders, Mapplebeck, Rodbard, and Ford.

Ducks. Mrs. Ford, Mrs. Fookes, Messrs. Ballance and Edwards.

Turkeys. Messrs. Edwards and Rodbard.

Geese. No entries.

Farmers' Clubs.

London, *June* 4. *Road Management.*—The following is the remainder of Mr. B. Denton's paper :—

Macneill has shown us, by actual improvements made on the London and Shrewsbury turnpike-road, that the comparative force of traction required to draw a waggon weighing 21 cwt. over a well made pavement was 33 lbs., over a broken stone road of great hardness was 46 lbs., and over a gravel road was 147 lbs.; but I am unacquainted with any experiment showing the tractive power required to move a waggon of 21 cwt. through a lias clay soil during the wet seasons of the year. We do know, however, from actual recorded trial, that the mere difference of whether a gravel road be wet or dry changes the figures representing the draught from 13 when dry and clean to 32 when wet and muddy, and when we contrast these figures with those I have just quoted, we shall be able to appreciate the resistance of strong and wet clay. It is not possible to find material affording so many elements of resistance to motion as unmitigated clay during nine months in the year, for in addition to the impeding power of collision, friction, and gravity, you have the influence of adhesion, which adds weight to resistance; and it is this consideration, I presume, that has led the Royal Agricultural Society of England to offer a prize for the best essay on "Farm Roads," with particular reference to clay farms. In all soils their power to resist motion will, of course, depend upon their want of hardness and consistency in a natural state, influenced by its adhesiveness when wet, and the relative value of internal roads to farms will be in proportion to the quality of the land in those respects. In tenacious clay soils the want of roads will be felt most; in a free gravelly soil it will be felt least. Though anxious to gain an unanimous admission of the economy of good farm roads, I will not dwell long upon the importance of a level way or easy gradients in the roads we use. It is so seldom that we can venture upon cuttings and embankments for farm accommodation, that it will suffice to illustrate the advantage of a level road over a hilly one, by stating that whereas the number of tons a horse can draw on a hard inflexible tramway (and it is by no means visionary to refer to tramways for the common service of well-arranged farms where the ground is level is 13, the number he can draw where the gradient is 1 in 100, is only 4½. But this comparison hardly puts the case tangibly, nor in a homely view. We find many farms abound in steep hilly slopes, with inclinations of 1 in 30 or even steeper, and it will be more to the purpose, therefore, to state that it has been practically demonstrated that the expense of power in £ *s. d.* required to draw a load of one ton along a common road on various gradients is as 6*d.* where horizontal to 8*d.* where there is a rising gradient of 1 in 30. If we adopt this comparison, and feel sure it will be found very near to the fact, we see that (all other points being equal with respect to formation and condition) the comparative saving of a level road over a rising gradient of 1 in 30 is 2*d.* per ton in the ordinary cost and application of horse labour on a farm. As a level road is manifestly more economical than a hilly one, so a straight and hard made road is better than a tortuous field tract over a tenacious soil. This twofold proposition is so manifest that it needs no proof. But in order further to test the important question of "What is the value of a farm with good and sufficient internal communication, and what the value of the same farm without any?" let us suppose a farm of 500 acres of a heavy clay soil with the homestead in the centre and good public roads on two sides of it; 500 acres will cover a square of seven furlongs aside. Now it would probably require two miles of road to give moderate accommodation to such a farm. This at an average price of 5*l.* a chain, will cost 800*l.*, and if we take the interest at 5*l.* 2*s.* 10*d.* per cent. (the rate of instalment for repayment of principal and interest charged by the General Land Drainage and Improvement Company) the annual charge will be 41*l.* 2*s.* 6*d.* Is such a farm permanently improved by the acquisition of a road to the annual amount of 41*l.* 2*s.* 6*d.* or 1*s.* 8*d.* per acre? When we consider that this annual sum of 41*l.* 2*s.* 6*d.* will barely cover the keep of one horse and a half (it does not much exceed what I understand to be Mr. Thomas's statement of the keep of one horse) without regard to the wear and tear of the horse itself, and of carts, harness, and implements, I think we shall all answer in the affirmative. In such a farm of 500 acres, 400 acres being arable and 100 acres pasture and meadow the produce of manure will be under ordinary good management from 1400 to 1520 tons of manure in the whole. This will suffice to give a dressing of 12½ tons to 116 acres and the number of miles travelled in doing that will be 966 out and back, if we take the average road-lead to be one third of a mile or 27 chains. Now if we remember that in heavy land we may not only pull our horses to pieces, but positively injuriously affect the land itself if we do not take advantage of every hour of dry weather but prolong the operation during wet weather, it is hardly possible to overate the advantage of a hard road which will allow of a horse to travel at least 20 miles daily with the same ease that he will travel 12 or 13 miles, doing the same work through clay mud. I repeat the difference of 28 days which these figures show in the time it will require to get manure on to the land is one consideration which will go far to meet interest on the outlay of making the road, leaving out of consideration the injury done to tillage as well as damage to horses by carting over clay soils in wet days. If, therefore, we add all these advantages together, the gain in time—in power—in the wear and tear of carts and implements, and in the personal comfort of the occupier, there can be no doubt that 1*s.* 8*d.* per acre represents at least the value of the improvement in this assumed case. We shall not be outstepping truth and practice in the resolution we may adopt, if we assert in general but decided terms, that the existence or non-existence of internal roads on a farm is an essential element in determining the rent that should be paid for it, and that the provision of farm roads being a permanent improvement, and in the case of clay soils a very costly one, the outlay is properly a landlord's and not a tenant's duty. It was my intention to have given some details of the mode of making private roads, particularly through clay lands and fen lands, where they are most wanted, but time will not permit. Suffice it to say, that the advantages of laying *the bed of the metalling* securely dry by longitudinal under-drains—one on each side of the metalling—and laying the *surface* of the road dry by open drains on each side of the formation, are points of practice now fully acknowledged, as well as the profitable use of burnt balls (*i. e.* burnt clay lumps) as a bottom stratum in those clay or fen land districts where harder materials are not to be obtained except at too great a cost. This will apply to the London clay, Oxford clay, and lias clay districts, and to the fens of Lincolnshire and Cambridgeshire, where miserable boggy droves still exist, as the only means of approaching the lands of numerous owners and occupiers, who by combination could take advantage of the present facilities of applying borrowed capital repayable by instalments for the purpose of making roads just as easily as single landowners may do the like for draining, and the erection of farm buildings. I beg to place before you some cross sections of roads (alluding to plans which were exhibited) which may elicit discussion on the practice of road making, and of which I shall be happy to afford every explanation. You will observe that in each case the drainage for both surface and subsoil has been most carefully considered as the first essential in road-making. The price per chain of making roads will necessarily depend upon locality. I am now engaged in making them at prices varying from [illegible] 6*l.* 10*s.* per chain. The sections placed before you upon the farm roads made in various parts of England:—No. 1 shows a road made in the red sandstone district, of which the bottom stratum, 6 inches thick, was formed of a rough paving or blocking of the local sand, one rock covered with 4 inches of the best limestone in pieces that would pass through a 2-inch ring, at a cost of from 4*l.* 12*s.* 6*d.* to 6*l.* 17*s.* 6*d.* per chain. No. 2 shows a road intended for a fen district in which perforated bricks are laid flat in a convex base, and covered with burnt balls from the bottom stratum. The surface covering is intended to be screened gravel. The estimate cost of this road is 5*l.* 17*s.* 6*d.* per chain. No. 3 shows a road made in the stiffer lias and Oxford clay districts. The bottom stratum is of burnt ballast and the top screened gravel. The cost of this description of road varies according to the price of coal and gravel from 4*l.* 10*s.* to 5*l.* per chain. No. 4 shows a road in the London clay district. The bottom stratum is of chalk and the top of screened gravel. The cost will vary according to the depth of the chalk lying immediately below the clay, or the distance from whence it can be obtained, from 3*l.* 10*s.* 6*d.*, to 4*l.* 15*s.* per chain.

Mr. Baker had supposed when he read the notice on the card that Mr. Denton would treat of the providing better means of roads to their farm homesteads than of the general question of the roads of the kingdom; because it might happen that the public roads were in a very different state—in some places better, in some places worse, than in others. He was of opinion that the main roads of the kingdom were, taken as a whole, very good, and this had been effected by the local management of parishes. Although there might be some deficiencies in local management, he still thought that it was far better than having a central board, for every parishioner was more or less interested in the disposal of the funds. He would take the case of the Poor-law as an instance, and there it would be found that the expense had been very considerably increased, and the results attained very much better. He had always felt that when the roads were taken out of the hands of the parishes their rates would be increased instead of diminished. There had been great jobbery in the turnpike trust. Materials were put down irrespective of the state of the roads or of the time of year; and the managers had supplied the materials from their own pits. The late Surveyors' Act prevented surveyors from supplying materials or teams without [illegible] obtained a license, but of what avail was that, for they had only to apply to a magistrate, and they always obtained it. In his own district, where the roads were excellent and the cost small, 1*l.* per mile would form a considerable item. He had in his own constructed a road which had cost from 400*l.* to 500*l.* per mile. He had first drained the land well; had drains run parallel with the side of the road, and filled up with stones from the land. Where a road holds water, which is certain to break it up, the first step to take would be to properly drain it. He was satisfied that if the management of the roads were placed in an irresponsible board jobbery would creep in; and if they had good roads

would be at double the expense. He did not like the plan of removing the management from persons interested to persons who would only make a profit out of it.

Mr. Woods, of Sussex, said the roads in his neighbourhood were in a very excellent condition, and he thought the parish roads generally were made very well. He thought that by electing as surveyors men who had other business to attend to, the roads were neglected, which would not be the case if the plan of Mr. Denton's was carried out. There could be no question that if they took the water off the roads they would be better. He thought that this was not exactly the sort of question that ought to come before the Club, because they must all know the value of good roads. In his neighbourhood men who had been tradesmen in Brighton, and successful in their speculations, bought a few dirty acres, and then thought themselves country gentlemen. It was these sort of men who dabbled with the management of the roads, and the sooner they were trodden out and got rid of the better for the land and the country.

The Chairman stated that in the Isle of Wight, where the roads were in the best possible condition, the management was placed in a sort of union. In the parish in which he resided, the management of the roads was entrusted to four separate boards. The consequence was that the rates were higher, and the system was very bad and unconnected.

Mr. Owen said the roads in his parish were in very excellent condition. He should have liked to have heard something about roads on farms and the improvement of cross roads, which were a disgrace.

Mr. Denton, in reply, stated that it was his original intention to have treated in his paper of roads on farms, but when he looked at the subject he thought it better to treat it generally. Within the last 20 years the whole system of intercommunication changed and he thought that gentlemen ought to consider the question not as relating to their own particular parish or district, but as a general one. A few years since and they used to take the coach if they wished to travel, but now they had only to go to the railway station: and he thought that the parish in which the station was situated was entitled to some remuneration. The present system of managing roads was not an economical or a just one. He trusted that in the resolution to be carried that evening they would affirm the principle of consolidation.

The Chairman then put the following resolution, which was carried—"That in the opinion of this club the formation and maintenance of good roads is worthy of far more attention than it has yet received from the agriculturists, and that a better system of management, both local and general, is a matter of economy very desirable."

Votes of thanks to Mr. Denton and to the Chairman concluded the proceedings.

Calendar of Operations.

JUNE.

Hexham District.—We have delayed our monthly note of operations, in the hope of being able to report more favourably of the weather, and are glad to be now able to do so. Seldom have we had so cold and backward a month of May, not indeed for 17 years. On looking over our journal the almost daily entry is "cold east wind," interspersed with "hail showers" and such like, with the exception of the 2d and 23d, which were fine mild days; the month has been bitterly cold. On the 31st we had a heavy rain early in the morning, but it was not till Saturday the 2d inst. that the wind got out of the east. On that day we had a fine mild rain from the south-west, and since then fine growing weather. Swede sowing would have been pretty generally finished ere this but for the rain in the end of last week, but this week will see the most of them into the ground, and if this weather continue there will be a speedy braird. Spring-sown Wheats are thin on the ground, but Barley and Oats look well, in spite of the cold and drought. Pastures have been very bare, and Hay-straw backward; Whitsuntide fair a heavy one in consequence, especially for sheep. Of stirks in good condition there was a poor show, and long prices were asked and given. The show of two-year olds was also poor, which maintain prices at a higher figure than would otherwise have been. The last few days' moisture and warmth have already made a marked improvement on the Grass, and we may now hope to see our cattle getting a good bite. The hay crop will be both thin and short. Old hay is now selling at from 7*l.* to 8*l.* per ton. Both grain and stock markets keep up. *W. D.*

Notices to Correspondents.

Barley Stubble: *Amateur Farmer.* If the weather should suit you, 20 lbs. of Trifolium incarnatum harrowed in after a shower upon a clean Barley stubble in September—the land being in good condition—will secure as great a quantity of green food for forage in June of next year (and as cheaply obtained) as you can get in any other way.

Cyclopedia of Agriculture: *G. Cook.* It contains articles on the different cultivated plants, with statements of the modes and times of applying manure for them; an article on manure generally, especially with reference to farm-yard manure; and articles on the different artificial manures sold or made.

Eggs without Shells: *R C B.* The hens must be either out of health, or possibly they have not access to lime. The food and range you give them seem to be the best security for the former. Try laying pounded oyster shells in their way.

Guano, &c.: *J Fisher.* The treatment of crops as to manure will be found under each. Unless you get the full value of your artificial manure back in the crop of Wheat you have reason to be dissatisfied. The superphosphate looks very dark, but the cause of this we are unable to state.

Irish Moss: *A Constant Reader* asks how it is prepared for feeding cattle or calves?

Lucerne: *G W.* You should have sown it a month ago in shallow drills, in rows a foot apart, using about 16 to 20 lbs. of seed to the acre. To transplant the plants is more costly and less productive.

Orange Jelly Turnip: *Colo.* We have no experience: and that of others, as reported to us, is most contradictory. We should be glad of information from any known correspondent.

Poultry: *C R D.* We have not seen any full report of the native breeds of France, and do not know where to direct you on the subject in the agricultural literature of France. We saw nothing at Paris that would furnish the material of any such report.

Reports of the Crops: *E H.* We shall publish weekly information up till harvest time.

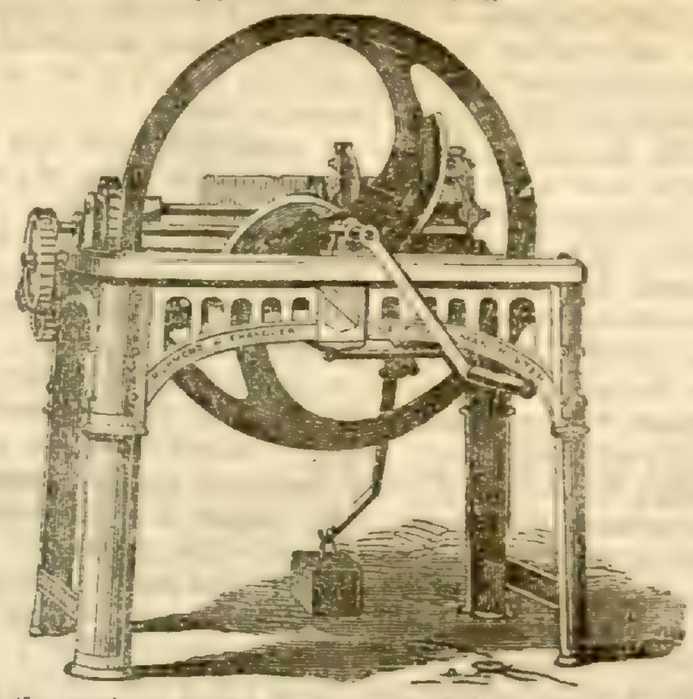
Self-acting Railway: *W C M.* We have had no experience of its use. See leading article.

Spanish Chestnut: *W H.* We know of more than one very old building in which the timbers of the roof are wood of the Spanish Chestnut. So that it is unquestionably durable.

Steam Engine: *A Scotsman.* We would not erect one for threshing 40 acres of grain crop. Are there no locomotive machines and engines for hire in your neighbourhood?

Young Colt: *J W S.* Cow's milk or ass's milk may be given to the foal several times (4 or 5 times) during the day, by means of a ladle with some rag tied round the mouth. The little animal will be the best judge of the quantity. Ass's milk contains less butter, and more resembles horse's milk than that of the cow, and is therefore to be preferred. The foal will soon learn to eat other food, such as Carrots and bruised Oats in the winter and green food in the summer. *W. C. S.*

RICHMOND & CHANDLER'S PATENT CHAFF-CUTTING MACHINE.



All the various modern Implements of Agriculture manufactured on the most scientific and improved principles, suitable for home use and exportation.—Address, Richmond & Chandler, Salford, Manchester: and 32, South John Street, Liverpool.

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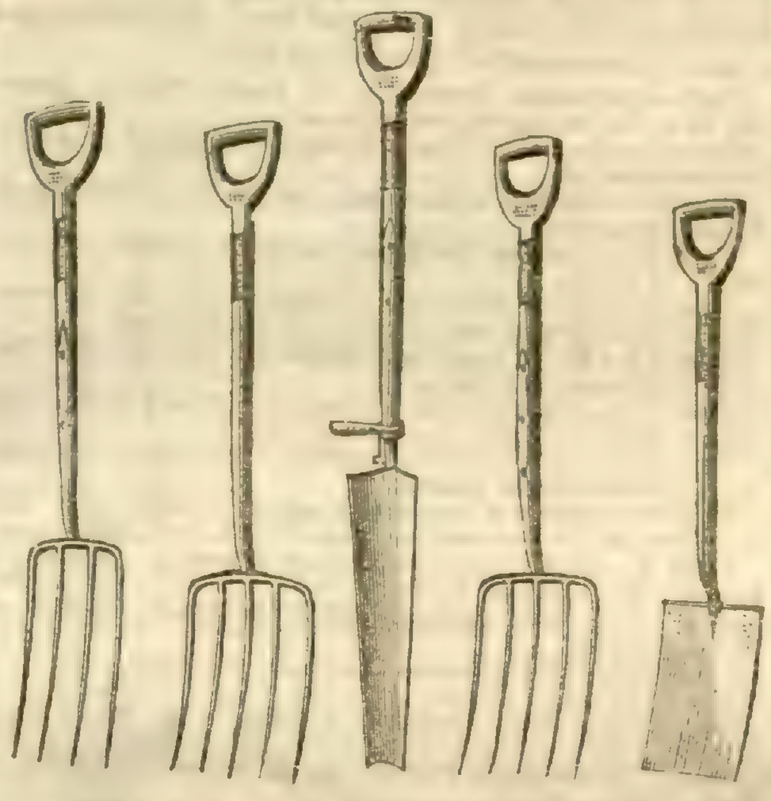

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS and KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

IMPROVED MOWING AND ROLLING MACHINE.

ALEXANDER SHANKS and SON, Arbroath, Forfarshire, Inventors and Sole Manufacturers, respectfully solicit the attention of the Nobility, Gentry, and Gardeners to this Improved Machine for Mowing and Rolling Lawns. The Machine is in operation in the Royal Gardens at Windsor Palace, Buckingham Palace, and at Osborne, in the Botanical Gardens at Kew, Regent's Park, Manchester, Sheffield, &c.; at Blenheim Palace, Trentham, Cleveden, Elvaston, Broadlands, Woburn Abbey, Clumber, Lilleshall, Castle Howard, Shrubland, Eridge Castle, Enville Hall, Tiptree Hall, Chatsworth, and in many other of the principal gardens in the kingdom as well as in the United States, British America, and on the Continent, where its merits have been fully proved, and its success established.

The machine is made to cut the breadth of 42, 30, 20, and 15 inches respectively, is exceedingly durable, easily managed, and adjusted to cut to the length required. The execution of the work is far superior to what may be attained by the most skilful mower, while at the same time a great saving of labour is effected, and the turf much improved. By the largest machine a Scotch acre may be mowed, rolled, and the Grass collected in one hour.

A. S. and Son have much pleasure in stating that they have made considerable improvements in their 15-inch or hand machine this year, by which the draught is considerably lessened. This machine combines all the merits and advantages of the larger machines with firm and secure construction, and is admirably adapted for borders and for lawns of no great extent.

Alexander Shanks and Son also respectfully solicit notice to "Fleming's Weeding or Salting Machine" for destroying weeds in gravel walks, court-yards, drives, &c. This machine is now in operation in many parts of England, where it has given ample satisfaction as the best and most economical means of thoroughly keeping down weeds or Moss.

Further particulars, with testimonials and prices, may be had on application.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. White & Brothers, Millbank Street, Westminster.

WARNER'S SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)

Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l.* 3*s.*

Manufactured by
John Warner & Sons, 8, Crescent, Jewin Street, London.

(Fig. 1.) (Fig. 2.)

J. TYLOR and SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds	10 gallons,	throws	30 feet high		...	£4	10
No. 2	„ 15	„	„ 45	„	...	5	10
No. 3	„ 28	„	„ 45	„	...	6	18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds	8 gallons,	throws	25 feet high		...	£2	15
No. 13	„ 12	„	„ 30	„	...	3	5
No. 11	„ 16	„	„ 40	„	...	4	0
No. 12	„ 24	„	„ 45	„	...	5	0
No. 14	„ 30	„	„ 45	„	...	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1¼ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

Read's Syringe, with two roses and one Jet, 19*s.*

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR and SON'S REGISTERED GARDEN SYRINGE. Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus Warwick Lane, Newgate Street, London.

N.B These prices do not include carriage, package, or expense of delivery in the country.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HORTICULTURE IN ALL ITS BRANCHES.

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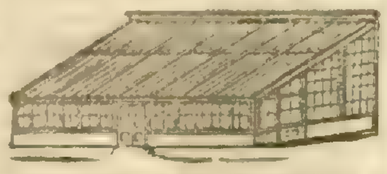
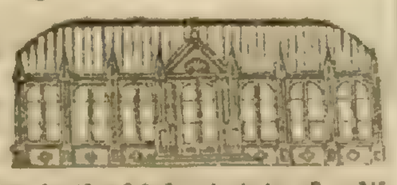
HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s*. 8*d*. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



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Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility Gentry, and the Trade, in most of the counties in England.

HOW TO KILL RATS, MICE, AND MOLES BY HUNDREDS.—A Method will be forwarded with instructions for 30 postage stamps, which will destroy the above vermin quickly and without trouble. 1000 acres may be cleared for a few shillings.

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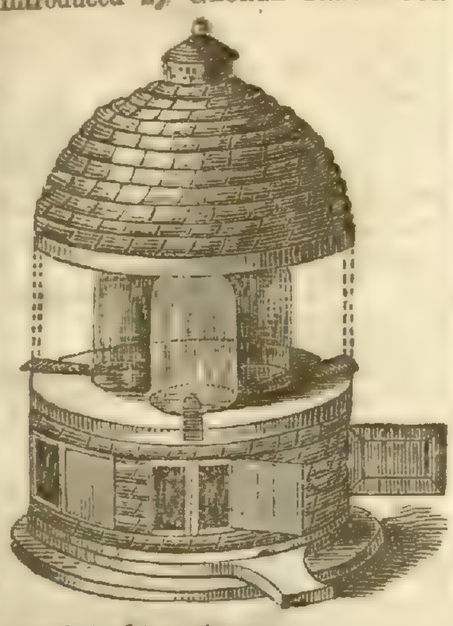
NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, glasses, thermometer, &c., price 35*s*., securely packed for the country.



This unique hive has met with universal commendation, and may be worked with safety, humanity, and profit, by the most timid; its arrangements are so perfect, that the honey may be taken at any time of the gathering season without at all injuring the bees.

Early applications, addressed to GEO. NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention. Their newly arranged Catalogue of other improved Beehives, with Drawings and Prices, sent on receipt of two stamps.

Agents:—Manchester, HALL & WILSON, 50, King Street; Liverpool, JAMES CUTHBERT, 12, Clayton Square; Chester, F. & A. DICKSON & SONS, 106, Eastgate Street; Glasgow, AUSTEN & M'ASLAN, 186, Trongate Street; Dublin, J. EDMUNDSON & Co., 61, Dame Street.

IMPORTANT TO GROWERS OF ROSES.

NEWLY-INVENTED APHIS BRUSH, OR GREEN FLY DESTROYER.—The attention of Florists is particularly called to this Cheap and Ingenious Instrument, invented by the Rev. E. S. BULL, of Colchester, which, in a very simple and easy manner, instantly cleanses the Rose from that destructive insect the Green-fly (or Aphis), without causing the slightest injury to the bud or foliage.

Price 2*s*. 6*d*. each, or free by post, 4*s*.

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COTTAM AND HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.

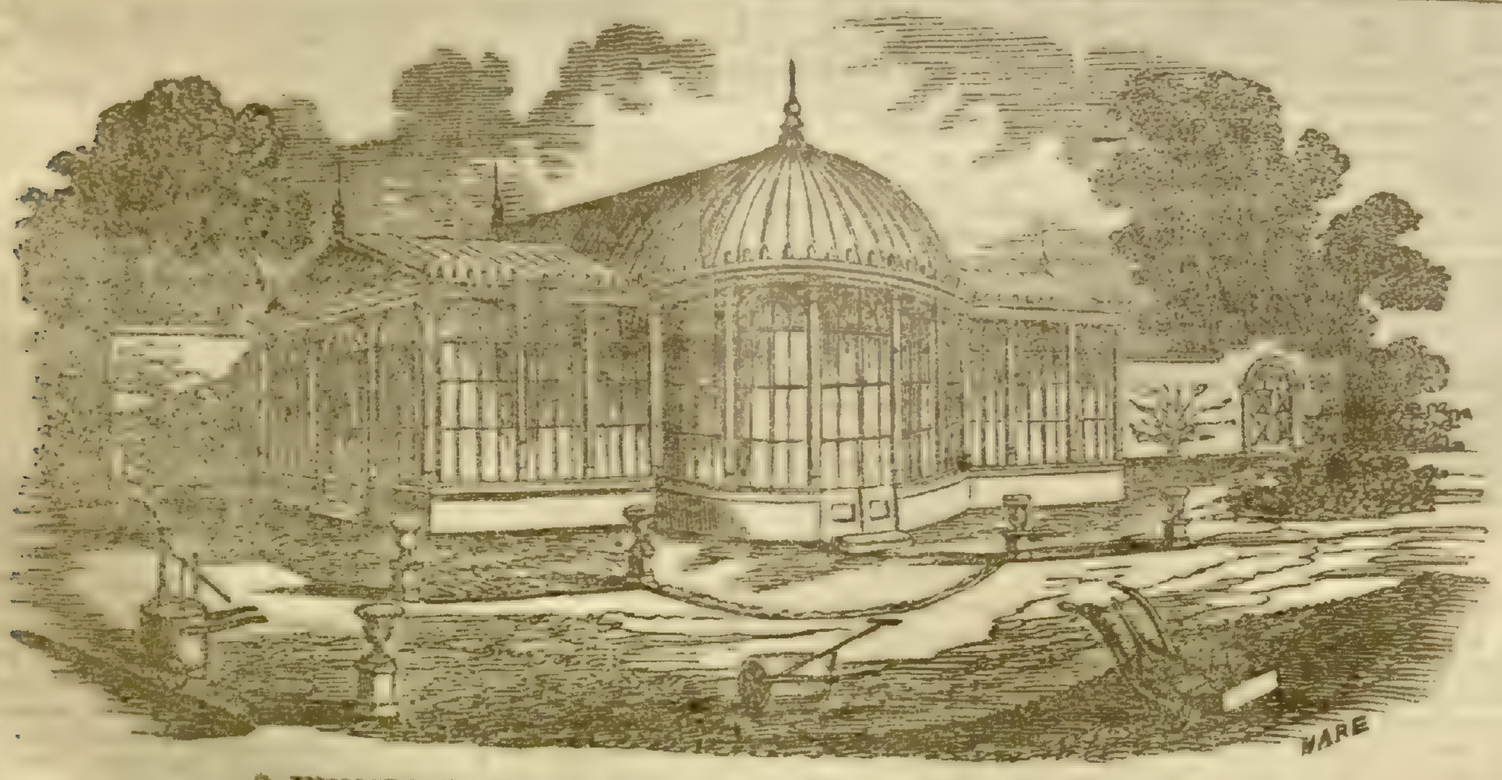
Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

Hand Glass Frames, Cast and Wrought Iron Flower Stakes, Garden Arches, &c.

Strong Iron Hurdles, and best Wire for Strained Wire Fencing.

Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom.

Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED HANGERS.

THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

PARSEY'S PATENT REVOLVING PUMP lifts three times the quantity of water with the same labour, than any other Pump.

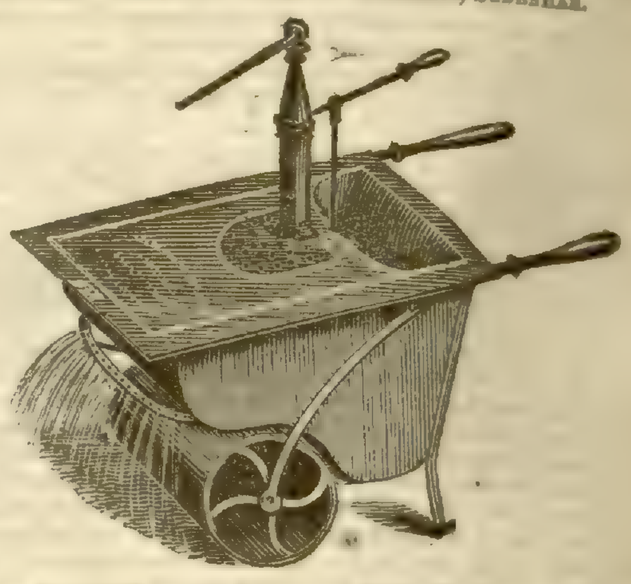
Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description, Conduits, Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.

THE IMPROVED PATENT GARDEN, WATER AND ROLLING ENGINE may be seen in the Agricultural Department at the CRYSTAL PALACE, SYDENHAM.



The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet, and is so portable that any ordinary domestic may use it. It contains about 20 gallons. Price 5*l*. 10*s*.

May be had at J. DORE's Manufactory, 17, Exmouth Street, Clerkenwell, London.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Colebrook Dale Garden Seats and Chairs.

Averuncators	Gidney's Prussian Hoe	Pickaxes
Axes	[Scissors	Potato Forks
Bagging Hooks	Grape Gatherers and	Pruning Bills
Bills [terns.	Gravel Rakes and	„ Knives, various
Borders, various pat-	Sieves	„ Saws
Botanical Boxes	Greenhouse Doors	„ Scissors
Brown's Patent Fu-	and Frames	„ Shears
migator [struments	Hammers	Rakes in great variety
Cases of Pruning In-	Hand-glass Frames	Reaping Hooks
Daisy Rakes	Hay Knives	Scythes
Dibbles	Horticultural Ham-	Scythe Stones
Dock Spuds	mers and Hatchets	Shears, various
Draining Tools	Hoes of every pattern	Sickles
Edging Irons and	Hotbed Handles	Sickle Saws
Shears	Ladies' Set of Tools	Spades and Shovels
Flower Scissors	Labels, various pat-	Spuds
„ Stands in Wires	terns, in Zinc, Por-	Switch Hooks
and Iron	celain, &c.	Thistle Hooks
Fumigators	Lines and Reels	Transplanting Tools
Galvanic Borders and	Marking Ink	Trowels
Plant Protectors	Mattocks	Turfing Irons
Garden Chairs and	Menographs	Wall Nails
Seats	Metallic Wire	Watering pots
„ Loops	Milton Hatchets	Weed Hooks
„ Rollers	Mole Traps	Wheelbarrows
„ Scrapers	Mowing Machines	Youths' Set of Tools

DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.—DEANE, DRAY, & CO. (Opening to the Monument) London Bridge.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 12*s*. per ton, 1*s*. 6*d*. per bushel, or 16*s*. per ton, delivered to any of the London Wharfs or Railways, or within a circuit of five miles. Peat and Loam of various qualities. Sacks 2*s*. each.

KENNARD BROTHERS, Swan Place, Old Kent Road.

PAGE AND CO'S COMPOSITION FOR THE DESTRUCTION OF BLIGHT UPON ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, STOVE AND GREENHOUSE PLANTS.—Extra Strong, 4*s*. per gallon, sufficient to make four (Jars and Barrels extra). Directions for use forwarded. Ten gallons and upwards carriage free to London.

After four years' extensive use by the most eminent Gardeners in the kingdom, the superiority of PAGE & CO.'S BLIGHT COMPOSITION is unquestionable, requiring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage) and promoting a luxuriant growth.

See two pages Testimonials, *Gardeners' Chronicle*, March 3, 1855.

Can now be obtained of

Messrs. Henderson & Co., Pineapple Place, London
Messrs. Bass & Brown, Sudbury
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester
Messrs. Sutton & Sons, Reading
Messrs. Rendle & Co., Plymouth
Mr. James Veitch, Exotic Nursery, Chelsea
Messrs. Wheeler & Son, Gloucester
Mr. E. Paul, Derby
Mr. George Wheeler, Nurseryman, Warminster
Messrs. Masters & Son, Canterbury
Mr. Tiley, Bath
Messrs. Downie & Laird, South Frederick Street, Edinburgh
Mr. W. Barratt, St. John's, Wakefield
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Mr. J. Linford, Shefford, Beds
Messrs. Veitch & Son, Exeter
Messrs. Hooper & Co., Covent Garden, London
Messrs. Fisher, Holmes, & Co., Handsworth Nursery, Sheffield
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Mr. W. F. Smith, Riverhead Nursery, Sevenoaks
Messrs. Wood & Ingram, Nurseries, Huntingdon
Mr. Baskerville, Bristol
Mr. Burham, Hastings
Messrs. Leake & Smith, Bridge-Street, Derby
Mr. Davison, St. Peter's Street, Hereford
Mr. W. Garraway, Welwyn, Herts
Mr. Thos. Cridland, Willington near Taunton
Mr. Henry Horne, Market Place, Henley-on-Thames
Mr. R. M. Mills, Market Place, Rugby
Mr. Husbands, Talbot Street, Nottingham
Mr. Caparn, Seedsman, Newark
Mr. John Cattell, Seedsman, Westerham
Mr. Morgan, Nursery, Kidderminster
Messrs. Ivery & Son, Nurserymen, Dorking and Reigate
Messrs. W. Drummond & Son, Dawson Street, Dublin
Messrs. Mappleback & Lowe, Birmingham
Mr. W. Bower, Moorgate House, East Retford
Mr. James Allen, sen., Bothwell Street, Glasgow.

And of the Inventors and Manufacturers,

B. PAGE AND CO., SEED MERCHANTS, Oxford Street, and Above Bar, Southampton.

RIPE FRUIT, STRAWBERRIES, AND SEED BEDS.

NEW TWINE NETTING (Tanned if required), 1 yard wide, 2*d.* per yard; 2 yards wide, 6*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch MESH do., 2 yards wide, 8*d.* per yd. The ELASTIC HEXAGON GARDEN NETTING 36 Meshes to the square inch, effectually excludes birds, wasps, flies, &c., from fruit trees, flower, or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard, at W. CULLINGFORD's, 1, Edmund Terrace, Ball's Pond, London.

Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d.* per square yard, 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.* Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

CHEAP WIRE GAME & POULTRY NETTING.

Wide	Mesh.	Plain.	Galvanised.
24 inches by	2 inches ...	3*d.* to 4*d.* per yard. ...	6*d.* per yard.
36 "	2 " ...	6*d.* per yard. ...	9*d.* "
48 "	2 " ...	9*d.* " ...	1*s.* "

Sparrow Proof Netting, Galvanised, 3*d.* per square foot, made to any size. This article is shown at the Sydenham Exhibition, where it is much admired.—W. CULLINGFORD, 1, Edmund Terrace, Ball's Pond Road, near the Gate, Kingsland.

GARDEN NETS, FISHING NETS, AND SHEEP NETS, &c., made by machinery, and sold at very low prices. Worsted Wasp Net, well adapted for shading greenhouses, admitting air and excluding Bees; also for Protecting Blossom and the Ripe Fruit afterwards, 7*d.* per square yard, in various widths. Sheep Nets, 20*s.* per 50 yards, nearly 4 feet high. Double Walled Trammels, on the best construction, 3*s.* per yard run, 6 feet deep.—R. RICHARDSON, 21, Tonbridge Place, New Road, London.

EIGHT HOUSES ON WHEELS 12 feet long by 7 feet broad, and 8 feet high inside, suitable for Cottagers, Gamekeepers, Watchers, Shepherds, or Freehold Land Allotments. Price 15*l.* each, or 11*l.* without Wheels, Springs, and Axles.—R. RICHARDSON, 21, Tonbridge Place, New Road, London.

MARQUEES ON HIRE TO SUIT THE TIMES. —50 feet by 30 feet, 3*l.*; 70 feet by 30 feet, 4*l.*; 100 feet by 30 feet, 5*l.* A large Round Tent, 60 feet diameter, with six swings, for gatherings of school children, 4*l.* On Sale, Umbrella Tents, 10 feet diameter, 4 feet to 12 feet, 3*l.* Wire-framed Garden Tents, 4*l.* Patrol Tents (weight 12 lbs.), 25*s.*, packed in bag.—R. RICHARDSON, 21, Tonbridge Place, New Road, London.

HAY-MAKING MACHINES.—These desirable Machines for securing the Hay crop quickly and in perfect condition, are by NICHOLSON's Patent Improvements brought to a perfection not before attained, and without increase of cost. Full particulars, with engraving free by post, on application to W. N. NICHOLSON, Implement Manufacturer, Newark. They may be seen at the Agricultural Implement Department, Baker-street Bazaar, London, and at the Crystal Palace, Sydenham.—May be had of STANLEY, Peterborough; JOHNSON, Leicester; SHARMAN, Wellingborough; PERKINS, Hitchin; SMITH & SONS, Whitchurch; and other respectable Implement Dealers. Purchasers are respectfully cautioned not to be persuaded to purchase machines by other makers, without due inquiry both as to improvements and price.

SAMUELSON'S REGISTERED LAWN MOWING MACHINES. To cut 16, 19, 22, and 25 inches wide. The Registered Improvement renders unnecessary the great care requisite in the handling of these Machines on the old plan. All that is now required can be done *by any unskilled labourer*, who has only to push the Machine before him, the Registered Adjustment insuring a clean cut of uniform height, and preventing the knives from cutting into the soil, however uneven the ground may be. Illustrated Price Lists, with copies of Testimonials, and a Catalogue of his other Agricultural Implements, may be procured, post-paid, on application to the Manufacturer,

B. SAMUELSON, Britannia Works, Banbury, Oxon.

The above may also be procured at the principal Agricultural Implement Depôts in London, and of all respectable Ironmongers and Seedsmen in the country.

BLACK JAPAN VARNISH.—This article will be found from its durability and cheapness of the greatest utility for Painting Hurdles, Wire-work, Palings, Gates, Fences, &c. and out-door work of every description, whether of Wood or Iron. Its value has been proved by the test of time. It should be well stirred up before using and applied cold. This Varnish will retain its quality for any length of time, provided the cask be kept closed.

May be obtained through any ironmonger; or of JOHN WARNER & SONS, Irwin Crescent, London.

N.B. Sold in casks containing 28, or 14 gallons, at 2*s.* per gallon. Casks (which cannot be returned), 5*s.* each.

FOR WATERING GARDENS.

HANCOCK'S IMPROVED VULCANISED INDIA-RUBBER HOSE AND TUBING is now manufactured especially for the above purpose; is of greater flexibility than any other description of Hose; is capable of resisting great pressure, and made suitable for attaching to the mains of waterworks, or to tanks of high elevations.

WATERING HOSE fitted up with the necessary *brass joints*, *syphons*, and *spreaders complete*.

VULCANISED INDIA-RUBBER SUCTION PIPES, made any length or size for Pumps or Garden Engines.

VULCANISED RUBBER WASHERS, and also in Sheet, any thickness, for all kinds of steam and water joints, or made any size or figure to order.

All communications and orders punctually attended to, addressed to the Manufactory, JAS. LYNE HANCOCK, Goswell Road, London.

HOSE PIPING.

TO ENGINEERS, AGRICULTURISTS, GARDENERS, SHIP CHANDLERS, AND FIRE BRIGADES.

WAITHMAN'S PATENT FLAX TUBING (¾ in. to 3 inches in diameter) will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe. Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

PRICES IN DIAMETER AND PRICE PER YARD.—¾, 11*d.*; 1, 1*s.* 1½, 1*s.* 4½; 1½, 1*s.* 5*d.*; 1¾, 1*s.* 7*d.*; 2, 1*s.* 9*d.*; 2¼, 2*s.*; 2½, 2*s.* 3½, 2½, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

Testimonial from Mr. Wright, Lancaster.—I beg to inform you that I yesterday tested your piece of 2½ inch Patent Flax Tubing, in connection with the Lancaster Waterworks, in the presence of the Mayor, Mr. Rawlinson, Government Inspector, Professor Owen, &c. The column of water at which the tubing was tried was equal to 340 feet in height, or about 150 lbs. on the square inch, and I have pleasure in stating that the hose sustained this pressure most admirably.

Testimonial of Captain Martin, of the Great Britain Steam Ship.—I have much pleasure in being able to tell you that your hose, attached to the Great Britain and other ships, is well worth the attention of ship owners. It gives us great satisfaction.

Testimonial from Fairbairn & Co., of Leeds.—We have tested your hose, 2½ inch in diameter, with the pressure of the Leeds Waterworks, and found it highly satisfactory.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.
In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12*s.* 0*d.*
7 " 5, — 7½ " 5½ }	0 14 0
8 " 6, — 8½ " 6½ }	
9 " 7, — 9½ " 7½, 10 by 6 }	0 16 0
10 " 7, 10 by 8 }	

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18*s.* per 100 feet. If cut to order not exceeding 40 inches long.

16 oz. from 2½*d.* to 3½*d.* | 21 oz. from 3½*d.* to 4½*d.*
26 oz. from 5½*d.* to 7½*d.*

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½*d.* per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	£1 17*s.* 6*d.* per case of 50	
3/16 "	2 1 3 "	60
⅛ "	1 17 6 "	60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

CHEAP STRONG GLASS FOR HORTICULTURAL PURPOSES, in boxes of 100 feet, at 1*d.* per foot, boxes included. Plate, Sheet, Crown, and every description of Glass for glazing purposes cheaper than any other house in London.—Apply to B. Moss & Co., Leman Street, Whitechapel.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY.—The Managers beg to inform the Nobility and Gentry, Farmers, Gardeners, &c., that their new List of Prices may be had free on application at the Company's Depôt, 296, Oxford Street, London.

PLATE, CROWN, and SHEET WINDOW GLASS.

HARTLEY'S PATENT ROUGH PLATE for Roofing Conservatories, Halls, and Public Buildings.

Coloured and Ornamental Glass.

CRYSTAL SHADES for covering Ornaments, and

MOORE'S PATENT LOUVRE VENTILATOR, and Lockhead's Patent Perforated Ventilating Glass for Dairies, Greenhouses, Stables, &c.; Glass Milk Pans, Pails, Tests, and Measures; Cream Pots and Syphons; Churns, Butter Tests and Slabs; Tiles and Slates; Bee Hives, &c.

Aquariums, Fern Shades, Propagating Glasses, Fruit Protectors, Preserve Jars, Cucumber Tubes, Hand Lights, Flower Vases, Labels, &c., and all kinds of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in. ...	...	12*s.* 0*d.*
6½	"	4½	"	7	"	5	...	...	12 6
7½	"	5½	"	8	"	6	...	...	13 0
8½	"	6½	"	9	"	7	...	...	13 6
9½	"	7½	"	10	"	8	...	...	13 6
10½	"	8½	"	11	"	9	...	...	14 0
12	"	9	"	13	"	9	...	...	14 0
10	"	10	"	10½	"	10½	...	...	14 0
11	"	10	"	11½	"	10½	...	...	14 0
11	"	11	"	11½	"	11½	...	...	14 0
12	"	11	"	12½	"	11½	...	...	14 0
13	"	11	"	13½	"	11½	...	...	14 0
13	"	12	"	13½	"	12½	...	...	16 0
13½	"	13½	"	14½	"	13½	...	...	16 0
15½	"	13½	...	...	...	...	...	...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES, consisting of MATTING, MATS, MATTRESSES, BRUSHES, NETTING, HORSE-HAIR, and BRISTLE SUBSTITUTE, are distinguished for superiority and excellency of workmanship, combined with moderate prices. Prize Medal both in England and America at the Exhibition of all Nations.

T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

COWS.

HARVEY'S CELEBRATED COW DRINKS, 1*s.* each, have been used with great success. Plain directions are given with each Drink for the treatment of most diseases incidental to Cows, for which they will be found a safe and effectual remedy. One Drink given at the commencement of the Tick, or Feet and Mouth Distemper, will perfectly eradicate it in a few days.—Compounded by R. HARVEY, Veterinary Surgeon, Macclesfield, Cheshire. Sold by all Medicine Vendors. Wholesale Agents, BARCLAY & SONS, and MARSDEN & SONS, London.

AT MR. MECHI'S ESTABLISHMENTS 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work-boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed. Superior Hair and other Toilet Brushes.

THE COMFORT OF A FIXED WATER-CLOSET FOR £1.—Places in gardens converted into comfortable Water-closets by the PATENT HERMETICALLY SEALED PAN, with its self-acting valve, entirely preventing the return of cold air or effluvia. Any carpenter can fix it in two hours. Price 1*l.* Hermetically-sealed Inodorous Chamber Commodes, 1*l.* 2*s.*, 2*l.* 4*s.*, and 3*l.*; also Improved Portable Water-closets, with pump, cistern, and self-acting valve. A Prospectus, with Engravings, forwarded by enclosing two postage stamps

At FYFE & Co.'s Sanatorium, 46, Leicester Square, London.

METCALFE AND CO.'S NEW PATTERN TOOTH BRUSH, PENETRATING HAIR BRUSHES, AND SMYRNA SPONGES.—The Tooth Brush performs the highly-important office of searching thoroughly into the divisions and cleansing in the most extraordinary manner—hairs never come loose. Peculiarly penetrating Hair Brushes, with durable unbleached Russian bristles, which will not soften like common hair, and immense stock of genuine unbleached Smyrna Sponge, with every description of British and Foreign Perfumery, at METCALFE, BINGLEY, & Co.'s only Establishment, 130 B and 131, Oxford Street, second and third doors west from Holles Street.

CAUTION.—Beware of the word "from" Metcalfe's, adopted by some houses. Metcalfe's Alkaline Tooth Powder, 2*s.* per box.

TO SEEDSMEN AND OTHERS.

WANTED TO RENT on or before Michaelmas next, by a responsible Tenant, an established SEED BUSINESS, within an easy distance of London; a Shop in conjunction with a Nursery would not be objected to, or private residence with few acres of good arable or pasture land attached.—Apply, stating rent, &c., to Y. Z., Mr. Macaulay, Stationer, Rochester, Kent.

TO NURSERYMEN.

TO BE LET, for a term of 7 or 14 years, a small compact NURSERY, well stocked, and containing Hothouses and Greenhouses, Pits, Frames, Potting Shed, and other conveniences for the business; situate in the rapidly rising town of Weston-super-Mare, in the county of Somerset. There is a neat and comfortable Gothic Cottage, Stable, Cart-house, and other out-buildings upon the premises. The above affords an excellent opportunity to any person with a moderate capital who is acquainted with the trade, as there is no other business of the kind in the town or within 20 miles of it. Satisfactory reasons will be given for the present proprietor declining the trade.—Apply to the proprietor, Mr. THOMAS TAYLOR, at the Weston-super-Mare Nursery, Somerset.

TO NURSERYMEN AND OTHERS.

TO BE SOLD, a good GREENHOUSE in capital condition, having a hot-water apparatus and fittings complete. The above may be seen on the grounds at Wooburn House, and particulars obtained on application to Mr. H. SIMMONDS, Upholsterer, Auctioneer, &c., High Wycombe, Bucks.

NURSERY AND SEED BUSINESS.

TO BE SOLD, or LET for a term of years, a Nursery, Seed and Plant Business, which has been successfully carried on for the last 35 years in a rapidly rising and most fashionable watering-place in the south of England. The Nursery grounds are advantageously situated in the midst of the town, within half a mile of the Railway Station, and close to its principal entrance is the large Seed and Show Shop. The Grounds comprise about eight acres of good land, and four large Glass Structures, heated with hot water, with several pits and Frames, the whole being well furnished with a Young and Saleable Stock. Any person wishing to carry on the above business will find this well worthy of attention. Satisfactory reasons will be given for the retirement of the present proprietor.—For further information apply to Messrs. E. G. HENDERSON & SON, Wellington Road, St. John's Wood, London.

TO NURSERYMEN.

TO BE SOLD, by Private Contract, either altogether or in Lots to suit Purchasers, the long established and flourishing NURSERY PREMISES of the late Mr. George Clarkson, Fulford Road, York, stocked with Forest and Fruit Trees, Shrubs, &c.; and having a substantial Dwelling-House, Shops, and Greenhouse, and other requisite Outbuildings attached.—Plans and Particulars may be had on application to Mr. LUKE THOMPSON, Solicitor, Judge's Court, York.

GOLDEN PHEASANTS' EGGS, fresh from first-rate birds.—For price, &c., address GEORGE ROBERTS, Gamekeeper, Hunmanby, Scarborough, Yorkshire.

Sales by Auction.

FANCY POULTRY PERIODICAL SALE.

MR. J. C. STEVENS will sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 19th June, at 12 o'clock precisely, POULTRY OF CHOICE QUALITY, including Speckled Dorkings of great weight, Spanish, White Cochins, from the yard of J. Turner, Esq., Exeter. These birds are well worthy the attention of amateurs, having taken first prize last year at Birmingham and all the West of England shows; Bantams and some good Pigeons.—May be viewed on the morning of sale, and Catalogues had by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

TO GENTLEMEN, FLORISTS, AND OTHERS.

WINDING-UP SALE FOR THE SEASON.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY, June 21, at 12 o'clock, a first class collection of DAHLIAS, consisting of the finest varieties of 1855; also Fuchsias, Verbenas, Calceolarias, Petunias, fine Roses, choice Geraniums, and other plants in bloom, with a large assortment of Ornamental Plants for Bedding. On view the Morning of Sale.—Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

ORCHIDS.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 26th June, at 12 for 1 o'clock, a collection of ORCHIDS, established healthy plants of Vanda, Ærides, Cattleyas, Dendrobiums, Oncidiums, Stanhopeas, &c., &c., the private collection of a gentleman.—May be viewed on the morning of sale, and Catalogues had of Mr. J. C. STEVENS 38, King Street, Covent Garden.

ROYAL BOTANIC GARDENS, REGENT'S PARK.

List of Prizes Awarded at the Exhibition held on Wednesday, June 13, 1855.

PLANTS.

EXTRA GOLD MEDAL.

To Mr. May, Gardener to H. Colyer, Esq., Dartford, for 16 Stove and Greenhouse Plants.
To Mr. Williams, Gardener to C. B. Warner, Esq., Hoddesdon, Herts, for 20 Exotic Orchids.

LARGE GOLD MEDAL.

To Mr. Barter, Gardener to A. Bassett, Esq., Stamford Hill, for 16 Stove and Greenhouse Plants.
To Mr. Woolley, Gardener to H. B. Kerr, Esq., Cheshunt, Herts, for 20 Exotic Orchids.

MEDIUM GOLD MEDAL.

To Mr. Green, Gardener to Sir E. Antrobus, Bart, Lower Cheam, Surrey, for 16 Stove and Greenhouse Plants.
To Messrs. Fraser, Leyton, Essex, for 12 Stove and Greenhouse Plants.
To Mr. Frost, Preston Hall, Maidstone, for 10 Stove and Greenhouse Plants.
To Mr. Hume, Gardener to R. Hanbury, Esq., for 20 Exotic Orchids.
To Messrs. Veitch, Nurserymen, Chelsea, for 16 Exotic Orchids.
To Mr. Gedney, Gardener to Mrs. Ellis, Hoddesdon, for 12 Exotic Orchids.
To Messrs. Lane & Son, Berkhampstead, for 10 Roses in pots.

GOLD MEDAL.

To Messrs. Rollisson, Tooting, for 12 Stove and Greenhouse Plants.
To Mr. Taylor, Gardener to J. Coster, Esq., Streatham, for 10 Stove and Greenhouse Plants.
To Messrs. Rollisson, Tooting, for 16 Exotic Orchids.
To Mr. Clark, Hoddesdon, for 12 Exotic Orchids.
To Mr. Turner, Slough, for 12 Pelargoniums.
To Mr. Nye, Gardener to E. Foster, Esq., Clewer Manor, for 10 Pelargoniums.
To Messrs. Paul & Sons, Cheshunt, for 10 Roses in pots.
To Messrs. Rollisson, Tooting, for 10 Cape Heaths.
To Mr. May, Gardener to H. Colyer, Esq., Dartford, for 8 Cape Heaths.

LARGE SILVER GILT MEDAL.

To Mr. Rhodes, Gardener to J. Phillpot, Esq., Stamford Hill, for 16 Stove and Greenhouse Plants.
To Mr. Cutbush, Nurseryman, Barnet, Herts, for 12 Stove and Greenhouse Plants.
To Mr. Peed, Gardener to E. Tredwell, Esq., Norwood, for 10 Stove and Greenhouse Plants.
To Mr. Williams, Gardener to Miss Traill, Hayes Place, Bromley, for 6 Stove and Greenhouse Plants.
To Messrs. Fraser, Nurserymen, Leyton, for 6 Greenhouse Azaleas.
To Mr. Keele, Gardener to J. Butler, Esq., for 12 Exotic Orchids.
To Mr. Green, Gardener to Sir E. Antrobus, Bart., for 6 Exotic Orchids.
To Mr. Dobson, Nurseryman, Isleworth, for 12 Pelargoniums.
To Mr. Holder, Gardener to the Rev. E. Coleridge, of Eton College, for 10 Pelargoniums.
To Mr. Francis, Herts, for 10 Roses in pots.
To Mr. Terry, Gardener to Lady Pullen, Youngsbury, for 6 Roses in pots.
To Mr. M'Ewen, Gardener to his Grace the Duke of Norfolk, Arundel, for a collection of Fruit.

LARGE SILVER MEDAL.

To Mr. Morris, Gardener to Coles Child, Esq., Palace, Bromley, Kent, for 6 Stove and Greenhouse Plants.
To Mr. Grix, Gardener to — Palmer, Esq., Cheam, for 6 Tall Cacti.
To Messrs. Fraser, Nurserymen, Lea Bridge Road, for 10 Cape Heaths.
To Mr. Williams, Gardener to Miss Traill, Hayes Place, Bromley, for 8 Cape Heaths.
To Mr. Roser, Gardener to J. Bradbury, Esq., Streatham, for 6 Cape Heaths.
To Mr. Taylor, Gardener to J. Coster, Esq., Streatham, for 6 Greenhouse Azaleas.
To Mr. Summerfield, Gardener to J. S. Venn, Esq., Islington, for 6 Exotic Orchids.
To Mr. Bousie, Gardener to the Hon. H. Y. Laubouchere, Stoke Park, for 6 Fuchsias.
To Mr. Turner, Slough, for 6 Fancy Pelargoniums.
To Mr. Weir, Gardener to J. Hodgson, Esq., Hampstead, for 6 Fancy Pelargoniums.
To Mr. Turner, Slough, for 6 New Pelargoniums.

SILVER GILT MEDAL.

To Messrs. Pamplin, Lea Bridge Road, for 12 Stove and Greenhouse Plants.
To Mr. Clark, Hoddesdon, for 10 Stove and Greenhouse Plants.
To Mr. Roser, Gardener to J. Bradbury, Esq., Streatham, for 6 Stove and Greenhouse Plants.
To Mr. Mortimer, Gardener to — Scott, Esq., Leyton, Essex, for 6 Tall Cacti.
To Mr. Frost, Preston Hall, for 8 Cape Heaths.
To Mr. Taylor, Gardener to J. Coster, Esq., Streatham, Surrey, for 6 Cape Heaths.
To Mr. Fletcher, Gardener to Dr. Young, Kennington Lane, for 12 Exotic Ferns.
To Mr. Fletcher, ditto, for 30 Exotic Ferns.
To Mr. James, Gardener to J. F. Watson, Esq., Isleworth, for 6 Calceolarias.
To Mr. Bray, Gardener to Baron Goldsmid, for 6 Fuchsias.
To Messrs. Fraser, Lea Bridge Road, for 12 Pelargoniums.
To Mr. Wiggins, Gardener to E. Beck, Esq., Isleworth, for 10 Pelargoniums.
To Messrs. Fraser, Lea Bridge Road, for 6 Fancy Pelargoniums.
To Mr. Bousie, Gardener to the Hon. H. Y. Labouchere, for 6 Fancy Pelargoniums.
To Mr. Nye, Gardener to E. Foster, Esq., Clewer Manor, for 6 New Pelargoniums.
To Mr. Rowland Rosenthall, Lewisham, for 6 Roses in pots.

SILVER GILT MEDAL.

To Mr. Robinson, Gardener to Lord Boston, Hedsor, near Maidenhead, for a Providence Pine Apple.
To Mr. James, Gardener to — Leigh, Esq., Pontypool Park, for a Queen Pine.
To Mr. Turnbull, Gardener to his Grace the Duke of Marlborough, for 1 Pine.
To Mr. John Munro, Gardener to Mrs. Oddie, Colney House, St. Alban's, for 12 lbs. Grapes.
To Mr. Davis, Oakhill, Barnet, for 1 dish of Black Hamburgh Grapes.
To Mr. Hill, Gardener to R. Sneyd, Keele Hall, Staffordshire, for 1 dish of Black Prince Grapes.
To Mr. Williams, Hoddesdon, for 1 dish of White Muscadine Grapes.
To Mr. Turnbull, Blenheim, for 1 dish of Muscat Grapes.
To Mr. J. Parr, Gardener to J. R. Baker, Fairford Park, Gloucestershire, for 1 dish of Frontignan Grapes.
To Mr. Tegg, Gardener to — Pryor, Esq., Roehampton, for 1 dish of Peaches.
To Mr. Ayres, Gardener to Lord Southampton, for 1 dish of Nectarines.

SILVER MEDAL.

To Mr. Hamp, Gardener to J. Thorne, Esq., South Lambeth, for 10 Stove and Greenhouse Plants.
To Mr. Tegg, Gardener to Baron Hambro, Roehampton, for 6 Stove and Greenhouse Plants.
To Mr. Peed, Gardener to J. Tredwell, Esq., Norwood, for 8 Cape Heaths.
To Mr. Barter, Gardener to A. Bassett, Esq., Stamford Hill, for 6 Cape Heaths.
To Messrs. Rollisson, Tooting, for specimen Orchid Uropedium Lindeni.
To Messrs. Veitch, Chelsea, for Embothrium coccineum.
To Mr. Williams, Gardener to A. Farrie, Esq., Liverpool, for Rhododendron Keysi.
To Messrs. Rollisson, Tooting, for 12 Exotic Ferns.
To Mr. Williams, Gardener to C. B. Warner, Esq., Hoddesdon, for 30 British Ferns.
To Mr. Gaines, Nurseryman, Battersea, for 6 Calceolarias.
To Mr. Bishop, South Villa, Regent's Park, for 6 Fuchsias.
To Mr. Gaines, Nurseryman, Battersea, for 12 Pelargoniums.
To Mr. Robinson, Gardener to — Simpson, Esq., Thames Bank, Pimlico, for 10 Pelargoniums.
To Mr. Gaines, Battersea, for 6 Fancy Pelargoniums.
To Mr. Windsor, Gardener to A. Blythe, Esq., Hampstead, for 6 Fancy Pelargoniums.
To Mr. Dobson, Isleworth, for 6 New Pelargoniums.
To Mr. Sage, Gardener to W. Robinson, Esq., Acton, for 6 Roses in pots.
To Mr. Chapman, Gardener to J. B. Glegg, Esq., Cheshire, for a Providence Pine.
To Mr. Solomon, Peckham, for 1 Queen Pine.
To Mr. Davis, Oakhill, Barnet, for 1 Pine.
To Mr. Clark, Hoddesdon, for 1 dish of Black Hamburgh Grapes.
To Mr. Slowe, Gardener to W. R. Baker, Esq., Bayfordbury, Herts, for 1 dish of Black Hamburgh Grapes.
To Mr. Constantine, Gardener to C. Miles, Esq., Hillingdon, for 1 dish of Black Prince Grapes.
To Mr. Ayres, Gardener to Lord Southampton, Whittlebury Lodge, Towcester, for 1 dish of White Muscadine Grapes.
To Mr. Dawson, Gardener to Earl Cowper, Panshanger, for 1 dish of Frontignan Grapes.
To Mr. Constantine, Hillingdon, for Vines in pots.
To Mr. James, Gardener to — Leigh, Esq., Pontypool Park, for 1 dish of Peaches.
To Mr. Fleming, Trentham, for 1 dish of Nectarines.
To Mr. M'Ewen, Arundel, for 4 dishes of Strawberries.

SMALL SILVER MEDAL.

To Mr. Green, Gardener to Sir E. Antrobus, Bart., Lower Cheam, for 6 Tall Cacti.
To Mr. Rhodes, Gardener to J. Phillpot, Esq., Stamford Hill, for 8 Cape Heaths.
To Mr. Hamp, Gardener to J. Thorne, Esq., South Lambeth, for 6 Cape Heaths.
To Messrs. Rollisson, Tooting, for Cypripedium caudatum roseum.
To Messrs. Veitch, Chelsea, for Achimenes Lydea gigantea; do. for Gloxinia Comte de Talleyrand; do. for Linum grandiflorum.
To Mr. Barron, Gardener to Mrs. Vivian, Singleton, Swansea, for Achimenes Lydea gigantea.
To Messrs. Henderson, Pine-apple Place, for Whitlavia grandiflora and Linum grandiflorum rubrum.
To Messrs. Veitch, Chelsea, for 12 Exotic Ferns.
To Mr. Fraser, Lea Bridge Road, for Correct Labels.
To Mr. Weir, Gardener to J. Hodgson, Esq., for 10 Pelargoniums.
To Mr. Dobson, Isleworth, for 6 Fancy Pelargoniums.
To Mr. Bray, Gardener to Baron Goldsmid, for 6 Fancy Pelargoniums.
To Mr. Holder, Gardener to the Rev. E. Coleridge, Eton College, for 6 New Pelargoniums.
To Mr. Turner, Slough, for 36 Pansies.
To Mr. James, Gardener to W. Watson, Esq., Isleworth, for 24 Pansies.
To Mr. Gedney, Gardener to Mrs. Ellis, Hoddesdon, for specimen of Phalænopsis grandiflora.
To Mr. Davis, Gardener to W. Booker, Esq., Cardiff, for Providence Pine.
To Mr. Robinson, Gardener to Lord Boston, Hedsor, near Maidenhead, for Providence Pine.
To Mr. Davis, Oakhill, Barnet, for 1 Queen Pine.
To Mr. Dawson, Gardener to Earl Cowper, Panshanger, Herts, for 1 Pine.
To Mr. Davis, Gardener to J. Dixon, Esq., Astle Park, for 1 Green-fleshed Melon.
To Mr. M'Ewen, Gardener, Arundel, for 1 Green-fleshed Melon.
To Mr. Chapman, Gardener to J. B. Glegg, Esq., for 1 Scarlet-fleshed Melon.
To Mr. Harrison, Palace Gardens, Weybridge, for 12lbs. of Grapes.
To Mr. Munro, Gardener to Mrs. Oddie, Colney House, St. Alban's, for 1 dish of Black Hamburgh Grapes.

SMALL SILVER MEDAL.

To Mr. Turnbull, Gardener, Blenheim, for 1 dish of Black Prince Grapes.
To Mr. Cook, Gardener to Mrs. Puller, for 1 dish of White Muscadine Grapes.
To Mr. Solomon, Peckham, for 1 dish of Muscats.
To Mr. Henderson, Gardener, Cole Orton Hall, for 1 dish of Frontignan Grapes.
To Mr. Raxton, Gardener to J. R. West, Stratford-on-Avon, for 1 dish of Peaches.
To Mr. Hill, Gardener to R. Sneyd, Keele Hall, Staffordshire, for 1 dish of Peaches.
To Mr. Tegg, Gardener to — Pryor, Roehampton, for 1 dish of Nectarines.
To Mr. M'Ewen, Gardener, Arundel, for 2 dishes of Peaches and Nectarines.
To Mr. Fleming, Gardener, Trentham, for 1 dish of Black Cherries.
To Mr. M'Ewen, Gardener, Arundel, for 2 dishes of Strawberries.
To Mr. Williams, Hoddesdon, Tropical Fruits.
To Mr. Cole, Nurseryman, St. Alban's, for 6 Calceolarias.

BRONZE MEDAL.

To Messrs. Rollisson, Tooting, for Gloxinia Mars cœrulea.
To Messrs. Veitch, Chelsea, for Rhododendron formosum.
To Mr. Gedney, Gardener to Mrs. Ellis, Hoddesdon, for 12 Exotic Ferns.
To Mr. Taylor, Gardener to J. Coster, Esq., Streatham, for Correct Labels.
To Mr. George, Gardener to — Nicholson, Esq., Stamford Hill, for 6 Fuchsias.
To Mr. Windsor, Gardener to — Blythe, Esq., Kiddapore Hall for 10 Pelargoniums.
To Mr. Robinson, Gardener to — Simpson, Esq., for 8 Fancy Pelargoniums.
To Mr. Bryan, Whitton, Hounslow, for 36 Pansies.
To Mr. Holder, Gardener to the Rev. E. Coleridge, Eton College, for 24 Pansies.
To Messrs. Rollisson, Tooting, for 4 Miscellaneous Plants.
To Mr. Hume, Gardener to Mr. Hanbury, Poles, near Ware, for 6 species of Anæctochilus.
To Messrs. Lane, Berkhampstead, for collection of cut Rhododendrons and Ghent Azaleas.
To Mr. Jackson, Nurseryman, Kingston, for Seedling Hardy Rhododendrons.
To G. Brown, Esq., for 1 Pine.
To Mr. Tegg, Gardener to — Pryor, Esq., for 1 Green-fleshed Melon.
To Mr. Gardiner, Gardener to Sir George Phillips, for 1 Green-fleshed Melon.
To Mr. M'Ewen, Gardener, Arundel, for 1 Green-fleshed Melon.
To Mr. M'Ewen, Gardener, Arundel, for 1 Scarlet-fleshed Melon.
To Mr. Dodds, Gardener to Sir J. Cathcart, Cooper's Hill, for 1 dish of Black Hamburgh Grapes.
To Mr. Turner, Gardener to J. Hill, Esq., Streatham, for 1 dish of Black Hamburgh Grapes.
To G. Brown, Esq., for 1 dish of Peaches.
To Mr. Constantine, Gardener, Hillingdon, for 2 dishes of Strawberries.

CERTIFICATE.

To Mr. Taylor, Streatham, for Correct Labels.
To Mr. Green, Gardener to Sir E. Antrobus, Bart., for Correct Labels.
To Mr. Roser, Gardener to J. Bradbury, Esq., Streatham, for Correct Labels.
To Mr. Mockett, Gardener to — Allnutt, Esq., Clapham Common, for 10 Pelargoniums.
To Mr. Williams, Hoddesdon, for a Collection of Lycopodiums.
To Mr. Francis, for Collection of Roses on Manetta stocks.
To Mr. Hume, Gardener to R. Hanbury, Esq., Poles, Ware, for a Collection of Lycopodiums.
To Mr. Turnbull, Gardener to the Duke of Marlborough, Blenheim, for 1 dish of Strawberries.
To Mr. Coles, Nurseryman, St. Albans, for 10 Miscellaneous Plants.
To Mr. Wiggins, Gardener to E. Beck, Esq., Isleworth, for 3 Seedling Pelargoniums—"Quadroon."
To Mr. Kinghorn, St. Margaret's Garden, Isleworth, for Seedling Pelargonium "Countess of Warwick."
To Mr. Hamp, South Lambeth, for Collection of Amaryllis.
To Mr. Hoyle, Reading, for Seedling Pelargonium "Pallas."
To Mr. Turner, Slough, for Seedling Pelargonium "Master-piece;" do. a Seedling Pelargonium "Beauty of Slough;" do. a Specimen Pelargonium "Meteora;" do. a Specimen Pelargonium.
To Mr. Fleming, Gardener, Trentham, for a dish of Raspberries.
To Mrs. Toyne, Sidney Nursery, Hounslow, for dish of Strawberries.
To Mr. Harrison, Palace Gardens, for 1 Queen Pine.
To Mr. Bailey, Gardener to T. Drake, Shardeloes, for 1 Queen Pine.
To Mr. Robinson, Gardener to Lord Boston, for 1 Pine.
To Mr. Gardiner, Gardener to Sir George Phillips, Westcote House, Shipston-on-Stour, for 1 Green-fleshed Melon.
To Mr. Fleming, Gardener to the Duke of Sutherland, for Green-fleshed Melon.
To Mr. Tillyard, Gardener to the Right Hon. The Speaker, Heckfield Place, Hadford Bridge, Hants, for 12 lbs. of Grapes.
To Mr. Cook, Gardener to Mrs. Puller, Ada Lodge, Tulse Hill, Brixton, for 1 dish of Black Hamburgh Grapes.
To Mr. Wortley, Gardener to Mrs. Maubert, Norwood, for 1 dish of Black Hamburgh Grapes.
To Mr. Frost, Preston Hall, Maidstone, for 1 dish of Black Hamburgh Grapes.
To Mr. Baine, Gardener to A. Perkin, Esq., Hanworth Park, for 1 dish of Figs.
To Mr. Constantine, Gardener, Hillingdon, for 1 dish of Figs.
To Mr. Dunsford, Chingford, Essex, for 2 dishes of Strawberries.
To Mr. Barrow, Gardener to Mrs. Vivian, Singleton, for Fruit of Musa Cavendishi.
To Messrs. Veitch, Chelsea, for Correct Labels.

Printed by William Bradbury, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and Frederick Mullett Evans, of No. 27, Victoria Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, June 16, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 25.—1855.] SATURDAY, JUNE 23. {Price Fivepence. Stamped Edition, 6*d*.

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ROYAL BOTANIC SOCIETY, Regent's Park.—The LAST EXHIBITION this season of PLANTS, FLOWERS, and FRUIT will take place on WEDNESDAY, July 4th. Tickets to be obtained at the Gardens only, by orders from Fellows or Members of the Society. Price 5*s*., or on the day of Exhibition, 7*s*. 6*d*. each.

N.B. By accident some of the tickets issued are wrongly dated July 5th instead of Wednesday, July 4th. The holders of such Tickets are requested to correct the date.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY, under the Patronage of her most gracious Majesty the Queen.—The Third Exhibition of the season will take place at the Royal Cremorne Gardens, Chelsea, on THURSDAY, July 5. Open to all Exhibitors. Prizes will be awarded for the following productions, viz.:—Collections of Miscellaneous Plants, Cape Heaths, Orchideous Plants, Pelargoniums, Variegated Plants, Fuchsias, Roses, Pinks, Verbenas, Cut Flowers, and Fruit; also numerous extra Prizes offered by members. Lists of Prizes and the Rules of the Exhibition may be obtained of Mr. Simpson, Royal Cremorne Gardens, Chelsea; and of the Secretary, Ebenezer House, Peckham, John Taylor Neville.

SOUTH LONDON SOCIETY OF AMATEUR FLORISTS.—The THIRD EXHIBITION for this season will take place at the Horns Tavern, Kennington, on FRIDAY, 29th June, when Prizes will be awarded for the following productions, viz., Miscellaneous Plants, Pelargoniums, and Fancy Varieties, Pinks, Ranunculuses, Roses, &c. An efficient Band will be in attendance. Admission to Non-Members from 2 till 7 o'clock, at 6*d*. each. List of Prizes and the Rules for the Exhibitors may be had from John Bushell, Hon. Sec., *pro tem*. Lower Kennington, Lambeth.

STAINES HORTICULTURAL SOCIETY.—The Exhibition of the above Society will be held on SATURDAY, June 30, when Prizes will be awarded for the best productions of Amateur Gardeners and Nurserymen. Schedules of particulars may be had on application to W. Watkins, Hon. Sec., Staines.
(By order of the Committee.)

HORTICULTURAL AND FLORICULTURAL SOCIETY.—The First Grand Show of the above Society will be held by permission of the Earl of Essex in Cassiobury Park, near Watford, on WEDNESDAY, 18th July, 1855. An efficient Band on the grounds. Open to all Exhibitors. Schedules are now ready, and can be had on application to the Secretary, Mr. J. P. Taylor.
By order of the Committee,
John Pearce Taylor.

SLEAFORD FLORAL AND HORTICULTURAL SOCIETY.—At the Annual Exhibition of this Society at Sleaford, on THURSDAY, the 26th of July next, an Extra Prize of Five Guineas, open to all England, will be awarded for the best collection of Twelve Stove and Greenhouse Plants, in addition to the usual Members and Cottagers' Prizes. The rules of the Society, with Schedules of Prizes, may be obtained on application to Mr. Warwick, the Treasurer; or to Mr. Peake, Honorary Secretary.—Sleaford, June 23.

BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY, Royal Pavilion. The SECOND ANNUAL SUMMER EXHIBITION of PLANTS, FLOWERS, FRUITS, &c., will be held on Wednesday and Thursday, the 27th and 28th of June next, on the same grand scale as last year. Schedules can be had by application to E. Spary, General Superintendent of the Exhibition, or of the Secretary, E. Carpenter, 45, Lavender Street, Brighton.
By the liberality of the London, Brighton, and South Coast Railway Company all plants will be conveyed to the exhibition and back carriage free from all stations on the lines.
By order of the Committee, Edward Carpenter.
N.B. The Autumn Exhibition will take place on the 12th and 13th of September next.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Notice is hereby given, that an ELECTION OF THREE PENSIONERS on the Funds of this charity will take place on Wednesday, the 4th of July next, at the Horticultural Society's Rooms, No. 21, Regent Street. The chair to be taken at 12 o'clock precisely.
The Polling Papers have all been delivered; any Subscriber not having received one is respectfully requested to apply for one immediately.
June 23. E. R. Cutler, Sec.,
14, Tavistock Row, Covent Garden.

GARDENERS' BENEVOLENT INSTITUTION.—Thomas Jackson & Son respectfully recommend to the Members of the above Institution GEORGE KIDD, aged 70, who has followed gardening for 54 years, was a subscriber to the Institution 9 years, and now, from a fall rendering one hand powerless, combined with age, he is unable to work. His case is strongly recommended by Mr. T. Gaines, Battersea; Mr. F. King, Isleworth. Proxies will be gratefully received by T. Jackson & Son, Kingston, Surrey.

TURNIP SEED OF PURE SELECTED STOCKS. FOR

BASS AND BROWN'S Advertisement of present prices, see *Gardeners' Chronicle* of April 28th, and May 5th and 12th. Reduced prices for large quantities.
Errata.—For "Laing's Purple-top Swedes, 1*s*. per lb.," *read* "1*s*. 9*d*. per lb." the same price of the other three Swedes.
To the Trade.—Prices will be supplied on application.
Seed Establishment, Sudbury, Suffolk.

THE BEST EARLY CABBAGE GROWN.

COTTRELL'S EARLY CHAMPION may be sown any season. Sold in sealed packets, 1*s*. per oz. The usual allowance to the Trade.—To be had only of Dawe, Cottrell, & Benham (Successors to F. Warner), Wholesale Seedsmen, 3, Lawrence Pountney Lane, and 36, Moorgate Street (late 28, Cornhill). Established 1720.

ENGLISH GROWN RAPE, OR COLE SEED.

CHARLES SHARPE AND CO. beg to acquaint the Trade that they can supply any quantity of the above; prices and samples forwarded on application.
Nursery and Seed Establishment, Sleaford, June 23.

JOHN COLES begs respectfully to invite lovers of SHRUBBY CALCEOLARIAS to pay him a visit, and flatters himself his batch of Seedlings are second to none in England, and that no one will regret the journey.
Keyfield Nursery, St. Alban's, June 23.

CHINESE PÆONIES.

JOHN SALTER'S unrivalled collection of these splendid Flowers is now in bloom, and may be seen every day except Sunday.—Versailles Nursery, William Street, near Hammersmith Turnpike.

EMPEROR NAPOLEON—A New Scarlet Geranium.

JOHN BUTCHER is now sending out the above splendid GERANIUM (a Seedling raised by himself), being a very decided improvement upon the great favourite Tom Thumb; the habit is more compact, the trusses of Flowers very much larger, and for brilliancy of colour far superior, sending up the truss of Flower finely above the Foliage. Fine for Bedding or Vases. Was exhibited at the Royal Botanic Gardens, Regent's Park, London, June 13 (see *Gardeners' Chronicle* of June 16).—June 23.

DENNIS'S SPLENDID GERANIUM ALMA.—Flowers large, bright rosy crimson, very abundant, blooming freely from February to December; the very best ever grown for all general purposes.
Good blooming Plants ... 25*s*. to 30*s*. per dozen.
Large strong Plants ... 50*s*. to 70*s*. "
W. Dennis, Florist, King's Road, Chelsea.

WILLIAM KNIGHT, Florist, &c., begs to offer the following Superb FLOWER SEEDS, saved from the best varieties, post free:—

	Per packet—*s*.	*d*.
Calceolaria, from the best spotted varieties	1	0
Cineraria, from the newest and best varieties	1	0
Primula sinensis, from choice fimbriated varieties ...	1	0
Double Daisy from 60 of the newest varieties	0	6
Pansy, from 100 of the best show flowers	1	0
Antirrhinum, from 100 striped and spotted varieties ...	0	6

67, High Street, Battle, Sussex.

MESSRS. E. G. HENDERSON AND SON beg to announce that their NEW SPRING CATALOGUE for 1855 will be sent post free on application, and for 12 postage stamps a Beautiful Coloured Plate, representing the following choice plants:—

Achimenes Ambroise Verschaffelt.
Acacia Drummondi microphylla
Boronia Drummondi
Bouvardia longiflora
Delphinium Hendersoni
Genetyllis macrostegia (fuchsioides)
Fuchsia Queen Victoria
" Mrs. Story
" Prince Albert

Mr. Andrews, the first floricultural artist of the day has had the getting up of this Plate, so that full reliance may be placed on the correctness of the flowers represented and the superior style of colouring.—Wellington Nursery, St. John's Wood, June 23.

WHITE LISBON ONION SEED.—Large buyers can be supplied with White Lisbon Onion Seed in quantity.—Apply to Mr. Henry Clarke, Seed Merchant, 39, King Street, Covent Garden.

ERICA VENTRICOSA, 12 distinct varieties.—A large quantity of very fine Plants in 48 pots, well set with Flowers, and now in fine condition for travelling. Price per 100 or per dozen on application to Hugh Low & Co., Clapton Nursery, London.

GARCINIA MANGOSTANA.—Healthy plants from seed of the true fruiting MANGOSTEEN at 63*s*. each.—Hugh Low & Co., Clapton Nursery, London, June 23.

ORANGE TREES of different sizes, on stems varying in height from 1 to 4 feet, all in vigorous health, and many full of flower. Prices from 21*s*. to 105*s*.—Hugh Lo & Co., Clapton Nursery, London.—June 23.

ALOE.

TO BE SOLD, an ALOE, now coming into bloom. At present it is 13 feet high from the ground. It will be delivered at either the Wokingham or Windsor Stations.—Offers for the same will be received by J. H., 20, Baker Street, Portman Square, London.

TO BE SOLD, about 66 plants of CRASSULA COCCINEA, just coming into bloom, at 6*d*. each; also a dozen extra large at 9*d*. each. For ready money only.
W. H., Post Office, Upholland, Wigan, Lancashire.

DUTCH BULBS.

AS the period is approaching for sending out the orders for DUTCH BULBS for the ensuing season, we respectfully suggest to our friends and the trade generally, that they instruct their correspondents in Holland to consign the cases to our care here, for immediate transmission to their respective destinations, by which greater expedition will be obtained in their delivery.—Betham & Blackith, Custom House and General Forwarding Agents, Cox's Quay, Lower Thames Street, London.—June 23.

EXHIBITION OF AMERICAN PLANTS.
Knap Hill Nursery, Woking, Surrey.

WATERER AND GODFREY beg to announce that the AMERICAN PLANTS at this Nursery are now in great beauty, and may be seen daily gratis. The Nursery is readily reached by Railway to the Woking Station, where capital conveyances may always be obtained.

GREAT EXHIBITION OF AMERICAN PLANTS.

JOHN WATERER begs to announce that his unrivalled collection of Hardy, Scarlet, and other RHODODENDRONS, is now on view at the Royal Botanic Gardens, Regent's Park, London. Orders of admission are granted gratuitously by Fellows of the Society. The Plants at the Nursery are now in full bloom, and will continue in perfection throughout the month of June.—The American Nursery, Bagshot, Surrey, June 16.

GAINES' LARGE COLLECTION OF SHOW, FRENCH, and FANCY GERANIUMS, are now in full bloom. May be seen any day, Sundays excepted. There are hundreds of feet of stages perfectly filled with all the choicest kinds. Persons wishing to improve their Collection would find a visit to the Nursery answer their purpose.
Nursery, Surrey Lane, Battersea, June 23.

AZALEAS AND ERICAS.

W. J. EPPS has much pleasure in offering the following fine, bushy, well-grown plants, and of the choicest and best varieties, in large 48 and 32-size pots.
AZALEAS 18*s*. per dozen; 5*l*. per 100.
ERICAS 12*s*. and 18*s*. per dozen; 4*l*. and 5*l*. per 100.
These will make very pretty specimens for the ensuing season all orders to be accompanied with a remittance from unknown correspondents.—Maidstone, June 23.

WILLIAM BARRATT, Landscape Gardener, Wakefield.
*** Plans and Estimates furnished.

DAVID FERGUSON, Landscape Gardener, Garden Architect, and Contracting Planter, Stowe, Buckingham. Now is the time to prepare for planting in September, October, and November.

JOHN HARRISON, Nurseryman, Seedsman, Florist, Landscape Gardener, &c.
Plans and Estimates furnished; Experienced Gardeners recommended; also several Young Men in the Nursery waiting for Under Gardeners' Situations.—Darlington, June 23.

GEORGE TAYLOR, Jun.,
Choice Fruit and Vegetable Salesman,
St. John's Market,
Liverpool.
Contractor and Purchaser of Choice Garden Produce.
Salesman on Commission.
Terms, Cash.
Forward as above.

JOSEPH NORRIS, Osterley Park, Hounslow, Middlesex, having an immense Stock of PANSIES, including all the finest and newest in cultivation, offers them at 6*s*., 9*s*., and 12*s*. per dozen, package included, sent to any address on the receipt of a Post Office Order, payable at Hounslow.
The Trade supplied.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks at 5*s*.; 12 varieties, 2*s*. 6*d*.; and from good double sorts, 1*s*.
Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s*. per packet; separate, 2*s*. Fine Quilled African Marigolds, 6*d*. per packet.—Saffron Walden Nurseries.

EXTRA FINE BEDDING PLANTS.

R. PARKER having a large surplus stock of the finest varieties of Fuchsias, Verbenas, Calceolarias, Dahlias, Petunias, Scarlet and Variegated Geraniums, and all the other popular varieties of bedding plants, is prepared to treat with purchasers on the most liberal terms. Prices forwarded upon application, per return of post.
Paradise Nursery, Hornsey Road, Holloway.

OPEN AIR CULTURE OF THE MUSHROOM.

PRESTOE'S IMPROVED MUSHROOM SPAWN.—The only acknowledged improvement from the time of Oldaker.—Sold in packages containing a sufficient quantity to plant 50 feet of bed for 5*s*., with printed description and cultural direction.
The Rev. Mr. J. Berkeley speaking of it in the *Gardeners' Chronicle*, says "it is really a valuable article." W. P. has also been honoured with the London Horticultural Society's Certificate of Merit for "Excellent Mushroom."—The trade supplied. Post Office orders payable to William Prestoe, Basingstoke, Hants.

EXTRA STRONG BEDDING PLANTS, 2*s*. 6*d*. per doz.
Including Package, when 10 doz. are Ordered.

WOOD AND INGRAM beg to offer, at the above price, fine well-established plants of Anagallis, Ageratum, Calceolaria, dark, Cineraria ameloides, Heliotropes, Lobelia ramosoides, Nierembergia gracilis, Petunias, Senecios, Tagetes lucida, and Verbenas, all of the best kinds, and in great variety. Also a large quantity of good flowering plants of Show and Fancy GERANIUMS, and Show and Fancy DAHLIAS, of well-known leading kinds, at from 4*s*. to 6*s*. per doz. The varieties to be sent may be seen in W. & I.'s Catalogue, which may be had on application.—Huntingdon Nurseries.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.
We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year; and as we deliver our Seeds Carriage Free, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. Wheeler & Son, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

TO FLORISTS AND GARDENERS.

TO BE SOLD, A GREAT BARGAIN, by valuation or private treaty, a first-class stock of Geraniums, Fuchsias, Roses, Verbenas, Dahlias, Calceolarias, Mimulus, Chrysanthemums, Hollyhocks, Carnations, Picotees, Pinks, Phloxes, and a general good assortment of Plants for any one in the trade; consisting of a very large Greenhouse 150 feet long, Forcing and Propagating Houses, Cold Pits, and Box Lights, with all sorts of Tools for use; likewise three large Water Tanks, and a good supply of Water; Ground well laid-out; and also a good lot of Fruit Trees in full bearing.

N.B. Situated in Surrey, about nine miles from London, adjoining a railway station, and within half a mile of a good market town; a good Dwelling House upon the premises, can be taken by year or lease.

Dahlias from 3s. to 6s. per doz.; good sorts and strong plants.
Fuchsias „ 6s. to 12s. „ „ „
Verbenas „ 4s. to 6s. „ „ „
Pinks, Picotees, and Carnations, all named, equally cheap.
A good assortment of Bedding Plants cheap.—Apply to Mr. Hook, 21, Brudinell Place, New North Road, Hoxton.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 12s. per ton, 1s. 6d. per bushel, or 16s. per ton, delivered to any of the London Wharfs or Railways, or within a circuit of five miles. Peat and Loam of various qualities. Sacks 2s. each.
Kennard Brothers, Swan Place, Old Kent Road.

GARDEN VASES, FOUNTAINS, ETC.

THOMAS SOMMERVILLE, Landscape Gardener, Nurseryman, Seedsman, and Florist, Garden Road, St. John's Wood, London, begs respectfully to inform the nobility, gentry, and his patrons generally, that he has entered into arrangements with an eminent company in Scotland for the sole disposal in London of their highly ornamental and very durable Vases, Fountains, &c., samples of which may be seen at his grounds in the Garden Road, as above.

T. S. has much pleasure in being the first to introduce to the notice of the public a highly ornamental Vase, capable of resisting the most severe weather, and at little more than half the cost of any other possessing the same qualities; and he has no hesitation in stating that a more suitable Vase for the growth of plants cannot be manufactured.

MacADAM'S BLIGHT COMPOSITION. — The superiority of the above having been thoroughly established throughout Great Britain, France, and Germany during the last three seasons, it is again offered in 1 lb. packets (with directions) at 3s. 6d. each, sufficient for 24 gallons of liquid wash. No plant grower should be without this invaluable remedy. (See *Gardeners' Chronicle*, &c.)—John Hayne, Agent, 8, Liverpool Street, City, London. Paid orders forwarded.

PAGE AND CO'S COMPOSITION FOR THE DESTRUCTION OF BLIGHT UPON ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, STOVE AND GREENHOUSE PLANTS.—Extra Strong, 4s. per gallon, sufficient to make four (Jars and Barrels extra). Directions for use forwarded. Ten gallons and upwards carriage free to London.

After four years' extensive use by the most eminent Gardeners in the kingdom, the superiority of Page & Co.'s BLIGHT COMPOSITION is unquestionable, requiring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage) and promoting a luxuriant growth.

See two pages Testimonials, *Gardeners' Chronicle*, March 3, 1855.

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Messrs. Henderson & Co., Pine-apple Place, London
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Messrs. W. Drummond & Sons Dawson Street, Dublin
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DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Colebrook Dale Garden Seats and Chairs.

Averuncators
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Hoes of every pattern
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Labels, various patterns, in Zinc, Porcelain, &c.
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„ Knives, various
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DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.—DEANE, DRAY, & CO. (Opening to the Monument), London Bridge.

HORTICULTURAL SOCIETY OF LONDON.

Exhibition at the Gardens, June 20, 1855.

AWARD OF THE JUDGES.

Mixed Collections of STOVE AND GREENHOUSE PLANTS —In Twenties.

L.G.1. Mr. Dods, Gr. to Sir John Cathcart, Bart., F.H.S.
L.G.2. Messrs. Fraser, Lea Bridge Road.
G.K.1. Mr. Rhodes, Gr. to J. Philpotts, Esq.

Mixed Collections of STOVE AND GREENHOUSE PLANTS —In Twelves.

G.B.1. Mr. Jn. Green, Gr. to Sir Edmund Antrobus, Bart., F.H.S.
G.B.2. Mr. Carson, Gr. to W. F. G. Farmer, Esq., F.H.S.
S.G. Mr. Roser, Gr. to J. Bradbury, Esq.
L.S. Mr. Cutbush, Nurseryman, Barnet.

Mixed Collections of STOVE AND GREENHOUSE PLANTS —In Sixes.

S.G. Mr. Dods, Gr. to Sir John Cathcart, Bart., F.H.S.
L.S. Mr. Morris, Gr. to Coles Child, Esq.
S.K. Mr. Taylor, Gr. to J. Coster, Esq.
S.B. Messrs. Pamplin, Lea Bridge Road.

RHODODENDRONS—Cut Blooms in Fifties—(Nurserymen).

L.S. Messrs. Jackson, Kingston.
S.K. Messrs. Lane, Berkhampstead.

VARIEGATED PLANTS—In Twenties.

S.G. Messrs. Veitch & Son, Chelsea.
L.S. Messrs. Rollisson & Sons, Tooting.
S.K. Messrs. Henderson, Pine-apple Place.

PLANTS WITH FINE FOLIAGE—In Tens.

L.S. Messrs. Veitch & Son.
S.K. Messrs. Rollisson & Sons.

ORCHIDS—In Twenties—(Amateurs).

L.G.1. Mr. Williams, Gr. to C. B. Warner, Esq., F.H.S.
L.G.2. Mr. Woolley, Gr. to H. B. Ker, Esq.

ORCHIDS—In Tens—(Amateurs).

G.B.1. Mr. Gedney, Gr. to Mrs. Ellis, Hoddesdon.
G.B.2. Mr. Clarke, Hoddesdon.
S.G. Mr. Carson, Gr. to W. F. G. Farmer, Esq., F.H.S.

ORCHIDS—In Sixes—(Amateurs).

S.G. Mr. Ivison, Gr. to his Grace the Duke of Northumberland, V.P.H.S.
L.S. Mr. Keele, Gr. to J. Butler, Esq., F.H.S.
S.K. Mr. Dods, Gr. to Sir John Cathcart, Bart., F.H.S.
S.B. Mr. Gedney, Gr. to Mrs. Ellis, Hoddesdon.
C.1. Mr. Green, Gr. to Sir Edmund Antrobus, Bart., F.H.S.

ORCHIDS—In Twenties—(Nurserymen).

G.K.1. Messrs. Veitch & Son, Chelsea.
G.K.2. Messrs. Rollisson & Sons, Tooting.

ORCHIDS—Single Specimens.

S.K. Mr. Gedney, Gr. to Mrs. Ellis, Hoddesdon.
S.B. Mr. Ivison, Gr. to his Grace the Duke of Northumberland, V.P.H.S.
C.1. Mr. Morris, Gr. to C. Child, Esq.
C.2. Mr. Dunsford, Chingford, Essex.

CAPE HEATHS—In Tens.

G.B.1. Messrs. Rollisson & Sons.
G.B.2. Mr. Roser, Gr. to J. Bradbury, Esq., F.H.S.
S.G. Messrs. Fraser, Lea Bridge Road.

CAPE HEATHS—In Sixes.

L.S. Mr. Taylor, Gr. to J. Coster, Esq.
S.K. Mr. Rhodes, Gr. to J. Philpotts, Esq.
S.B. Messrs. Pamplin, Lea Bridge Road.

CAPE HEATHS—Single Specimens.

S.K. Mr. Roser, Gr. to J. Bradbury, Esq., F.H.S.
S.B. Mr. Taylor, Gr. to J. Coster, Esq.
C.1. Mr. Green, Gr. to Sir Edmund Antrobus, Bart., F.H.S.
C.2. Mr. Carson, Gr. to F. G. Farmer, Esq., F.H.S.

SINGLE SPECIMENS—Excluding everything which can be shown singly in other numbers.

S.K. Mr. Dods, for Nepenthes distillatoria.
S.B. Messrs. Rollisson, for Cephalotus follicularis.
C.1. Messrs. Veitch & Son, for Medinella magnifica.
C.2. Mr. Taylor, for Aphelexis sesamoides.

ROSES in POTS—in Twelves—(Amateurs).

G.B.1. A. Rowland, Esq., F.H.S.
G.B.2. Mr. Terry, Gr. to Lady Giles Puller, Youngsbury.
L.S. Mr. Sage, Gr. to W. R. Robinson, Esq., Acton.

ROSES in POTS—In Twelves—(Nurserymen).

G.B.1. Messrs. Lane & Son, Berkhampstead.
G.B.2. Messrs. Paul & Son, Cheshunt.
S.G. Mr. Francis, F.H.S., Hertford.

PELARGONIUMS—In Twelves—(Amateurs).

G.B.1. Mr. Nye, Gr. to E. Foster, Esq., Clewer.
G.B.2. Mr. Holder, Gr. to Rev. E. Coleridge, Eton.
S.G. Mr. Maher, Gr. to J. M. Strachan, Esq., F.H.S.

PELARGONIUMS—In Sixes, in 8-inch Pots—(Amateurs).

L.S. Mr. Nye, Gr. to E. Foster, Esq.
S.K. Mr. Robinson, Gr. to J. Simpson, Esq., Pimlico.

PELARGONIUMS—In Twelves—(Nurserymen).

G.B.1. Mr. Charles Turner, F.H.S., Slough.
G.B.2. Messrs. Dobson & Son, Isleworth.
S.G. Messrs. Fraser, Lea Bridge Road.
L.S. Mr. Gaines, F.H.S., Battersea.

FANCY PELARGONIUMS—In Sixes—(Amateurs).

L.S. Mr. Weir, Gr. to J. Hodgson, Esq., Hampstead.
S.K. Mr. Windsor, Gr. to A. Blyth, Esq., Hampstead.
S.B. Mr. Robinson, Gr. to J. Simpson, Esq.

FANCY PELARGONIUMS—In Sixes—(Nurserymen).

L.S. Mr. Charles Turner, F.H.S.
S.K. Messrs. Fraser.
S.B. Mr. Gaines, F.H.S.
C.1. Messrs. Dobson & Son.

PANSIES in POTS.

S.B. Messrs. Dobson & Son.

NEW PLANTS in FLOWER.

L.S. Messrs. Veitch & Son, for Leptadactylon californicum.
S.K. Messrs. Rollisson & Sons, for Dendrobium sp. Amboyna.
S.B. Mr. Glendinning, F.H.S., for Scheeria mexicana.
C.1. Messrs. Veitch & Son, for Hydrangea sp. Japan.
C.2. Messrs. Henderson, Pine-apple Place, for Linum grandiflorum.
H.M. Messrs. Rollisson & Sons, for Cypripedium barbatum (?).

NEW PLANTS not in FLOWER.

S.K. Messrs. Rollisson & Sons, for Begonia splendida.
S.B. Messrs. Veitch & Son, for Rhododendron Brookianum, var.
C.1. Messrs. Veitch & Son, for Begonia sp. (Peru).
C.2. Messrs. Veitch & Son, for Nepenthes sp. (Borneo).

NEW GARDEN HYBRIDS.

L.S. Messrs. Veitch & Son, for Rhododendron Princess Royal.
S.B. Mr. Ingram, C.M.H.S., for a seedling Achimenes.
C.1. Messrs. Rollisson & Sons, for Gloxinia erecta alba auriculata.
C.2. Messrs. Fraser, for Gloxinia erecta (Princess of Prussia).

MISCELLANEOUS.

S.K. Mr. Williams, Gr. to C. B. Warner, Esq., F.H.S., for Ferns and Lycopodiums.
S.B. Messrs. Rollisson & Sons, for 6 varieties of Aphelexis.
C.1. Messrs. Rollisson & Sons, for Rhododendron Duc de Brabant.
C.2. Mr. Thomas Gaines, F.H.S., for 6 Calceolarias.

COLLECTIONS OF FRUIT.

G.B.2. Mr. McEwen, Gr. to his Grace the Duke of Norfolk, F.H.S.
S.G. Mr. Fleming, (Trentham) Gr. to his Grace the Duke of Sutherland, F.H.S.

PINE APPLES, PROVIDENCE, &c.

L.S. Mr. Robinson, Gr. to Lord Boston, F.H.S. (a Providence Pine, 7 lbs. 4 oz.)
S.K. Mr. Chapman, Gr. to J. B. Glegg, Esq., F.H.S. (a Providence Pine, 6 lbs. 14 oz.)
S.B. Mr. Barron, Gr. to Mrs. Vivian, F.H.S. (an Otaheite Pine, 4 lbs. 8 oz.)

PINE APPLES, JAMAICAS, QUEENS, &c.

L.S. Mr. Turnbull, Gr. to his Grace the Duke of Marlborough (a Cayenne Pine, 4 lbs. 9 oz.)
S.K. Mr. James, Gr. to C. H. Leigh, Esq. (a Queen Pine, 3 lbs. 10 oz.)
S.B. Mr. Clements, Oakhill, Barnet (a Queen Pine, 2 lbs. 14 oz.)

BLACK GRAPES—Single Dishes.

L.S. Mr. Fleming (Cliefden), Gr. to his Grace the Duke of Sutherland, F.H.S.
S.K. Mr. Ingram, Gr. to her Majesty, Frogmore.
S.K. Mr. Dods, Gr. to Sir John Cathcart, Bart., F.H.S.
S.K. Mr. Martin, Gr. to Sir P. H. Fleetwood, Bart., F.H.S.
S.B. Mr. Sharland, Gr. to T. Farmer, Esq., F.H.S.
S.B. Mr. Clarke, Hoddesdon.

WHITE GRAPES—Single Dishes.

L.S. Mr. Turnbull, Gr. to his Grace the Duke of Marlborough.
S.K. Mr. Ingram, Gr. to her Majesty, Frogmore.
S.B. Mr. Williams, Gr. to C. B. Warner, Esq. F.H.S.
C.1. Mr. Ayres, Gr. to Lord Southampton, F.H.S.

PEACHES AND NECTARINES—In Collections of Three.

S.G. Mr. James, Gr. to C. H. Leigh, Esq.

PEACHES AND NECTARINES—In Collections of Two.

L.S. Mr. Clements, Oakhill, Barnet.
S.K. Mr. Tegg, Gr. to A. Pryor, Esq.

PEACHES AND NECTARINES—Single Dishes.

S.K. Mr. Eyles, Gr. to Sir Edward Kerrison, Bart.
S.B. Mr. Ayres, Gr. to Lord Southampton, F.H.S.
C.1. Mr. Chapman, Gr. to J. B. Glegg, Esq., F.H.S.

MELONS.

S.K. Mr. Fleming (Trentham), Gr. to his Grace the Duke of Sutherland, F.H.S.
S.K. Mr. Chapman, Gr. to J. B. Glegg, Esq., F.H.S.
S.B. Mr. Salter, Gr. to J. M. Yeeles, Esq., Bath.
S.B. Mr. McEwen, Gr. to his Grace the Duke of Norfolk, F.H.S.
S.B. Mr. Gardiner, Gr. to Sir Geo. Phillips, Bart., F.H.S.

FIGS.

S.B. Mr. Ivison, Gr. to his Grace the Duke of Northumberland, F.H.S.
C.1. Mr. Fleming (Trentham), Gr. to his Grace the Duke of Sutherland, F.H.S.
C.2. Mr. Drummond, Gr. to S. L. Stephens, Esq., F.H.S.

CHERRIES—In Collections.

L.S. Mr. Ingram, Gr. to Her Majesty, Frogmore.
S.K. Mr. Fleming (Trentham), Gr. to his Grace the Duke of Sutherland, F.H.S.

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S.K. Mr. Shuter, Gr. to the Earl of Wilton.
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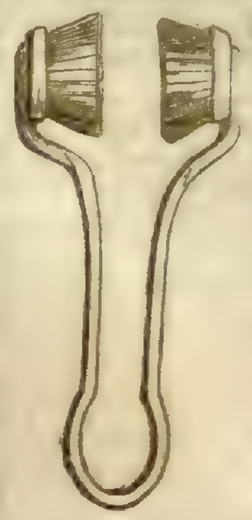

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Half inch, 4d. per foot, strong light; 4½d. per foot, strong; larger sizes in proportion; for manuring land, &c.

Brass-hand tubes with rose, jet, and tap, from 4s. 6d. each.

Union Joints, 1s. 6d. each, fitted complete.

Instructions given to affix joints to Taps.

Garden Engines, great power, 4l. 4s. each. Self-supplying do. 4l. 4s. each.

Post Office Orders payable at City Road Branch.

JAMES W. WATTS, Gutta Percha Factory, 27, City Road.

NEW WHITE VERBENA—MRS. HOLFORD.

JOHN WESTWOOD having had this really good Verbena in his possession before any other florist, is now enabled to offer well established plants on the 15th July next, at 3s. 6d. each. It far surpasses both in size of truss and flower any Verbena yet raised, and has been justly awarded a First Class Certificate by the South London Floricultural Society, and pronounced by all who have seen it to be unequalled.

NEW PETUNIA—MARQUISE DE LA FERTE.

This Petunia was exhibited at the Horicultural Fete on Wednesday last, at Chiswick, and universally admired. It is a most decided improvement on Shrubland Rose in every respect. It is brighter and clearer in colour, a better grower, a larger flower, and has a beautiful clear white throat. Well established plants on the 15th July next, at 5s. each.

CHRYSANTHEMUMS.—Strong bushy plants fit to make fine specimen plants for the ensuing autumn of 120 sorts of Lilliputian, and 80 sorts of the large flowering kinds, at 6s. and 5s. per dozen.

The Floral Nursery, Acton Road, Turnham Green.—June 23.

NEW PLANTS.

HENRY GROOM, Clapham Rise, near London, by appointment FLORIST TO HER MAJESTY, begs to offer the following fine and new plants:—

	Each—s. d.
Fuchsia Queen Victoria	7 6
" Prince Albert...	7 6
Heliotrope Beauty of the Boudoir...	1 6
Verbena Mrs. Woodroffe	1 0
" Wonderful ...	2 6
" Blue Beard ...	3 6
Calceolaria Purity... ...	3 6
Salvia grandiflora Skinneri	5 0
Salvia Gesneraeflora ...	1 6
Lysimachia Leschenaultia	2 0
Deutzia crenata	2 6
" gracilis... 1s. to	2 6
Impatiens Hookeri ...	5 0
Auracaria Lindleyana ...	105 0
Pentstemon Wrighti ...	5 0
Weigela amabilis	2 6

	Each—s. d.
Cyclamen Atkinsi, 7s. 6d. and	10 6
" hungaricum ...	5 0
" repandum ...	5 0
Berberis Darwini 1s. to	3 6
Cerasus ilicifolia 2s. 6d. to	5 0
Tritonia aurea...	1 6
Rhododendron Edgworthi 5s. to	10 6
" campylocarpum 5s. to	10 6
" niveum 5s. to	7 6
" glaucum 1s. 6d. to	2 6
Hippeastrum aulicum, 3s. 6d. and	5 0
Vallota purpurea 2s. 6d. and	3 6

Clapham Rise, June 23.

NEW AND CHEAP PLANTS.

HENRY WALTON, FLORIST, &c., Edge End, Marsden, near Burnley, Lancashire, has now on hand a fine stock of the following, which may be had at the extremely low prices annexed:—Achimenes Carl Walforthi, 1s. 6d.; Cherita, 1s. 6d.; Louis Van Houtte, 1s.; Gigantea, 5s.; Madame Randatler, 3s.; Mr. Parparet, 1s.; Sir Traherne Thomas, 1s.; Hendersoni, 2s.; or the lot post free for 12s. Gloxinias, choice varieties, 1s. 6d. to 3s. 6d. each. Verbenas of this season, viz., Wonderful, Blue Beard, Lady Lacon, Commander-in-Chief, Empress of France, Florence Nightingale, Rose of England, Tyrian Prince, Eva, Boule de Feu, Lord Raglan, Empress, Mrs. M'Neil, Violacea, Silistria, and Mrs. Woodroffe, 1s. 6d., or 18s. per dozen post free. Clianthus magnifica, 2s. 6d. each. Begonia Prestoniensis, superb, 2s. 6d.; extra strong, 5s. Eugenia Ugni, 2s. 6d. Fine Show and Fancy Geraniums, 60s. per 100, or 50 for 32s. 6d. Scarlet and White, and older kinds of Geraniums, 3s. 6d., 4s. 6d. and 6s. per dozen. Dahlias, strong plants, 3s. 6d. per dozen. Bedding Plants, of sorts, equally cheap. Descriptive List may be had for one stamp.

It is respectfully requested that orders be accompanied with Post Office Order payable at Marsden, Lancashire, unless reference is given.

NEW AND CHEAP FIRST-RATE SHOW AND BEDDING PLANTS.

THE CHEAPEST ESTABLISHMENT IN THE KINGDOM IS AT

HENRY WALTON'S, FLORIST, &c., Edge End, Marsden, near Burnley, Lancashire, where there are propagated annually for sale from 20,000 to 30,000 plants, which, for cheapness and quality, are not to be equalled, being robust and healthy.

GERANIUMS.—Strong blooming plants, of varieties of 1853, such as Empress, Carlos, Neatness, Glow-worm, &c., 25s. per dozen; older show varieties, 9s., 12s., and 15s. per dozen; 25 for 20s.; 50 for 30s., good plants.

FUCHSIAS, new varieties of last season, 6s. to 9s. per dozen.

CINERARIAS, choice varieties, such as Advancer, Etoile de Vaise, Empress, &c., 10s. 6d. per dozen; older varieties, good show kinds, 3s. 6d. per dozen.

PANSIES, 12 distinct fine show varieties, 6s.; 25 fine vars., 12s.

VERBENAS, new varieties of last season, 4s. to 6s. per dozen.

DAHLIAS, all the leading show kinds of last season, 9s. to 12s. per doz.; older vars. 4s. 6d. to 6s. per doz., extra strong plants.

Bedding Plants, including Scarlet and other Geraniums Salvias, Heliotropes, &c., equally cheap.

H. W.'s Spring List may be had for one penny stamp.

It is respectfully requested that all Orders be accompanied with a Post-office Order, payable at Marsden, Lancashire, unless a reference is given. Orders to the amount of 25s. paid to Liverpool, Manchester, Leeds, and Preston; 2l. and upwards free to Birmingham and Carlisle; and the like distance, or more distant, extra plants gratis.—Edge End, Marsden, June 23.

NEW CABBAGE.—THE CHAMPION OF ENGLAND, which has surpassed everything of its kind during the past severe winter (when nearly every other has failed) and turned well into Cabbage this spring. This Cabbage is of a very dwarf and compact habit, and quite equal in flavour to any yet grown. It has been in the hands of a very excellent gardener for several years, and he has thoroughly proved its superior hardy and good qualities. The stock of seed purchased is very limited, therefore none can be sold by the pound or in large quantities to the Trade this year. E. T. feels confident, from what he has seen of the Cabbage, that it will give the greatest satisfaction to all purchasers. Sold in packets of 1 oz., 2s. 6d.; or of half an ounce, 1s. 6d., postage free.

The TRUE OLD BATH COSS LETTUCE, which Lettuce has never been surpassed by any other yet grown. 1s. per packet.

☞ This being the proper time for sowing the following varieties of Hardy Flowering Seeds for blooming next spring, the following undermentioned varieties will give the greatest satisfaction to all purchasers as they have hitherto done for many past seasons:—

SWEET WILLIAM SEED—Saved from 50 of the choicest and most superb varieties. 1s. per packet.

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Superb HOLLYHOCK SEED — Saved from all the best named flowers out last year. 1s. per packet.

SCARLET GIANT BROMPTON STOCK, extra fine. 1s. per packet.

PANSY SEED—A few packets from selected varieties. 1s. per packet.

AQUILEGIA OR COLUMBINE SEED—Saved from 12 distinct varieties. 1s. per packet.

☞ Either of the above packets of Flower Seeds three for 2s. 6d.

A remittance must accompany every order either in cash or penny postage stamps, when the whole, or any part of the above (as the case may be) will be forwarded.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somerset.

NEW SCARLET VERBENA—"MRS. WOODROFFE."

ARTHUR HENDERSON AND Co. can now supply fine strong plants of this very fine new Scarlet Verbena, 4 to 6 inches high, with numerous side branches, and all well hardened, fit for immediate planting out, at the following reduced prices, viz.:—

1 Plant	...	...	1s. 6d.
12 Plants	...	...	12 0
25 Plants	...	...	22 0
50 Plants	...	...	40 0
100 Plants	...	...	70 0

Specimens of blooms can be sent per post in tin cases (on receipt of 6 Postage Stamps) to those who are desirous of seeing and judging for themselves of the merits of this splendid variety.

Pine Apple Place, Edgware Road, June 23.

ROBERT PARKER begs to inform his friends and the public that his New Spring Catalogue containing Descriptive and Priced Lists of the following:—

Exotic Orchids
Ferns—stove, greenhouse, and hardy
Geraniums—show, fancy, scarlet, variegated, and hybrid bedding varieties
Chrysanthemums—large flowered, and Pompone varieties
Petunias
Antirrhinums
Roses in pots
Dahlias — show and fancy [varieties
Fuchsias
Selaginillas or Lycopodiums
Gloxinias
Cinerarias
Calceolarias—bedding varieties
Verbenas
Miscellaneous bedding plants &c., &c.

Is now ready and can be had Post-free on application.

Paradise Nursery, Hornsey Road, Holloway, London.

HUGH LOW AND CO. have to offer healthy plants of the undernamed. The list comprises many recent novelties of great merit, which are still rare:—

	s.	d.
Aphelandra Porteana ...	5	0
Anopteris glandulosa ...	15	0
Aralia integrifolia	21	0
" quinquefolia ...	21	0
Begonia Prestoniensis superba	2	6
Begonia zanthina	5	0
" gandavensis ...	5	0
" marmorea ...	5	0
Berberis Neuberti, very distinct foliage	7	6
Berberis Leschenaulti, extra fine	21	0
Clematis Helena	3	6
" monstrosa, a great curiosity	5	0
Clematis Sophia	3	6
Clianthus magnificus ...	2	6
Dracæna nobilis	7	6
" Sieboldti	10	6
Diplacus grandiflorus ...	2	6
Dionæa muscipula (fly trap	3	6
Gesnera Donkelaari ...	15	0
" Leopoldi	3	6
Glycine sinensis alba ...	5	0
Geraniums Medaille d'or	10	6
And six other new continental 5-spotted varieties of present season—each	7	6
Gloxinia Grand Sultan...	3	6
" Wilsoni	2	6
Hydrolea azurea	2	6
Hederoma, or Genetyllis tulipifera	21	0
Hederoma, or Genetyllis fuchsioides	21	0
Hydrangea japonica variegata	2	6
Impatiens Jerdonia ...	3	6

	s.	d.
Isoloma Decaisniana, superior to Achimenes gigantea	5	0
Lapageria rosea, from seed	10	6
Leschenaultia biloba grandiflora, true dwarf variety	5	0
Lilium giganteum 21s. to	63	0
Libocedrus decurrens (Thuja gigantea) ...	31	6
Mandirola picturata, most beautiful new Gesneriaceous plant	7	6
Medinella magnifica ...	10	6
Nepenthes ampullacea ...	42	0
" lævis	15	0
" phyllamphora	15	0
" Rafflesiana ...	63	0
[Fine established plants, with pitchers.]		
Passiflora Gontieri ...	5	0
Quercus pedunculata filicifolia, most beautiful and striking foliage	10	6
Rhopala corcovadensis ...	21	0
" elegans	7	6
" organensis, true	42	0
Sonerila Margaritacea, 10s. 6d. to	21	0
Sarracenia flava	2	6
" purpurea ...	1	6
" rubra	2	6
" variolaris ...	2	6
Salisburia incisa, a new variety of the Maiden Hair Tree, with most distinct and beautiful foliage	21	0
Veronica Kermesina ...	2	6

Clapton Nursery, London.—June 23.

SELECT NEW PLANTS AT REDUCED PRICES.—For Descriptions of many, see BASS AND BROWN'S CATALOGUE and SPRING SUPPLEMENT.

	s.	d.
Aphelandra Porteana ...	5	0
Arbutus cromea	7	6
" magnifica ...	5	0
Achimenes picturata ...	5	0
" gigantea ... 5s. to	7	6
" Mdme. Randatler ...	3	6
" Ambroise Verschaffelt, 5s. to	7	6
" Tydea (Warscewiczi), 5s. to	7	6
Azalea indica Beali ...	3	6
" crispiflora	3	6
" Admiration (Ivery's), 7s. 6d. to	10	6
" Criterion (Ivery's), 7s. 6d. to	10	6
Begonia Thwaitesi ...	10	6
Cassia floribunda	7	6
Cereus McDonaldi, 10s. 6d. to	15	0
Clematis patens Sophia, 3s. 6d. to	7	6
" monstrosa, 7s. 6d. to	10	6
" lanuginosa	10	6
" longipetita	7	6
Cyclamen Atkinsi ...	10	6

	s.	d.
Eugenia (Myrtus) Ugni, 3s. 6d. to	5	0
Escallonia pterocladon, 7s. 6d. to	10	6
Ixora coccinea grandiflora, 2s. 6d. to	3	6
Libocedrus chilensis, 3s. 6d. to	7	6
Maranta sanguinea, 5s. to	7	6
" vittata ... 7s. 6d. to	10	6
" albo-lineata	7	6
Monochætum umbellatum	5	0
Passiflora Decaisneana ...	3	6
Philesia buxifolia... ...	10	6
Rhododendron Grisewoodianum	15	0
" album speciosum ...	10	6
" javanicum (Rollisson's) ... 5s. to	10	6
Rhodolea Championi, 7s. 6d. to	10	6
Siphocampylos Ne Plus Ultra ... 2s. 6d. to	3	6
" bicolor rosea, 2s. 6d. to	3	6
Wellingtonia gigantea, 7s. 6d. to	10	6

MISCELLANEOUS, NEW, SOFT-WOODED, AND HARDY KINDS.

Bouvardia Van Houtti, 3s. 6d. to	5	0
" longiflora alba vera, 2s. 6d. to	3	6
" hirtella, brilliant and free	1	6
Geranium Keynes's Pretty Polly	3	6
Heliotrope Jno. Cattell ...	2	6
Lobelia Ghiesbrighti.		
Pentstemon magnifica ...	2	6
Petunia Singularity (Smith's)... ...	2	6
" British Queen (Turner's)	2	6
Phlox omniflora compacta	2	6

NEW POMPONE CHRYSANTHEMUMS.—The following 13 best new varieties of last season for 13s., or 1s. 6d. each, viz., Anna Bullen, Aurora Borealis, Bob, Brilliant, Consuelo, Comte Achille Vigier, John Salter, La Radieuise, Madame Passy, Pluie d'Or, Rococo, Zebra, and Doctor Bois Duval.

NEW LARGE FLOWERING CHRYSANTHEMUMS.—The following 7 best new varieties for 9s., or 1s. 6d. each, viz., Auguste Mie, Annie Henderson, Hermione, La Prophete, Madame Labois, Prince Jerome, and Phare de Messine.

GLOXINIAS.—The following set of 11 new varieties of last season may now be had of good flowering plants, for 25s., viz., Duke of Wellington, Eleanor, Elegantissima, Erecta magnifica, Eugenia, Exquisite, Grand Sultan, Lady Franklin, Magnet, Prince of Wales, and Sir C. Napier.

WOOD'S DUCHESS OF NORFOLK ROSE, strong plants, 3s. 6d. to 5s. each.

Goods carriage free (not under 20s.) to all the London termini, and all stations on the London and Norwich Colchester Line. Plants added gratis with orders of 40s. and upwards.

COMPLETE CATALOGUES on application for six penny stamps, or the Spring Catalogue alone for three penny stamps, or gratis to our customers who may not have received them.

Seed and Horticultural Establishment, Sudbury, Suffolk.

PLANTS OF CABBAGE, SAVOY, KAIL, BROCCOLI, CELERY, AND CAULIFLOWER.

JOHN CATTELL begs respectfully to inform the public that he has a plentiful supply of Plants of his superior true sorts of the above, which will be forwarded to order on receipt of Postage Stamps, or Post Office Order made payable here, at the following prices, package included:—

All the sorts of Early Cabbage, Savoy, and Kail, including Brussel Sprouts, 6d. per 100, 4s. 6d. per 1000; all the sorts of Broccoli, 8d. per 100, 5s. 6d. per 1000; all the sorts of Celery, bedded plants, 8d. per 100, 5s. 6d. per 1000; Cauliflower, early and late 10d. per 100; Red Cabbage, 1s. per 100; Drumhead, or Cattle Cabbage, 4s. per 1000. A fine stock of autumn-bedded early Cabbage still to dispose of at 5s. per 1000; for large quantities, price on application. Packages containing plants to the value of 1l. and upwards will be delivered carriage free to London and to the Edenbridge Station of the South Eastern Railway. A remittance must accompany orders from unknown correspondents. Seed of Cattell's Dwarf Barnes, and of his superior Dwarf Reliance Cabbage, may be had in packets by post, for 12 penny stamps per packet, the former containing one ounce, and the latter half an ounce.—Nurseries, Westerham, Kent.

RARE AND CHOICE SEEDS.

WILLIAM DENYER, SEEDSMAN AND FLORIST, 82, Gracechurch Street, London, offers the following:—

AQUILEGIA, 6 distinct and beautiful colours, 2s. These are quite hardy, and when planted out will last and flower for several years.

CALCEOLARIA, saved by an amateur from the most superb show flowers, 1s. per paper.

CINERARIA, from a splendid collection, 1s. per paper.

HOLLYHOCKS, from Chater's best varieties, 6 sorts, 2s.

STOCKS, Autumnal, or late flowering, 6 varieties, 2s.

" Emperor, or Perpetual, 6 vars., splendid, 2s. These are quite new, and different to any other Stock, being very double and of large growth, lasting and flowering for several years.

WALLFLOWERS, 6 gigantic double varieties, bright and singular colours, 2s. From a Continental grower, who has gained many first class prizes.

ANTIRRHINUM, from a superb collection, 1s. Saved by an amateur.

PRIMULA SINENSIS FIMBRIATA, 1s. Saved from the best fringed flowers.

PANSEY, from the best flowers, 1s. Saved by Thompson and other eminent growers.

NEW AND RARE PLANTS to be seen in blossom at the Tooting Nurseries:—

Azalea indica, gem, new
Barkeria melanocaulon, new
Cypripedium caudatum purpureum, new
" species; this truly magnificent new plant has been discovered by our collector, Mr. John Hensball, in Java, growing at an elevation of 7000 feet above the level of the sea
Erica obbata pulchella, new
" tricolor magnifica, new
" ventricosa flava, new
Ærides Larpentæ, rare
Geranium Empress, new. This variegated variety far exceeds both in foliage and blossom any other of this class, and is admirably adapted either for bedding or pot culture
Gloxinia Adamis oculata, new
Meyenia erecta; this unquestionably is the gem of the season in new plants
Rhododendron Stamfordiana, new
" pavonia, new
" Shakespeare, new
Uropedium Lindeni, rare

Messrs. WILLIAM ROLLISSON & SONS will be happy to forward their Priced Catalogue of New and Rare Plants, post free on application. They will also be forwarded throughout the following countries, post free:—America, Austria, Belgium, France, Germany, Holland, Prussia, &c.

The Gardeners' Chronicle.

SATURDAY, JUNE 23, 1855.

ON the morning of the 20th of June, that is to say last Wednesday, the thermometer fell in the garden of the HORTICULTURAL SOCIETY to 36°, and the radiator indicated 2° of frost: the wind blowing from the north-east. To this succeeded a sunny day which bore no trace of the previous cold, and enabled the garden of the Society to be seen to advantage by the visitors to the Second Exhibition there for the season. It has so constantly been our pleasant duty to point out the general horticultural excellence of these exhibitions, that we really have little to add to what has been so often said before. As usual there was scarcely a specimen unworthy of a good gardener; and the visitors who had been at the Sydenham show cannot have failed to perceive the wide difference between the horticulture of the Crystal Palace and the Chiswick Gardens. Indeed, the comparison was a common subject of conversation among the experienced gardeners who occupied the tents in the early morning, and we need not say that it was not flattering to the former.

Fruit, although this was not the day on which any unusual attempt was made to bring together a great exhibition, appeared in considerable quantity, and contained much that was excellent; by means of a circular table, decorated with plants, and skilfully arranged, it might have been seen to advantage by any number of spectators. Nothing was here more striking than the perfection to which growing Vines in pots has been carried; four plants thus managed, from the garden of the Baron DE ROTHSCHILD, were produced by Mr. FORSYTH, and excited great interest. The Peaches, especially those from Arundel Castle, were superb, and Grape growing could not be carried much further than in the case of admirable bunches of Black Hamburghs, from Trentham. Strawberries, too, especially some of MYATT's Cinquefoil sort, which we had not seen before, were splendid, but so cold has been the season that none came from the open ground, with one exception. This was a dish of Keens' Seedling, shown by Mr. ROKE of Chertsey, produced in the warm situation formerly the site of the Abbey garden there. From this favoured place green

Peas have been gathered as early as the 7th of May; this year a solitary small dish of Strawberries was all it could furnish.

While we bear willing testimony to the merits of the fruit growers, we must not omit to add that the judges complained of what is certainly a very objectionable practice. The Society offers prizes for *collections* of Peaches, each to consist of not fewer than two or three sorts. The judges reported that in some instances, instead of *sorts*, they found *names;* and they intimated that in future such collections would be held to be disqualified whatever their merit might be. We hope they will abide by their determination, for it must be owned that the neglect of ascertaining the correct names of fruits is a growing evil, which requires to be checked. A gardener who does not know the difference between a Noblesse, a Red Magdalen, or an Early Anne Peach may be, and often is a first-rate cultivator; but he only half understands his business for all that.

The same remark applies to the names given to plants. This has already been the subject of some correspondence in our columns, and we avail ourselves of the opportunity afforded by the Chiswick exhibition to offer a remark or two upon it. No one conversant with modern gardening can be ignorant that the names of plants in nurseries are too often false, or fanciful, or altogether delusive. We continually see countries ascribed to plants, with the utmost confidence, although the latter never had the smallest intercourse with the former. Species from Mexico are fastened upon the Gold coast, Chinese plants are said to be Brazilian, well-known Nilgherry forms are asserted to have come from Western Africa, and so on. In these cases it would seem that the owners of such plants know less of geography than a parish schoolboy. In other instances, where a plant has half a dozen aliases, every one of these is used to sell it by, although the owners must, or certainly ought to, know that they all stand for the same thing. Then again a plant already provided with a name in works accessible to anybody, is thrust forth into the world with a new one invented by some ingenious gentleman in the trade. Another mode of perplexing buyers is for every recipient of a new introduction, for which no scientific name has been found, to give it one of his own, too often with some magnificent meaning to entrap the unwary; hence the splendidums, and gloriosums, and speciosissimums, and superbums, and maximums in which so many modern productions are made to rejoice. A whimsical example of this has just occurred to us in the case of a very handsome *scarlet Cactus*, which has been produced under the surprisingly appropriate name of *Epiphyllum* cœruleum *grandiflorum!* Such practices are by no means confined to England; on the contrary, they are more numerous elsewhere than within our own shores. But come from where they will, they are discreditable to all concerned in their manufacture. We mention no persons for the present; we only point to the exhibition tables at Chiswick last Wednesday.

To turn to the real novelties there, it is impossible not to direct attention, in the first instance, to the very curious and singularly beautiful Princess Royal Rhododendron exhibited by Messrs. Veitch. This striking novelty was obtained from the white *R. jasminiflorum* by the palest variety of *R. javanicum*. In form it was intermediate between its parents, but its flowers were a clear pure rose colour. Along with it was a fine Californian plant, resembling Phlox setacea in flowers and leaves; but forming a stiff hard-wooded shrub. It was shown under the name of *Leptodactylon californicum*, which was a mistake. The plant appeared to be a Phlox, allied to *Phlox speciosa*. To the same group has to be added a Rhododendron from Borneo, apparently the same as the supposed variety of *R. Brookeanum* with red-edged leaves, to which allusion was made last week in our column of new plants; it was not in flower, so that nothing more can be said about it for the present. To these must be added a singular Dendrobium "from Amboyna," in the way of D. secundum, with purplish flowers tipped with green. Messrs. Rollisson are the possessors of this, which is quite an acquisition.

Other novelty there was none of much moment except a beautiful hybrid Achimenes, with most brilliant scarlet flowers, raised by Mr. Ingram at Frogmore, and a very fine deep rose-coloured *Petunia*, almost as handsome as a Dipladenia; this bore the name of the Marquise de la Ferté, and came from Mr. Westwood, of Acton.

The rest of the exhibition consisted of the usual tribes of plants, among which fine leaved plants were a new feature; and by surrounding such groups with a border of fancy Pelargoniums they were made highly effective. Variegated plants too are increasing in variety and becoming every year more attractive. We think that gardeners may congratulate themselves upon attention being thus directed to a new mode of decoration, which is sure to be found useful when flowers themselves are not procurable. As long ago as November 1st, 1845, we pointed out how wide a field there is among the variegation of leaves, and how numerous are the colours besides green which foliage presents; that the public has profited by the hint is shown by the fine examples of variegation now to be found at every metropolitan exhibition. Let us hope that growers will make yet another step in advance, and separate on the exhibition tables the hardy from the tender, or very delicate races.

For details we refer to the report given in another column.

The following account of a new kind of garden pot appears in the *Revue Horticole*. An English amateur, Mr. Keir, residing in Paris, has contrived a method by which the branches of trees can be more conveniently layered than heretofore. Pots with a slit on one side have been long in use; but difficulty has been found in their use out of doors, on account of the want of any good means of securing them in a fixed position or at any desired height. Mr. Keir proposes to make such pots with a tubular projection on one side (*a b*) through which a staff may pass, and, being driven into the ground, hold the pot perfectly steady.

The following cut explains at a glance the nature of the invention. In forming such a pot, it is said

that the potter must take care that the slit *c* is so small as just to allow the branch *d* to pass in without leaving room for the earth to slip out. But this precaution seems needless; for it would be easy to prevent the earth slipping by means of pebbles or crocks applied to the slit after the branch is inserted, and as the pot is being filled with earth.

The attempt to make up for the deficiencies in the funds allotted to botanical gardens by commercial arrangements, is seldom attended with much success; but undoubtedly the worst plan of all is the endeavour to obtain the services of a superior head gardener or curator at a low salary by allowing him to carry on a separate business as nurseryman on his own grounds, or to raise plants for sale on his own account in the garden itself. As the salary he receives from the garden is thus professedly insufficient to purchase his whole time and talents, he feels perfectly justified not only in devoting a portion of both to his private business, but also in diverting to the latter many of the means of procuring and preserving plants which should, strictly speaking, belong to the garden. He is indeed the sole judge of how far his resources should be distributed between the two, and he must be an extraordinarily scrupulous man who would not in cases of doubt prefer his own nursery. In one of those large continental establishments where the annual allowances are not always in proportion to the liberality of occasional outlays, we had occasion many years ago to admire the number, the beauty, and variety of specimens of rare and curious plants illustrating the flora of a particular country as obtained from a collection at considerable expense. Visiting the same garden but a few years later, this fine collection was reduced to a most ordinary one, the best specimens had disappeared—they had died from "the effects of the seasons, the want of proper accommodation," &c., and had not been replaced; but most of them had reappeared in the shape of young plants on sale at the head gardener's private nursery. This circumstance was well known and commented upon, yet there had been nothing in his conduct to justify the managers in making any charge of dishonesty.

A much more common practice is where the gardener propagates curious or ornamental plants for sale in order to help out the garden funds without having himself any direct personal interest in the produce of the sales. This may possibly answer in the case of subscription gardens, where the title of botanic garden with the outward show of science is intended rather as an evidence that the object of the subscribers is rational recreation without pecuniary profit, than as a pledge to afford efficient assistance to botanical instruction. In such gardens it is perfectly true that the means of propagation necessary for keeping up the ornamental beds and shrubberies may be with a trifling expense extended so as to have a few plants for sale. The subscribers may procure a few things at a low price, and there may possibly be a small apparent balance to bring to account beyond the extra expense. But this cannot be done to any important extent without interfering with the main object of the garden; the ordinary surplus plants will seldom be such as precisely to suit the demands of the public; a ready sale at remunerative prices cannot be ensured without entering into a regular nurseryman's business; this, it is well known, brings no profit, unless the head man devotes to it his whole energies, and, if he does that, what is to become of the society's ornamental or recreative botanic garden? A nursery garden may have its beauties if viewed as a nursery, but it cannot be made into a botanic garden or an ornamental promenade without a proportionate loss; unless indeed the scientific or ornamental part be considered as a means of attracting customers, and thus be wholly subservient to the commercial object in view. When once the commercial element is introduced, science and ornament become servants, not masters.

This is still more strongly exemplified in the case of University and public botanic gardens. In all cases where we have known the sale of plants introduced as an aid in support of these establishments, it has invariably been done to the detriment of the main collection—the end is more or less sacrificed for the means. It being decided that the garden cannot be maintained without the produce of sales, the first attention is bestowed on the propagating for this purpose; the main collection is little attended to except at spare times, till in some cases it comes to be little more thought of than as a stock to procure grafts or cuttings from. We believe it may be generally stated that there are few, if any, of these cases of combination, where, if the accounts were strictly and fairly kept, it would not be found that the commercial part of the undertaking is carried on at a bare compensation for the bonâ fide outlay, or even at a loss, and that seldom, if ever, is there any real surplus applicable in aid of the maintenance of the botanical collection. *G. B.*

New Plants.

132. Juniperus pyriformis.

J. foliis primariis patentibus ternatim verticillatis pungentibus glaucis, secundariis arctè adpressis imbricatis acutis, galbulis pyriformibus (obovatis) denique oblongis squamis apice liberis foliaceis demum reflexis.

A very distinct species, brought to Messrs. Veitch by Mr. W. Lobb from the mountains of S. Bernardino in California, where it forms a low tree 10—12 feet high. When young the leaves are whorled in threes, glaucous, spreading, and sharp pointed; on the old branches they become closely pressed, short, and so arranged as to form nearly terete twigs. The fruits are remarkable for being very like small Pears when young, but marked with the free spreading and rather leafy ends of the consolidated scales; when full grown these scales turn back and apply themselves closely to the surface. The berries are deep purple with a glaucous bloom.

Young plants of this are, we understand, in the possession of Messrs. Veitch. It may possibly be the same as Jeffrey's No. 1475.

133. Cupressus Macnabiana. *A. Murray, in Edinb. new Phil. Journal*, i., 293, *t.* 11.

C. foliis obtusis utrinque concavis farinosis carinâ et apice viridibus, strobilis globosis: squamis umbone obtuso elongato incurvo armatis.

Mr. Andrew Murray, who found this in California, in latitude about 41° N., describes it "as an evergreen shrub growing to no great size," with a gnarled and tortuous appearance; and this entirely corresponds with the dried specimen with which we have been favoured by that gentleman. In some respects it resembles *C. Uhdeana*, but is immediately distinguished by the leaves being deeply hollowed out on each side of the midrib, and being there coated with a glaucous matter resembling the bloom of a Plum, while the back and points remain bright green. This circumstance is

not very apparent in old and weather-beaten specimens, such as Mr. Murray brought home, but it forms a most striking feature in the plant as found by Mr. Lobb on the Sierra Nevada of N. California, where it was a bush from 6 to 10 feet high. The specimens (No. 439) gathered by Mr. W. Lobb, and from which Messrs. Veitch have raised young plants, presented a most striking appearance, with their green and glaucous scales associated with the deep rich brown of Tamarix gallica on their branches, and show that in youth and vigour the species must be exceedingly handsome. We had called the plant C. nivalis, under which it stands in Messrs. Veitch's list; but as that name has not been published, it must yield to that of *C. Macnabiana*, since given by Mr. Murray.

VEGETABLE PATHOLOGY.—No. LXXVII.

305*. Chlorosis (*Chlorosis of Onions*).—There are few crops which amongst a number of healthy plants do not present a few chlorotic individuals, distinguished by their unhealthy yellow tint. Onions are no exception to the general rule, and I have accordingly had no difficulty in finding such individuals, for comparison with the diseased plants now before me, after a search of one or two seconds. There are, indeed, varieties in which this yellow tint is normal, as in the case of the large yellow Leek of Rouen, but such instances, whether peculiar or not to the particular variety, are not the affection which I have in view in the present article, but one far more nearly allied to the Chlorosis of Hyacinths, and a very formidable malady. Whether it is generally diffused or not I am unable to say. The specimens under consideration were kindly forwarded by Mr. Donald Sinclair, of Campsall, and present a very remarkable condition. In the germination of the Onion, the cotyledonal leaf which appears above the ground in the form of a little loop produces from a fissure in its side the first and succeeding leaves of the plumule.* The base of this leaf either retains the form of a sheath, or bursts at the base, according to its powers of dilation, and the whole soon withers away. The base of the first leaf of the plumule generally remains entire, but it sometimes happens that it is ruptured on one side, and in such cases the Onion is seldom well formed and perfect, or becomes what is called by gardeners burst or thick-necked. In the diseased Onions before me, the base of the cotyledonal leaf is far more fleshy than usual, uniformly bursting on one side and remaining for a considerable period attached to the bulb. The sheath of the succeeding leaf is very short, much thickened, extremely wrinkled and distorted, in most cases entire but sometimes fissured, and the blade itself looks unhealthy with a more or less decided chlorotic tinge marbling the green. The succeeding leaf has something of the same aspect, but is still more wrinkled and fleshy, while those which follow have a decided yellow tinge, each new leaf being more and more affected. The leaves themselves, as well as the base, are often much distorted, striped and mottled with green and yellow, and the common vascular column from which the leaves spring at the base of the young bulb is discoloured, and evidently in a condition rapidly tending to decay. The disease is fatal to every purpose of the cultivator, for the plants are so deformed as to make them unfit for sale in a young state, and they give no hope of arriving at anything approaching to perfection, should they not perish at an early stage of growth. The most curious point is that for some years past the Onion crop has been constantly injured by the same affection in a particular garden near Doncaster. The soil is light, in a limestone district, manured with rotted stable dung, and presenting apparently nothing in its texture or aspect likely to be injurious to healthy growth, and yet the ground and seed have beenchanged every year with the same unfortunate result. Onions transplanted from other gardens succeed perfectly, and do not acquire the disease, which affects the plant therefore in its earliest stage only. That there is some local influence which is the effective agent cannot be doubted; what this may be can only be discovered upon the spot, if at all. An attentive examination of the plants from their earliest state of germination, and comparison with similar circumstances in neighbouring gardens can alone solve the difficulty, and it would be doing good service to horticulture, and a grand step in Vegetable Pathology, if the intelligent correspondent who has forwarded the specimens would examine the point attentively and report thereon when he has made out anything satisfactory with respect to the origin of the disease. It is evident that the plant in the first instance has an over supply of some principle which induces exuberant growth, producing distortion and unnatural thickening of the substance. This is succeeded by depressed vital energy probably in consequence of a reaction of the system. Both these stages require distinct study, and the first thing is if possible to detect whether there is any peculiar stimulating principle in the soil, which does not exist in neighbouring gardens, where the plant remains healthy. Portions of the same seed might be sown in different gardens, the plants themselves from the healthy and tainted soils might be analysed, and other methods might be taken likely to lead to something useful. If, however, it is reflected how little is known of the causes from which malignant fevers arise in the human frame, a failure cannot be discreditable, while on the other hand success may lead to the most important results; and we have seldom seen an opportunity which opens a fairer prospect. *M. J. B.*

* The growth of the cotyledonal leaf of the Onion is singular. As soon as the loop is once formed the increase of the two portions is perfectly distinct. If a spot of paint be placed at the highest point of the loop, where there is frequently a little tubercle, it remains perfectly stationary, however much the separate portions may grow. The portion attached to the seed increases at the extremity which is still retained in the albumen, at whose expense it lives, while the growth of the other half takes place by means of nutriment derived from the soil. The first root is never endorrhizal, and the same may be said of a great number of endogenous plants. In Grasses there are endorrhizal roots, but the representative of the true primary root is to be found, I believe, in the disc by which the embryo is attached to the albumen. If this view is correct the distinction of endorrhizal and exorrhizal cannot be maintained. I shall hope to present further details to the readers of this Journal on this subject as soon as all the monocotyledons which I have sown this year have germinated, or rather as soon as all hope ceases of any additional observations.

THE INFLUENCE OF HEAT ON THE PROGRESS OF VEGETATION.

[M. Boussingault in his "Economie Rurale," pointed out what he conceived to be the importance of ascertaining the mean temperature of the period of vegetation of different plants in different countries. To do this it is necessary to determine the time which elapses between the birth of a plant and its maturity, and then to determine the temperature of the period included between these two extremes of vegetable life. An examination of these points in M. Bossingault's point of view, has led to the conclusion that for Europe and America the length of time which elapses between birth and maturity is inversely as the temperature of the same period. The following observations on this subject by M. Gasparin further illustrate the subject.]

As soon as Réaumur had regulated the indications of the thermometer, he sought to discover some relation between the sum of temperatures and the duration of the vegetation of plants. Adanson and Cotte endeavoured to attain the same object, but they did not possess the means of arriving at any exact results. Since then M. Boussingault, in a memoir presented to the Academy of Sciences and in his "Economie Rurale," has published some approximations between the sums of temperature in different places and the period of maturity of several plants. We have ourselves endeavoured to extend these observations to plants cultivated in Europe, and also to take into account the effects of solar radiation. M. Quetelet was struck with some anomalous results, and proposed to use the sum of the squares of the degrees of temperature instead of the sum of those degrees themselves, and M. Babinet, proceeding from certain theoretical data, came to the conclusion that the sum of the degrees ought to be multiplied by the square of the number of days of duration of growth.

Such was the state of the question when we determined to examine it afresh. Our researches showed, in the first place, that all the means previously used for obtaining a comparison between the phases of vegetation and the temperature were open to objection; and, in the next place, we were induced to think we had ascertained the causes of the anomalies which had been observed and obtained a glimpse of what was still required to place the whole matter in a clear point of view. The present memoir relates to the researches above alluded to. The first part consists of an examination of the hypotheses which have already been advanced, and the second contains the views which are proposed to be substituted for them. The first part consists almost entirely of numerical tables, of which a short summary only is here given.

Part I.—In the tables laid before the Academy by M. Boussingault in 1837, and in those inserted in his "Economie Rurale," he has sought the sum of the temperatures observed from the time when the frost ceased, up to the time of the maturity of the plants. He supposes frost to cease in Paris on the 15th of February, and in the south of France on the 1st. His results are:—

In Alsace	2150 degrees.
At Paris	2160 "
" Kingston (New York)	2066 "
" Quiachaqui (equinoxial zone)... ...	2534 "

For reasons stated in the memoir we cannot for the present admit the number for Alais which is set down as 2121°. It will be observed from the above table that the three numbers which relate to places in the temperate zone are nearly the same, whilst there is a great difference between them and that for Quiachaqui, which is in the torrid zone.

In the same manner we have treated the observations made at Orange for a mean of 33 years (in particular those of the years 1853 and 1854), and also observations for five different years made in the district school of La Saussaie, near Lyons. All these sums for places in the valley of the Rhone gave a maximum of 1966°, a minimum of 1613°, and a mean of 1748°, different from that which was obtained in other meteorological basins. Lastly, at Lougan, in the country of the Don Cossacks, corn requires 2537° to enable it to arrive at maturity, which is the same as is requisite at Quiachaqui in the equatorial zone.

If now we turn to spring Barley we find the following numbers:—

Lyngen, in Norway, (70° of lat.)	1055 degs.
Nertschinsk, Siberia, (51° 18')	1482 "
Brussels	1765 "
Versailles (1852)	1549 "
Orange, mean	1500 "

All these anomalies show that, although the progress of vegetation is evidently influenced by the sum of the temperatures, it also depends on other causes, which render it incorrect to rely on the temperature alone when we wish to assign a normal uniform cycle which plants must pass through before they arrive at maturity.

It was whilst observing this want of harmony that M. Quetelet came to the conclusion that it was necessary to take into account not only the sum of degrees received, but also the manner in which they are received. Two days, each giving 10° of mean temperature, do not produce the same effect as one day of 20°. He was thus induced to consider the temperature as a *vis viva* of which the sum of the squares of the degrees ought to be taken instead of the sum of the degrees themselves. When, however, he came to apply his method to the flowering of Lilacs, reckoning from the time when the frosts ceased, the two sums gave, during several years, results which were identical, viz., 476° for the sum of the degrees, and 1296° for the sum of their squares. We have tried the same method for two different years in which the flowering of Lilacs was given by Catte. The place was Laon. In 1782, from the 22d February to the 3d April, we obtained 577° for the sum of the degrees and 4770° for the sum of their squares. In 1790, from the 22d January to the 10th April, the number of degrees was 477.7°, and that of their squares 3410. Here we have no trace of any agreement either between the two years or with what was observed at Brussels. Taking the Grape harvest at Orange we find, from the opening of the buds to the harvest, in

1844—3160 for the sum of degrees;	62462 for that of the squares.	
1847—3010 " "	67321 " "	

The method of squares gives an approximation which is even less close than that obtained by taking the sum of the degrees themselves.

Our learned colleague, M. Babinet, upon the ground that the effect of a constant mechanical force acting for a certain time is proportional to the intensity of the force, multiplied by the square of the time for which it acts, recommended a trial of the application of this principle to the subject in question. If we try it on the examples already cited, we find that the vegetation of the Lilacs up to the time of flowering lasted 81 days in 1782, that the mean temperature was $\frac{577}{81} = 7.12°$, which, multiplied by 6581, the square of 81, gives us 44856. In 1790 we find that the vegetation lasted 79 days, that the mean temperature was 6.06°, which multiplied by 6241, the square of 79, gives 37820. The dissimilarity in these results shows that this method is not satisfactory.

If, as we ourselves suggested, the solar radiation is added to the temperature of the air, the figures expressing the sums of the temperatures do not approach equality. Solar heat has an undoubted effect on vegetation, but its action is not entirely of the same nature as that of heat unaccompanied by light, and no good result is obtainable from the addition of two quantities of dissimilar nature. We thus see that it is necessary to have recourse to other principles to explain the progress or stoppage of the different phases of vegetation. The examination of those other principles will be found in the second part of this essay. *Comptes rendus.*

(*To be continued.*)

Home Correspondence.

How to clear Choked-up Pipes or Drains.—The village of Pompignan, a few miles north of Toulouse, France, is supplied with water from a spring in the high ground of the chateau, the water being conveyed through pipes. These pipes are frequently choked up with roots, or perhaps, as is there affirmed, by a water plant which vegetates without light; and to clear the pipes when so obstructed, a chain is drawn through them. Now, as drains are frequently choked in this country by roots, might it not be practicable to clear them by drawing a chain through them, as at Pompignan? Or rather might not some better mechanical means of freeing them be contrived? For instance, a kind of disc of metal nearly filling up the pipe or drain, and drawn through it by a chain, openings being left at convenient distances for the insertion of the disc and chain, and for the extraction of the roots. In a system of pipes for irrigation some such contrivance should be essential. *B.*

How to get rid of Cockroaches.—Permit me to say that I and many of my friends (who recommended it to me) have found "Emery's Beetle Poison" an effectual remedy. Two or three of the little balls are placed in the kitchen, &c. They are harmless to anything else. It can be had of any chemist in London. *H. M.*

Irrigation.—At a recent discussion at the Society of Arts respecting railroads and canals, the irrigation of the peninsula of India was a prominent feature, and the conveyance of water for that purpose in close channels was stated to be an improvement of a most important nature, could it be effected at a moderate cost. The desirability of covered channels was stated to arise from the immense evaporation that takes place in open ones, amounting, it was said, in Spain to a third part of the water distributed. If this be so, it results that the manner of applying water to the land is of great importance, since by spreading the fluid over an extensive space a considerable portion of the water must be lost by evaporation, and hence the jet, which was advocated by the chairman (Mr. Chadwick) seems unsuitable in hot climates especially; but his observation seems just that by irrigation a power is obtained of administering water at times when it is needful for the growth of plants, and of withholding it when prejudicial; indeed, all the gentlemen who took part in the discussion were unanimous in the opinion that by means of irrigation

the famines, now so frequent in India, would be prevented. Colonel Cotton advocated navigable canals for the conveyance of water; Mr. Bridges Adams was the chief supporter of railroads, and in his observations remarked that they did not preclude irrigation, but, on the contrary, would tend to the use of covered channels for the conveyance of water. On this subject it may be stated that meadows, and such close crops as Lucerne, can only be irrigated by aspersion or by flooding them. Mr. Chadwick has given a table of particulars showing that the first outlay for catch meadows, as well as the second expenses, both of them considerably exceed the cost of laying pipes, and the current expenses of irrigation by aspersion. If this be so, the conveyance of water by means of pipes is desirable in all countries, and on the score of evaporation it is especially eligible in hot climates. It remains, then, to consider what would be the best mode of constructing the pipes, in order that the smallest quantity of water might be most conducive to the growth of plants. In this view it must not be forgotten that although plants absorb moisture by their leaves, it is their roots that absorb the greatest quantity, consequently, in artificial irrigation, it is to the root that water should be administered. This is, in fact, the practice in the south of France, where water is in kitchen gardens conveyed in channels between beds of vegetables, it penetrates the soil, reaching the roots of the plants cultivated in the adjoining beds; but, according to common usage, this mode is costly, every channel being successively closed up with garden mould. Adopting this principle in combination with pipes, it may be conceived that irrigation might be effected with little waste of water in this country, though it would be particularly applicable in hotter climates, such as that of the peninsula of India. According to this project, it may be conceived that the land in cultivation should be laid out in beds of a convenient length, say 8 or 10 feet wide, that water channels should be formed between the beds, and that at the head of each set of beds a line of pipes should be placed, they having openings in them for the emission of water, those openings corresponding with the channels between the beds. The irrigating process would then be simply the opening of the pipe at its extremity for the admission of water, and the closing it again when a sufficiency was distributed. It is evident that some experimental pipes would be required to ascertain the size of the apertures; of course they would need to be the larger the farther they receded from the influx of the water. There is another circumstance in favour of this mode of irrigation, namely, that the soil is not hardened as when the fluid is administered by aspersion; in loose soils, such as sand, this is of little importance, but in all tenacious ground the exclusion of air from the roots of plants might counterbalance the benefit of watering them. If it has been proved that pipes are cheaper than open channels for the distribution of water, it follows that covered channels of large dimensions would be more economical in India than open cuts. Indeed, it is a well-known fact that up to considerable dimensions, the cost of large drains is much less than that of small ones if their comparative capacity be taken into account. *B.*

Societies.

Horticultural: Garden Exhibition, *June* 20.—The more prominent features of this brilliant midsummer display of fruits and flowers being adverted to in another column, renders it unnecessary here to do more than notice the scene in detail.

Of collections of 20 Stove and Greenhouse Plants, the best came from Mr. Dods, gr. to Sir J. Cathcart, Bart. It consisted of:—

Allamanda cathartica	Erica depressa
Aphelexis macrantha purpurea	Epacris miniata grandiflora
„ speciosissima	Gompholobium polymorphum
Azalea Gledstanesi	Leschenaultia formosa
„ lateritia	„ biloba
Boronia serrulata	Pimelea decussata
Chorozema varium	„ Hendersoni
Clerodendron Kæmpferi	Polygala cordifolia
Crowea saligna	Vinca alba
Erica Cavendishi	„ rosea

The Epacris mentioned above was a large plant, covered with flowers even thus late in the season; the variegated Azalea was also still in fine condition, and nothing in their way could possibly exceed the beauty of the Everlastings, which were literally globes of flowers, nearly 3 feet in diameter. It ought to be remarked that the whole of the plants in this group were very skilfully selected as to colour. The bright blue of Leschenaultia biloba, the yellow of the Cavendish Heath and Allamanda, the numberless rosy heads of the Pimelea, and the bright scarlet of the Clerodendron, together with the white flowers of the Vinca, all contrasted well with one another, and produced a striking and agreeable whole. The Gompholobium was supported on a few sticks in the form of a bush, a mode of management much more tasteful and graceful to the eye than the old way of training it "to a face" over a stiffly-made trellis.

Messrs. Fraser, of Lea Bridge Road, contributed the next best group. This contained—

Adenandra fragrans	Epacris miniata
Allamanda cathartica	Eriostemon buxifolium
Aphelexis spectabilis	Erica tricolor Wilsoni
„ purpurea grandiflora	„ „ elegans
Azalea magnifica	„ metulæflora bicolor
„ Prima Donna	Pimelea diosmæfolia
Boronia tetrandra	Phænocoma proliferum
Clerodendron Kæmpferi	Stephanotis floribunda
Dracophyllum gracile	Vinca ocellata
Epacris grandiflora	„ alba

The Cape Heath called Erica metulæflora bicolor in this group was a noble bush; but its flowers lacked richness of colour. We need scarcely say that when the latter is well brought out this is one of the handsomest of Heaths. E. tricolor elegans was a noble specimen of a beautiful variety, which was well furnished with foliage to the very pot. The Phænocoma was unusually well flowered, and when seen in this condition, and finely grown as this was, it is really a striking plant, but how seldom does it deserve that character. The Stephanotis was as usual much admired, and so was the Allamanda, though its fully expanded blossoms were but limited. The Boronia tetrandra was covered with white starry flowers, and the Azaleas were still in fine bloom.

Mr. Rhodes, gr. to J. Philpotts, Esq., sent the following:—

Aphelexis rupestris grandiflora	Eriostemon buxifolium
„ macrantha grandiflora	Ixora alba
„ spectabilis	Leschenaultia formosa
Boronia tetrandra	Pimelea decussata
Cyrtoceras reflexum	Rondeletia speciosa
Dracophyllum gracile	Sollya heterophylla
Epacris grandiflora	„ linearis
Erica ventricosa coruscans	Statice Holfordi
„ depressa	Tetratheca verticillata
„ Alberti	Vinca rosea

The Everlastings in this group were small, but well grown and flowered. The Erica Alberti was conspicuous for its buff blossoms, a colour uncommon among Heaths. The Box-leaved Eriostemon was a pyramid of clean looking cheerful white flowers, and the blossoms of the Cyrtoceras were remarkable for the peculiarity of their shape.

Stove and Greenhouse Plants in groups of 12 were numerous. Mr. Green, gr. to Sir E. Antrobus, Bart., sent:—

Allamanda cathartica	Epacris miniata grandiflora
Aphelexis macr. purpurea	Erica Cavendishi
Azalea variegata	Ixora coccinea
„ coronata	Leschenaultia formosa
Echites atropurpurea	Polygala Dalmaisiana
	Rondeletia speciosa

The variegated Azalea was still in admirable condition, and was certainly the gem of the group. The Allamanda was only in flower at the top; but being luxuriant and healthy the plant had a clean refreshing appearance; this, indeed, was the distinguishing characteristic of the whole of the plants in the collection. The Everlasting and Polygala were both very fine. It is seldom that we have seen Polygalas generally look better than they did on this occasion.

Mr. Carson, gr. to W. F. G. Farmer, Esq., sent:—

Allamanda cathartica	Franciscea latifolia
Aphelexis macr. purpurea	Leschenaultia biloba
Clerodendron splendens	Pimelea spectabilis
Dipladenia crassinoda	Polygala acuminata
Echites atropurpurea	„ oppositifolia
Erica Cavendishi	„ cordifolia

The Dipladenia was in beautiful condition, and its flowers were higher coloured than usual. The Pimelea was a well-shaped bush with a fine head of flowers. The Polygalas were large and showy, and the Allamanda was a fine specimen of its class. The dark chocolate-coloured Echites atro-purpurea was trained "to a face" over a round wire trellis. The Aphelexis was quite a mass of flowers.

Mr. Roser, gr. to J. Bradbury, Esq., produced—

Adenandra fragrans	Chorozema varium
Aphelexis speciosissima	Erica ventricosa coccinea
„ macrantha purpurea	Epacris miniata
„ grandiflora	Mitraria coccinea
Azalea exquisita	Polygala Dalmaisiana
Boronia serrulata	Pimelea Hendersoni

In this group perhaps the most striking plant was the Epacris, but the Everlastings were also finely in flower.

Mr. Cutbush, of Barnet, contributed:—

Aphelexis macrantha	Leschenaultia formosa
„ rupestris grandiflora	Phænocoma proliferum
Boronia serrulata	Pimelea decussata
Dipladenia crassinoda	„ Hendersoni
Erica Cavendishi	Polygala acuminata
„ ventricosa magnifica	Statice Holfordi

The best plants in this group were the Dipladenia, the Cavendish Heath, the Statice, and the Everlastings.

Collections of Six Plants came from Mr. Dods, gr. to Sir J. Cathcart, Bart.; Mr. Morris, gr. to Coles Child, Esq.; Mr. Taylor, gr. to J. Coster, Esq.; and Messrs. Pamplin, of Lea Bridge Road. The plants in the first group were quite models of cultivation—not large, but perfect in every respect. They were Erica tricolor Wilsoni and depressa, Leschenaultia formosa, Polygala Dalmaisiana, Pimelea spectabilis, and Aphelexis humilis rosea. The latter is a great improvement on humilis, its large rosy flower with yellow centres being extremely showy. The Pimelea was also very fine. Mr. Morris sent Epacris miniata, Kalosanthes versicolor, Allamanda neriifolia, Aphelexis macrantha purpurea, Euphorbia splendens, and Vinca alba. Mr. Taylor had Dipladenia crassinoda, Leschenaultia formosa, Azalea Minerva, a glowing purple kind; Boronia serrulata, Aphelexis spectabilis grandiflora, and Erica perspicua. Messrs. Pamplin produced Epacris miniata, Erica tricolor Wilsoni, one of the best of its class, Stephanotis floribunda, Epiphyllum speciosum, Aphelexis macrantha purpurea, and Pimelea hispida.

Of Variegated Plants there were collections from Messrs. Veitch, Rollisson, and Henderson. In the first group were various Anæctochiles, a variegated variety of the Aloe-leaved Yucca, Maranta Warsewiczi and albo-lineata, Coleus Blumei, a variegated Hydrangea japonica, Crotons of different kinds, Dracæna terminalis, the beautiful Cissus discolor, Begonia Thwaitesi, various Caladiums, a variegated variety of Aspidistra lurida, Vriesia speciosa, and a variegated Screw Pine. Messrs. Rollisson sent Caladiums, Crotons, the Java Lady's Slipper; a spotted variety of the Siebold Dracæna, Ananassa sativa variegata, Pandanus javanicus variegatus, Cissus discolor, Marantas, Coleus, Stenorhynchus maculatus, and Canna discolor. Among Messrs. Henderson's plants, which were for the most part small, were the beautiful white-veined Aphelandra Leopoldi, Tillandsia splendens, Screw Pines, Dracænas, Cissus, Duranta variegata and Coleus Blumei.

Groups of plants remarkable for fine foliage came from Messrs. Veitch and Rollisson. The first collection consisted chiefly of Palms intermixed with such plants as Philodendron pertusum, the Dragon tree (Dracæna Draco), &c. The most remarkable plants in Messrs. Rollisson's group were Rhopala corcovadensis, a very fine specimen; Nepenthes Rafflesiana and albo-marginata, Aralias, and Araucaria excelsa glauca.

Everlastings were exhibited by Messrs. Rollisson, who produced Aphelexis macrantha purpurea, rosea, humilis, spectabilis, sesamoides, and speciosissima.

Orchids were extremely brilliant, the various collections exhibited being numerous, fresh, and well varied. In groups of 20 plants Mr. Williams, gr. to C. B. Warner, Esq., contributed—

Aerides affine	Cattleya superba
„ Larpentæ	Cypripedium barbatum
„ maculosum	Lycaste Skinneri
„ maculosum superbum	Odontoglossum citrosmum
„ crispum	„ læve
„ odoratum purpurascens	Saccolabium guttatum superbum
„ odoratum majus	„ guttatum
„ roseum	„ præmorsum
Calanthe veratrifolia	Vanda teres
Cattleya Mossiæ	„ suavis

These wholly consisted of clean looking well-flowered plants, which were neatly arranged as to colours. The Sweet Vanda had two noble spikes of flowers on it. The variety of Aerides odoratum called purpurascens was quite 3 feet in height and clothed with flower spikes and healthy foliage down to the very pot. The Saccolabiums had four and five spikes each. Cattleya superba was a beautiful plant of a fine kind; altogether this was one of the best collections that has been staged this year; its only fault was it had too many Aerides in it.

Mr. Woolley, gr. to H. B. Ker, Esq., had:—

Aerides affine	Epidendrum crassifolium
„ odoratum majus	„ rhizophorum
„ roseum	Lycaste aromatica
Barkeria spectabilis	Lælia cinnabarina
Cattleya Mossiæ	Oncidium flexuosum
Calanthe veratrifolia	„ leucochilum
Cypripedium barbatum	Saccolabium præmorsum
Dendrobium Devonianum	„ guttatum
„ formosum	Sobralia macrantha
„ moschatum	Vanda Roxburghi cerulea

The brilliant orange scarlet blossoms of Epidendrum rhizophorum and Lælia cinnabarina constituted the most remarkable feature of this group. The two Saccolabiums were however well-flowered, good-looking plants; and the Barkeria, on a wooden platform fastened on the top of a pot, was extremely well flowered and really very beautiful.

Messrs. Veitch had well-flowered plants of the following:—

Aerides affine	Dendrobium nobile
„ Larpentæ	Oncidium pulvinatum
„ odoratum	Phalænopsis grandiflora
„ "Fox brush"	Saccolabium guttatum
Cattleya Mossiæ	„ præmorsum
„ citrina	Sobralia macrantha
Cœlogyne Lowi	Vanda insignis
Cypripedium barbatum	„ teres
Dendrobium Dalhousieanum	„ tricolor
„ formosum	

The Cattleya citrina in this group had four expanded flowers on it, remarkable for their bright yellow colour—a rarity in this genus. The Sobralia was a noble plant, covered with large purple blossoms. The Saccolabiums were also charming specimens, whose long drooping racemes, thickly set with handsome flowers, were much admired.

Messrs. Rollisson also exhibited a collection of 20 plants, which consisted of:—

Aerides odoratum	Dendrobium Calceolaria
„ affine	„ moschatum
„ affine roseum	Odontoglossum hastilabium
„ crispum	Phalænopsis amabilis
„ Larpentæ	„ grandiflora
Brassia brachiata	Stanhopea oculata
Cattleya Aclandæ	Saccolabium guttatum
„ Leopoldi	Sobralia Galeottiana
„ Mossiæ	„ macrantha
Cypripedium barbatum.	Uropedium Lindeni

The green, brown-barred sepals and petals of the Leopold and Acland Cattleyas, together with their bright purple lips, rendered them objects of especial remark. The more striking plants in this group, however, were the large Sobralias; that named Galeottiana appeared to be merely a pale variety of macrantha. The Stanhopea was well flowered, and so were most of the other plants, the least conspicuous among which was perhaps, the green Brassia brachiata.

Of Orchids in tens there were three collections. Mr. Gedney, gr. to Mrs. Ellis, of Hoddesdon, produced

Aerides affine	Calanthe masuca
„ roseum	Oncidium pulvinatum
„ odoratum	Phalænopsis grandiflora
„ „ purpurascens	Saccolabium guttatum
Cattleya Mossiæ	„ præmorsum

The "queen" of this exhibition was decidedly the White Butterfly plant (Phalænopsis), which was literally a mass of glorious white blossoms. The Saccolabiums were also beautiful, as was the Oncidium pulvinatum, the colour of whose flowers was extremely well brought out. Mr. Clarke, of Hoddesdon, communicated—

Aerides affine	Cattleya Mossiæ
„ „ rubrum	Oncidium luridum
„ roseum	Phalænopsis grandiflora
„ odoratum	Saccolabium præmorsum
„ „ purpurascens	Vanda teres

The different kinds of Aerides in this group were all good. What was called the red variety of affine had however, in this instance, no more colour in it than the species. The Phalænopsis was a fine plant, and so was Oncidium luridum, although somewhat dull in colour.

A third group from Mr. Carson, gr. to W. F. G. Farmer, Esq., contained—

Aerides odoratum	Dendrobium nobile
Angræcum caudatum	Epidendrum crassifolium
Cattleya intermedia	" longipetalum
Cypripedium barbatum	Phalænopsis grandiflora
Dendrobium moschatum	Saccolabium guttatum

The Lady's Slipper (Cypripedium) mentioned above was quite a mass of flowers, which were of a deeper rich brown than usual. The Cattleya intermedia was the colourless lipped variety, which is not near so handsome as the purple kind. The brown and yellow Epidendrum longipetalum is a distinct singular-looking species, which is certainly not unornamental.

Collections of 6 Orchids came from Mr. Ivison, gr. to the Duke of Northumberland at Syon; Mr. Keel, gr. to J. Butler, Esq.; Mr. Dods, gr. to Sir J. Cathcart, Bart.; Mr. Gedney, gr. to Mrs. Ellis; and Mr. Green, gr. to Sir E. Antrobus, Bart. In the group from Syon we remarked a variety of Cattleya Mossiæ with blossoms of immense size, and extremely handsome; the sepals and petals were nearly white, while the lip was brilliant purple stained with bright orange yellow in the throat. This is certainly a very fine kind. The best of the other sorts in these groups were Saccolabium guttatum, Oncidium ampliatum majus, O. roseum, Epidendrum macrochilum, Aerides odoratum, Dendrobium nobile, D. aggregatum, Calanthe veratrifolia, Brassia maculata, Anguloa Ruckeri, and Phaius Wallichi.

Specimen Orchids consisted of a very fine Phalænopsis grandiflora from Mr. Gedney, Aerides odoratum from Mr. Ivison, Oncidium flexuosum from Mr. Morris, Aerides affine from Messrs. Veitch, and an Oncid from Mr. Dunsford, of Chingford.

Cape Heaths were numerous and well flowered. They were furnished by Messrs. Rollisson; Mr. Roser, gr. to J. Bradbury, Esq.; Messrs. Fraser; Mr. Taylor, gr. to J. Coster, Esq.; Mr. Rhodes, gr. to J. Philpotts, Esq.; and Messrs. Pamplin. In these collections were some excellent plants of Cavendishi, the various varieties of tricolor, Westphalingia, the different kinds of ventricosa, mutabilis, metulæflora, and Bergiana. Mr. Glendinning showed a seedling called Spenceriana, which promises to be useful, being somewhat different in colour from sorts now commonly cultivated.

As single specimens, Mr. Roser showed Erica Massoni, a large plant, but not finely in flower; Mr. Taylor, E. tricolor Wilsoni; Mr. Green, Cavendishi; Mr. Carson, E. depressa, and Messrs. Rollisson the last-named variety.

Of other single specimens, Mr. Dods, gr. to Sir J. Cathcart, Bart., had Nepenthes distillatoria, not less than 10 feet in height, and loaded with pitchers; Messrs. Rollisson, the same potful of Cephalotus follicularis which has been shown so often already this season; Messrs. Veitch, Medinilla magnifica, and Mr. Taylor an Everlasting.

Roses in pots were good, although not so fine as they were in May. Exhibitions of them were furnished by Messrs. Lane, Paul, Francis, A. Rowland, Esq., Mr. Terry, gr. to Lady Puller; Mr. Sage, gr. to W. R. Robinson, Esq., of Acton. In these groups we remarked Queen, Paul Perras, Chénédolé, Adam, Vicomtesse Decazes, Juno, Great Western, Souvenir de Malmaison, Paul Ricaut, Baronne Prevost, Coup de Hebé, Blairi No. 2, Emperor Probus, Madam Willmorz—a comparatively new creamy coloured kind, Brennus, William Jesse, La Dauphine, Auguste Mie, and Souvenir d'un Ami. Nearly all of these, it will be seen, are well known kinds, which however it would be difficult to surpass in beauty or excellence.

New Plants in flower consisted of the so-called Leptodactylon californicum, a shrubby Phlox adverted to in another column, and a Hydrangea in the way of japonica, from Messrs. Veitch; a Dendrobium, from Amboyna, belonging to the secundum class, and Cypripedium barbatum (?), from Messrs. Rollisson; a charming potful of Linum grandiflorum from Messrs. Henderson, of Pine-apple Place; and Scheeria Mexicana, from Mr. Glendinning, of the Chiswick Nursery.

Among New Plants not in flower, the most remarkable were Begonia splendida, a kind with stems and leaves covered all over with brilliant red hairs, from Messrs. Rollisson; a variety of Rhododendron Brookeanum with red edged leaves, a Peruvian Begonia, and a Bornean Nepenthes, with deep green pitchers, from Messrs. Veitch. The last named firm also furnished the Rice-paper plant, Anæctochilus Veitchi, and Sonerila margaritacea. Messrs. Henderson sent a Gordonia from China, with large, rather handsome, deep green foliage.

Of New Garden Hybrids by far the most important was Messrs. Veitch's Rhododendron, Princess Royal, described in another column. Mr. Ingram, gr. to her Majesty at Frogmore, had a seedling Achimenes in the way of picta; but much more brilliant. Messrs. Rollisson sent a Gloxinia like Fyfeana in habit, called alba auriculata, a white kind with a ring of crimson in the inside of the throat; and Messrs. Henderson had Princess of Prussia, also an upright kind, and white with a crimson throat. These will, doubtless, both be favourites, as will also Messrs. Veitch's Comte de Tallyrand. Mr. Westwood had a Petunia, which is mentioned elsewhere, and we noticed a handsome scarlet Cactus, called Epiphyllum cæruleum grandiflorum.

Among Miscellaneous articles were some beautiful Ferns and Lycopods from Mr. Williams, gr. to C. B. Warner, Esq., a light-coloured Rhododendron called Duc de Brabant from Messrs. Rollisson, and cut blooms of Rhododendrons from Messrs. Jackson and Lane. Mr. Salter had cut flowers of Irises.

Florist Flowers were for the most part confined to Pelargoniums, which were present in considerable numbers, and in very good bloom, particularly the collections from Slough and Clewer. The class of 12 plants for private growers brought three competitors. Mr. Nye, gr. to E. Foster, Esq., produced 12 finely grown specimens, principally new and choice kinds, the flowers on which were large and well coloured. Phaeton and Attraction were particularly good. The others were Enchantress, Seraskier, Rosa (Foster), Carlos, Purple Perfection, Magnet, Pandora, Iris, Ariel, and Optimum. Mr. Holder, gr. to the Rev. E. Coleridge, sent large plants in good condition of the following varieties, viz.: Topsy, Ariadne, Enchantress, Magnet, Beatrice, Narcissus, Sanspareil, Mochanna, Mary, Portia, Carlos, and Virgin Queen. Mr. Maher, gr. to J. Strachan, Esq., sent the third collection, the varieties in which and not in the above, were Pearl, Leonora, Painter improved, Conspicuum, Centurion, Alderman, Napoleon, Spot, Village Maid, and Star. The class of 6 plants brought but two collections: Mr. Nye being first with Phæton, Purple Perfection, Rose (Foster), Optimum, Fair Ellen, and Enchantress. Mr. Robinson, Pimlico, had 6 large finely grown specimens, but they were not in such good bloom as those in other groups. In the Nurserymen's Class of 12 plants, there were four competitors: Mr. Turner, of Slough, exhibited large finely bloomed plants, the names of which were Beatrice, a noble specimen; Topsey, Astrea, Sanspareil, Enchantress, Medora, Virgin Queen, Painter improved, Portia, Governor General, Mary, and Rowena. Messrs. Dobson & Son, of Isleworth, sent Star, Vulcan, Magnet, Gertrude, Delicatum, Magnificent, Painter improved, Eugene, Ambassador, Rosamond, Conqueror, and Enchantress. Messrs. Fraser, of Lea Bridge Road, sent 12 small but compact well grown plants, which were, however, scarcely in bloom. They were Lucy, Majestic, Vandyck, and other good old varieties. Mr. Gaines, of Battersea, also had a collection of fancy kinds. There were seven groups of 6 plants, four from nurserymen and three from amateurs. By far the best was sent by Mr. Turner, who had a noble plant of Lady H. Campbell, Cassandra, Perfection, Charles Dickens, Conspicuum, and Criterion. Messrs. Fraser sent Miss Sheppard, Caliban, Advancer, Reine des Français, Celestial, and Empress. Mr. Gaines' collection consisted of Vandyck, Delicatum, Perfection, Conspicuum, Lucy, and Caractacus. Messrs. Dobson & Son had Erubescens, Celestial, Perfection, Criterion, Reine des Fleurs, and Chamouni. In the class of 6 plants for Amateurs Mr. Wier, gr. to — Hodgson, Esq., Hampstead, sent Fairy Queen, Jenny Lind, Hero of Surrey, Princess Alice, Fanny, and Formosissimum. Mr. Windsor was second with Madame Sontag, Fairy Queen, Bride, Celestial, Erubescens, and Lady H. Campbell. The next came from Mr. J. Robinson, who had nicely bloomed but rather small plants of kinds similar to the above.

There were six plants of an exceedingly showy seedling Fancy Pelargonium, sent by Mr. Turner, named Queen of Roses. This will make a fine exhibition plant. Mr. Dennis sent several examples of his seedling called Alma, a bright but badly formed variety for forcing, for which it appeared well adapted. Quite as showy a one of this class, named Sir E. Lyons, came from Mr. Bullen, of Dulwich. Mr. Gaines had scarlet Unique.

There was but one collection each of Calceolarias and Pansies, the former from Mr. Gaines, the latter from Messrs. Dobson and Son. Neither was so good as we have seen them.

The exhibition of Fruit was considerable for the season, and in most respects excellent. The only exception was the Pine-apples, which, as a whole, were inferior.

The best collection of Fruit was furnished by Mr. M'Ewen, gr. to the Duke of Norfolk, at Arundel. It contained a Providence Pine-apple, Black Hamburgh Grapes, very fine Royal George Peaches, Violette Hative Nectarines, Golden Perfection Melon, and Myatt's Cinquefolia Strawberries, a large showy variety. Mr. Fleming, gr. to the Duke of Sutherland, at Trentham, also had a collection in which were admirable bunches of Black Hamburgh Grapes, a Providence Pine, Royal George Peaches, Black Tartarian Cherries, Brown Ischia Figs, and a Trentham hybrid Melon.

Of Pine-Apples Mr. Robinson, gr. to Lord Boston, sent a Providence weighing 7 lbs. 4 oz.; Mr. Chapman, gr. to J. B. Glegg, Esq., a fruit of the same variety, weighing 6 lbs. 14 oz.; Mr. Barron, gr. to Mrs. Vivian, an Otaheite, weighing 4 lbs. 8 oz; Mr. Turnbull, gr. to the Duke of Marlborough, a Cayenne, weighing 4 lbs. 9 oz.; Mr. James, gr. to C. H. Leigh, Esq., a Queen, weighing 3 lbs. 10½ oz.; and Mr. Clements, of Oak Hill, a Queen, which weighed 2 lbs. 14 oz.

Grapes were plentiful and good, more especially black sorts; the white kinds were scarcely ripe. Mr. Fleming, gr. to the Duke of Sutherland, at Cliveden, had most excellent Black Hamburgh, large both in bunch and berry, and well coloured. Mr. Ingram, gr. to her Majesty at Frogmore, also had good Black Hamburgh; and so had Mr. Dods, gr. to Sir J. Cathcart, Bart. Mr. Martin, gr. to Sir P. H. Fleetwood, Bart., sent some extremely good examples of Black Frontignan, large both in bunch and berry, and quite black. Mr. Sharland, gr. to T. Farmer, Esq., produced fair specimens of Black Hamburgh, as did also Mr. Clarke, of Hoddesdon. The finest Muscat Grapes came from Mr. Turnbull, gr. to the Duke of Marlborough, at Blenheim; and Mr. Clements also had good Muscats; but they were too green to be taken notice of by the judges. Mr. Ingram, gr. to her Majesty at Frogmore, also sent good Muscats. Mr. Williams, gr. to C. B. Warner, Esq., Mr. Ayres, gr. to Lord Southampton, and Mr. Forsyth, gr. to Baron Rothschild, contributed good Muscadines. Other Grapes were less remarkable.

Grapes in pots, admirable specimens set up in the form of arches, were furnished by Mr. Forsyth, gr. to Baron Rothschild. These are alluded to in another page. Mr. Fleming, gr. to the Duke of Sutherland at Cliveden, also had very good Grapes in pots. The sorts were Black Hamburgh and Muscat; the latter were, however, unripe.

Of Peaches and Nectarines, excellent fruit, large, and well ripened, came from Mr. James, gr. to C. H. Leigh, Esq. The varieties were stated to be Royal George Peaches, and Violette Hative, and Red Roman Nectarines. Mr. Clement's Peaches were called White Magdalen and Noblesse, and Mr. Tegg, gr. to A. Prior, Esq., sent Grosse Mignonne Peaches and Violette Hative Nectarines. Elruge Nectarines, fine specimens, came from Mr. Eyles, gr. to Sir E. Kerrison, Bart., Mr. Ayres, gr. to Lord Southampton, and Mr. Chapman, gr. to J. B. Glegg, Esq. Some good Nectarines also came from Mr. Ingram, and Mr. Hill, gr. to R. Sneyd, Esq.

Melons.—The best was a Hybrid Cashmere, from Mr. Fleming, gr. to the Duke of Sutherland, at Trentham. Mr. Chapman sent a good green-fleshed; Mr. Salter, gr. to J. M. Yeels, Esq., had Victory of Bath; Mr. M'Ewen, a scarlet-fleshed called Prince Albert, and several other sorts; from Mr. Gardiner, gr. to Sir G. Phillips, Bart., came a hybrid green-fleshed; and varieties of the same fruit were also furnished by other growers.

Figs.—Mr. Ivison, gr. to the Duke of Northumberland at Syon, had good fruit of Brown Ischia; Mr. Fleming, of Trentham, the same variety; and Mr. Drummond, gr. to S. L. Stephens, Esq., Violette, a small Fig, but sweet, and well adapted for pot culture.

Of Cherries, Mr. Ingram, gr. to Her Majesty at Frogmore, sent fine dishes of Black Circassian Bigarreau, and May Duke; and Mr. Fleming, of Trentham, produced Knight's Early Black, Black Tartarian, and May Duke; Mr. Shuter, gr. to the Earl of Wilton, sent May Duke; as did also Mr. Martin, Mr. Ferguson, of Stowe, and Mr. M'Ewen.

Raspberries came from Mr. Fleming, of Trentham, and Mr. M'Ewen. The sorts were the Red Antwerp and Rivers's Double Bearing.

Of Strawberries, Mr. Smith, of Twickenham, sent magnificent dishes of British Queen, Sir Charles Napier, and Keens' Seedling. Mr. M'Ewen furnished from Arundel British Queen, Trollop's Victoria, and Keens' Seedling. British Queens, from Mr. Ingram, of Frogmore, were fine fruit, but scarcely sufficiently well coloured. Mr. Ingram, gr. to J. J. Blandy, Esq., had Keens' Seedling; Mr. Dunsford, British Queen; and Mr. Lydeard, of Bath, Trollop's Victoria; Mr. Turnbull sent Keens' Seedling. The only dish from the open ground was one of Keens' Seedlings, furnished by Mr. Roke, from Chertsey. Mr. Smith, of Twickenham, had some Strawberries in pots loaded with fruit. The sort was Sir C. Napier.

Among Miscellaneous Fruits were very fine Orleans Plums from Mr. Ingram, gr. to her Majesty at Frogmore, and Mr. Williams, gr. to C. B. Warner, Esq., sent dishes of Oranges, Lemons, and Citrons, which we have noticed at previous exhibitions.

Notices of Books.

A seventh edition of *Hooker and Arnott's British Flora* (Longmans, 14s.) has just appeared. It seems to have been carefully revised by the learned authors, and will be found an excellent field companion. We rejoice to find here, as elsewhere in so many places, fresh recruits for the new crusade against bad species; and we hope to see, when the next edition appears, that the genera Salix, Rubus, Rosa, &c., will be finally dealt with as they require. Sir William Hooker in his "Flora Scotica," and Professor Lindley in his "Monograph of Roses," began well; but we cannot say conscientiously that either has been true to his principles. The time, however, has evidently arrived when a determined stand must be made against spurious science, and we trust that no more time will be lost in drawing a clear distinction between botanists and botanophilists.

Piper's Popular Military and Naval Dictionary (12mo, Simpkin & Marshall, 1s. 6d.), is a little volume explaining the meaning of the military and naval terms now brought by the war into common use. It is well done, and answers the purpose for which it is intended.

Messrs. Stanford, Charing Cross, have published a very useful map of the Sea of Azoff, compiled from authentic documents. On a former occasion we had to notice a map of similar excellence of the works of the Allies round Sebastopol. This has a more extended sphere, is of more permanent interest, and is in all respects as well executed.

Garden Memoranda.

Mr. John Waterer's American Nursery, Bagshot.—Those who wish to see American plants in all the grandeur which they can present, and under the very best of circumstances, should now pay a visit to the fields of Rhododendrons, Azaleas, and Kalmias which have been planted and established here many years ago by Mr. Waterer. Every year about this time, or in forward seasons a little earlier, whole acres are studded with the lovely blossoms of these charming plants; and notwithstanding the very unfavourable winter and spring that have just passed by, they are as fine at the present time as ever we remember to have seen them. It is true that some of the deep crimson kinds are now over, and that a few of the tenderer scarlets lost their buds by the late spring frost, but this is a circumstance the less to be regretted; for by continually crossing the early kinds with late sorts we can now enjoy the beauty of scarlet or at least deep crimson Rhododendrons which flower sufficiently late to be out of the reach of such a calamity. We noticed standard Rhododendrons here 8 and 10 feet in height, with clean stems and immense heads loaded with flowers. Trees of these dimensions are not uncommon, and a knowledge of this fact alone, independent of the thousands of bushes and standards of less size, will serve to furnish lovers of American plants with some idea of the kind of treat a visit to Mr. Waterer's nursery may be expected to afford. The scarlet, orange, and buff colours of the Azaleas, too, form an interesting intermixture which renders the whole varied and effective. The broad-leaved Kalmias, too, promise soon to make an excellent display.

Among Rhododendrons, one of the best of the rich crimson kinds is Brayanum, a charming sort, with a good shaped truss; this should be in every collection. Barclayanum is also fine, and a late bloomer; atrosanguineum is very dark, and Archimedes is one of the very best of bright rose colours; Brutus is desirable and so is Desdemona; Nero and Onsloweanum are two valuable kinds, as are also maculatum nigrum and rubrum, the former having exchanged the spots that are usually on the upper petals for a blotch of deep chocolate, which gives it a distinct and striking appearance. Among other Rhododendrons few are more striking than Grand Arab, Soleil d'Austerlitz, Blandyanum, and vestitum coccineum. These are bright and beautiful varieties, and in most seasons flower sufficiently late to be out of the reach of spring frosts. Leopardi is a very fine spotted rosy lilac kind; and Towardianum has large, very finely shaped blossoms which must ever render it a favourite. Captivation is worth attention, on account of its compact, neat, conical heads; Blatteum is a very dark kind, with large trusses; and Nobleanum bicolor is good, as is also Mammoth. Lady Eleanor Cathcart is one of the most beautiful kinds we have seen, it has flowers not unlike those of a rosy pink Pelargonium, with a dark blotch on the upper petals; this has deservedly already become a favourite. John Waterer and Mrs. John Waterer are also very fine varieties; the colour of the former is nearly as bright as that of the Géant des Batailles Rose when about half blown; the latter is a charming rosy crimson. Catawbiense splendens and grandiflorum make excellent standards; C. album elegans and delicatissimum are still the best whites. Egregium makes a pretty standard, as do also mirandum, perspicuum, roseum elegans, and gemmiferum; the latter is a small rosy flowered kind. There is also grown here what is reported to be an excellent variety of Victoria, but this we did not see; Everestianum is still a most useful kind; Magniflorum is a brilliant rose, as are also Duchess of Wurtemberg, Sir Colin Campbell, and Reideanum. Piombo is a good spotted lilac. Fastuosum is a well-known double kind, which still maintains its good character.

Of Azaleas, one of the best scarlets is coccinea major, but cruenta is also a good one; aurantiaca cuprea is a fine orange, and carnea delicatissima a pretty light pink, and a good trusser; decus hortorum is rose, with the back petals yellow; and of buffs and yellows none surpassed pontica globosa, and p. princeps. Of other fine kinds of various colours, we remarked Gloria Patriæ, and Mundi, triumphans, imperatrix, monstrosa, Variabilis, Morteri, Ne Plus Ultra, persoluta, prænitens, crocea, distincta and nitens. These are all first rate kinds, in which no one need fear being disappointed. We also noticed in bloom a bed of the White Indian Azalea, which has stood the winter here unhurt.

At the entrance of this nursery next the town of Bagshot stands a very fine weeping Beech, which is exceedingly pendulous and handsome. Purple and copper Beeches are also common here. Among Conifers, which thrive well on the sandy peaty soil of this neighbourhood, were some remarkably fine young Deodars, which being moved frequently transplant with good roots. Of Pinus insignis there was a plentiful crop of seedlings; we also remarked P. Benthamiana, tuberculata, and Lambertiana. The Fitzroya and Saxe-Gothæa have wintered unhurt, while in some places we noticed the leaves of Araucaria imbricata browned. Indoors were young plants of Pinus Jeffreyana, Libocedrus decurrens, and Wellingtonia gigantea.

The fine Arbor-vitæ hedges with which this nursery is intersected deserve a concluding remark; they are some 10 feet in height, about 18 inches in width, and as perpendicular and even as they can be cut. They thus make close fences from bottom to top, and are not only useful but ornamental.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—The utmost care should be exercised to prolong the beauty of handsome specimens, carefully shading them on bright days and keeping the atmosphere as moist as circumstances will permit, and well supplying the plants with water at the root. It is particularly important to attend to shading and keeping the atmosphere moist while New Holland and other hardwooded plants are the principal ornaments of the house, for these soon fade in a warm dry atmosphere. Also give the most scrupulous attention to keeping everything about the show-house clean and neat, and keep a sharp watch upon specimens growing in the beds liable to the attacks of red spider, or other insects, and apply the proper remedy immediately the enemy is perceived.

FORCING DEPARTMENT.

Pineries.—Where the bottom heat is obtained from tan or other fermenting matter it will be necessary to add a little fresh material at intervals, in order to recruit the heat, but at this season it will be safer to surface with a few inches of fresh tan in a rather dry state than to turn the bed, mixing the fresh materials, which often cause too strong a heat; and at this season there is much more danger of erring on the side of too much than too little bottom heat. Give every attention to keeping up a succession of fruit. Perhaps the most certain method of doing this is by securing and potting a number of suckers proportionate to the demand, at short intervals during the growing season, therefore attend to keeping up a regular supply of young plants, if doing this should necessitate throwing away a few overgrown plants which have failed to fruit at the desired time. We have frequently seen gardeners allow the number of large plants to increase, so that there was little room left for the young stock, which suffered accordingly, and disappointment came in due course. Do not let the growing stock suffer for want of pot room, or through dryness at the root, and afford them a moist atmosphere, syringing and shutting up early in the afternoon, so as to give the house a good steaming. Recently potted plants, especially if they were much pot bound before being repotted, should be kept rather close and shady, with a thoroughly moist atmosphere, and very carefully attended to with water until they appear to have taken to the fresh soil. Vineries.—In the case of fruit intended to be kept as long as possible, the berries should be thinned, so that they will hardly touch when fully swelled, for it is scarcely possible to keep Grapes through the winter except they are severely thinned. Be particularly careful of the foliage of the Vines intended to furnish a late supply of Grapes, and if plants must be grown in the house see that they are not infested with black thrips or red spider, for if either of these pests is allowed to gain a footing on the Vines, the foliage will probably be greatly injured, and then there will be no chance of keeping the Grapes in good condition for any time after they are ripe. Muscats must be encouraged with a brisk temperature while setting.

FLOWER GARDEN AND SHRUBBERIES.

Although the weather has not yet been so warm as we could wish, and the bedding-out stock is not making much apparent progress, the plants are nevertheless rooting freely in light well prepared soil; and should we be favoured with a few weeks of warm sunshine, Verbenas and such things will doubtless grow away rapidly and soon cover the beds. Stir the surface soil either after heavy rains or artificial waterings as often as may be necessary to keep it light and open; but in doing this the roots of the plants which may be near the surface must not be disturbed. Should the weather become warm and dry see that the plants do not feel the want of moisture at the root. Thin out the shoots of herbaceous plants where crowded, and support those left with stakes before they get broken down, but avoid the too common practice of huddling a quantity of shoots to a single stake. Attend to the propagation of favourite hardy plants as cuttings can be procured, and endeavour to get a good stock of these things rooted while there is spare room, &c., at command; for the propagation of next season's bedding stock will soon require attention. Pansies are amongst the gayest of spring flowering plants, and if a good stock of cuttings can be got in now they will be found very useful for enlivening the borders next spring. Cuttings of the young shoots root freely under a handglass in a shady situation, and if planted out in rich soil will make nice stocky plants in course of the autumn, and may be transplanted to where they are to flower any time before winter or in spring. See that Roses are not being injured by green-fly or their enemy the "grub." If much infested with green-fly dip the shoots in tobacco-water, but if taken in time a good washing with the garden-engine will generally prove a cure. If not already done, get Brompton and Queen Stocks sown, selecting a bit of light open soil; and attend to them with water until fairly up and well established, which will be necessary in order to have strong plants before winter. Persevere with mowing, the destruction of weeds, and other routine work, and keep every corner clean and trim.

HARDY FRUIT AND KITCHEN GARDEN.

See that the Morello Cherry trees are not attacked by black fly, which is often troublesome on these at this season, and syringe with tobacco water and soap suds on the first appearance of the enemy, as, if neglected but for a short time, it is often difficult to eradicate, and greatly injures the trees. If syringing is found ineffectual in cleaning the trees, dip the points of the shoots in tobacco water. This is a somewhat tedious process, however, particularly where the shoots are short, and will seldom be found necessary if syringing is done in time, and before the pest gets established. Look over the Peach and Nectarine trees, and remove any shoots not wanted, which may have been left in disbudding, and do not knowingly leave a single shoot which will not be wanted at next nailing time. Also, attend to the timely stopping of breast wood and side shoots not wanted for laying in on wall and espalier trees generally, and the same attention should be afforded dwarf standards. The labour of keeping fruit trees in good order during the summer is not very considerable, and is well repaid in the improved appearance of the trees; but careful summer management is essential if a fruitful habit is to be induced, and well ripened fruitful wood secured before winter; and all useless wood should be kept closely stopped throughout the summer. Thin advancing crops, as Carrots, Onions, &c., early, and loosen up the surface of the ground after heavy rains. Give plenty of water to the planted out Celery, and also to the plants in beds for succession crops.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending June 21, 1855, as observed at the Horticultural Garden.

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind
Friday 15	1	29.346	29.280	65	42	53.5	58	56	S.W
Satur. 16	2	29.434	29.328	65	46	55.5	57	56	S.
Sunday 17	3	29.906	29.698	59	36	47.5	58	56	N.W.
Mon.. 18	4	30.095	30.017	58	50	54.0	56	55½	W.
Tues. 19	5	30.223	30.061	61	36	48.5	56	55	N.
Wed. 20	6	30.366	30.322	56	30	43.0	57	55	N.
Thurs. 21	7	30.335	30.181	69	38	53.5	56	55	N.E.
Average.		29.958	29.841	61.8	39.7	50.8	56.8	55.5	

June 15—Cloudy; fine; rain at night.
— 16—Heavy clouds; very heavy rain in forenoon; showery; overcast.
— 17—Cloudy; showery; clear and cold at night.
— 18—Clear; cloudy; overcast; rain.
— 19—Fine; overcast; clear and cold.
— 20—Light clouds; clear; fine; clear; 2 degrees of frost at night.
— 21—Clear; fine; very clear at night.
Mean temperature of the week 11½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending June 30, 1855.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N	NE	E	SE	S	SW	W	NW
Sunday 24	73.8	50.3	62.0	11	0.49 in.	—	2	4	1	2	12	7	1
Mon. 25	72.1	51.8	61.4	16	0.72	1	1	5	2	6	8	4	—
Tues. 26	72.4	50.6	61.5	14	1.00	1	2	4	1	2	10	9	1
Wed. 27	72.9	51.5	62.2	17	0.80	2	2	3	2	4	11	—	—
Thu. 28	72.3	50.5	61.4	11	0.65	2	2	5	1	2	8	3	5
Frid. 29	72.5	49.3	60.9	7	0.20	2	4	3	—	1	12	5	2
Satur. 30	72.5	50.1	61.3	11	0.80	—	4	4	2	4	8	3	2

The highest temperature during the above period occurred on the 27th, 1826—therm. 93 deg.; and the lowest on the 30th, 1849—therm. 35 deg.

Notices to Correspondents.

Books: *G P S.* Johnson's "Dictionary of Modern Gardening."—*X Y Z.* You can scarcely expect us to say more of the "Theory and Practice of Horticulture" than we have said. *K.* No doubt "popular" works on botany are wretched. But who is to blame? The public will not pay for good works, but insists upon such as are cheap, and consequently has them. Do you expect publishers or authors to ruin themselves in order that the pocket of the "dear public" may be protected? People who pay no more than the price of trash, must be content with trash. Just as Mr. Bull, who insists upon jobbing whenever his own personal advantage is concerned, must be contented with the same practice when it benefits others and ruins himself. The common Liquorice plant, Glycyrrhiza glabra, is in all good works on œconomical botany. You will find it in Lindley's "Œconomical and Medical Botany," and in Pereira's "Materia Medica."

Diseases: *A K.* There is no fungus about your Grape leaves. They appear to be partially chlorotised; and if so, there is little doubt that there is something wrong about the roots. The Grapes will probably suffer, but you can do little at present. The state of the roots should be carefully examined in the autumn. *M. J. B.*

Grapes: *J P.* The brown marks indicate portions of the skin having been injured when young by being brought in contact with something improper; perhaps the hair of the man's head employed in thinning.

Greenhouses: *C W B.* There is no sort of objection to carrying your Vine up to a first floor before it enters your greenhouse, and if you can obtain a Vine with ripe wood long enough to pass inside the ground floor, let it do so. But if your Vine is to make its growth when it is planted before it enters, then you must carry it up outside. What you must take care of is that the border, or borders, no matter which, where your Vines grow, are so placed as to be warmed by the sun, and at the same time are not exposed to excessive dryness in summer. The materials you propose to use for your border are suitable.

Insects: *H W.* Your Aimée Vibert Rose is badly infested with the female Coccus, or Scale, similar to that of the Peach and Apricot. The young are just hatching, therefore you must at once destroy every specimen by picking them off and crushing them with your nail, or your tree will certainly perish.—*J B M.* The bees sent are the male and female of the Anthophora retusa, the history of which you will find in *Gardeners' Chronicle*, 1852, p. 340. The bees which cut the Rose leaves are narrower and more like the common bee, but are at once known by having the belly covered with orange plush. *W.*

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Beta.* The common Scorpion Senna or Coronilla Emerus.—*A M K.* Tellima grandiflora.

The Deodar: *D.* The male catkins are very young. They appeared two years ago at Bury Hill, near Dorking, on the trees of Mr. Charles Barclay.

Misc: *A Subscriber.* The new law compels us to stamp the Paper on the *outside* page; if the stamp were printed *inside* it would very rarely be folded so as to expose it.

*** As usual, many communications have been received too late and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

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THE PEAT CHARCOAL COMPANY beg to inform Agriculturists, Florists, &c., that they can be supplied with the above valuable deodoriser, fine in boxes, and coarse in sacks, by applying to their Agents, MARK FOTHERGILL & Co., 204A, Upper Thames Street, London.

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W. S. M. has also on sale a large and well assorted stock of Garden Tools of every description. Galvanised Wire Netting, 3-inch mesh, 2 feet high, 6d. per yard run. Iron Hurdles and Continuous Fencing made to order. Greenhouses or Conservatories heated with hot water apparatus on the best principle by experienced workmen. Estimates given.

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B. SAMUELSON, Britannia Works, Banbury, Oxon.

The above may also be procured at the principal Agricultural Implement Depôts in London, and of all respectable Ironmongers and Seedsmen in the country.

ANERLEY POULTRY SHOW.—
President—The Right Hon. the Earl of VERULAM.
Vice-President—Sir JOHN PETER BOILEAU, F.R.S., Vice-President of the Zoological Society.

The FIRST EXHIBITION of POULTRY and PIGEONS will be held in the Anerley Gardens, adjoining the Anerley Station of the London and Croydon Railway, and near the Anerley Entrance to the Crystal Palace grounds, on TUESDAY, WEDNESDAY, and THURSDAY, August 28, 29, and 30.

The value of the Prizes will exceed 300 guineas. A detailed List of the Prizes and Certificates of Entry may be had on application to the Secretaries at the Office, Anerley, Surrey.

By Special Permission the BAND of the ROYAL ARTILLERY will attend each day during the Exhibition.

EDGAR SMALLFIELD, HENRY F. WELLS } Hon. Secretaries.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND desires to receive Tenders from Innkeepers or others to Contract for the supply of A COLD DINNER, at CARLISLE, on THURSDAY, the 26th of July next, in the Society's Pavilion, constructed to accommodate 800 persons.—Printed forms of Tenders may be obtained on application to the Secretary, 12, Hanover Square, London, and must be returned to him, filled up, on or before SATURDAY, the 30th of June, the Society not binding itself to take the lowest Tender. By Order of the Council,

London, June, 1855. JAMES HUDSON, Secretary.

The Agricultural Gazette.

SATURDAY, JUNE 23, 1855.

MEETINGS FOR THE ENSUING WEEK.
WEDNESDAY, June 27—Agricultural Society of England.

THE attention of our readers will be directed to the valuable paper by Mr. SCOTT read before the English Agricultural Society last Wednesday, which we publish in another column. It is an exceedingly instructive account of the writer's own long and extensive experience, and that of others, on this important subject, which, thanks to Mr. HORSFALL, has occupied so much attention this season. The points referred to are the relative profitableness of churning from cream and whole milk—the relative merits of several dairy breeds of cattle—the application of machinery to the manipulation of butter previous to sale—the defects of dairy management in Ireland and elsewhere as compared with what is prevalent in Holland—and the richness of milk and cream respectively in connection with several modes of feeding. On all these particulars the paper is remarkably instructive, and deserves a careful perusal.

THERE are large tracts of barren land and of land comparatively infertile, owing to the very light sandy character of their soils; and there are districts which have been thus infertile, but are so no longer. It is worth while to consider the history of such improved soils, as it must relate the method by which a very serious cause of infertility in this country can be best overcome. The Holkham estates in West Norfolk are a district of this kind, and Lord SPENCER has related their history in the third volume of the Agricultural Society's Journal. Eighty years ago, when Mr. COKE came into possession of this property, all the land round Holkham was unenclosed; it let for 3s. per acre, and could not be relet for more. The sandy soil, weak naturally, was impoverished by the treatment it received at the hands of an unenterprising, unintelligent tenantry. In order to get it into better condition, it was necessary both that manure should be applied, and that the soil should be strengthened minerally; crops might then be grown on which an increased stock could be kept, and these would furnish the manure by which the increased fertility should be rendered permanent. Rape-cake was applied as a top-dressing, in order to provide the organic portion of a fertile soil, and the marl which lay beneath was excavated and applied so as to provide the deficient mineral portion of a fertile soil: "This," says Lord

Spenser, "not only increased its fertility, but gave to the soil the solidity which is essential to the growth of Wheat. By these means Clover and other artificial grasses were raised, and the power of keeping more stock was obtained." And the present Norfolk mode of husbandry became possible and profitable upon an infertile sand treated in this manner.

Lincoln Heath and Lincoln Wolds are other notable instances of sandy and chalk wastes respectively reclaimed. Their history has been told so often that it is useless to repeat it. Land formerly a continuous rabbit warren is now worth 30*s.* an acre to rent, and exhibits agricultural wealth on the part of its cultivators such as no other county boasts of. The means employed have been the application of chalk to the wolds, after grubbing up the Gorse which occupied the waste, and dressing heavily with bone-dust; marl too is applied along the western edge of the chalk where it adjoins the beds of calcareous clay lying beneath it in the geological scale. These means, followed up by the growth of large quantities of food for sheep consumed upon the land, maintain the former waste at its present high pitch of fertility. The Heath district upon the oolite beds of Lincolnshire has been rendered fertile in a somewhat similar manner. Immense quantities of oil-cake are consumed by sheep upon it, and large quantities of Rape-cake and bone-dust are applied directly to the land. These, and the manure from the sheep fed upon it, the consolidation as well as the fertilising matters thus given to the soil, ensure "noble crops upon land for which a few years since the rent was paid by two rabbits an acre." The full history of these districts will be found in Mr. Pusey's report published in the fourth volume of the Journal, and Mr. Clarke's published in vol. 12.

A particular instance of the treatment of a light sandy soil may be given here in which a farm of many hundred acres is concerned. A large portion is still under the thick close covering of ling by which the sandy waste is covered. Immediately around the house, which is sheltered by plantations of Larch and Fir, portions of the land are under cultivation, and in pasture. The first step towards the attainment of fertility obviously is to remove the present vegetable covering of the land, and that is being done by breast plough, common plough, hook and grubbing axe, and fire. The land, when ploughed and properly reduced, is partly sown with Oats, and partly cultivated for Turnips; and considerable dressings of guano, bones, and Rape-cake are applied to ensure a crop. The application of lime, too, has been of essential benefit. The consumption of the roots upon the land with sheep, their consumption along with oilcake there, gives a manuring and consolidation which prepares the soil for grain crops; and very soon, no doubt, simply by these means—for clay has not been found within a profitable distance, by which the mineral faults of the soil might be corrected directly—land which yields now perhaps less than it did when the "horned cattle" of Robin Hood browsed its herbage, will be as productive as the once sandy wastes of Lincolnshire and Norfolk.

The remedies then for this source of infertility which observation has recorded, are the application of marl and clay, the use of bone-dust and of Rape-cake, and the consumption of green crops and of oilcake upon the land by sheep. It is reasonable to suppose that the earliest instances of reclamation from the state of rabbit warren have been those of greatest original promise, though Mr. Brett, Lord Leicester's tenant, did not consider his case very promising when he refused to renew his lease at an advance of 2*s.* per acre: but the sandy wastes that still remain—those of Notts, and Hants, and Surrey—though we do not see upon them rabbits burrowing amidst nettles, as Young did greatly to his indignation on the wolds of Lincolnshire, are yet not altogether without promise in the natural vegetation which covers them. The Fern and Gorse are not altogether absent, and there is many a tract, especially in the southern countries, whose neighbourhood geologically furnishes the remedy which their light and sandy character requires. The use of water as a fertiliser upon sandy soils—such facts as have any bearing upon that point—will be considered in the sequel.

Although an observer of the imperfect action of the plough upon heavy land may regard it as a "doomed implement," upon light land it is very efficient, and when followed by the seam-presser leaves little to be desired in the way of completeness; for the object on thin light soils is not so much pulverisation as a moderate degree of division, retaining as much solidity as is compatible with the growth of a crop. Wherever a thin staple obliges a shallow system of tillage, an implement worked by traction seems even more suitable than one that digs vertically; and hence the plough, when hereafter expelled from sticky clays and bottomless loams, may take refuge upon the thin sands and scantily-covered rocks. Let us, therefore, encourage Mr. Williams in his attempted steam-ploughing on the Wiltshire hills.

Our views should be comprehensive: not looking for a steam cultivator merely upon deep soils, fortunately free from obstructing stones, but wherever workmen and horses are engaged in cultivation. Steam-power performing our principal tillage operation—that is, breaking up whole ground, burying the last crop with its weeds, and turning up a fresh seed-bed for the next—ought surely to be a radical and gigantic improvement throughout our national husbandry; so that it behoves public-spirited agriculturists, in every part of the kingdom, to seek the help of the mighty motor for whatever kinds of tillage may be suited to their district.

General opinions of the theory of cultivation, and varying practical deductions from them, have tended to bewilder while instructing the machinist; and have hitherto left him in doubt whether he is to plough, dig, or grate into powder. But why should not *existing practice* in all its adaptations to particular soils be taken as the guide in the first instance? Let the first aim of inventors be to make steam-power plough where ploughing answers best; delve and fork where deep working is most effectual, and scratch where such comminution is found to be profitable. When this has been achieved, any universal method fitted for all soils may be safely left for future discovery.

Now, in light-land farming, what sort of tillage forms—and from the nature of the ground must continue to form—the fundamental or first operation: is there most need for digging, ploughing, or grubbing? In answering this question, let us just refer to the general character of our light soils, which, from their extensive distribution, demand a share in the benefits of steam-culture—although their mechanical may be scarcely so important as their chemical treatment.

Tracts of light land are interspersed throughout all our clays, such as those on the red sandstone and plastic clay; but are most prominent in England upon the upper chalk, the upper oolite, and the arenaceous deposits of the Hastings sand and various other formations; and in Scotland, upon the older strata of granite, gneiss, trap, &c. The flinty chalk soils are sucked dry by their open and absorbent subsoil; and the tendency of both these soils and those of the thin oolite stonebrash to let the rains run through them, instead of closing up and retaining the moisture like siliceous soil, leads the farmer to plough and cultivate as little as possible in preparing for a fallow crop. The stubble is broken up by grubbing and broadsharing about 2 inches in depth, and after being harrowed and cleaned, the land is ploughed with a shallow furrow—generally burying a dressing of yard-manure. In spring, another scuffling or two, without any further ploughing, completes the main part of the preparation for Turnips. When the roots are gone, a light ploughing, followed by the cultivator, or on very dry light soils by the press-roller, together with a harrowing, prepares a seed-bed for Barley. For other green and grain crops the tillage is much the same; only in breaking-up Clover lea for Wheat, a skim-plough is employed, which cuts off the Clover or Grass roots from the upper edge of the furrow slice and throws it in the bottom of the previous furrow, so that there shall be no vegetation springing up from the seams. The presser is also used to consolidate the furrows and provide a firm seed-bed. Both the upper chalk and upper oolite soils abound with flints or rubbly stones; and an implement afraid of these will have a very limited field of action.

The sandy soils of England are scattered in every county, and are most prevalent upon the Hastings sand, plastic clay, red sandstone, millstone grit, and magnesian limestone formations. Scarifying, dragging, and ploughing, some 5 inches deep, are the principal tillage operations; two ploughings being sufficient in preparing for Turnips, while the grubber forms the chief spring implement—from fear of drought. The finest and mellowest seed-bed for Wheat is obtained by simple ploughing and seam-pressing, and for no purpose is deep-working resorted to. For planting Potatoes and some other crops, the plough is brought into requisition to bury the needful dressing of manure.

We come next to the trap or whinstone soils and limestone gravels of Scotland—like the light lands already referred to, consisting of a loose brownish earth, plentifully intermixed with small stones. Ploughing to a considerable depth is practicable in some situations; but cultivation for Oats and Turnips is carried up the hills wherever soil enough can be got to cover the ploughshare. A moister climate enables a more frequent use of the plough in spring upon the same quality of land that, in the more arid south, must be worked by the grubber instead; and besides ordinary ploughing, the operation of ridging or drilling is very common.

From the foregoing statements, then, we conclude that a steam-cultivator to be valuable on light lands must be able (in the first place) to cut up and mince, or else slice and divide, firm ground, for *only 2 inches in depth.* As the weight of a steam-engine would be little detriment to such land, the locomotive principle, with an attached revolving tiller, seems appropriate; but on the other hand these light soils being generally steep or undulating, the difficulty of working the gradients on a soft and rugged way, points rather to the traction principle as being preferable. Whichever system is adopted, the machine must be also able (in the next place) to slice and *effectually invert* a staple of loose stony soil 5 *inches, or it may be only* 4 *inches, in depth,* burying every portion of the old surface, together with the *manure spread upon it;* and leaving the up-turned soil in pieces as *firm* and as *closely laid* as furrow slices are now left by the plough. The work can scarcely be better done than by the plough itself; why not, therefore apply steam-power to draw either broadsharing, grubbing, or ploughing implements (as required) after Mr. Williams's or some other person's plan? Let us by all means welcome attempts of this order, thus shown by actual practice to be fitted for light lands.

I. A. C.

EXPERIENCES IN LAND DRAINAGE.

No. XVI.—Successful in every instance.—Drains parallel; and from 3 feet 6 inches to 4 feet 6 inches deep, depending upon the fall to be obtained, and upon the stratum in which the water usually lies.—Four feet is the average wished for.—Meadow land has been usually done in the same way, but the distance between drains about one-third wider.—The drains are with the fall. In meadow land the furrows are usually followed: in arable land seldom, unless the ridges are very wide, and consequently high.—In this neighbourhood 2-inch pipes are almost always used for minor drains, 3 and 4-inch for mains. In the west riding of this county I have sometimes used collars where a good bottom was not to be procured, and the depth of minor drains is regulated by the fall to be obtained.—I have used air drains in Cumberland—1½-inch pipe and collared minor drains—with great benefit. With Government grants of money, the Assistant-Commissioners do not think them necessary.—The average number of acres discharging at one outfall I cannot give, as it depends entirely on the fall, from 3 or less to 40 or more acres.—I have drained from poorest clay to richest loam, and then again to weakest peat and sandy soil. Subsoil stiff clay with shale, clay, occasional seams of gravel, sandstone. *Francis Parker, Rokeby Grove, Greta-bridge, Yorkshire.*

No. XVII.—Successful in all cases where the land has been drained at a depth of 4 feet and upwards.—I have adopted a parallel system, taking the greatest descent, and draining 4 and 4½ feet deep.—In Grass land the drains are laid on a greater distance apart, and for the most part at a greater depth, as it is not considered necessary to have the water so quickly carried off Grass land as tillage.—I have drained with the greatest fall, excepting where the old furrows are very deep, and lying not far out of the line having the greatest descent, as I consider there is more lost in the extra cutting caused by crossing the high ridges than gained by taking the greatest descent. The furrows have only been followed where lying in a right direction, and falling at the proper distance apart, except in particular cases, as before named.—The tiles used have been 2-inch for the parallel drains, and 3, 4, 5, and 6-inch for the mains. Collars have been used in all cases where the subsoil was of a sandy nature.—I have never tried giving air to drains, as I consider it could be of no possible benefit, but might possibly do damage by allowing flood water, &c., to get into the drain; and were it possible to have made the pipe a perfect vacuum, the water would be forced in with increased velocity, and as the water got discharged from the land the air would naturally follow.—The average acreage discharging into an outfall depends upon the size of the pipe with which the main drain is laid; I consider a 4-inch pipe on an average and in porous subsoil will discharge from 12 to 15 acres: a 5-inch pipe, 20 to 25 acres, and a 6-inch from 30 to 36 acres, but so much depends upon the subsoil and the distance of the drains apart.—The soils and subsoils drained have been various where of a porous description and on tillage lands the drains, when 4 feet deep, are laid on an average about 12 yards apart; where the subsoil is a tenacious clay, not more than 8 yards apart. *G. M. Dixon, Netherington.*

No. XVIII.—Successful, provided the depth and distance of the drains correspond with the porosity or tenacity of the subsoils.—A parallel system has been adopted where the land has a tolerably even surface.—Drains 4 or 4½ feet deep.—The difference made between arable and Grass draining is only as regards the distance the drains are put apart, it being necessary that arable land should have the parallel drains closer, that the water should, after heavy rains, pass more rapidly off.—The minor, or parallel drains, are almost invariably

laid with the fall. The furrows are only followed when they suit the direct fall of the surface, and the width the drains are intended to be put apart.—Two-inch circular pipes are used for minor, and 3, 4, 5, and 6-inch circular pipes for the mains, and collars are used where the bottoms of the drains are soft or doubtful.—I never thought air pipes worth a trial, feeling confident that if the water found its way to the drains air would follow. —About 15 acres flow out at one outfall.—All kinds of soils and subsoils have been drained, from the most porous gravel to the most tenacious clay.—*Josh. Snowball, Netherwilton, Morpeth.*

No. XIX.—The result of my drainage operations on all descriptions of land has been satisfactory so far as time has proved them.—The drainage adopted is on a parallel system.—The prevailing depth of the drains is 4 feet, and 8 yards apart.—No difference has been made in the mode of draining between arable and Grass land. —The direction of the minor drains is aslant the fall; and the furrows have generally been followed.—Two and a half inch pipes have been used for the minor drains, and 3, 4, or even 5-inch bore for the mains; I have used sockets in quick sands.—I have found benefit by giving air at places to drains.—The average number of acres discharging at the several outlets is 10.—The soil and subsoil strong loam on red marly clay highly charged with limestone, with sandy fissures at draining depth.—The geological formation is a deep bed of marl upon red sandstone.—The height of the land drained is little above the sea level.—The average depth of rainfall in my neighbourhood is 40 inches. I beg leave to state that whereas the land referred to has heretofore been sown to Wheat, &c., on high and narrow ridges, it is now for the first time sown on the flat. The benefit anticipated from this result of drainage alone is considerable. Allow me further to observe that as on drained or dry land only we can dispense with the butt and furrow principle, neither can we, except on flat land (land without ridge and furrow), have equalisation, of 1st, the surface soil; 2d, the seed sown (the drill being used); 3d, the manure spread; and 4th, of the rain that falls, &c., &c. The benefits of draining, we believe, are severally very great. *For Samuel Brooks, Esq., Thos. Suttle, Manchester.*

Home Correspondence.

Steam Cultivation.—Everybody knows that the whole office of a steam engine is simply to turn a wheel; but everybody does not know how to turn a wheel so as to pulverise the surface of the earth. Everybody knows that Mr. Hoskyns has demonstrated that the surface soil intended for cultivation ought to be ground up into the pulverulent condition by a wheel; but, unluckily, neither he nor the professed mechanists know how to grind. Mr. Hoskyns's deductions terminated in the "vertically circular," which will not answer. All that I shall say at this time is, if these inventors really desire to know how to grind, I advise them at once to go to the nearest mill; they will there see how the upper and the nether millstone operate; and then if they know how to apply the lesson received through their eyes they will soon be able to solve the problem of cultivating land by mechanic agency. Prediction before an event is far more attractive to certain investigators than any observation after trial. On the ground that I once devoted much time to the consideration of the introduction of steam to cultivation, allow me to make a few remarks for the meditation of your readers. Of course my observations will only have a reference to inventions past, and not to those new inventions which may be prepared for the grand trial at Carlisle next month. So far as I am acquainted with the past attempts to apply steam to tillage, I have no hesitation in affirming that the agricultural mechanist has not exhibited familiarity with the process of invention, nor the farmer any true idea of the consequences to be expected from the advent of a new power to another department of his practice. It is unnecessary to particularise the past attempts to cultivate land by steam-power—all are well known; and what is the inference? Why, from their extraordinary unanimity on one point, namely, of *method*, we must arrive at the conclusion that both the agriculturist and mechanist expect to obtain the boon of the above power unconditionally—that is, without complying with any "conditions." They take it for granted everything—steam-power amongst the rest—will follow in the wake of the plough; that its introduction will not disarrange in the least old methods or machines. Now I will show, by quoting only two instances from past experience, that the inference is fairly against such ideas on their part. The first I shall adduce is that of the railway system: here the conditions required to be fulfilled were that the old track or common roadway should be abandoned, the stage coaches demolished, the posting system abolished, and the roadside public-houses shut up; for the railway locomotive demanded a new roadway, and a new mode of conducting conveyance peculiar to its nature. The second illustration is that of telegraphing by electricity; this new method of conveying messages demanded as a premium for its introduction that the method of solid sign-boards visible to the naked eye at certain assigned distances should be abandoned; the method of breaks and intervals of space be renounced, and in lieu thereof a connected material body be extended, and touch in one unbroken line every required point in the line of transmission. Now, these two illustrations will serve as well as a hundred to show that on the right introduction of a new power to accomplish an old purpose, it always changes the "method" of proceeding. Hence what is the inference in respect to the right introduction of steam into the field! Why, that it will demand a totally different "method" of operating, will demolish all clod-crushers, drills, hoes, and harrows, and adapt the materials to its own method of working—probably will require a system of stations for manuring, cattle feeding, corn threshing, and storing, &c. Now, of course I only infer this, that is guess it (as some would term it); but does the farmer seem to anticipate any such consequences? From what I have observed, he does not; in fact, has made up his mind nothing of the sort need occur. Has the mechanical contriver of steam-cultivators, up to the present day, even evidenced by his inventions, that any such radical changes in "method" and machinery would arise on the right introduction of steam power to the field? Most decidedly not, for all can observe he has tacitly undertaken to gear steam power on to the whole *modus operandi* of the farmer in the field, without alteration. *Charles Burcham, London, June* 16.

Mr. Horsfall's yield of Butter.—Observing that Mr. Horsfall's statements concerning the quantity of butter yielded by his cows, when fed on Rape-cake, have been considered extraordinary, and his accuracy even questioned, I have been led to compare them with certain results of different feeding, given in a tabular form in No. 15 of your Journal, published April 14. From the comparison it appears that the amount of butter obtained by Mr. H. is far from extraordinary, and that the peculiarity of his experience lies in this, that he obtains from a given quantity of milk a much less quantity of cream but of greater density, from which when churned he obtains a quantity of butter greater in proportion to the quantity of cream, but not greater in proportion to the quantity of milk from which it originates. For instance, if we compare Mr. Horsfall's statements in last week's paper with No. 3 in the table alluded to, we find that Mr. H. produces 25¼ oz. of butter from 1 quart of cream, but that it requires 16 quarts of milk to produce that quart of cream, whereas in the case of the cows fed on the second cutting of Clover, 1 quart of cream is obtained from less than 6 quarts of milk, and therefore though this quart when churned does not produce quite 11 oz., yet as there were more than 2½ quarts of cream obtained from 16 quarts of milk, the quantity of butter produced was 29¼ oz., or ¼ lb. more butter than Mr. H. obtains from the same quantity of milk. As it may be interesting in the present stage of the discussion I have reduced the table, which I now give in a form convenient for comparison.

No. of Experiment.	Kind and Quantity of Feeding per head daily.	No. of quarts of milk to produce 1 qt. of cream.	No. of quarts of cream to produce 1 lb. of butter.	No. of quarts of milk to produce 1 lb. of butter.	No. of quarts of cream produced by 16 qts. of milk.	No. of ozs. of butter produced by 1 qt. of cream.	No. of ozs. of butter produced by 16 qts. of milk.
	Mr. Horsfall's cows on Rape-cake, &c.... ...	16	.63	10.14	1	25¼	25¼
1	70 lbs. of Mangold and 50 lbs. of Turnips... ...	7.43	1.21	9	2.15	13.2	28.4
2	Ital. Rye-grass *ad libitum*	6.01	1.53	9.22	2.66	10.46	27.8
3	Second Cutting of Clover	5 95	1.46	8.73	2.69	10.9	29.3
4	Cabbages	6.26	1.48	9.29	2.56	10.75	27.5
5	Mangold leaves and Cabbages	6.89	1.56	10.8	2.32	10.2	23.7
6	Mangold leaves alone ...	6.67	1.47	9.86	2.4	10.8	25.9
7	50 lbs. of Mangolds and 60 lbs. of Turnips ...	7.22	1.25	9.08	2.21	12.76	28.2

From these results it appears that the amount of butter obtained by Mr. H. from a given quantity of milk is, with one exception, less than in any of the experiments here recorded; unless, therefore, there be some error in the experiments, Rape-cake is far from taking the pre-eminence as a butter-producing food. How far the increased density, but diminished quantity, of cream in Mr. Horsfall's practice is owing to Rape-cake as a food would be an interesting subject of inquiry. Mangolds and Turnips, as compared with the other foods in the experiments, tend in a slight degree to produce this effect. *D.*

On Hoeing Wheat.—We notice in the *Mark Lane Express* an inquiry as to the utility of hoeing thin plants of Wheat deeply, or by keeping it free from weeds, merely skimming it over. As our opinion and yours appear coincident we trust our remarks in your columns will be acceptable. We would say extirpate the weeds decidedly, but as the season is far advanced it is advisable not to hoe the corn deeply now, especially as the drought has continued so long, and the land is in sufficient pulverised state. All possible care and circumspection should, however, on the part of master and man be exercised in uprooting all kinds of weed as they appear now with a common dock spud. Old mother Earth will be busy in nurturing her offsprings for a month to come, and the weeds will assuredly come in for the greatest share of nourishment from her resources, if we be not alive and watchful to our interests by uprooting them in due time, now in June before they have mastered our crops. It will be too late when the corn is in full ear to send in mischievous boys and girls, or even careful women or men, to repair the injury then. Some of our Wheat crops, sown in 2-feet rows, at less than 1 peck to the acre, which were dug up deeply between in November, February, and March, with Parkes' steel digging forks (admirably suited), are looking splendid, and are admired by all who see them, and which, with some other experimented corn of several acres extent, we respectfully submit to the notice of any agricultural friends who may feel disposed to come and see it. *Hardy & Son, Seed Growers, Maldon, Essex.*

Sparrow Clubs.—One cause of scarcity is the consumption of corn by birds and vermin; and we believe that the destruction of those depredators, to a certain extent at least, would confer a great boon on the country at large. We would spare all birds of prey, and would of course spare all innocent migratory birds, destined no doubt by Providence to visit our shores in due season to destroy swarming insects, living almost entirely on them, and taking their food upon the wing. To effect this purpose, it is proposed that landowners, farmers, gardeners, and other interested persons, should establish sparrow clubs in every parish or district, each member binding himself, under a forfeit, to produce a certain number of heads or tails of destructive birds or vermin to the secretary every week or month, until such time as they become nearly extinct. Or a subscription might be raised, enabling the secretary to give a sum for every certain description of bird, or for every dozen of eggs, from whatever source, &c. We will down with our sovereign at any time when our more spirited agricultural neighbours are ready to assist us in carrying the object into effect. The sooner some plan is devised for the destruction of these birds, if before harvest, the better; and none would have cause to rejoice more than the poor gleaners, for the safety of their small plots of corn and seeds in their cottage gardens and allotments, and their rightful share of corn in the stubbles. *Hardy & Son.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, *June* 20.—Mr. MILES, M.P., President, in the chair.

BUTTER-MAKING AND DAIRY MANAGEMENT.—The following communication was read from Mr. Thomas Scott, of Charing-cross:—

5, Charing Cross, May 30, 1855.

IT may not be unacceptable to the Council that I should give, in writing, the substance of the verbal statement which I made before the Weekly Meeting of the Society on the 2d inst. relative to the production of butter, and I shall now endeavour, briefly, to do so. My attention was especially directed to this subject two years ago by being appointed agent and receiver for the Audley estate in the county of Cork, where the production of butter is the mainstay both of landlords and tenants. I had previously for many years been intimately connected with some of the leading dairy counties, and much interested in this matter as resident agent on the estate of Lord de Tabley, in Cheshire—afterwards on that of the Duke of Argyll, in Kintyre—and latterly on the estates of Joseph Neild, Esq., M.P. in North Wilts and Somersetshire, all of which estates were dependent mainly on dairy produce for their incomes. I shall, therefore, address myself to the practical results of my experience, just as Professors Way and Hodges, and I may add, Mr. Horsfall, of Yorkshire, have done to the theoretical part of the subject, and the abstract principles connected with it. The question of the best mode of obtaining a large yield of butter from a certain number of cows, having been raised by the reading of a communication from Mr. Horsfall to Professor Way, before the Society on the 11th ult., I thought it a good opportunity to submit to the Council some incidents that had come under my own observation in connexion with dairying, and a few particulars relative to the trade in butter, especially with reference to Ireland. When we know that about 17,000 tons of butter are annually consumed in this metropolis alone, costing probably 100*l.* a ton, or 1,700,000*l.*, the immense importance is apparent of ascertaining the best process of realising the largest extract from our dairies. At the same time, this process, though ascertained, must occasionally be modified by local circumstances, such as the demand for skim or butter milk, and our ability to turn either of these important residues to advantage. In Ireland, for instance, the taste for skim milk is almost national, and it is extensively used in all private families, and in the numerous public establishments, such as barracks, workhouses, and gaols, that unfortunately exist there. In Cheshire, on the other hand, butter milk is universally consumed by the farmers' families and their servants and others. In the south of England, again, this is a beverage almost entirely avoided. Now every practical dairyman will readily perceive that the ability to sell skim milk in one place, and butter milk in another, or to feed calves profitably with the former, or pigs with the latter, must have an important share in forming a decision whether to churn from the whole milk, or from the cream alone, especially if the difference in the produce of butter between the two processes is as slight as I take it to be. Professor Trail makes out the following table from an experiment with four cows, in the month of June last year:—

1st.	Butter from scalded or Devonshire cream...	1.591 grains.
2d.	Do. from acid milk and cream	1.447 „
3d.	Do. from slightly sour whole milk ...	1.247 „
4th.	Do. from sweet cream	1.137 „
5th.	Do. from sweet milk and cream	None.

[Whether this table refers to the produce of equal quantities of milk taken in these different ways does not appear. Perhaps Mr. Scott will be kind enough to explain.]

The quality of all these samples was good and nearly equal. Mr. Dillon Croker, a good Irish authority, doubts the correctness of the above results, and thinks the produce from the cream alone has not been fully extracted. Even if it had, he shows by calculation that it is more profitable in his district by 8*s.* in the 7*l.*, or 5*l.* 14*s.* 3*d.* per cent. on the produce, to churn from cream alone, and to sell the skim milk, than to churn the milk and cream, and sell the butter milk. My inquiries lead me to believe that this holds good in the majority of cases; butter from cream alone is always richer in oil, and of better colour, than when made from whole milk, which produces more casein in the butter. We have equal discrepancies as to the best breed of cows for producing butter. Professor Trail made an experiment on this point, and found the Kerry cows to rank first, the Galloways second, and the Ayrshires third. Had the short-horns been included, I think they would have come in last. Of the Kerries' milk, 8⅘th quarts yielded 1 lb. of butter; of the Galloways', 9½ quarts; and of the Ayrshires', 10⅖th quarts; and their average daily produce of milk was 7¼, 6¼, and 9 quarts. I am inclined to think, after many trials during the last 13 years, that the old Irish and the Channel Island cows, crossed with the short-horns, make the two best butter producing animals, and are otherwise suitable for the dairy. The milking qualities in different animals of the same breed are, however, so various, that I am inclined to trust more to good shapes as indexes of milking qualities, than

to breed. Judgment and taste in selection are, therefore, more to be relied on. In Cheshire I had two cows, a short-horn and a cross-bred, of the same age and feeding together; the one gave 17 quarts of milk per day, which yielded only 18 ounces of butter; the other gave 10 quarts, which yielded 22 ounces, being more than double the ratio of the former. This is a suggestive subject for the physiologist. As a rule, *quantity* of milk should be obtained for cheese making, and *quality* for butter. Quality in milk arises partly from the breed of the cow, partly from her physiological character, and partly from the food she obtains. When much thin milk is obtained, the quality of butter made from it is never so good in taste, colour, or solidity, as when made from richer milk. This, I have found, arises from the excess of casein, and the greater difficulty of totally extracting it from the butter. What remains produces sourness, unless counteracted by extra salting. It also forms air cells, which originate rancidity and decay. I am now having a machine made to remedy the latter tendency. It is a hybrid between Clayton's piston clay-pugging machine and Ainslie's, with its rollers, being a screw piston in a circular cylinder. By the process I propose, the butter will be forced out in a continuous cake about an inch in thickness, and will pass over wooden rollers revolving in a frame containing the finest powdered salt, with a small mixture of fine sugar and nitre, when these are required to sweeten and preserve the butter. This cake of butter will be rolled up like a roll of calico after passing over these rollers, and will be again passed through the machine with a die on that will form it into rolls, squares, or any other shape required. When this is done, I find by experimental trials with clay and sand, that the salt will be completely amalgamated with the butter, and that it will be as hard and solid as a block of wood. I believe this process will make the most perfect mild, corned, or salted butter yet produced, and which will keep sweet for any length of time. I have no doubt it will be found of great value where a large quantity of butter is made. I am indebted to a suggestion of Professor Way for the original idea of this process of curing butter, and I shall willingly incur some expense to give it a fair trial. I propose designating it "Way's Butter-pugging and Salting Process." The Professor may thus be the means of supplying the two greatest desiderata to the perfect production of this important article, namely, scientific knowledge of its constituents and the food required to produce it, and mechanical contrivances for its proper manufacture. The most important point to be aimed at, and the one most easily attained, in our present state of knowledge, is the improvement of the quality of at least one-half of the butter made in England, and nine-tenths of that made in Ireland. An average cow will yield 196 lbs. of butter a year, and an increase of 1*d.* per pound in price is a gain of 16*s.* 4*d.* a head per annum, equal to about 10 per cent. on the whole produce. This, however, is much less than the increase in price which could be secured by a little more knowledge on the subject and by a little more pains in the several processes of management. I have attended to the returns of prices for the last 10 years, and in all our dairy county markets, namely, Cheshire, Gloucestershire, North Wilts, and others, they range 10 per cent. below the prices of Dutch and other foreign butter; and in the great butter producing county of Cork, extending over an area of 1,846,333 acres, the average prices are 20 to 25 per cent. below those obtained for the imported Dutch and Friesland butter. In several English and Irish counties, not strictly dairy counties, butter of the very finest quality is produced; but the quantity is so small that it has little influence on the aggregate returns from our home markets, and the result is that upwards of 50,000 cwt. of Irish butter is annually sent abroad at an inferior price, being quite unfit for home consumption, while at the same time we annually import, as we did last year, upwards of 400,000 cwt. of superior foreign butter, representing the produce of 220,000 cows, or all the cows in Scotland. Now, here are 22,500 tons of butter travelling backwards and forwards across the English Channel, while we might without cost improve the quality of what we export, and keep it at home, and by so extending our knowledge of the principles of butter making, increase our production and obviate the necessity of any importation at all. Though our dairy districts are not without examples of an exact adherence to spotless cleanliness, it is not so universal with us as with the Dutch and other continental dairy people. Nor are we so well able, as they generally are, to interpret the reasons for our different operations. They clothe their cows because they find they give more milk, and they know that they do so because the heat of the body is not uselessly dissipated in cold air: and that if it were so more food would be consumed to supply the carbon required to sustain the necessary animal heat of the body. They also know, by the light of science, why one kind of food produces an excess of cream, and consequently butter; and another casein, and consequently cheese; why poor food produces poor milk and goes back to the soil in the shape of poor manure; thus enabling milch cows so fed to impoverish the soil on which they graze, while cows getting food rich in the ingredients which milk contains give rich milk and also rich manure, the latter being then equivalent to, or in excess of, the substances extracted from the soil in grazing. Look also at the care with which the Continental Governments protect the consumers against inferior butter. In Friesland, all butter-firkin coopers are under Government inspectors, and are bound, under a fine of 25 guilders, or 2*l.* 1*s.* 8*d.*, to use specified wood; half these fines going to the informants, and half to the poor of the parish where such casks are made. All coopers must have their names on their casks, and the date of their make; and the inspector examines them and charges ½*d.* on each, and the Government brander then puts his mark upon them, and charges another ½*d.* No butter can be sold except in these casks, and specimens of all classes of authorised wood, and even of iron hoops, are kept at the district magistrate's. We have a well grounded objection to Government interference in this country, and the great agricultural interest is thought able to take care of itself. So, the returns from our cattle, corn, and dairy produce have become, to a great extent, dependent on the salesmen of Smithfield and elsewhere—on the corn factors of Mark Lane, and on the cheesemongers of London; and most people who have depended on any of these powerful interests, know how unsatisfactory the results usually are. Yet the English Government takes little or no cognisance of how any of our great agricultural marts are regulated. Private enterprise occasionally steps in, as in the case of the establishment of the "Chippenham monthly cheese and butter market," by Joseph Neeld, Esq., at a cost of upwards of 15,000*l.* Here we have an open market with ample accommodation, good regulations, and nominal charges. Dairy farmers in the surrounding districts are therefore no longer dependent on isolated individual purchasers; for here a hundred cheese factors and dealers compete for their produce, and I have seen 20,000*l.* worth of cheese change hands in a few hours. This shows how much a well regulated outlet for dairy produce is required and appreciated. I was several years on the managing committee, and was led to the conclusion, from data coming constantly under my observation, that it has considerably enhanced the value of all the dairy produce made within an area of 20 miles. A bill has lately been brought into parliament to regulate the numerous small local markets of Ireland, but its progress has been very tardy, and it may not be of much practical value when obtained. I will take one great trade combination in Ireland as an instance of how the agriculturists are handled, generally, in the sale of their produce; I allude to the "Cork Butter Market." At it there are annually sold about 340,000 firkins of butter, equal to 200,000 cwt., and worth upwards of 1,000,000*l.* Now, all this immense quantity of dairy produce is thought unworthy of any notice by the Government, and its sale is consequently left to a committee of Cork butter merchants, who naturally regulate the matter to suit their own interests. They appoint their own "inspectors" and "branders;" take off their own tare, namely, 3 lbs. per firkin of 70 lbs.; pay themselves a commission for buying the farmers' butter; combine and fix their own weekly prices, and are, as a matter of course, all very rich, several being members of Parliament. This, I think, accounts for the Cork butter being the lowest priced in the three kingdoms, although the pastures are nearly all on limestone, and the herbage of the best butter-making quality. About one-third of the butter brought to Cork is put into iron-hooped firkins and sent abroad, being unfit for home consumption. All butter sold in the local and more independent markets in the adjoining counties of Carlow and Limerick brings 1*d.* per lb. more than if sold in Cork under the thraldom of the "Butter Weigh House Committee." Tenpence per lb. is now about the price for first-class brands. I herewith send, for the inspection of the Council, six samples of butter made by my directions on the Audley estate, in the county of Cork. This butter is the produce of cows of the native Irish breed, fed on natural pastures and Italian Rye-grass, and is made at the rate of 14 oz. per quart of cream, the cream being obtained at the rate of one quart from nine quarts of milk. The churn used is Anthony's patent. Mr. Horsfall, it will be shown further on, obtains only ⅔ of a quart of cream from 10 1-7th quarts of milk. By the subjoined account, copied from the books of the "Weigh House Committee" last month, you will perceive that the farmers who send their produce to its care were charged, for the year ending the 10th March last, the large sum of 5128*l.* 16*s.* 8*d.*, which is made up thus:—

Produce of butter scrapings	£1427	2	6
Fees for butter inspection from farmers ...	3291	5	5
Do. for cask inspection from do. ...	284	9	11
Fines	125	18	10
Total	£5128	16	8

It is almost needless to say that this powerful organisation is ruinous to the farmers who are under its control, and is much and loudly complained of; but so, I fear, it must remain, until remodelled or superseded by a higher hand. It is the interest of all dairy farmers to study more carefully than they do at present how to improve the quality of their butter. I am sorry to have to state my belief that few know anything at all of the principles that ought to regulate their several processes. I say this reluctantly but confidently, after having, for the last 10 years, as a resident agent, been in immediate contact with at least 500 rent-paying occupiers of this class. The first of the following tables shows the results from feeding, in an experiment by Mr. Cunningham, the manager of the Munster model farm, under the Board of National Education in Ireland; and the second the results in connexion with an experiment made under my directions on the Audley estate, in the county of Cork:—

EXPERIMENT AT MUNSTER MODEL FARM.

No. of Cows	Duration of Experiment.	Date.	Food per Head Daily.	Produce. Milk.	Cream.	Butter.	Milk to produce a Quart of Cream.	Cream to produce a Pound of Butter.	Milk to produce a Pound of Butter.
	Days.			Quarts.	Quarts.	lbs.	Quarts.	Quarts.	Quarts.
7	3	April 11	70 lbs. Mangold and 50 lbs. Turnips...	171	23	19	7.43	1.21	9.00
12	7	July 11	Italian Rye-grass *ad libitum*	692	115	75	6.01	1.53	9.22
12	7	Sept. 11	Clover, second cutting	524	88	60	5.95	1.46	8.73
12	7	Sept. 25	Cabbages	576	92	62	6.26	1.48	9.29
12	7	Oct. 2	Do. and Mangold leaves	648	94	60	6.89	1.56	10.08
12	7	Oct. 9	Mangold leaves alone	848	127	86	6.67	1.47	9.86
12	7	Dec. 1	50 lbs. Mangold and 60 lbs Turnips ...	672	93	74	7.22	1.25	9.08
			+ 7 ...	4131	632	436	46.43	9.96	64.26
			Average	561.57	61.71	62.28	6.63	1.44	9.18

Gross product from 12 cows, 152*l.* 13*s.* 5*d.*; profit per cow, 5*l.* 17*s.*; per acre, 3*l.* 3*s.* 6*d.*; ground per cow, 1 acre, 1 rood, 16 perches.

AUDLEY ESTATE EXPERIMENT.

No. of Cows	Duration of Experiment.	Date.	Food per Head Daily.	Produce. Milk.	Cream.	Butter.	Milk to produce a Quart of Cream.	Cream to produce a Pound of Butter.	Milk to produce a Pound of Butter.
3	123	Aug. 31	Italian Rye-grass, Clover, and bruised Oats ...	3590	446	442	8.02	1.01	8.54
3	61	Oct. 31	Do. with Vetches and Cabbages ...	1790	202	196	8.59	1.04	8.82
3	30	Nov. 30	Mangold leaves, Turnips, and bruised Furze	817	82	74	9.96	1.11	11.04
*3	121	Dec. 31	Bruised Furze, Turnips, and straw chaff ...	3602	407	384	8.91	1.06	9.38
3	30	April 30	Mangold, hay and straw chaff, and Oats ...	810	80¼	70	10.06	1.15	11.54
	365		+ 5 ...	10,539	1217½	1166	45.54	5.37	49.32
			Average	2107¼	243½	233½	9.10	1.07	9.86

* Fresh cow put in.

[Note.—These are not calculated to show a comparative result, but only the product arising from good keep and careful management. It is considerably in excess of the ordinary tenants' produce in the same district.]

The most important points to be attended to, then, are these, a good breed of cows; proper food and abundance of it. Let the temperature of dairies always be regulated by a thermometer, and kept at from 50° to 60°, with proper ventilation, that the cream may not become musty; and let them always be thatched, or, if slated, coated with lime-wash, as Mr. Mechi's buildings are, that the roofs may radiate and not absorb the sun's rays. Skim the cream off the milk in about 36 hours in summer, and 48 in winter, after milking, and churn in 48 hours afterwards; put the cream into the churn at a temperature of 50°, and after the butter is formed let the whole remain in the churn an hour to cool. When wrought up, either for sale fresh, or for putting in kegs and corning, let the hands of the person employed be continually dipped in cold spring water, and let the whole of the liquid be extracted and the residue left as compact as a deal board. Use no colouring—the fine Dutch and Epping butters of the London market having no saffron, annatto, or Carrot juice in them; avoid much and coarse salt—compression and solidity will keep out the air, and preserve corned butter; and the weight gained from adding salt at 1*d.* per lb. is doubly counteracted by the reduction in price. Neither apply hot water in making up—it firms the butter but impoverishes it of its best qualities, and spoils the flavour. A little more salt is, however, required in summer than in winter. Keep clear of turf smoke and Potatoes, both of which readily communicate a bad flavour to butter, which is much complained of in the Cork market; use white wood, and not brown firkins, and when the butter is packed, weigh it down with a half cwt. for a few hours before heading up. If these points are attended to, any one in this country will at once succeed in rivalling the best Dutch or Friesland butter. To increase the quantity of butter cows must be soiled, and fed on more nutritive food than at present; they must never have to labour for their food. They must also be kept warm, and at an equal and well regulated temperature. Here, again, an eighteenpenny thermometer must be hung up. I have also found an increase of milk to arise from giving cows wooden instead of stone or brick beds to lie upon. I tested this carefully on Mr. Neeld's estate, where they may still be seen in use. Never keep old cows—their milk is thin and poor; strip the cows thoroughly each time they are milked, as the last pint contains more butter than the first quart. A tenant of Lord de Tabley's, who kept 45 cows only, and died a few years ago worth 30,000*l.*, often told me that he had made half his fortune by daily seeing to this point for 30 years. Churn early in the morning, say at 4 o'clock, using a good churn and never commencing with a bad one. If the cows are allowed to graze, change the pasture each time they are milked, as I have seen this produce the best results. If they are housed let them go loose if possible. A good model building on this principle for 100 cows, designed by Mr. Godwin, the editor of the *Builder*, may be seen at Wall's Court farm, near Bristol, belonging to his Grace the Duke of Beaufort, and occupied by Mr. Thomas Proctor, who, along with his Grace's agent, Mr. Thompson, of Badminton, personally inspected many of the best homesteads in England, before adopting the plan. These, then, I believe to be the most essential requisites to ensure a profitable return from the dairy. Relative to Mr. Horsfall's particular practice, I fear its pecuniary value to dairy farmers will be found on investigation to bear no proportion to our original expectations. His return of 25 ounces of butter from one quart of cream appears at first sight something wonderful; but it proves nothing. The proportion which the butter produced bears to the whole milk is the only result of practical value that we have to look to. By analysing his statements it will be seen that this is as 1 lb. of butter to 10½ quarts of whole milk, and as shown by the following 17 returns, the produce of Mr. Horsfall's does not exceed an average.

Trials.	Breed of Cows.	Milk required to produce 1 lb. of butter.	Cream from 10 quarts of milk.	Butter from 10 quarts of milk.
		Quarts.	Quarts.	Ozs.
Trail's ...	Kerry ..	8.12	1.38	19.70
	Gallaway ...	9.50	1.16	16.94
	Ayrshire ...	10.40	1.08	15.38
Scott's ...	Shorthorn ...	15.11	0.88	10.52
	Crossbred ..	7.27	1.57	22.00
Sherrat's...	Cheshire ...	14.22	1.12	11.00
	Do. ...	13.33	1.24	12.00
Munster Model Farm	Irish cows 12, average of 7 trials.	9.18	1.43	17.0
Audley Estate	Irish cows 3, average of 5 trials.	9.80	1.66	16.22
	+9 ...	96.93	11.47	140.18
	Average ...	10.77	1.27	15.66
Horsfall's	Yorkshire ...	10.14	0.64	15.78

The next question is, does his system of feeding and his other appliances produce more than an average quantity of milk. On the contrary, the milk from which Mr. Horsfall attained the above extract of butter is only yielded at the ordinary rate of 10 quarts per cow per day. There then only remains the extra richness of the manure to be considered. We know from experience, in connection with oil-cake fed cattle, that this is considerable, but whether it is sufficient to compensate him for his liberal feeding must to some extent remain a matter of opinion, at all events it appears to me to be the only consideration that can be held out to induce others to adopt his expensive system of treatment. The residue of buttermilk obtained by Mr. Horsfall also appears unusually small, being only 30 per cent. of the cream churned; whereas the usual residue is fully 50 per cent., and the following experiments by Mr. Dillon Croker, in the county of Cork, and Mr. John Williams, an experienced dairy manager on a large scale in the same county, show an average of 60¾ per cent.

	Cream churned.	Produce in Butter.	Produce in Buttermilk
Mr. Croker's experiment	128 qts.	112 lbs.	70 qts.
Mr. Williams's	160 „	136 „	104½ „
	÷2 288	248	174½
	144	124	87¼ = 60¾ per cent.

This would lead us to believe that Mr. Horsfall's butter is not so well worked and free from butter milk as it should be, and consequently not of the first quality. We ought to have an average sample of his butter before us, together with the price obtained for it during the last two months, to enable us to judge of its quality and value. If his butter were extracted from ordinary creams, which I think the comparative table given above shows it is not, the result would overthrow the reliability of all the Society's reported trials in connection with competing churns during the last and previous years. The best churns and richest creams were used on those occasions, but in no instance did the extract reach beyond 70 per cent. of Mr. Horsfall's. When the Board of Agriculture was in existence, Mr. Cramp, the keeper of the House of Correction at Lewes, reported to it the average annual produce of a cow he kept for eight years, at 41*l.* 8*s.* 3*d.*, arising from his mode of treatment; and this return was confirmed on personal inquiry by the Earl of Chichester. The result was obtained by frequent and liberal feeding, which was minutely detailed and laid before the public; but this "high farming" in the dairy has not been found suitable for general adoption. Other isolated instances of excessive produce could be enumerated. For instance, I was aware of two cows in Cheshire possessing great milking qualities, and obtaining highly nutritious food, which gave for several consecutive months; the one, 40 quarts of milk per day, yielding 4½ quarts of cream, and 2⅚th lbs. of butter; the other, 36 quarts of milk, yielding 4½ quarts of cream, and 2⅔th lbs. of butter. These cases, however, are entirely exceptional. The average produce from a first-rate cow, well kept throughout a season of say nine months, seldom exceeds 2700 quarts of milk, yielding 300 quarts of cream, or 1 quart of cream for 9 quarts whole milk, and 26¼ lbs. of butter; which is at the rate of 14 ounces of butter from 9 quarts of milk, or 1 quart of cream; and which is little more than one-half the weight of butter obtained by Mr. Horsfall from an equal quantity of cream. To show that the breed of cows, as well as their food, has a good deal to do with the yield and constituents of milk, I may mention that on an estate in the south of Scotland under my management some years ago, there were two farms in hand, which were stocked with a breed of Ayrshire cows, devoted to cheese making. Not thinking it profitable to make cheese, a herd of 45 Alderney Cows was substituted for them on one farm, and butter made from the whole milk, under the direction of an experienced Ayrshire dairy maid, and after three years' experience it was found that these animals produced more butter off the same land than their predecessors

but when an attempt was made to convert their milk into cheese, the weight of produce was lamentably short of that obtained from the Ayrshires. Again, in the county of Cork, especially on the fine limestone land around the city of Cork, the butter extracted from a certain quantity of milk far exceeds that obtained from an equal quantity on the alluvial pastures in Cheshire: but when cheese is attempted in the former locality, as it has often been, and is now being done at Castle Townsend by Mr. Chambers, a Scotch farmer, it falls far short of the quantity obtained from a cow in Cheshire. The quality is also inferior to the English cheese. It thus appears that both the breed of cattle and the food they obtain have a special influence on the quantity and quality of produce, sufficient, I think, to induce us to study more closely than we now do the adaptation of both to the general or special purposes of our farm and dairy management. No truer remark could be made than that contained in the report of the Farming of Cheshire in 1803, by Dr. Holland. He says: "Many attempts have been made to imitate Cheshire cheese in other counties, but never successfully. Some brought their kine from Cheshire, others their dairy-women, but it doth appear they should have brought the land also." About seven years ago, the late Mr. Leigh, of Delmont, in Cheshire, tried to bring this knowledge more under our control, and carried out a system of weighing a large number of cows, weekly, on the principle Mr. Horsfall has now adopted: but in consequence of his death, the undertaking, I think, was abandoned, and I am not fully aware to what result it led, as far as it went. This is to be regretted, as it is only through such detailed researches that we can hope to acquire an exact knowledge of the means necessary to guide us to fixed and accurate results. We know, for instance, that bone-dust applied to pasture land in Cheshire means an increase of cheese, and that coral sand in Cork, is, in reality, butter; but when we learn from Professor Way the fact that the food most rich in the materials composing the animal products and plants, to the production of which it is specially applied, does not produce in them a corresponding increase of their essential ingredients, we see that chemistry does not yet furnish us with fixed and uniform rules for our guidance; thus Linseed and other highly nitrogenous substances, when given to milch cows, produce a greater amount of casein than they do of oleaginous material or butter, which is the reverse of what chemistry would lead us to expect. Again, the phosphates when applied to the soil, increase the produce of Turnips far beyond that of Wheat, although the latter is found to contain much the largest per centage of phosphates. It is these exceptions to the conclusions arrived at by the inductive reasoning of the analytic chemists that require them to refer occasionally for information to practical experience, and which has rendered them unable, up to the present time, to remedy Clover sickness by applying to the soil the ingredients necessary to build up that plant. Another anomaly is, that of some poor pastures producing very rich milk: When this is the case, we are now well aware that they must rapidly become poorer, as most of the nutritive properties of the food are absorbed and carried off in the milk, and the excrement becomes proportionally devoid of all restorative power. The reverse of this produce is, however, more common; for instance, on the great Ballynahinch estate, Connemara, probably the poorest in herbage in the three kingdoms, an experiment was lately made for me, when 70 quarts of cream yielded only 31½ lbs. of butter, equal to 7½ ozs. per quart of cream. Having been favoured by the Irish Executive with the whole of the Reports to the Commissioners of National Education in Ireland, on the 33 model and 96 workhouse and other agricultural schools in that country, I cannot fail to observe that they exemplify an amount of careful and quiet investigation, especially into dairy processes, which must lead to useful results, and which ought to have a parallel in England, unless we are willing to allow the Irish people to outstrip us in scientific agricultural education. The Irish occupier's great desideratum I have already stated, verbally, to be the want of suitable dairy accommodation; and few cows being held by one owner is another serious drawback, as it necessitates the cream being kept too long before the quantity necessary for a churning is made up. I would earnestly urge upon Irish landowners, whose estates are occupied by a numerous small tenantry, the advisableness of adopting means to remedy drawbacks so seriously affecting their tenants' returns from the land they occupy, as well as their own. I can assure them, from personal experience of estates in Ireland with which I am professionally connected, that there would be no unwillingness on the part of the tenants to avail themselves of, and to pay for, any real advantages or improvements placed within their reach. In England the appliances on dairy farms are generally liberal, but few of them are constructed on sound scientific principles, and few of the occupiers are at all imbued with a due appreciation of what men of science and research are doing for them. *Thos. Scott.*

Professor Way's lecture on Fish as Manure, intended to be delivered on the 27th of June, is postponed to the 18th of July, in consequence of Professor Way being subpœnaed to give evidence in a court of law next week.

Miscellaneous.

Temperature during January, February, March, and April, 1855.

Locality.	January.	February.	March.	April.	Daily Mean, each Locality.	Daily Mean, each Country.
ENGLAND.						
Greenwich	34.5	29.5	38.5	46.5	37.25	
Nottingham	35.0	28.0	37.0	44.5	36.12	
Hawarden	30.5	29.5	39.0	46.5	36.37	37.15
Exeter	37.0	31.0	40.5	47.0	38.87	
IRELAND.						
Dublin	40.0	34.5	42.0	49.0	41.37	
Cork	42.0	35.5	43.0	50.0	42.62	
Portarlington ...	37.5	29.0	40.0	41.0	36.87	29.29
Armagh	37.0	31.0	38.5	47.0	38.37	
Sligo	36.0	30.5	38.0	44.5	37.25	
SCOTLAND.						
Glasgow	34.5	29 0	37.0	43.0	35.87	37.06
Aimat	37.0	32.0	38.5	45.5	38.25	

Mean daily temperature during the last four months—viz., from the 1st January to the 31st April, was as follows:—England, 37.15; Ireland, 39.29; and Scotland, 37.06. Daily Mean for the United Kingdom, 37.82.
—*Allnutt's Irish Land Schedule.*

Profits of Poultry Keeping.—We noticed some time since the manner in which a gentleman who occupies a leading position amongst the magistracy of this county, was bringing to the test, by careful management, and the keeping of a correct financial account, the profits that may be made from poultry. His purpose was not the breeding of prize birds for a show day, often, perhaps, done at a considerable pecuniary loss, but to illustrate how this too-much neglected branch of rural economy might be improved and extended, to the gain of the farmer, if more general attention were paid to it. We have now the following letter, containing the balance-sheet for the year, with an explanatory statement, and we publish them, believing they will be read with interest at the fireside of the farm-house:—

COST OF FOOD AND REARING, JAN. 1 to DEC. 31, 1854.
Fowls of all Sizes, average Sixty.

	£	s.	d.
Food—being Barley (in grain), barleymeal, oatmeal grits, Lettuce leaves, Swede Turnips, rice and milk, and liver; all as occasion required, and without stint	11	2	6
Paid for care and rearing them	2	9	0
	13	11	6
Balance	5	6	3
	£18	17	9

PRODUCE FOR THE YEAR, JAN. 1 TO DEC. 31, 1854.
Fowls of all Sizes, average Sixty.

		£	s.	d.
Dorkings' eggs	593			
Cochin ditto	700			
At 1*d.* each	1293	5	7	9
Pullets killed	62			
Pullets, ready for table	28			
At 3*s.* each	90	13	10	0
		£18	17	9

N.B.—All the pullets weighed 3 lbs., plucked and trussed for the table.

This account should be attended with some observations, so that it may be understood. In the first place the cost of food only may be taken at say 12*l.* for the year; making the calculation more easy—viz., 1*l.* per month; not exorbitant for the keep of 60 birds, and considering the excessive price of Barley, 4*s.* 6*d.* and 5*s.* per bushel, all the time, and everything in proportion. This, then, gives 4*d.* as the cost per fowl, great and small; thus, the keep of a pullet five months, when they are large enough to kill, would average 1*s.* 8*d.* per fowl, bird for bird. Then, if the farmer or cottager bred them himself, the 2*l.* 9*s.* paid others for care and rearing makes the balance 7*l.* 15*s.* 3*d.* The mixture in the breed between Cochin and Dorking, which, for distinction sake, I have called "Codors," has improved both in "flavour" and "form" for the table. As to the eggs, there is no month in the year when the Cochins did not lay; in November and December last the Dorkings laid no eggs, but the ten breeding Cochins, in those months, laid 76 eggs. The sole object of the present experiment was to try what might be done by cultivating these two sorts as a matter of useful economy, not to breed monsters; the medium size in animals is really the best, as in fruit, as every good gardener knows. My object was usefulness, and, on the whole, I am well satisfied. *Chelmsford Chronicle.*

Calendar of Operations.

JUNE.

BORDER OF THE FENS, *June* 16.—"The gentle rain from heaven" has come at last so abundantly as to gladden the hearts of all persons with a thin plant of Wheat and scanty pastures, quite turning the scale against the "highlanders," who begin already to sound a note of alarm at the prospect of Wheat and Barley being "too thick upon the land," the former of which has in some cases been "topped" on account of its exuberant growth; and, in truth, vegetation of all kinds has started towards maturity with a celerity perfectly marvellous; the Wheat that but yesterday was scarcely distinguishable in height from spring corn, with weeds inconsiderable, is to-day as it were spindling 3 feet high, with the weeds rank and conspicuous, defying the abortive effects of women and children during the wet weather to stay their progress, and scarcely to diminish their number. Hardly had the Hariff, Thistles, and Poppies been deemed by the watchful farmer big enough to pull up, when they passed him at a hand gallop, and he must now let too many of them remain a legacy for future vigilance, or have the stems of his Wheat trodden down and broken; the corn, however, must be gone over once besides the hoeing, where necessary, if thick and forward. Children under a kind and able gangman will clear more weeds and do less injury than women, who are seldom collected in sufficient numbers to go over a large field within any reasonable time. We heard this day of several ears of Wheat being seen in a field near Stamford, and I have found some in this neighbourhood ready to burst forth; but as a postcript to this description of the extraordinary change which has taken place, we regret to add that in the Fens many pieces of Wheat and Oats still remain yellow and abortive, and cannot recover from the mischief occasioned by the repeated visitations of wind and frost, so that the gross produce of the Fen districts will be seriously diminished by so many failing crops. The rain has been as great a boon to the green crop as to the corn. Potatoes, Carrots, and Mangold Wurzel are going on splendidly, and the Turnips are everywhere springing up strong and healthy. Clover seems to make amends for its long retardation, and Vetches cannot be cut or fed off fast enough. We need hardly add that Grass is growing as it has not grown for years. The only thing that seems to keep pace with it is the advance in the prices of store stock by cattle dealers, but even this may be limited, and we learn that at this day's market many lamb hogs and young beasts have returned unsold, either because too great figures were put upon them, or because the abundance of keep led the holders of them to expect still further advances another day. The spring has not been propitious to the growth of wool, and though we are a fortnight later in shearing than last year, we are inclined to suspect that we might have waited another week or two with advantage. Some persons who have clipped early, have lost several sheep, and the wool seems higher than usual. It behoves shepherds about this time to exercise more than usual care in counting ewes and lambs, as after losing their wool the mothers are not always recognised by the lambs, while they are apt to stray and be lost. *J. W., Peterborough.*

Notices to Correspondents.

SOCIETY OF ARTS: *Cor.* We shall have an opportunity of consulting its journal next week.

MANGOLD WURZEL: *J B M.* They say that wire worm may be checked by trampling and rolling the ground. If so, it is possible, but not probable, that your Mangold might to some extent be saved by treading round each bunch of plants. We fear if they are attacked much that they are beyond help.

SALT, &c.: *Three Years' Subscriber.* If sown in wet weather, a cwt. per acre. You may sow Clover and Rye-grass land a week afterwards without their being hurt. On a sheep-house see what is said of Mr. Kennedy's in the article on Italian Rye-grass some w eks ago. We cannot give estimates of cost.

THE VETCH: *Constant Reader.* The plant is correctly named Vetch. In Scotland it is called Tare.

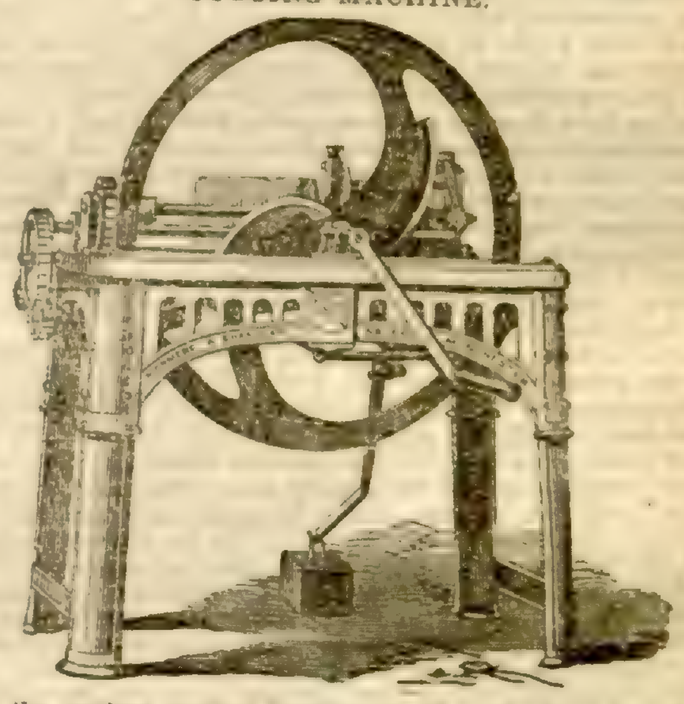
WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

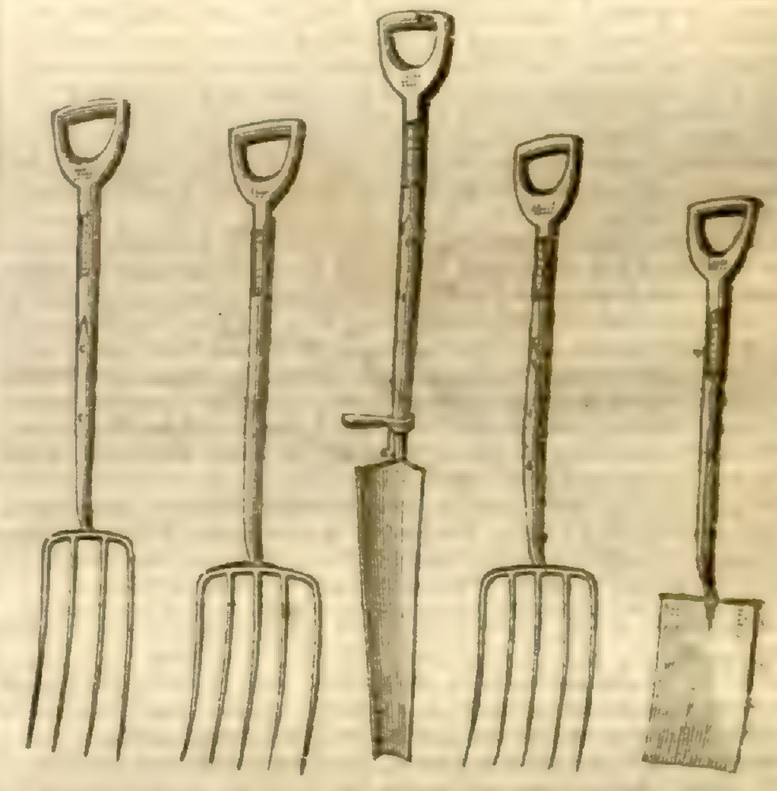
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

RICHMOND & CHANDLER'S PATENT CHAFF-CUTTING MACHINE.



All the various modern Implements of Agriculture manufactured on the most scientific and improved principles, suitable for home use and exportation.—Address, RICHMOND & CHANDLER, Salford, Manchester; and 32, South John Street, Liverpool.
☞ CATALOGUES GRATIS.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

IMPROVED MOWING AND ROLLING MACHINE.

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, Inventors and Sole Manufacturers, respectfully solicit the attention of the Nobility, Gentry, and Gardeners to this Improved Machine for Mowing and Rolling Lawns. The Machine is in operation in the Royal Gardens at Windsor Palace, Buckingham Palace, and at Osborne, in the Botanical Gardens at Kew, Regent's Park, Manchester, Sheffield, &c.; at Blenheim Palace, Trentham, Cleveden, Elvaston, Broadlands, Woburn Abbey, Clumber, Lilleshall, Castle Howard, Shrubland, Eridge Castle, Enville Hall, Tiptree Hall, Chatsworth, and in many other of the principal gardens in the kingdom as well as in the United States, British America, and on the Continent, where its merits have been fully proved, and its success established.

The machine is made to cut the breadth of 42, 30, 20, and 15 inches respectively, is exceedingly durable, easily managed, and adjusted to cut to the length required. The execution of the work is far superior to what may be attained by the most skilful mower, while at the same time a great saving of labour is effected, and the turf much improved. By the largest machine a Scotch acre may be mowed, rolled, and the Grass collected in one hour.

A. S. and SON have much pleasure in stating that they have made considerable improvements in their 15-inch or hand machine this year, by which the draught is considerably lessened. This machine combines all the merits and advantages of the larger machines with firm and secure construction, and is admirably adapted for borders and for lawns of no great extent.

ALEXANDER SHANKS and SON also respectfully solicit notice to "Fleming's Weeding or Salting Machine" for destroying weeds in gravel walks, court-yards, drives, &c. This machine is now in operation in many parts of England, where it has given ample satisfaction as the best and most economical means of thoroughly keeping down weeds or Moss.

Further particulars, with testimonials and prices, may be had on application.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.
In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12s. 0d.
7 „ 5, — 7½ „ 5½ }	0 14 0
8 „ 6, — 8½ „ 6½ }	
9 „ 7, — 9½ „ 7½, 10 by 6½ }	0 16 0
10 „ 7, 10 by 8 }	

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18s. per 100 feet. If cut to order not exceeding 40 inches long.

16 oz. from 2½d. to 3½d. | 21 oz. from 3½d. to 4½d.
26 oz. from 5½d. to 7½d.

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½d. per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¾ of an inch thick	£1 17s. 6d.	per case of 50
⅞ „	2 1 3	„ 60
1 „	1 17 6	„ 60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21s. per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

CHEAP STRONG GLASS FOR HORTICULTURAL PURPOSES, in boxes of 100 feet, at 1d. per foot, boxes included. Plate, Sheet, Crown, and every description of Glass for glazing purposes cheaper than any other house in London.—Apply to B. Moss & Co., Leman Street, Whitechapel.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY.—The Managers beg to inform the Nobility and Gentry, Farmers, Gardeners, &c., that their new List of Prices may be had free on application at the Company's Depôt, 296, Oxford Street, London.

PLATE, CROWN, and SHEET WINDOW GLASS.

HARTLEY'S PATENT ROUGH PLATE for Roofing Conservatories, Halls, and Public Buildings.

Coloured and Ornamental Glass.

CRYSTAL SHADES for covering Ornaments, and

MOORE'S PATENT LOUVRE VENTILATOR, and Lockhead's Patent Perforated Ventilating Glass for Dairies, Greenhouses, Stables, &c.; Glass Milk Pans, Pails, Tests, and Measures; Cream Pots and Syphons; Churns, Butter Tests and Slabs; Tiles and Slates; Bee Hives, &c.

Aquariums, Fern Shades, Propagating Glasses, Fruit Protectors, Preserve Jars, Cucumber Tubes, Hand Lights, Flower Vases, Labels, &c., and all kinds of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,
87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in.	12s. 0d.
6½	„	4½	„	7	„	5	... ...	12 6
7½	„	5½	„	8	„	6	... ...	13 0
8½	„	6½	„	9	„	7	... ...	13 6
9½	„	7½	„	10	„	8	... ...	13 6
10½	„	8½	„	11	„	9	... ...	14 0
12	„	9	„	13	„	9	... ...	14 0
10	„	10	„	10½	„	10½	... ...	14 0
11	„	10	„	11½	„	10½	... ...	14 0
11	„	11	„	11½	„	11½	... ...	14 0
12	„	11	„	12½	„	11½	... ...	14 0
13	„	11	„	13½	„	11½	... ...	14 0
13	„	12	„	13½	„	12½	... ...	16 0
13½	„	13½	„	14½	„	13½	... ...	16 0
15½	„	13½	...	...	...	...	... ...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.
Ditto, not exceeding 1 foot ... 2½ „
Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

HOSE PIPING.
TO ENGINEERS, AGRICULTURISTS, GARDENERS, SHIP CHANDLERS, AND FIRE BRIGADES.

WAITHMAN'S PATENT FLAX TUBING (1 in. to 3 inches in diameter) will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe. Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

INCHES IN DIAMETER AND PRICE PER YARD.—¾, 11d.; 1, 1s. 1d.; 1¼, 1s. 3d.; 1½, 1s. 5d.; 1¾, 1s. 7d.; 2, 1s. 9d.; 2¼, 2s.; 2½, 2s. 3d.; 2¾, 2s. 6d.; 3, 2s. 9d.

Testimonial from Mr. Wright, Lancaster.—I beg to inform you that I yesterday tested your piece of 2½ inch Patent Flax Tubing, connected with the Lancaster Waterworks, in the presence of the Mayor, Mr. Rawlinson, Government Inspector, Professor Owen, &c. The column of water at which the tubing was tried was equal to 340 feet in height, or about 150 lbs. on the square inch, and I have pleasure in stating that the hose sustained this pressure most admirably.

Testimonial of Captain Martin, of the Great Britain Steam Ship.—I have much pleasure in being able to tell you that your hose, supplied to the Great Britain and other ships, is well worth the attention of shipowners. It gives us great satisfaction.

Testimonial from Fairbairn & Co., of Leeds.—We have tested your hose, 2½ inch in diameter, with the pressure of the Leeds Waterworks, and found it highly satisfactory.

WARNER'S SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)

Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3l. 3s.

Manufactured by
JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1	holds	10	gallons,	throws	30	feet high ...	£4 10
No. 2	„	15	„	„	45	„ ...	5 10
No. 3	„	28	„	„	45	„ ...	6 18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10	holds	8	gallons,	throws	25	feet high ...	£2 15
No. 13	„	12	„	„	30	„ ...	3 5
No. 11	„	16	„	„	40	„ ...	4 0
No. 12	„	24	„	„	45	„ ...	5 0
No. 14	„	30	„	„	45	„ ...	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14s. 3d.; No. 2, do., diameter of barrel, 1⅜ inch, 12s.; No. 3, do., diameter of barrel, 1⅛ inch, 10s. 6d.

READ'S SYRINGE, with two roses and one jet, 19s.

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10s.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

FOR WATERING GARDENS.

HANCOCK'S IMPROVED VULCANISED INDIA-RUBBER HOSE AND TUBING is now manufactured especially for the above purpose; is of greater durability than any other description of Hose: is capable of resisting great pressure, and made suitable for attaching to the mains of water-works, or to tanks of high elevations.

WATERING HOSE fitted up with the necessary *brass jointed stop-cocks, branches,* and *spreaders complete.*

VULCANISED INDIA-RUBBER SUCTION PIPES, made any length or size for Pumps or Garden Engines.

VULCANISED RUBBER WASHERS, and also in Sheet, any thickness, for all kinds of steam and water joints, or made any size or figure to order.

All communications and orders punctually attended to, addressed to the Manufactory, JAS. LYNE HANCOCK, Goswell Road, London.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, CHELSEA. Printed Price Lists sent on application.

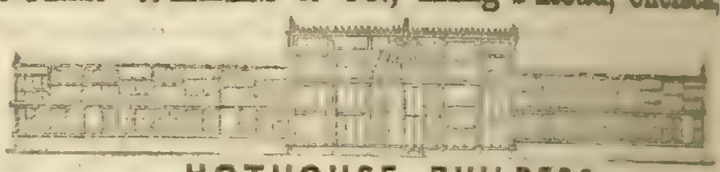
HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.
KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

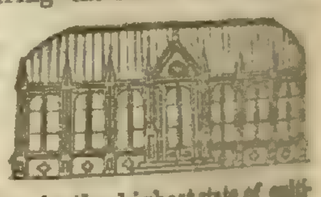


HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.

The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3s. 8d. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings: also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES, consisting of MATTING, MATS, MATTRESSES, BRUSHES, NETTING, HORSE-HAIR, and BRISTLE SUBSTITUTE, are distinguished for superiority and excellency of workmanship, combined with moderate prices. Prize Medal both in England and America at the Exhibition of all Nations.

T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1d. per square yard; 200 yards, 14s.; 500 yards, 30s.; 1000 yards, 50s. Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

GALVANISED WIRE GAME NETTING.—7d. PER YARD, 2 FEET WIDE.

			Galvanised.	Japanned iron.
2-inch mesh, light, 24 inches wide		...	7d. per yd.	5d. per yd.
2-inch	„ strong	„ ...	9 „	6½ „
2-inch	„ extra strong	„ ...	12 „	9 „
1⅝-inch	„ light	„ ...	8 „	6 „
1⅝-inch	„ strong	„ ...	10 „	8 „
1⅝-inch	„ extra strong	„ ...	14 „	11 „

All the above can be made any width at proportionate prices. If the upper half is a coarse mesh, it will reduce the prices one-fourth. Galvanised Sparrow-proof Netting for Pheasantries, 3d. per square foot. Patterns forwarded post free.

Manufactured by BARNARD & BISHOP, Market Place, Norwich, and delivered free of expense in London, Peterborough, Hull, or Newcastle.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, the proprietors respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. Jenkins & Key, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

HAY-MAKING MACHINES.—The ROYAL AGRICULTURAL SOCIETY'S PRIZE MACHINES are supplied by WM. DRAY & Co., Swan Lane, Upper Thames Street, London.

INGLIS AND CHISHOLM, Charles Street, Garratt, Manchester, make STEAM ENGINES for Agricultural and other purposes of the best quality at a reasonable price.—Address Inglis & Chisholm, Charles Street, Garratt, Manchester.

TO LAND AGENTS, STEWARDS, GARDENERS, ETC.

MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT is the best and cheapest preservative of Park Fencing, Barns, Out-houses, and all outside Wood and Iron Work. Sold ready for use, price 17*s.* 6*d.* per cwt. Allowance on large orders. Used largely now and for many years past by the West India Dock Company for Fencing, Lockgates, Barges, &c.
Manufactory: Kennington Lane, Lambeth.

HOW TO KILL RATS, MICE, AND MOLES BY HUNDREDS.—A Method will be forwarded with instructions for 30 postage stamps, which will destroy the above vermin quickly and without trouble. 1000 acres may be cleared for a few shillings.
GILBERT DYSON, Hoo, Rochester.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

NO CHARGE FOR STAMPING at LOCKWOOD'S, 75, New Bond Street. Good cream-laid Note-paper, five quires for 9*d.*; Thick ditto, five quires, 1*s.*; Albert and Queen's sizes, five quires for 6*d.*, 9*d.*, and 1*s.*; Note-paper made from Straw, 2*s.* 6*d.* per ream; Envelopes, 4*d.* to 1*s.* 6*d.* per hundred; Foolscap paper, 7*s.* 6*d.* per ream; Copybooks 2*s.* 6*d.* per dozen. Card Plate engraved, 2*s.* 6*d.*; 100 Cards printed, 2*s.* 6*d.* Wedding orders promptly executed. A large variety of Writing and Dressing Cases, Envelope Boxes, Blotting Books, Inkstands.—Copy address, LOCKWOOD'S, 75, New Bond Street. Country orders for 20*s.* sent carriage free. LOCKWOOD'S celebrated Nugget (Gilt) Pen, 1 doz. post free for 13 stamps.

CHILDREN'S BEDSTEADS AND BEDDING.—HEAL AND SON'S Stock of Children's Cots, Cribs, and Bedsteads contains every Design and Size that is manufactured, both in Wood and Iron, which, together with their large assortment of every other description of Bedstead, will be found worthy of inspection. They also beg to call attention to their Show of BEDROOM FURNITURE, of which their New Warerooms enable them to keep such an assortment that Customers may select all the articles for the complete furnishing of a Bedroom.
An ILLUSTRATED CATALOGUE OF BEDSTEADS, containing upwards of 100 different Designs, sent free by post.
HEAL & SON, Bedstead and Bedding, and Bedroom Furniture Manufacturers, 196, Tottenham Court Road, London.

FENDERS, STOVES, AND FIRE-IRONS.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW ROOMS, 39, Oxford Street (corner of Newman Street), Nos. 1, 2, and 3, Newman Street, and 4 and 5, Perry's Place. They are the largest in the world, and contain such an assortment of FENDERS, STOVES, RANGES, FIRE-IRONS, and GENERAL IRONMONGERY as cannot be approached elsewhere, either for variety, novelty, beauty of design or exquisiteness of workmanship. Bright Stoves, with bronzed ornaments and two sets of bars, 2*l.* 14*s.* to 5*l.* 10*s.*; ditto, with ormolu ornaments and two sets of bars, 5*l.* 10*s.* to 12*l.* 12*s.*; Bronzed Fenders complete, with standards, from 7*s.* to 3*l.*; Steel Fenders from 2*l.* 15*s.* to 6*l.*; ditto, with rich ormolu ornaments, from 2*l.* 15*s.* to 7*l.* 7*s.*; Fire-irons from 1*s.* 9*d.* the set to 4*l.* 4*s.* Sylvester and all other Patent Stoves, with radiating hearth plates. All which he is enabled to sell at these very reduced charges,
1st.—From the frequency and extent of his purchases; and,
2dly.—From those purchases being made exclusively for cash.

BATHS AND TOILETTE WARE.—WILLIAM S. BURTON has ONE LARGE SHOW ROOM devoted exclusively to the DISPLAY of BATHS and TOILETTE WARE. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country. Portable Showers, 7*s.* 6*d.*; Pillar Showers, 3*l.* to 5*l.*; Nursery, 15*s.* to 32*s.*; Sponging, 15*s.* to 32*s.*; Hip, 24*s.* to 31*s.* 6*d.* A large assortment of Gas Furnace, Hot and Cold Plunge, Vapour, and Camp Shower Baths. Toilette Ware in great variety, from 15*s.* 6*d.* to 45*s.* the Set of Three.

THE BEST SHOW OF IRON BEDSTEADS in the Kingdom is WILLIAM S. BURTON'S.—He has two Very Large Rooms, devoted to the exclusive show of Iron and Brass Bedsteads and Children's Cots, with appropriate Bedding and Mattresses. Common Iron Bedsteads, 18*s.*; Portable Folding Bedsteads from 12*s.* 6*d.*; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17*s.* 6*d.*; and Cots from 20*s.* each; handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2*l.* 13*s.* 6*d.* to 15*l.* 15*s.*

PAPIER MACHE AND IRON TEA-TRAYS.—An assortment of Tea Trays and Waiters wholly unprecedented, whether as to extent, variety, or novelty.

New oval Papier Maché Trays, per set of three	from 20*s.* to 10 guineas.
Ditto, Iron ditto	from 13*s.* to 4 guineas.
Convex shape, ditto.	from 7*s.* 6*d.*

Round and Gothic Waiters, Cake and Bread Baskets equally low.
WILLIAM S. BURTON has SIXTEEN LARGE SHOW ROOMS, all communicating, exclusive of the Shop, devoted solely to the show of GENERAL FURNISHING IRONMONGERY (including Cutlery, Nickel Silver, Plated and Japanned Wares, Iron and Brass Bedsteads and Bedding), so arranged and classified that purchasers may easily and at once make their selections. Catalogues, with engravings, sent (per post) free. The money returned for every article not approved of.
No. 39, Oxford Street (corner of Newman Street); 1, 2, and 3, Newman Street; and 4 & 5, Perry's Place.

TO PARENTS AND GUARDIANS.—A widow lady and her daughter, residing in the immediate vicinity of the Hyde Park College, Westbourne Terrace, receive young ladies under their charge whose friends may be desirous of giving them the advantage of attending the college. The highest references given.—Address ADAH, Mr. Bicknell, Chemist, Ebury Street, Eaton Square, London.

SISAL CIGARS, SISAL CIGARS, SISAL CIGARS!

GOODRICH'S CIGAR, TOBACCO, AND SNUFF STORES (Established 1780), 416, Oxford Street, nearly opposite Hanway Street. A Box, containing 14 fine Sisal CIGARS for 1*s.* 9*d.*; post free for 27 stamps. None are genuine unless signed "H. N. GOODRICH."

DEVONSHIRE CYDER.—A three dozen case (large bottles), of the very best DEVONSHIRE CHAMPAGNE CYDER, will be forwarded to any address on receipt of a Post-office order for 21*s.*, payable to JOHN E. RENDLE, Martin Street, Octagon, Plymouth. Case and bottles, value 9*s.*, included.

GLENFIELD PATENT STARCH, USED IN THE ROYAL LAUNDRY, AND PRONOUNCED BY HER MAJESTY'S LAUNDRESS TO BE THE FINEST STARCH SHE EVER USED.
Sold by all Chandlers, Grocers, &c. &c.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work-boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed. Superior Hair and other Toilet Brushes.

SUMMER COATS, CAPES, AND BOYS' CLOTHES, AT BERDOE'S, 96, New Bond Street, and 69, Cornhill, one of the largest stocks in London. Coats, 20*s.* to 25*s.*; the UNIVERSAL CAPE, 20*s.*; Ventilating Waterproof do., 30*s.* (lined). The utility and extreme cheapness of this respectable garment will, on inspection, render commendation needless. First-class Boy's Suit, 11*d.* per inch, according to height.

METCALFE, BINGLEY, AND CO.'S OATMEAL and CAMPHOR SOAP, in tablets (registered Nov. 3, 1854). Price 6*d.* each. This soap will be found the purest and most perfect winter soap ever introduced to the public. It preserves the hands from chapping, and renders the skin soft and agreeable.—Sold wholesale and retail by the inventors and sole manufacturers, METCALFE, BINGLEY, & Co., Brushmakers and Perfumers to H.R.H. Prince Albert, 130B and 131, Oxford Street.

CAUTION.—To prevent fraud, each tablet bears the registered mark and the names and address of the inventors, as above.

METCALFE'S ALKALINE TOOTH POWDER, 2*s.* per box.—The above may be obtained of most respectable Chemists, Perfumers, &c.

SOUND AND WHITE TEETH are not only indispensably requisite to a pleasing exterior in both sexes, but they are peculiarly appreciated through life as a blessing highly conducive to the purposes of health and longevity. Among the various preparations offered for the purpose,

ROWLAND'S ODONTO, or PEARL DENTIFRICE,

stands unrivalled in its capability of embellishing, purifying, and preserving the teeth to the latest period of life. Prepared from Oriental herbs with unusual care, transmitted to this country at great expense, this unique compound will be found to eradicate all tartar and concretions, and impart a pearl-like whiteness to the enamelled surface, remove spots of incipient decay, render the gums firm and red, fix the teeth firmly in their sockets and, from its aromatic influence impart sweetness and purity to the breath. Price 2*s.* 9*d.* per box. Caution.—The words "Rowlands' Odonto" are on the label, and "A. ROWLAND & SONS, 20, Hatton Garden," engraved on the Government stamp affixed on each box. Sold by them, and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.?—No other compound for the Hair has maintained such an enduring celebrity as EMILY DEAN'S CRINILENE. It is guaranteed to produce Whiskers, Moustachios, Eyebrows, &c., in a few weeks, and restore the Hair in Baldness, from whatever cause, strengthen it when weak, prevent its falling off, and effectually check Greyness in all its stages.—Price 2*s.* per package (elegantly perfumed); sent post free, on receipt of 24 penny postage stamps, by Miss DEAN, 37 A, Manchester Street, Gray's Inn Road, London. Sold by every Chemist in the world.—"In one fortnight it produced a beautiful set of moustachios." H. ADAMS.—"It has prevented my hair falling off." J. HICKSON.—"It has quite checked the greyness that was coming on." Mrs. ELDER.
Beware of imitations under closely similar names.

RUPTURES EFFECTUALLY CURED WITHOUT A TRUSS.—All sufferers from this alarming complaint are earnestly invited to consult or write to Dr. LESLIE, as he guarantees them relief in every case. His remedy has been successful in curing thousands of persons during the last twelve years, and is applicable to every kind of single and double rupture, however bad or long standing, in male or female of any age, causing no confinement or inconvenience in its use whatever. Sent post free to any part of the world, with full instructions for use, on receipt of 7*s.* 6*d.* in postage stamps, or post-office order, payable at the General Post-office, to Dr. HERBERT LESLIE, 37A, Manchester Street, Gray's Inn Road, London. At home daily (except Sunday) from 11 till 4 o'clock. A Pamphlet of Testimonials, cases, &c., sent post free on receipt of one postage stamp.

MIRACULOUS MEDICINE.

DR. ARNOT'S DIGESTIVE APERIENT PILLS strike at once at the root of disease, throw off the morbific agent, create a new and sanatory condition of the Blood and Secretions, strengthen the Constitution, and speedily restore the patient to Health. A trial will prove the extraordinary curative properties of this medicine.—In boxes at 1*s.* 1½*d.* Order of all Chemists. Depôt, 50, Rathbone Place, London.

THE COMING PILL.—"THE RIGHT PILL FOR EVERY COMPLAINT!"—PAGE WOODCOCK'S WIND PILLS for Wind in the Stomach, Indigestion, Biliousness, Liver Complaints, and all diseases arising from a disordered state of the Stomach and Bowels, will beat the World for efficacy! Try them, and you will say you have got the right Pill this time.—Sold by all respectable Medicine Vendors everywhere, at 1*s.* 1½*d.*, 2*s.* 9*d.*, and 4*s.* 6*d.* If difficulty occur in remote places, send stamps to PAGE D. WOODCOCK, Lincoln, and you will have them by return of Post.

HOLLOWAY'S OINTMENT AND PILLS ASTOUNDING REMEDIES FOR BAD LEGS.—ROBERT DICKIE, of Broad Street, Alloa, informed Mr. Cummings, Druggist, of the same town that about 18 years ago he injured his ankle while at work in a coal pit, which afterwards formed into a running ulcer; to cure it he tried innumerable remedies but without effect. He was in the Royal Infirmary about three years ago, there they said amputation was the only chance of saving his life. However, after all Holloway's Ointment and Pills have been the sole means of healing the wound and rendering his leg perfectly sound.—Sold by all Medicine Vendors and at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York.

TO BE LET, for a term of four or seven years, a HOUSE and GROUNDS, containing a Drawing-room, Dining-room, four Bed-rooms, with Kitchen and other Offices; also Stabling, Coach-house, Yards, &c., and 40 acres of rich PASTURE LAND, beautifully situate one mile from the village of Elstree, four from Harrow Station, and three from Walford.—Apply to Mr. FINNEY, West Surrey, Bank, Guildford.

ST. JOHN'S WOOD.—TO NURSERYMEN & FLORISTS.

TO BE LET, OR SOLD, with immediate Possession, situated in Acacia Road, close to the Regent's Park, a most convenient NURSERY, covering an acre of ground, with Greenhouses, Potting House, Forcing House, Frames, and excellent Stock. Eligibly situated for business, being surrounded with villas. The House consists of Dining and large Drawing-room, six Bedrooms, Bath Room fitted up, with usual domestic offices. A three Stall Stable and Coach House. Rent, 110*l.* Premium, which includes the whole of Glass Frames and Stock, 150*l.*—Apply on the Premises; or of Mr. YEO, 23, Adelaide Road North, Finchley Road, St. John's Wood.

NURSERY AND SEED BUSINESS.

TO BE SOLD, or LET for a term of years, a Nursery, Seed and Plant Business, which has been successfully carried on for the last 35 years in a rapidly rising and most fashionable watering-place in the south of England. The Nursery grounds are advantageously situated in the midst of the town, within half a mile of the Railway Station, and close to its principal entrance is the large Seed and Show Shop. The Grounds comprise about eight acres of good land, and four large Glass Structures, heated with hot water, with several pits and Frames, the whole being well furnished with a Young and Saleable Stock. Any person wishing to carry on the above business will find this well worthy of attention. Satisfactory reasons will be given for the retirement of the present proprietor.—For further information apply to Messrs. E. G. HENDERSON & SON, Wellington Road, St. John's Wood, London.

SHORES OF THE MEDITERRANEAN.

TO BE SOLD, the CHATEAU ST. GEORGES, at CANNES, South of France, one of the most delightful MARINE RESIDENCES IN EUROPE, with or without its Elegant and Appropriate Furniture, all in perfect order, and fit for the immediate reception of any Nobleman's or Gentleman's Family. The Chateau is in the Palladian style of architecture, fitted up with every English comfort, and in a beautifully warm and dry climate, where Sea-bathing may be continued all the year with the greatest convenience. The Gardens on the south side of the Chateau slope down to the Sea, with doors open on to the beach. On the north side the property is bounded by the grande route from PARIS to NICE, from which latter town it is distant about 20 miles south-west. The Chateau is only a few minutes' walk from the seat of Lord Brougham, and about one mile west from the town of Cannes, from which Port there are three Steam-boats weekly to and from Marseilles, and four Diligences to and fro daily between Paris, Marseilles, and Nice.

The Chateau is on an elevated terrace, rising up from the Orange Garden, and within 200 yards of the sea-shore. It was originally built by the late Lieut.-Gen. Sir Herbert Taylor, but has since received considerable additions and embellishments. The terrace floor, occupying the south front, consists of splendid double Drawing-rooms, Library, Dining and Breakfast Rooms, all *en suite*, and opening on to a Doric colonnade of hewn stone, and descending by steps to a beautiful gravelled terrace 250 feet long, facing the "Blue Mediterranean." From the Drawing-room floor a splendid marble stair-case leads to a first and second floor of elegant Bed-rooms, of which there are on the two floors nine to the south front, two to the east, and six to the north, besides six servants' rooms in the attics. Excellent Porter's Lodge at the entrance gate; Poultry-houses, six-stall Stables, large Coach-houses, and splendid Flower and Kitchen Gardens, and a great variety of shady and ornamental walks amongst the natural woods of Cork Trees, Fir, Myrtle, Arbutus, and Maritime Stone Pines; and amongst the granitic rocks are growing the Cactus, Flowering Aloe, and other tropical plants in their natural state—the great variety of level and cultivation giving the idea of a much larger extent of ground. The whole is enclosed with walls, but not obstructing the fine view of the magnificent scenery around, and forms a parallelogram containing about 30,200 square yards, or about seven English acres. The price of the whole is 7500*l.* without Furniture, which may also be had at a valuation, and immediate possession if desired.

For viewing plans and further particulars, apply to Messrs. PRICHARD & COLLETTE, 57, Lincoln's Inn Fields, London, Solicitors.

TO NURSERYMEN AND GARDENERS.

TO BE SOLD, with immediate possession, a long established NURSERY and SEED BUSINESS, in a good Market Town in the South of England, where an excellent trade has been done by the present proprietor for the last 30 years, who now wishes to retire from the business, for which satisfactory reasons will be given.—Address M. M., care of Mr. Poynter, Messrs. Henderson's, Pine-apple Place, Edgeware Road, London.

TO BE SOLD, the LEASE of a very compact NURSERY and GRAPE GROWING BUSINESS near London. Any person about entering into business will find this a genuine concern. The sum required to take it is 250*l.*—For further particulars apply to Mr. WARD, Stationer, &c., Camberwell, Surrey.

PUTNEY.

TO COWKEEPERS, DAIRYMEN, AND OTHERS.

TO BE SOLD, in one or more Lots, about 12 Acres of excellent SPRING TARES ready for cutting. For particulars apply to Mr. J. WILSON, 2, Field Court, Gray's Inn. A reasonable time will be allowed for clearing.

TO NURSERYMEN.

TO BE SOLD, by Private Contract, either altogether or in Lots to suit Purchasers, the long established and flourishing NURSERY PREMISES of the late Mr. George Clarkson, Fulford Road, York, stocked with Forest and Fruit Trees, Shrubs, &c.; and having a substantial Dwelling-House, Shops, and Greenhouse, and other requisite Outbuildings attached—Plans and Particulars may be had on application to Mr. LUKE THOMPSON, Solicitor, Judge's Court, York.

Sales by Auction.

ORCHIDS.

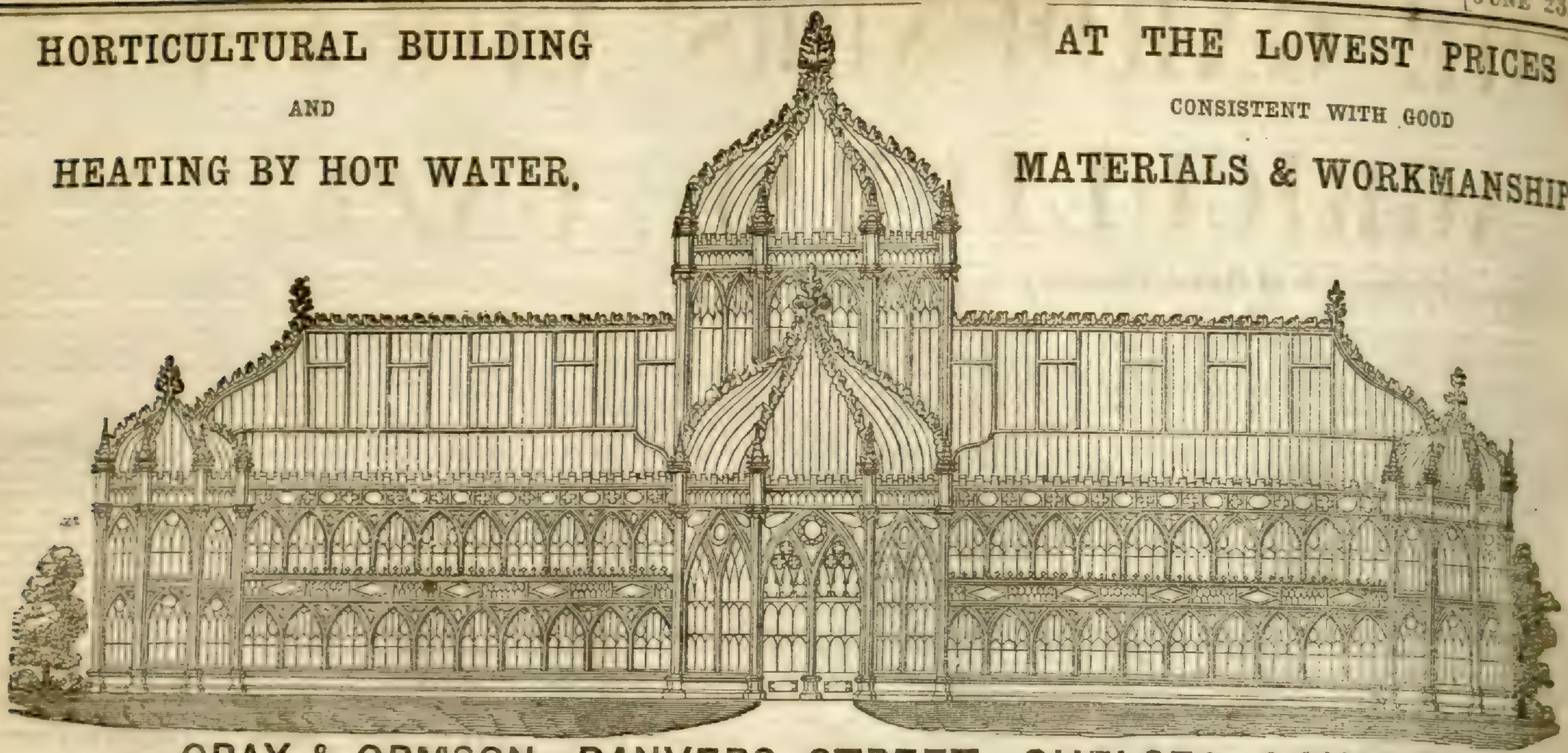
MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 26th June, at 12 for 1 o'clock, a collection of ORCHIDS, established healthy plants of Vanda, Ærides, Cattleyas, Dendrobiums, Oncidiums, Stanhopeas, &c., &c., the private collection of a gentleman.—May be viewed on the morning of sale and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

SCARLET GERANIUM.

MR. KIRKE will sell by Auction, on the premises, opposite Chelsea Park, Fulham Road, on WEDNESDAY, June 27th, at 12 for 1 o'clock, by order of Mr. SHEARMAN, 2000 SHEARMAN'S SEEDLING SCARLET GERANIUMS, being the largest and most brilliant colour ever produced. Also Roses of sorts, Dahlias, Pinks, Carnations, Calceolarias, Lupins, &c., the whole in pots.—May be viewed (by catalogue, 6*d.* each). Catalogues had on the premises, and at the offices of Mr. KIRKE, 19, Brompton Row, Brompton.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.

AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.

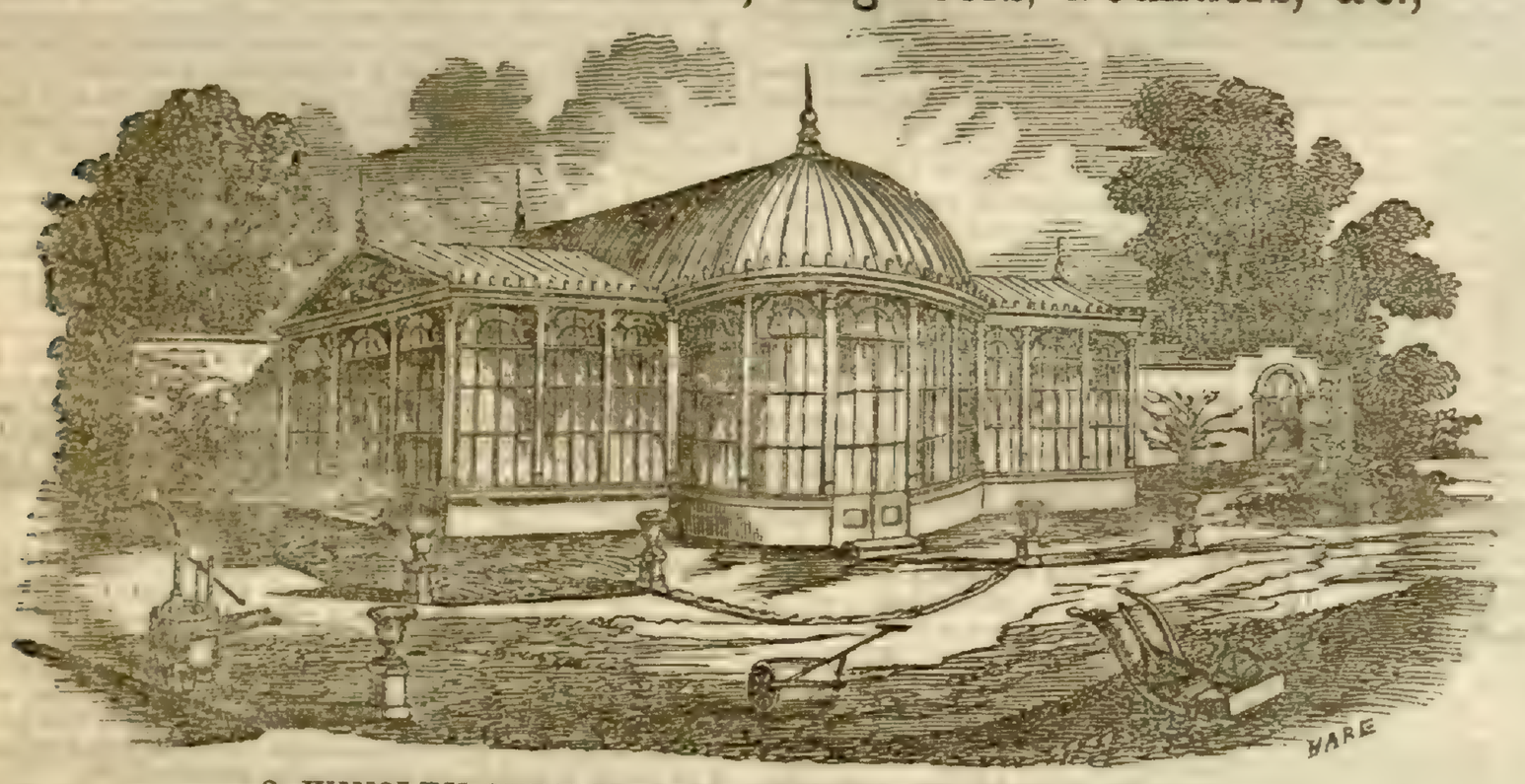


GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

COTTAM AND HALLEN, Engineers, Founders, &c.,



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

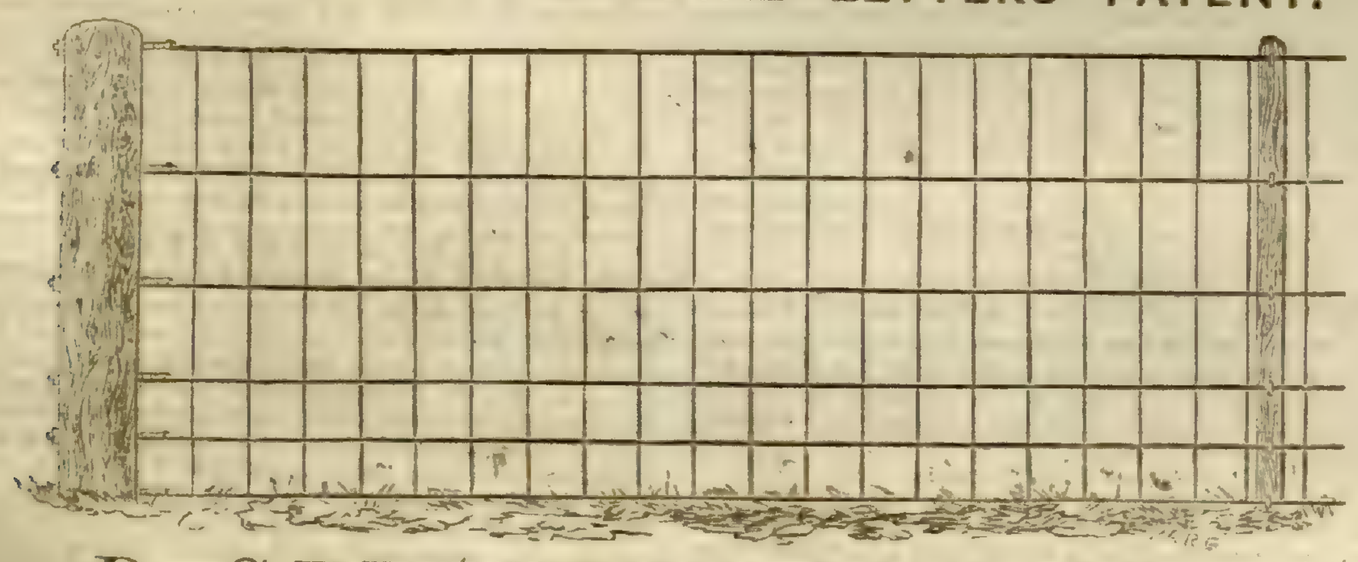
IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

BY HER MAJESTY'S ROYAL LETTERS PATENT.



B. GREENING AND CO.

WILL exhibit their Patent Wire Fencing, combined Washing Machine Mangle and Churn, Premium Wrought Iron Gates, and specimens of their superior Manufactures in Iron and Wire generally, at the following Agricultural Shows in 1855:—Royal Agricultural Society, at Carlisle, week commencing July 23, stand No. 6; Yorkshire, at Malton, 1st and 2d of August; North Lincolnshire, at Boston, August 23; Cheshire Agricultural Society; Manchester and Liverpool, St. Helen's September 6; Bury and Radcliffe, at Bury, about September 10. Others not yet decided upon.

In the meantime, Catalogues, Pattern Sheets, and Price Lists may be obtained (enclosing Four Stamps for postage) from

B. GREENING & CO., Victoria Iron Works, 1 and 3, Church Gates, Manchester.

COWS.

HARVEY'S CELEBRATED COW DRINKS, 1s. each, have been used with great success. Plain directions are given with each Drink for the treatment of most diseases incidental to Cows, for which they will be found a safe and effectual remedy. One Drink given at the commencement of the Tick, or Feet and Mouth Distemper, will perfectly eradicate it in a few days.—Compounded by R. HARVEY, Veterinary Surgeon, Macclesfield, Cheshire. Sold by all Medicine Vendors Wholesale Agents, BARCLAY & SONS, and MARSDEN & SONS, London.

THE COMFORT OF A FIXED WATER-CLOSET FOR £1.—Places in gardens converted into comfortable Water-closets by the PATENT HERMETICALLY SEALED PAN, with its self-acting valve, entirely preventing the return of cold air or effluvia. Any carpenter can fix it in two hours. Price 1l. Hermetically-sealed Inodorous Chamber Commodes, 1l. 2s., 2l. 4s., and 3l.; also Improved Portable Water-closets, with pump, cistern, and self-acting valve. A Prospectus, with Engravings, forwarded by enclosing two postage stamps.

At FYFE & Co.'s Sanatorium, 46, Leicester Square, London.

COTTAM AND HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.

Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

Hand Glass Frames, Cast and Wrought Iron Flower Stakes, Garden Arches, &c.

Strong Iron Hurdles, and best Wire for Strained Wire Fencing.

Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom.

Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

BEE HIVES.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, glasses, thermometer, &c., price 20s., securely packed for the country.

This unique hive has met with universal commendation, and may be vented with safety, humanity, and profit, by the most timid; its arrangements are so perfect, that the honey may be taken at any time of the gathering season without at all injuring the bees.

Early applications, addressed to GEO. NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention. Their newly arranged Catalogue of other improved Beehives, with Drawings and Prices, sent on receipt of two stamps.

Agents:—Manchester, HALL & WILSON, 50, King Street; Liverpool, JAMES CUTHBERT, 12, Clayton Square; Chester, F. & A. DICKSON & SONS, 106, Eastgate Street; Glasgow, ANDREW & M'ASLAN, 186, Trongate Street; Dublin, J. EDMUNDSON & Co., 61, Dame Street.

PRIZE MEDAL—1851.

AT A VERY ECONOMICAL RATE.

SAMUEL CUNDY, MASON and BUILDER, PIMLICO MARBLE and STONE WORKS, Belgrave Wharf, Lower Belgrave Place, Pimlico, London.

Marble Chimney-pieces manufactured by improved machinery. The public are invited to view the stock, unequalled for quality and price. A good Marble Chimney-piece for 40s. Marble Work in all its branches at a remarkably cheap rate for Halls, Dairies, Larders, &c. Circulars sent on application.

N.B. The "Royal Blue" Omnibuses pass the Works every ten minutes from the Bank.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. [illegible] Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, June 23, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 26.—1855.] SATURDAY, JUNE 30. { Price Fivepence. Stamped Edition, 6d.

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HORTICULTURAL SOCIETY OF LONDON.—NOTICE IS HEREBY GIVEN, that the NEXT EXHIBITION of FLOWERS and FRUIT, in the SOCIETY'S GARDEN, will take place on WEDNESDAY, July 11, at 2 P.M.

Tickets, price 5s. each, can be procured at this Office, upon presenting the order of a Fellow; or on the day of the meeting, at Turnham Green, price 7s. 6d. each.—21, Regent Street, London.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The LAST EXHIBITION this season of PLANTS, FLOWERS, and FRUIT will take place on WEDNESDAY, July 4th. Tickets to be obtained at the Gardens only, by orders from Fellows or Members of the Society. Price 5s., or on the day of Exhibition, 7s. 6d. each.

N.B. By accident some of the tickets issued are wrongly dated July 5th instead of Wednesday, July 4th. The holders of such Tickets are requested to correct the date.

ROYAL SOUTH LONDON FLORICULTURAL SOCIETY, under the Patronage of her most gracious Majesty the QUEEN.—The Third Exhibition of the season will take place at the Royal Cremorne Gardens, Chelsea, on THURSDAY, July 5. Open to all Exhibitors. Prizes will be awarded for the following productions, viz.:—Collections of Miscellaneous Plants, Cape Heaths, Orchideous Plants, Pelargoniums, Variegated Plants, Fuchsias, Roses, Pinks, Verbenas, Cut Flowers, and Fruit; also numerous extra Prizes offered by members. Lists of Prizes and the Rules of the Exhibition may be obtained of Mr. SIMPSON, Royal Cremorne Gardens, Chelsea; and of the Secretary, Ebenezer House, Peckham, JOHN TAYLOR NEVILLE.

SLEAFORD FLORAL AND HORTICULTURAL SOCIETY.—At the Annual Exhibition of this Society at Sleaford, on THURSDAY, the 26th of July next, an Extra Prize of Five Guineas, open to all England, will be awarded for the best collection of Twelve Stove and Greenhouse Plants, in addition to the usual Members and Cottagers' Prizes. The rules of the Society, with Schedules of Prizes, may be obtained on application to Mr. WARWICK, the Treasurer; or to Mr. PEAKE, Honorary Secretary.—Sleaford, June 30.

EXHIBITION OF AMERICAN PLANTS.
KNAP HILL NURSERY, WOKING, SURREY.

WATERER AND GODFREY beg to announce that the AMERICAN PLANTS at this Nursery are now in great beauty, and may be seen daily gratis. The Nursery is readily reached by Railway to the Woking Station, where capital conveyances may always be obtained.

GREAT EXHIBITION OF AMERICAN PLANTS.

JOHN WATERER begs to announce that his unrivalled collection of Hardy, Scarlet, and other RHODODENDRONS, is now on view at the Royal Botanic Gardens, Regent's Park, London. Orders of admission are granted gratuitously by Fellows of the Society. The Plants at the Nursery are now in full bloom—The American Nursery, Bagshot, Surrey, June 30.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.
*** Plans and Estimates furnished.

DAVID FERGUSON, LANDSCAPE GARDENER, GARDEN ARCHITECT, and CONTRACTING PLANTER, Stowe, Buckingham. Now is the time to prepare for planting in September, October, and November.

JOHN HARRISON, NURSERYMAN, SEEDSMAN, FLORIST, LANDSCAPE GARDENER, &c.
Plans and Estimates furnished; Experienced Gardeners recommended; also several Young Men in the Nursery waiting for Under Gardeners' Situations.—Darlington, June 30.

GEORGE TAYLOR, JUN.,
CHOICE FRUIT and VEGETABLE SALESMAN,
St. John's Market,
Liverpool.
CONTRACTOR and PURCHASER of CHOICE GARDEN PRODUCE.
SALESMAN on COMMISSION.
Terms, Cash.
Forward as above.

TO BE SOLD, ARAUCARIA BRAZILIANA, standing 9 feet high from the ground, in an earthen vase. The plant is in vigorous growth, and is sold because it is getting too high for the greenhouse.—Apply to Mr. MASTERS, Exotic Nursery, Canterbury.

AZALEAS AND ERICAS.

W. J. EPPS has much pleasure in offering the following fine, bushy, well-grown plants, and of the choicest and best varieties, in large 48 and 32-size pots.
AZALEAS 18s. per dozen; 5l. per 100.
ERICAS 12s. and 18s. per dozen; 4l. and 5l. per 100.
These will make very pretty specimens for the ensuing season; all orders to be accompanied with a remittance from unknown correspondents.—Maidstone, June 30.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS should be sown immediately after the hay is carried.

These Seeds consist of PERENNIAL CLOVERS *and* FINE GRASSES *for improving the bottom.* Price 9d. per lb., or 80s. per CWT. Eight or 12 lbs. per acre will be sufficient, and will produce a great increase in the produce.—SUTTON & SONS, Reading, Berks.

THE BEST SUBSTITUTES FOR SWEDES.

SUTTON'S PURPLE-TOP YELLOW HYBRID, SUTTON'S GREEN-TOP YELLOW HYBRID AND ORANGE JELLY TURNIP.—Prices, &c., will be forwarded, Post-free, on application (stating quantity required), by SUTTON & SONS, Seed Growers, Reading.

THE QUICKEST TURNIP KNOWN.

SUTTON'S EARLY SIX-WEEKS TURNIP.—*Good New Seed 1s. per lb., or 6s. p. gallon, 45s. per bush.* Carriage free except small parcels.
SUTTON & SONS, SEED GROWERS, Reading.

TURNIP SEED OF PURE SELECTED STOCKS.
FOR

BASS AND BROWN'S Advertisement of present prices, see *Gardeners' Chronicle* of April 28th, and May 5th and 12th. Reduced prices for large quantities.

ERRATA.—For "Laing's Purple-top Swedes, 1s. per lb.," *read* "1s. 9d. per lb." the same price of the other three Swedes.

TO THE TRADE.—Prices will be supplied on application.
Seed Establishment, Sudbury, Suffolk.

THE BEST EARLY CABBAGE GROWN.

COTTRELL'S EARLY CHAMPION may be sown any season. Sold in sealed packets, 1s. per oz. The usual allowance to the Trade.—To be had only of DAWE, COTTRELL, & BENHAM (Successors to F. Warner), Wholesale Seedsmen, 3, Lawrence Pountney Lane, and 36, Moorgate Street (late 28, Cornhill). Established 1720.

ENGLISH GROWN RAPE, OR COLE SEED.

CHARLES SHARPE AND CO. beg to acquaint the Trade that they can supply any quantity of the above; prices and samples forwarded on application.
Nursery and Seed Establishment, Sleaford, June 30.

CHRYSANTHEMUMS.

CHANDLER AND SONS, NURSERYMEN, Wandsworth Road, Vauxhall, are now sending out good plants of the best CHRYSANTHEMUMS, large and small varieties, from 9s. to 12s. per dozen. A Catalogue may be had on application.

JOSEPH NORRIS, Osterley Park, Hounslow, Middlesex, having an immense Stock of PANSIES, including all the finest and newest in cultivation, offers them at 6s., 9s., and 12s. per dozen, package included, sent to any address on the receipt of a Post Office Order, payable at Hounslow.
The Trade supplied.

WHITE LISBON ONION SEED.—Large buyers can be supplied with White Lisbon Onion Seed in quantity.—Apply to Mr. HENRY CLARKE, Seed Merchant, 39, King Street, Covent Garden.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks at 5s.; 12 varieties, 2s. 6d.; and from good double sorts, 1s.

Superior Quilled German and French Asters, in 12 varieties, mixed, 1s. per packet; separate, 2s. Fine Quilled African Marigolds, 6d. per packet.—Saffron Walden Nurseries.

EMPEROR NAPOLEON—A NEW SCARLET GERANIUM.

JOHN BUTCHER is now sending out the above splendid GERANIUM (a Seedling raised by himself), being a very decided improvement upon the great favourite TOM THUMB; the habit is more compact, the trusses of Flowers very much larger, and for brilliancy of colour far superior, sending up the truss of Flower finely above the Foliage. Fine for Bedding or Vases. Was exhibited at the Royal Botanic Gardens, Regent's Park, London, June 13 (see *Gardeners' Chronicle* of June 16).—June 30.

HOLLYHOCK SEED.

A. PAUL AND SON have ready for immediate sowing a fine lot of HOLLYHOCK SEED saved from their choicest varieties which have obtained many of the leading prizes during the last three years:—

	s.	d.
1st selection, saved from 25 varieties, per packet ...	5	0
2d do. " 12 " " ...	2	6
Good Mixtures	1	0

Also, price 1s., AN HOUR WITH THE HOLLYHOCK.
N.B. Free by post, and payment received in postage stamps.
Nurseries, Cheshunt, Herts.

ROSES.

A. PAUL AND SON invite inspection of the Collection of ROSES at the Cheshunt Nurseries, which is just coming into Bloom, and will continue to offer new objects of interest from the present time till the end of October. The best means of reaching the Nurseries is by Eastern Counties Rail to Cheshunt or Waltham Stations.
Cheshunt Nurseries (13 miles N.E. of London), June 30.

CALCEOLARIA SEED.

R. PARKER has now ready for sending out Seed which he can recommend with the greatest confidence, it having been saved from flowers of the finest form and most beautiful markings, in packets at 1s. 6d. and 2s. 6d. each. Also choice CINERARIA seed saved from the finest named varieties, at 1s. 6d. and 2s. 6d. per packet. A remittance or reference to accompany all orders from unknown correspondents.
Paradise Nursery, Hornsey Road, London.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES, consisting of MATTING, MATS, MATTRESSES BRUSHES, NETTING, HORSE-HAIR, and BRISTLE SUBSTITUTE, are distinguished for superiority and excellency of workmanship, combined with moderate prices. Prize Medal both in England and America at the Exhibition of all Nations.
T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 12s. per ton, 1s. 6d. per bushel, or 16s. per ton, delivered to any of the London Wharfs or Railways, or within a circuit of five miles. Peat and Loam of various qualities. Sacks 2s. each.
KENNARD BROTHERS, Swan Place, Old Kent Road.

FOR WATERING GARDENS.

HANCOCK'S IMPROVED VULCANISED INDIA-RUBBER HOSE AND TUBING is now manufactured especially for the above purpose; is of greater flexibility than any other description of Hose; is capable of resisting great pressure, and made suitable for attaching to the mains of water-works, or to tanks of high elevations.

WATERING HOSE fitted up with the necessary *brass joints, stop-cocks, branches,* and *spreaders complete.*

VULCANISED INDIA-RUBBER SUCTION PIPES, made any length or size for Pumps or Garden Engines.

VULCANISED RUBBER WASHERS, and also in Sheet, any thickness, for all kinds of steam and water joints, or made any size or figure to order.

All communications and orders punctually attended to, addressed to the Manufactory, JAS. LYNE HANCOCK, Goswell Road, London.

TO LAND AGENTS, STEWARDS, GARDENERS, ETC.

MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT is the best and cheapest preservative of Park Fencing, Barns, Out-houses, and all outside Wood and Iron Work. Sold ready for use, price 17s. 6d. per cwt. Allowance on large orders. Used largely now and for many years past by the West India Dock Company for Fencing, Lockgates, Barges, &c.
Manufactory: Kennington Lane, Lambeth.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the nobility, gentry, and clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything as the kind hitherto brought before the public notice.

Lists of colours, prices, together with a copy of the testimonials, will be sent on application to WALTER CARSON & SON, 9, Great Winchester Street, Old Broad Street, Royal Exchange, London.

No Agents. All orders are particularly requested to be sent direct.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1d. per square yard; 200 yards, 14s.; 500 yards, 30s.; 1000 yards, 50s. Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

GARDEN NETS, FISHING NETS, AND SHEEP NETS, &c., made by machinery, and sold at very low prices. Worsted Wasp Net, well adapted for shading greenhouses, admitting air and excluding Bees; also for Protecting Blossom and the Ripe Fruit afterwards, 7d. per square yard, in various widths. Sheep Nets, 20s. per 50 yards, nearly 4 feet high. Double Walled Trammels, on the best construction, 3s. per yard run, 6 feet deep.—R. RICHARDSON, 21, Tonbridge Place, New Road, London.

EIGHT HOUSES ON WHEELS 12 feet long by 7 feet broad, and 8 feet high inside, suitable for Cottagers, Gamekeepers, Watchers, Shepherds, or Freehold Land Allotments. Price 15l. each, or 11l. without Wheels, Springs, and Axles.—R. RICHARDSON, 21, Tonbridge Place, New Road, London.

MARQUEES ON HIRE TO SUIT THE TIMES—50 feet by 30 feet, 3l.; 70 feet by 30 feet, 4l.; 100 feet by 30 feet, 5l. A large Round Tent, 60 feet diameter, with six swings, for gatherings of school children, 4l. On Sale, Umbrella Tents, 10 feet diameter, 4 feet to 12 feet, 3l. Wire-framed Garden Tents, 4l. Patrol Tents (weight 12 lbs.), 25s., packed in bag.—R. RICHARDSON, 21, Tonbridge Place, New Road, London.

N.B. Rickcloths, 30 feet by 30 feet, for 30 tons of hay, price 5l. 10s. each.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 6d. per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

GARDEN VASES, FOUNTAINS, ETC.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, begs respectfully to inform the nobility, gentry, and his patrons generally, that he has entered into arrangements with an eminent company in Scotland for the sale disposal in London of their highly ornamental and very durable Vases, Fountains, &c., samples of which may be seen at his grounds in the Garden Road, as above.

T. S. has much pleasure in being the first to introduce to the notice of the public a highly ornamental Vase, capable of resisting the most severe weather, and at little more than half the cost of any other possessing the same qualities; and he has no hesitation in stating that a more suitable Vase for the growth of plants cannot be manufactured.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash :—

SHEET SQUARES.
In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12s. 0d.
7 „ 5, — 7½ „ 5½ }	0 14 0
8 „ 6, — 8½ „ 6½ }	
9 „ 7, — 9½ „ 7½, 10 by 6 }	0 16 0
10 „ 7, 10 by 8 }	

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18s. per 100 feet. If cut to order not exceeding 40 inches long.
16 oz. from 2½d. to 3½d. | 21 oz. from 3½d. to 4½d.
26 oz. from 5½d. to 7½d.

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½d. per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	£1 17s. 6d.	per case of	50
5/16 „	2 1 3	„	60
⅜ „	1 17 6	„	60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21s. per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

CHEAP STRONG GLASS FOR HORTICULTURAL PURPOSES, in boxes of 100 feet, at 1d. per foot, boxes included. Plate, Sheet, Crown, and every description of Glass for glazing purposes cheaper than any other house in London.—Apply to B. Moss & Co., Leman Street, Whitechapel.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,
87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included. — Per 100 ft.

6	in. by 4	in. and 6	in. by 4½	in. ...	...	12s.	0d.
6½	„ 4½	„ 7	„ 5	...	...	12	6
7½	„ 5½	„ 8	„ 6	...	...	13	0
8½	„ 6½	„ 9	„ 7	...	...	13	6
9½	„ 7½	„ 10	„ 8	...	...	13	6
10½	„ 8½	„ 11	„ 9	...	...	14	0
12	„ 9	„ 13	„ 9	...	...	14	0
10	„ 10	„ 10½	„ 10½	...	...	14	0
11	„ 10	„ 11½	„ 10½	...	...	14	0
11	„ 11	„ 11½	„ 11½	...	...	14	0
12	„ 11	„ 12½	„ 11½	...	...	14	0
13	„ 11	„ 13½	„ 11½	...	...	14	0
13	„ 12	„ 13½	„ 12½	...	...	16	0
13½	„ 13½	„ 14½	„ 13½	...	...	16	0
15½	„ 13½	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10,	2d.	per foot.	
Ditto, not exceeding 1 foot ...	2½	„	
Ditto „ 2 feet ...	3½	„	

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.
Established more than 100 years.

WATER YOUR GARDENS WITH THE IMPROVED FLEXIBLE GUTTA PERCHA TUBING.

Half-inch, 4d. per foot, light; 4½d. per foot, strong; larger sizes in proportion, for manuring land, &c.

Brass-hand tubes, with rose, jet, and tap, from 4s. 6d. each.

Union Joints, 1s. 6d. each, fitted complete.

Instructions given to affix joints to Taps.

Garden Engines, of great power, 4l. 4s. each; Self-supplying do., 4l. 10s. each.

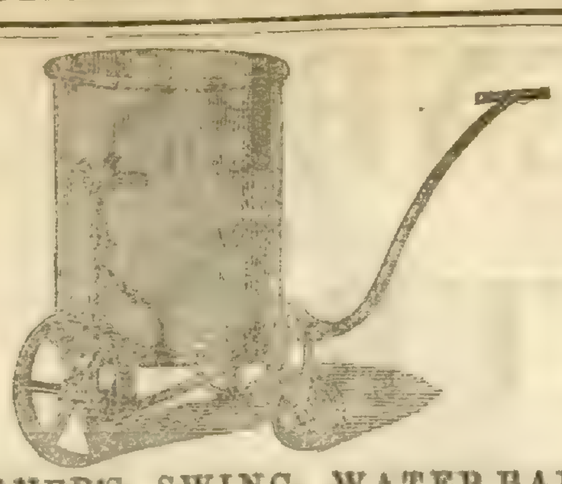
Post Office Orders payable at City Road Branch.

JAMES W. WATTS, Gutta Percha Factory, 27, City Road.

THE IMPROVED PATENT GARDEN, WATER AND ROLLING ENGINE may be seen in the Agricultural Department at the CRYSTAL PALACE, SYDENHAM.

The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet, and is so portable that any ordinary domestic may use it. It contains about 20 gallons. Price 5l. 10s.

May be had at J. DORR'S Manufactory, 17, Exmouth Street, Clerkenwell, London.



WARNER'S SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)

Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3l. 3s.

Manufactured by
JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds	10 gallons,	throws	30 feet	high	...	£4	10
No. 2 „	15 „	„	45	„	...	5	10
No. 3 „	28 „	„	45	„	...	6	18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds	8 gallons,	throws	25 feet	high	...	£2	15
No. 13 „	12 „	„	30	„	...	3	5
No. 11 „	16 „	„	40	„	...	4	0
No. 12 „	24 „	„	45	„	...	5	0
No. 14 „	30 „	„	45	„	...	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1¼ inch, 14s. 3d.; No. 2, do., diameter of barrel, 1⅜ inch, 12s.; No. 3, do., diameter of barrel, 1⅜ inch, 10s. 6d.

READ'S SYRINGE, with two roses and one jet, 19s.

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10s.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

BY HER MAJESTY'S

ROYAL LETTERS PATENT.

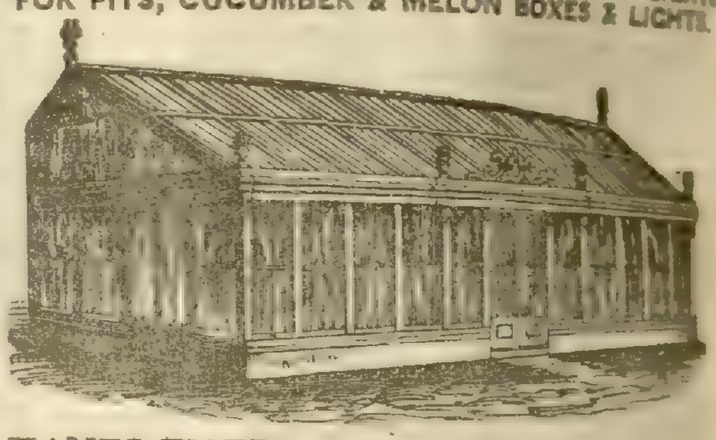
E. DENCH, PATENT HOTHOUSE WORKS, KING'S ROAD, CHELSEA. Printed Price Lists sent on application.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.
KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively employed.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.

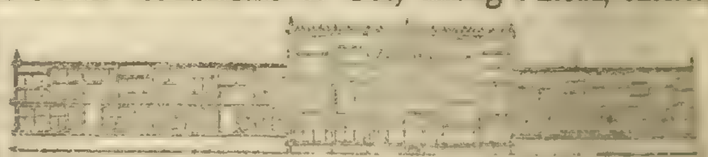


JAMES WATTS, HOTHOUSE BUILDER, 8, Chrisman's Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 13 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

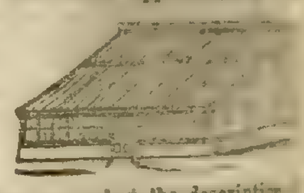
HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea



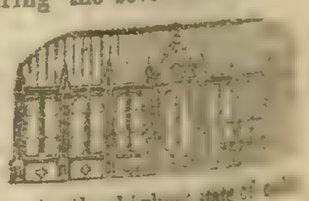
HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find it at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3s. 8d. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings and Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & CO., King's Road, Chelsea, London.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, by London-made Garden Engines and Syringes, Celebrated Garden Seats and Chairs.

Aerunicators	Gidney's Hoe	Prussian Pickaxes
Axes	Grape Gatherers and [Scissors	Potato Forks
Bagging Hooks	Gravel Rakes and Sieves	Pruning Bills
Bills	Greenhouse Doors and Frames	„ Knives, various
Borders, various pat- [terns.	Hammers	„ Saws
Botanical Boxes	Hand-glass Frames	„ Scissors
Brown's Patent Fumigator	Hay Knives	„ Shears
Cases of Pruning In- [struments	Horticultural Hammers and Hatchets	Rakes in great variety
Daisy Rakes	Hoes of every pattern	Reaping Hooks
Dibbles	Hotbed Handles	Scythes
Dock Spuds	Ladies' Set of Tools	Scythe Stones
Draining Tools	Labels, various patterns, in Zinc, Porcelain, &c.	Shears, various
Edging Irons and Shears	Lines and Reels	Sickles
Flower Scissors	Marking Ink	Sickle Saws
„ Stands in Wires and Iron	Mattocks	Spades and Shovels
Fumigators	Menographs	Spades
Galvanic Borders and Plant Protectors	Metallic Wire	Switch Hooks
Garden Chairs and Seats	Milton Hatchets	Thistle Hooks
„ Loops	Mole Traps	Transplanting Forks
„ Rollers	Mowing Machines	Trowels
„ Scrapers		Turfing Irons
		Wall Nails
		Watering Pots
		Weed Hooks
		Wheelbarrows
		Youths' Spades

DEANE, DRAY, AND CO. are sole Agents for LINDLEY'S PERMANENT LABELS, samples of which, with the illustrated List of Horticultural Tools, can be sent, post free, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.—DEANE, DRAY & CO. (Opening to the Monument), London Bridge.

NEW SPRING CABBAGE "EXCELSIOR."

WILLIAM KNIGHT, SEEDSMAN, &c., begs to call attention to this fine variety, which is unsurpassed for its excellent quality, being of a very superior flavour, and a certain crop, as it has never been know to run to seed before heading; it is particularly hardy, standing the test of the last winter without a failure. As a certain crop for spring use it is invaluable, for it may be sown at any time without risk, and it will produce a certain crop. Seed is now ready to send out in packets 1s. each, or four packets for 3s., post free.

67, High Street, Battle, Sussex.

MESSRS. E. G. HENDERSON AND SON beg to announce that their NEW SPRING CATALOGUE for 1855 will be sent post free on application, and for 12 postage stamps a Beautiful Coloured Plate, representing the following choice plants:—

Achimenes Ambroise Verschaffelt.
Acacia Drummondi microphylla
Boronia Drummondi
Bouvardia longiflora
Delphinium Hendersoni
Genetyllis macrostegia (fuchsioides)
Fuchsia Queen Victoria
" Mrs. Story
" Prince Albert

Mr Andrews, the first floricultural artist of the day has had the getting up of this Plate, so that full reliance may be placed on the correctness of the flowers represented and the superior style of colouring.—Wellington Nursery, St. John's Wood. June 30.

PLANTS OF CABBAGE, SAVOY, KAIL, BROCCOLI, CELERY, AND CAULIFLOWER.

JOHN CATTELL begs respectfully to inform the public that he has a plentiful supply of Plants of his superior true sorts of the above, which will be forwarded to order on receipt of Postage Stamps, or Post Office Order made payable here, at the following prices, package included:—

All the sorts of Early Cabbage, Savoy, and Kail, including Brussel sprouts, 6d. per 100, 4s. 6d. per 1000: all the sorts of Broccoli, 9d per 100, 5s. 6d. per 1000; all the sorts of Celery, bedded plants 8d. per 100, 5s. 6d. per 1000; Cauliflower, early and late 10s. per 100; Red Cabbage, 1s. per 100; Drumhead, or Cattle Cabbage, 4s. per 1000. A fine stock of autumn-bedded early Cabbage still to dispose of at 5s. per 1000; for large quantities, price on application. Packages containing plants to the value of 1l. and upwards will be delivered carriage free to London and to the Edenbridge Station of the South Eastern Railway. A remittance must accompany orders from unknown correspondents. Seed of Cattell's Dwarf Barnes, and of his superior Dwarf Reliance Cabbage, may be had in packets by post, for 12 penny stamps per packet, the former containing one ounce, and the latter half an ounce.—Nurseries, Westerham, Kent.

ERICAS.

MESSRS. YOUELL AND CO. beg to submit the following list of choice ERICAS, which can be supplied in good bushy and healthy plants, in large and small 48s, at 12s. per dozen:—

ERICAS:—Aggregata, ampullacea, ampullacea carnumbrata, ampullacea rubra, aristata major, Archeriana, Bandoniana, bicolor, Cavendishi, cerinthoides, cer. coronata, Cliffordi, colorans, Coventryana, daphnoidea, Devoniana, depressa, denticulata moschata, echiflora, elata, Ewerianа, eximia, exurgens coccinea, gracilis, grandis, Hartnelli, hyemalis, hybrida, hyacinthiflora, Juliana, Linnæoides nova, L. superba, longiflora, metulæflora bicolor, ovata, perspicua nana, pinifolia discolor, princeps, propendens, p. tubiflora, pyriformis, primuloides, rubens, retorta major, Savilleana, Shannoniana, Shannoniana (Turnbull), Sindryana, splendens, tricolor, tri. rubra, umbellata, ventricosa alba, v. alba tincta, v. breviflora, v. carnea, v. coccinea minor, v. corvicana, v. curta ruba, v. densa carnea, v. dependens coccinea, v. fasciculata longiflora, v. f. rosea, v. f. superba, v. globosa, v. hirsuta, v. magniflora, v. perspicuoides, v. superba, v. tumida, v. tenuiflora, vernix coccinea, Vernonia, Ver. superba, verticillata, vestita tenuiflora, v. coccinea, v. c. tenuiflora, v. fulgida, v. rosea, viridiflora, Westcotti, Westphalingi, Wilmorea superba, Walkeri.

The above are well grown, and of a suitable size for making specimens. The usual discount to the trade when taken per 100.

Royal Nursery, Great Yarmouth.

NEW CABBAGE.—THE CHAMPION OF ENGLAND, which has surpassed everything of its kind during the past severe winter (when nearly every other has failed) and turned well into Cabbage this spring. This Cabbage is of a very dwarf and compact habit, and quite equal in flavour to any yet grown. It has been in the hands of a very excellent gardener for several years, and he has thoroughly proved its superior hardy and good qualities. The stock of seed purchased is very limited, therefore none can be sold by the pound or in large quantities to the Trade this year. E. T. feels confident, from what he has seen of the Cabbage, that it will give the greatest satisfaction to all purchasers. Sold in packets of 1 oz., 2s. 6d.: or of half an ounce, 1s. 6d., postage free.

The TRUE OLD BATH COSS LETTUCE, which Lettuce has never been surpassed by any other yet grown. 1s. per packet.

☞ This being the proper time for sowing the following varieties of Hardy Flowering Seeds for blooming next spring, the following undermentioned varieties will give the greatest satisfaction to all purchasers as they have hitherto done for many past seasons:—

SWEET WILLIAM SEED—Saved from 50 of the choicest and most superb varieties. 1s. per packet.

ANTIRRHINUM SEED—Saved from all the striped, spotted, and finest shaped varieties. 1s. per packet.

Superb HOLLYHOCK SEED — Saved from all the best named flowers out last year. 1s. per packet.

SCARLET GIANT BROMPTON STOCK, extra fine. 1s. per packet.

PANSY SEED—A few packets from selected varieties. 1s. per packet.

AQUILEGIA OR COLUMBINE SEED—Saved from 12 distinct varieties. 1s. per packet.

☞ Either of the above packets of Flower Seeds three for 2s. 6d.

A remittance must accompany every order either in cash or penny postage stamps, when the whole, or any part of the above as the case may be, will be forwarded.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somerset.

NEW AND RARE PLANTS to be seen in blossom at the Tooting Nurseries:—

Azalea indica, gem, new
Barkeria melanocaulon, new
Cypripedium caudatum purpureum, new
" species; this truly magnificent new plant has been discovered by our collector, Mr. John Henshall, in Java, growing at an elevation of 7000 feet above the level of the sea
Erica obbata pulchella, new
" tricolor magnifica, new
" ventricosa flava, new
Ærides Larpentæ, rare
Geranium Empress, new. This variegated variety far exceeds both in foliage and blossom any other of this class, and is admirably adapted either for bedding or pot culture
Gloxinia Adamis oculata, new
Meyenia erecta: this unquestionably is the gem of the season in new plants
Rhododendron Stamfordiana, new
" pavonia, new
" Shakespeare, new
Uropedium Lindeni, rare

Messrs. WILLIAM ROLLISSON & SONS will be happy to forward their Priced Catalogue of New and Rare Plants, post free on application. They will also be forwarded throughout the following countries, post free:—America, Austria, Belgium, France, Germany, Holland, Prussia, &c.

CHOICE NEW AND RARE PLANTS OF THIS SEASON AT REDUCED PRICES.

HENRY WALTON, FLORIST, &c., Edge End, Marsden, near Burnley, Lancashire, will be prepared to send out nice healthy plants of the following new novelties at the reduced prices as annexed, after the first week in July.

FUCHSIAS.—Story's Mrs. Story, 3s. 6d.; Queen Victoria, 3s. 6d.; Water Nymph, 3s. 6d.; Empress Eugenie, 3s. 6d.; Lady of the Lake, 3s. 6d.; Snowdrop, 3s. 6d.; Banks' Beauty of the Bower, 2s. 6d.; Prince Albert, 3s. 6d.; Maid of Kent, 3s. 6d.; Climax, 2s. 6d.; Grand Sultan, 2s. 6d.; Omer Pasha, 2s. 6d.; Smith's Omer Pasha, 2s. 6d.; Violæflora pleno, 3s. 6d. each, or 30s. per dozen post free where two or more are ordered.

Each.—	s. d.	Each.—	s. d.
Hydrangea hortensis ...	5 6	Phlox omniflora compacta, dwarf white	2 6
" flora pleno ...	5 6	Calceolaria Purity, fine white	3 6
Begonia oppulæfolia ...	2 6	" Wildfire ...	3 6
Tydea Warczewiczi, new and fine stove plant ...	5 6	" Maggiore ...	3 6
Geranium Pretty Polly, fine bedding variety	3 6	" Vezzossa ...	3 6
		Petunia Singularity Smith's	2 6

Early orders are respectfully solicited for the above, which will be executed in rotation as received, the stock of some of the varieties being rather limited. A remittance requested to accompany all orders, payable at Marsden, Lancashire, unless a reference is given.

Every article in the Nursery and Florist Trade on the lowest remunerative terms, also a choice collection of large flowered and Pompone Chrysanthemums, new varieties. Strong bushy plants, ready to go into blooming pots, 6s. to 9s. per dozen.

SELECT NEW PLANTS AT REDUCED PRICES.—For Descriptions of many, see BASS AND BROWN'S CATALOGUE and SPRING SUPPLEMENT.

	s. d.		s. d.
Aphelandra Porteana ...	5 0	Eugenia (Myrtus) Ugni, 3s. 6d. to	5 0
Arbutus cromea	7 6	Escallonia pterocladon, 7s. 6d. to	10 6
" magnifica ...	5 0	Ixora coccinea grandiflora, 2s. 6d. to	3 6
Achimenes picturata ...	5 0	Libocedrus chilensis, 3s. 6d. to	7 6
" gigantea ... 5s. to	7 6	Maranta sanguinea, 5s. to	7 6
" Mdme. Randatler ...	3 6	" vittata ... 7s. 6d. to	10 6
" Ambroise Verschaffelt, 5s. to	7 6	" albo-lineata	7 6
" Tydea (Warscewiczi), 5s. to	7 6	Monochætum umbellatum	5 0
Azalea indica Beali ...	3 6	Passiflora Decaisneana ...	3 6
" crispiflora	3 6	Philesia buxifolia... ...	10 6
" Admiration (Ivery's), 7s. 6d. to	10 6	Rhododendron Grisewoodianum	15 0
" Criterion (Ivery's), 7s. 6d. to	10 6	" album speciosum ...	10 6
Begonia Thwaitesi ...	10 6	" javanicum (Rollisson's) ... 5s. to	10 6
Cassia floribunda	7 6	Rhodolea Championi. 7s. 6d. to	10 6
Cereus McDonaldi, 10s. 6d. to	15 0	Siphocampylos Ne Plus Ultra ...2s. 6d. to	3 6
Clematis patens Sophia, 3s. 6d. to	7 6	" bicolor rosea, 2s. 6d. to	3 6
" monstrosa, 7s. 6d. to	10 6	Wellingtonia gigantea, 7s. 6d. to	10 6
" lanuginosa	10 6		
" longipetita	7 6		
Cyclamen Atkinsi ...	10 6		

MISCELLANEOUS, NEW, SOFT-WOODED, AND HARDY KINDS.

Bouvardia Van Houtti, 3s. 6d. to	5 0	Heliotrope Jno. Cattell ...	2 6
" longiflora alba vera, 2s. 6d. to	3 6	Lobelia Ghiesbrighti.	
" hirtella, brilliant and free	1 6	Pentstemon magnifica ...	2 6
Geranium Keynes's Pretty Polly	3 6	Petunia Singularity (Smith's)... ...	2 6
		" British Queen (Turner's)	2 6
		Phlox omniflora compacta	2 6

NEW POMPONE CHRYSANTHEMUMS.—The following 13 best new varieties of last season for 13s., or 1s. 6d. each, viz., Anna Bullen, Aurora Borealis, Bob, Brilliant, Consuelo, Comte Achille Vigier, John Salter, La Radleuise, Madame Passy, Pluie d'Or, Rococo, Zebra, and Doctor Bois Duval.

NEW LARGE FLOWERING CHRYSANTHEMUMS.—The following 7 best new varieties for 9s., or 1s. 6d. each, viz., Auguste Mie, Annie Henderson, Hermione, La Prophete, Madame Labois, Prince Jerome, and Phare de Messine.

GLOXINIAS.—The following set of 11 new varieties of last season may now be had of good flowering plants, for 25s., viz., Duke of Wellington, Eleanor, Elegantissima, Erecta magnifica, Eugenia, Exquisite, Grand Sultan, Lady Franklin, Magnet, Prince of Wales, and Sir C. Napier.

WOOD'S DUCHESS OF NORFOLK ROSE, strong plants, 3s. 6d. to 5s. each.

Goods carriage free (not under 20s.) to all the London termini, and all stations on the London and Norwich Colchester Line. Plants added gratis with orders of 40s. and upwards.

COMPLETE CATALOGUES on application for six penny stamps, or the Spring Catalogue alone for three penny stamps, or gratis to our customers who may not have received them.

Seed and Horticultural Establishment, Sudbury, Suffolk.

NEW PLANTS.

HENRY GROOM, Clapham Rise, near London, by appointment FLORIST TO HER MAJESTY, begs to offer the following fine and new plants:—

Each—	s.	d.	Each—	s.	d.
Fuchsia Queen Victoria	7	6	Pentstemon Wrightii ...	5	0
" Prince Albert...	7	6	Weigela amabilis	3	6
Heliotrope Beauty of the Boudoir...	1	6	Cyclamen Atkinsi ...	10	6
Verbena Mrs. Woodroffe	1	0	" hungaricum ...	5	0
" Wonderful ...	2	6	" repandum ...	5	0
" Blue Beard ...	3	6	Berberis Darwini 1s. to	3	6
Calceolaria Purity... ...	3	0	Cerasus ilicifolia, 2s. 6d. to	5	0
Salvia grandiflora Skinneri	5	0	Tritonia aurea	1	6
Salvia Gesneræflora ...	1	6	Rhododendron Edgworthi 5s. to	10	6
Lysimachia Leschenaultia	2	0	" campylocarpum, 5s. to	10	6
Deutzia crenata	2	6	" niveum ... 5s. to	7	6
" gracilis... 1s. to	2	6	" glaucum ... 1s. 6d. to	2	6
Impatiens Hookeri ...	5	0	Hippeastrum aulicum, 3s. 6d. and	5	0
Auracaria Lindleyana ..	105	0	Vallota purpurea, 2s. 6d. &	3	6

Clapham Rise, June 30.

WHEELER AND SON'S SHORT SELECT SEED LIST.—Our Priced List of Seeds for this season, containing Descriptions and Prices of the best GARDEN and FLOWER SEEDS, will be forwarded free by post. It is our earnest endeavour to send out all Seeds, whether for the Garden or Farm, of the very best quality and true to name; and as many of the Seeds are our own growing, and are proved before sending out, we generally succeed in giving entire satisfaction to our customers.

We are in daily receipt of most gratifying letters and renewed orders from those we had the honour of serving last year; and as we deliver our Seeds CARRIAGE FREE, we very respectfully solicit the honour of an order from those who have not yet given us a trial.—J. C. WHEELER & SON, Gloucester, Seedsmen to the Gloucestershire Agricultural Society.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE UNDER THE NEW STAMP ACT.

IN consequence of the Repeal of the Newspaper Stamp, the price of this Journal will be on and after this day 5d. unstamped, and 6d. stamped.

An *unstamped* copy can be sent by post by affixing a 1d. postage stamp upon each transmission. A *stamped* copy may be sent free as often as desired during fifteen days from the date of the paper, provided the paper be so folded that the stamp may be visible.

Subscribers will please to inform their Agents whether they desire stamped or unstamped papers.

The Gardeners' Chronicle.

SATURDAY, JUNE 30, 1855.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, July 4—Royal Botanic..... 2 P.M.

A GERMAN correspondent, writing from Travemünde, asks what is meant by VITAL FORCE. We said (in No. 19 of the *Gardeners' Chronicle* for the present year) that the very different effects produced by frost on plants of the same kind exposed to influences in every respect similar, were explicable only on the supposition that each plant has its own peculiar vital force. We are asked what we mean by this, and whether just the same information is not conveyed by being told that some plants suffer and some, apparently like them, do not, but why we do not know. The complaint is that no real explanation is given, and that no general law is laid down, of which the different effects can be said to be instances. Our correspondent does not complain of our present ignorance of the causes producing the results alluded to, he merely objects to the expression made use of, which, as he says, only serves as a cloak for ignorance, which had better be openly avowed, and to discourage further investigation by referring the phenomena to a hidden cause peculiar to each plant, and undiscoverable by man.

To this we reply that no other explanation is possible, and that vitality, whatever it may be, is a force varying in intensity like other forces. To ignore its existence is to deny the evidence of our senses; to attempt to explain its power by reference to mechanical, or chemical, or similar agencies is materialism. What agencies of that kind will explain the reason why the sensitive plant is all activity in warmth, and torpid in cold; why the elastic column of a Stylidium, the delicate bristles of a Dionæa, the dancing leaflets of the Hedysarum, and a thousand other sensitive organisms all obey the same influences in the same manner? In these instances heat acts upon vitality as among insects; the fly is torpid in cold, but all life and activity with sufficient warmth. What again except the presence of vital force, identical in its essence with that of animals, but widely different in its manifestations, will explain the undoubted fact that plants are affected, just as animals, by prussic acid, chloroform, opium, arsenic, and other poisons. Upon this subject we refer our correspondent to the new edition of the "Theory of Horticulture," the first chapter of which is exclusively occupied by an inquiry into the nature of this force. And we are convinced that its

PAGE AND CO.'S COMPOSITION FOR THE DESTRUCTION OF BLIGHT

UPON THE

Hop, Roses, Wall-Fruit Trees, Cucumbers, Melons, Vines, and Stove and Greenhouse Plants.

B. PAGE AND CO. having erected additional Works, are now ready to supply any quantity of their valuable Composition, approved and in use by all the leading Gardens of the United Kingdom.

Extra Strong, 4s. per gallon, sufficient to make four (Jars and Barrels extra).
Ten gallons and upwards Carriage Free to London.

The next season's crop of Peaches, &c., will much depend upon the Aphis being destroyed, which is now severely attacking them.

Oxford Street Seed Stores, Southampton.

not having been sufficiently recognised is the cause of half the errors into which routine cultivators are seen to fall.

In saying this we would by no means assert that all obscure facts are explicable only by reference to vitality, or that the explanations founded upon it are in all cases just. It is possible enough that they may be misapplied, like other matters; and we are far from claiming for ourselves exemption from such errors. All we contend for is that vitality, a force which our senses tell us exists although we only see it in its results, will often account intelligibly for phenomena, which are otherwise incomprehensible.

By way of establishing the converse of this proposition, the following account of the effects of the late frosts is given in our correspondent's letter. "Close to my house," he says, "there is a number of Sycamores; they are all on ground equally dry and sandy; moreover all have the same aspect. Amongst them the three most healthy and strong of all, viz., an *Acer Lobelii* (Tenore), an *Acer colchicum rubrum*, and, what is very remarkable, a common *Acer pseudo-platanus* were frozen to the ground, whilst right and left of them other plants of the same species were unharmed even at the very tips of their branches. To all appearance the circumstances under which the trees were placed were precisely the same. It is very easy to say that the vitality of the three strong healthy frozen plants was less energetic than that of the others; but I would ask what is gained by so saying, and what reason is there to suppose such to have been the case?"

Now we admit that in the instances quoted it is probable enough that some agency, much less mysterious than different degrees of vitality, has caused the effects described. Such, for example, as water at the roots, or a position where the sun's rays in winter have more influence; but even if that be so, we must confess our inability to see how it can affect the argument.

It is announced by M. Guérin-Méneville that the cold country silkworm of China has at last been reared in France. It has long been known that in the land of the Manchour Tartars, in a climate at least as rigorous as our own, a kind of silk is obtained, of which very large quantities go into consumption among the Chinese. The clothes of "millions" are said to be prepared from it.

Some years since Mr. Rutherford Alcock, Her Majesty's Consul at Shanghae, sent home samples of this material, both manufactured and unmanufactured, along with live chrysalids (cocoons), but the latter perished on the voyage, and the samples were accidentally misplaced and lost in the Great Exhibition of 1851. The silk was strong, with little lustre, and resembled some strong thin yellow woollen linen. It now appears that the French have been more successful, some males having already been hatched. Of the other cocoons sent to Italy and Algiers, no account is given.

According to Guérin-Méneville, this silkworm forms a new species of night-flying *Bombyx*, of the section *Saturnia*, and is nearly related to the *Bombyx mylitta*, which produces the Tussah silk of India. But the peculiarities observable in the form, texture, and mode of attachment of the cocoons forbid the Mantchour moth being regarded as merely a northern local form of the Tussah silkworm. It is also one of the same Lepidopterous group as the Mooza silkworm of Assam, whose silk is largely employed in India, and which was described by the late Dr. Helfer under the name of *Bombyx assamensis*.

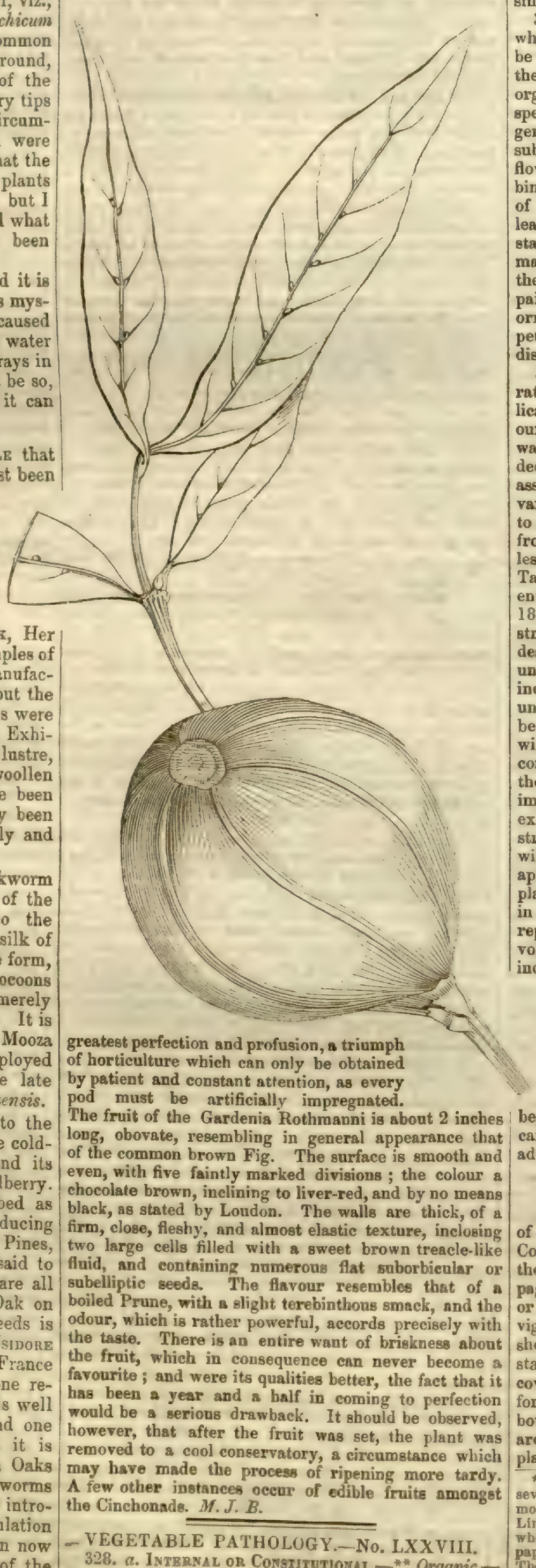
Two circumstances give peculiar interest to the introduction of this useful insect; namely, the coldness of the country it naturally inhabits, and its feeding upon a species of Oak, not on a Mulberry. The country called Mantchooria is described as mountainous, very cold in winter, and producing *furs* among other articles of trade. Oaks, Pines, Willows, Birches, Maples, and wild Roses, said to constitute the main features of its woods, are all indications of a northern climate. The Oak on which the silkworm of this remote region feeds is not clearly described. According to Mons. Isidore St. Hilaire, two sorts have been raised in France from the acorns received with the cocoons, one resembling the *Quercus castaneæfolia*, which is well known to be a native of northern China; and one of a species apparently undescribed. But it is by no means improbable that the common Oaks of this country would be taken to by the silkworms in question, and if so, the sole obstacle to the introduction of silk-growing among our rural population would be removed; and a better means than now exists of employing the women and children of the peasantry would be at once afforded.

It is right to add, upon the authority of Mons. St. Hilaire, that the interesting acquisition in question is mainly owing to the assistance given by Monseigneur Verrolles, Bishop of Colomby and Vicar Apostolic in Mantchooria, to M. de Montigny, the French Consul at Shanghae. Let us hope that some of our own people will tread with equal success in the enlightened and patriotic steps of these gentlemen.

New Plants.

134. Gardenia Rothmanni.

As a good deal of interest is attached at the present moment to the ripening of exotic fruits, a figure of that of Gardenia Rothmanni brought to maturity at Wentworth, under the care of Mr. J. Henderson, A.L.S., may not be unacceptable. The quality is not, indeed, such as to recommend it to general use; but as it arrived at great perfection, it is one instance amongst many others of what may be done in our English stoves with skill and perseverance. Mr. Henderson has for the last 20 years or more produced Vanilla in the



greatest perfection and profusion, a triumph of horticulture which can only be obtained by patient and constant attention, as every pod must be artificially impregnated.

The fruit of the Gardenia Rothmanni is about 2 inches long, obovate, resembling in general appearance that of the common brown Fig. The surface is smooth and even, with five faintly marked divisions; the colour a chocolate brown, inclining to liver-red, and by no means black, as stated by Loudon. The walls are thick, of a firm, close, fleshy, and almost elastic texture, inclosing two large cells filled with a sweet brown treacle-like fluid, and containing numerous flat suborbicular or subelliptic seeds. The flavour resembles that of a boiled Prune, with a slight terebinthous smack, and the odour, which is rather powerful, accords precisely with the taste. There is an entire want of briskness about the fruit, which in consequence can never become a favourite; and were its qualities better, the fact that it has been a year and a half in coming to perfection would be a serious drawback. It should be observed, however, that after the fruit was set, the plant was removed to a cool conservatory, a circumstance which may have made the process of ripening more tardy. A few other instances occur of edible fruits amongst the Cinchonads. *M. J. B.*

VEGETABLE PATHOLOGY.—No. LXXVIII.

328. *a.* Internal or Constitutional.—** *Organic.*—I commence with the present number the consideration of those diseases which are essentially constitutional, and at the same time induce not merely functional derangement but organic change, which is in most cases visible to the naked eye. It was stated above that those diseases which are constitutional are in all probability originally derived from external causes, and so as regards functional derangement there can be no doubt that it is always accompanied by organic mischief, though affecting structures of such delicate composition as to be beyond our powers of investigation. As before, to avoid the confusion attendant on the fact that similar appearances may arise from very different causes, I shall be obliged to depart from the strict letter of the arrangement I have laid down. So long, however, as the main distinctions are kept in view no further inconvenience will arise than that with which the author has the most reason to be discontented, namely a want of unity or systematic effect. No useful end, however, can be gained if perspicuity be sacrificed to mere neatness of arrangement. When the whole is completed a systematic arrangement will be given, in which each disease will appear under its distinctive head, with proper references, where it has been thought preferable to describe it in association with a similar disease arising from different causes.

329. Plants whether exogenous or endogenous, to whatever size they grow, and however complicated may be the organs of fructification, are mere repetitions of the primary whorls* of leaves. There are subordinate organs, as prickles, hairs, glands, &c., which may answer specific purposes, but which are not essential to the genus. The component leaves of these whorls are subject to many modifications, and the various forms of flowers and fruit arise from such modifications, combined with the increase or suppression of the members of each whorl. A greater number therefore of the leaves than usual may undergo a modification into stamens, pistils, carpels, &c.; or these essential organs may revert to the condition of leaves. If the object of the cultivator is to have fruit, his harvest may be impaired by abortion, distortion, and other evils, or if ornament is the point in view the reversion of multiplied petals, &c., to their original form, may lead to equal disappointment.

330. The consideration of every abnormal form separately would be quite out of place in the present publication, and would prove tedious to a large portion of our readers, who can hardly be expected to enter warmly into an examination of every consequence deducible from the morbid or abnormal appearances assumed by plants. The facts are so numerous and various that Meyen proposed to devote a distinct volume to their consideration, but was prevented by death from accomplishing his object, a matter which is the less to be regretted, as it has been taken up by Moquin-Tandon, who has published his observations in a volume entitled "Éléments de Tératologie Végétale" (Paris, 1841), or in other words, a history of vegetable monstrosities. Though, however, I am not prepared to describe or discuss every abnormal condition comprised under the familiar name of monstrosities, it will not be inexpedient to enumerate briefly the several heads under which they may be comprised, and the more so, because there is no better way of becoming acquainted with the structure of plants than comparing abnormal conditions with those which are normal, and ascertaining the relations they have to each other, and the systematic import of such multiplications or subtractions as may exist in abnormal flowers. The consideration of monstrosities, when unaccompanied by preconceived notions, will indeed often afford an explanation, where all other appliances fail. The true nature, for instance, of the placentation in Cloveworts is clear enough when studied in connection with such monstrosities as have been represented in this Journal in vol. 1855, p. 280, and vol. 1850, p. 612. It is to such conditions that we are indebted for our distinct apprehension of the nature of stamens and the divisions of the carpels. But supposing even that these might have been understood by mere comparison of the different organs in different plants in their normal condition, the nature of ovules must have remained an impenetrable secret without such cases as the foliiform carpels of the common white Clover, which leave the matter beyond doubt, as does the conversion of ovules into carpels in the case of the *Sweet William* and *Carnation*, adverted to above. *M. J. B.*

CORREA "BRILLIANT."

This high-coloured variety was raised by Mr. Gaines, of Battersea, and is certainly one of the best kinds of Correas in cultivation. It has a striking effect in the greenhouse during the winter months. Its propagation is easily effected, either by cuttings, grafting, or inarching. C. alba being a hardy variety, with a vigorous habit of growth, is preferable as a stock. The short-jointed pieces of the young wood, in a half-ripe state, are selected for cuttings, planted in sandy peat, covered with a glass, and placed in a close, cool situation for about a month, and then removed to a very gentle bottom-heat, they will root freely. When the cuttings are obtained early in the season—but unless plants are placed in heat this will seldom be the case—it will be

* This word is used here in the same sense in which the several convolutions of a spiral are called its whorls. It is the more necessary to advert to this because the word is used by Lindley (Int., v. 1, p. 315) in its more ordinary botanical sense when speaking of the same subject in reference to Brongniart's paper in the old series of "Ann. des Sc. Nat.," v. 23, p. 225. The ovules, of course, belong to another category, and are adventitious buds. It is not to be supposed that there is any analogy between pollen grains and ovules, though the latter are sometimes produced from anthers instead of the former, as in the gourd figured by me in *Gardeners' Chronicle*, 1851, p. 499.

easy, with ordinary management, to have them rooted, potted off, and established in 4-inch pots previous to winter; and in case that the cuttings are not fit for potting singly early in autumn, it will be better to keep them over the winter in the cutting-pot. When potted off, whether during autumn or spring, it will be necessary to keep them rather warm and moist till they have become established.

In February, or early in March, place the young plants in a moist temperature of about 50°, and keep them properly supplied with water. As soon as they commence growing, examine the state of the roots, and shift into pots two sizes larger such as require more pot-room. Water must be very carefully administered for a week or two after potting, and the soil, as well as the ball of the plants, must be in a proper state as to moisture when potted. If these important although apparently trivial matters are rightly attended to, the young plants will soon burst into vigorous growth, and should be allowed a free circulation of air during bright warm days. It will probably be necessary to regulate the growth by pinching-out the points of any over-luxuriant shoots, so as to secure a compact habit of growth. The Correa, like many other hard-wooded plants, grows freely in a moist and moderately warm atmosphere; but when kept in a hot and dry temperature, the young wood becomes prematurely ripened, and ill health ensues. Perhaps the equal temperature and moist atmosphere most congenial to the growth of the plant is more easily secured during the summer months in a cold frame than elsewhere; but the removal must be carefully effected, and the plants should be kept freely supplied with air for a time, previous to the change, and the frame so managed as to maintain the temperature and atmosphere sufficiently warm and moist to prevent them sustaining any check. During summer, a slight shade on the forenoon of bright days will be highly beneficial, and the plants should be sprinkled over-head night and morning. Air should be freely admitted, except during the occurrence of cold drying winds, when the lights should be raised at the back only, and the temperature kept down by means of shading. When the nights become warm, the lights may be thrown off late in the evening, and again replaced to protect the plants from the intense heat of the sun's rays during the day. The stronger-growing specimens may require a second shift towards August or September; and this should be attended to as soon as the pots are full of roots. Discontinue the forenoon's shade early in September, and gradually expose the plants to the sun's rays and the freest possible circulation of air, merely guarding them from heavy rains and autumn frosts. They should be removed to an airy part of the greenhouse about the middle of October, where they may remain during the winter, and will require no further attention than a supply of water and protection from frost.

When they have done flowering, any straggling shoots should be cut back, and the plants may be treated this season as recommended for last; or, if rapid growth is not particularly desired, they may be removed to a sheltered warm situation out of doors, instead of to a cold frame; but if they have been excited into active growth by a close, moist atmosphere, they must not be rashly exposed to the drying winds and bright sunshine which frequently occur in May. When greenhouse plants are removed to the plant-ground, they should be placed in a shady situation, and gradually prepared for full exposure to the sun and air. During summer they must be freely supplied with water, and a sprinkling over-head on the evenings of bright days will be beneficial. When the nights become cold, or drenching rains occur, they should be removed to the greenhouse, and be there freely exposed to sun and air. If it is desirable to have a portion of the plants in flower early in winter, they should be placed in the warmest end of the house, and kept as close as circumstances will permit. If treated thus, and if the young wood was properly matured, the plants will speedily be covered with bloom; and if they are properly supplied with water, they will continue in full beauty for many weeks. It will be unnecessary to place them in heat after the desired size is attained; but if the early-flowering plants are induced to start into growth early in spring, they will be ready to blossom early in winter, and by these means a long season of floral beauty will be easily secured.

All Correas will be found to thrive in a soil composed of three parts fibry peat, and one part light sandy turfy loam, with a free admixture of silver sand. The peat and loam should be carefully broken up into small pieces, divested of all inert soil and grassy litter, and carefully intermixed with the sand; and a sprinkling of clean potsherds, broken rather small, will assist to secure perfect drainage of the mass after the decay of the fibre has taken place. In potting, the soil should be made rather firm about the old ball, and should be in a proper condition as regards moisture when used. The plants will flower more abundantly if they are potted late in the season; and, unless they are allowed plenty of root-room, their blooming season will be comparatively short; but those who are partially unacquainted with the culture of pot-plants will act a wise part in resting satisfied with a moderate display of floral beauty rather than to risk potting their plants late in the season.

With an annual shift, and attention to the simple hints which I have just laid down, this Correa will remain many years in perfection, and, by its abundant display of blossom during the winter months, will well repay the trifling care which its culture requires. When the plants become too large to be conveniently shifted, it will be better to throw them to the rubbish-heap, and to supply their places with young plants, as if kept after they become pot-bound, they seldom flower satisfactorily. *Alpha.*

THE INFLUENCE OF HEAT ON THE PROGRESS OF VEGETATION.

(*Concluded from p.* 421.)

1. *Phases of Vegetation.*—Very early in the course of our inquiries we ascertained the curious fact that in the valley of the Rhone a smaller sum of temperatures is required to ripen Wheat than in the north of France; but that the Rhone Wheat had much shorter straw, and was made up of a fewer number of joints than the other. At Lougan on the Don, the straw is so high that an ostrich can scarcely see over it; but the sum of the temperatures is very much greater. In Siberia Barley ripens with a less sum of degrees than in the south of Europe, but in the former country the return is only three and a half fold, and the Barley, therefore, produces but a small number of spikelets in each ear, whilst in France the return is eight or nine times the quantity of seed sown. The above circumstances appeared to show the direction which our inquiries ought to take, and we determined to examine separately each of the stages of vegetation, commencing with the production of joints and then to compare each stage with the temperature.

The bud and the seed are alike an undeveloped plant. Both have a peculiar life distinct from that of other individuals of the same species. Both are rudimentary branches. Both contain, wrapped one within the other, the series of joints which when developed form a branch. Each joint growing within the sheath containing it disengages itself in its turn from the centre of the bud, and the formation and development of a joint may be regarded as an elementary stage in the life of plants. In the first place, therefore, we determined to compare the duration of this stage with the temperature accompanying it. The tables accompanying the memoir show the results of observations made on the Mulberry in 1840 and 1854 with this view.

One year with another we obtained 66 joints on a shoot from the stock of a hybrid multicaul Mulberry, and the number of degrees was always nearly the same, viz., 58.5° and 58.4° for the production of each joint. A shoot proceeding from a secondary branch pruned nearly down to the stock gave only 44 joints, each of which required 87.7° for its growth, although the shoot was almost vertical. If, however, the shoot inclines 50° from the vertical we obtain only 24 joints, each of which requires 161° of temperature. The vertical shoots of the top of old Mulberry trees pruned in the spring have 27 or 29 leaves each, developing with from 133° to 143° of temperature.

It thus appears that, 1, temperature has a direct influence on the development of each joint; 2, the development of each joint requires pretty nearly the same number of thermometrical degrees; 3, the more vertical the branch the fewer is the number of degrees; 4, the number of degrees increases as the obstructions to the flow of the sap to the bud are increased; 5, temperature does not act on the bud itself, but on the sap which nourishes it, and the growth of a bud results from the movement of the sap caused by temperature and, the temperature being the same, the flow of the sap to the bud is quick in proportion as its passage is short, direct, and unobstructed.

The joints, however, are not of equal length, and their length does not depend on the influence of heat, but on the quantity of sap which finds its way to the plant, and which varies with the dryness and moisture of the earth. This is at once evident if attention be paid to the hygrometrical state of the soil; after rain the joints elongate, after drought they shorten. A table for the year 1844 shows that in each month the length of the joints varied with the temperature and moisture of the atmosphere. It is, besides, known to every one that rain makes plants grow; a dry season gives short spare hay, whilst after wet the crop is good.

A similar set of observations was made on the Beet-root. The root has as many concentric circles as there are spirals of leaves. In our first experiment we obtained, from April to October, seven concentric circles and seven spirals each of seven leaves; the sum of degrees of temperature was 3618, or about 100° per joint. But the accumulation of matter resulting from the abundance of sap is not regulated by the temperature. From the 1st of April to the 20th of Sept. Beet was obtained weighing on an average 0.75 kil. During the dry summer months there was a check, but on the 25th of October the roots weighed 1.05 kil. The 0.75 kil. were obtained with 3108° of heat and dry weather, whilst the amount of 0.3 kil. was obtained with 510° under the influence of the rains of autumn. Again, Beet-roots unchecked in their growth and placed in a soil constantly damp (*frais*), acquired a weight of 3.5 kil. under the influence of 3618° of heat. We must be careful therefore to distinguish increase of size from production of organs; the latter depends on temperature, the former on richness and abundance of sap.

2. *Flowering.*—It is not absolutely necessary to the life of plants that they should flower. Peas sown in a highly manured soil ran into branches and leaves, but did not flower. In the hot damp countries near the equator Wheat does not ear, but yields so many stems and leaves as to be cultivated for fodder. Humboldt states that on the sides of the Cordillera of Vera Cruz, near Acapulco, Wheat is not cultivated for its grain at a less altitude than 1200 or 1300 yards. MM. Edwards and Colin could not succeed in obtaining grain from a winter Wheat sown at the end of April; but the small spring Wheat and the still smaller seed of the small winter variety sown at the same time both yielded ears of corn. On the other hand Wheat is cultivated for its grain in the Isle of France almost at the level of the sea where the winter temperature is not below 26° Cent., and is higher than that of Xalapa in Mexico, where Wheat does not ear. M. Codazzi has seen Wheat fructify in the valley of the Aragua, along with sugar and coffee. M. Bremacker placed some Lilac stocks in a dark cellar, in order to produce sleep artificially, and then removed them into earth in a hothouse, where the temperature was moderate, and kept very constant, but the plants ran to leaf and would not flower.

The experiments of MM. Edwards and Colin shows that a large albumen disposes plants to produce leaves only, just like the fertile soil in the case of the Peas, whilst the less developed albumen of the spring and poor winter Wheats yields ears, as happens with a less rich soil. In M. Bremacker's experiment, the constant moisture of the hothouse following the dampness of the cellar was also followed by nothing but leaves. We might thus expect to find a very moist atmosphere on the Mexican side of the Cordilleras, and a succession of moisture and dryness in those parts of the torrid zone where corn ripens. At all events it is clear from the above facts that flowering is by no means indispensable to vegetation, and that a plant which receives an abundant and continuous supply of sap is more inclined to run entirely to leaf than to produce flowers.

3. *Ripeness of Seeds.*—In the first place it is necessary to ascertain what is meant by ripeness. Some say fruit is ripe when it is ready to fall; others require the pericarp at least to be dried and the albumen to be completely hardened; others again allow fruit to be ripe when the seed is so far advanced that it can be made to germinate. This is ripeness in a botanical sense, and is the only sense in which the word can be used with precision. The period for gathering does not depend on ripeness; for example, the Olive is either gathered or allowed to fall, according to the purposes for which it is wanted. Grapes are gathered when they are more or less ripe, according to the object the grower has in view, the results expected from fermentation, and the composition of the must, so as to suit the tastes of his customers. In Burgundy the Grape harvest is later now than formerly, whilst the contrary is the case in the south of France. As regards Beans, it is usual not to cut them until the pod is dry, but the farmers in the Valais, who desire to keep the stalk unchanged, cut them as soon as the scar of the seed is black, although the rest of it is still green. Wheat seed has been proved by M. Duchartre to be capable of germinating when the albumen is still almost milky, and that germination was strikingly facilitated by the drying and shrinking (*rétraction*) of the corn. Without, however, going so far as this, it is certain, from experiments made at Versailles and La Saussaie, that corn may be got in without inconvenience when the top of the stem is still green, and that the grains are then finer and more valued in the market. This sufficient ripeness is from nine to 13 days earlier than what our farmers call complete ripeness, and gives a sum of at least 245° of temperature.

There is another difficulty met with when an attempt is made to fix upon a sum of degrees of temperature as necessary to enable a plant to arrive at maturity; namely, the difficulty arising from the great number of varieties which mature, some faster and some slower than others: this is the case with corn, Maize, Potatoes, Grapes, &c. We cannot therefore admit that ripeness in its common sense, which is so arbitrary and changeable, is a natural phase in the life of plants; we must confine the term to its botanical sense above explained, concerning which we know very little, and leave the rest to the convenience of cultivators.

CONCLUSIONS.

1. The successive phases of vegetation are marked by the development of elementary organs, namely, joints and their appendages, stem, leaves, buds, &c.

2. The development of the joints is determined by a sum of degrees of temperature, which is nearly constant for the same species, and for branches whose position is alike.

3. An indefinite number of leafy joints may be produced and yet the plant not flower.

4. The number of such joints varies with the climate and the year.

5. The flowering, and the number of leaf-bearing joints which precede it, depend on the different circumstances which diminish the abundance of the sap in the shoot, or which thicken it by compelling it to take long or numerous indirect passages.

6. As the meteorological conditions which influence the sap—viz., the moisture of the soil and air, rain, wind, &c.,—are, on an average of several years, pretty nearly the same in the same climate, plants flower with tolerable regularity after having produced the same number of joints. We are thus enabled to calculate for a given climate the sum of degrees of temperature which lead to flowering in the same climate, although this number may not hold good for another climate where the number of joints which precede the flowering is no longer the same.

7. Fructification and ripening being the consequences of flowering, the sum of degrees necessary to them also varies with the climate.

8. The time of harvest being always dependent on

economical considerations, and not always coinciding with the time of maturity in the botanical sense, cannot be made the subject of exact calculations as to temperature.

9. Solar radiation being also nearly constant in the same climate, if it be added to the temperature of the air the relation between the sums of temperature is not changed; but it is changed if passing from one climate to another. This heat, added to the temperature of the air, ought to be taken into account when the possibility of cultivation in a given place has to be ascertained. *Comptes rendus.*

Home Correspondence.

Garden Irrigation.—On a former occasion I cursorily noticed the use made of a tank for water in foreign gardens for the purpose of irrigation. The increased adoption in this country of the system on a large scale to farm lands, suggests its application to the garden, which is generally foremost in all minute improvements. An abundant and conveniently placed supply of water is of itself of first consequence; and there is, moreover, such a prospect of an increased produce as to induce owners of gardens to have it brought in on a regular system. I will note down what occurs to me on the subject. The sources of supply of water, and the best means of bringing it in are the first consideration. If it can be got so as to fill a cistern at a higher level than the garden wall, it will be best. It will in many cases be proper to consider the supply in connection with the house, particularly if the sewer can be taken to the garden, in which case the water is returned with interest, and the same level or the same power might be made to serve both house and garden. Very few houses are fully supplied with water beyond the every day requirements, while in the case of fire or flushing the drains provision is seldom made. The supply may be obtained from springs, small streams, ponds, or drainage, and rain-water might be collected to help other sources. The quality of the water should first be investigated. The reservoir, of course, should be in proportion to the space to be irrigated, and the nearer the garden the better, as water may be conveyed to the cistern in open cuts, but in most cases it must be in pipes from it to the garden. If the reservoir can be made in the ground and well puddled with clay it is the best; but generally one requires to be made of iron, slate, or wood; and at the back of the garden wall, forming the roof of some shed, appears to be a very suitable position. Both ingenuity and taste will be brought into play in arranging the cistern or reservoir. If mixings of manures are to be made it would be well to have a second cistern for the purpose on nearly a similar level; a small stage, and steps to it, will be necessary. The most efficacious method of applying artificial manures will probably be found to be to let on the water between the plants, then apply to each its modicum, and again the water. The high level gives the command of the water for wall trees and standards, as well as of every part of the garden; and if it be necessary to use labour to force up the water at all, it will save it by sending it up at once to the necessary height. If the supply is just above the level of the garden the foreign fashion of a brick tank with sluice and open gutters, having a projecting roof over it supported by pillars, around and over which creepers and flowers are trained, will answer most purposes, and form an ornamental object. The main pipe from the reservoir should be of ample size and be laid along the most central part, and from it branches will be carried into the chief compartments of the garden; cocks with screwed nozzles have to be placed at frequent intervals, to which hose can be attached, and thus a stream can be directed to any part of the garden. The pipes should be laid at the sides of the walks and out of the reach of spades. They would be the better for being placed in some non-conducting substance. When the supply of water is below the level, means must be used to force it up. A small steam engine is the best, unless you are favoured by a stream to drive a small water-wheel. But both the various other purposes to which the steam-power might be applied, and the means of heating afforded by the fire and boiler seem to indicate that the engine is preferable. When the water has to come any considerable distance in pipes, air vessels are necessary to ensure a regular flow. In the whole arrangement there need be nothing complicated, but it will be safer to obtain the advice of some one conversant in such matters, than to trust to the plumber or gardener, however well informed in their own immediate departments. *F.*

Pampas Grass.—Observing many inquiries during the past year for information respecting the locality of the Gynerium argenteum, I wrote to a friend in Monte Video, desiring him to collect me some of the seeds, and I have now the pleasure to state that I shall receive a supply by the first ship from that place, when I shall be most happy to distribute them. This plant is not, however, to be found in the neighbourhood of Monte Video; but is very abundant on islands in the rivers Uruguay and Parana, or in the extreme southern part of the province of Buenos Ayres. It is most luxuriant in a rather wet soil. *Thomas S. Woodcock, Manchester, June* 26.

Gigantic Cucumbers.—We forward a brace of Cucumbers, Lynch's Star of the West, grown by the Earl of St. Germains' gardener, and we should feel obliged for your opinion respecting its merit. *W. E. Rendle and Co., Plymouth.* [Of these one was 24 inches long, 9 ins. in circumference, and weighed 3¼ lbs.; the other was 22½ inches long, 7½ inches in circumference, and weighed 2 lbs. 12 ozs. Both had the flower on the end. The flesh was solid and excellent, and the surface so even that scarcely any waste took place in paring them.]

Popular Natural History.—The more elementary a work may be upon any subject, the more scrupulous ought the author to be in the correctness of his teaching. An advanced scholar may detect an error and avoid it, but a beginner is not always able to do so, and false knowledge is worse than no knowledge at all; you lose the time occupied in gaining it as well as in unlearning it. Till late years books published on natural history were notoriously disfigured by the marvellous; "I have heard" usurped the place of "I have seen." Nor are modern works entirely free from these objections. I have no pretensions to the critic in natural history; but when I meet with a statement which will not bear investigating by the ordinary process of analogical reasoning, I set it down as untrue until I see reason to change my opinion. Some time ago I spent an afternoon in the Zoological Gardens, Regent's Park. To economise time I purchased the sixpenny guide book having a plan of the gardens. This, by-the-bye, I would recommend every stranger to do who wishes to save his legs and his time. Subsequently, in turning over the pages of this book, I met with the following passage:—"Here also will be found the brush turkey of Australia (Talegalla Lathami), the representative of a limited but most singular group of birds, which are inhabitants of Australia, New Guinea, and a few of the adjacent islands of the Indian Archipelago. They are all remarkable, like the brush Turkey, for the great strength of their feet. The peculiar function to which this structure is directed is discernible in the history of their reproduction. Instead of making a nest, they scratch together enormous mounds of leaves and earth, in which they bury their eggs, to be matured by the heat of fermentation. As soon as the chicken leaves the shell, it excavates a way to light by means of its strong and well-developed feet; and then, it seems, the mother bird, guided by unerring instinct to await this moment, receives her young, and commences the actual duties of parental care." Now, does any body in their senses believe this? Fancy a young bird just warm from the shell, with tender feet and legs, scratching its way out from under an "enormous" mass of fermenting leaves and earth! But further comment is needless. Though the able secretary's name is on the title page no one will do him the injustice to believe that he wrote this passage. It would, however, have been well if he had corrected the proof-sheet. While on the subject of natural history I may allude to a statement in a recent part of the "The English Cyclopædia," in the article on the Pheasant, in which Mr. Selby is quoted as saying "that the bulk of the garden Tulip is an article of diet which the pheasant omits no opportunity of obtaining, and which, however deeply buried, the bird is almost certain to reach by means of its bill and feet." Now I happen to live in one of the best situations possible for testing the truth of this. My house is close to, in fact in the midst of a pheasant preserve. In the front is a small lawn, on which in the spring of the year, and in fact at almost any time, in the morning several pheasants may be observed picking among the Grass; and so tame are they that, much to my cost, they can with difficulty be driven away. On this lawn, for two seasons, I had a bed of Tulips; but not a bulb was touched by the pheasants. Many a time have I seen three or four fine fellows around the bed; both when the bulbs were recently planted and when the leaves were just peeping from the soil, and, in fact, at all stages of their growth; and I am sure that if the birds had any great liking for Tulip fare they would have helped themselves. I have, I am sorry to say, but few things in my garden, culinary or otherwise, that pheasants or rabbits will not readily eat; but I can safely say that Tulips are among the exceptions. *G. W. L.*

Paulovnia imperialis—The flowering of the Paulovnia in this country is now likely to become a common occurrence. You mentioned its having done so this season in a recent Number of your Paper, and I have lately seen a specimen some 20 feet high in the grounds of H. Kingscote, Esq., at Sandgate, with flowers fully expanded, and there are others in this neighbourhood. A sight of the plant mentioned suggests the propriety (especially for small places), of growing it more in the form of a bush, that its beauty and fragrance may be more accessible. In all probability age is all that is required in order to secure a yearly supply of bloom in favourable localities. The small extra degree of heat during last autumn does not appear to me to sufficiently account for the unusual supply of blossom this spring; at least, I would claim for the unprecedented dryness of the preceding 18 months some of the merit of producing such a result, and would press its consideration on such as have the charge of valuable collections, the condition of the plants under their charge as regards moisture being in a great measure in their own hands, while that relating to heat is altogether beyond their control. Perfect drainage, high or surface planting, benefit by the dryness thereby conferred, and might be carried still further by rendering (during the rainy season at least) the ground for some distance around valuable specimens waterproof, feeling assured that (as in the case of Vine borders, &c.,) the trouble would be amply repaid by the production of firmer wood, that would be easier ripened, and less liable to be acted upon by frost. The severity of the past winter has here produced some strange effects. The Pinus canariensis, Juniperus Bermudiana, and Viburnum japonicum, at best doubtful characters, have escaped and are growing freely, while double and common Furze bushes are killed to the ground. *J. M. Fo[illegible]*

A Country Gardener's Visit to London.—I have sometimes thought that a great part of the botanical knowledge in and about London is kept as it were in a strait-jacket. No doubt many a working gardener, like the writer of this article, has found much pleasure in botanical studies after the labours of the day are over, and would be glad of any opportunity within his reach to increase his small stock of knowledge. When I visited London some time ago, I hurried about from place to place, as my time there was of short duration. One day I came to what might be called a triple inclosed garden, namely, a hedge, a paling, and the police inside. I saw tallies with scientific names upon them, but it would defy them that ran to read them, and it would be a little dangerous at times to be peeping through an opening or making long necks to ascertain what they told the passer by; but I thought there would be a free passage somewhere, and that I would come out a better informed person than when I went in; but when I came to a wide entrance I found that it was too narrow for me to enter. I was told that it required a written order from a member, and that there were more than a thousand of them; but I might as well have sought for a lost needle in a truss of hay as found one of them. It was of no use telling that I was a stranger from Scotland, that I was a gardener whose stay was to be short; I mentioned names, the reply was "Not at home." They appeared to be as closely shut up as the cotyledons of the Windsor Bean in its leathery integuments. I turned about not very well pleased, thinking upon the dog Cerberus with three heads, the fabled keeper of Pluto's palace, wishing no doubt that Auld Nick would not be at home when any poor wight came near his dwelling, and I felt somewhat vexed at the thought that I would get more botanical knowledge within a ring fence on a Scotch moor than I could obtain from a metropolitan botanic garden. I got more easily into another garden, which I learned after I got within was Kensington Gardens. We are told somewhere that George Don, by order of the Commissioners of Woods and Forests, correctly named the trees and shrubs supplied to St. James's Park and Kensington Gardens. I ventured to speak to one man who was examining the state of the tallies in the arboretum. I expected to get some information from him on the subject about which he was employed, but he confessed that he knew nothing at all about botany; he told me, however, that it was the best arboretum in England. I had my doubts, however, about the statement, and thought that a person so employed, who knew nothing about botany or the naming of plants, might soon derange the best named collection of plants in existence. My next disappointment was at the British Museum. I purchased "a hand-book guide for visitors," and glancing over the divisions of the book my eye caught "Gallery of Natural History," which I found was in five divisions; the first on the list was the "Botanical Museum." In that noble building, with its rich collections of the works of God and man, there is much to attract the attention of those who visit it for the first time, and the statue of Sir Joseph Banks and the portrait of Sir Hans Sloane put one in mind of the botanical museum; but my search for it was something like the gentleman who was seen poring over the map of the world for the kingdom of Lilliput. After some lost labour, and by turning to my guide-book another time, I was told that the "Botanical Museum" was still incomplete and not open to the public. *P. Mackenzie, W[illegible] Plean.*

Oak Grafted on a Willow.—I have been informed by a gentleman who has lately been in France that he saw in the garden of Le Petit Trianon a grafted Oak tree, the stock of which was said to be Willow, and that it was done by Napoleon I. I wish to know whether you think this possible; and if you have no certain information, I beg the favour of an inquiry through your columns. *J. J. M., Leysters.* [Surely you do not believe in such a preposterous absurdity. Your friend should be less credulous.]

Mistletoe on the Oak.—Speaking to Dr. Jenner, the discoverer of vaccination, of the Mistletoe of the Oak, and remarking that I had never seen that plant but on Apple trees and sometimes on the Hawthorn and Mountain Ash, he said he had seen one and only one growing on an Oak in the forest of Dean, in Gloucestershire. Dr. Jenner was, as is well known, a very accurate observer and good naturalist; he considered its rarity and uncongenial habitat the cause of its being considered sacred by the Druids. *One of your Readers.*

Morphology.—I enclose two specimens of the cones of a Larch in my plantation, which is covered with cones in a similar condition, *i.e.*, having young shoots growing out of their tops. I do not know whether the phenomenon is very unusual or not; if it is perhaps you may think it worth while to notice it. *John F. Moor, Romsey.* [Such cases are not uncommon. They are curious proofs that the cone of a Fir tree is a stunted and metamorphosed branch.]

Stocks v. *Scions.*—Allow me to ask your scientific and practical horticultural and floricultural readers the following questions. 1. Would a wild Thorn or Crab grafted with an Apple or any other fruit produce any or sufficient shoots, suckers, or wild undergrowth, to destroy in any unlimited period of time the growth of such graft, and resume its original nature, if entirely neglected and left to its own growth in this or any other

climate, and without the clearing away of any shoots, suckers, or undergrowth? [Certainly in many cases, probably in all.] 2. The budding of Roses being upon the same principle, will time and neglect have the same effect with the wild Briar and in this climate? [Yes.] As this is a very interesting subject, would you pardon my introding further and asking the name or names of the authors who have specially written on this subject (I have lately read something on this subject, but cannot recall where), because it implies not only the power of the wild and natural production over the cultivated, but also the principle that the native growth of any clime may not be encroached upon by human power, except so far as continued attention sustains and assists the development of the indigenous child of one climate after having been grafted or budded on that of another climate. That in fact Nature reassumes its sway after the meddling human hand ceases to sustain what it has created by uniting plants by either budding or grafting. The question is the principle, and whether the laws of Nature have been fully explained on this point. *An Inquirer into Natural Laws, Brixton, June* 18. [We do not recollect anything specially written on this subject. But the truth of the replies we have given is matter of common notoriety. The wild stock will always overcome the scion, in course of time, unless artificial means are taken to prevent its doing so.]

Societies.

Linnean, *June* 19.—W. Yarrell, V.P., in the Chair. Professor Bentley exhibited several new materials for the manufacture of paper, as well as the papers made from them, and made some observations on their peculiarities. Dr. Berthold Seemann exhibited a specimen of the Pipitzahuac (Dumerilia Alamani, Db.) together with some crystals of a golden metallic hue extracted from its roots, and called in Mexico *Oro vegetal*, or vegetable gold. It was stated that this new organic acid, which had been extracted by Mr. W. Schaffner and Prof. Leopold Rio de la Loza, possessed medicinal properties similar to those of jalap, and is soluble in ether. The following papers were read.—1. A memoir "On the Larvæ of Coleopterous Insects," by J. O. Westwood, Esq. 2. The continuation of Dr. Hooker's memoir "On Balanophoreæ."

Caledonian Horticultural, *June* 9.—Premiums were awarded on this occasion as follows, viz.:—To Mr. Fowler, gr. to J. Macmurray, Esq., for Cattleya Mossiæ and Leschenaultia formosa; 2d to Mr. Ritchie, gr. to A. Duncan, Esq., for Pimelea decussata and Eutaxia myrtifolia. Cape Heaths (in 8-inch pots).—1st to Mr. Lockhart, gr. to R. Dundas, Esq., for Erica ventricosa coccinea, E. ventricosa hirsuta rosea, E. ventricosa densa carnea, and E. Coventryana. Cape Heaths (in 11-inch pots).—1st to Mr. Fowler, for E. ventricosa alba tincta and perspicua nana; 2d to Mr. Ritchie, for E. odorata rosea and Bergiana. Pelargoniums.—1st to Mr. Forrest, gr. to W. Anderson, Esq., for Gulielme and Forget-me-not; 2d to Mr. Cameron, gr. to S. Hay, Esq., for Pictum and Forget-me-not. Pelargoniums (in 6-inch pots).—1st to Mr. Henderson, gr. to C. K. Sivewright, Esq, for Magnet, Emily, Beauty of Montpelier, and a seedling. Fancy varieties.—1st to Mr. Forrest, for Countess of Ross and Annette; 2d to Mr. Cameron, for Decora and Lady Flora Hastings. Fancy ditto (in 6-inch pots).—1st to Mr. Forrest, for Lady Hume Campbell, Jenny Lind, Lady Downes, and Jehu Superb; 2d to Mr. Henderson, for Goliah, Decora, Advancer, and Eminent. Cinerarias (in 8-inch pots).—1st to Mr. Walker, gr. to J. Mood, Esq., for Angelique, Lady Hume Campbell, Marianne, and Rosy Morn; 2d to Mr. Crombie, for Lady Gertrude, Lord Stamford, Ayrshire Lass, and Picturata. Calceolarias.—1st to Mr. Mitchell, gr. to Lady Keith, for Sir G. Warrender, Rob Roy, and Nelson; 2d to Mr. Ritchie, for Bass Rock, Acantha, and Uncle Tom. Pansies (nurserymen).—1st to Messrs. Downie and Laird, for Monarch, Royal Standard, Countess of Strathmore, Father Gavazzi, Miss Talbot, Sulphurea splendens, Argo, Fearless, Miriam, Flower of the Day, Alpheus, Lord Raglan, Sir C. Napier, Marchioness of Bath, Sovereign, Lady Emily, Lord Dunfermline, Miss Walker, St. Andrew, Alice, Nonpareil, Duke of Sutherland, Charles Cowan, and Sir J. Cathcart; 2d, to Mr. T. H. Douglas, for Mrs. H. B. Douglas, Satisfaction, Earl of Mansfield, Flower of the Day, Duke of Norfolk, Minerva, Admiral Dundas, Aunt Chloe, Emperor, Royal Visit, Nox, Countess of Strathmore, Sovereign, Jubilee, Marchioness of Bath, Medora, Sultan, Glen Beauty, Sir John Cathcart, Velvet, Great Britain, Miss Walker, Unique, and Argo. Best 12 blooms (practical gardeners and amateurs).—1st to Mr. Reid, gr. to W. Wilson, Esq., for Yellow Climax, Jeanie, Miss Talbot, Sovereign, Alice, Queen of England, Mary Taylor, Royal Visit, National, Jubilee, St. Andrew, and Royal Standard; 2d, to Mr. Henderson, for Royal Standard, Sir C. Napier, Nonpareil, Lord Palmerston, Father Gavazzi, Earl of Mansfield, Monarch, Beauty, Charles Cowan, Jubilee, Bride, and St. Andrew. Best specimen of a Hardy Herbaceous Perennial.—1st to Mr. Mitchell, for Dielytra spectabilis; 2d, to Mr. Falconer, gr. to Mrs. Fraser, for Saxifraga pyramidalis picta. Alpine Plants: 1st, to Mr. Falconer, for Ramonda Pyrenaica, Astragalus uralensis, Dianthus alpinus, and Smilacina bifolia; 2d, to Mr. Mitchell, for Campanula pulla, Arenaria ciliata, Primula sikkimensis, and Stachys corsica. Messrs. Dickson and Co., prize of one Guinea, for Calceolarias, was awarded to Mr. Ritchie, for Bass Rock, Acantha, Nelson, Empress, Sultan, and Uncle Tom. Among Extra Productions there came from Messrs. P. Lawson and Son, Abelia floribunda, Weigela amabilis, Berberis Darwini, B. Jamesoni, B. macrantha, &c.; from Messrs. J. Dickson and Sons, Clematis lanuginosa and Rose Vicomtesse Decazes; from Messrs. Cunningham, Fraser, and Co., Cantua dependens; from Mr. R. T. M'Intosh, Rhododendron javanicum in flower; from Mr. R. M. Stark, Viola stipularis, Sedum Crimense, and a new species from Sikkim, Whitlavia grandiflora, Escholtzia tennifolia, with Ferns, and variegated herbaceous plants; from Mr. Methven, Boronia Drummondi; from the garden of I. Anderson, Esq., were the semi-double Rhododendron fastuosum, and several novelties from north-west America; from Dr. Paterson, Deutzia gracilis; from W. Hunt, Esq., bloom of Rhododendron Dalhousiæ, from a plant on its own roots; from Captain Peat, R.N., R. javanicum with three trusses of flowers. Mr. Aitkin exhibited a fine dark seedling Pansy named Sir Colin Campbell, which was considered a decided improvement upon St. Andrew, and to which a First-Class Certificate of Merit was granted. Mr. Crombie exhibited eight good seedling Calceolarias—one of which, No. 4, with dark ground and gold pencilling, was considered of exquisite form and superior to any of its class; and a First-Class Certificate was accordingly awarded for it. Messrs. Macpherson & Son exhibited specimens of hydraulic or Roman cement, which was stated to be applicable to garden decoration, especially in forming fountains, vases, &c., as well as walks and pavement. Mr. Alexander showed specimens of paper and rope made from Hollyhock stems by Mr. Niven's patent process. The exhibition was enhanced by plants from the Society's collection, among which was a new species of Phacelia, raised from seeds sent home by Jeffrey, the collector to the Oregon Association.

Notices of Books.

The Angler and his Friend, by Dr. Davy (12mo, Longmans, pp. 306), is one of those pleasant gossiping volumes which are the delight of piscatorial wanderers. The learned author overflows with knowledge of his art, and is eager to impart it to his companion Amicus, with whom the book is a perpetual conversation. The instructions for fishing in Connemara, Donegal, Shropshire, and Westmoreland, are evidently those of one who knows every inch of his ground, who has himself fished those waters, and whose advice is that of personal experience. The style in which advice is conveyed may be judged of from the following account of the weather most favourable to the angler. Amicus wishes to know what is to guide him in that respect, when the following conversation ensues:—

"Piscator. In complying with your request, I shall do little more than disclose the poverty of my knowledge.

"Amicus. First, if you please, speak of the waters,—the state of which is appreciable by the eye, and respecting which, I apprehend, there can be little doubt or mystery.

"Piscator. I will mention its least favourable state, whether of lake or river; and this is its waxing—a state necessarily connected with rain, and continued rain. Then the water is more or less foul; and, being foul, affording food below the surface in worms and larvæ washed from the land, is on both accounts unfit for fly-fishing. The opposite state is, perhaps, the most auspicious; that is, when the water is waning, clearing, but not quite clear, and the adventitious food is carried away by the stream or expended, and the fish are on the alert towards the surface for insect prey. If in such a state of river or lake you see the swallows haunting any particular part, skimming along the surface, there you can hardly do amiss to follow their example, and whilst they are taking water-insects you probably will be successful in taking fish. The connection I need not point out.

"Amicus. I infer from what you say, that neither a very high state of the water nor a very low one is inviting to the angler,—that is, for fly-fishing, to which I intend honourably to restrict myself.

"Piscator. As a general rule, it holds good; but, as a good deal depends on the average size of the stream, if its volume after drought is sufficient, it does not follow that there need be a want of sport; indeed, there may be very good sport, other circumstances favouring, but to secure this you should use all your art and the finest tackle, on account of the clearness of the water.

"Amicus. Now, if you please, as to the mysterious atmosphere.

"Piscator. A pretty general experience seems to prove, as I think I before observed, that when the electricity of the atmosphere is disturbed, when, to use a vulgar expression, 'there is thunder in the air,' there is little chance of good sport; a state commonly denoted by heavy drops of rain, if there be any, or by diffused, low, leaden-coloured clouds, under which the artificial fly is easily seen. This circumstance is held by old salmon-fishers to be of special bad omen. I will not tire you with other prognostics, at least of bad luck. You will in good time learn them yourself, so far as they can be learnt. Pleasant exercise being one of the chief objects of angling, and the charming view of the honest and beautiful face of nature another, it is well not to be over inquisitive about the signs, whether of good or bad sport. It is well to go out for recreation with faith and hope, and with a meek and contented mind; and, judging from my own experience, there will then be little disappointment. One pleasant general rule I can lay down, which is, that the more agreeable the weather, the fitter for exercise and enjoyment in the open air, the better the chance commonly of sport; as when you have

> 'The sweet south,
> That breathes upon a bank of violets,
> Stealing and giving odours;'

when the honey-bee is busy and far from home, when the swallow is skimming lake or river, in brief, when the air is soft, warm, and genial, and if high, still of the same genial character, the opposite of bleak, chilling, and cold."

From this the dialogue proceeds to the laws of fishing, the seasons, and local regulations, concerning all which the best advice is given to the inexperienced.

Garden Memoranda.

Horticultural Society's Garden, Turnham Green.—Among flowering plants in the curvilinear stove were some beautiful specimens of Achimenes and Gloxinia. The former are grown in pans about 9 inches wide and 4 inches deep, a plan which answers better than pots, as in this way they can be had in larger masses, and are therefore more effective. What is called on the continent Hoya coccinea was also in flower here; it appeared to be merely a variety of H. carnosa, with a little more colour in it; Canna Warzewiczi, likewise in this stove, is a pretty plant of the kind, with red-edged leaves and brilliant crimson blossoms. It was raised from seeds sent to the Society by Mr. Skinner. Crinum amabile, in the little aquarium at the end of this house, has produced a noble head of flowers, and on the roof above it Ipomœa rubro-cærulea was very gay. Among stove climbers few are more handsome or showy than this.

In the greenhouse adjoining this stove were some beautiful hybrid Cacti, the result of crossing the white Cereus crenatus with C. speciosissimus. The mules thus produced possess colours varying from vivid crimson to pale salmon, and they are much more manageable than speciosissimus, being flat-stemmed moderate sized growers, like the white female parent. We also remarked here an extremely well flowered plant of Mitraria coccinea which, when seen in good condition as this was, is really very handsome.

In the little greenhouse near the carpenter's shop the new primrose-leaved Campanula (C. primulæfolia) was in flower, and a very handsome kind it is. It somewhat resembles the pyramidal Campanula, but is even more stately, its stems rising between 3 and 4 feet in height, and beautifully clothed with purplish lilac blossoms. Associated with it was a noble specimen of Pelargonium lateripes, an ivy-leaved Cape kind; and in the same house, which was altogether very gay, were some fine bushes of the small yellow-flowered Calceolarias rugosa, integrifolia, and angustifolia.

In the large stove at the end of this house were Hamelia suaveolens, a slender growing shrub, on the ends of whose branches were clusters of yellow tubular flowers, which although not very bright are certainly not unhandsome, and they serve to produce variety. A Begonia here raised between acuminata and fuchsioides was also worthy of notice. Its flowers are not so brilliant as those of the Preston Hall hybrid, but this is in some measure compensated for by their being produced in great abundance, and the plant is so stately in habit that it shows them off to great advantage. For this excellent variety we are indebted to Captain Trevor Clarke, a fellow of the Society.

The Rose house was just in perfection on the day of the last garden exhibition, and we need scarcely add was the admiration of all who inspected it. Since then portions of the flowers have been removed and the shoots themselves have been trimmed in a little with the view of inducing them to break afresh, and be in good bloom again on the 11th of July when the next fête takes place. Nothing can be more satisfactory than the way in which the Teas and Noisettes, with which this house is planted, have succeeded. They have already as we have noticed been loaded with large and beautiful blossoms, and there can be little doubt that they will yet produce a second crop equally good as the first.

In the great conservatory Brugmansia Knighti is literally covered with white trumpet-shaped sweet-scented flowers; the red kinds are also well furnished with blossoms, and altogether this house is at present extremely gay, the side shelves being profusely decorated with showy plants, among which the most effective were noble bushes of Calceolaria rugosa. This well-known but useful variety is worth the attention of all who have houses of this kind to keep "dressy." It should be treated very much like Scarlet Geraniums. We also remarked here nice potfuls of Schizanthus retusus, a showy annual at this season.

In the Orchard-house Strawberries in pot on the beds have set and ripened good crops, although in 5-inch pots and far from the glass, and Pears, Peaches, and Nectarines have plenty of fruit on them for the size of the trees. Plums are so thick that they will require a liberal thinning, and Cherries are equally satisfactory; the Kentish kind is fully coloured. Gooseberries are loaded with fruit, and so are Black Currants, while Red ones are beginning to colour. This house may, therefore, shortly be expected to be extremely interesting.

Among Cucumbers Empress of the French has proved a good long black spined variety, and very prolific. We also noticed a sort raised from Chinese seeds; it was smooth skinned, with a few white spines on it, and very

long in the neck. In the same house were an Australian Water Melon, which is being grown here (in a pot set in a pan of water, and surrounded with Moss) with a view to test its qualities, together with the Turtle Soup Bean, a running pink-flowered sort, and a white-flowered American Bean, of similar appearance, which is stated to be a great favourite all through the Southern States. This last was given to the Society for trial by Mr. Frederic Rowe.

Plants of the Chinese Yam (Dioscorea) have been put out of doors, under hand glasses, but the weather, until lately, has been too cold for them to make much progress.

In the Kitchen Garden are some excellent Cabbages, the best of which is perhaps Dancer's, but Cock's is about equally good. Both are the Fulham Market Cabbage. Peas, late and early sorts, have just been sown, with a view to prove which is best for a late crop. Some of the January sown lots were fit for table quite a week ago. The Early Emperor came in first; it is rather before the Early Warwick, which is a little behind Dan. O'Rourke; the latter does not appear to be different from Mr. Sangster's No. 1. Early Surprise, Beck's Eclipse, Dickson's Early Favourite, and Prize-taker are only yet in flower, although they were sown at the same time as the above. Among very dwarf varieties Beck's Gem is the earliest; it is now in fruit, while Burbidge's Dwarf Eclipse, and Bishop's Long-pod, all sown on the same day, are only just in flower. Hairs's Dwarf Mammoth is also later than Beck's Gem. Pois Michaux Petit, or Paris Market Pea, appears to be the same as our Early Warwick. Peas sown in pots in February, forwarded a little under glass, and then planted out, came in a week before kinds sown in the open ground in January. They do not, however, afford so many gatherings; but then a week's earliness in the first of the season is an object not to be overlooked.

As regards Lettuces, we have to report that May's Magnum Bonum has proved to be the same as the Black-seeded Alphange Cos, a large good Lettuce for summer use, and not so apt to run to seed as some Cos Lettuces.

In the Orchard there is every appearance of good crops, though Pears are dropping a good deal. On the night of the 20th inst. there were 2° of frost by the radiating thermometer. New stakes have been procured from Mr. Montgomery's saw mills for the young espaliers. They are inch-square deal, and painted over with pitch as far as they are inserted in the ground. Stakes of this description are better than rough ones with bark on them, as the latter are apt to harbour insects.

It will be seen how backward the season still is when we state that no Strawberries have yet been gathered from the open ground.

FLORICULTURE.

THE CHRYSANTHEMUM.—I have proved the following to be a most successful method of producing really magnificent specimens of this favourite flower. I insert my cuttings under hand-glasses on a cutting bed, in time for them to be sufficiently rooted to enable them to endure the operation of transplanting by the first week in July. I plant them out in beds previously manured with plenty of well rotted dung, setting them in rows 1 foot apart, and as much between the plants. After they have grown sufficiently large to require staking, and which they will have done in about a month after planting, they are neatly tied to stakes, which I contrive to be as near as possible the height to which the plants are likely to grow; at the same time I apply a layer of dung the depth of 3 inches, or thereabouts, to the surface of each bed. This, while it protects the roots from the effects of continued dry weather, furnishes the plants during every shower of rain with a copious supply of liquid manure, which wonderfully accelerates the growth, and imparts to the foliage that dark green massive appearance which is so indicative of vigorous health. Beyond tying the plants occasionally as they require it they may be left to themselves until the first week in October, when they should be taken up and potted firmly in pots of sufficient size to suit the ball. As a rule I never attempt to remove the plants until the buds are fairly set; it is, therefore, advisable to defer potting the late flowering varieties until the end of October. After potting the mould in each pot should be saturated with water, and care should be taken on all subsequent occasions to give the plants plenty of water, and if this is well attended to they will not flag or drop their foliage. Treated in this way the time the plants are confined to pots is limited to the shortest possible period, and never present that starved leggy appearance which they frequently exhibit when they are grown long in pots. When the amount of labour expended in watering is taken into account, together with the frequent drawback of the plants producing diminutive and partially developed flowers, the advantages of the above plan will be apparent, especially when it is recollected that, with scarcely a tithe of the trouble, the cultivator will be in a condition to command a first-rate supply of well-grown and finely furnished plants in every respect worthy of the name, richly studded with flower buds. The true colour, size, and shape of the flowers may also, with comparative certainty, be depended upon. The practice of growing the Chrysanthemum in pots appears to have been founded on the generally received opinion that, in order to obtain a good show of flowers on young plants, it is necessary to confine the roots to pots proportioned to the size of the plants. Cultivators disposed to give the two methods a fair trial will, however, I am persuaded, acknowledge that the Chrysanthemum does not make such a bad use of its liberty as to render it imperative to put artificial restriction on its roots; on the contrary, strong healthy plants, be they ever so young, will flower freely and very much finer when grown in beds, and are in every respect very far superior to the best Chrysanthemums that can be produced in pots. *R. M.*

NATIONAL FLORICULTURAL SOCIETY, *June* 21.—At this meeting Calceolaria Yellow Standard received a certificate of merit; it is a neat profuse blooming shrubby sort, with bright canary-coloured flowers. A similar award was also made to Calceolaria Orange Perfection; these came from Mr. Cole, of St. Alban's. Phlox Celestial, from Mr. Lochner, was not sufficiently in flower for its merits to be determined. A fine specimen of Verbena, Mrs. Woodruff, was contributed by Mr. Robinson, the raiser of Defiance; its flowers are very large and brilliant. Several other Verbenas were staged, but they were considered to be no decided improvement on existing sorts.

SEEDLINGS.

GLOXINIAS: *T D.* 1, is the best; its colour appears to be richer than that of most dark purple sorts. The others are too small.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—The Camellias and Azaleas for early flowering which have set their buds should be removed to a shady sheltered situation out of doors, as if kept in heat too long after they are fairly set for bloom they will be apt to make a farther effort at growth, which would cause them to bloom weakly and irregularly. Give careful attention to maintaining a succession of plants for the decoration of this house during autumn and early winter. A portion of the stock of the Lilium lancifolium should be placed in a shady situation to retard their blooming till late in autumn, when they will doubtless be acceptable, and there should be a good stock of Fuchsias coming slowly along in a cool house or a shady situation out of doors for autumn flowering. Attend to the stock of Chrysanthemums, also Salvia splendens, Tree Carnations, &c., and afford them pot room, &c., as may be requisite, and endeavour to secure well grown stock specimens of these and everything else. Selago distans is a capital plant for winter blooming, requiring merely a cold pit to grow it in, and keeps in flower an unusually long time, and is well deserving of attention. But we must still depend principally for a winter display upon our old friends the Camellias, Epacris, and the winter blooming Heaths, and these should all have every necessary attention and care, and should be largely grown where there is a large demand for flowers in winter, and do not overlook Mignonette and a good stock of Cinerarias.

FORCING DEPARTMENT.

VINERIES.—Attend to keeping cool and moist where the fruit has been cut in order to preserve the foliage in a healthy state as long as possible. The laterals need not be kept very closely stopped after the fruit is cut, but they must not be allowed to shade or injure the principal foliage. If there is any appearance of red spider give the foliage a good washing with the engine directly the fruit is cleared off, and repeat this as long as there is a vestige of the enemy to be seen. Give prompt attention to the thinning of the fruit in succession houses, for like many other jobs this is most easily and expeditiously done when taken in time. Look well to the state of the borders where the fruit is swelling, and give a thorough soaking of tepid, good strong manure-water wherever the soil is found to be at all dry, and aim at having the borders in a healthy state as to moisture where the fruit is about colouring, for a healthy root action has more to do with the colouring of the fruit than many persons seem to suppose. Young Vines planted out this season should be encouraged to grow freely, and as the roots will be near the surface see that they are not allowed to suffer for the want of water, and in the event of hot drying weather a slight mulching over the roots would be useful. Do not keep the laterals too closely stopped, as the more leaves, &c., the Vines are allowed to make the more freely the roots will run in the border, and this deserves attention the first season.

PEACHES.—Spare no pains to maintain a moist state of the atmosphere where the fruit is swelling, syringing freely, and shut up early in the afternoon, but give air sufficiently early in the morning to prevent the least risk of scorching.

FLOWER GARDEN AND SHRUBBERIES.

With few and comparatively short exceptions the weather has not been sufficiently warm for the bedded-out stock making rapid and vigorous growth, but so far everything seems to keep perfectly clean and healthy, and is growing slowly. Watering must still be well attended to, especially where the soil is of a light dry nature; and as the roots are yet near the surface, this should not on any account be neglected a single day after the plants begin to feel the want of moisture. Where the soil is of a stiff tenacious character, it will be advisable to give a thorough soaking when watering is necessary, as frequent waterings on soils of this nature cake and harden the surface to a most injurious extent; and as soon as the surface soil is sufficiently dry after watering, it should be lightly broken up, using a short-headed rake with short blunt teeth, or a small Dutch hoe, and taking care not to injure the roots. Get annuals thinned before they grow into and weaken each other, for if left to stand too thick they never flower finely nor make half the display of plants that are afforded plenty of room and grown strongly. The early flowering bulbs, as Tulips, Hyacinths, &c., should not be left in the ground after the decay of the foliage, as if wet weather occurs they will make fresh roots, which weaken and injure the bulbs.

HARDY FRUIT AND KITCHEN GARDEN.

The bright warm weather which we are now enjoying will cause the Peach and other trees to grow away freely, and on light shallow borders watering may be necessary, and if so use water that has been some time exposed to the sun, mulching lightly with rotten leaves to retain the moisture as soon after watering as the border will bear treading. Weakly trees would be benefited by mixing with the leaf-soil a portion of good rotten dung. But where the trees are at all inclined to make gross wood mulching should not be practised. Stop any gross shoots, or remove them altogether if they can be spared, and endeavour to equalise the growth as much as possible so as to get the trees well filled throughout with bearing wood. Look to the preparation of Strawberry plants for forcing next spring, and do not allow the beds of this favourite to want for water until the fruit is beginning to ripen.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending June 28, 1855, as observed at the Horticultural Gardens.

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain
Friday 22	8	30.250	30.104	74	58	66.0	55	57	N.W.	
Satur. 23	9	30.170	30.110	68	41	54.5	60	56	N.W.	
Sunday 24	10	30.178	30.1.8	71	43	57.0	58½	56½	N.W.	
Mon. 25	11	30.168	30.148	68	52	60.0	59	57	S.W.	
Tues. 26	12	30.201	30.074	77	56	66.5	59	57	N.W.	
Wed. 27	13	30.357	30.224	81	45	63.0	59½	57½	S.W.	
Thurs. 28	14	30.274	30.204	79	53	66.0	61½	58	E.	
Average.		30.228	30.144	74.0	49.7	61.8	58.8	57.0		

June 22—Fine; very dry; overcast at night.
— 23—Light clouds; overcast; fine.
— 24—Fine; very fine; clear at night.
— 25—Lightly overcast; cloudy and fine.
— 26—Overcast; very fine throughout.
— 27—Dry haze; very fine; hot and dry; cloudy and fine.
— 28—Dry haze; very fine throughout.

Mean temperature of the week 1-5th deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending July 7, 1855.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds							
Sunday 1	71.8	52.2	62.0	15	1.23 in.	1	2	5	—	4	9	6	[illegible]
Mon. 2	73.1	52.5	62.8	11	0.65	1	3	2	—	5	6	[illegible]	[illegible]
Tues. 3	74.7	52.3	63.5	14	0.78	1	3	2	—	5	8	[illegible]	[illegible]
Wed. 4	76.4	52.0	64.2	8	0.85	—	4	2	1	2	12	[illegible]	[illegible]
Thu. 5	78.0	52.0	65.0	11	0.59	1	1	4	1	5	9	8	—
Frid. 6	76.6	52.6	64.6	11	0.45	—	3	1	4	5	9	5	[illegible]
Satur. 7	74.1	53.3	63.7	17	0.34	1	1	4	2	6	8	4	[illegible]

The highest temperature during the above period occurred on the 5th, 1852—therm. 97 deg.; and the lowest on the 1st, 1837, and 4th, 1841—therm. 37 deg.

Notices to Correspondents.

ASPARAGUS: *Anon.* The stems are "fasciated," a very common kind of monstrosity, usually arising from excessive luxuriance.

BOOKS: *A H.* Sweet's "Hothouse and Greenhouse Cultivator." —*Vina.* Saunders on the "Pot Culture of the Vine." ‡—*G D.* Lindley's "School Botany" was written expressly to remove all such difficulties. The general truths of vegetable physiology are briefly enumerated in the last edition.—*R L.* Mills on the "Culture of the Cucumber and Melon."—*D & Sons.* We have just received Carrière, *Traité général des Conifères*, an 8vo. volume which seems to be what you are in search of.

DISEASES: *A B C.* The Peaches are affected with the common Peach mildew. Either apply brimstone with a dredging box or syringe the trees with a properly diluted solution of Grison's mixture, the receipt for which will be found in our volume for 1852, p. 419. *M. J. B.*

LABELS: *Liverpool.* Letters of various sizes with which to punch names on sheet lead may be had of any considerable ironmonger.

LABURNUM SPORTS: *J C.* This is the common and well-known Cytisus Adami, concerning which consult the "Theory of Horticulture," last edition, p. 358.

LAWNS: *Constant Sub.* The mowings and sweepings make good manure when mixed with leaves, and constantly soaked in "house-slops" of *any* kind. But they are some months rotting down, and are apt to become offensive unless sprinkled from time to time with peat charcoal or some other disinfectant. It mixed with stable manure so much the better.

MEALY BUG: *Beginner.* Perhaps the best mode of getting rid of this pest is continual brushing, sponging, and washing, with a mixture of tobacco water and soft soap. ‡

NAMES OF FRUITS: *R A.* Your Apple is a sort of Nonpareil, like Braddick s.‖

NAMES OF PLANTS: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Y., Bucks.* A Deodar and nothing else. Its seed never came from Mexico.—*J H.* Doronicum Pardalianches.—*T S K.* Calycanthus floridus.—*Kimbery.* 1, Some Acacia quite indeterminable; 4, Sinningia guttata; 5, some Epidendrum, perhaps selligerum; 2, Asclepias curassavica—*W W S.* Next week.—*J B.* Rivina lævis.—*W B.* Myosotis minimus. No second volume was ever published.—*E A.* It looks like a bit of Euonymus europæus.

OAK GALLS. *Peter Wh.* They are common Oak-apples. We see nothing unusual in them.

VARIEGATED SWEET WILLIAM: *F P.* The leaf sent is prettily striped with white. Similar variegations in Sweet William have, however, been observed before. They can only be perpetuated with certainty by means of cuttings or layers.

VINE MILDEW: *G W S.* We have no doubt whatever that the disease may be completely arrested by sulphur in all cases. You should syringe the Vines well before dusting them with the flowers of sulphur; and if the disease has made much progress, you should use the sulphur unsparingly.

WOODLICE: *T W.* A toad or two will assist you in thinning their numbers, and quantities may also be caught by placing tiles or boards over each other; they crawl between them in the morning approaches to conceal themselves, and may be destroyed. Tiles laid over Cabbage leaves likewise form good traps.‡

MISC.: *Old Sub.* Double Rhododendrons are by no means uncommon.

PEAT CHARCOAL.

THE PEAT CHARCOAL COMPANY beg to inform Agriculturists, Florists, &c., that they can be supplied with the above valuable deodoriser, fine in boxes, and coarse in sacks, by applying to their Agents, MARK FOTHERGILL & Co., 204A, Upper Thames Street, London.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
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The machine is made to cut the breadth of 42, 30, 20, and 15 inches respectively, is exceedingly durable, easily managed, and adjusted to cut to the length required. The execution of the work is far superior to what may be attained by the most skilful mower, while at the same time a great saving of labour is effected, and the turf much improved. By the largest machine a Scotch acre may be mowed, rolled, and the Grass collected in one hour.

A. S. and SON have much pleasure in stating that they have made considerable improvements in their 15-inch or hand machine this year, by which the draught is considerably lessened. This machine combines all the merits and advantages of the larger machines with firm and secure construction, and is admirably adapted for borders and for lawns of no great extent.

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Further particulars, with testimonials and prices, may be had on application.

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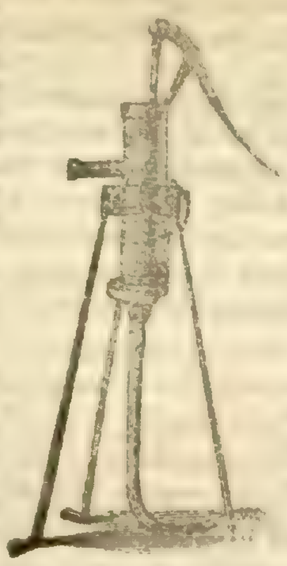

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3l. 3s. The barrel is 27½ in. long, and the legs are 5 ft. high.

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PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ „	long 3 „ 3 „		1	15	0
3 „	ditto 3 „ 6 „		2	12	0
3½ „	ditto 3 „ 6 „		2	18	0
4 „	ditto 3. „ 6 „		3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto	ditto ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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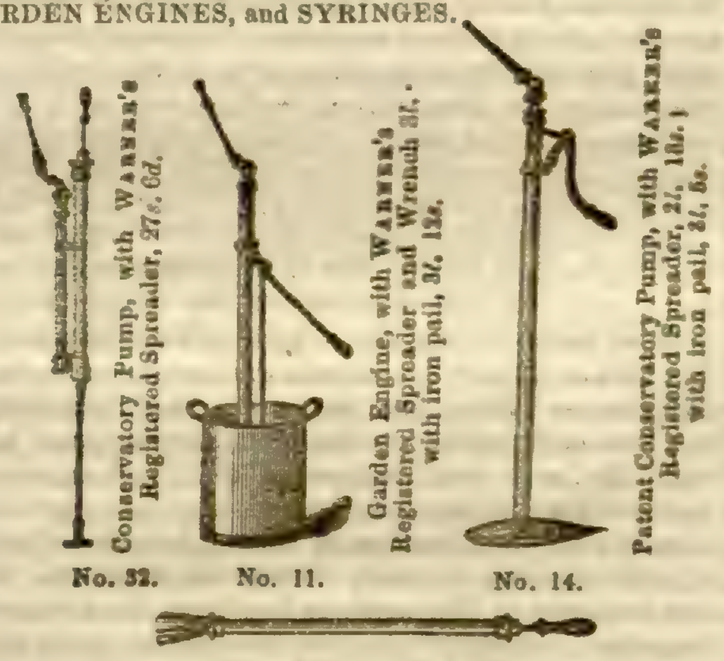

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Sheets of Engravings sent on application.

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Vice-President—Sir JOHN PETER BOILEAU, F.R.S., Vice-President of the Zoological Society.

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The value of the Prizes will exceed 300 guineas. A detailed List of the Prizes and Certificates of Entry may be had on application to the Secretaries at the Office, Anerley, Surrey.

By Special Permission the BAND of the ROYAL ARTILLERY will attend each day during the Exhibition.

EDGAR SMALLFIELD, HENRY F. WELLS } Hon. Secretaries.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE UNDER THE NEW STAMP ACT.

IN consequence of the Repeal of the Newspaper Stamp, the price of this Journal will be on and after this day 5*d.* unstamped, and 6*d.* stamped.

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The Agricultural Gazette.

SATURDAY, JUNE 30, 1855.

MEETINGS FOR THE ENSUING WEEK.
WEDNESDAY, July 4—Agricultural Society of England.

WE have lying before us the prize lists of two annual agricultural shows—one to be held in Paris between May 23 and June 7, 1856, and the other between May 22 and June 6, 1857. It may be well for English breeders to bear in mind the extremely liberal rewards offered by the French government on these occasions. As instances we select the short-horn class among cattle, in which eight prizes amounting to nearly 400*l.* are offered, the highest being 40*l.* for the best old and yearling bulls; and the South-down class among sheep, in which prizes amounting to nearly 200*l.* will be awarded; the highest being 24*l.* The interest excited among both British and French agriculturists by the show of this year will, we think, ensure greater and more general patronage of this annual meeting by English breeders than has hitherto been accorded to it. The sum of 5000*l.* and upwards is awarded to breeding stock alone on this occasion, besides a considerable sum for machines. An application addressed to the Minister of Agriculture and of Public Works will, no doubt, procure a printed statement in detail of the particular distribution of this large sum.

On the 9th of May a paper by Mr. Horsfall, of Burley Hall, Otley, in which he described the results of his dairy management, was read before the Royal Agricultural Society of England. He had been requested, it appears, by the Council of the Society to supply information regarding his treatment of cows for dairy purposes, and the information which he gave was justly deemed worthy of a vote of thanks. The remarkable fact which his experience had presented was the extreme richness and density of the cream which under his mode of feeding was obtained, and he says that having satisfied himself that this peculiar richness was due only to the treatment of his cows, it appeared to him that these results of his dairy practice afforded matter of interest for the investigation of those who cultivate science—the physiologist and the chemist—and that he ought not to keep them to himself. So far from pretending any position as agricultural teacher such as would throw any reproach on the existing practice or on the existing theory of dairy management,

he says with perfect simplicity and modesty:—"Though my pretensions to acquirements in the instructions of these gentlemen are but slender, they are such as enable me to acknowledge benefit in seeking to regulate my proceedings by their rules." That Mr. Horsfall's acquirements are very much beyond his pretensions will have been apparent to all the readers of this Journal. The frequent papers on cattle feeding with which he has favoured us during the past season prove not only scientific but practical ability. And on this latter point we are able to say that for many years he has been engaged in farming pursuits—every detail of management being under his direct control—the object throughout of pecuniary success having been not only kept in view but successfully attained.

On the 20th June, at another weekly meeting of the Council of the Agricultural Society, a second paper on the same subject was read by Mr. Scott, of Charing Cross. It is impossible to speak too highly of the substantial, instructive, and suggestive character of Mr. Scott's communication. A great deal of it bears on the business rather of the butter merchant than of the dairy farmer; but whether in reference to the manufacture or the sale of dairy produce it is a most useful contribution to our knowledge of its subject, and will no doubt find a prominent place in the Society's Journal. If we may be allowed to write one word in criticism of this paper, it would be to direct attention to what is one of its merits in a literary point of view—the fluent confidence with which authorities are marshalled, and his own wide experience is alluded to by the writer—so that those not possessed of personal knowledge of the points which it embraces, are carried away even more readily by its reasoning than they were by that of Mr. Horsfall, which it appeared to overthrow.

The history of this discussion is completed by adding that, in a leading article which appeared on Monday last in the *Mark Lane Express*, the writer laughs at the "much vaunted *progress*" indicated by Mr. Horsfall's achievements, announces himself as the "opponent of humbug," and exclaims, "how awkwardly would that first letter have appeared in the Journal without this rider to it. How much harm might the first alone have done if allowed to appear uncorrected!"

The answer to all this outcry is simply this, that Mr. Horsfall never "promised to effect the complete revolution" in the butter manufacture which the *Mark Lane Express* seems to have feared from his communication—that the "first letter" has never been corrected, and that as a simple statement of fact it must stand, however "awkwardly" it may read.

The facts of the matter may be correctly given both by Mr. Scott and Mr. Horsfall without the inferences of the former regarding the conclusions of the latter being substantiated. It is a very hasty ill-considered decision to assert that Mr. Scott has come to "the rescue of the Society" from the conclusions to which Mr. Horsfall would have led them. It is perfectly true that it is in relation to the quantity of milk, and not in reference to that of the cream, that the produce of butter is important, but Mr. Scott was not the first to make use of that self-evident truth. The quantity of butter from the milk yielded by the cows is given in the original paper, and while the yield of butter from the cream thrown up is unprecedented, the proportion yielded by the milk is very far from being the average which Mr. Scott contends it is. We fear the writer in the *Mark Lane Express* founds his glee over Mr. Scott's conclusions upon some of that book farming which he would certainly in his cooler moments have condemned. 25 ozs. of butter from 16 quarts of milk, which Mr. Horsfall gets, would be a great step forward in dairy experience if it could be generally attained, whatever may be said in the books which Mr. Scott has quoted, and on which our contemporary relies. The "average" quoted by Mr. Scott is not the average of such cows as Mr. Horsfall uses. Most of the cows milked in the trials alluded to by Mr. Scott were Kerries, Galloways, Ayrshire, cross-bred, Irish, any of which yield richer cream than ordinary. If the short-horns and the Cheshire cows are taken for comparison Mr. Horsfall's yield of butter from the milk is one-third higher than the average of Mr. Scott.

But we are not careful to defend Mr. Horsfall from his opponent. The latter seems to have wisely followed the example given him of quoting authorities, with no other animus than the love of truth, and no one doing that shall receive anything but thanks from us.

Mr. Horsfall is perfectly able to defend himself—a letter from him in reference to the communication of our correspondent "D" will be found in another column—we do, however, protest against the injustice of holding up to ridicule, however impotently, any one who simply publishes his agricultural experience, especially when it is done at the request of the Agricultural Society.

To deepening the soil as the efficient means of an increased fertility there are many testimonies. Perhaps the most definite and valuable is that of the Rev. S. Smith, of Lois Weedon, in Northamptonshire. His evidence is valuable, both because it refers to two very different kinds of soil, and because it extends over a number of years. It has already been pretty fully discussed in these columns; we refer to it now, however, rather for the purpose of illustrating the principles of tillage than in order to commend any particular mode of farm practice. Having walked over his fields both in winter, when the process was in operation, and in summer when its results were ripened, we can speak as to the means employed, the soil on which they are employed, and the produce which rewards them. Early in July last year we saw Beans and Swedes and Wheat on a very stiff loam, which had been gradually deepened by means of the fork, latterly indeed trenched. And on a gravelly soil, in an adjoining field which had been similarly deepened, there was an abundant crop of Wheat. The Swedes were luxuriant and healthy, such as are seen ordinarily under good culture in September: the Beans were wonderfully podded: and the Wheat was the most extraordinary crop of the three. It had been Wheat after Wheat on the same soil for a succession of years: triple rows, a foot from one another, being cultivated with 3 feet intervals; these intervals, forked and cultivated during the growth of the rows on either side, being the site of the next year's crop. This alternate crop and fallow, without the use of manure, yields an average of 34 bushels per acre per annum over the whole land so treated; deep and thorough tillage thus proving to be in effect the equivalent of manure. The fact, for so after 10 years' observation it may be called, is, that by dint of deep and thorough tillage successive corn crops can be grown by bringing the mere life of the seed into connection with the stores of food for it which a tolerably stiff soil and the atmosphere together yield.

But the advantage of a deeper soil on the one hand, and of more thorough tillage on the other, is now everywhere admitted; the more general prevalence of Turnip husbandry has contributed greatly to the latter good result; and Mr. Smith's, of Deanston, subsoil plough, and every instance of cultivation such as that of Lois Weedon on a horticultural scale, and by horticultural means, have contributed to the former. And so we see that cultivators, horse-hoes, grubbers, are taking the place of those imperfect tillage implements—heavy drags and harrows; and ploughs for deeper work are made and used in large numbers. We do not add here remarks upon the obvious cause of infertility which shallowness of soil is when lying on the rock. Where plants are "scorched because they have no deepness of earth" the remedy is obvious enough, however inapplicable it may be. Pastures upon the chalk, the mountain limestone, and the millstone grit are often thus burned up in summer, and were it possible so to deepen such land, it would be seen that a couple of farms would be more productive if they could be laid one a-top of the other than they now are in their extent and shallowness.

EXPERIENCES IN LAND DRAINAGE.

No. XX.—The result of the drainage here is very satisfactory.—The parallel system has been pursued.—The depth of drains where the land is strong 3 to 4 feet; where light, with sand bottom, 4 to 5, in some cases 6 feet.—No difference has been made between Grass and arable land.—Direction of the minor drains with the fall. (The lands are mostly without much fall, being in a level country.)—Formerly before pipes were used the tiles were 3 inches in diameter with flats in sand bottom; lately 2½ inch pipes with collars in the sand bottom; without collars in the clay land; and 4 to 6-inch pipes for main drains—these mostly dispersing the water into open ditches.—It has not been found necessary to make apertures for air.—The average number of acres discharging through one main drain from 8 to 10.—The soil on part is light at top with deep sand bottom—part loam with clay marl bottom, with in some places a stratum of chalky gravel intervening of 2 to 3 feet, the marl being 6 to 10 feet deep.—And part strong surface soil, with subsoil of 5 feet of clay. Height above the sea level about 12 to 15 feet. Where the land is strong the drains are 8 to 9 feet asunder. Where light with sand bottom 12 to 15 feet asunder. I may add that the improvement in the land is quite satisfactory. *J. Geddes, Everingham, near York.*

No. XXI.—The result of our drainage operations on all descriptions of land is perfectly satisfactory, having laid down as many rods as would reach from hence to your office—76 miles.—The drainage is up and down the furrows, draining as much as possible when the land came in for winter fallowing.—As to the prevailing depth of the drains, I plough 9 inches deep and put the tile and sole 2 feet 6 inches below that, green Heath next, and then the top spit or mould.—I have made no difference in the mode of draining between arable and Grass land.—The direction of the minor drains is up and down the furrows, but I could never see any difference between the two systems where there were no springs.—I have never done any draining except under the Marquis of Tweddale's system of putting a sole to every tile. I went to the expense of erecting a machine of my own, and supplied my neighbours all round.—I have never found any benefit by giving air at places to either main or minor drains.—The average number of acres discharging at the outlets is 3 or 4 acres.—The soil and subsoil are clay, with no springs.—The geological formation is clay down 50 feet.—I have great pleasure in replying to your queries about draining. I think on my farm it has worked admirably, never having had a single drain fall in or get out of order. The modern system I cannot understand of putting in small round pipes, or throwing in the subsoil without any Heath or other loose material, or even the top spit or soil to filter. —*Edward Twynam, Allington.*

XXII.—The drainage has been quite satisfactory.—Mostly parallel, and about 3 feet deep.—I have no Grass land that requires through draining, therefore have drained according to springs and swampy places.—As to direction of drains, I have followed both plans, according to circumstances, and been successful in both: the depth has been according to soil.—I have used no collars or sockets, and generally 1½-inch pipes and 2 or 3-inch main drains.—I tried one field with air at both ends of the drain, but found no benefit.—About 4 or 5 acres on clay arable, but more on Grass discharge into one outlet.—I have found that it is much better to be ruled by circumstances of soil, fall, &c.; as to depth and distance, &c., and not to adopt one system and one depth, which, in my opinion, is complete waste of capital. —I tried one field at 4 feet 6 inches, and at a distance, to make the expense the same as more drains at less distance and depth; it failed, and I had to run drains across and above the others, some to the outlets, others were dropped down into the deep drains; top drains smaller pipes than the deep drains, done 6 years, and works well.—I have 150 acres strong clay, with chalk stones in it, that I have tried at different depths, and I certainly find that following the furrows, which were winding at about 2 feet 6 inches, and then ploughing the lands down, then cross ploughing, then askew, makes a vast improvement, and in 3 years makes the fields quite level and the apparent improvement very great. *Charles Barnett, Biggleswade.*

XXIII.—The result of my drainage operations on all descriptions of land has been satisfactory.—The drainage adopted is both parallel and with the furrows when the lands are very convex and the soil tenacious.—As to depth, 4 ft. 6 in. mains, and 4 ft. minor drains.—I have not drained much Grass land, but prefer 3 feet deep, so as not to deprive the soil of too much moisture to meet the drought in summer.—The direction has been across the fall.—Two-inch pipes have been used for minor drains, and from 3-inch to 6-inch for the mains—*i. e.*, suppose the length of main drain to be 15 chains long, I would begin the first length of four chains 6 inches, the second 5 inches, the third 4 inches, the next three chains 3 inches, and the last chain 2 inches.—I have given air to the main drains, but cannot say that I have perceived any peculiar benefit.—From 5 to 7 acres drain at an outlet.—My soil is loamy with a grey clay subsoil, interspersed with sand and gravel veins, flint, and chalk stones, *Nicholas Fisher, Milton, near Blisworth.*

No. XXIV.—Drainage perfectly satisfactory.—Parallel.—Four feet six inches deep in the furrows: in many places in going over the old high lands six feet.—I have made no difference in the mode of draining between arable and Grass land, because on my farm experience tells me it acts as beneficially in one as the other.—Our land is all hilly. I have taken the drains as near as possible at an angle of 45° up the hills, and 66 feet apart.—The pipes used have been 6 inch for the outfall of the main drains, 4 inch at the upper end of do., and 2 inches for the cross drains, but no sockets. —No benefit has been found from giving air.—From eight to ten acres drain at one outfall.—The subsoil is alternate beds of clay, then sand and gravel, and what is commonly called iron stone; the soil is light.—The geological formation is in the lower bed a strong blue clay. The upper stratum is where they are digging the Northamptonshire ironstone. *Wm. Shaw, Farcotton, Northamptonshire.*

No. XXV.—Drainage satisfactory.—Generally parallel except in some rather steep falls, where the drains have been placed more diagonally across the slope, which I in such cases prefer, or where in some cases the old furrows have been followed.—Generally 4 feet deep, in some cases 3 feet 6 inches, and occasionally in gravelly and more porous soils, 5 feet.—In heavy arable lands, which mine generally are, I do not venture to exceed 8 yards apart for the drains. I have found 9 yards too wide, and I should prefer 8 yards at 3 feet 6 inches depth to any deeper drains at wider distances. Where the ridges were narrow and high I have followed them, draining perhaps only 3 feet deep at 6 yards apart with good effect. On pastures of the same sort of soil I have found 4 feet drains at 12 yards apart the cheapest and most efficient; for though the surface is still sometimes wet after heavy rains, the state of the Grasses show that the object has been effected.—The direction has been generally down the

fall, and I have followed the furrows where they were deep or in the right position, but not invariably.—1¾ inch tiles have been used generally for mains, 2½, 3, and 4½ where required; sockets only used in sandy ground: in clay they are not required, and pipes fit better without them.—I have only attempted a direct air communication in one instance, and do not perceive any superior effect there.—At present I have not more than 30 acres discharging at any one outlet; but this might be much increased, and I am thinking of carrying on some of my smaller outlets into one larger carrier.—The soil generally clay loam and clay; subsoil clay, with occasional beds of gravel and sand, and a few stone beds. The formation blue lias.—20 or 30 feet above sea level. —Average fall of rain for the last six years about 27 inches. *J. C. Hayward, Quedgley, Gloucester.*

XXVI.—Drainage very satisfactory.—On the parallel system.—Three to four feet deep.—The same on pasture as on arable.—With the fall. Disregarding furrows.—I use stones, except in the main drains, when I use pipes without sockets or collars; two and a half-inch to 4 and 6-inch bore.—I always make an air drain.—The soil is various—peat, clay and gravel. Subsoil, clay slate.—On the Silurian formation.—Eight hundred feet above the sea, in a wet climate. *Henry H. Sandbach, Abergele, North Wales.*

No. XXVII.—My drainage has been, in almost every case, highly satisfactory.—In every case, where practicable, on the parallel system.—From 3½ feet to 4½ feet deep in tillage land, and from 4 to 5 feet in Grass land. —From 18 to 32 feet apart in tillage land, and from 28 to 40 feet apart in Grass land.—With the fall in general; but where Grass land was in wide high beds, I have preferred in every case the draining in the furrows.—From 1¾ to 3-inch tiles have been used for minor, and from 4 to 9-inch for main drains; the subsoil being in general strong clay, we have not required many collars.—I have found it very beneficial to admit air where the main drains were to carry long distances.—Not more than 10 acres issue at an outlet on an average.—The soil is in general a black loam lying on the top of yellow and blue clay.—The geological formation is clay sandstone and coal measures.—From 200 to 300 feet above level of sea.—*Stratton, Esq., Durham.*

Home Correspondence.

Dairy Statistics.—The dairy statistics given by "D." in your paper, June 23, had not escaped my attention; the number of the *Albert Journal* in which they first appeared was politely handed to me by Dr. Kirkpatrick, the intelligent principal of the Albert Training Institution. I had some thoughts of introducing it in my paper to the Royal Agricultural Council, as affording the greatest yield of butter in proportion to milk from ordinary food which had come under my notice. Finding, however, that the experiments on each variety of food had only been continued during seven days, I did not think them a safe criterion of what would be the effect on a lengthened course of observation. Mr. Cunningham, who supplied these statistics, accompanies them with the remark that they are not sufficiently comprehensive, and intimates his intention to repeat them next season. I observe these very statistics figure in Mr. Scott's communication to the Royal Agricultural Council. On examining Mr. Scott's results of butter from food, I am disposed to think that the impression they appear to have made is not altogether warranted, and shall explain my views on them through the proper channel. In the course of his observations he states that an average cow will produce 196 lbs. of butter a year, though this is somewhat more than is stated by other authorities. I am willing to admit its correctness; taking the milk on the average given in his tabulated results it would require 1957 quarts to produce the 196 lbs. of butter, and allowing a cow to produce milk 300 days in a year, which is less than my cows continue in milk, the result will be only six and a half quarts per day on the average. In my present stock of 18 milk cows there are not more than three giving so little. Still Mr. Scott observes that Mr. Horsfall's yield of milk of 10 quarts per cow per day is not more than ordinary. *Thomas Horsfall.*

Fragments.—It is singular, but not the less true, that although the hardiest evergreens which I have seen growing in some of the most favoured parts of Ireland were killed or much injured by the frosts of last winter, a large Laurel hedge growing in my garden here remained perfectly evergreen, although located very near the foot of Mount Leinster, one of the highest mountains in the province of that name. To what to attribute this escape I know not, except to the land shelter; though a facetious neighbour tells me it must have been saved by the pruning of the under parts by "the Earl of Stair's halbertmen," who were allowed "free ingress, egress, and regress" by my predecessor,* who I am told was "an estated gentleman," but who I am sure was no gardener.—Lolium temulentum is a poison, ay, and a deadly one, too, if taken in sufficient quantity, the more especially as hot food, as I have proved in my own experience. Believing, however, that Nature never yet caused a plant to grow not calculated, if properly used, to produce some good, I will now give you a few hints regarding its use and application. Some of your readers may remember having seen letters of mine written on the Island of Beglim, near Wexford, some time ago. I was located there reclaiming the mudlands for the Wexford Harbour Embankment Company. Amongst the many valuable plants produced indigenously on that fertile land the Darnel grew more luxuriantly than ever I saw it grow any where else. The Wheat grown there, though of the finest quality in Ireland at least, I could never sufficiently rid of the Darnel, and in consequence of it I was invariably "cut" in price by the millers of Wexford and Castlebridge. At last I hit on a man who, though he never read a word of the chemistry of Sir Robert Kane, Liebig, or Farraday, yet knew the value of the Darnel as well as any of them did, bought my Wheat giving me the highest price in the market, and never "cut" me. Fearing, from his "free and easy" manner that he would grind it amongst the Wheat, I told him the story of my own experience. He smiled at my simplicity, and showed me his superior "separators," and a large quantity of the Darnel and small grains of Wheat he had both ground into meal and unground for feeding his pigs, of which he had a score of them nearly 3 cwt. each snoring away in his yard as drunk as he ever was himself. His practice was to mash and lightly ferment it as an Englishman would his malt for ale brewing, or an Irishman his "Rawcorn" for poteen whisky distillation; more I need not say about it.——The Potatoes *are* diseased. I saw the disease six weeks ago, but said nothing about it then; nor would I now, had I not first seen it noticed in the *Gardeners' Chronicle*, for if I did, although it could not be denied, the wiseacres of the Irish press with few exceptions would set me down, as they so politely term it, "a croaker," in the pay of the provision merchants, seedsmen, and manure-vendors; never for a moment letting themselves believe that I regret the existence of the same disease as much as any man can, having paid more money this year for valuable varieties of seed Potatoes than has been paid by all the newspaper men in Ireland put together. *Edward Carroll, Cranemore House, Clonegal.*

Steam Power.—Permit me to make a suggestion on the application of steam power to farm purposes. The chief use of steam power on the farm has hitherto been threshing and other similar work done in the house. To these we may now add pumping, for the application of liquid manure. The best pump is probably the centrifugal, as it has no valves, and is the lightest and simplest of all pumps. It is not necessary to have one engine for threshing and one for pumping, because it is not necessary to be always threshing and always pumping; the same engine may do both alternately. It is worth the attention of our agricultural engineers and machine-makers whether an engine might be made to do either house work, as threshing and pumping, or field work, as ploughing. A locomotive may be used as a stationary engine. An engine that could do any work would evidently be cheaper at first than two or three engines for as many kinds of work; and there would also be probably a saving in attendance. *No Engineer.*

* "The Earl of Stair's halbertmen" are the goats from the celebrated Blackstairs Mountains, that come down when pressed with hunger into the lowlands, eating in their way every "green thing." See "Legends of Mount Leinster," by Barry Whitney Fitzsmath, published by P. Kennedy, Anglesea Street, Dublin.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, *June 27th.*—Mr. MILES, M.P., President, in the Chair.

RUSSIAN CATTLE-DISEASE.—Lord Berners stated to the Council at their previous week's meeting that he had seen a notice in the "Press" of that week, of a cattle-pest in Russia of so virulent a character that the Prussian Government had interdicted the importation of cattle, hides, fat, wool, hair, and even of herdsmen, from that empire into the Prussian dominions. Lord Berners had on the previous evening named this report to the Earl of Clarendon in the House of Lords, when his Lordship at once expressed his willingness to render every service in his power in reference to a subject of so much importance to the agricultural interest of this country, and stated his intention of at once instituting the requisite inquiries by despatches to be conveyed on the following morning by a special messenger to Berlin. The Earl of Clarendon requested Lord Berners to assure the Council of the Royal Agricultural Society of England, that on this subject, and on all others which came within the control of his department at the Foreign-office, it would at all times give him the greatest satisfaction to receive and endeavour to carry out their wishes. The following communications have already been made to the Council in reference to this cattle-plague.

"Lord Wodehouse presents his compliments to the Secretary to the Royal Agricultural Society of England, and is directed by the Earl of Clarendon to acquaint him, for the information of the President and Trustees, that his lordship's attention having on Tuesday last been called by Lord Berners to an article in the *Press*, stating that the cattle plague had broken out in Russia, and that severe precautionary measures had in consequence been taken in Prussia, he instructed her Majesty's Minister at Berlin to inquire and report upon the subject. Lord Bloomfield states in reply by the telegraph that Baron Manteuffel, the Prussian minister of state, expressed his belief that measures of precaution against infected cattle had been taken by local Prussian authorities on the Russian frontier, but his Excellency was not informed as to details and would make inquiry.

"Foreign Office, June 22, 1855."

"Foreign Office, June 26, 1855.

"Sir,—With reference to my note of the 22d inst., I am directed by the Earl of Clarendon to transmit to you for the information of the President and Trustees of the Royal Agricultural Society, copy of a despatch from her Majesty's Minister at Berlin, containing information relative to the precautionary measures established in Prussia in consequence of the malady lately broken out in that country amongst the cattle.

"I am, Sir, your most obedient humble servant,

"WODEHOUSE.

"The Secretary to the Royal Agricultural Society."

(Copy).

"Berlin, June 23, 1855.

"My Lord,—In consequence of the prevalence of disease among cattle in Russia and Poland, the Prussian local authorities on that frontier have felt themselves called upon to put in vigour certain precautionary measures to prevent the spread of this malady, which they are authorised to do by the Prussian law of March 27, 1835, of which I enclose to your lordship herewith a copy in original, with a translation of the 3d Article, which empowers the local provincial authorities, in cases where the disease may appear within three miles or less of the frontier, to prohibit the importation of all species of horned cattle, as well as of any articles likely to carry infection, and I am informed that this measure has been lately resorted to by the Prussian local authorities on the whole line of the frontier. I understand from Baron Manteuffel that no case of disease has yet made its appearance in this country.

"I have, &c.,

"To the Earl of Clarendon." (Signed) "BLOOMFIELD.

(Copy).

"The above measures are to be more strictly observed if the murrain has broken out in the vicinity of the frontiers. If an infected place in a foreign country is only three miles or less from the frontier then it is positively forbidden along a certain extent of frontier, to be marked out by the provincial authorities, and in any case along the extent that lies so near to the place infected, to admit—

(*a*) Horned cattle, sheep, swine, goats, dogs and poultry, fresh skins of bullocks and of other animals, horns, and unmelted tallow, beef, dung, winter fodder, and stable implements of any kind.

(*b*) Also raw wool, dry hides, and the hair of animals (bristles excepted) are excluded, if there is reason to believe that they come from an infected place.

(*c*) Only to allow such persons to pass without molestation who, according to their circumstances, cannot be supposed either to have been in any infected place at all, or even if they have been there, in any way to have come in immediate contact with infected cattle. All persons on the contrary, who according to their circumstances, may be supposed to be occupied and to have intercourse with cattle, such as cattle and heather dealers, butchers, tanners, skinners, are refused admission, or they must, when very cogent reasons are brought forward for their admission, previously submit to a careful purification, to take place under the superintendence of the police. The provincial authorities are moreover empowered to enforce the application of these measures, even when the infected places lie *five* miles beyond the frontiers.

"This must, in every case, happen when a brisk and accelerated trade in the above-named articles takes place by means of turnpike roads or communication by water between the infected places and the inland, or when the contagion in the interior of the foreign country has spread itself to a great extent. In cases of this kind, and especially when the spreading of the contagion in the foreign country propagation makes rapid progress, or when other dangerous circumstances happen, then these measures are to be enforced, even when the disease prevails at a distance of more than five miles."

The Council evinced their deep sense of Lord Clarendon's warm and effective interest in promoting the objects of the Society, and the welfare of the agricultural community.

BUTTER PRODUCTION.—Mr. Horsfall communicated the following statement in reference to the amount of butter obtained in his dairy:—

"Burley Hall, June 21.

"On perusing Mr. Scott's paper, I find he states that a milk cow, on the average (we must adhere to average and leave out exceptional cases), produces 196 lbs. of butter a year. Dr. Muspratt, in his recent publication, states the ordinary yield of butter per year at 160 lbs. to 180 lbs. per year in England and the daily yield of butter from a cow at 8 ozs. to 9 ozs. per day, which on a yield of 8 to 9 quarts of milk show 1 oz. per quart, or 50 per cent. less than what is shown by Mr. Scott's results on 17 experiments. Mr. Rowlandson, and other writers on this subject, give a result similar to that stated by Dr. Muspratt—about 1 oz. to each quart. Mr. Scott in his paper states that 10 quarts is not more than an average yield of milk per day for a cow; allowing a cow to be in milk 300 days a year, the annual yield would be per year 3000 quarts, which I am disposed to think is not more than a moderate average on dairy cows *properly maintained.* My own cows are not allowed to be dry two months a year, and I am satisfied that 3000 quarts per year is not an over estimate of the average of my dairy cows. Now, on 3000 quarts Mr. Scott's average of butter, 196 lbs. a year, would reduce his yield of butter in proportion to milk about one third or 33⅓ per cent. and leave it very similar to what is stated by Dr. Muspratt and other writers. Mr. Scott had no right to draw the inference that my yield of butter from cream might be attributable to my butter containing a greater quantity of butter-milk, as I sent a sample of butter from a churning which I superintended personally, when five quarts of cream produced 127 oz. of butter, being fully 25 oz. per quart. The analysis of this butter has already been submitted to the Council, and will be found not to contain a less proportion of pure butter than is ordinary; in this respect it is superior to the butter of Mr. Acland, the analysis of which by Professor Way I have before referred to. Now, if I deduct the casein or curd from my butter, it will affect the quantity of butter from a quart of cream to the extent only of about half an ounce; or if I deduct the whole extraneous matter there will still be upwards of 21 oz. of pure butter from a quart of cream. This peculiar richness of my cream is surely of sufficient interest to relieve me from the charge of having unnecessarily obtruded myself on the notice of your honourable Council. The matter cannot be allowed to rest here; with your permission I shall again recur to the subject, and shall introduce some features of my treatment which are not noticed by Mr. Scott.—THOMAS HORSFALL."

Mr. Horsfall having also stated that, "if he could be informed when the subject was likely to be introduced again at the Council meeting, he might possibly attend to give any explanation required, as he felt much interested in the matter;" the Council decided, that Mr. Horsfall should be invited to attend their weekly meeting on Wednesday the 11th of July, at 12 o'clock.

AGRICULTURAL MOTIVE POWER.—Mr. Garrett informed the Council that an invention of the highest importance to agricultural operations had been made by Messrs. Boydell and Glasier, of Camden Town. A private trial of the invention was to be made on the following day; and the machinery had been entered for trial at the Carlisle meeting. He considered this invention the first virtual step that had been made towards the successful application of steam power to the cultivation of the land; and that if the results anticipated should be realised, it would in his opinion constitute one of the greatest discoveries of the day in the adaptation of steam power to the traction of powerfully resisting obstacles over broken surfaces, uneven roads, or up declivities, along which no locomotive steam-engine had hitherto been able to proceed.

Reviews.

An Essay on Hand Tillage, by Mr. Bottomley. Printed for the Wakefield Farmers' Club. C. Hicks, Market Place, Wakefield.

The Wakefield Farmers' Club adopts the useful plan of publishing, for circulation in their district, the papers read before them at their monthly meetings. The following are extracts from the tract just issued with the above title, which contains the substance of a paper on Hand Tillage, read on March 30, by Mr. Bottomley. It should be stated that in Yorkshire the term hand tillage is synonymous with artificial manures.

He said if ever there was a time more than another when hand tillage should be more in requisition, it was the present moment. At one time the low prices for their produce might well discourage them from the use of hand tillage; but now, when the markets and the corn exchange were fructified by gold dust, they would be readily induced to do everything they could to raise larger crops, because the remunerative prices would well justify the outlay. We were now at the commencement of a war, and how long it might last no one knew; but considering the suspension of foreign supplies by it, he thought it behoved English farmers to endeavour themselves to produce as much corn as possible. The Oats, of which he exhibited samples here to day, were produced by a manure he had himself made on his small farm of 50 acres. [These were remarkably fine specimens of Oats, upwards of 6 feet in the stalk, with corresponding grains.] His method of making this hand tillage was this:—He burned everything in the shape of refuse, as cuttings of hedges, dry leaves, &c., on his premises, into wood ashes, smouldering them in the fire so as to save as much carbon as he could. He then mixed with it horse and cow stale, soap suds, and soot, the ammonia from which would, as they all knew, be absorbed by the charcoal. To this he subsequently added salt, and after that gypsum, and found with the last ingredient he had no disagreeable smell from it. This was his own hand tillage which he used to every species of crop—Wheat, Oats, Barley, Turnips, &c. The last year he had got half a ton of Mr. Simpson's nitro-phosphate to mix with this. As it happened he was from home at the time it arrived, and his man instead of mixing it with other manure, went and shot it down, and began to spread it out the same as ordinary manure, which would have been rather an expensive process. Fortunately he arrived in time to prevent it being thus spread, and had it scraped together again. Wherever any of it had stood, however, it had left traces, and he believed every barrow mark might be known by the beautiful green Grass which had sprung up upon it. He was now mixing Simpson's manure with his own tillage, finding that the latter wanted phosphate. He used it for everything—grain, Mangold Wurzel, and Turnips, and had put in no guano for some years. When he found that his crops were as good as his neighbours', and that he only used this tillage, he did think there was some good in it; and it was much cheaper than either buying phosphate or bones. He had a similar crop of Oats to those he now exhibited on his farm, grown previous to using Simpson's manure, and which were so strong in the straw that they had not been beaten down by a heavy thunderstorm. He would now quote from Dr. Lindley in the *Gardeners' Chronicle*.

"Nothing must be allowed to run away in the form of a fluid, or to fly away in the disguise of a smell. Mark out a piece of ground on which the dunghill is to be made—on a good slope, if possible, and close by a pond. Cut a gutter all round, and puddle it with clay, so as to make it water-tight. Then at the lowest part, outside the place where the dunghill is to lie, dig a sink-hole 18 or 20 inches deep; let this be well puddled and connected with the gutter already spoken of. Things being thus prepared, throw down a layer of manuring substances about a foot deep; tread them well down and scatter some fixer over it; finally, water it well. In this manner go on with layer after layer, till the heap is the desired height. During the operation of making the heap some water will have drained away: in that case it will have run into the gutter and been collected in the sink-hole. Scuppet the water out as the work proceeds, and throw it back on the dunghill. If the hole is not large enough, another must be made near it; none of the drainings must on any account be lost. It should have, at least once a week for a month, a good quantity of fluid thrown upon it. Pot boilings and soap-suds are much better than common water; but urine is preferable to both. By these contrivances nothing is allowed to leak, and the dunghill becomes a soft mass, holding fast all which belongs to it except what flies away. To catch the latter is the purpose of the fixer. There are many fixers—oil of vitriol, green vitriol, blue vitriol, salt and lime (not either salt or lime by themselves on any account), gypsum, &c., may be used; but some of them at all times, and in some cases all of them, have the fault of costing money. A substitute which costs nothing except labour is, therefore, to be sought for. Such exists in cinder siftings, charcoal dust, good black earth, peat or bog mould, rotten sawdust, leaf mould, black mud from ponds, bottoms of wood stacks, brick dust, burnt clay, &c. Some or all of these may be had in most places."

Mr. Bottomley then went on to say that he had had no practical experience in farming till he had come into that neighbourhood, and had had therefore nothing to unlearn, which was so often more difficult than to learn. He was ready to examine every new invention in agriculture which he might hear of; and though he was not prepared exactly to believe in all those theories of which they had heard, yet he thought theory and practice working together was a very excellent thing. He should particularly recommend to his younger friends the study of Johnston's "Catechism of Agricultural Chemistry and Geology." In that work they would find, among the rest, much useful information on the subject of manures, and of their application to different kinds of crops. In reference to the sample of Oats he exhibited, this sample had been grown on Wheat stubble, with nothing but his own hand tillage, produced on his own premises. Some of these Oats were 7 feet high in the straw. He had been one of the judges at the Huddersfield agricultural show, and had there sold some of those Oats at 2*l.* per quarter; and he believed it was in every man's power in that room to grow as good, whether he farmed 50 acres or 500. He understood from Mr. Johnson, who had been cutting timber, that he had been using charcoal made from its refuse branches, and had better crops than his neighbours in consequence. The first thing, in making his hand tillage, was to obtain carbon, after which the other ingredients might be mixed with it. If any gentleman present would come over to his place he should be happy to show it them in process of making for application to Barley, Mangold Wurzel, Swedes, and other crops, and they would then see the manner in which he had built up the straw as well as the top of those Oats.

"Mr. Cooper agreed with Mr. Bottomley's views. He could himself recommend every one to read 'Talpa' ['Chronicles of a Clay Farm,' from which Mr. Bottomley had quoted], a book he had perused several times, and should again.—Mr. Bottomley said, 'Talpa' was something like 'Sam Slick.' It walked into the farmers and their old prejudices in good style, and every farmer ought to read it.—Mr. Charlesworth did not think such Oats as those shown by Mr. Bottomley could be grown every year. There was one thing in them which he had never seen before in his life, and would give 10*l.* to know what would produce it regularly. He had seen it in other grain, but never before last year. He meant the fine glossy matter on the straw, which he had never seen during the 40 or 50 years he had been connected with farming till last year, and should like to know what would produce it. Mr. Bottomley said, his impression was it was the salt produced it. Mr. Charlesworth: No; it was the season. They wanted something to produce this gloss every year. In Scotland it was said this gloss arose from the use of sea weed. Mr. Bottomley remarked that there was saline matter, which confirmed his opinion. Mr. Nicholson said that he farmed rather largely, and he thought his tillage bill, amounting to some 600*l.* a year, was a large sum to take out of a Wheat crop. He should like to know what would be the position of Mr. Bottomley, if his farm cost him a proportionate sum in manure. It was certain that artificial manures of a saline nature greatly improved crops. Last year, had used Mr. Simpson's manure for corn crops, and had found them much improved by it. Some of his neighbours used some of it for top dressing with the same results, their crops being much better where that manure was employed. He had understood Mr. Bottomley to say that chalk land did not require chalk as a manure, but in Lincolnshire chalk lands were found to derive much benefit by the use of seven or eight tons per acre. Mr. Brakenridge said, in Mr. Bottomley's description of his process of making his tillage, and mixing the ingredients together, he thought that in some respects they were mixed too late. Gypsum, burnt clay, and sulphuric acid, were all fixers of ammonia, and might be all used with more or less advantage to that end. He had no doubt that the use of nitro-phosphate had a good deal to do in producing the strength and glossiness of straw displayed by the sample of Oats before them. Thought the application of lime to land deficient in that material would produce great effect, though there was no kind of land but would be benefited by such application, There were not many soils but what had much silica in them, and the application of lime was the best means of dissolving it. He concurred in Mr. Bottomley's recommendation to the agricultural interest, relative to the application of scientific knowledge in their pursuits, and had himself derived much benefit from it. The Secretary said he was sure that an immense amount of good tillage might be made by every man on his own farm, though he would not go to the length of thinking every farm might be made absolutely self-supporting. Still it was for every farmer to take care of every morsel of clipping and other refuse, since there was no portion of such rubbish which might not be converted into hand tillage. If they made the best of the tillage they themselves produced, they would not want so much of Mr. Simpson's nitro-phosphate. It required no great amount of intellect to do this, but just a little common sense. Farmers were never accused of thinking too much; but if they would think a little more on these matters they would be all the better for it. The Chairman said the meaning of the term, strictly speaking, was something which could be distributed in small quantities by hand, not brought by a cart load, but in smaller quantities—such as could be carried up a hill for instance, and would combine the essence of farm-yard manure with saline ingredients. After noticing the relative qualities of the carbonaceous, gaseous, and inorganic matters contained in ordinary manure, he remarked upon the subject of the application of lime to limestone lands, which had been a subject of controversy in the course of the discussion, that it was proved by analysis that many soils had lime below the surface, but none on it. Such being the case, it might be highly serviceable, in an agricultural point of view, to apply lime in such instances, since there might possibly be none within that depth of soil to which the roots penetrate. When lime was put to land it was generally used in a quick or caustic state. The advantage was that the caustic alkalies of the lime dissolved the silica. He thought the caustic alkali of the lime, while it dissolved the silica, would contribute in part to the glossiness of the outside straw, which had been noticed by Mr. Charlesworth. Another effect of lime was to make the silica soluble. It was most used either in a powder or a solid state, but must be made liquid to produce the best results. He thought, when so used, that the watery part in the process of evaporation left some of the solid part upon the straw, producing the gloss before mentioned, while it was further proved that the use of lime made the straw stand up better. As a proof that one effect of lime would make the straw stand up, he had used on a part of a field common fold manure, and on another part quick lime, and found that in a heavy storm the first part was laid, while the remainder stood up. He had no doubt the same beneficial effect would be produced on the grain as on the straw. The next point he would refer to was the use of salt as a tillage, one of the good results of which was that it protected the crop from the ravages of the grub. He had a field of 15 acres of Clover lea, on 5 acres of which he put salt, on 5 more lime, and the remainder nothing. He found that the lime answered best, the salt next, while the grub took the other five. Mr. Bottomley had been asked by Mr. Scarth what were the proportions for mixing his tillage. He took 1 ton of gypsum, 1 ton of salt, and soot *ad libitum* to the ashes. The expense of 10 loads of ashes he did not consider anything, because he should have to dispose of it in some way under any circumstances."

Letters to the Farmers of Nottinghamshire on the Chemistry of Manures. By Samuel Parr. R. Theobald, Paternoster Row.

Some of these letters have already appeared in our columns. The whole are collected together here in the form of a little pamphlet, which deserves perusal for the simple and generally satisfactory treatment which it gives to such subjects as theory of manures, liquid manure, farmyard manures, bones and superphosphates, guano, lime, gypsum, fallows, &c. The letters were originally printed in the *Nottinghamshire Guardian*. We give the following extract as a specimen of the author's style. It relates to the policy of bare fallows:—

"In bringing stiff clays into cultivation, a naked fallow once in eight years, or even less, may be advisable; but when once the soil has been brought into good heart, a naked fallow is the worst possible mode of agriculture, provided the land can be kept clean without it. A naked fallow ought, therefore, to be looked upon as a necessary evil, and should be borne with as such, and then only upon heavy clays. It may be asked what are the principal means by which fallowing may be superseded? This may be accomplished by deep drainage and deep cultivation, by liming, by the burning of clays, or, where the land is perfectly clean, by a green fallow crop. Thorough draining will rid the soil of all aquatic weeds, and render it more porous, consequently more accessible to the influences of the atmosphere. Lime will be instrumental in dissolving the alkaline earths and silicates. The silicates of alumina, &c., contained in clays, might be digested in an acid (such as oil of vitriol mixed with a little water) for several weeks, without producing any appreciable results; but after these earths have been mixed with lime, and then digested in an acid solution, they will assume the consistence of a thick and transparent jelly, which is owing to the silica being dissolved; the same process is carried on, but only in a much slower degree by the carbonic acid of the atmosphere, which gradually prepares these mineral constituents of the soil for their reception by the spongioles of plants. The burning of clays not only brings the land into a better state of division, but the process of burning renders the alkaline silicates more easily acted upon by the air, reducing them more rapidly into a soluble condition, and fitting them for supplying to plants the necessary constituents of their growth. It must be borne in mind that all soils ought to be accessible to the action of air—oxygen and carbonic acid—so as to favour the development of the roots of plants. Stiff clays are wanting in these properties, but this may be communicated to them by a partial calcination. With regard to root crops, these may always be adopted where the land is in good heart and fit for their reception, for during the growth of these fallow crops, by frequent hoeing and loosening the soil, pretty nearly the same results may be obtained as by allowing the land to lie idle; besides, the quantity of vegetable matter in the soil is considerably increased by green cropping, thereby leaving it in a far better condition for the production of the subsequent grain crop. It is true that the green crops oppose, to a certain extent, so complete a decomposition of the soil as when a naked fallow is used; but this deficiency may easily be supplied by artificial means, and the advantages of the increased supply of vegetable food in the shape of manure, of the stems and leaves of the plants and the fibres of their roots, will more than compensate for the proportionate decrease of inorganic matter which would have been brought into action by the naked fallow, which result may readily be obtained by a slight dressing of lime. Thus you will perceive that there are various means which may be adopted, either singly or collectively, as the case may be, for doing away with the practice of fallowing in the generality of instances, which will tend not only to a more successful cultivation of the soil, but at the same time will add considerably to the profits of the farmer."

Miscellaneous.

Depth of Covering of Seed Wheat.—In 1845, thinking that I might discover a cause for the different tillering of Wheat by examining the roots, I took up part of a drill, some 50 plants or more; I found invariably that the larger the tube between the seminal roots and the corronal ones, always about an inch below the surface, the fewer were the tillered stems; this led to some experiments, and on the 7th July, in the same year, I sowed at seven depths three grains; the first three with the least possible covering, the second with an inch of covering, and increasing the covering by an inch in each of the successive ones. Of Nos. 1 and 2, all came up; of those covered with 2, 3, and 5 inches, two came up; and of those with 4 and 6 inches of covering, none came up. Those most lightly covered came up first by from one to three or four days, appeared stronger, and tillered more freely. And again, on the 8th September, I sowed five rows of 12 grains each—

No. 1.	Lightly covered,	11	came up,	producing	77 stems.
2.	With 1 inch covering,	11	came up,	"	57 "
3.	With 2 inches "	8	"	"	38 "
4.	With 3 inches "	6	"	"	38 "
5.	With 4 inches "	6	"	"	34 "

Since then my usual covering has been light, and I have not remarked the Wheat to suffer from the frost, or sustain any injury from being thus lightly covered. In rowed Wheat, of small experiments, I have, however, hoed up a little earth to the plants so soon as they were strong above ground; and, indeed, the stirring of the surface earth about the plants at this period of their growth seems to me of very material consequence; I have some reason to believe that Barley and Oats bear a heavy covering better than Wheat. Although these experiments appear favourable to light covering, yet I have had Wheat sown under the ploughs, the seed delivered by barrows following them, with covering of three or four inches, which has tillered well. If a heavy covering is found to diminish the tillering property of grain plants, we may avail ourselves of it, where it is considered advisable in late sowings, to check that disposition in

addition to thick seeding. Except in very late sown winter Wheat, I think it problematical that a difference of an inch or two of depth in sowing will have much effect in preventing the plants being thrown up by the frost: for the seminal roots strike downwards directly from the seed with such inconceivable rapidity to so great a depth, that this difference is lost in the comparison; and, indeed, the corronal roots, though they shoot out at first horizontally, almost immediately take a downward direction, and also grow rapidly. I am disposed to think that the ejecting process may be more effectively prevented by draining the land; the roots of the plants will then take a deeper and firmer hold of the soil, and the action of frost will be diminished by a lessened abstraction of its heat. *J. M. Goodiff, Dublin Farmers' Gazette.*

Calendar of Operations.

JUNE.

FARM NEAR CHELMSFORD, *June* 25.—Since our last communication we have had a continuance of dry weather, with northerly and north-easterly winds, and with white frost more or less at night; and although the grain crops are looking vigorous and healthy we do not recollect their progressing so slowly upon any former occasion. A few Wheat ears were observed on the 12th, and upon the 25th (the day upon which we are writing) some are to be seen in a majority of the pieces in this district. The Wheat is in appearance as healthy as it can possibly be desired, not the slightest attack of rust has appeared to check its growth; the colour may be of somewhat too dark a green colour, but sunshine and a continuance of dry weather will bring it right; and speaking of it upon this farm particularly, we are perfectly satisfied both with the plant and appearance, and are enabled to say unhesitatingly that it never can have appeared more promising. As regards the district generally this observation will apply, with the exception that there is a deficiency of plant to a considerable extent, though from the vigorous growth that has taken place, the result will depend upon the future state of the weather betwixt the present period and the coming harvest. Our Barley has of late progressed more rapidly than the Wheat, and is unusually promising. The same observation applies to Oats, except upon those which were sown late, which from the drought that then existed are irregular in plant, but are otherwise progressing rapidly. Beans we have none, but in general they are very promising, and at present bid fair to be a full crop; whilst Peas are thin in plant and far below the standard, and we believe this observation will apply throughout this county. The prospect of the Clover and Grasses for hay crops is universally bad; not more than a moiety of the usual breadth has been reserved for mowing, and, unless upon the very best land, only a moderate crop can be expected; whilst upon the inferior soils sufficient will not be found to be worth the trouble of cutting: for from the succession of cold weather that has followed since the rain, the Grass has been arrested in growth, and will be the lightest crop mown for many years past. We shall commence cutting Clover from this day, and shall then proceed with the Grass in regular succession. The weather appears clearing up, and, with the barometer rising, we hope for a successful result. The Mangold Wurzel grows more slowly than usual; this we attribute entirely to the absence of sunshine, and low temperature in addition, that has prevailed; most of it is now singled out, and although the ravages of wireworm are complained of throughout the district, we have escaped, and have generally a full plant, but decidedly later by two or three weeks than usual. Throughout the district there is a general complaint of the destruction of the young Swede Turnips by the fly, and most of our neighbours have been compelled to resow the land; many, however, wait to sow the common Turnip instead, as Swedish Turnip seed has become uncommonly scarce. As regards our own prospects we have a full and vigorous plant upon all those pieces succeeding Rye and other early spring crops; but upon a smaller portion fallowed from the commencement the whole of the plants are eaten up, and the land during the past week has been replanted with Drumhead Cabbages, with the further planting of which we are still proceeding. We form ridges about 3 feet in width, and more heavily, and plant upon the top of the ridge after ploughing the soil over the manure, and then roll down with a two-horse roller; the plants are placed 3 feet apart, and the soil made firm about them by pressure of the dibble and watered plentifully once or twice as the weather may happen to prevail. So little regard is paid by some persons to the carrying out this process that we have seen half the plants lost by improper management; for whatever the state of the weather may be, we hold it is always necessary to water them at the time of planting. Our Potatoes, as we before stated, are deficient in plant, owing to an application of lime and salt, which with the combined action of dryness of the salt destroyed the plants altogether. We are now informed that our ill success has arisen from not incorporating the mixture well with the soil before planting. This happens about the same with any new experiment; even under full directions, by the omission of the use of the bag, the plum pudding was spoiled. A correspondent of your Paper inquires if Mangold Wurzel is injurious to small pigs and breeding sows. We can state by our own experience that we have invariably found it so, and have always endeavoured to keep them from it by sending them away during the winter and spring months to a farm where it is not used. The farrows of pigs are small in number and puny in size, and they gradually waste away as if under the effects of fever until put upon different food. The sows, on the contrary, grow fat, as is the case with large hogs, which thrive remarkably well, especially with a little corn in addition. If a large number of hogs are fed upon it with a few Beans in an open yard, we know of no better method of making a large quantity of excellent manure at the cheapest cost. Upon one field sown down with advertised Grasses from a first-rate advertising house, we have a full crop, but 90 per cent. is common Rye-grass; for this seed we paid 32*s.* per acre, and might have obtained as good a result from Rye-grass alone at 12*s.* 6*d.* per acre. In appearance it resembled a proper mixture, and, had the artificial Grasses been new seed, might have turned out well. So, to prevent such excellent attempts in future, we mean to purchase each description of seed separately and mix them ourselves; and we can recommend others to follow the same practice. In the matter of seeds, we rarely obtain them genuine or good. Some Kohl Rabi and Broccoli, Turnip, and Kohl Rabi. Our Carrots never came up except in very small quantity, and Parsnips to the same extent; as such plants are difficult to obtain, we are not able to charge the deficiency entirely to the seed. But we know that it is the practice with seedsmen to mix their old seeds with a small percentage of new, so that upon sowing them a plant cannot be obtained, unless by using a much larger quantity. What we recommend is for farmers to grow their own seeds, or to purchase of those neighbours upon whom they can depend. As regards Grasses, every one can have them gathered in his own locality by hand or women and children at a small cost proportionately with seedsmen's prices; and as this is the season, we name it that an opportunity should not be lost.

WESTON REES, *June* 18.—With the exception of the last two days the weather we have had for three weeks has been as favorable as agriculturists could desire, and the crops have been progressing at an astonishing rate. Wheat has shot up with great rapidity, and in early fields is in the *shot*-blade. In well drained and well prepared fields Wheat is to be a full crop, but where the land is wet and cold, it looks thin and stinted, and cannot in many places be more than half a crop. Having had occasion lately to pass over a large part of the country, I am satisfied that the Wheat crop must be greatly inferior to that of last year. In such a year as this the advantages of thorough draining are very manifest. Whatever the crop be, when sown in damp and cold soil it is long of coming away, and unfortunately there is always abundance of weeds, to the growth of which cold and damp prove no great hindrance, which rushes up, proves a sad nuisance to the growing crop, and keeps ahead of it all the way on to harvest. Oats and Barley generally look well. Potatoes are brairding strong and regular. Last year when they came up they appeared anything but vigorous, and were quite unfit for passing through the trial that awaited them. This year being more robust, we anticipate that they will come through well nigh unscathed. The earlier sown Swedes, although now three weeks in the ground, have made little progress. At first only part brairded, and now the second half is coming away. Betwixt the two we will have abundance of plants. Sowing of common Turnips is now proceeded with, and will be well nigh finished this week. Manures of all kinds are abundant in the north this year, and although high priced, a large quantity is applied. Hay is very light generally; pastures have been growing rapidly, and the stock are just now abundantly supplied. Cattle markets continue stiff, although prices are still high. The demand for fat in the south continuing good, nearly all our heavy cattle find their way thither, and fleshers at home are sadly complaining of the scarcity of this commodity. Good draught horses for sale are very scarce, and have not been so dear for many years. Wages of half year servants have been rising. They now receive from 7*l.* to 10*l.*; boys from 2*l.* to 4*l.*; and women from 2*l.* to 3*l.* Labourers are fully employed at about 14*s.* per week.

Notices to Correspondents.

COARSE GRASS IN OLD PASTURE: *Woodley.* Cast wood ashes broadcast over the spots or pieces of coarse Grass after mowing them down, and you will find that the next growth will be readily eaten.

CHARCOAL DUST: *Ignoramus.* It is one of the very best things you can use to absorb the liquid manure, and thus apply to to the land. We have just emptied a tank, 8 feet in diameter and 9 feet deep, upon a heap of imperfectly burnt ashes standing upon about 30 square yards, and the ashes have taken all the water up—none has run from it; we attribute this absorbent power to the charcoal it contains. Three or four cartloads of charcoal dust per acre, thus saturated, would be a powerful dressing.

GARDEN PLOUGH. We should be glad to know the maker of "Warren's Pony or Garden Plough."

HAYMAKING MACHINE: *Subscriber.* It will answer any where if the ground is so far even as that the line joining its two wheel tracks shall always be (not level but) straight.

OSIERS: *G E.* The following is the character given of the varieties named in the article you refer to:—Salix viminalis (common Osier).—Very coarse and brittle; cast out of beds everywhere. Brindled Osier, Blotched Osier, Snake Osier, Speckled Osier. —Different names for the same variety; it is the very best variety of Salix viminalis grown. Yellow-barked Osier.—The next best variety. Velvet-topped Osier.—A good sort. Apple-tree Osier.—Ditto. Salix Forbyana.—The last new kind; a very excellent Osier for general purposes, and of a good colour when stripped. The new kind good, but inferior by much to some. Salix triandra (black-budded Spaniard).—The very best Osier for bottoming farmers' sieves, and for the narrow strips for finishing the handles and borders of baskets. Grey Spaniard.—Tolerably good for brown use. Horse Spaniard.—Coarse, very inferior. Brown Spaniard.—Rather better than Horse Spaniard. Salix rubra (green-leaved Osier, or Ornard). —Very excellent and very tough; with the bark on, the best for carboy baskets. Salix Hoffmanniana (Brown rod Osier, Brownard Osier, Silver Osier).—Silvery on under side of leaf; all sound shortish rods, good for eel-wheels. Salix amygdalina.—There is a variety of this, grown near Chertsey, of long growth and tolerable quality; local name not known. Gelster (g hard), Horse-Gelster.—Both shortish pretty solid rods for brown work, and for eel-wheels. Salix Lambertiana (blunt-leaved Ornard), S. Helix (rose Ornard), S. lanceolata (bastard French.—All rubbish, but used for hampers and fish packing-baskets. It is one or other of these which, by snapping in working, causes our trousers to be torn by hampers. Salix purpurea (or bitter Ornard).—I have not seen this grown as an Osier, but it ought to be; it is very tough, very slender, and will grow in wetter ground than any, except the Ornards, all which grow in water. In addition to those named there are two excellent Osiers, the botanic name of which I am uncertain of. Real French.—A most excellent Osier, especially for fine work; used very much for cooper's twigs; that is the twigs used to bind wood hoops on wine casks, &c. Stone Osier.—Also a very excellent Osier; much grown along the Kennet; used for fine work, twigs, &c. Salix fragilis, S. Russelliana, S. alba, and the varieties Alba cærulea, and A. repens—are all occasionally grown as Osiers in Osier-grounds, for the purpose of making eel-wheels and for coopers' twigs; but Salix rubra and the real French are very much superior. Of these Russelliana is the best. S. vitellina I have never seen grow as an Osier, it is used in gardens for its toghness; if it could be grown as an Osier free from side twigs, it would be, with the bark on, the very best for carboy packing. Now, if I had 4 acres to plant with Osiers, I would plant—

One with brindled Osier ...	... 3 ft.	0 in.	by	2 ft.	0 in.
One with last new kind ...	... 3	0	„	2	0
Half with black-budded Spaniard	3	0	„	2	0
Half with yellow-barked Osier	2	6	„	1	8
Half with green-leaved Osier ...	2	6	„	1	8
Half with real French ...	... 2	0	„	1	4

And I would try a rod or two of bitter Purple, remembering that the green-leaved Osier and bitter Ornard should be in the wettest ground. Nevertheless, it is a great error to suppose Osiers grow best in swampy ground. They grow best in a loose sandy loam, but do not mind being occasionally overflowed. *J. C. X., Bermondsey.*

POULTRY: *F Z.* Cochins are the birds that will best answer your purpose, as they are good layers, and easily kept within bounds.

PRIZE LIST AT TIVERTON. At page 412, Mr. F. Webber, of Tiverton, is stated to be the winner for the second best heifer and 3 best cows in calf. In correction of this we have to state that Mr. Thomas Webber, of Halberton Court, Tiverton, Devonshire, received the following prizes:—For the best heifer above 2 and not exceeding 3 years old, bred by himself, second prize; for best pair of heifers, not exceeding 12 months old on the 1st September, 1854, bred by himself, first prize; for the best 3 cows, owner's own breed, in calf or in milk. first prize.

SWEDISH TURNIPS: *Constant Reader.* Mr. Carleton Smythies merely described the effect of burnt clay lumps gathered off the field and full of Couch, with those of farm-yard dung and of turf ashes. The ashes were best, then the dung, and lastly the burned clay. His conclusion is, that the vegetable matter present in the turf and dung is essential as a Turnip manure.

THE FENS: *X.* Some week or two ago we are told that the sharp frost and dry weather had on some of the light lands destroyed 9-10ths of the plant, and if any crop were known which would be likely to be of more value than three sacks of Wheat per acre there would have been inducement on one farm alone to plough 30 acres up. The strong lands in the neighbourhood look uncommonly well, but it must be a late harvest.

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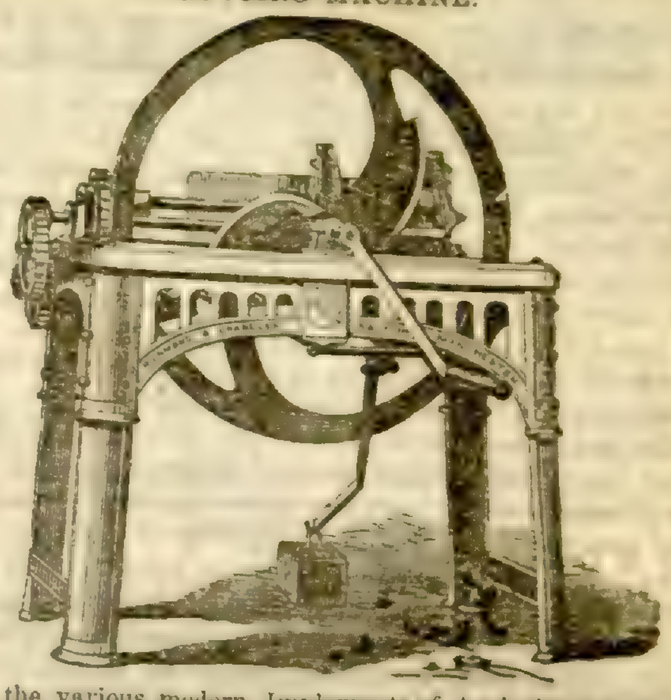

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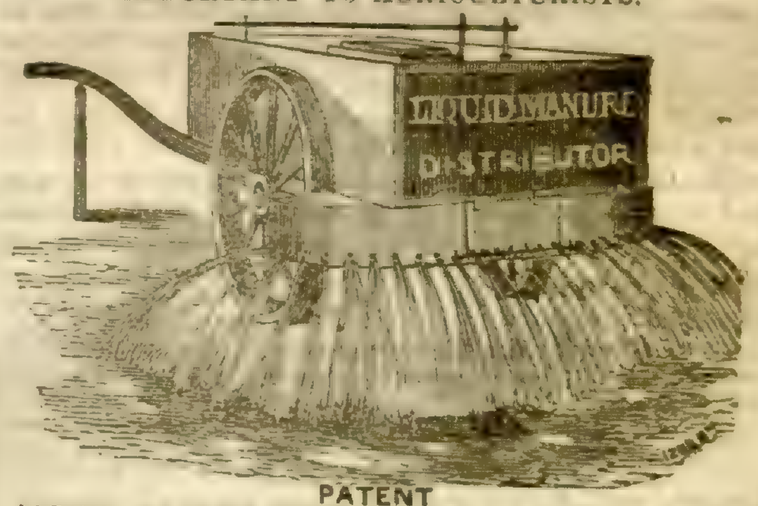

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Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. Burgess & Key, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

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TO LANDSCAPE GARDENERS, AND OTHERS.

SUDBURY BURIAL BOARD.—The Burial Board for the Borough of Sudbury hereby give notice that they are prepared to receive Designs and Estimates for laying out, Embellishing, and Planting their proposed Burial-ground containing about 7 acres. The Board will not pledge themselves to employ the party whose design shall be approved; and in the event of his not being so employed, he shall be paid the premium of five guineas for his design, which shall become the property of the Board. A plan of the ground may be seen, and further information obtained at my office. The Designs and Estimates are to be sent free of expense, under seal, without the author's name, but with a motto, on or before the 16th day of July next, addressed to me, marked "Sudbury Burial Ground," a sealed letter, containing real name and address, should accompany each design and estimate, which will be opened after selection made, and those not approved will be returned. No Design, &c., with the author's name upon it, will be received.

ROBT. RANSOM, Jun., Clerk to the Board.

DEVONSHIRE CYDER.—A three dozen case (large bottles), of the very best DEVONSHIRE CHAMPAGNE CYDER, will be forwarded to any address on receipt of a Post-office order for 21s., payable to JOHN E. REEDLE, Martin Street, Octagon, Plymouth. Case and bottles, value 9s., included.

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TO BE LET, within 15 minutes' walk of the New Cattle Market, a superior FURNISHED BED-ROOM and SITTING-ROOM suitable for a Country Gentleman, who might be desirous of keeping private apartments, within half an hour's ride of the City and West End part of London. Rent 15s. per week, or with an extra Bed-room for two gentlemen friends) 22s., no extras, including attendance, cooking, &c.—For further particulars, apply at Albion Cottage, 13, Clarence Road, Kentish Town.

TO BE LET, at Haxby, near York, within a short distance of the Railway Station, a neat and compact COTTAGE, with requisite Outbuildings, and Nine Acres of Land, well adapted for a Nurseryman, Seed Grower, or Market Gardener, and may be entered on at Michaelmas next.—For particulars, apply to Messrs. BAINBRIDGE & HEWISON, Nurserymen and Seedsmen, or Messrs. ACTON & SON, Auctioneers, Low Ousegate, York.

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TO BE SOLD, by Private Contract, either altogether or in Lots to suit Purchasers, the long established and flourishing NURSERY PREMISES of the late Mr. George Clarkson, Fulford Road, York, stocked with Forest and Fruit Trees, Shrubs, &c.; and having a substantial Dwelling-House, Shops, and Greenhouse, and other requisite Outbuildings attached—Plans and Particulars may be had on application to Mr. LUKE THOMPSON, Solicitor, Judge's Court, York.

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TO BE SOLD, or LET for a term of years, a Nursery, Seed and Plant Business, which has been successfully carried on for the last 35 years in a rapidly rising and most fashionable watering-place in the south of England. The Nursery grounds are advantageously situated in the midst of the town, within half a mile of the Railway Station, and close to its principal entrance is the large Seed and Show Shop. The Grounds comprise about eight acres of good land, and four large Glass Structures, heated with hot water, with several pits and Frames, the whole being well furnished with a Young and Saleable Stock. Any person wishing to carry on the above business will find this well worthy of attention. Satisfactory reasons will be given for the retirement of the present proprietor.—For further information apply to Messrs. E. G. HENDERSON & SON, Wellington Road, St. John's Wood, London.

SOUTHDOWN RAMS.

MR. LUGAR informs the Breeders of Sheep his Southdown Rams will be ready for Letting on THURSDAY, July 12th, and at any time afterwards.

Hengrave, Bury St. Edmund's, June 30.

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WILLIAM ARCHER is commissioned to sell 3 or 4 couples of fine 2-years old SWANS, price 3l. 3s. per couple.—Orders accompanied by Post Office Orders addressed to WILLIAM ARCHER, North Entrance, Great Yarmouth, will be promptly executed.

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MR. J. C. STEVENS begs to notify that the last Sale of Poultry for this season will take place at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 17th July, at 12 o'clock precisely, and that persons wishing to avail themselves of this opportunity are requested to forward particulars of any Birds they are wishful to part with at least one week before the day of Sale. The Periodical Sales will be resumed on the first Tuesday in October. There will be no Sale on Tuesday next.—38, King Street, Covent Garden, June 30.

ORCHIDS.

MR. J. C. STEVENS will sell by Auction, at his Great Room, 38, King Street, Covent Garden, on FRIDAY, 13th July, at 12 o'clock, a Collection of ORCHIDS, including the following choice varieties:—

Aerides Lindleyana	Lælia purpurata
" maculosum major	Saccolabium guttatum
" suavissimum	" retusum
Cattleya Aclandiæ	Sophronitis grandiflora
" labiata	Phalænopsis grandiflora
" Quadoz	" amabilis
Cypripedium eburneum	Vanda tricolor
" barbatum grandiflora	Burlingtonia fragrans

May be viewed on the morning of sale and Catalogues had.

MESSRS. FRASER'S SPECIMEN PLANTS.

MR. J. C. STEVENS is instructed by Messrs. Fraser, Lea Bridge Road, to Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 10th July, at 12 for 1 o'clock, their collection of SPECIMEN STOVE and GREENHOUSE PLANTS, Heath and Azaleas, many of them in fine bloom. Catalogues are preparing, and will be ready for distribution one week prior to the sale.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MR. J. WILLMER is instructed by Charles J. Selwyn, Esq., to sell by Auction, on the premises, Larkfield Lodge, Richmond, on TUESDAY, July 3d, 1855, at Twelve o'clock, upwards of 6000 GREENHOUSE and HERBACEOUS PLANTS in pots, Pits, Lights, Greenhouses, &c. &c.—May be viewed the day preceding the Sale, and Catalogues had on the premises, and of the Auctioneer, Sunbury, Middlesex.

WESTON-SUPER-MARE.

To NURSERYMEN, GARDENERS, AND OTHERS.

MR. SAMUEL NORTON will sell by Auction, at the London Inn, Weston-super-Mare, on TUESDAY, the 10th day of July next, between the hours of 5 and 7 o'clock, all that convenient Messuage or Dwelling-house, with the Outbuildings, Hothouses, Forcing Pits, Nursery and Gardens, for many years in the occupation of Mr. Thomas Taylor, containing together 2a. 3r. 17p., for the remainder of a Term of 21 years, granted by Lease dated 29th September, 1848, and subject to a reserved Rent of 25l. per Annum. The above premises are situate near the Locking Road, having a roadway of 16 feet wide from the same into the Nursery Grounds. To view the same apply to the Auctioneer, and for all further particulars to Mr. HENRY DAVIES, Solicitor, Weston-super-Mare.

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AT THE LOWEST PRICES

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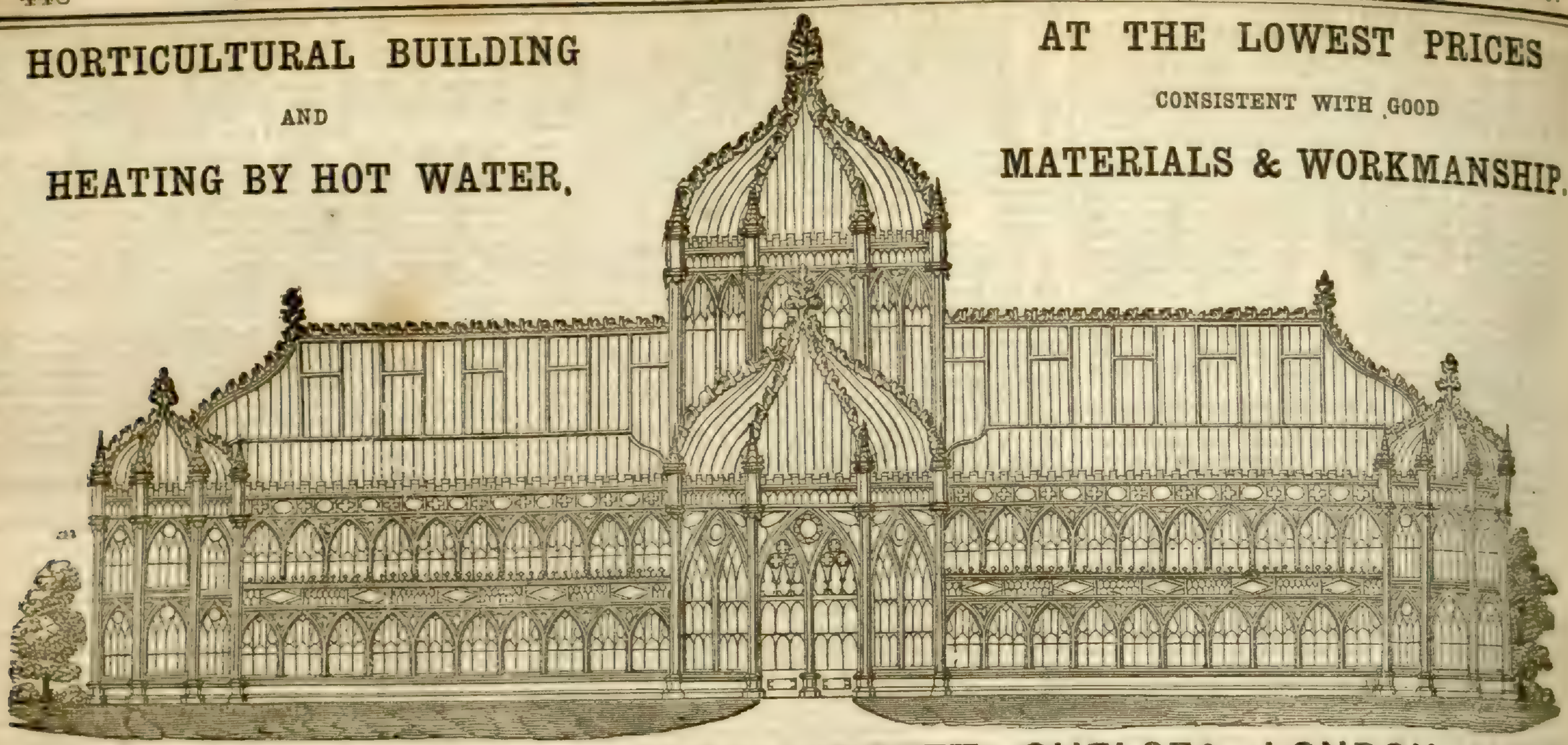

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G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

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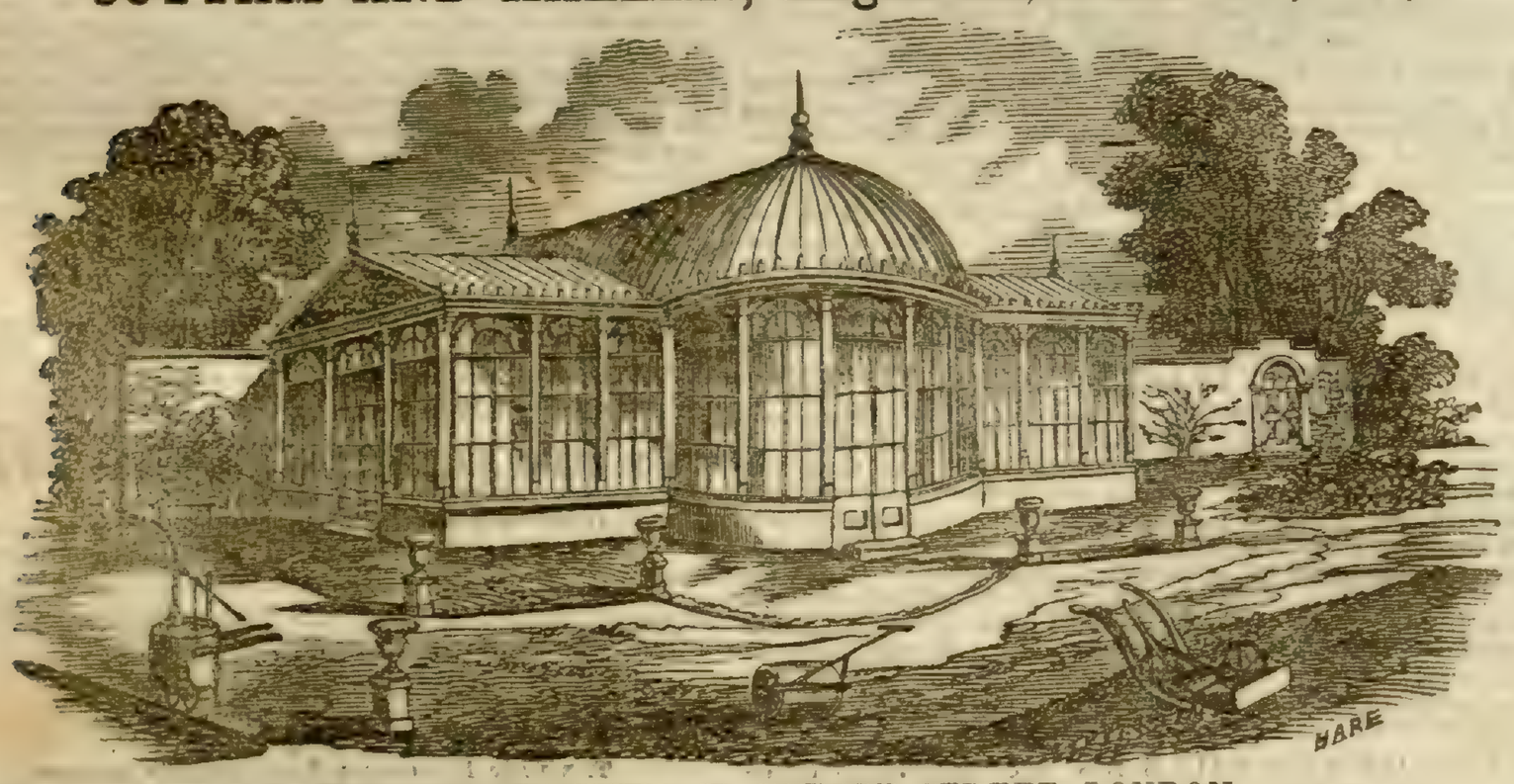

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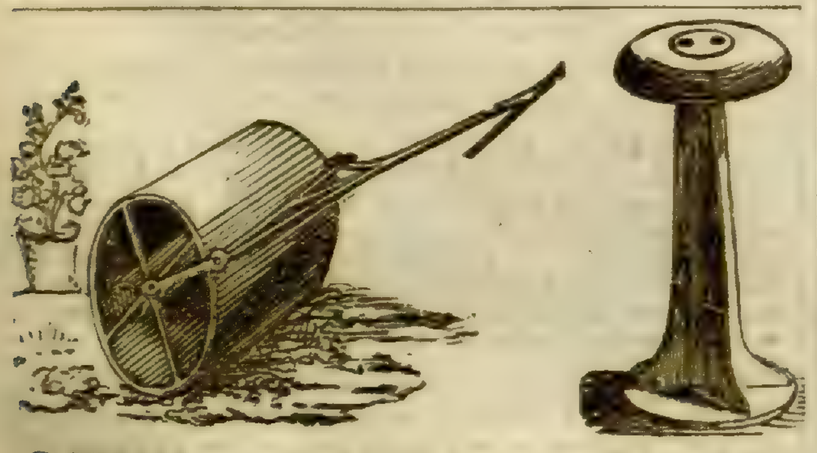

COTTAM AND HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.

Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

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Strong Iron Hurdles, and best Wire for Strained Wire Fencing.

Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom.

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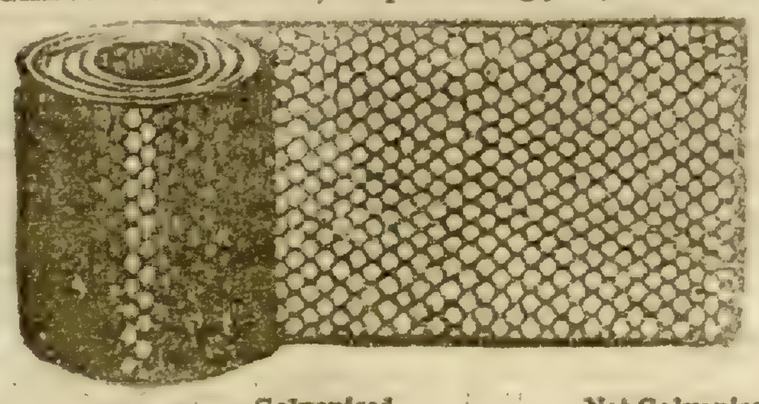
CHEAP WIRE, GAME, & POULTRY NETTING, 5*d.* per running yard.

GALVANISED DITTO, 7*d.* per running yard, 2 feet wide.



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Sparrow Proof Netting, Galvanised, 3*d.* per square foot, made to any size for the same proportionate price. This article was shown at the Great Exhibition, where it was so much admired for its light and durable appearance, and acknowledged to be the cheapest and best article of the kind ever offered. Extra strong Wire Sheep Netting, 3 feet high, 1*s.* 6*d.* and 2*s.* 3*d.* per yard. Also every description of Flower Trainers, Dahlia Rods, Garden Arches, Bordering, Flower Stands, Tying Wire, Trellis Work, Invisible Wire Fencing, Hurdles, and every description of Wire Work for Horticultural purposes.—Illustrated Catalogues of Patterns forwarded, post free, on application to T. H. Fox, City of London Wire Work and Iron Fence Manufactory, 44, Skinner Street, and 6 and 8, Snow Hill, London.

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RANSOME AND CO., Sole Patentees of the new AUTOMATON FILTER, also of every variety of Filters, portable or for immersion.

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THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

PARSEY'S PATENT REVOLVING PUMP lifts three times the quantity of water with the same labour, than any other Pump.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected: Rockwork, Grottoes, &c.

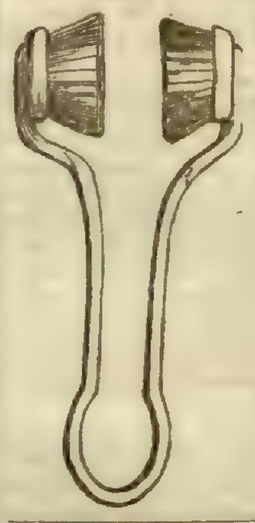
Hose Pipe of every kind for watering Gardens.

W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.

IMPORTANT TO GROWERS OF ROSES.

NEWLY-INVENTED APHIS BRUSH, or GREEN FLY DESTROYER—The attention of Florists is particularly called to this Cheap and Ingenious Instrument, invented by the Rev. E. S. BULL, of Colchester, which, in a very simple and easy manner, instantly cleanses the Rose from that destructive insect the Green-fly (or Aphis), without causing the slightest injury to the bud or foliage.

Price 2*s.* 6*d.* each, or free by post, 4*s.*



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BEE HIVES.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, glasses, thermometer, &c., price 7s., securely packed for the country.

This unique hive has met with universal commendation, and may be worked with safety, humanity, and profit, by the most timid; its arrangements are so perfect, that the honey may be taken at any time of the gathering season without at all injuring the bees.

Early applications, addressed to GEO. NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention. Their newly arranged Catalogue of other improved Beehives, with Drawings and Prices, sent on receipt of two stamps.

Agents:—Manchester, HALL & WILSON, 30, King Street; Liverpool, JAMES CUTHBERT, 12, Clayton Square; Chester, F. & A. DICKSON & SONS, 106, Eastgate Street; Glasgow, ADAMS & M'ASLAN, 186, Trongate Street; Dublin, J. EDMUNDSON & Co., 61, Dame Street.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 27.—1855.] SATURDAY, JULY 7. { Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—THE LAST GARDEN MEETING FOR THIS SEASON will be held on WEDNESDAY, July 11, on which occasion the Grounds of the Duke of Devonshire will, by the kind permission of his Grace the President of the Society, be open to visitors.

FRUIT will be the great feature of this Exhibition.

Tickets, price 5*s*. each, may be procured at 21, Regent Street, or at the Garden, on the day of meeting, price 7*s*. 6*d*. each.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The days appointed for the Exhibition of Plants, Flowers, and Fruit next season, are WEDNESDAYS, May 28th, June 18th, and July 9th, 1856.

WATFORD HORTICULTURAL AND FLORICULTURAL SOCIETY.—The first grand Show of the above Society will be held by permission of the Earl of Essex, in Cassiobury Park, near Watford, on WEDNESDAY, the 18th day of July; open to all Exhibitors. An efficient band will be in attendance. Schedules are now ready, and can be had on application to the Secretary, Mr. J. TAYLOR.

By order of the Committee, JOHN PEARCE TAYLOR.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—At a General Meeting of the Members of this Society, held on Wednesday, the 4th July, for the purpose of electing Three Pensioners on its funds, the following was the result of the ballot:—

Name.	Application.	Age.	Votes.
John Appleby	Eleventh ...	62	520
Cornelius Robinson	Ninth	77	471
John Blacke	Fifth	80	193
William Thacker	Fifth	67	49
Charles Charlton	Fourth ...	68	196
Joseph Jeffery	Fourth ...	62	69
John Kent	Fourth ...	72	351
George Kidd	Fourth ...	69	375
John Lawson	Third	76	32
James Smith	Third	69	39
Ann Arnold	Second ...	63	127
Thomas Blair	Second ...	70	519
Frederick Burnet	Second ...	53	158
William Dungate	Second ...	69	41
Alexander Gregory	Second ...	62	229
William Thornton	Second ...	69	9
William Jackson	First	66	15

The Meeting then declared John Appleby, Thomas Blair, and Cornelius Robinson, as having the greatest number of Votes, duly elected Pensioners of this Charity.

July, 1855. EDWD. R. CUTLER, Secretary.
14, Tavistock Row, Covent Garden.

LOST, at the Royal Botanic Society's Exhibition, in June last, a plant of BORONIA SERRULATA. The subscribers supposing one of the exhibitors has taken the above in error, and not knowing to whom it belongs, have kindly taken care of it, they will feel greatly obliged, should this meet the eye of that person, for any information respecting the same.—Messrs. FAMPLIN & SON, Nurserymen, Lea Bridge Road, Leyton, Essex.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.
*** Plans and Estimates furnished.

JOHN HARRISON, NURSERYMAN, SEEDSMAN, FLORIST, LANDSCAPE GARDENER, &c.
Plans and Estimates furnished; Experienced Gardeners recommended; also several Young Men in the Nursery waiting for Under Gardeners' Situations.—Darlington, July 7.

GEORGE TAYLOR, JUN.,
CHOICE FRUIT and VEGETABLE SALESMAN,
St. John's Market,
Liverpool.
CONTRACTOR and PURCHASER of CHOICE GARDEN PRODUCE.
SALESMAN on COMMISSION.
Terms, Cash.
Forward as above.

W. PRESTOE, SEEDSMAN AND FLORIST, Basingstoke, having a considerable number of the undermentioned Seedling Plants, respectfully offers them to the public.

	per 100.—*s*.	*d*.
Hollyhocks from seven superior kinds	5	0
Heartsease or Pansies, from 24 best show flowers ...	2	6
Antirrhinums, from 12 largest and most distinct kinds in existence	2	6
Dianthus verbatus or Sweet William, from 50 superior and distinct kinds (Packing included.)	2	6

The above seed was all selected from very superior flowers for the express purpose of raising new varieties, but in consequence of not having sufficient room to bed them out they are offered for sale.—Post-office Orders payable at Basingstoke, Hants.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS should be sown immediately after the hay is carried.

These Seeds consist of PERENNIAL CLOVERS *and* FINE GRASSES *for improving the bottom.* Price 9*d*. per lb., or 80*s*. per CWT. Eight or 12 lbs. per acre will be sufficient, and will produce a great increase in the produce.—SUTTON & SONS, Reading, Berks.

THE BEST SUBSTITUTES FOR SWEDES.

SUTTON'S PURPLE-TOP YELLOW HYBRID, SUTTON'S GREEN-TOP YELLOW HYBRID AND ORANGE JELLY TURNIP.—Prices, &c., will be forwarded, Post-free, on application (stating quantity required), by SUTTON & SONS, Seed Growers, Reading.

THE QUICKEST TURNIP KNOWN.

SUTTON'S EARLY SIX-WEEKS TURNIP.—*Good New Seed 1s. per lb., or 6s. p. gallon, 45s. per bush.* Carriage free except small parcels.

SUTTON & SONS, SEED GROWERS, Reading.

TURNIP SEED OF PURE SELECTED STOCKS.

FOR

BASS AND BROWN'S Advertisement of present prices, see *Gardeners' Chronicle* of April 28th, and May 5th and 12th. Reduced prices for large quantities.

ERRATA.—For "Laing's Purple-top Swedes, 1*s*. per lb.," *read* "1*s*. 9*d*. per lb." the same price of the other three Swedes.

TO THE TRADE.—Prices will be supplied on application.

Seed Establishment, Sudbury, Suffolk.

THE BEST EARLY CABBAGE GROWN.

COTTRELL'S EARLY CHAMPION may be sown any season. Sold in sealed packets, 1*s*. per oz. The usual allowance to the Trade.—To be had only of DAWE, COTTRELL, & BENHAM (Successors to F. Warner), Wholesale Seedsmen, 3, Lawrence Pountney Lane, and 36, Moorgate Street (late 28, Cornhill). Established 1720.

NEW SPRING CABBAGE "EXCELSIOR."

WILLIAM KNIGHT, SEEDSMAN, &c., begs to call attention to this fine variety, which is unsurpassed for its excellent quality, being of a very superior flavour, and a certain crop, as it has never been know to run to seed before heading; it is particularly hardy, standing the test of the last winter without a failure. As a certain crop for spring use it is invaluable, for it may be sown at any time without risk, and it will produce a certain crop. Seed is now ready to send out in packets 1*s*. each, or four packets for 3*s*., post free.

67, High Street, Battle, Sussex.

NEW GERANIUM CATALOGUE.

J. DOBSON AND SON beg to announce that their new CATALOGUE of PELARGONIUMS (or GERANIUMS) will be ready by the end of the present month, and will contain only those varieties worth growing, and at reasonable prices for good strong plants.

A Treatise on the Pelargonium sent for eight stamps.

Woodlands Nursery, Isleworth.

CHOICE CALCEOLARIA SEED.

J. DOBSON AND SON are now prepared to send out SEED of their unequalled collection of CALCEOLARIAS, in packets at 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*. each.

Woodlands Nursery, Isleworth.

TO EXHIBITORS OF PELARGONIUMS.

J. DOBSON AND SON can supply a few Cut-down Plants of the New Pelargonium sent out last autumn, Beck's CONQUEROR, acknowledged to be the most distinct variety sent out for some time. Price on application.

Woodlands Nursery, Isleworth.

NEW PELARGONIUMS.

J. DOBSON AND SON have much pleasure in announcing that they will send out the new varieties of the above raised by E. BECK, Esq., of Worton Cottage, and J. WHITE, Esq., of Wethersfield, which will prove the gems of the season. Catalogues with full description and prices will be ready by the end of the present month.

Woodlands Nursery, Isleworth.

WEST MIDDLESEX WHITE GLOBE TURNIP SEED for Bunching, very first-rate; 15*s*. per peck, 8*s*. half peck, 56*s*. per bushel, for cash; bag 1*s*. extra.—W. G. K. BREAVINGTON, Vicarage Farm, Hounslow, Middlesex.

WHITE LISBON ONION SEED.—Large buyers can be supplied with White Lisbon Onion Seed in quantity.—Apply to Mr. HENRY CLARKE, Seed Merchant, 39, King Street, Covent Garden.

GALCEOLARIA AND CINERARIA.

MESSRS. E. G. HENDERSON AND SON beg to announce that the above FLOWER SEEDS, saved from the choicest varieties, may be had in packets at 2*s*. 6*d*. and 5*s*. each; the finest quality of CALCEOLARIA is only offered at 5*s*.; second quality, 2*s*. 6*d*.

This Season's CATALOGUE will be forwarded on application, and a Beautiful Coloured Plate of nine new Flowers will be sent on receipt of 12 postage stamps.

Wellington Nursery, St. John's Wood, July 7.

CALCEOLARIA SEED.

R. PARKER has now ready for sending out Seed which he can recommend with the greatest confidence, it having been saved from flowers of the finest form and most beautiful markings, in packets at 1*s*. 6*d*. and 2*s*. 6*d*. each. Also choice CINERARIA seed saved from the finest named varieties, at 1*s*. 6*d*. and 2*s*. 6*d*. per packet. A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, London.

DUTCH BULBS.

AS the period is approaching for sending out the orders for DUTCH BULBS for the ensuing season, we respectfully suggest to our friends and the trade generally, that they instruct their correspondents in Holland to consign the cases to our care HERE, for immediate transmission to their respective destinations, by which greater expedition will be obtained in their delivery.—BETHAM & BLACKITH, Custom House and General Forwarding Agents, Cox's Quay, Lower Thames Street, London.—July 7.

ROSES.

JAMES MITCHELL begs to announce that his unrivalled collection of ROSES is now in fine bloom.

Piltdown Nurseries, Maresfield, Sussex, July 7.

ROSES.

E. P. FRANCIS' extensive collection of Roses on the Manetti Stock will be in full bloom on and after July 12. Trains direct to Hertford from Shoreditch Station.

Rose Nurseries, Hertford.

ROSES.—The Collection at Sawbridgeworth will be in fine bloom the ensuing and following weeks. The 11 30 Express Train to Harlow Station, about one mile from the Nursery, will be found the most convenient.

Nurseries, Sawbridgeworth.—July 7.

ROSES.

A. PAUL AND SON invite inspection of the Collection of ROSES at the Cheshunt Nurseries, which is just coming into Bloom, and will continue to offer new objects of interest from the present time till the end of October. The best means of reaching the Nurseries is by Eastern Counties Rail to Cheshunt or Waltham Stations.

Cheshunt Nurseries (13 miles N.E. of London), July 7.

ROSES.

H. LANE AND SON, The Nurseries, Great Berkhampstead, have the pleasure to inform their patrons that their extensive Collection will be in full bloom after the 11th inst. Their Coniferæ, Rhododendrons, and a general collection of Trees and Shrubs, also Fruit Trees (especially in pots, which may be seen now in full bearing) are remarkably fine and healthy and well worthy the attention of planters. The Nurseries are within a few minutes' walk of the Railway Station on the London and North Western Railway, and an Omnibus from the station passes the gates.

ROSES.

GEORGE CLARKE begs to invite his patrons and the public generally to an inspection of his superb collection, extending over 10 acres of ground, which are now in full bloom, and will continue so till autumn. Plants can be selected now and orders executed in November.

G. C. would direct special attention to his stock of Dwarf Roses, comprising the newest and most choice kinds budded on the Manetti, which are remarkably fine; also to his fine collections of Azaleas, Ericas, Geraniums, Calceolarias, Variegated Plants, Coniferæ, Evergreens, Fruit Trees, &c., which are of the best and most select description. The Nursery is situate on the nearest and most pleasant route from the West-end to the Crystal Palace.—Streatham Place Nursery, Brixton Hill, near London, July 7.

CHOICE CINERARIA SEED.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior CINERARIAS, which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias have given for several successive years, enables them to recommend their Seed of the present season with much confidence. Packets sealed and warranted by them at 2*s*. 6*d*., free by post.

Exeter Nursery, Exeter.—Established 1720.

ENGLISH GROWN RAPE, OR COLE SEED.

CHARLES SHARPE AND CO. beg to acquaint the Trade that they can supply any quantity of the above; prices and samples forwarded on application.

Nursery and Seed Establishment, Sleaford, July 7.

HOLLYHOCK SEED.

A. PAUL AND SON have ready for immediate sowing a fine lot of HOLLYHOCK SEED saved from their choicest varieties which have obtained many of the leading prizes during the last three years:—

	s.	*d*.
1st selection, saved from 25 varieties, per packet ...	5	0
2d do. " 12 " " ...	2	6
Good Mixtures	1	0

Also, price 1*s*., AN HOUR WITH THE HOLLYHOCK.

N.B. Free by post, and payment received in postage stamps.

Nurseries, Cheshunt, Herts.

AZALEAS AND ERICAS.

W. J. EPPS has much pleasure in offering the following fine, bushy, well-grown plants, and of the choicest and best varieties, in large 48 and 32-size pots.

AZALEAS 18*s*. per dozen; 5*l*. per 100.
ERICAS 12*s*. and 18*s*. per dozen; 4*l*. and 5*l*. per 100.

These will make very pretty specimens for the ensuing season; all orders to be accompanied with a remittance from unknown correspondents.—Maidstone, July 7.

OPEN AIR CULTURE OF THE MUSHROOM.

PRESTOE'S IMPROVED MUSHROOM SPAWN.—The only acknowledged improvement in this article from the time of OLDAKER.—Sold in packages containing a sufficient quantity to plant 50 feet of bed for 5*s*., with printed description and cultural directions.

W. PRESTOE, in returning thanks to his friends, begs to inform them that hereafter all packages to the value of 5*s*. will be carriage free to any station on the South-Western Line; all packages of the value of 10*s*. free to any station on the Great Western or Berks and Hants Railways.—The trade supplied. Post Office orders payable to WILLIAM PRESTOE, Basingstoke, Hants.

BEAUTIFUL NEW CONIFEROUS PLANT, "ARTHROTAXUS DONIANA."

W. MAULE AND SONS have much pleasure in announcing to the lovers of Coniferous and rare plants that after this week they intend sending out this beautiful tree from the Rocky Mountains, far south of Australia, which mountains are stated by their collector to be covered with snow, and inaccessible from ice nine months out of the twelve. This elegant evergreen tree has stood with little or no injury the two last winters, when at the same time Pinus insignis, Araucaria imbricata have been much injured, and many of our old evergreens quite killed close by their side. The stock of this rare plant is very limited. Established Plants, in 60 size pots, 42*s*. each.

Those gentlemen who have subscribed their orders, and may order this new plant, are respectfully informed that the strictest regularity will be observed in forwarding the strongest plants in rotation as their orders have been and are received.

Stapleton Road Nurseries, Bristol, July 7.

ROYAL BOTANIC GARDENS, REGENT'S PARK.

List of Prizes Awarded at the Exhibition held on Wednesday, July 4th, 1855.

EXTRA GOLD MEDAL.

To Mr. May, Gardener to H. Colyer, Esq., Dartford, for 16 Stove and Greenhouse Plants.
To Mr. Mylam, Gardener to G. Reed, Esq., Burnham, Somerset, for 20 Exotic Orchids.

LARGE GOLD MEDAL.

To Mr. Barter, Gardener to A. Bassett, Esq., Stamford Hill, for 16 Stove and Greenhouse Plants.
To Mr. Williams, Gardener to C. B. Warner, Esq., Hoddesdon, Herts, for 20 Exotic Orchids.

MEDIUM GOLD MEDAL.

To Mr. Green, Gardener to Sir E. Antrobus, Bart., Cheam, for 16 Stove and Greenhouse Plants.
To Messrs. Fraser, Nurserymen, Leyton, for 12 Stove and Greenhouse Plants.
To Mr. Frost, Gardener to E. L. Betts, Esq., Maidstone, for 10 Stove and Greenhouse Plants.
To Mr. Woolley, Gardener to H.-B. Ker, Esq., Cheshunt, for 20 Exotic Orchids.
To Messrs. Veitch, Nurserymen, Exeter and Chelsea, for 16 Exotic Orchids.
To Mr. Gedney, Gardener to Mrs. Ellis, Hoddesdon, for 12 Exotic Orchids.

GOLD MEDAL.

To Mr. Cutbush, Nurseryman, Barnet, for 12 Stove and Greenhouse Plants.
To Mr. Taylor, Gardener to J. Coster, Esq., Streatham, for 10 Stove and Greenhouse Plants.
To Messrs. Rollisson, Nurserymen, Tooting, for 10 Cape Heaths.
To Mr. May, Gardener to H. Colyer, Esq., for 8 Cape Heaths.
To Messrs. Veitch, Exeter and Chelsea, for 20 Variegated Plants.
To Mr. Clarke, Gardener, Hoddesdon, for 12 Exotic Orchids.
To Mr. Turner, Nurseryman, Slough, for 12 Pelargoniums.
To Mr. Nye, Gardener to E. Foster, Esq., Clewer Manor, Windsor, for 10 Pelargoniums.
To Mr. M'Ewen, Gardener to his Grace the Duke of Norfolk, for Miscellaneous Collection of Fruit.

LARGE SILVER GILT MEDAL.

To Mr. Rhodes, Gardener to J. Phillpot, Esq., Stamford Hill, for 16 Stove and Greenhouse Plants. [Plants.
To Messrs. Pamplin, Leyton, Essex, for 12 Stove and Greenhouse
To Mr. Peed, Gardener to Mrs. Treadwell, Norwood, for 10 Stove and Greenhouse Plants.
To Mr. Frost, Gardener to E. L. Betts, Esq., for 6 Stove and Greenhouse Plants.
To Mr. Taylor, Streatham, for 6 Greenhouse Azaleas.
To Mr. Green, Gardener to Sir E. Antrobus, Bart., for 6 Exotic Orchids. [goniums.
To Messrs. Fraser, Nurserymen, Lea Bridge Road, for 12 Pelar-
To Mr. Holder, Gardener to the Rev. E. Coleridge, Eaton College, for 10 Pelargoniums.
To Mr. Fleming, Gardener to the Duke of Sutherland, for Miscellaneous Collection of Fruit.
To Mr. Tillyard, Gardener to the Speaker, Heckfield, Hants, for 3 dishes of Grapes.

LARGE SILVER MEDAL.

To Mr. Williams, Gardener to Miss Traill, Bromley, Kent, for 6 Stove and Greenhouse Plants.
To Mr. Wiggans, Gardener to E. Beck, Esq., Isleworth, for 6 Achimenes.
To Mr. Green, Gardener to Sir E. Antrobus, for 6 Tall Cacti.
To Messrs. Fraser, Nurserymen, Lea Bridge Road, for 10 Cape Heaths.
To Mr. Frost, Maidstone, for 8 Cape Heaths.
To Mr. Roser, Streatham, for 6 Cape Heaths.
To Messrs. Henderson, Nurserymen, Pine-apple Place, for 20 Variegated Plants.
To Messrs. Rollisson, for 20 Variegated Plants.
To Mr. Ivison, Sion House, for 6 Exotic Orchids.
To Mr. Bray, Gardener to Baron Goldsmidt, Regent's Park, for 6 Fuchsias.
To Mr. Windsor, Gardener to A. Blyth, Esq., Kiddepore Hall, for 6 Fancy Pelargoniums.
To Mr. Turner, for 6 Pelargoniums.
To Mr. Watson, Market Gardener, Ealing, for Miscellaneous Collection of Fruit.
To Mr. Fleming, Trentham, for 4 Pine Apples.

SILVER GILT MEDAL.

To Mr. Hamp, Gardener to J. Thorne, Esq., South Lambeth, for 10 Stove and Greenhouse Plants.
To Mr. Morris, Gardener to Coles Child, Esq., Bromley, Kent, for 6 Stove and Greenhouse Plants.
To Messrs. Fraser, Lea Bridge Road, for 6 Kalosanthes.
To Mr. Cutbush, Barnet, for 10 Cape Heaths.
To Mr. Williams, Gardener to Miss Traill, Bromley, for 8 Cape Heaths.
To Mr. Barter, Gardener to A. Bassett, Esq., Stamford Hill, for 6 Cape Heaths.
To Mr. Fletcher, Gardener to Dr. Young, Kennington Lane, for 12 Exotic Ferns.
To Mr. Fletcher, for 30 British Ferns.
To Mr. Cole, Nurseryman, St. Alban's, for 6 Calceolarias.
To Mr. Gaines, Nurseryman, Battersea, for 6 Fuchsias.
To Mr. Gaines, Nurseryman, Battersea, for 12 Pelargoniums.
To Mr. Robinson, Gardener to J. Simpson, Esq., Pimlico, for 10 Pelargoniums.
To Mr. Weir, for 6 Fancy Pelargoniums.
To Mr. Turner, Slough, for 3 large Pelargoniums.
To Mr. Cain, Gardener to D. Spyers, Esq., Weybridge, for 3 Scarlet Pelargoniums.
To Mr. Wiggans, for 6 Pelargoniums.
To Messrs. Paul & Son, Cheshunt, for 50 Cut Roses.
To Mr. May, Gardener to C. M. Worthington, Esq., Caversham Priory, Oxon, for 25 Cut Roses.
To Mr. Barrow, Gardener, Swansea, for 4 Pine Apples.
To Mr. Henderson, Ashby-de-la-Zouch, for 3 dishes of Grapes.
To Mr. Henderson, Ashby-de-la-Zouch, for 12 lbs. of Grapes.
To Mr. Henderson, Ashby-de-la-Zouch, for 1 dish of Black Hamburgh.
To Mr. Smith, Herne, for 1 dish of White Muscadine Grapes.
To Mr. Strachan, Gardener to R. B. Hill, Esq., Bache Hall, Chester, for 1 dish of Muscat Grapes.
To Mr. Tillyard, for 1 dish of Frontignan Grapes.
To Mr. Turnbull, Blenheim, for 4 dishes of Peaches and Nectarines.
To Mr. Ivison, Gardener to the Duke of Northumberland, for Tropical Fruits.
To Mr. Morris, Gardener to Coles Child, Esq., Bromley, for 6 Exotic Orchids.
To Messrs. Fraser, for 3 Fancy Pelargoniums.
To Mr. Madin, for 1 dish of Grapes.

SILVER MEDAL.

To Mr. Roser, Gardener to J. Bradbury, Esq., Streatham, Surrey, for 6 Stove and Greenhouse Plants.
To Mr. Peed, Gardener to Mrs. Treadwell, Norwood, for 8 Cape Heaths.
To Mr. Taylor, Streatham, for 6 Cape Heaths.
To Mr. Rhodes, Stamford Hill, for 6 Cape Heaths.
To Messrs. Rollisson, for 12 Exotic Ferns.
To Mr. Gedney, Gardener to Mrs. Ellis, Hoddesdon, Herts, for 12 Exotic Ferns of superior culture.
To Mr. Morris, Bromley, for 6 Exotic Orchids.
To Mr. Henderson, Pine-apple Place, for 6 Calceolarias.
To Messrs. Dobson, Nurserymen, Isleworth, for 12 Pelargoniums.
To Mr. Wiggans, Gardener to E. Beck, Esq., Isleworth, for 10 Pelargoniums,
To Mr. Maher, for 6 Fancy Pelargoniums.
To Mr. Holder, Eton, for 3 large Pelargoniums. [niums.
To Mr. M'Neil, Hornsey Road, Holloway, for 3 Scarlet Pelargo-
To Mr. Holder, for 6 Pelargoniums. [Roses.
To Mr. Mitchell, Nurseryman, Maresfield, Sussex, for 50 Cut
To Miss Palmer, Portland Square, for 25 Cut Roses,
To Mr. Constantine, Gardener to C. Mills, Esq., Hillingdon, for Miscellaneous Collection of Fruit.
To Mr. Beal, Gardener to A. Smith, Esq., Wood Hall, Walton, for 4 Pine Apples.
To Mr. Davis, Gardener to T. W. Booker, Esq., M.P., Valendra House, near Cardiff, for 1 Queen Pine Apple.
To Mr. Martin, Gardener to Sir H. Fleetwood, Bart., Hill House, Windsor Forest, for 3 Dishes of Grapes.
To Mr. Bailey, Bucks, for 1 Queen Pine Apple.
To Mr. Taylor, Streatham, for 1 Pine Apple, new sort.
To Messrs. Veitch, Nurserymen, Exeter and Chelsea, for specimen Orchid Ærides Lobbi.
To Messrs. Veitch, for a New Plant, Rhododendron Princess Royal.
To Messrs. Veitch, for Leptodactylon californicum.
To Mr. Jackson, Nurseryman, Kingston, for 20 Variegated Plants.
To G. Bishop, Esq., South Villa, Regent's Park, for 6 Fuchsias.
To Mr. Thomas Bailey, Gardener to T. T. Drake, Esq., Shardeloes, Amersham, Bucks, for 1 Pine Apple.
To Mr. Fleming, Trentham, for 1 dish of Black Hamburgh.
To Mr. Tillyard, for 1 dish of White Muscadine Grapes.
To Mr. Clarke, Hoddesdon, for 1 dish of Muscat Grapes.
To Mr. Turnbull, for 1 dish of Muscat Grapes.
To Mr. Henderson, Ashby-de-la-Zouch, for 1 dish of Frontignan Grapes.
To Mr. Marchand, Hanwell, for 1 dish of Frontignan Grapes.
To Mr. Forsyth, Gardener to Baron de Rothschild, Gunnersbury Park, Acton, for Vines in pots.
To Mr. Forbes, Gardener to the Duke of Bedford, Woburn Abbey, Beds, for 1 dish of Peaches.
To Mr. M'Ewen, for 1 dish of Nectarines.
To Mr. Frost, Maidstone, for 4 dishes of Peaches and Nectarines.
To Mr. Snow, Gardener to Earl de Grey, Wrest Park, Silsoe, Beds, for 2 dishes of Peaches and Nectarines.
To Mr. Davis, Oak Hill, East Barnet, for 2 dishes of Peaches and Nectarines.
To Mr. Munro, St. Alban's, for Miscellaneous Collection of 12 dishes of Fruit.
To Mr. M'Neil, for Collection of 9 Verbenas.
To Mr. Parker, Nurseryman, Holloway, for Collection of Ferns and Variegated Plants.
To Mr. Woolley, Gardener to H. B. Ker, Esq., Cheshunt, for 6 Achimenes.
To Mr. Gaines, for 6 Fancy Pelargoniums.
To Mr. Hill, for 1 dish of Grapes.
To Mr. Jackson, Gardener to Lord Scarsdale, Keddleston Park, Derbyshire, for 1 Providence Pine Apple.

SMALL SILVER MEDAL.

To Mr. Harlock, Gardener to R. W. Nutter, Esq., Wanstead, for 6 Cape Heaths.
To Mr. Woolley, Cheshunt, for Specimen Orchid Catasetum longifolium.
To Messrs. Henderson, Nurserymen, Pine-apple Place, for New Plant Gompholobium Lindleyana.
To Isaac Anderson, Esq., Maryfield, Edinburgh, for New Plants (genus unknown) for botanical interest.
To Mr. Roser, Streatham, for New Plant Erica Paxtoni.
To Mr. Barter, Stamford Hill, for New Plant Erica elegantissima.
To Mr. Taylor, Streatham, for Correct Labels.
To Mr. James, Gardener to W. F. Watson, Esq., Isleworth, for 6 Calceolarias. [Pelargoniums.
To Mr. Weir, Gardener to J. Hodgson, Esq., Hampstead, for 10
To Mr. Windsor, for 3 large Pelargoniums.
To Messrs. Dobson, Isleworth, for 6 Pelargoniums.
To Mr. Turner, for 24 Pinks.
To Mr. Turner, for 36 Pansies.
To Mr. Baker, for 12 Pinks.
To Mr. Nye, for Seedling Pelargoniums of 1853.
To Mr. Francis, Nurseryman, Hertford, for 50 Cut Roses.
To Mr. Terry, Gardener to Lady Pullar, for 25 Cut Roses.
To Mr. Mitchell, for 24 Single Blooms of Roses.
To Mr. Cowan, Gardener to E. A. Jones, Esq., the Grove, Wanstead, for Miscellaneous Collection of Fruit.
To Mr. Spencer, Gardener to the Marquis of Lansdowne, for 4 Pine Apples.
To Mr. Jackson, for 1 Providence Pine Apple.
To Mr. Busby, Gardener to J. Crawley, Esq., Stockwood Park, Luton, Beds, for 1 Pine Apple. [elegans.
To Messrs. Veitch & Son, Exeter and Chelsea, for sp. Pleroma
To Mr. Henderson, for a box of Nectarines.
To Mr. Salter, Florist, Hammersmith, for a Collection of Herbaceous Pæonies. [goniums.
To Mrs. Conway, Florist, Old Brompton, for 8 Scarlet Pelar-
To Mr. Fleming, Trentham, for 1 Queen Pine Apple.
To Mr. Peed, Norwood, for 1 Queen Pine Apple.
To Mr. Spencer, for 1 Green Flesh Melon.
To Mr. Henderson, Gardener to Sir G. H. Beaumont, Bart., Cole Orton Hall, Ashby-de-la-Zouch, for 1 Green Flesh Melon.
To Mr. Tegg, Gardener to A. Pryor, Esq., Roehampton, for 1 Green Flesh Melon.
To Mr. M'Ewen, for 1 Green Flesh Melon.
To Mr. M'Ewen, for 1 Green Flesh Melon.
To Mr. Robertson, Stoke Edith Park, for 1 Green Flesh Melon.
To Mr. Marchand, for 1 Scarlet Flesh Melon. [Grapes.
To Mr. C. F. Harrison, Gardener, Oatlands Palace, for 12 lbs. of
To Mr. Henderson, for 12 lbs. of Grapes.
To Mr. Bell, South Lambeth, for 12 lbs. of Grapes.
To Mr. Solomon, Market Gardener, Peckham Rye, for 12 lbs. of Grapes.
To Mr. Boyd, Gardener to Viscount Dillon, Dytchley, Oxon, for 1 dish of Black Hamburgh Grapes.

SMALL SILVER MEDAL.

To Mr. Frost, Maidstone, for 1 dish of Black Hamburgh Grapes.
To Mr. Tillyard, for 1 dish of Black Hamburgh Grapes.
To Mr. Taylor, Streatham, for 1 dish of Muscat Grapes.
To Mr. Turner, Gardener to G. Hill, Esq., Streatham, for 1 dish of Black Prince Grapes.
To Mr. Frost, Maidstone, for 1 dish of Muscats.
To Mr. Allport, Gardener to W. A. Akroyd, Esq., Doddington, Nantwich, Cheshire, for 1 dish of Muscats.
To Mr. Martin, Windsor Forest, for 1 dish of Frontignan Grapes.
To Mr. Constantine, Hillingdon, for Vines in pots.
To Mr. Constantine, for 1 dish of Peaches.
To Mr. Slowe, Gardener to W. R. Baker, Esq., Bayfordbury, for 1 dish of Nectarines.
To Mr. Collinson, Gardener to the Marquis of Westminster, for 1 dish of Nectarines.
To Mr. Munro, St. Alban's, for 4 dishes of Peaches and Nectarines. [Carlton.
To Mr. Ruffet, Hertford, for 2 dishes of Peaches and Nec-
To Mr. Slowe, Herts, for 2 dishes of Peaches and Nectarines.
To Mr. J. Anderson, Longchamp Gardens, for 2 dishes of Peaches and Nectarines.
To Mr. R. Smith, Market Gardener, Twickenham, for 2 dishes of Strawberries.
To Mr. Lydiard, Bath, for 4 dishes of Strawberries.
To Mr. Williams, Hoddesdon, for Tropical Fruits.

BRONZE MEDAL.

To Mr. Mylam, Gardener to G. Reed, Esq., Burnham, Somerset, for specimen Orchid Huntleya.
To Mr. Cutbush, Barnet, for Correct Labels.
To Mr. Green, Cheam, for Correct Labels.
To Mr. Maher, Gardener to J. M. Strachan, Esq., Teddington Grove, Middlesex, for 10 Pelargoniums.
To Mr. Gaines, for 3 Scarlet Pelargoniums.
To Mr. Robinson, for 6 Pelargoniums.
To Mr. Baker, Woolwich, for 24 Pinks.
To Mr. Dobson, for 36 Pansies.
To Mr. Lawrence, Hampton, for 12 Pinks.
To Mr. Francis, Hertford, for 24 Single Blooms of Roses.
To Mr. Chapman, Chilford, Cheshire, for 1 Providence Pine Apple.
To Mr. Dawson, Gardener to Earl Cowper, Panshanger, Herts, for 1 Pine Apple.
To Mr. Turnbull, Gardener to the Duke of Marlborough, Blenheim, Oxon, for 1 Pine Apple.
To Mr. Smith, Gardener to S. Ricardo, Esq., Berks, for 1 Green-flesh Melon.
To Mr. Beal, Gardener to Abel Smith, Esq., Walton, for 1 Green-flesh Melon.
To Mr. Fleming, for 1 Green-flesh Melon.
To Mr. Ruffet, Gardener to Lord Palmerston, Brocket Hall, Herts, for 1 Green-flesh Melon.
To Mr. M'Ewen, for 1 Scarlet-flesh Melon.
To Mr. Miller, Gardener to Sir W. Smith, Bart., Edston House Worcester, for 1 Scarlet-flesh Melon.
To Mr. Harrison, for 1 dish of Black Hamburgh Grapes.
To Mr. Spurey, Gardener to J. Archer, Esq., Hallingbury Park, Essex, for 1 dish of Black Hamburgh Grapes.
To Mr. Heyde, Gardener to H. Treacher, Esq., Oak Hall, Wanstead, for 1 dish of Black Hamburgh Grapes.
To Mr. Alborough, Gardener to L. Gurney, Esq., Upton Park Essex, for 1 dish of White Muscadine Grapes.
To Mr. Gardiner, Gardener to Sir George Phillips, Bart., Weston House, Shipton-on Stour, for 1 dish of Peaches.
To Mr. Constantine, for 1 dish of Nectarines.
To Mr. Watson, Ealing, for 1 dish of Nectarines.
To Mr. Miller, Gardener to Sir William Smith, Bart., for 4 dishes of Peaches and Nectarines.
To Mr. Munro, St. Alban's, for 2 dishes of Peaches and Nectarines.
To Mr. Spencer, Bowood, for 2 dishes of Peaches and Nectarines.
To Mr. Ivison, Gardener to the Duke of Northumberland, Sion House, for 1 dish of Figs.
To Mr. James Taylor, Brentford End, for 1 dish of Black Cherries.
To Mr. James Taylor, Brentford End, for 1 dish of White Cherries.
To Mr. Tillyard, Hants, for 2 dishes of Strawberries.
To Messrs Veitch, for specimen of Ixora Lobbi.
To Mr. Rollisson, Tooting, for 10 new Gloxinias.
To Mr. Turner, Slough, for collection of Bedding Calceolarias.
To Mr. Munro, St. Alban's, for a box of Nectarines.
To Mr. Spencer, Bowood, Wilts, for 1 Queen Pine Apple.

CERTIFICATE.

To Mr. Taylor, Streatham, for new plant Azalea formosa.
To Messrs. Fraser, for Correct Labels.
To Mr. Roser, for Correct Labels.
To Mr. Gaines, for 6 Pelargoniums.
To Mr. Bragg, Nurseryman, Slough, for 24 Pinks.
To Mr. Bragg, Nurseryman, Slough, for 36 Pansies.
To Mr. Holder, for 24 Pansies.
To Mr. Wilkinson, Nurseryman, Ealing, for 50 Cut Roses.
To Mr. Busby, Gardener to J. Crawley, Esq., Stockwood Park for 25 Cut Roses.
To Mr. M'Ewen, Gardener, for 25 Cut Roses.
To Mr. Marcham, Gardener to J. Smith, Esq., Bydorp House Hanwell, for 25 Cut Roses.
To Mr. Terry, for 24 single blooms of Roses.
To Mr. Toogood, Nurseryman, Arundel, for 24 single blooms of Roses.
To Mr. Smith, Gardener to Viscount Enfield, Wrotham Park Barnet, for 1 Providence Pine Apple.
To Mr. Bailey, for 12 lbs. of Grapes.
To Mr. Munro, Gardener to Mrs. Oddie, Colney House, St. Albans for 12 lbs. of Grapes.
To Mr. Martin, Windsor Forest, for 1 dish of Black Hamburgh Grapes.
To Mr. Jackson, South Lambeth, for one dish of Black Hamburgh Grapes.
To Mr. Williamson, Gardener to Lord Lonsdale, Whitehaven Castle, for 1 dish of Black Hamburgh Grapes,
To Mr. Williams, Hoddesdon, for 1 dish of White Muscadine Grapes.
To Mr. Spurey, for 1 dish of White Muscadine Grapes.
To Mr. Snow, Luton, for 1 dish of Figs
To Mr. Constantine, Hillingdon, for 1 dish of Figs.
To Mr. Ruffet, Hertford, for 1 dish of Figs.
To Mr. Snow, Luton, for 1 dish of Black Cherries.
To Mr. Marcham, Gardener, Hanwell, for 1 dish of Black Cherries
To Mr. Gainsford, Brentford, for 1 dish of Black Cherries.
To Mr. Snow, Luton, for 1 dish of White Cherries.
To Mr. Lydiard, Bathroston Park, Bath, for 2 dishes of Strawberries
To Mr. Bain, Gardener to A. Perkins, Esq., Hanworth Park for Tropical Fruits.
To Mr. Vare, Gardener to Sir Thomas Hare, Bart., Stowe Hall Norfolk, for Tropical Fruits.

[For continuation of List of Prizes see top of next page

NEWBERY GARDENERS'

ROYAL BOTANIC GARDENS, REGENT'S PARK, EXHIBITION—*Continued.*

CERTIFICATE.

To Mr. M'Neil, for a box of Cut Verbenas,
To Mr. M'Neil, for Seedling Verbena "Sir Colin Campbell."
To Mr. Smith, Florist, for 24 Cut Verbenas.
To Mr. Smith, for Petunia "Hermonie."
To Mr. Bragg, Slough, for Seedling Pink "Ralph Bailey."
To Mr. Bragg, Slough, for Seedling Pink "Annie Laurie."
To the Rev. E. Trimmer, Putney, for Seedling Pelargonium "Leda."
To Mr. Nye, for Seedling Pelargonium "Prince of Wales."
To G. W. Hoyle, Esq., Reading, for Seedling Pelargonium "Matilda."
To Mr. Turner, Slough, for Seedling Pelargonium "Prima Donna."
To Mr. Constantine, for a box of Peaches.
To Mr. Watson, Ealing, for a box of Nectarines.
To Mr. Turnbull, Blenheim, for dish of Strawberries, "Nimrod."
To Mr. Parke, Florist, Dalston, for 24 Ranunculuses.
To Mrs. Rushcombe, 9, Chepstow Villas, for Lastræa Filix-mas, var. Borrei.
To Mr. Halley, Blackheath, for Seedling Phlox "Pearl."
To Mr. Norman, Woolwich, for Seedling Pink "Mrs. Norman."
To Mr. Cole, Nurseryman, St. Alban's, for collection of Seedling Calceolarias.
Mr. Turner, Slough, for Seedling Pink "Star."
To Mr. Taylor, Streatham, for 1 Queen Pine Apple.
To Lady Guest, Glamorgan, for 1 Queen Pine Apple.
To Mr. Beech, Market Gardener, Isleworth, for a dish of Keens' Seedling Strawberry.

PLANTS OF CABBAGE, SAVOY, KAIL, BROCCOLI, CELERY, AND CAULIFLOWER.

JOHN CATTELL begs respectfully to inform the public that he has a plentiful supply of Plants of his superior true sorts of the above, which will be forwarded to order on receipt of Postage Stamps, or Post Office Order made payable here, at the following prices, package included:—

All the sorts of Early Cabbage, Savoy, and Kail, including Brussel Sprouts, 6*d.* per 100, 4*s.* 6*d.* per 1000; all the sorts of Broccoli, 8*d.* per 100, 5*s.* 6*d.* per 1000; all the sorts of Celery, bedded plants, 8*d.* per 100, 5*s.* 6*d.* per 1000; Cauliflower, early and late 10*d.* per 100; Red Cabbage, 1*s.* per 100; Drumhead, or Cattle Cabbage, 4*s.* per 1000. A fine stock of autumn-bedded early Cabbage still to dispose of at 5*s.* per 1000; for large quantities, price on application. Packages containing plants to the value of 1*l.* and upwards will be delivered carriage free to London and to the Edenbridge Station of the South Eastern Railway. A remittance must accompany orders from unknown correspondents. Seed of Cattell's Dwarf Barnes, and of his superior Dwarf Reliance Cabbage, may be had in packets by post, for 12 penny stamps per packet, the former containing one ounce, and the latter half an ounce.—Nurseries, Westerham, Kent.

NEW AND SPLENDID ACHIMENES, ETC.

HENRY WALTON, FLORIST, &c., Edge End, Marsden, near Burnley, Lancashire, is now prepared to send plants of the following out, post free, at the undernamed reduced prices:—

ACHIMENES (each).—Ambroise Verschaffelt, 5*s.*; Dr. Hopf, 5*s.*; Edward Boissier, 3*s.* 6*d.*; Edmond Otto, 2*s.* 6*d.*

Also the eight following fine varieties for 12*s.*, post free, or separate, at the prices annexed:—Achimenes Carl Walforth, 1*s.* 6*d.*; Cherita, 1*s.* 6*d.*; Louis Van Houtte, 1*s.*; Gigantea, 5*s.*; Madame Randatler, 3*s.*; Mr. Parparet, 1*s.*; Sir Traherne Thomas, 1*s.*; Hendersoni, 2*s.*; Clianthus magnifica, 2*s.* 6*d.* each; Begonia Prestoniensis, Superb, 2*s.* 6*d.*; strong plants, 5*s.*; Eugenia Ugni, 2*s.* 6*d.*

Also all the new VERBENAS of this season, including Lady Lacon, Wonderful, Blue Beard, Lord Raglan, Mrs. Woodroffe, &c., 1*s.* 6*d.* each, or 18*s.* per dozen, post free, for all of which see advertisement in *Chronicle* of June 23d, and previous numbers.

Post-office orders are respectfully solicited to accompany all orders (unless reference is given), payable at Marsden, Lancashire.

ERICAS.

MESSRS. YOUELL AND CO. beg to submit the following list of choice ERICAS, which can be supplied in good bushy and healthy plants, in large and small 48s, at 12*s.* per dozen:—

ERICAS:—Aggregata, ampullacea, ampullacea carnumbrata, ampullacea rubra, aristata major, Archeriana, Bandoniana, bicolor, Cavendishi, cerinthoides, cer. coronata, Cliffordi, colorans, Coventryana, daphnoidea, Devoniana, depressa, denticulata moschata, echiflora, elata, Ewerianа, eximia, exurgens coccinea, gracilis, grandis, Hartnelli, hyemalis, hybrida, hyacinthiflora, Juliana, Linnæoides nova, L. superba, longiflora, metulæflora bicolor, ovata, perspicua nana, pinifolia discolor, princeps, propendens, p. tubiflora, pyriformis, primuloides, rubens, retorta major, Savilleana, Shannoniana, Shannoniana (Turnbull), Sindryana, splendens, tricolor, tri. rubra, umbellata, ventricosa alba, v. alba tincta, v. breviflora, v. carnea, v. coccinea minor, v. coccinea, v. curta ruba, v. densa carnea, v. dependens coccinea, v. fasciculata longiflora, v. f. rosea, v. f. superba, v. globosa, v. hirsuta, v. magniflora, v. perspicuoides, v. superba, v. tumida, v. tenuiflora, vernix coccinea, Vernonia, Ver. superba, verticillata, vestita tenuiflora, v. coccinea, v. c. tenuiflora, v. fulgida, v. rosea, viridiflora, Westcotti, Westphalingi, Wilmorea superba, Walkeri.

The above are well grown, and of a suitable size for making specimens. The usual discount to the trade when taken per 100.

Royal Nursery, Great Yarmouth.

NEW CABBAGE.—THE CHAMPION OF ENGLAND, which has surpassed everything of its kind during the past severe winter (when nearly every other has failed) and turned well into Cabbage this spring. This Cabbage is of a very dwarf and compact habit, and quite equal in flavour to any yet grown. It has been in the hands of a very excellent gardener for several years, and he has thoroughly proved its superior hardy and good qualities. The stock of seed purchased is very limited, therefore none can be sold by the pound or in large quantities to the Trade this year. E. T. feels confident, from what he has seen of the Cabbage, that it will give the greatest satisfaction to all purchasers. Sold in packets of 1 oz., 2*s.* 6*d.*; or of half an ounce, 1*s.* 6*d.*, postage free.

The TRUE OLD BATH COSS LETTUCE, which Lettuce has never been surpassed by any other yet grown. 1*s.* per packet.

☞ This being the proper time for sowing the following varieties of Hardy Flowering Seeds for blooming next spring, the following undermentioned varieties will give the greatest satisfaction to all purchasers as they have hitherto done for many past seasons:—

SWEET WILLIAM SEED—Saved from 50 of the choicest and most superb varieties. 1*s.* per packet.

ANTIRRHINUM SEED—Saved from all the striped, spotted, and finest shaped varieties. 1*s.* per packet.

Superb HOLLYHOCK SEED—Saved from all the best named flowers out last year. 1*s.* per packet.

SCARLET GIANT BROMPTON STOCK, extra fine. 1*s.* per packet.

PANSY SEED—A few packets from selected varieties. 1*s.* per packet.

AQUILEGIA OR COLUMBINE SEED—Saved from 12 distinct varieties. 1*s.* per packet.

☞ Either of the above packets of Flower Seeds three for 2*s.* 6*d.*

A remittance must accompany every order either in cash or penny postage stamps, when the whole, or any part of the above (as the case may be) will be forwarded.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somerset.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks at 5*s.*; 12 varieties, 2*s.* 6*d.*; and from good double sorts, 1*s.*

Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s.* per packet; separate, 2*s.* Fine Quilled African Marigolds, 6*d.* per packet.—Saffron Walden Nurseries.

NEW PLANTS.

HENRY GROOM, Clapham Rise, near London, by appointment FLORIST TO HER MAJESTY, begs to offer the following fine and new plants:—

	Each—*s.*	*d.*		Each—*s.*	*d.*
Fuchsia Queen Victoria	7	6	Pentstemon Wrighti ...	5	0
„ Prince Albert...	7	6	Weigela amabilis	2	6
Heliotrope Beauty of the Boudoir...	1	6	Cyclamen Atkinsi ...	10	6
Verbena Mrs. Woodroffe	1	0	„ hungaricum ...	5	0
„ Wonderful ...	2	6	„ repandum ...	5	0
„ Blue Beard ...	3	6	Berberis Darwini 1*s.* to	3	6
Calceolaria Purity... ...	3	6	Cerasus ilicifolia, 2*s.* 6*d.* to	5	0
Salvia grandiflora Skinneri	5	0	Tritonia aurea...	1	6
Salvia Gesneræflora ...	1	6	Rhododendron Edgworthi 5*s.* to	10	6
Lysimachia Leschenaultia	2	0	„ campylocarpum, 5*s.* to	10	6
Deutzia crenata	2	6	„ niveum ... 5*s.* to	7	6
„ gracilis... 1*s.* to	2	6	„ glaucum ... 1*s.* 6*d.* to	2	6
Impatiens Hookeri ...	5	0	Hippeastrum aulicum, 3*s.* 6*d.* and	5	0
Auracaria Lindleyana ...	105	0	Valleta purpurea, 2*s.* 6*d.* &	3	6

Clapham Rise, July 7.

CHOICE NEW AND RARE PLANTS OF THIS SEASON AT REDUCED PRICES.

HENRY WALTON, FLORIST, &c., Edge End, Marsden, near Burnley, Lancashire, will be prepared to send out nice healthy plants of the following new novelties at the reduced prices as annexed, after the first week in July.

FUCHSIAS.—Story's Mrs. Story, 3*s.* 6*d.*; Queen Victoria, 3*s.* 6*d.*; Water Nymph, 3*s.* 6*d.*; Empress Eugenie, 3*s.* 6*d.*; Lady of the Lake, 3*s.* 6*d.*; Snowdrop, 3*s.* 6*d.*; Banks' Beauty of the Bower, 2*s.* 6*d.*; Prince Albert, 3*s.* 6*d.*: Maid of Kent, 3*s.* 6*d.*; Climax, 2*s.* 6*d.*; Grand Sultan, 2*s.* 6*d.*; Omer Pasha, 2*s.* 6*d.*; Smith's Omer Pasha, 2*s.* 6*d.*; Violæflora pleno, 3*s.* 6*d.* each, or 30*s.* per dozen post free where two or more are ordered.

	Each.—*s.*	*d.*		Each.—*s.*	*d.*
Hydrangea hortensis flora pleno	5	6	Phlox omniflora compacta, dwarf white	2	6
Begonia oppulæfolia ...	2	6	Calceolaria Purity, fine white	3	6
Tydea: Warczewiczi, new and fine stove plant ...	5	6	„ Wildfire ...	3	6
Geranium Pretty Polly, fine bedding variety	3	6	„ Maggiore ...	3	6
			„ Vezzossa ...	3	6
			Petunia Singularity, Smith's	2	6

Early orders are respectfully solicited for the above, which will be executed in rotation as received, the stock of some of the varieties being rather limited. A remittance requested to accompany all orders, payable at Marsden, Lancashire, unless a reference is given.

Every article in the Nursery and Florist Trade on the lowest remunerative terms, also a choice collection of large flowered and Pompone Chrysanthemums, new varieties. Strong bushy plants, ready to go into blooming pots, 6*s.* to 9*s.* per dozen.

SELECT NEW PLANTS AT REDUCED PRICES.

—For Descriptions of many, see BASS AND BROWN'S CATALOGUE and SPRING SUPPLEMENT.

	s.	*d.*		*s.*	*d.*
Aphelandra Porteana ...	5	0	Eugenia (Myrtus) Ugni, 3*s.* 6*d.* to	5	0
Arbutus cromea	7	6	Escallonia pterocladon, 7*s.* 6*d.* to	10	6
„ magnifica ...	5	0	Ixora coccinea grandiflora, 2*s.* 6*d.* to	3	6
Achimenes picturata ...	5	0	Libocedrus chilensis, 3*s.* 6*d.* to	7	6
„ gigantea ... 5*s.* to	7	6	Maranta sanguinea, 5*s.* to	7	6
„ Mdme. Randatler ...	3	6	„ vittata ... 7*s.* 6*d.* to	10	6
„ Ambroise Verschaffelt, 5*s.* to	7	6	„ albo-lineata	7	6
„ Tydea (Warscewiczi), 5*s.* to	7	6	Monochætum umbellatum	5	0
Azalea indica Beali ...	3	6	Passiflora Decaisneana ...	3	6
„ crispiflora	3	6	Philesia buxifolia... ...	10	6
„ Admiration (Ivery's), 7*s.* 6*d.* to	10	6	Rhododendron Grisewoodianum	15	0
„ Criterion (Ivery's), 7*s.* 6*d.* to	10	6	„ album speciosum ...	10	6
Begonia Thwaitesi ...	10	6	„ javanicum (Rollisson's) ... 5*s.* to	10	6
Cassia floribunda	7	6	Rhodolea Championi, 7*s.* 6*d.* to	10	6
Cereus McDonaldi, 10*s.* 6*d.* to	15	0	Siphocampylos Ne Plus Ultra ... 2*s.* 6*d.* to	3	6
Clematis patens Sophia, 3*s.* 6*d.* to	7	6	„ bicolor rosea, 2*s.* 6*d.* to	3	6
„ monstrosa, 7*s.* 6*d.* to	10	6	Wellingtonia gigantea, 7*s.* 6*d.* to	10	6
„ lanuginosa	10	6			
„ longipetita	7	6			
Cyclamen Atkinsi ...	10	6			

MISCELLANEOUS, NEW, SOFT-WOODED, AND HARDY KINDS.

Bouvardia Van Houtti, 3*s.* 6*d.* to	5	0	Heliotrope Jno. Cattell ...	2	6
„ longiflora alba vera, 2*s.* 6*d.* to	3	6	Lobelia Ghiesbrighti.		
„ hirtella, brilliant and free	1	6	Pentstemon magnifica ...	2	6
Geranium Keynes's Pretty Polly	3	6	Petunia Singularity Smith's)... ...	2	6
			„ British Queen (Turner's)	2	6
			Phlox omniflora compacta	2	6

NEW POMPONE CHRYSANTHEMUMS. The following 13 best new varieties of last season for 13*s.*, or 1*s.* 6*d.* each, viz., Anna Bullen, Aurora Borealis, Bob, Brilliant, Consuelo, Comte Achille Vigier, John Salter, La Radieuse, Madame Passy, Pluie d'Or, Rococo, Zebra, and Doctor Bois Duval.

NEW LARGE FLOWERING CHRYSANTHEMUMS.—The following 7 best new varieties for 9*s.*, or 1*s.* 6*d.* each, viz., Auguste Mie, Annie Henderson, Hermione, La Prophete, Madame Labois, Prince Jerome, and Phare de Messine.

GLOXINIAS.—The following set of 11 new varieties of last season may now be had of good flowering plants, for 25*s.*, viz., Duke of Wellington, Eleanor, Elegantissima, Erecta magnifica, Eugenia, Exquisite, Grand Sultan, Lady Franklin, Magnet, Prince of Wales, and Sir C. Napier.

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Seed and Horticultural Establishment, Sudbury, Suffolk.

The Gardeners' Chronicle.

SATURDAY, JULY 7, 1855.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, July 11—Horticultural Gardens ..... 2 P.M.

THE crosses which appeared on the Exhibition tables of the Horticultural Society last month excited unusual attention, especially the beautiful Princess Royal Rhododendron from Messrs. VEITCH. So many other striking results of muling are also now beginning to appear in gardens, that the process is likely to be carried on with more activity than ever. It therefore seems to be worth while to consider whether recent examples throw any new light upon the result that the operator has a right to anticipate from his experiments.

GÆRTNER assures us that, in the course of his very numerous and much varied experiments he found that no certain result can be anticipated. The late Dean of Manchester and others have believed, on the contrary, that upon the whole the properties of the male plant will be most conspicuous in the hybrid. To test the value of these opinions we take the following eight cases in which the history of the mule is known with certainty. For the sake of brevity we venture here to employ the signs of sexes in use among botanists, viz., ♂ for the male, ♀ for the female:—

1. MULE. *Anemone vitifolio-japonica.**

♂ Anemone vitifolia; ♀ An. japonica.

Result. Flowers and hardiness of ♂; colour intermediate. A very valuable variety.

2. MULE. *Anemone japonico-vitifolia.**

♂ Anemone japonica; ♀ A. vitifolia.

Result. Tenderness and ragged flower of ♂. A worthless variety, no longer cultivated.

3. MULE. *Cereus speciosissimo-crenatus.**

♂ Cereus speciosissimus; ♀ C. crenatus.

Result. Colour of ♂; habit nearly of ♀.

4. MULE. *Aquilegia fragranti-californica.**

♂ Aquilegia fragrans; ♀ A. californica.

Result. Habit and flower of ♂; colour intermediate.

5. MULE. *Rhododendron javanico-jasminiflorum, or Princess Royal.*

♂ Rhod. javanicum; ♀ R. jasminiflorum.

Result. Form of flower intermediate; colour derived from ♂ by the separation and retention of its rose and the rejection of its yellow (a very curious, and as far as we know, unique case). Leaves and habit intermediate.

6. MULE. *Mandirola Roezli.*

♂ Scheeria mexicana; ♀ Gesnera zebrina.

Result. Colour derived from ♂; whole habit and leaves from ♀.

7. MULE. *Mandirola picturata.*

♂ Gesnera zebrina; ♀ Achimenes mexicana.

Result. Inflorescence and flowers of ♂; leaves and colour intermediate.

8. MULE. *Begonia miniato-opuliflora.*

♂ Begonia miniata (fuchsioides); ♀ B. opuliflora.

Result. Inflorescence and colour of ♂; leaves more those of ♀.

In these instances, taken perfectly at random, it is evident that for the most part the ♂ predominates, especially in Nos. 1, 2, 4, 7 and 8; and this supports Dean HERBERT's views; but in 3, and 6, the effects of the ♀ are most conspicuous; and in No. 5 the issue is nearly equalised; even here, however, the colour is derived from the ♂, as also is the case in 1, 3, 4, 6, 8, and in a less conspicuous degree in the other cases. The most curious result is that in both 6 and 7 Gesnera zebrina overcame the peculiarities of its consorts, whether used as ♂ or ♀. This points to a conclusion not yet drawn, viz., that in some cases it is merely because of its inherent vigour of constitution that a species prevails, and not because it is ♂.

Is it not worth the while of experienced hybridisers to endeavour to multiply this kind of evidence, and to endeavour to extract from it the general facts which possibly lie concealed among the loose statements with which alone in so many instances we now have to deal? Were that practicable muling would be reducible to system, and no longer remain, what it now is, mere chance work. We throw out the suggestion for their consideration; especially for that of such ingenious experimentalists as our ISAAC ANDERSONS, TREVOR CLARKES, GOWENS, INGRAMS, and VEITCHES.

A FEW weeks since we had the satisfaction to announce that Lord PALMERSTON had conferred the important appointment of Master of the Mint upon one of our most learned and able men of science. It is with no little pleasure that we find ourselves again called upon to report a similar act, on the part of his lordship's government, in the Royal Botanic Garden, Kew.

It has long been obvious that the duties of the learned director of this great national establishment were becoming overwhelming, and beyond the power of the most indefatigable public officer to execute without assistance. The garden, the pleasure grounds, or rather the park, the infinite multitude of plants from all quarters assembled in the

* N.B. Those marked with an asterisk were raised in the Garden of the Horticultural Society by Mr. George Gordon.

hothouses, the greenhouses, the parterres, and the arboretum were in themselves far more than enough to be controlled by any one pair of eyes; and when to this was added the magnificent museum, and the prodigious herbarium, now forming part of the Kew establishment, the appointment of an assistant to the director became inevitable.

We now find that Government, upon the representation of Sir Wm. Molesworth, has placed the herbarium, the library, and the strictly botanical part of the garden under the charge of Dr. Hooker, whose name is already familiar to men of science all over the world as one of our most distinguished naturalists, and whose learning and active superintendance will soon render Kew as celebrated for the accuracy of its nomenclature as it already is for the extent and practical value of its collections. In this case we have again a proof that Lord Palmerston will put a right man in a right place when he has the opportunity. Science, at least, must gratefully acknowledge its obligations to the noble lord, when it finds that in a few brief months he has selected three such men as Sir Roderick Murchison, Dr. Graham, and Dr. Hooker, for the scientific appointments which have fallen to his disposal.

While speaking of the Botanic Garden, Kew, we may also announce the gratifying fact that the House of Commons has just voted 3000*l.* towards the construction of a new museum. This sum will permit a good commencement to be made, and it will be easy to make additions to the building as the necessity for them arises. We trust that, whatever plan may be adopted in the construction of this building, very ample space will be left for future enlargement. The public lives in the hope of one day seeing the whole of the botanical collections now at the British Museum transferred to Kew, and an excellent opportunity is now afforded of making provision for their reception. Relieved of this part of its accumulations the Museum will be able to find room for the display of objects better suited to London than vegetable preparations, and without calling upon Parliament for some prodigious sum for new buildings in a place overcrowded with buildings already.

It is difficult to overestimate the practical importance of the Museum which Kew is forming, for in such a garden, and in such a garden only, is it possible to combine both living and dead evidence concerning the œconomical, medical, or ornamental value, or the scientific application of the innumerable races of plants which Providence supplies for the use of man. A sketch of its principal contents, just published,* shows the progress that has been made, and the additions which are most required in the establishment. What interest is taken in it by the visitors to Kew is seen by the crowded state of the present narrow rooms, through which, when the public is admitted, we find it difficult to force a way. But upon this point, and some others relating to the history of the Museum we ought to quote Sir William Hooker's own words:—

"In the year 1847," he says, "her Majesty Queen Victoria was graciously pleased to command that those grounds at Kew which had been devoted to the kitchen and forcing department should be added to the Royal Botanic Garden, together with the stoves and other buildings. An excellent brick structure, occupied in part by the dwelling of one of the foremen, and in part as rooms for preserving fruit for the use of the Palace, was thereby vacated; and it occurred to the director that, with a little alteration, this might be made a deposit for all kinds of useful and curious *vegetable products*, which neither the living plants of the garden nor the specimens in the herbarium could exhibit; and that such a collection would render great service, not only to the scientific botanist, but to the merchant, the manufacturer, the physician, the chemist, the druggist, the dyer, the carpenter and cabinet-maker, and artisans of every description, who might here find the *raw material* (and, to a certain extent, also the *manufactured* or *prepared article*) employed in their several professions, correctly named, and accompanied by some account of its origin, history, native country, &c., either attached to the specimens or recorded in a popular catalogue. The suggestion was communicated to the heads of the establishment, the Commissioners of her Majesty's Woods and Forests: leave was asked to convert the building (at first in part), into a museum, and orders were given for one large room to be formed, with a gallery, side-lights, and sky-light, and fitted up with glazed mural and table cases. The foundation of the museum consisted of the director's private collection (presented by himself), some few objects already belonging to the garden, chiefly fruits and seeds, and some given by Mr. John Smith, whose son, Mr. Alexander Smith, received the appointment of curator. Scarcely were the doors open to the public, when specimens of various kinds were received from all quarters, so that it soon became necessary to enlarge our accommodation, till, in the present year (1855), all the ten rooms of the building and all the passages are completely filled, and a very large quantity of articles are put aside for want of space to exhibit them. We have now applied to the Crown for an entirely new structure, suited to the increased and continually increasing collection, and worthy alike of the noble gardens of which it is a part, and of the nation. One has but to see the crowds frequenting in summer the existing museum (so great that the director finds it frequently impossible to enter at public hours with distinguished visitors, who desire to have objects explained to them), to be satisfied of the deep interest the public take in such a collection—a collection that at once appeals to the faculties and understanding, showing the practical uses of the study and application of botany, and the services thus rendered to mankind. It has done more to recommend and to popularise (if I may use the expression) the science that communicates a knowledge of the vegetable creation, than all the princely Palms, the gorgeous Water-Lilies, the elegant Ferns, &c., &c., which grace the tropical houses of these noble gardens. Here (in these gardens) it is true the public are privileged to see growing plants of 1. the *Cocoa-nut;* 2. the *Vegetable Ivory Palm;* 3. the *Wax-bearing Palms* of *Brazil* and of the *Andes;* 4. the *Piaçaba Palm;* 5. the *Coco de Mer;* 6. the *Doum Palm;* 7. the *African Oil Palm;* 8. the *Chocolate, Tea, Coffee,* and *Sugar-bearing Plants;* 9. the *Papaver somniferum;* 10. the *Bermudian Juniper;* 11. the *Isonandra Gutta;* 12. the *Chinese Grass Plant* (so called); 13. the *Siphonia elastica;* 14. *Rice-paper Plant* (so called) of China, and a hundred others of equal interest; but the visitor receives twofold gratification and twofold instruction, if with these several vegetable forms in his mind, he can enter an adjacent building, and there contemplate their *products*, and see, as it were, the uses which the ingenuity of man has derived from them:—1. the food and raiment, the milk, the oil, the wine (toddy) the cups and bowls, cordage, brushes, mats, in short, the 365 articles ('as many,' the Hindoos say, 'as there are days in the year') afforded by the common *Cocoa Nut* alone; 2. the ivory-like articles made from the seeds of the *Vegetable Ivory Palm;* 3. the excellent and now commercial wax, yielded by certain *American Palms*, and deposited by nature on their trunks and leaves; 4. the useful nuts (for turnery), and still more useful fibre (for the best brooms and brushes) of the *Piaçaba*, as the streets of our great cities can testify; 5. the curious double nuts (with their flowers) of the *Coco de Mer* of the Seychelles Islands, once, while ignorantly supposed to be the product of a submarine tree and only known from having been found floating in the Indian Ocean, valued at the price of a freighted ship, being an antidote to all poisons, 'mirum miraculum naturæ,' says Rumphius, 'quod princeps est omnium marinarum rerum, quæ raræ habentur;' 6. the singularly forked stems (other Palms have unbranched stems), and the large ginger-bread-tasted fruits of the *Doum Palm* of Upper Egypt; 7. the fruits and nuts of *Elais Guineensis*, which yield the Palm oil of western tropical Africa, now largely imported and consumed by Messrs. Price and Co.; and not those only, but the oil itself and the several preparations it undergoes in its progress towards the perfect candle, in a series of samples presented by that truly philanthropic company; 8. the various and generally well-known preparations of *Chocolate, Tea, Coffee,* and *Sugar*, the latter extracted from an *American Maple* and from *Beet-root*, as well as from the *Cane;* 9. *Opium* in its various stages, from the "*poppy head*," to the pernicious ball prepared for commerce; 10. the progress of pencil-making of the wood of a *Juniper*, improperly called Cedar; 11. the various interesting products derived from the *Gutta Percha plant;* 12. the fibre or raw material and cloth, made from the *Chinese "Grass Plant,"* in reality a *Nettle;* 13. cases filled with the various preparations of the *best Caoutchouc* or India rubber tree of Pará (*Siphonia elastica*), presented by Messrs. Macintosh; 14. the beautiful substance called Chinese *Rice-paper*, long supposed to be a preparation of rice, but here shown to be the exquisite pith of a new plant (*Aralia papyrifera*), only found in Formosa, for the knowledge and for living plants of which we are mainly indebted to Sir John Bowring. The last-mentioned discovery is only one of many instances (as will by-and-bye be shown) of the *origin* and history of commercial vegetable products, of which we should yet have remained in utter ignorance, but for the formation of this Garden and this Museum. Information of this kind cannot fail to be acknowledged and appreciated in a great mercantile country by every intelligent mind, and even by persons not specially interested in trade or commerce."

* Museum of Economic Botany; or a Popular Guide to the Useful and Remarkable Vegetable Products of the Museum of the Royal Gardens of Kew. By Sir W. J. Hooker, K.H. Longmans. 1s., 12mo.

We learn that a deputation from the Horticultural Society of London, consisting of Dr. Royle, as Secretary, Sir Wm. Hooker, Mr. Bentham, and Mr. Wentworth Dilke, having been formed for the purpose of visiting the French Horticultural Exhibition, it was received last Friday by Messrs. Decaisne and Morel, Vice-Presidents; M. Aubry, the Secretary; M. Loyre, the architect of the gardens; and the garden staff. On Thursday, the deputation was to dine with the Committee of the Exhibition. We hear that the exhibition is a good one, quite as good as a permanent one can well be. Details upon this subject are in preparation, and will appear as soon as we receive them.

VEGETABLE PATHOLOGY.—No. LXXIX.

331. Perianthomania (*Multiplication of Bracts, Sepals, &c.*)—In adopting the nomenclature of Re, to avoid the introduction of needless terms, I am obliged to take the word perianth, not only as indicating parts below the petals, according to the usage of some authors, but in the more legitimate sense also, as applied to those cases in which the petals and sepals are physiologically one. All these organs, then, by whatever name they are known, are subject to abnormal multiplication; the sepals, however, to less extent than the others. I am not speaking of those cases in which the bractes simply become foliaceous or assume the colours of the corolla or other vivid tints, because this may take place normally, but of such cases as that presented by the variety of Carnation known by the name of Wheat-ear Carnation. The bractes which subtend the calyx are here multiplied and disposed symmetrically round it, so as to present a general resemblance to a Wheat-ear. The calyx is generally abortive, but whether the plant ever bears seeds when in this condition I am unable to say. The variety is not common in gardens, and I have had no opportunity of examining it accurately. This, however, has not been the case with the variety of Sweet William alluded to above, of which I have a plant in my own garden, and of which a figure is subjoined. The structure is entirely homologous with that of the Wheat-ear Pink; there is the same repetition of the bractes, and the same more or less imperfect fruit succeeding them. In both instances the bractes undergo no change of tint. In the Sweet

William, at least, there is an attempt to form perfect fruit, which undergoes some curious modifications of which I shall have occasion to allude in the sequel. I have not myself seen seed, but Ré says that he has never observed "any impediment to accrue from the affection to the reproduction of the species." This, however, is scarcely consistent with what follows in his book, and must be taken with some latitude. There is indeed, no reason why fruit should not occasionally be produced, though the natural tendency of such multiplication is to cause the other necessary organs to degenerate or to suppress them altogether. It is easily conceivable that such productions should require pretty good soil for their maintenance; but, if so, no argument is afforded in proof that extreme richness of nutriment has had anything to do with their production, though it may tend to preserve them when once produced. A similar affection often takes place in Lupines, but the effect is to produce leafy branches instead of flowers, without any especial arrangement indicating the precise relation of the several leaves. Such an effect may be produced only in a single branch of a common plant, and is certainly not always due to superabundant richness of soil, as I can myself testify from observations which have come before me. The propagation of such varieties can only be carried on with certainty by means of cuttings from the parts affected. Seeds, if produced, would very probably yield only the normal plant. The variegated Primrose, in which the colours of the corolla are partially assumed by the multiplied sepals, affords a good example of sepalomania, of which but few instances occur. The variety of Foxglove (described in *Gard. Chron.* 1854, p. 660) is very instructive. In

this case brighter colours are faintly assumed by the bractes, new branches are often produced from their axillæ, as is also the case with the Lupine just mentioned, and the capsule, as in the Sweet William, undergoes curious changes.

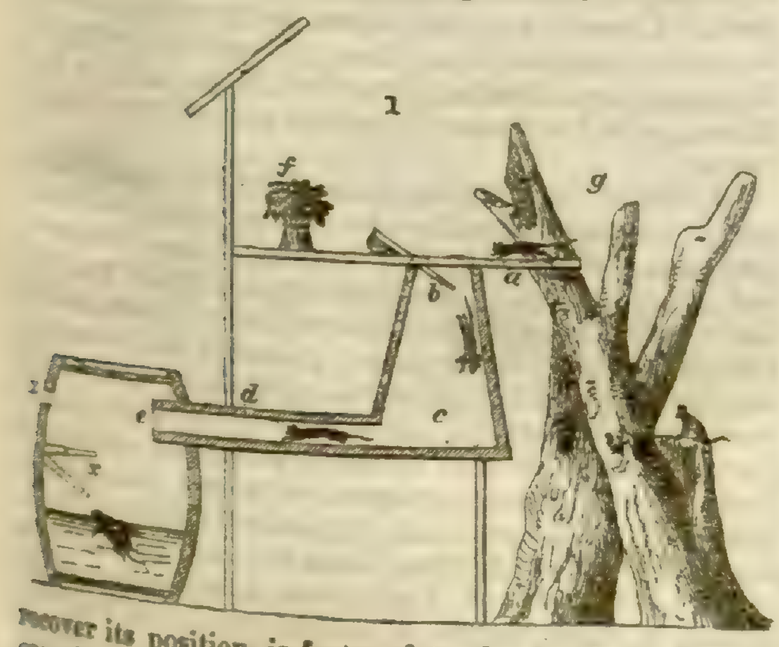
332. If the true petals of Endogens be taken as part of the perianth, we have multitudes of instances in which the lobes of the perianth are multiplied, and that frequently with such symmetry as to constitute some of our most beautiful floral ornaments, as in the case of the double Poetic Narcissus and Oriental Hyacinth. The multiplication may be so complete as to preclude the formation either of stamens or pistils; many flowers are, however, fertile, and give rise by impregnation to new and beautiful varieties. The object of the cultivator here is to maintain the peculiarities of each variety, and, while in the Tulip a rich soil is fatal, by giving a tendency to produce extra petals or coloured bractes destructive of the symmetry of the plant, a generous soil is favourable to the perfection of many double flowers, especially where the tint is uniform. It is often complained that the finest bulbs exported from Holland will not retain their characters in this country. There may be something in the soil and climate of Holland which is peculiarly favourable to the perfection of such plants, but far more depends upon the treatment. Where proper attention is paid to the soil, where some such means are taken to protect from cold as the covering the surface with a thick coating of semi-fluid dung, which is practised in Holland, and where a proper zest is given to the plants by removing them every year at the proper season and for the proper time, varieties will retain their qualities for years. I have myself seen an admirable collection of Hyacinths which displayed great beauty and quality for a long period without any fresh importations, and that this is possible is plain from the far more difficult case of Tulips.

333. In the case of Orchids, there is a natural tendency in the petals to assume various forms, as indicated by the multiplicity of configuration assumed by what is called the lip. Such forms were once considered the most certain generic distinction, but the occurrence of flowers indicative of three distinct genera in the same stem of Catasetum has rendered such conclusions far less certain. How far it may be right to call such changes diseases, or which are the normal forms it is at present perhaps difficult to say, but the subject at least requires a passing notice. *M. J. B.*

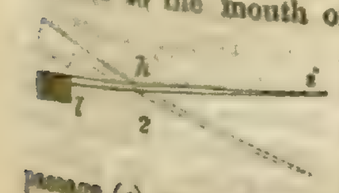
NEW RAT TRAP.

The accompanying sketch represents a rat trap, which is regarded as superior to any trap now in use. It possesses the advantage of not getting out of order, and of not requiring to be often looked after, and consequently of not rendering the rats suspicious and timid. The caught rat is forced to go to such a distance, that when drowning he will not alarm the others. The apparatus is so contrived, that even a rat which has been caught and let go will not be able to avoid being caught again, as there is nothing whatever to arouse suspicion. The truth of this has been proved by catching rats, marking them, and finding them in the trap again after they had been set at liberty.

To insure success, the apparatus should be placed out of the way of children and other persons likely to meddle with it. Some trunks and branches of trees are piled up so as to afford a cover for the vermin, and to enable them to run up to the board (*a*), which is placed horizontally, and has a trap (figs. 1 and 2) let into it. This trap, when the rats run on it, gives way as shown at *b*, fig. 1 (it ought to be 12 or 15 inches long, and 3 or 4 broad); *c* is a compartment made with diverging sides, well fitted together, so that a rat in it cannot by any possibility get up again; *d* is a passage leading to a sufficient distance from *c*; *g* is the pile of wood already mentioned. The passage *d* leads into a tub (*e*) containing some water, and placed at a short distance from the wall or partition (*d*). A little platform (*x*), so slight as to give way under a very gentle pressure, and then to



recover its position, is fastened to the inside of the tub opposite to the mouth of the passage (*c*). Above the platform there should be a small hole (*z*) in the side of the tub to admit a little light, which induces the rats to jump from the end of the passage (*e*) on to the platform (*x*). The tub should be partly sunk into the earth.



The great point is to choose a good situation. The apparatus should be in a place where the rats will not be disturbed, and some straw and ears of corn should be scattered about the trap so as to entice them to get upon it. The best bait is a little malt slightly coloured and scented with oil of carraway.

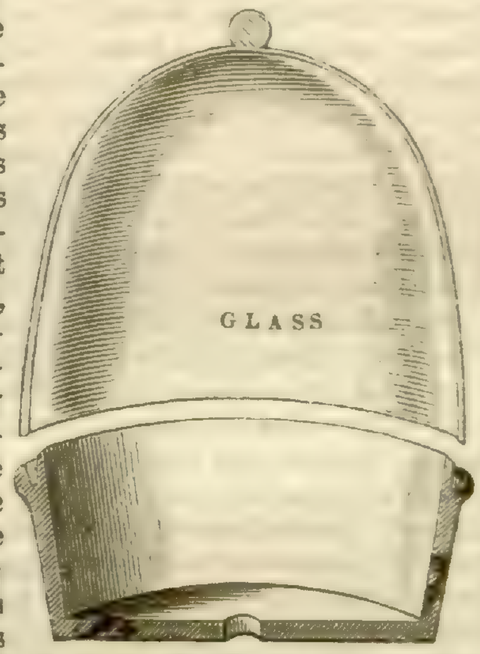
The trap (*i*, fig. 2) should turn on a pivot (*h*), and be counterpoised at *l*, so as to recover its horizontal position after giving way; and the principal bait should be placed at the back of the trap, as is shown by the ears of corn at *f*. The more certainly to deceive the rats, it may be as well to set the trap fast for a few days. The counterpoise ought to be sufficient to resist a very slight pressure, for rats are extremely wary, and they try the ground with their fore feet as they advance. The trap ought not to give way until a rat is on it. When a rat is in (*c*), it runs along the passage (*d*); and being attracted by the light at *z*, jumps on to *x*, and falls into the water. The platform immediately springs back into its place, and another rat follows. If the apparatus is well made, there is no noise whatever. The tub has only to be emptied as occasion requires, and, as already stated, it is not placed where the rats are congregated.

[We had caused this to be translated from the "Flore des Serres," and the cut to be prepared, before we discovered that the original occurs in the "Farmers' Magazine," to which periodical the contrivance, which seems an ingenious one, must be ascribed.]

NEW GARDEN POTS.

In reference to the specimens of garden pots represented below, perhaps I may be permitted to state, that in the first instance they were intended to be used for Seakale in winter. They consist of two parts: the one having the double rim, so as to form a groove or gutter, is that wherein the plants or crowns are planted; the other, which is inverted and fits into this groove or gutter, forms the blanching pot. In using these pots for

growing and blanching Seakale in winter, by having the plants taken up in the autumn as soon as they are thoroughly ripened, and planting them thickly in any mould in a shed or some sheltered place where they will at all times be ready to hand, a very nice succession may be obtained throughout the winter. If the pots are filled with plants (the number of pots depending on the consumption) in the first week in November, and introduced successively into the forcing department, say one each day, or at intervals of two or three days, by the time the last pot is taken in the first will be fit for use; and as the Kale is being cut, so the pots should be filled with fresh plants from the reserve bed, and a constant supply maintained; the Kale can be grown in these pots in almost any place where the temperature is warm enough to excite the plants into growth. If fermenting material is used the pots can be partly plunged in a bed of coal ashes in some sheltered corner or shed, and covered, as in the ordinary way, with leaves, &c. Much less space is occupied, the temperature is more uniform, and the bed easier of access in bad weather, as it need not necessarily be exposed to wind, rain, snow, and frost. When the pots are not required for Seakale they can be used in every way in the cultivation of flowering plants as common garden pots, or for sowing in, or protecting seedlings from frost, rain, and vermin. By placing the blanching pot over any choice seedlings they are secure from injury; dashing rains are rendered perfectly harmless, as no wet whatever can reach the young plants, it being carried off by the inside rim, which is higher than the outside one. These pots are also intended to be used as propagating pots and pans—the glass shade instead of being placed inside is pressed into sand in the groove; by adopting this mode the condensed vapour is conveyed into the groove, and the cuttings can be inserted close to the edge of the pots, where they are found at all times to emit roots the most readily. In syringing or watering there is no



danger of committing injury to the cuttings be they ever so choice, as the water in falling on the glass is conveyed over the side of the pots; whereas in the use of the common pots with the glasses inside, great care is necessary to prevent mischief from the water falling on the glass finding its way in amongst the young seedlings, cuttings, or plants. The pans are likewise adapted to the culture of Ferns, Mosses, &c. &c., and manufactured in an ornamental form (either pots or pans), they would in every way serve to grace the plant house, conservatory, sitting, or drawing-room; but as one gentleman observed when the contrivance was submitted to him, to specify all the uses and advantages of the pot in question would be to enter into a very lengthened detail, &c. &c. *Geo. Fry, Gardener to Mrs. Dent, Manor House Gardens, Lee.*

New Plants.

135. Pinus Beardsleyi. *A. Murray, in Edinb. new Phil. Journal*, i., 286, t. 6.

"The tree is of great beauty and size; one which was cut down measured 123 feet in height, and 44 inches in diameter at the stump. Another tree near it measured 17 feet 4 inches in circumference at 3 feet from the ground. The stem was a very handsome column about 30 feet to the first branch; timber good and clear. It was found on the top of a mountain, in lat. 41° N., at the same altitude as *Pinus Jeffreyi* and *monticola*, and *Abies grandis*, and higher than *P. Benthamiana* and *Lambertiana*.

"This and the following species (*Craigana*) seem to have more affinity with *P. Benthamiana* than any other described species. But the present species has the points of the umbo of the scale pointing towards the base of the cone, while in *Benthamiana* they point to the tip; the cone of *Benthamiana* is 5 inches long, while *Beardsleyi* is only 3 inches. The leaves are 11 inches in length, while in *Beardsleyi* they are only 6 inches. The sheath of the leaf in *Benthamiana* is an inch long, while in *Beardsleyi* it is only an eighth of an inch. The wing of the seed of *Benthamiana* is much larger and longer than that of *Beardsleyi*. The timber of *Beardsleyi* is homogeneous all through. The heart of *Benthamiana* is redder than the sap-wood, and the sap-wood occupies a great breadth of the stem. *Beardsleyi* grows much further up the mountains than *Benthamiana*. The distinction between the cones of these trees will be sufficiently seen from the rough etchings which I have given. The figure of the cone of *Benthamiana* is copied from that given by Hartweg. Like all that gentleman's figures and descriptions, it is very characteristic of the cone as it is generally found, but it is inaccurate as a representation of the cone in its complete state, in so far that it represents the hooked umbo as pointing to the base. In point of fact it does take a bend in that direction, but the prickle which terminates the umbo takes a sudden turn backwards, and points to the tip like the following species (*Craigana*). The prickle in the specimen, from which Hartweg's figure has been taken, has previously been rubbed off, which gives a false impression of the direction of the umbo. There can be no doubt about this, because my brother found all Hartweg's localities so strictly correct that he could recognise the very patches of different trees that he describes having met; and he took his observations on the cones, &c., of *Benthamiana* from the very clump of that tree described by Hartweg, as found by him near Santa Cruz. There was no other tree, or clump of trees, for a great distance, with which it could be confounded.

"There is also some resemblance between this Pine (*Beardsleyi*) and *P. ponderosa*, as was well suggested to me by Dr. Lindley; but the shape of the cone and the size and shape of the seed and wing sufficiently distinguish it. In *P. ponderosa* the cone tapers to both ends, while in this it tapers to the point. Its seed does not appear to be speckled in any figure I have seen (I have not seen any specimen of the seed itself), while this is. The sheath of the leaf in *P. ponderosa* is smooth longish, fine, and tightly fitting, whereas in this it is short, corrugated, and rough; and the *ponderosa* is nearly twice as long, being 9 to 11 inches in length, in place of 6 inches. Its leaf also wants (or nearly so) the projecting points which roughen that of *Beardsleyi*, so that the leaves can be diistinguish by the feel, or drawing them forwards between the fingers."

136. Pinus Craigana. *A. Murray, in Edinb. new Phil. Journal*, i., 288, t. 7.

"It differs from *P. Beardsleyi* (the preceding species) in having the prickle of the scale pointing towards the tip instead of the base. The prickle, too, is strong and firm in *Craigana*; in *Beardsleyi* it is small and weak. The apophysis, or excrescence on the exposed part of the scale, is smaller in point of space, but more prominent in *Craigana* than in *Beardsleyi*, which has the exposed part somewhat flat, while in *Craigana* the upper part projects over the lower. The wing of the seed of *Craigana* is shorter, and relatively broader. The seed is nearly twice the size of that of *Beardsleyi*, although the cones are about the same size. The leaf of *Craigana* is finer than that of *Beardsleyi*, and not so long. The sheath of the leaf is finer, and considerably longer.

"*Craigana* was found on the same mountains as *Beardsleyi*, but growing lower down, and below it again appeared *Benthamiana*. It spreads its branches wider from the stem than *Benthamiana*, and sheds its seeds a month later. My brother and I have dedicated this handsome Pine to Sir William Gibson-Craig, Bart.,

whose enthusiasm has done so much to promote the cultivation and introduction of new Pine trees, and who, in particular, was one of those who chiefly conduced to my brother undertaking the expedition, of which this Pine forms part of the fruits."

Home Correspondence.

Onion Failure.—In your Paper of the 23d of June, in that interesting subject "Vegetable Pathology," there is a notice of a garden near Doncaster where the Onion crop often fails. I have sometimes had failures in my Onion crop, but since I adopted the following method of growing or manuring them I have had good crops. The soil is nearly related to a variety of formations, for under and around us we have coal, limestone, ironstone, shale, sandstone, whinstone, or basalt, and plenty of erratic boulders belonging to other formations. Good Onions may be had where there is very little soil, and may be grown in any formation, from the granite to the peatmoss. The manure I use is old stable dung, commonly the remains of old hotbeds, well cut up and turned over several times in autumn and exposed to the vicissitudes of winter. The ground on which the Onion is intended to grow may be dug in winter or spring without any manure being dug in. When the season and soil are fit for the seed, a bed may be marked off 3½ feet or 4 feet wide, and as long as may be wanted or the ground allow. The surface soil may be taken off to the depth of 1½ inch, and put to the right and left of the bed, when a quantity of prepared manure may be wheeled on, which should be in a soft, moist state, and which would almost work like mortar when beat with the back of the spade; spread it to the depth of 4 inches at least; after spreading, tread it well with the feet; after treading, beat it well with the back of the spade, and smooth the surface; the seed may be sown in rows upon the surface of the manure, or broadcast; the earth which was taken off should be spread over the seed, and afterwards raked. Bed after bed may be done in the same manner until the principal crop is put in, when the whole may be dressed up in a neat manner. Early Horn Carrot treated in the same way does uncommonly well. Gardeners have sometimes to steal a march upon late springs, like the one that is past. It was late in the season before the frost left us, and the Onion crop was behind the time when it is commonly sown. I tried an experiment with a quantity of Onion seed to give it a start before it was sown; the seed was mixed with about a gallon of fine leaf-mould and put into a flower pot, which held it with ease, and put in the warmest part of the greenhouse, where it remained a week, receiving at times a little moisture when the surface of the pot became dry; at the end of the week it was turned out of the pot, and well mixed with the hands, changing the position of the seed as much as possible, when it was put into the pot again: in the second week it germinated, and it was near the end of the second week before an opportunity was obtained for sowing it; the seed was nearly all sprung, varying in length from a quarter of an inch to three-quarters of an inch. I thought it was rather bad treatment it was getting—taking it from its warm bed and putting its blanched naked limbs into cold moist manure; I expected to be paid back for my cruelty towards it: however, I was disappointed;—the seed got the start and kept it, and the bed in which the sprung seed was sown is the earliest and best Onion bed in the garden. *P. Mackenzie, West Plean, Stirling.*

Stem Roots of Vines.—As this seems to be an age of opposition, *i. e.* of protecting and non-protecting, of fermenting and non-fermenting material, for Vine borders, perhaps you will permit me to relate my experience in the matter. Your correspondent (see p. 358) says: "Were warming the borders generally adopted, roots on stems would disappear." I have two Vineries, one for early forcing, the other a late house. I have been a strong advocate for warming the border of the first house by fermenting materials, and have for years kept up a regular heat at a great deal of trouble. But the Vines never gave me satisfaction; the crop was thinnish, the bunches shanked very much, the seeds of the berries protruded through the skin, and there were plenty of roots on the stems, which I attributed to the want of liberal ventilation in the early part of the season; for in my late house no roots ever made their appearance. Last winter I thought I would try what might be done without heating the border. By the middle of December I covered the latter with litter and leaves, at an average thickness of 9 inches, being thickest next the house, and sloping outwards. This I protected with waterproof covers, and there it lay till the first week of June, when it was removed. I may state that the roots under the surface form a complete network. I have at this time a fine crop of well swelled and well-coloured berries with no bursting, little or no shanking, and no roots on the stems of the Vines, which are in a fine healthy condition. If covering the borders and keeping them dry without heating were to answer every purpose, what a labour would be saved! *G.*

Tares of Scripture.—In reading the parable of the Wheat and the Tares in the 13th chapter of Matthew, I have often wondered what kind of plants the Tares were. We are told by some writers that they were a kind of Pulse; they cannot well be plants of that nature, or the servants must have been very ignorant not to have known the difference between Wheat and Pulse until they were in fruit, for we are told "when the blade was sprung up and brought forth fruit then appeared the Tares also." The translators of the New Testament from the Greek to the Latin, such as Beza, appear to have been at a loss for a word in Latin for the Greek Zizania, or Tares of our translation, for the Greek word is not changed in the Latin translation. We have the Zizania aquatica or Canada Rice, a water Grass from North America, which cannot be the Tares of scripture. I am inclined to think that the Tares would be a kind of Grass which would have some resemblance to the variety of Wheat Grasses. I find that in some Greek and Latin dictionaries Zizania is translated Lolium, and in a Latin-English dictionary Zizania or Zizanium is Darnel or Ray. One should almost come to the conclusion that the Tares in the parable would be Lolium temulentum or drunken Darnel. If I am wrong in my guess I hope some one will put me right. *P. Mackenzie.*

New Mode of Propagating Currants.—In the spring of last year an old Currant bush was cut down, and a number of the branches made into Pea-sticks; they supported the Peas, and the greater part of them struck root in the ground. They were allowed to remain, and this season they are a row of tall bushes bearing fruit. *P.*

Effect of Spring Frost on Cherry Trees.—Late in May the blossom of many fruit trees was nearly as stiff as icicles by means of frost, and many of them suffered much; among the rest a May Duke Cherry. All, however, were not destroyed, for there will still be a good sprinkling of fruit over the tree; but the most remarkable thing about it is this; about 18 inches from the ground there is a branch with some Cherries upon it, full grown, and well coloured, and may be eaten any time, as far as ripeness is concerned. They were as much exposed to all appearance as the rest of the fruit on the same branch, yet on each side of the ripe fruit the young Cherries are as small as green Peas, and as green, and will not be ready for a long time to come. *M.*

Societies.

ROYAL BOTANIC, REGENT'S PARK, *July* 4.—The Society's last fête of the season took place on this occasion under very favourable circumstances as respects weather, and the exhibition itself, as a whole, was good for July. Stove and greenhouse plants were produced in abundance, and there were the usual banks of Orchids, though the latter were, as might have been expected, not near so good as they were in May or June.

An admirable collection of 16 STOVE and GREENHOUSE PLANTS was furnished by Mr. May, gr. to H. Colyer, Esq. It contained two well flowered Allamandas, Dipladenia crassinoda, Rondeletia speciosa, in luxuriant health, and with very highly coloured flowers; Phænocoma proliferum, in beautiful condition; and one of the best of the Everlastings, the whole being relieved and set off to much advantage by the introduction of such white flowered plants as Dracophyllum gracile, white Vincas, and Heaths. Mr. Barter, gr. to A. Bassett, Esq., contributed large and fine plants of Phænocoma proliferum; Ixora javanica, covered with flowers, which were however scarcely in perfection; the pale yellow Allamanda grandiflora, a red Azalea, Statice Holfordi, Erica tricolor, and Vincas. Mr. Green had Azalea lateritia still in good bloom, Mitraria coccinea, a beautiful Everlasting, Allamanda cathartica, Stephanotis floribunda, and Rondeletia speciosa in good condition, though scarcely so luxuriant or brilliant as Mr. Colyer's plant. Mr. Rhodes had a group in which were the yellow Relhania squarrosa, and Statice Holfordi, both beautiful specimens.

Of collections of 12 STOVE and GREENHOUSE Plants Messrs. Fraser produced Relhania squarrosa, the showy Kalosanthes miniata, Phænocoma proliferum, two white Vincas, two Allamandas, Stephanotis floribunda, Ixoras, and Heaths. Mr. Cutbush, of Barnet, sent Ixora javanica, a noble bush, but its flowers were scarcely forward enough; a most beautiful Erica Massoni, Dipladenia splendens, and crassinoda, Phænocoma proliferum, and the very fine variety of Cape Heath called obbata.

In collections of 10 STOVE and GREENHOUSE PLANTS, Mr. Frost, gr. to E. L. Betts, Esq., communicated an extremely well cultivated group, in which were Statice Holfordi, loaded with flowers, two Allamandas, Roella ciliata, one of the best plants of the kind perhaps ever seen, being covered with blue cup-shaped blossoms all in the greatest perfection; Dipladenia crassinoda, a Kalosanthes, and Pimelea decussata, the latter highly coloured, but with flower heads rather small. Mr. Taylor, gr. to J. Coster, Esq., furnished two nice Everlastings, two Cape Heaths, and Dipladenia crassinoda which showed how profusely this charming plant can be flowered even in a small state. Mr. Peed had two noble Cape Heaths, one of which was the pretty E. Aitoni; also Cyrtoceras reflexum, robust; but with flowers devoid of colour, and white and red Vincas. Among Mr. Hamp's plants the more conspicuous were Relhania squarrosa, Cyrtoceras reflexum, and Mitraria coccinea, the latter well flowered.

Of six STOVE and GREENHOUSE PLANTS, the best, came from Mr. Frost, gr. to E. L. Betts, Esq., who sent Allamanda cathartica, a Kalosanth, Polygala oppositifolia, an Everlasting, and a noble Erica ferruginea. Mr. Williams, gr. to Miss Traill, produced the beautiful variety of Cape Heath called metulœflora bicolor, Pleroma elegans, a noble bush with deep violet blossoms larger than half-crown pieces; and Pimelea decussata. These as well as Mr. Frost's plants were all remarkably fine specimens. Mr. Morris, gr. to Coles Child, Esq., had a large and fine Stephanotis, an Everlasting, Pimelea and Vincas. Mr. Roser, gr. to J. Bradbury, Esq., sent Erica Massoni, a beautiful plant; Clerodendron Kæmpferi, and Mitraria coccinea.

ORCHIDS, as has been stated, were not so good as we have seen them even in July. Of collections of 24 plants, considerably the best came from Mr. Mylam, gr. to G. Reed, Esq. It contained Dendrobium Dalhousieanum and formosum, Aerides affine, a noble mass; Epidendrum cinnabarinum and vitellinum, Vanda Batemanni, with three flower spikes; Sobralia macrantha, Oncidium ampliatum, Odontoglossum hastilabium, Phalænopsis grandiflora, Calanthe masuca, Cypripedium Lowi, with two spikes each having three flowers on it; Vanda suavis, Cattleya Mossiæ and superba, Saccolabium guttatum, Stanhopea Lindleyana and tigrina, and Barkeria spectabilis, the last not the half-starved thing it usually is, but with most luxuriant foliage and loaded with flowers.

Mr. Williams, gr. to C. B. Warner, Esq., sent Miltonia spectabilis; an Anguloa, with creamy white blossoms; Barkeria spectabilis, the still rare Aerides maculosum, Dendrobium formosum, Epidendrum macrochilum, Odontoglossum citrosmum, well flowered: Cattleya Mossiæ, Cypripedium barbatum, Sobralia macrantha, and the white Calanthe veratrifolia. Mr. Woolley produced Sarcopodium Lobbi, in the shape of a mass of yellowish buff, horned-looking flowers; Dendrobium clavatum, Aerides odoratum majus, a good specimen of Phaius albus, and Lælia cinnabarina.

The only collection of 16 ORCHIDS exhibited came from Messrs. Veitch. It consisted of a beautiful plant of Oncidium pulvinatum, Sobralia macrantha, with at least a dozen and a half of flowers on it; the green-tailed Dendrochilum filiforme; two fine varieties of the Bearded Lady's Slipper; and Aerides Lobbi, the last a beautiful species, with a large amount of colour in it.

Of groups of 12 ORCHIDS, the best came from Mr. Gedney, gr. to Mrs. Ellis, of Hoddesdon. It contained a magnificent specimen of Phalænopsis, a good Calanthe masuca, Epidendrum vitellinum, Dendrobium Dalhousieanum and Phaius albus. Mr. Clarke, of Hoddesdon, had a Phalænopsis in good condition, and a well-flowered Oncidium luridum.

Of groups of 6 ORCHIDS there were several. The best came from Mr. Green, gr. to Sir E. Antrobus, Bart. The most remarkable plant in it was a large Aerides, which was well flowered, and otherwise in good condition. Mr. Ivison, gr. to the Duke of Northumberland, at Syon, sent a beautiful variety of Cattleya Mossiæ, and a noble Aerides odoratum. Mr. Morris had some good Oncidiums and Epidendrums.

Of scarce ORCHIDS Mr. Woolley furnished Catasetum longifolium, Mr. Mylam a Huntleya; and we also noticed the same Dendrobium belonging to the secundum class, which was exhibited at the last Chiswick exhibition.

CAPE HEATHS were shown by the usual growers of them; they were plentiful and well varied, many of the autumn flowering kinds differing greatly from one another, not only in habit of plant, size, and shape of flower, but also in colour. They, therefore, received more than usual attention.

ROSES this time were all shown in a cut state. They were produced by the usual exhibitors, with the exception of the Messrs. Lane, who did not show; and, considering the hot weather we have had, they were in good condition.

Of novelty there was little. Messrs. Veitch again showed their fine hybrid Rhododendron Princess Royal, a new continental Achimenes, with lilac flowers, yellow in the eye and streaked with purple, named Ambrose Verschaffelt; also the shrubby Phlox, named Leptodactylon californicum. One or two other plants were also shown as new; but the above were the most remarkable.

Of single specimens, Messrs. Veitch exhibited a fine bush of Pleroma elegans, whose showy violet blossoms are more persistent than those of most Melastomads. The same firm likewise furnished Ixora Lobbi, a fine species, with handsome foliage and rich salmon-coloured flowers.

Of FERNS there was an interesting but not large display. The most important were three groups of Exotic species, contributed by Dr. Young, Messrs. Rollisson, and Mr. Gedney. The first named, which was the finest collection, contained the very rare Gymnogramma ramata, and very finely grown plants of the following: Asplenium Belangeri, Marattia cicutæfolia, Cheilanthes lendigera, Nephrolepis davallioides, Cibotium Schiediana, and Platycerium grande. In Messrs. Rollisson's group there were Drynaria coronans, Platycerium grande, Davallia tenuifolia, Asplenium Belangeri, and a very elegant Fern obtained from the Jardin des Plantes under the name of Cœnopteris fœniculacea. Mr. Gedney's group, though of commoner kinds, was composed of remarkably well grown plants, among which an Adiantum cuneatum, forming a mass more than 2 feet across, was conspicuous. Of British Ferns the only collection shown was sent by Dr. Young, and included Cystopteris montana, Lastræa glandulosa, and numerous interesting varieties, particularly of Scolopendrium vulgare, and Athyrium Filix-fœmina. Mr. Parker, of Hornsey, contributed a mixed group, in which were many rare and curious Ferns, both native and exotic, among which we observed an Asplenium allied to A. fontanum, which is reputed to be of British origin.

VARIEGATED PLANTS were shown by Messrs. Veitch and Henderson; Messrs. Rollisson also had a group; but being wrongly entered they were disqualified.

KALOSANTHS were furnished by Messrs. Fraser. They consisted of well bloomed plants of miniata, coccinea, and a handsome kind called Angelina.

TALL CACTI came from Mr. Green, who sent Epiphyllum speciosum and its handsome variety called elegans, Greeni, and Cereus speciosissimus. Messrs. Pamplin also produced a seedling with flat stems and flowers like those of C. speciosissimus, but smaller.

ACHIMENES were furnished by Mr. Wiggins, gr. to Mr. Beck and Mr. Woolley. Among the sorts were longiflora and its white variety, Tugwelliana, Margarettæ, and other well known kinds.

PINKS were good and numerous. There were five collections of 24 blooms each in the open class. The first prize was awarded to Mr. C. Turner, Slough, Duke of Devonshire, Optima, Climax, New Criterion, Richard Andrews, Mr. Hoyle, Lola Montes, Adonis, Rival, Arthur, Sarah, James Hogg, Field Marshal, Fanny, Lord C. Wellesley, Narborough Buck, Cardinal, John Stevens, Juliet, Mr. Hobbs, Mr. Weeden, Jupiter, Esther, and Beauty of Salt Hill. Mr. Baker, of Woolwich, was second with some nicely laced flowers, but they wanted the depth and freshness of lacing observable in the first collection. The varieties dissimilar to those in the first lot were Sir J. Paxton, Criterion, Great Britain, Mrs. Norman, Favourite, Hercules, Brunette, Mrs. Wolf, President, and Purple Perfection. Mr. Bragg, Slough, who was third, had fine blossoms of Hercules, Purple Perfection, Cardinal, James Hogg, Jupiter, and Sarah. Mr. Parker, of Dalston, and Mr. Batten, of Clapton, also exhibited in this class. In the Amateurs' Class of 12 blooms Mr. Baker was first with 12 finely grown and well laced flowers, namely, Lord C. Wellesley, Brunette, Mrs. Wolf, New Criterion, Richard Andrews, Mr. Hobbs, Elizabeth Gair, Criterion, Duke of Devonshire, Narboro' Buck, Mrs. Norman, and Great Britain. Mr. Laurence, Hampton, was second, with Lord C. Wellesley, New Criterion, Sarah, Cardinal, Mrs. Maclean, Hector, Hercules, Arthur, Koh-i-Noor, Purple Perfection, Criterion, Climax. Mr. Blakesley, of Hampton, was third. Mr. Norman, of Woolwich, received a Certificate for 12 blooms of his seedling Mrs. Norman. This is a fine flower, with large broad petals, and very evenly laced. The same award was made to Mr. Turner, for Star; and to Mr. Bragg, for Annie Laurie and Ralph Bailey—three pretty flowers, but undersized as exhibited.

PANSIES were shown by Mr. Turner, Mr. Bryan, of Hounslow; Messrs. Dobson & Son, and Mr. Batten; also by Mr. Holder, in the class for private growers; these, though past their best, yet appear to have many admirers.

There was one collection of RANUNCULUSES from Mr. Parker, Dalston, large blooms, but not in sufficient variety.

PELARGONIUMS were present in larger numbers and in better condition than we often see them in July, but as we have so often given the names of the winning flowers in detail, we shall confine ourselves on this occasion to enumerating the remarkable specimens only. In 12 plants, Mr. Turner was first. His plant of Wonderful was very fine; nearly as good were Governor-General, Empress, Fair Ellen, Sanspareil, and Rena, the latter a good white. Messrs. Fraser had an evenly-grown lot of plants, in excellent health, the best of which was Sanspareil, Lucy, and Enchantress. Mr. Gaines and Messrs. Dobson and Sons came next. The class for six plants, new varieties, brought five competitors. Mr. Turner had Sanspareil, Wonderful, Virginia, Snowflake, Governor-General, and Phaeton. Mr. Beck, of Isleworth, had six small but pretty plants; they were Lucy, Governor-General, Laura, Conqueror, Fidelia, and Gem of the West. Mr. Holder, Messrs. Dobson and Sons, Mr. Gaines, and Mr. Robinson, also exhibited in this class. The Class for three plants did not produce much competition; this was for size without reference to quality. Mr. Turner was 1st with Vesper, Tiger, and Topey; Mr. Holder, gr. to the Rev. E. Coleridge, Eton College, 2d with Star, Narcissus, and Portia; Mr. Windsor was 3d. In the Class of 10 plants for private growers, Mr. Nye, gr. to E. Foster, Esq., Clewer Manor, was 1st, with flowers of excellent quality—Saracen, a bright scarlet, was very fine. Seraskier, Phaeton, Fair Ellen, Carlos, and Eva, were also very good. Mr. Holder was 2d, Mr. Robinson 3d, Mr. Beck 4th, Mr. Weir 5th, and Mr. Maher, gr. to J. Strachan, Esq., Teddington, 6th.

FANCY PELARGONIUMS.—These were as attractive as ever. In the Nurserymen's Class, Mr. Turner, Messrs. Fraser, Mr. Gaines, and Messrs. Dobson & Sons divided the honours. Private growers, Mr. Windsor, Mr. Weir, and Mr. Maher were the successful exhibitors, in the order they are given in. Fuchsias were produced fine by Mr. Bray, gr. to Baron Goldsmid, Regent's Park, Mr. Gaines, and Mr. Bishop. In these collections we did not observe anything new. Calceolarias were but indifferent, with the exception of six shrubby varieties, all Seedlings, raised and exhibited by Mr. Cole, St. Alban's. These are kinds suitable for bedding; Messrs. Henderson, Pine-apple Place, and Mr. James, gr. to —— Watson, Esq., Isleworth, were also successful exhibitors.

There were but few new bedding plants. A Bronze Medal was awarded to Mr. C. Turner, for a collection of new shrubby Calceolarias. There were 18 varieties of excellent habit; these were raised by Mr. Cole, St. Albans. Mr. G. Smith received a certificate for a seedling Petunia, Hermione, a new and pleasing kind, white, curiously spotted; it is a large flower. Mr. Nye received the Medal offered for the best Scarlet Pelargonium, with a free flowering bright variety named Amazon, with dark top petals. Mr. Nye also received a Certificate for Prince of Wales. This is a fine large bold flower for exhibition, rich dark top petals, lower petals bright cherry rose, clear white centre. G. W. Hoyle, Esq., Reading, received a similar award for Clotilde, a large free flowering kind, and Improved Majestic, with clear white centre. In Seedling Fancy kinds there were but two shown, Vivid and Prima Donna. The latter received a Certificate, and is a very good shaped new variety. Mr. Smith received a Certificate for a pleasing light Verbena, Sir C. Campbell, a flower of good form.

FRUIT was plentiful; but a good deal of it was far from being perfect. White Grapes were unripe, most of the Muscats being actually quite green, and Black Hamburghs ith some excellent exceptions were red. Peaches and Nectarines were generally good, and of Pine Apples there were 64; one or two of them, however, were very unripe, and many of them were small.

Collections of FRUIT came from Mr. McEwen, gr. to the Duke of Norfolk, Mr. Fleming, gr. to the Duke of Sutherland, Mr. Watson, Mr. Constantine, and Mr. Cowan. Mr. McEwen had three Melons, six dishes of Strawberries, one dish of Fastolf Raspberry, four dishes of Gooseberries, French Crab Apple still sound, White Dutch Currant, ripe Jargonelle Pears, six dishes of Peaches and Nectarines, Muscat and Black Prince Grapes (the former poor bunches, but ripe), Figs, excellent Greengage Plums, and Black Tartarian Cherries. Mr. Fleming produced beautiful bunches of Black Hamburgh Grapes, Royal George and Magdalen Peaches, Elruge and Violet Hative Nectarines, Hybrid Cashmere and Trentham Hybrid Melons, red Antwerp Raspberries, black Ischia Figs, and very good May Duke Cherries. Mr. Watson sent Figs, Peaches, Strawberries, Cherries, Pines, and Melons. Mr. Constantine had Black Hamburgh Grapes, Strawberries, Brown Turkey Figs, small May Duke Cherries, Elruge Nectarines, and Royal George Peaches. Mr. Munro, gr. to Mrs. Oddie, also had a neatly arranged box of fruit.

Of PINE APPLES the best four fruit came from Mr. Fleming, and good specimens were also furnished by Mr. Barron, gr. to Mrs. Vivian, Mr. Beal, gr. to A. Smith, Esq., and Mr. Spencer, gr. to the Marquis of Lansdowne. Of Providences Mr. Jackson, gr. to Lord Scarsdale, sent the best specimen, and an excellent fruit also came from Mr. Chapman, gr., Chilford, Cheshire. Of Queens Mr. Davis had the best; but excellent fruit were also contributed by Mr. Fleming, Mr. Peed, Mr. Spencer, and Mr. Turnbull, gr. to the Duke of Marlborough. Mr. Busby, gr. to S. Crawley, Esq., had an excellent smooth-leaved Cayenne.

Of GRAPES the best 12 lb. boxes were furnished by Mr. Henderson, gr. to Sir G. Beaumont, Bart., and Mr. Harrison, of Oatlands. These were good bunches and quite black; but most of the other 12 lbs. were red. In the class of three dishes Mr. Tillyard, gr. to the Speaker, had the best fruit, which was, however, closely followed by the contributions from Mr. Henderson and Mr. Martin, gr. to Sir H. Fleetwood, Bart. Of Black Hamburgh most excellent bunches came from Mr. Henderson, Mr. Fleming, and Mr. Boyd; and the best specimens of Black Prince were furnished by Messrs. Martin, Hill, and Turner. Of White Muscadines capital fruit came from Mr. Smith, gr. to S. Ricardo, Esq.; Mr. Tillyard; and Mr. Williams, gr. to C. B. Warner, Esq. Muscats, glorious bunches, with berries nearly as large as Greengage Plums, came from Mr. Strachan, gr. to R. B. Hill, Esq., but they were unfortunately little more than half ripe. Mr. Clarke, Mr. Turnbull, Mr. Taylor, Mr. Frost, and Mr. Allport also showed good examples of this variety of Grape. Very fine Frontignans came from Mr. Tillyard and Mr. Marchand. The best pot Vines came from Mr. Forsyth, gr. to Baron Rothschild, at Gunnersbury.

Of PEACHES decidedly the best were furnished by Mr. Snow, gr. to Earl de Grey. These consisted of Violet Hative and Noblesse. Mr. Collison had also large and fine Peaches; but they were over ripe, and bruised to pieces. Mr. Forbes, gr. to the Duke of Bedford, Mr. Constantine, and Mr. Gardiner, also sent good Peaches and Nectarines; Mr. Snow, Mr. Davis, and Mr. Ruffet had, however, the best fruit, but good specimens also came from Mr. Turnbull, Mr. Frost, and Mr. Munro, gr. to Mrs. Oddie.

Of MELONS, the best (a green-flesh sort), came from Mr. Spencer; but Mr. Tegg, Mr. M'Ewen, and Mr. Fleming were also successful exhibitors of this fruit. Of scarlet-fleshed kinds Mr. Marchand, gr. to J. Smith, Esq., had the best. Mr. M'Ewen also showed fruit of this class.

FIGS were furnished by Mr. Ivison, gr. to the Duke of Northumberland; Mr. Snow, and Mr. Constantine. The sorts were Black Ischia and Brown Turkey.

CHERRIES, large and fine, came from Mr. Taylor, gr. to J. Coster, Esq., and Mr. Snow, gr. to Earl de Grey.

The best STRAWBERRIES were shown by Mr. Smith, of Twickenham, but Mr. Tillyard and Mr. Lidyard also produced good dishes. The sorts were British Queen and Keens' Seedling.

TROPICAL FRUITS were contributed by Mr. Ivison, gr. to the Duke of Northumberland, at Syon. They consisted of Momordica balsamina, Vanilla, Plantain fruit, and Nutmegs.

Notices of Books.

Traité général des Conifères, ou description de toutes les espèces et variétés aujourdhui connues, avec leur synonymie, l'indication des procédés de culture et de multiplication qu'il convient de leur appliquer. By Elie-Abel Carrière, superintendent of the Nurseries of the Museum of Natural History, Paris. 8vo, pp. 655 Barthes & Lowell, London.

A GOOD book on Coniferous plants is much needed, for the purpose of fixing their nomenclature, settling their synonymy, and describing their peculiarities, natural localities, and œconomical value. But who is to write it? who to disentangle the perplexed names, to settle the limits of species, and to reduce to order the heap of raw materials now collected by travellers, gardeners, botanophilists, and botanists? That would be no easy task nor one to be lightly undertaken, for there is difficulty at every step, and the danger of error is such as to render considerable accuracy all but hopeless.

In the mean while the work before us will be thought extremely useful. Founded upon the well-known work of Endlicher, but stripped of its Latin, dressed in French, largely augmented by references to recent species, and enriched with numerous details of horticultural and œconomical value, it must be regarded as a first-class gardeners' volume, in which as much exactness is found as can perhaps be attained as matters at present stand. We bear witness, with great pleasure, to the care which M. Carrière has shown in collecting the species missed by Endlicher or published since his time; and also to the value of his very complete Index. If we cannot always agree with him in his determination of synonyms, nor in his ideas of species and genera, we can at least admit that differences of opinion upon such points are perhaps inseparable from the subject.

That which strikes us as the most objectionable is the want of any apparent principle in the formation of genera, and this is the more unfortunate because it strikes at the very foundation of a settled nomenclature. Linnæus threw into one genus (*Pinus*) all Pines, Firs, Larches, and Cedars. Others formed two genera, *Pinus* for the trees having from two to five leaves surrounded at the base by a common sheath, and hard woody cones with scales pyramidal at the point; *Abies* for the trees having scattered leaves, with thinner cone-scales not pyramidal at the point. This was an intelligible useful distinction and has been very generally recognised. But to construct out of Abies such genera as *Tsuga*, *Abies*, *Picea*, *Larix*, and *Cedrus* seems to us wholly undesirable and attended with no advantage, to say nothing of the impossibility of defining the limits within which such names are to be applied. Where, for example, can *Abies Kampferi* be placed in this sort of arrangement? Since it will come within the definition of none of them, we presume that some one will elevate it to the dignity of a separate genus.

In the cases above quoted M. Carrière runs into the extreme of multiplying genera. In the case of *Wellingtonia* he takes the opposite course, and led by authority he merges that plant in *Sequoia*. But if he were true to himself he would have resolutely maintained it, for its claim to separation is at all events as great as that of such genera as Picea, Tsuga, Larix, Biota, Libocedrus, &c., which our author accepts without hesitation. And we will here remark that neither the arguments nor the figures produced in the *Revue Horticole* by our learned friend Decaisne, to show that *Wellingtonia* is only a *Sequoia*, carry any conviction to our mind; as we shall explain whenever a fitting occasion shall arise.

Passing from the question of genera let us next advert to species. For the sake of showing the difficulties that beset the inquirer in this department of the subject, we select the Tree Juniper, to which we have lately referred, as forming a conspicuous part of the vegetation of Balaklava. What is that plant? No one can doubt that it is what Bieberstein intended by his *Juniperus excelsa*, as the locality he gives (Tauria meridionalis) plainly shows; which is confirmed by Trautvetter. But M. Carrière substitutes the name *fœtidissima* for *excelsa*, although the latter is more fragrant than the contrary, upon the supposition that the plant in question is a certain Savin, as tall as a Poplar, found by Tournefort between Tiflis and Erivan, and by him called "Cedrus orientalis fœtidissima." But the Crimean plant does not at all agree with the description of the great French botanist, who says, among other things, that his Savin had green berries, and leaves yellowish but glaucous on the under side, while the berries of J. excelsa are jet black, and the leaves not at all glaucous. It is, therefore, by no means certain that *J. excelsa* and *fœtidissima* are the same plant. Moreover, Kotschy thinks he has found the latter, as well as *excelsa*, on the Bulgar Dagh of Cilicia, and, if he is right, even the Turks distinguish the two, calling the first "Bosch Ardytsch," and the latter "Selwi or Jach Ardytsch." The two plants, which are now before us, undoubtedly appear to be very distinct: and upon comparing the wood of the Balaklava Juniper (for specimens of which we are indebted to our gallant friend Colonel Munro, of the 39th) with that of what M. Kotschy believes to be *J. fœtidissima*, the distinction is even greater, the grain of the two being altogether different. But while M. Carrière thus substitutes the name *fœtidissima* for *excelsa* without, as we presume to think, sufficient authority, he applies the latter name to another Juniper which he

says grows wild in the Himalayah, the Crimea, Syria, Asia Minor, Arabia, and the island of Tassos, where, mixed with Pinus Laricio, it forms forests. He is not, however, sure about the latter localities, but concerning the Himalayah he entertains no doubt. Nevertheless this Himalayan Juniper is a plant of which little is known with certainty in Europe. What Dr. Wallich distributed under this name has nothing to do with either the Crimean or Cilician plant, and the western Indian tree, be it what it may, requires re-examination. It is, therefore, unfortunate that the name by which the Crimean plant is known should have been disturbed, at least until far more precise knowledge shall have been gained concerning the allied species than we at present possess.

If the reader takes this as a sample of the perplexity which surrounds a single Juniper, he may form an opinion for himself of what is the condition of many other Conifers, and of the serious difficulty that occurs as soon as any critical inquiry is commenced.

M. Carrière's very useful volume is terminated by 65 pages on the cultivation and propagation of Conifers, a part of the subject to which we must advert on another occasion.

Miscellaneous.

The Winter in the United States.—Rochester, New York, March, 1855.—The winter through which we have just passed will not soon be forgotten. In many of the southern and western states there has been a severe drouth in the depth of winter—rivers, streams, and springs so low that water for ordinary purposes could scarcely be had. We have heard of cattle dying for want of it. Until mid-winter the western rivers were too low for navigation; then came the wonderful snow storms of February, covering up entire trains of railway carriages on the western prairies, and blocking up railway travel in nearly all parts of the country; close upon this came the intense cold of the 6th and 7th of February, when the mercury sunk 26° below zero in the usually mild lake countries and Western New York, where 0° is reckoned very cold, and is seldom experienced. We have strong fears that the fruit crop of 1855 will be very small. Here our Peaches are gone; not only are the fruit-buds killed, but we fear the trees themselves are frozen to death down to the very roots. In cutting through the bark, we find the wood quite discoloured, and to all appearance completely disorganised. *Horticulturist.*

Hollyhock Paper and Rope.—Mr. Niven, gardener, Keir House, has suceeded in fabricating paper and rope from the common garden Hollyhock, and has patented his invention. The paper is of the appearance and texture of that used for small bags and parcels by grocers, &c., and is very clean and firm. The rope is about half an inch thick, light and shining in colour, and apparently of considerable strength. *Perth Courier.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—The beauty of most soft wooded plants will be considerably prolonged by a liberal supply of manure water, which will also greatly assist in preserving the healthy vigorous appearance of the foliage; therefore, wherever it can be done without annoyance to the family, this should be used regularly for such things as Clerodendrons, Allamandas, &c., giving it in a clear state and regulating the strength according to the nature of the plant. And Orange trees, Camellias, and many other hard wooded plants will be grateful for the same treatment; indeed Orange trees, after they are kept rather short of pot room, should never be watered but with strong clear manure-water. Use every means to keep the atmosphere moist on bright days, and spare no trouble to keep the stock clear of insects, removing and smoking any pot specimen that is found to be infested with green-fly, and dipping in tobacco-water the affected parts of those which cannot be removed. Shading will of course be indispensable on bright days, but do not use this save when it cannot be safely dispensed with, for Conservatories are generally rather lofty, and the roofs partially shaded by twiners and plants, in such houses, are soon injured by a too free use of shading. Attend frequently to the twiners, keeping the growth nicely regulated; also be careful to properly supply the beds and borders with water, and make sure by frequently examining the soil that this is being done; for plants, if allowed to suffer for want of water at the root at this season, are sure to become a harbour for red spider and other pests. COLD PITS.—The stock here will now be growing freely, and should be frequently examined individually, to see that all is going right; for plants, when growing rapidly, very speedily suffer through any neglect in watering, or from the attacks of insects. Examine young specimens that were potted early in the season, and shift at once such as require more pot room, so as to get the pots moderately well filled with roots before winter, in which state they are much more easily carried over the winter than when either over or under potted. Leschenaultias should be carefully examined for green-fly, and smoked at once if at all infested, and the flowers should be regularly picked off young plants of these as they appear. Chorozemas, Bossiæas, &c., must also be frequently examined for red spider, and should be laid upon their sides on a clean mat and thoroughly washed with the syringe, repeating this as often as may be necessary to thoroughly eradicate the pest. Young specimens of valuable hard-wooded plants should be carefully trained, keeping the shoots nicely tied out or pegged down in order to secure close compact foundations, upon which future success very largely depends. STOVE.—Look well to young stock, and see that everything is in a favourable state for making vigorous growth, repotting at once such as require more pot room, and giving a liberal supply of water at the root, for the season will soon be less favourable for securing rapid strong growth. Give every necessary attention to the eradication of all kinds of insects. Use fire heat sparingly, and save on damp cloudy days and unseasonably cold nights, or where it is wanted for supplying bottom heat, it may safely enough be altogether dispensed with for a few weeks. Shut up early in the afternoon however, sprinkling floors, walls, and every available surface, and dewing the plants lightly; but be careful not to syringe over head plants that are in bloom, otherwise their beauty will be but short-lived, particularly where fires are not used at night.

FORCING DEPARTMENT.

PINERIES.—So far this season has not been particularly favourable for securing well ripened high flavoured fruit, and such varieties as are at all liable to spoil at the bottom before the upper pips are coloured should be kept as dry as possible immediately they show the least signs of colouring, keeping the atmosphere also as dry as can be done without serious injury to the rest of the stock. VINERIES.—Grapes intended to hang through the winter should be thinned very freely, and, if necessary, these should be gone over a second time, leaving them, so that the berries, when fully swelled, will scarcely touch each other. And only a moderate crop should be left on the Vines; for, to ensure success in keeping Grapes fresh and in good condition till next March, the Vines must be in first-rate health; therefore be satisfied with a moderate, or rather light crop, in the late house. Keep the atmosphere of houses where the fruit is colouring in active circulation, using gentle fires by day, with abundance of air, and leaving a little air on at night, to prevent damp. If red spider appears inclined to be troublesome, wash the pipes, &c., with a mixture of soot and lime, and if the colour is objectionable, add more soot. FIGS.—Trees that have been kept dry while ripening the first crop, and are now cleared of this, should be well watered at the root, and if there is any appearance of red spider, the leaves should be thoroughly washed with the engine. Give manure-water to trees showing a heavy second crop, and keep the atmosphere moist by frequently sprinkling the passages and borders, &c. Keep the shoots thin and regularly tied in, so as to avoid confusion, and expose all parts of the tree equally to the light. Where the fruit is ripening attend to previous directions, and keep the atmosphere and borders as dry as can conveniently be done. Assist trees in pots by giving them a liberal supply of manure water.

FLOWER GARDEN AND SHRUBBERIES.

Go over the beds frequently, keeping the young shoots of Verbenas, &c., nicely regulated and pegged down until the beds are fairly covered, after which, unless where the soil is very strong, or where it may be desirable to keep the masses as low as possible, the shoots of most varieties may be allowed to grow at liberty. Where the soil is of a rather poor nature, and the progress of the plants not satisfactory, a few waterings with manure water would be useful in the way of inducing more rapid growth; but this should not be given too strong nor too freely, otherwise it may do more harm than good, and in most cases such things make more wood than is desirable, nevertheless we have found manure water judiciously applied useful in giving backward plants a start. Keep the surface soil free, open, and clear of weeds by occasional stirrings, and should the weather be such as to render watering necessary, do not let the plants feel the want of moisture at the root. See that Dahlias and Hollyhocks are tied as they advance in growth, and keep these thoroughly supplied with water at the root, giving manure-water where the ground was not well prepared. Look over Roses and dip any shoots found to be infested with green-fly in tobacco-water. Also keep these well supplied with water at the root, which will greatly improve the flowers, as well as prolong the beauty of the plants, for the flowers soon fade in bright hot weather when the plants are allowed to get dry at the root. Too much manure-water can hardly be given these, especially the autumn-blooming sorts, and nothing better repays any attention which they may require, for if kept in vigorous health many of the sorts will bloom almost continually until stopped by frost, but if allowed to suffer through dryness at the root they will bloom but sparingly in autumn. Watch varieties subject to mildew, and apply sulphur immediately the enemy is perceived, but if the plants are kept in vigour by a liberal allowance of manure water there is little danger of mildew being troublesome.

HARDY FRUIT AND KITCHEN GARDEN.

Get Brussels Sprouts, Savoys, Broccoli, and all kinds of winter greens planted out as speedily as ground can be obtained; and where this cannot be done at present to the usual extent (owing to the backwardness of the season, and early crops not being ready for clearing off), see that the plants are either pricked out, or sufficiently thinned to allow of their growing dwarf and strong; and if a goodly portion of old Mushroom-bed dung were mixed with the soil before pricking out, the roots would run into this, so that the plants might be removed with balls, and would hardly feel the shift. Also get Leeks planted on strong, deep, heavily manured land, and attend to these and all other newly planted things with water until they get fairly established. Give the Asparagus plenty of manure water from the stable or farm-yard tank, in order to strengthen the roots after cutting and induce strong growth. On dry friable soils a good dressing of salt may be applied with advantage; but this should not be given on strong tenacious soils, as it keeps the ground wet and heavy in winter and decays the roots. Proceed with the planting out of Celery as fast as ground can be spared, and see that the whole is liberally supplied with water. Some persons defer the soiling up of Celery as long as it can be done, considering that there is less danger of its being eaten by slugs; but if these pests are at all troublesome, they should be treated to a dose of quick lime every morning for a week or so, strewing it thickly along the trenches and about the plants, which will clear the ground of them, and then there will be no danger in adding a little soil occasionally to assist in retaining the moisture, and afford more space for the roots. Attend to the staking of late Peas, and keep the ground thoroughly moist about advancing crops, and if the weather continues hot and dry, it will be advisable to mulch the ground along the sides of the lines, first giving the soil a thorough soaking of water. See to keeping up a succession of French Beans, also Salad of all kinds, making a sowing of Parsley for winter use.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending July 5, 1855, as observed at the Horticultural Gardens.

June and July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind	[illegible]
Friday 29	○	30.072	29.874	79	61	70.0	63	59	S.E.	[illegible]
Satur. 30	16	30.017	29.928	76	52	64.0	64	59½	S.W.	[illegible]
Sunday 1	17	30.163	30.161	76	60	68.0	63½	60	S.W.	[illegible]
Mon. 2	18	30.193	30.153	78	57	67.5	63½	60	S.W.	[illegible]
Tues. 3	19	30.181	30.082	79	56	67.5	64	60½	N.	[illegible]
Wed. 4	20	30.191	30.100	77	37	57.0	65	61	N.	[illegible]
Thurs. 5	21	30.121	30.038	81	38	59.5	64	60½	N.E.	[illegible]
Average.		30.134	30.048	78.0	51.6	64.8	63.8	60.1		[illegible]

June 29—Very fine throughout.
— 30—Very fine; light clouds; fine at night.
July 1—Very fine; cloudy.
— 2—Densely overcast; heavy clouds; some drops of rain.
— 3—Very fine; dry air; clear at night.
— 4—Cloudy; very fine; clear and cold at night.
— 5—Clear; hot and dry; very fine; cold at night.

Mean temperature of the week 2 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending July 16, 1855.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.	[illegible]
Sunday 8	74.4	51.2	62.8	16	0.46 in.	[illegible]	[illegible]
Mon. 9	74.1	50.7	62.4	11	0.57	[illegible]	[illegible]
Tues. 10	74.2	51.2	62.7	9	0.40	[illegible]	[illegible]
Wed. 11	74.4	52.0	63.2	8	0.71	[illegible]	[illegible]
Thu. 12	74.2	51.3	62.7	12	1.10	[illegible]	[illegible]
Frid. 13	74.7	51.9	63.3	12	0.92	[illegible]	[illegible]
Satur. 14	75.5	52.0	63.8	12	0.64	[illegible]	[illegible]

The highest temperature during the above period occurred on the 16th 1847—therm. 93½ deg.; and the lowest on the 10th, 1851—therm. 38 deg.

Notices to Correspondents.

HEATING: *Clericus.* The water should not be withdrawn from the pipes in your greenhouse.‡

INSECTS: *T H B, (Londonderry).* Your Onions are badly infested with the grubs of the Onion-fly (Anthomyia Ceparum), the history and figures of which are given in *Gard. Chron.*, 1841, p. 396. As the flies go through their transformations very quickly at this period of the year it is absolutely necessary that every diseased Onion should be at once drawn out of the bed and smashed under foot.—*D B.* Your Elm leaf-galls are the production of one of the aphides (Tetraneura Ulmi). Each colony is the production of a single female, which deposits her eggs in the leaf and thus causes the gall to be produced. *W.*

LUNGWORT: *W.* This plant, Pulmonaria officinalis, is held to be absolutely inert, like Borage. Its name is admitted to have been given from its spotted leaves being supposed to resemble the air cells of the lungs. You can only find it in old cottage gardens, botanic gardens, or nurseries where hardy herbaceous plants are cultivated.

NAMES OF PLANTS: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have, or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Erzeroum.* 1143, Astragalus adnatus; 1371, Portulaca oleracea; 1376, Ceratocarpus; 1351, Chenopodium; 1334, Corydalis Marshalliana; 1347, Delphinium consolida; 1346, Lythrum thymifolium; 294, Cnicus Benedictus; 1367, Puschkinia scilloides; 1365, Eremurus spectabilis; 1358, Iris iberica; 1291, Fritillaria tulipifolia, var.?—*J S.* Acer Negundo. The cause of the disease in the Cauliflower cannot be investigated without knowing what the insect is. Perhaps rank manure is the cause.—*Jane S P.* The species of Myosotis, as they are called, are very difficult of determination. Your specimen is ruined in the post-office; it looks like a great white variety of M. versicolor. If you will send a specimen neatly pressed upon card-board, and with ripe fruit, we will give you a positive reply.—*H B.* We suppose Pinguicula lusitanica; it is stamped to pieces.—*A B.* 1. Arthropodium cirratum; 2. Nierembergia filicaulis.—*Somerset.* Doubtless it is a Philadelphus of some sort, and we do not see how it differs from the common P. coronarius.—*Essex.* It seems to be some Asperula; but until it flowers it cannot be identified with certainty. It is probable that the dry season which has injured the Grass has enabled the new plant to show itself instead of being smothered as heretofore among other herbage.

PRESERVING FRUIT: *Sub.* The recipe you seek for is, we presume, Mr. Lovejoy's, which is as follows: "Pick the fruit from the stalks; put them into the bottles. Put one drachm of alum into four gallons of boiling water; let it stand till it is cold; then fill the bottles; bung them tight; then put them into a copper of cold water, and heat it to 176°. Then tie them over with bladder and seal them."‡

MISC: *R P.* You can have Nos. 37, 1852; 18 and 20, 1853; the others are out of print.

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

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THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected; Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the Plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
Patron—His Royal Highness Prince ALBERT.
President of Council—Earl BATHURST.
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Chemistry—J. A. C. VOELCKER, Ph.D., F.C.S.
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Veterinary Medicine and Surgery—G. T. BROWN, M.R.C.V.S.
Surveying, Civil Engineering, and Mathematics—F. ARMSTRONG, C.E.
Manager of Farm—G. AUSTIN.
The Second Session of 1855 begins in August. The annual fees for boarders vary from 45 to 80 guineas, according to age and other circumstances. The fee for out-students is 40l. per annum. The College course of lectures and practical instruction is complete in one twelvemonth, although a longer course is recommended. There is a department for general as well as for agricultural purposes. Prospectuses and information can be had on application to the Principal.

YORKSHIRE AGRICULTURAL SOCIETY, OPEN TO THE UNITED KINGDOM.—The EIGHTEENTH ANNUAL MEETING will be held at Malton, on the 1st and 2d of August. The Entry closes on July 18th.
Prize Sheets and Forms of Certificates may be had on application to the Secretary. JOHN HANNAN, Sec.
Kirk Deighton, Wetherly, July 7.

HAY-MAKING MACHINES.
THE ROYAL AGRICULTURAL SOCIETY'S PRIZE MACHINES are supplied by WM. DRAY & Co., Swan Lane, Upper Thames Street, London.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3l. 3s. The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe, 1s. 6d. per foot.
1½ inch Flexible Rubber and Canvas Suction Pipe, 3s. 6d. per foot.
May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£ s. d.
2½ in. short	1 ft. 7 in.	Fitted for lead,	1 12 0
2½ „ long	3 „ 3 „	gutta percha,	1 15 0
3 „ ditto	3 „ 6 „	or cast iron	2 12 0
3½ „ ditto	3 „ 6 „	flanged pipe,	2 18 0
4 „ ditto	3 „ 6 „	as required.	3 5 0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2 12 0
2½ in. long	ditto	ditto ditto	2 15 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
WITH WARNER'S REGISTERED SPREADER,

is strongly recommended, for durability and low price, viz., 2l. 19s., to hold 10 gallons.
Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9s. upwards. Metallic String from 5d. to 1s. 3d. per lb.

CLAYTON, SHUTTLEWORTH, & CO.'S PRIZE PORTABLE STEAM ENGINES, AND COMBINED THRESHING, STRAW SHAKING, RIDDLING AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as threshed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.
C. S. & Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading Agricultural Shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

CAUTION.
PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.
Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

IMPROVED MOWING AND ROLLING MACHINE.

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, Inventors and Sole Manufacturers, respectfully solicit the attention of the Nobility, Gentry, and Gardeners to this Improved Machine for Mowing and Rolling Lawns. The Machine is in operation in the Royal Gardens at Windsor Palace, Buckingham Palace, and at Osborne, in the Botanical Gardens at Kew, Regent's Park, Manchester, Sheffield, &c.; at Blenheim Palace, Trentham, Cleveden, Elvaston, Broadlands, Woburn Abbey, Clumber, Lilleshall, Castle Howard, Shrubland, Eridge Castle, Enville Hall, Tiptree Hall, Chatsworth, and in many other of the principal gardens in the kingdom as well as in the United States, British America, and on the Continent, where its merits have been fully proved, and its success established.
The machine is made to cut the breadth of 42, 30, 20, and 15 inches respectively, is exceedingly durable, easily managed, and adjusted to cut to the length required. The execution of the work is far superior to what may be attained by the most skilful mower, while at the same time a great saving of labour is effected, and the turf much improved. By the largest machine a Scotch acre may be mowed, rolled, and the Grass collected in one hour.
A. S. and SON have much pleasure in stating that they have made considerable improvements in their 15-inch or hand machine this year, by which the draught is considerably lessened. This machine combines all the merits and advantages of the larger machines with firm and secure construction, and is admirably adapted for borders and for lawns of no great extent.
ALEXANDER SHANKS and SON also respectfully solicit notice to "Fleming's Weeding or Salting Machine" for destroying weeds in gravel walks, court-yards, drives, &c. This machine is now in operation in many parts of England, where it has given ample satisfaction as the best and most economical means of thoroughly keeping down weeds or Moss.
Further particulars, with testimonials and prices, may be had on application.

The Agricultural Gazette.

SATURDAY, JULY 7, 1855.

MEETINGS FOR THE ENSUING WEEK.
WEDNESDAY, July 11—Agricultural Society of England.

WE have more than once referred to the policy of our ordinary Labourers' Friend Societies, and defended the conclusion that to offer money rewards for morality and benevolence is mistaken and absurd. The prize lists of these Societies do, as our readers know, contain offers of money to those who shall have brought up the largest families in respectability, and to those who shall have lived sober, chaste, and respectable lives in the same household for the greatest number of years; and to those who shall have maintained their parents or other relatives than their own immediate families under circumstances of the greatest difficulty.

Our objection to these offers has been read as if it referred to the whole system of rustic gatherings for the purpose of emulation and reward, than which, we believe, nothing can be more beneficial. No reasonable man can deny the advantage of all classes occasionally meeting. Such meetings are almost the only opportunities when the influence of the more intelligent and the more excellent of a neighbourhood may be brought to bear directly upon those who occupy a lower position in these respects: and if rewards for good conduct were the only way of gathering labourers and landlord, clergyman and tenantry together, we would advocate these prizes, notwithstanding their immediate uselessness, for the sake of this collateral advantage which they confer.

That such prizes are not necessary for this purpose there is, however, abundant evidence to prove. Every country flower show and every ploughing match is evidence of this. Such gatherings as Lord RADNOR annually holds at Coleshill, in Berkshire, and one of which has just been held, are a conclusive testimony on the same side. Prizes to the best mowers and shearers, and for the possession of agricultural skill of any kind, are more attractive than those for excellence of moral character, and the gathering is thus more perfect. The young and strong—precisely those whom it is most important to bring under the influence of kindly words and good advice—are brought together here; they feel sure of receiving justice as well as encouragement, for skill *may* be estimated accurately—it is measured by a result that is obvious to the senses; the morality of any course of conduct cannot be certainly determined, it is measured by its motive, which we cannot know, but which is certainly liable to be degraded by money rewards offered to good men. The annual gatherings instituted by Lord RADNOR

and his agent, Mr. MOORE, are, in our judgment, especially useful in this, that while success is attainable by any one who is allowed to enter the lists, by the exhibition of skill alone, yet the known character of those who organise these meetings, as well as the actual addresses given on the spot, all tend to impress the labourer with the value of personal character, with the all-importance of his personal relations both to GOD and man, as the only true ground on which success in life can be built.

A STEAM-CULTIVATOR for light lands, where shallow tillage is unavoidable, should be able (as we lately showed) both to scarify, drag, and plough, or perform something very much akin to these processes; and there would seem to be no good reason why the screw-wedge principle of the plough should not be employed to turn over thin slices of a soil which is all the better for squeezing. Let us now inquire into the special requirements of perhaps the most extended class of soils—those more or less friable loams, together with a vast variety of soils (excluding heavy clay) which are capable of moderately deep culture. As one description of land has not always the same depth of staple, it is impossible to point out in a general way the localities of all the soils to which we refer; but they may be found interspersed both in strong clay and light land districts; they occur upon the drift-beds covering various formations; on the green-sand oolite, new red sandstone; and form almost the whole of the alluvial tracts of deep land free from stones. Some are porous and friable; some are rather tenacious, and abounding with stones of considerable size; others consist of clayey and sandy gravel.

Now, the prime operation, engaging the chief share of the motive power of the farm, and demanding the greatest exactness and attention, is the breaking, loosening, and inverting of the staple by means of the plough. Lea ground, having remained unstirred for a considerable time, requires the most accurate manipulation, because of the twofold object of burying every trace of former vegetation, and obtaining a plentiful mould as a seed-bed. Stubble ground is generally more loose and friable, so that, whilst equal care must be taken to bury all superficial vegetable matter, no particular provision need be made for securing a surface-mould.

The most common depth of ploughing is perhaps a little more than 6 inches: but in ploughing land after sheep-feeding, and in cleaning the surface, half this depth is often chosen; and in turning over stubbles for fallow it is becoming more and more the custom to go 9 or 10 inches deep. A steam-cultivator, then, to be really useful, should dig, plough, or *in some way accomplish the slicing and complete inversion of the soil at the above variations in depth.* On deep loams and rich alluvial lands, where the subsoil is of good quality, trench-ploughing also is largely practised; by which a staple of cultivated earth is obtained at least one foot in thickness: a hard, tilly substratum has frequently to be broken in this way; soils are often deepened, indeed, by tearing up and disintegrating the very rock; and in all cases, in going deeper than the usual tillage, the implement is sure to encounter roots, stones, or other obstructions. The steam-digger should be able to effect *this difficult operation when required, and, if possible, more efficiently than by our present double-ploughing.*

But besides this deep ploughing (which is equivalent to the double-digging or trenching of gardeners), there is the operation of subsoiling some 16 inches deep (which represents what the gardeners call bastard-trenching), — that is, the substratum is broken and disintegrated without changing places with the top soil. It is very extensively practised upon lands having an impervious subsoil of a poor or noxious character,—as, for instance, where injurious salts of iron are contained in the pan formed by the cemented filtrations of the surface soil. The same tool which trenches or inverts cannot be expected to perform this mere stirring without lifting the subsoil: but as it is precisely in the deepest tillage (wherein our present traction implements depress their line of draught to an angle necessitating an enormous amount of motive power for propulsion), that steam-power should give us its chief help; and as the farmer will not have horses enough left for the purpose, when his surface-ploughing is done by steam—a steam cultivator ought to possess some modification of cutter or some simple adjustment of parts for *subsoiling.*

For all the above processes, *a slow motion* in the implement is indispensable. In the various after operations of reducing, pulverising, and cleaning, by some action akin to scuffling, harrowing, &c., *revolving tillers with a somewhat quicker speed* seem most adapted; and their capabilities should range from shallow paring of the surface or pulverising of a 6-inch staple, to the stirring of dug ground and rooting-up of Couch, &c., for 9 inches or even a foot in depth.

We may sum up our inferences by dividing methods of cultivation into two principal classes:—one comprising *the inversion of the soil to greater or less depth*, under the names of ploughing, trenching, &c., *capable of being accomplished by one form of implement;* the other class embracing *every species of stirring and pulverising* used in preparatory tillage—such as grubbing, harrowing, rolling, clod-crushing, and subsoiling (which seem to have essentially the same stirring and crumbling character), *all of which may be combined and embodied in a single machine.*

Provide British agriculture with these two engines, and the major portion of our arable lands will partake of the benefit. And with the main work done by steam, all secondary labours such as hoeing, seed sowing, ploughing drills for root crops, &c., will be accomplished by the horses still retained for the portage of produce and manures. *I. A. C.*

THE deeper cultivation, which we last week referred to as one cause of fertility in soils, is being rendered possible by drainage, and it is one of the collateral advantages of this great and essential agricultural improvement. The subsoil *was* the poison to the plant which it was thought to be, so long as filled with stagnant water, and impervious to the air. When a current was established through it the roots soon found their way below, and the plants above showed the advantage of the more extensive feeding ground thus obtained.

We must do little more than name land drainage as an observed cause of fertility—for it has been observed now so universally, and its benefits are so obvious in all cases of stagnant water, whether in stiff soils or light soils, that no one questions them. Though it is in point of fact the first step towards the reclamation of any land that is liable to fill with water, yet it comes last to be named in the order of benefits conferred upon the soil, for its principal advantage lies in the ability which is thus conferred on plants to use the fertilising matter already present in land. It is as it were the key by which access is obtained to a warehouse that may be full of vegetable food, but whether full or not is valueless so long as locked. By means of drainage, water runs through the land, gathering whatever soluble it finds, and the roots of plants by which it flows are fed. In land undrained, whether by Nature or by art, the water does not pass through the soil to feed the plants, it passes off the soil and leaves them starving. Land water-locked is barren, whether it be full of food for plants or not; and putting out of sight all the collateral advantages of drainage, the one great purpose which when drained the water serves—that of a carrier of food—is sufficient to account for the universal testimony of observation to the benefits of drainage.

The use of water as a vehicle of food to plants connects the subjects of drainage and irrigation. The volumes of the Society's Journal contain many references to the fertilising influence of irrigation; and the traveller in the vales of Hampshire and of Wiltshire cannot fail to have his observation drawn to the luxuriant growth of Grass which by means of it are produced.

The following detailed particulars relate to a case with which we are acquainted in another county. The extent of meadow is about 15 acres; before irrigation its value averaged 30*s.* per acre. In its original state the land rotted sheep, and was therefore unsafe except to put fat sheep on just before sending them to the butcher. The cost of bridges, levelling, channels, &c., in fact all the works preparatory to irrigation, amounted to as much as 15*l.* an acre. The annual cost of clearing water-courses, repairing hatches, &c., is 15*s.* per acre, and another 15*s.* per acre will cover the cost of making hay and other management throughout the year. The return from this outlay is in the form of a greatly increased value of spring and autumn feed, and in the safety of the land as regards the rot. The meadows are shut up early in May, and the crop is cut in seven or eight weeks. It averages 35 cwt. per acre. The value of the spring and autumn feed is at least 2*l.* per acre. The following is a statement of the amount:—

Dr. Cash		Contra	Cr.
35 cwt. of hay ...	... £5 5	Former value of the land	£1 10
Value of aftermath	... 2 0	5 per cent. on 15*s.* per acre	0 15
		Annual expense ...	1 10
		Profit	3 10
	£7 5		£7 5

In addition to this it must be remembered that the farmer has the advantage of carrying the crop off the land each year without impoverishing it; and this is in fact the real point of this case in its relations to the present subject. Observation thus bearing witness to the efficiency of irrigation, as the source and maintenance of fertility in soils.

ROYAL AGRICULTURAL COLLEGE.

THE sessional examination of students at the Royal Agricultural College was brought to a conclusion on Wednesday, 20th ult. The following are the results:—

FIRST CLASS IN PRACTICAL AGRICULTURE.

Arranged in order of merit.

1. Rome.
2. Wilson.
3. Kimber. Troutbeck.
4. Hollins. G. Wynne.
5. Burn.
6. Palmer.
7. Gee.
8. Field.
9. W. Colby.
10. Smith.
11. J. Colby.
12. A. Wynne.
13. Zamoyski.
14. Slater. Hawthorn.
15. Tousey.
16. Butcher.
17. Knox.
18. Lewis.
19. Fothergill.

The following were placed at the head of their class in each department, as under:—

ORGANIC AND AGRICULTURAL CHEMISTRY.
1. Thomas Rome. | 2. Jacob Wilson.

INORGANIC CHEMISTRY.
George R. Wynne.

GEOLOGY AND ZOOLOGY.
1. James Carter Hollins. Jacob Wilson. | 2. Thomas Rome. Robert Troutbeck. George R. Wynne.

VETERINARY MEDICINE AND SURGERY.
1. James W. Kimber. | 2. James Carter Hollins. Jacob Wilson.

CIVIL ENGINEERING.
1. James Carter Hollins. | 2. Jacob Wilson.

The Laboratory Prizes were adjudged as under:—

Classes 1 and 2 ... ... James W. Kimber.
Classes 3 and 4 ... ... George R. Wynne.

Commended.

Jean Zamoyski and Alfred Wynne.

Classes 5 and 6 ... ... Octavius Newry Knox.

Commended.

John C. Pickin, James E. Parsons, and Montague Martin.

The Essay Prizes were awarded to

Robert Troutbeck ... ... Subject, Wheat.
Jacob Wilson ... ... Subject, The Geology of the R. A. College Farm.
Thom. Fewster Wilkinson... Subject, English Agricultural Implements.

The R. A. College Certificate or Diploma was awarded to the following Students, who passed a very creditable examination in every Department:—

James Waving Kimber, of Fyfield Wick, near Abingdon.
James Carter Hollins, of Nottingham.
Jacob Wilson, of Woodhorn, near Morpeth.
Thomas Rome, of Groundslow, near Stone, Staffordshire.
Robert Henry Palmer, of Wyke Regis, Dorsetshire.

Home Correspondence.

Wheat in Hampshire.—As much has been said and written about the failure of the Wheat crop, I give you the history of it so far as this part of the county is affected. Our Wheat was put in generally pretty well, rather light than otherwise, but this I do not consider of much consequence as I have seen as good Wheat from a light seed bed as from a heavy, and the former is much less labour. The injury was done before the severe frost that set in about the middle of January, and arose from the ravages of a small insect about three-sixteenths of an inch long, eating out the heart of the then young and tender plant. I found it on my own and several other farms. My friends had attributed it to the wire-worm, until I showed them the insect; many of the fields looked pretty well till the withering frost and drying winds had passed over them. This was the case with a 16-acre field of mine sown after Clover, which was very much thinned all over; in every case of early inspection some of these little insects were found. After the frost none could be found. On searching I find that Mr. Curtis, in the "Agricultural Journal" fully describes them as larva of chlorops, and such I believe them to be. I have found them before, but never to the same extent as last winter. Since then, and within the last two months, the wireworm has committed great ravages in an 8-acre field of mine sown after Mustard fed by the sheep; it is quite half gone in several other fields. They have done considerable mischief, but for farmers to be complaining, with Wheat at from 70*s.* to 80*s.* per quarter, of course no one listens to them, but I would beg to remind your readers that there is a cause for these things; the year before last this district where I write did not average 12 bushels of Wheat per acre. Last year we grew about an average crop, and this year when you hear farmers say that much of their Wheat will not grow the seed, and another telling you on the 8th of June, at a market table, that he is to-day rolling and harrowing Wheat, you must judge but poorly of the growing crop. Saturday evening showers of hail and rain, and very cold to-night; Wheat markets here and at Southtown firm at last week's prices. Lent corn was looking well: short crops of Grass, &c. *James Eames, Lymington, June 17.*

Suggestions for Agricultural Statistic Returns for England and Wales, made on the 21st of October in each year, to be sent to the Collector within 14 days.—1. To appoint an intelligent agriculturist as inspector for each county holding not less than 50 acres in his own occupation, with a salary of 60*l.* to 100*l.* a-year varying with the extent of the returns. 2. In Hertfordshire there are 135 parishes, and according to Sparkman's statistic analysis the farmers are 1900, and the collation of that number of returns by the inspector would not occupy more than 10 or 12 days, and the whole of the returns might be submitted to the Board of Trade in the month of November; and as there would be only 52 counties (some of the largest of which it might be desirable to divide), the whole of the actual returns from the county inspectors might amount to 60 or 65, and the Board of Trade would be enabled to arrive at the combined amount of the returns within a few hours' labour on receiving them from the inspectors. 3. The mode of obtaining the returns should be

through the medium of the collector of assessed taxes, who is a fixed officer, and in the habit of sending schedules to each occupier; any portion of such returns may be returned to the collector, sealed and addressed to the county inspector—this would avoid any unpleasantness on the part of the farmer to an objectionable surveillance of his business by his neighbours, and there would be then little inducement to make unfair returns. 4. To confine the returns to farmers and occupiers of land not holding less than 5 acres of arable land or 10 of pasture. 5. The collector of the returns to be paid 1s. for each schedule, to be paid him by the overseers of the poor of the parish on the certificate of the inspector. 6. All parties refusing or neglecting to make such returns shall be summoned for penalties on the instructions of the inspector to that effect, and all fines paid to the overseers of the parish. 7. The inspector, for the more certainty of obtaining the returns by a given day, shall dispatch an agent into each hundred of the county to collect them from the returning officers. 8. Each collector of the returns shall send to the inspector a list of the names of the occupiers liable to make returns, with the number of acres in their occupation, and the required number of schedules shall then be forwarded to the collector, and the inspector, entering them in his books, would then have the lists in readiness to fill them up on the receipt of the returns and be enabled to ascertain who were defaulters. 9. The object of making the returns so late as in October is to have a clear and correct estimate of the results of the different crops after their maturity, for all crops, particularly Wheat, are liable to great injury in quality and quantity from bad harvest weather and the effects of mildew and blight when it is near maturity, for which no allowance could be made by any returns made in July or August, and the yield of the different crops would be to some extent ascertained by the quantities thrashed out previous to the 21st of October to be sent to market and for seed. 10. The expense of obtaining the whole of the returns to the government, if the collectors are paid by the parish authorities (which in many instances would not exceed a few shillings and in the largest parishes 3*l.* to 4*l.*) would be some 10,000*l.* to 12,000*l.* *Saml. Sandars, Hempsted, 28th June.*

Return of the number of acres of land in my occupation in this parish, and their respective modes of cultivation from October 21st, 1854, to October 21st, 1855.

Total occupation 300 *acres.*

Corn crops.	Acres.	Pasture, Meadow, and Woods.	Acres.
Wheat, winter sown ...	40		
" spring sown ...	20	Clover and Artificial Grasses	20
Rye	—	Meadow and Pasture ...	60
Barley	30	Hops	—
Oats	30	Wood...	—
Beans and Peas	10	Other crops	10
Other grain	—		
Fallows	20		90
	150	Woods	20
Root or other crops.			
Turnips	20	Total occupation—	
Potatoes	5	Corn crops and fallow ...	150
Carrots, Beet Root	5	Root crops	40
Tares and Vetches... ...	10	Pasture, meadow, &c. ...	90
Flax	—	Woods	20
	40	Acres... ...	300

Report of the quantity of old Wheat (if any) in granary or in stock, 1st September, the present year ... about 30 qrs.

Report of the supposed yield and weight per bushel of the present year's crops of Wheat and Barley.

WHEAT.	BARLEY.
Full crop	Full crop
Average	Average
Short	Short crop
Weight (about) 63 lbs. per bush.	Weight (about) 52lbs. per bush.

General report of the following crops.

Hay and Clover—Are they an Average crop? Full crop? Short?

Potatoes ... ... Average crop? Full crop? Short?

Turnips ... ... Average crop? Full crop? Short?

Return of the number of horned cattle, horses, sheep, and swine in my possession at the date of this return, and the number bred on my farm within the 12 months.

Stock on hand—		Bred on the farm during the year.	Number of fleeces of wool clipt the present year ... 150
Horned cattle .	30	.....	
Horses	14	.....	
Sheep	200	.....	
Swine	20		

I certify that the above return is correct to the best of my knowledge and belief. JOHN SMITH.

Hemel Hempsted, County of Hertford.

The return must be filled up (and may be sealed if desired, addressed to the county inspector, with the name of the occupier on the outside of the schedule), within 14 days after October 21st, that is on or before November 8th next, under a penalty of 40*s.*

Oct. 15th, 1855. WILLIAM SEERS, Collector of Returns for the Parish of Hemel Hempsted.

An important element of the returns would be the quantity of old Wheat in the farmers' hands on September 1st in each year. In 1853, Messrs. Sturge, of Birmingham, estimated the quantity at five million quarters, or 38 per cent. of the annual growth of 13 million quarters, whilst the writer's estimate was two million quarters, or 14 per cent., and on September 1st, 1854, as only 500,000 quarters, or some 12 to 14 days' consumption.

Steam Cultivation.—In my last letter to the *Gazette* I suggested that steam, on its right introduction to the field, would alter the "method" of operating on the surface soil altogether. This was apparently only a conjecture; hence let us proceed to examine whether such a supposition is baseless and without foundation, or whether it will be established. We can arrive at a conclusion on the point by first eliciting the conditions which must be fulfilled to render a steam-driven cultivator profitable to the farmer, and then proceeding to fulfil them. The first condition required is, that a steam-cultivator shall do more work, in less time, and at a less cost, than is now done. The second condition is, it shall be efficient to perform the work assigned. The third condition is, it shall be subservient not only to one, but to all the known and necessary operations of our field practice. Now it will at once be seen that if we can fulfil the first condition we fulfil the second and third by implication; that is, the two latter are contained in the first; hence let us address ourselves to the study of the first condition. We desire to do more work, in less time, and for less money (by a tillage machine) than it now costs. How is this to be effected? I will here affirm, only by a change in the "method" of operating in the field, and beg to support this affirmation by an appeal to our knowledge of all the past attempts at steam cultivation. From the earliest attempts down to the latest essays of Lord Willoughby d'Eresby and Mr. James Usher, it appears inventors have never succeeded in doing more work, in less time, than the plough; and as to fulfilling the third proposition of "at less cost," that has not been approached. Now it is also known, however varied may have been the mechanism, inventors have never attempted to work it on any other method than that of the plough; hence what deduction can we draw? Why, that the method of the plough is not suitable for the economical working of a steam-cultivating machine. Thus far I obtain negative evidence in support of my affirmation, that the "method of operating" must be altered. We will now proceed to establish my affirmation by positive evidence, and that will be by inquiring by what particular method or means a steam-driven cultivating machine could be employed on the surface soil, so as to fulfil the "condition" of doing more work in less time and for less money than is now accomplished by the plough, &c. Every mechanician knows it will be comparatively easy to construct or invent a machine to fulfil a certain method or purpose when we shall have first discovered what particular method or purpose it is to fulfil. The first question to be asked by an intending inventor would be—What is the characteristic or nature of the farmer's field practice to which we desire to apply the power of steam? Is it a question of distance, like the voyage across the Atlantic? No. Is it a question of velocity, like the railway business? No. Is it a question of depth, like the drainage business? No. Then what is it? Why a question of surface (or superficies), it being admitted that a farm of 300 acres of land represents a surface of 1,800,000,000 inches, whilst the depth to which our intended machine is required to operate is only 6 inches, or one three-millionth part in relation to the whole superficies of raw material composing the farm. Hence, as we have now discovered it is a question of surface we have to deal with, we will make a large machine, say 84 feet in length, and 5 feet in width. Now comes the important question—How are we to use it so as to fulfil the condition required, of doing more tillage work in less time and for less money than is now done by the plough, &c.? We know this machine will be heavy, and the labour to be encountered will be great. Hence we have to ask the question, What method or figure is the simplest and easiest by which to move a heavy weight the least possible distance, and yet perform the greatest possible amount of work? As Lord Bacon long since observed, in researches of this kind, we cannot do better than appeal to Nature to see how she manages in such cases. Art is only the handmaid to Nature. We are the artists, and the wisest course we can adopt is to aid and imitate Nature in our operations or contrivances. The question we have now to ask of Nature is, how does she operate when she desires to move a heavy body the least possible distance, whilst that heavy body shall execute or perform the greatest possible amount of work within a limited time? The natural examples I shall adduce to afford the required evidence shall be a cow grazing, a sheep feeding, a man broadcasting seeds, a man tethering a horse, a hawk beating for its prey. Feeling certain these several illustrations adopt the shortest course to attain their ends, we will consider their method of proceeding, and if we shall appreciate the motives prompting them, we will see whether we cannot employ the same means to fulfil our proposed labour of tilling the surface soil with a heavy body like a steam-engine. *Charles Burcham, London.*

Crops in Yorkshire.—The following notes on the appearance of the crops and prospects of the approaching harvest are the result of close personal observation over a large extent of land during the last 10 days. *Turnips.*—The Swedes first sown have suffered greatly from fly and much land has had to be sown twice. This failure has, however, sometimes arisen from the knavery of the seedsman. I had sown two kinds of Swedes in one field within a day of each other—one kind brairded beautifully; the other showed a very few sickly plants, which speedily disappeared under the operations of the fly, and I was obliged to sow the ground again, which I did with Yellows, and they are now finely up. Thinking something was wrong with this Swede seed I had 50 seeds put into fine mould in a flower pot, and placed it in a greenhouse; only 15 seeds grew, and these were feeble plants; so much for seed. Yellows and Whites generally are up, or coming up, and the matter is so exceedingly favourable now that we have great hopes of a good crop generally. *Potatoes.*—Thus far this valuable root looks very promising. *Wheat.*—This crop is this year a very unequal one. On good land in high condition the crop though late promises to be a full one. On poor land it is not only late but a very moderate crop. I was over several farms last week where the tenants do not expect more than half the yield per acre they had last year, and my own opinion on this point agreed with theirs. I have to-day (2d July) seen a field with many of the ears fairly out; this is the first I have seen in this neighbourhood; it will be fully ten days before Wheat here is generally shot, and as we usually reckon six weeks between the bloom on Wheat and the sickle there seems little prospect of our having harvest before the last week in August. Oats and Barley on good land promise a fair but not a great crop—on moderate and poor land the plants are short and a bad colour. Beans are not very long in the straw, but appear to be blooming well. The weather has been warm (75° in the shade) and showery during the last three weeks, and meadows have grown wonderfully; we now, by waiting a week longer than usual before we mow, expect to cut good crops. *Roaldus, Richmond, Yorkshire.*

Mr. Horsfall's Dairy Practice.—Being on a visit a short time ago in the neighbourhood of Otley, I took the opportunity of inspecting, in company with two or three other brother agriculturists, Mr. Horsfall's dairy establishment. Whatever may be the value of the system pursued in that establishment, whether the amount of butter produced be above or below the average, how far the administration of extra food may be conducive to the quality of the butter, &c. &c., these are questions upon which any one, having the data before him, is as competent as I am to form an opinion. Nor should I have ventured to trouble you with any observations on the subject, were it not that there appears to me to be one essential ingredient in the case which has somewhat escaped notice in the controversy concerning it which has arisen; and that is the condition of Mr. Horsfall's milch cows. Our observations showed us that by the practice of housing the cows from 6 P.M. until nearly 8 on the following morning, and by giving them during this time two meals of warm cooked food, a feeding as well as a milking process is carried on; and that this must very materially influence the economical part of the question, because the condition of the cows is such that in a fortnight or three weeks after being dried, they are ready for the butcher. The cows appeared to us to be about an average sort of short-horn. Their fresh condition however, the glossiness of their skins, and the unmistakeable appearance of health which they exhibited, are facts which should not be lost sight of in any criticism to which Mr. Horsfall's dairy practice may be subjected. *George Legard, near Malton, Yorkshire.*

Sowing Thick and Thin.—Since turning our attention to the growth of corn, though but tyros in this branch of agriculture, careful investigations have proved to us that from an extravagant full seeding of 2 bushels per acre of Wheat, or 3 bushels per acre of Barley and Oats, some of the seeds do, and must, by reason of its extreme thickness, and as a necessary consequence, fail to produce any ears or ear at all, and only one, two, and three diminutive ears are or can be possibly obtained from each grain, averaging only about two abortive or puny ears, and containing in both not 30 perfect grains. This need not cause great astonishment nor disbelief, and we speak it without fear of contradiction; for if it were so, 60 bushels per acre produce of Wheat and 90 bushels per acre of Barley and Oats, would of course consequently be often realised, viz., 30 times as much as was sown, which at first sight appears but little; but where is even this insignificant produce obtained from such proceedings? A correspondent on whom we can rely upon for truth, writes us from Inverness, "The practice of thin sowing has not come this way yet, grain being generally sown about 6 bushels to the acre!" How is this inadvertence to be accounted for—can it be in the difference of a Scotch acre, or the Scotch bushel? We contend that our growing crops from only 6 or 8 pints per statute acre with some 20 to 80 fine ears protruding from each grain or stub, hang dangling and wafting majestically in the summer's breeze as noble examples for larger establishments, cannot be beaten by anybody's else, or anywhere, except from a smaller quantity of seed even than this. *Hardy & Son.*

Dairy Statistics.—In my reply to "D," there is an error in the computation of Mr. Scott's average—"it would require 1957 quarts" should be "2154 quarts to produce the 196 lbs. of butter, and allowing a cow to produce milk 300 days in a year, which is less than my cows continue in milk, the result will be little more than 7 quarts per day; in my present stock of 18 there are not more than three giving so little," &c. *Thoma Horsfall.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL, *July* 4.—Colonel CHALLONER, Trustee, in the chair. Twenty-five new members were elected.

FINANCES.—Mr. Raymond Barker, Chairman of the Finance Committee, submitted the monthly report of the accounts; from which it appeared that the current cash-balance in the hands of the bankers was 2668*l.*

JOURNAL.—Mr. Thompson, Chairman of the Journal Committee, laid on the table the first number of the Journal for the currrent year, and reported the following recommendation of the committee, which was adopted by the Council, namely:—"That a sum not exceeding 150*l.* may be expended by the Journal Committee in payments to authors of papers for the Journal during the next twelve months."

CHEMICAL INVESTIGATIONS.—Mr. Thompson then pre-

sented the following report from the Chemical Committee, which was also adopted :—

I. That one of the subjects of chemical investigation during the present year be :—
The Composition of Land-drainage Water.

II. That the subjects of the lectures by the consulting-chemist in the spring of 1856 be :—
1. The influence of climate on the action of manures.
2. The evaporation of ammonia from the soil, especially when recently manure.
3. A review of the progress of chemical science with reference to agriculture at home and abroad.

CARLISLE MEETING.—Mr. Fisher Hobbs, Vice-Chairman of the General Carlisle Committee, reported the completion of the arrangements at Carlisle in reference to the landing of the cattle and implements, and the approaches to the show-yard. He also reported the acceptance of a tender for the Pavilion dinner, made by Mr. Breach, of the County Hotel at Carlisle.

CHELMSFORD MEETING.—The Council accepted the offer of Mr. Henry Manning, of 251, High Holborn, to undertake such works as the Society may require for its Chelmsford Meeting in 1856, on the same terms as for the Carlisle Meeting this year.

IMPLEMENT JUDGES.—Mr. Fisher Hobbs also reported from the Implement Committee their recommendation of Judges in the Machinery and Implement Department of the Carlisle Show, which recommendation was adopted by the Council.

PARIS SHOW.—Mr. Fisher Hobbs took that opportunity of stating that Mr. Milward having been appointed by the Council at their last monthly meeting the English juror for short-horned and other cattle, and he (Mr. Hobbs) the English juror for sheep and pigs, at the Agricultural Show recently held in Paris, he could not withhold the expression of his admiration at the excellence of that first international gathering of the friends of agriculture from every part of the civilised world, and his conviction that the happiest results would in every point of view result from that meeting, which he believed would form a new era in agricultural progress.

AUTUMN VACATION.—On the motion of Mr. Raymond Barker, seconded by Sir John Villiers Shelley, Bart., M.P., the following resolution was carried unanimously, namely, "That the business of the Society shall be so arranged as to afford the Secretary and Staff their usual vacation between the 20th August and the 20th October."

The Council then adjourned.

Country Meeting business of a Special Council to be held at the Guildhall, Carlisle, on Friday in the week of the show.

LECTURES.—July 11, at Noon, Professor Simonds, "On the Physiological Conditions affecting the quantity and quality of Milk secreted by the Cow under different circumstances of feeding and management." July 18, at Noon, Professor Way, "On the use of Fish as Manure."

Reviews.

The Yester Deep-land Culture. By Henry Stephens. Wm. Blackwood & Son, Edinburgh and London.

There is no better instance of the advantages of that tilth and depth of soil which were referred to last week in the leading section of this Paper than is recorded with perhaps unnecessary detail in this little book. The Marquess of Tweeddale appears at great expense and with the most confident energy in carrying out his plans to have succeeded in entirely renovating and remodelling the estate which is here described :—

"The characteristic distinction of the Yester system of farming is the very substantial and permanent nature of the treatment which the land receives. It does not, like that pursued with the common plough, glaze the surface and increase the adhesiveness of the furrow-slice in strong land in a moist state; it is not the mere scarification which the grubber gives to the surface soil; it is not the tearing into shallow stripes which the ordinary subsoil-ploughs effect in the subsoil;—but it is the laying over of the surface soil in a deep, broad, and broken furrow-slice in immediate precedence of the up-raising of the subsoil from a great depth, as far as, and no farther than, to mix it completely with any desired proportion of the surface soil."

The author of this book will probably be generally considered to have referred to the Yester culture as if it were the development of entirely new principles in agriculture, which it certainly is not, rather than as a striking instance of the results following a more perfect performance of the ordinary operations of husbandry. In the following passage, however, the difference between this and the ordinary farm practice is shown to be one merely of degree :—

"The only object in using the plough, and some other large implements, is the pulverisation of the surface-soil and part of the subsoil. The ordinary and the Yester treatment of either soil both aim to attain that object; but the difference in the two methods consists of this, that the ordinary practice attains only an imperfect and temporary pulverisation of a little more than the surface soil, 7 or 8 inches deep—for subsoiling is very seldom practised—while the Yester plan attains an effectual and durable pulverisation of both surface-soil and subsoil to the depth of 22 inches. Now the state of the subsoil sensibly affects the condition of the upper soil. If it be wet, the upper soil will also be wet; and draining is used to dry both. If it be dried by draining, but left hard, the roots of plants meet with such obstruction in it as to stint the growth of the plants themselves. The Yester deep land culture seems, therefore, on comparison, a more perfect system, inasmuch as the treatment of the surface-soil in connection with the subsoil is concerned with vegetation; whereas the ordinary system generally leaves the subsoil undisturbed beyond thorough draining it.

"The pulverisation of the subsoil, and its mixture with the upper soil, is thus the keystone of the Yester deep land-culture. This system is as simple as it is durable. It cannot be conducted with the implements in common use, but the implements which effect it are as simple as those in common use. It is also a cheap as well as a durable operation. It is, moreover, a valuable as well as a cheap process. Its value may be estimated by the products obtained. Those products exhibit a large increase, and when the previous quality and condition of the surface-soil and subsoil are borne in mind, the increase exceeds the expectation of the most sanguine cultivator."

The drainage, deepening, and pulverisation of the Yester soil have been efficient hitherto almost unaided by the addition of artificial manure, and the increased crops are the result almost wholly of the natural sources of fertility which every soil contains within itself when its substance is thoroughly brought into contact with the air and the rain water. The history here given is the more instructive, therefore, on that high value of mere tillage which Mr. Smith's experience and that of Jethro Tull have already well established. How great the influence of this mere tillage is will be gathered from the following instances :

"The Moss Bents field, which had originally been stiff clay, containing 15¾ imperial acres, was in Oats in 1850, which produced 29¼ bushels the acre. It was bare-fallowed and subsoil-trench ploughed in 1851, and in 1852 produced 61 quarters of good Wheat, and 2½ quarters of light, equal to 38½ bushels, and realised above 11*l.* the acre. The Long Bents field, of sandy clay soil and subsoil, containing 16 acres, was in Oats in 1848, which produced 65 quarters, equal to 37 bushels the acre. In 1849 it was bare-fallowed and subsoil-trench ploughed, and in 1850 it yielded 58 quarters of good Wheat, and 4 quarters of light, realising 10*l.* per acre. In 1851 it was in Grass, and in 1852 the lea was deep ploughed with the Tweeddale plough 15 inches deep. In 1853 it was Oats, which produced 104½ quarters, equal to 61¼ bushels the acre. In 1854 it carried an excellent crop of Turnips, the weight of which was not ascertained.

"The Wa' Tree Park, which was originally of stiff tenacious clay soil and subsoil, containing 19¾ imperial acres, was in Oats in 1850, which yielded 60 quarters, equal to 28¾ bushels the acre. In 1851 6¼ acres were bare fallowed and subsoil-trench ploughed, and 13½ acres subsoil-trench ploughed and made with Turnips. In 1852 the 6¼ acres produced, of Wheat, 28½ quarters of good, and 3½ quarters of light, realising 15*l.* 7*s.* 4*d.* the acre; and the 13½ acres produced Barley, which averaged 31¼ bushels, and realised 6*l.* 0*s.* 10*d.* the acre.

"The Holmes Park, which was originally of very poor stiff tenacious clay soil and subsoil, and containing 24 acres imperial, was in Grass in 1850, and was deep ploughed, 15 inches, with the Tweeddale plough in winter. It carried Oats in 1851, which yielded 108 quarters, equal to 43¼ bushels the acre. In 1852 it was subsoil-trench ploughed 19 inches deep for Turnips, which were a fair crop. In 1853 it was Barley, of which 79½ quarters were good and 18 quarters light, equal to 39 bushels, realised 9*l.* 17*s.* 6*d.* the acre.

"The Kitchen Croft, which was originally of stiff sandy clay soil and subsoil, containing a large number of boulders, and consisting of 8¼ acres imperial, was previously let at 8*l.* 15*s.* for the field, and it was thorough drained in the winter of 1848. In 1849 it was bare-fallowed and subsoil-trench ploughed 19 inches deep. In 1850 it carried Wheat, of which 24 quarters were good, 5¼ quarters light, equal to 34½ bushels, and realising 8*l.* 8*s.* 8*d.* the acre. In 1851 it was Turnips, which were good. In 1852, Barley, of which 40 quarters were good and 3¼ quarters light, equal to 53 bushels the acre, and was sold for 10*l.* 12*s.* 10*d.* the acre.

"The land on Broadwoodside farm was lined after being thorough-drained and subsoil-trench ploughed. At first the quantity used was 48 bolls, or 288 bushels, to the imperial acre; but it was soon found that 30 bolls, or 144 bushels, had an equally good effect upon the land, and that was the quantity which the farm mostly received.

"The land on Danskine farm was not subsoil-trench ploughed at all, and only deep ploughed with the Tweeddale plough, with three horses yoked abreast in the compensation swing-trees, to the depth of 14 or 15 inches, as the subsoil was of such an open nature as not to require further pulverisation. Sandy Oats were the kind first used on this farm, but were given up for the Hopetoun variety, in consequence of the yield being greater and the straw better on the improved soil. The poor clay soil of Danskine was covered with a black vegetable matter, obtained from the bottom of the Loch of Danskine after the water had been drained off. This vegetable substance was laid on the land, at the rate of 180 cubic yards per imperial acre, upon the stubble in autumn, cut small with the spade, spread, and ploughed in with a 14-inch furrow with three horses in the Tweeddale plough. At first the quantity laid on was 120 cubic yards the acre, but latterly it was increased to 180. Such a large quantity of matter literally covers the surface when spread over it, that its black colour imparts a darkened hue to the soil after incorporation with it. The cost of digging this matter—lifting it out of the bog by means of a railroad and steam-power, carting it on the land, spreading it, with tear and wear of machinery, and interest on cost of machinery—is 7*d.* per cubic yard; so that the cost of manuring an imperial acre with it was from 3*l.* 10*s.* to 5*l.* 5*s.*"

The book records fully both the natural conditions as to climate, soil, and subsoil of the experiment and the means employed in the course of it—thorough drainage, deep ploughing, subsoil-trench ploughing, and the course of farming now pursued. The implements used are also described in full detail. And the whole history is given with such completeness that any of our readers will be able both to judge of the propriety of following the Marquess of Tweeddale's example, and to set about the execution of his invention as soon as he has proved it.

We add a paragraph upon the other services to agriculture for which we are indebted to the owner of the Yester farms.

"The Marquess has not confined his exertions to the amendment of the surface soil and subsoil only. A finer class of plants—one higher bred, if the phrase may be allowed in reference to plants—seems requisite to occupy an amended condition of the surface soil and subsoil. Accordingly, his lordship has directed his attention to effecting such a change on the constitutional habits of the cultivated plants as to suit their growing existence to the altered and emended condition of the surface soil and subsoil. From its very terms such an experimental improvement does not seem an easy task to undertake; but the results show, as far as they have been completed, that his lordship has successfully accomplished it.

"The first cultivated plant that has been subjected to experimental improvement by his lordship is the Turnip. Distinct species of Turnips are familiarly spoken of by farmers throughout the country, and each of them possesses such marked characters as to render a confusion of their identity most improbable. No farmer confounds a White Globe Turnip with any of the yellow kinds, nor either with the Swede—regarding the last plant as a Turnip in the common acceptation of the term. But, nevertheless, such a number of varieties have had their origin from each of the above species, that when one of the species is referred to in a district its exact variety is not understood alike by a resident and a stranger. It seems impossible that such an identity of character in a variety should be established as to be generally understood; for one variety may grow better in one district than in another, and one variety better than another in the same district, and in consequence the better varieties obtain the preference, and are retained for culture. But, nevertheless, one variety must be more valuable as food than another from the same species, in whatever district, because two or more best things cannot spring from the same source; and hence the variety that possesses the largest proportion of valuable properties for feeding in one district, will possess the same in another district, provided the same conditions of soil, culture, and skill are used in its growth.

"With reasonings such as these the Marquess first took the Purple-top Yellow Turnip to experiment upon, with the view of rendering it of as fine a form, as high a specific gravity, and of as valuable feeding property as it was capable of attaining. The experiment has already proceeded so far as to secure the form; the feeding property has nearly been reached; and the highest specific gravity has yet to be attained. The form is perfect for a Turnip, the bulb being a beautiful oblate spheroid; the colours are distinctly marked, dark purple on the upper half, and buff-yellow on the lower. The root is long and small; the skin thin, fine, and oily; the shaw small at the neck, and set upon the uppermost part of the bulb; the leaves expanding, to receive the influence of the atmosphere. The growth of the plant is continued and rapid. Its constitution is strong, and general health vigorous. Its specific gravity has increased largely. When the experiments began it was 820, taking water at its usual standard of 1000. It has now acquired a specific gravity of 970, and is expected to go on increasing till it reach, or it may be exceed, that of the Swede. By selecting fine bulbs, indicating large size and heavy weight, and transplanting them in a favourable situation for growth, and selecting the best grown and best matured pods of the seed, it is presumed that their properties may be propagated and extended indefinitely.

"An enlarged bulb and increased weight over an acre insures a heavier crop; and hence that of 1854, in Steel's Walls field, Yester Mains, has reached 50 single horse cart-loads of 13 cwt. each; that is, 32½ tons to the imperial acre. Mr. Gibb, of Cupar-Fife, sowed 5 falls Scotch in 1854, with seed of the Purple-top Yellow Turnip raised by the Marquess, and the return obtained was about 50 double-horse cart-loads at from 15¼ to 15¾ cwt. each, which is about 39 tons to the imperial acre; besides two double-horse cart-loads of Swedes, whose seed had been sown along with about 1 lb. of that of the yellow Turnips, to make the small quantity of the latter go farther over the ground, and the Swedes plants were thinned out, except in the spaces which the yellow did not fill up. Both these are uncommonly large crops of Turnips.

"Similar treatment of the Swede and of the White Globe Turnip as has been given to the Purple-top Yellow, might no doubt produce as striking results in their case as in that which has just been related."

But we must not at present pursue the matter further. Mr. Stephens deserves our thanks for laying in such full detail the particulars of a very interesting agricultural experiment before the world.

Miscellaneous.

Imperial Present to the Manchester and Liverpool Agricultural Society.—The committee of management of the Manchester and Liverpool Agricultural Society lately presented to the Emperor of the French a fine Cheshire cheese. On Tuesday last, Mr. T. B. Ryder, the society's secretary, received, through the French Consul in this town, a handsome gold medal for the committee from the Emperor, which was accompanied by a letter of acknowledgment and thanks from General Rolin addressed to Mr. White, Mayor of Warington, and to Mr. Ryder, as the parties who presented the cheese.

Calendar of Operations.

JULY.

WEST SUSSEX, *July* 4.—We have had very little rain through June, and the land is now very dry; but most crops look well on the rich low lands. Wheat hardly ever looked better. It is now in full bloom, and the weather suits it well. There has now and then been slight signs of rust, but not to any extent, and there are a few black ears (*Uredo segetum*), but not so many as last year. But it is the common belief that a year that produces them is a good yielding one. On the higher lands the crop is not so good; the frost has thrown it out of ground too much, and there have been cases where it was not thought fit to leave it, it was so thin. I see Messrs. Hardy disapprove of doing away with a crop though it may be thin, and adduce their success in thin sowing to prove that it is unwise. But I think they omit to observe that thin seeding is one thing, and a crop thinned by disease is another. Suppose one-half is killed by wireworm, frost, or any other cause, is it not likely that the other half is hurt? And the consequence is, that though there may be as many plants left per acre as they think sufficient, they are all sickly and are wisely done away with. This is a point that I think the warm advocates on both sides ought to keep in view. And perhaps the thin seeders may be nearest to the truth, because as they put in little there is no struggle between the plants at first; they have each space to spread their roots and get food to make them strong and of a good constitution. Whereas, when there is too much seed put in, the plants are not able to get proper nourishment at first, and so grow up weaker, and when the day of trial comes, while the one stands strong, defying all attacks, the other gets cut down. And now it is that victory is claimed by each party. The thin seeder says, "I had a good crop and plants enough from 2½ pecks of seed." And the thick seeder says, "How can that be? I had not enough from 2½ bushels." One says he means to use less seed; the other, that he must use more! In connection with this I will notice the subject of top-dressing Wheat with guano, &c., in the spring. Every experience that I have had tends to prove that this is only the second best method of using it. My decided impression is, that it ought to be applied at the time of sowing. We have this year used it at both periods, but that at time of sowing had such an effect as can be seen so far as the field is visible, while that used in spring has had comparatively little effect. The spring was dry, which was against it; but that may often happen, and so it is best not to trust to it when the other is certain, and to get a healthy plant is of course half the battle. Thinking to render a sickly plant strong by giving it strong food is like applying the same doctrine to a consumptive person, if you put it within his reach he cannot take it; but if the constitution is all right, he can avail himself of all good cheer that is put in his way: so with the plant; let it be healthy and strong in its early days, and it will spread its root with vigour and lay hold of everything that can be of use to it, and will thrive where others would starve. Barley is coming on well, and is nearly all in ear; in some places where the land was trod in wet weather by sheep, and ploughed up lumpy, it has not come up regularly, but such are but rare instances, as the winter was so dry. Oats and Tares are good. Turnips have in many places been carried off by the fly, and some have sown three times; but we repeat our experience that where a liberal supply of good superphosphate has been used, the fly will do little harm: but perhaps, generally speaking, the less of what are called Turnip manures, Mangold manures, and other specialities are used, the fewer will be the disappointments. We have tried some Wheat manure, as well as some flesh manure called animal guano, against good Peruvian guano, the same value of each on Wheat; but it needs no figures to tell which is best, that may be seen at five miles distance; and I fear it will be long before we have a manure equal to guano at half its price. Peas are good, and show no signs of blight, and will soon be ripe. Beans have not yet shown blight, but are a short crop—they have flowered well; this part of the country does not seem well adapted for them. We are now in the middle of hay-making, for which the weather is good; the crop is very light: the price must be high next year, or some substitute must be found. Turnip sowing is finished, except where a little may be put in after Tares mown, and the first sowings are now fit for the hoe. Mangold is hoed, and looks well, but the land is so dry about it, that it must soon come to a stand-still if we have no rain. Feed is short, fast burning up. *G. S.*

Notices to Correspondents.

CARCASE WEIGHT OF CATTLE. The difference between the live and dead weight of cattle varies exceedingly, according to the breed and condition of the animal; from 9 to 13 out of 20 of the living animal may be meat.

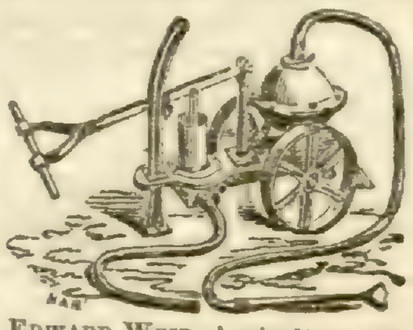
MUSH: *G. A. B.* says, add half a tea-spoonful of salt to half a pint of Indian corn meal, gradually mix with a quart of cold milk or water, boil for 10 or 12 minutes, eat with sugar, molasses, or jam. Another recipe for porridge: Of a spoonful each of Indian meal and Wheat flour, make thin batter, pour it into a quart of boiling milk and water, salt to taste, boil 10 minutes.

THE FARMER'S RAIN GAUGE: *C R Y.* You must understand that the weight of a cubic inch of water forms the basis of every calculation. At 62° (so says Dr. Fownes, "Chemical Elements,") it is taken at 252.45 grains; but to avoid any decimal fractions at varying degrees of temperature, 252½ grs. 252.5 are assumed as a standard. A square tin funnel, precisely 8 inches across, painted, is to be chosen in place of a round conical one, because its square being 64 superficial inches, is certain at all times. The tube is passed through the neck of the receiver, which may be a pint or small quart wide-mouth bottle, made firm, and secured by a quantity of sand in a deep garden pot, sunk to its rim in an open part of the ground. The rain water, be its quantity more or less, ought to be measured once in the 24 hours, or oftener, in the interval between heavy showers; and this can be done by employing the glass measures that are sold by dispensing chemists, containing from one to eight fluid ounces; because a cubic inch of rain water occupies almost precisely four fluid drachms (half an ounce of the drachm spaces marked on the glass. The 26 ounces alluded to fell on the 13th of May, and this volume divided decimally by 64 gives 0 in. 40 cents., or a mere trifle more, as the product of 13 measured inches of rain distributed over a square surface of ground comprising 64 square inches.

To Constant Reader. Farm implements and manures for use experimentally are toll free.

WHEAT: *Minutus.* Mr. Eames, of Beauly Farm, Lyndhurst, Hants, may possibly be able to supply you with Morton's Red Straw White Wheat.

WEIR'S IRRIGATORS, LIQUID MANURE PUMPS, FIRE AND GARDEN ENGINES.



	£	s.	d.
Single Cylinder (as engraving) ...	8	8	0
Double Cylinder ...	10	10	0
Horse power size ...	16	16	0

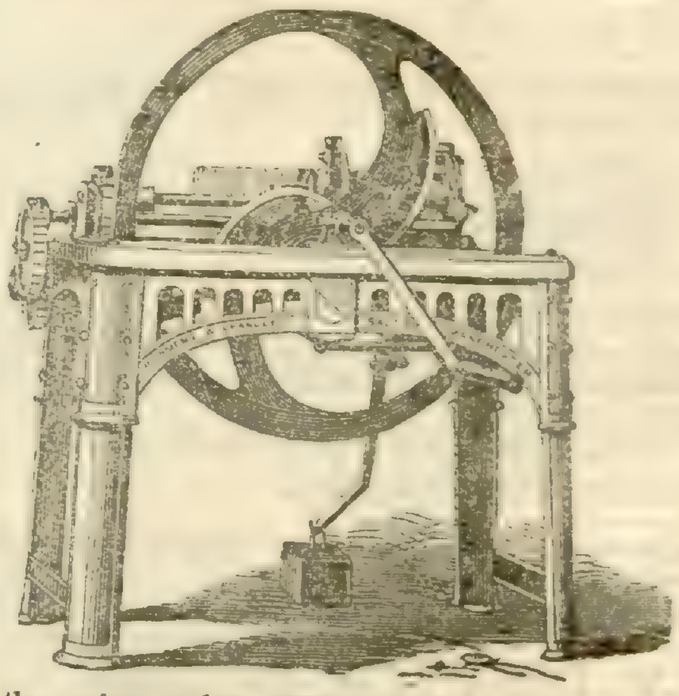
Exclusive of Suction and Delivery Pipes.

Illustrated Catalogues free, per post.

Terms Cash on Delivery.

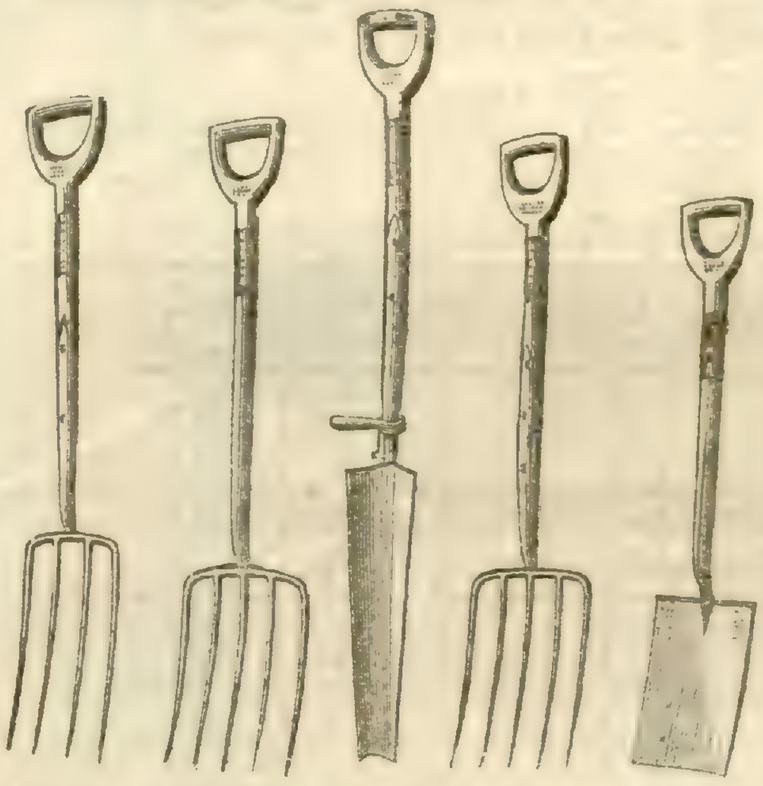
EDWARD WEIR, Agricultural Engineer, 16, Bath Place, New Road, London, removed from Oxford Street.

RICHMOND & CHANDLER'S PATENT CHAFF-CUTTING MACHINE.



All the various modern Implements of Agriculture manufactured on the most scientific and improved principles, suitable for home use and exportation.—Address, RICHMOND & CHANDLER, Salford, Manchester; and 32, South John Street, Liverpool.

☞ CATALOGUES GRATIS.



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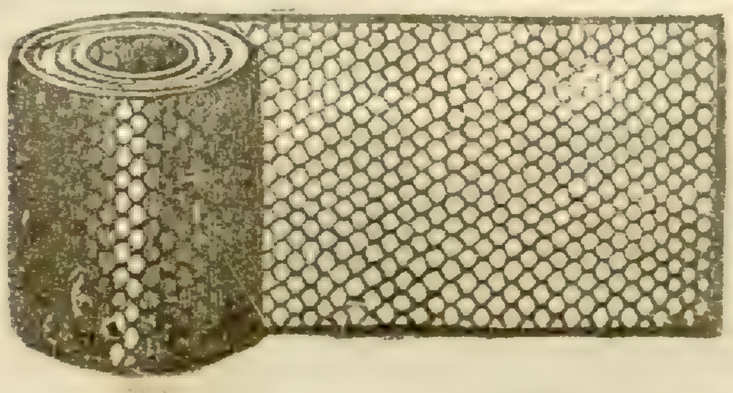
MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

GALVANISED WIRE GAME NETTING.—7*d.* PER YARD, 2 FEET WIDE.



		Galvanised.	Japanned iron.
2-inch mesh, light, 24 inches wide	...	7*d.* per yd.	5*d.* per yd.
2-inch " strong "	...	9 "	6½ "
2-inch " extra strong "	...	12 "	9 "
1⅝-inch " light "	...	8 "	6 "
1⅝-inch " strong "	...	10 "	8 "
1⅝-inch " extra strong "	...	14 "	11 "

All the above can be made any width at proportionate prices. If the upper half is a coarse mesh, it will reduce the prices one-fourth. Galvanised Sparrow-proof Netting for Pheasantries, 3*d.* per square foot. Patterns forwarded post free.

Manufactured by BARNARD & BISHOP, Market Place, Norwich, and delivered free of expense in London, Peterborough, Hull, or Newcastle.

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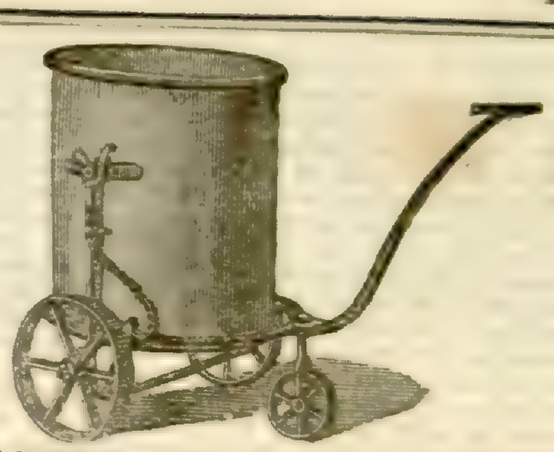
B. SAMUELSON, Britannia Works, Banbury, Oxon.

The above may also be procured at the principal Agricultural Implement Depôts in London, and of all respectable Ironmongers and Seedsmen in the country.



WARNER'S SWING WATER-BARROW (TO HOLD THIRTY GALLONS)

Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l.* 3*s.*

Manufactured by

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(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1	holds	10	gallons,	throws	30	feet high	...	£4 10
No. 2	"	15	"	"	45	"	...	5 10
No. 3	"	28	"	"	45	"	...	6 18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10	holds	8	gallons,	throws	25	feet high	...	£2 15
No. 13	"	12	"	"	30	"	...	3 5
No. 11	"	16	"	"	40	"	...	4 0
No. 12	"	24	"	"	45	"	...	5 0
No. 14	"	30	"	"	45	"	...	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

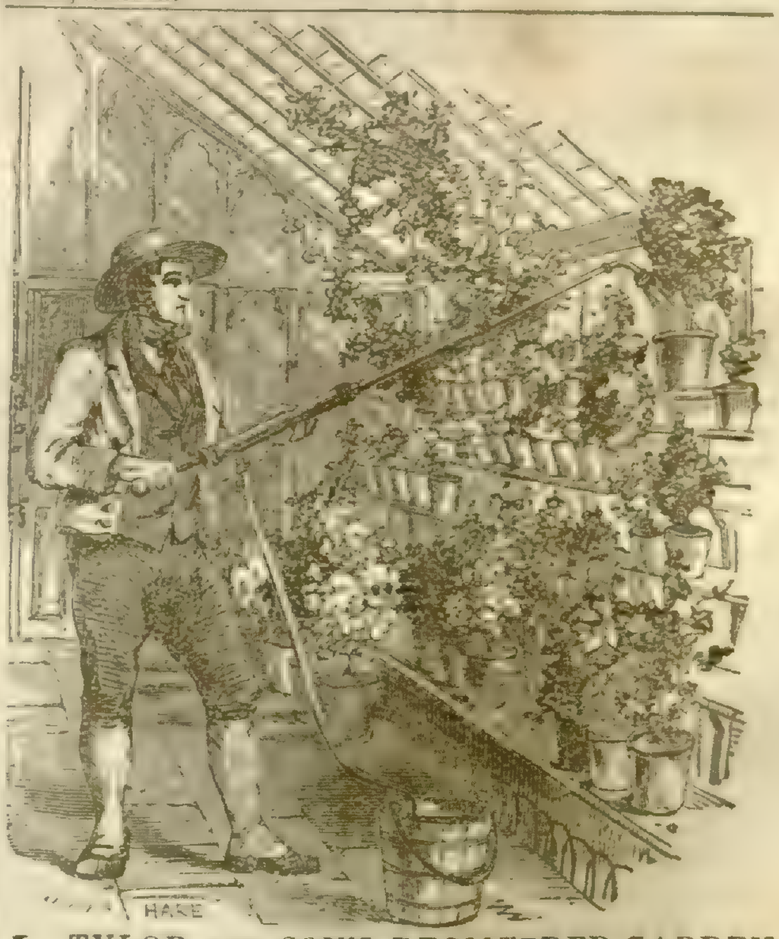
No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1¼ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.



J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the nobility, gentry, and clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything as the kind hitherto brought before the public notice.

Lists of colours, prices, together with a copy of the testimonials, will be sent on application to WALTER CARSON & SON, 9, Great Winchester Street, Old Broad Street, Royal Exchange, London.

No Agents. All orders are particularly requested to be sent direct.

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OAT BRUISERS, Chaff-cutters, Ploughs, Threshing Machines, Flour Mill Carts, Corn Dressing do., Horse and Steam Machinery put up, &c. Book on Feeding, 1s.

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HARVEY'S CELEBRATED COW DRINKS, 1s. each, have been used with great success. Plain directions are given with each Drink for the treatment of most diseases incidental to Cows, for which they will be found a safe and effectual remedy. One Drink given at the commencement of the Tick, or Feet and Mouth Distemper, will perfectly eradicate it in a few days.—Compounded by R. HARVEY, Veterinary Surgeon, Macclesfield, Cheshire. Sold by all Medicine Vendors Wholesale Agents, BARCLAY & SONS, and MARSDEN & SONS, London.

IMPORTANT TO GROWERS OF ROSES.

NEWLY-INVENTED APHIS BRUSH, or GREEN FLY DESTROYER.—The attention of Florists is particularly called to this Cheap and Ingenious Instrument, invented by the late E. S. BULL, of Colchester, which, in a very simple and easy manner, instantly cleanses the Rose from that destructive insect the Green-fly (or Aphis), without causing the slightest injury to the bud or foliage.

Price 2s. 6d. each, or free by post, 4s.

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JOSLIN AND SONS,
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Retailed by all the principal Ironmongers.
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PAGE AND CO.'S
COMPOSITION FOR THE DESTRUCTION OF BLIGHT

UPON THE

Hop, Roses, Wall-Fruit Trees, Cucumbers, Melons, Vines, and Stove and Greenhouse Plants.

B. PAGE AND CO. having erected additional Works, are now ready to supply any quantity of their valuable Composition, approved and in use by all the leading Gardeners of the United Kingdom.

Extra Strong, 4s. per gallon, sufficient to make four (Jars and Barrels extra).
Ten gallons and upwards Carriage Free to London.

The next season's crop of Peaches, &c., will much depend upon the Aphis being destroyed, which is now severely attacking them.

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Respectfully inform the Trade, that in order to meet the present depression, they have made a very considerable reduction in the prices of polished Plate Glass for glazing purposes.

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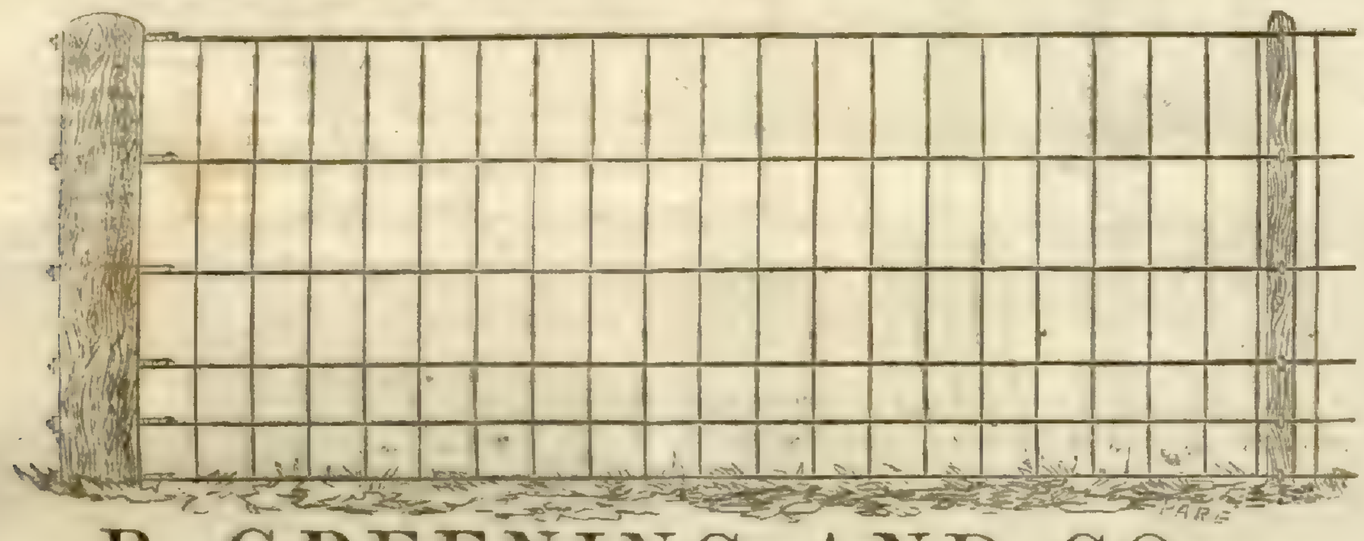
POCKET NOOK, July 7, 1855.

BY HER MAJESTY'S ROYAL LETTERS PATENT.



B. GREENING AND CO.

WILL exhibit their Patent Wire Fencing, combined Washing Machine Mangle and Churn, Premium Wrought Iron Gates, and specimens of their superior Manufactures in Iron and Wire generally, at the following Agricultural Shows in 1855:—Royal Agricultural Society, at Carlisle, week commencing July 23, stand No. 6; Yorkshire, at Malton, 1st and 2d of August; North Lincolnshire, at Boston, August 28: Cheshire Agricultural Society; Manchester and Liverpool, St. Helen's September 6; Bury and Radcliffe, at Bury, about September 10. Others not yet decided upon.

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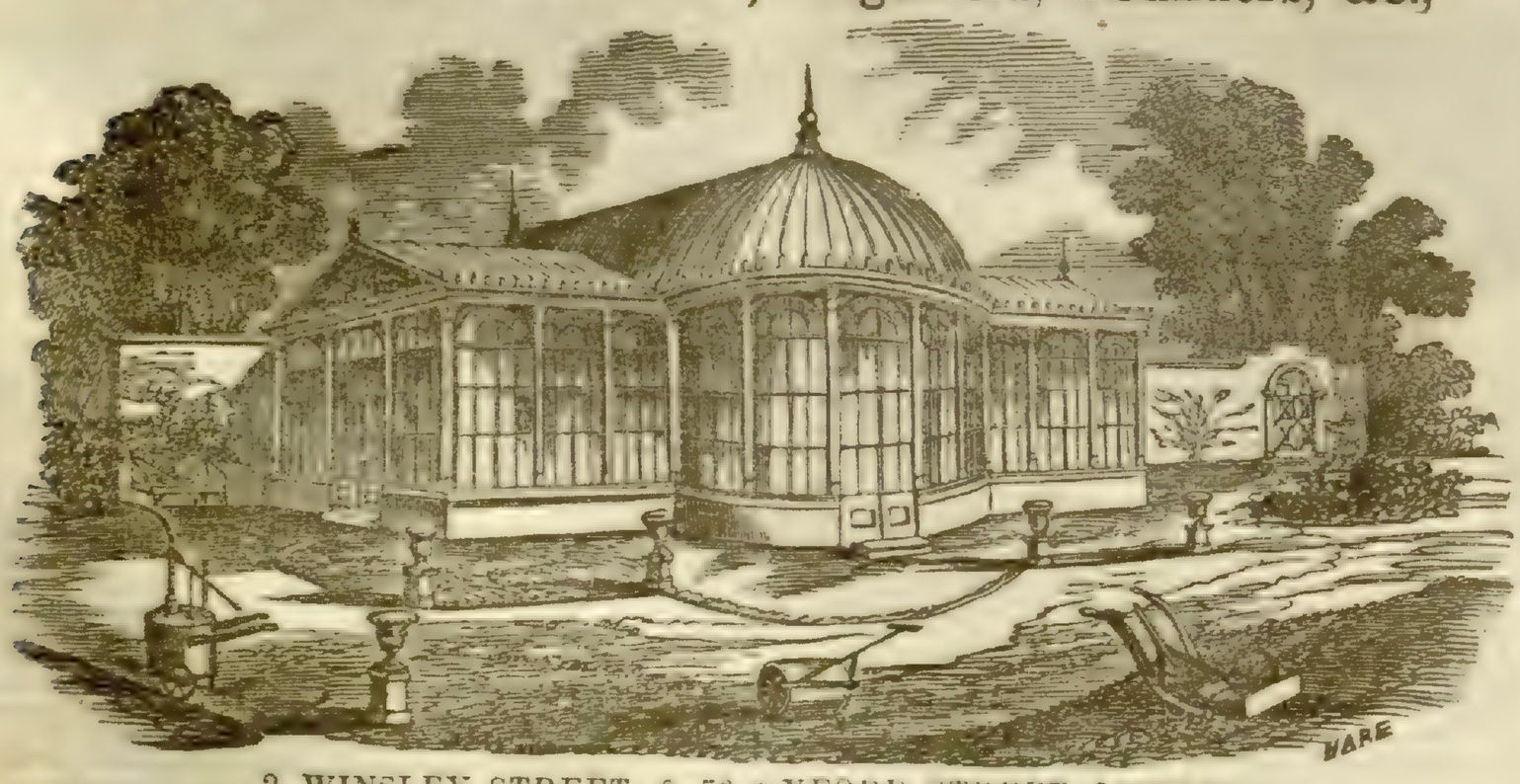

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NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, glasses, thermometer, &c., price 35s., securely packed for the country.

This unique hive has met with universal commendation, and may be worked with safety, humanity, and profit, by the most timid; its arrangements are so perfect, that the honey may be taken at any time of the gathering season without at all injuring the bees.

Early applications, addressed to GEO. NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention. Their newly arranged Catalogue of their improved Beehives, with Drawings and Prices, sent on receipt of two stamps.

Agents:—Manchester, HALL & WILSON, 50, King Street; Liverpool, JAMES CUTHBERT, 12, Clayton Square; Chester, F. & A. DICKSON & SONS, 106, Eastgate Street; Glasgow, ARCHER & M'ASLAN, 186, Trongate Street; Dublin, J. EDMUNDSON & Co., 61, Dame Street.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, KING'S ROAD, CHELSEA. Printed Price Lists sent on application.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

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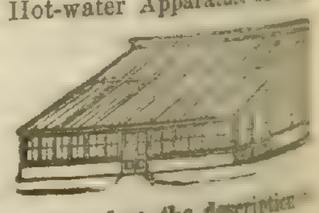
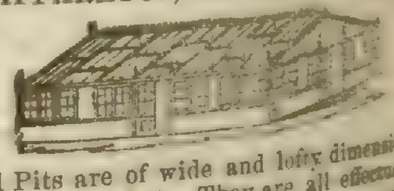
HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits, affording both top and bottom heat, is in constant operation and particularly worthy of attention.



Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3s. 8d. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings, &c. Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

BLACK JAPAN VARNISH.—This article will be found from its durability and cheapness of the greatest utility for Painting Hurdles, Wire-work, Palings, Gates, Fences, &c., and out-door work of every description, whether of Wood or Iron. Its value has been proved by the test of time. It should be well stirred up before using and applied cold. This Varnish will retain its quality for any length of time, provided the cask be kept closed.

May be obtained through any ironmonger; or of JOHN WARREN & SONS, 8, Jewin Crescent, London.

N.B. Sold in casks containing 14 or 7 gallons, at 2s. per gallon. Casks (which cannot be returned), 5s. and 3s. each.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.

In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12s. 0d.
7 „ 5, — 7½ „ 5½ }	0 14 0
8 „ 6, — 8½ „ 6½ }	
9 „ 7, — 9½ „ 7½, 10 by 6 }	0 16 0
10 „ 7, 10 by 8 }	

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18s. per 100 feet. If cut to order not exceeding 40 inches long.

16 oz. from 2½d. to 3½d. | 21 oz. from 3½d. to 4½d.

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Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½d. per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand.

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¾ of an inch thick	£1 17s. 6d. per case of	50
⅞ „	2 1 3 „	60
15/16 „	1 17 6 „	60
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9½ „ 7½	„ 10	„ 8	...	...	13	6
10½ „ 8½	„ 11	„ 9	...	...	14	0
12 „ 9	„ 13	„ 9	...	...	14	0
10 „ 10	„ 10½	„ 10½	...	...	14	0
11 „ 10	„ 11½	„ 10½	...	...	14	0
11 „ 11	„ 11½	„ 11½	...	...	14	0
12 „ 11	„ 12½	„ 11½	...	...	14	0
13 „ 11	„ 13½	„ 11½	...	...	14	0
13 „ 12	„ 13½	„ 12½	...	...	16	0
13½ „ 13½	„ 14½	„ 13½	...	...	16	0
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HOW TO KILL RATS, MICE, AND MOLES BY HUNDREDS.—A Method will be forwarded with instructions for 30 postage stamps, which will destroy the above vermin quickly and without trouble. 1000 acres may be cleared for a few shillings.

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BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. 27, Vincent Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, July 7, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 28.—1855.] SATURDAY, JULY 14. {Price Fivepence. Stamped Edition, 6d.

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WATFORD HORTICULTURAL AND FLORICULTURAL SOCIETY.—The first grand Show of the above Society will be held by permission of the Earl of Essex, in Cassiobury Park, near Watford, on WEDNESDAY, the 18th day of July; open to all Exhibitors. An efficient band will be in attendance. Schedules are now ready, and can be had on application to the Secretary, Mr. J. Taylor.

By order of the Committee, John Pearce Taylor.

THE NORTHERN COUNTIES CARNATION AND PICCOTEE SOCIETY'S EXHIBITION will, by the kind permission of the Council, be held in the New Exhibition House at the BOTANICAL GARDENS, MANCHESTER, on FRIDAY, the 17th August next, when Three Silver Cups, value five guineas each, and 50*l.* in money will be awarded for collections in stands and single specimens in classes of CARNATIONS, PICCOTEES, ROSES, HOLLYHOCKS, and PANSIES. For Schedules and particulars apply to Mr. J. S. Holland, Hon. Sec. to the Northern Counties Carnation and Piccotee Society, Bradshaw Gardens, Middleton, near Manchester; or to Mr. J. Shaw, Secretary to the Botanical and Horticultural Society, Manchester.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—John Kent returns his most grateful thanks to those kind friends who so liberally supported him at the last election, and humbly begs the continuance of their support at the Election in January next.

GARDENERS' BENEVOLENT INSTITUTION.—The Friends of GEORGE KIDD, a candidate for the Pension of the GARDENERS' BENEVOLENT INSTITUTION, beg to return their best thanks to those Subscribers who kindly assisted him with their votes and interest at the election which took place yesterday. Although not successful, their assistance has placed him in such a position on the Poll, that with renewed exertions at the next election his friends confidently expect he will succeed; they therefore must again request the aid of all those who have heretofore so kindly given their support. Mr. Thomas Jackson, Nurseryman, of Kingston, and Mr. Thomas Gaines, Nurseryman, of Battersea, who have known George Kidd many years as a most deserving man, will be happy to answer any inquiries, and, at the next election, to receive Proxies on his behalf.

Kingston-upon-Thames, July 5, 1855.

WILLIAM BARRATT, Landscape Gardener, Wakefield.

*** Plans and Estimates furnished.

JOHN HARRISON, Nurseryman, Seedsman, Florist, Landscape Gardener, &c.

Plans and Estimates furnished; Experienced Gardeners recommended; also several Young Men in the Nursery waiting for Under Gardeners' Situations.—Darlington, July 14.

GEORGE TAYLOR, Jun., Choice Fruit and Vegetable Salesman, St. John's Market, Liverpool.

Contractor and Purchaser of Choice Garden Produce. Salesman on Commission.

Terms, Cash.

Forward as above.

WHITE LISBON ONION SEED.—Large buyers can be supplied with White Lisbon Onion Seed in quantity.—Apply to Mr. Henry Clarke, Seed Merchant, 39, King Street, Covent Garden.

ROSES.

JAMES MITCHELL begs to announce that his unrivalled collection of ROSES is now in fine bloom.

Piltdown Nurseries, Maresfield, Sussex, July 14.

ROSES.

GEORGE CLARKE begs to announce that his fine collection is now in full bloom, and will continue so till autumn.—Streatham Place Nursery, Brixton Hill, near London.

WILLIAM WOOD AND SON'S COLLECTION OF ROSES is now coming into fine bloom, and will continue in perfection during the Rose season.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ROSES.

A. PAUL AND SON invite inspection of the Collection of ROSES at the Cheshunt Nurseries, which is just coming into Bloom, and will continue to offer new objects of interest from the present time till the end of October. The best means of reaching the Nurseries is by Eastern Counties Rail to Cheshunt or Waltham Stations.

Cheshunt Nurseries (13 miles N.E. of London), July 14.

ROSES.

H. LANE AND SON, The Nurseries, Great Berkhampstead, have the pleasure to inform their patrons that their extensive Collection is now in bloom, and will remain so for some time. Their Coniferæ, Rhododendrons, and a general collection of Trees and Shrubs, also Fruit Trees (especially in pots, which can now be seen in full bearing) are remarkably healthy and well worthy the attention of planters. The Nurseries are within a few minutes' walk of the Railway Station on the London and North Western Railway, and an Omnibus from the station passes the gates.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS should be sown immediately after the hay is carried.

These Seeds consist of Perennial Clovers *and* fine Grasses *for improving the bottom.* Price 9*d.* per lb., or 80*s.* per cwt. Eight or 12 lbs. per acre will be sufficient, and will produce a great increase in the produce.—Sutton & Sons, Reading, Berks.

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SUTTON'S PURPLE-TOP YELLOW HYBRID, SUTTON'S GREEN-TOP YELLOW HYBRID AND ORANGE JELLY TURNIP.—Prices, &c., will be forwarded, Post-free, on application (stating quantity required), by Sutton & Sons, Seed Growers, Reading.

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SUTTON'S EARLY SIX-WEEKS TURNIP.—*Good New Seed* 1*s. per lb., or* 6*s. p. gallon,* 45*s. per bush.* Carriage free except small parcels.

SUTTON & SONS, Seed Growers, Reading.

TURNIP SEED OF PURE SELECTED STOCKS.

FOR

BASS AND BROWN'S Advertisement of present prices, see *Gardeners' Chronicle* of April 28th, and May 5th and 12th. Reduced prices for large quantities.

Errata.—For "Laing's Purple-top Swedes, 1*s.* per lb.," *read* "1*s.* 9*d.* per lb." the same price of the other three Swedes.

To the Trade.—Prices will be supplied on application.

Seed Establishment, Sudbury, Suffolk.

ENGLISH CROWN RAPE, OR COLE SEED.

CHARLES SHARPE AND CO. beg to acquaint the Trade that they can supply any quantity of the above; prices and samples forwarded on application.

Nursery and Seed Establishment, Sleaford, July 14.

CABBAGE SEED.

CATTELL'S DWARF BARNES, and CATTELL'S DWARF RELIANCE may be had by post for 12 penny stamps per packet, the former containing one ounce and the after half an ounce.—Nurseries, Westerham, Kent.

CABBAGE PLANTS.

THOMAS WELLAND is now selling fine Drumhead for Cattle at 3*s.* 3*d.* per 1000, or 7000 for 21*s.*; also a good variety of Garden Plants for the season; packed and sent free to the station.—Surrey Gardens, near Godalming, Surrey.

SHILLING'S QUEEN CABBAGE, true as originally sent out, will not run to seed before cabbaging. Sow the third week of this month for spring use. 1*s.* per oz., free per post.—Stephen Shilling, North Warnborough Nursery, near Odiham, Hants.—July 14.

VINES FROM EYES.—Fine Plants of BLACK HAMBURGH [illegible] leading sorts in Cultivation are now in a suffic[illegible] to pack. Sorts and price upon application.—Royal Nursery, Stratford-on-Avon. July 14.

GRAPE VINES FROM EYES.—This being a favourable season for planting Vines, and thereby saving a year, the undersigned has a large stock of all the leading kinds in strong plants, exposed to greenhouse temperature, which consequently enables them to be sent to any part of the country with perfect safety.—R. Glendinning, Chiswick Nursery, London.

AZALEAS.

H. LANE AND SON, the Nurseries, Great Berkhampstead, have a very fine large stock of Indian Azaleas, consisting of Optima, Exquisita Perryana, and other leading varieties, at from 12*s.*, 15*s.*, 18*s.*, 24*s.*, and upwards, per dozen. Also a fine stock of young specimens, Catalogues of which may be had on application.

AZALEAS AND ERICAS.

W. J. EPPS has much pleasure in offering the following fine, bushy, well-grown plants, and of the choicest and best varieties, in large 48 and 32-size pots.

AZALEAS 18*s.* per dozen; 5*l.* per 100.
ERICAS 12*s.* and 18*s.* per dozen; 4*l.* and 5*l.* per 100.

These will make very pretty specimens for the ensuing season; all orders to be accompanied with a remittance from unknown correspondents.—Maidstone, July 14.

CALCEOLARIA AND CINERARIA.

MESSRS. E. G. HENDERSON AND SON beg to announce that the above FLOWER SEEDS, saved from the choicest varieties, may be had in packets at 2*s.* 6*d.* and 5*s.* each; the finest quality of CALCEOLARIA is only offered at 5*s.*; second quality, 2*s.* 6*d.*

This Season's CATALOGUE will be forwarded on application, and a Beautiful Coloured Plate of nine new Flowers will be sent on receipt of 12 postage stamps.

Wellington Nursery, St. John's Wood, July 14.

CALCEOLARIA SEED.

R. PARKER has now ready for sending out Seed which he can recommend with the greatest confidence, it having been saved from flowers of the finest form and most beautiful markings, in packets at 1*s.* 6*d.* and 2*s.* 6*d.* each. Also choice CINERARIA seed saved from the finest named varieties, at 1*s.* 6*d.* and 2*s.* 6*d.* per packet. A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, London.

CALCEOLARIA AND CINERARIA SEEDS.

GEORGE CLARKE has again the pleasure of offering seed of his unrivalled collection of CALCEOLARIAS. From their well known merit, and many testimonials received in their favour, little need be said in their praise. Many of them can still be seen in bloom at the Nursery. Great care has been bestowed in the saving, so that none but first-rate flowers can be expected. Packets, price 2*s.* 6*d.* and 5*s* each.

Also CINERARIA, saved from none but the finest flowers and, like the Calceolaria, is warranted to give satisfaction Packets, price 2*s.* 6*d.*, payable in postage stamps or otherwise.

Streatham Place Nursery, Brixton Hill, near London.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks at 5*s.*; 12 varieties, 2*s.* 6*d.*; and from good double sorts, 1*s.*

Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s.* per packet; separate, 2*s.* Fine Quilled African Marigolds, 6*d.* per packet.—Saffron Walden Nurseries.

HOLLYHOCK SEED.

A. PAUL AND SON have ready for immediate sowing a fine lot of HOLLYHOCK SEED saved from their choicest varieties which have obtained many of the leading prizes during the last three years:—

	s.	d.
1st selection, saved from 25 varieties, per packet ...	5	0
2d do. " 12 " " ...	2	6
Good Mixtures	1	0

Also, price 1*s.*, AN HOUR WITH THE HOLLYHOCK.

N.B. Free by post, and payment received in postage stamps.

Nurseries, Cheshunt, Herts.

MESSRS. DOWNIE AND LAIRD beg to intimate that their New PHLOX COUNTESS OF HOME is now in full flower at their Nursery, and may be seen any day, Sunday excepted. A list of those Nurserymen that can supply Plants of it will appear in a future Advertisement.

Westcoates Nursery, Edinburgh, July 14.

WILLIAM KNIGHT, Florist, &c., begs to offer the following Superb FLOWER SEEDS, saved from the best varieties, post free:—

	Per packet—s.	d.
Calceolaria, from the best spotted varieties	1	0
Cineraria, from the newest and best varieties	1	0
Primula sinensis, from choice fimbriated varieties ...	1	0
Double Daisy, from 60 of the newest varieties	0	6
Pansy, from 100 of the best show flowers	1	0
Antirrhinum, from 100 striped and spotted varieties ...	0	6

67, High Street, Battle, Sussex.

EMPEROR NAPOLEON—A New Scarlet Geranium.

JOHN BUTCHER is now sending out the above splendid Geranium; a seedling raised by himself was exhibited June 13th at the Royal Botanic Gardens, Regent's Park, London. See *Gardeners' Chronicle* June 16. Good Plants for immediate Bedding, 18*s.* per doz.; extra size, 2*s.* 6*d.* London agents, Messrs. Dawe, Cottrell, & Benham.

Royal Nursery, Stratford-on-Avon.—July 14.

TO AMATEURS IN CONIFERÆ.

MR. BARRON, of Elvaston Castle, can supply a few strong PLANTS of PICEA NOBILIS, upwards of three years old, which have never been in pots, hence the roots are what they should be. The only seedling Plants (of this the most beautiful of all Firs) that have ever been raised since its first introduction to Europe. They will be sent out in the middle of September, the best plants to the earliest applicants. The largest size 63*s.*, and the next 42*s.* Notice will be given before the Plants are sent out, when a remittance will be required from unknown correspondents.

TO PINE GROWERS.

WANTED, from 20 to 30 strong Fruiting QUEEN PLANTS, quite clean. They must either be showing fruit now or be about to do so.—A note addressed to O. O., Post Office, Derby, stating price, &c., will be attended to.

NEW AND SPLENDID ACHIMENES, ETC.

HENRY WALTON, Florist, &c., Edge End, Marsden, near Burnley, Lancashire, is now prepared to send plants of the following out, post free, at the undernamed reduced prices:—

ACHIMENES (each).—Ambroise Verschaffelt, 5*s.*; Dr. Hopf, 5*s.*; Edward Boissier, 3*s.* 6*d.*; Edmond Otto, 2*s.* 6*d.*

Also the eight following fine varieties for 12*s.*, post free, or separate, at the prices annexed:—Achimenes Carl Walforth, 1*s.* 6*d.*; Cherita, 1*s.* 6*d.*; Louis Van Houtte, 1*s.*; Gigantea, 5*s.*; Madame Randatler, 3*s.*; Mr. Parparet, 1*s.*; Sir Traherne Thomas, 1*s.*; Hendersoni, 2*s.*; Clianthus magnifica, 2*s.* 6*d.* each; Begonia Prestoniensis, Superb, 2*s.* 6*d.*; strong plants, 5*s.*; Eugenia Ugni, 2*s.* 6*d.*

Also all the new VERBENAS of this season, including Lady Lacon, Wonderful, Blue Beard, Lord Raglan, Mrs. Woodroffe, &c., 1*s.* 6*d.* each, or 18*s.* per dozen, post free, for all of which see advertisement in *Chronicle* of June 23d, and previous numbers.

Post-office orders are respectfully solicited to accompany all orders (unless reference is given), payable at Marsden, Lancashire.

BEAUTIFUL NEW CONIFEROUS PLANT, "ARTHROTAXUS DONIANA."

W. MAULE AND SONS have much pleasure in announcing to the lovers of Coniferous and rare plants that after this week they intend sending out this beautiful tree from the Rocky Mountains, far south of Australia, which mountains are stated by their collector to be covered with snow, and inaccessible from ice nine months out of the twelve. This elegant evergreen tree has stood with little or no injury the two last winters, when at the same time Pinus insignis, Araucaria imbricata have been much injured, and many of our old evergreens quite killed close by their side. The stock of this rare plant is very limited. Established Plants, in 60 size pots, 42*s.* each.

Those gentlemen who have subscribed their orders, and may order this new plant, are respectfully informed that the strictest regularity will be observed in forwarding the strongest plants in rotation as their orders have been and are received.

Stapleton Road Nurseries, Bristol, July 14.

HOW TO KILL RATS, MICE, AND MOLES BY HUNDREDS.—A Method will be forwarded with instructions for 30 postage stamps, which will destroy the above vermin quickly and without trouble. 1000 acres may be cleared for a few shillings.

Gilbert Dyson, Hoo, Rochester.

HOW TO KILL RATS AND MICE BY HUNDREDS.—A Receipt may be had, honestly worth 20*l.*, without trouble, by sending 30 postage stamps and a directed envelope to Mr. William Franklin, Post office Street, Norwich, who will forward it with plain instructions, &c. This is a most extraordinary remedy, such as no Farmer, Merchant, or Miller ought to be without, as it will save them pounds yearly by killing every Rat or Mouse either in the field, stack, or house.

WARNER'S SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)

Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l.* 3*s.*

Manufactured by
JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons, throws 30 feet high					...	£4 10
No. 2	„ 15	„	„ 45	„	...	5 10
No. 3	„ 28	„	„ 45	„	...	6 18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons, throws 25 feet high					...	£2 15
No. 13	„ 12	„	„ 30	„	...	3 5
No. 11	„ 16	„	„ 40	„	...	4 0
No. 12	„ 24	„	„ 45	„	...	5 0
No. 14	„ 30	„	„ 45	„	...	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1¼ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅛ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅛ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

FOR WATERING GARDENS.

HANCOCK'S IMPROVED VULCANISED INDIA-RUBBER HOSE AND TUBING is now manufactured especially for the above purpose; is of greater flexibility than any other description of Hose; is capable of resisting great pressure, and made suitable for attaching to the mains of water-works, or to tanks of high elevations.

WATERING HOSE fitted up with the necessary *brass joints, stop-cocks, branches,* and *spreaders complete.*

VULCANISED INDIA-RUBBER SUCTION PIPES, made any length or size for Pumps or Garden Engines.

VULCANISED RUBBER WASHERS, and also in Sheet, any thickness, for all kinds of steam and water joints, or made any size or figure to order.

All communications and orders punctually attended to, addressed to the Manufactory, JAS. LYNE HANCOCK, Goswell Road, London.

THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

PARSEY'S PATENT REVOLVING PUMP lifts three times the quantity of water with the same labour, than any other Pump.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

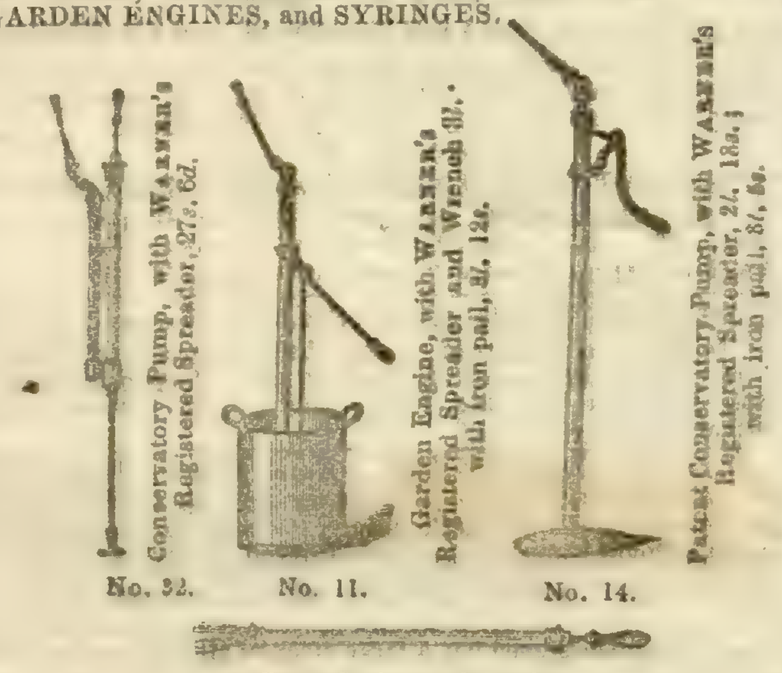
W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.

JOHN WARNER AND SONS,
Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
WITH WARNER'S REGISTERED SPREADER,

is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

JOHN WARNER AND SONS, 8, Jewin Crescent, London, Manufacturers of FIRE ENGINES, PUMPS, GARDEN ENGINES, and SYRINGES.



Brass Syringes, 9*s.* to 18*s.*

All articles of JOHN WARNER & SONS' manufacture may be obtained of any Ironmonger or Plumber in town or country, at the advertised prices.

JOHN WARNER & SONS having been practical Horticulturists for many years, know exactly the requirements of both Amateurs and Gardeners. A gardener with a properly constructed pump will get through as much work in five minutes as he could with any Syringe in a quarter of an hour, and with half the labour to himself. Syringes are economical for small houses.

No establishment offers such a variety of effective machines for hydraulic purposes, whether to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of liquids.

Fountains suitable for Conservatories, Lawns, &c.

Sheets of Engravings sent on application.

COTTAM AND HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.

Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

Hand Glass Frames, Cast and Wrought Iron Flower Stakes, Garden Arches, &c.

Strong Iron Hurdles, and best Wire for Strained Wire Fencing.

Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom. Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.
In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 15 0
7 „ 5, — 7½ „ 5½ }	0 14 0
8 „ 6, — 8½ „ 6½ }	
9 „ 7, — 9½ „ 7½, 10 by 6 }	
10 „ 7, 10 by 8 }	0 16 0

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18*s.* per 100 feet. If cut to order not exceeding 40 inches long 16 oz. from 2½*d.* to 3½*d.* | 21 oz. from 3½*d.* to 4½*d.* 26 oz. from 5½*d.* to 7½*d.*

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½*d.* per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand.

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	£1 17*s.* 6*d.*	per case of	50
3/16 „	2 1 3	„	60
⅛ „	1 17 6	„	60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

CHEAP STRONG GLASS FOR HORTICULTURAL PURPOSES, in boxes of 100 feet, at 1*d.* per foot, boxes included. Plate, Sheet, Crown, and every description of Glass for glazing purposes cheaper than any other house in London.—Apply to B. Moss & Co., Leman Street, Whitechapel.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS ORNAMENTAL WINDOW GLASS, and GLASS SHADES to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE.
87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by 4 in. and			6 in. by 4½ in.			...	...	12*s.* 6*d.*
6¼	„	4½	„	7	„ 5	...	...	12 6
7½	„	5½	„	8	„ 6	...	...	13 0
8½	„	6½	„	9	„ 7	...	...	13 6
9½	„	7½	„	10	„ 8	...	...	13 0
10½	„	8½	„	11	„ 9	...	...	14 0
12	„	9	„	13	„ 9	...	...	14 0
10	„	10	„	10½	„ 10½	...	...	14 0
11	„	10	„	11½	„ 10½	...	...	14 0
11	„	11	„	11½	„ 11½	...	...	14 0
12	„	11	„	12½	„ 11½	...	...	14 0
13	„	11	„	13½	„ 11½	...	...	14 0
13	„	12	„	13½	„ 12½	...	...	16 0
13½	„	13½	„	14½	„ 13½	...	...	16 0
15½	„	13½	...	...	...	...	...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 20 by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ „
Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

IMPORTANT TO GROWERS OF ROSES.

NEWLY-INVENTED APHIS BRUSH, or GREEN FLY DESTROYER.—The attention of Florists is particularly called to this Cheap and Ingenious Instrument, invented by the Rev. E. S. BULL, of Colchester, which, in a very simple and easy manner, instantly cleanses the Rose from that destructive insect the Green-fly (or Aphis), without causing the slightest injury to the bud or foliage.

Price 2*s.* 6*d.* each, or free by post, 4*s.*

MANUFACTURED BY
JOSLIN AND SONS,
IRONMONGERS, Colchester.

Retailed by all the principal Ironmongers.

Wholesale Agents:
W. THOMPSON & SON, 15, Upper North Place, Gray's Inn Road, London.

LIST OF GARDEN ORNAMENTS MANUFACTURED IN AUSTIN'S ARTIFICIAL STONE, at Nos. 1 to 4, Keppel Row, New Road, Regent's Park, London.

210 varieties of Vases and Tazzas, at prices varying from 15*s.* to 30*l.*
94 Statues and small Figures.
38 figures of Animals.
17 „ of Birds.
16 Baskets of suitable Pedestals, prices from 12*s* to 30*l.* Some of these are beautiful ornaments for lawns.
12 different patterns of Flower Boxes for Windows, &c.
4 Garden Seats.
15 Sun-dial Pedestals.
16 Shells for either Water or Rock Plants; the largest size is 12 feet diameter.
Pedestals, square, circular, and octagonal, of almost every size. N.B. These are always perforated, to allow drainage from a vase.
43 Groups of Figures, single Figures, or Architectural Flowers designed for centre ornaments of fountains.
Ornamental Copings to Ground Basins of Fountains, from 37 feet diameter to any smaller size.

FOUNTAINS.

AUSTIN & SEELEY having erected 218 of these works in various parts of the kingdom since the year 1836, may be presumed to have more experience than any other persons engaged in such work. Their collection now comprises about 200 designs, some of which are of the highest class; and they are now paying special attention to this department of the business, in the expectation that the local water works in course of erection will facilitate the supply of *jets d'eau.* The prices range from 10*l.* to 400*l.*

THE NEW GERANIUMS AND VERBENAS
OF THE PRESENT SEASON AT REDUCED PRICES.

BASS AND BROWN are now enabled to offer strong and well established plants at the reduced prices annexed.

GERANIUMS.

	s. d.		s. d.
Dobson's Conqueror ...	21 0	Hoyle's Serena	10 6
" Laura	10 6	" Lord Raglan ...	7 6
" Lydia	7 6	" Topsy...	7 6
" Commander-in-Chief	10 6	Story's Fair Ellen	10 6
Fuller's Gem of the West	10 6	Turner's Pandora	7 6
Forster's Phaeton	21 0	" King of Portugal	5 0
Foquett's Petruchio ...	7 6	Hockin's Una	7 6

Hoyle's Wonderful and Queen Eleanor, and Dobson's Silenus, will be ready to offer at reduced prices with our general list of Geraniums in October.

FUCHSIAS with white corollas, well established plants, at 3s 6d. each, except priced, viz., Lucombe and Pince's Florence Nightingale, Galanthaflora-pleno, 5s.; Story's Queen Victoria, Mrs. Story, Snowdrop, Empress Eugene, Lady of the Lake, Water Nymph.

New FUCHSIAS of other varieties.—Bank's Prince Albert, 5s.: Climax. 2s. 6d.; Maid of Kent, 3s. 6d.; Beauty of the Bower. 2s 6d.: Omar Pacha, 2s. 6d.; Smith's Omar Pacha, 3s. 6d; Orlando. 2s. 6d. The usual allowance to the trade.

For other new plants at reduced prices, see advertisements in the *Gardeners' Chronicle* of June 23d and 30th, and July 7th.—Seed and Horticultural Establishment, Sudbury, Suffolk.

NEW AND RARE PLANTS.

JOHN AND CHARLES LEE have a fine stock of the following to offer:—

THUJA GIGANTEA.—A noble hardy evergreen tree, from the hills of California. From seed, 31s. 6d.; grafted, 21s.

THUJOPSIS BOREALIS.—A beautiful hardy evergreen tree from Behring's Straits. Grafted, strong, 21s.

	s. d.		s. d.
Biota glauca	7 6	Episcea mellitæflora ...	3 6
Thuja Doniana ... 5s. to	7 6	Araucaria excelsa, from seed ... ... 25s. to	42 0
Wellingtonia gigantea, 5s. to	21 0	Araucaria Bidwilli ...	31 6
Podocarpus nubigena ...	21 0	" Gunninghami...	31 6
" chilina ...	21 0	" Cooki	105 0
Berberis Jamesoni ...	5 0	" gracilis ...	42 0
" Neuberti, fine ...	7 6	Bejaria æstuans	10 6
Dammara obtusa	31 6	Acrophyllum venosum ...	7 6
Begonia Thwaitesi ...	7 6	Boronia Drummondi ...	5 0
" Lapeyrousi ...	5 0	Glycine sinensis alba ...	5 0
Echites Pelleri	10 6	Azalea amœna, hardy, fine	3 6
Aphelandra Leopoldi ...	5 0	Oxylobium Osborni ...	5 0
" Porteana ...	5 0	Eugenia ugni	3 6
Ixora Lobbi	7 6	Scutellaria villosa ...	5 0
" alba, true	5 0	Fabiana violacea	3 6
Sciadocalyx Warscewiczi	5 0	Swainsonia Osborni ...	3 6

FILBERT MERVEILLE DE BOLWYLLER, large and very prolific, 7s. 6d.

The Trade supplied.—Nursery, Hammersmith.

HORTICULTURAL SOCIETY OF LONDON.

EXHIBITION AT CHISWICK GARDENS, July 11, 1855.

AWARD OF THE JUDGES.

COLLECTIONS OF FRUIT.

G.K.2. Mr. Ingram, C.M.H.S., Gr. to her Majesty at Frogmore.
G.B.1. Mr. M'Ewen, Gr. to his Grace the Duke of Norfolk, F.H.S.
S.G. Mr. G. A. Watson, Ealing.

PINE APPLES, PROVIDENCE, &c.

L.S. Mr. Jones, Gr. to Lady Charlotte Schroiber (12 lbs. 3 oz.)
S.K. Mr. Taylor, Gr. to H. C. Ingram, Esq. (Black Prince, 7 lbs. 12 oz.)
S.K. Mr. Fleming, Gr. to his Grace the Duke of Sutherland, F.H.S. (Providence, 6 lbs. 12 oz.)
S.B. Mr. Turnbull, Gr. to his Grace the Duke of Marlborough (Providence, 5 lbs. 12 oz.)
S.B. Mr. Dodds, Gr. to Col. Baker, F.H.S. (Providence, 5 lbs. 12 oz.)

PINE APPLES, CAYENNES, &c.

L.S. Mr. Turnbull, Gr. to his Grace the Duke of Marlborough (4 lbs. 12 oz.)

PINE APPLES, QUEENS, &c.

L.S. Mr. Gostling, Gr. to Mrs. Deacon (Queen, 4 lbs. 15 oz.)
S.K. Mr. Spivey, Gr. to J. A. Houblon, Esq., F.H.S, (Queen, 4 lbs. 10 oz.)
S.B. Mr. Davies, Gr. to T. W. Booker, Esq., F.H.S. (Queen, 3 lbs. [5 oz.)
S.B. Mr. Fleming, Gr. to his Grace the Duke of Sutherland, F.H.S. (Moscow Queen, 4 lbs. 3 oz.)
S.B. Mr. Barron, Gr. to Mrs. Vivian, F.H.S. (Queen, 3 lbs. 9 oz.)
S.B. Mr. Jones, Gr. to Lady Charlotte Schroiber (six Queens).
S.B. Mr. Merrifield, Gr. to H. J. Grant, Esq. (three Queens).
C.1. Mr. Taylor, Gr. to J. Coster, Esq. (three Queens).
C.1. Mr. Dodds, Gr. to Col. Baker, F.H.S.

MARKET GARDENERS' GRAPES.

S.G. Mr. Harrison, Oatlands, for Black Hamburghs.
L.S. Mr. J. Strachan, Beach Hall, Chester, for Muscats.

GRAPES, HAMBURGHS, &c.—SINGLE DISHES.

L.S. Mr. Stent, Gr. to W. Herbert, Esq.
S.K. Mr. Fleming, Gr. to his Grace the Duke of Sutherland, F.H.S.
S.B. Mr. Williamson, Gr. to the Earl of Lonsdale.
S.B. Mr. Forsyth, Gr. to Baron Rothschild.
S.B. Mr. Tillyard, Gr. to the Right Hon. the Speaker, F.H.S.
S.B. Mr. Hill, Gr. to R. Sneyd, Esq., F.H.S.

GRAPES, FRONTIGNANS, &c.—SINGLE DISHES.

L.S. Mr. Fleming, Gr. to his Grace the Duke of Sutherland, F.H.S.
S.K. Mr. Tillyard, Gr. to the Right Hon. the Speaker, F.H.S.

GRAPES, MUSCATS, &c.—SINGLE DISHES.

L.S. Mr. Turnbull, Gr. to his Grace the Duke of Marlborough.
S.K. Mr. Mitchell, Market Gardener, Brighton.
S.K. Mr. Allport, Gr. to H. Akroyd, Esq., F.H.S.
S.K. Mr. Clarke, Hoddesdon.
S.K. Mr. Tillyard. Gr. to the Right Hon. the Speaker, F.H.S.
S.B. Mr. Smith. Gr. to S. Ricardo, Esq., M.P.
S.B. Mr. Taylor, Gr. to J. Coster, Esq., Streatham.

GRAPES (OTHER KINDS)—SINGLE DISHES.

L.S. Mr. Fleming, Gr. to his Grace the Duke of Sutherland, F.H.S., for Mill Hill Hamburghs.
S.K. Mr. Tillyard, Gr. to the Right Hon. the Speaker, F.H.S., for Muscadines.
S.B. Mr Shrimpton, Gr. to A. Doxat, Esq., for Muscadines.

PEACHES AND NECTARINES.—IN COLLECTIONS.

L.S. Mr. Turnbull, Gr. to his Grace the Duke of Marlborough.
S.K. Mr Mitchell, Brighton.
S.K. Mr. Miller, Gr. to Sir W. Smith, Bart.
S.B. Mr. G. Monro, Gr. to the Earl of Clarendon.
S.B. Mr. J. Monro, Gr. to Mrs. Oddie.

PEACHES.—SINGLE DISHES.

S.K. Mr. Judd, Gr. to Earl Spencer, F.H.S.
S.K. Mr. Davies, Gr. to J. Dixon, Esq.
S.B. Mr. J. Mitchell, Gr. to Lord Wenlock, F.H.S.
S.B. Mr. Clements, Oakhill, Barnet.
S.B. Mr. Busby, Gr. to J. Crawley, Esq., F.H.S.
S.B. Mr. Tillyard, Gr. to the Right Hon. the Speaker, F.H.S.
S.B. Mr. Frost, Gr. to E. L. Betts, Esq., F.H.S.
S.B. Mr. Fleming, Gr. to his Grace the Duke of Sutherland, F.H.S.
C.1. Mr. Macqualter, Gr. to Colonel Challoner, F.H.S.
C.1. Mr. Hay, Gr. to the Bishop of London, F.H.S.

NECTARINES.—SINGLE DISHES.

S.K. Mr. Clements, Oakhill.
S.B. Mr. Macqualter, Gr. to Colonel Challoner, F.H.S.
S.B. Mr. Frost, Gr. to E. L. Betts, Esq., F.H.S.
S.B. Mr. Wilson, Gr. to J. Elger, Esq.
S.B. Mr. Judd, Gr. to Earl Spencer, F.H.S.
C.1. Mr. Busby, Gr. to J. Crawley, Esq., F.H.S.

MELONS—THE HEAVIEST.

C.1. Mr. Pengilly, Gr. to R. G. Thomson, Esq.
C.2. Mr. Tegg, Gr. to A. Pryor, Esq., F.H.S.

MELONS—THE BEST.

S.B. Mr. Fleming, Gr. to his Grace the Duke of Sutherland, F.H.S.
C.1. Mr. Batchelor, Gr. to J. Shoolbred, Esq.
C.1. Mr. Brown, Gr. to Colonel Biddulph.
C.1. Mr. M'Ewen, Gr. to Colonel Wyndham.

BLACK CHERRIES.

S.B. Mr Taylor, Market Gardener, Brentford.
C.1. Mr. Meyers, Market Gardener, Brentford.
C.1. Mr. J. Meyers, Market Gardener, Ealing.
C.2. Mr. Jones, Market Gardener, Brentford.
C.2. Mr. M'Ewen, Gr. to Colonel Wyndham.

WHITE CHERRIES.

S.B. Mr. H. Meyers, Brentford.
C.1. Mr. J. Taylor, Brentford.
C.1. Mr. J. Meyers, Ealing.
C.2. Mr. M'Ewen, Gr. to Colonel Wyndham.
C.2. Mr. Mitchell, Brighton.

RASPBERRIES.

C.1. Mr. Lydiard, Batheaston, Bath.

STRAWBERRIES, IN COLLECTIONS.

S.K. Mr. Lydiard, Bath.
S.B. Mr. Macqualter, Gr. to Colonel Challoner, F.H.S.
C.1. Mr. Tillyard, Gr. to the Right Hon. the Speaker, F.H.S.

STRAWBERRIES, SINGLE DISHES, FOR SIZE.

S.B. Mr. Smith, Market Gardener, Twickenham, for "Sir Charles Napier."
C.1. Mr. Jones, Market Gardener, Brentford, for "British Queens."
C.2. Mr. Lydiard, Market Gardener, Bath, for "Goliath."

STRAWBERRIES, SINGLE DISHES, FOR FLAVOUR.

S.B. Mr. Macqualter, Gr. to Colonel Challoner, F.H.S., for "Hautbois."
C.1. Mr. Smith, Twickenham, for "British Queens."
C.1. Mr. Beach, Isleworth, for "British Queens."
C.2. Mr. Ward, Gr. to Wm. Stephens, F.H.S., for "Omer Pacha."

PLUMS.

S.K. Mr. Ingram, Gr. to her Majesty, at Frogmore.

RARE EXOTIC FRUITS.

L.S. Mr. Ivison, Gr. to his Grace the Duke of Northumberland, V.P.H.S., for Nutmegs, Vanilla and Musa.

SEEDLING FRUITS.

L.S. Mr. Busby, Gr. to J. Crawley, Esq., F.H.S., for Stockwood Golden Hamburgh Grape.

MISCELLANEOUS.

S.K. Messrs. Lane, Great Berkhampstead, for a collection of Fruit Trees in Pots.
S.B. Mr. M'Ewen, Gr. to his Grace the Duke of Norfolk, F.H.S., for Peaches and Nectarines in Pots.

ORCHIDS—IN TENS.

G.K.1. Messrs. Veitch & Son, Chelsea and Exeter.
G.K.2. Mr. Gedney, Gr. to Mrs. Ellis, Hoddesdon.
G.B.1. Mr. Woolley, Gr. to H. B. Ker, Esq.

ORCHIDS—IN SIXES.

G.B.2. Mr. Carson, Gr. to W. F. G. Farmer, Esq., F.H.S.
S.G. Mr. Woolley, Gr. to H. B. Ker, Esq.
L.S. Mr. Ivison. Gr. to His Grace the Duke of Northumberland, V.P. H.S.
S.K. Mr. Dunsford, Chingsford, Essex.

VARIEGATED PLANTS—IN TWENTIES.

S.G. Messrs. Veitch & Son.
L.S. Messrs. John and Charles Lee, Hammersmith.
S.K. Messrs. Rollisson & Sons, Tooting.
S.B. Messrs. Henderson, Pine-apple Place.
C.1. Messrs. Jackson & Son, Kingston.

PLANTS WITH FINE FOLIAGE—IN TENS.

S.G. Messrs. Veitch & Son.
L.S. Messrs. Rollisson & Sons.
S.K. Messrs. Henderson, Pine-apple Place.
S.B. Messrs. Jackson & Son.

HOT-HOUSE FERNS—IN TWELVES.

L.S. Mr. Carson, Gr. to W. F. G. Farmer, Esq., F.H.S.
S.K. Messrs. Rollisson & Sons.
S.B. Mr. Gedney, Gr. to Mrs. Ellis, Hoddesdon.

HOT-HOUSE LYCOPODS—IN SIXES.

S.K. Mr. Gedney, Gr. to Mrs. Ellis, Hoddesdon.
S.B. Messrs. Veitch & Son.
C.1. Mr. Woolley, Gr. to H. B. Ker, Esq.

ROSES—CUT SPECIMENS, IN FIFTIES.

S.K. Mr. Mitchell, Piltdown, Maresfield.
S.B. Messrs. Paul & Son, Cheshunt.
C.1. Messrs. Lane, Berkhampstead.
C.2. Mr. Francis, F.H.S., Hertford.

ROSES—CUT SPECIMENS, IN TWENTY-FIVES.

S.B. Mr. Monro, Gr. to the Earl of Clarendon.
C.1. Mr. Terry, Gr. to Lady Giles Puller.
C.2. Mr. Busby, Gr. to J. Crawley, Esq., F.H.S.

VARIEGATED-LEAVED PELARGONIUMS.

L.S.

FUCHSIAS—IN TWELVES.

S.G. Mr. Gaines, F.H.S., Battersea.

VERBENAS—IN TWELVES.

S.K. Mr. Wetherall, Gr. to D. McNeill, Esq.
S.B. Mr. Higgs, Gr. to Mrs. Barchard, F.H.S.

EXTRA—PINKS.

S.K. Mr. Turner, F.H.S., Slough.
S.B. Mr. Bragg, Slough.
C.1. Messrs. Mitchell & Co., Brighton.

NEW PLANTS IN FLOWER.

S.K. Messrs. Veitch & Son, Exeter and Chelsea, for Ixora floribunda.
S.B. Messrs. Veitch & Son, for Fenzlia dianthiflora.
C.1. Messrs. Veitch & Son, for Phygelius capensis.

MISCELLANEOUS.

S.B. Mr. Woolley, Gr. to H. B. Ker, Esq., Cheshunt, for a collection of Gloxinias.
C.1. Messrs. Henderson, Wellington Nursery, St. John's Wood, for Fuchsia "Princess Royal."
C.1. Mr. Ingram, C.M.H.S., Gr. to her Majesty, at Frogmore, for a Hybrid Achimenes.
C.1. Messrs. Henderson, Wellington Nursery, for Hemiandra [pungens.
C.1. Mr. Barter, Gr. to J. T. Lenox, F.H.S., for 6 Variegated Pelargoniums.
C.2. Messrs. Henderson, for Stylidium scandens.
C.2. Mr. Bragg, Slough, for Sweet Williams in Pots.

SPLENDID NEW GRAPE.
BUSBY'S STOCKWOOD "GOLDEN HAMBURGH."

MESSRS. VEITCH AND SON have much pleasure in giving notice that they have made arrangements with Mr. Busby for the distribution of the Stock of the above truly valuable acquisition, which was exhibited at Chiswick on Wednesday last, and had the Large Silver Medal awarded it; see Report of the Show in this paper.

Messrs. VEITCH are now taking orders, which will be executed strictly in the rotation in which they are received, and the plants sent out as soon as the stock is sufficiently increased. Price 21s. each.—Exotic Nursery, Chelsea, July 14.

NEW PLANTS.

HENRY GROOM, Clapham Rise, near London, by appointment FLORIST TO HER MAJESTY, begs to offer the following fine and new plants:—

	Each—s. d.		Each—s. d.
Fuchsia Queen Victoria	7 6	Pentstemon Wrightii ...	5 0
" Prince Albert...	7 6	Weigela amabilis	2 6
Heliotrope Beauty of the Boudoir...	1 6	Cyclamen Atkinsi ...	10 6
Verbena Mrs. Woodroffe	1 0	" hungaricum ...	5 0
" Wonderful ...	2 6	" repandum ...	5 0
" Blue Beard ...	3 6	Berberis Darwini 1s. to	3 6
Calceolaria Purity... ...	3 6	Cerasus ilicifolia, 2s. 6d. to	5 0
Salvia grandiflora Skinneri	5 0	Tritonia aurea...	1 6
Salvia Gesneræflora ...	1 6	Rhododendron Edgworthii 5s. to	10 6
Lysimachia Leschenaultia	2 0	" campylocarpum, 5s. to	10 6
Deutzia crenata	2 6	" niveum ... 5s. to	7 6
" gracilis... 1s. to	2 6	" glaucum ... 1s. 6d. to	2 6
Impatiens Hookeri ...	5 0	Hippeastrum aulicum, 3s. 6d. and	5 0
Auracaria Lindleyana ...	105 0	Vallota purpurea, 2s 6d. &	3 6

Clapham Rise, July 14.

CHOICE NEW AND RARE PLANTS OF THIS SEASON
AT REDUCED PRICES.

HENRY WALTON, FLORIST, &c., Edge End, Marsden, near Burnley, Lancashire, is prepared to send out nice healthy plants of the following new novelties at the reduced prices as annexed.

FUCHSIAS.—Story's Mrs. Story, 3s. 6d.; Queen Victoria, 3s. 6d.; Water Nymph, 3s. 6d.; Empress Eugenie, 3s. 6d.; Lady of the Lake, 3s. 6d.; Snowdrop, 3s. 6d.; Banks' Beauty of the Bower, 2s. 6d.; Prince Albert, 3s. 6d.; Maid of Kent, 3s. 6d.; Climax, 2s. 6d.; Grand Sultan, 2s. 6d.; Omer Pasha, 2s. 6d.; Smith's Omer Pasha, 2s. 6d.; Violæflora pleno, 3s. 6d. each, or 30s. per dozen post free where two or more are ordered.

	Each.—s. d.		Each.—s. d.
Hydrangea hortensis flore pleno	5 6	Phlox omniflora compacta, dwarf white	2 6
Begonia oppuleefolia ...	2 6	Calceolaria Purity, fine white	3 6
Tydea Warczewiczi, new and fine stove plant ...	5 6	" Wildfire ...	3 6
Geranium Pretty Polly, fine bedding variety	3 6	" Maggiore ...	3 6
		" Vezzossa ...	3 6
		Petunia Singularity, Smith's	2 6

Early orders are respectfully solicited for the above, which will be executed in rotation as received, the stock of some of the varieties being rather limited. A remittance requested to accompany all orders, payable at Marsden, Lancashire, unless a reference is given.

Every article in the Nursery and Florist Trade on the lowest remunerative terms, also a choice collection of large flowered and Pompone Chrysanthemums, new varieties. Strong bushy plants, ready to go into blooming pots, 6s. to 9s. per dozen.

The Gardeners' Chronicle.

SATURDAY, JULY 14, 1855.

LAST Wednesday's EXHIBITION at CHISWICK was held in a perfect downpour of rain, which very much excluded both visitors and exhibitors. Nevertheless the show of fruit, upon which the prizes of the day were concentrated, was extremely fine. Above 250 dishes of excellent produce, and many young trees in pots, well loaded with fruit, graced the tables; the latter came from the Duke of NORFOLK's garden at Arundel, and from Messrs. LANE and SON, who are becoming worthy rivals of Mr. RIVERS in the orchard house line. The Plums particularly attracted attention, owing to the beautiful condition in which they were shown from Frogmore and Arundel. DENYER's Victoria, a large reddish sort with a delicate bloom; the Goliath, Green Gage, Jefferson, and Washington varieties will never be seen in such condition unless under glass.

Grapes, too, were in great force. From Trentham came most admirable bunches of the Black Hamburgh and Mill Hill Black Hamburgh, sufficiently showing that the two sorts are very far from being identical. The best coloured bunches, however, appeared to us to be some very remarkable ones from the garden of Mr. WILLIAM HERBERT, of Clapham Common.

Fine Pines were exhibited in long lines of yellow and brown, and in every case did credit to the growers. Among them were two striking Black Princes from Temple Newsome, and a Providence weighing 12 lbs. 3 oz. from Dowlais. It is a pity such fine looking things should not be better worth eating.

The only novelties which we observed were a white Grape, called the Stockwood Golden Hamburgh, and a Strawberry named Omer Pacha. Both were excellent in quality as well as attractive in appearance. The Strawberry seemed to have a little of the flavour of the Alpine. The Grape had been raised by Mr BUSBY *from the seed of the Black Hamburgh*, which it entirely resembled in form; but it had the colour of a white Muscadine, and was quite as good as the Black Hamburgh itself. Undoubtedly it is a real acquisition.

We were greatly disappointed with Ferns and Lycopods, which might have been produced in

abundance, and would have greatly embellished the fruit tables. What did appear were excellent, especially the Lycopods from Mrs. ELLIS, of Hoddesdon.

Plants with fine foliage were also produced in inconsiderable quantity, the only exhibitors being Messrs. VEITCH, ROLLISSON, HENDERSON, and JACKSON.

It would seem as if public taste was still in great want of refinement. The negroes of the Gold Coast are said to admire nothing so much as the most tawdry Manchester goods blotched with the most brilliant reds and yellows and blues; the delicate tracery of an Indian loom is looked upon with contempt. So it is with us and our plants. Unless a flower is as glaring as a Poppy or a Pelargonium it is neglected, and no sale can be found for it; hence the nurserymen, very properly, direct their attention to fine flaunting sorts—for it is their business to please their customers. And yet we appeal to all persons of good taste who were present on Wednesday, whether the most beautiful by far, in the true sense of the word beauty, were not such plants as the delicate green flowered *Dendrochilum filiforme*, or the noble forms of exotic vegetation not in flower, or even the humble but exquisitely marked *Fenzlia* produced by Messrs. Veitch.

We should like to see an exhibition on a grand scale from which flowers of all kinds were excluded, but to which fruits should be admissible. Could such an object be accomplished, and the same skill in grouping be evinced as in the case of flowers, we suspect that public opinion would be very considerably altered as to what constitutes a really beautiful object in the vegetable world.

AN article on planting in the last number of the "Quarterly Review" was lately selected by some of our correspondents as the ground of certain criticisms upon the construction of LIVE FENCES. Want of space, and, let us add, the tone of some of the communications, led to a discontinuance of the discussion, in which, indeed, we had taken no part. The approach, however, of the time when Quickset hedges may be planted in favourable situations, tempts us to revive the question, especially since it is evident that by some at least it has been totally misunderstood.

In speaking of fences the reviewer uses these words:—"In one place a rough stone dyke will be most available, in another a bank of turf; here a dyke planted with Furze, there a Quickset hedge. If the last be selected it will be rendered more efficacious though less ornamental by mixing Beeches with the Thorns, as these trees when young retain their withered leaves until spring, affording shelter to the plantation during the budding season, which is the period when their services are most needed. The young Thorns, before being set, should be cut down to about 4 inches above the crown of the root; but the Beeches must be left whole. Both should be planted about 7 inches apart, in the proportion of two Thorns to one Beech. After the young plants have made two years' wood, it is advisable to cut them all down to about 9 inches of the surface, an operation which will have the effect of making them throw out numerous side branches."

This sounds so like an echo of a chapter in BROWN'S "Forester," that we are not surprised to find it mistaken for an extract from that useful book. Such, however, is not the case; the words are the reviewer's own, although imitated from BROWN, and we must add spoiled in the operation.

What Mr. BROWN says is that a certain mixture of Thorns and Beeches, "upon high situations with a light soil" forms a better fence than Thorns alone, because in such places Thorns are "apt to die early," whereas when mixed with Beech "the fence is much improved both in health and appearance." The reviewer, on the other hand, recommends the mixture under all circumstances, which is by no means what either BROWN or any other practical man would advise. In one respect both the reviewer and the reviewed agree, namely in recommending the Thorns to be cut down to the length of 4 inches before being planted. Both these practices, that is to say forming a hedge of mixed materials, and cutting down Thorns when planted, have been objected to, as being contrary to sound gardening. They must be considered separately.

We hold it to be incontrovertible that all hedges should be formed from one kind of plant alone, *when land will permit it;* a mixed hedge is exceptional. If soil is good enough to bear strong Whitethorn no better plant can be employed, as is sufficiently shown by the noble fences to be met with in all the richer parts of the country. Mr. BROWN says nothing to the contrary; but he says that in poor light land, such as is often selected for plantations, *where the Whitethorn will not thrive*, it is good to add one-third of Beech. The first object is to get a hedge of some sort, the second is to have as good a one as circumstances will permit. The question, therefore, is whether Beech is improved by adding Whitethorn, or Whitethorn by adding Beech. Here, as in all things, experience is the only sure guide; but experience is unfortunately contradictory. Mr. BROWN finds the mixture advantageous in Scotland; we know it to be productive of no advantage in our eastern counties, where mixed hedgerows are always full of gaps and blemishes, but where admirable fences may be formed from mere Beech or from mere Whitethorn. It is, indeed, but reasonable to suppose that a line of trees all alike will be more uniform in every respect than if it consists of several sorts. Whitethorn in poor sandy land will not grow with the necessary vigour, if at all. Will Beech improve the quality of the land? Surely not. But it is urged that the Whitethorn refuses to grow on such land, not because of its poorness, but because of its bleakness, and that the Beech offers some shelter; that is a better reason for the mixture of the two trees. But we greatly doubt whether under such circumstances it is not as well to confine the hedge to the Beech alone. If the Thorns are in bad land they cannot grow fast enough to improve the resisting force of the Beech; if they are in good land they are best by themselves. Nor can we call to mind any place, however bleak, in which the Thorn fails if the land suits it. It is one of the hardiest of all trees. Mr. BROWN, however, entertains a different opinion, which is doubtless entitled to great respect. Nevertheless we venture to recommend the point to his further consideration. At all events he has nowhere advised a mixture of Thorns and Beech in the unreserved manner expressed in the "Quarterly Review."

The second branch of this discussion is whether Thorns, when first planted, should be cut down or not. The common plan is to cut them down; Mr. BROWN advocates the practice; the reviewer echoes the advice, and we take their side under certain circumstances. There is, indeed, no doubt that beautiful hedges have been obtained from Thorns headed down before being planted; it is also certain that hedges not so formed will often present dead spaces. There are two instances within a short distance of where we are writing, one of which is a hedge made of Thorns 3 to 4 feet high when planted, while the other was headed down. The latter is for its age much the best; it was formed in September when the leaves were on the Thorns, and it never had a vacant space. The other was planted in winter, when the leaves were off, and several places in it afterwards required mending. The explanation seems to be simple enough, although some of the unpublished communications lying before us treat it as a wonderful mystery. The Whitethorn has coarse roots with little fibre, and they send out fresh rootlets, with unwillingness when transplanted; so that if any top is left ready to produce leaves the plants are exhausted by the nascent foliage before the roots can act upon the soil. On the other hand, if Thorns are headed down when planted time is given for the development of fresh rootlets before any leaves can come, and then, when the foliage does begin to act upon the system, the roots are already in activity and effectually prevent exhaustion.

It is evident that this must be the true explanation of the practice of heading down Thorns so generally practised and so highly recommended. But is it always necessary? Surely not. Everything turns upon whether roots can be formed soon enough to feed the leaves when they appear. If the roots are already fibrous, have been carefully preserved, or by repeated previous transplantation are in such a state that the plants can be removed without injury to them, then to head the Whitethorn down is a needless waste of force and of time. It is, however, almost always necessary to head back this kind of fence eventually because the buds on the lower part of the stem have a great tendency to perish, the effect of which is to prevent the production of the undergrowth required to give the hedge closeness near the ground. And such being the case it is the best practice to head down at first, except in those instances where an immediate barrier is wanted.

We should have thought that this was a very plain matter. Let us hope that it will be considered so in future.

VEGETABLE PATHOLOGY.—No. LXXX.

334. PETALOMANIA (*Multiplication of Petals*).—In almost every plant there is a normal number of petals, from which, however, there are occasional deviations either by suppression or multiplication. In some genera the number of petals is far more inconstant and uncertain than in others, especially where the petals and stamens gradually pass into each other. In such cases, however, though the ordinary number of stamens and pistils may be deranged, there is seldom any decided abortion or imperfection in those organs. This however, is far from being the case where the petals are multiplied to excess, as in such instances the proper organs of fructification may be so frequently obliterated as to make the collection of seed a work of great difficulty. In all such cases the multiplication of the petals is more perfect, in proportion as the soil is, within certain limits, generous; a barren soil will cause a reversion to the original condition, and the variety may thus be rendered worthless. Pistils, however, may be produced where there is no trace of stamens, but these may be impregnated from fertile plants, and new varieties arise. Where the sterility is perfect propagation can only take place by cuttings, but in this way a variety may be preserved almost indefinitely. Seed, however, from double flowers does not necessarily produce flowers of equal merit in the eyes of the florist, any more than seed from apetalous flowers, such as the Sweet William* (described *Gard. Chron.* 1851, p. 550), does not necessarily reproduce a single similar plant amongst hundreds of seedlings. Where seedlings are absolutely necessary, or where they are much wanted, the surest way of obtaining them is by withholding all forcing nutriment. In some cases seed may be obtained simply from allowing the plant to run itself out. In the Balsam, for instance, though the first flowers of the finest varieties produce scarcely a trace of fruit, after a time, when the plant is a little exhausted, feebler flowers will be produced, from which seed may be obtained. In this case propagation could not be maintained very long by mere cuttings.

335. Though the greater part of a tree may produce normal flowers, a few branches, the Midsummer shoots, for instance, of the Pear, may produce double and sterile flowers. These are generally so worthless that no attempt is made to propagate them; but it is very possible, if there were any merit in the production, that the qualities might be propagated by cuttings.

336. As in the endogens mentioned in No. 334, the petals also of exogens occasionally assume characters quite at variance with the genera to which they belong. This is especially the case in irregular flowers, as in Labiates and Linariads. The terminal flowers of such plants as Stachys not unfrequently assume a salver-like form, quite at variance with their normal aspect; a remarkable modification of the flowers of the common Foxglove attended by multiplication is figured *Gard. Chron.* 1850, p. 435; a regular corolla in Calceolaria appears in the same volume, p. 389; similar instances are not very unfrequent in terrestrial Orchids; and in some other flowers in which one or more of the petals have a spur the change is still more singular in appearance, as in the pelorioid varieties of Antirrhinum and Linaria. Such flowers may be scattered amongst others of the ordinary structure, but sometimes every flower in the spike is pelorioid, and the plant will then retain its characters when cultivated.

337. ANTHEROMANIA (*Multiplication of Stamens*).—The number of stamens is generally dependent on that of the sepals and petals, and if they are increased within certain limits the stamens are increased too. In irregular flowers, as in Orchids, the addition of one or more anthers may derange the whole structure of the flower. Additional stamens may, however, be produced without any accompanying increase of petals, and where the structure is normal, the practical effect to the cultivator is immaterial.† The transition between stamens and petals is so gradual in many cases, as for instance in the common Water Lily, that it may not always be possible to say whether the multiplication in a double flower is due to mere repetition of petals, or to transformation of stamens. Traces of anthers may sometimes be seen on the side of the petaloid expansions, indicating what the nature of the transformation is, or petals and stamens may be multiplied simultaneously. In such cases if anthers are formed there will seldom be any fertile pollen, and so much nutriment is diverted to the multiplied and hypertrophied organs that the pistil if formed will generally be barren. In diœcious plants normal stamens are occasionally produced in the female flowers, and thus fertile seed may be formed even in such plants without the presence of plants of both sexes. That seed capable of vegetation is occasionally produced without the presence of pollen was shown long since by Spallanzani, in the case of Hemp, observations which are confirmed by the notorious instance of Cœlebogyne.

M. J. B.

NEW GARDEN FERNS.—No. II.

4. PYCNOPTERIS, T. M.

Sori medial, circular, very large, irregularly bi- tri- or quadri-serial near the costa, indusiate. *Indusium* roundish reniform. *Veins* forked; venules elongate, parallel-curved, free, terminating near the margin in club-shaped apices; the lowest anterior and posterior ones (sometimes more, or all) in each fascicle soriferous.

PYCNOPTERIS SIEBOLDI, T. M. in Hort. Van Houtte (Aspidium Sieboldi, Van Houtte, Cat.; Lastrea Sieboldi, T. M. in Herb).

Fronds leathery, broad, pinnate, smooth; pinnæ few, obliquely oblong-lanceolate, falcate, irregularly serrate; the lowest stalked and unequally cordate at the base, the upper sessile

* The seed of this variety was largely propagated without producing a single apetalous plant.

† It is often said in such considerations that every leaf has a bud in its axil normally; such buds are actually developed into branches in the varieties of Lupine and Foxglove mentioned above, ¶ 331. Wherever a bundle of vessels passes from the axis, buds or new organs may be expected, though what is the mysterious connection is quite inexplicable, since the bud in its origin may have no connection at first with the vascular bundle, and two organs or buds may occasionally be produced instead of one.

and decurrent; sori large, numerous, irregularly bi-tri-serial; stipes scaly below; fronds adherent.

A very remarkable Fern, so distinct-looking, and so different in habit from the other free-veined Aspidieæ, that it is proposed to separate it from them. It is of bold and striking aspect, full deep green in colour, and having a beauty distinct from the delicacy usually found among Ferns, which makes it valuable for grouping. It grows a foot or more high, the leafy part of the fronds as broad as long, and consisting of about two to four pairs of very thick leathery pinnæ, and a larger terminal one. The pinnæ of the barren fronds are from 4 to 6 inches long, oblong-lanceolate, falcate, acuminate, and somewhat undulated, borne on a stipes 3 or 4 inches long, which is very stout at the base, and there clothed with long narrow hair-pointed scales. The fertile fronds, which bear sori throughout, are elevated on longer stipes than the barren ones, and are besides in a slight degree contracted, the pinnæ in the most perfect fronds being about an inch in width, whilst in

the barren ones they are an inch and three quarters wide. The sori, which are very large, consist of a great crowd of black spore-cases, seated on a somewhat elevated receptacle. The vernation is peculiar. The rhizome or caudex, to which the fronds are adherent, grows quite erect, and the apex is developed beyond the base of the perfect fronds, so as to show two or three series of incipient fronds, having a somewhat decussate arrangement. This Fern, as we learn from M. Van Houtte, from whose nursery at Ghent it was introduced to our gardens in 1852, was obtained by him from Dr. Von Siebold, and is a native of Japan or of China. It grows well in a greenhouse, but is quite hardy, having survived the winter of 1854-5 without the least injury, in an exposed case in Mr. Ward's garden at Clapham, and in the open air without any protection, in the garden of A. East, Esq., of Blackheath, Kent. It may be raised with much facility from the spores. The genus is related to Lastrea in its fructification, and to Polystichum in its venation. The veins, however, are remarkable for their club-shaped apices, and are quite like those of Scolopendrium; and the large multiserial sori on elevated receptacles are discordant with Lastrea, as are the distinct and partially contracted fertile fronds. The name is from *pycnos*, thick, and *pteris*, a fern.

5. DAVALLIA DISSECTA, J. Smith MS.; Gard. Mag. Bot., iii., 325.

Fronds slender, glabrous, triangular, tripinnate, sub-membranaceous; pinnæ triangularly elongate, acuminate, the lower ones unequal-sided; ultimate pinnules oblong, deeply pinnatifid, with linear entire or bifid segments; rachis and midribs winged; sori occupying the apex of the segments, often with an exterior tooth; involucres linear cup-shaped; rhizome elongated scandent, densely scaly, with subulate fimbriate scales; fronds articulated.

A very elegant stove Fern, but also growing in a close atmosphere without the influence of strong heat. The fronds are of an elegant bright green, and are very much

divided; they are from a foot to a foot and a half long; in outline triangular, or somewhat pentangular from the greater development of the posterior pinnules on the lower pinnæ; the other pinnæ are narrow, elongate, triangular acuminate; both the primary and secondary pinnules are oblong; the segments narrow, linear, entire, or with a shallow notch at the apex. The sori are entirely sunk in the points of the lobes, and have a small projecting tooth occasionally on the exterior side, rarely on the inner side also; the involucres are linear cup-shaped. This Fern, which is a native of Java, was introduced in 1849 by Messrs. Rollisson, of Tooting. It is one of the most elegant of the very beautiful genus Davallia, and is besides very easily cultivated.

6. PHLEBODIUM MULTISERIALE, Moore and Houlston, in Gen. and Sp. of Cult. Ferns, ined.

Fronds ample, sub-pinnate, glabrous, green not glaucous; segments broad, lanceolate-acuminate, dilated at the base, entire; sori in several series on each side the midvein; rhizome shaggy, with light brown scales; fronds articulated.

A noble Fern with the general habit and aspect of Phlebodium aureum, but differing in the greater breadth of its segments, in the total absence of the striking blue-green colour which pervades P. aureum, and in the numerous small sori scattered in four or five series over the whole surface of the segments. The fronds are from 2 to 4 feet long, pinnatifid, or pinnate at the base; the segments lanceolate, acuminate, 8 to 10 inches long, and nearly 2 inches broad, the sinus narrow and rounded, not broad and oblique, as in aureum. The fructification either occupies the upper part of the frond, or sometimes occurs over the whole surface of distinct fronds. The plant is a native of South America, and was introduced to Kew in 1850; more recently it has been obtained from Demerara. It is a desirable and effective species among the bold-looking Ferns of ample size. *T. M.*

Home Correspondence.

Celery.—I am induced to submit the following hints on the cultivation of Celery, which I practised very successfully many years in the West Indies, and which, I trust, may be found useful to those who may feel inclined to adopt my system. It is as follows:—Finding the usual mode of planting Celery in trenches 5 feet apart, and "earthing up" laborious and inconvenient, I was led, after making several experiments, to adopt a very simple plan by which much labour and ground were saved by planting the plants upon well manured ground 14 inches apart in the rows, and each row 14 inches from each other, in the quincunx order. When they were grown of sufficient length I introduced the leaves, after stripping off the small under ones, into bamboos cut about 12 inches long—the length they admit of between joint and joint, the diameter of each being about 3 inches—and in 11 days I have generally had them beautifully blanched clean and fit for the table. Since my return to England in 1849, seeing some hollow tiles 12 inches, and of the same diameter as the bamboos before-mentioned, used for draining land, it occurred to me that a similar method might be practised here; consequently I had a piece of ground well manured, dug, the clods being well broken, and planted in rows and distances as before detailed. When the leaves were long enough, the small ones being pulled off, I gathered the rest together in my hand, and put them through the tiles, keeping the surface of the ground clean by occasional hoeing; the plants made rapid progress, and after a time I put some half tiles on the top of those first placed, thrusting a stick inside both into the ground, to prevent the wind from blowing them down, and in 34 days the Celery was well blanched. On the 15th December last year I cut one head, that had a second tile about 10 inches long over the first, which measured 3 feet long and 10 inches in circumference, exceedingly well blanched. Previous to severe weather coming I put Peas haulm, straw, or dry litter between the tiles, with clean straw or dry Fern over the whole to protect the plants from frost. It will be an improvement to have the tiles so constructed as to admit of what may be termed a collar on the under and upper tile, so as to fit on each other similar to a turned wooden box, which will exclude the air at their junction; and instead of sticks, as before mentioned, I would recommend wires of the thickness of a common goose quill, 30 inches long, or thereabouts, formed similar to a surveyor's arrow, to be substituted. Should you feel disposed to give my method publicity, further improvements may be made by experimentalists, or even as it is practised by myself, it will be found very useful. *James Waters, the Rectory, Penshaw, Fence Houses, Durham.*

Ineffectual Puddling.—Would you or any of your correspondents be kind enough to give me any information in my present difficulty. This time last year I began to form an ornamental pool in front of my house below the lawn; the subsoil is quite a gravel, extending to a great depth, so much so that the undertaker considered that no bottom at the under side of the pool could be obtained upon which to found a puddle wall in the centre of the embankment; he, therefore, determined to line the whole interior with puddled clay. After three unsuccessful attempts to retain the water (the puddle now being 2 feet deep and well beaten both at the bottom and at the sides) we have covered it all with about 2 inches of soil; still the water will not stand above 9 inches deep until it runs out at the lower part. The clay is of a very fine nature, and the water from its own weight must, we consider, penetrate through it. The intended depth is about 4 feet at the deepest part or lowest side. I am now quite at a loss what to do with it, and would feel greatly obliged, if through your columns you could afford any information upon the subject. *J. J.*

Gardeners' Royal Benevolent Institution.—I have taken an early interest in the formation of the Gardeners' Benevolent Institution, and watched year by year its successful progress with regard to its pecuniary means with much satisfaction, but I cannot say I have always approved of every act of its administration. For instance, the management of elections for pensioners, through the system adopted by influential subscribers, is open to much censure as being anything but just or fair. The last election affords a striking example of the evils of the system of canvassing, or, to use a stronger and more modern term, of favouritism. We will see then how this favouritism, or patronage, has acted to the detriment of those candidates whose claims were such as would naturally entitle them to the consideration of subscribers, in preference to those who have never endeavoured to contribute one farthing to the support of the institution. At the last election there were 17 candidates, of whom three were to be elected pensioners; the two first on the list were elected, one on the eleventh, the other on the ninth application; but the third, who was elected on the second application, is a palpable instance of the system complained of, and I will endeavour to show the great body of subscribers that, by sending their polling papers to the influential man, they are unintentionally the cause of great injury to other and more deserving candidates. Take, for instance, the case of poor Ann Arnold, whose husband subscribed eight years; of Joseph Jeffrey, who subscribed eight years, and of George Kidd, who subscribed nine years to the institution, and from this evidence, it must be apparent to even the most casual observer that the fact of having been a subscriber, so far from giving a candidate a prior claim to the notice and favourable consideration of voters has rather, from the favouritism exercised, been productive of opposite results. There is no reasonable person who will not admit the injurious consequences of this system of patronage; we have unfortunately seen far too much of it already in various quarters, and we need only take the case of the Literary Fund to see the full extent of its evil effects on every part of such institutions. After so long and useful a career every one would regret to see the Gardeners' Benevolent Institution in such a position, or indeed anything approximating to it, and I address you now solely with the desire of correcting this abuse. *An Old Subscriber to the Institution, City, July* 11.

Training Trees on Walls.—In your leading article a few numbers back, you gave us a dissertation upon the structure of garden walls, with the view of ascertaining the most suitable for the purpose of training fruit trees, &c., on. Your observations in that article, and the conclusion to which they led, met my entire concurrence. Supposing such walls are constructed, the next question is, how best to cover them with trees? It has often appeared to me something unnatural in training wall trees to divide them low—say 1 foot, or 1½ feet from the ground, as those commonly called dwarfs are usually managed; I am of opinion that it would be more in accordance with nature were the trees trained with a stem, say from 4 to 6 feet high, and radiated so as to cover the wall to very near the ground. I allude chiefly to Peach and Nectarine trees, and am of opinion, moreover, that the durability of the trees is prolonged by such a mode of training. I remember a remarkable instance in proof of my opinion at the seat of an ancient family in the vicinity of Derby, where there is a very good garden, a walled-in oblong square, with a walled-in compartment at the east end, which served as a Melon ground, &c.; there were trees (Peach and Nectarine) planted on the exterior south wall, dwarf and standard alternately; in the Melon ground compartment the south wall was planted with standards only, and radiated. In the days when I knew them intimately (now many years ago), the standards on the exterior south wall had all been cut away to give place to the dwarfs, and these had nearly become naked sticks, with only a little bearing wood near the top of the wall. The radiated standards, on the contrary, were fine healthy, vigorous, fruitful trees, and covering the entire wall from top to bottom. The case impressed me so then that I made it a subject of remark to a friend (the late Mr. Ayres, of Kedleston), who told me he was the person who planted the trees, and got laughed at and ridiculed by his neighbours about his radiating scheme; he was an intelligent, good gardener, and was surprised that I (then a youth) should have adopted the notion he had so successfully proved. I have practically proved it since, and feel quite confirmed in my opinion that the radiating system is most natural and most preferable. *Quercus.*

How to prevent Leaf-burning.—For several years I have been annoyed by the scorching of the leaves in my vinery from the intense heat of the sun. I saw it stated that Hartley's Patent Rough Plate Glass is admirably adapted for vineries; I therefore covered the inside of the glass of my vinery with thin whitewash. It has answered perfectly. The vines and the fruit are in a very healthy condition; and a few plants that stand about have assumed an appearance of vigour and luxuriance which I never saw before. I keep the floor moist, but of course avoid syringing, or it would wash off the whiting. I strongly recommend this, particularly to amateurs, for conservatories during the present glaring weather. A friend has suggested that some paste made of flour would be better, and adhere longer to the glass. *G. L., Cambridge.*

Nidification of the Talegalla.—Your correspondent "G. W. L." seems to doubt the truth of the passage in the Zoological Society's Guide Book having reference to the nidification of the Brush Turkey (Talegalla Lathami, of Gould), whose manner of reproduction as there stated he thinks will not bear "investigating by the ordinary process of analogical reasoning." Now I have

no intention of either justifying or defending the aforesaid Guide Book, which is, I know, not free from error on other subjects; the latter, however, have nothing to do with the point in question. Having myself lately visited the Society's gardens I particularly noticed the Talegalla, whose strong and powerful legs seem well adapted for throwing up or forming mounds of leaves, earth, or other matter. This fact must have been apparent even to "G. W. L." himself. We will suppose it then to be a settled point that it is capable of collecting or throwing up enormous mounds of fermentable matter, more especially when we are informed from a very creditable source that the mound is not the result of the labours of a single pair, but is produced by the combined efforts of many. This mound or nest, when completed, is then in itself nothing more than a self-acting incubator, in which the bird deposits its eggs, at the depth (we may premise) which nature teaches it will be proper to secure a sufficient heat to hatch them. Thus far, at least, the nidification of this singular bird is plain and probable enough. But we now come to the chief point in dispute, viz., the possibility of a young bird being able to extricate himself from a mound of this description, or as "G. W. L." puts it, "with its tender feet and legs, scratching its way out from under an enormous mass of fermenting leaves and earth." Comment on (I suppose the absurdity of) this subject your correspondent deems needless, and asks the question "does any one in their senses believe this?" Now, I myself adhere to the statement set forth in the Guide Book. One thing, at least, is certain, viz., if the eggs are deposited, and consequently hatched, in the mound, as we have every reason to believe they are, nature must have provided the chick with some means or other to extricate itself from the nest, otherwise the ends of natural reproduction would be defeated. That the old birds may assist the young to escape from their confinement is probable, but still more so that nature has provided the young bird with a more certain means of liberation in the strong and well developed feet with which it is furnished. And may not the same instinct that teaches the callow and unfledged nestling to gape for its food have taught the young Talegalla, in like manner, with the aid of its powerful feet, to work its way to both food and day. Speaking of "analogous reasoning," take for instance the nidification of the mound-making Megapoda Tumulus, which, although considerably smaller than the Talegalla, constructs a mound of earth and leaves, and deposits its eggs in like manner. Again, why should it be considered so preposterous for a bird whose structure is admirably adapted for its mode of life, to begin that life, as the case may be, by either swimming or scratching? Look, for instance, at the conduct of some of our water birds; ere they are scarcely an hour old, we see them apparently both experienced and skilful swimmers. Why then may not the Brush Turkey enter life not by swimming, as with the water fowl, but by a process infinitely more congenial to its general habits? For myself, I can see no great difficulty in the matter, or any impediment offered by a foot or two of leaves and earth, beyond what may be easily removed by the exertions of a young and vigorous bird like the one in question. Difficulties, however, may exist, and insurmountable obstacles present themselves that I am not aware of. But, in conclusion, I must own candidly that I do not perceive either the one or the other. For further and full information on this subject, let me refer your correspondent to the excellent and able work on the "Birds of Australia," by our eminent ornithologist Gould, who has spent several years (two of them personally on the spot), in investigating, collecting, and classing the hitherto almost unknown birds of that extensive country. *J. J., Strathfieldsaye.*

New Garden Pots (see p. 453).—I find in looking over last week's impression that the engraver has made a slight mistake in the form of my blanching pot. In the engraving the hole is made to go through the pot, instead of which it is made only partly through, from which about three smaller holes radiate to the outside of the pot. This provision is made with the view of excluding light, and as the whole surface is entire on the outside, for whatever purpose the pot may be used no wet can possibly find its way into the interior amongst the plants, &c. When these pots are used in growing summer plants this subterraneous mode of drainage will not only be found to be perfect, but where the pots are placed on the ground entirely prevent the ingress of worms, &c. *George Fry.*

Supply of Water to Wells, &c.—The shortness of the stock of water in the water-bearing strata is now becoming a serious question. Reference to the rain-guage guides us to the cause, the remedy is beyond our reach; though the inconvenience suffered in some places may in some measure be met, especially in supply to wells. The rain-guage for the 19 months ending with April last gives us rather under the average for 12 months. Wells in the chalk and other strata showed at the beginning of May an unusual depression, at a season when on the average the subterranean stock of water is at its height. In May we had the average of rain, in June above the average, which told very slightly on the supply. For the two next months it will require an extraordinary rain fall to increase the supply in the least degree. The amount of evaporation and the quantity taken up by vegetation will prevent this. Dalton's rain-guage, as used by Mr. Dickinson, and constructed to register the amount of rain percolating 3 feet of soil, shows that during the six summer months from April to September inclusive, only 0.57 parts of an inch of an average rain fall of 12.29 inches is so registered. It is shown by a table in a paper read by Mr. Dickinson before the Royal Society in 1851, that in the month of July in 15 years there fell 36 03 inches of rain, of which only 0.34 was registered by Dalton's guage; in the same period in August of 36.00 inches only 0.29, and in September of 36.76 2.95, of which 1.50 was registered in 1839 and 1.30 in 1842. Thus, till the end of September, we have no reason to calculate upon any percolation of rain to increase the subterranean stock of water; we must, therefore, make the best of that we now have. It must be borne in mind that all subterranean water lies at a certain inclination in the stratum in which it is held, the dip of this inclination being towards the vent or outfall; that the angle described by a line indicating its surface increases as the stratum through which the water percolates is more or less retentive; and that the alternation of level caused by the infiltration of rain is represented by a line fixed at the vent, and rising at an angle increasing with the distance from the vent. When a well fails by the depression of this line, the obvious remedy is to deepen the well; if it becomes perfectly dry, this is the only course. But if it should only fail after a certain amount of exhaustion, and the water should rise again to a certain level, however slowly, it will often be better to increase the diameter of the bottom of the well if the nature of the stratum into which it is sunk will permit; more fissures and a greater surface of infiltration will be spread, and a subterranean reservoir formed, whence a larger supply at one time might be drawn. It is often dangerous to deepen a well, lest a clay below the porous stratum should be pierced, and so expose the water to contact with substances such as iron pyrites, &c., which impart a new chemical character to the water, and impregnate it with deleterious matter. There is another expedient, namely, boring, which seldom effects a good commensurate with the expense and trouble. We are not speaking of Artesian wells, which can only be had under certain geological conditions. Thousands of pounds have been thrown away on experiments which never ought to have been made, and which have been suggested by ignorant or interested parties, who have persuaded the owners of wells to try to make their wells Artesian, or to bore in the hope of getting the water to rise in wells in which the water has failed; but no boring into a water-bearing stratum, except it be covered by a stratum impervious to water, will cause the water to rise one inch. It is true that the supply to wells in chalk and other such strata may be increased by boring, but generally a deepening of the shaft a few feet will be better than the deepest boring, and in no case will boring supply water to a well that has become dry. The failure is simply because the water level (as now) has become depressed below its usual alternation. I could name wells in the chalk where this alternation is 100 feet in perpendicular height, yet there is water below, for in no case have I found the water in the chalk to stand at a less inclination than 10 feet in the mile above the vent or outfall. Suppose a mass of chalk resting on a clay at a dead level, at one mile from the vent, spring, or river, there would be 10 feet of chalk charged with free water in its cracks and fissures. The adjustment of the water level in all pervious or porous strata is a most beautiful exemplification of the law of hydrostatics, regulated by the friction or amount of resistance presented by the stratum through which the water flows to its vent in springs and rivers—hence the inclined line; without this the springs and rivers would not, as now, be virtually perennial, for the whole stratum would be drained in seasons of drought, before the period of replenishment arrived. Hence, too, the security to wells, and the almost certainty that when they fail there is still water beneath. *James O. Clutterbuck, Vicarage, Long Wittenham, Abingdon.*

Wasps, &c.—Allow me to acquaint the gardening world that I have during May and June at a penny and a halfpenny got during May 305 wasps and in June the large number of 1778, making a total of 2083 large wasps, mostly Queens, during the last two months. During May they were mostly found on the Gooseberry bushes, and during June upon the Snowberry. My gardener killed about 40 or 50 upon a Snowberry bush in my garden. I am of opinion that the swarm we had must have come from some foreign clime. I remember, when in Berkshire in the summer of 1794, that my Aunt Lisle's house and gardens and neighbourhood were covered with a large flight of that small insect called ladybird; and we had no doubt then that they were wafted over by the wind from France. I hope our fruit may not be again destroyed as it was last year. *J. Lisle, LL.D., St. Fagan, Cardiff.*

Societies.

Horticultural, July 11: Garden Exhibition.—On this occasion fruit was unusually abundant and excellent, and formed, as it was intended it should do, the most attractive feature of the show. Of Pine Apples there were no fewer than 50 specimens, most of them large and handsome; Black Grapes numbered 20 dishes, and of White varieties there were 21 exhibitions; Peaches and Nectarines amounted to some 60 dishes, and Cherries, Strawberries, and Melons were proportionately numerous.

Collections of Fruit.—Of these, considerably the best came from Mr. Ingram, gr. to her Majesty at Frogmore. It contained a Queen Pine Apple weighing 4 lbs., and beautifully ripened; admirable specimens of Victoria and Jefferson Plums; very fine Royal George and Bellegarde Peaches, Murrey Nectarines, Black Hamburgh and Royal Muscadine Grapes, Elton and Black Eagle Cherries, and Prince of Wales Strawberries. Mr. M'Ewen, gr. to the Duke of Norfolk, at Arundel, also had a collection in which were Victoria Plums, Royal George and Walburton Peaches, Hunt's Tawny and Murrey Nectarines, a Queen Pine Apple, Black Hamburgh and Muscat Grapes, red and white Gooseberries, Elton Cherries, and Brunswick and other Figs. Mr. Watson, market gardener, Ealing, sent three Queen Pine Apples, good Elruge Nectarines, Muscat Grapes somewhat unripe, Black Circassian Cherries, two Melons, and British Queen and Keens' Seedling Strawberries.

Pine Apples.—Mr. Jones, gr. to Lady Charlotte Schroiber, furnished a Providence weighing 12 lbs. 3 oz.—a noble looking fruit, but green towards the top. Mr. Fleming, gr. to the Duke of Sutherland, had a Providence weighing 6 lbs. 12 oz., and a fruit of the same variety, weighing 5 lbs. 12 oz., came from Mr. Turnbull, gr. to the Duke of Marlborough at Blenheim; the last-named exhibitor also sent a Cayenne weighing 4 lbs. 12 oz. A Providence weighing 5 lbs. 12 oz. was furnished by Mr. Dodds, gr. to Col. Baker; and from Mr. Taylor, gr. to H. C. Ingram, Esq., came two specimens of Black Prince, the best of which weighed 7 lbs. 12 oz. These were large and beautifully-grown fruit, but overripe towards the base. The best Queen Pine came from Mr. Gostling, gr. to Mrs. Deacon; it weighed 4 lbs. 15 oz. Mr. Spivey, gr. to J. A. Houblon, Esq., Mr. Davis, gr. to T. W. Booker, Esq., Mr. Fleming, gr. to the Duke of Sutherland, Mr. Barron, gr. to Mrs. Vivian, Mr. Jones, gr. to Lady Charlotte Schroiber, Mr. Merryfield, gr. to H. J. Grant, Esq., Mr. Dodds, and Mr. Taylor also all exhibited Queen Pines, the heaviest of which weighed 4 lbs. 10 oz.

Grapes.—Excellent Black Hamburgh, large both in bunch and berry, and extremely well coloured, came from Mr. Stent, gr. to W. Herbert, Esq.; Mr. Fleming, gr. to the Duke of Sutherland, also had admirable examples of this variety; but scarcely so perfect as Mr. Stent's, the point of one of the bunches being deficient in colour. This last mentioned bunch was stated by Mr. Fleming to weigh upwards of 3 lbs. The same exhibitor likewise showed specimens of Mill Hill Hamburghs, which were in all respects perfect; one of the bunches in this exhibition must also have weighed more than 3 lbs. Mr. Williamson, gr. to the Earl of Lonsdale, Mr. Forsyth, gr. to Baron Rothschild, Mr. Tillyard, gr. to the Rt. Hon. the Speaker, and Mr. Hill, gr. to R. Sneyd, Esq., also showed black Hamburghs, which though good, were all inferior to the magnificent bunches produced by Mr. Stent and Mr. Fleming. Three good bunches of Black Prince, well coloured, but not large in berry, were wrongly shown in this class by Mr. Turner, gr. to J. Hill, Esq., of Streatham. In the Market Gardeners' Class Mr. Harrison, of Oatlands, had a basketful of Black Hamburgh, not large either in bunch or berry; but extremely well coloured, and covered with a most beautiful bloom. Muscats, though not possessed of that fine golden tinge which they should have when in perfection, were riper and better on this occasion than we have seen them at any previous show this season. The best came from Mr. Turnbull, gr. to the Duke of Marlborough; these were large both in bunch and berry; good exhibitions of this variety also came from Mr. Strachan, of Beach Hall, near Chester; Mr. Mitchell, of Brighton; Mr. Allport, gr. to H. Akroyd, Esq.; Mr. Clarke, of Hoddesdon; Mr. Tillyard; Mr. Smith, gr. to S. Ricardo, Esq.; and Mr. Taylor, gr. to J. Coster, Esq. Frontignans were furnished in excellent condition by Mr. Fleming and Mr. Tillyard; the last named exhibitor likewise showed beautiful bunches of White Muscadine, as did also Mr. Shrimpton, gr. to A. Doxat, Esq.; Mr. Busby, gr. to J. Crawley, Esq., exhibited three excellent bunches of his new Seedling Grape called Stockwood Golden Hamburgh, a valuable acquisition, which at first sight might easily be mistaken for a Muscat of Alexandria; it is, however, in reality quite a different thing, having no muskiness whatever in its flavour, which may be described as intermediate between that of the Sweetwater and Black Hamburgh. This excellent addition to White Grapes we are informed will ripen in perfection in the same house with the Black Hamburgh.

Peaches and Nectarines.—Mr. Turnbull, gr. to the Duke of Marlborough, showed very fine specimens of Bellegarde Peaches and Elruge Nectarines; and Royal George Peaches, and red Roman Nectarines, nearly equally good, came from Mr. Mitchell, of Brighton. Mr. Miller, gr. to Sir W. Smith, Bart., contributed Grosse Mignonne Peaches and Violette Hâtive Nectarines; and good Royal George, and other Peaches, and Elruge and Violette Hâtive Nectarines, came from Mr. Munro, gr. to Lord Clarendon, and Mr. Munro, gr. to Mrs. Oddie. Mr. Ingram, gr. to J. J. Blandy, Esq., sent Noblesse, Bellegarde, Royal George, and Acton Scott Peaches. In the class of single dishes of Peaches Mr. Judd, gr. to Earl Spencer, showed beautiful specimens of Grosse Mignonne; Mr. Davies, gr. to J. Dixon, Esq., sent Royal George; Mr. Mitchell, gr. to Lord Wenlock, Bellegarde; Mr. Clements, of Oak Hill, Noblesse; Mr. Busby, gr. to J. Crawley, Esq., Violette Hâtive; Mr. Tillyard and Mr. Frost, gr. to R. L. Betts, Esq., Noblesse; Mr. Fleming, Royal George; and Mr. Macqualter, gr. to Colonel Challoner, and Mr. Hay, gr. to the Bishop of London, Bellegarde. Of Nectarines, Violette Hâtive, large in size and beautifully

coloured, came from Mr. Clements; and excellent dishes of the same variety were furnished by Mr. Macqualter, Mr. Frost, Mr. Wilson, gr. to J. Elger, Esq., Mr. Judd, and Mr. Busby. Mr. Munro, gr. to Mrs. Oddie, also showed good specimens of Red Roman Nectarines.

MELONS.—The best were a hybrid Cashmere, a tender white-fleshed sort, and a Trentham hybrid, from Mr. Fleming. The next in point of merit was a Beechwood, from Mr. Batchelor, gr. to J. Shoolbread, Esq.; Mr. Brown, gr. to Colonel Biddulph, had a good Bromham Hall, and Mr. M'Ewen, gr. to Colonel Windham, at Petworth, sent Lord Montague, a green-fleshed variety. The heaviest Melon was furnished by Mr. Pengilly, gr. to R. J. Thomson, Esq.; it was a green-fleshed sort, weighing 4lbs. 13 oz. Mr. Tegg, gr. to A. Pryor, Esq., showed an Egyptian green-fleshed, which weighed 4 lbs. 1 oz.

CHERRIES.—Excellent specimens of Black Circassian were contributed by Mr. Taylor, market gardener, Brentford; the same variety also came from Mr. Meyers, of Brentford, and Mr. Meyers, of Ealing; Mr. Jones, of Brentford, likewise sent Black Circassian, and Mr. M'Ewen, gr. to Colonel Wyndham, Knight's Early Black. Of white varieties, Mr. Meyers, of Brentford, sent Bigarreau, large and fine; Mr. Taylor, beautiful specimens of Elton; Mr. Meyers, of Ealing, Bigarreau; Mr. M'Ewen, the same variety, and Mr. Mitchell, of Brighton, Elton.

FIGS.—Brown Turkey and Brown Ischia came from Mr. Mockett, gr. to J. Allnutt, Esq., and Mr. Judd, gr. to Earl Spencer.

RASPBERRIES.—The only dish shown was one of Beehive, from Mr. Lydiard, of Bath.

STRAWBERRIES.—The best collection was furnished by Mr. Lydiard, of Bath. It contained large and fine examples of Goliath, Princess Royal, and Victoria; Mr. Macqualter and Mr. Tillyard also had good collections, in which we remarked a very fine basketful of the white Bicton Pine. Mr. Ingram, gr. to J. J. Blandy, Esq., sent Keens' Seedling, British Queen, and Princess Alice Maude. In the class of large Strawberries (flavour being set aside) Mr. Smith's (of Twickenham) Sir Charles Napier was the lion of the exhibition; nearly equal to it, however, were the remarkably fine specimens of British Queen shown by Mr. Jones, of Brentford. Mr. Lydiard, of Bath, also had very large fruit of Goliath. Among best flavoured Strawberries a dish of Hautbois, shown by Mr. Macqualter, was placed first by the Judges; next came British Queen from Mr. Smith, of Twickenham, and Mr. Beach, of Isleworth; and then followed Mr. Ward's Omar Pacha; Keens' Seedling, Trollop's Victoria, Ingram's Prince of Wales, and Goliath were also shown in this class.

PLUMS.—Three beautiful dishes of these were furnished by Mr. Ingram, gr. to her Majesty at Frogmore. They consisted of Washington, Goliath, and Green Gage.

RARE EXOTIC FRUIT.—Mr. Ivison, gr. to the Duke of Northumberland at Syon, sent Plantain fruit, Nutmegs, and Vanilla.

FRUIT TREES IN POTS came from Messrs. Lane, of Berkhamstead; and Mr. M'Ewen, gr. to the Duke of Norfolk. The former sent Peaches and Nectarines, well furnished with green fruit; Morello Cherries, ripe, large, and good; and Gooseberries approaching ripeness. Mr. M'Ewen's exhibition consisted of Royal George Peaches, and Violette Hâtive Nectarines, both carrying ripe fruit, which was well coloured, but small.

ORCHIDS.—These were contributed in considerable quantities and in excellent order. In collections of 10 plants Messrs. Veitch sent Aerides Lobbi, a beautiful species in the way of affine, but more highly coloured; A. odoratum and its large variety; the singular looking and really handsome green tailed Dendrochilum filiforme, Saccolabium guttatum, Sobralia macrantha, the white Butterfly plant (Phalænopsis), the charming brown spotted rich orange yellow flowered Dendrobium chrysanthum, and a large flowered variety of the Bearded Lady's Slipper. Mr. Gedney, gr. to Mrs. Ellis, of Hoddesdon, contributed magnificent specimens of Phalænopsis with flowers as fresh, large, and clean as if it had been the month of May; also Oncidium Lanceanum and pulvinatum, Saccolabium furcatum, the brilliant orange-flowered Epidendrum vitellinum, E. verrucosum, Aerides quinquevulnera, still a rare species, a well bloomed Calanthe masuca, and the white flowered Phaius. Mr. Woolley, gr. to H. B. Ker, Esq., sent Sarcopodium Lobbi, Lælia cinnabarina, Cattleya violacea, a handsome kind; the White Calanthe veratrifolia, Sobralia macrantha, Epidendrum radiatum, Odontoglossum Lawrenceanum, Oncidium Lanceanum, and the white blossomed Phaius.

Of six ORCHIDS, there were four collections. Mr. Carson, gr. to W. F. G. Farmer, Esq., produced Miltonia spectabilis, the beautiful Cattleya superba, Phaius albus, Saccolabium Blumei, with several noble spikes of flowers on it, some of them perhaps scarcely forward enough; an extremely well managed Dendrochilum filiforme, and an example of the Bearded Lady's Slipper. Mr. Woolley furnished Saccolabium furcatum and guttatum, the orange flowered Epidendrum rhizophorum, Cattleya Harrisoniæ in beautiful condition, Aerides affine, and Vanda tricolor. Mr. Ivison, gr. to the Duke of Northumberland, at Syon, contributed the large and beautiful variety of Cattleya Mossiæ which he has shown before this season; also Oncidium ampliatum and luridum, Aerides odoratum, and Epidendrum macrochilum. Mr. Dunsford, of Chingsford, Essex, communicated, among others, nice plants of Saccolabium guttatum, Stanhopea oculata, well flowered, and Oncidium pulvinatum and leucochilum. Messrs. Veitch had their new variety of Cypripedium barbatum called superbum, and Mr. Carson Epidendrum rufum, a dull yellow-flowered kind.

VARIEGATED PLANTS were, as they deserved to be, much admired. In Messrs. Veitch's collection of them were several handsome panfulls of variegated Orchids; also Caladiums, Crotons, Dieffenbachia picta, variegated Screw Pines, Maranta albo-lineata, and other varieties of this fine genus; the charming Cissus discolor, Bilbergia rosea, beautifully mottled with white; the pretty Begonia Thwaitesi, the white veined Aphelandra Leopoldi; Coleus Blumei, with brown blotched leaves, edged with pale green; a variegated Hydrangea and Sonerila margaritacea, whose foliage, sown as it were with pearls, renders this valuable little plant always interesting. Messrs. Lee contributed, among other things, Pavetta borbonica, Cissus discolor, Caladiums, Dracæna ferrea, Maranta zebrina; Aphelandra Porteana, a fine kind with rich orange yellow inflorescence; Begonia splendida, one of the handsomest of the genus, as far as fine foliage is concerned; Crotons and variegated Screw Pines. Messrs. Rollisson sent Caladiums, Yuccas, Ananassa sativa variegata, Dracænas, Hoyas, Marantas, Pavetta borbonica, and variegated Orchids. Messrs. Henderson, of Pine Apple Place, and Messrs. Jackson of Kingston also furnished groups, in which were Dichorisandra pumila, a variegated Agapanthus umbellatus, Hoya carnosa variegata, a Brunsfelsia, Dracæna versicolor, Tillandsia splendens, the red-veined Echites nutans, a variegated variety of Aspidistra lurida, Eranthemum leuconervium, and other plants the names of most of which we have already enumerated.

Of PLANTS with fine FOLIAGE Messrs. Veitch contributed a collection, the greatest portion of which consisted of Palms, Zamias, and Ferns intermixed with Dracæna ferrea, Philodendrons, Plumierias, and other interesting species. Messrs. Rollisson, Henderson, and Jackson also furnished groups in which we remarked Eugenia oleoides, Laurus Cassia, Rhopalas, Metrodorea atro-purpurea, Aralias, Brownias, Araucarias, Brexias, Grevilleas, Dracænas, Stenocarpus Cunninghami, Caladiums, Palms, and some of the more striking of the large-leaved Ferns.

HOTHOUSE FERNS were well grown, and would have formed, had they been plentiful enough, an important feature of the exhibition. Collections of them came from Mr. Carson, gr. to W. F. G. Farmer Esq.; Messrs. Rollisson, and Mr. Gedney, gr. to Mrs. Ellis. In these exhibitions we remarked Asplenium Nidus Avis, fragrans, lucidum, and Belangeri; Lastræa paludosa, Acrostichum alcicorne, Blechnum corcovadense, Adiantum formosum and cuneatum, Cibotium Schiedeanum, Darea cicutaria, Aspidium coriaceum, Lomaria Patersoni, Drynaria coronans, with noble leaves more than 3 feet in length; Pteris tremula and umbrosa, Platycerium grande, Nephrolepis neglecta, Davallia tenuifolia and Sitolobium adiantioides, together with others mentioned in our report of the Royal Botanic Society's exhibition last Saturday.

HOTHOUSE LYCOPODS, well varied, and extremely well grown, came from Messrs. Gedney, Veitch, and Woolley. Among the different varieties were Apodum, a compact and pretty kind; cæsium, and its large variety, viticulosum, Wildenovi, stoloniferum, Mertensi, umbrosum, flexuosum, formosum, Galeotti, cordatum, and inæqualifolium. The bright metallic hue of some of these, together with the elegant forms of others, deservedly rendered these exhibitions objects of much interest.

ROSES (cut) filled nearly one side of a long tent, and the weather being wet and cool they maintained their freshness and beauty till the close of the day. Collections of 50 sorts were contributed by Messrs. Mitchell, of Piltdown; Paul, of Cheshunt; Lane, of Berkhampstead; Francis, of Hertford; and Wilkinson, of Ealing: and of 25 varieties by Mr. Munro, gr. to the Earl of Clarendon; Mr. Terry, gr. to Lady Puller; and Mr. Busby, gr. to J. Crawley, Esq. Mr. Mitchell's blooms were altogether extremely fine, and attracted much attention. In the different boxes we noticed examples of nearly all the leading kinds in cultivation; but more especially of Paul Ricaut, a fine Rose, with a glowing crimson colour; Hybrid Perpetual General Jacqueminot, a more brilliant flower than even Géant des Batailles itself; Coupe de Hebe, which everybody knows to be a first-class Rose; William Griffiths, Cloth of Gold, Vicomtesse Decazes, and Gloire de Dijon, together with Souvenir de Leveson Gower, Triomphe de Paris, Paul Dupuy, General Castellane, Madam Rivers, and Prince Leon. These last are comparatively new kinds, which we hope to notice more fully hereafter.

NEW PLANTS were scarce; Messrs. Veitch sent Ixora floribunda, a rich salmon kind, and apparently a very free flowerer; Fenzlia dianthiflora, whose flowers, owing to the dullness of the day, did not open; and Phygelius capensis with long brown tubular blossoms. The same firm also exhibited spikes of a Californian Lupin, a strong growing pinkish-flowered kind, and plants of their shrubby Californian Phlox (Leptodactylon). I. Anderson, Esq., of Maryfield, near Edinburgh, sent Salvia carduacea, a grey-leaved Thistle-like species with lilac flowers, and two white-flowered Gilias. Mr. Carson had Ornitharium striatulum. Of New Plants not in flower, Mr. Linden furnished two kinds of Calanths, both with handsome leaves, and Calyptraria hæmantha.

In the class of New Garden HYBRIDS, Messrs. Rollisson showed Gloxinias, the best of which were Maria Paulovnia, and erecta grandis; also Achimenes Dr. Hoff, a variety very much like the continental kind named Ambrose Verschaffelt. Messrs. Henderson, Mr. Glendinning, and Mr. Woolley, also exhibited Gloxinias, the best of which were alba auriculata, white-ringed with crimson, and erecta auricula, violet. Messrs. Veitch again showed their Princess Royal Rhododendron. Mr. Ingram sent a hybrid Achimenes in the way of pedunculata, but far more brilliant, and extremely handsome. Mr. Bragg, of Slough, contributed some very pretty varieties of Sweet Williams in pots, and cut flowers of the same came from Mr. Hunt, of High Wycomb.

Of FUCHSIAS Mr. Gaines, of Battersea, showed a collection of well-grown plants, whose names we have given on former occasions. Messrs. E. G. Henderson furnished two of their white corolla'd Fuchsias, which are certainly curiosities in their way. One of them, named Princess Royal, appears to be a free grower, and will doubtless form a good addition to this class of plants.

Of variegated leaved PELARGONIUMS, Mrs. Conway, of Earl's Court, Brompton, sent a collection consisting of Brilliant, Golden Chain, Flower of the Day, Lee's Attraction, Silver-striped, and Mountain of Light. These were all neat dwarf plants. A collection of prettily variegated varieties was also shown by Mr. Barter, gr. to T. Lenox, Esq., who we need not state is a very successful raiser of such things.

PELARGONIUMS, both fancy and ordinary kinds, came from Mr. Gaines, who had also fine plants of Attraction and Mountain of Light, both finely variegated varieties. The same exhibitor also sent examples of the French sorts called Elise Miellez, Dr. Margolin, Eugene Sue, Solomon, Dr. Andrey, and Adolph Odier. These, although not well formed, are well worth growing on account of their gay colours.

Of VERBENAS in pots there were two collections; one from Mr. Wetherall, gr. to D. McNeill, Esq., who also sent cut blooms; the other from Mr. Higgs, gr. to Mrs. Barchard. Both were deficient in bloom. The plants in the group from Mr. McNeill were tied down to horizontal circular trellises, a plan which is perhaps preferable to fastening the shoots to upright sticks. In our report of the Royal Botanic show last week we stated that Verbena Sir Colin Campbell was shown by Mr. Smith. This is a mistake; it was contributed by Mr. M'Neill.

PINKS came from Messrs. Turner, Bragg, and Mitchell, and were considered by the judges worthy of an extra prize. All of them were fair specimens for the season. Mr. Turner had a promising well laced new flower called "Peter Young."

Among MISCELLANEOUS PLANTS were Hemiandra pungens, and Stylidium scandens, from Messrs. E. G. Henderson, St. John's Wood; a large and unusually well flowered specimen of Roupellia grata, from Mr. Carson, gr. to W. F. G. Farmer, Esq., who also sent pretty plants of Hoya bella and Dipladenia crassinoda.

Notices of Books.

We perceive that Mr. Willis is bringing out a new edition of Wood's *Index Testaceologicus* in parts, price 4*s.* 6*d.* each. The revision of the work has been intrusted to Mr. Sylvanus Hanley. Each part is to contain three coloured plates, averaging 180 coloured figures. The specimen before us is extremely well got up.

A new and greatly enlarged edition of *Eliza Acton's Cookery* has just appeared (Longmans, 7*s.* 6*d.*), embellished with numerous woodcuts, and enlarged by the addition of a great number of new receipts. We need not say that this is one of the most useful of our English publications on domestic economy, containing as it does all that the housekeepers or cooks of the middle classes can require to know. The authoress informs the public that in the present edition she has availed herself of the instructions upon cookery given by men of science and especially by Baron Liebig; we can only express a hope that our cooks will appreciate the advice. Mrs. Acton adds what is of much more interest, that efforts are being made, by the establishment of well conducted schools, for the early and efficient training of our female domestic servants. Let us trust that her expectations may soon be realised, and that we shall be provided with a race of cooks not too ignorant to use the good advice which they find in the many good cookery books now within everybody's reach. We would even commend the subject to the Board of Health, as one which most especially comes within their line of operation; for it is of little use to purify the atmosphere we breathe until general health is improved by rendering what we eat conducive to nutrition rather than to indigestion. In no country do better raw materials of food exist than in England; nowhere can be found better flour, better meat, better fish, better vegetables, we will even add better fruits. Nowhere in the world, notwithstanding these advantages, is to be found worse cookery than among our middle classes. But we hope and believe that some improvement in this respect is beginning to take place, and above all that some serious attempt will be made to teach our lower orders how to economise and best employ the materials of food which they possess. Had our peasantry been even decently taught the rudiments of *good* plain cooking, we should never have heard the heartrending tales of starvation at Scutari caused by the uneatable provisions supplied to our neglected troops.

FLORICULTURE.

NATIONAL FLORICULTURAL SOCIETY, *July* 12.—Dr. Sankey in the chair. Dr. Maclean, of Colchester, exhibited a seedling Pink named Purity, to which a First-class Certificate was awarded. Mr. Turner, of Slough, also obtained a First-class Certificate for "Peter Young," a full-sized dark-laced variety. Mr. J. Cole, of St. Alban's, sent some seedling bedding Calceolarias, one of which, "Compacta" (bright bronze yellow), obtained a Certificate of Merit; it is a free blooming attractive variety. Mr. Speed, of Edmonton, exhibited a desirable scarlet Geranium named General Simpson, brilliant orange-scarlet in colour, with a white centre; it has a full-sized truss, and its flowers are very persistent; a Certificate of Merit was awarded it. A First-class Certificate was given to Mr. Todman, Clapham Park, for Verbena General Simpson, a dull carmine variety, but with a well-formed truss. The same grower also sent a promising seedling fancy Geranium named Sir Colin Campbell, which the judges wished to have before them in better condition. Messrs. Veitch & Son exhibited a spotted Geranium called Agnes, which is good in form and substance, and brighter than Sanspareil; a Certificate of Merit was awarded it. Several other seedling plants were exhibited, and among them a bedding Geranium named Quercifolium floribundum, apparently a desirable variety for bedding, but it was not shown in good condition. Mr. George Smith sent blooms of his seedling Petunia Hermione, white with bright purple spots, a distinct and attractive variety. The 1st Prize for 12 Verbenas was awarded to Mr. C. P. Lochner, for Maryanne, Titus, Reine des Amazons, Caliban, Mrs. D. Tysson, Subram, Eva, Queen, Mrs. Mills, Elizabeth, and Shylock. The 2d Prize was gained by Mr. George Smith, for Mrs. Woodroffe, Alice, Standard, Rosea, Madame de la Vallière, Iver Rival, Comtesse de Belleville, Lord Ragtan, Madame Schmidt, Brillante de Valse, Eblouissante, and Queen. Mr. Turner sent a stand of 24 Pinks. The Rev. J. Dix was proposed a member.

Miscellaneous.

Climate of Orchids.—Mr. Motley, when describing the vegetation at 10,500 feet of elevation in Java, on the Pangerongo Mountain, observes: — Up among these plants, amid the Moss which hangs to the trees in masses as big as a man's body, are two fine parasitical Orchids, a Dendrobium with bright purple flowers, D. purpureum, and a little pseudobulbous plant with large flowers like a Cymbidium; and yet these plants, often exposed to 36°—38° Fahr., we should perhaps put at home into an orchideous stove at 85°, and then be surprised when they died. I was much astonished at the distribution of plants of this tribe. I have often been puzzled why I did not get more species at Labuan and in other steamy hot places down at the sea-level, where, I believe, most English botanists would hope to find them; whereas at about 4000 feet, with a night temperature of 45° to 50°, every tree is laden with them. Surely we are in the habit of coddling them (to use a Yorkshire word) too much in our stoves; and when it is considered that a change of plan would bring these lovely and curious plants within reach of many zealous cultivators who cannot now afford the expense, it would surely be worth some nurseryman's while to try the experiment on a large scale of cooler houses for Orchids. *Hooker's Journal of Botany.* [We long ago anticipated this suggestion, which is already carrying out with the greatest advantage by our best growers.]

Among Sweet Herbs, Basil (Ocimum basilicum) has been much grown, as a condiment or for medicinal purposes, in all hot countries from the very earliest times on record. It is an annual that sows itself so abundantly over the warmer regions of Asia and Africa, that it is impossible to say which may have been its original native country. Numerous varieties are recorded as produced by cultivation, and some other species are grown in India and Africa, but the common O. basilicum (which I am now convinced should include the O. minus) is the only botanical species known in Italy, where several varieties are great favourites in the cottage windows of the lower orders. Sweet Marjoram (Origanum Majorana) was introduced by the ancient Romans from Egypt or Syria, where it is still common in a wild state. Tarragon (Artemisia dracunculus), widely spread over South Russia, was brought, probably, from the shores of the Black Sea, in more recent times. The first mention on record is by Simon Seth, in the middle of the 12th century, but it appears to have been scarcely known as a condiment till the 16th century. *Journal of Horticultural Society.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—During bright warm weather the beds and borders of this house must be liberally supplied with water; any of the specimens or twiners upon which red spider may seem inclined to be troublesome should be well washed with the engine as often as may be necessary to thoroughly clean them. But things in flower must not be dashed over-head with the engine, and all pot specimens in flower should be removed out of the way, and others spared as much as possible. If former directions have been attended to, however, keeping the beds and borders properly supplied with water, and the atmosphere moist, red spider will hardly be troublesome except upon things in a weakly state, or those growing in poor exhausted soil, and such should be assisted by an occasional watering with manure water, but this must be used in a very weak state for New Holland and other plants which are readily injured by too strong manure water. A little weak and often is greatly preferable to strong doses. Look over the pot specimens on the forenoons of bright hot days, in order to see that everything is well supplied with water at the root, for a day's neglect in watering at this season may tell seriously upon the beauty of the finest specimens. Remove decaying leaves and flowers immediately they are perceptible, and endeavour to have a good supply of specimens in full beauty, so as to be able to replace any that are becoming shabby; also keep pots, floors, and everything about this house scrupulously clean and neat. GREENHOUSE.—Many of the usual occupants of this house will do better in a sheltered situation out of doors while the weather continues fine than under glass, and such things as Epacrises, the freer growing varieties of Heaths, the hardier kinds of New Holland plants, and many other things should be removed to a sheltered shady situation out of doors, but where the glass can be removed at night, so as to afford the plants the benefit of the night dews, there will be nothing gained by removing any kind of plants to the open air; and specimens that have not fairly started into growth after being cut back should be kept under glass until this is the case, dewing them over-head with the syringe on the evenings of fine days, and using every means to keep the atmosphere about them moist until they get into free growth. Most hard-wooded plants in frames will be benefited by exposure to the night dews, and the sashes should be thrown off late in the evening, replacing them in the morning, and shading against bright sunshine, and giving air freely back and front, or tilting the sashes at the sides, which is the better practice, as it admits air freely without the plants being so much exposed to currents of drying air. Things in want of more pot-room should be shifted as soon as possible, so as to get them well established in their fresh pots before winter; but in shifting hard-wooded plants in hot dry weather great care should be exercised to have the balls and soil in a properly moist state, and the plants must be carefully shaded, keeping the atmosphere as moist as possible for a few weeks after shifting.

FORCING DEPARTMENT.

PINERIES.—Assist plants swelling their fruit with a high moist temperature and plenty of manure water at the root, shutting up early in the afternoon and syringing the plants lightly. Be careful, however, with fruit colouring, and keep these as dry as circumstances will admit, otherwise they will probably be deficient in flavour. Give every possible attention to securing a supply of fruit for autumn and early winter use, keeping plants that appear to have completed their growth rather dry at the roots, and fully exposing them to the sun for a few weeks, in order to give them a rather severe check. Plants intended to show fruit towards October and November should be kept growing away freely for some time yet, and these must be carefully supplied with water at the root during bright hot weather; also be very careful in supplying young stock with water, and affording them a moist atmosphere, as any neglect in this respect during the present state of the weather will be very apt to cause them to show fruit prematurely; and young stock from which free growth is expected must not be allowed to suffer for the want of pot room. VINERIES.—Attend to last week's directions as to thinning late fruit, for depend upon it that a very moderate crop of first-rate fruit will be more valued and more satisfactory to the owner than ever so heavy a crop if of inferior quality; therefore, thin severely and early, and give every attention to keeping the foliage clear of insects, and the Vines in vigorous health. Where the borders are of a rather dry light nature, an occasional soaking of manure-water may be given with advantage to plants swelling their fruit, and inside borders will require a liberal supply of water while the weather continues hot and dry. Give abundance of air day and night where the fruit is colouring. PEACHES.—Look sharply after red spider upon the trees generally, particularly any that are rather weak from being over-cropped, or from any other cause, and give the trees a thorough washing with the engine wherever this pest is perceived, repeating this as often as may be necessary to thoroughly eradicate the pest. Do not allow the borders to become too dry where the fruit is not yet ripe, and trees from which the fruit is gathered must not be allowed to get excessively dry at the root if the foliage is to be kept in health for any length of time. MELONS.—Do not allow the bottom-heat to decline in dung beds, for although it might safely enough be dispensed with while the weather continues hot, it cannot be renewed all at once when a change of the weather may render it necessary, and a crop of fruit is often injured by neglecting the bottom-heat during fine weather, therefore apply linings wherever they may be necessary to maintain a gentle bottom-heat, especially where the fruit is setting. Give every attention to keeping the foliage clear of insects, keeping the surface of the soil moist wherever this can be safely done, but keep the atmosphere dry where the fruit is ripening.

FLOWER GARDEN AND SHRUBBERIES.

Go over the beds frequently, keeping the young shoots of Verbenas, &c., nicely regulated and pegged down until the beds are fairly covered, after which, unless where the soil is very strong, or where it may be desirable to keep the masses as low as possible, the shoots of most varieties may be allowed to grow at liberty. Keep the surface soil clear of weeds, and should the weather be such as to render watering necessary, do not let the plants feel the want of moisture at the root. See that Dahlias and Hollyhocks are tied as they advance in growth. Look over Roses, and dip any shoots found to be infested with green-fly in tobacco-water. Also keep these well supplied with water at the root, which will greatly improve the flowers as well as prolong the beauty of the plants, for the flowers soon fade in bright hot weather when the plants are allowed to get dry at the root.

HARDY FRUIT AND KITCHEN GARDEN.

Get all kinds of winter greens planted out as speedily as ground can be obtained; and where this cannot be done at present to the usual extent, see that the plants are either pricked out or sufficiently thinned to allow of their growing dwarf and strong; and if a goodly portion of old Mushroom-bed dung were mixed with the soil before pricking out, the roots would run into this, so that the plants might be removed with balls, and would hardly feel the shift. Also get Leeks planted on strong, deep, heavily manured land, and attend to these and all other newly planted things with water until they get fairly established. Give the Asparagus plenty of manure water from the stable or farm-yard tank, in order to strengthen the roots after cutting and induce strong growth. On dry, friable soils a good dressing of salt may be applied with advantage; but this should not be given on strong tenacious soils, as it keeps the ground wet and heavy in winter and decays the roots. Proceed with the planting out of Celery as fast as ground can be spared, and see that the whole is liberally supplied with water. See to keeping up a succession of French Beans, also Salad of all kinds, making a sowing of Parsley for winter use.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending July 12, 1855, as observed at the Horticultural Gardens.

July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain
Friday 6	[illegible]	30.045	30.027	77	44	60.5	65	61	W.	[illegible]
Satur. 7	23	30.079	30.064	74	50	62.0	64	61	E.	[illegible]
Sunday 8	24	30.025	29.867	79	55	67.0	64	61	S.E.	[illegible]
Mon.. 9	25	29.775	29.599	80	59	69.5	61½	61½	E.	[illegible]
Tues. 10	26	29.608	29.585	82	59	70.5	65	61½	S.W.	[illegible]
Wed. 11	27	29.541	29.516	71	55	63.0	66½	61½	N.	[illegible]
Thurs. 12	28	29.840	29.747	81	52	66.5	63	61	N.W.	[illegible]
Average.		29.844	29.772	77.7	53.4	65.5	64.5	61.2		[illegible]

July 6—Foggy; hot and dry; fine.
— 7—Hazy; very fine throughout,
— 8—Very fine; light clouds; overcast at night.
— 9—Hazy; slight rain; very fine; thunder, much lightning and rain.
— 10—Cloudy and fine; very fine; partially overcast.
— 11—Constant heavy rain.
— 12—Overcast; very fine throughout.
Mean temperature of the week 2½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 29 years, for the ensuing week, ending July 21, 1855.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 15	75.0	50.3	62.6	15	1.46 in.	1	3	3	1	4	12	3	—
Mon. 16	76.2	51.1	63.7	8	1.60	2	3	3	—	2	12	5	[illegible]
Tues. 17	75.8	53.2	64.5	11	0.56	2	—	2	2	4	10	6	[illegible]
Wed. 18	73.7	51.5	62.6	13	1.22	—	—	1	—	5	11	4	[illegible]
Thu. 19	71.8	51.3	61.5	17	0.60	1	1	1	1	6	10	[illegible]	[illegible]
Frid. 20	71.5	51.4	61.4	17	0.47	1	1	2	—	1	15	[illegible]	[illegible]
Satur 21	72.4	51.1	61.7	12	0.54	2	—	1	1	3	11	3	3

The highest temperature during the above period occurred on the 17th, 1834—therm. 94 deg.; and the lowest on the 18th, 1851—therm. 39 deg.

Notices to Correspondents.

ARCHERY: *S Y.* Roger Ascham's book is by far the best. The modern works on the subject are, as far as we have seen, chiefly indifferent abridgments of his graphic instructions.

BEES: *H H.* You may use either ether or chloroform for stupefying your bees with perfect safety.‡

BOOKS: *J W.* Loudon's edition of "Repton," and Downing's "Landscape Gardening."‡

DEODARS: *Diss.* The ends of the leaves have been killed by something before they began to separate, and now they cannot do so; the consequence being that they are distorted in the struggle to separate at the base. What the cause is we know not. Certainly not light land, for nowhere do Deodars grow better than in the thin light soil of Dropmore.

INSECTS: *G R L.* We were unable to find any insect on your Parsnip, which was quite dried up. Can you favour us with other specimens?—*W F.* Your insects are one of the commonest kinds of weevils, Otiorhynchus vastator. The perfect weevils feed on a variety of garden plants, especially relishing buds of fruit trees, and their larvæ on succulent roots of plants.—*Althæa.* Your slip of Hollyhock was infested with a specimen of Oxytelus morsitans (one of the Staphylinidæ), a small mite and the larvæ of two different kinds of flies (Muscidæ). All common on decaying vegetables, and not, as we believe, the cause of the disease. Can you send us larger specimens of the diseased stems? *W.*

NAMES OF PLANTS: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*G N.* 2, Eucomis punctata; 6, some Stapelia not in flower; 4, apparently some Struthiola, perhaps ovata, not in flower. The berries may belong to the Chasselas musqué.—*L P.* Pyrus hybrida and Cerasus virginiana.—*Constant Reader.* A common pond weed, called Potamogeton crispus.—*Another Constant Reader.* Sanicula europæa. Would it not be more convenient to drop this everlasting signature, which only leads to confusion?—*Grass.* Aira cæspitosa, which always grows in tufts, and was in all probability introduced from having been mixed with bad Grass seed.—*T D.* Pelargonium Radula.—*J S P.* Myosotis alpestris.

RAT TRAPS: *G S s.* You are right. The plan we now find was originally published many years ago in the "Gardeners' Magazine;" a circumstance we had forgotten. The oversight shows that we are not familiar with the history of rat-catching, but not that the plan is otherwise than a good one. Mr. Van Hoytema stated it to have been taken from the "Farmer's Magazine" as we mentioned, and was as much in the dark as to its real origin as we were.

RHODODENDRONS: *R C L.* Do not move them now. In the end of August, or beginning of September, you may do so with safety.

MISC: *Delta.* The dry weather we have experienced may possibly account for your Rose tree shedding its buds this year. A the young shoots of your Gooseberries may be stopped with advantage, except those at the ends of the old branches, where you want new ones to fill up the bush.‡—*Corvus.* Full price will be given for the following Nos.: 1852, 39: 1853, 19, 37, and 45.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
WM. INGLIS CARNE, 10, Mark Lane, London.

PATENT SANITARY SEWAGE COMPANY'S NITRO-PHOSPHATED CARBON OR BLOOD MANURE, 5l. 10s. per ton, delivered in London, bags included. Each ton contains 1350 lbs. Blood and 11 per cent. of Phosphate of Lime.—Agents throughout the country.—22, Lincoln's Inn Fields, London.

TURNIP SOWING, ETC.

GENUINE HALF-INCH BONES AND BONE-DUST may be had in any quantity of JARED TERRETT HUNT, Lambeth Wharf, Upper Fore Street, Lambeth, near Vauxhall Bridge. Also Superphosphate of Lime and Sulphuric Acid for dissolving Bones. J. T. H. also invites the attention of Gentlemen and Agriculturists in general to his Superior Fine Bone-Dust for dressing Lawns, Parks, &c. Delivered to any Railway in London in Sacks.

PATENT WOOL MANURE, 8l. 8s. per ton.—Application for Agencies, from persons of influence and respectability, will be received until the 31st inst.
NOTTIDGE & Co., 81, Gracechurch Street, London.

CORN MANURE FOR SPRING SOWING.
CONCENTRATED URATE FOR GRASS, RAPE, AND ALL ROOT CROPS.
SUPERPHOSPHATE OF LIME.

THE LONDON MANURE COMPANY continue to manufacture the above Manures, which have been used with so much success for the last 14 years.
The London Manure Company also supply PERUVIAN GUANO (direct from importers' warehouses), Nitrate of Soda, Sulphate of Ammonia, Fishery and other Salts, Bone Dust, and every artificial manure of known value. EDWARD PURSER, Sec.
Office—40, Bridge Street, Blackfriars.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7l. per ton; Superphosphate of Lime, 7l.; Sulphuric Acid and Coprolites, 6l.
Office, 69, King William Street, City, London.
N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

MANURES.—The following Manures are manufactured by HODGSON & SIMPSON, Calder Soap Works, Wakefield, and MATTHEWS & Co., Manufacturing Agricultural Chemists, Driffield. SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-Dressing for Wheat, Barley, and Oats. SIMPSON'S NITRO-PHOSPHATE for Turnips, Potatoes, and all other bulbous root crops, price 8l. per ton. N.B. Manures specially prepared for Grass and Flax. The above have been successfully tested for the last Seven Years by the leading farmers in Yorkshire and Lincolnshire, and other counties, and were applied last season to a breadth of upwards of 15,000 acres of land with the most beneficial results to the crops. A List of Testimonials and other particulars will be forwarded by post on application.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

BUDDING'S GRASS-CUTTING MACHINE nearly new and in first-rate condition, to be Sold a bargain Cuts, Rolls, and Sweeps the Grass whether wet or dry at one operation. Admirably adapted for lawns, pleasure grounds, &c. On view at W. S. MULLINGER'S, General and Furnishing Ironmonger, Enfield, Middlesex.
W. S. M. has also on sale a large and well assorted stock of Garden Tools of every description. Galvanised Wire Netting, 3-inch mesh, 2 feet high, 6d. per yard run. Iron Hurdles and Continuous Fencing made to order. Greenhouses or Conservatories heated with hot water apparatus on the best principle by experienced workmen. Estimates given.

SAMUELSON'S PATENT GARDNER'S TURNIP CUTTER, which has been awarded NINE PRIZES by the Royal Agricultural Society. Samuelson's Patent Forking or Digging Machine. Samuelson's Registered Budding's Lawn Mower; Patent American and other Churns; Kase's Patent and other Liquid Manure Pumps; McCormick's American Reaper with Burgess's Patent Self-clearing Platform; Chaff Cutters; Cake Breakers; Corn Mills, &c., &c., &c.
Manufactured by B. SAMUELSON,
Successor to the late JAMES GARDNER, Britannia Works, Banbury.
Some of the above may be seen at Stand No. 64, Royal Agricultural Show at Carlisle, and in the Agricultural Department, Crystal Palace, Sydenham. And may be procured by orders direct as above, or of any respectable Implement Dealers or Ironmongers in the country.
Catalogues may be had post free on application.

IMPROVED MOWING AND ROLLING MACHINE.

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, Inventors and Sole Manufacturers, respectfully solicit the attention of the Nobility, Gentry, and Gardeners to this Improved Machine for Mowing and Rolling Lawns. The Machine is in operation in the Royal Gardens at Windsor Palace, Buckingham Palace, and at Osborne, in the Botanical Gardens at Kew, Regent's Park, Manchester, Sheffield, &c.; at Blenheim Palace, Trentham, Cleveden, Elvaston, Broadlands, Woburn Abbey, Clumber, Lilleshall, Castle Howard, Shrubland, Eridge Castle, Enville Hall, Tiptree Hall, Chatsworth, and in many other of the principal gardens in the kingdom as well as in the United States, British America, and on the Continent, where its merits have been fully proved, and its success established.
The machine is made to cut the breadth of 42, 30, 20, and 15 inches respectively, is exceedingly durable, easily managed, and adjusted to cut to the length required. The execution of the work is far superior to what may be attained by the most skilful mower, while at the same time a great saving of labour is effected, and the turf much improved. By the largest machine a Scotch acre may be mowed, rolled, and the Grass collected in one hour.
A. S. and Son have much pleasure in stating that they have made considerable improvements in their 15-inch or hand machine this year, by which the draught is considerably lessened. This machine combines all the merits and advantages of the larger machines with firm and secure construction, and is admirably adapted for borders and for lawns of no great extent.
ALEXANDER SHANKS and SON also respectfully solicit notice to "Fleming's Weeding or Salting Machine" for destroying weeds in gravel walks, court-yards, drives, &c. This machine is now in operation in many parts of England, where it has given ample satisfaction as the best and most economical means of thoroughly keeping down weeds or Moss.
Further particulars, with testimonials and prices, may be had on application.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
Patron—His Royal Highness Prince ALBERT.
President of Council—Earl BATHURST.
Principal—Rev. J. S. HAYGARTH, M.A.
Professors, &c.:—
Chemistry—J. A. C. VOELCKER, Ph.D., F.C.S.
Zoology, Geology, and Botany—JOHN BUCKMAN, F.G.S., F.L.S.
Veterinary Medicine and Surgery—G. T. BROWN, M.R.C.V.S.
Surveying, Civil Engineering, and Mathematics—F. ARMSTRONG, C.E.
Manager of Farm—G. AUSTIN.
The Second Session of 1855 begins in August. The annual fees for boarders vary from 45 to 80 guineas, according to age and other circumstances. The fee for out-students is 40l. per annum. The College course of lectures and practical instruction is complete in one twelvemonth, although a longer course is recommended. There is a department for general as well as for agricultural purposes. Prospectuses and information can be had on application to the Principal.

ANERLEY POULTRY SHOW—August 28, 29, and 30. Entries close August 6. Prize Lists, &c., may be had on application to the Secretaries, Anerley, Surrey.
EDGAR SMALLFIELD, HENRY F. WELLS } Hon. Secretaries.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—CARLISLE, 1855.

PROGRAMME.

THURSDAY, July 19.—Trial-yard open at 12 o'clock at noon, when the public will be admitted, at 5s. for each person, to view the trials of the Steam Engines. This payment has special reference to the Trial-yard only, and will not entitle the person who makes it to an admission into the general Show-yard for the exhibition of Implements.

FRIDAY 20, SATURDAY 21, MONDAY 23, and TUESDAY 24.—Trial-yard open at 9 o'clock in the forenoon, when the public will be admitted on each day at 5s. for each person, to view the Trials of the Steam Engines, Barn Works, and other Agricultural Machinery and Implements generally. This payment has special reference to the Trial-yard only, and will not entitle the person who makes it to an admission into the general Show-yard for the exhibition of Implements.

WEDNESDAY 25.—The Implement Yard open to the public from 7 in the morning till 6 in the evening; admission 2s. 6d. each person. The Judges to inspect the Live Stock and award the Prizes. At 1 o'clock (or as soon after as all the Judges shall have delivered in their awards), the public to be admitted into the Cattle-yard and to the Exhibition of Farm Poultry, on the payment of 10s. each person, at the Special Entrance; Members of Council and Governors of the Society being admitted by Tickets to be purchased at the Finance Department of the Society at the Show-yard. N.B. Notice will be posted up over such entrance when the Judges shall have completed their awards. At 8 o'clock in the evening the Yard will be closed.

THURSDAY 26.—The general Show-yard of Cattle, Horses, Sheep, Pigs, Farm Poultry and Implements open to the public from 6 in the morning till 6 in the evening; admission 2s. 6d. each person. The Dinner of the Society in the Pavilion adjoining the Show Yard at 4 o'clock, the doors open at 3.

FRIDAY 27.—The general Show-yard open to the public from 6 in the morning till 6 in the evening; admission 1s. each person. General Meeting of the Members in the Guildhall at 10 o'clock in the forenoon.

President—Mr. MILES, M.P.
Stewards of Departments.
CATTLE—Mr. Simpson, Mr. Woodward, Sir Stafford Henry Northcote, Bart., M.P.
IMPLEMENTS—Mr. Fisher Hobbs, Mr. Cavendish, Mr. Hoskyns.
POULTRY—The Hon. and Rev. Stephen Willoughby Lawley.
FINANCE—Sir Matthew White Ridley, Bart.; Colonel Challoner.
SALE OF TICKETS—Mr. Henry Wilson.
RECEIPTS AND ADMISSION TO SHOW-YARD—Mr. Raymond Barker.
PAVILION DINNER—Sir John V. B. Johnstone, Bart., M.P.; Sir John Villiers Shelley, Bart., M.P.; Mr. Brandreth, Mr. Thompson.
GENERAL ARRANGEMENT OF SHOW—Mr. Brandreth Gibbs.

By Order of the Council,
London, July 14. JAMES HUDSON, Secretary.

By the regulations of the Society, all persons admitted into the Show-yard, or other places in the temporary occupation of the Society during the meeting, shall be subject to the rules, orders, and regulations of the Council.

PAVILION DINNER TICKETS AND SUBSCRIPTIONS: at the Finance Department of the Show-yard. Pavilion Dinner Tickets, price 10s. each (including one-pint bottle of Wine), will be sold at the Finance Department of the Show-yard on the Wednesday and Thursday of the Show week, between the hours of 10 o'clock in the forenoon and three in the afternoon each day.

Subscriptions due to the Society will be received by the Finance Committee, at their department adjoining the public entrance to the Show-yard.

ROYAL AGRICULTURAL EXHIBITION AT CARLISLE.
RETURN TICKETS,
Available for 14 days, are issued for Windermere at Euston and the other principal Stations on the London and North Western, Lancashire and Yorkshire, and Midland Railways, at a little more than one Fare. Visitors taking advantage of this opportunity of seeing the English Lakes will find that trains are specially arranged to leave Windermere, so as to reach Carlisle at an early hour on the days of Exhibition.

Just published, second thousand, now ready,
HARRIET MARTINEAU'S GUIDE TO THE ENGLISH LAKES. Beautifully Illustrated, demy 4to, extra cloth gilt, 7s. 6d., fcap 8vo, 5s.
"It is the most complete Guide Book that has ever been published."—*Daily News.*

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
THE BEST PROTECTOR FROM THE HEAT OF THE SUN.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 6d. per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

CAUTION.
PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.
Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 108, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

CLAYTON, SHUTTLEWORTH, & CO.'S PRIZE PORTABLE STEAM ENGINES, AND COMBINED THRESHING, STRAW SHAKING, RIDDLING AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as threshed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.
C. S. & Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading Agricultural Shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

BLACK JAPAN VARNISH.—This article will be found from its durability and cheapness of the greatest utility for Painting Hurdles, Wire-work, Palings, Gates, Fences, &c., and out-door work of every description, whether of Wood or Iron. Its value has been proved by the test of time. It should be well stirred up before using and applied cold. This Varnish will retain its quality for any length of time, provided the cask be kept closed.
May be obtained through any ironmonger; or of JOHN WARNER & SONS, 8, Jewin Crescent, London.
N.B. Sold in casks containing 14 or 7 gallons, at 2s. per gallon. Casks (which cannot be returned), 5s. and 3s. each.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

The Agricultural Gazette.
SATURDAY, JULY 14, 1855.

MEETINGS FOR THE ENSUING WEEK.
WEDNESDAY, July 18—Agricultural Society of England.

AGRICULTURISTS generally, and the members of the Agricultural Society of England especially, will hear of the death of Mr. PUSEY as of the loss of a friend. No one has done more of late years for the true interests of the agriculturist, and in no one of its members has the National Agricultural Society so justly and so fully placed its confidence. It has been through this Society chiefly that Mr. PUSEY's efforts for the agricultural good of his country have been made; but to his career in Parliament as well, tenant farmers generally look with gratitude. His efforts as a legislator on behalf of tenant right, more perhaps than any other labour of his public life, made him their leader, though we believe their gratitude is due even more for his purely agricultural career. His reports of agriculture generally, and of local agriculture in particular—his own contributions to the improvement of its practice and to the discussion of its theory, and, above all, the sober-minded judgment under which all the contributions to the Journal have been passed, so that under his editorship it has become the most useful and most instructive periodical that agriculturists have ever read:—these are what most justly bind the gratitude of British agriculturists to the memory of their friend and benefactor—PHILIP PUSEY.

GENTLEMEN! engaged as judges of field-implements at Carlisle; whoever you may be, we beg your attention on behalf of the great novelty upon which you will be called to adjudicate, that is, the STEAM-CULTIVATOR. While rejecting the presumption that steam-tillage can be "written up," or that the publication of vague generalities and undemonstrated opinions can materially help inventors to solve their difficulties, we hold it to be strictly within our province to point out the principles upon which your judgment should be based, and state the conditions

which a successful engine should fulfil. We attempt a commentary therefore upon the terms in which the Agricultural Society's prize is offered.

"Two hundred pounds for the steam-cultivator that shall in the most efficient manner turn the soil, and be an economical substitute for the plough or the spade."

"*Turn* the soil." Mark this expression; for the whole character and efficiency of the machine depends upon this point. Break up, loosen, and commingle the soil as much as you please, in preparing a seed-bed for any crop, but if weeds and Grasses be left still green upon the surface, if the seeds of our annual infesting enemies remain in favourable exposure to the vivifying sunshine and feeding dews, your tillage will be utterly abortive. On the other hand, if the ground be a stubble, bury every weed and withering stalk, and you promote its decomposition in the soil, making manure of what would otherwise injure as well as encumber; if it be a sward or a lea, still more urgently must you inter every blade and plant that might spring up amongst your intended crop. In the fundamental operation of tillage, the destruction of all remnants of the old crop, and the loosening-up of the staple for a succeeding one, you must "turn the soil." Was it not for this very purpose of burying obnoxious vegetation, and opening up a fresh surface of earth, that ploughs with mould-boards superseded the imperfect scratching instruments of yore? Is not the chief fault of the plough itself that it does not completely hide all surface vegetation, but too often (especially when the ploughman is blameable) leaves Grass or other living growth to shoot up from the seams of its furrows, and defy the weeder of the coming crop? For many tillage purposes—such as autumn cleansing or spring grubbing—no such inversion is needed; but in the first and foundation work of breaking up after a crop, and to the full depth of the intended staple, you *must* "turn the soil." Perhaps an instrument able to stir and mix every portion of a deep staple might be made to bring up repeated instalments of earth long buried, and thrust down the long exposed surface to take its place, at the same time forking out root-weeds and rubbish. As far as mere fertilisation is concerned, perhaps a frequent *commixing* of soil and subsoil might suffice, instead of alternate exposure of each upon the surface; but the consideration of weeds alone inculcates the necessity for "turning the soil." Therefore, we maintain that the first condition of the Society's offer is well chosen, and that the premium will be misappropriated in the opinion of practical men, if given to a machine (no matter how expert at comminution) that cannot entirely bury the surface.

Then it must be also "an economical substitute for the plough or the spade." If there shall be an engine that turns over furrows effectively at less cost than the plough—(first expense included) although it may be incapable of any other labour—give it the prize. And should there be a machine, unable to plough at all, but able to *dig* in as perfect a manner as men can with spades—if it will perform this work alone more cheaply than men, it is entitled to the prize. Ploughing ought to be accomplished for less money than by horses, and digging (though this of course is a more expensive operation) at less cost than by men. The judges have not to determine whether or not digging *à la* spade will be too expensive for the farmer although indispensable to the market-gardener; whether or not a cheaply-digging engine would not inaugurate miracles upon the clays; but (useful or not) *according to the terms of the offer*, they must award the premium either to an engine that digs more economically than the spade, or that ploughs more economically than our present horse-plough. Should a machine be produced of sufficiently versatile powers to execute both shallow work like a plough and deep work like a spade, such a doubly clever contrivance will of course merit the palm.

Before awarding the prize, and so pronouncing some invention to be an "economical substitute" for the implements with which we break up and invert whole ground—not merely for the grubbers and harrows with which we stir and pulverise soil already broken—let the judges well weigh this point of "economy." They must not sanction with the authority of the Society any machine that they dare not recommend to farmers or gardeners in place of the plough or spade. Besides the working expenses, they must calculate the wear and tear and the interest of the first outlay in purchasing the machine; and on the other side of the account they must be prepared with similar estimations of the charges for food, attendance, depreciation, &c., attaching to horses and common implements. On the credit side, they will have to compare the excellence or inferiority of the respective operations; and particularly they should fix a money value upon the *time saved* in the performance of the work, inasmuch as there is a great advantage in having a breadth of land prepared for sowing in less time than usual, though the acreage expense may be the same; and any means which (without incurring any neutralising disadvantage), gives the husbandman a greater command over his soil, and more independence of the weather, is certainly to be valued as a pecuniary gain.

Perhaps it may be unwise in the judges to trouble themselves with any further speculations as to the probable effects of displacing a considerable part of the farmers' teams, employing more or less labourers, &c.; as it has been generally found that when a new machine is worth having—the steam-thresher, for instance—all questions as to the disposal of surplus horses, &c. &c., regulate themselves very easily and speedily. Once furnish the agricultural public with a really "economical substitute" for anything, and depend upon it John Bull is too shrewd to let his love for antiquities prevent him from using it. *I. A. C.*

The statistics of dairy produce formed, as our readers will find in the following pages, the subject of a long discussion last Wednesday before the Council of the Agricultural Society. We have not room this week for the examination this report deserves, and must be satisfied with a single paragraph of comment. The ordinary experience of dairy farmers is what one needs to know before the value of Mr. Horsfall's practice can be ascertained; and testimony on this subject is so vague or so conflicting that a much larger number of witnesses are necessary than have yet appeared before a safe conclusion can be drawn. We have received from several correspondents information on the subject, to which attention shall be called next week; it bears out the opinion that Mr. Horsfall's average produce is above that of ordinary dairies, and that 262½ lbs. of butter is above the ordinary yield per cow per annum.

Mr. Scott, in his reply to our criticism, seems to think that his comparison of Kerries and cross-breds with Mr. Horsfall's cows is as fair as our selection of the short-horns from his table for that purpose: in this he is obviously wrong. Mr. Horsfall's cows must be compared with animals of the same sort before the merits of their treatment by him can be ascertained. And as a correspondent has reminded us, and Mr. Horsfall has himself so well developed in his Wednesday's paper, it is not dairy produce only—the condition of the cows must be noted also before the whole effect of his mode of management is perceived. We add to the information given in another page that the average of the returns furnished to Mr. Scott from 11 correspondents in England, and four in Ireland, represents the quantity of milk needed to produce 1 lb. of butter here as about 12¼ quarts, and there as about 12¾ quarts. Mr. Horsfall's milk yields a similar quantity from about four-fifths of these quantities, and his cows are gaining flesh and giving this rich milk abundantly together.

DAIRY STATISTICS.

Mr. Scott's communication on dairy management is the most interesting that I have read for a long time on that subject. It is indeed lamentable that this country, with the finest pastures in the world, and supplies of artificial food both in summer and winter far surpassing in abundance what are produced elsewhere, should be under the humiliating necessity of importing large quantities of superior butter, while much which we produce at home is unfit for our own consumption. Mr. Scott deserves the thanks of the agricultural world for having drawn public attention to so important a subject. Doubtless the ingenuity of our agriculturists in the dairying districts will be directed towards overcoming the evils of which he complains. One principal difficulty, however, will be found in practice to be the want of intelligence in the servants employed in the dairy. When a farmer's wife, with only half-a-dozen cows to to attend to, chooses to make up the butter herself, it will generally be of superior quality. But where from 20 to 50 cows are kept, this is, of course, impossible, and much must (even with the closest inspection) depend upon the servants employed. This it is which causes the butter in those counties which are not strictly dairy counties to be frequently superior to that made in those in which it is the staple product. The majority of the dairy servants are deficient in intelligence, in cleanliness, and general refinement. They think they have their dairy clean when in reality it is very dirty. They are unable to understand the absolute necessity of compliance with the rules given them by their master or their mistress, which they regard as mere whims or crotchets designed in part to give them needless trouble, and which they therefore evade whenever they have an opportunity. I know nothing so difficult to enforce as cleanliness upon a person not naturally inclined to it. It is first an instinct, then a habit; no series of injunctions or prohibitions will effect with a slovenly person what the innate sense of delicacy spontaneously does upon one of natural refinement. In dairy management, if very superior produce is required, one of two things usually happens with ordinary servants: either you get tired of them, or they find you intolerable. The cleanliness which you required is scarcely less odious to them than is their want of it to you. All this strongly shows the necessity for a modification of the education usually given to the poor. There is no social reform more important than this. Along with reading, writing, and other scholastic abstractions, teach a knowledge of things and impart practical instruction in the more important of those duties on which so much of the welfare of the poorer classes depends. If at any parish school the girls were taught to wash, to make bread, and the rudiments of dairy management and cookery, they would be insured a competency for life, as well as being made useful members of society. By learning such things on principle—by knowing something of the why which is at the root of what they practise, the routine of their lives would be less of a drudgery than now. Instead of looking upon labour as indignity only imposed by dread necessity, they would feel that pride in the skilful exercise of their calling which is the foundation of all success. The application of science to common things will in time make them cease to appear low or mean—but in this respect all classes have yet much to learn.

Mr. Scott, after mentioning Professor Trail's experiments on the proportion of butter yielded from a good quantity of milk by Kerry cows, Galloways, and Ayrshires respectively, says he "thinks, had the short horns been included, they would have come in last." Without pausing to inquire whether it is quite fair, by thus putting a surmise by the side of an experiment, to depreciate the butter-producing powers of short-horns, it is important to know in what sense Mr. Scott uses that term. There are three senses in which it is by no means uncommonly used: 1st, it is applied to the short-horns of the "Herd Book," formerly called the Durham or Teeswater cattle, and now frequently designated as "pure bred" or "improved" short-horns. 2dly, as used by London dairymen and others, it means the ordinary Yorkshire or Holderness cow. 3dly, in the midland counties the name is conferred upon any cow, no matter how bred, which happens to possess short horns. I have frequently been amused on walking through the feeding stalls of my neighbours at the comprehensiveness of the term as applied by them. I once inquired what breed a cow might belong to, whose appearance puzzled me, presenting as she did the character of a mongrel between half-a-dozen Welsh and Irish breeds, her colour being a dingy brown, her skin as thick as that of a rhinoceros, and her form such as I never desired to look upon again, when her owner informed me she was a short-horn! It is evident that the third sense in which this term is used is a very inconvenient one, including, as it does, not only Ayrshires and Alderneys, but every conceivable description of cross and mongrel which happens to have short horns. The majority of the cattle bred by the dairy farmers in this neighbourhood are descendants from Yorkshire cows, with sometimes a dash of pure short-horn blood, and a not unfrequent intermixture of other breeds too numerous to specify. They may be considered, therefore, as degenerate Yorkshire cows, which having been bred upon no principle (except the economizing of expense and trouble in their production) present all the faults of the stock from which they are originally descended, with few of their merits. Their general character is to be light-fleshed, though large consumers, their hair is scanty, colour pale roan or white with faint red or roan patches; horns short and very thin; they give a moderate quantity of rather poor milk, and they are rather below than above the average size. In short they are a description of animal which I thoroughly dislike, having nothing noble or generous about them. I believe that their milk would hold a low place in the percentage of butter which it yields; such at least has been my experience of the few cows of this description which I have happened to possess. With regard to the genuine Yorkshire or Holderness cow, it is generally admitted that she is more remarkable for the quantity than for the richness of her milk. In her favour, however, must be mentioned the remark of Mr. Mubura, that she gives milk of much richer quality in her native pastures than she yields under the stimulating system of the London dairies. The same high authority mentions a Yorkshire cow of his own, which yielded for some weeks after calving 15 lbs. of butter per week.

There is much evidence to show that the pure bred or improved short-horns, however much many individuals among them may through injudicious treatment have lost their milking properties as regards quantity, usually yield milk of a richer quality than their ancestors, the cows of Holderness. Mr. Berry alludes to the richness of the milk of several of his cows, and Mr. Youatt particularly insists upon the improved breed making up in this respect for the lesser quantity which they yield. That cows of high pedigree are frequently great milkers, I showed in my last communication to you. The evidence in support of this assertion accumulates upon me every day, and I hope soon to be able to publish a selection from it. With regard to the quality of their milk, I find it to be decidedly superior in richness to that of the ordinary cows of the country. Usually those cows which yield very large quantities of milk are deficient in the percentage of butter which is churned from it. But the cow Jessy, which I mentioned in my last communication as giving so much milk, is also a most superior butter cow. In propor-

tion as I have sold my ordinary cows, and replaced them by others with high pedigrees, I find that the richness of the milk has increased. It would be desirable if the experience of others were brought to bear upon this point—viz., the comparative richness of the milk yielded by the improved short-horns and the ordinary cows which commonly bear that name. As the experiment of Professor Trail shows the Galloways to give rich milk, it is by no means improbable that the cross with that breed which Charles Colling introduced into his short-horn herd may have contributed to perpetuate that quality among their descendants. I have never contended that the short-horns are not surpassed in single points by other breeds—that the West Highlanders, for instance, do not produce beef of better quality, the Alderneys yield richer milk, and the Ayrshires or the Holderness cows give more of it; but I maintain that there is no breed which, combining so many excellencies with the one in which it is unrivalled and unapproachable, early maturity, is equally suited to the general requirements of advanced agriculture, or as well adapted to improve the ordinary stock of this country. *Willoughby Wood, Holly Bank, July 8.*

Home Correspondence.

Orange Jelly Turnip.—In answer to "Colo," I beg to say that I have grown the Orange Jelly for the two last years, and consider it the best flavoured and most wholesome Turnip I ever tasted, it being as melting nearly as jelly, and I have found none stand the winter so well, not having lost one during the late severe one. They were in the early part of this spring as good as they were in the autumn. *R. C. B.*

St. Mary-le-Bone Bank for Savings, 76, Welbeck Street, Established July 5, 1830 :—

Comparative Statement of Progress at Specified Periods during the last seven years.

	Open deposit accounts.	Sums invested with National Debt Commissioners.
On July 5, 1849	19,848	£301,663
" 1850	20,866	315,638
" 1851	21,878	334,073
" 1852	22,943	358,706
" 1853	23,481	379,089
" 1854	23,697	351,643
" 1855	23,758	349,885

D. Finney, Secretary and Actuary.

Mangold Wurzel for Breeding Sows.—As no one seems inclined to answer your correspondent "M. M's" inquiries respecting the injurious properties of Mangold Wurzel for sows, I will give him the little I know on the subject, as I was the first I believe that pointed out the fact, and got snubbed by one of your correspondents for it. The quantity of sows kept on this farm averages from 20 to 30; the young pigs are kept for porkers and sent to London weekly, and weigh about 8 or 9 stone. In 1846 we had a large quantity of long red Mangold, and a short crop of Swedes; thinking to make the most of the Swedes we gave the Mangold to the sows, beginning some time in November; many of the sows were then getting heavy in pig. All went on well for a week or two, when one after another of the sows slipped their young, and before the end of eight or nine weeks 12 or 13 had done so, when instead of giving them Mangold they had Swedes. I think only two slipped their pigs after the change of food. The roots were given raw, and this may be the cause, for when steamed and mixed with meal there is nothing I believe that will suit both the mother and young better. At the same time I may add that it has always been thought here a needless trouble to cook the food for sows till within two or three weeks of pigging. I am well aware that there may be many causes to account for this abortion besides the food, but as I took great pains to discover anything that would explain it, and could find nothing, I am bound to say that the impression on my mind is that it was nothing but the Mangold, and perhaps the error was in giving them raw. *E. X., near Braintree, Essex, June 26.*

Meteorological Summary for the Month of May, 1855.—Thermometer: Mean daily temperature in England, 48.3°; Ireland, 49.4°; and Scotland, 46°, being a mean of 47.9° for the United Kingdom. Rain: Average fall during May—England, 1.62 inches; Ireland, 2.27 inches; and Scotland, 1.49 inches, being a mean of 1.79 inches for the Kingdom. Wind: Prevailing direction in England, north-east, north, and north-west; Ireland and Scotland, north-east. Taking 17 localities, the following is the average number of days during the month of May that the following winds have prevailed—north, 4½ days; north-east, 8½; east, 2; south-east, 3; south, 2; south-west, 4; west, 2; and north-west, 4½ days. *H. Allnutt, Irish Land Schedule.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, *July* 11.—Mr. MILES, M.P., President in the chair.

MR. PUSEY.—The Council received with deep emotion the announcement made to them, by Dr. Acland of Oxford, of the death of their distinguished member Mr. Pusey, whose name and labours will remain imperishably associated with the foundation, development, and successful progress of the Royal Agricultural Society of England, to whose interests, and to those of the agricultural community in general, his whole time and energies were so entirely and successfully devoted.

PARIS SHOW.—Mr. Evelyn Denison, M.P., the English Juror for Agricultural Implements and Machinery at the Paris Exhibition, reported to the Council the progress of the trials in that department. He informed the Council that the trials of the implements in Class 6 were postponed until the Cirencester meeting had taken place, namely, until the very end of the current month. The implements and machinery in this class consisted of portable steam-engines, threshing machines, brick and tile machines, chaff-cutters, mills, and (generally) all fixed machinery. Mr. Denison was glad to find that Mr. Fairbarn, of Manchester, was the chairman of that class, as that circumstance would give the English exhibitors an opportunity of direct communication with him, in explaining to him at once all the minutiæ of their respective machines. Mr. Denison could not deny himself the pleasure of expressing the satisfaction which Mr. Amos (of the firm of Messrs Easton and Amos, the Consulting-Engineers to the Royal Agricultural Society of England) had given to all parties, especially to the French exhibitors, by his professional abilities, and the fairness he had shown on every point connected with the trials.

RUSSIAN CATTLE DISEASE.—The Society has been favoured by the Earl of Clarendon with the following farther communications in reference to the alleged outbreak of virulent cattle disease in Russia:—

"Foreign Office, July 6, 1855.

"Sir,—With reference to my letter of the 26th ultimo, respecting the precautionary measures adopted by the Prussian authorities on the Polish frontier against the spread of the cattle disease, stated to be prevalent in Russia, I am directed by the Earl of Clarendon to transmit to you, to be laid before the President and Trustees of the Royal Agricultural Society, a copy of a despatch from her Majesty's Minister at Berlin, enclosing a report from the British Vice-Consul at Memel on the same subject.

"I am, sir, your most obedient, humble servant,

"WODEHOUSE."

"The Secretary to the Royal Agricultural Society, &c., &c."

(Copy).

"Berlin, June 30, 1855.

"My Lord,—With reference to my despatch, No. 246, of 23d inst., relating to the prohibition of importation of cattle, &c, from Russia across the Prussian frontier, I have the honour to forward to your lordship herewith copy of a report on this subject from her Majesty's Vice Consul at Memel, from which your lordship will perceive that there are doubts as to the existence of disease among cattle in the provinces adjacent to the district in which Mr. Hertslet resides, and that other motives may possibly have led interested parties to cause the importation of cattle into Prussia to be forbidden. I have, &c.,

"To the Earl of Clarendon. (Signed) BLOOMFIELD."

Extract from Mr. Vice-Consul Hertslet to Lord Bloomfield, dated

"Memel, June 27, 1855.

"The export of cattle from Russia meets with no obstacles from the Russian side, but merely from the Prussian authorities. Live cattle are compelled to go through a three weeks' quarantine at the borders, although the butchers have produced bills of health from the Russian authorities at the "Hauptman's Gericht" of Hasenpotf in Courland, and although it is a well-known fact that no cattle disease of any sort has been prevalent at any place near the borders for many years. There is a report that some disease had appeared at Johannisburg, the border town opposite the Prussian Stallapahnen, but this is not believed. I am informed that a Prussian official is about to proceed to Courland to make the necessary inquiries."

"According to official information the murrain (cattle plague) continues to advance from Russia towards the Prussian frontier. The Government has therefore, according to the instructions in § 3 of the Order, 27th March, 1836, resolved as follows.—[These instructions were printed in our previous report on the Russian cattle disease.]

"In order that these regulations may be duly observed, it is only allowed to cross the frontier in this district at the Custom stations of Nimmersatt, Bajohren, Laugallen, and Paschkenkrug.

"Memel, 28th May, 1855.

"The Provincial Counsellor,

(Signed) "DIECKMANN."

PHYSIOLOGY OF MILK SECRETION.—Professor Simonds, the Veterinary Inspector of the Society, delivered before the members a lecture "On the physiological conditions affecting the quantity and quality of milk secreted by the cow under different circumstances of feeding and management." Our space, on the present occasion, will only allow us to remark that the distinguished Professor, in this lecture, gave a masterly outline of this important and interesting inquiry; and, to use his own expression, "only skimmed the surface" of his subject. He presented, however, strong illustrations not only of the importance of his subject; but of its novelty to agriculturists generally, and of the extent to which the individual topics of inquiry would lead him, in order that full justice might be done to them: that "not only a single lecture, but a course of lectures" would be required for that purpose. The President, in requesting him to draw up a statement of his lecture for the Society's Journal, to be submitted to the Journal Committee, expressed to Professor Simonds his personal thanks for his great kindness in delivering that lecture, and his sense of the great ability he had displayed in its illustration.

PRODUCTION OF BUTTER AND DAIRY MANAGEMENT.

Mr. Horsfall and Mr. Scott favoured the Council with their own experience, arrangement of collected facts, and individual experience in reference to this important and interesting subject, and received the best thanks of the Council for their kindness in attending the meeting of that day, and the trouble they had taken for the purpose of elucidating the points at issue in the wide question they had endeavoured to elucidate.

I. MR. HORSFALL'S STATEMENT.

In continuation of my remarks of the 21st, and calling attention to the discrepancy noticed in the average yield of butter of 196 lbs. a year, to produce which would only require a daily yield of milk of rather more than 7 quarts per cow, whilst his average of 10 quarts per cow would reduce the quality of his milk in relation to butter one-third of that shown by his tabular results, I now proceed to examine the statistics supplied by Mr. Scott, with the view to show how far they affect those in my former statement, to which Mr. Scott has thought proper to compare them. The experiments on the Munster model farm had previously engaged my attention; a copy of the number of the "Albert Journal," in which they first appeared, was kindly supplied to me by Dr. Kirkpatrick, the intelligent principal of the Albert Training Institution, who will allow me to claim him as an agricultural acquaintance of some years' standing. The same number of the "Albert Journal" contains observations on the effect of temperature on dairy produce, which I had supplied at Dr. Kirkpatrick's request, and to which I shall have occasion to refer. I had some thoughts of introducing these experiments on the Munster model farm in my first communication to your Society, as showing the greatest average yield of butter in proportion to milk from a number of cows on ordinary food which had come under my notice. Finding, however, that these experiments had only been continued seven days, a time wholly inadequate to arrive at a safe conclusion as to what would be the result over a lengthened period, I omitted to introduce them. Mr. Cunningham, who supplied these statistics, accompanied them with the remark, that they are not sufficiently comprehensive, and that he should renew the experiments this season. From the attention I have given to this subject I have a right to give it as my opinion that the food is inadequate in one essential, that of maintaining the condition of the animal under a full yield of milk, and I hold it to be undoubted, that impoverishment of the condition of a milch cow will lessen her ability to afford the same quantity and quality of milk which she would give if her condition were kept up. The next experiments are Mr. Scott's own, but let me here observe, by ordinary treatment I understand bulky ordinary farm produce, whilst by high feeding, such produce together with dearer, more concentrated food. Now in looking over Mr. Scott's items of food, I observe in two an accompaniment of Oats; if he gave them a sufficient abundance they would complete the essential requirement I have mentioned, that of keeping up the condition, the main difference from my treatment being, that his food is more costly in proportion to its effect. In two others I observed bruised Furze, with the composition of which I am unacquainted, but if it answer the requirements I have named it will be strong food; it is certainly not ordinary farm produce. The next trial is on a Kerry cow, a breed which ranks first as a giver of rich milk; then a Galloway, also a rich milker; the remaining five trials taken together would furnish a very different average. In these seven trials no mention is made of the time under experiment, the description of food, season of the year, or of what I hold essential to a proper estimate of the effects of food, the maintenance of the condition of the animal. I may now say that having sought for information in the various treatises within my reach, I am not disposed to attach equal importance to these statistics of Mr. Scott as to those of the writers I have already quoted, and to which I will add Mr. Stevens, who in his "Book of the Farm" arrives at a like result with Dr. Muspratt, that 8 to 9 oz. of butter per day may be considered a fair average for a dairy cow. The following description of my own dairy results was written for the "Albert Journal" in January, 1855. The peculiar richness of the cream had then begun to call attention, and was under strict observation, but I had arrived at no conclusion as to its cause. I had not then any intention of laying it under the notice of your Society. "The dairy practice of this locality is directed to the production of milk for sale when new, or butter and skimmed milk. The price of new milk is nearly uniform, being 2*d.* per quart; that of butter is sometimes as low as 1*s.* per roll of 24 oz., and sometimes nearly double this. The price of skimmed milk is likewise steady, being generally 1*d.* per quart. The cause of the fluctuation in the price of butter with the steadiness of price in that of milk will be found in the comparative ease of the transport of the one as compared with the other: the former is liable to damage by moving, whilst the latter is regularly brought to market by sea and land hundreds of miles. Butter is brought from Mecklenburgh and from the west of Ireland to London. It will then be obvious that the supply of new milk is limited to populous districts, or to such as have gained easy access to them by the introduction of railways. It is in some measure optional in what way my dairy produce is disposed of—in new milk, or in butter and skimmed milk. In giving attention to this branch of farm economy, I was led at an early period to inquire at what price the two processes afforded a like return. After several trials made during warm weather, my cows being on Grass, with extra food, I found 16 quarts of milk yielded 26 oz. of butter: the quantity of cream varies with the skill or taste of the dairy-maid in skimming the milk, and in proportion as she mixes milk with the cream. I have frequently found a quart of cream to give 14 to 16 oz. of butter; the latter is about the average of the cream used for the trial churns at the Royal Agricultural Shows. With the observance of greater nicety in skimming, the cream being consequently thicker and richer, a quart may give upwards of 20 oz. of butter; if, however, the cream be wholly taken off, the yield of butter will in each case be about equal. The comparison will be—

			s.	d.
16 quarts of new milk, at 2*d.* a quart			2	8
16 quarts of new milk give a roll of butter of 25 oz., at 1*s.* 6*d.*	1	6	2	8¾
14¾ quarts skimmed milk, at 1*d.*	1	2¾		

(Half the quantity of butter milk covers the cost of churning).

Butter is sold here by the roll of 24 oz.: it is customary to make up the roll to weigh 25 oz., the odd one being in favour of the purchaser. I thus find an equal gain from new milk sold at 2*d.* per quart as from butter at 1*s.* 6*d.* per roll, and skimmed milk at 1*d.* per quart. It will scarcely be necessary to observe that with a rise in price above 1*s.* 6*d.* per roll, it is my interest to direct my dairy produce more to butter, whilst with a lower price new milk pays better. In the course of a season or two, and towards the close of a year (late in November), I remarked a considerable falling off in my receipts for the dairy: and as no change had occurred in the number or circumstances of my cows, nor in their food, I was led to inquire into its cause. I found an equal quantity of milk had been brought down to the dairy-maid, a like sum received for new milk, and that the deficiency arose solely from a less quantity of butter. With this change there had occurred a great change in the weather, it having become very cold and frosty. I again tested the quantity of milk, and found the yield of butter 16 oz. from 16 quarts, instead of 26 oz., as on the former trials: up to this time I had used an underground cellar in summer, and a room on the ground floor in winter, during which time this deficiency in my butter occurred. This room is situated on the north side of the house, the in door opening into the kitchen, where the culinary operations are carried on, and which door was usually kept close by day as well as by night. The room is lighted and ventilated by a trellis window, which gives free access to the frost and cold air. On trying the temperature I found it something below 40°; it then occurred to me that the deficiency of butter must arise from too low a temperature of my dairy, and an easy means of remedy at once suggested itself, namely, to introduce with a supply of fresh or cold water a supply of hot water, by an apparatus for that purpose. It so happened that the pipes for both hot and cold water passed through my dairy immediately under the trellis window, and over the stone table on which my milk bowls are placed. This table is about 2 feet in width, and occupies two sides and the end of the dairy in which is the trellis window. I ordered a shallow open cistern to be made of wood, with a rim about 3 inches along each side, and lined it with thin sheet lead; this cistern thus contained water of 3 inches in depth. At its extremity and near the window is a hollow plug having perforated holes, at least 3 inches above the bottom, and through which the water escapes as it rises into the common sewer. At the other end of the table, and inside the rim, is a pipe which, being inserted into the one from the hot-water apparatus, conducts this to a tap, and then returns along the other side of the table again to the hot-water

pipe; when the new milk is brought in it is set up when warm, and immediately the hot-water tap is turned, when the water flows from it and along the cistern in which the full milk bowls are standing till it rises to the height of the holes perforated in the tube, and then flows through the same. The tap is open so long as the supply of hot water lasts; when this is exhausted, and the water in the cistern has cooled, the plug is drawn, and the whole of the water escapes, leaving the cistern empty. At this season the trellis window is closed by a wooden shutter, and the in door communicating with my kitchen is kept open. By these contrivances my dairy attains a temperature in winter of 52° to 54°. I superintended the experiment when first tried one evening. The next morning my dairy maid thus accosted me: "Master, it is quite wonderful this morning, I have more cream from standing one meal than before from three." When the churning day came, the result was a yield of butter of 26 oz. from 16 quarts of new milk, being equal to what I had found in summer. Thus from a change of temperature solely and without any change of cows, or in their food, my quantity of butter was increased 50 per cent. But this is not the only advantage of the plan: I have already remarked, that along with the hot-water pipe, one with cold water passed through my dairy. At the approach of summer a pipe inserted into this with a tap close by that of hot water is turned, allowing the cold water to circulate in the like manner among the bowls of milk, till the cistern was filled to near 3 inches deep, when it again escapes through the perforated tube. This operation is continued through the hot weeks of summer, the tap being regulated so as to discharge a constant trickling of cold water, which is, of course, escaping through the tube at the other extremity, the milk bowls standing in water of the depth of near 3 inches during the whole of the summer season. I am thus enabled to allow my milk to remain two or three meals without becoming sour, and can sell it at the price stated, 1*d.* per quart. The advantage I gain from this is even greater than what I derive from the increased temperature during winter. These arrangements have been in operation several years, during which I have occasionally tested the yield of butter, and have always found it similar, varying only from 25 to 27 oz. from 16 quarts of milk, the greatest amount being observed in the month of December last, when it was found to be fully 27 oz. from 16 quarts. I may here remark that my milch cows are supplied in summer and in winter with food suited to their wants and to the office they are performing—the production of wholesome and nutritive milk. Since I adopted this mode of regulating the temperature of my dairy, I have read a lecture given before the Royal Society, by Captain Carr, an Englishman, who resides on an estate which he has acquired in Mecklenburg, in which country the produce of farming is chiefly directed to the production of butter, which is their main source for money returns, and where, as appears from Captain Carr's description, the arrangements of the dairy with regard to the production of butter are carried out with the greatest perfection, and in which regulation of the temperature is one of the chief aims. Captain Carr states that by artificial heat they effect a temperature during winter of 60°. Now, with my present means, I am not able to attain more than 52° to 55°; but as I have not during summer, when the temperature of my dairy sometimes exceeds 60°, found a greater proportionable yield of butter, I am led to conclude that the degree of temperature I have stated (52° to 55°) enables me to acquire the whole of the butter which the milk contains. I may here remark that my dairy produce is under such control that any considerable variation in the quantity and quality of my milk cannot escape observation for more than a few days. If my dairy treatment afford superior results to those in the treatises to which I have referred, I may be allowed to explain my views of the causes by which these are influenced. The principal one I take to be the affording to the cow an ample though (in consideration of cost, if not of effect also) not an excessive supply of each element of food, suited to her requirements, constitution, and purpose. The milch cow may be said to have a twofold occupation in using her food—the production of milk, and the maintenance of her condition. The former is the favourite one; if the food supplied be inadequate for both purposes, the defective elements are diverted to the milk at the expense of her flesh, fat, and probably of her bone material also. That I have effected this may, I think, be safely assumed by what I have already stated, namely, that my cows, under all circumstances, maintain and improve their condition. I do not insist upon it that the materials I am using are the only ones by which this desideratum can be effected; but I do think that its due performance is requisite to ensure the greatest and most complete produce from a cow, of which she is capable. The remarkable quality of the cream I am disposed to ascribe to the character of the vegetable oil, in which particular my winter food differs most materially from that commonly used. I find that butter on analysis varies considerably in its properties of murgevine and elain fats. I have seen this attributed to the difference of temperature of the season, that the summer butter contains more of the elain, the winter more of the murgevine property. In the month of April of this year, when conversing with Mr. John Simpson, of Ripley, a sober-minded observant farmer, whose repute as such has gained the attention of his rector, the Rev. Mr. Thompson, and also who consults him on his farming operations, he told me he and a neighbour of his who had observed my mode of treatment of dairy cows, of which they had found particulars in a publication to which I occasionally contribute, the *Gardeners' Chronicle*, had been surprised at the consequent change in the appearance of the cream and butter; he described it as being that from ordinary winter to rich summer butter. The difference in the consistency of cream on different pastures is very observable. Within two miles of this place is a small pasture at Wharfside, Otley, in the occupation of Mr. Garnett, which has long been noted for the richness and solidity of its cream. When I formerly travelled in Germany I well recollect on the road between Dresden and Töplitz, at a station near the boundary of Saxony, having been treated with rich milk and cream; it was evidently considered a rarity, as all guests, whether by Eilwagen, post or other conveyance, were invited to partake of it. The cream resembled in consistency and appearance the description I have given of that of my own dairy. I made the tour several times at intervals of some years, when the like treatment was afforded; it could only be ascribed to the peculiar quality of the herbage in the vicinity of Peterswaldau, which is, if I rightly recollect, the name of the place. I have now to state that at the present time, when my cows have become accustomed to Grass, and consume much less of the steamed food, there is a decided change in the quality of the cream; a jar which when filled so as to be conveniently removed from the dairy to the scullery, where the churning is performed, say an inch from the top, and which the twentieth quart of water will cause to overflow, yielded during the winter season 18 rolls 6 oz., gives only at present, from a like filling, 15 to 16 rolls of butter. The volume of cream is somewhat increased, but scarcely in the extent to compensate for the superior richness of my winter cream. I am thus led to think that the different varieties of vegetable oils influence the quality of the cream and butter. I now proceed to the consideration of the comparative pecuniary results of my treatment, and I feel called upon the more to do so, from observing that very erroneous views have been stated to your Society to the effect that the only result attendant on my treatment is the enrichment of the manure. To explain my views, I ask attention to the description of my food, which will be found in my former paper. The bulky farm produce alone will be scarcely admitted by practice to have the property which the chemist will concede, that of maintaining the condition of a store animal; it is less costly than the ordinary food supplied for the dairy purpose, and certainly not so efficacious. The extra food has too the like characteristics, a higher value in chemistry than in practice, and I here remark, that though I look on my neighbour's farm and watch his proceedings; though I have travelled to a distance with the like object, so that if I were to appear at Bainnesse, Beal, or on other farms across the Tweed, I should be recognised by the well-known occupiers as a former visitor in quest of information; yet in regard to the treatment of live stock the tendency of my experience is to strengthen my reliance on the chemical composition of food, and I now look to the analysis of an able chemist with greater interest than to the practice of others, or to the many feeding experiments which are yearly published. I now give you the results of my treatment on the different classes of animals, and commence with the cows for which I pay the highest price in proportion to their quality and condition, those near to calving. Now on comparing the price I have paid for some years back with that realised when sold, and taking into account the sum I obtain for the calf, which I sell when a few days old, and deducting 10*s.* for its keep, I find these cows fetch on an average more by 3*l.* to 5*l.* each than what I pay for them; at the same time I am purchasing from dairymen similar cows, but which have undergone impoverishment by ordinary treatment at less by 3*l.* to 5*l.* each than had been paid for them. I do not overstate the matter when I claim a gain in comparison with ordinary treatment of 6*l.* 5*s.*; if I allow them to average 50 weeks in hand it leaves 2*s.* 6*d.* for each, for the extra feeding. I also gain a saving in time; instead of a course of feeding which would be requisite to furnish the impoverished cow for the market, my cows are draughted off within a few weeks of becoming dry. At times my purchasers select them as fit for their purpose before they are quite dried, but beyond this I perceive an advantage in the quantity and also in the quality of my milk. I think it is not the least remarkable feature of my treatment that the milk from my stall or winter food is equal in quantity, whilst in the various experiments it has rather the advantage in quality as compared with that from Grass or summer feeding. Of the next class, the cows bought are in incipient calf, giving 6 to 7 quarts per day each, but which invariably increases on my treatment. I mention those of which I gave the weight when bought and after they had calved; these show a gain of 180 lbs. each, and which cost respectively 12*l.* 10*s.*, 12*l.* 12*s.*, and 13*l.* 2*s.* 6*d.*, would have readily fetched 18*l.* each, indeed I could not have purchased cows of equal quality and condition for this sum when near calving. I now mention another advantage of what is called high feeding of dairy cows, it enables me to milk them close up to calving time. I rarely dry my cows which I have had a sufficient time in hand to furnish them properly till within a month of calving; this gives me a month more for milking than I should think advisable with cows in low condition, a practice in unison both with experience and common sense. I now come to a third class—the cows which I purchase from dairymen giving a low yield of milk, say 6 quarts per day; in regard to these, I find, without exception, that with me their yield of milk increases in the course of a week or two about 2 quarts per day. These cows, being in a barren state, hold much better than when in calf to their yield of milk, and rarely get below 5 quarts per day when fat. Now, I have shown by weighing through a lengthened period, that with a yield of milk which will not average less than 6 quarts per day, they gain at the rate of 7 lbs. to 9 lbs. each per week. I think I may admit that the feeding of this class of animals is attended with profit; it exceeds much what I obtain from mere fatting. The cost of the auxiliary food which I am using, including that of coal and labour, will be about 3*s.* a week for each cow. I now call attention to the profit from manure which has been insisted upon to your Society, and responded to by conductors of agricultural publications, who, if they do not possess, ought to acquire the means of discriminating and calling attention to such statements as are sound and worthy of approval, as the only advantage that I derive from high feeding. Now, I entertain a different persuasion. I hold this advantage to be, comparatively speaking, a minor one. In my former statement I attempted to show what portion of the elements of the extra food which are of value for manure are carried off in the milk. In the class of full milk there will be little left for the enrichment of the manures, still there is something, as a cow maintaining her weight and condition will doubtless give richer manure than when losing flesh. In the other stages the comparative value of the manure is somewhat greater; yet, if I allow 3 lbs. per day of my extra food, or 21 lbs. per week, to go to the manure, and this is really more than I should feel satisfied with, the value of these 21 lbs., taking into account the loss by exudation, will, in manure, be about 6*d.* If we compute the value of manure from a cow under ordinary treatment as worth 1*s.* 6*d.* per week, and add the 6*d.* per week for extra food, the result will be 2*s.* per week, which is about equal to what I have found my cattle manure to be, on the analysis of Prof. Way. I cannot entertain or understand the teaching of those who insist that the only advantage of high feeding is one of manure. What does this amount to? Nothing less than that those who supply their animals with extra food, and amongst these may be comprised almost all the first class of farmers, are employing a ready means of converting their shilling into less than sixpence. It will be found that substances used as food, when deprived of their more valuable attribute, food for cattle, and retaining only that of food for plants, lose more than half their value, whilst if you convert them into milk, beef, or food for man, their value is increased in much greater proportion. I hold it then to be a sound theory, and one which I have sought to carry into practice, to convert my produce as much as possible into food for man, and to increase, rather than to enrich my manures.—THOMAS HORSFALL, *Burley Hall, July* 3, 1855.

I now supply the following particulars, with the view more clearly to explain the results of my treatment on stall or winter feeding. Two cows, which calved in September, the one a 3-year old light heifer, yielded soon after 14 quarts per day. The other, after her third calf, yielded at the rate of 18 quarts per day. In the month of June they were found to give respectively 10 and 14 quarts per day. Their weights were—

	Oct. 31st.			June 22nd.				
	cwt.	qrs.	lbs.	cwt.	qrs.	lbs.		lb.
Heifer ...	8	1	0	9	2	0	gain in weight	140
	9	2	0	10	2	0	" "	112

	Per week. s.	d.
Taking the former to have averaged 12 quarts per day at 2*d.*	14	0
Taking the latter to have averaged 16 quarts per day	18	8

The yield of excrement 5 cwt. 1 qr. per week, will be fully at the rate of 2*s.* each per week; the cost of the extra food may be assumed at 3*s.* 6*d.* per week each, as they would get more than an average. The milk of these two, tested by the lactometer in the month of June, was of superior richness. The gain in richness of manure, consequent on high feeding, I shall not estimate at more than 6*d.* per week. Two cows—one bought in September for 10*l.* 10*s.*, the other somewhat before for 12*l.*—each increased to about 8 quarts per day, and were continued in milk till the close of March, when their yield was reduced to about 5 quarts each per day. They weighed—

In September.	In May and June.
8 cwt. 0 qrs. 0 lbs.	10 cwt. 2 qrs. 0 lbs.
10 1 4	13 1 0

The former was sold in May for 18*l.* 10*s.*, leaving ...	£8	0	0
For milk during 24 weeks, 6*s.* per week	7	4	0
	15	4	0
The latter was sold in June for 22*l.* 1*s.*, leaving ...	£10	1	0
For milk during 24 weeks, 6*s.* per week	7	4	0
	17	5	0

The excrement would be richer, and its value may be assumed at 2*s.* 4*d.* per week. The enhanced value of the manure I shall not be disposed to estimate at more than 8*d.* per week, or for the 34 weeks 1*l.* 2*s.* 8*d.* The extra food will have cost at the rate of 3*s.* per week each. The ordinary farm food has consisted of—

12 lbs. of meadow hay each per week.
10 lbs. Bean and Oat Straw and shells of Oats per week.
32 lbs. roots, Mangold, &c., per week.

This ordinary farm produce will be found abou equal in nutritive property to what is found requisite to maintain the condition of the animals in store state and without other occupation. Will it not then appear that the other results are mainly derived from the extra food?

THOMAS HORSFALL.

II. MR. SCOTT'S STATEMENT.

5, Charing Cross, July 11.

In compliance with the invitation of the Council I have had much pleasure in meeting Mr. Horsfall at the Society's rooms to-day. At the same time I trust it will be clearly understood throughout this discussion that I have no personal feeling on the subject. I am committed to no crotchet, and have no theory to defend. I expected the paper read by Mr. Horsfall would have contained some new matter in further elucidation of his practice; but as this did not appear to my mind to be the case, I shall briefly address myself to his two commentaries on that part of my paper of the 30th of May which related to his reported practice. In those commentaries Mr. Horsfall appears to be more anxious to find flaws in my statement than to simplify and reconcile his own; for instance, I incidentally state that "an average cow will produce 196 lbs. of butter a year," to show the national gain that would be obtained on this quantity by raising the quality ½d. per lb. in price. Further on I state "that the average annual produce of a first-rate cow, well kept throughout a season of nine months, or 270 days, seldom exceeds 2700 quarts of milk, yielding 262½ lbs. of butter. This Mr. Horsfall utterly ignores, although the 262½ lbs. of butter is the point he should have dealt with. Mr. Horsfall further, in defiance of my stated figures, assumes that the 196 lbs. of butter is the produce of 300 days' milk. He thus increases my quantity of milk relative to butter, and thereby creates a disparity, favourable to himself of course, between his produce and that of other dairy farmers, which does not appear in my paper, and did not previously in reality exist. Mr. Horsfall must in candour admit that this 196 lbs. of butter forms no part of my case in which I deal specially with him, and that no mention of 300 milking days is made by me. The real and original question, as raised by Mr. Horsfall, is the scientific economy of his mode of feeding, and the amount of his produce. The announcement of a return of 25 oz. of butter per quart of cream led us at first to believe that he had exemplified in his practice, a system by which the ordinary dairy farmer could increase his profits. Investigation has proved this to be an entire fallacy. Mr. Horsfall's cows do not appear to produce more milk in a year than other ordinary well managed cows, and while from 10 quarts of his milk he extracts 15.78 oz. of butter, I have shown from the average of a number of trials in different counties—with different kinds of cows—under diversified management, and not got up for experiment, a produce of 15.68 oz. of butter from an equal quantity of milk.

	lbs.
His annual produce from a cow is	196.[illegible]
As against	264.[illegible]
Leaving in his favour on a single cow for a whole year,	1[illegible]

only. I abstained from taking the individual examples adduced by me, several of which I was personally acquainted with because the produce in several cases so far exceeds Mr. Horsfall's—thus, from 10 quarts of milk:—

One batch of cows yielded	19.70 oz of butter
Another	16.84 "
Another	22.00 "
Another	17.42 "
Another	16.32 "
5 ÷	92.28
Which, on an average, is	18.45 "
Whereas Mr. Horsfall's yield is only ...	15.78 "
Leaving him minus	2.67 "

on 10 quarts of milk. I merely recapitulate these data to show the logical absurdity of picking out from my paper 196 lbs. of butter, and after arbitrarily blending it with imaginary figures of his own, presenting the result as my case. The editor of the *Agricultural Gazette* pursues the same course when he remarks, "If the short-horns and the cross-breds are taken for comparison, Mr. Horsfall's yield of butter from the milk is one-third higher than the average of Mr. Scott." Now if the cross-breds and Kerries in the same table are taken for comparison, Mr. Horsfall's yield of butter from milk falls one-fourth short of my average; and if the cross-breds are taken alone, one-third. But further, while Mr. Horsfall's average produce of milk per day is not more than 10 quarts, yielding 15.78 oz. of butter, the produce of the short-horn in my paper is 17 quarts per day, yielding 18 oz. of butter; and of the cross-bred 10 quarts, yielding 22 oz. of butter; and in the case of the other two cows in Cheshire mentioned by me, the daily produce of the one was 40 quarts of milk, yielding 2 6-7ths lbs. of butter, and of the other 36 quarts, yielding 2 5-7ths lbs. of butter. Those are all rather extreme cases, and I merely mention them to show the disingenuousness of exclusively selecting those of an opposite character, to make out a desired case. The editor of the *Agricultural Gazette* also remarks, that "Mr. Horsfall's yield of butter from the cream thrown up is unprecedentedly large." True, but he should at the same time remember the fact that the quantity of cream thrown up is unprecedently small, being only 0.64 parts of a quart off 10 quarts of milk, whereas the ordinary extract is 1.27 quarts. Up to the present time we are therefore left to infer that the extra richness of Mr. Horsfall's cream may simply be the result of a little manual dexterity in skimming. Nor must it be overlooked that Mr. Horsfall's assumed annual yield of 3000 quarts of milk per cow (representing 295.87 lbs. of his butter) is not an ascertained fact, taken from a carefully kept daily register, but only an estimate "which he is disposed to think is not more than a moderate average on dairy cows properly maintained." If Mr. Horsfall brought forward the astounding fact of his having obtained 25 oz. of butter from one quart of cream, under the impression that this was the result of his special system of feeding, and that it was a new and valuable discovery, I think he must now admit that he was not warranted in coming to such a conclusion, and that I have shown that his produce of butter from milk is equalled and in many cases exceeded by ordinary dairy farmers. That such results as his can be obtained by certain modes of manipulating the cream, one of the numerous returns which I have obtained, and now submit to the Council, tends to confirm. By it I perceive that the average produce of butter in Devonshire from 1 quart of scalded cream is 22 oz., the milk required to produce this cream being 1[illegible] quarts. Mr. Horsfall has stated to-day that the experiments made at the Munster Model Farm last year, and quoted by me, extended over too short a period to be of reliable value, and that Mr. Cunningham, the manager, and Dr. Kirkpatrick, the Head Inspector of National Agricultural Schools in Ireland, had in consequence written him to say they would be repeated. They have been repeated, and by Dr. Kirkpatrick's permission, I have them here to-day. I visited both the National Model Farm at Glasnevin, and the Munster Model Farm, last week, and from the careful manner in which all the operations carried on are registered and attested, I think they may be relied on. Well, I find that the results obtained in 1854 are confirmed by those obtained this season, and that 9.67 quarts of milk produce on an average 16 oz. of butter, whereas it takes 10.14 quarts of Mr. Horsfall's cow's milk to produce 16 oz. of butter. I think these returns, from actual experience, will lead to more correct conclusions than the closet calculations of theoretical writers, and I therefore prefer them. I may here again remark, in acknowledgment for the Irish statistics, that though that country has not yet become a good school for practical farming, we are indebted to it for the many and carefully recorded experiments now being made at its agricultural seminaries under the Board of National Education on the principles and practice of farming. To show, however how little dairy farmers at present

know, or are willing to communicate about their business, the Secretary of the Royal Agricultural Improvement Society of Ireland lately put a series of queries on dairying in the Society's Journal at my request, and did not receive a single answer to them. Mr. Horsfall has the merit of having now set many dairy farmers a-thinking who might otherwise, all their days, have gone on mechanically; and he has also done good in personally devoting his time to the investigation of the principles of dairying. He must not prefer science to practice, however, but the reverse; and if he continue his experiments, I would venture to suggest that he must simplify the details of his operations and bring them into less compass; and then, when he obtains any useful results, the agricultural public will not fail to appreciate them. A balance-sheet would always be a useful accompaniment to these returns, and would enable us to judge whether or not his practice could be safely recommended to the ordinary rent-paying dairy farmer. Taking the data he has already furnished us with, and applying them to 100 quarts of milk, the account would stand as follows:—

By Mr. Horsfall's process.

Cream from 100 qts. of milk,	6.40 qts.	= 157.80 oz. of butter,	at ¾d. per oz. =	9s.	10½d.
Butter-milk "	"	1.92 "	at ¼d. per qt. =	0	0½
Skim milk "	"	87.30 "	at ½d. per qt. =	3	10¾
				13	9½

Average by ordinary process.

Cream from 100 qts. of milk,	12.70 qts.	= 156.80 oz. of butter,	at ¾d. per oz. =	9s.	9½d.
Butter milk "	"	7.60 "	at ¼d. per qt. =	0	2
Skim milk "	"	87.30 "	at ½d. per qt. =	3	7½
				13	7

Difference in favour of Mr. Horsfall, on 100 qts. of milk 0s. 2½d.

I must also remark that the butter shown by Mr. Horsfall to-day would not be considered first class in London; the colour and flavour were very good, but the texture was decidedly faulty, as I pointed out to him, being full of air cells, and requiring the application of the "pugging machine." In conclusion, the primary object of all dairy farmers must be to obtain the largest product from a certain number of cows and a certain quantity of food. Physiologically, some cows have a superior tendency to secrete and yield milk over others, just as we find one breed of cattle and sheep become fat on food that would hardly maintain other cattle or sheep in a stationary condition. In my communication to the Council of the 30th of May I have enumerated the most essential points to be borne in mind by the dairy farmer, and if these are carefully and punctually attended to they will generally ensure good management in the dairy.

THOMAS SCOTT.

P.S. I submit a specimen of the herbage, and a sod of the limestone pastures of Muckross Abbey, Kerry, and three specimens of coral and shell sand dredged in Bantry Bay, and usually applied to almost all crops in the southern and western coasts of Ireland. T. S.

At the request of the Council, Mr. Brandreth Gibbs undertook to ascertain the quality of the herbage Mr. Scott had brought over from fertile and barren dairy-land in Ireland; and Professor Way undertook to analyse it, as well as the mineral specimens with which it was accompanied.

The Council having received with thanks, and referred to the Journal Committee (along with Mr. Horsfall's and Mr. Scott's), numerous communications addressed to them by different members from various localities on Dairy subjects, adjourned to Wednesday, the 18th of July, at noon, when Professor Way would deliver his lecture "On the use of Fish as Manure."

Reviews.

The Journal of the Royal Agricultural Society of England. Vol. 16; Part I. J. Murray.

WE have as usual a very good number of the Journal. It contains 14 useful articles, the subjects of which are very fairly selected from the two great departments of agriculture, cultivation of the soil and the management of stock; and the more purely scientific relations of agriculture are expounded in articles by Professor Way, Mr. Trimmer, and Mr. Whitley; diseases of sheep and pigs—the comparative fattening properties of different breeds of sheep, and the characteristics of various breeds, especially with reference to their wool, are discussed in articles by Messrs. Seaman and Dunn, veterinary surgeons, Mr. Lawes, of Rothamsted, and Professor Wilson.

Experiments with manures for Turnips and for Swedes, and with reference to the feeding qualities of the produce, are described by Mr. Bourne, Dr. Voelcker, and Mr. Templeton. The causes of fertility and barrenness of soils are discussed by Mr. Coleman; a report on experiments on the growth of Wheat is given by Mr. Lawes; and continental farming, so far as observable on a hurried excursion to Hungary, is described by Mr. Love. Mr. Agate's prize essay on the autumn cleaning of stubble also finds a place in this Journal, and the whole number maintains the charater it had attained under Mr. Pusey's editorship. To the loss of the Society, owing to Mr. Pusey's serious illness, which has since, as our readers know, terminated fatally, allusion is made in the following postscript, with which we are sure every member of the Society will fully sympathise:—

"This being the first Number of the Journal which has not had the benefit of Mr. Pusey's active superintendence, the Journal Committee cannot send it forth without expressing their deep regret at the severe and protracted illness which still deprives them of his valuable assistance. They are also desirous of recording their high sense of the important services which, in his threefold capacity of chairman of the committee, editor, and author, he has conferred upon the Society and the country at large. From the very commencement of the Society the labours of the other members of the committee have been comparatively light, and it is right that the members of the Society should know to whom they are chiefly indebted for the success which has been achieved, for the reputation which the Society's publications enjoy in this and other countries. In their endeavours to maintain for the future the high standard of utility and interest already established, the committee wish to avail themselves of the active co-operation of the large body of practical and scientific men who compose the Society. Spread as they are over the whole surface of the British Islands, nor even confined to them, they possess singular advantages for the collection of information based upon observation and experiment. The Journal Committee therefore earnestly invite attention to the following resolution, which formed part of their last report to the Council, viz.:—'That in future, under the head of "Miscellaneous Communications," a portion of the Journal be allotted to short papers from such members of the Society as may favour the committee with an account of any matter of special interest which has come under their notice in the management of their farms, or in their immediate neighbourhood.'"

The intimation at the end of the above notice will, we hope, be influential in inducing the many intelligent men who read this Journal to contribute to its pages.

Calendar of Operations.

JULY.

BERWICKSHIRE MERSE FARM, *July* 2.—The cold dry winds of May disappeared with that month, and on the 1st of June we had refreshing showers, with a decided change to warm weather. This heat soon resulted in a violent thunderstorm on the night of the 6th, accompanied by a remarkably heavy fall of rain during two hours, which soaked the ground so that it could not be touched again for several days. Between the 15th and 20th we experienced a tract of weather, presenting one of those changes which have been so rife this spring. The wind blew cold from the east, with rain, and heavy hoar frosts at night, which somewhat injured the Potatoes. On the 21st the reaction was as sudden to the extreme of heat, with the night temperature at 65°, but since that the weather has been more moderate, with fine southerly breezes, but rather dry. On reviewing the past Turnip season we observe that the severe winter left our soil in a state little inferior to that of the preceding year, whence expectations were formed of a favourable tilth to help forward the work. These hopes were speedily realised on the lightest soils, but on *them* alone. On all classes of clay soils our experience has been severe labour and but indifferent results. On the 10th of May, for instance, we had just succeeded in reducing our first and strongest break to a pretty satisfactory state, when it came a day of steady rain, and our labour was lost; nay, worse than lost, for the new wrought land took rain very readily, and was reduced to a state of mortar, from which it never recovered. A similar mishap occurred with the break intended for Yellow and White Turnips, on the 6th inst. Seldom has the soil required so much work for the sole purpose of pulverising it. Old folks say that a good "body" of land requires two "furs" (ploughings) to prepare it properly for Turnips, but this year much of it has got three. The grubber makes but imperfect work here; for it is only on light land it can be said to fulfil its "mission." On all hands we hear complaints of the "fly:" its ravages have been extended even to plants in the rough leaf, for the Swedes made no growth till lately, and when at a standstill are particularly obnoxious to the attacks of that insect. Later sowings present a more satisfactory braird. Thinning is only begun in our immediate district, but our lighter neighbours to the west have been at it for a week past. We commenced cutting our seeds for horses on the 13th ult.; a very good crop, but at least three weeks too late. We intended mowing for hay next week. The hay crop will be exceedingly light, where not artificially top-dressed. Winter Tares have improved; they are certainly before the later spring sown, but will be of comparative little use where Grass is plenty. Wheat is strong, and the earliest is beginning to show the head. Barley has improved with mild weather. Oats are infested beyond all precedent, with Thistles and wild Mustard. Beans and Potatoes are rich-looking and healthy. Pastures where well planted (a *sine qud non*) have done very well all the past month, which has enhanced the demand for lean stock at our local fairs. Wool is looked on with confidence as a good speculation; some transactions having been concluded at higher figures than those current in the metropolis. It need scarcely be mentioned that the quantity of grain now in farmers' hands is next to nothing. *J. T.*

FARM NEAR HEXHAM, *July* 4.—If the month of May was unparalleled for its cold and barrenness, the warmth of the month of June has done much to make up for it. Since the favourable change noticed in our last report, we have had a continuance of just such weather as was required for bringing forward the backward crops and the parched and bare pastures. The change came too late to secure a heavy crop of hay; but both corn crops and pastures have made most satisfactory progress during the past month, and Grass is now abundant in the district, so that parties, who in the beginning of the month were bethinking themselves what they were to do with the stock they had, are now in want of more. Though we cannot now expect an early harvest, should weather continue at all favourable, it will not be a late one. Winter-sown Wheat is fairly into the "shot blade," and has every appearance of being fully an average crop, as also will the spring Wheat. Barley and Oats are both looking remarkably well; the fine tilth obtained for them at seed time gave them a hold they have never lost. The general opinion in the district seems to be that, if weather continue favourable, there will be a full average crop of all kinds of grain, and that harvest may be expected about the end of August or the beginning of September. Rye, which is grown to some extent on the lighter lands, has been in ear for ten days. While the weather has been thus favourable for Grass and corn, the frequent rains have made it a somewhat difficult matter to get Turnips sown in good condition, especially on strong and wet land, where there is still a considerable breadth to sow; and many will require to make bare fallow where they expected to have had Turnips. On dry and free lands the sowing is pretty generally terminated. We finished our Swede sowing on the 9th ult. (having been thrice stopped by rain in the process), and our Yellow and White on the 29th ult. The braird looks well wherever they were well got in, and thinning has been commenced; we began upon the 29th ult., and will require to be diligent to keep pace with the plants. Potatoes have come up with a fine healthy stem, and if they escape the now almost annual visitant—the blight—bid fair to be a good crop. Clover-land hay cuts up very light, but we hope from the rain we have had, and the barometer now standing very high, that we shall have a favourable season for harvesting it, and in some measure make up in quality for what we want in quantity. Meadows will be short. There was but a poor show of sheep at Stagshaw Bank Fair yesterday, and with the increased demand prices were considerably advanced from Whitsuntide fair. At the cattle market to-day there was not a large show of good animals, and anything fresh met with a ready sale at advanced prices. Two-year-olds sold from 10*l.* to 14*l.* 10*s.* and 15*l.*; yearlings from 6*l.* to 8*l.* 10*s.* Of Irish and black cattle there was a large show, with the usual amount of murrain. *T. P. D.*

Notices to Correspondents.

BONEDUST: *A Subscriber.* It weighs about 40 lbs. a bushel, varying considerably, however, according to fineness, dryness, &c., Your question about the quantity of dust needed to dry bones and acid, so as to form one ton, is not capable of answer. The bones and acid will dry of itself generally if left in a heap together and under shelter, but of course they may be made as liquid as you choose, and then need ashes or other absorbent materials to dry them.

ENTERITIS: *J W K.* Calomel and opium combined is a proper combination for enteritis, but not in such strong doses as you employed. Scruple doses every four hours are sufficient, and if the bowels are confined Linseed oil, but no stronger purgative. *W. C. S.*

FARM BAILIFFS: *F A.* Spring and autumn are the best periods for engaging the services of bailiffs. Though as they generally know that they shall leave, some time before they require a new place, they are to be secured at any time.

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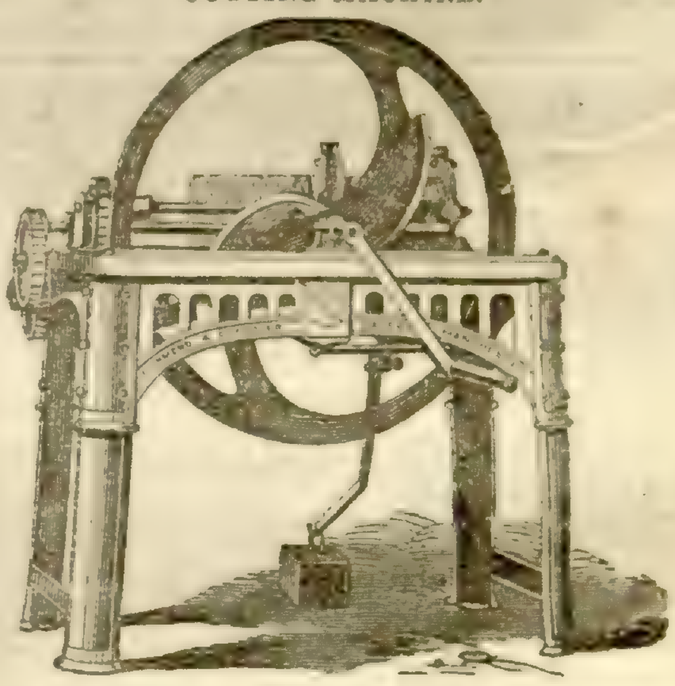

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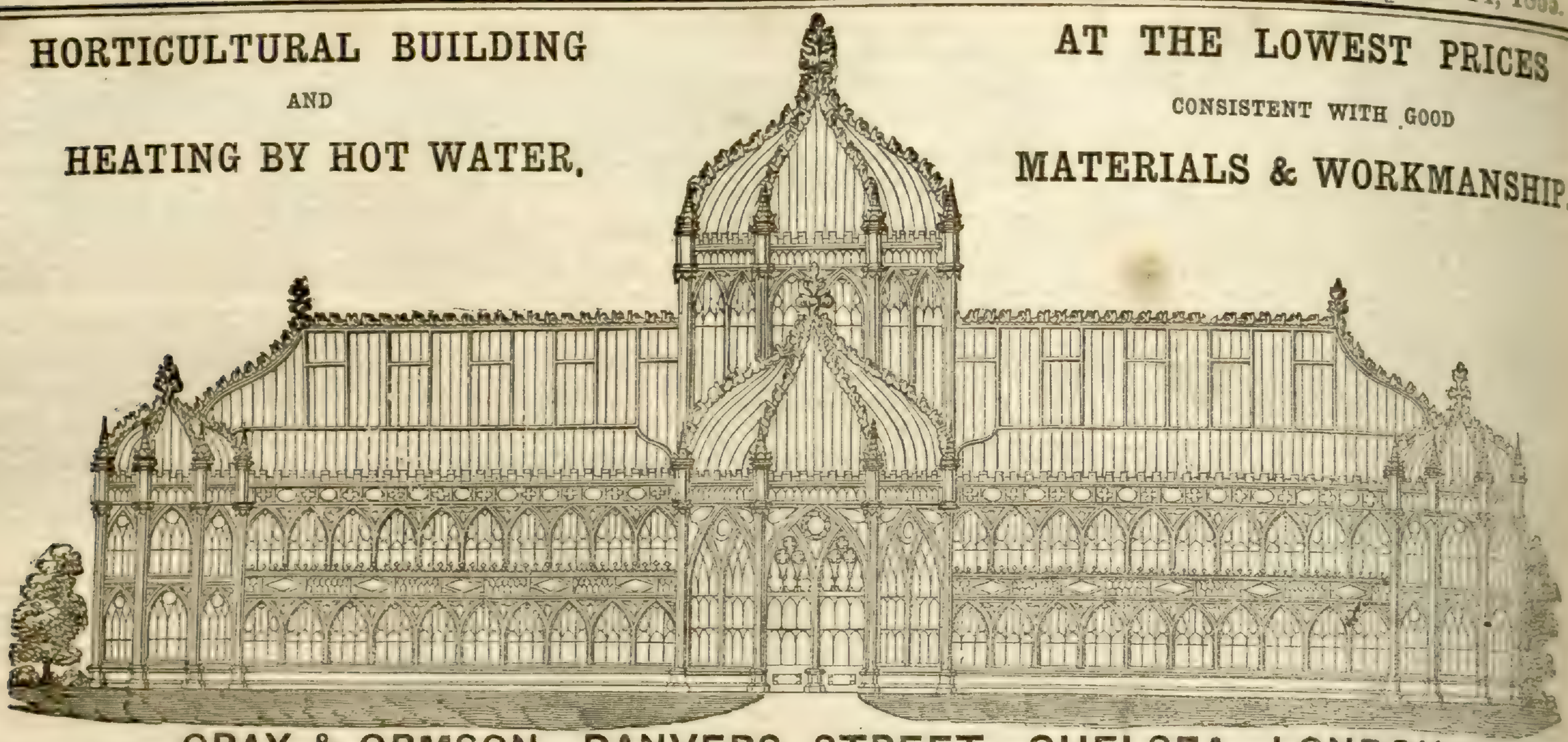

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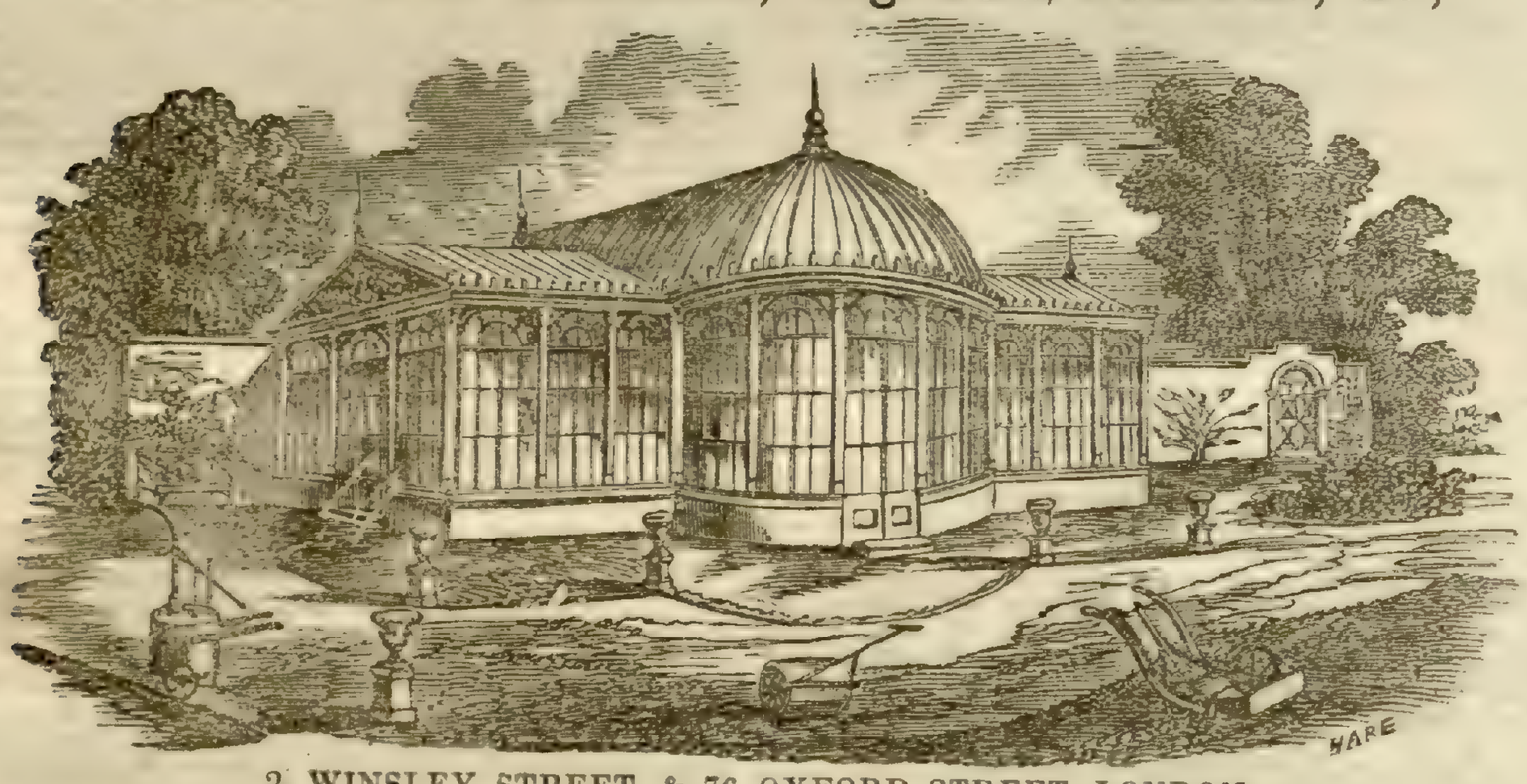

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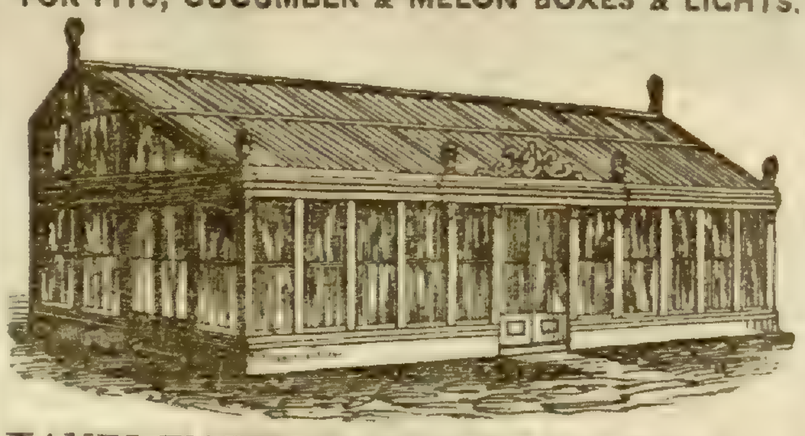

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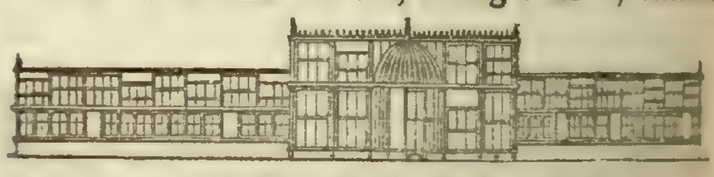

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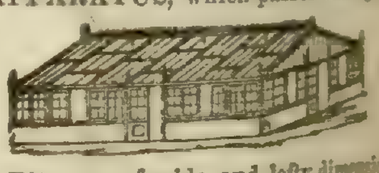

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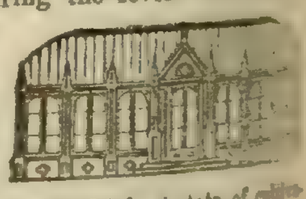

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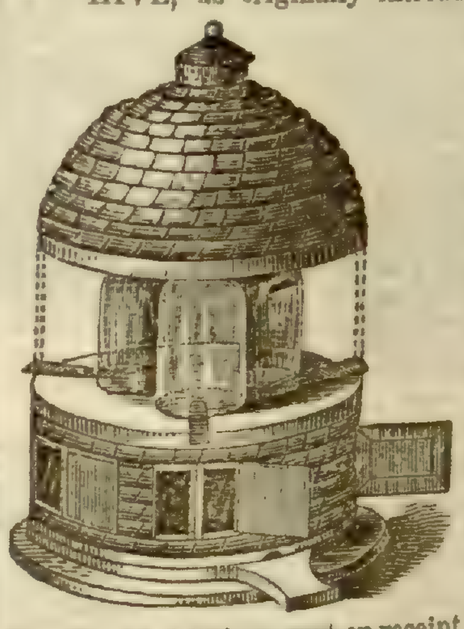

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 29.—1855.] SATURDAY, JULY 21. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The unfavourable weather of the 11th inst. having caused large numbers of Exhibition Tickets to remain unused in the hands of the public, notice is hereby given that there will be a PROMENADE in the SOCIETY'S GARDEN on SATURDAY, July 28, for which all such tickets will be available.

On this occasion the BANDS of the COLDSTREAM GUARDS and FIRST LIFE GUARDS will be in attendance; and his Grace the Duke of Devonshire is so good as to permit the Grounds of Chiswick House to be accessible to the visitors.

The Society's Garden will be open at 2 P.M. on the day of promenade.

Tickets, price 2*s*. 6*d*. each, may be procured at the Society's Office, 21, Regent Street, or at the Garden on the 28th, price 3*s*. 6*d*. each.

THE SOUTH LONDON SOCIETY OF AMATEUR FLORISTS.—The FOURTH EXHIBITION of the above Society this season will be held at the Horns Tavern, Kennington, on TUESDAY, July 31st, when Prizes will be awarded for the following productions, viz.: Miscellaneous Plants, Carnations, Picotees, Fuchsias, Verbenas, &c. An efficient Band will be in attendance. Admission to non-members from 2 till 7 o'clock. List of Prizes and the rules of the Society may be obtained from JOHN BUSHELL, Hon. Sec. *pro tem.* Lower Kennington Lane.

HEREFORD HORTICULTURAL AND FLORICULTURAL SOCIETY.—The days appointed for the SECOND and THIRD EXHIBITION of PLANTS, FLOWERS, and FRUIT this season are TUESDAY, July 31, and TUESDAY, September 4. Prizes open to all England. Schedules may be obtained on application to the Secretary.

WILLIAM PHILLIPS, Hon. Secretary.

BUCKINGHAM FLORAL AND HORTICULTURAL SOCIETY.—President, his Grace the Duke of Buckingham and Chandos, K.G.

The ANNUAL FETE of the above Society will be held on WEDNESDAY, the 25th of July, in the ornamental Grounds of George Nelson, Esq. The Committee have made extensive arrangements for the Exhibition of the various Flowers and Fruits produced by the competitors, and every encouragement will be given for the display of superior Vegetables, grown by Cottagers resident in Buckingham and the villages around. Three prizes will be given for Garlands. The unequalled Band of the 1st Life Guards, by the kind permission of Colonel Parker, will attend, as also the admired Brass Band of the Royal Bucks Yeomanry Cavalry.

The usual DINNER will take place in the Town Hall at half-past 3 o'clock precisely, when his Grace the Duke of Buckingham and Chandos, K.G., will preside; Frederick Edward Bartlett, Esq., Mayor, Vice-President.

The Festivities of the day will conclude with a GRAND DISPLAY OF FIREWORKS, the last piece of which will be a superb Military Device illustrative of the cordial alliance of France and England.

By the obliging attention of the Directors of the Buckinghamshire Railway Company ample accommodation will be afforded to the public by the arrangement of the Trains, of which full particulars will be given.

N.B. The Floral and Horticultural productions will be open for inspection at 12 o'clock on the payment of 1*s*. each person.

W. MARTIN } Hon. Secs.
H. THORP }

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

*** Plans and Estimates furnished.

JOHN HARRISON, NURSERYMAN, SEEDSMAN, FLORIST, LANDSCAPE GARDENER, &c.

Plans and Estimates furnished; Experienced Gardeners recommended: also several Young Men in the Nursery waiting for Under Gardeners' Situations.—Darlington, July 21.

GEORGE TAYLOR, JUN.,
CHOICE FRUIT and VEGETABLE SALESMAN,
St. John's Market,
Liverpool.
CONTRACTOR and PURCHASER of CHOICE GARDEN PRODUCE.
SALESMAN on COMMISSION.
Terms, Cash.
Forward as above.

STAINES'S SUPERIOR GARDEN TURNIP.—NEW SEED.—This Turnip is not stringy—free from knots—beautifully white, and very delicious as a table vegetable. It grows down into the soil, and is therefore protected from the action of the atmosphere, which causes the common Garden Turnip to become green and unfit for culinary purposes. Upon the receipt of Four Postage Stamps T. E. STAINES, Postmaster, Newport Pagnell, will forward (free) a Packet of the above Seed sufficient to produce 8 bushels of Turnips.—A liberal allowance will be made to the Trade on application to the above.

ROSES.

GEORGE CLARKE begs to announce that his fine collection is now in full bloom, and will continue so till autumn.—Streatham Place Nursery, Brixton Hill, near London.

ROSES.

JAMES MITCHELL begs to announce that his unrivalled collection of ROSES is now in fine bloom.
Piltdown Nurseries, Maresfield, Sussex, July 21.

WILLIAM WOOD AND SON'S COLLECTION OF ROSES is now coming into fine bloom, and will continue in perfection during the Rose season.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

LAKE TOURISTS AND OTHERS are respectfully informed that a Collection of all the most popular sorts of ROSES may be seen in fine bloom here.
JOHN GRIER, Waterhead Nursery, Ambleside.

ROSES.

A. PAUL AND SON invite inspection of the Collection of ROSES at the Cheshunt Nurseries, which is just coming into Bloom, and will continue to offer new objects of interest from the present time till the end of October. The best means of reaching the Nurseries is by Eastern Counties Rail to Cheshunt or Waltham Stations.
Cheshunt Nurseries (13 miles N.E. of London), July 21.

ROSES.

H. LANE AND SON, The Nurseries, Great Berkhampstead, have the pleasure to inform their patrons that their extensive Collection is now in bloom, and will remain so for some time. Their Coniferæ, Rhododendrons, and a general collection of Trees and Shrubs, also Fruit Trees (especially in pots, which can now be seen in full bearing) are remarkably healthy and well worthy the attention of planters. The Nurseries are within a few minutes' walk of the Railway Station on the London and North Western Railway, and an Omnibus from the station passes the gates.

CHOICE CINERARIA SEED.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior CINERARIAS, which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias have given for several successive years, enables them to recommend their Seed of the present season with much confidence. Packets sealed and warranted by them at 2*s*. 6*d*., free by post.
Exeter Nursery, Exeter.—Established 1720.

CHOICE CALCEOLARIA SEED.

J. DOBSON AND SON are now prepared to send out SEED of their unequalled collection of CALCEOLARIAS, in packets at 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*. each.
Woodlands Nursery, Isleworth.

TO EXHIBITORS OF PELARGONIUMS.

J. DOBSON AND SON can supply a few Cut-down Plants of the New Pelargonium sent out last autumn, Beck's CONQUEROR, acknowledged to be the most distinct variety sent out for some time. Price on application.
Woodlands Nursery, Isleworth.

TRIFOLI ONION.—Seed of the true flat Tripoli Onion to be had of NUTTING AND SONS, SEEDSMEN, 46, Cheapside, London. The trade supplied.

WHITE LISBON ONION SEED.—Large buyers can be supplied with White Lisbon Onion Seed in quantity.—Apply to Mr. HENRY CLARKE, Seed Merchant, 39, King Street, Covent Garden.

THE "EMPRESS OF THE FRENCH" CUCUMBER is the BEST for WINTER CULTIVATION; now bearing abundantly in the Horticultural Society's Garden, Chiswick.—Seed supplied at ROGERS's Seed Depôt and Gardeners' Registry Office, Clock House, Chelsea.

SHILLING'S QUEEN CABBAGE, true as originally sent out, will not run to seed before cabbaging. Sow the third week of this month for spring use. 1*s*. per oz., free per post.—STEPHEN SHILLING, North Warnborough Nursery, near Odiham, Hants.—July 21.

GRAPE VINES FROM EYES.—This being a favourable season for planting Vines, and thereby saving a year, the undersigned has a large stock of all the leading kinds in strong plants, exposed to greenhouse temperature, which consequently enables them to be sent to any part of the country with perfect safety.—R. GLENDINNING, Chiswick Nursery, London.

HARDY AND SON, SEED GROWERS, &c., Maldon, Essex, are prepared to send to any address, free by post, their best selected kinds of CABBAGE and LETTUCE SEEDS, for July and August sowings, in one or four varieties. Also for early sowing, one or three varieties of their selected WHEATS, now in repute, sufficient for 1 rod, with directions, &c., on receipt of seven postage stamps for each variety, enclosed with an envelope properly addressed to its destination.

PRICED CATALOGUE OF PLANTS.

THOMAS JACKSON AND SON'S Priced Catalogue of Plants may be obtained on application. It contains Stove, Orchidaceous, Ferns and Mosses, Greenhouse, Ornamental Shrubs and Trees, Roses, and Herbaceous Plants.

T. J. & SON are offering at very low prices a large Stock of Azaleas, Camellias, Ericas, Epacrises, Helichrysums, Rhododendrons, &c., well deserving the attention of purchasers.
Nurseries, Kingston, Surrey.

PHLOX DRUMMONDI—PEARL.

JOHN HALLY, NURSERYMAN AND FLORIST, Blackheath, begs to announce that he has the above beautiful variety of PHLOX now for Sale. It obtained a Certificate of Merit at the Royal Botanic Society's July exhibition in Regent's Park. Colour, pure white, with a deep purple eye; is of very fine shape and substance. Plants 5*s*. each, with usual allowance to the trade.

PICNOPTERIS (OR ASPIDIUM) SIEBOLDI.

J. HALLY has a fine healthy stock of the above beautiful new Hardy Fern from Japan, described in the *Gardeners' Chronicle* for July 14th. It has proved itself perfectly hardy at Blackheath during the last severe winter. Plants 3*s*. 6*d*. each. Price per dozen to the trade on application.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS should be sown immediately after the hay is carried.

These Seeds consist of PERENNIAL CLOVERS *and* FINE GRASSES *for improving the bottom.* Price 9*d*. per lb., or 8*l*. per CWT. Eight or 12 lbs. per acre will be sufficient, and will produce a great increase in the produce.—SUTTON & SONS, Reading, Berks.

THE BEST SUBSTITUTES FOR SWEDES.

SUTTON'S PURPLE-TOP YELLOW HYBRID, SUTTON'S GREEN-TOP YELLOW HYBRID AND ORANGE JELLY TURNIP.—Prices, &c., will be forwarded, Post-free, on application (stating quantity required), by SUTTON & SONS, Seed Growers, Reading.

THE QUICKEST TURNIP KNOWN.

SUTTON'S EARLY SIX-WEEKS TURNIP.—*Good New Seed* 1*s*. *per lb., or* 6*s*. *p. gallon,* 45*s*. *per bush.* Carriage free except small parcels.
SUTTON & SONS, SEED GROWERS, Reading.

SUTTON'S IMPERIAL CABBAGE SHOULD NOW BE SOWN. *It comes in very early, hearts several times after cutting, and stands for two years before running to seed. Price of Seed,* 1*s*. *per ounce. Post free.*
SUTTON & SONS, Seed Growers, Reading.

J. DOBSON AND SON'S NEW DESCRIPTIVE CATALOGUE of PELARGONIUMS is now ready, and will be forwarded on receipt of one stamp for postage.
Woodlands Nursery, Isleworth.

SUPERB HOLLYHOCKS, SEEDS, ETC.

WILLIAM CHATER begs to offer packets of seed, consisting of 20 varieties, from his best Show Hollyhocks at 5*s*.; 12 varieties, 2*s*. 6*d*.; and from good double sorts, 1*s*.

Superior Quilled German and French Asters, in 12 varieties, mixed, 1*s*. per packet; separate, 2*s*. Fine Quilled African Marigolds, 6*d*. per packet.—Saffron Walden Nurseries.

HOLLYHOCK SEED.

A. PAUL AND SON have ready for immediate sowing a fine lot of HOLLYHOCK SEED saved from their choicest varieties which have obtained many of the leading prizes during the last three years:—

	s.	*d*.
1st selection, saved from 25 varieties, per packet ...	5	0
2d do. " 12 " " ...	2	6
Good Mixtures	1	0

Also, price 1*s*., AN HOUR WITH THE HOLLYHOCK.
N.B. Free by post, and payment received in postage stamps.
Nurseries, Cheshunt, Herts.

W. NICOL, GARDENER, Roslyn House, Hampstead, begs to announce that his new Pea "OMAR PACHA" may now be seen in fine perfection on application to him as above.

W. NICOL being desirous to afford ocular demonstration of the surpassing qualities of his Pea, had sown at same time "Daniel O'Rourke," and all the other new Peas recommended to him this season, all of which "Omar Pacha" leaves completely in the shade. W. NICOL is now open to an offer for the whole stock.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 12*s*. per ton, 1*s*. 6*d*. per bushel, or 16*s*. per ton, delivered to the London Wharfs or Railways, or within a circuit of five miles. Sacks 2*s*. each. Kentish and other Peats and Loam of excellent quality.
KENNARD BROTHERS, Swan Place, Old Kent Road.

HOW TO KILL RATS AND MICE BY HUNDREDS.—A Receipt may be [illegible] honestly worth 20*l*., without trouble, by sending 30 postage stamps and a directed envelope to Mr. WILLIAM FRANKLIN, [illegible]t-office Street, Norwich, who will forward it with plain instruc[illegible]ns, &c. This is a most extraordinary remedy, such as no Fa[illegible]er, Merchant, or Miller ought to be without, as it will save them pounds yearly by killing every Rat or Mouse either in the field, stack, or house.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d*. per square yard; 200 yards, 14*s*.; 500 yards, 30*s*.; 1000 yards, 50*s*. Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

GARDEN NETS, FISHING NETS, AND SHEEP NETS, made by machinery, and sold at very low prices. Samples sent free. The old tanned nets repaired, 6*s*. 3*d*. per 100 yards.—R. RICHARDSON, 21, Tonbridge Place, New Road, London. N.B. Worsted Nets, to protect from Wasps, 7*d*. per square yard.

TENTS, MARQUEES, AND RICK CLOTHS.—Garden tents from 50*s*. each; large marquees on sale or hire, very cheap (100 feet by 30), 5*l*., small in proportion. Rick-cloths from 3*l*. each.—R. RICHARDSON, 21, Tonbridge Place, New Road, London. N.B. Patrol Tents, weight 12 lbs., price 25*s*. each.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

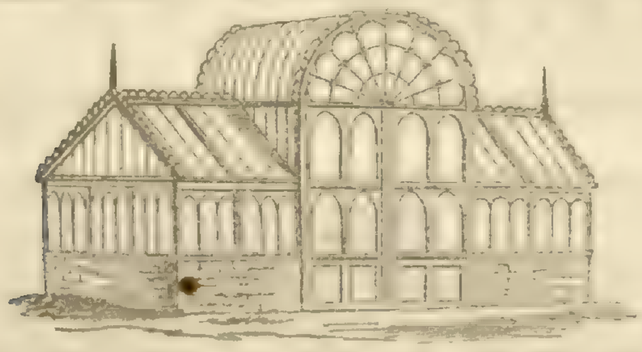
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.

Printed Price Lists sent on application.



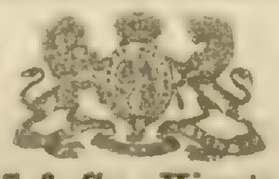
J. OVERALL begs to inform the Nobility, Gentry, Nurserymen, and others requiring Horticultural Buildings, Lights, and Frames, that by intrusting their orders to him, they may depend upon first-class workmanship and good materials at the most economical prices.

J. OVERALL, Horticultural Builder, 16, Shacklewell Lane, near Kingsland, London.

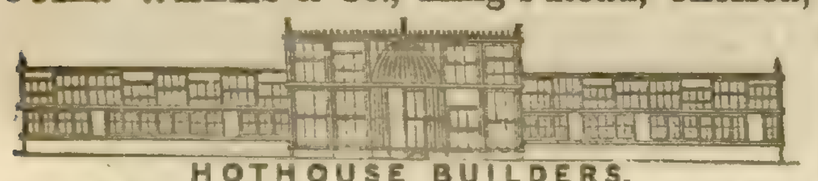
HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY,
KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

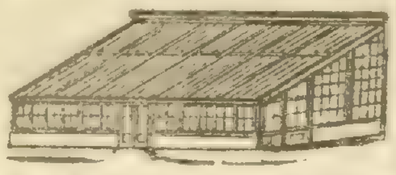
HORTICULTURE IN ALL  ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

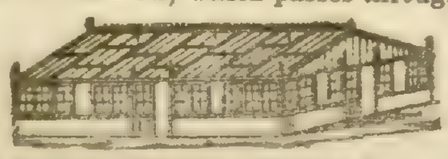


HOTHOUSE BUILDERS.

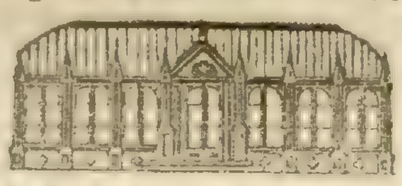
THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.



Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

IMPORTANT TO GROWERS OF ROSES.

NEWLY-INVENTED APHIS BRUSH, OR GREEN FLY DESTROYER—The attention of Florists is particularly called to this Cheap and Ingenious Instrument, invented by the Rev. E. S. BULL, of Colchester, which, in a very simple and easy manner, instantly cleanses the Rose from that destructive insect the Green-fly (or Aphis), without causing the slightest injury to the bud or foliage.

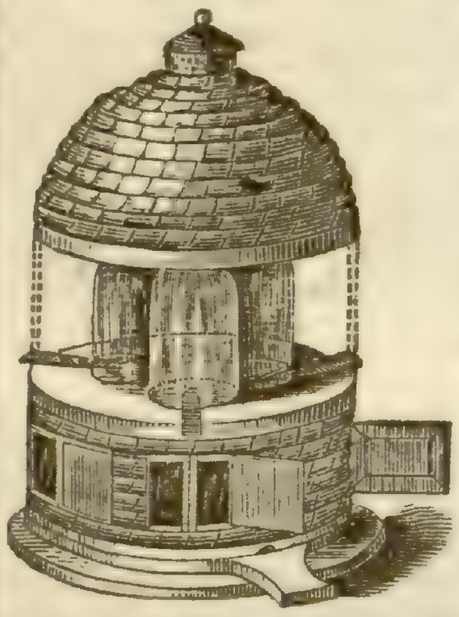
Price 2*s.* 6*d.* each, or free by post, 4*s.*

MANUFACTURED BY
JOSLIN AND SONS,
IRONMONGERS, Colchester.

Retailed by all the principal Ironmongers.
Wholesale Agents:
W. THOMPSON & SON, 15, Upper North Place, Gray's Inn Road, London.

BEE HIVES.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, glasses, thermometer, &c., price 35*s.*, securely packed for the country.



This unique hive has met with universal commendation, and may be worked with safety, humanity, and profit, by the most timid; its arrangements are so perfect, that the honey may be taken at any time of the gathering season without at all injuring the bees.

Early applications, addressed to GEO. NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention. Their newly arranged Catalogue of other improved Beehives, with Drawings and Prices, sent on receipt of two stamps.

Agents:—Manchester, HALL & WILSON, 50, King Street; Liverpool, JAMES CUTHBERT, 12, Clayton Square; Chester, F. & A. DICKSON & SONS, 106, Eastgate Street; Glasgow, AUSTEN & M'ASLAN, 186, Trongate Street; Dublin, J. EDMUNDSON & Co., 61, Dame Street.

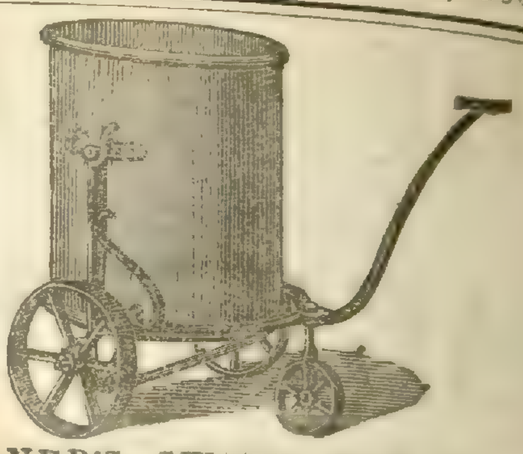
COTTAM AND HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.

Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

Hand Glass Frames, Cast and Wrought Iron Flower Stakes, Garden Arches, &c.

Strong Iron Hurdles, and best Wire for Strained Wire Fencing.

Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom. Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.



WARNER'S SWING WATER-BARROW (TO HOLD THIRTY GALLONS)

Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l.* 3*s.*

Manufactured by
JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds	10 gallons,	throws	30 feet high			...	£4 10
No. 2	„ 15	„	„ 45	„		...	5 10
No. 3	„ 28	„	„ 45	„		...	6 18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds	8 gallons,	throws	25 feet high			...	£2 15
No. 13	„ 12	„	„ 30	„		...	3 5
No. 11	„ 16	„	„ 40	„		...	4 0
No. 12	„ 24	„	„ 45	„		...	5 0
No. 14	„ 30	„	„ 45	„		...	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.* No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 15*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, 21*s.* each. Large size, for Gardeners' use, 25*s.* each.

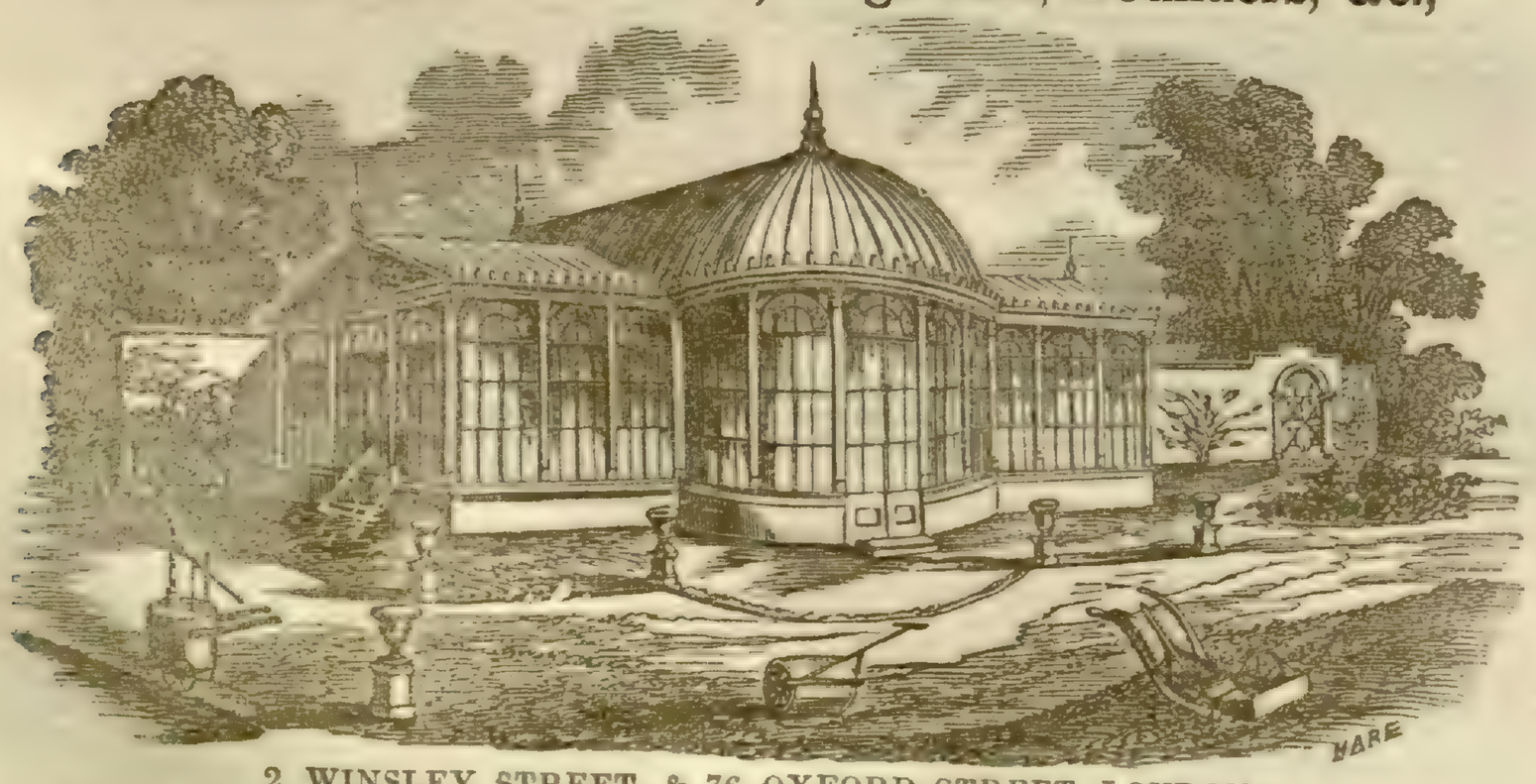
Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

COTTAM AND HALLEN, Engineers, Founders, &c.,



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

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Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
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CALCEOLARIA SEED.

R. PARKER has now ready for sending out Seed which he can recommend with the greatest confidence, it having been saved from flowers of the finest form and most beautiful markings, in packets at 1*s.* 6*d.* and 2*s.* 6*d.* each. Also choice CINERARIA seed saved from the finest named varieties, at 1*s.* 6*d.* and 2*s.* 6*d.* per packet. A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, London.

PRIZE CALCEOLARIAS.—A few packets of seed saved from the group of Seedling Calceolarias to which a Prize was awarded at the Great Exhibition at the Crystal Palace, are now ready at 10*s.* 6*d.* each. These seedlings are unrivalled for immense size of flower, richness of colour, and strong vigorous growth. Seed from other Choice Seedlings at 5*s.* per packet.

Address to WILLIAM SANFORD, Gardener to Mr. Henchman, Edmonton, near London. No letter will be attended to unless enclosing a Post Office Order or Postage Stamps.

CALCEOLARIA AND CINERARIA.

MESSRS. E. G. HENDERSON AND SON beg to announce that the above FLOWER SEEDS, saved from the choicest varieties, may be had in packets at 2*s.* 6*d.* and 5*s.* each; the finest quality of CALCEOLARIA is only offered at 5*s.*; second quality, 2*s.* 6*d.*

This Season's CATALOGUE will be forwarded on application, and a Beautiful Coloured Plate of nine new Flowers will be sent on receipt of 12 postage stamps.

Wellington Nursery, St. John's Wood, July 21.

CALCEOLARIA AND CINERARIA SEED.

WILLIAM B. JEFFRIES, Arboretum Nurseries, Ipswich, begs to offer Seeds saved from his unrivalled Collections of the above, at 2*s.* 6*d.* and 5*s.* per packet each, which gained the three first prizes offered by the Ipswich Horticultural Society; likewise two extra prizes and a first class certificate; also the first prizes at Bury and Colchester. See "Cottage Gardener," June 19, page 212, which speaking of the Calceolarias, says, "they are all good, but No. 6, orange-laced with crimson, is one of the most beautiful in colouring as well as excellent in form we ever saw."

CALCEOLARIA AND CINERARIA SEEDS.

GEORGE CLARKE has again the pleasure of offering seed of his unrivalled collection of CALCEOLARIAS. From their well known merit, and many testimonials received in their favour, little need be said in their praise. Many of them can still be seen in bloom at the Nursery. Great care has been bestowed in the saving, so that none but first-rate flowers can be expected. Packets, price 2*s.* 6*d.* and 5*s* each.

Also CINERARIA, saved from none but the finest flowers and, like the Calceolaria, is warranted to give satisfaction Packets, price 2*s.* 6*d.*, payable in postage stamps or otherwise.

Streatham Place Nursery, Brixton Hill, near London.

THE NEW GERANIUMS AND VERBENAS
OF THE PRESENT SEASON AT REDUCED PRICES.

BASS AND BROWN are now enabled to offer strong and well established plants at the reduced prices annexed.

GERANIUMS.

	s.	d.		s.	d.
Dobson's Conqueror ...	21	0	Hoyle's Serena	10	6
„ Laura	10	6	„ Lord Raglan ...	7	6
„ Lydia	7	6	„ Topsy...	7	6
„ Commander-in-Chief	10	6	Story's Fair Ellen	10	6
Fuller's Gem of the West	10	6	Turner's Pandora	7	6
Forster's Phaeton	21	0	„ King of Portugal	5	0
Foquett's Petruchio ...	7	6	Hockin's Una	7	6

Hoyle's Wonderful and Queen Eleanor, and Dobson's Silenus, will be ready to offer at reduced prices with our general list of Geraniums in October.

FUCHSIAS with white corollas, well established plants, at 3*s.* 6*d.* each, except priced, viz., Lucombe and Pince's Florence Nightingale, Galanthaflora-pleno, 5*s.*; Story's Queen Victoria, Mrs. Story, Snowdrop, Empress Eugene, Lady of the Lake, Water Nymph.

New FUCHSIAS of other varieties.—Bank's Prince Albert, 5*s.*; Climax, 2*s.* 6*d.*; Maid of Kent, 3*s.* 6*d.*; Beauty of the Bower, 2*s.* 6*d.*; Omar Pacha, 2*s.* 6*d.*; Smith's Omar Pacha, 3*s.* 6*d*; Orlando, 2*s.* 6*d.* The usual allowance to the trade.

For other new plants at reduced prices, see advertisements in the *Gardeners' Chronicle* of June 23d and 30th, and July 7th.—Seed and Horticultural Establishment, Sudbury, Suffolk.

NEW AND SPLENDID ACHIMENES, ETC.

HENRY WALTON, FLORIST, &c., Edge End, Marsden, near Burnley, Lancashire, is now prepared to send plants of the following out, post free, at the undernamed reduced prices:—

ACHIMENES (each).—Ambroise Verschaffelt, 5*s.*; Dr. Hopf, 5*s.*; Edward Boissier, 3*s.* 6*d.*; Edmond Otto, 2*s.* 6*d.*

Also the eight following fine varieties for 12*s.*, post free, or separate, at the prices annexed:—Achimenes Carl Walforth, 1*s* 6*d.*; Cherita, 1*s.* 6*d.*; Louis Van Houtte, 1*s.*; Gigantea, 5*s.*; Madame Randa'ler, 3*s.*; Mr. Parparet, 1*s.*; Sir Traherne Thomas, 1*s.*; Hendersoni, 2*s.*; Clianthus magnifica, 2*s.* 6*d.* each; Begonia Prestoniensis, Superb, 2*s.* 6*d.*; strong plants, 5*s.*; Eugenia Ugni, 2*s.* 6*d.*

Also all the new VERBENAS of this season, including Lady Lacon, Wonderful, Blue Beard, Lord Raglan, Mrs. Woodroffe, &c., 1*s* 6*d.* each, or 18*s.* per dozen, post free, for all of which see advertisement in *Chronicle* of June 23d, and previous numbers.

Post-office orders are respectfully solicited to accompany all orders (unless reference is given), payable at Marsden, Lancashire.

NEW CABBAGE.—THE CHAMPION OF ENGLAND, which has surpassed everything of its kind during the past severe winter (when nearly every other has failed) and turned well into Cabbage this spring. This Cabbage is of a very dwarf and compact habit, and quite equal in flavour to any yet grown. It has been in the hands of a very excellent gardener for several years, and he has thoroughly proved its superior hardy and good qualities. The stock of seed purchased is very limited, therefore none can be sold by the pound or in large quantities to the Trade this year. E. T. feels confident, from what he has seen of the Cabbage, that it will give the greatest satisfaction to all purchasers. Sold in packets of 1 oz., 2*s* 6*d.*; or of half an ounce, 1*s.* 6*d.*, postage free.

The TRUE OLD BATH COSS LETTUCE, which Lettuce has never been surpassed by any other yet grown. 1*s.* per packet.

☞ This being the proper time for sowing the following varieties of Hardy Flowering Seeds for blooming next spring, the following undermentioned varieties will give the greatest satisfaction to all purchasers as they have hitherto done for many past seasons:—

SWEET WILLIAM SEED—Saved from 50 of the choicest and most superb varieties. 1*s.* per packet.

ANTIRRHINUM SEED—Saved from all the striped, spotted, and finest shaped varieties. 1*s.* per packet.

Superb HOLLYHOCK SEED — Saved from all the best named flowers our last year. 1*s.* per packet.

SCARLET GIANT BROMPTON STOCK, extra fine. 1*s.* per packet.

PANSY SEED—A few packets from selected varieties. 1*s.* per packet.

AQUILEGIA OR COLUMBINE SEED—Saved from 12 distinct varieties. 1*s.* per packet.

☞ Either of the above packets of Flower Seeds three for 2*s.* 6*d.*

A remittance must accompany every order either in cash or penny postage stamps, when the whole, or any part of the above (as the case may be) will be forwarded.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somerset.

BEAUTIFUL NEW CONIFEROUS PLANT, "ARTHROTAXUS DONIANA."

W. MAULE AND SONS have much pleasure in announcing to the lovers of Coniferous and rare plants that after this week they intend sending out this beautiful tree from the Rocky Mountains, far south of Australia, which mountains are stated by their collector to be covered with snow, and inaccessible from ice nine months out of the twelve. This elegant evergreen tree has stood with little or no injury the two last winters, when at the same time Pinus insignis, Araucaria imbricata have been much injured, and many of our old evergreens quite killed close by their side. The stock of this rare plant is very limited. Established Plants, in 60 size pots, 42*s.* each.

Those gentlemen who have subscribed their orders, and may order this new plant, are respectfully informed that the strictest regularity will be observed in forwarding the strongest plants in rotation as their orders have been and are received.

Stapleton Road Nurseries, Bristol, July 21.

NEW AND RARE PLANTS.

JOHN AND CHARLES LEE have a fine stock of the following to offer:—

THUJA GIGANTEA.—A noble hardy evergreen tree, from the hills of California. From seed, 31*s.* 6*d.*; grafted, 21*s.*

THUJOPSIS BOREALIS.—A beautiful hardy evergreen tree from Behring's Straits. Grafted, strong, 21*s.*

	s. d.		s. d.
Biota glauca	7 6	Episcea mellitæflora ...	3 6
Thuja Doniana ... 5*s.* to	7 6	Araucaria excelsa, from seed ... ... 25*s.* to	42 0
Wellingtonia gigantea, 5*s.* to	21 0	Araucaria Bidwilli ...	31 6
Podocarpus nubigena ...	21 0	„ Cunninghami...	31 6
„ chilina ...	21 0	„ Cooki	105 0
Berberis Jamesoni ...	5 0	„ gracilis ...	42 0
„ Neuberti, fine ...	7 6	Bejaria æstuans	10 6
Dammara obtusa	31 6	Acrophyllum venosum ...	7 6
Begonia Thwaitesi ...	7 6	Boronia Drummondi ...	5 0
„ Lapeyrousi ...	5 0	Glycine sinensis alba ...	5 0
Echites Pelleri	10 6	Azalea amœna, hardy, fine	3 6
Aphelandra Leopoldi ...	5 0	Oxylobium Osborni ...	5 0
„ Porteana ...	5 0	Eugenia ugni	3 6
Ixora Lobbi	7 6	Scutellaria villosa ...	5 0
„ alba, true	5 0	Fabiana violacea	3 6
Sciadocalyx Warscewiczi	5 0	Swainsonia Osborni ...	3 6

FILBERT MERVEILLE DE BOLWYLLER, large and very prolific, 7*s.* 6*d.*

The Trade supplied.—Nursery, Hammersmith.

CHOICE NEW AND RARE PLANTS OF THIS SEASON
AT REDUCED PRICES.

HENRY WALTON, FLORIST, &c., Edge End, Marsden, near Burnley, Lancashire, is prepared to send out nice healthy plants of the following new novelties at the reduced prices as annexed.

FUCHSIAS.—Story's Mrs. Story, 3*s.* 6*d.*; Queen Victoria, 3*s.* 6*d.*; Water Nymph, 3*s.* 6*d.*; Empress Eugenie, 3*s.* 6*d.*; Lady of the Lake, 3*s.* 6*d.*; Snowdrop, 3*s.* 6*d.*; Banks' Beauty of the Bower, 2*s.* 6*d.*; Prince Albert, 3*s.* 6*d.*: Maid of Kent, 3*s.* 6*d.*; Climax, 2*s.* 6*d.*; Grand Sultan, 2*s.* 6*d.*; Omer Pasha, 2*s.* 6*d.*; Smith's Omer Pasha, 2*s.* 6*d.*; Violæflora pleno, 3*s.* 6*d.* each, or 30*s.* per dozen post free where two or more are ordered.

	Each.—s. d.		Each.—s. d.
Hydrangea hortensis flore pleno	5 6	Phlox omniflora compacta, dwarf white	2 6
Begonia oppulæfolia ...	2 6	Calceolaria Purity, fine white	3 6
Tydea Warczewiczi, new and fine stove plant ...	5 6	„ Wildfire ...	3 6
Geranium Pretty Polly, fine bedding variety	3 6	„ Maggiore ...	3 6
		„ Vezzossa ...	3 6
		Petunia Singularity, Smith's	2 6

Early orders are respectfully solicited for the above, which will be executed in rotation as received, the stock of some of the varieties being rather limited. A remittance requested to accompany all orders, payable at Marsden, Lancashire, unless a reference is given.

Every article in the Nursery and Florist Trade on the lowest remunerative terms, also a choice collection of large flowered and Pompone Chrysanthemums, new varieties. Strong bushy plants, ready to go into blooming pots, 6*s.* to 9*s.* per dozen.

NEW AND CHOICE BIENNIAL AND PERENNIAL SEEDS FOR THE PRESENT SOWING.

CLARKE AND CO., SEEDSMEN and FLORISTS, 86, High Street, Borough, London, beg to draw attention to their Choice Assortment of Seeds, as annexed, the present being the proper season for sowing them. At the prices named they will be forwarded post free.

	Per packet.—s. d.		Per packet.—s. d.
Antirrhinum, splendid mixed	0 6	Potentilla atrosanguinea	0 4
Calceolaria, very choice...	1 0	Piccotee, fine mixed, from Show flowers	0 6
Cyclamen, fine mixed ...	0 6	Rhodanthe Manglesi, very pretty for Pot culture ...	0 6
Cineraria, splendid mixed	1 0	Stock, Scarlet Queen ...	0 4
Catananche bicolor ...	0 3	Sweet William, choice mixed colours	0 4
„ cœrulea ...	0 3	Stock, Scarlet Major ...	0 4
Campanula carpatica ...	0 4	Scabious, mixed German varieties	0 4
„ persicifolia	0 4	Sweet William, Burridge's splendid colours, mixed	1 0
„ grandis	0 4	Stipa pennata	0 6
„ pyramidalis alba ...	0 4	Stock, Scarlet Brompton (runs very double) ...	0 4
„ „ cœrulea ...	0 4	Stock, Crimson Emperor	0 6
Carnation, very choice mixed varieties ...	0 6	„ Blue Emperor ...	0 6
Columbine, fine mixed ...	0 3	„ Rose-Purple Emperor	0 6
Digitalis, fine spotted ...	0 4	The Emperor is a Choice German variety, being more double than any other, and lasts for several years, and is very gigantic in its growth.	
Delphinium grandiflora ...	0 4	Tropeoleum tricolorum ...	0 6
Dianthus superbus, fine mixed	0 3	Trifolium album atropurpureum (new)	0 6
„ „ Dunnettia (new)	1 0	Veronica	0 4
Digitalis, splendid mixed varieties	0 4	„ filiformis ...	0 4
Gloxinia, fine mixed ...	1 0	Valerian, White Garden	0 4
Geranium, superf. Scarlet	0 6	„ Scarlet Garden	0 4
Geum sanguineum ...	0 3	„ Blue Greek	0 4
„ coccineum ...	0 3	Verbena, choice mixed French varieties ...	0 6
Gladiolus (early varieties mixed)	0 6	Wallflower, tall, double, Black-Brown (new) ...	0 6
Heartseeds (from the most celebrated growers) ...	1 0	„ single, Brown striped, German (curious)	0 4
Honeysuckle, Red French	0 3	„ very dark Blood colour	0 3
„ White, ditto	0 3	Fuchsia, saved from choice varieties	1 0
Hollyhocks, mixed, from Prize Flowers	0 6		
Lupinus polliphillus, Blue	0 3		
„ „ White	0 6		
„ speciosa ...	0 4		
Mimulus, fine mixed ...	0 6		
Primula sinensis fimbriata, mixed colours ...	0 4		
Peas, Everlasting ...	0 3		
Penstatemon roseum ...	0 4		
„ campanulatum	0 4		
Pink, Chinese, doub. mixed	0 6		
Potentilla grandiflora ...	0 4		
Polyanthus, saved from an Amateur's collection ...	1 0		

Any of the above packets may be had separately, or the whole collection (sixty-two vars.) will be forwarded on receipt of a Post Office order for 21*s.*

CHRYSANTHEMUMS.—C. & Co. beg to state they have now published Catalogues of choice and new varieties of the above, and will be happy in forwarding it post-free to parties applying for the same.—London, July 21.

AZALEAS.

H. LANE AND SON, the Nurseries, Great Berkhampstead, have a very fine large stock of Indian Azaleas, consisting of Optima, Exquisita Perryana, and other leading varieties, at from 12*s.*, 15*s.*, 18*s.*, 24*s.*, and upwards, per dozen. Also a fine stock of young specimens, Catalogues of which may be had on application.

AZALEAS AND ERICAS.

W. J. EPPS has much pleasure in offering the following fine, bushy, well-grown plants, and of the choicest and best varieties, in large 48 and 32-size pots.

AZALEAS 18*s.* per dozen; 5*l.* per 100.

ERICAS 12*s.* and 18*s.* per dozen; 4*l.* and 5*l.* per 100.

These will make very pretty specimens for the ensuing season; all orders to be accompanied with a remittance from unknown correspondents.—Maidstone, July 21.

TO AMATEURS IN CONIFERÆ.

MR. BARRON, of Elvaston Castle, can supply a few strong PLANTS of PICEA NOBILIS, upwards of three years old, which have never been in pots, hence the roots are what they should be. The only Seedling Plants of this the most beautiful of all Firs) that have ever been raised since its first introduction to Europe. They will be sent out in the middle of September, the best plants to the earliest applicants. The largest size 63*s.*, and the next 42*s.* Notice will be given before the Plants are sent out, when a remittance will be required from unknown correspondents.

The Gardeners' Chronicle.

SATURDAY, JULY 21, 1855.

MEETINGS FOR THE ENSUING WEEK.

SATURDAY, July 28—Promenade in Horticultural Society's Garden .. 2 P.M.

THE incessant heavy rain of the 11th, one effect of which was to leave somewhere about 4000 tickets in the hands of the public, has led to another meeting of the HORTICULTURAL SOCIETY at Chiswick. It will be seen from our advertising columns that, in order to enable the holders to use their tickets agreeably, the Society's Garden will be opened next SATURDAY for a PROMENADE, with military music. It is also announced that the Duke of Devonshire, the President of the Society, with that unvarying courtesy and consideration which are so characteristic of his Grace, has once more directed the exquisitely beautiful grounds of Chiswick House to be thrown open to public inspection on the occasion. Gardens near London are now in their freshest and gayest garb, and never can be seen to greater advantage; for, owing to the lateness of the season, we are at the point of contact between the verdure of spring and the glow of summer, so that should the weather be propitious, the usual exhibition under tents will be well replaced by a more natural exhibition in the open ground. A similar event occurred in 1844, owing to the same cause, and many must still remember how pleasant an afternoon was then passed in the shades of Chiswick.

We observe that those who do not already hold tickets will be able to procure them on very easy terms; and we learn that the usual orders from Fellows will, on this occasion, be dispensed with. This will doubtless be appreciated by that portion of the public which is obliged to distinguish between half-a-crown and five shillings.

THE season for importing DUTCH BULBS is fast approaching, and among these the HYACINTH always stands pre-eminent. Treatise after treatise, and directions upon directions have been published for the management of this plant, and yet people somehow fail more frequently than succeed with it. In the hands of the trade, indeed, no difficulty is experienced; but even there it is notorious that some growers are much more successful than others. So far as London is concerned, the exhibitions of the Horticultural Society have long since established the fact that in the Pine-apple Nursery collections are annually raised, which may be equalled, but are never excelled, either for the beauty of the specimens or the skill with which the best varieties are selected. Under these circumstances we shall incur no risk of being said to deal with a stale subject if we give a prominent place to some account of the practical management of the bulb, for which we are indebted to one of Messrs. HENDERSON'S most skilful foremen.

"As soon," he writes, "as we receive the bulbs from Holland, each is carefully examined, and all that are not perfectly sound are discarded. The remainder are brushed over with a soft brush, and replaced in bags for sale or for our own potting. We usually pot our first batch about the middle of September, and another in November; always in a compost consisting of one-half maiden soil (the top spit of an old pasture) and a similar quantity of a mixture composed of equal parts of rotten dung, leaf soil, and good sharp sand. This compost is turned over several times, till all the parts become thoroughly incorporated; then only is it fit for use.

"The pots we generally use are 5 inches and 6 inches in diameter. We find that in potting Hyacinths, the less the bulb is covered with soil the better, care being taken to press down the soil firmly with the fingers. After they are potted we

give them a good watering, and place them in beds 5 feet wide, where they are allowed to stand for two or three days, until the surface begins to dry, when old tan is thrown over them to the depth of 5 or 6 inches; and this is allowed to remain until the pots are quite full of roots, and the tops have made a growth of one or two inches. We then carefully look over them, and any that are not sufficiently rooted are replunged. Great care should be taken that they are not left in the tan too long; if they remain there till the leaves begin to open, the flower is very likely to be injured. Such as are well rooted we place in a cold frame, taking care to protect them well from frost, but giving them plenty of air every opportunity.

"If we want any in flower early in the season we prepare a hot-bed, taking great care to have the dung well worked previous to making up the bed. When the bed is sufficiently sweetened we place a few in it every week, to keep up a succession from Christmas till March, when the others will come on quite fast enough in the cold frame.

"Although most Hyacinths will succeed very well without artificial heat, many are greatly improved by it. Indeed, all that do not throw up their blooms kindly in the cold frame will be benefited by applying dung heat.

"The bulbs that are kept in the cold frame all the winter from the time they were taken out of the tan are generally in finest bloom from the middle of March till the second week in April. After that time they begin to fade.

"The following list includes 60 of the very best; and to have a grand display, and all the different shades of colours, no grower ought to have a smaller selection.

Double red and pink.
Bouquet Royale
Comtesse de la Coste
Grootvoorst
L'Eclipse
Lord Wellington
Panorama
Waterloo

Double white and blush.
Anna Maria
Hermann Lange
La Déesse
Minerva
Miss Kate
Prince of Waterloo
Triumph Blandina

Double blue purple and porcelain.
A-la-mode
Alfred the Great
Comte de St. Priest
King of the Netherlands
Laurens Koster
Lord Wellington
Pasquin
Prince Frederick
Othello

Double yellow.
Duc de Berri d'Or
Jaune Suprême

Single yellow.
Alida Jacoba
Heroine
Roi des Pays Bas

Single red and pink.
Diebitsch Sabalskansky
Fireball

Single red and pink.
Herstelde Vreede
La Dame du Lac
L'Unique
Lord Grey
Mars
Mrs. Beecher Stowe
Sultan's Favourite
Van Speyk

Single white and blush.
Grande Vidette
Grand Vainqueur
Grandeur à Merveille
Reine Blanche
Hélène
Richardson
Tubiflora
Victoria Regina
Virgo
Voltaire

Single blue purple and porcelain.
Asterias
Baron Von Thuyll
Charles Dickens
Cœur Blanc
Emicans
Grand Lilac
Grande Vidette
Gumal
Nimrod
Orondates
Prince Albert
Prince of Saxe Weimar
Robinson
Schiller
Tubal Cain
William the First."

We will not to-day divert attention from these excellent precepts by attempting to show how the cultivation on a large scale thus employed by Messrs. Henderson is susceptible of being imitated by amateurs. We would rather for the moment leave those interested in the management of this charming flower to reflect for themselves upon the principles which are involved in the successful practice now detailed. On an early occasion we shall endeavour to show how the practice may be varied on a small scale without neglecting in any degree the principles themselves.

In laying out a botanical garden the first questions which arise are how shall it be divided, what descriptions of plants, what different collections shall be admitted into it? In the common desire to have everything, even in gardens of the most limited means, there is also a tendency to exemplify every arrangement, scientific or practical, botanical, technical, agricultural, economical, or ornamental. Even in the larger establishments, where, owing to the liberality of governments the funds are, at first at least, ample, the ambition of the managers appears to grow with their means, and there is the universal attempt to multiply the collections, to do too much; in this, as in other respects, the smaller ones always striving to imitate the larger as far as they can. Let us consider separately the different arrangements thus attempted, in order to judge how far they may be really necessary or conducive to instruction, and which of them may be best suited for the smaller gardens.

In large establishments the following separate collections are frequently more or less aimed at:—

1. An Arboretum. 2. A general botanical collection of herbaceous plants, and this is sometimes in duplicate, being arranged firstly according to the Linnean classes; secondly, according to a natural system. 3. A special Flora of the district or country in which the garden lies. 4. A biennial collection. 5. An annual collection. 6. Œconomico-technical collections, arranged botanically, but collected into groups having reference to practical application, such as medicinal, alimentary, textile, tinctorial, &c., plants. 7. Agricultural and horticultural collections in which the botanical species are more or less lost sight of in the greater comparative importance of cultivated varieties. Such are collections of Cerealia, of fodder plants, of garden vegetables, of Vines, of fruits, &c. 8. A purely ornamental garden shrubbery and promenade, sometimes quite distinct from any of the above, more generally combined with the arboretum, sometimes blended also with the general herbaceous collection. 9. Plant-houses for stove and greenhouse plants. 10. Reserve and propagation gardens, including work sheds, etc.

In all botanical gardens where arborescent plants are admitted, it seems in every way desirable that they should be kept separate from the herbaceous collections. Trees cover a large space of ground which in a botanical border it would be necessary to keep bare, as few of the herbaceous plants to be associated with them would prosper under their shade. But wherever a portion of the garden is laid out as pleasure ground, the collection of trees can be scattered amongst the shrubberies and on the lawns without interfering with either, and can there be allowed to attain their natural size. It is a great mistake, however, including amongst these arboreta as part of the collection low shrubs and undershrubs, which can be inserted in their places amongst herbaceous plants without the slightest inconvenience, and are lost as specimens amongst the trees and large shrubs.

The general herbaceous collection is the important portion of the out-door department in a scientific botanic garden. It ought, generally speaking, to include in one botanical arrangement the several sets of plants we have enumerated, separate collections of which will be entirely superseded by a judicious selection of species for the main one. The method adopted for their arrangement should be that which may be recognised as the best and most instructive. The exemplification of artificial systems or obsolete classifications, matters of history or of mere curiosity, is useless in a botanical garden, as they can be illustrated and explained quite as well and at much less cost on paper or by means of dried specimens.

A separate collection of indigenous plants is not unfrequent in botanical gardens, but we never could see any advantage derived from it. It is never a fair representation of the local Flora, for, in the first place, it never is complete, or if it appears to contain nearly all the species supposed to be indigenous to the district represented, it will be found that a large proportion of the specimens have not been really brought from their wild stations, but raised from other sources; and, in the next place, from the altered circumstances in which they are grown, many of them lose their natural wild appearance. From these and other imperfections these living collections are far less useful for the identification of rare or anomalous wild plants than a good local herbarium or drawings taken from wild specimens, and are more costly, nor do they supply any data for the phytogeography of the district. Indigenous species should at the same time form a considerable proportion of the general collection, as they are mostly of easy cultivation, and degenerate less from their natural types than tender exotics. It may also be frequently desirable to cultivate for a time indigenous specimens for such purposes as testing the permanency of their characters, investigating special points in their structure, &c., but for such experimental culture the reserve ground is the proper place.

Separate beds for biennials or annuals are generally introduced more for the sake of saving garden labour than for any scientific object. Such as are wanted for science are best mixed in with the herbaceous collection, and the reserve ground is again the proper place for raising seedlings and annuals for the purpose of testing new importations, or other temporary objects.

Medicinal and some other special collections belong to some of the oldest of the botanical gardens, and are still fondly cherished in many of them. As botany was formerly taught chiefly as subservient to medicine, medicaments being then almost wholly derived from plants, the medicinal species were considered as the most important part, and often constituted the whole of the cultivated collection; and when afterwards it became the wish to cultivate hardy plants of every description, it was still thought useful to keep the medicinal herbs distinct for the benefit of the medical students. Upon the same principle we often find added to them separate sets of alimentary and tinctorial plants, and occasionally of textile and some other descriptions, which it has been considered might be practically useful in the different arts. But this separation never appears to lead to any useful results. There is no general habit by which plants of any of these descriptions may be distinguished from others. The medical, alimentary, tinctorial, &c., properties are found here in the leaf or flower, there in the stem or in the root, without ever betraying their existence by external characters. Each medicinal or œconomico-technical plant must be learnt individually, by comparison rather with its botanical allies in the general collection than with the stronger with which it may be associated, merely because the latter has also some perhaps totally different medicinal or technical property.

Agricultural and horticultural collections have no place in a purely botanical garden; they require a large space and a special culture; and if united with it in one large establishment, under the same general direction, still they require entire separation in detail, having nothing in common either in the end or in the means.

An ornamental promenade garden is, however, a really useful adjunct to a scientific botanic garden. It is attractive to the public, and keeps up an interest in the establishment. It is a place of rest to the student, and, as already observed, it combines well with the arboretum. It is also a convenient place for the summer grouping of the greenhouse collections, and for the permanent location of plants requiring such special cultivation as precludes the mixing them off in the herbaceous collection, such, for instance, as rock plants, aquatics, Alpine plants, peat-earth (or so-called American) shrubs, &c.

Plant-houses, pits, frames, propagation and reserve grounds, with work sheds and other appurtenances, are more or less necessary, according to the extent of the establishment. We sometimes find them scattered over the garden, sometimes wholly or partially separated. The hot and green houses for show or scientific use are, of course, best in the garden itself, where they can be, like the garden, freely open to the public; the propagation and reserve grounds, with their pits and frames, being necessarily private, should be quite distinct, and when out of sight are all the better, as not exciting needlessly the public curiosity. *G. B.*

It has been suggested, with reference to the Onion disease lately described in this Journal, that it would be well, if possible, for the gentleman who forwarded the case to secure seed from some of the diseased Onions, and distribute it to such persons as may be willing to try whether the crop will fail equally in other districts. We, at least, should be glad to make the proper experiments, but if any result worthy of attention is to arise, care must be taken to save seed from none but the most marked cases, and the bulbs should be committed to the ground as early as possible in the spring, as there would be increased risk of decay; if, indeed, it be possible to secure bulbs from such unpromising seedlings. The case is certainly worth attention, and we are glad to find that it has excited some interest. *M. J. B.*

New Plants.

137. Taxus Lindleyana. *A. Murray, in Edinb. new Phil. Journal*, i., 294.

"Leaves two-ranked, linear, flat, of smaller size and narrower than in the common British Yew (*T. baccata*, L.), and the prickle at the end of the leaf is more developed. Berries exactly like those of the Irish Yew, growing on the under-side of the branch. Seeds nearly globose, putty-coloured. Branches exceedingly long and pendulous. Wood almost as elastic as whalebone—a property which has been turned to useful account by the Indians, who make their bows of it. As I have only an imperfect specimen of the branch and seed, I am sorry that I cannot give more than the above very meagre description. The tree is from 40 to 30 feet high. One which my brother measured was 50 inches in circumference at 5 feet from the ground. Another at the same height measured 5 feet 10 inches in circumference. It was found growing on the sides of a glen under the shade of larger trees which grow higher up. It would consequently make a good filler-up where ordinary underwood does not readily grow. I have named it after Dr. Lindley, whose courtesy and kindness, both now and formerly, in examining for me and reporting upon specimens sent from abroad, I take this opportunity of gratefully acknowledging."

It has long been known that two sorts of Yew grow

in N. America; one an eastern weak trailing bush called *T. canadensis;* the other a western tree, supposed to be the same species. To these a Mexican sort was added some years since by Prof. Schlechtendahl under the name of *Taxus globosa*. Of the latter we have authentic specimens which seem undistinguishable from a plant gathered by Mr. W. Lobb in Oregon (No. 219), or from a Californian specimen, for which we are indebted to Mr. Murray, and which we suppose to be his *T. Lindleyana*. They are certainly very different from the common *T. baccata*, and we presume should also be distinguished from *T. canadensis*, but we doubt their distinction from each other. The subject is, however, one that demands further examination.

M. Carrière in his new work throws no light upon the question, but adds a "Taxus Boursieri," which is probably identical with the plant now before us.

MODE OF HEATING ADOPTED AT PORTHGWIDDEN, NEAR TRURO.

By the Rev. T. Phillpotts, F.H.S.

The accompanying plans and sections refer to a forcing-pit, Orchid-house, and cutting-frame, erected at this place, under my own direction, early in 1850. Their success has been so complete in all points that I place the details at your disposal, that others may, if they think fit, profit by my experience. Real usefulness rather than display has been my object, and I lay no claim to novelty or invention beyond what a practical rather than a scientific adaptation or modification of the plans of others, avoiding as far as possible their defects, may deserve.

Without discussing other systems, their merits and demerits, I will only say, that I have for many years paid much attention to the best method of constructing and applying heat (especially bottom heat) to horticultural buildings. The Tank system and the Polmaise have both been tried by me at different times (under the personal advice of Messrs. Rendle and Meek), honestly and without any prejudice; but after the expenditure of a good deal of time, trouble, and money, I have arrived at the conclusion that an apparatus consisting of hot water in pipes, with open troughs connected with them, affords the simplest and cheapest, because the most certain and efficient means of heating I have yet seen. The range consists of—

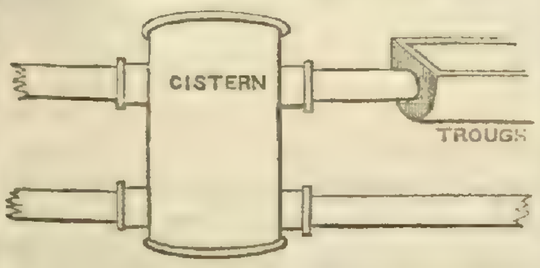
1. A forcing pit,* 42 feet by 8 feet, divided into three compartments A, B, C, of three lights each.

2. An Orchid-house of the same length, 10 feet wide, in two divisions.

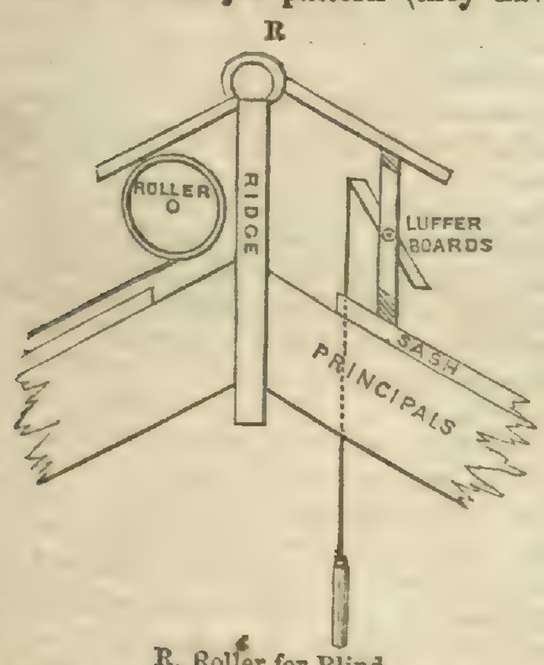
3. A row of striking frames on the north side, to which heat may be given at pleasure.

The whole was put to work at Easter, 1850, when pit A was planted with Cucumbers (Cuthill's black and Snow's white spine I find the best), and since that time we have had a constant supply of the finest fruit, which has in every instance at five successive exhibitions carried off the first prize.

Pit B was filled with Vines in Pots, which were ripened and succeeded by Melons. In December a fresh lot of Vines was introduced, which produced the finest crop of Grapes (in pots) I ever saw. Some of the pots had as many as 14 and 15 bunches, well coloured. These were cut in May and June, from Vines which were most of them only 15 months old, and on their removal Melons were planted, of which there was (Sept. 29) a good crop, nearly ripe. Pit C has already ripened off a fine early crop of Melons, one of which obtained the Bronze Medal at the Botanic Society's exhibition in the Regent's Park. It is now occupied as a cool pit, with plants of various kinds.

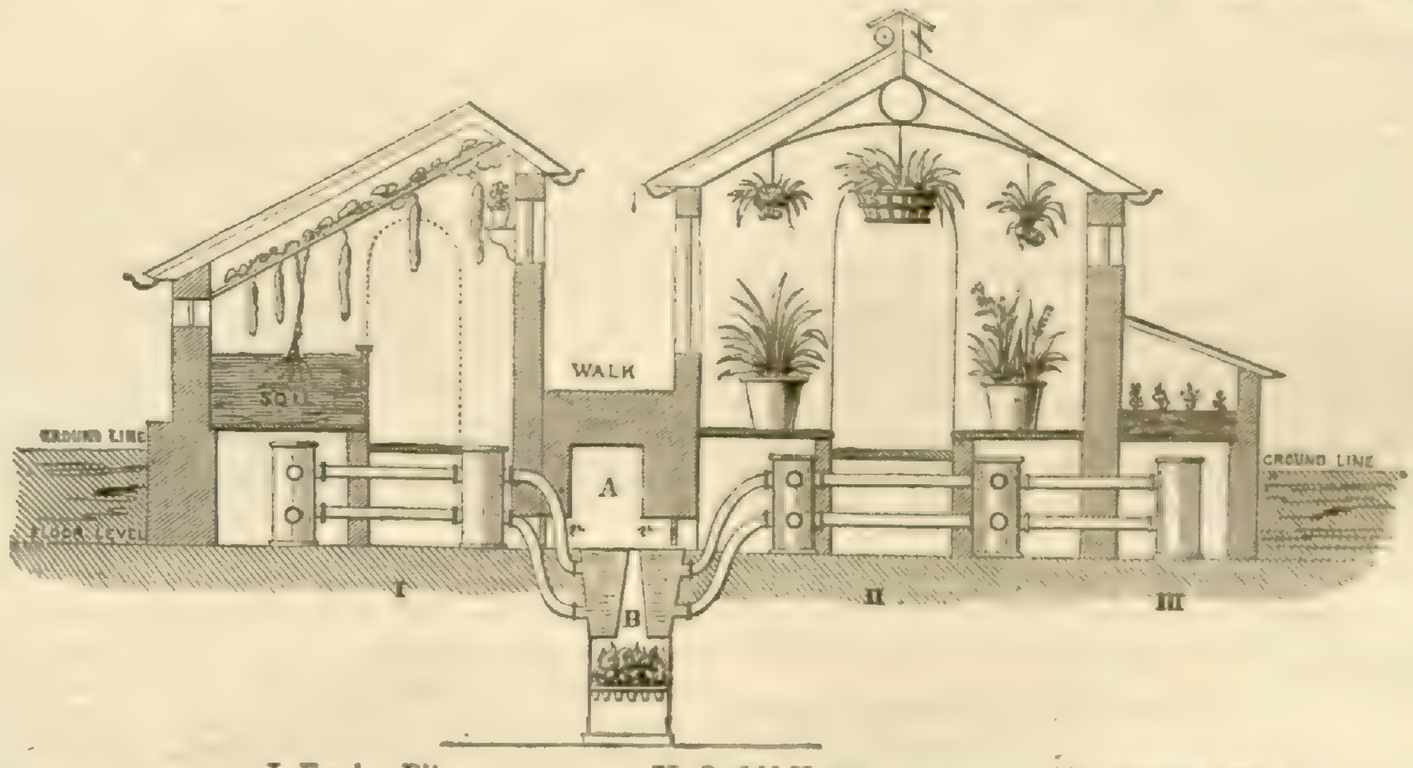


The whole is heated by a single 24-inch ribbed boiler of Burbidge and Healey's pattern (they have in my opinion spoiled their newly improved (?) one by getting rid of the central tube). Perfect command of heat is given by the Sylvester fire-doors and dampers, which need no praise from me: they are admirable, and may be used with almost any boiler. The setting of the boiler, as recommended by Messrs. Burbidge and Healey, is a great advantage; the fuel does not come in contact with any of the iron work, every inch of which is, however, exposed to the action of the heat, and a system of slow combustion, regulated by dampers and by a flue, which descends a little before it goes off to the stack, economises fuel to a most surprising degree.



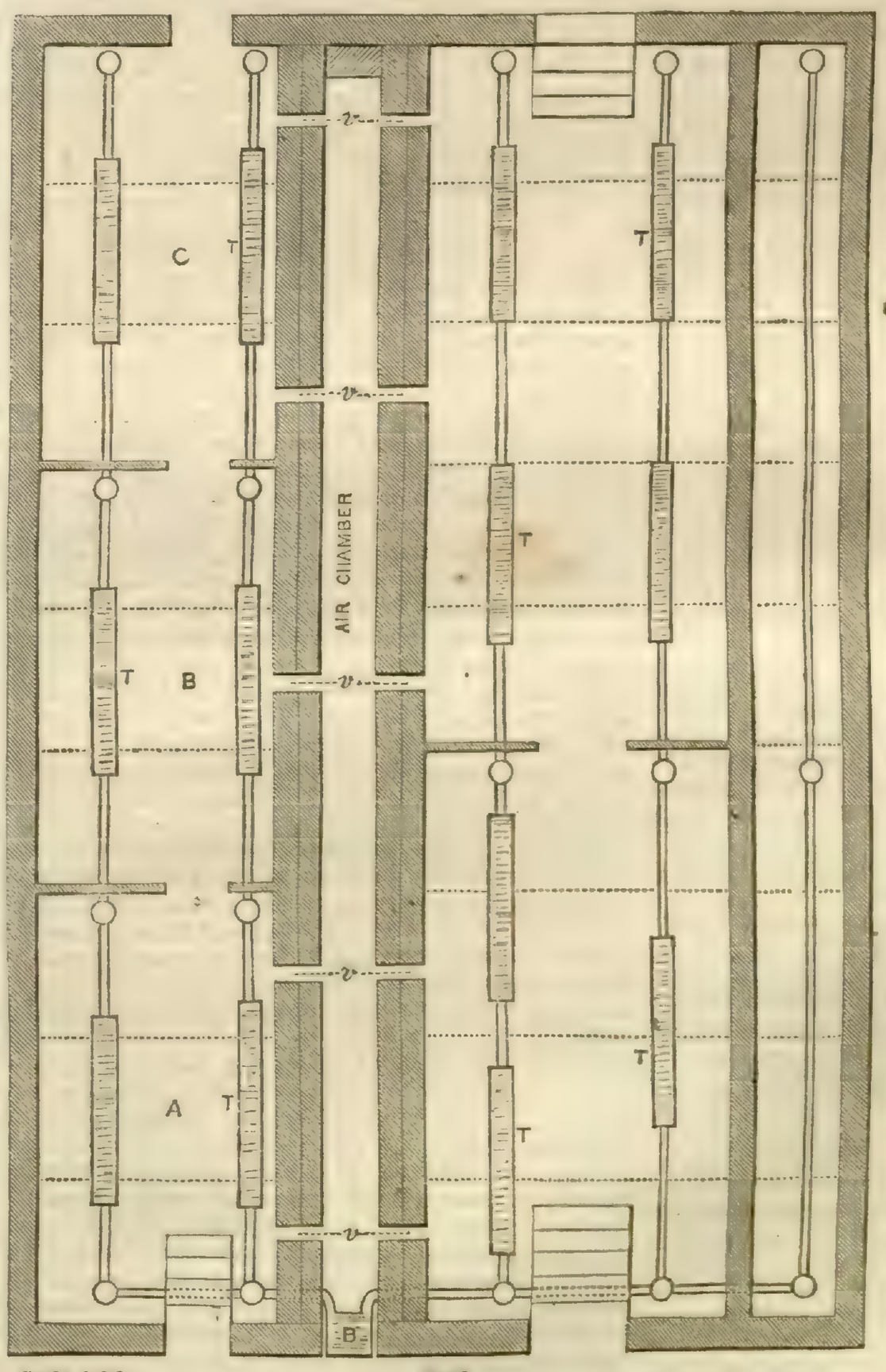
R, Roller for Blind.

The pipes are 4 inches in diameter, and 1 foot from centre to centre. The open troughs are cast with a pipe at each end to fit into the sockets; they are 6 feet long and 9 inches wide at the top; depth 4 inches, with a shoulder cast in each rim to enable us to cover them with common slate, when less moisture is required; if a very dry heat is wanted, a little sand strewed over the slate keeps all tight. The heat is regulated not by expensive cocks or valves, which contract the flow, and are liable to get out of order, but by series of cast-iron cisterns which supply the place of elbows, and being cast with one, two, or three sockets of the same bore as the pipes, may be plugged off with a common piece of wood, with a little cloth wrapped round it, so as to check or entirely cut off the supply from any part which may not need it.



I. Forcing Pit. II. Orchid House. III. Striking Pit.

[Observe that the pipes are below the external ground level; the entrance is by steps of slate, *over* the cross pipes, descending at once to the floor level. The shelves of the Orchid-house and the soil bed in forcing pits are formed of slate, supported by brick piers.]



Scale 1-8th. *South.*

B, Boiler. TT, Open Troughs. VV, Ventilators.

But the most perfect system of heating would be vain without good ventilation night and day. If my theory is correct, the air of plant houses of this description should be in direct proportion to the light, the moisture, and to the heat. This is best attained (where the quantity is easily controlled) in a small house, for the temperature must not be lowered too much by the admission of external air, while, on the other hand, it must not be dried by artificial heat. To obviate this difficulty, you will observe an air chamber between the two buildings, which has its opening at a lower level, near the ash pit; from this chamber several small drains open into the pits, &c. 6 inches above the floor, with gratings of (about 6 inches square) perforated zinc. From these a constant supply of fresh air in small and broken quantities arises, so that no strong draught is created; and this, passing over the surface of the pipes, under which it enters, loses its chill, while the open troughs supply it with moisture; these are constantly open, but may be closed if necessary. There are also ventilators in the front and back walls, and at the top of the Orchid house. It will be perceived that the ridge piece is raised above R, the roof, the south side of which carries a roller for sun-blinds, while the north side has a row of luffer boards, which are opened and shut at pleasure, by balance weights within. The front of the Orchid house is fitted with Hartley's patent rough plate-glass, which answers admirably without diminishing the light; indeed, a blind is still needed for the Orchids in very bright weather. One word as to drip—by adopting the pattern of sash-bar given by Mr. Lyons in his work on Orchids, this is entirely avoided, even when the house is saturated with moisture, and a cold wind blowing without.

It may be objected that the cold in this neighbourhood is not excessive, the thermometer never falling below 18°, and rarely within 10° of that point. I may, however, say that we have never worked to our full power, and my gardener is so convinced of the sufficiency of the boiler, that he wishes to heat another range of store pits from the same, which he says he could easily do with little or no increase of fuel.

With these observations I leave the plans in your hands, believing that with such modifications as circumstances may require they will be found practically useful and economical, getting rid in a great measure of the nuisance and uncertainty of dung beds, and doing the real work of the forcing ground in a simple and efficient manner. Such successful results can only be expected where the gardener not merely understands but loves his business. It is but common justice to add, that I have the good fortune to be so assisted, and that I highly value the care, attention, and zeal with which my plans have been carried out.

Note.—I must not omit mention of the Cucumber pits erected for Mr. Ludlow, at Heywood House, Wilts, from which I received much assistance, and, indeed, the first idea of my own range. They failed, however; at first from an excessive moisture, caused, as I believe, by an insufficient supply of air. I have no doubt Mr. Crane, the intelligent gardener, has long since remedied this. It may be useful to add that the entire cost of my building, including everything, was 160*l*. The consumption of fuel to keep it constantly working is about 9 tons of culm (price here 14*s*. per ton) per annum.—*From the Journal of the Horticultural Society*, vol. vii., part 1.

* The pits are really only 6 feet wide, but in the drawing I have made them 8 feet, as I find I have such a superabundance of heat that I now wish for the extra width. This is the only improvement I can suggest, after a fair trial.

VEGETABLE PATHOLOGY.—No. LXXXI.

339. CAPSOMANIA (*Multiplication of Pistils, &c.*).—Under this head I include those constitutional and organic changes which affect the carpels and ovules. These may exist either in a single branch or in every part of a seedling; but as every bud may be considered in a certain sense as a distinct individual, and peculiarities which take place in a single bud may often be propagated, there is no inconvenience in considering both cases together as essentially constitutional. It is not uncommon, for instance, in the Apricot to find blossoms with more than one pistil, and in consequence twin fruit occurs, and there is a variety of Peach in which such fruit is constant. A branch of a Plum is figured in *Gard. Chron.* (1852, p. 452) in which three or more pistils are present, varying however in number in the several flowers. As these were produced on a Midsummer shoot, there was no probability of the fruit coming to perfection, and the flowers were accordingly sacrificed with a view to ascertain their structure. Other instances occur of the production of more than the ordinary number of carpels, as in those leguminous plants in which a single carpel is almost universal; and again in Umbellifers, where the number of carpels is as constantly two, a third is sometimes added; and, indeed, not unfrequently in Heracleum sphondylium. The variety of Wheat known under the name of Mummy Wheat exhibits a multiplication of the spikes by means of elongation of the axillary buds of the glumes, and that in such perfect keeping with the rest of the plant, that there is no deficiency, but on the contrary an increase of produce.

340. Carpels may be multiplied, not only in the same plane, but in more planes than one, as in the Pomegranate. Pears are not unfrequently distorted from the addition of numerous carpels on the upper part of the axis. Several instances are figured in *Gard. Chron.*, 1851, p. 723. Such a structure may obtain normally, but in the curious conditions of Sweet William and Foxglove mentioned above, it accompanies other morbid phenomena, the carpels which are produced from a whorl higher up the axis being totally different in structure from that in which they are contained. We have, for instance, central and axillary placentation in the same plant; and again we have free parietal placentæ, and axillary placentæ, combining, in fact, the characters of Figworts and Gesneraceæ in one and the same capsule of a Foxglove, The only difference between these cases and that which is normal in the Pomegranate, and takes place occasionally in other Myrtads, consists in the greater compactness of the fruit of the latter, in consequence of which the structure becomes a little confused.*

341. The ovules are subject to morbid changes no less than the carpels themselves. They may revert to their original form of leaves, or they may consist of a whorl of leaves, and thus produce distinct carpels. In the Sweet William, Foxglove, and Carnation, to which we have so often alluded, there is either the rudiment of a stigma, or one to each carpel of the transformed ovules in a very perfect condition, the placentation in the two former cases being uniformly and decidedly parietal. This peculiarity, moreover, is not confined to a single flower in the case of the Carnation, but in the original flower, as in many plants derived from cuttings, every capsule is more or less affected, insomuch that it is quite hopeless to look for seed. Ovules occur, also, on transformed organs as stamens and petals. In the Gourd mentioned above, they were produced abundantly on the anthers instead of pollen, and in a double Barbadoes Lily (Amaryllis hippeastrum) figured in Lindley's "Theory of Horticulture," they are produced on the sides of certain doubtful threads representing either petals or stamens.

342. The component parts of the ovule when advancing nearer to maturity are not exempt from distortion and change. The raphe, for instance, in the Melon is sometimes immensely swollen, and the cotyledons at the same time are so over-nourished that they burst through the integuments though capable of affording a considerable degree of resistance.† It is to some peculiar diseased condition, too, that we must refer those cases in which the embryo germinates while yet within the fruit, and not only are roots put out, a circumstance which I have myself witnessed, but the plumule increases, makes its way through the integuments, and is developed into a strong shoot, a circumstance which a few years since caused a considerable degree of excitement in Germany, though in reality not near so marvellous as many vegetable phenomena with which we are all familiar. *M. J. B.*

* See Lindley's "Vegetable Kingdom," p. 457 and 735, where several other instances are mentioned or illustrated.

† I have observed this to be the case in the capsules of very double varieties of Balsams.

ALLAMANDA GRANDIFLORA.

WHEN well grown and flowered this is one of the handsomest of the Allamandas, and it is not very difficult to manage. Let us begin with a young plant in a 5-inch pot, bought in spring from the nursery. Such a plant, if in good health, will in general be found to be what is termed pot-bound. The first operation, therefore, under such circumstances, will be to turn it out of the pot, remove the crocks, and carefully to disentangle the roots. If the latter are healthy, give rather a liberal shift,—say into an 8-inch pot, using a mixture of one-half good fibry loam, one-quarter peat and one-quarter leaf-mould, with a little sharp sand. Experience has proved that a soil of this kind, well mixed, and chopped up with the spade (not sifted), on an efficient drainage, suits it perfectly; but if peat cannot be had, then three-quarters loam and one-quarter leaf-mould and sand might answer. In both cases, place a layer of some of the most fibry and rough soil over the drainage, with a view to make the latter act perfectly and permanently.

After potting, give a thorough watering, to settle the soil about the roots, and place it in a smart bottom-heat in a moist stove. When it shows symptoms of breaking, if the plant is weakly or drawn, cut it down to a prominent bud on the ripe wood, or in the case of a stronger plant, bend it down, in order the better to equalise the flow of the sap, and cause the buds at the bases of the shoots to start simultaneously with those at their tops. Judicious watering and occasional tying will now be all that it will want, until it has filled the pot with roots and requires a shift, which will probably be some time in June; for it must be remembered that it should not be allowed to blossom the first year. The point to be kept in view is, to have a good strong plant furnished in autumn with well-ripened wood, from which abundance of bright yellow flowers may be expected the following season.

About the beginning or middle of June, if all has gone on well, it will be found to have filled its pots with fine healthy roots, and should be shifted into an 11-inch pot, using the same compost as before. After shifting, continue the generous growing treatment already recommended, until the end of autumn is approached, when water should be gradually withheld, and all the light and air that is possible given it, to ripen the wood well, an important point in the culture of all plants, but more especially so in that of the Allamanda. Keep it all but dry during the gloomy months of early winter, and about the middle of February start it into growth. Prune the unripe tops off the old wood; and if a large and fine specimen is desired shift it when it begins to break, and plunge it again into bottom-heat. Train the branches well out on a barrel-shaped trellis, which may consist of seven or eight nice hazel rods, of sufficient length, placed in the soil immediately inside the pot, fastened to a hoop about their middle, and then to a smaller hoop at their top. Bend the shoots of the plant round this, so as to cover it regularly; and when the young branches have begun to grow freely, train the strongest of them near the bottom of the trellis, so as to have your plant regularly covered with flowers, which it will be by the middle of July if the foregoing directions have been carefully carried out.

In the third and fourth years it will flower earlier and better than in the second, and it will not require to be shifted; but it should be fed occasionally with clear liquid manure water, to keep it healthy and vigorous, without being over-luxuriant. By liquid manure I mean clear weak dung-water from the stable-yard. *Alpha.*

Home Correspondence.

Mixed Hedges.—Is Beech the only plant you would select for this purpose? Surely the evergreen Privet is vastly superior, not only in appearance but in density; nothing can well be uglier than the dead, brown leaves of Beech. It is a perpetual *memento mori*, from which the eye would gladly seek relief in the refreshing verdure of the Privet. As to whether a fence is better mixed or unmixed, doctors differ. The rationale of the matter I take to be this—where Whitethorn will flourish *per se*, why mix anything with it? Let well alone; but if you must have a mixture, let it be something sightly like Privet, not ugly like Beech. The thickest and best fences I have ever seen and grown have been of Privet and Whitethorn in about equal parts. *Samuel Taylor, Gloucester.*

The Cactus House, Kew Gardens.—I am a great admirer of succulent plants, and as such often pay with much pleasure a visit to the above place, which I presume I may say, without fear of contradiction, is quite unrivalled in quality or extent. Last week I was much struck with the altered appearance of the place; the plants at the back of the house had been raised perhaps a foot or more, the improved effect of which is most remarkable, in fact many of the plants (though very familiar to the eye from year to year) one could hardly believe to be the same under the new arrangement. I have no doubt hundreds beside myself have been struck with this manifest improvement, which I consider reflects great praise on those who have planned and carried it out; and, as I heard a lady remark, this house is now the "gem of the place." There is yet, however, remaining one thing very objectionable, and that is the Lycopodium edging—this might be removed, and replaced with some of the common dwarf-growing succulents, some of the greenhouse varieties of the common "Stone-crop," or similar things, which would require treatment nearer the Cactus than the Lycopodium, and would harmonise better with the general effect of the house. It is a fact too well known to require any comment, that succulents will not harmonise in appearance with any other kind of plants. I throw this out as a suggestion which, if found practicable, I feel assured will be carried into effect, as certainly it can be said of this establishment (unlike most others belonging to the nation) with truth, that the "road to improvement is always open and free." *N. Burgess, Hackney.*

New Rat Trap.—After the lapse of something like a quarter of a century, I felt not a little amused at the re-appearance in your pages of an old sketch of mine, headed as above. Its history is briefly this. The merit of the invention is due, not to me, but to my excellent and ingenious friend the late Robert Paul, of Starston, in Norfolk, who had, as many besides myself will remember, a peculiar turn for this species of knickknackery; delighting in nothing better than circumventing, in every possible and impossible way, what may be called the natural enemies of the farmer, from the flies in the Turnip field to the rats and mice in the homestead and rickyard. As a neighbour, I had frequent opportunities of seeing his inventions; such of which as pleased me I had his full consent to adopt; amongst others, what he called his "rattery," a plan of which I subsequently made for my late friend Mr. Loudon, in whose "Encyclopædia of Agriculture" it first appeared, and afterwards in his "Gardeners' Magazine;" perhaps, too, in the "Farmer's," but that I forget. This is the new rat trap, of which you have made such honourable mention, and in whose praise, though in some degree a party concerned, I can from experience most conscientiously join. *Samuel Taylor, Gloucester, July* 16.

Fruit of Rhododendron javanicum.—I have this morning detected Rhododendron javanicum in the act of throwing off that extraordinary great-coat which I described to you on a former occasion, and I enclose you a pod in that condition. It is so sensitive to drought that it may come off and shrivel before it reaches you. The ripening of the seed pod takes place a week or ten days afterwards—at least it did so two years ago—and the pod itself is so hygrometric that it will split within half an hour after being gathered in warm or dry weather. When divested of this exterior coat the pod resembles that of ordinary Rhododendrons. On gathering the pod I see it shows signs of splitting at once; generally the coat comes off some days previously. *John Rogers, River Hill, July* 9. [In this case the shell of the seed pod (capsule) separates into two plates—the outer leathery and deciduous, the inner hard, dry, and hygrometric; the former is analogous to the two-valved rind of the Almond, &c. Something of the same kind occurs in R. Edgworthi, and a precisely similar peculiarity is found in an unnamed Rhododendron in our herbarium, collected by Griffith in Malacca. It is, moreover, to be observed that all Rhododendron capsules have the same great-coat; the difference is that in some it is thick, in others thin, and that some throw it off and some do not.]

Ineffectual Puddling.—I have had to contend with this difficulty for upwards of 15 years. My subsoil, like that of your correspondent's, is gravel, the pond or pool is from 2 to 3 feet deep, and lined with strong blue clay 1½ foot thick all over the bottom and up the sides to the surface of the ground. In order to impart firmness, I beat down upon the clay the thinnest flagstones I could fall in with, and laid the joints as close as possible, still the water sunk, say, about an inch a day; and the pond being supplied entirely from a pump well, it became troublesome to keep it up. About three years ago an ingenious tradesman proposed that I should make trial of burnt limestone, slacked with sea water from the Firth of Forth here, and with plaster prepared with sea water also. I laid it on about an inch thick above the flag-stones, and of late years the pond has retained the water much better. It is well to lay on the lime plaster in dry weather, and allow it to remain as long as possible to firm and somewhat dry; the hot lime and salt harden the plaster considerably, and when the pond is filled the fresh water does not soften it greatly, and hence I now find a little pumping now and then keeps up the pond to the height required. *Thomas Millie, St. Clairtown, Kirkaldy.*—I have no doubt that the ineffectual pudding complained of by "J. J." has arisen solely from the use of a porous clay, and not from the circumstance of the subsoil being gravel. I made a large tank here by puddling several years ago, and it has never leaked a drop, but although we have seven feet deep of good brick clay, I knew from experience that it was unfit for puddling. I therefore carted some very strong clay from Notting Hill, about two miles hence, which I had well beaten up with water, and then beaten in to the thickness of 15 inches, and I am convinced that it will hold water as long as it remains undisturbed. I may add that the bottom of the tank rests on sand and gravel. *C. L., Hammersmith.*—"J. J.'s" observation that, in the attempts to make his pool watertight, the clay was "well beaten," seems to indicate that it was not really puddled. Puddling, as the term implies, is making a puddle of earth or clay with water. It enables the smaller particles to insinuate themselves and settle under water among the larger ones, so as to form a compact watertight mass. Lining a pond or pool with clay, without the intervention of more water than is just enough to render it sufficiently plastic that it may be beaten, is not puddling. In 180[illegible] a dock at Chatham had been condemned on account of leakage, but by excavating at the back of the existing walls, and filling up the space with earth thrown into water, the late Sir S. Bentham rendered it effectually watertight. In 1811 the saving resulting from this mode of repairing the dock amounted already to 40,000[illegible] As the subsoil of "J. J.'s" pool is gravel, probably of a coarse description, it would be advisable to mix straw or leaves with the puddle, so as to fill up temporarily large vacuities; this has been successfully practised in the construction of the "Canal du Midi" in France, and in other works. As regards the embankment at the lower part of it, a slight or temporary wall of turf or of the larger stones found among the gravel might be formed on the clay bottom, and a puddle made behind it. As neither pure sand nor pure chalk are impervious to water, soils containing a large quantity of them are not

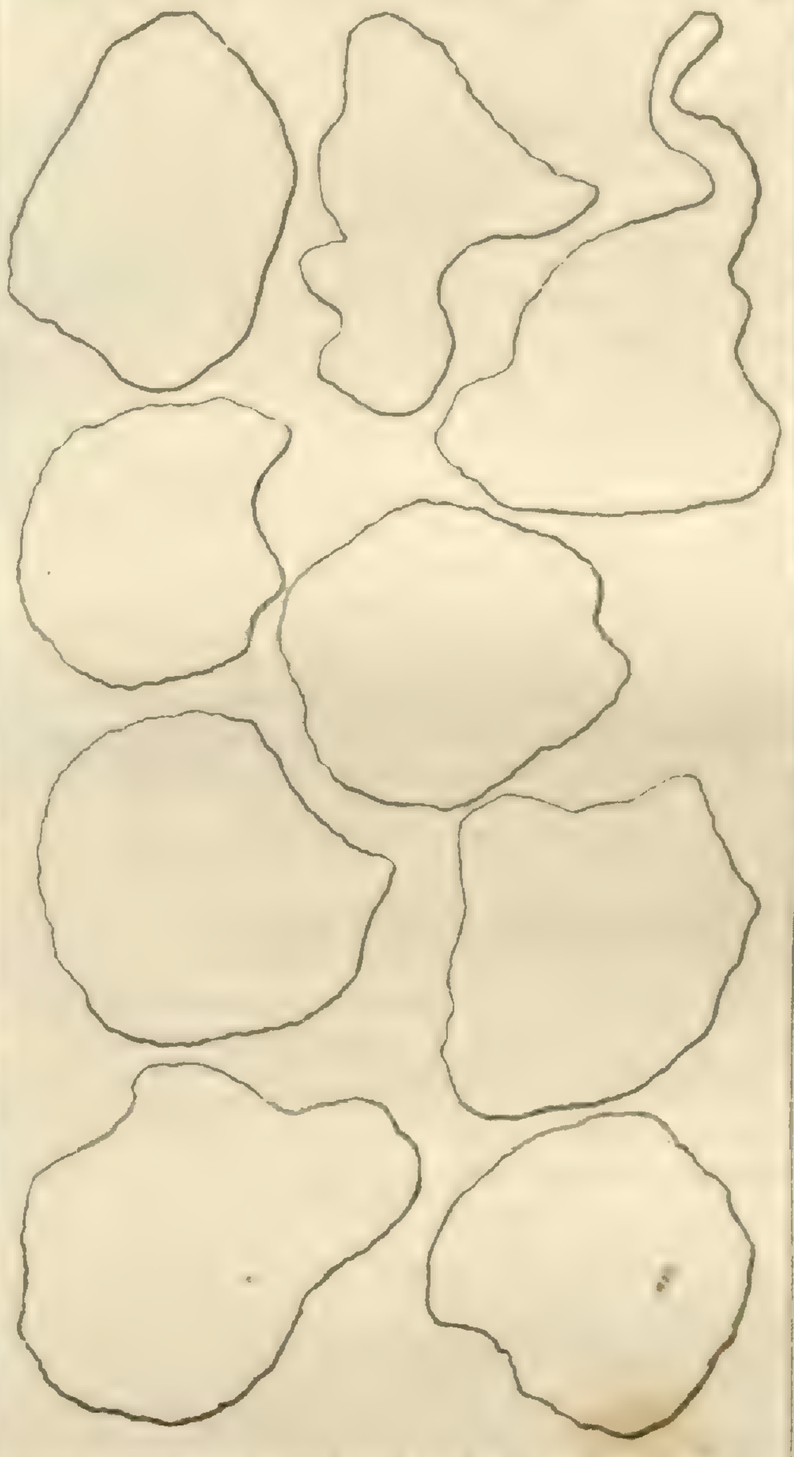
suitable for puddling, and the thickness of the puddle must depend upon the proportion of clay used for it. *M. S. B.*

Gardeners' Royal Benevolent Institution.—Like your correspondent of last week, I have always felt that those who have the first claim on the voters of this charity are persons who have assisted others; for such I have always voted until this election, and I think that every one must feel that the 11th applicant, being totally blind, had certainly a prior claim: for, with him, hope long deferred must have been sadly felt. This was the motive that induced me to vote for one who had not subscribed to the charity. The number of votes he got at the previous election (viz., 348) showed that his claim was acknowledged. I think also that the 9th applicant was a very fair election, as he had subscribed four years, and had been trying nine (times?) years to get the annuity—a long time to wait when in want. So far, I must say, little fault is to be found; for place ourselves in the situations of the applicants in question, and we would soon find what a wearisome thing disappointment is at their time of life—year after year having their hopes raised and then depressed. I am really glad that they are elected. We now come from the 11th and 9th to the 5th application, and here I fear that the complaint of your correspondent has some grounds; for on looking to my polling-paper for the prior election, I find that the 5th application only numbers 51 and 46 votes, and that a second application of one who had never subscribed to the charity numbers 158 votes. Now, this does not look well; for if we go back to the 4th application we find George Kidd, who has subscribed nine years, only five votes ahead. From this it would appear that what your correspondent complains of is but too true. Had Ann Arnold, whose husband had subscribed eight years, numbered these votes, instead of Thomas Blair, it would have looked better and done more credit to the justice of voters. I do not think that the claim of having subscribed to the charity is sufficiently acknowledged, neither do I consider it fair that there should be any soliciting votes except from the parties themselves. Some lady very kindly interested herself for John Kent, but with what success I am uninformed; with me the prior claim of others made it imperative to refuse even a lady. I often find it difficult to please myself in voting. This time and for the first time I voted, as I have already stated, for one who had not subscribed to the charity, because I really looked upon J. Appleby, being totally blind, and first on the list after 11 applications, to be a very proper object of charity. My next vote was for J. Blacke, whose years (80) induced me to give him support, which however he cannot, in the course of nature, long enjoy. My other vote was for Geo. Kidd, a subscriber of nine years, and I am certainly at a loss to know upon what ground he could have failed, except upon the one of which your correspondent complains, and which I fear is exercising an injurious influence on voters. Now these things are not right, and I am surprised that a class of men (who are mostly considered thinking men) should allow them to exist. I think it ought to be a rule with all subscribers to the charity, first to help those who have endeavoured to assist others, and when all their claims are satisfied others should take priority according to age, afflictions, or number of applications. Let us hope that henceforth all matters connected with so excellent a charity as that under notice may be carried out with fairness to all concerned. *G. Bond Walcot, Gardener, Salop.*

Nectar-secreting Organs of Plants.—In the account compiled by Gärtner ("Beiträge zur Kenntniss der Befruchtung," p. 75, 1844) of the various organs in plants from which nectar is secreted, no mention is made of the stipulæ of the leaves of the common Vetch and Bean. On two occasions I have observed hive bees by the thousands industriously visiting the little dark (but sometimes colourless) glands on the under side of the stipulæ of the Vetch. On a hot day, on each gland a minute drop of nectar may be seen almost with the naked eye, and which is sometimes so large as to be just perceptibly sweet. I have seen the hive and another species of bee, a moth, ants, and two kinds of flies, sucking these drops. The hive bee never once even looked at the flowers, but attended solely to the stipulæ; whereas, at the very same time, two kinds of humble bee were sucking the flowers, and never visited the stipulæ. I noticed the hive bees on three successive hot days thus employed; but on the overcast morning of the 12th, after the previous very rainy day, not one was to be seen at mid-day, but numbers of humble bees were sucking the flowers: at 4 o'clock P.M., however, after some hot sunshine, a little glittering drop of nectar studded every gland, and the hive bees, by their mysterious means, had found it out, and were swarming all over the field. The fact of nectar being secreted by an organ quite distinct from the flower (though known in other cases) seems to me of some little interest, as showing that those botanists cannot be correct who believe that nectar is a special secretion for the purpose of tempting insects to visit flowers, and thus aid in their fertilisation. No one probably who has attended to this subject will dispute that insects in very many cases do thus aid the act of fertilisation; but we must, I think, look at the nectar as an excretion which is only incidentally (as is so often done by nature) made use of for a further but most important object. *C. Darwin, Down, Farnborough, Kent.*

Sir Harry Strawberry.—The following is an extract from a letter which I have received from a gentleman residing in France, relative to this Strawberry:—"Aux Sablons near Morêt-sur-Loing. Seine Marne, *July 4th*, 1855.—I have much satisfaction in announcing the result of my crop of Sir Harry. I must confess that I have never eaten anything so delicious, and I assure you that you did not speak too highly of the qualities of this beautiful fruit, which in reality is far superior to any other known, and consequently cannot fail to find its way into the garden of every true amateur. The plants which I kept under glass proved that Sir Harry is equally well adapted for forcing: it even seemed to me that its fruit had a better flavour than those grown afterwards in the open air. Several of my friends having seen the Sir Harry, and the lithograph of the same, desire to possess it. *Frederick Gloede.*"—*Richard Underhill, Sir Harry's Road, Edgbaston, Birmingham.* [Remember that this is said of a Strawberry grown in a southern and better climate.]

Hailstones.—The following are tracings of hailstones made a few minutes after they had fallen, but not until the storm had passed, and therefore not until they had begun to dissolve. They represent the true sizes of the stones at the moment of tracing them, and something of their extraordinary shapes, to which, however, no representation can do justice. The majority of the large stones were most grotesque in form; all were very hard and very cold, a few sufficing to make the hand ache immediately they were collected therein. Some of the



larger stones were round and white in colour, but the greater number were clear as crystal. The storm came on very suddenly, about six A.M. last Saturday, after continued thunder in the early part of the morning, and some rain. It passed here from over the adjoining hills, almost direct south to north, and did not, I think, extend above two miles laterally. The stones represented were picked up in a space about a dozen yards square, in a temporary yard and shelter in the park for cows, where I had taken refuge. With the large stones descended ordinary hail and rain, but pieces like those figured formed the remarkable feature of the storm. Need I add that glass and vegetation within their reach suffered severely? *J. Taylor, Aston Clinton, Bucks, July* 16.

Societies.

ENTOMOLOGICAL, *July* 2.—J. Curtis, Esq., F.L.S., President, in the chair. Amongst the donations to the library and collection, announced as having been received since the last meeting, was a collection of 94 British species of spiders (in addition to 60 species previously presented), and 13 species of harvest spiders, presented by R. H. Meade, Esq., preserved in a saline solution of sulphate of magnesia; also a monograph on the Phalangiidæ by the same gentleman, and M. de Saussure's supplement to his monograph of the family Vespidæ. Mr. Foxcroft sent a number of rare insects recently captured in Perthshire, with notes of the habits of a caterpillar found in ants' nests, apparently belonging to a species of Tinea. Mr. Westwood exhibited specimens of the young larvæ of Meloe which had been found hanging in clusters on Potato plants. Mr. S. Stevens exhibited a new and very remarkable Longicorn beetle recently brought from the Feejee islands by Mr. Macgillivray, forming the type of a new genus. Mr. F. Smith exhibited specimens of the rare ant Tapinoma erratica, several colonies of which had been found near London by Mr. F. Grant. Mr. Arthur Adams exhibited specimens of Drypta emarginata taken near Portsmouth; and Mr. Staunton a collection of drawings of the transformations of minute Lepidoptera from the collection of a Prussian amateur, including several very remarkable species. Mr. Hunter exhibited a specimen of Straurops Fagi recently captured, and a number of young larvæ hatched from its eggs; and Mr. Jansen presented the rare Hypulus quercinus, captured near Colney Hatch, to the Society's collection. Mr. Curtis mentioned the circumstances connected with the capture of the blind beetles Anommatus and Langelandia at Paris, and also stated that Dr. Asa Fitch had recently informed him that the Hessian fly was at the present time committing fearful damage to the Wheat crops in North America, which he attributed chiefly to the failure of their natural enemies and parasites, and inquiring into the practicability of importing some of these useful species of insects. Mr. Westwood suggested that a far more practical plan would be the adoption of Professor Henslow's Wheat-midge sieves. A letter was read from Mr. Bates relative to the bird-feeding habits of a species of Mygale which he had observed in Brazil in crevices on the trunks of trees, thus confirming Madame Merian's statement, which had been disputed by Mr. MacLeay. Mr. Meads stated that from the observations of Mr. Blackwall the spider was not provided with a poisonous secretion. Mr. Edwin Shepherd, however, affirmed that toads had repeatedly been killed by large red spiders when shut up together. Mr. Newman read a description of the transformations of that common pest to horticulturists, the Otiorhynchus sulcatus, which he had observed to be very destructive in Ferneries. Captain Cox called the attention of the Society to the injury committed on the Lime trees in Hyde Park by the pretty little moth Tinea Linnæella, and also on the Oak trees by Trochilium Cynipiformis, and suggested the advisability of the Society applying to the Commissioners of Woods and Forests on the subject. The president, however, considered there was little good to be apprehended from such a step at a time when Mr. Kennedy's dismissal from office had so recently taken place.

Notices of Books.

Maxims and Hints on Angling, Chess, Shooting, &c. (Murray's Railway Reading), is a reprint of Mr. Richard Penn's maxims on those subjects. As a veteran sportsman his *dicta* are never to be neglected; on this occasion their force is much increased by capital woodcuts from the pencil of Chantrey, Lee, and others. The following examples of Mr. Penn's sayings show that this is *the* railway book for sportsmen.

"Although you may be a very agreeable gentleman, generally speaking, you will have chosen an unlucky moment for making yourself particularly so, if on some fine morning after breakfast you should volunteer to accompany two of your friends who are preparing to leave the house for a day's partridge shooting without any expectation of being joined by a third person.

"When you are obliged to walk on the left-hand side of a man who carries the muzzle of his gun too low, do not be so very polite as to take no notice of this dangerous habit. He may, perhaps, appear quite offended at your venturing to question your perfect safety. But be that as it may, to be constantly stared at by the eyes of a double-barrelled gun is so awfully unpleasant, that your friend's looking rather cross is a matter of less consequence.

"When you are making your way through a thick wood with too large a party, it is better that you should be scolded by some of your friends for troubling them with very frequent notice of your individual locality, than that you should be shot by any of them from want of such notice.

"On the day of a great battue, if one of the party (not you) should shoot much better than the others, and this should by chance be talked of after dinner (as such matters sometimes are), do not say much about the very large number of hares and pheasants killed by you—on some other occasion.

"Never ask beforehand whether or not you are to shoot hares in the cover into which you are going, but never shoot one after you have been told not to do so.

"Many persons who are possessed of much information have a tedious and unconnected way of imparting it. Such men are like dictionaries, very instructive when opened in the right place, but rather fatiguing to read throughout.

"The foundation of good breeding is the absence of selfishness. By acting always on this principle — by using forbearance and moderation in argument, even when you feel sure that you are right, and by showing a becoming diffidence when you are in doubt, you will avoid many of the errors which men are apt to fall into. Reader, bear in mind that this holds good in all things, and not only in Fishing, Shooting, and Chess."

The Rev. Thos. Milner has produced a volume called *The Crimea, its ancient and modern history, &c.* (Longmans, small 8vo), which will be acceptable to the many who are unacquainted with the writings of continental authors. It gives an account of the original inhabitants of the Crimea, of its subsequent history, and of the events which brought it under Russian rule. The author, who appears to have been diligent in consulting

authorities, has thus produced an agreeable volume, of which, however, the Natural History forms so slight a portion that the narrative of Koch remains as indispensable as ever to the student of this now celebrated peninsula. We could have wished that Mr. Milner had stated from what sources his information is compiled. One curious thing pointed out by him is the ignorance of the Russians themselves of the country so lately as 1764, when General Manstein's Memoirs of Russia made their appearance. The rude map which accompanied that work is here republished, and shows that even the existence of Sebastopol was unknown to the Russian engineers who accompanied Marshalls Munich and Lacy in their invasions. Even de Tott would seem to have thought Balaklava and Sebastopol to be the same; at least it is evident that he was describing Sebastopol when he spoke of the *extent* of the harbour of Balaklava. A similar mistake was made by an old correspondent of the "Gentleman's Magazine," who described Aktiar, the present Sebastopol, as having a commodious *but not very large* haven, while to Balaklava he assigns "a fine harbour containing ample room for a very good fleet." If the present war has done nothing else it has, at any rate, improved our ideas of Crimean geography.

Captain Chiosso, in what he terms *The Gymnastic Polymachinon* (Walton & Maberly), by means of descriptive and clever woodcuts gives an account of the means employed by him to render gymnastic exercises conducive to health. This gentleman is undoubtedly the most rational gymnast in London; he applies the system of exciting muscular action with excellent sense, and the results which flow from it are, in his hands, eminently advantageous. In general the world imagines that gymnastic exercises consist of mere feats of strength, suitable to an athlete, but dangerous to others, and they shrink from exposing themselves or their children to the risks of such a discipline. Nothing can be further from the truth. Captain Chiosso is as much opposed as any man to violent exertion, the danger of which he fully recognises. On the contrary, he endeavours gradually, by gentle means, to solicit the muscles to act, and he trusts to skill and time to produce force where there is constitutional weakness. We speak from full knowledge of him when we say that in such hands as his gymnastic training is at least as important as mental exercise, and that all young persons should be familiarised with it. In all education the first point is to bring out the physical powers, without which mental powers are feeble, of little value, and soon give way under continuous exertion. The gallant author, who is an old Italian officer, fully states in this book what the numerous maladies are which his experience tells him are alleviated by the Polymachinon.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Now that many of the hard-wooded plants will be removed to the out-doors plant ground, painting and other necessary repairs should be done, as the houses can be more conveniently emptied or thrown open than at any other period of the year. And if painting is to stand it must be done when the wood is thoroughly dry, and the present season is the most favourable for securing this; but except where painting is done sufficiently often to keep the wood covered, some care will be necessary, even at this season, in order to get the wood perfectly dry, and unless this is secured the paint will be sure to blister before the end of next summer, however good the materials and workmanship may be. Therefore make sure of having the wood perfectly dry before commencing painting, whatever inconvenience this may involve.

FLOWER GARDEN AND SHRUBBERIES.

Where Roses are extensively grown (which they should be about every place in proportion to its size), they form the principal attraction of the out-door department of the garden at present, and should be frequently looked over, removing decayed flowers, &c., which if allowed to hang on the plant have a very unsightly appearance, and tend to encourage mildew, &c. Roses, if grown in masses or beds, should be arranged so as to contrast the colours in the most effective manner; and where this has not hitherto been attended to, the effect of the present arrangement should be carefully looked to while the plants are in full beauty, noting any alterations that may be deemed necessary, which will greatly facilitate the execution of the same at the proper season. See that the plants are not allowed to suffer through want of moisture at the root; and where the soil is of a light sandy nature, the plants should be liberally supplied with manure water, giving a good soaking two or three times a week if possible; but if the soil is strong and rich, manure water may be dispensed with, as the plants will grow freely enough if kept moist at the root. Proceed with the propagation of favourite sorts either by budding or cuttings. We prefer the Hybrid Perpetuals, Teas, Chinas, and Bourbons on their own roots, and firm short-jointed cuttings of these root freely enough at the present season if properly managed, but Rose cuttings taken from plants grown in the open air should not be put into heat. They will, however, root freely enough under a hand-glass on a mild bottom heat, or even in a shady situation in the open border, but they are very liable to "damp off" in a moist warm situation. The readiest way of propagating these, however, is by cuttings taken from plants grown under glass for flowering in spring, which root almost as freely as cuttings of Verbenas. The propagation of the ordinary bedding-out plants will soon require a large share of attention, therefore see that the most is made of the present leisure and convenience for getting up a good stock of the more valued kinds of hardy things, and do not forget a good stock of Pinks, Picotees, &c. See that the bedded-out stock is kept moist at the root until the beds are fairly covered, which will soon be the case if the plants are well attended to and the weather continues such as it has been lately.

FORCING DEPARTMENT.

PINERIES.—Plants wished to show fruit at once, if backward in doing so, should, provided the growth has been well matured and checked, having been kept dry at the root for a time, have a good soaking of water, and be kept warm and moist. This treatment will induce an active root action, and if the plants have been properly treated, they will seldom fail of showing fruit at once, but everything depends upon the growth being well matured and checked. Avoid syringing plants overhead that are in bloom, save on the mornings of bright days, and then but lightly, for syringing in the afternoon while the plants are in bloom is the principal cause of deformed fruit. Young stock will be growing very vigorously, and every care should be used to secure robust stocky plants; see that the plants are afforded sufficient room for the development of their foliage, and do not keep the atmosphere so warm and moist as to induce weakly growth; attend to repotting, as this may be required by any of the stock, and see that all are well supplied with water at the root, whether in pots or planted out in the open bed, as any neglect in watering at the present season will probably result in the plants fruiting prematurely. VINERIES.—Give every attention to preserving the foliage in houses where the fruit has been cut, until the wood is thoroughly ripened. If red spider is at all troublesome, give the Vines a good washing with the engine, but do not injure the foliage by dashing the water against it too powerfully. Give abundance of air, keeping the house as cool as can conveniently be done in bright weather. Maintain a moist atmosphere where the fruit is swelling, sprinkling the passages, borders, &c., frequently. Look sharply after insects here, particularly where plants are grown under the Vines, and if black thrips or red spider is detected wash the infected leaves carefully, and look over them occasionally afterwards until the pest is fairly got out. See that the borders are not allowed to become too dry, and give strong manure water to plants bearing a heavy crop. Vines in pots intended for very early forcing next season should be in a forward state by this time, in order to permit of getting the wood well ripened, and allow them a period of rest. PEACHES.—Attend to last week's directions, using every means to keep clear of insects.

HARDY FRUIT AND KITCHEN GARDEN.

Proceed as expeditiously as possible with the laying in of the young wood of wall-trees, taking care that every superfluous shoot is removed first, for it is worse than a waste of labour to nail in wood that will only serve to crowd the trees and injure that which will be left at pruning time. Also attend to regulating the growth of pyramidal and other trained trees, looking over them frequently and doing what little stopping, &c., may be required. Do not allow trees that have been lately disturbed at the root to suffer for want of water, and where the soil is shallow and of a light dry nature an occasional watering or mulching will be useful to any trees that incline to grow too weakly, but do not water or mulch where there is any tendency to over luxuriant growth. Prepare the ground for fresh plantations of Strawberries, by manuring heavily and trenching some two feet deep, and get these planted at once, keeping them well supplied with water until they get established. Tomatoes must be well attended to, keeping the shoots thin and stopping above a cluster of fruit, for if the plants are allowed to grow too freely, there will be but a poor chance of a good crop, save in very favourable localities. Attend carefully to Celery and other growing crops, with water, giving a liberal supply to Lettuce and Cauliflower and recently planted green stuff. Take advantage of showery days to plant out a farther supply of winter greens, Broccoli, &c., and if a sufficient quantity of Celery is not already planted, this should be attended to at once, and must be well cared for after planting, with water, &c., otherwise good-sized heads need hardly be expected. If not already done, sow Cabbage for early spring use, and attend to keeping up a succession of Lettuce, Endive, &c.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending July 19, 1855, as observed at the Horticultural Gardens.

July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind.	Rain.
Friday 13	29	29.959	29.931	79	55	67.0	61½	61½	S.W.	.00
Satur. 14	[illegible]	29.858	29.822	76	53	64.5	65	62½	S.W.	.29
Sunday 15	1	29.919	29.772	75	55	65.0	66	62½	S.W.	.41
Mon.. 16	2	29.617	29.464	73	46	59.5	65	63	S.W.	.40
Tues. 17	3	29.648	29.543	66	51	58.5	64	62	S.W.	.00
Wed. 18	4	29.744	29.724	76	46	61.0	63	61½	S.W.	.01
Thurs. 19	5	29.654	29.582	64	46	55.0	63	61½	S.	.36
Average.		29.771	29.691	72.7	50.3	61.5	64.5	62.1		1.47

July 13—Very fine; lightning at 10 P.M.; cloudy.
— 14—Heavy storm 6 - 7 A.M. thunder, lightning, and rain.
— 15—Very fine; cloudy and fine: rain at night.
— 16—Overcast; cloudy; heavy rain.
— 17—Fine; cloudy; overcast and fine.
— 18—Very fine throughout.
— 19—Slight rain; showery; thunder storm 5—6 P.M.; cloudy.
Mean temperature of the week 1½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending July 21, 1855.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 22	72.7	52.2	62.5	15	1.37 in.	3	2	2	1	4	[illegible]	[illegible]	[illegible]
Mon. 23	73.3	52.8	63.1	13	0.70	1	3	5	1	3	[illegible]	[illegible]	[illegible]
Tues. 24	72.6	52.2	62.4	8	1.16	—	1	4	2	3	[illegible]	[illegible]	[illegible]
Wed. 25	73.9	51.5	62.7	8	0.36	2	2	2	—	[illegible]	[illegible]	[illegible]	[illegible]
Thu. 26	73.2	52.3	62.7	14	0.70	2	1	4	2	5	[illegible]	[illegible]	[illegible]
Frid. 27	74.3	52.0	63.1	12	0.98	1	3	4	2	3	—	[illegible]	[illegible]
Satur. 28	76.1	53.5	64.8	13	0.32	2	2	2	3	1	3	[illegible]	[illegible]

The highest temperature during the above period occurred on the 26th, 1844—therm. 92 deg.; and the lowest on the 23d, 1843, and 24th, 1838—therm. 40 deg.

Notices to Correspondents.

DISEASES: *A, Surrey.* The sheaths of the stems are attacked by Erysiphe communis, and the leaves by Uredo Rubigo vera (the common Red Rust). These common parasites seldom do material injury to the Wheat. The former is extremely prevalent this year in the south and east of England.—*J M.* We have seen many Apricot trees attacked exactly in the same way, and in some cases there has been an abundant flow of gum from the leaves. Such affections arise from atmospheric conditions over which we have no control, and your trees will probably be free from anything of the kind next year. You state that your tree has a large crop of fruit; on the trees which we have examined there was scarcely any crop at all, so that the affection cannot be due to the covetousness of the gardener.—*R A.* Your Grapes are attacked exactly in the same way as many which were forwarded to us last year, and of which we had ourselves an opportunity of examining. In every case alike we believe that the evil has arisen from the condition of the roots. If they are not healthy, the produce is sure to suffer. There is no external parasite. *M. J. B.*

GREENHOUSES: *Reading.* It is not practicable to describe what you ask for; except that the house should be made of wood and heated by a flue. Prices vary greatly. Your best way will be to apply for tenders from the hothouse building firms who weekly advertise in our columns.

INSECTS: *M T B.* The flies produced are the perfect state of the larvæ which fed on the ripe inflorescence of the common Lettuce. They are the Musca (Anthomyia) lactucæ. See *Gard. Chron.*, 1841, p. 364, for figure and description.—*R C.* The beetles you have sent as injurious to your Strawberry "Sir Harry" are, 1, Steropus madidus; 2, Omaseus melanarius; 3, Agonum parum punctatum; 4, Peryphus littoralis, all ground beetles, Carabidæ, which, from what is known of their habits, feed upon other insects and worms; you have therefore been destroying your friends instead of enemies, which are most likely either woodlice, ants, or small weevils.—*R J. (St. Ives).* Your Rose leaves are infested with the caterpillars of the pretty little moth Tinea ruficapitella, whose history and figures are given in *Gard. Chron.*, 1852, p. 292. This insect is quite unconnected with the scales of the Oleander, &c. As the moths are very minute and difficult to catch, the only remedy is to collect and destroy leaves which exhibit the lines formed by the mining caterpillars. *W.*

MAY'S MAGNUM BONUM LETTUCE: *S—y.* This has been proved in the Horticultural Society's Garden to be nothing more than the blackseeded Alphange Cos, seeds of which are annually given to the Fellows by the Society. It is one of those excellent varieties for the introduction of which kitchen gardeners are so much obliged to the Society.

MINT: *N B.* It is a very curious condition of the plant. A wood engraving is in preparation, and with it, when ready, we will publish our own views of the cause.

NAMES OF PLANTS: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*A Kentish Man.* 1, Cystopteris tenuis; 2, Lastræa marginalis; both natives of N. America.—*S T K* 1, Pleopeltis squamosa; 2, Cerastium tomentosum.—*S H A* young plant of Polystichum aculeatum of no interest. *S.*—*A F* Apparently Stachys germanica.—*Inquirer.* Beta maritima.—*East.* Not Anacharis but Callitriche, which will do no harm in the water.—*P W J.* Not an Acacia, but a Gleditschia; apparently G. triacanthos.—*I T A.* 1, Hibbertia volubilis; 2, Drosdrosace villosa.—*Cato.* Asplenium Filix-fœmina, made delicate by growing in the stove; and Streptocarpus Rexi. *S.*—*Sub.* 1, Lastræa, specimen not perfect; 2, Pteris serrulata, not hardy; 3, Asplenium Trichomanes, hardy; 4, Lastræa Filix-mas, young state; 5, Lastræa Filix-mas, perfect state; 6, Polypodium vulgare; 7, Lastræa dilatata. *S.*—*D P D.* Your Jamaica tree is Berberis vulgaris.—*R Rilott.* Scrophularia aquatica.—*J W.* Stanhopea tigrina.—*B L L.* Phytolacca icosandra.

PEAS: *W Denyer.* Your new early green Marrowfat Pea appears to be different, in some respects, from all green Marrows; but like all that class of Peas it is inferior in flavour to the white kinds, and more particularly to Knight's or the wrinkled black of Marrow Peas. It is not distinguishable in the size and appearance of the green pods from a kind called "Prize-taker," but it is very different in the dry Peas (if the sample furnished is a fair one), the Peas sent being double the size of those of the Prize-taker. It is however, as has been stated, inferior in flavour to many other kinds, and not to be compared in that respect with Knight's Tall White Marrow and the Victoria. Nevertheless it is a very good Pea, but nothing extraordinary; hardiness and exemption from mildew belong to the kind or season, not to the kind of Pea.¶

PAGE'S COMPOSITION: *W H.* This will not touch red spider or mealy bug. It kills aphides or green fly in the same way as soap-suds or gas-water; at least Mr. Gordon reports from the garden of the Horticultural Society that he can find no other advantage in it. You will not get rid of it without sulphur unless you can keep your Vines very frequently deluged with the syringe.

PHOTINIA: *Lillington.* You may cut back your Photinia now or next April. Stauntonia is a half hardy evergreen climber, not much known. We presume it may be had through some of the great nurserymen.

PITTOSPORUM TOBIRA: *A Subscriber, Bangalore.* In all probability your Indian climate is too hot and damp for it. Grow it in mere clay or heavy soil, and confine its roots by any artificial means, or prune them before its growth for the season commences.

RED SPIDER: *Ly J W.* This enemy is encouraged by allowing vineries to become too dry, or sometimes by the border being so. French Beans are its favourite food, and it multiplies among them very rapidly, if they are mismanaged, spreading from them to Vines. But this is always owing to bad management, and will not occur if a vinery is properly syringed. To throw the blame upon Strawberries is a mere assumption of practical knowledge. When the red spider does appear in a house seriously, recourse must be had to sulphur and white wash painted over the flues or pipes when they are hot, and continual syringing should be found sufficient. You will probably have to use first one remedy then the other.

MISC: *An Old Subscriber.* Your suggestion will be considered but there are difficulties in the way.

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ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected; Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the Plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

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Lists of colours, prices, together with a copy of the testimonials, will be sent on application to WALTER CARSON & SON, 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
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Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

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Zoology, Geology, and Botany—JOHN BUCKMAN, F.G.S., F.L.S.
Veterinary Medicine and Surgery—G. T. BROWN, M.R.C.V.S.
Surveying, Civil Engineering, and Mathematics—F. ARMSTRONG, C.E.
Manager of Farm—G. AUSTIN.

The Second Session of 1855 begins in August. The annual fees for boarders vary from 45 to 80 guineas, according to age and other circumstances. The fee for out-students is 40*l.* per annum. The College course of lectures and practical instruction is complete in one twelvemonth, although a longer course is recommended. There is a department for general as well as for agricultural purposes. Prospectuses and information can be had on application to the Principal.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—CARLISLE, 1855.
PROGRAMME.

SATURDAY 21, MONDAY 23, and TUESDAY 24.—Trial-yard open at 9 o'clock in the forenoon, when the public will be admitted on each day at 5*s.* for each person, to view the Trials of the Steam Engines, Barn Works, and other Agricultural Machinery and Implements generally. This payment has special reference to the Trial-yard only, and will not entitle the person who makes it to an admission into the general Show-yard for the exhibition of Implements.

WEDNESDAY 25.—The Implement Yard open to the public from 7 in the morning till 6 in the evening; admission 2*s.* 6*d.* each person. The Judges to inspect the Live Stock and award the Prizes. At 1 o'clock (or as soon after as all the Judges shall have delivered in their awards), the public to be admitted into the Cattle-yard and to the Exhibition of Farm Poultry, on the payment of 10*s.* each person, at the Special Entrance; Members of Council and Governors of the Society being admitted by Tickets to be purchased at the Finance Department of the Society at the Show-yard. N.B. Notice will be posted up over such entrance when the Judges shall have completed their awards. At 8 o'clock in the evening the Yard will be closed.

THURSDAY 26.—The general Show-yard of Cattle, Horses, Sheep, Pigs, Farm Poultry and Implements open to the public from 6 in the morning till 6 in the evening; admission 2*s.* 6*d.* each person. The Dinner of the Society in the Pavilion adjoining the Show Yard at 4 o'clock, the doors open at 3.

FRIDAY 27.—The general Show-yard open to the public from 6 in the morning till 6 in the evening; admission 1*s.* each person. General Meeting of the Members in the Guildhall at 10 o'clock in the forenoon.

President—Mr. MILES, M.P.
Stewards of Departments.
CATTLE—Mr. Simpson, Mr. Woodward, Sir Stafford Henry Northcote, Bart., M.P.
IMPLEMENTS—Mr. Fisher Hobbs, Mr. Cavendish, Mr. Hoskyns.
POULTRY—The Hon. and Rev. Stephen Willoughby Lawley.
FINANCE—Sir Matthew White Ridley, Bart.; Colonel Challoner.
SALE OF TICKETS—Mr. Henry Wilson.
RECEIPTS AND ADMISSION TO SHOW-YARD—Mr. Raymond Barker.
PAVILION DINNER—Sir John V. B. Johnstone, Bart., M.P.; Sir John Villiers Shelley, Bart., M.P.; Mr. Brandreth, Mr. Thompson.
GENERAL ARRANGEMENT OF SHOW—Mr. Brandreth Gibbs.

By Order of the Council,
London, July 21. JAMES HUDSON, Secretary.

By the regulations of the Society, all persons admitted into the Show-yard, or other places in the temporary occupation of the Society during the meeting, shall be subject to the rules, orders, and regulations of the Council.

PAVILION DINNER TICKETS AND SUBSCRIPTIONS: at the Finance Department of the Show-yard. Pavilion Dinner Tickets, price 10*s.* each (including one-pint bottle of Wine), will be sold at the Finance Department of the Show-yard on the Wednesday and Thursday of the Show week, between the hours of 10 o'clock in the forenoon and three in the afternoon each day.

Subscriptions due to the Society will be received by the Finance Committee, at their department adjoining the public entrance to the Show-yard.

ROYAL AGRICULTURAL EXHIBITION AT CARLISLE.

RETURN TICKETS available for 14 days, are issued for Windermere at Euston and the other principal Stations on the London and North Western, Lancashire and Yorkshire, and Midland Railways, at a little more than one Fare. Visitors taking advantage of this opportunity of seeing the English Lakes will find that trains are specially arranged to leave Windermere, so as to reach Carlisle at an early hour on the days of Exhibition.

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Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

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The machine is made to cut the breadth of 42, 30, 20, and 15 inches respectively, is exceedingly durable, easily managed, and adjusted to cut to the length required. The execution of the work is far superior to what may be attained by the most skilful mower, while at the same time a great saving of labour is effected, and the turf much improved. By the largest machine a Scotch acre may be mowed, rolled, and the Grass collected in one hour.

A. S. and SON have much pleasure in stating that they have made considerable improvements in their 15-inch or hand machine this year, by which the draught is considerably lessened. This machine combines all the merits and advantages of the larger machines with firm and secure construction, and is admirably adapted for borders and for lawns of no great extent.

ALEXANDER SHANKS and SON also respectfully solicit notice to "Fleming's Weeding or Salting Machine" for destroying weeds in gravel walks, court-yards, drives, &c. This machine is now in operation in many parts of England, where it has given ample satisfaction as the best and most economical means of thoroughly keeping down weeds or Moss.

Further particulars, with testimonials and prices, may be had on application.

CLAYTON, SHUTTLEWORTH, & CO.'S PRIZE PORTABLE STEAM ENGINES, AND COMBINED THRESHING, STRAW SHAKING, RIDDLING AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as threshed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.

C. S. & Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading Agricultural Shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

The Agricultural Gazette.

SATURDAY, JULY 21, 1855.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY,	July	25	Agricultural Society of England—Meeting at Carlisle.
THURSDAY,	—	26	
FRIDAY,	—	27	

THE annual meeting of the English Agricultural Society takes place at Carlisle next week, and a report of the proceedings will appear in our columns. The following is the programme. The trial of implements continues until July 24, the public being admitted on payment of 5*s.* to the yards where it is carried on. The implement-yard is open to the public on July 25 on payment of 2*s.* 6*d.* each person, and the judges inspect the live stock on that day. The cattle-yard is open on this day on payment of 10*s.*, so soon as the award of prizes has been completed. On July 26 the yards are open on payment of 2*s.* 6*d.*, and the dinner of the Society is held in the pavilion at 4 o'clock P.M. On Friday, 27th, the general show-yard is open for 1*s.* each person, and the general meeting of members takes place at 10 o'clock A.M.

THE subject of IRRIGATION is one of such great moment in some parts of England as to render it unnecessary to apologise for occupying a portion of our journal with notes upon the following points connected with it. We refer to:—

1st. The nature of soil and circumstances bes adapted for irrigation.
2d. The mechanical means necessary to its due accomplishment.
3d. The nature of the changes in vegetation effected by irrigation.
4th. The advantages to be derived from the practice where it can be properly carried out.

1st. A principal requisite in the formation of irrigated meadows is an unlimited supply of water, as it would appear that the quantity of this fluid has more influence than quality, as when water has percolated through one meadow it is not impaired for being conducted on to another. This is a consideration of some importance, as it does not appear that the efficacy of irrigation depends so much on the chemical constituents the water contains as might at first be thought: it seems rather to effect its good by a free percolation among and between the Grass roots.

If, therefore, water can be commanded in sufficient abundance for the process, the next point to ascertain is the capability of the land for favouring a steady even flow of water—not over the surface, as

this is mere flooding—but by slow yet unceasing filtering through every part of the crop, for if the water be stagnant the usual effect of want of drainage will be observed in the growth of "sour Grasses" and other weeds which mark wet land. A gravelly or sandy subsoil recommends itself as being best adapted for irrigation, and brooks or rivers usually flow in valleys of denudation, the worn-down rocks of which nearly always form a substratum of loose materials of greater or less thickness; in all such cases, therefore, the two most important adjuncts in irrigation, namely, water and a favourable soil are usually combined.

2d. When these are present the next subject for consideration will be the best method to be adopted in conducting the water over the different surfaces to be irrigated, in the due performance of which it is necessary to consider, not only how to conduct water to any part of the field, but how to cause it to *flow off again;* for without the latter part of the system be as perfect in its action as the former, a fatal stagnation will be the result, and hence it follows that any system which will secure these important ends with the least expense in the three following particulars will be the best to adopt; these particulars are:—

a. **The first outlay in the preparing the works.**
b. **The annual cost of repairs, and of necessary periodical attendance.**
c. **The amount of land taken up in the construction of the channels.**

Of course these are points which cannot be dwelt upon at length, as they must vary with the locality, position of the meadow, height to which the water has to be carried, and a variety of ever-changing circumstances, but the principles are in themselves simple, and require no less simple arrangements for securing their due development.

3d. The changes effected in the herbage of an irrigated meadow are a no less curious subject in relation to vegetable physiology than they are interesting in an agricultural point of view; these consist of the two following:—

a. Change of quality.
b. Increase of quantity.

A meadow observed upon the bank of the Churn, in the neighbourhood of Cirencester, which, from its slope could be only half covered with water, presented particulars which are tabulated below. It is necessary to remark that the meadow had a subsoil of oolitic gravel, and its pasture was that of a poor upland. The table will supply information on the following points:—

1st. The names of the natural Grasses.
2d. The proportions of these observed in the meadow before irrigation.
3d. The changes effected in two years of irrigation.
4th. Those on the fourth year.

Table I.*—*Representing the changes of Grasses under Irrigation.*

Botanical Name.	Common Name.	Proportionals. Before Irrigation.	After 2 yrs Irrigation.	After 4 yrs Irrigation.
Alopecurus pratensis ...	Meadow foxtail-grass ..	1	2	4
Poa pratensis	Field meadow-grass ...	2	3	4
„ trivialis	Roughish meadow-grass	1	2	1
Briza media	Quaking-grass	2	...	...
Cynosurus cristatus .	Dogstail-grass	2	1	...
Aira cæspitosa	Hassock-grass	1	...	...
Agrostis stolonifera ...	Marsh bent grass ...	1	2	3
Dactylis glomerata ..	Cocksfoot-grass ...	1	2	3
Avena flavescens ..	Yellow Oat-grass ..	2	3	3
„ pubescens ..	Soft Oat-grass	1	1	1
Hordeum pratense ..	Meadow Barley-grass ...	1	2	2
Lolium perenne ..	Perennial Rye-grass ...	2	4	6

This field has trebled in value in four years.

This table shows that all the good Grasses have increased in quantity, whilst the unfavourable kinds have decreased, and this may always be noted in pastures—they improve by increasing good herbage, which consequently smothers the bad; the opposite produces a reverse result.

Nor is it only with those plants of the natural order *Gramineæ* that changes occur: herbs of other families present the same facts, which may be gathered from:—

Table II.—*Representing the changes of Herbs formed with the Grasses.*

Botanical Names.	Common Names.	Proportionals. Before Irrigation.	After 2 yrs' Irrigation.	After 4 yrs' Irrigation.
Ranunculus acris ...	Upright meadow crowfoot	1	3	1
„ bulbosus	Bulbous crowfoot	3	1	...
Plantago lanceolata	Narrow-leaved Plantain ...	3	1	1
„ media ...	Broad-leaved Plantain ...	3	...	...
Trifolium repens ...	Dutch Clover	2	...	...
„ pratense ...	Broad Clover	1	2	2
Anthriscus vulgaris	Common beaked Parsley	1	2	1

Hence, then, irrigation exerts great influence on vegetation; not it would appear all at once, but by degrees, and that this change is for the better, may be gathered from the following:—

* This table and the succeeding one are taken from the Journal Royal Agricultural Society, Vol. xv., part ii.

Table III.—*Representing increase in Money value under Irrigation.*

1st year of Irrigation,			25*s.*	Rent the acre,
2d	do.	do.	35*s.*	do.
3d	do.	do.	50*s.*	do.
4th	do.	do.	60*s.*	do.
8th	do.	do.	100*s.*	do.

It is further worthy of remark, as respects the meadow observed upon, that although only a part of it could be irrigated, yet from the animals depasturing thereon having range over the *whole* meadow, the *unirrigated* portion has been also much improved, so that where all a meadow cannot be brought under the influence of this agent, it might be well to consider if only a portion can be so cultivated.

4th. This necessarily leads to a consideration of the advantages to be derived from the practice, for if a whole meadow be improved by the irrigation of a part, so may we not consider the utility of such meadows to the farm in general. This will become evident by a glance at the following facts:—

a. **Irrigation produces earlier pasture.**
b. **It always secures a good late herbage—lattermath.**
c. **Its yield of hay is much more certain where plenty of water can be commanded.**

Hence, then, this portion of our subject will need no comment; but if this be so in ordinary cases, how much more so in a district like the Cotteswolds, where the great breadth of the land is on uplands of the porous oolitic rock. Such meadows in the valleys assist sheep farming in an extraordinary manner, as they enable the farmer in a not very genial climate still to have pasture for his early lambs, and thus to compete with those under more favourable circumstances as to climate. It is on this account that irrigated meadows are so carefully managed in the neighbourhood of Cirencester, and we shall, therefore, devote another paper to a detailed account of their management.

SOME of the reports on DAIRY PRODUCE which have reached us are published below. Those interested in the subject will see whether Mr. SCOTT's or Mr. HORSFALL's statement is best borne out by them. The most valuable of the series is that by Mr. SCOTT himself, and quite corroborates his original account of the average annual produce of a cow. This, the completest record that exists upon the subject, makes 200 lbs. a year as the average yield of butter from a cow. It remains, therefore, for the compiler of it to maintain his opinion of Mr. HORSFALL's *ordinary* experience if he can.

DAIRY STATISTICS.

How much milk does it take to make 1 lb. of butter? To answer that question correctly it is obvious that a series of experiments would require to be gone into, and the results minutely ascertained. My experience being rather limited in regard to dairy management, I have never taken the trouble to ascertain the quantity minutely; but a Mr. Williams, of this neighbourhood, who has had the management of very extensive dairies for the last 20 years, has taken the trouble to make out the following calculations of the working of a dairy for 12 months, by which I think a pretty correct answer may be arrived at.

	Kind of Food.	Quantity of New Milk. Galls.	Quantity of New Milk. pts.	Cream taken off. Galls.	Cream taken off. pts.	Quantity of Butter. lbs.	Average of New Milk for 1 lb. of Butter. Galls.	Average of New Milk for 1 lb. of Butter. pts.	Average Cream for 1 lb. of Butter. Pints.
April, 4 weeks' average									
May, 4 weeks' do.	Grains, wash, hay, and Grass	323	2	36	7	125½	2	4½	2½
June, 5 weeks' do.	Grass	395	5	45	0	147	2	5½	2½
July, 4 weeks' do.	Do.	432	2	50	3¼	163½	2	5½	2½
Aug., 4 weeks' do.	Grains and Grass	454	2½	47	7	155½	2	7½	2½
Sept., 5 weeks' do.	Grass	360	2¾	37	6¾	114½	3	1	2½
26 weeks' do.	Do.	340	1	32	4	114½	3	0	2½
	Per Cow ...	384	3⅔	41	6	136⅔	2	6½	2½
Oct., 4 weeks' do.	Grass	270	7¼	30	2	99½	2	5¾	2½
Nov., 4 weeks' do.	Grass and wash	198	6	26	5	81½	2	3¼	2½
Dec., 3 weeks' do.	Grains, wash, hay, and Grass	138	3¼	18	5¼	60½	2	2½	2½
„ 3 weeks' do.	Do.	143	3	17	1½	59½	2	3½	2½
Jan., 4 weeks' do.	Do.	155	5	20	0	66½	2	2½	2½
Feb., 4 weeks' do.	Do.	239	6	29	5½	101½	2	2½	2½
March, 4 weeks' do.	Do.	216	1	27	3¼	89½	2	3½	2½
26 weeks' do.	Per Cow ...	198	7	24	6	81½	2	8½	2½

By the above table it will be seen that it takes 2 gallons 6½ pints of new milk to make 1 lb. of butter for the summer half-year, and 2 gallons 3½ pints for the winter half-year; or for the 12 months it takes 2 gallons 5 pints of new milk to make 1 lb. of butter, and 2½ pints of cream to make 1 lb. of butter. The stock from which the above experiments were taken were chiefly what are generally known as the well-bred Irish cow, and the produce from that animal, if well selected, is I think as good as any. No doubt crosses of the Dutch and Durham produce also good dairy cows; but, as far as I have seen, the Durham is much better adapted for the butcher than the dairy. The Ayrshire is also good for the dairy, with every tendency to fatten, and is perhaps better adapted for light soils than any of the other breeds. About 20 miles from this I knew a large dairy of pure Devons; they were a very pretty stock; they gave milk of a rich quality, but much smaller in quantity than any of the others.

To ascertain the comparative merits of the different breeds on the same pasture, and with the same treatment, would be very desirable, and perhaps some of your correspondents might be induced to try the experiment. *David Barclay, Blarney, Cork, July* 11.

The average produce of "butter" from a cow in the course of a year in this neighbourhood is about 13 dozen (lbs.). I can mention individual cases in which a dairy of cows have produced 19 dozen per cow, but this is a rare occurrence. One quart of cream makes a pound of butter; on one occasion I found that when 50 quarts [? gallons] of milk were measured out that they produced eighteen lbs. of butter. In addition to the butter, we must bear in mind that a great deal of Dorset (skim milk) cheese is made from our dairies. Many of our best dairies are kept on poor land; but if the cows are not "too thick" (*i. e.* if they have plenty of run), their yield is great and of the best quality. *Dorsetshire.*

Mr. Littledale writes from Liscard Hall as follows:—I had churned on Saturday from a lot of cows, about 3 months calved, and all of the large Yorkshire breed, fed on Italian Rye-Grass, 42 gallons of milk, produce, 19¼ lbs. butter; to-day, 52½ gallons of milk, produce, 23¾ lbs. butter. The produce of butter varies with the breed of cows; in a general way, we have found from the large Yorkshire cow it takes 3 gallons for a pound of butter; Ayrshire less; and an Alderney still less. At one time I took a great interest in trying experiments upon different cows, and the quantity of butter they would produce; and the most extraordinary yield, which I have never seen equalled since, was from a cow the cross of an Alderney and a short-horn, after having calved above 2 months; she gave so rich a milk, that in the lactometer the cream did not separate from the milk, and we had a pound of butter from rather less than a gallon of milk; and although a small, poor-looking thing, we had 14 lbs. of butter a week from her. We also had a large Yorkshire cow a great milker, and after having calved upwards of 3 months, she gave us 19½ lbs. of butter in the week; in the lactometer the average of cream for that description of cow was 8, this one's was 18. A cow gives much more butter when she has calved about 3 or 4 months, and the quantity of milk is diminished; also a great deal will depend upon the quality of the food. We churn by steam, and last summer we tried the shortest possible time we could do it in, it was a hot day, and we accomplished it in five minutes and a half, the engine making 300 revolutions per minute, and the quantity 80 gallons of milk; we have also found out in this very hot weather that it pays us well to put American ice into the milk, before churning, to reduce the temperature to get out more butter; the result of the same quantity of milk without ice, 15 pounds of butter; with ice, 20 lbs. *Cheshire, July* 9.

I am sorry I am not able to afford you any satisfactory account, having never been at all curious as to the quantity of milk necessary to produce a pound of butter, and indeed the difference in the nature of the pasture and the quality of the milk of different cows must render it almost impossible to ascertain the exact quantity required. If you can make any use of my last week's experience, I will just inform you that from 36 pails of milk (each pail 3 gallons), we made 32 lbs. of butter. Our cows were feeding in our best piece of pasture, so that I conclude we never make more butter from the same quantity of milk. *H., Suffolk.*

I have to tell you that on Friday, 10 quarts of milk were measured out from the morning's milking and 10 quarts in the evening; each lot was skimmed after standing 12 hours, and a second time after 12 hours longer. The 20 quarts of milk yielded 1 quart ¾ pint of cream, and that produced this morning 20 oz., or 1 lb. 13 oz. of butter. It was certainly not a good time to make an average trial, as the weather has been so very warm the past week, and the flies have been extremely troublesome to the cattle. A month ago we were making more than a fourth more of butter to the same quantity of milk. The cream was sometimes so thick we could not pour it from the jug, but had to take it out with a spoon. It has been very much thinner the last 8 or 10 days. Our cows, or rather cow and heifer (two years old) have lived wholly on Grass. *H. Gloucestershire.*

In answer to your question as to the number of quarts of milk required to produce 1 lb. of butter, I beg to state that I have had that quantity from 8 quarts, and have been assured that 6 quarts have sufficed in

some cases. Those, however, are exceptions. In these cases the cow must be about six months in calf; earlier the milk is more abundant, but less rich. I believe about 11 quarts to be a fair average. Our pound is the old Norman, and with the overweight with each pound prepared for market, I should think it is over 18 oz. English weight. The richest milking has been on a trial by me the mid-day and the evening next, contrary to accounts of dairy produce published in English works, which mention the morning milking as the richest. *B., Guernsey.*

Additional Returns obtained by Mr. Scott, and referred to in his Paper read before the Agricultural Society.

These dairy returns are given just as they came into my hands, none having been kept back. They represent the produce of upwards of 1000 Cows.

	Names of Reporters.	Counties.	Breed of Cows.	Days milked in a Season.	Aggregate yield.	Milk to produce one quart of Cream.	Butter from one quart of Cream.	Summer Food.	Winter Food.
ENGLAND.	1 Sargent ...	Wiltshire	Short-horn	270	2160	8 qts.	16 oz.	Pasture ...	Hay and roots.
	2 Blake ...	Ditto ...	Ditto	240	2520	11	16	Ditto ...	Ditto.
	3 Lavington	Ditto ...	Ditto	255	3060	14	16	Ditto ...	Ditto and chaff.
	4 Akroyd	Cheshire	Cross-bred	240	2880	16	16	Ditto ...	Ditto and straw and Oats.
	5 Cawley	Ditto	Yorkshire	270	3465	11	16	Ditto ...	Ditto cut straw and Oats.
	6 Warburton	Ditto	Half-bred and Short-horns	240	2640	8	12.80	Ditto ...	Cut straw, hay, Oats, roots, & oilcake.
	7 Raddall	Devon	North and South Devon, Jerseys, and Short-horns	320	3840	17¼	22	Ditto and brewers' grains	Turnips, Carrots, hay, straw, & grains.
	8 Franks	Hunts	Yorkshire...	240	1440	18	12	Ditto ...	Hay, chaff, and roots.
	9 Thorpe	Ditto	Half-bred Yorkshire...	180	2520	12	8	Pasture and cake	Hay, roots, and cake.
	10 Sherret	Hereford	Hereford	240	1920	9	14	Pasture ...	Hay.
	11 Wright	Surrey	Yorkshire	270	3240	12	16	Tares, Clover, &c.	Roots, hay, and grains.
	12 Castle Howard	Yorkshire	Short-horns	238	2142	10	16	Pasture ...	Oats and hay.
			19 †	3003	31,827	146.50	180.80		
		England average ...		250	2652	12.20	15.06		
IRELAND.	1 Haydon ...	Kerry	Kerry, Cross-bred, Durham, & Ayrshire...	285	1995	12	14	Pasture and cut Grass	Hay and roots.
	2 Dalton ...	Limerick	Cross-bred, Irish, and Short-horn ...	270	2430	10	10.66	Pasture, Clover, and Vetches	Ditto.
	3 St. John Jeffryes	Cork	Half-bred Short-horn ...	270	2700	10	12	Pasture and cut Clover ...	Ditto.
	4 Munster Model Farm	Ditto ...	Cross-bred ...	270	2970	8.06	13.33	Cut Grass and Clover ...	Ditto, &c.
			4 †	274	2524	10.01	12.50		
		Ireland average ...		285	1995	12	14		
				1095	10,095	40.08	50.		

SUMMARY.

	Days milked in a Season.	Aggregate yield.	Milk to produce one quart of Cream.	Butter from one quart of Cream.
England	250	2652	12 20 qts.	15.06 oz.
Ireland	274	2524	10.01	12.50
2 †	514	5176	22.21	27.56
General Average	257	2588	11.10	13 78

The above returns of the produce of upwards of 1000 cows show a general average of 1.24 oz. of butter from one quart of whole milk.

THOS. SCOTT.

3, Charing Cross, July 11, 1855.

THE ROTHAMSTED GATHERING.

PRESENTATION OF A TESTIMONIAL TO J. B. LAWES, ESQ.

ON Thursday a large number of the most influential agriculturists of the county assembled at Harpenden, Hertfordshire, for the purpose of presenting a testimonial to J. B. Lawes, Esq., as a mark of their gratitude and esteem for the discoveries made by him in scientific agriculture.

The testimonial consisted of a handsome silver candelabrum, with six branches, ornamented with a running vine and hanging bunches of grapes. The inscription was as follows:—

"Presented to John Bennet Lawes, Esq., as an heir-loom, at the same time with a laboratory erected for him by public contribution on his estate, Rothamsted, Hertfordshire, in acknowledgment of the services he has rendered to the science and practice of agriculture, July 19, 1855."

The ceremony took place at Rothamsted, in a tent adjoining the new Laboratory, where about 200 persons sat down to an excellent dinner; at the termination of which the Right Hon. the Earl of Chichester, who presided on the occasion, after the usual loyal toasts had been suitably proposed and responded to, presented the testimonial. He said:—As chairman of that meeting it became his pleasing duty to present the testimonial, which then stood before him, as a mark of gratitude expressed by the agriculturists of this kingdom in return to Mr. Lawes for the service rendered to his country. It had been his lot to be one of the oldest and most zealous members of the Royal Agricultural Society, and he must say that he had on many occasions read with delight the valuable papers so ably and liberally contributed by Mr. Lawes. He had in some degree spoken as assuming to himself the position of the Royal Agricultural Society; but it was well known how much Mr. Lawes's labours had been appreciated, not by that Society alone, but by country gentlemen and farmers generally. He thought it an object worth a man's ambition to become a distinguished agriculturist, and to have one's labours appreciated; and further considered that husbandry should be made one of the elements of our education. The noble chairman then passed a high encomium on the character of Mr. Lawes, on his assiduity and attention to agricultural pursuits, and exhorted farmers to become reading as well as practical men. The noble chairman concluded by presenting the testimonial to Mr. Lawes, amidst much applause.

Mr. Lawes said he scarcely knew what he had done to merit so beautiful a building, accompanied by so magnificent a present as that which was now offered to him from the hands of a few of his private friends, and was quite unable to return them adequate thanks. The building in which he had hitherto prosecuted his experiments was certainly neither suitable for work nor fit for experiments; it was neither more nor less than an old barn, and yet although he was now possessed of so splendid a building, replete with every convenience, he still entertained a great respect for that barn. He then entered into a description of the commencement of his labours some 10 or 12 years since, showing the progress he had made from that period. He further contrasted the progress of agriculture in Germany with the little attention which had been paid to it in this country. He then drew the distinctive line between manufacture and agriculture, and said with manufacture they had iron, coal, and capital; but with agriculture, independent of the supply of guano and ammonia, they were limited in their operations by climate—the sun was their capital—thus necessarily showing the vast amount of skill required for beneficial production. He complained that farmers at the present time looked more to immediate return than to a lasting and more productive future—their first question on being shown any improvement was, "Does it pay?" He then reverted to his "infant" science, which he said some 12 years ago had all the helplessness of a baby, but with the appetite of a giant. It had, however, struggled on under the careful nursing and skilful management of his friend Dr. Gilbert, until it had obtained its present thriving condition. He, however, had been informed that it was reported in Germany that his baby was dead; but he thought the only corpse they would have to bury was that of the old barn, whose spirit was now transferred into this large and noble building (cheers). Mr. Lawes concluded by expressing a hope that that building would become their guiding star in the performance of their agricultural pursuits, and once more expressed his gratitude to those around.

The Rev. A. Huxtable then addressed the meeting, and said with reference to the old barn, he also entertained a great respect for it, and would wish that it should still be kept on. He then entered into a detailed description of his experimental crops and manuring, which we hope to give hereafter. He highly complimented Mr. Lawes for his practical knowledge, stating that he (Mr. Huxtable) was unable to approach him, although he had tried; but the fact was, he had begun at the wrong end, for his friend had taken up practice before theory, while he had taken theory previous to practice.

Dr. Gilbert alluded to his connection with Mr. Lawes for the last twelve years, and spoke on the rotation of crops and the feeding of animals. He thought that every intelligent farmer ought in his own locality to endeavour to act on Mr. Lawes's plan, and become to a certain extent an experimental agriculturist.

Sir J. M. Tylden referred to the unfortunate state of the weather during the morning, and believed that had it been otherwise their number would have been considerably augmented. He, however, felt much satisfaction at the glorious burst of sunshine which greeted them on their noble chairman taking his seat. He looked upon it as a favourable omen. The last speaker (Dr. Gilbert) had called upon the various farmers to interest themselves in this grand undertaking; now he was from Kent, and would do all in his power in that locality, and he hoped others would do the same.

The following toasts were drank with enthusiasm:—By Mr. Huxtable,—"The Science and Practice of Agriculture." By Sir J. M. Tylden,—"Mrs. Lawes and all the members of Mr. Lawes's family." By F. Woodward, Esq.,—"The Chairman, Treasurer, Secretary, and other members of the acting committee." T. W. Overman, Esq., then proposed "the health of the President."

The noble Chairman briefly replied, expressing his regret that he should be compelled to leave them at so early an hour, and withdrew amidst a general display of kindly feeling. The remainder of the evening was then spent in conviviality and song, professional singers having been especially engaged for the occasion.

Home Correspondence.

Chaffcutter.—We have received the following testimony to the merits of Messrs. Richmond and Chandler's chaffcutter:—I have for the last 20 years used various cutting machines, but not until lately have I tried the above, the result of which, with steam or horse-power, is wonderful, and, deem it my duty to the public to make this statement. Previously to using this machine, chopping was a great labour and trouble, but now I can cut very near a ton per hour. I do not keep any racks in my stables, so that every particle is cut and eat up clean, which is a great saving. *Benj. Walker, Mirfield, Yorkshire.*

Mangold and Pig Feeding.—I see that doubts and inquiries are afloat respecting the merits of Mangold Wurzel for breeding sows. I have had it given to sows and stock pigs where we kept from 20 to 30 sows, and never had but one case of their miscarriage during six years either from that or any other cause; and they were fed on that alone except while they were suckling their young, when they had a few boiled ones and bran mixed with them, given a little warm, three times a day, but they also had a supply of raw ones beside them, which they enjoyed all the time. But as my statement seems a little strong it may be as well to state that they had them all the year, as we manage to make the old meet the new. The effect might have been very different had they been given only at times, especially when the sows were with young. The breeds were some of all sorts, but mostly the spotted Berkshire and white Chinese. They all kept themselves in good condition with nothing else but water, when the weather was very dry and warm; but it is well to mention all the drawbacks, though they may have nothing to do with the feeding. Sometimes the young, after weaning, got apparently too fat, and we lost some of them; they were what we called "bloated," and at last were unable to move freely. But this, I think, was more the fault of the breed, as only the white were affected in this way. *G. S., July* 16.

Agricultural Statistics.—As the resistance to fill up returns on the part of so many farmers residing in the counties selected for trial, makes it evident that there will be considerable difficulty in obtaining satisfactory data on the voluntary system to give any results that can be depended on, it may be worth while to ask if a compulsory system is to be adopted whether annual returns will be worth the trouble and expense of all the items selected for inquiry, or whether in respect to such matters as "Flax, Hops, Osiers, bare-fallow, permanent pasture, irrigated meadows, woods and commons," a period of 10 years might not safely be allowed to elapse before every farmer in the kingdom was again troubled with such questions, and we will go further and say the same of live stock of all sorts, which do not, except on rare occasions, suffer sudden diminution or increase, and cannot be of more importance to the country than the number of people requiring them for food or labour. By thus reducing the dimensions of the papers to be filled up and simplifying the process to a statement of the production of corn and Potatoes, so that half a dozen columns might be presented instead of 40, the objections to such a system would probably disappear, or be evidently so absurd as to be no longer tenable, for after all the real and pressing necessity of an annual return is referrible mainly to the price of Wheat, by ascertaining how far our own production is available for the nation's food, and how much therefore we shall need to be procured elsewhere. This is the grand plea for agricultural statistics, and we can imagine no sufficient reason for any intelligent well-disposed man to withhold the desired answers to the questions of how many acres of each kind of corn and roots he may grow, or even of how many bushels of one kind and tons of another he may grow, as a public question of the highest import to the nation. The nation has a right to be furnished with this information annually, but as to the numerous and (to many persons) perplexing queries about wastes and gardens and Cabbages, and working oxen, why let them be included in the census, when every master of a family may expect a goodly pamphlet of most "questionable shape," which will require most scholarly endowments to reply to, and which demands almost a 10 years' study to write down clearly in good faith. *J. W., Peterborough.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, *July* 18.—Mr. MILES, M.P., President, in the chair.

LECTURE ON THE USE OF FISH AS MANURE.

Professor Way, consulting chemist to the Society, commenced his lecture by referring to the importance of the subject. The employment of artificial manures, however much it might have extended, was yet in its infancy, and in the course of 10 years it was probable that 100 acres would be artificially manured for every acre that was so treated now; but this could only happen with the aid of fresh sources of supply of the raw material for the manufacture of such manures. There was the greatest difficulty in obtaining the material to supply the manure market. In the case of phosphate of lime the demand had so increased that the price had nearly doubled in the last two or three years. It was, however, fortunate that phosphate of lime, occurring very largely as a mineral deposit, had been searched for and found in several localities, and other supplies of it were opening up, which promised eventually to meet any demand. No less important than phosphate of lime, as an element of manure, was some form of nitrogen of which the value was so abundantly proved. Now it could not be doubted, as he hoped to show, that such a source of nitrogen, in the highest degree available for the wants of vegetation, existed in fish. This source of nitrogen was practically unlimited, and he could not think that the obstacles in the way of obtaining it in sufficient abundance and at a moderate price were by any means formidable. The importance of this subject, Mr. Way said he felt to be so great that ,although it had been ably discussed before, and he might not be able to add anything very new to what had been previously said, the present lecture would, he believed, be productive of good, if only in keeping the attention of the agricultural public alive to the question. Of the value of fish and fish refuse as manure there could be little dispute. For a very long period the refuse of the pilchard fisheries in Cornwall, and of the herring fishery in the eastern counties and in Scotland, had been employed as manure with the best effects. And in seasons when they were abundant some kind of fish were caught expressly for this purpose—as in the case of sprats in the counties of Essex, Kent, and Sussex—the dog fish in Dorsetshire, &c. The use of fish, however, in its natural state was necessarily confined to a comparatively short distance from the place where it was caught; so valued, however, was this manure that he had seen Hop and Wheat fields covered in the winter with sprats at a distance of 25 miles from the sea, and that before the days of railways and when the farmer had to send his teams to fetch them home. There was a fresh abundance of evidence of the value of fish as manure, and the question was to what that value was to be referred. Mr. Way then gave a statement of the composition of different fish, exhibiting a table of analyses lately made in his laboratory on the subject. He remarked in the first place that the quantity of water in fish was not nearly so great as was usually thought. It was a vulgar error to suppose that fish was less solid than flesh; on the contrary, whilst the flesh of the ox contained as much as 77 per cent. of water, different kinds of fish varied from 60 to 65 per cent., and some contained much less than this even. The quantity of nitrogenous matter in fish varied considerably; to this ingredient no doubt a great portion of the manuring property of the fish was due. We had experience of the value of dried blood, of woollen rags, of horses' hair, and other animal substances, all of which were powerful manures; and the nitrogenous parts of fish being of the same composition could not fail to have the same effect upon vegetation. The next ingredient in fish was the oil: the Society would remember that he published in the Journal, in the year 1848, analyses of experiments made in that and the preceding season, and that he had found in those fish as much as 18 or 19 per cent. of fatty matter, a result which was at that time, he believed, quite unlooked for. Mr. Sullivan had more recently found 13 per cent. of oil in herrings. They would see by the table of results that the oil in different fish varied very much; in one case, that of mackerel, it was remarkably large. In a mackerel examined this last week, he had found as much as 24½ per cent. of oil, or one-fourth part of its entire weight. In this fish the oil seemed to substitute part of the water found in other varieties, for it did not contain more than 44 per cent. of moisture, or two-thirds of that usually present. The quantity of nitrogen and of ash was also very large, both of them very considerably larger than in any other fish of which the comparison was known. If available in quantities, therefore, this fish would be very valuable for manure. Now, considering the large proportion of oil in fish, it became important to consider of what value it might be in manure. It had become the fashion of late years to give too exclusive a consideration to the importance of nitrogen in vegetation,—not that we could too much value this important element, but that we were in danger of neglecting those substances which took a less prominent but a no less necessary part in the economy of vegetation,—that carbonaceous matter in the soil was beneficial if not indispensable to profitable cultivation, did not seem to admit of a doubt, and if so there might be clearly a choice between carbonaceous substances according to their rate of decomposition, &c. Now, oils were very susceptible of oxidation with the production, of course, of carbonic acid. He might only mention in illustration the spontaneous combustion often occurring when oily rags used for machinery, &c., had been thrown into a heap, and by the absorption of oxygen and heat consequent upon it had in many cases caused great destruction of property. Then, again, the manufacture of "drying oils," as they were called, by boiling Linseed and other oils in contact with the air; the experiments of Saussure, who placed different oils under receivers of air, and found at the end of the experiments that all the oxygen had become carbonic acid at the expense of the oil, were also to the purpose. Now it was easy to see that oil distributed through a porous soil would, on account of the great surface exposed, suffer rapid oxidation, and give off a ready supply of carbonic acid, which at particular periods of their growth might be most important to some plants. Mr. Way quoted passages from the work of Dr. Home, printed in 1762, and the "Georgical Essays" of Dr. Hunter, a few years later, to show that a very high opinion of the value of oil as manure was held by early writers. He also referred to the experiments of Earl Spencer with oil—to the use of whale blubber, which, however, no doubt owed much of its value to the flesh. He showed also that many of the substances known as powerful manures and containing nitrogenous matter also contained oil. Thus woollen rags, Rape-cake, &c., might owe part of their efficacy to this cause. Rape-cake contained about 4 per cent. of nitrogen, whilst its oil varied from 12 to 15 per cent. Again: shoddy (or wool refuse) with perhaps in some cases, as he had found, not more than 2½ or 3 per cent. of nitrogen, furnished upon analysis between 25 and 30 per cent. of oil. This substance was known as a good manure. On the whole this subject of oil as manure was well worth looking into; not that oil would be likely to be used directly as a manure (its value for other purposes being opposed to such a use of it), but that we might be able to value more correctly substances in which it occurred, and could not profitably be extracted as suitable for manure. He would be glad to find that any members of the Society would be induced to make practical experiments on this subject. The other main ingredient of fish was the ash or mineral matter, which, although of less importance than the others (on account of the smallness of its proportion), was not to be overlooked. Mr. Way here referred to the analyses of different fish, showing that in the lobster, which he had recently examined, the quantity of phosphate of lime was much as 5 per cent. of the fish in its dried state, and about the same in the mackerel; this phosphate of lime could not be without its use. Mr. Way next directed attention to the various methods of preserving fish that had been proposed, including those of Mr. Petit, by sulphuric acid—of Mr. Elliott, by the use of alkali—of Mr. Bethell, by the employment of tar oils—and of M. de Molons, by treatment with high pressure steam. He also mentioned the plan which was adopted by a manufacturer of manure (Mr. Stevens), who had a contract for the refuse fish of Billingsgate market, of incorporating the fish in superphosphate of lime, the quantity of water in the fish serving to dilute the acid, and being dried up by the natural heat of the process. He remarked, however, that there would be no difficulty in preserving the fish if it could be obtained. It was not so much a question of this or that process, but of the supply of raw material. He could not help believing that this was not an insuperable difficulty if systematic measures were taken to effect the purpose. Was it affirmed that our system of taking fish was incapable of improvement? Were the nets and other appliances of the fishermen, which were the same in kind as we read of 1800 years ago, although possibly improved in detail, were they the last and supreme effort of ingenuity and invention? Was nothing to be accomplished in the way of extracting from the waters of the sea a greater supply of its teeming population? Surely it was open to improvement. But it seemed to him that the calculations and arguments on this question were not usually quite to the point. Everybody talked of "refuse" fish, that is to say, the offal of edible fish, and the fish accidentally caught which were unfit for the food market, and it was said by those who certainly well understood the subject, "a boat with so many men will take in the day such and such a quantity of fish, of which the uneatable fish will amount to so and so, and that quantity will not keep a factory in work or create a manufacture of any national importance." But he said that fishing for manure must be the primary and the capture of edible fish the secondary consideration if they desired to raise this into a great national question. And we had yet to learn what would be the result of a day's labour of a given number of men, when their attention was directed not as now, to the comparatively rare and valuable fish, but to those which hitherto they had despised and avoided. In his opinion, the statistics hitherto put forward were worth nothing, because they were not derived from this point of view. In the search after fish for the manufacture of manure the proverb that "All is fish that comes to the net" ought to be varied to "All is fish that the net can reach." Prof. Way concluded his lecture, as he had begun it, by urging the necessity of encouraging every attempt to obtain new sources of raw material for the manufacture of manure. Without this a term would be reached when the competition for manufactured manures with an insufficient supply would raise the price up to the extreme limits at which their use would be remunerative—for a time the deficiency would be met by adulteration and inferiority of the article, and this, together with the scramble to get manure, would soon wean farmers from their partiality to artificial manures; then, indeed, the progress of agriculture in this country, at all events in the use of artificial manures, would receive a serious check. He did not wish to draw a gloomy picture; but such a state of things must inevitably result, if the increasing demand for manures were not met with some new and abundant supply of the raw material.

On the motion of General Hall, seconded by Mr. Gadesden, the best thanks of the meeting were voted to Professor Way for the excellent lecture he had then delivered; the President expressing the pleasure it gave him to put and concur in that vote.

Dr. Calvert remarked on the curious circumstance of some animals, low in the scale of existence, giving out ammonia while alive. He thought the source of ammonia a most important inquiry. With regard to insufficient supplies of manuring matter, he believed the Dutch and Chinese, who for ages had known its value, found no difficulty in securing it for their crops, while in England and other countries it was allowed to run down the rivers, not only polluting the water, but destroying the fish. A singular effect of gas tar had occurred to him; when poured over and mixed up with a manure heap in his yard, it occasioned on decomposition a most agreeable and powerful odour of bitter-almond oil to be exhaled; but the manure itself so strongly impregnated the Potatoes, to which it was afterwards applied as manure, with a rank foul flavour, that they could not be eaten. No particular increase of crop, either, had resulted from the manuring in question.—Mr. Paine gave an interesting statement of a series of experiments he had made on four acres of his land in Surrey, for the purpose of ascertaining the best manure for his Hops. The manures tried were of mineral and organic substances, alone as well as mixed, and each plot consisted of one-eighth of an acre. This land offered great variety of soil, resting on the upper and lower chalk, the firestone and the gault. The result of his trials was that Rape-cake, singly and in combination, for four years in succession proved invariably the best carbonaceous manure for his crop and land. He had found Hops, Turnips, Cabbages, Mangolds, and generally all large-leaved and rapidly developed crops benefited by fish, whale-blubber, oil, and fatty matters; but that, on the contrary, his corn crops derived no benefit whatever from carbonaceous manures.—General Hall cited the case of Mr. Nash, of Newmarket, who had applied Rape-cake to his Wheat crops on chalk land with great advantage.—Mr. Truesdale Clarke referred to the Earl of Essex's employment of powdered charcoal in his experiments published in the Journal.—Dr. Calvert referred to his cultivation of the best-selected Grasses in Yorkshire, 12 miles from the Northallerton Station, and invited members proceeding to the Carlisle meeting to diverge to that extent from their route, for the purpose of inspecting what he believed to be a unique collection, the result of 20 years' uninterrupted care and attention. He had found less nutriment in Grasses grown on exposed situations than in those in the shade. He had found no season more favourable for his Grasses than the last. He had in preparation a report on this subject for presentation to the Society.

The Council adjourned to a special meeting at Carlisle on the 27th of July, and to their ordinary monthly meeting in London on the 1st of August.

Farmers' Clubs.

EAST SUFFOLK.—At the meeting last week of the East Suffolk Agricultural Society the following remarks were made by Lord Stradbroke on the subject of Agricultural Statistics:—"They were well aware that during the last two years attempts had been made in Scotland, and in some counties in England—and it was no small compliment to say that the county of Suffolk was one of those so selected—to endeavour to arrive at a fair result of what was the probable amount of corn grown as the actual food for the great body of the people in this constantly increasing manufacturing and commercial country. If it appeared, as he thought it must do, that correct returns on so important a subject would be of much advantage to all, it was, as he thought, equally clear that if there were one class more than another who would profit by such results it was the agriculturists themselves. They were aware that in the month of July the corn merchants had for many years been in the habit of sending round to every part of the country to ascertain the probable amount of growing crops, and that they had consequently in the month of September been able to take some little advantage of the farmers, by knowing more than the sellers could probably be acquainted with. The result had been that farmers had sometimes sold their corn too soon, when it would have been wise to retain it; while at other times they had been induced to retain their corn, when it would have been to their advantage to have parted with it. If they could only ascertain from year to year whether the crops were likely to be above or below the average, at least they would all be upon terms of equality, and be subject to less fluctuations than had been observed during the last seven years which, he thought, had exceeded the fluctuations of any other period throughout his experience. Now, in stating to them that the county of Suffolk was one of those selected, he was happy to say that in 13 unions out of 17 the public expectation was not disappointed; for they had sent from these unions very correct details considering the opportunities which had been presented for collecting them. If he referred to those four unions which either omitted to send in, or at all events furnished very imperfect returns, he should do so, not with any intention of casting any slur upon them, but in the earnest hope that, whenever again called upon, after the mature consideration which the whole subject had undergone, having had the advice and assistance of the leading gentlemen and agriculturists of their own district, the farmers would feel the great importance of the whole question, and vie with those unions in the eastern part of Suffolk—he particularly alluded to the Plomesgate, the Blything, and the Wangford—where an example had been set, which had not been exceeded in any other part of Scotland or England in the full and satisfactory returns which had been furnished. From even what had transpired already, he was enabled to draw some comparisons of the results arising from the mode in which the land had been cultivated in this and the neighbouring county of Norfolk. They were well aware that there were few, indeed, he did not believe there was any county in this country where the farming was better carried on than in the county of Norfolk; and if they remembered that the area of Norfolk, compared with the area of Suffolk, was as 16 to 11, it would be found that the quantity of land upon which Wheat and Barley were grown in the past year was nearly to a similar extent. But, with regard to other crops, there was a vast and serious discrepancy with which it would be well perhaps for this country to become fully acquainted. He found that in the past year in Norfolk there were grown 161,186 acres of Turnips; while in Suffolk, so far as it had been ascertained, the quantity grown was 62,664 acres. This was rather a remarkable difference, considering the great similarity of the soil of the two counties. Of Potatoes there were grown, in Norfolk, 1958 acres, while the number was only 808 for Suffolk. Of irrigated meadows in Norfolk the number of acres was 15,926, while in Suffolk the number was but 6390. And when the return of sheep and lambs was taken at nearly a similar period in Norfolk, it was found to amount to 841,601, while in Suffolk it was but 405,944. He would trouble them now with only one or two more figures. Of bare fallows, in the whole county of Norfolk, there were 10,202 acres; in Suffolk, the number amounted to 41,923. If, then, we took into consideration the difference of size of these counties, we should find the waste of land in bare fallow in Suffolk to be six times as great as in Norfolk. He was well aware there were many gentlemen present who had often considered in their own minds what course could best be adopted to cultivate a crop on land which was called long summerland fallows. It was a subject of much difficulty. A near relative of his own had, in 1853, taken possession of his property in East Sussex, where he might say, without exaggeration, the farming was by no means commensurate with what they saw in this district. Upon the farm he had drained two fields with tiles, on one of which he had grown a crop of Wheat which had yielded in 1854 10 coombs per acre, on land which had previously never grown more than six. On the other field he grew a crop of Swede Turnips, which produced above 17 tons per acre on land where a Turnip had never before been grown. This had been done at an expense of 5*l.* per acre; so they saw that, with the prices which he received last year, he paid himself in the first 12 months for this extra expenditure. He thought these results were encouraging, and that it would suggest whether something could not be done to improve the system of long fallows. The next point to which he would allude was as to the difference which appeared to exist on many of the large farms in Cambridgeshire, as compared with the farming in Suffolk. He found that in Cambridgeshire a new system had been

introduced. By many of the principal farmers there had been carried out a plan of steaming a large quantity of the food given to cattle and sheep during the winter months. He had taken some slight pains to ascertain the result, and he found all who had tried it spoke most highly in its praise in an economical point of view. He hoped, therefore, it was not too much to say that this system might be also carried out in Suffolk, because he believed it would be of much advantage, more particularly at a time when food is scarce and prices high. Yet when they talked of high prices, it was a relative subject. Though prices were high now to what they had been, he understood from a gentleman of good authority, who was at the present moment employing a vast number of people in making a trunk line of railway through Canada—he had no doubt they were aware to what gentleman he alluded—at this moment, the prices of flour and beef were higher in that colony considerably than in England.

Reviews.

An Essay on the best Mode of Cultivating Potatoes. By Mr. Bennett. Printed for the Wakefield Farmers' Club, by Charles Hicks, Market Place, Wakefield.

This is another of those essays which the Wakefield Farmers' Club receives from its members and afterwards publishes for general circulation. We extract the passage in which the details of Mr. Bennett's practice are given, though, beyond the room given to his plants, and the large quantity of a "nitro-phosphate" manure applied in addition to farm-yard dung, there is nothing very remarkable. As to the estimated cost of the crop, we can only say that the "seeding" for an acre of Potatoes has generally been this spring worth nearly three times as much as is here put down.

"After the Wheat has been harvested, I then plough or skim the land, not very deep, and clean off the weeds and Couch. I next proceed to plough it for the winter, as deep as possible—the deeper the better. At spring we plough it over again, and perhaps it might be necessary to plough it over again, and work it to a mould. I do not think that it requires to be too fine. After, we set out the ridges at about 30 inches apart, and manure the land with about 10 cart loads per acre of good manure, which has been laid out and hilled for a few weeks, previously using 4½ cwt. per acre of Mr. Simpson's nitro-phosphate, sown on the ridges. We then plant the seed at least 1 foot wide. I am of opinion that the seed should not be too small, and when large it should be only cut in two. When planted a yard apart, the seed should be the largest that can be procured, and the Potatoes should be set whole. The sort which I have principally grown is that which is called the Prince Regent's, and I should say that any time from the middle of March to the end of April is the best for planting. After the sets are put into the rows, I like them to be covered as quickly as possible, which we do with the plough. There is, however, one evil attending this mode of covering, for the horse, in walking, either treads upon or displaces many of the sets; but I do not well know how this difficulty is to be obviated. After 10 days or a fortnight we then plough and afterwards furrow on the top of the ridge, which is, after a short time, harrowed down. We then horse-hoe as deep as possible between the ridges, pulling whatever Couch or weeds there may be. When the plants are coming up, the horse-hoe is used to loosen the earth about them, and to kill the weeds. We then give them a slight earthing, and they are then left till they grow high enough for their final earthing, when the horse-hoe is again used, as deep as possible, the plough following the hoe immediately. The earth should be thrown as high as can be, so as not to leave any channel or gutter on the top of the ridges. By so working the land, we get it quite as clear, and in as good a state as any summer fallow can make it. I have mentioned particularly the different horse-hoeings and earthings, because I think that much of the success of the crop depends upon the deep and effectual working of the land. For my own part, I always use for this purpose a horse-hoe with drag teeth made to go in any depth. The extra expense between a bare fallow and crop of Potatoes will, I think, be about 4*l.* 13*s.* 6*d.* per acre, and I calculate as follows:—

Five-and-a-half Sacks of Seed	£2	4	0
Setting and Shaking Manure	0	3	0
Ridging and Covering	0	2	6
Horse and Hand-hoeing and Earthing ...	0	8	0
Four-and-a-half cwt. of Nitro-phosphate ...	1	16	0
	£4	13	6

"Of course the cost of putting on the fold manure would be the same as if it were a bare fallow. I alluded some time back to the way of planting at a yard apart. I think it a good plan, and I have this year planted a portion of mine in this manner. They have to be earthed up by hand across the ridges, the haulms being spread out, and the soil put on the top with the spade, till only a short portion of the ends are out. By this means the plant is kept dry at the top, the water running down the stems on the side of the hillock. The ground is also better worked with the spade than with the plough. The cost is about 1*l.* per acre extra. I tried the plan last year, and found a better yield, the tubers being larger, with but few small ones among them. When the tops are dead, and the tubers are fully ripe, which may be known by the skin being fast, they may be lifted either by the fork or with the plough. I prefer the latter mode, for I think the sorts are more liable to be injured by the fork stabbing them than by the plough, and it is also cheaper. We then put them into pits, and cover them over as soon as possible with straw and a thin coat of earth, in order to keep the sun, wind, and rain from them, for if they are left a short time uncovered, the wind and rain will soon spoil their colour. After a while they should be turned and picked over, and covered for the winter with a greater thickness of straw and earth. I would now ask, if by an additional outlay of, say 5*l.* per acre, a crop of this valuable root can be grown, is it not better than letting the land lie idle all the year! It may be said by many that a crop of Swede Turnips is quite as valuable. I grant that, only so far as to the quantity required for the use of the farm, but there is much in favour of the Potato as being less in bulk per acre than the Swede Turnip, where both are grown to be sold off the land. Besides, Potatoes being more directly food for the people, it is a question whether an acre of Swede Turnips, pulled and consumed on the farm, will bring as much into the farmer's pocket, in the shape of beef, as an acre of Potatoes sold off the farm would do."

We would suggest, as regards the publication of the discussion ensuing upon the reading of the paper, that an abridgment of some of the addresses might be made with advantage.

Calendar of Operations.

JULY.

CHESHIRE.—The last five or six weeks have been most propitious for the growing crops, and the whole country has now the appearance of great productiveness; perhaps there never was a more sudden change from comparative barrenness to luxuriance than has taken place during that time. The Wheat crops have improved astonishingly, and the Oat and Barley crops are remarkably fine; in fact, the latter are too luxuriant in many places, and the fears of their being laid are beginning to be realised by the heavy rain during the past night. Mangold Wurzel, with very few exceptions, is doing well; in some instances wire-worm and other insects have eaten off the roots, and in a great measure destroyed the crop; many of the early sown Swedes had to contend with severe attacks of fly, and in some cases resowing was resorted to; those which were fortunate enough to escape have done well, and the Turnip crop, upon the whole, is very satisfactory. Early Potatoes, most of which were severely injured by the frost, are later than usual, and the crops generally which are now being raised for the market are small, but as the second crop, which usually consists of transplanted Mangold Wurzel or Swedes, Green Melon, or other varieties of common Turnip, are of great importance, it is thought better to sacrifice a portion of the Potato crop than to run the risk of being too late with the second. The hay harvest is in full operation, excepting in some of the low cool meadows, and the crop is quite as good as could possibly be anticipated. Grass has increased upon the stocks of cattle, and the pastures have a fine rich appearance. Pleuro-pneumonia is still committing its ravages in some parts of the country. *W. P.*

WESTER ROSS, 16*th July*.—The weather that affords no room for the complaint of the farmer must, indeed, be good; and such was the month of June. So warm was it throughout, and so seasonable the showers, that the bad effects of a cold and protracted spring were well nigh done away with, and an abundant and not a late harvest was hopefully anticipated. But for the first 12 days of this month—a season when the most promising crop can be turned into a very dwarfish one—we had a very high temperature, without a drop of rain. Wheat, which promised formerly to be only an inferior crop, still further dwindled away, and now, in this whole neighbourhood, there are only a few fields bearing heavy crops, and these our heavy Carse lands. The likelihood, however, is that although our Wheat crop will be inferior in quantity, with the abundant sunshine we have had the quality will be fine. Barley and Oats, ere the drought set in, bespoke an abundant crop; but already in regard to many a field our hopes have been disappointed. For the higher and later districts, however, the abundant rain we have now had came in time, and more suitable weather than we at present enjoy could not be desired. A great deal will yet be done in the way of mending matters in the earlier districts; but the crops are so far advanced that straw cannot be ordinarily abundant. Swedes were very stiff in coming away, the ground being cold and damp, and in the process of singling many blanks were discovered, which in damp weather would have been easily remedied, but no sooner was a Turnip transplanted than it withered and died from lack of moisture. They are now, however, making rapid progress. Of all our other Turnips we have had an abundant braird, and they grow so quickly that the difficulty is in getting a sufficiency of hands for singling. A large breadth of Turnips has been sown, and a larger quantity perhaps than ordinary of guano, bones, and dissolved bones has been applied. Having suffered so much from the disease last year, a smaller breadth of Potatoes has this year been planted; but what we have present such a vigorous and luxuriant stem as if they had resolved on yielding to no disease, however formidable, at least for this season. We have been overtaken and arrested in the midst of hay-making by these anxiously longed for showers. A good part of it has been got into ricks in the best possible condition; the remainder remains exposed to the weather. This crop is generally light. Pastures are benefiting by the showers and the prospects of our stock are cheering.

Notices to Correspondents.

BEES: *W.* There is a tract published in Oxford, and which bears upon it that it is to be had at the Ashmolean museum on application to Mr. Duncan, which is as good a manual for cottagers as any.

ROOTS IN DRAINS: *A Reader.* We do not know what you refer to. If the risk is only incurred in part of the drain we would bed the tiles there in cement.

SUPERPHOSPHATE: *E. Durrant.* The sample is of a very poor superphosphate. It ought to contain from 10 to 12 of the soluble phosphate, and 10 to 15 of the neutral insoluble phosphate, besides 2 per cent. of nitrogen. 2 per cent. of the first, 15 of the second, and 1.15 of the third make a very poor manure, more especially from its deficiency in the first particular. If we value it on the principles indicated in page 226, vol. xii., "Eng. Agr. Soc. Jour.," we have

One-third of a ton of gypsum, at 20*s.*, say ...	£0	7	0
Insoluble phosphate, 335 lbs. at ¾*d.* per lb ...	1	0	0
Nitrogen = 33 lbs. of ammonia, at 6*d.* per lb. ...	0	16	6
making	£2	3	6

as the value of all the ingredients except the biphosphate, of which you have about 40 lbs. in the ton, and pay the difference = £3 6*s.* 6*d.* for it.

WATERPROOFING: *Theta* asks for a recipe for a composition which will render a rick cover waterproof, and at the same time not injure the cover, or cause it to rot or become mildewed.

WIREWORM: *Hepperstone.* They are said to be checked by pressure. Treading Wheat has saved it; we doubt if you will save Swedes in that way. Nothing that will not also kill the plants will poison them.

HAY-MAKING MACHINES.

THE ROYAL AGRICULTURAL SOCIETY'S PRIZE MACHINES are supplied by WM. DRAY & Co., Swan Lane, Upper Thames Street, London.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ „	long 3 „ 3 „		1	15	0
3 „	ditto 3 „ 6 „		2	12	0
3½ „	ditto 3 „ 6 „		2	18	0
4 „	ditto 3 „ 6 „		3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto	ditto ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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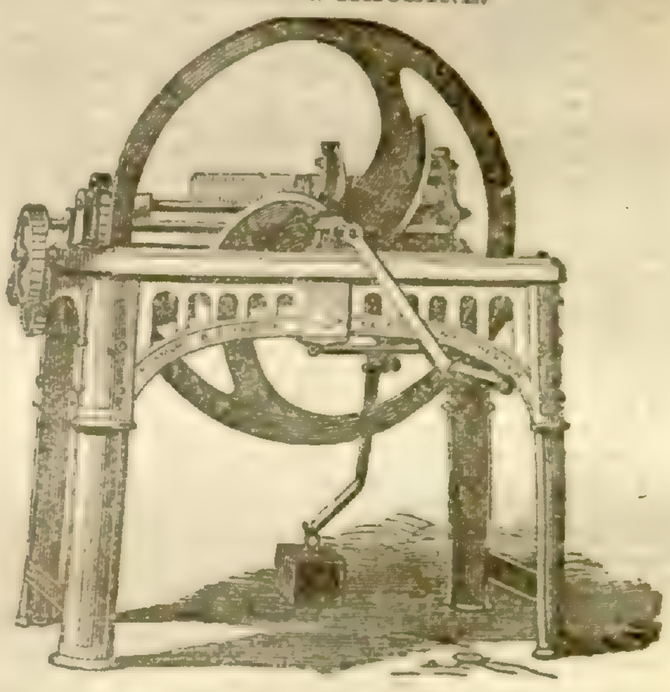

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JAMES PHILLIPS AND CO. beg to call attention to their present reduced prices of Glass Milk Pans, Propagating Glasses, &c.

GLASS MILK PANS, packed in cases containing 12.

12 inches diameter	12s. 0d.	22 inches diameter	42s. 0d.
14 " "	18 0	24 " "	48 0
16 " "	21 0	26 " "	60 0
18 " "	30 0	Cases 2s each extra, returnable at full price.	
20 " "	36 0		

PROPAGATING GLASSES.—Per dozen.

2 inches diameter	2s. 0d.	12 inches diameter	18s. 0d.
3 " "	2 6	13 " "	20 0
4 " "	3 0	14 " "	24 0
5 " "	4 0	15 " "	30 0
6 " "	5 0	16 " "	36 0
7 " "	6 0	17 " "	42 0
8 " "	7 0	18 " "	48 4
9 " "	8 0	19 " "	60 0
10 " "	10 0	20 " "	72 0
11 " "	12 0		

CUCUMBER GLASSES.—Each.

24 inches long	2s. 0d.	16 inches long	1s. 4d.
22 "	1 10	14 "	1 2
20 "	1 8	12 "	1 0
18 "	1 6	Made to any length.	

FERN SHADES.—Each.

6 in. diam., with stands	2s. 9d.	12 in. diam., with stands	8s. 1d.
7 " "	3 6	13 " "	9 6
8 " "	4 1	14 " "	12 6
9 " "	4 9	15 " "	16 9
10 " "	5 9	16 " "	21 10
11 " "	6 6		

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HARTLEY'S PATENT ROUGH PLATE GLASS, for Conservatories, Public Buildings, Manufactories, Skylights, &c.

JAMES PHILLIPS AND CO., Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

CHEAP STRONG GLASS FOR HORTICULTURAL PURPOSES, in boxes of 100 feet, at 1d. per foot, boxes included. Plate, Sheet, Crown, and every description of Glass for glazing purposes cheaper than any other house in London.—Apply to B. Moss & Co., Leman Street, Whitechapel.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by	4 in. and	6 in. by	4½ in.	...	...	12s.	0d.
6½ "	4½ "	7 "	5	...	...	12	6
7½ "	5½ "	8 "	6	...	...	13	0
8½ "	6½ "	9 "	7	...	...	13	6
9½ "	7½ "	10 "	8	...	...	13	6
10½ "	8½ "	11 "	9	...	...	14	0
12 "	9 "	13 "	9	...	...	14	0
10 "	10 "	10½ "	10½	...	...	14	0
11 "	10 "	11½ "	10½	...	...	14	0
11 "	11 "	11½ "	11½	...	...	14	0
12 "	11 "	12½ "	11½	...	...	14	0
13 "	11 "	13½ "	11½	...	...	14	0
13 "	12 "	13½ "	12½	...	...	16	0
13½ "	13½ "	14½ "	13½	...	...	16	0
15½ "	13½ "	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY AND WARING, Managers, 296, Oxford Street, London.

REDUCED TARIFF OF AGRICULTURAL AND HORTICULTURAL GLASS.

STRONG HORTICULTURAL SHEET, from 2d.; and HARTLEY'S PATENT ROUGH PLATE, from 4½d. per foot.

PERFORATED GLASS for Ventilating Dairies, Stables, &c., from 1s. 6d. per foot. German-shaped Milk-pans, 21s. per dozen; Hely's Test Churns, 5s. each; Waring's Butter Slabs, 10s.; Glass Fern Shades and Stands, from 3s.; Bee-glasses, from 6d.; Cucumber Tubes, from 1s.; Propagating Glasses, from 3½d. to 7s. each; Flower Labels, 7s. per 100; Aquariums, complete, 10s. each; and every other description of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass, British and Foreign.—Catalogues free.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work-boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed. Superior Hair and other Toilet Brushes.

FOR WATERING GARDENS.

HANCOCK'S IMPROVED VULCANISED INDIA-RUBBER HOSE AND TUBING is now manufactured especially for the above purpose; is of greater flexibility than any other description of Hose; is capable of resisting great pressure, and made suitable for attaching to the mains of water-works, or to tanks of high elevations.

WATERING HOSE fitted up with the necessary *brass joints, stop-cocks, branches,* and *spreaders complete.*

VULCANISED INDIA-RUBBER SUCTION PIPES, made any length or size for Pumps or Garden Engines.

VULCANISED RUBBER WASHERS, and also in Sheet, any thickness, for all kinds of steam and water joints, or made any size or figure to order.

All communications and orders punctually attended to, addressed to the Manufactory, JAS. LYNE HANCOCK, Goswell Road, London.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe.

Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

No. 1 QUALITY, INCHES IN DIAMETER AND PRICE PER YARD:—½, 9d.; ¾, 11d.; 1, 1s. 1d.; 1¼, 1s. 3d.; 1½, 1s. 5d.; 1¾, 1s. 7d.; 2, 1s. 9d.; 2¼, 2s.; 2½, 2s. 3d.; 2¾, 2s. 6d.; 3, 2s. 9d.

SUPER EXTRA STOUT QUALITY:—2, 2s.; 2¼, 2s. 3d.; 2½, 2s. 6d.; 2¾, 2s. 9d.; 3, 3s.

No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9d.; 1¼, 10d.; 1½, 11d.; 2, 1s.; 2¼, 1s. 3d.; 2½, 1s. 6d.

The Hose is Burnettised at an extra charge of 3d. per yard.

Union Joints, Branch Pipes, and Jets are also supplied.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.

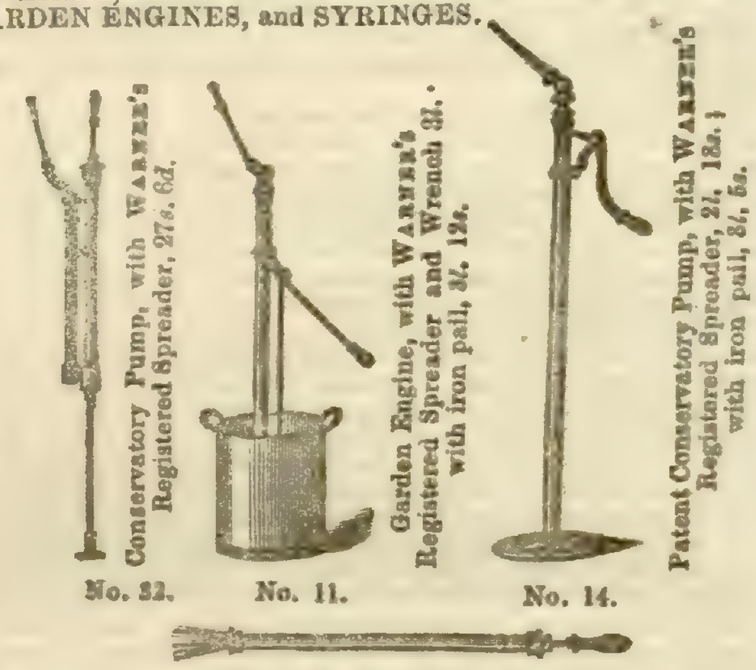
GALVANISED IRON TUB GARDEN ENGINE,

WITH WARNER'S REGISTERED SPREADER,

is strongly recommended, for durability and low price, viz., 2l. 19s., to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9s. upwards. Metallic String from 5d. to 1s. 3d. per lb.

JOHN WARNER AND SONS, 8, Jewin Crescent, London, Manufacturers of FIRE ENGINES, PUMPS, GARDEN ENGINES, and SYRINGES.



Brass Syringes, 9s. to 18s.

All articles of JOHN WARNER & SONS' manufacture may be obtained of any Ironmonger or Plumber in town or country, at the advertised prices.

JOHN WARNER & SONS having been practical Horticulturists for many years, know exactly the requirements of both Amateurs and Gardeners. A gardener with a properly constructed pump will get through as much work in five minutes as he could with any Syringe in a quarter of an hour, and with half the labour to himself. Syringes are economical for small houses.

No establishment offers such a variety of effective machines for hydraulic purposes, whether to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of liquids.

Fountains suitable for Conservatories, Lawns, &c.

Sheets of Engravings sent on application.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

THE BEST PROTECTOR FROM THE HEAT OF THE SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 6d. per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

LIST OF GARDEN ORNAMENTS MANUFACTURED BY

AUSTIN'S ARTIFICIAL STONE, at Nos. 1 to 4 Keppel Row, New Road, Regent's Park, London.

210 varieties of Vases and Tazzas, at prices varying from 15s. to 30l.
94 Statues and small Figures.
38 figures of Animals.
17 " of Birds.
16 Baskets of suitable Pedestals, prices from 12s to 36l. Some of these are beautiful ornaments for lawns.
12 different patterns of Flower Boxes for Windows, &c.
4 Garden Seats.
15 Sun-dial Pedestals.
16 Shells for either Water or Rock Plants; the largest size is 12 feet diameter.
Pedestals, square, circular, and octagonal, of almost every size. N.B. These are always perforated, to allow drainage from a vase.
43 Groups of Figures, single Figures, or Architectural Flowers, designed for centre ornaments of fountains.
Ornamental Copings to Ground Basins of Fountains, from 37 feet diameter to any smaller size.

FOUNTAINS.

AUSTIN & SEELEY having erected 218 of these works in various parts of the kingdom since the year 1836, may be presumed to have more experience than any other persons engaged in such work. Their collection now comprises about 200 designs, some of which are of the highest class; and they are now paying special attention to this department of the business, in the expectation that the local water works in course of erection will facilitate the supply of *jets d'eau.* The prices range from 10l. to 400l.

CHASE'S BEETLE POISON, entirely free from danger to Human Life, and perfectly harmless to Cats and Dogs. All persons who may be annoyed with Black Beetles or Cockroaches will find the above Preparation a most effectual, safe, and speedy remedy for their removal; one trial will prove its great efficacy: One Box will Destroy Thousands. The peculiar advantages in this preparation is that it does not leave their bodies to decay and corrupt the air, but completely dries up and destroys them, so that nothing is left to cause an unpleasant odour when dead.

Directions for use: Place four or five of the Balls each night where the Beetles mostly resort.

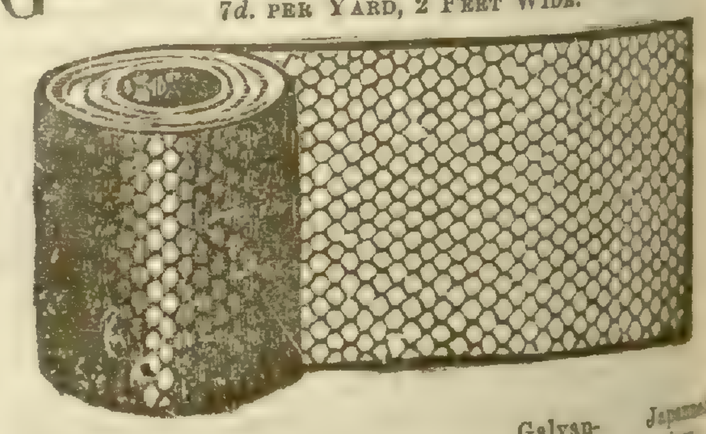
Sold in boxes at 1s. each, by THOMAS CHASE, Chemist, 14, Holborn (opposite Furnival's Inn), London. And may be obtained through all wholesale medicine vendors.

To the Editor of the "Cottage Gardener," July 3d, 1855.

"Some of your readers may be glad to hear of an effectual poison for these disagreeable pests. I have succeeded in completely clearing my house of them by the use of Chase's Beetle Preparation (14, Holborn). I recommend those who are troubled with these insects to place the pills in every place in the house haunted by them, and to repeat the application twice after intervals of 10 days; by this means the successional crops of young beetles are destroyed."—*C. W. J., Croydon.*

(ED.—This is not a mere puff, but sent to us by a gentleman who has been benefitted as he states.)

GALVANISED WIRE GAME NETTING.—7d. PER YARD, 2 FEET WIDE.



		Galvanised.	Japanned iron.
2-inch mesh, light, 24 inches wide	...	7d. per yd.	5d. per yd.
2-inch " strong "	...	9 "	6½ "
2-inch " extra strong "	...	12 "	9 "
1⅝-inch " light "	...	8 "	6 "
1⅝-inch " strong "	...	10 "	8 "
1⅝-inch " extra strong "	...	14 "	11 "

All the above can be made any width at proportionate prices. If the upper half is a coarse mesh, it will reduce the prices one fourth. Galvanised Sparrow-proof Netting for Pheasantries, 3d. per square foot. Patterns forwarded post free.

Manufactured by BARNARD & BISHOP, Market Place, Norwich, and delivered free of expense in London, Peterborough, Hull, or Newcastle.

EIGHT HOUSES ON WHEELS.—Twelve feet long, 8 feet high inside, 7 feet wide; well adapted for Gamekeepers, Watchers, Shepherds, or labourers, 15l., or 12l. without the Wheels, Springs, and Axles. They are fit to travel anywhere.—R. RICHARDSON, 21, Tonbridge Place, New Road, London; maker of portable houses, summer houses, poultry houses, &c.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES, consisting of MATTING, MATS, MATTRESSES, BRUSHES, NETTING, HORSE-HAIR, and BRISTLE SUBSTITUTE, are distinguished for superiority and excellency of workmanship, combined with moderate prices. Prize Medal awarded in England and America at the Exhibition of all Nations.

T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

THE COMFORT OF A FIXED WATER-CLOSET FOR £1.—Places in gardens converted into comfortable Water-closets by the PATENT HERMETICALLY SEALED PAN, with its self-acting valve, entirely preventing the return of cold air or effluvia. Any carpenter can fix it in two hours. Price 1l. Hermetically-sealed Inodorous Chamber Commodes, 1l. 2s., 2l. 4s., and 3l.; also Improved Portable Water-closets with pump, cistern, and self-acting valve. A Prospectus, with Engravings, forwarded by enclosing two postage stamps.

At FYFE & Co.'s Sanatorium, 46, Leicester Square, London.

PLATE GLASS AT GREATLY REDUCED PRICES.

THE UNION PLATE GLASS COMPANY,

Respectfully inform the Trade, that in order to meet the present depression, they have made a very considerable reduction in the prices of polished Plate Glass for glazing purposes.

LIST OF PRICES MAY BE OBTAINED FROM

THE WORKS, Pocket Nook, St. Helen's, Lancashire.
THE WAREHOUSE, 99, Hatton Garden, London.
Ditto 45, Piccadilly, Manchester.
Messrs. C. & J. MALLOCH, 30, Turner's Court, Glasgow.
Messrs. JOHN DIX & Co., Bath Street, Bristol.
Messrs. H. SIBTHORPE & SON, Cork Hill, Dublin.

POCKET NOOK, July 21, 1855.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

THE HARVEST.

DRUMMOND'S IMPROVED REAPING SCYTHES continue to give every satisfaction, and the demand is yearly on the increase. They are as usual got up with every possible care, and are fitted with the very best picked blades. Price for three Scythes complete, 30*s.*; do. for six, 56*s.* Carriage paid to the principal Railway Stations throughout the Kingdom. W. DRUMMOND & SONS, Seed and Implement Warehouse, Stirling, N.B.

*** To prevent disappointment early orders are respectfully requested.

N.B. Unknown correspondents will please accompany their orders with a remittance.

SAMUELSON'S PATENT GARDNER'S TURNIP CUTTER, which has been awarded NINE PRIZES by the Royal Agricultural Society.

Samuelson's Patent Forking or Digging Machine.
Samuelson's Registered Budding's Lawn Mower.
Patent American and other Churns.
Kase's Patent and other Liquid Manure Pumps.
McCormick's American Reaper with Burgess's Patent Self-clearing Platform.
Chaff Cutters.—Cake Breakers.—Corn Mills, &c., &c., &c.

Manufactured by B. SAMUELSON,
Successor to the late JAMES GARDNER, Britannia Works, Banbury.

Some of the above may be seen at Stand No. 64, Royal Agricultural Show at Carlisle, and in the Agricultural Department, Crystal Palace, Sydenham. And may be procured by orders direct as above, or of any respectable Implement Dealers or Ironmongers in the country.

Catalogues may be had post free on application.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Colebrook Dale Garden Seats and Chairs.

Averuncators	Gidney's Prussian Hoe	Pickaxes
Axes	Grape Gatherers and Scissors	Potato Forks
Bagging Hooks	Gravel Rakes and Sieves	Pruning Bills
Bills	Greenhouse Doors and Frames	" Knives, various
Borders, various patterns.	Hammers	" Saws
Botanical Boxes	Hand-glass Frames	" Scissors
Brown's Patent Fumigator	Hay Knives	" Shears
Cases of Pruning Instruments	Horticultural Hammers and Hatchets	Rakes in great variety
Daisy Rakes	Hoes of every pattern	Reaping Hooks
Dibbles	Hotbed Handles	Scythes
Dock Spuds	Ladies' Set of Tools	Scythe Stones
Draining Tools	Labels, various patterns, in Zinc, Porcelain, &c.	Shears, various
Edging Irons and Shears	Lines and Reels	Sickles
Flower Scissors	Marking Ink	Sickle Saws
" Stands in Wires and Iron	Mattocks	Spades and Shovels
Fumigators	Menographs	Spuds
Galvanic Porders and Plant Protectors	Metallic Wire	Switch Hooks
Garden Chairs and Seats	Milton Hatchets	Thistle Hooks
" Loops	Mole Traps	Transplanting Tools
" Rollers	Mowing Machines	Trowels
" Scrapers		Turfing Irons
		Wall Nails
		Watering pots
		Weed Hooks
		Wheelbarrows
		Youths' Set of Tools

DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.—DEANE, DRAY, & CO. (Opening to the Monument), London Bridge.

COWS.

HARVEY'S CELEBRATED COW DRINKS, 1*s.* each, have been used with great success. Plain directions are given with each Drink for the treatment of most diseases incidental to Cows, for which they will be found a safe and effectual remedy. One Drink given at the commencement of the Tick, or Feet and Mouth Distemper, will perfectly eradicate it in a few days.—Compounded by R. HARVEY, Veterinary Surgeon, Macclesfield Cheshire. Sold by all Medicine Vendors Wholesale Agents, BARCLAY & SONS, and MARSDEN & SONS, London.

THE BEST SHOW OF IRON BEDSTEADS in the Kingdom is WILLIAM S. BURTON'S.—He has two very Large Rooms, devoted to the exclusive show of Iron and Brass Bedsteads and Children's Cots, with appropriate Bedding and Mattresses. Common Iron Bedsteads, 16*s.*; Portable Folding Bedsteads from 12*s.* 6*d.*; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17*s.* 6*d.*; and Cots from 20*s.* each; handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2*l.* 13*s.* 6*d.* to 15*l.* 15*s.*

PAPIER MACHE AND IRON TEA-TRAYS.—An assortment of Tea Trays and Waiters wholly unprecedented, whether as to extent, variety, or novelty.

New oval Papier Maché Trays, per set of three	from 20*s.* to 10 guineas.
Ditto, Iron ditto	from 13*s.* to 4 guineas.
Convex shape, ditto.	from 7*s.* 6*d.*

Round and Gothic Waiters, Cake and Bread Baskets equally low.

BATHS AND TOILETTE WARE.—WILLIAM S. BURTON has ONE LARGE SHOW ROOM devoted exclusively to the DISPLAY of BATHS and TOILETTE WARE. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country. Portable Showers, 7*s.* 6*d.*; Pillar Showers, 3*l.* to 5*l.*; Nursery, 15*s.* to 32*s.*; Sponging, 15*s.* to 32*s.*; Hip, 14*s.* to 31*s.* 6*d.* A large assortment of Gas Furnace, Hot and Cold Plunge, Vapour, and Camp Shower Baths. Toilette Ware in great variety, from 15*s.* 6*d.* to 45*s.* the Set of Three.

TEA-URNS, OF LONDON MAKE ONLY.—The largest assortment of London-made TEA-URNS in the world (including all the recent novelties, many of which are registered), is on Sale at WILLIAM S. BURTON'S, from 30*s.* to 6*l.*

WILLIAM S. BURTON has SIXTEEN LARGE SHOW ROOMS, all communicating, exclusive of the Shop, devoted solely to the show of GENERAL FURNISHING IRONMONGERY (including Cutlery, Nickel Silver, Plated and Japanned Wares, Iron and Brass Bedsteads and Bedding), so arranged and classified that purchasers may easily and at once make their selections. Catalogues, with engravings, sent (per post) free. The money returned for every article not approved of.

No. 39, Oxford Street (corner of Newman Street); 1, 2, and 3, Newman Street; and 4 & 5, Perry's Place.

DEVONSHIRE CYDER.—A three dozen case (large bottles), of the very best DEVONSHIRE CHAMPAGNE CYDER, will be forwarded to any address on receipt of a Post-office order for 21*s.*, payable to JOHN E. RENDLE, Martin Street, Octagon, Plymouth. Case and bottles, value 9*s.*, included.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City. Circulars free by post.

METCALFE, BINGLEY, AND CO.'S OATMEAL and CAMPHOR SOAP, in tablets (registered Nov. 3, 1854). Price 6*d.* each. This soap will be found the purest and most perfect winter soap ever introduced to the public. It preserves the hands from chapping, and renders the skin soft and agreeable.—Sold wholesale and retail by the inventors and sole manufacturers, METCALFE, BINGLEY, & Co., Brushmakers and Perfumers to H.R.H. Prince Albert, 130B and 131, Oxford Street.

CAUTION.—To prevent fraud, each tablet bears the registered mark and the names and address of the inventors, as above.

METCALFE'S ALKALINE TOOTH POWDER, 2*s.* per box.—The above may be obtained of most respectable Chemists, Perfumers, &c.

ONE THOUSAND BEDSTEADS TO CHOOSE FROM.—HEAL AND SON have just erected extensive Premises, which enable them to keep upwards of 1000 Bedsteads in stock, 150 of which are fixed for inspection, comprising every variety of Brass, Wood, and Iron, with Chintz and Damask Furnitures complete. Their new Warerooms also contain an assortment of BED-ROOM FURNITURE, which comprises every requisite, from the plainest japanned deal for servants' rooms, to the newest and most tasteful designs in mahogany and other woods. The whole warranted of the soundest and best manufacture. HEAL AND SON'S ILLUSTRATED CATALOGUE OF BEDSTEADS AND PRICED LIST OF BEDDING sent free by post.—HEAL AND SON, 196, Tottenham Court Road.

NEW AND ECONOMICAL LUXURY FOR THE SEA-SIDE, &c.—The NÉGLIGÉ SUIT, 40*s.*, viz.—Coat, 20*s.*; Waistcoat, 7*s.*; Trousers, 13*s.*; at BERDOE'S, 96, New Bond Street, and 69, Cornhill (only). The Universal Cape, also Summer Coats, 21*s.* BERDOE'S well-known Ventilating Waterproof Garments for Ladies and Gentlemen resist any amount of rain, and are adapted for general use equally as for rainy weather.

S. W. SILVER & CO., CLOTHIERS, OUTFITTERS, and CONTRACTORS, beg respectfully to apprise their customers that the partnership lately subsisting between them has been dissolved by mutual consent, as announced in the *London Gazette* of 6th July, 1855. The business will be conducted as heretofore under the firm of S. W. SILVER & Co., and all accounts due by, or to the late Firm, will be paid and received by the present Firm. The resources and facilities possessed for manufacturing the articles they sell continue undiminished, and improvements that may be presented from time to time will be adopted, so as to produce every article at the minimum cost, and thus compete successfully with all legitimate traders.

S. W. SILVER & Co., in expressing their acknowledgments for the business hitherto placed in their hands, can with every confidence guarantee that not less attention will be given to all orders with which they may be entrusted.

The CABIN PASSENGERS' Outfitting Branch	at Nos. 66 & 67, Cornhill
The SECOND CLASS PASSENGERS' Outfitting Branch ...	" 3 & 4, Bishopsgate Street (opposite the London Tavern)
The HOME CLOTHING Branch (including Army and Naval Uniforms)	at Nos. 66 & 67, Cornhill
The HOME SHIRT Branch ...	" No. 10, Cornhill
The WHOLESALE CLOTHING Branch	" 3 and 4, Bishopsgate Street,

where the latest fashions are introduced into lower priced articles.

The WATERPROOF CLOTHING is sold at each of the foregoing branches, the FACTORY being at North Woolwich.

PRUDENCE.

HOW much pain, regret, and evil may be avoided by timely forethought! If it be desirable to economise money and time, is it not still more important to economise our health?

The prudent man pays attention to the slightest derangement in his physical organisation. When he finds himself "out of order," he should resort to the world-famed remedy, PARR'S LIFE PILLS, and thus the incipient malady will be checked.

In all quarters of the globe the reputation of PARR'S Life Pills is fully established; and it is a fact, that no "household words" are more familiar with the people than those of the invalid, who speaks of health restored as the consequence of using PARR'S Pills.

☞ Ask for PARR'S Life Pills.

Sold by E. Edwards, 67, St. Paul's Churchyard; Barclay & Sons, 95, Farringdon Street; Sutton & Co., 10, Bow Churchyard; Hannay & Co., 63, and Sangar, 150, Oxford Street, London; and by all respectable Chemists and Medicine Vendors in town and country. In boxes, price 1*s.* 1½*d.*, 2*s.* 9*d.*, and in family packets 11*s.* each. Directions with each box.

MEDICAMEN VIRTUTIBUS FLORENS.

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THE ANNUAL MEETING OF THE BRITISH POMOLOGICAL SOCIETY will be held on MONDAY, August 6, at the Rooms, 20, Bedford Street, Covent Garden, for the Election of OFFICE BEARERS for the ensuing year, and for General Business. ROBERT HOGG, Secretary.

SCOTTISH ARBORICULTURAL SOCIETY.—ESSAYS intended for competition for the Prizes offered by this Society must be sent to the Secretary, not later than 1st August, 1855. JAMES ALEXANDER, Secretary.
1, Waterloo Place, Edinburgh, July 28.

ROYAL PAVILION, BRIGHTON.

THE BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY will hold their Autumn Exhibition of PLANTS, FRUITS, CUT FLOWERS, &c, on WEDNESDAY and THURSDAY, 12th and 13th of September next, at the above splendid suite of Rooms and Grounds, on the same grand scale as former years. Prizes are offered with the same liberality as previously. Also the Railway Cup, value 10 guineas, for the best 24 Show Dahlias for Amateurs. By the liberality of the Railway company, all plants, &c., will be conveyed to Brighton and back, carriage-free, from all stations on the lines. Schedules can be had on application to E. SPARY, Superintendent of the Exhibition; or the Secretary, E. Carpenter, 45, Lavender Street, Brighton. By order of the Committee, E. CARPENTER, Secretary.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.
*** Plans and Estimates furnished.

JOHN HARRISON, NURSERYMAN, SEEDSMAN, FLORIST, LANDSCAPE GARDENER, &C.
Plans and Estimates furnished; Experienced Gardeners recommended; also several Young Men in the Nursery waiting for Under Gardeners' Situations.—Darlington, July 28.

NOW HARVESTING.
AND SUITED FOR PRESENT SOWING.
THE LINCOLNSHIRE RED GLOBE TURNIP.—A fine large and quick growing variety. Also the Orange Jelly and other kinds for late sowing.
BASS & BROWN, Sudbury, Suffolk.

NOW HARVESTING.
THE SWEDENBURGH CATTLE CABBAGE.—An improved variety of the Drumhead, heavier and more compact, and may be had for present and Autumn sowing, 4s. per lb. Price to the trade on application.
BASS & BROWN, Sudbury, Suffolk.

CABBAGE SEED.
CATTELL'S DWARF BARNES, and CATTELL'S DWARF RELIANCE may be had by post for 12 penny stamps per packet, the former containing one ounce and the latter half an ounce.—Nurseries, Westerham, Kent.

TRIPOLI ONION.—The trade can be supplied with SEED of the true flat Tripoli Onion, by NUTTING & SONS, Seedsmen, 46, Cheapside, London.

WHITE LISBON ONION SEED.—Large buyers can be supplied with White Lisbon Onion Seed in quantity.—Apply to Mr. HENRY CLARKE, Seed Merchant, 39, King Street, Covent Garden.

WANTED, from 20 to 30 CAYENNE PINES, to Fruit next summer—strong Plants.—Direct to J. T., Post Office, Aylesbury, Bucks.

TO BE SOLD CHEAP, 100 to 200 PINE APPLE PLANTS, finest kinds and clean.—Apply to RICHARD NEWMAN, Stedham Hall, near Midhurst, Sussex.

AZALEAS AND ERICAS.
W. J. EPPS has much pleasure in offering the following fine, bushy, well-grown plants, and of the choicest and best varieties, in large 48 and 32-size pots.
AZALEAS 18s. per dozen; 5l. per 100.
ERICAS 12s. and 18s. per dozen; 4l. and 5l. per 100.
These will make very pretty specimens for the ensuing season; orders to be accompanied with a remittance from unknown correspondents.—Maidstone, July 28.

AZALEAS.
H. LANE AND SON, the Nurseries, Great Berkhampstead, have a very fine large stock of Indian Azaleas, consisting of Optima, Exquisita Perryana, and other leading varieties, at from 12s., 15s., 18s., 24s., and upwards, per dozen. Also a fine stock of young specimens, Catalogues of which may be had on application.

MR. JARMAIN begs to announce that an excellent opportunity is afforded to a Connoisseur to purchase the Seedling of a choice collection of DOUBLE SWEET WILLIAMS, which can be seen in bloom on the premises by applying at Horse Hill Wood, near the White Lion, Norwood, Surrey.

HARDY AND SON, SEED GROWERS, &c., Maldon, Essex, are prepared to send to any address, free by post, their selected kinds of CABBAGE and LETTUCE SEEDS, for July and August sowings, in one or three varieties of their selected WHEATS, for autumn sowing, one or three varieties of their selected WHEATS, sufficient for 1 rod, with directions, &c., on receipt of twelve postage stamps for each variety, enclosed with an order properly addressed to its destination.

ROSES.
GEORGE CLARKE begs to announce that his fine collection is now in full bloom, and will continue so till autumn.—Streatham Place Nursery, Brixton Hill, near London.

ROSES.
JAMES MITCHELL begs to announce that his unrivalled collection of ROSES is now in fine bloom.
Piltdown Nurseries, Maresfield, Sussex, July 28.

ROSES.
H. LANE AND SON, The Nurseries, Great Berkhampstead, have the pleasure to inform their patrons that their extensive Collection is now in bloom, and will remain so for some time. Their Coniferæ, Rhododendrons, and a general collection of Trees and Shrubs, also Fruit Trees (especially in pots, which can now be seen in full bearing) are remarkably healthy and well worthy the attention of planters. The Nurseries are within a few minutes' walk of the Railway Station on the London and North Western Railway, and an Omnibus from the station passes the gates.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, which they will forward to any part.
A Bon Marché.

	s.	d.
12 Orchidea Plants, grand species, one of a sort	40	0
50 Choice Greenhouse Plants (hard-wooded) one of a sort...	45	0
Camellias and Rhododendrons, fine sorts ... per dozen	30	0
Azalea indica, fine new sorts ... per dozen 12s. and	18	0
12 Gloxinias and Achimenes, best varieties	10	0
25 Fuchsias (small plants), best proved varieties	10	6
25 Chrysanthemums, new large and small varieties ...	12	0

Albion Nursery, Stoke Newington, London, July 28.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the following Superb FLOWER SEEDS, saved from the best varieties, post free:—

	Per packet—s.	d.
Calceolaria, from the best spotted varieties	1	0
Cineraria, from the newest and best varieties	1	0
Primula sinensis, from choice fimbriated varieties ...	1	0
Double Daisy, from 60 of the newest varieties	0	6
Pansy, from 100 of the best show flowers	1	0
Antirrhinum, from 100 striped and spotted varieties ...	0	6

67, High Street, Battle, Sussex.

NEW FUCHSIAS WITH WHITE COROLLAS, ETC.
THOMAS DAVIES AND CO. are now supplying well established plants of the following new and beautiful FUCHSIAS at the prices annexed:—

Snowdrop ...	... 5s. 0d.	Empress Eugenie	... 2s. 6d.
Mrs. Story ...	... 3 6	Lady of the Lake	... 2 6
Queen Victoria	... 3 6	Raffaelle	... 2 6
Prince Albert ...	... 3 6	Water Nymph ...	... 2 6

The above set of eight, basket and package included, for 21s.
Wavertree Nursery, near Liverpool.

IMPROVED MUSHROOM SPAWN.—Patronised by many of the Nobility, the London Horticultural Society, &c. Sold in packages containing a sufficient quantity to plant 50 feet of bed for 5s., with printed description and cultural directions.

Large Flowering ANTIRRHINUMS	... 2s. 6d.	per 100.
" " HEARTSEASE ...	... 2 6	"
" " DIANTHUS'S ...	... 2 6	"

See former Advertisements.
Address W. PRESTOE, Florist, &c., Basingstoke, Hants.

HOW TO KILL RATS AND MICE BY HUNDREDS.—A Receipt may be had, honestly worth 20l., without trouble, by sending 30 postage stamps and a directed envelope to Mr. WILLIAM FRANKLIN, Post-office Street, Norwich, who will forward it with plain instructions, &c. This is a most extraordinary remedy, such as no Farmer, Merchant, or Miller ought to be without, as it will save them pounds yearly by killing every Rat or Mouse either in the field, stack, or house.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1d. per square yard; 200 yards, 14s.; 500 yards, 30s.; 1000 yards, 50s. Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s. Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

HOSE PIPING.
WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe.
Manufactured only by WAITHMAN & Co., Bentham, Lancaster.
No. 1 QUALITY, INCHES IN DIAMETER AND PRICE PER YARD:—½, 9d.; ¾, 11d.; 1, 1s. 1d.; 1¼, 1s. 3d.; 1½, 1s. 5d.; 1¾, 1s. 7d.; 2, 1s. 9d.; 2¼, 2s.; 2½, 2s. 3d.; 2¾, 2s. 6d.; 3, 2s. 9d.
SUPER EXTRA STOUT QUALITY:—2, 2s.; 2¼, 2s. 3d.; 2½, 2s. 6d.; 2¾, 2s. 9d.; 3, 3s.
No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9d.; 1¼, 10d.; 1½, 11d.; 2, 1s.; 2¼, 1s. 3d.; 2½, 1s. 6d.
The Hose is Burnettised at an extra charge of 3d. per yard.
Union Joints, Branch Pipes, and Jets are also supplied.

GARDEN NETS, FISHING NETS, AND SHEEP NETS, made by machinery, and sold at very low prices. Samples sent free. The old tanned nets repaired, 6s. 3d. per 100 yards.—R. RICHARDSON, 21, Tonbridge Place, New Road, London. N.B. Worsted Nets, to protect from Wasps, 7d. per square yard.

TENTS, MARQUEES, AND RICK CLOTHS.—Garden tents from 50s. each; large marquees on sale or hire, very cheap (100 feet by 30), 5l., small in proportion. Rick-cloths from 3l. each.—R. RICHARDSON, 21, Tonbridge Place, New Road, London. N.B. Patrol Tents, weight 12 lbs., price 25s. each.

EIGHT HOUSES ON WHEELS.—Twelve feet long, 8 feet high inside, 7 feet wide; well adapted for Gamekeepers, Watchers, Shepherds, or labourers, 15l., or 11l. without the Wheels, Springs, and Axles. They are fit to travel anywhere.—R. RICHARDSON, 21, Tonbridge Place, New Road, London: maker of portable houses, summer houses, poultry houses, &c.

TO NURSERYMEN AND GARDENERS.
REIGATE SILVER SAND, 12s. per ton, 1s. 6d. per bushel, or 16s. per ton, delivered to the London Wharfs or Railways, or within a circuit of five miles. Sacks 2s. each. Kentish and other Peats and Loam of excellent quality.
KENNARD BROTHERS, Swan Place, Old Kent Road.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
THE BEST PROTECTOR FROM THE HEAT OF THE SUN.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 6d. per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

BLACK JAPAN VARNISH.—This article will be found from its durability and cheapness of the greatest utility for Painting Hurdles, Wire-work, Palings, Gates, Fences, &c., and out-door work of every description, whether of Wood or Iron. Its value has been proved by the test of time. It should be well stirred up before using and applied cold. This Varnish will retain its quality for any length of time, provided the cask be kept closed.
May be obtained through any ironmonger; or of JOHN WARNER & SONS, 8, Jewin Crescent, London.
N.B. Sold in casks containing 14 or 7 gallons, at 2s. per gallon. Casks (which cannot be returned), 5s. and 3s. each.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the nobility, gentry, and clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything as the kind hitherto brought before the public notice.
Lists of colours, prices, together with a copy of the testimonials, will be sent on application to WALTER CARSON & SON, 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Colebrook Dale Garden Seats and Chairs.

Averuncators	Gidney's Prussian	Pickaxes
Axes	Hoe [Scissors	Potato Forks
Bagging Hooks	Grape Gatherers and	Pruning Bills
Bills [terns.	Gravel Rakes and	" Knives, various
Borders, various pat-	Sieves	" Saws
Botanical Boxes	Greenhouse Doors	" Scissors
Brown's Patent Fu-	and Frames	" Shears
migator [struments	Hammers	Rakes in great variety
Cases of Pruning In-	Hand-glass Frames	Reaping Hooks
Daisy Rakes	Hay Knives	Scythes
Dibbles	Horticultural Ham-	Scythe Stones
Dock Spuds	mers and Hatchets	Shears, various
Draining Tools	Hoes of every pattern	Sickles
Edging Irons and	Hotbed Handles	Sickle Saws
Shears	Ladies' Set of Tools	Spades and Shovels
Flower Scissors	Labels, various pat-	Spuds
" Stands in Wires	terns, in Zinc, Por-	Switch Hooks
and Iron	celain, &c.	Thistle Hooks
Fumigators	Lines and Reels	Transplanting Tools
Galvanic Borders and	Marking Ink	Trowels
Plant Protectors	Mattocks	Turfing Irons
Garden Chairs and	Menographs	Wall Nails
Seats	Metallic Wire	Watering pots
" Loops	Milton Hatchets	Weed Hooks
" Rollers	Mole Traps	Wheelbarrows
" Scrapers	Mowing Machines	Youths' Set of Tools

DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.
DEANE, DRAY, & CO. (Opening to the Monument), London Bridge.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
WARRANTED GOOD BY THE MAKERS.

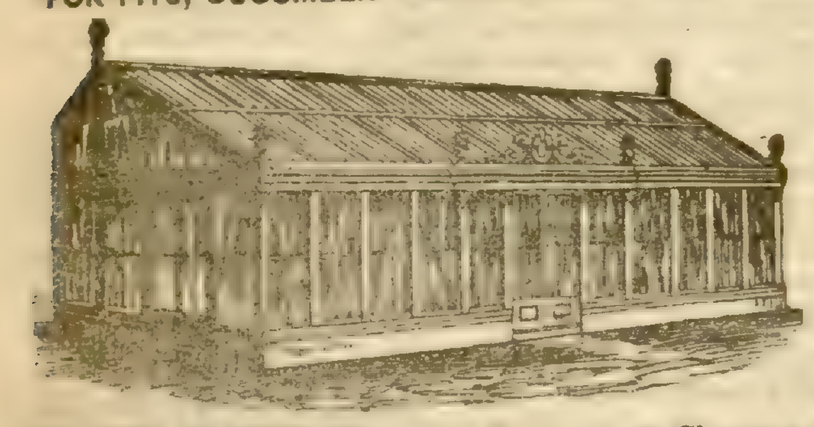
JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.
KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 3, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.

The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

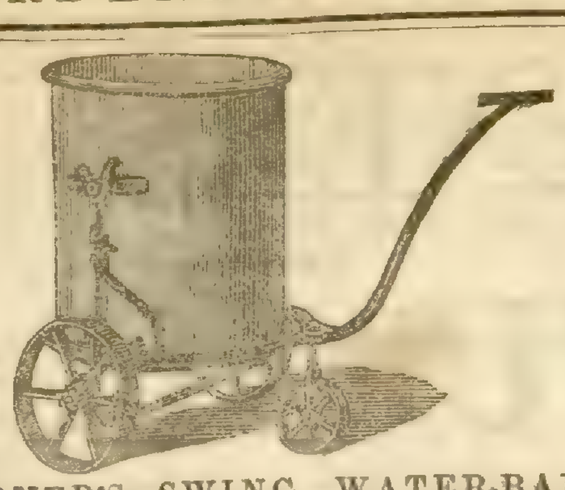
Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.

The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft., and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the late severe winter it only cost us 3*s.* per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *one of our Boilers*, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

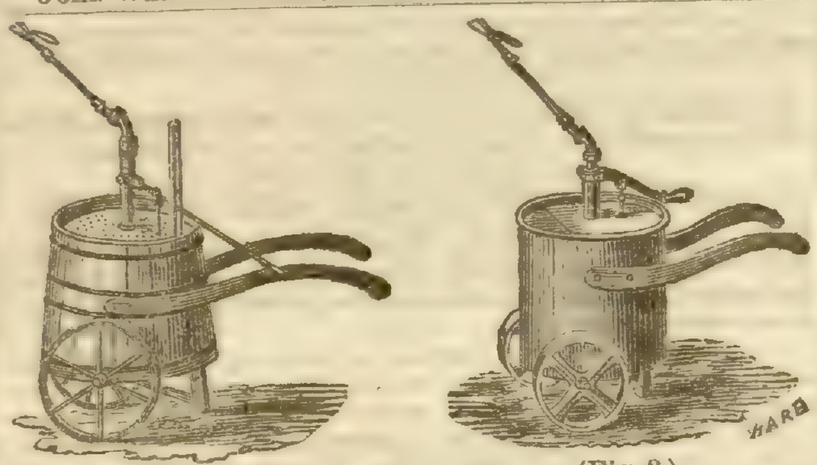
JOHN WEEKS & Co., King's Road, Chelsea, London.



WARNER'S SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)

Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l.* 3*s.*

Manufactured by
JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.



(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons, throws 30 feet high						...	£4 10
No. 2	„	15	„	„	45	„ ...	5 10
No. 3	„	28	„	„	45	„ ...	6 18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons, throws 25 feet high						...	£2 15
No. 13	„	12	„	„	30	„ ...	3 5
No. 11	„	16	„	„	40	„ ...	4 0
No. 12	„	24	„	„	45	„ ...	5 0
No. 14	„	30	„	„	45	„ ...	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, $1\frac{1}{2}$ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, $1\frac{3}{8}$ inch, 12*s.*; No. 3, do., diameter of barrel, $1\frac{3}{8}$ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
WITH WARNER'S REGISTERED SPREADER.

is strongly recommended for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

JOHN WARNER AND SONS, 8, Jewin Crescent, London, Manufacturers of FIRE ENGINES, PUMPS, GARDEN ENGINES, and SYRINGES.

All articles of JOHN WARNER & SONS' manufacture may be obtained of any Ironmonger or Plumber in town or country, at the advertised prices.

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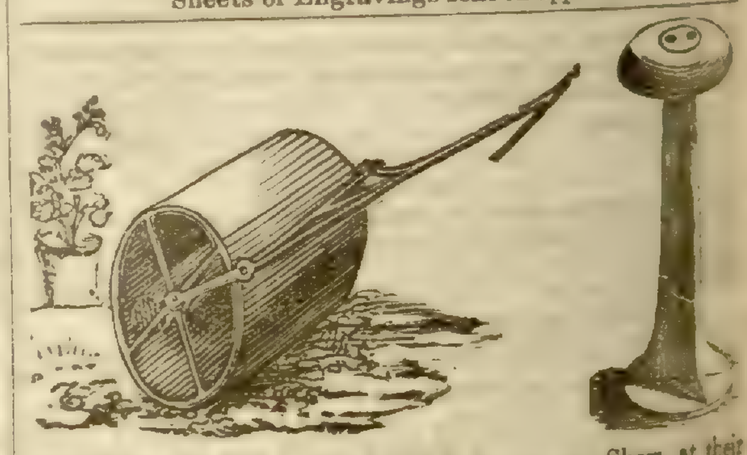


COTTAM AND HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.

Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

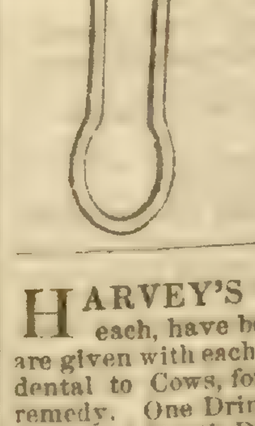
Hand Glass Frames, Cast and Wrought Iron Flower Stands, Garden Arches, &c.

Strong Iron Hurdles, and best Wire for Strained Wire Fencing.

Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom. Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

IMPORTANT TO GROWERS OF ROSES.

NEWLY-INVENTED APHIS BRUSH, or GREEN FLY DESTROYER.—The attention of Florists is particularly called to this Cheap and Ingenious Instrument, invented by the late E. S. BULL, of Colchester, which, in a very simple and easy manner, instantly cleanses the Rose from that destructive insect the Green-fly (or Aphis), without causing the slightest injury to the bud or foliage.



Price 2*s.* 6*d.* each, or free by post, 4*s.*

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Retailed by all the principal Ironmongers.

Wholesale Agents:
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COWS.

HARVEY'S CELEBRATED COW DRINKS, 1*s.* each, have been used with great success. Plain directions are given with each Drink for the treatment of most diseases incidental to Cows, for which they will be found a safe and effectual remedy. One Drink given at the commencement of the Typhoid Feet and Mouth Distemper, will perfectly eradicate it in a few days.—Compounded by R. HARVEY, Veterinary Surgeon, Macclesfield, Cheshire. Sold by all Medicine Vendors. Wholesale Agents, BARCLAY & SONS, and MARSDEN & SONS,

CALCEOLARIA SEED.

R. PARKER has now ready for sending out Seed which he can recommend with the greatest confidence, it having been saved from flowers of the finest form and most beautiful markings, in packets at 1*s.* 6*d.* and 2*s.* 6*d.* each. Also choice CINERARIA seed saved from the finest named varieties, at 1*s.* 6*d.* and 2*s.* 6*d.* per packet. A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, London.

MAJOR'S CALCEOLARIA SEED.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to inform his friends that his Calceolaria Seed for this season is now ripe, and may be had in packets at 2*s.* 6*d.* and 5*s.* each. The 5*s.* packets will be equal to three 2*s.* 6*d.* ones. The seed is produced from rich and beautiful varieties (for which his collection stands unrivalled), therefore large, well-formed flowers, and beautiful colours and markings may reasonably be expected. The present, up to the latter end of August, is a proper time to sow to insure an early spring bloom. Postage stamps are requested in return.

PRIZE CALCEOLARIAS.—A few packets of seed saved from the group of Seedling Calceolarias to which a Prize was awarded at the Great Exhibition at the Crystal Palace, are now ready at 10*s.* 6*d.* each. These seedlings are unrivalled for immense size of flower, richness of colour, and strong vigorous growth. Seed from other Choice Seedlings at 5*s.* per packet.

Address to WILLIAM SANFORD, Gardener to Mr. Henchman, Edmonton, near London. No letter will be attended to unless enclosing a Post Office Order or Postage Stamps.

CALCEOLARIA AND CINERARIA SEEDS.

GEORGE CLARKE has again the pleasure of offering seed of his unrivalled collection of CALCEOLARIAS. From their well known merit, and many testimonials received in their favour, little need be said in their praise. Many of them can still be seen in bloom at the Nursery. Great care has been bestowed in the saving, so that none but first-rate flowers can be expected. Packets, price 2*s.* 6*d.* and 5*s* each.

Also CINERARIA, saved from none but the finest flowers and, like the Calceolaria, is warranted to give satisfaction Packets, price 2*s.* 6*d.*, payable in postage stamps or otherwise.

Streatham Place Nursery, Brixton Hill, near London.

CALCEOLARIA AND CINERARIA.

MESSRS. E. G. HENDERSON AND SON beg to announce that the above FLOWER SEEDS, saved from the choicest varieties, may be had in packets at 2*s.* 6*d.* and 5*s.* each; the finest quality of CALCEOLARIA is only offered at 5*s.*; second quality, 2*s.* 6*d.*

This Season's CATALOGUE will be forwarded on application, and a Beautiful Coloured Plate of nine new Flowers will be sent on receipt of 12 postage stamps.

Wellington Nursery, St. John's Wood, July 28.

CUTHILL'S STRAWBERRY PLANTS.—The early and hardy BLACK PRINCE, and late PRINCE OF WALES, two celebrated sorts, will be sent out on and after August 15th. They are both enormous bearers, and either of them makes a most delicious and solid preserve, to which upwards of 300 ladies round here can testify. The Black Prince, 5*s.* per 100: the Prince of Wales, 7*s.* 6*d.* per 100.

J. C.'s Pamphlet on the Potato, Strawberry, Asparagus, Seakale, Rhubarb, Wine, do. Preserve, 2*s.*

J. C.'s Market Gardening round London, 1*s.* 6*d.* See the recommendation of it in the "Quarterly Review." Early orders requested. Post-office orders payable at Camberwell Green.

JAMES CUTHILL, Camberwell, London.

LISIANTHUS RUSSELLIANUS.

AN AMATEUR having raised from Seed a considerable number of the above beautiful plant over and above what he will require for his own flowering, begs to offer them on the following reasonable terms:—

For 12 Plants	12*s.*
„ 25 „	20*s.*
„ 100 „	50*s.*

The Plants are potted singly in small 60-sized pots, and for the convenience of Purchasers they are placed for distribution in the hands of Mr. J. VEITCH, Jun., Exotic Nursery, Chelsea, to whom all orders and payments for them are to be addressed.—July 28.

HIGHGATE NURSERIES, NEAR LONDON.

WILLIAM CUTBUSH AND SON beg to inform their numerous patrons and friends that their annual importation of HYACINTHS, &c., will arrive the first week in September. Catalogues will be ready about the 20th August, and will contain a selection of all that is really good.

Wm. C. & Son need not mention the quality of their bulbs, it being sufficient guarantee in the awards being made to them at the Horticultural Society's Rooms, Regent Street, last spring.

Catalogues postage free on application.

TO AMATEURS IN CONIFERÆ.

MR. BARRON, of Elvaston Castle, can supply a few strong PLANTS of PICEA NOBILIS, upwards of three years old, which have never been in pots, hence the roots are what they should be. The only Seedling Plants (of this the most beautiful of all Firs) that have ever been raised since its first introduction to Europe. They will be sent out in the middle of September, the best plants to the earliest applicants. The largest size 63*s.*, and the next 42*s.* Notice will be given before the Plants are sent out, when a remittance will be required from unknown correspondents.

NEW CABBAGE.—THE CHAMPION OF ENGLAND, which has surpassed everything of its kind during the past severe winter (when nearly every other has failed) and turned well into Cabbage this spring. This Cabbage is of a very dwarf and compact habit, and quite equal in flavour to any yet grown. It has been in the hands of a very excellent gardener for several years, and he has thoroughly proved its superior hardy and good qualities. The stock of seed purchased is very limited, therefore none can be sold by the pound or in large quantities to the Trade this year. E. T. feels confident, from what he has seen of the Cabbage, that it will give the greatest satisfaction to all purchasers. Sold in packets of 1 oz., 2*s.* 6*d.*; or of half an ounce, 1*s.* 6*d.*, postage free.

The TRUE OLD BATH COSS LETTUCE, which Lettuce has never been surpassed by any other yet grown. 1*s.* per packet.

This being the proper time for sowing the following varieties of Hardy Flowering Seeds for blooming next spring, the following undermentioned varieties will give the greatest satisfaction to all purchasers as they have hitherto done for many past seasons:—

SWEET WILLIAM SEED—Saved from 50 of the choicest and most superb varieties. 1*s.* per packet.

ANTIRRHINUM SEED—Saved from all the striped, spotted, and finest shaped varieties. 1*s.* per packet.

Superb HOLLYHOCK SEED—Saved from all the best named flowers our last year. 1*s.* per packet.

SCARLET GIANT BROMPTON STOCK, extra fine. 1*s.* per packet.

PANSY SEED—A few packets from selected varieties. 1*s.* per packet.

AQUILEGIA OR COLUMBINE SEED—Saved from 12 distinct varieties. 1*s.* per packet.

Either of the above packets of Flower Seeds three for 2*s.* 6*d.*

A remittance must accompany every order either in cash or penny postage stamps, when the whole, or any part of the above (as the case may be) will be forwarded.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somerset.

HOLLYHOCK SEED.

A. PAUL AND SON have ready for immediate sowing a fine lot of HOLLYHOCK SEED saved from their choicest varieties which have obtained many of the leading prizes during the last three years:—

	s.	d.
1st selection, saved from 25 varieties, per packet ...	5	0
2d do. „ 12 „ „ ...	2	6
Good Mixtures	1	0

Also, price 1*s.*, AN HOUR WITH THE HOLLYHOCK.

N.B. Free by post, and payment received in postage stamps.

Nurseries, Cheshunt, Herts.

TO LOVERS OF PLANTS WITH HANDSOME FOLIAGE.

MESSRS. STANDISH AND NOBLE are now sending out the fine new Greenhouse Evergreen, WEINMANNIA TRICOSPERMA, which for beauty of foliage cannot be surpassed. It was exhibited at the Royal Botanic Society's Meeting in June last, and also at the Crystal Palace. From the report of the latter exhibition, the following brief description is condensed:—"You might pass off the leaves of this beautiful plant for the fronds of a handsome Fern. They are compound and pinnate, just like Fern leaves. I do not recollect, even among Mimosas, a plant with more beautiful leaves than this." We may add that it is of good habit, and easily cultivated; and from being a native of Valdivia, it may possibly be hardy.

Strong plants, 21*s.* each.

The Advertisers have just published a new Catalogue, which will be forwarded free by post on receipt of a penny stamp.

The Nurseries, Bagshot.—July 28.

CHOICE NOVELTIES OF THE PRESENT SEASON.

HENRY WALTON, FLORIST, &c., Edge End, Marsden, near Burnley, Lancashire, is now sending out nice healthy established Plants of the following at the reduced prices annexed.

FUCHSIAS, with white corollas, at 3*s.* 6*d.* each:—Story's Mrs. Story, Queen Victoria, Water Nymph, Empress Eugenie, Lady of the Lake, and Snowdrop. Other varieties of this season:—Bank's Prince Albert, 3*s.* 6*d.*; Beauty of the Bower, 2*s.* 6*d.*; Maid of Kent, 3*s.* 6*d.*; Climax, 2*s.* 6*d.*; Grand Sultan, 2*s.* 6*d.*; Omer Pacha, 2*s.* 6*d.*; Smith's Omer Pacha, 2*s.* 6*d.*; Nimrod, 2*s.* 6*d.*; Coronet, 2*s.* 6*d.*; Orlando, 2*s.* 6*d.*; and Viola-flora pleno, 2*s.* 6*d.*, or 30*s.* per dozen; post free, where two or more are ordered. VERBENAS:—Wonderful, Blue Beard, Lady Lacon, Commander-in-Chief, Empress of France, Florence Nightingale, Rose of England, Tyrian Prince, Eva, Boule de Feu, Lord Raglan, Empress, Mrs. M'Neil, Violacea, Silistria, and Mrs. Woodroffe, at 1*s.* 6*d.* each or 18*s.* per dozen, post free.

A remittance respectfully requested to accompany all orders (unless reference is given), payable at Marsden, Lancashire.

For List of Choice new Achimenes, and other novelties of this season, see Advertisement in *Gardeners' Chronicle* of July 21 and previous Numbers.

NEW AND RARE PLANTS.

JOHN AND CHARLES LEE have a fine stock of the following to offer:—

THUJA GIGANTEA.—A noble hardy evergreen tree, from the hills of California. From seed, 31*s.* 6*d.*; grafted, 21*s.*

THUJOPSIS BOREALIS.—A beautiful hardy evergreen tree from Behring's Straits. Grafted, strong, 21*s.*

	s.	d.
Biota glauca	7	6
Thuja Doniana ... 5*s.* to	7	6
Wellingtonia gigantea, 5*s.* to	21	0
Podocarpus nubigena ...	21	0
„ chilina ...	21	0
Berberis Jamesoni ...	5	0
„ Neuberti, fine ...	7	6
Dammara obtusa	31	6
Begonia Thwaitesi ...	7	6
„ Lapeyrousi ...	5	0
Echites Pelleri	10	6
Aphelandra Leopoldi ...	5	0
„ Porteana ...	5	0
Ixora Lobbi	7	6
„ alba, true	5	0
Sciadocalyx Warscewiczi	5	0
Episcea mellitæflora ...	3	6
Araucaria excelsa, from seed ... ... 25*s.* to	42	0
Araucaria Bidwilli ...	31	6
„ Cunninghami...	31	6
„ Cooki	105	0
„ gracilis ...	42	0
Bejaria æstuans	10	6
Acrophyllum venosum ...	7	6
Boronia Drummondi ...	5	0
Glycine sinensis alba ...	5	0
Azalea amœna, hardy, fine	3	6
Oxylobium Osborni ...	5	0
Eugenia ugni	3	6
Scutellaria villosa ...	5	0
Fabiana violacea	3	6
Swainsonia Osborni ...	3	6

FILBERT MERVEILLE DE BOLWYLLER, large and very prolific, 7*s.* 6*d.*

The Trade supplied.—Nursery, Hammersmith.

NEW INDIAN AZALEA, "EULALIE VAN GEERT."—This fine and distinct variety may be recommended as one of the best of this fine tribe of floricultural plants, and which has been admired by all the amateurs who saw it in bloom. It is of free growing and robust habit. The flowers of the largest are of good form and substance; colour rose and white, spotted with bright rose. Plants will be sent out next spring at 7*s.* 6*d.* and 21*s.* each, one over for every three taken; the first subscriber will, of course, obtain the best plants. Orders will also be received at my Agent's, Mr. R. SILBERRAD, 5, Harp Lane, Tower Street, London, from whom my Catalogue of Plants may be obtained on application.—N.B. The plants will be delivered free to London: see opinion in *Gardeners' Chronicle* of May 26th and it will be figured in the works of Messrs. Van Houtte and A. Verschaffelt of next month.

A. V. G. also begs to offer the following new and recommendable plants at reduced prices.

	s.	d.
Aphelandra Leopoldi ...	3	6
Agnostus sinuatus ...	5	0
Asplenium bulbiferum (Fern) per dozen ...	6	0
Azalea beauté de l'Europe, per dozen	36	0
Æchmea fulgens	2	6
Ardisia crenulata fructu albo	2	6
Alsophila nova sp. (Tree Fern)	10	6
Amaryllis Josephinæ, strong bulbs	7	6
Achimenes, the four new varieties, each	2	6
Berberis Hookeri	2	6
„ Neuberti ...	5	0
Blechnum Corcovadense (Tree Fern), fine plants	2	6
Bilbergia thyrsoidea ...	2	6
„ Liboniana ...	3	6
Begonia biserrata ...	5	0
Clematis Helena	2	0
„ Sophie	2	0
„ monstrosa ...	2	0
Clianthus magnificus ...	2	0
Clivia nobilis, strong plants	5	0
Chamærops humilis, strong plants ... .. 21*s.* to	42	0
Citrus sinensis, per dozen	18	0
Cleyera japonica, hardy, per dozen	12	0
Camellia Archiduchesse Marie, one of the finest red	5	0
Camellia Duchesse de Berri, prime white	5	0
Daphne Aucklandi ...	1	6
„ oleoides variegata	1	6
Illicium religiosum, hardy, per dozen	18	0
Do. do. strong plants, each	3	6
Inga ferruginea	3	6
Kennedya eximia, per doz.	15	0
Isoloma trianea	2	6
Myrtus Ugni	2	6
Magnolia macrophylla ...	2	6
„ Lenne, splendid	15	0
Marica tricolor	2	6
Prunus sinensis, fl. albo pleno	3	6
Passiflora princeps, strong	1	6
Pourretia mexicana ...	5	0
Phrynium sanguineum ...	2	6
Pimelea Neippergiana, per dozen	18	0
Rhododendron Camille de Rohan	7	6
„ Duc de Brabant	7	6
„ Alstroemeriflora	7	6
Strelitzia reginæ	5	0
Thuja gigantea	7	6

Camellias, well set with bloom of the leading varieties, 6*l.* per 100.

Indian Azaleas, 5*l.* per 100.

Do. on stems, with fine heads, each ... 3*s.* 6*d.* to 5 0

N.B. The Ghent steamer Flèche, for London, sails now regularly *vice versâ*; by this way the expense of carriage is much reduced.

A. VAN GEERT, Nurseryman, Ghent, Belgium.

PRICED CATALOGUE OF PLANTS.

THOMAS JACKSON AND SON'S Priced Catalogue of Plants may be obtained on application. It contains Stove, Orchidaceous, Ferns and Mosses, Greenhouse, Ornamental Shrubs and Trees, Roses, and Herbaceous Plants.

T. J. & SON are offering at very low prices a large Stock of Azaleas, Camellias, Ericas, Epacrises, Helichrysums, Rhododendrons, &c., well deserving the attention of purchasers.

Nurseries, Kingston, Surrey.

The Gardeners' Chronicle.

SATURDAY, JULY 28, 1855.

The BEST SEASON for TRANSPLANTING EVERGREENS, although beginning to be more generally agreed upon than formerly, still remains a question on which opinions differ. Of late years the practice advocated by Mr. GLENDINNING, of selecting for this purpose the month of September, has been adopted in England with marked success. We need not here go into the reasons why this month should be selected; they are fully given in the "Theory and Practice of Horticulture," to which the reader desirous of understanding all the bearings of the question is referred. It is enough to say that the great fitness of the latter part of September, long since pointed out by HORACE WALPOLE, himself a planter of no small experience, is shown by repeated experiments by MARRIER DE BOIS-D'HIVER, at Fontainebleau, and others, instituted for the express purpose of settling a matter so long in dispute, to be on the whole the best.

Our present object is to show the opinion of French gardeners upon this subject; an opportunity for doing which is afforded by a little discussion that has taken place in the "Revue Horticole."

Last May, M. LABARRE, gardener to the BARON DE POILLY, at Folembray, a place, we believe, not far from the Belgian frontier, gave an account of the result of his practice in removing evergreens of considerable size. The substance of his report was as follows:—1. In the spring he removed a Yew 13 feet high, with a head in proportion. It took so well that even an experienced gardener could not have known, in the course of the same year, that it had been transplanted. 2. In the following autumn he had to move eight Spruces and two Scotch Firs; all failed. 3. The next year, again in the spring, another Yew was transplanted, as large as the first, and with the same success. At the same time he planted 170 other evergreens, of various kinds. On the 15th March he planted 20 Spruces and six Yews; the last were 15 feet high with heads in proportion, each required 10 people to move it, and all were expected to die. But all lived, although Mr. LABARRE adds, "the soil into which they were put made their loss probable enough; for it was full of stones, and consisted of white sand mixed with a little vegetable mould." (Why this should be unfavourable soil is not explained. Suppose it had been clay!) On the 7th April 34 Norway Spruces and 10 white Spruces (*Sapinettes*) were planted, from 6 to 10 feet high. They had been raised in the nursery in grey sand, and M. LABARRE was astonished at the beauty of their growth in such soil (why?). Only two of the Norway Spruces died. In conclusion he explains how he watered these trees. Each Yew planted in March received a potfull of water when first planted, then four times as much, and this was repeated several times during the first month. In the April planting, there being at that time a drying wind, the holes were only three-quarters filled, and each tree received two potsfull of water. Afterwards each hole was filled in so as to remain a basin, and watering was repeated during the continuance of the drought.

To this statement M. CARRIÈRE, whose work on Conifers was noticed the other day (p. 445), opposes some counter experience. 1. He says that he was obliged last year to take up, in the end of August, some Chinese Arbor-Vitæs more than 15 years old, and mostly above 6 feet high; they were removed carefully to a trench, the soil of which was well watered before it was filled in, and they suffered so little that no one could distinguish them from the others which had not been removed. 2. A similar operation was performed in the spring of 1854 with other Chinese Arbor-Vitæs of about the same size, and a great many died notwithstanding all the care that was taken of them. 3. Last September he potted 280 Yews without any other care than plunging the pots and covering them with leaves; not one missed. But upon performing exactly the same operation upon evergreen Cypresses, loss was experienced to the extent of about one-third—a circumstance which M. CARRIÈRE inclines to attribute to the well-known difficulty of transplanting that species when it is simply "drawn" (*arrachée à racines nues*) before transplanting.

Upon this result M. CARRIÈRE remarks that it is

sufficient to show what is the most economical and consequently the most advantageous when work has to be done on a large scale, from which point of view alone he thinks it necessary to look at the question. This is very different from the small operation of making an ornamental plantation. In the latter case expense is of little consequence; in the former it is of the first importance. This consideration touches the root of the inquiry. Can, he inquires, anybody afford in extensive works the care, the cost, and the frequent watering which M. Labarre gave his trees? Are we then, he adds, to jump to the conclusion that autumn planting is *always* better than that of spring, or that, as M. Labarre contends, it is *always* best to plant in spring. "Both conclusions would be equally erroneous; for unless we take into account all the different circumstances which attend such an operation, and which may lead to the adoption of one season rather than another, we do nothing worth doing. To think of submitting all trees, however much they may resemble each other, to the same kind of cultivation, would be like a doctor's giving the same dose and the same drug to all his patients, without paying attention to their different temperaments." He, however, insists upon the general fact that *autumn planting*, or *that which takes place at the end of summer is the most advisable.*

"In places near the sea, where the sky is often overcast and the air is almost always saturated with humidity, and the earth is consequently always damp, it is easy to understand that there may be some advantage in planting in March or April, or even in May, that is to say at a time when the air has warmed the soil. The same may be conceded of countries where the winters are long, or where heavy autumnal rains are constant, for in such places the roots may rot before getting hold of the ground, and trees may perish from want of power to vegetate before the arrival of bad weather."

Such are the opinions of M. Carrière, who is therefore, like us, a strenuous advocate of autumn planting in England, to which country none of the objections apply which are adverted to in the latter part of the foregoing extract. Of course it may for many reasons be *inconvenient* to plant in autumn; but that is a point not in discussion. It is often inconvenient to do what is right in other operations besides gardening; but principles must not give way to considerations of convenience.

The ravages committed by the Gooseberry Caterpillar this year in the neighbourhood of London have been most formidable. Whole acres of bushes in the market gardens are at the present time as bare of leaves as if it were the middle of winter, and so rapidly does wholesale destruction take place that a plantation healthy and promising to-day may be leafless a few days hence. Instances have even been noticed of bushes being divested of their foliage in a single night.

This scourge made its first appearance this year with the pushing of the leaf in spring; for some time it caused much damage, but then disappeared; about three weeks ago, however, it commenced a far more extensive and serious attack, and since then the losses have been enormous. In the Fulham fields the Messrs. Bagley, Matyear, Wilcox, and all the great market gardeners have suffered to a greater or less extent. Some have even commenced pruning and thinning their bushes, but this is done, we believe, more for the purpose of admitting light and air to the surrounding crops than with the view of arresting the progress of the caterpillar, which since the heavy rains we have lately experienced has of its own accord disappeared.

The destruction committed, however, bad as it is in the Fulham fields, is slight compared with that in the market grounds in the neighbourhood of Isleworth, Brentford, and Ealing. Mr. Manser, an extensive fruit grower close to Kew Bridge, has had 6 or 7 acres of bushes entirely stripped of their leaves, and in his case not only Gooseberries, but many of the red Currant bushes have also suffered; the latter, however, to a small extent compared with the former. So complete, indeed, has been the destruction here that Mr. Manser has had great quantities of his bushes grubbed up, leaving, however, in some places rows standing wide apart to see what they will produce next year. In examining the different plantations it was curious to observe how much fonder the caterpillar had evidently been of the foliage of young bushes than of old ones. Some of the latter, indeed, averaging from seven to nine years old, had quite escaped, while young trees close by had been completely divested of their more tender, large, and succulent leaves.

Few remedies have been tried; the caterpillar has gone away of its own accord, and a fourth outbreak (for the last is said to be the third) is not expected. Some have endeavoured to stop its ravages by handpicking; but that has been found to be ineffectual, as well as costly. Others have tried soot and lime mixed, and soot mixed with ashes; but soot alone has in most cases been found to be best, and if carefully and perseveringly applied it certainly appears to have the effect of keeping the caterpillar in check, and of preserving the leaves. This is well exemplified in the grounds of Mr. Dawes, a market gardener on the Brentford Road, about half-way between Turnham Green and Kew Bridge, who applied soot incessantly, and whose plantations are comparatively green and healthy, while Mr. Noy and his other neighbours have suffered severely. This remedy is easily procured and inexpensive. It is best applied early in the morning while the dew is on the trees, or perhaps after a shower. The only drawback it has is that it makes the fruit dirty and unsaleable; that difficulty can, however, be overcome by washing or employing other means for cleaning the fruit. But even if the crop of fruit is spoiled the remedy is valuable, because it will probably ensure the crop of next year by keeping the leaves on the bushes; without them, it need scarcely be stated, the young wood does not ripen, and not only is the crop of the present season lost, but there can be little, if any, next year. A knowledge of the latter fact, founded on experience, is what has induced Mr. Manser to grub up his trees at once, and throw them away. The dressing of soot is better.

But are dressings of any kind the true remedy? Would it not be better to attack this mischievous enemy in its hiding places before it has time to reach the Gooseberry bushes. The habits of the insect appear to suggest a ready means of destroying it. Our valued correspondent "Ruricola" thus spoke of it in 1841.

"The flies emerge unheeded from their tombs the beginning of April, and the female soon deposits her eggs close to the sides of the principal nervures on the under side of the leaves (fig. 2), which is very remarkable, for all the females of this extensive family are furnished with an instrument called the saw, for the purpose of cutting into the leaves and stalks, and introducing the eggs between the cuticles, or under the bark. In about a week the larvæ hatch, and commence feeding on the leaf on which they are stationed, and soon riddle them full of small holes; thus they go on feeding and changing their successive skins as they increase in size, until they are three-fourths of an inch long, when they are seen scattered round the edges of a partly-demolished leaf, holding by their fore legs, with their tails turned up, or lying on one side."

"There seems to be a succession of broods, from the early spring until October occasionally; but the

greatest numbers are congregated in May and the beginning of June, when, I understand, they have caused 20*l.* to 30*l.* damage in a market-garden near London, in one season; but in the neighbourhood of Blandford, last year, the second attack upon the Gooseberry-bushes in July and August was, if possible, more devastating than the first. Having defoliated a bush, leaving nothing of the foliage excepting the footstalk, and sometimes a portion of the main rib, and being arrived at maturity, they cast their skins again, and then lose all their black spots, becoming of a uniform pale green, with two little black dots on the head, the spaces behind it and towards the tail retaining the yellow tint. After resting awhile they descend into the earth and spin a yellow brown cocoon, formed of silk and gluten of so thick a texture, that it is impervious (fig. 4); from these the summer broods of flies come up in less than three weeks, but the autumnal ones remain in them, curled up in the larva state, until the following spring, when they change to pupæ in time to produce flies, as the Currant and Gooseberry trees are coming into leaf."

Hence it is evident that the pupæ into which the caterpillars change when they disappear are to be found in the earth at the foot of the bushes. "Ruricola," therefore, recommended that this earth, to the depth of a couple of inches, should be carefully removed after the caterpillars have gone down; to which we would add, that it should be mixed with the heaps of weeds and rubbish collected in all gardens, and burnt there. Mere removal, it is to be feared, would be ineffectual, because the flies, when they emerge from the ground in the spring, would soon discover the proper places in which to lay their eggs, even although they are born at a distance. The plan in question is mentioned by one of our correspondents as having been successful, as it necessarily must be, and it has the further merit of being unattended by any expense beyond a little labour. Another correspondent speaks of having caught the flies at their first appearance after being hatched, before they had time to lay their eggs, and this is no doubt a method much to be commended; the only objection to it, indeed, is that the flies are apt to be overlooked and troublesome to catch; whereas removing the earth where they lie perdue, and destroying them before they can hatch is attacking the evil at its source.

As the caterpillars have now gone down into the earth, there seems to be no reason why the work should not be performed at once, instead of being delayed till the spring. Immediate action has at least this merit, that it prevents the operation from being forgotten or deferred till it is too late.

VEGETABLE PATHOLOGY.—No. LXXXII.

This article is unavoidably omitted this week from want of room.

PARISIAN HORTICULTURAL EXHIBITION.

(From our own correspondent.)

The "Imperial and Central Horticultural Society of Paris," formed in December last by the union of two rival societies then existing in the town, determined on holding an "Universal Horticultural Exhibition" at the time of the General Industrial Exhibition of 1855, to be established as nearly as possible on a similar plan. Unlike our own exhibitions, where the plants, only remaining exposed a few hours and restored to their homes before night, need no protection beyond moveable tents, they were here to remain for several months, and required more permanent arrangements for their protection and exhibition. For this purpose the Society obtained a plot of ground amongst the trees of the Champs Elysées opposite the Palais d'Industrie, of the extent of about 2½ acres. It was fenced in and laid out on the designs of Mr. P. Loyre, landscape gardener, of Paris; a pair of handsome iron gates were erected at the entrance by Mr. Roy, of Paris; plant-houses and other structures were built for the reception of such objects exhibited as could not remain in open borders; awnings and tents of various designs were put up to shade such of the flower beds as required them; shrubberies were planted as a screen within the outer fence; creepers trained up the unsightly stems of the old trees; lawns laid down, a piece of water, fountains, ornamental vases and statues, &c., added, and the admirable taste displayed in the grouping of the several parts, with the fine background afforded by the gardens of the Elysée palace, give to the whole a most pleasing effect, particularly striking as you enter from the Champs Elysées.

This general effect, together with the tasteful arrangement of the minor details, are indeed the features which most immediately call forth our remarks and approbation; for, in the beauty of individual specimens, and the horticultural skill they evince, there are few that can enter into competition with what we see at our own shows. But this comparison is scarcely fair. It is an affair of considerable expense to exhibitors to keep up a succession of plants in flower during any lengthened period of time, and notwithstanding the care bestowed on them by the Society's gardeners, specimens of value may receive essential injury, when long absent from their accustomed homes. The doubt whether these losses may be adequately compensated by rewards or assistance received from the Society, or by the credit or custom which may accrue, must naturally deter exhibitors from sending such costly specimens as almost exclusively constitute the collections of stove and greenhouse plants at the Chiswick shows.

In order to convey a better idea of the details of the arrangement, I enclose a copy of the plan published by the Society in their weekly catalogue. The dots arranged in rows at regular intervals on this plan represent the trees of the Champs Elysées, and it is a small proof of the clearness of the atmosphere in this almost smokeless city, that vegetation prospers so well under their shade, and that the flowering of the herbaceous plants and annuals is so little affected by them.

The plant-houses, of iron and glass, are heated by calorifères. The principal hothouse, at the western extremity of the garden (No. 46 of the plan) is about 100 feet long by 25 in breadth, enlarged in the centre to about 50 feet by a kind of transept, and is the work of M. Izambart, of Paris. It is chiefly filled with Palms, Cycadeæ, Aroideæ, and other hothouse plants in pots, only useful for their foliage, but contains also some collections of flowering specimens, amongst which the most important are the Orchideæ sent up every week from M. Pescatore's rich stores at his Château de la Celle St. Cloud. He had a very fine tuft of Sobralia two or three weeks back, and a Saccolabium, several Stanhopeas, &c., are now in good flower, although not of the age and size, nor showing the number of spikes

of our prime exhibition specimens. The Gloxinias from Messrs. Gontier's, of Montrouge, and from M. de Talleyrand's garden at Verneuil, are also now making a good show, and M. Mathieu fils, of Paris, has a well flowered Bugainvillæa trained as a small standard.

A second stove (No. 26 of the plan), about 60 feet by 24, constructed by Madame Lefèvre, is occupied chiefly by an elegantly-shaped aquarium, formed of the *chaux hydraulique* of St. Quentin. It is filled almost exclusively by Van Houtte, of Ghent. The Victoria in the centre is young and has not yet flowered; the blue, red, and white Nymphæas are but just coming out, and we cannot yet judge fairly of their merits; but, generally speaking, their vegetation is not so vigorous as could be wished, owing possibly to the quality of the water. The commoner aquatics, such as Pontederia crassipes, and Pistia, are however very flourishing. Some good Sarracenias and a fine Dionæa, showing the remains of several flower-stalks, are now fading off. Outside the basin are Van Houtte's stove plants, amongst which the most conspicuous at present is the Aphelandra Leopoldi.

The two other plant-houses (No. 21, 75 feet by 24, constructed by M. Herbeaumont, of Charonne, near Paris, and No. 32, 50 feet by 30, built by M. Léauté, of Paris) are not heated, but serve to protect such greenhouse plants as would suffer even now from exposure under the tents. One wing was, ten days since, very brilliant with a collection of Cape Ixias and Gladioli in full flower and in considerable variety; they are now replaced by succulent plants, some of which are of a good size and well grown. The remainder of these greenhouse plants call for little remark, excepting the collection of above 30 pots of European Orchideæ exhibited by M. le Docteur Boisduval, who has met with great success in overcoming the difficulties usually experienced in preserving these interesting plants through a number of years in a state of cultivation. They comprise most of the common species of Orchis and Ophrys, two pots of Serapias, several Epipactis, and three pans filled, the one with above a dozen plants of Liparis Loeseli, in full flower a fortnight or three weeks since; the two others, respectively, with as many of Herminium monorchis and Goodyera repens, now in flower. All are in full vigour, after having been thus kept in pans for several years.

The show specimens of greenhouse and other flowering specimens in pots are chiefly collected in seven circular or oblong beds, of which three (Nos. 28, 29, and 48) are sheltered by elegant tents supported on high bamboo-pointed poles, and open at the sides, two (Nos. 50 and 51) by structures in imitation of bamboo, called Indian pavilions, and two smaller ones (Nos. 30 and 31) by mere awnings. In each of them a Palm, a Dracæna, or a tuft of greenhouse shrubs, forms a raised green centre, showing off to advantage the colours of the flowering specimens arranged round them. Of these seven beds the large oblong one (No. 48) was last month very brilliant. The greater part was occupied by a mass of rich coloured Azaleas, gradually passing off, as it were, into the Cape Heaths, which occupied the lower end. The whole had the appearance of a fiery bed, which attracted the eye from any point of the garden where it could be seen. As the Azaleas withered they were replaced by Pelargoniums, which have now again given way to incipient dwarf Dahlias, too young as yet to form any opinion as to their merits. The Heaths were none of them large plants, but looked exceedingly well when closely pressed by the Azaleas. They have now dwindled down to a few small specimens.

Under the other tents, Pelargoniums and Petunias occupy the chief space. Two uncovered beds (Nos. 27 and 39) are also devoted exclusively to Pelargoniums, and many of them good, especially the fancy sorts. The plants are not so large nor so regularly and formally trained as most of our show specimens, but with less of stiffness and a somewhat freer admission of green foliage, their best plants have a more pleasing effect than ours. The large bed (No. 27) is now exclusively occupied by a fancy kind exhibited by M. Alphonse Dufoy, of Paris, under the name of Irma, and No. 39 by M. Thenier's scarlet Triomphe de Paris.

The Petunias are amongst the best of the articles exhibited. Last month there were already several distinguished for the enormous size of the flowers, and at present there is a very great variety among the different collections: that of M. Picquenot of Levallois-Clichy, near Paris, under the tent No. 29, is perhaps the most remarkable for the elegance and number of varieties, amongst which we especially noticed a pink one with a green eye, called Marquise de la Ferté, and the Aurora and other mottled varieties. Some in this and other collections, with the corolla almost entirely of a leafy green, are more curious than handsome. There are also several with more or less double flowers.

Amongst the miscellaneous greenhouse plants in these covered beds we observed, a fortnight since, two Bignonia jasminoides, in specimens 1½ foot high, covered with their delicately tinted flowers. Lysimachia Leschenaulti is a rather pretty plant, looking at first something like a Lopezia, which I do not recollect in our gardens.

The remaining open round or kidney-shaped beds are occupied by low evergreen or flowering shrubs, herbaceous plants, or annuals; the green shrubs in most cases forming the centre, round which the flowering specimens are arranged in concentric rings or borders with a very pretty effect. Tall Delphiniums, with perhaps too great a preponderance of white, such as Chrysanthemum frutescens, Iberis of various sorts, were conspicuous last month; we now see abundance of Pelargoniums and Hydrangeas, and some very showy rings or borders of Campanula carpatica. Two beds (Nos. 24 and 36) are exclusively occupied by Hydrangeas (here called Hortensias), but all more or less pink; for I have not observed any of the bluish tint in or near Paris. One bed (No. 34) is devoted to the annuals supplied by Madame Havard-Beauvieux, of Paris; and another, a larger circular one (No. 35), to a large and varied collection of flowering annuals and perennials from Vilmorin-Andrieux, very prettily arranged—the larger ones in the centre, and the lower sorts in concentric circles round the borders. Viscarias, both pink and white Leptosiphons, in considerable variety with many others, have been very full of flower, and we particularly noticed as new to gardeners the Nycterinia selaginoides forming dwarf masses covered with the prettiest little starlike flowers, and a ring of a most elegant dwarf feathery Aira dividing the lower flowers round the border.

Although there are many Roses in the different beds and shrubberies, we observed none of the finer kinds, which are only exhibited as cut flowers in the Pavillon Chinois. Along the north-west screen (Nos. 43, 44, and 45 of the plan) a long row of small pink Roses (the name of which I omitted to notice) trained as half standards about 3 feet high, and covered with flowers, had a very pretty effect, which, however, is not so good now that they are replaced by a similar row of the white Aimée Vibert Rose.

There are several collections of Coniferæ, mostly young and vigorous plants in pots. A few larger specimens, as well as a few greenhouse trees or large plants, are scattered about in tubs or planted in the ground.—Palms, Phormium tenax, Abies Pinsapo, a tall Araucaria (or Eutassa) Cunninghami, from the Jardin des Plantes, Cunninghamia sinensis, etc.; and an Agave coming into flower has been sent from Algeria. Unfortunately the growth of the flowering stem having continued whilst confined in its package, it has acquired a twist which much spoils its appearance, but it will still form a great object of attraction to the Parisian public.

There are many Ferns, for the culture of that tribe of plants appears to be coming as much into fashion here as with us, and deservedly so, for nothing can be more elegant when any taste is shown in planting them, so as to display their graceful forms. Some of the specimens in the rockworks, or as single tufts, have here a very good effect. We also particularly noticed the hardy Ferns, exhibited chiefly by M. Pelé fils, the specimens neatly separated and imbedded, as it were, in Moss. Moss, indeed, in the out-door department, and Lycopodiums (Selaginellas) in the hothouses, take a very conspicuous and useful share in the tasteful arrangement of the different exhibitions, hiding whatever might be unsightly, and forming the best possible ground for showy flowers.

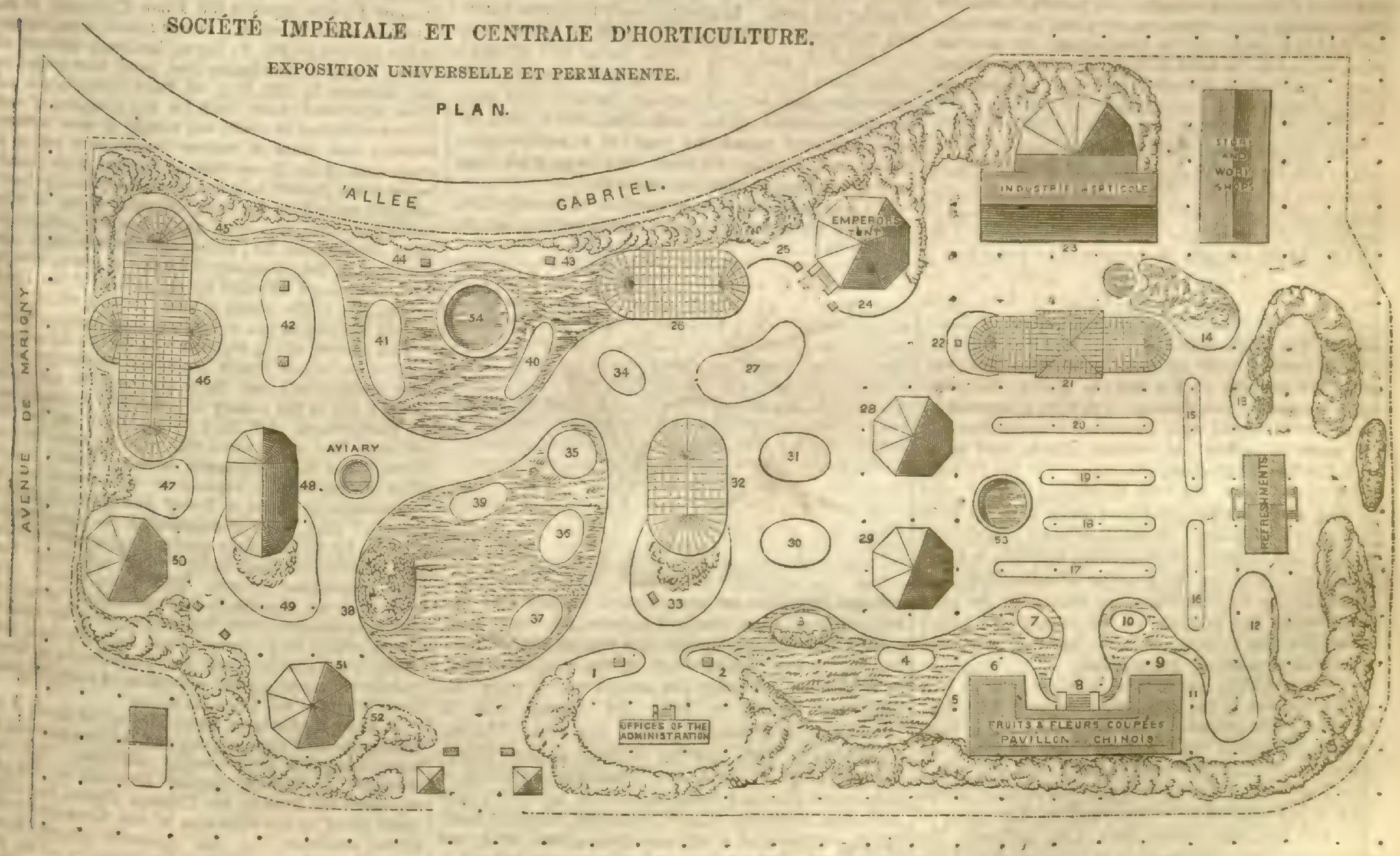
Six long parallel beds or borders (Nos. 15 to 20 of the plan) are planted with fruit trees as specimens of grafting, pruning, and training, for the estimation of the merits of which we must await the result of the scientific investigations of the jury. The vegetables, the fruits, and cut flowers in the Pavillon Chinois, and the contents of the Pavilion of Horticultural Industry will form the subject of a future communication. *Paris, July* 16.

The contents of the Pavillon Chinois, and Pavillon de l'Industrie Horticole, must still remain to be described.

SOCIÉTÉ IMPÉRIALE ET CENTRALE D'HORTICULTURE.

EXPOSITION UNIVERSELLE ET PERMANENTE.

PLAN.



REFERENCES TO THE PLAN.

1 and 2. Coniferæ Yuccas and Phormium.
3 to 7, and 9 to 14. Evergreens surrounded or edged by flowering plants.
8. Pavillon Chinois, containing fruit, cut flowers, and wax models.
15 to 20. Fruit trees and vegetables.
21. Greenhouse.
22. Fuchsias, &c.
23. Pavilion of Horticultural Industry.
24. Coniferæ and Hydrangeas.
25. Pelargoniums.
26. Hothouse with an aquarium.
27. Fancy Pelargoniums.
28 and 29. Beds for plants in pots under tents.
30 and 31. Do. do. under awnings.
32. Greenhouse.
33 to 42. Flowering plants and shrubs.
43, 44, 45. Roses, with some other plants.
46. Hothouse.
47. Coniferæ.
48. Plants in pots under a tent.
49. Fernery in front of the shrubs.
50 and 51. Plants in pots under Indian pavilions.
52. Coniferæ.
53 and 54. Ornamental Water

GRAFTED RHODODENDRONS.

The advocates of grafted Rhododendrons have laid great stress upon the profusion of flower afforded by their favourites in comparison with self-rooted plants. I was not prepared to contest this advantage; analogy warrants it, and my own experience was too limited to justify me in contesting the assertion. It is true that my limited experience was most unfavourable. Of all the plants of grafted Rhododendrons which I possess or ever did possess (for several have died), one and one only has flowered. It is a plant of R. arboreum, of which I possess the original, and it was grafted 18 or 20 years ago, in hopes that it would flower sooner and more freely than its parent stock. This expectation has been altogether disappointed. It has rarely produced a few flowers, whilst its parent in the same house with the same treatment flowers profusely. But the assertion of profuse flowering was more especially directed to hybrids of recent origin; and this year has afforded me an opportunity of testing its correctness; not in nursery gardens, where the treatment may be peculiar, but in private collections, where the plants have been subjected to the treatment they must ordinarily receive.

My own grafted plants are few, eight or ten at most; they are in full vigour, and have had the advantage of being transplanted annually in two successive years. The amount of flower produced by them was three heads, and three only; two on a plant of Victoria; one on a plant of atrosanguineum. The remaining six produced no flowers. The plants are about 3 feet in diameter, some larger. Self-rooted plants of the same dimensions, planted at the same time, and subjected to the same treatment, have all flowered except R. caucasicum; always, I believe, a shy flowerer.

Surprised at these facts, I visited a much larger collection of grafted plants in my own neighbourhood somewhat larger and older, and very favourably circumstanced for flower. They were planted in long narrow borders, and I examined the first 36 plants. Of these two, and two only, had flower-buds, and each of these but few. Self-rooted plants of commoner kinds in the adjacent borders were flowering freely.

It has been a remarkably favourable season for Rhododendrons, my own have never flowered so freely. I was surprised and disappointed at the failure of my grafted plants. At this present time, when all are growing luxuriantly, the grafted plants may be distinguished at once by the pale and sickly hue of their leaves; not deficient, it is true, in size, but utterly deficient in colour and appearance of vigour. Is it the want of chlorophyll which prevents their flowering? Dark green healthy foliage is generally the precursor of good flower, and pale and sickly foliage the result of excessive flowering, and the precursor of deficient bloom. My observations may be unpalateable, but I can only record facts as I find them, and I have no right to suppose that I have lighted upon exceptional cases. *J. R.*

Home Correspondence.

How to Cut Hedges.—Almost all the Thorn hedges one sees are clipped square, *i. e.*, the top is made flat and the sides perpendicular, the object apparently being to make them as like a wall as possible. An observation I heard made lately seems to have a great deal of truth in it, viz., that this system has a great tendency to make the hedge grow thin below, and that it is a much better way to keep it widest at the base and let it gradually taper to a point at the top. I have certainly seen hedges managed in this way present a beautifully close surface, which I attribute to the plan of allowing a much greater number of shoots to reach the outside. Hedges kept square are very apt, when old, to get "blanky," and grow bare near the ground, even though the top may be quite thick and flourishing. In this case there is no remedy but cutting down, always a disagreeable necessity, for then all shelter is gone at once, whereas this would very seldom be necessary if the hedge was kept in a pyramidal shape, for then there would always be plenty of shoots close to the ground equally young and growing as those at the top. *A Northern.* [This is excellent advice, but we are concerned to hear that our north-country friends stand in need of it.]

Protecting Fruit Trees from Frost in Spring is a thing to which I have paid considerable attention. My father, who for nearly 40 years had the care of an excellent Peach wall, never protected, and always had a good crop when the greatest sticklers for protecting had. I have tried both ways in different places, and I am yet at a loss to know which is best. In a situation in which I lived 10 years, I always protected with old tarred fishing nets, fastening them under the wall coping, and then to the bottom, as if to protect Cherries from birds, and forked sticks, about 8 inches in length, propped them out from the wall; but the best crop and finest was always from a part of the wall where the foundation had given way, causing it to lean south, with the coping projecting 4 inches, which cleared the trees of rain, and, consequently, kept them always dry or nearly so. I am, therefore, most in favour of coping-boards, about a foot in width, and projecting from the wall top so as to throw rain or strong dews off the blossom, and if matting or canvas is to be employed it can be readily done by fastening wire rods under the boards, and curtain rings fastened to the nets or canvas will allow the covering to be easily drawn aside during fine days, and the whole should be removed when the season is sufficiently advanced to render such coverings unnecessary. *W. H.*

Wasps.—I have often wished to ask your readers whether they have derived any benefit from having given a penny apiece for Queen wasps, and Dr. Lisle's remarks remind me of it. Many have I know followed this plan for years. If I remember rightly the number killed at Mr. Strutt's, at Belper, in Derbyshire, was enormous, as mentioned in your Paper some years since. It seems a paradox to say that killing thousands of Queen wasps does not at all diminish them, but I have no doubt it is true. I live close to some gardens where they have been killed for many years, and they are quite as plentiful as they ever were. Some years we have scarcely been able to see a wasp all summer through, and I have particularly remarked that the next has produced them in profusion. Any entomologist who knows his trade might make large wages by wasps in spring at 1*d.* each. I have tried it to see, and could easily make 5*s.* per fine day in almost any locality—often much more. Gentlemen's gardens particularly attract wasps in spring, from the abundance of Laurels, &c., and they come long distances to them. But I will not trouble you with more. I will only end as I began by expressing my doubts whether any one can say they have perceived any diminution in consequence of the wholesale destruction of Queen wasps at their gardens, and begging all who have tried it to say. *J.*

German Yeast.—I observe in the evidence of Dr. Normandy, before the Committee on the Adulteration of Food, that the use of German yeast is supposed to be the cause "of a peculiar disorder." Owing to the difficulty, in the country especially, of obtaining brewers' yeast, and the bitterness it often imparts to home-made bread, the use of German yeast has become general, notwithstanding its high price, which is 1*s.* 4*d.* per lb.; and as it does not keep above a few days, I have to send for it twice a week, so that it is a tax of some moment in one's housekeeping. Surely, the nature of the substance in question may be ascertained by analysis; how is it, then, that the profits on its sale are entirely in the hands of foreigners? for I am told that it is all manufactured on the continent. Perhaps some one of your readers will take in hand this important subject; and if he cannot altogether discover the exact composition of German yeast, he may ascertain what is the poisonous matter (if any) which it contains. I should be glad also to know how to remove the bitterness of brewers' yeast, which also (so my housekeepers have averred) is less favourable to the lightness of the bread than German, and how bakers, who use their own yeast, make it. As respects the adulteration of food in general, it is high time that Government inspectors should, as is done in weights and measures, visit periodically the shops of provision-dealers of every description, and in addition to a punishment by fine, &c., publish the name of every delinquent. No doubt the baneful influence of the tradesmen on borough members, and through them on Government, will be brought to bear against such a measure (and the licensed victuallers know well what can be done in that way); but let us hope for some check on such wholesale poisoning. *W. B.* [It appears from a letter in the *Times* that Dr. Normandy's evidence was misreported, and that he did not attribute to German yeast the production of a "peculiar disease," whatever that might mean. What he does appear to have said was, that he was uninformed on the subject. According to Pereira, this substance is merely ordinary yeast deprived of its water by filtration and subsidence. If so, there is no apparent reason why it should produce illness more than other yeast, unless it becomes putrid, in which state it would doubtless be unfit for use unless the high temperature to which bread is exposed in baking should destroy its noxious quality. The most ready means of removing the bitterness of brewers' yeast is by repeatedly washing it. As to adulteration of food, no doubt there is enough of that; but there is no lack of exaggeration also.]

Black Italian Poplars.—I had not failed to observe your notice of my query some months ago, but the surprise you expressed at learning that I considered these trees profitable induced an unwillingness to reply until I had well ascertained some facts. The only uses to which I believe the wood is applied in this neighbourhood are roofs and floors for cottages and outbuildings, and the repairs of bottoms of cart bodies and wheelbarrows, but for these purposes it meets a ready sale at 1*s.* per foot. Of two trees which were planted in 1821, and blown down in 1853 on a farm of mine in the south-west of Suffolk, one contained 128, the other 57 cubic feet, and in this immediate neighbourhood 336 trees planted at intervals in the years 1819 to 1822 were sold in the spring of 1854 by auction, and fetched 124*l.* 15*s.* The area of the ground in which they grew was $4\frac{1}{16}$ acres, and whilst the trees stood the pasturage of the land was let for about 5*s.* per acre. *Diss.*

Gardeners' Benevolent Institution.—I think your correspondents are labouring under a mistake in the observations they have made respecting this most excellent institution. In my opinion the election of pensioners must be left to the general body of its subscribers, irrespective of being bound or tied down to vote for this or that man. The privilege of voting should be freely exercised, the more free the better for the institution; if your correspondent's ideas were fully carried out, the institution in a very short period would become a mere benefit or annuity society—a state of things never contemplated by its founders. Are your correspondents aware that the time will soon arrive when many of the older subscribers will become entitled, according to rule 6, to be placed upon the funds, without any election taking place? and there is much reason to fear that upon every notice from the committee of an election of pensioners to fill up vacancies, a sufficient number of these old subscribers thus qualified will present themselves, and so prevent an election altogether. I hope that the committee have well considered the probable effect of this rule upon future prospects; in my opinion, if fully carried out, it will in a manner swamp the institution, by preventing the general body of subscribers from freely exercising their privilege of voting at all elections, which I again assert must be preserved to them inviolate. I do not intend to defend Blair's election; indeed I regret that a man who never subscribed a guinea to the institution should so easily have ridden rough-shod over so many deserving men; at the same time such a case as Blair's is exceptional, and may occasionally, but very rarely occur, for there were peculiar circumstances attending his election; for among gardeners, amateurs, and horticulturists, Blair's name is a "household word," the beautiful Rose raised by him "a gem among gems," having made many friends for him long before the Gardeners' Benevolent Institution was in existence, and I am informed that many such became subscribers to be enabled to vote for him. *One who has looked into Rule 6.*—I have witnessed with regret the results of the last election of pensioners to this institution, and like your correspondents who have written on the subject, I cannot help thinking that an undue amount of influence is exercised in the election of pensioners, which may, if not speedily corrected, lead to unpleasant consequences. It is distressing to think that "favouritism" should have penetrated so far as the Gardeners' Benevolent Institution. I should be glad if you could inform subscribers to the charity in whose hands this influence is vested, for unless elections be more fairly conducted, I have good reason to believe that they will give rise to strong and general dissatisfaction, and the benevolent intentions of the institution be marred and defeated by the exercise of a system as utterly opposed to the principles of such a charity as it is contrary to all fairness and common sense. *J. T. K., Croydon, July* 25.

Diseased Onions.—With respect to your suggestion of securing seed from some of the diseased Onions, a sample of which I sent you, and distributing it to such persons as might be willing to try whether the crop will fail equally in other districts, I beg to inform you that such is the destructive nature of the disease that not one Onion was left in less than a fortnight from the time I sent you the specimens. When they arrive at that stage of growth they fall to the ground like weeds cut with the hoe, and wither away. Next season I purpose to grow some in pots, using of course the soil in which they have hitherto failed, and place the pots in various positions and situations, and should the disease again make its appearance, I will not fail to send you a pot of them. *D. Sinclair, Campsall Hall, Doncaster.*

Foreign Correspondence.

Leaves from my Chinese Note-Book, No. X.—*Effects of Rebellion on China and its Productions.*—On returning to Shanghae a few days ago I found that the rebel band who had held the city so long had been destroyed or dispersed, and the Imperial flags were hoisted once more on the ramparts. But what a scene of desolation was now presented to my view! When the rebels evacuated the city, the *brave* Imperialists entered it and immediately set it on fire in various places. The evening on which this took place was perfectly calm, and the scene must have been one of the grandest and at the same time one of the most painful ever beheld. The fire was first seen running along the ramparts and destroying tent after tent—these having been occupied only a few hours before by the insurgents. Then the city was observed to have been set fire to in several places, and owing to the construction of the houses (they are built chiefly with Pine and bricks), the fire spread with fearful rapidity. The whole city, about three miles in circumference, appeared to be in flames—guilty and innocent were perishing together, thousands were rendered houseless and driven from their homes, and where to go they knew not. In the midst of all this terror and confusion the Imperial soldiers were plundering what had been left by the rebels, which I believe was not very much, and hunting down the unfortunate, in order to cut their heads off and claim the promised reward. Some of the latter, as a last resource, hid themselves in coffins, hoping thus to escape their ruthless pursuers. Many of them were discovered and slain, and then the soldiers used this as a pretence for breaking open the coffins of the dead in order to get the money or gold and silver ornaments which are often deposited with the bodies after death. Such are the fearful accompaniments of a rebellion in a half-civilised country. But these details are sickening, and I shall leave them and pass on to other matters. When I arrived here a few days since I found fully one-third of this ancient city in ruins. The poor inhabitants were wandering about looking out for the spots where their dwellings formerly stood, and in many instances marking their boundaries with a few stones or bricks. Most of them seemed completely heart-broken and paralysed, and were taking no steps to rebuild their former homes. With all the industry and perseverance for which the Chinese are remarkable it will be some years before the old city is rebuilt. The gardens and nurseries in the city and suburbs have necessarily suffered severely. It is quite melancholy to look into many of them. One

just outside the north gate, which furnished me with some of my finest plants when I was collecting for the Horticultural Society of London, is completely destroyed. A fine Glycine sinensis, which formerly covered a large trellis, is now half-buried in ruins, but is still putting forth its long racemes of blue flowers half-covered with the broken tiles and bricks, and tells in mournful accents its tale of peaceful times; a noble tree of the Carnation-flowered Peach which in former years used to be loaded with rose, white, and striped blossoms, and admired by all who saw it, has been cut down for firewood, and the stump alone remains to tell where it grew. Hundreds of pot plants are huddled together, broken, and destroyed. The little house where the gardeners used to live is levelled with the ground, and the old lady, the proprietor whom I have known for some years, and who managed the concern after her husband's death, is gone—no one knows where. In the city many places are in the same condition. A great portion of the celebrated tea gardens is destroyed. Here there was one little garden situated in front of a gentleman's house and surrounded with high walls. In addition to numerous plants in pots, it contained two pretty specimens of Sophora japonica pendula, grafted high, as we see the Weeping Ash in England, and presenting an appearance not unlike it in the distance. The house and high walls are in ruins, and the trees, which have somehow escaped, can now be seen a long way off, budding and becoming green amidst this scene of desolation. The face of the country for some miles from the city walls is also entirely changed. Formerly it had a rich appearance, and was studded all over with clumps of trees. All have been cut down for firewood for the Imperial army. Clumps of Cryptomeria japonica, Juniperus sphærica, and Bamboos have entirely disappeared. The celebrated Peach gardens near the south and west gates of the city, which at this time of year (April) used to be one sheet of bloom, have now nothing remaining except the stumps of the trees. What I regret as much as anything are some noble specimens of Salisburia adiantifolia—the "Ging-ko" of the Japanese. This is apparently indigenous to this part of China, and attains to a very large size; indeed, it is by far the largest tree in the district. Its fruit, which at first sight has somewhat the appearance of the Almond, is much esteemed by the Chinese, and consequently abundant in the markets. Such are some of the effects of rebellion in a half civilised country like China. The picture which I have endeavoured to paint applies, unfortunately, to many other parts of the country besides Shanghae. Hundreds of towns and villages are in the same state; their inhabitants are driven from their homes by fire and sword, the innocent in many instances perish with the guilty, and even women and children are not spared. One party is just as bad as the other, and the "tender mercies" of both "are cruel." Amongst foreigners residing in this country, enthusiasm has generally given way to common sense, and they have now no hopes of the Christian character of the Canton or Shanghae rebellion; indeed there has even been strong proof that thieves or pirates would be a much more appropriate name to apply to them than the sacred one of Christian. Let us hope for better things as regards the Nanking insurgents and their leader Tai-ping-wang, when we know them as intimately as we have known their countrymen at Shanghae and Canton. Although the picture which I have given of some parts of China is a melancholy one, it must not be supposed to represent the general condition of the empire. China is a large country, and those parts disturbed by rebellion bear but a small proportion to the remainder, which is perfectly undisturbed. Indeed, even a mile or two away from a place in the hands of the rebels we find the country quiet and the husbandman engaged in cultivating his land. Thus it is that notwithstanding all these disturbances we have no lack of tea, silk, and the other articles which form the bulk of our exports. *R. F.*

Societies.

CALEDONIAN HORTICULTURAL.—This was an extra Summer Competition, at which premiums were awarded as follows, viz.:—1st, to Mr. Stirling, for Alstrœmeria peregrina; 2d, to Mr. Blair, gr. to G. C. Arbuthnot, Esq., for Gloxinia albo-sanguinea. Cape Heaths: 1st, Mr. Themson, gr. to Mrs. D. C. Durham, for Erica cubica major, ventricosa hirsuta rosea, and densa carnea. Pelargoniums: 1st, Mr. Henderson, gr. to C. K. Sivewright, Esq., for Gulielme and a seedling named Stella; 2d, Mr. Forrest, gr. to W. Anderson, Esq., for Optimum and Forget-me-Not; and 3d, Mr. Cameron, gr. to S. Hay, Esq., for Magnet and Forget-me-Not. Pelargoniums in 6-inch pots: 1st, Mr. Henderson, Cargilfield, for Pretty Polly, Conspicuum, Little Nell, and Stella; 2d, Mr. Forrest, for Conspicuum, Magnificent, Machanna, and Rowena. Fancy Pelargoniums: 1st, Mr. Forrest, for Queen of Fancies and Princess Marie; 2d, Mr. Stewart, gr. to the Marquess of Dalhousie for Queen Victoria and Decora; and 3d, Mr. Cameron, for Fairy Queen and Lady Downes. Fancy Pelargoniums in 6-inch pots: 1st, Mr. Henderson, for Erubescens, Midia, Lady Alice Peel, and Celestial; 2d, Mr. Cameron, for Princess Marie, Perfection, Decora, and Queen of Fairies; and 3d, Mr. Forrest, for Celestial, Carlotta Grisi, Ocean Queen, and Othello. Fuchsias: 1st, Mr. Walker, gr. to J. Mood, Esq., for Banks's Glory and Queen of Hanover; 2d, Mr. Henderson, for Omega and Queen of Hanover; and 3d, Mr. Crombie, gr. to C. H. C. Inglis, Esq. Roses: 1st, Mr. Wemyss, for Madame Zoutman, Sydonie, William Griffiths, Aspasia, Géant des Batailles, Adam, Cloth of Gold, Kléber, Napoleon, Elize Sauvage, Juno, and Madame Audot; 2d, Mr. Reid, for Géant des Batailles, Baronne Prevost, Morice, Duchess of Sutherland, Charles Duval, Devoniensis, Blairi, Lanei, Madame Zoutman, Mogador, Souvenir de Malmaison, and Princess de Lamballe. Phloxes: 1st, Mr. Smith, gr. to Mrs. Dodd, for Antagonist, Brown's No. 2, and Chamouni; 2d, Mr. Kerr, gr. to R. Brown, Esq., for Brown's No. 2, Chamouni, and a seedling named Alma. The Silver Medal was awarded to Mr. Pender, of Moredun, for the best collection of fruit. The prize of one guinea, offered by G. Patton, Esq., to cottagers, for the best three Roses, was gained by Mr. Forgie, Newbattle, with Géant des Batailles, Baronne Prevost, and Purple Boursault. From Messrs. Dicksons & Co., came Clerodendron Kæmpferi, Gesnera discolor, Amaryllis marginata, Pelargoniums, Balsams, Irises, and a box of Seedling Pansies; from Messrs. P. Lawson & Son, Oxylobium arborescens, Pimelea Hendersoni, Roses, and Fuchsias; from Messrs. J. Dickson & Sons, Pentstemon Jeffreyi, Cissus discolor, Gesneras, Gloxinias, and Roses; from Messrs. E. Sang & Son, Lysimachia Leschenaulti, Cypripedium spectabile, and Iris susiana; from Messrs. Ballantyne & Sons, Roses and the newer French sorts of Fancy Pelargoniums; from Messrs. Downie & Laird, Stage and Fancy Pelargoniums, Verbenas and Antirrhinums; from Mr. Handasyde, Roses; from Mr. Stark, Irises, Pansies, and a Bouquet of Roses; from Messrs. Young & Mackay, Ranunculuses; from Messrs. Cunningham & Co., Roses; from Mr. Douglas, Fuchsia Mrs. Story (with white corolla), a semi-double Petunia and Verbena blooms; and from Mr. Stirling Linum narbonense, Lychnis quadridentata, Houstonia cærulea, &c. From the garden of S. Hay, Esq., were stage and fancy Pelargoniums; from W. Hunt, Esq., a hybrid between Sinningia and Gloxinia, partaking of the characters of both genera; from Mrs. Fraser, Androsace lanuginosa, Luzula nivea, Betonica grandiflora, and other interesting plants; from J. Mood, Esq., a fine specimen of Sempervivum villosum, and three Fuchsias; from Mr. Halliday, Scone Palace, two Queen Pines; from Mr. Laing, Dysart House, bloom of Rhododendron Maddeni; from Mr. W. Melville, Dalmeney Park, blooms of Tropæolum Scheuermanianum, and a hybrid variety raised from it; from Mr. Pender, Pentstemon Jeffreyi, and a white-fleshed Melon raised from Crimean seeds, which, though not highly flavoured, was stated to be very early; from Mr. D. Nicol, Roses; from Mr. W. Thomson, Dracophyllum gracile and Pimelea decussata; from Mr. Young, Stocks and Antirrhinums; from Mr. Macfarlane, Ranunculuses; and from Mr. Forgie, Ranunculuses. Among plants from the Society's garden were Cherry trees in pots, well furnished with ripe fruit, and a few other fruit trees from the orchard-house, erected in the garden by Lord Murray.

Notices of Books.

A Practical Treatise on Warming Buildings by Hot Water; on Ventilation, &c. &c. By Charles Hood, F.R.S. 8vo.; Whitaker, pp. 386. The third edition, greatly enlarged.

THE great value of this book is universally acknowledged; nor does the author at all overstate its importance when he says that it still "continues to be the only work which treats at large upon the principles of heating buildings by hot water; and the general application of this invention to the numerous and varied purposes to which it is applicable." Mr. Hood announces that—

"The present edition will be found to contain some considerable and useful additions. They are almost entirely of a practical character, being principally additional remarks on such parts of the subject as have either occurred to the author, or have been pointed out as requiring further explanation. The object which has been aimed at has been to render the work as clear as possible to practical men, while, at the same time, it should not be below the notice of those who might desire either to acquaint themselves with the scientific principles of the invention, or with the general bearing of the subject, on the health, the comfort, the physical development, and even the duration of life of a large portion of the human race. The effects of unwholesome air on the animal economy from imperfect ventilation, and deleterious methods of producing artificial warmth, is a subject which has excited hitherto far too little attention."

This statement we willingly endorse, but we could have wished to see the ventilation of plant houses in a prominent position. No one is more likely than the learned author of the treatise before us to work out the greatest problem now remaining to be solved in gardening; namely, *how to maintain the atmosphere inside a plant house in the same condition in all respects as that on the outside of it, temperature excepted.* But this has not engaged his attention. The ventilation of inhabited places is that to which Mr. Hood's practical conclusions mainly apply; and admirably are they stated. But glass houses, with their open laps, their innumerable chinks and cracks, their complete exposure to the weather, and the peculiar demands which the gardener should make upon the engineer, although they cannot affect the great principles of ventilation, nevertheless do render their application extremely difficult. A gardener, for example, not only requires to have vitiated (or we should rather say exhausted) air removed, but also to have such an abundance of fresh air introduced as will, without lowering temperature materially, also keep the atmosphere in a state of rapid motion. We trust to hear that Mr. Hood has applied his extensive experience to this all important subject. In the meanwhile we extract some remarks which have a direct bearing upon it, printing in italics what gardeners should most especially bear in mind:—

"Precisely the same effects as here described take place in the ventilating of rooms by openings at any height above the level of the floor. *The highest opening alone will act as the abduction tube*, and all openings below this will act as induction tubes, reducing the discharge by lowering the temperature of the air in the upper part of the room, and also by causing in it counter currents. Some modifications of this result will, however, occasionally occur, as, for instance, when the abduction tube is too small; in which case the next lowest opening will also act in carrying off the heated air. On the other hand, when the openings for the admission of cold air are too small in proportion to those for the egress of the hot air, then the current of cold air will descend through part of the hot-air tube, and the hot air will ascend through the other part of the same tube.

"These effects are frequently very sensibly felt in churches and other buildings, *where part of the ventilation is effected by means of the windows.* The cold air entering at these windows generally descends upon the heads of those who are placed near them. The effect of this entering current is to lower the temperature of the vitiated air, which parts with a portion of its heat to the fresh air entering the building, and the vitiated air being heavier than fresh air of the same temperature, it falls by its greater specific gravity, and is again breathed by the persons assembled, instead of the pure air which they would have received had the openings for the admission of the fresh air been at or near the floor of the building.

"*No plan of ventilation can be worse than that just described*, which, however is the method adopted in a very great majority of churches and other large buildings. Notwithstanding this plan has obtained such extensive adoption, it is certain that *it is opposed to every sound principle of science, and has had its rise in the most perfect ignorance of the physical laws;* and no better proof than this needs be adduced to show how very little the true principles of ventilation have been studied, and how erroneous any conclusions on this subject are likely to prove that are not based on the known laws which govern the motions of fluids.

"*In all the methods of ventilation, it is advisable to make the aggregate area of the openings that admit the fresh air, larger than the aggregate openings for the efflux of the vitiated air.* This becomes necessary notwithstanding the increase of volume which takes place in the heated and vitiated air. *If the opposite course be adopted*, and the abduction tubes be larger than the eduction, then *a counter current takes place in the hot air or ventilating tubes*, and the cold air descends through them; but by making the induction tubes numerous, and of a large total area, the velocity of the entering current is reduced, and unpleasant draughts are avoided. It is also expedient to *divide the entering current as much as possible;* for by so doing it prevents the dangerous effects of cold draughts, when the entering current is colder than the air of the room; and when it is hotter than the air of the room, it prevents the air from rising too rapidly towards the ceiling, and therefore distributes it more equally throughout the apartment. Provided the aggregate openings for the admission of cold air be not less than those for the emission of the heated air, the quantity of air which enters a room depends less upon the size or number of the openings which admit the fresh air, than upon the size of those by which the vitiated air is carried off. This will be evident when it is considered that, the room being always absolutely full of air, no more air can enter until a portion of that already in the room be removed. But as soon as a portion of the air which previously occupied the room is removed, a similar quantity of fresh air rushes in to supply its place; the quantity entering being exactly equal to that which escapes."

The Working Man's Gardener, by C. Taylor (Groombridge, 1*s.*) is a useful guide to the Cottager, written by Mr. Melville Portal's gardener. It is evidently the production of a working man, and suits perfectly all that valuable class. In farm houses it will be found peculiarly useful.

FLORICULTURE.

SCOTTISH PANSY SOCIETY'S EXHIBITION.—The eleventh annual meeting took place this year at Dalkeith, in connection with the exhibition of the Dalkeith Horticultural Society. Generally speaking the flowers were shown in excellent condition, and most varieties of any note, whether old or new, were present among them. The leading prizes were awarded as follows:—Nurserymen, best 24 distinct varieties, six competitors.—1st, Messrs. Downie & Laird, with Jubilee, Royal Standard, Countess of Strathmore, Sovereign, Fanny Kemble, Fearless, Miriam, Father Gavazzi, Miss Talbot, Flower of the Day, Lady Emilie, Nonpareil, Mary Taylor, Marchioness of Bath, Sir J. Cathcart, Beauty, St. Andrews, Sultan, Alice, Sheriff Napier, Argo, Uncle Tom's Cabin, Mrs. Campbell, Charles Cowan. Practical Gardeners and Amateurs, best 18, 12 competitors.—1st, Mr. Henderson, gr. to C. K. Sivewright, Esq., with Duke of Perth, Lord Raglan, Royal Standard, Jubilee, Emperor, Flower of the Day, Sir C. Napier, Royal Visit, National, St. Andrews, Fearless, Yellow Climax, Monarch, Beauty, Sir J. Cathcart, Pandora, Sovereign. Practical Gardeners and Amateurs, best 12, 17 competitors.—1st, Mr. J. Hampton, jun., with Marchioness of Bath, Sir J. Cathcart, Flower of the Day, Pandora, Black Warrior, Miss Talbot, Sovereign, Uncle Tom's Cabin, Miriam, Lady

Emilie, Duke of Perth, Yellow Climax. Practical Gardeners and Amateurs, best 6, 11 competitors.—1st, Mr. J. Henderson, Cargilfield, with Miss Talbot, Fearless, Royal Visit, Monarch, Royal Standard, Sir J. Cathcart. (The bloom of Royal Standard in the above lot won the prize given for the best light ground flower in the room.) For Amateurs exclusively, who cultivate their own plants, best 6, 9 competitors.—1st, Mr. W. Young, with Flower of the Day, Robert Burns, National, Argo, St. Andrews, Yellow Climax. Classes open to all, best 12, 9 competitors—1st, Mr. Campbell, Pollock, with St. Andrews, Wonderful, Royal White, Duke of Perth, Fearless, Sir J. Cathcart, Lord J. Russell, Robert Burns, Earl of Mansfield, Argo, Miss Talbot, Royal Visit. Wonderful, in the above, was shown as a pure yellow self, and won, most deservedly, the prize for the best self in the room: indeed many were inclined to think it the finest bloom in the room also. The Sweepstakes, open to all, best 12, were won by Mr. J. Henderson, Cargilfield, with Royal Standard, Duke of Norfolk, Nonpareil, Medora, Pandora, Earl of Mansfield, Fearless, Omer Pasha, Egon, St. Andrews, Great Western. Messrs. Dickson and Co.'s Seedlings were the most successful. A yellow ground variety named Cyrus had a first class certificate, won the prize for the best yellow ground in the room, and also that for the best flower in the room. Indian Chief also was awarded a first class certificate; this is a deep purple flower of fine quality and substance, and from the same growers came Rubens, a yellow ground, with rosy purple belt and top petals, fine form and texture; this had a certificate of merit. The above were all from Messrs Dickson & Co.

Miscellaneous.

Arboral Records of Buildings.—I have frequently thought of drawing attention to an idea which has long had possession of my mind, and which, had I property adequate to the requirement, I should be inclined to carry out myself. Let me now give a notion of it. In laying out parks and planting trees, might not interesting results be produced if the trees were arranged to form models of some of our most interesting ecclesiastical buildings? Take, for example, Redcliffe Church, Bristol. Plant an Oak for each of the buttresses, and an Elm for each of the pillars, and Poplar, or some other lofty tree at the angles of the tower. It would, of course, be some years before it became very pleasing: still, for the advantage of future generations, perhaps some might be found to do it. Various shrubs and trees might be planted to fill in and carry out the design of different parts, and gravel walks would represent the aisle. Training and cutting the branches properly would be desirable, and if done judiciously might prevent formality and stiffness. *T. P., in Builder.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c. — Look over Camellias and Azaleas that were not shifted before starting into growth, and if they appear to require more pot room let this be attended to at once, in order to prevent their sustaining any check, and allow of getting them moderately rooted into the fresh soil before winter. Also attend carefully to repotting Fuchsias, Chrysanthemums, &c., for autumn flowering as they require it, and see that they are liberally supplied with water in bright weather, as if allowed to get too dry at the root the foliage will suffer. Examine the earliest cut down Cinerarias for cuttings or suckers, and get these established as quickly as possible, in order to secure strong plants for early flowering. Where suckers of the best sorts can be obtained at once, they will, with good management, form nice-sized plants in course of the autumn, and make fine plants for blooming early in spring; and these are greatly preferable to seedlings, in so far as there is no danger of growing things that will hardly be worth room while in flower. If not already done, get a good supply of Mignonette sown in pots for winter flowering, and see that the tree Violets are not being injured by red spider. Stove.—Attend to former directions as to keeping insects under. Give air freely during the day when the weather is bright and warm, and leave sufficient for the night to ensure a gentle circulation in order to prevent damp, and secure strong robust growth. Specimens in bloom of such things as are readily injured by syringing over head, should be placed where sparing them will not interfere with a liberal use of the syringe on those that require it. Use every means to maintain a moist atmosphere, and to do this the floors, &c., must be frequently sprinkled on bright days dewing the foliage with the syringe after shutting up. Be sparing of fire heat, and save where it is necessary to furnish bottom-heat, or during unseasonably cold or cloudy weather, it may almost be dispensed with for a few weeks. Where twiners are grown on the rafters attend frequently to regulating the growth of these, keeping them within reasonable limits, and see that they are not allowed to become a harbour for insects, as is too frequently the case with stove twiners. Give a liberal supply of water at the root, using manure-water wherever it can be given with safety, and if red spider attacks any of them remove the pot specimens and give the infested plants a thorough washing with the engine. See that things for winter flowering, such as Begonias, Gesneras, Euphorbias, &c., receive their fair share of attention, for if the gaiety of this house is to be maintained through the winter months, the summer flowering things must not be allowed to monopolise all the space and attention.

FLOWER GARDEN AND SHRUBBERIES.

When the plants have fairly covered the beds, the principal thing to attend to will be to preserve that symmetrical appearance over the whole of the beds which is indispensable in every regular flower-garden, to render the effect pleasing. To do this will involve frequent attention and considerable labour for some time to come, as some of the plants will incline to grow much too strongly, and will be continually encroaching upon the edgings and extending beyond their proper limits, and also getting too high and bulky for other parts of the garden. For this there will be no remedy but pegging down, and thinning out the shoots, and shortening back such as extend beyond their proper limits. In shortening back shoots, however, that may incline to overstep the edges of the beds, care should be observed to avoid the least appearance of stiffness, by thinning out the under shoots, and causing the mass to, as it were, die away at the edge. Plants of a weakly habit of growth, such as the Melindres varieties of Verbena, may require the assistance of an occasional watering with manure water, to get them to grow sufficiently freely to make a strong good bed, and, in the case of these and some other free-blooming plants, this may be used freely without any danger of inducing growth at the expense of bloom. If green-fly makes its appearance upon any of the beds, syringe the affected part at once with tobacco water and soapsuds; for if neglected, the mischief will soon spread, and be both troublesome and expensive to eradicate. Attend to plants trained on walls, keeping the young shoots neatly laid in or cut off before they become unsightly. The climbing Roses should also be gone over occasionally, stopping or cutting out strong shoots not wanted for laying in. Keep Phloxes and other herbaceous plants neatly tied to stakes, to prevent their being injured by wind, &c.; also see to tying Dahlias and Hollyhocks, and give the latter a liberal supply of manure water.

FORCING DEPARTMENT.

Pineries.—At the present season air should be given liberally to young stock in dung pits, in order to secure strong stocky growth. The plants should not, however, be exposed to drying winds by giving back and front air liberally on drying days, for this would not serve the end in view; but a moderate circulation of air should be secured at night, giving no more during the day than may be necessary to prevent the temperature getting too high. This, with careful attention to the state of the roots, keeping the bottom heat regular, the soil in a nice healthy state as to moisture, and giving a liberal supply of manure water to such as are well rooted, will be found much more conducive to strong stocky growth than exposing the plants too freely to hot drying winds, which would probably check the growth, and throw them into fruit prematurely. Use every means to afford plants swelling their fruit a thoroughly moist atmosphere, sprinkling passages, &c., frequently, and shutting up early on the afternoons of bright days, giving the plants a gentle dewing with the syringe, and saturating the atmosphere by sprinkling every available surface; also give these plenty of clear strong manure water at the root until the fruit begins to change colour, when the soil should be kept rather dry, which will improve the flavour. Vineries.—Attend to former directions as to thinning the fruit in houses intended to furnish a late supply, and see that the bunches are severely thinned, and also that the crop left is not too heavy in proportion to the strength of the Vines. Where the fruit is swelling, be careful to maintain a moist state of the atmosphere, and give every possible attention to the roots, keeping the border in a healthy state as to moisture, and if watering is found necessary, use good strong manure water. Give abundance of air where the fruit is colouring, and do not allow plants in pots to remain in the house to cause damp, which, despite every care in ventilating, is apt to settle in the berries and spoil the bloom. Where the fruit is ripe and expected to hang for some time, the atmosphere of the house should be kept as cool as possible; but a little fire heat will probably be necessary occasionally in order to keep the atmosphere dry. Use this, however, sparingly, and only when it cannot safely be dispensed with, and always in conjunction with free ventilation. Vines from which the fruit has been cut some time will probably have thoroughly ripened their wood, and should now be kept as cool and dry as possible, in order to prevent any farther attempt at growth, and induce them to go to rest, and if wet weather continues, it may be advisable to cover the border with a good coat of dry litter to throw off the rains and keep the soil cool and moderately dry. But before excluding the border from the action of the sun, be sure that the wood is well ripened, and until this is the case, take care that the foliage is not injured by insects, and endeavour to preserve every leaf until its natural period of decay. Peaches.—Expose trees freely to the air from which the fruit has been gathered, keeping the ventilators open day and night, and spare no attention which may be necessary to preserve the foliage in a clean healthy state until the young wood is well matured. Where the fruit is ripening, shading the house on the forenoons of bright days will prolong the supply, and will not injure the flavour as much as would be the case with most other fruits. Figs.—Trees swelling their second crop must be well attended to with water, giving sufficient to moisten the whole of the border thoroughly if this has been allowed to become dry while the first crop was ripening. Use the syringe freely on the foliage, shutting up early in the afternoon, and sprinkle paths, &c., frequently, in order to keep the atmosphere moist.

HARDY FRUIT AND KITCHEN GARDEN.

Where not already done, Strawberry planting should be finished at once; and if the plants are expected to bear next season, they should have been planted previous to this: but by selecting strong runners, planting carefully, and keeping them well supplied with water, they will make strong plants yet before winter. No expense should be spared in preparing the ground for this crop; and as the plants will last for several years if the soil is made deep and rich, and require but little attention in the way of manuring or digging among them, the ground should be trenched some 2 feet deep, well incorporating with the soil a very heavy dressing of manure. Select a piece of open light soil, and prepare it for Spinach by well manuring and digging deep. This crop should also be got in at once, sowing in drills in beds with wide alleys, so as to allow of gathering the crop without treading the ground. Also provide ground for winter Onions, &c. Finish planting out Broccoli and winter greens as soon as possible, for unless the autumn should prove very favourable, those planted after this time will not attain much size. Get plenty of Endive planted on rich soil; also Lettuce to maintain the succession. See to providing a good supply of Parsley for winter use; a good sized bed should be planted in some convenient situation for being protected in hard weather, choosing light dry but rich soil; and if some well established strong plants can be cut over rather closely, stirring the surface of the soil lightly, and applying a good dressing of guano or soot, they will throw up strongly and be in prime condition before winter. Attend to Celery and all recently planted crops with water in the event of the weather becoming dry.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending July 26, 1855, as observed at the Horticultural Gardens.

July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain.
Friday 20	6	29.951	29.745	73	41	57.0	62	61	W.	
Satur. 21	7	30.107	30.049	80	45	62.5	62	61	W.	
Sunday 22	8	30.156	30.114	78	52	65.0	64	61	W	
Mon. 23	9	30.020	29.765	83	59	71.0	64½	61½	S.W.	
Tues. 24	10	29.777	29.606	71	52	61.5	65	62	S.W.	
Wed. 25	11	29.716	29.672	73	49	61.0	64½	62	S.W.	
Thurs. 26	12	29.777	29.720	63	50	56.5	64	62	S.	
Average.		29.929	29.810	74.4	49.7	62.0	63.7	61.5		

July 20—Very fine throughout; clear at night.
— 21—Clear; exceedingly fine.
— 22—Very fine throughout.
— 23—Slight fog; sultry; heavy thunder-storm in afternoon; heavy rain.
— 24—Rain: cloudy; rain at night.
— 25—Cloudy; rain; fine at night.
— 26—Densely overcast; constant heavy rain.
Mean temperature of the week ½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Aug. 4, 1855.

July and August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 29	75.3	51.4	63.4	14	1.31 in.	1	2	1	1	3		1	1
Mon. 30	74.1	51.2	62.6	15	0.88	3	3	2	1	2		1	
Tues. 31	74.3	51.6	63.0	12	0.66	2	3	2	1			1	
Wed. 1	75.5	51.7	63.6	14	1.23	1	2	3	2	3		1	
Thu. 2	75.1	53.5	64.3	14	1.03	1	4	3	—	7	4	1	
Frid. 3	73.6	51.4	62.5	16	0.50	3	6	1	1	3	1	4	1
Satur. 4	74.7	52.0	63.4	15	0.85	2	3	2	2	3	1	4	1

The highest temperature during the above period occurred on the 1st, 1846—therm. 92 deg.; and the lowest on the 3d, 1847—therm. 38 deg.

Notices to Correspondents.

Asparagus: *H J M.* By all means let it run to seed. If you disregard trouble you will gain something by picking off the berries. Of strong manure and salt it is greedy—very greedy. Apply the salt now at the rate of 4 lbs. to the rod; but choose wet weather or dissolve the salt in water before applying it. The manure must be applied in the winter, unless you can give it in a liquid state, in which case this is the best time.

Gardeners' Advertisements: *J R T.* Critics should be careful not to misrepresent. If you will look again, you will see that the advertiser does not say what you make him say. It seems to be a very properly worded advertisement.

Names of Fruits: *F H S.* Your Apple is not Pearson's Plate. It appears to be the Dutch Mignonne. The Apricot is the White Masculine.‖

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Diss.* All the sorts, that of Winfrithing included, belong to Quercus pedunculata. We do not remember having seen Q. sessiliflora in either Norfolk or Suffolk.—*J S.* It is Cassia australis.—*G G. Wells.* Holcus lanatus.—*A J W.* Undoubtedly Lilium japonicum.—*J T.* The small Scarlet Bean sold in toy-shops for beads is Abrus precatorius from the West Indies, a poison.—*Theta.* Anthyllis vulneraria.—*E K.* Either Pinguicula vulgaris or germanica. It is impossible to say which, the plant being quite rotten.—*D.* Maxillaria marginata, we presume.—*A B C.* It really is Stachys germanica. If you remove the silky hairs, you will find that the leaves are sharply serrate.—*E D B.* What you have bought for Helenium Douglasi is Monolopia californica. the Lophoclinium hirtum is Podotheca angustifolia; 3 is Alyssum linifolium; 5, Tamarix gallica; 4 is probably right, but the specimen is very bad.

Orange Trees: *Barford.* Their breaking out all over is a good sign. Cannot you put them into a little bottom-heat by plunging the pots in warm stable litter. It is evident that something has been wrong at the roots; but from your statement it would seem that the latter are recovering. There is still time enough for the wood to ripen, if the trees remain under glass. If it does not ripen you must keep the trees in the greenhouse all the winter, stopping their growth by dryness at as low a temperature as you can obtain short of frost.

Paper: *Anon.* Undoubtedly paper can be made from the raw material of rags, and there is no necessity for first producing rag. The difficulty is to afford the cost of the raw material. Rags are mere waste; raw materials are quite the contrary.

Strawberries: *Amateur.* Plant now on new ground well manured, trenched or deeply dug. British Queen and Keen's Seedling will answer your purpose best. Of the two, the former is the best flavoured. Let the rows be at least 2½ feet apart, and the plants 15 inches asunder in the rows. Nothing is gained by planting too closely.†—*E F.* Nothing is better than genuine guano, applied either in powder in wet weather or in a liquid state while the plants are making their growth. Now is a good time. If you cannot get guano, use good rotten farm-yard manure, applied round the necks of the plants without burying the leaves with it.

Misc.: *Subscriber.* The postage will be 2*d.*, and the paper must be sent within 15 days from the date of publication. It cannot after this date be sent to the same place as a book.

TURNIP SOWING, ETC.

GENUINE HALF-INCH BONES AND BONE-DUST may be had in any quantity of JARED TERRETT HUNT, Lambeth Wharf, Upper Fore Street, Lambeth, near Vauxhall Bridge. Also Superphosphate of Lime and Sulphuric Acid for dissolving Bones. J. T. H. also invites the attention of Gentlemen and Agriculturists in general to his Superior Fine Bone-Dust for dressing Lawns, Parks, &c. Delivered to any Railway in London in Sacks.

PATENT WOOL MANURE, 8*l.* 8*s.* per ton.—Application for Agencies, from persons of influence and respectability, will be received until the 31st inst.
NOTTIDGE & Co., 81, Gracechurch Street, London.

CORN MANURE FOR SPRING SOWING.
CONCENTRATED URATE FOR GRASS, RAPE, AND ALL ROOT CROPS.
SUPERPHOSPHATE OF LIME.

THE LONDON MANURE COMPANY continue to manufacture the above Manures, which have been used with so much success for the last 14 years.

The London Manure Company also supply PERUVIAN GUANO (direct from importers' warehouses), Nitrate of Soda, Sulphate of Ammonia, Fishery and other Salts, Bone Dust, and every artificial manure of known value. EDWARD PURSER, Sec.
Office—40, Bridge Street, Blackfriars.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*
Office, 69, King William Street, City, London.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

MANURES.—The following Manures are manufactured by HODGSON & SIMPSON, Calder Soap Works, Wakefield, and MATTHEWS & Co., Manufacturing Agricultural Chemists, Driffield. SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-Dressing for Wheat, Barley, and Oats. SIMPSON'S NITRO-PHOSPHATE for Turnips, Potatoes, and all other bulbous root crops, price 8*l.* per ton. N.B. Manures specially prepared for Grass and Flax. The above have been successfully tested for the last Seven Years by the leading farmers in Yorkshire and Lincolnshire, and other counties, and were applied last season to a breadth of upwards of 15,000 acres of land with the most beneficial results to the crops. A List of Testimonials and other particulars will be forwarded by post on application.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

DRAINAGE OF LAND.

MR. HUMBERT, of Watford, Herts, a practical Surveyor and Land-Agent of more than 15 years' standing, offers his services to Gentlemen about to drain Land and Bogs. He will undertake to set out and superintend himself the execution of the work at a charge of 5*s.* per acre, and the expenses incurred in his travelling; or he will contract to complete it in a specified manner to the satisfaction of the Inclosure Commissioners at a fixed price per acre. Mr. Humbert has drained strong stony land in the most careful and complete manner, with 1⅜ inch pipes, and proper mains, the drains being 4 feet deep and 30 feet apart, at 4*l.* per acre and under, and he can give reference to his employers in that and in other instances.
Watford, Herts, July 28.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES, consisting of MATTING, MATS, MATTRESSES, BRUSHES, NETTING, HORSE-HAIR, and BRISTLE SUBSTITUTE, are distinguished for superiority and excellency of workmanship, combined with moderate prices. Prize Medal both in England and America at the Exhibition of all Nations.
T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

NEW INVENTION IN LAWN MOWERS, WHICH POSSESS SUPERIOR ADVANTAGES TO ANY MACHINES NOW IN USE.—In the first place, they will cut the Grass either wet or dry: secondly, by the simple adjustment of a thumb-screw, they can be made to cut Grass either long or short; and, thirdly, these machines are drawn instead of being pushed and drawn, and consequently do not require half the usual power to work them. They are made to cut any width suitable for either man or horse. They will turn in very little room and cut at the same time. They are a perfect roller for the width they cut when thrown out of gear. The improvement can be attached to old machines, consequently old machines that are now laid aside, can be brought into use at a small expense.—N.B. These Machines can be adjusted and wrought by any unskilled labourer.

Price to cut 16 inches, £6 | Do. 20 inches, £7 | Do. 24 inches, £8.

Testimonial from JOSHUA MAJOR, Esq., *Landscape Gardener, Knosthorpe.*

To Mr. GREEN, Leeds.

"SIR,—As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen and even ladies may work either the 16 or 20 inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the largest size (24 inches) would be most suitable, for even in undulating ground two persons may work it, but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable and useful invention, which, in my opinion, entirely surpasses and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass Lawns, and a great boon to the public.—I am, Sir, your most obedient servant,

"Knosthorpe, near Leeds, July 19. JOSHUA MAJOR."

Several Machines of the old kind, in stock, will be sold at half price, viz.:—16 in., 3*l.*; 20 in., 3*l.* 5*s.*; 24 ins., 3*l.* 15*s.*

THOMAS GREEN, SOLE MANUFACTURER.
Iron and Wire Works, North Street and Briggate, Leeds.

THE HARVEST.

DRUMMOND'S IMPROVED REAPING SCYTHES continue to give every satisfaction, and the demand is yearly on the increase. They are as usual got up with every possible care, and are fitted with the very best picked blades. Price for three Scythes complete, 30*s.*; do. for six, 56*s.* Carriage paid to the principal Railway Stations throughout the kingdom. W. DRUMMOND & SONS, Seed and Implement Warehouse, Stirling, N.B.

*** To prevent disappointment early orders are respectfully requested.

N.B. Unknown correspondents will please accompany their orders with a remittance.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

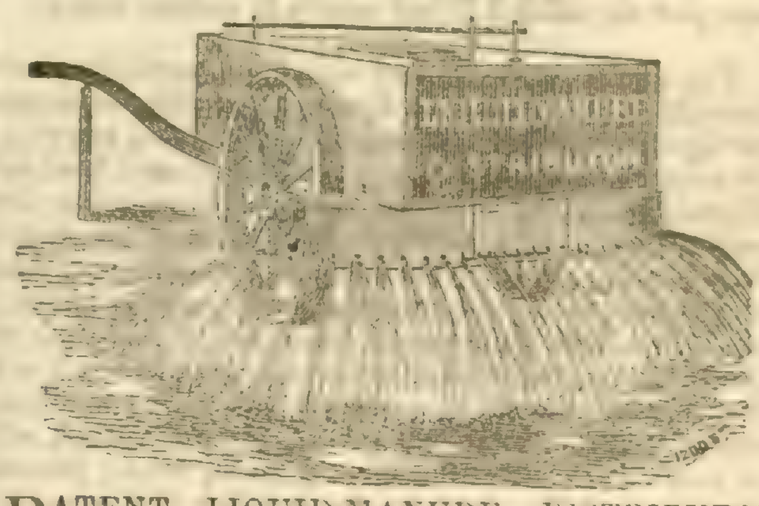
Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

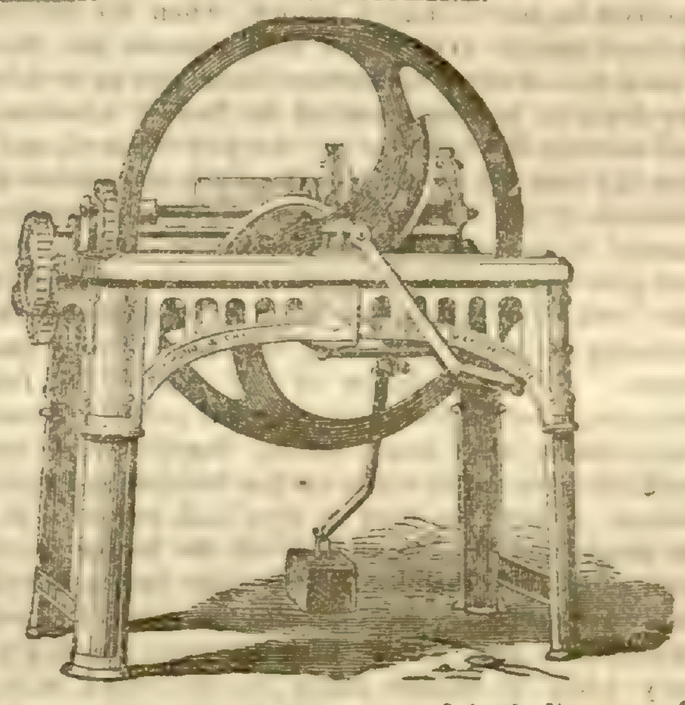
Priced Lists of Plant Tubs and Boxes forwarded on application.

LIQUID MANURE.

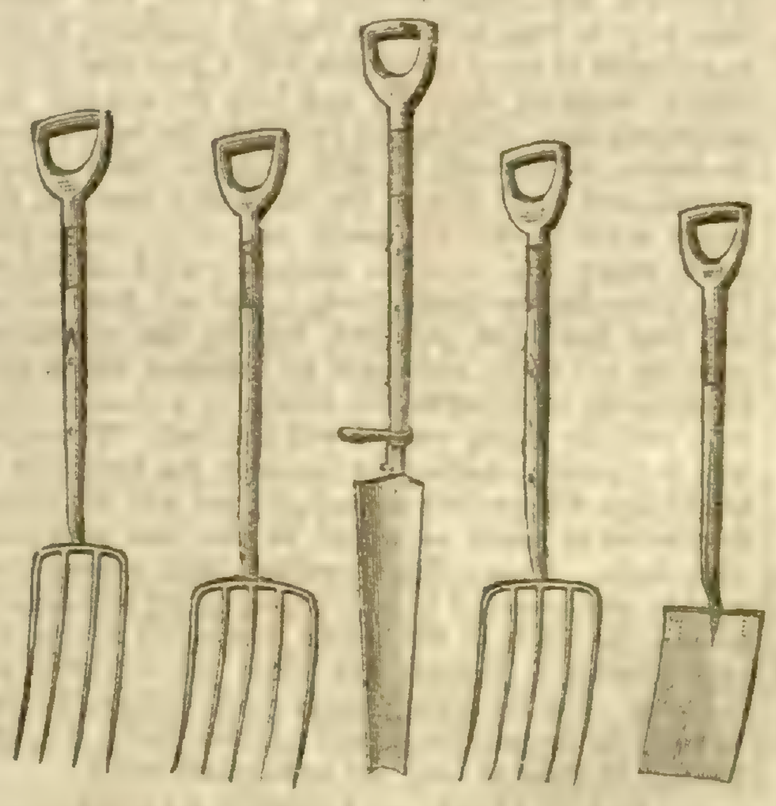


PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its Liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.—Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

RICHMOND & CHANDLER'S PATENT CHAFF-CUTTING MACHINE.



All the various modern Implements of Agriculture manufactured on the most scientific and improved principles, suitable for home use and exportation.—Address, RICHMOND & CHANDLER, Salford, Manchester; and 32, South John Street, Liverpool.
CATALOGUES GRATIS.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

HAY-MAKING MACHINES.

THE ROYAL AGRICULTURAL SOCIETY'S PRIZE MACHINES are supplied by WM. DRAY & Co., Swan Lane, Upper Thames Street, London.

CLAYTON, SHUTTLEWORTH, & CO.'S PRIZE PORTABLE STEAM ENGINES, AND COMBINED THRESHING, STRAW SHAKING, RIDDLING AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as threshed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.

C. S. & Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading Agricultural Shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

SAMUELSON'S PATENT GARDNER'S TURNIP CUTTER, which has been awarded NINE PRIZES by the Royal Agricultural Society. Samuelson's Patent Forking or Digging Machine. Samuelson's Registered Budding's Lawn Mower; Patent American and other Churns; Kase's Patent and other Liquid Manure Pumps; McCormick's American Reaper with Burgess's Patent Self-clearing Platform; Chaff Cutters; Cake Breakers; Corn Mills, &c., &c., &c.

Manufactured by B. SAMUELSON.
Successor to the late JAMES GARDNER, Britannia Works, Banbury

Some of the above may be seen at Stand No. 64, Royal Agricultural Show at Carlisle, and in the Agricultural Department, Crystal Palace, Sydenham. And may be procured by orders direct as above, or of any respectable Implement Dealers or Ironmongers in the country.

Catalogues may be had post free on application.

HAMPEN RAM SALE, 1855.

T. BEALE BROWNE, Esq., has fixed MONDAY, the 6th of August, for the Sale by Auction of about FIFTY COTSWOLD SHEARLING RAMS and Four or Five Older SHEEP. Two or three will be Let.

Mr. B. B. hopes to be favoured with a large attendance of his Friends on this occasion. Hampen is 8 miles from Cheltenham, and 2 from Andoversford. Sale at Four o'clock.

☞ Sheep from this Flock obtained Three Prizes and Two Gold Medals and One Silver at the late Exhibition at Paris.
ARTHUR ACOCK, Auctioneer.

ANERLEY POULTRY SHOW, AUGUST 28, 29, and 30.—Entries close August 6th. Prize Lists may be had on application to the Secretaries.
Anerley, Surrey. EDGAR SMALLFIELD, HENRY F. WELLS, } Hon. Secs.

YORKSHIRE AGRICULTURAL SOCIETY
GREAT SHOW, AT MALTON, 1855.

PROGRAMME.—Tuesday, July 31: Trial of Implements, Reapers, &c., admission 1*s.*—Wednesday, August 1: Trial of Implements continued; Cattle-yard open to the public, admission 2*s.* 6*d.*—Thursday, August 2: Great Show Day; Implement and Cattle-yards open at 8 o'clock A.M., admission 1*s.* each. Cheap trains on all the lines of railway. JOHN HANNAM, Secretary.
Office, Old Malton Gate, Malton.

The Agricultural Gazette.

SATURDAY, JULY 28, 1855.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, Aug. 1—Agricultural Society of England.

WE this week present our readers with a report of the successful CARLISLE MEETING.

During the last week and a half, multitudes of agricultural authorities and novices, business men and sight-seers, have been flocking to that northern city. Not to combine against a Pictish incursion or a moss-trooper's raid, of which the old fortresses thereabout (such as the Roman wall, Lancaster, Penrith, and Carlisle Castles and Naworth, the stronghold of "belted WILL HOWARD,") may remind them as they pass. Not to see how "ginghams" are manufactured, and biscuits baked—these being the more civilised employments of the inhabitants there in our days. But we have met in the border city our fellow countrymen and cultivators from beyond the Tweed, to view with them the best of England's food-producing machinery, the choicest specimens of the animals that furnish and perpetuate meat for our population, and perform great services for mankind. We have met to learn of each other, to impart both instruction and good-feeling to each other; and if on the one hand our southern mechanical wonders and fine animals in certain classes have excited the admiration and awakened the appreciation of the Cumberland and still more northern farmers, on the other hand, we have been no less gratified and advantaged by the north-men's show of noble horses and superior cattle.

The district visited by the Royal Agricultural Society this year includes the counties of Cumberland, Westmoreland, Lancaster, and the Isle of Man; so that with the mountaineers and factory people of these counties, and the cargoes of Manx islanders that have visited the show, there has been an ample contribution of company from the district itself; while at the same time there has been a large influx of agriculturists from neighbouring English counties, from the eastern and midland districts, and also thousands of keen and intelligent business men from the east and west of Scotland.

The Society has a mission to perform in the en-

lightenment of the locality in which for the season it may collect together the cream of our agricultural excellencies; and every one will admit that Cumberland presents a fine field for such improvement. From the railway, as we approached the great vortex of the week's attraction, how we admired the forward healthy plant of Turnips, while the crops in the south have been miserably eaten by the fly! But this is an advantage from the moist climate, which works with a greater power against the corn fields; and while producing rich and luxuriant pastures, soaks the arable land, rendering its drainage costly and its husbandry difficult. And when we examine into the condition of the farming, we discover no adequate means in use for counteracting these disadvantages; drainage is scantily performed, high farming in low repute, drills but little used, three bushels of corn per acre the ordinary seeding, hoeing and weeding most imperfectly attended to, threshing machines and iron field implements comparatively new. Some Cumberland gentlemen told Mr. Mechi, after his lecture at Carlisle on Saturday, that high farming, though just the thing at Tiptree, was not suited to their northerly climate; but that gentleman very judiciously begged of his large and attentive audience of farmers to try what Rape-cake and other food fertilisers can accomplish for them; to devote a little more study to the husbandry of straw manure, the cleaning of land, liquid-manuring, the employment of steam power, &c., and at least, to try (as he had done) some land in each corn field with one bushel of seed, just to find whether a thinner seeding than the lavish three bushels will not answer as well.

With a state of agriculture far behind the model management which obtains on the first-rate Netherby estate of Sir James Graham, and in some points reminding a stranger of his neighbourhood to wild fells and mountains, where cultivation is of a low order because of little extent and importance, every one will admit that much local good must arise from the spectacle of the past week. We have heard expressions of admiration from Cumberland farmers at the work and workmanship of the competing ploughs, the best of the paring implements, the more efficient reaping machines, the drills, the harrows, the cultivators, the horse-hoes, rakes, haymakers, and Turnip-thinners. We have heard expressions of wonder and approbation at the marvellous feats of threshing and dressing machines, chaff-cutters, Turnip-slicers, and the various orders of farm-yard machinery. And besides this, the appearance of the "real live steam cultivators," smoking and delving in their fields, must set many a mind speculating upon the principles involved in tillage, and the possible future now glimmering upon our national agriculture.

Concerning the general character of the Show, we may say that the cause of the Implement department being one-fifth short in number, may be explained by reference to the great distance between Carlisle and the regions where our chief makers find their customers; and the live stock, being one-fifth in excess, made up for any want of interest in the Show. The horses formed a grand exhibition by themselves; and the special classes for Scotch cattle and Cheviot sheep were everything that could be expected. Upon the whole, we may congratulate the Society upon a remarkable and most triumphant anniversary, inviting the attention of our readers to detailed reports of every portion of the proceedings.

The very heavy rains of the past week have done considerable damage already in beating down Wheat, which is as much laid wherever we have seen it or received accounts, as any Wheat crop probably that has of late years been harvested. If it is much prolonged there can be no doubt of serious injury being sustained. We hope during the next few weeks to publish full reports of harvest prospects.

The Secretary of the Manchester Society of Guardians for the Protection of Trade advises us that it is advisable to warn advertisers of Poultry and other live stock of the risk they run in attending to orders without some knowledge of those from whom they are received. He tell us that during the past week he has stopped some 40*l.* or 50*l.* worth of Cochin China fowls and other things on their way to men of known character in the neighbourhood of Manchester. People winning prizes, as some of those sending these birds had done recently at Windsor, advertise them, and are too eager to attend to orders to make the preliminary inquiries which are necessary; and, generally speaking, these advertisers are not members of Guardian Societies, often retired gentlemen, officers, and their servants, who perhaps never heard of such societies, and who therefore are the more open to the roguery of designing men.

Home Correspondence.

Sewage Manure.—The deposit from town sewage, once so highly prized, and supposed to be of great value, has suddenly fallen in the estimation of agriculturists, and is now deemed scarcely worth carting on to the land. Opinion has changed in consequence of analysis showing that a large portion of the fertilising properties runs to waste in a liquid state, and what remains as a solid is insoluble, and therefore useless as regards vegetation. Without in the slightest degree presuming to throw a doubt upon the experiments that have been tried in the laboratory, may it not be possible, amongst the variety of soils which a farmer has to cultivate, differing as they do in almost every acre, that some hidden ingredients may be ready to convert what seems worthless to the chemist into food for vegetable life? So many discoveries having taken place in the chemical world, which a few years ago were never thought of, that agriculturists need not despair of sewage deposit coming into favour. Dressing with the liquid manure of towns being so costly, and limited to a certain extent round each locality, and the solid deposit having been pronounced of little value, the best and richest manure in the country is, somehow or other, thrown away without a chance of becoming beneficial to farmers and gardeners. Of what is the dung-heap composed? It consists of the refuse of the food of animals, after having contributed to make muscle, blood, fat, &c., mixed with straw, ashes, sweepings, and with many other odds and ends. What is town refuse? A compost stronger in every respect, and better calculated to enrich the land; yet it is permitted to float away, by which millions of pounds are lost to the nation. No doubt there are difficulties in the way of saving this mine of wealth, but with the mechanical resources of the kingdom, aided by wealth lying idle (report says the money market is apoplectic), it is a reflection upon the industry and perseverance of the British subject to publish to the world his inability to make use of the best description of manure, because he cannot devise an inexpensive plan of carrying it on to the land.—Mangold Wurzel is most valuable food for pigs of all ages from March till August. In the winter it should be boiled and mixed with grains. *Falcon.*

Societies.

CARLISLE MEETING OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Account of the Yard and Field Trials of Engines, Implements, and Machinery, *July* 23.—On Thursday at noon began the trial of steam-engines, including nine portable and 10 fixed engines, and the result has been the most extraordinary ever yet known, Messrs. Tuxford and Son's portable engine having consumed a less weight of coal per horse-power per hour, than any other engine exhibited at any of the Society's Shows. It worked for 3¾ hours with 1 cwt. of coal, *i.e.*, at the rate of 3¾ lbs. of coal per horse power. And that this may be compared with the trials of last year, we just enumerate a few of the most successful results obtained at Lincoln:—Hornsby & Co., 4.55 lbs. per horse power; Ramsden's, 5.1; Clayton & Shuttleworth, 5.19; Garrett, 5.62; Tuxford & Son, 6.42, up to others which consumed 12 and 13 lbs. of coal per horse power per hour. What a saving will be effected if Messrs. Tuxford's results at Carlisle can be realised generally, any one who has calculated the cost of a horse per hour may easily determine.

The other competitors with Messrs. Tuxford, who approached the nearest to them, were (1) Messrs. Clayton, (2) Barrett, (3) Hornsby—their engines consuming respectively 4.05, 4.42, and 4.83 lbs. per hour per horse power.

The two last put upon trial were Boydell's traction engine, a most unwieldy affair, and Usher's engine attached to his steam plough; these were, however, not in competition for the prize, but to try their powers of draft. Those put into competition were divided into two classes—the portable steam engine and the fixed steam engine; for both classes prizes are offered. There were nine competitors for the portable engine class, *i.e.*, Messrs. Crosskill & Son; Ransomes & Sims; Clayton, Shuttleworth, & Co.; Garrett & Son; Tuxford & Son; Boydell & Glazier; Barrett, Exall, & Andrews; Hornsby & Son; and J. Lee, of Walsall; for fixed engines the competitors were Hornsby & Son; Clayton & Co.; Barrett & Co.; Dray & Co.; Holmes & Son; Ransomes & Sims; Gray & Co.; Tuxford & Sons; and Smith Brothers, whose place of precedence was arranged by ballot. The judges of this class were Mr. J. V. Gouch, C.E., Engineer to the Eastern Counties Railway, and Mr. W. Owen, C.E., of Rotherham, whose decisions appeared to give general satisfaction. We may mention that in Tuxford's engine the cylinder is placed in a house above the crank shaft instead of below; and the neatness and compactness of the arrangement of all the working parts, the manner in which they are sheltered from dirt, and yet most ready of access, were admired by all who inspected it. We must say, however, that we should much prefer the well-known flue boilers made by this firm for durability and farm-yard wear. Messrs. Clayton & Shuttleworth's engine obtained the 2d prize for the 8-horse engine, which consumed 4 lbs. of coal per horse-power per hour.

On Friday the engine trials were concluded, and the experiments commenced with portable threshing machines, their required motive power being tested by Amos's dynamometer, and their performance in threshing and winnowing by the state in which they gave out the grain and straw of both Wheat and Barley. These trials continued up to Wednesday at noon, and were pursued after the usual manner. A steam engine is selected to drive the whole, which this year fell to the lot of Hornsby & Son. One hundred sheaves of Wheat are first threshed, followed by an equal number of Barley sheaves, and the prize is to be awarded to the machine "that will best prepare the corn for the finishing dressing machine" in the portable machine class; and in the fixed machine class for the machine "that will best prepare the corn for market." Why this difference we know not. It leaves a wide question open, which has given rise to difficulties already. The whole, as well as all other trials of power, have been made by Mr. Amos's admirable "Testing Machines." We are very delighted to know that he has effected a great improvement in these machines during the year. No time is lost now in applying weights, as to the old lever. The new "totilisateur" applied by Mr. Amos renders the "weights" unnecessary; and every unit of power used during the experiment is recorded upon the "dials" of the apparatus, and are read off in the easiest manner. By removing the crank and fly-wheel, and substituting a pulley, the apparatus was driven by a steam engine, and in its turn drove the steam chaff-cutters. The trials were quickly despatched, and in the most satisfactory manner. Ainslie's machine for brickmaking came next before us; the bricks were well made from beginning to end. The chaff cutters were next tried by a smaller "testing machine," but much time was lost for want of another of capacity to try engines between large steam threshing machines and such smaller things as these, and the judges were idling for hours waiting for their use. We hope the Royal Agricultural Society of England will see to this before the Chelmsford meeting.

On Saturday the yard judges were busily occupied both with portable and fixed barn-works, and with numerous chaff cutters. On Monday and Tuesday the threshing and dressing machines, chaff cutters, oilcake breakers, grinding mills, Linseed crushers, Turnip slicers and pulpers, &c., occupied the attention of the judges, who decided as to quality of work performed, and of the Society's active engineer, Mr. Amos, and his coadjutor Mr. Appold, who ascertained the amount of power absorbed in the various operations.

As the details of these experiments will appear in due course in the Society's Journal, we hasten to comment upon the more interesting trials in the field. Respecting these, we have to complain of the inconvenience to exhibitors and to the public of a want of order and arrangement in the proceedings—no person knowing to a day, much less to an hour, when his implement was to be tried; and the delay attending the various changes from one class of implements to another giving rise to continual complaints, and the disappointment of the great company of spectators that wandered, sometimes in a pouring rain, in search of the right field, or waited with exceeding patience until their turn came for witnessing the particular operation they had come to see. Crowds of people assembled on the wrong days to behold the great novelty of steam cultivation; and many, after a weary Monday spent in watching minor trials, and when on their way home, learnt that the reaping machines were to work at 5 o'clock, and so had to attenuate their strength and temper some hours longer, or else lose the sight. One exhibitor remarked to us, when after 10 o'clock the implements had not started, "This is different to Lincoln, where we were at work by 7 o'clock in the morning."

The paring implements or scarifiers were tried upon a piece of heavy lea ground, and neither Coleman's nor Ransome's Biddell succeeded in their attempts to slice off a thin stratum of sward. Bentall's well-known broadsharer, however, thoroughly accomplished its purpose.

Ploughs.—Eleven "general purpose" ploughs were placed in competition upon the "light land;" although this was a field of stiff loam, covered with a long rough sward of Grass and Clover. All but one were iron ploughs, and more than half the number were swing ploughs. Very few minutes sufficed to demonstrate the great advantage of double wheels, and the necessity for long and very gradual mouldboards. Ransome, Howard, Ball, and Busby, at first made good work; soon, however, the contest became evidently a repetition of that last year, the first two makers being the close competitors. Ultimately, we believe, the general opinion of practical observers was in favour of the clean cut, evenly laid furrow slice, and sharp harrow edge made by Howard's plough. The prize ought to have been awarded to it. The dynamometer was appealed to, but gave nearly an equal evidence for each of the rival implements. Everybody admired the neatness with which the skim coulters enabled the ploughs to bury every blade of vegetation, and still "tuck" the furrow in tightly and in workmanlike style. Indeed those ploughs unfortunately without this admirable addition, seemed to work upon the principle of leaving a fair bite for sheep after the ploughing was concluded.

Cotgreave's ingenious trenching plough was put in action upon the same lea ground, and certainly buried the top soil, and brought up and spread over it a furrow of the subsoil, going altogether 12 to 15 inches deep. Its motion in an alluvial clay or lighter soil, where no stones exist to make it jump, would be much steadier and easier than it was on this occasion.

On the "heavy land" the strong ploughs of Howard, Ransome, Busby, and Ball, with their immense mouldboards, and a swing plough made by a local firm, with a short stunt mouldboard, were set to work. At 7 inches and at 12 inches depth, with four stout horses pulling, the palm was alike awarded by the judgment of bystanders to Ransome; indeed, Howard's ploughman seems to have failed to set his irons properly at first, and frequent alterations did not remedy the errors.

Reaping Machines.—We now come, in our hasty sketch of these preliminary proceedings of the meeting, to notice the trial of reaping machines. The crop to be cut was a light upstanding plot of remarkably forward Rye, having a young plant of Clover, pretty free from weeds, coming up underneath; and the universal remark was, that if the machines could reap any crop, they would be sure to succeed with this. Croskill's was tried first: cutting pretty well, and delivering admirably with its endless web cloth and projecting side arm, which directs and lays off the corn in swathe. The chief fault seemed to be, that its reel revolved too quickly, tending to break and thrash the upstanding corn; and having the horses behind, it was unable to traverse across the lands.

The next was that of J. Burns, of Mylnefield, Dundee, being a M'Cormick's machine with Lord Kinnaird's improvements. The horses precede the machine on one side, as in Hussey's; and it has a slower motion of the reel. It cut very clean, and laid the corn pretty readily and neatly for gathering.

Then came Messrs. Burgess & Key's patent platform added to M'Cormick's machine. The novelty consisted in three worms mounted transversely upon the platform, which delivered off the stuff sideways; the worms on which the ear ends of the straw fall having a larger diameter than the worm next the cutter, and so sending them off with greater velocity and impetus—this insuring a very regular lay of the swathe for binding. The machine cut exceedingly well, and was highly praised.

The next machine tried was Dray's well-known Hussey's reaper, with tipping platform and other improvements; among other additions, a balance weight has been attached to the crank-axle, giving it great freedom in its rapid revolution. It took 4 to 5 feet in width, cutting very cleanly, and delivering beautifully in separate sheaves, laid straight and ready for the binder. The tipping platform wonderfully facilitates the back delivery. Being simple and cheap it excited the general approbation of the eager and interested crowd of spectators, the business portion of the company agreeing that it seemed more like the thing wanted than any other there exhibited.

Palmer's (of Scotland) reaper has a platform in the shape of a quadrant, so that the man raking off delivers the corn on one side, instead of behind. By this form, too, the corn is not carried bodily forward, as it is in other machines having a side delivery, but, on the contrary, takes a diagonal or rather circular course, the difficulty arising from having to overcome the inertia of the weight of corn being thus avoided. The platform was fitted with a radiating system of rollers, intended to reduce the friction of the straw upon it; but the advantage of this contrivance was not at all apparent. An iron guard, fixed so as to enter the standing crop and incline it to the cutters, at the same time clearing a passage for the wheel carrying the far side of the platform, was light and efficient.

Harkes' rotary reaper excited much amusement from its original-looking figure. Having found the impossibility of steering it with the horses behind, the inventor has now put the team in front, though not two abreast, as in the case of other machines. The huge drum of cloth, with its sharp serrated circular knife below, and a ring of pegs on its upper rim for catching the corn, revolves rapidly as the horses proceed; and the corn is carried forward round the front of the drum, and delivered between it and the horses' heels—only half the diameter of the drum entering into the crop. This machine scattered many more straws than any of the others; the cut was ragged; the corn delivered in a ruffled state; and had the green Rye been ripe Wheat, a great proportion of the grain would (from the violence of the motion) have been threshed out and lost upon the ground.

Dray's machine attracted most encomium, on account of its unpretending appearance and beautiful delivery; while Burgess & Key's came next in our estimation. However, had the crop been at all laid and storm-broken, it is a question whether any of the machines would have been able to collect and deliver the corn. Inventors seem to employ their principal ingenuity in disposing of the stuff when already cut and on the platform; whereas the main difficulty is to get an unfavourably conditioned crop on to the platform at all. We were gratified to see at Lincoln a model in which the crop was bent down forwards, instead of being pulled backwards, in direct opposition to the onward movement of the machine, and hoped to see at Carlisle a matured scheme of this kind; but we have been disappointed—a good reaping machine for heavy crops is yet to be constructed.

Of the nine reapers entered for exhibition, one did not make its appearance; there was, however, a novelty in the showyard in the shape of a model invented by Mr. G. Lee Baxter, of Swinton, near Nottingham, and exhibited by Mr. W. Hall. It has a revolving disc cutter, under a sort of plough-shaped cover, which entering the crop, throws off the cut corn on each side, much as the earth is thrown aside by a double mouldboard plough.

The trial of reaping machines has been postponed until harvest, in order that a fairer crop may be obtained for testing their abilities.

Steam Cultivators.—On Tuesday the grand point of interest was the trial of the steam cultivators. A great number of spectators were assembled in the heavy-land field, but unfortunately no engine made its appearance except Boydell's, which amused as well as astonished the company by running backward and forward, over Grass or ploughed surface, along or across the lands. Many were the conjectures as to what might be expected from this huge machine, as it walked along at a smart pace, though with the clumsy feet of a megatherium.

This machine has already been described in our columns (see p. 410). The wheels carry slippers or pattens whose own weight places them so that the weight of the machine is always borne upon a flat platform, as it were, instead of the curved and narrow edge of a wheel. The advantage of this, in the case of soft and rough ground, was successfully illustrated by the hauling of a cart so furnished and heavily loaded, over difficult ground, which was done—laboriously no doubt—though without the aid of these portable rails, as they are called, it could not have been done at all. The steam engine furnished with these wheels, and exhibited by Mr. Boydell, was put in exercise and tried against a force of men pulling against it; and it was found that 30 men could stop it, so that professing to be 12 horse power it may be considered as efficient for barely half that amount—fully one half being used in its own conveyance over the ground on which it was then working. A frame containing four ploughs, mounted upon carriage wheels, and fitted with levers for lowering and raising in and out of the ground, was attached to the engine in one of its trials. The engine proceeded slowly, dragging the ploughs behind. This arrangement of ploughs for the purpose is the invention of Mr. Coleman, and answered pretty well until one of the ploughs broke short off, and the work came to a standstill. A common iron double furrow plough was next tried, but not with very marked perfection of ploughing—the trial, in fact, being merely to see whether the engine could drag ploughs behind it, as well as propel itself over the land. Gibson's digger was then drawn by the engine; but the soil and weeds clogged the rowels and scrapers, and left the ground behind in holes and heaps. The ground was certainly moist, and the day was extremely rainy; but we doubt whether the work would have been very different had the weather been fine. When drawn on the unploughed lea, the stirring forks in a great measure stripped through the soil without breaking and raising it, though they penetrate some 9 or 10 inches deep. The draught of this implement we judged to be about that of six horses; but the engine of 14-horse power could proceed with it only at the pace of about 2½ miles per hour; so that 8-horse power was absorbed in moving the engine itself. This fully showed the uselessness of such a ponderous machine for tractive purposes. The "endless railway" seemed to act very well, not clogging with the wet soil, or in any way betraying liability to derangement. The pressure of the shoes upon the ground did not appear much more injurious than the trampling of horses; and this is reasonable, when we consider that the total weight of 6½ tons rests upon four shoes at once, that is to say, upon 12 or 15 square feet of surface. We must regard this clever invention as adapted for carrying great weights over rough ground, but not able to conduct a locomotive engine with sufficient ease for it to draw field implements behind it.

Great disappointment was felt at the non-appearance of Usher's steam-plough. This invention, as is well known, consists of a number of curved ploughs set about an axis hung transversely behind a locomotive engine, and so rotating as to act like propellers, assisting the onward movement of the engine. The machine now exhibited is very different from the first that was made, having a vertical instead of a common horizontal boiler, double cylinders, different gear work, and spur wheels for communicating motion to the ploughs and to the carriage wheels; and there is a movement by which the engine itself raises or lowers the ploughs for work. It has been tested to be of 19-horse power; but the weight seems much greater than 5½ tons, as six horses were hardly worked in drawing it into the show-yard. Having got up steam, and attempting to propel itself to the field, the badness of the road occasioned a slight accident, and this, together with the unwillingness of the inventor to have the machine tried upon stiff lea ground in wet weather, has prevented the public from witnessing its performances.

As we were coming away from the trial field, impressed with the sentiment that "the steam cultivators were a failure," and soaked with rain, old Aquarius having turned on his taps as if to give Walter Scott the lie for saying the "sun shines bright on Carlisle wall," the stewards, Mr. Amos, and some few other lucky individuals, received intelligence that another steam plough had started in a field half a mile off. Making the best of our way to the light land trial field, there, sure enough, stood a portable engine in one corner, with ropes and pulleys, and a ploughing machine, all in action. The engine was that belonging to Mr. Lee, of Walsall, and the plough and tackle are the invention of Messrs. Fisker, of Stamfordham, manufactured by R. Roger, of Stockton-on-Tees. It had been tried in Perthshire, last winter, being actuated by a water-wheel; this being the first day of its trial with steam power. The whole apparatus is novel, and we may say, uncommonly promising. Instead of a heavy wire rope to drag the plough frame by main force, a light endless hemp rope, only three-eighths of an inch thick, communicates power to the plough carriage, which we may call locomotive, as it propels itself in the following manner:—a grooved wheel, set in motion by proper spur wheels from a rigger actuated by the hemp rope, winds, as it were, along a strong wire rope laid upon the ground; and the frame being thus carried slowly forward, drags ploughs or other implements after it. The hemp cord does not touch the ground, but is held up at every 40 yards distance by a "horse," or small friction pulley frame, about 3½ feet high. This cord travels at the rate of 20 miles per hour; but the speed being reduced by the wheel work upon the plough carriage, the latter travels only two miles per hour. When two ploughs are in work at once, having the draught of four horses, the strain upon the rapidly running cord will thus be less than half a horse's draught. We were informed by the exhibitor that a 4-horse engine is sufficiently powerful to work two ploughs, and that with 4 cwt. of coal it will plough 4 acres in a day, the expense for labour being only that of two men and a boy. If this be strictly the fact, we have a complete invention able to plough light land at a cost of say 3*s.* per acre. That it is not far from the truth we are sure, for we ourselves saw one plough drawn at the rate of at least two miles per hour when the engine had only 7 lbs. or 8 lbs. pressure upon the square inch, and this was an engine of 6-horse power at 40 lbs. pressure. To be sure, the land had been previously ploughed, pulverised, subjected to the trial of all sorts of drills, and been afterwards well trampled by hundreds of people, and consolidated by rain, so that the possible quantity and quality of the work could not be well ascertained. The ploughing we saw was respectably though roughly done, but there was one point really performed—the furrows were well turned. If a steam cultivator can invert the soil thoroughly and cheaply we may put up with a little imperfection in the straightness of cutting and evenness of laying. The method of anchoring the pulleys, and the arrangement of the pulleys and ropes, is very ingenious, and can hardly be explained with brevity. The anchorage consists of a plate or plough, a few feet in length, and 8 inches only in depth; this can be easily drawn forward *in* the ground without the trouble of digging holes, taking up, setting down again, &c.; and yet it presents a sufficient resistance sideways to the pull of the ropes. A wheel, pinion, and crank on each anchor is used to draw it by means of a rope towards a fixed post, when it is required to be shifted. The arrangement of the ropes about the anchored pulleys is like that of the chains in a travelling crane, the anchorage being shifted forward at intervals without altering the length of rope. The ploughs are not rigidly attached to the travelling frame, but are hung by short iron beams, which form levers, having a slight degree of play up and down. There are four ploughs—two before and two behind the carriage, pointing opposite ways, a neat lever movement lifting two out of work and dropping the other pair of ploughs in; so that the machine can plough both ways without having to turn round at the land's end.

The steam cultivator entered for exhibition by M. Alexis Dussuc has not appeared. But as far as mere ploughing is concerned, we think the above contrivance contains all the elements of success. Whether a better description of tilling instrument, actuated by ropes in this way, can be produced or not, remains to be seen; perhaps Mr. Fowler may solve the question next year at Chelmsford.

The draining engine has appeared in an improved form. Mr. Fowler has contrived an anchor having a clip movement, which causes it to open and key into the hole the more it is pulled. There are also improved blocks, in which the large curve of a heavy wheel is obtained by substituting three smaller and lighter ones. The engine is new, with new crane gearing for reducing the speed of the reels. It is of 8-horse power, and as the leverage is reduced by the wheel-work to 12 for 1, the strain upon the wire rope is that of 96 horses; and this being doubled by the pulley hung to the plough, makes the draught of the implement that of 192 horses. The holes for the anchors cost 6*d.* each digging, so that this plan would not answer for steam ploughing; but an immensely strong purchase is required by this powerful machine.

We must more shortly give the reports of other trials.

Portable Threshing Machines.—Amongst the portable threshing machine makers there seems to be a great struggle. Messrs. Clayton and Shuttleworth have lost their first place, though carrying off a silver medal. The machine for which this medal is given appears to do more than was wanted, and was, on this account, put out of competition. It professes to give a perfect dressing. For this purpose an addition has been made to the right side, by which the three necessary separations are made in the corn, head, seconds, tail. It may, we were assured, be added to the machine of last year for the sum of 15*l.* The bearings struck us as being very complicated, and not good to reach except when the machinery is at rest; nor did we think the reciprocating motion so perfect as in Hornsby's machine, that took the first prize.

Hornsby, who has so long excelled in the dressing machine department, is fairly entitled to the place he holds. The improvement in the principle is as follows:—There is a cylindrical wrought iron beater, combining strength and lightness, together with peculiar ability for fine setting. The reciprocal motion is so well contrived

that the motion of the two ends of the machine neutralise each other. We more particularly desire to notice the introduction of a Venetian lath riddle, separated by a wire between the laths—a panel screen between the chaff separator and screen board, taking out the dust from both chaff and straw—a crank working at the furthest end of the shaker raises the straw with more play, like a fork, so as to obtain the greatest shake at last—the Barley being delivered by elevators into the Barley awner on the near side of the machine, passes through the Barley awner about 4 ft. 6 in., delivering on the other side.

To Messrs. Ransomes & Sims the second prize of 10*l.* is awarded, but with what justice we will scarcely take it upon us to say. According to our opinion, the bearings are far too many, the whole affair too complicated, and the shaker decidedly defective, which from its peculiar form must necessarily draw back a considerable portion of the "earings."

The machine exhibited by Messrs. E. and J. Humphreys received a high commendation, but Messrs. Tuxford & Son's, which also was highly commended, gave us greatest satisfaction. When we say that it has only eight running bearings, all external, and readily oiled when at work, we say a great deal, since to do the same work some machines have as many as 14! many of which cannot be reached unless the wheels are at rest. All is very snug, the very elevators running withinside the frame, and although there is no decidedly reciprocating motion, the motions seem to be admirably balanced, and so that "rocking" is obviated. Perhaps the best feature of this machine is the shaker, which is lightly constructed. The jumping movement complained of some four or five years since is moderated—its advantages without its ill effects are retained. It is not the least recommendation to these exhibitors that their price, 95*l.*, is considerably beneath many.

In Messrs. Garrett & Son's machine the evils proceeding from the method usually adopted of applying to the drum-shaft the whole amount of power required by the machine are avoided. The improvement consists in the introduction of an intermediate shaft, to which the engine is attached, which shaft is supported on the frame of the machine, and carries the necessary pulleys for driving the drum and other working parts of the machine, by which means the power is applied nearer the ground, ensuring therefrom an increased steadiness in working the machine, and avoiding much of the undue wear-and-tear complained of in other machines. The running bearings are very numerous.

Messrs. Barrett & Exall exhibit a machine affording in all nine separations. The drum is wrought-iron, their own patent; the appliances for setting and regulating are especially simple and effective; the bearings are few, but the motions are not so well balanced as in either Hornsby's, Tuxford's, or Clayton & Shuttleworth's implements. The price 105*l.*

Mr. Whitehead, of Preston, shows a slight improvement on his machine of last year. It consists in a catch box to the face wheel, by which a disconnection is instantly effected between the horse power and the drum. This is a good little thresher, 4-horse power, only 44*l.* with the horse works.

Mr. Goucher, of Worksop, exhibits nothing new in the way of threshing machines, calling attention merely to the benefit derived from the employment of his own patent beater—the same as is used by Messrs. Clayton & Shuttleworth.

When we left the yard the prizes for the fixed threshing machines were not awarded; indeed, the trials were going on. [See Prize List at foot.]

Amongst the *corn dressing machines* the greatest novelty was Salmon's patent winnower and seed separator. This wonderful little implement, the invention of an American, took one of the three silver medals awarded to agricultural implements at the World's Fair, New York, and several other prizes at other places. It is introduced into England under Messrs. Dray's auspices. It will separate from Wheat, Cockle, Chess, Redroot seeds, dead kernels, Charlock, and the majority of Oats, and all other impurities. It will clean Oats, Peas, Beans, Barley, Rye. Rice, and garden seeds. It will separate Oats from Peas, Beans and corn, Clover from Timothy, Redtop from Clover, &c., and it will take Grass seeds, Clover seed, and Wheat, and separate all three seeds at one operation. It reminded us of another American machine, advertised to give out ready cooked sausages from one end and brushes at the other, having swallowed a hog in the centre! One bystander requested, with a demure face, to know whether the machine was competent to separate old from new Wheat. "Eh!" replied the ready Yankee, with a laugh, "Yes, sir; and 'maple' Peas from 'grey coats!'"

The novelty of this machine consists in the mechanical arrangement of the blast and sieve. The fan is iron—placed in an air-tight trunk at the bottom of the frame. The fan is driven by a cog wheel 2 feet in diameter, which gives the fan great velocity, sending the air up an air-tight trunk through which the grain is falling from the sieve, the dust escaping at the head of the trunk, which is partly covered by a wire sieve, when the screenings immediately fall through the mouth of the head of the trunk, free from dust and dirt, the good grain falling through the blast into a receiver at the bottom. The heavy seed are taken out without the aid of the blast. Only one sieve is used at once. The sieves are jogged by a cane and spring in front, instead of shaking sideways. There is no complication about the machine, and the power needed much smaller than that required by any other dresser. No prizes have as yet been awarded to this class, but the silver medal has been given to the exhibitor of this implement.

Mr. Nicholson exhibits a dressing machine which is highly commended. There is nothing of a novel construction noticeable about it, however, nor is there in Mr. Bunting's, which also receives commendation of the first degree. Its price, 7*l.*, is its best commendation.

Mr. Roby, of Bury St. Edmunds, exhibits in certain respects a new implement. It is for separating more particularly the broken corn from the entire grain, and giving a more even sample. This object is attained by an improved horizontal wire screen, divided into spaces, and kept clear while in motion by means of collars passing between and above the level of the wires. A simple application of this may be beneficial to maltsters, who during the present high duty on malt, will be anxious to malt nothing but the finest grain; but for the use of the farmer the extra advantage will scarcely be worth the extra expense, for the machine sells at 15*l.*

Hornsby sells one to perfect the sample that comes from his threshing machine for 11*l.* There is nothing new in it, except that it gets through an incredible quantity of work, and that its fittings and details are much more simple, nice, and effective than they ever were before.

Grinding Mills: Power Mills.—Those put upon trial in competition for the prize in this class were exhibited by Messrs. Hayes, Whitmer, & Co., Crosskill, Clayton, Shuttleworth & Co., and Turner, respectively. Messrs. Whitmer & Co.'s was first subjected to the test, but the smallness of the pulley caused it to vibrate with such rapidity that at once decided the trial. It was evident that an error had been committed in calculating the speed of the machine, and further proof being wanting in the application of a larger pulley to the testing break, which would have occupied too much time and only ended in proving its inefficiency, it was withdrawn. The machine of Mr. Hayes next followed; it is fitted with Derbyshire Peak stones, and is made to grind Barley into soft meal; this it did very satisfactorily, and being at a moderate price, 26*l.*, the judges gave it a high commendation. Clayton, Shuttleworth & Co.'s came next; it was brought to the testing machine on a truck, set down, and commenced working in a very few minutes, whereas some others occupied a long and provoking time in preparation. It is fitted with a pair of portable Derbyshire mill-stones, 2 feet 8 inches in diameter, and went through its trial admirably—almost without a vibration. The sample soft and good. The adjustment by which the degree of fineness is regulated "consists in substituting a toothed disc in lieu of a quadrant," upon a vertical spindle, which enables the alteration to be very minute; price 48*l.* We thought the judges justified in awarding it the prize. The next was Mr. Crosskill's. This is a powerful mill fitted with French mill-stones, 2 ft. 8 in. diameter, and driven at the rate of about 240 revolutions per minute; it did not work equally satisfactorily with Clayton & Co.'s, whose revolutions do not exceed 170 per minute with stones of equal size. We thought the velocity too great to act well. The whole worked well; price 55*l.* It received a commendation. Mr. Turner's was next tried. This is a combined crushing and grinding mill. "The corn first passes between a pair of smooth rollers, by which it is so thoroughly crushed that on reaching the stones a very little pressure reduces it to a fine meal." The meal was rather cooler than some of the other competitors', and it worked satisfactorily, except that the expenditure of power was rather too great for the work done. The mill was too complicated, we thought; price 25*l.*

Linseed and Corn Crushers: Power Machines.—The machines shown in competition were from the manufactories of Messrs. Turner, Stanley, Ransomes & Sims, and Phillips and Woods respectively. The trials were very satisfactory, and each mill deserves commendation, but owing to Mr. Amos's testing apparatus, the judges are enabled to decide with accuracy the comparative merits of each. Consequently Turner's received the prize, Stanley's was highly commended, Phillips and Woods commended; Ransomes & Sims did not receive a commendation, we suppose owing to its being more adapted for hand than steam power, it being much smaller, and did not do so much work as its competitors.

Cake Breakers: Power Machines.—The prize in this class is offered for breaking every variety of cake, and the breakers put into competition were those of Messrs. Crosskill, Hornsby & Son, and Garrett & Son, each machine being adapted for breaking either for cattle or sheep. They all made satisfactory work, and each received an approving award—Garrett & Sons the prize; Hornsby & Son's highly commended; Crosskill's commended.

Chaff Cutters: Power machines.—The trial of the chaff cutters excited considerable interest. The competitors in this class were Messrs. Barrett, Exall & Andrewes, Williams, Dray & Co., Richmond & Chandler, Smith & Ashby, Carson, Farnes, Cornes, Ransomes & Sims, and Garrett & Son. The work was variously, but, as a whole, well performed, the time given to the engine being a two minutes run each. We carefully noted down the reading off from the dynamometer as given by Mr. Amos, and making due allowance for clever feeding, &c., we were surprised at the results obtained, some of the engines cutting chaff of equal quality and more than double in quantity to others, with the same or even less expenditure of power; thus mechanically proving the value of the machine, and by this test, we presume, the judges decided. The prize was given to Mr. Cornes. Messrs. Dray & Co. received a high commendation, and Messrs. Barrett & Co., Messrs. Richmond & Chandler, and Messrs. Garrett & Son respectively received commendations.

Chaff Cutters, hand power.—The competitors for the prize were Messrs. Crosskill, Garrett & Son, Williams, Hill and Smith, Smith & Ashby, Richmond & Chandler, Cornes, Carson, and Ransomes & Sims. The chaff cut in this trial varied more in quality than in the power machines, and the work as a whole was not so well performed. The time given in this trial was four minutes each, and the results as given by the "testing machine" were similar to the last, the great test being the units of power required to cut 1 lb. of chaff—each equal to 1 lb. lifted 1 feet high. The highest and lowest numbers tested in the power machines being respectively 2868 against 1812, and in the hand power machines 3310 against 1284; the chaff, however, of the latter was too long to compete with the others. The prize was given to Messrs. Richmond & Chandler; Messrs. Smith & Ashley, and Cornes received high commendations, and Hill & Smith a commendation.

Bone Mills.—There being no competitor in this class except Mr. Crosskill, the prize was awarded to him for his well-known mill, which is not only capable of grinding bones but by changing the plates will grind any kind of grain.

The number of visitors to the show-yard on Wednesday appeared to be thinner than we remember to have ever seen before—the pouring rain, perhaps, tending very much to produce this paucity of attendance.

As to the general character of the Show it appears from the catalogue that the number of implements exhibited is, as might be supposed on a comparison of Carlisle with Lincoln, about one-fifth under an ordinary exhibition of the Society; but that there are abundant means of comparison supplied is obvious from the following numbers: 9 carts, 22 chaff cutters, 12 churns and cheese pressers, 17 clod crushers and rollers, 18 corn dressing machines, 23 cultivators, scarifiers, and grubbers, 14 drilling machines, 28 mills, Linseed crushers, and Bean splitters, 22 harrows and horse hoes, 8 horse rakes, 21 ploughs, 20 Turnip cutters and pulping machines, 16 reaping and mowing machines, 14 steam engines, 21 threshing machines, besides a multitude of implements otherwise classified. On many of these we shall have further remarks to make next week.

PRIZES FOR IMPLEMENTS.

Plough for general purposes, 5*l.*, Ransomes & Sims.
Plough for over 9 inches deep, 5*l.*, Ransomes & Sims.
Machine for draining tiles or pipes, 5*l.*, John Whitehead.
Cultivator, grubber, and scarifier, 5*l.*, Richard Coleman.
Drill for general purposes, 10*l.*, R. Garrett & Son.
Corn and seed drill, 10*l.*, R. Hornsby & Son.
Drill for small occupations, 5*l.*, R. Hornsby & Son.
Small-occupation seed and manure drill for flat or ridged work, 5*l.*, Holmes & Son.
Turnip drill on the flat, with manure, 5*l.*, R. Garrett & Son.
Turnip drill on the ridge, with manure, 5*l.*, R. Hornsby & Son.
Liquid manure or water drill, 10*l.*, R. & J. Reeves.
Manure distributor, 10*l.*, R. Garrett & Son.
Horse hoe on the flat, 5*l.*, R. Garrett & Son.
Horse hoe for setting out Turnips, 5*l.*, R. Garrett & Son.
Portable steam engine, not exceeding 8-horse power, applicable to threshing or other agricultural purposes, 20*l.*, Tuxford & Son.
Second ditto, 10*l.*, Clayton, Shuttleworth, & Co.
Fixed steam engine, not exceeding 8-horse power, applicable to threshing or other agricultural purposes, 20*l.*, Ransomes & Sims.
Second ditto, 10*l.*, Barrett, Exall, & Andrewes.
Portable threshing machine, not exceeding 6-horse power, for larger occupations, 10*l.*, Ransomes & Sims.
Portable threshing machine, not exceeding 8-horse power, with shaker, riddle, and winnower, that will best prepare the corn for the finishing dressing machine, to be driven by steam, 20*l.*, R. Hornsby & Son.
Grinding mill for breaking agricultural produce into meal, 5*l.*, Clayton, Shuttleworth, & Co.
Linseed and corn crusher, 5*l.*, E. R. & F. Turner.
Power chaff cutter, 5*l.*, James Cornes.
Hand chaff cutter, 3*l.*, Richmond & Chandler.
Turnip cutter, 3*l.*, B. Samuelson.
Machine to reduce roots to a pulp, 3*l.*, F. Phillips.
Oilcake breaker, 5*l.*, R. Garrett & Son.
Power bone mill, 5*l.*, A. Crosskill.
Churn, 3*l.*, Burgess & Key.

On Wednesday afternoon the cattle yards were open to the public on payment of 10*s.*, and the comparatively few spectators present in the implement department were soon, in great measure, drawn off to the more attractive cattle classes. We shall publish the prize list along with some general remarks on some of these classes this week, being forced by want of room to postpone a portion of our report till next Saturday.

The cattle and horse classes have been exceedingly well represented. The entries for short-horns were somewhat short of last year, being 98 as against 11[illegible]. They are, however, a very interesting and splendid collection of the breed. We were pleased to recognise old acquaintances amongst them—Mr. Douglas's heifer again competing with her fellows as at Lincoln, and others in the various classes did the same. Many of the individual specimens shown at our meeting could not be exceeded. Lord Berwick's bull of this year is a case in point. The Herefords are 32 as against 14 at Lincoln. The Devons as 23 against 38 at Lincoln. The other breed classes, excluding the special prize classes, as 58 against 17 at Lincoln. The Scotch classes are well supported, and some very fine Angus and Galloways were exhibited.

Class 1. Short-horns: In this class the 1st prize bull is almost a perfect cylinder, of good proportions; he possesses a deep chest, a level uniform back; chine, back, loin, and rump in fine level outline; his under parts perfect; flank deep, and thigh full; shoulder well out, and brisket good; his horns somewhat wide out, and head rather plain; quality of flesh very good.

and denoting a good proportion of lean. The 2d prize bull possesses a beautiful head and horns; fine chine, chest, and neck; capital girth, level back, deep sides, well-formed broad loin, and good hips; rather high good thighs and flank; he is an exceedingly good form, and denotes, like the preceding, a fair amount of good lean flesh. No. 7, Mr. Ambler's bull, was highly commended; he is a noble animal, having a good chest well out, head and neck finely set, good shoulder, chine and girth fair, back level. No. 14, Mr. C. Townley's bull, was highly commended; he possesses a very fine form, rather small and compact, a short neck and full chine, shoulder well out and full, flank good and thighs deep, hips rather too contracted, but stands well as much lean flesh of good quality. No. 17, Mr. Fletcher's bull, was commended; he has a good form, his forequarters heavy and fine, the ribs not sufficiently springing, his hips, rump, and loin slightly defective, legs rather short, and too much body. No. 18, Mr. Cartwell's bull, was commended; he has a beautiful head and horns, and very deep frame throughout. He has no parts particularly noticeable, but as a whole he is a noble well-made animal, and well deserves the commendation he received. There were many good animals shown in this class, but our time is too limited this week; we may notice others at a future day if we think it desirable to renew the criticism.

Class 2. Bulls calved since the 1st of July 1853, and more than 1 year old. The first prize was awarded to Mr. Towneley's bull. This was the prize yearling bull calf of last year; he is greatly improved, possessing a beautiful long frame, fine horns and head, rather long, fine eye and muzzle, colour good, well proportioned symmetrical frame, level fat back, capital loin and deep thighs, good twist and flanks, full breast, and shoulders well out. The model of a good animal throughout of fine quality. The second prize was awarded to Mr. T. W. Rawkes' bull. He has a fine cylindrical form, well proportioned, a very level even back, and he is of very good quality; perhaps his rump is too short and tail too high. No. 32, Mr. Towneley's bull, was highly commended. He has a beautifully compact frame, and stands well, good arms, short neck, deep chest, level back, hips rather too close, rump fair, tail stands well, thighs fair. No. 33, Mr. T. Fowler's bull, was commended. He is a well-made animal, deep in frame, with wide outstanding hips, his chest is full, and arms well standing out, ribs not sufficiently up to hip, leaves too much body. A very good competition; but one or two inferior animals.

Class 3. Bull calf, above 6 and under 12 months old. The prize was awarded to No. 45. This is a very prettily made up animal, of good length and proportions, but not equal to some shown by Mr. Towneley at other times. No. 37, Viscount Hill's bull-calf, was commended; a compact little fellow—hips rather awkwardly prominent. No. 44, Mr. R. Jefferson's bull-calf. This is a beautiful calf, well formed and in good proportion—ribs not out enough. This was a good and well filled class.

Class 4. Cows in milk or in calf. The first prize was awarded to No. 55. This cow has a symmetrical form of great beauty and proportions, deep frame, fine prominent chest, head erect, not large, neck thinnish, level back, loin very good, superbly so, teats large and fat, thighs little defective; a first-rate animal, and equal to any in the yard. The second prize was awarded to No. 52. This is the cow which in the heifer class took the first prize at Lincoln, and was the theme of general admiration. She has the same deep and beautifully formed frame, and is much improved, though according to the opinion of the judges she has not progressed so fast as her more fortunate competitor. We think the decision correct; she is not in general form and feature so fine an animal, but her rotundity or broad cylindrical frame will ever be remembered by those who have viewed her; such a chine, and back, and expansion of rib are seldom seen, but her legs are too short, and detract from her nobility of appearance, otherwise she is nearly perfect. No. 56, Mr. John Booth's cow, was highly commended. This cow has a remarkably good frame, back broad, and level neck; thin and narrow at shoulder, ribs well set and springing. No. 49, Mr. Stratton's cow, was commended; she is a beautiful animal; head and horns fine; chine and chest all you can desire; ribs well set out; back straight and wide; hips wide, but not prominently so; rump wide, and thighs deep; teats and twist good. No. 50, Mr. Stratton's cow, was also commended; she is also a beautiful animal, very cylindrical in form; head and horns good; hips out, but well formed and natural; teats good; tail rather low: both cows match admirably, and two such are seldom seen. No. 53, Mr. Moorhouse's cow, was commended. This is a deeply well-formed cow, and in good proportion; her chine and loin rather thin and bare; good hair, and plenty. This was a highly interesting class.

Class 5. Heifers in milk or in calf not exceeding 3 years old. The 1st prize was awarded to No. 65; she has a beautiful breast, chine, and extraordinary back throughout, head and horns fair; fine in offal, teats very heavy, hips rather narrow, thighs long, and good tail a little elevated; twist not full, flank good; very fine animal of her class. The 2d prize was awarded to No. 72; this is of very superior quality and good frame, admirable head and horns, breast exceedingly good, back very level and well thrown out, rump good, but hips not wide, teats large, twist good, shoulder and breast full, not quite high or long enough. No. 66, Mr. Towneley's heifer, is highly commended; a truly good animal, chine, shoulder, and breast wide and full; a compact cylindrical frame, teats large, but thighs and twist not full; head and horns capital. No 59, Mr. Stratton's heifer, was commended; a very compact frame, thick and good throughout, good head, greater teats, well formed thighs, deep in form.

Class 6. Yearling heifers. The first prize was awarded to No. 81; this is a compact animal, very thick and well formed, very small waxy horns, deep chest, good chine, ribs well springing, full thighs, but flanks and twist not full enough; a capital girth, arms full, head, muzzle, and neck all right. The second prize was awarded to No. 90; she is very cylindrical in form, breast very good, all her under parts are good, making a deep frame of large proportions, and denoting much good lean flesh; horns fine. No. 91, Mr. Stratton's heifer, was highly commended; she is a large well-made animal for her class, deep frame, but girth defective; good rump. No. 93, Mr. Fletcher's heifer, is highly commended; she is very compact in form but rather short, good girth, hips rather narrow, otherwise good hindquarters; rump long, flank and thighs deep and good. No. 75, Viscount Hill's heifer, was commended; very level back, hips rather narrow, tail stands too high. No. 76, Mr. Stratton's heifer, was commended. She is of deeper make than the preceding, with very good hindquarters, chine and girth defective, head good, and horns fine, ribs deep and springing. No. 79, Mr. Crawley's heifer, was commended; a very cylindrical frame, neck and horns too thick, good hips and tail. No. 85, Mr. Marjoribank's heifer, was commended; a complete little heifer, except her chine being rather thin. The number of commendations in the short-horn classes speaks for itself, we think; we do not recollect so many good animals; we have seen better individual specimens occasionally, but not so many good ones.

We are compelled to defer our remarks upon the other cattle classes until next week. The Hereford class is not numerous, but the animals are mostly first-class specimens. Lord Berwick's bull has rarely been surpassed. The Earl of Radnor's bull is of beautiful symmetry and quality, but small in comparison. The class of cows has some good animals in it. The heifers very handsome. The Devons, as a whole, are of excellent quality, very fine in offal and perfect in symmetry, but not numerous. The Ayrshires, with the exception of a good old bull, were not well represented. The Angus and other polled breeds were very few, but well selected. The Angus bull was much admired. The special prize classes were exceedingly well competed for, and many first-rate animals were shown, proving that Galloways still hold a high position, and are well worthy of it. We hope to give an analysis of the prize animals next week.

PRIZES—STOCK.

SHORT-HORNED CATTLE.

Judges—Captain Thomas Ball, Messrs. Richard Dudding and Thomas Parkinson.

Class 1. For the best bull, over 2 and under 4 years old, 18 entries: 30*l.* to R. Booth, of Warlaby, for "Windsor;" 15*l.* to Lord Feversham, for "Gloucester," bred by the late Earl Ducie.—Highly Commended: Charles Towneley, for "Voltigeur."—Commended: William Fletcher, of Mansfield, for "Champion."

Class 2. For the best bull, under 2 and over 1 year old, 18 entries: 25*l.* to C. Towneley, for "Master Butterfly;" 15*l.* to F. H. Fawkes, of Farnley Hall, for "John o'Groat."—H. C.*: C. Towneley, for "Richard Cœur-de-Lion."—C.: F. Fowler, of Baldcock, for "Duke of Bedford."

Class 3. For the best bull-calf, above 6 and under 12 months old: 5*l.* to C. Towneley for "Musician."—C. Viscount Hill, for "Hotspur."

Class 4. For the best cow in milk or in calf: 20*l.*; R. Booth, for "Bridesmaid;" J. Douglas, of Drem, for "Rose of Summer."—H. C.: J. Booth, for "Venus Victrix."—C.: R. Stratton, of Swindon, for "Matchless the Second;" T. Moorhouse, of Penrith.

Class 5. For the best heifer under 3 years old, 10 entries: 15*l.* to C. Towneley for "Roan Duchess the Second; 10*l.* to R. Booth, for "Bride Elect."—H. C.: C. Towneley, for "Blanche 6th."—C.: R. Stratton for "Salthorp Rose 3d."

Class 6. For the best yearling heifer, 10*l.*: to J. Hall, of Worksop, for "Canney;" 5*l.* to C. Towneley, for "Vestris."—H. C.: C. Towneley for "Victoria;" W. Fletcher, of Mansfield, for "Laura."—C.: Viscount Hill for "Heresy;" S. Marjoribanks, Watford, for "Sunflower;" G. Sainsbury, of Corsham, for, "Little Flirt."

HEREFORD CATTLE.

Judges—Messrs. H. Chamberlain, E. L. Franklin, and H. Trethewy.

Class 1. For the best bull, over 2 years and under 4 years old, 30*l.*, Lord Berwick: 15*l.* to Earl Radnor.—H.C.: R. Hill, of Golding Hall, near Shrewsbury; J. Monkhouse, of the Stow, near Hereford; W. S. Powell, of Castle Street, Hereford. The judges commended the whole of class 1, and class 6.

Class 2. For the best bull, under 2 and over 1 year old: 25*l.* to Lord Berwick; 15*l.* to J. Monkhouse.

Class 3. For the best bull calf, above 6 and under 12 months old: 5*l.* to E. Williams, of Llowess Court, near Hay.

Class 4. For the best cow in milk or in calf: 20*l.* to J. Monkhouse; 10*l.* to P. Turner, Pembridge, Leominster.

Class 5. For the best heifer, in milk or in calf, under 3 years old: 15*l.* to J. Walker, of Westfield House, Holmer, near Hereford; 10*l.* to W. Perry, of Cholstrey, near Leominster.

Class 6. For the best yearling heifer: 10*l.* to Lord Berwick; 5*l.* to W. Maybery, of Brecon.

DEVON CATTLE.

Class 1. For the best bull, over 2 and under 4 years old: 30*l.* to J. Quartly, South Molton; 15*l.* to W. Farthing, of Stowey Court.

Class 2. For the best bull, under 2 years and over 1 year old: 25*l.*, to G. Turner, of Barton: 15*l.* to W. Farthing.

Class 3. For the best bull calf, above 6 and under 12 months old: One entry. No award.

Class 4. For the best cow: 20*l.* to G. Turner: 10*l.* to G. Turner. H. C.: W. Farthing.

SCOTCH CATTLE,

Excepting Galloway Cattle, which are provided for in the special prizes offered by G. H. Head, Esq.

Judges—Messrs. P. Graham, Barns, R. Hector, and W. M'Culloch.

I. AYRSHIRE.

Class 1. Bull of any age: 10*l.* to J. Stewart, of Strathaven.

Class 2. Yearling bull: 10*l.* to J. Stewart.

Class 3. Cow of any age: 10*l.* to W. Muir, of Hardington Mains, Biggar.

Class 4. In-calf heifer: 5*l.* to J. Stewart.

* H. C. stands for Highly Commended.

II. ANGUS AND OTHER POLLED BREEDS.

Class 1. Bull of any age: 10*l.* to W. M'Combie, of Tillyfoord, Aberdeen.

Class 2. Yearling bull: No competition.

Class 3. Cow of any age: 10*l.* to W. M'Combie.

Class 4. In-calf heifer: 5*l.* to W. M'Combie.

III. HIGHLAND AND OTHER HORNED BREEDS.

Class 1. Bull of any age: No competition.

Class 2. Yearling bull: 10*l.* to Neill Malcolm, of Poltalloch, Lochgilphead.

Class 3. Cow of any age: 10*l.* to Neill Malcolm.

Class 4. In-calf heifer: No competition.

HORSES.

We are not disappointed with the result of the horse show. Our expectations were raised upon coming so completely within the reputed region of horse breeding, and these expectations have been fully realised. The prizes were never, we think, more fairly awarded. Real practical utility is appreciated. We have a full report in hand, but must postpone it for a week.

HORSES.

Judges—Messrs. J. H. Bland and T. Hunt.

Class 1. Stallions for agricultural purposes, foaled previously to the 1st January, 1853: 30*l.* to E. & M. Reed, Chester-le-Street, Durham; 20*l.* to S. & R. Spencer, Flecknor, Daventry.

Class 2. Stallions for agricultural purposes, foaled in the year 1853: 20*l.* to R. Smith, Ladyland, Dumfries; 10*l.* to H. Bailey, Berkley, Gloster.

Class 3. Agricultural stallion, foaled in the year 1854: 15*l.* to S. & R. Spencer.

Class 4. Mares and foals for agricultural purposes: 20*l.* to D. Bird, Catterlen Hall, Penrith; 10*l.* to R. Murray, Park Gate Hall, Wigton.

Class 5. Two-year-old fillies for agricultural purposes: 15*l.* to E. Holland, M.P., Evesham; 10*l.* to E. Holland, M.P.

CLYDESDALE HORSES.

Class 1. Stallion foaled previously to the 1st January, 1853: 20*l.* to C. Phillips, Brampton, Cumberland.

Class 2. Stallion foaled in the year 1853: 15*l.* to J. Newbigging, Redhall, Ecclefechan.

Class 3. Mare, with her foal at her foot: 10*l.* to J. Douglas, Drem.

Class 4. Filly, foaled in the year 1853: 5*l.* to J. Patterson, Langholm.

SHEEP.

The show of Leicesters was unusually large; the Southdown class considerably less, and the long-wool class very much smaller than last year. The mountain and Cheviot sheep, however, were very numerous, amounting to more than double the number of any local class ever exhibited in the Society's show-yards. Every class was admirably sustained, and many splendid animals were shown. Mr. Sanday stands high in the Leicester classes; Mr. Rigden, in the absence of "Jonas Webb," equally so in the Southdown classes; Mr. Lane keeps up his reputation in the long-wool classes, and we think the individual animals shown by these breeders quite equal to those formerly exhibited by them. Our detailed report must be postponed. The following is the award of prizes:—

LEICESTERS.

Judges—Messrs. R. B. Aylmer, W. Torr, and J. Wright.

Class 1. Shearling rams: 25*l.* to W. Sanday, of Holmepierrepont; 15*l.* to T. E. Pawlett, of Beeston.

Class 2. Rams of any other age: 25*l.* to W Sanday; 15*l.* to W. Sanday.

Class 3. Pens of five shearling ewes of the same flock: 20*l.* to W. Sanday; 10*l.* to W. Sanday.

SOUTHDOWN, OR OTHER SHORT-WOOLLED SHEEP.

Judges—Messrs. G. Brown, H. P. Hart, and J. Waters.

Class 1. Shearling rams: 25*l.* to W. Rigden, of Hove, Brighton; 15*l.* to the Earl of Chichester, of Stanmer Park.

Class 2. Rams of any other age: 25*l.* to W. Rigden; 15*l.* to W. Rigden.

Class 3. Pens of five shearling ewes of the same flock: 20*l.* to H. Lugar, of Hengrave, Bury St. Edmunds; 10*l.* to Lord Walsingham.

LONG-WOOLLED SHEEP. NOT QUALIFIED TO COMPETE AS LEICESTERS.

Judges—Messrs. H. Aylmer, T. B. Colton, and N. C. Stone.

Class 1. Shearling rams: 25*l.* to W. Lane, of Northleach; 15*l.* to W. Hewer, of Northleach.

Class 2. Rams of any other age: 25*l.* to W. Garne, of Northleach; 15*l.* to W. Lane.

Class 3. Pens of 5 shearling ewes of the same flock: 20*l.* to T. Beale Browne, of Hampen Andoversford; 10*l.* to W. Lane.

MOUNTAIN SHEEP.

1. HERDWICKS.

Judges—Messrs. W. Dodd, R. Donkin, and A. Douglas.

Class 1. Shearling ram: 7*l.* to G. Robinson, of Orton Hall.

Class 2. Ram of any other age: 8*l.* to J. Mounsey, of Askham.

Class 3. Pen of five shearling ewes: 5*l.* to G. Robinson.

2. OTHER BLACK-FACED MOUNTAIN SHEEP.

Class 1. Shearling ram: 7*l.* to H. Shield, of Allendale, Northumberland.

Class 2. Ram of any other age: 8*l.* to C. Summers, of Haydon Bridge.

Class 3. Pen of five shearling ewes: 5*l.* to J. Brydon, of Langholm.

PIGS.

The number of large and small-breed boars, together with the sows, and pens of sow pigs, was 84, being 53 less than last year. We did not observe so many specimens of fine quality and superior breeding, but there were some remarkable animals, particularly the prize small-breed sow, of great size and beauty. Too many of the boars and sows were much over-fed, though, perhaps, the class in general was not more open to blame in this respect than in former years. We are glad to find that the judges had been awake to their duty, and determined to have proper order observed in the pig classes, inasmuch as they disqualified several animals for being entered in the wrong class. The stewards, too, had disqualified several animals because their teeth told a greater age than the exhibitors stated

in their certificates. We shall give a full report next week. The following is the prize list :—

Judges—Messrs. P. Halse, H. Eddison, and W. Hesseltine.

Class 1. Boars of a large breed: 10*l.* to T. Horsfall, of Burley Hall, Otley, Yorkshire; 5*l.* to C. Jackson, of Goodram Gate, York.

Class 2. Boars of a small breed: 10*l.* to W. Hatton, of Otley; 5*l.* to G. Turner, of Barton.

Class 3. Sow of a large breed: 10*l.* to J. Harrison, jun., of Heaton Norris, Stockport.

Class 4. Sow of a small breed: 10*l.* to R. H. Watson, of Bolton Park, Wigton.

Class 5. Pen of 3 breeding sow-pigs of a large breed, of the same litter, above 4 and under 8 months old: 10*l.* to W. I. Sadler, of Bentham Purton, Swindon.

Class 6. Pen of 3 breeding sow-pigs, of a small breed, of the same litter, above 4 and under 8 months old: 10*l.* to R. H. Watson, of Bolton Park, Wigton.

SPECIAL PRIZES.

Given by the Carlisle Local Committee.

CHEVIOT SHEEP.

Judges—Messrs. W. Dodd, R. Donkin, and A. Douglas.

Class 1. Rams not more than four shear: 15*l.* to T. Elliot, of Hindhope, Jedburgh; 7*l.* to T. C. Borthwick, of Langholm.

Class 2. Shearling rams: 15*l.* to T. Elliot; 8*l.* to T. C. Borthwick.

Class 3. Pens of five ewes not more than four shear: 10*l.* to T. C. Borthwick; 5*l.* to the same.

Class 4. Pens of five shearling ewes or gimmers: 10*l.* to T. C. Borthwick; 5*l.* to T. Elliot.

HORSES.

Judges—Messrs. W. Greaves and W. Walker.

Class 1. Harness mare, with foal at foot: 15*l.* to Sir Wilfred Lawson, Bart., of Brayton.

Class 2. Three year old harness gelding: 10*l.* to Sir W. Lawson, Bart.

Class 3. Mare for breeding hunters, with foal at foot: 15*l.* to T. Swarbreck, of Sowerby, Thirsk.

Class 4. Three year old gelding for hunting: 10*l.* to R. Barton, of Barrack Town, Carlisle.

Class 5. Three year old cart filly: 10*l.* to Miles Bell, of Brunstock, Carlisle.

Class 6. Three year old cart gelding: 10*l.* to Ann Tinning, Oak Bank, Longtown.

Class 7. Two year old cart gelding: 10*l.* to William Stordy, Moorhouse, Carlisle.

GALLOWAY CATTLE.—Given by G. H. HEAD, Esq.

Judges—Messrs. P. Graham, Barns, R. Hector, and W. McCullock.

Class 1. Bulls not more than 4 years old on the 1st of July, 1855: 25*l.* to J. Graham, of Dalbeattie; 10*l.* to J. Carruthers, of Kirkhill, Moffat.

Class 2. Bulls, calved since the 1st of July, 1853, and more than 1 year old: 15*l.* to J. Beattie, of Newble House, Annan; 10*l.* to J. Birrell, of Guards, Gretna Green.

Class 3. Cows in calf or milk: 15*l.* to J. Beattie; 10*l.* to John Grainger, of Souterfield, Abbey Holme.

Class 4. Pairs of heifers in calf or milk, and not exceeding 3 years old: 10*l.* to G. Riddick, of Lockerbie; 5*l.* to J. Pearson, of Langrigg, Cumberland.

THOROUGH-BRED STALLIONS.—GIVEN BY R. FERGUSON, ESQ., MAYOR OF CARLISLE.

Judges: Messrs. W. Greaves and W. Walker.

COACHING STALLIONS.

Class 1. Thorough-bred Stallion: 40*l.* to No. 783, viz. to R. Ferguson, of Harker, Carlisle.

Class 2. Coaching Stallion: 30*l.* to No. 797, viz. to J. Shaw, of Acomb Hall, York.

[We are unable in this Number of our Journal to report on the Poultry Show. The number of pens of poultry shown is 185, being 110 less than at Lincoln. The Dorking fowl class comprised some of the most admired specimens; and the two classes of Dorkings, the entire class of Spanish fowls, game fowls, and the Aylesbury ducks received a general high commendation.]

THE PAVILION DINNER.

Every seat was occupied. The presiding notabilities were, beside the fine spirited manly President, Mr. Miles, the Duke of Cleveland, Viscount Dillon, Lord Berners, the Baron Ricasoli (a large landed proprietor from Tuscany), M. de la Trehonnois, of Paris, Sir J. Maxwell, the Very Rev. the Dean of Carlisle, Sir James Graham, Bart., M.P., Sir Stafford Northcote, the High Sheriff of the County, C. W. Hoskyns, Esq., &c.

The loyal toasts were enthusiastically responded to.

The Baron Ricasoli responded in Italian to the toast given to distinguished foreigners present. He spoke a most complimentary language, and used it eloquently in reference to the benefits that result from international alliance and concourse of all kinds.

The toasts had been so arranged as to omit the Army and Navy, but the meeting proving rebellious to this arrangement, the President proposed the Army and Navy; and Sir J. Maxwell responded first for the Navy, while the Duke of Cleveland returned thanks, as the senior officer in the room, for the Army.

Lord Berners, in proposing the health of the President, passed a very high eulogium, which was most cordially endorsed by the cheers of the meeting.

The President, in responding to this toast, expressed a just pride and satisfaction at presiding over such a meeting—the largest he had ever seen in that Pavilion. He spoke of the character of the Society of England being inexclusive. Then referring to the excellence of the two departments of the Show, the implements and cattle, he stated that if the number of implements was less than in former years, the quality of what really were placed in competition amply compensated for the defect in point of quantity. When he recollected the state of agriculture in England 18 or 20 years ago, and compared it with the present scientific attitude of farming, he could not but congratulate the country upon her visible and surprisingly rapid improvement. Twenty years ago good farming was the exception; now he was glad publicly to state that he regarded it as no longer the exception, but the rule. "You avoid a bad farmer," remarked the hon. gentleman, "as you avoid the cholera. To what is this owing? To the enlightenment that has come to the popular mind with respect to the clearing of land, the benefits of autumn fallowing, to the large quantities of artificial manure that are being used annually. One of the Parliamentary returns shows that in 1834 there were imported into England 2281 tons of guano, and in 1854, 235,111 tons, so that taking it at 10*l.* per ton, there is found to have been expended in 1841, 28,808*l.*; whereas in 1854 there was expended the prodigious sum of 2,351,100*l.* to secure the benefits of this one manure to the farmer. The use of the nitrates, the only other kind of artificial that the returns take cognisance of, is doubled in the same time. And when we think of the immense number of bones that go to make up the superphosphate manures distributed the length and breadth of our country, we may well arrive at the conclusion that the farmer is not asleep, and that where he sees an outlay of capital will benefit him, he hesitates not to adopt it." The President alluded to the admirable results of the associative principle, as exhibited by the meetings of the Society, and the meetings of the local societies throughout Great Britain. He praised the beneficial effects of the Society's Journal, having spread far and wide the experience of experimentalists, studying always to confine and consolidate the practical results of such meetings as the one over which he presided—doing their part to the better feeding of the millions of the country. And while referring to the Journal he paid a most just tribute to the memory of its deceased editor, the talented Philip Pusey. In describing the pleasure he received from a recent visit, in company with some of his tenantry, to Paris, he mentioned the unexampled success there of the English exhibitors, Jonas Webb taking a prize for every other animal, or nearly so, on which account the Emperor has ordered that a special medal shall be struck off to commemorate so honourable a fact.

For the societies of Scotland and Ireland Capt. Ball responded in a very appropriate speech for the Irish Society, and Sir J. Maxwell, as a member of the Highland Agricultural Society, and in the absence of Mr. Alexander Graham, for the Scotch Society. Sir J. Maxwell merrily alluded to the border feuds that did once exist. He would do away with the exclusive spirit of clanship, and was glad that the representatives of the three sister societies were in Paris looked upon as one and the self-same body, and that in this united capacity they presented an address to the Emperor before they left France. Captain Ball hoped that this alliance might not merely exist in name, but ultimately grow to the proportion of a great and splendid fact.

Mr. Thompson proposed the Mayor and Corporation in a humorous speech, full of good feeling, to which the Mayor, Mr. Ferguson, responded very fittingly indeed, though unfortunately for the meeting not in a voice sufficiently strong to be heard many yards in front of him.

Sir James Graham rose from the body of the Pavilion and proposed this toast—agriculture, manufacture, commerce. He complimented Mr. Miles, gracefully alluded to Mr. Pusey and his indefatigable labours as Editor of the Journal, reminded the meeting that while we regarded with pride our present advance, we must not cease to remember to whom we owe it—our predecessors Mr. Coke, Sir J. Sinclair, &c. They introduced drill husbandry, Turnip culture, and folding upon arable land, and this is the foundation of our present successes—the starting post, in fact. Sir James spoke upon the intimate relations that exist between agriculture, manufacture, and commerce—relations the repeal of our import duties has tended so much to enlarge and strengthen.

The Dean of Carlisle spoke to the toast "the Labouring Classes," with right good feeling. He was followed by Sir Stafford Northcote, who proposed thanks to the Railway Companies for their co-operation in promoting the objects of the Society, and Mr. Hasell responded. Col. Challoner then proposed "the healths of the Stewards and Judges of the Show," to which Mr. Fisher Hobbs made answer. With the "Health of the President-Elect," proposed by Mr. Marshall, M.P., the proceedings terminated, and the vast throng, consisting of some 1000 or 1200 people dispersed, dispersed again to encounter the Cumberland shower baths!

Notices to Correspondents.

DIFFERENCE BETWEEN LIVE AND DEAD WEIGHT: *O C J.* An imperial stone of live sheep will ordinarily yield a Smithfield stone of mutton—*i. e.*, for seven of the living animal there will be four of carcase; but we do not know what there may be in the case of lamb.

FARM MANAGEMENT: *H G., Lincoln.* We are glad to give all the information in our power on particular points in farm practice when the information or decision is needed, and that is properly the use that should be made by inquirers of these columns; and when the subject is of more than merely individual interest, we are willing to do more than this, and supply such information as we can on the whole scheme of farm management—the capital needed and profits to be expected, &c. &c.—to which your inquiry extends; but both space and time are needed for such a discussion, and we cannot undertake it except at our leisure.

FOUL TURNIPS: *J Mc.* Many weeds are food and lodging for the fly. Your bailiff was wrong.

M E B asks any of our readers to inform him how best to preserve Peas and French Beans for winter use, the Peas either shelled or unshelled.——One of the best fastenings for gates consists of a drop piece on the post, and a mere projecting bolt on the gate. The bolt sliding against the drop lifts it until the gate is against the post, when the piece drops and holds it.

THISTLES: *Shem.* Make use of this soft weather to pull them. A little perseverance in doing this over so small a piece will be better than breaking the land up, provided the Grass is otherwise good.

GLASS PRESERVE JARS, PER DOZEN.

	Without lids.		With lids.
3 inches Diameter	£0 4*s.* 6*d.*	6*s.* 6*d.*	per dozen.
4 "	0 6 0	9 0	"
5 "	0 8 0	11 0	"
6 "	0 10 0	14 0	"
7 "	0 12 0	16 0	"
8 "	0 16 0	20 0	"
9 "	1 0 0	26 0	"
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12 inches diameter	12*s.* 0*d.*	22 inches diameter	42*s.* 0*d.*
14 " "	18 0	24	48 0
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2 inches diameter	2*s.* 0*d.*	12 inches diameter	18*s.* 0*d.*
3 " "	2 6	13 " "	20 0
4 " "	3 0	14 " "	24 0
5 " "	4 0	15 " "	30 0
6 " "	5 0	16 " "	36 0
7 " "	6 0	17 " "	42 0
8 " "	7 0	18 " "	48 0
9 " "	8 0	19 " "	60 0
10 " "	10 0	20 " "	72 0
11 " "	12 0		

CUCUMBER GLASSES.—Each.

24 inches long	2*s.* 0*d.*	16 inches long	1*s.* 4*d.*
22 "	1 10	14 "	1 2
20 "	1 8	12 "	1 0
18 "	1 6	Made to any length.	

FERN SHADES.—Each.

6 in. diam., with stands	2*s.* 9*d.*	12 in. diam., with stands	8*s.* 4*d.*
7 " "	3 6	13 " "	9 6
8 " "	4 1	14 " "	12 6
9 " "	4 9	15 " "	16 9
10 " "	5 9	16 " "	21 10
11 " "	6 8		

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7½ "	5½	"	8	"	6	...	...	13 0
8½ "	6½	"	9	"	7	...	...	13 6
9½ "	7½	"	10	"	8	...	...	13 6
10½ "	8½	"	11	"	9	...	...	14 0
12 "	9	"	13	"	9	...	...	14 0
10 "	10	"	10½	"	10½	...	...	14 0
11 "	10	"	11½	"	10½	...	...	14 0
11 "	11	"	11½	"	11½	...	...	14 0
12 "	11	"	12½	"	11½	...	...	14 0
13 "	11	"	13½	"	11½	...	...	14 0
13 "	12	"	13½	"	12½	...	...	16 0
13½ "	13½	"	14½	"	13½	...	...	16 0
15½ "	13½	...	...	...	...	...	...	16 0

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BEETLE POISON.

ENTIRELY FREE FROM DANGER TO HUMAN LIFE, AND PERFECTLY HARMLESS TO CATS AND DOGS.

A Safe and most Effectual Destroyer of Black Beetles and Cockroaches; one trial alone will suffice to prove its great efficacy, and one box will destroy thousands. The great advantage in this preparation is that it does not leave their bodies to decay and corrupt the air, but completely dries up and destroys them, so that nothing is left to cause an unpleasant odour when dead.

Directions for use: Place four or five of the Balls each night where the Beetles mostly resort.

Sold in boxes at 1s. each, by THOMAS CHASE, Chemist, 14, Holborn (opposite Furnival's Inn), London. And may be obtained through all wholesale medicine vendors.

To the Editor of the "Cottage Gardener," July 3d, 1855.

"Some of your readers may be glad to hear of an effectual poison for these disagreeable pests. I have succeeded in completely clearing my house of them by the use of Chase's Beetle Preparation (14, Holborn). I recommend those who are troubled with these insects to place the pills in every place in the house haunted by them, and to repeat the application twice after intervals of 10 days; by this means the successional crops of young beetles are destroyed."—*C. W. J., Croydon.*

(ED.—This is not a mere puff, but sent to us by a gentleman who has been benefited as he states.)

THE BEST SHOW OF IRON BEDSTEADS in the Kingdom is WILLIAM S. BURTON'S.—He has two very Large Rooms, devoted to the exclusive show of Iron and Brass Bedsteads and Children's Cots, with appropriate Bedding and Mattresses. Common Iron Bedsteads, 16s.; Portable Folding Bedsteads from 12s. 6d.; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17s. 6d.; and Cots from 20s. each; handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2l. 13s. 6d. to 15l. 15s.

PAPIER MACHE AND IRON TEA-TRAYS.—An assortment of Tea Trays and Waiters wholly unprecedented, whether as to extent, variety, or novelty.

New oval Papier Maché Trays, per set of three	from 20s. to 10 guineas.
Ditto, Iron ditto	from 13s. to 4 guineas.
Convex shape, ditto.	from 7s. 6d.

Round and Gothic Waiters. Cake and Bread Baskets equally low.

BATHS AND TOILETTE WARE.—WILLIAM S. BURTON has ONE LARGE SHOW ROOM devoted exclusively to the DISPLAY of BATHS and TOILETTE WARE. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country. Portable Showers, 7s. 6d.; Pillar Showers, 3l. to 5l.; Nursery, 15s. to 32s.; Sponging, 15s. to 32s.; Hip, 14s. to 31s. 6d. A large assortment of Gas Furnace, Hot and Cold Plunge, Vapour, and Camp Shower Baths. Toilette Ware in great variety, from 15s. 6d. to 45s. the Set of Three.

WILLIAM S. BURTON has SIXTEEN LARGE SHOW ROOMS, all communicating, exclusive of the Shop, devoted solely to the show of GENERAL FURNISHING IRONMONGERY (including Cutlery, Nickel Silver, Plated and Japanned Wares, Iron and Brass Bedsteads and Bedding), so arranged and classified that purchasers may easily and at once make their selections.

Catalogues, with engravings, sent (per post) free. The money returned for every article not approved of.

No. 39, Oxford Street (corner of Newman Street); 1, 2, and 3, Newman Street; and 4 & 5, Perry's Place.

DU BARRY'S REVALENTA ARABICA FOOD.—"Fifty years' dyspepsia, nervousness, asthma, cough, constipation, flatulency, spasms, sickness at the stomach, and vomitings, from which I have suffered indescribable agony, have been removed by DU BARRY'S excellent health-restoring REVALENTA ARABICA FOOD.—MARIA JOLLY, Wortham, Ling, near Diss, Norfolk." In canisters, suitably packed for all climates, and with full instructions; 5 lb., 11s.; 12 lb., 22s.; super-refined, 5 lb., 22s.; 10 lb., 33s. The 10 lb. and 12 lb. carriage free 200 miles on receipt of post-office order.—BARRY DU BARRY & Co., 77, Regent Street, London; FORTNUM, MASON, & Co., 182, Piccadilly; also at 330 and 451, Strand; 54, Upper Baker Street; 5, Eccleston Street, Pimlico; 63, and 150, Oxford Street; 68, Cornhill; 60, Gracechurch Street; 49, Bishopsgate Street.

THE SUCCESSFUL RESULTS OF THE LAST HALF CENTURY HAVE PROVED BEYOND QUESTION THAT

ROWLAND'S MACASSAR OIL possesses peculiarly nourishing powers in the growth, restoration, and improvement of the human Hair, and is now universally acknowledged to be the cheapest, and superior to all other preparations for the hair. It prevents it from falling off or turning grey, strengthens weak hair, produces a thick and luxuriant growth, cleanses it from scurf and dandriff, and makes it beautifully soft, curly, and glossy. In the growth of the Beard, Whiskers, Eyebrows, and Moustachios, it is unfailing in its stimulative operation. For children it is especially recommended, as forming the basis of a beautiful head of hair. Price 3s. 6d. and 7s.; Family Bottles (equal to four small), 10s. 6d.; and double that size, 21s. CAUTION.—On the wrapper of each bottle are the words, Rowlands' Macassar Oil, in two lines.—Sold by A. ROWLAND & SONS, 20, Hatton Garden, London, and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.?—The most marvellous production of modern date is ROSALIE COUPELLE'S CRINUTRIAR, which is guaranteed to produce Whiskers, Moustachios, Eyebrows, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually checks greyness in all its stages. For the nursery it is recommended by upwards of 100 physicians, for promoting a fine healthy head of hair, and averting baldness in after years. Sold by all Chemists and Perfumers, price 2s., or will be sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London. Mrs. CARTER writes, "My head, which was bald, is now covered with new hair." Mrs. WILLIAMS—"I can show a fine head of hair from using your Crinutriar." Mrs. REEVE—"My hair is gaining strength and thickness." Sergeant CRAVEN ——"Through using it I have an excellent Moustache." Mr. YATES—"The young man has now a good pair of whiskers. I want two packets for other customers."

BASS'S EAST INDIA PALE ALE, BASS'S MILD BURTON ALE, and BARCLAY'S PORTER and STOUT, in 18-gallon Casks, Bottles, Half-Bottles, and Imperial Pints.—BERRY, BLOMFIELD, & Co., 3, St. James's Street, London.

DEVONSHIRE CYDER.—A three dozen case (large bottles), of the very best DEVONSHIRE CHAMPAGNE CYDER, will be forwarded to any address on receipt of a Post-office order for 21s., payable to JOHN E. RENDLE, Martin Street, Octagon, Plymouth. Case and bottles, value 8s., included.

A CLEAR COMPLEXION,

GODFREY'S EXTRACT OF ELDER FLOWERS is strongly recommended for softening, beautifying, and preserving the skin, and giving it a blooming and charming appearance, being at once a fragrant Perfume and delightful Cosmetic. It completely removes tan, sun-burn, redness, &c., and by its balsamic and healing qualities renders the skin soft, and free from dryness, scurf, &c.; clears it from every humour, pimple, or eruption; and by continuing its use only a short time the skin becomes and continues soft and smooth, and the complexion clear and beautiful. In the process of shaving it is invaluable, as it annihilates every pimple and all roughness, and affords great comfort if applied to the face during cold easterly winds.—Sold in Bottles, price 2s. 9d., with directions for using it, by all Medicine Vendors and Perfumers.

THE COMING PILL.—"THE RIGHT PILL FOR EVERY COMPLAINT!"—PAGE WOODCOCK'S WIND PILLS for Wind in the Stomach, Indigestion, Biliousness, Liver Complaints, and all diseases arising from a disordered state of the Stomach and Bowels, will beat the World for efficacy! Try them, and you will say you have got the right Pill this time.—Sold by all respectable Medicine Vendors everywhere, at 1s. 1½d., 2s. 9d., and 4s. 6d. If difficulty occur in remote places, send stamps to PAGE D. WOODCOCK, Lincoln, and you will have them by return of Post.

HOLLOWAY'S PILLS ARE WITHOUT DOUBT THE VERY BEST MEDICINE FOR INDIGESTION AND FLATULENCY.—The test of years have proved their efficacy in curing Bile, Flatulency, Indigestion, Sick Headache, Nervousness, and debilitated constitutions. The well-known properties of these excellent Pills are too highly appreciated in the present day to require any encomium here, as they are resorted to by rich and poor in every nation; and their properties are to invigorate the body, strengthen the faculties of the mind, and restore the invalid to a perfect state of good health.—Sold by all Medicine Vendors throughout the world; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. PISDICY, Smyrna; and E. MUIR, Malta.

PRUDENCE.

HOW much pain, regret, and evil may be avoided by timely forethought! If it be desirable to economise money and time, is it not still more important to economise our health?

The prudent man pays attention to the slightest derangement in his physical organisation. When he finds himself "out of order," he should resort to the world-famed remedy, PARR'S LIFE PILLS, and thus the incipient malady will be checked.

In all quarters of the globe the reputation of PARR'S Life Pills is fully established; and it is a fact, that no "household words" are more familiar with the people than those of the invalid, who speaks of health restored as the consequence of using PARR'S Pills.

☞ Ask for PARR'S Life Pills.

Sold by E. Edwards, 67, St. Paul's Churchyard; Barclay & Sons, 95, Farringdon Street; Sutton & Co., 10, Bow Churchyard; Hannay & Co., 63, and Sangar, 150, Oxford Street, London; and by all respectable Chemists and Medicine Vendors in town and country. In boxes, price 1s. 1½d., 2s. 9d., and in family packets 11s. each. Directions with each box.

TO BE LET, at Haxby, near York, within a short distance of the Railway Station, a neat and compact COTTAGE, with requisite Outbuildings, and Nine Acres of Land, well adapted for a Nurseryman, Seed Grower, or Market Gardener, and may be entered on at Michaelmas next.—For particulars, apply to Messrs. BAINBRIDGE & HEWISON, Nurserymen and Seedsmen, or Messrs. ACTON & SON, Auctioneers, Low Ousegate, York.

TO GARDENERS AND OTHERS.

TO BE SOLD, a BUSINESS, consisting of Jobbing and Market Gardening, together with a Florist and Seed Business, with a good connection, and capable of enlargement, known as the Dane Nursery, Margate, Kent; with a good Family Residence, and about two acres of Land, walled in, and in excellent condition, with a good supply of water. Rent, 30l. per annum. The Greenhouses, Pits, and all Erections, with Stock in Trade, &c., to be taken at valuation, with possession at Michaelmas next, old style (or immediately, if required).—To treat, and for further particulars, apply to Mr. HENRY STROUD, on the premises.

Satisfactory reasons given for leaving. No agents need apply.

NURSERY, SEED, AND FLORIST'S BUSINESS.

TO BE SOLD, the Goodwill, Stock, Crops, and Effects, of a long-established Business, situate about 15 miles from London, in a populous country, and well adapted in every respect for an enterprising person possessed of capital.—For further particulars apply to MR. W. B. PATERSON, Solicitor, Bride Court, New Bridge Street, Blackfriars, London.

Sales by Auction.

SPECIMEN HEATHS, ETC.—CLAPHAM PARK.

MR. J. C. STEVENS is favoured with instructions to sell by Auction, on the premises, on TUESDAY, 31st July, at 12 o'clock, the collection of Specimen Heaths and Azaleas, the property of the late Wm. Hy. Gilliat, Esq., of Clapham Park, including some of the finest Plants in the country. Also the house in which they have been cultivated.—May be viewed on the day prior and morning of sale, and Catalogues had of Mr. STEWART, the Head Gardener on the premises, and of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

NORBITON NURSERY.

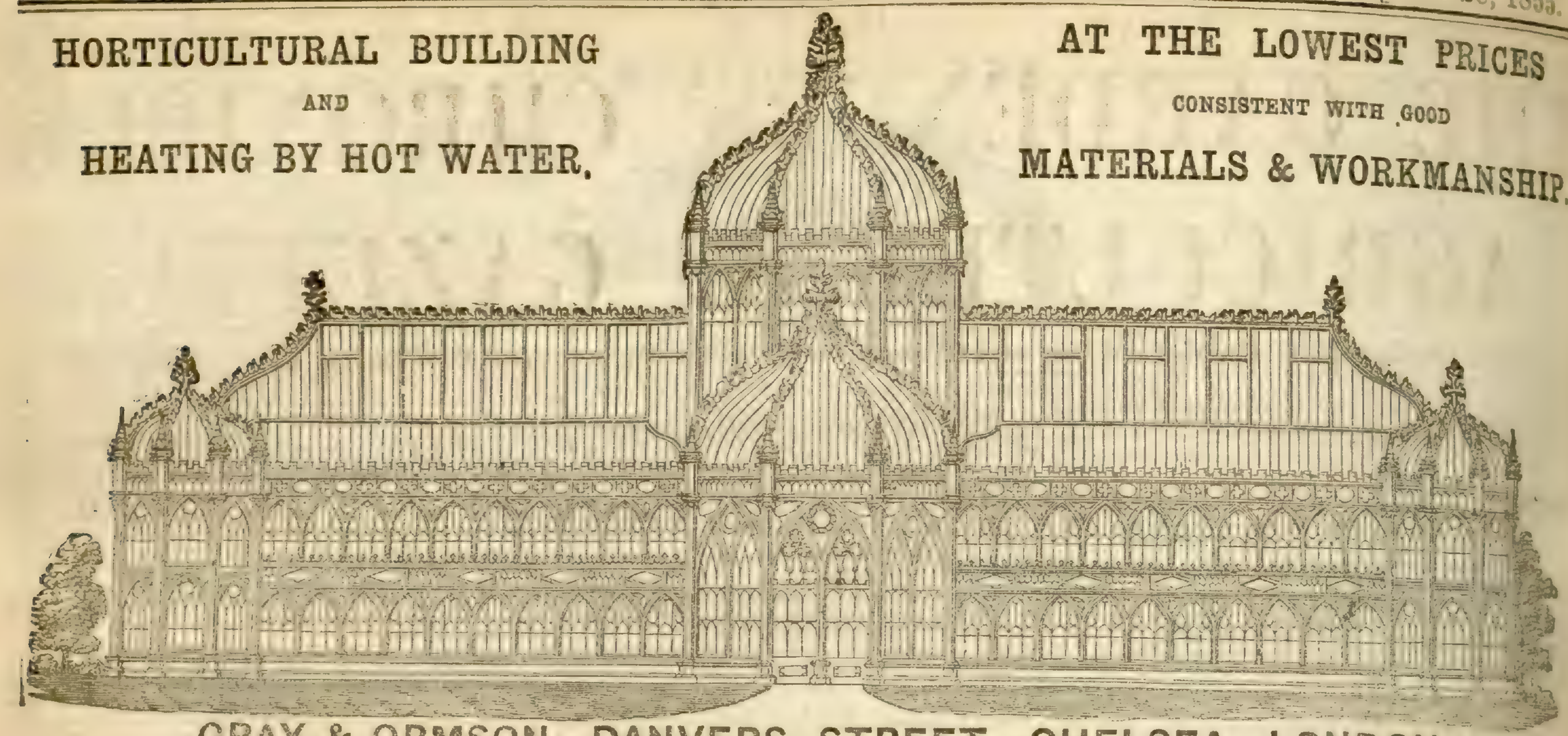
TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MR. J. WILLMER is instructed by Mr. S. Hook to Sell by Auction, on the Premises, Norbiton Nursery, near Kingston, on MONDAY, August 6th, at 12 o'clock, the whole of the STOCK of the above Nursery, which comprises a choice and valuable collection of Geraniums, Fuchsias, Chrysanthemums, Dahlias in pots; a Span-roof Propagating House, Pits, Lights, Boxes, Striking Glasses, Garden Pots, Tools, a quantity of Leaf Mould, &c.—May be viewed the day preceding and morning of sale; and Catalogues had on the premises, and of the Auctioneer, Sunbury, Middlesex.

EPSOM.

MR. H. ANDREWS will sell by Auction, without reserve, on MONDAY, August 6th, at 2 o'clock, on the premises of the Local Board of Health (being part of Epsom Nursery), the erection of five greenhouses, about 30 feet by 13 feet each, with front and top-lights, flower-stage, stone platforms, hot-water pipes; the materials of five pits, lean-to shed, a quantity of greenhouse plants, &c. May be viewed any time previous to the Sale, and Catalogues had at the principal Inns in the neighbourhood, and of Mr. HENRY ANDREWS, Surveyor and Estate Agent, Epsom.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER, AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.

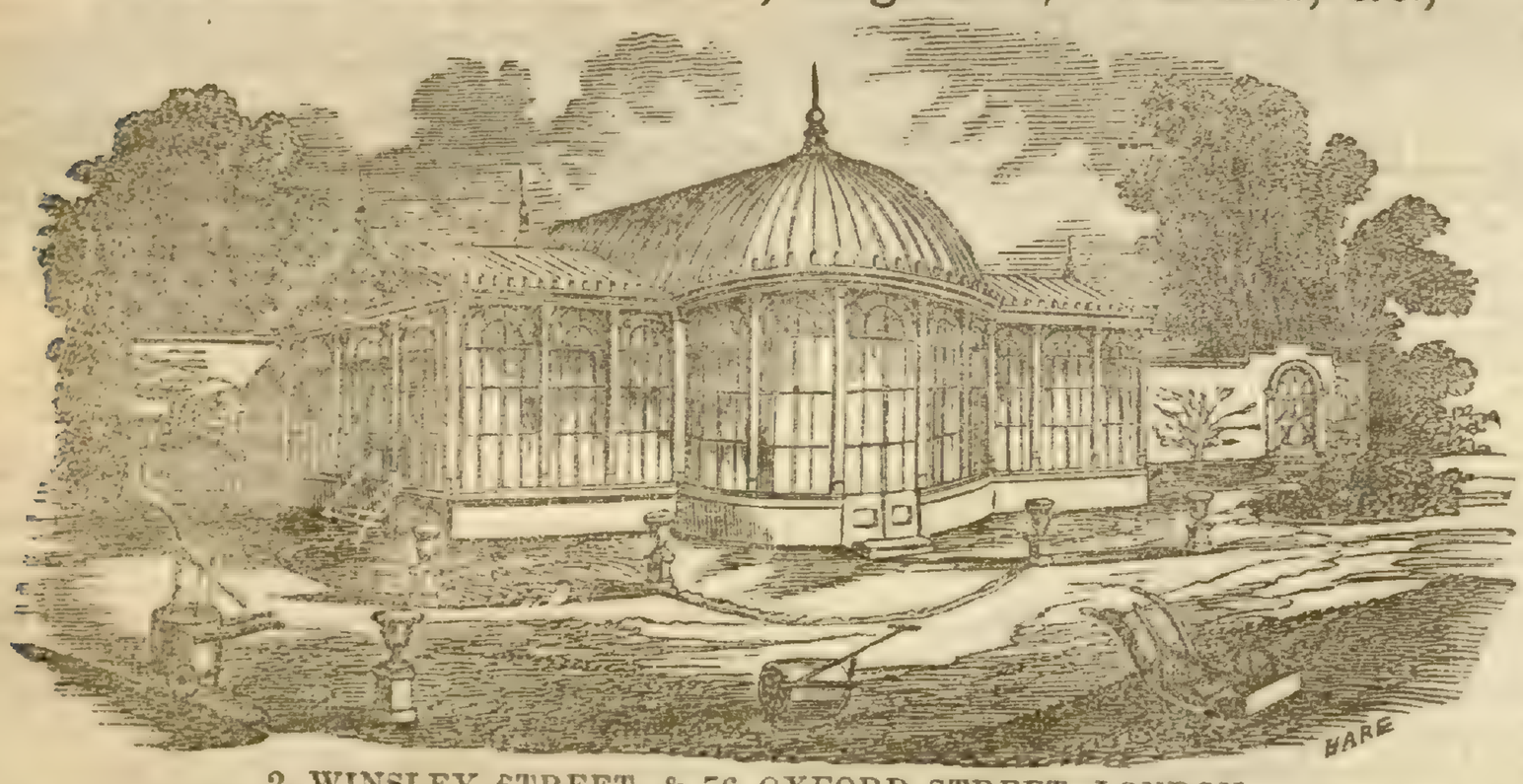


GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

COTTAM AND HALLEN, Engineers, Founders, &c.,



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTUR

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

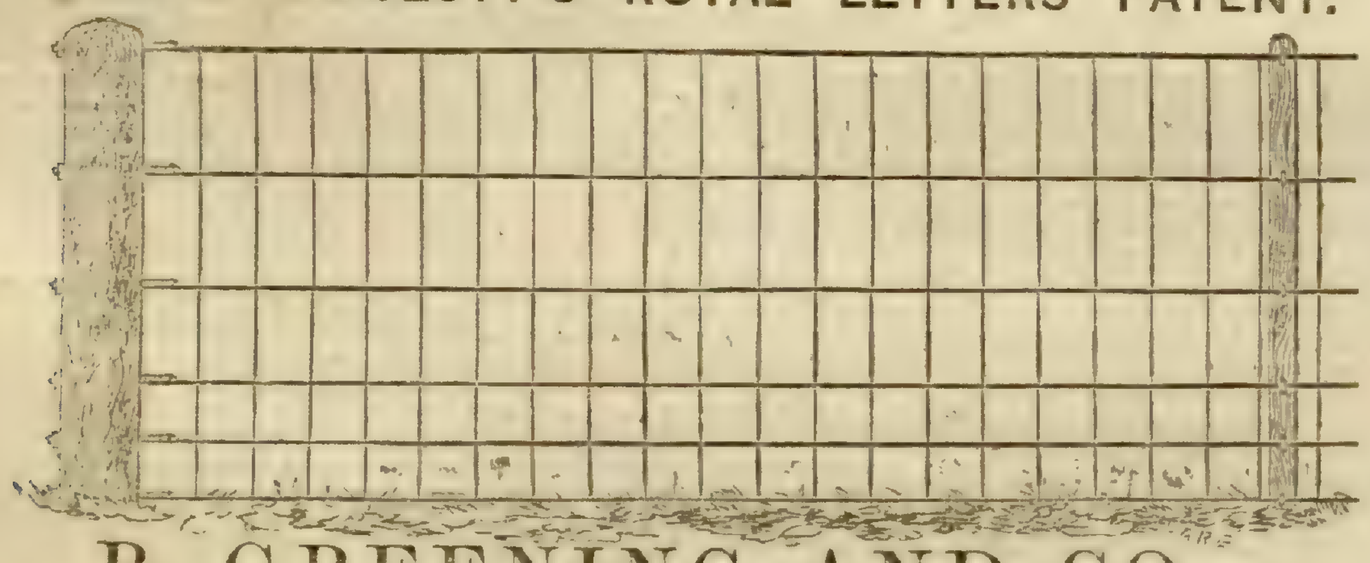
IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

BY HER MAJESTY'S ROYAL LETTERS PATENT.



B. GREENING AND CO.

WILL exhibit their Patent Wire Fencing, combined Washing Machine Mangle and Churn, Premium Wrought Iron Gates, and specimens of their superior Manufactures in Iron and Wire generally, at the following Agricultural Shows in 1855:—Royal Agricultural Society, at Carlisle, week commencing July 23, stand No. 6; Yorkshire, at Malton, 1st and 2d of August; North Lincolnshire, at Boston, August 23: Cheshire Agricultural Society; Manchester and Liverpool, St. Helen's, September 6; Bury and Radcliffe, at Bury, about September 10. Others not yet decided upon.

In the meantime, Catalogues, Pattern Sheets, and Price Lists may be obtained (enclosing Four Stamps for postage) from

B. GREENING & CO., Victoria Iron Works, 1 and 3, Church Gates, Manchester.

PLATE GLASS AT GREATLY REDUCED PRICES.

THE UNION PLATE GLASS COMPANY,

Respectfully inform the Trade, that in order to meet the present depression, they have made a very considerable reduction in the prices of polished Plate Glass for glazing purposes.

LIST OF PRICES MAY BE OBTAINED FROM

THE WORKS, Pocket Nook, St. Helen's, Lancashire.
THE WAREHOUSE, 99, Hatton Garden, London.
Ditto 45, Piccadilly, Manchester.
Messrs. C. & J. MALLOCH, 30, Turner's Court, Glasgow.
Messrs. JOHN DIX & Co., Bath Street, Bristol.
Messrs. H. SIBTHORPE & SON, Cork Hill, Dublin.

POCKET NOOK, July 28, 1855.

THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

PARSEY'S PATENT REVOLVING PUMP lifts three times the quantity of water with the same labour, than any other Pump.

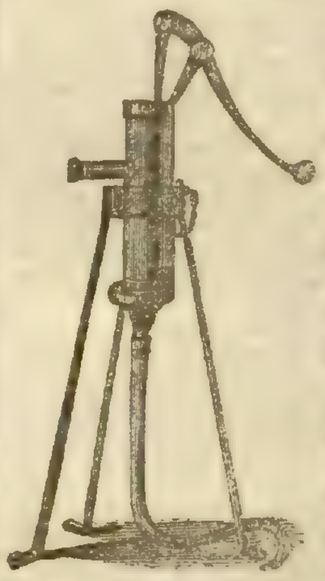
Fire, Garden, Deep Well, Liquid Manure and all other Pumps.

Fountains of every description erected: Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3l. 3s. The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe 1s. 6d. per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3s. 6d. per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£ s. d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 12
2½ „ long	3 „ 3 „		1 15
3 „ ditto	3 „ 6 „		2 12
3½ „ ditto	3 „ 6 „		2 18
4 „ ditto	3 „ 6 „		3 5
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2 12
2½ in. long	ditto	ditto	ditto 2 15

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

THE COMFORT OF A FIXED WATER-CLOSET FOR £1.—Places in gardens converted into comfortable Water-closets by the PATENT HERMETICALLY SEALED PAN, with its self-acting valve, entirely preventing the return of cold air or effluvia. Any carpenter can fix it in two hours. Price 1l. Hermetically-sealed Inodorous Chamber Commodes, 1l. 2s., 2l. 4s., and 3l.; also Improved Portable Water-closets, with pump, cistern, and self-acting valve. A Prospectus, with Engravings, forwarded by enclosing two postage stamps.

At FYFE & Co.'s Sanatorium, 46, Leicester Square, London.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and FREDERICK MULLETT EVANS, of No. [illegible] Victoria Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, July 28, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 31.—1855.] SATURDAY, AUGUST 4. {Price Fivepence. Stamped Edition, 6d.

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HORTICULTURAL SOCIETY, 21, Regent Street.—A SPECIAL GENERAL MEETING of this Society will be held on TUESDAY, August 14, at 1 P.M. precisely, to elect a new Member of Council and Treasurer in the room of Dr. Jackson, deceased.—By order of the Council,

August 1. W. B. Booth.

NATIONAL FLORICULTURAL SOCIETY, 21, Regent Street, 28th July, 1855.

NOTICE is hereby given that at the next Meeting of this Society, to be holden on THURSDAY, August 9, Special Prizes will be awarded for Hollyhocks, three distinct spikes, 15s. & 10s.; Ditto, twelve distinct blooms, 10s. & 7s. 6d.; Verbenas, ditto, 10s. & 7s. 6d. Extra Prizes will also be awarded for Roses, twelve distinct blooms, 10s., 7s. 6d., & 5s.; Dahlias, six distinct blooms, 10s., 7s. 6d., & 5s.; Fancy ditto, six ditto, 10s., 7s. 6d., & 5s.; Fuchsias, three distinct varieties (plants), 15s., 10s., & 7s. 6d.; Carnations, six distinct blooms, 10s., 7s. 6d., & 5s.; Picotees, six ditto, 10s., 7s. 6d., & 5s.; Yellow ditto, three ditto, 7s. 6d., 5s., & 5s. Exhibitors to provide their own show boxes. Everything intended for Exhibition must be at 21, Regent Street, before 12 o'clock: whatever arrives later will be absolutely excluded from Competition for Prizes. The Prizes will be announced at 3 o'clock. Open to all competitors. No entrance fee.

Certificates as usual for Seedling Carnations, Picotees, Fuchsias, Roses, Antirrhinums, Verbenas, Phloxes, Liliums, Dahlias, Petunias, Hollyhocks, &c. &c. These will be received up to 1 o'clock. The Censors summoned are Messrs. Lochner & Baker, for Carnations, Picotees, &c.; Messrs. Cook, Holmes, & Pope, for Dahlias, &c; Messrs. Lidgard, Parsons, & Moore, for Hollyhocks, Roses, &c.; Messrs. Hamp & Robinson, for Verbenas, Fuchsias, &c.

Free Admission to visitors by Cards only, to be obtained at 21, Regent Street. John Edwards, Secretary.

ROYAL PAVILION, BRIGHTON.

THE BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY will hold their Autumn Exhibition of PLANTS, FRUITS, CUT FLOWERS, &c., on WEDNESDAY and THURSDAY, 12th and 13th of September next, at the above splendid suite of Rooms and Grounds, on the same grand scale as former years. Prizes are offered with the same liberality as previously. Also the Railway Cup, value 10 guineas, for the best 24 Show Dahlias for Amateurs. By the liberality of the Railway company, all Plants, &c., will be conveyed to Brighton and back, carriage-free, from all stations on the lines. Schedules can be had on application to E. Spary, Superintendent of the Exhibition; or the Secretary, E. Carpenter, 45, Lavender Street, Brighton. By order of the Committee, E. Carpenter, Secretary.

TO NURSERYMEN AND OTHERS.

Sewers' Office, Guildhall, Aug. 2, 1855.

CITY OF LONDON CEMETERY.—The Commissioners of Sewers of the City of London, acting as the Burial Board for the said City, hereby give notice that they will meet at Guildhall on Tuesday, the 11th day of September, at 12 o'clock precisely, for the purpose of receiving TENDERS for the supply of TREES and SHRUBS for the Cemetery now being formed at Little Ilford, in the county of Essex.

Forms of Specification with Schedules, to which the prices are to be affixed, may be obtained on and after the 20th day of August, at the Office of Mr. William Haywood, Surveyor to the Commissioners, 14, Old Jewry Chambers; or at the Office of Mr. Davidson, Landscape Gardener, 36, Great Russell Street, Bedford Square.

Joseph Daw, Principal Clerk.

WILLIAM BARRATT, Landscape Gardener, Wakefield.

*** Plans and Estimates furnished.

JOHN HARRISON, Nurseryman, Seedsman, Florist, Landscape Gardener, &c.

Plans and Estimates furnished: Experienced Gardeners recommended: also several Young Men in the Nursery waiting for Under Gardeners' Situations.—Darlington, Aug. 4.

J. DOBSON AND SON'S New CATALOGUE OF PELARGONIUMS forwarded post free for one stamp.

Woodlands Nursery, Isleworth.

FERNS.

ROBERT SIM'S 16 page CATALOGUE of his GENERAL COLLECTION of FERNS may now be had for Four Stamps. Free to all previous purchasers.

Nursery, Foot's Cray, Kent.

PRICED CATALOGUE OF PLANTS.

THOMAS JACKSON AND SON'S Priced Catalogue of Plants may be obtained on application. It contains some Orchidaceous, Ferns and Mosses, Greenhouse, Ornamental Shrubs and Trees, Roses, and Herbaceous Plants.

T. J. & Son are offering at very low prices a large Stock of Azaleas, Camellias, Ericas, Epacrises, Helichrysums, Rhododendrons, &c., well deserving the attention of purchasers.

Nurseries, Kingston, Surrey.

NOW HARVESTING,

And Suited for Present Sowing.

THE LINCOLNSHIRE RED GLOBE TURNIP.—A fine large and quick growing variety. Also the Orange Jelly and other kinds for late sowing.

Bass & Brown, Sudbury, Suffolk.

NOW HARVESTING.

THE SWEDENBURGH CATTLE CABBAGE.—An improved variety of the Drumhead, heavier and more compact, and may be had for present and Autumn sowing, 4s. per lb. Price to the trade on application.

Bass & Brown, Sudbury, Suffolk.

CABBAGE SEED.

CATTELL'S DWARF BARNES, and CATTELL'S DWARF RELIANCE may be had by post for 12 penny stamps per packet, the former containing one ounce and the latter half an ounce.—Nurseries, Westerham, Kent.

HOLLYHOCK SEED.

A. PAUL AND SON have ready for immediate sowing a fine lot of HOLLYHOCK SEED saved from their choicest varieties which have obtained many of the leading prizes during the last three years:—

	s.	d.
1st selection, saved from 25 varieties, per packet ...	5	0
2d do. " 12 " " ...	2	6
Good Mixtures	1	0

Also, price 1s., AN HOUR WITH THE HOLLYHOCK.

N.B. Free by post, and payment received in postage stamps.

Nurseries, Cheshunt, Herts.

LISIANTHUS RUSSELLIANUS.

AN AMATEUR having raised from Seed a considerable number of the above beautiful plant over and above what he will require for his own flowering, begs to offer them on the following reasonable terms:—

For 12 Plants	12s.
" 25 "	20s.
" 100 "	50s.

The Plants are potted singly in small 60-sized pots, and for the convenience of Purchasers they are placed for distribution in the hands of Mr. J. Veitch, Jun., Exotic Nursery, Chelsea, to whom all orders and payments for them are to be addressed.—Aug. 4.

IMPROVED MUSHROOM SPAWN.—Patronised by many of the Nobility, the London Horticultural Society, &c. Sold in packages containing a sufficient quantity to plant 50 feet of bed for 5s., with printed description and cultural directions.

Large Flowering ANTIRRHINUMS	... 2s. 6d.	per 100.
" " HEARTSEASE ...	... 2 6	"
" " DIANTHUS'S ...	... 2 6	"

See former Advertisements.

Address W. PRESTOE, Florist, &c., Basingstoke, Hants.

CARNATIONS AND PICOTEES in full bloom for Sale; 150 stove pots of the best varieties, all Show Flowers. Each pot will make from four to eight pairs of plants.—To be seen at Mr. R. Tasker's, Florist, Mayfield Road, Dalston, London.

WHITE LISBON ONION SEED.—Large buyers can be supplied with White Lisbon Onion Seed in quantity.—Apply to Mr. Henry Clarke, Seed Merchant, 39, King Street, Covent Garden.

TRIPOLI ONION.—The trade can be supplied with SEED of the true flat Tripoli Onion, by Nutting & Sons, Seedsmen, 46, Cheapside, London.

WANTED, BOX EDGING, two years old, sufficient to plant 530 yards.—Apply, stating lowest price, to John Sutton, Gardener, Alton, Hants.

CALCEOLARIA AND CINERARIA SEED.

J. DOBSON AND SON are now sending out Seeds of the above, saved from an unequalled collection, in packets. Cineraria, 1s.; Calceolaria, 1s. 6d., 2s. 6d., 3s. 6d. and 5s. each.

Woodlands Nursery, Isleworth.

CALCEOLARIA AND CINERARIA.

MESSRS. E. G. HENDERSON AND SON beg to announce that the above FLOWER SEEDS, saved from the choicest varieties, may be had in packets at 2s. 6d. and 5s. each; the finest quality of CALCEOLARIA is only offered at 5s.; second quality, 2s. 6d.

This Season's CATALOGUE will be forwarded on application, and a Beautiful Coloured Plate of nine new Flowers will be sent on receipt of 12 postage stamps.

Wellington Nursery, St. John's Wood, Aug. 4.

CALCEOLARIA SEED.

R. PARKER has now ready for sending out Seed which he can recommend with the greatest confidence, it having been saved from flowers of the finest form and most beautiful markings, in packets at 1s. 6d. and 2s. 6d. each. Also choice CINERARIA seed saved from the finest named varieties, at 1s. 6d. and 2s. 6d. per packet. A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, London.

MAJOR'S CALCEOLARIA SEED.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to inform his friends that his Calceolaria Seed for this season is now ripe, and may be had in packets at 2s. 6d. and 5s. each. The 5s. packets will be equal to three 2s. 6d. ones. The seed is produced from rich and beautiful varieties (for which his collection stands unrivalled), therefore large, well-formed flowers, and beautiful colours and markings may reasonably be expected. The present, up to the latter end of August, is a proper time to sow to insure an early spring bloom. Postage stamps are requested in return.

PRIZE CALCEOLARIAS.—A few packets of seed saved from the group of Seedling Calceolarias to which a Prize was awarded at the Great Exhibition at the Crystal Palace, are now ready at 10s. 6d. each. These seedlings are unrivalled for immense size of flower, richness of colour, and strong vigorous growth. Seed from other Choice Seedlings at 5s. per packet.

Address to William Sanford, Gardener to Mr. Henchman, Edmonton, near London. No letter will be attended to unless enclosing a Post Office Order or a [illegible] stamp.

ROSES.

JAMES MITCHELL begs to announce that his unrivalled collection of ROSES is now in fine bloom.

Piltdown Nurseries, Maresfield, Sussex, Aug. 4.

ROSES.

GEORGE CLARKE begs to announce that his fine collection is now in full bloom, and will continue so till autumn.—Streatham Place Nursery, Brixton Hill, near London.

DUTCH FLOWERING BULBS.

JAMES CARTER AND Co.'s comprehensive CATALOGUE OF DUTCH AND CAPE BULBS, AND SEEDS, for Autumn sowing, will be published on the 1st of September next, and will be forwarded, free of charge, and post paid, upon application to James Carter & Co., 238, High Holborn, London.

NEW PELARGONIUMS raised by J. Beck, Esq., of Isleworth; and T. White, Esq., of Wethersfield, Essex. Catalogues with full descriptions and prices of these fine varieties forwarded post-free for one stamp, on application to John Dobson & Son, Florists and Seedsmen, Woodlands Nursery, Isleworth.

EMPEROR NAPOLEON—A New Scarlet Geranium.

JOHN BUTCHER is now sending out the above splendid Geranium; a seedling raised by himself was exhibited June 13th at the Royal Botanic Gardens, Regent's Park, London. See *Gardeners' Chronicle*, June 16. Good Plants for immediate Bedding, 18s. per doz.; extra size, 2s. 6d. London agents, Messrs. Dawe, Cottrell, & Bunham.

Royal Nursery, Stratford-on-Avon—August 4.

HARDY AND SON, Seed Growers, &c., Maldon, Essex, are prepared to send to any address, free by post, their best selected kinds of CABBAGE and LETTUCE SEEDS, for July and August sowings, in one or four varieties. Also for early sowing, one or three varieties of their selected WHEATS, now in repute, sufficient for 1 rod, with directions, &c., on receipt of seven postage stamps for each variety, enclosed with an envelope properly addressed to its destination.

THOMAS BEACH, the well known Strawberry Grower, begs to inform the public that he has now ready a large stock of fine strong plants of his true BRITISH QUEEN, the same he beat the world with at the Crystal Palace and at Chiswick, and other places up to the present season, both in flavour and weight. Plants sent to any part of the world at 5s. per 100. Post-office orders on Hounslow to Mr. Thomas Beach, Strawberry Grounds, Worton, Isleworth, Middlesex.

CUTHILL'S STRAWBERRY PLANTS.—The early and hardy BLACK PRINCE, and late PRINCE OF WALES, two celebrated sorts, will be sent out on and after August 15th. They are both enormous bearers, and either of them makes a most delicious and solid preserve, to which upwards of 300 ladies round here can testify. The Black Prince, 5s. per 100; the Prince of Wales, 7s. 6d. per 100.

J. C.'s Pamphlet on the Potato, Strawberry, Asparagus, Seakale, Rhubarb, Wine, do. Preserve, 2s.

J. C.'s Market Gardening round London, 1s. 6d. See the recommendation of it in the "Quarterly Review." Early orders requested. Post-office orders payable at Camberwell Green.

James Cuthill, Camberwell, London.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior

CINERARIAS AND CALCEOLARIAS,

which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.

Packets of each, sealed and warranted by them, at 2s. 6d., free by post.—Exeter Nursery, Exeter, Established 1720.

SPLENDID HERBACEOUS CALCEOLARIA AND SWEET WILLIAM SEEDS.

WILLIAM BARNES has now ready for sending out a small quantity of the above Seeds, the former of which is unrivalled, and has given the greatest satisfaction to all purchasers for the last four seasons, 2s. 6d. and 5s. per packet.

SWEET WILLIAMS, grown from the same stock as the seed now offered, may be seen at the present time in full bloom at his Nursery, where they are pronounced by all who have seen them to be unequalled. 1s. 6d. per packet. Payment can be made by postage stamps.

Camden Nursery, Camberwell, London.

TO GROWERS OF ORCHIDS, ETC.

MESSRS. RANGEL AND MOSER, of Rio Janeiro, beg to inform Gentlemen and others, Cultivators, and Growers of ORCHIDACEOUS PLANTS, that they have always on sale a splendid assortment of the kinds peculiar to the Brazils, and they will be happy to receive orders from parties residing in England or on the continent, which they will execute with all convenient dispatch, and at the most moderate prices. A list with prices can be forwarded. All letters (post paid) addressed to them, under cover to the Agent for H.M. Packets at Rio Janeiro, Messrs. R. & M. will furnish Plants of every description, Trees, &c.

RHODODENDRONS.

JOHN WATERER begs to announce that he is now prepared to execute orders for his two New Hardy Hybrid Rhododendrons, in good established plants, at 42s. each.

Rhododendron JOHN WATERER, colour glowing carmine, large truss, fine foliage, and a most abundant bloomer, in perfection about the 15th June.

Ditto, MRS. JOHN WATERER, a bright rosy crimson, fine conical truss, a very free blooming kind, in flower about 15th of June.

To the admirers of this justly noble class of Plants, John Waterer has the pleasure of recommending the above as being the greatest acquisitions yet offered. They combine in a marked degree the necessary requisites for really first-rate hardy crimson varieties, viz., imposing colours, abundant blooms, extreme hardiness, and flower at a time when they are not liable to be injured by spring frosts.

The American Nursery, Bagshot, Surrey, Aug. 4.

W. NICOL, Gardener, Roslyn House, Hampstead, begs to announce that his new Pea "OMAR PACHA" may now be seen in fine perfection on application to him as above.

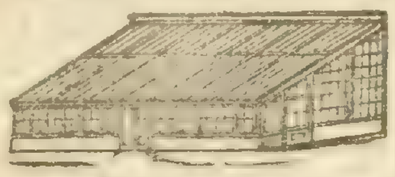
W. Nicol being desirous to afford ocular demonstration of the surpassing qualities of his Pea, had sown at same time "Daniel O'Rourke," and all the other new Peas recommended to him this season, all of which "Omar Pacha" leaves completely in the shade. W. Nicol is now open to an offer for the whole stock.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

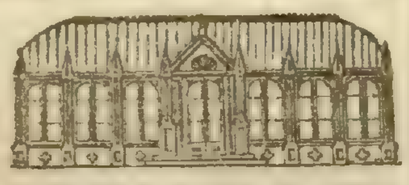
HOTHOUSE BUILDERS.

THE NOBILITY and GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

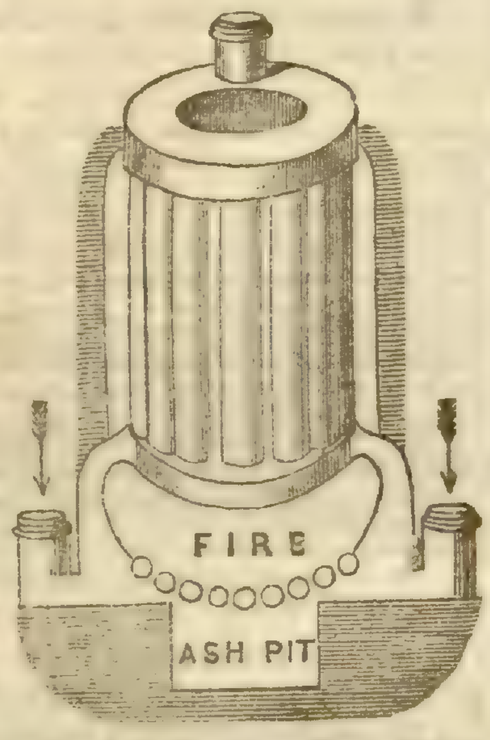


Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to John Weeks & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.

The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft., and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the late severe winter it only cost us 3*s.* per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *one of our Boilers*, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.



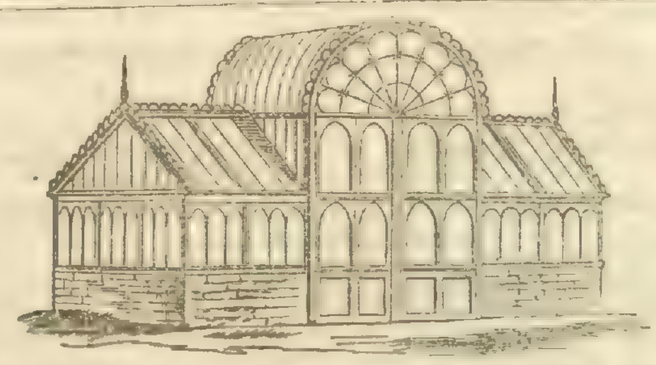
John Weeks & Co., King's Road, Chelsea, London.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

Kensal Green, Harrow Road, London.

JOHN TAYLOR and SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.



J. OVERALL begs to inform the Nobility, Gentry, Nurserymen, and others requiring Horticultural Buildings, Lights, and Frames, that by intrusting their orders to him, they may depend upon first-class workmanship and good materials at the most economical prices.

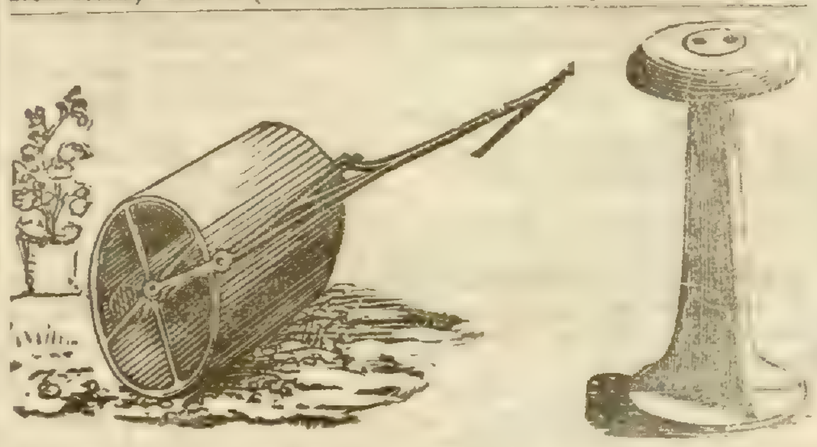
J. Overall, Horticultural Builder, 16, Shacklewell Lane, near Kingsland, London.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, Patent Hothouse Works, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the frame work, but covered with Galvanised Iron Sashes, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

WAITHMAN'S PATENT WOVEN HOSE PIPE for LIQUID MANURE and WATER, in all sizes, from ½ inch to 3 inches diameter. Prices and samples sent free per post.—Edward Weir, Agricultural Engineer, 16, Bath Place, New Road, London (six doors west of the Hampstead Road).



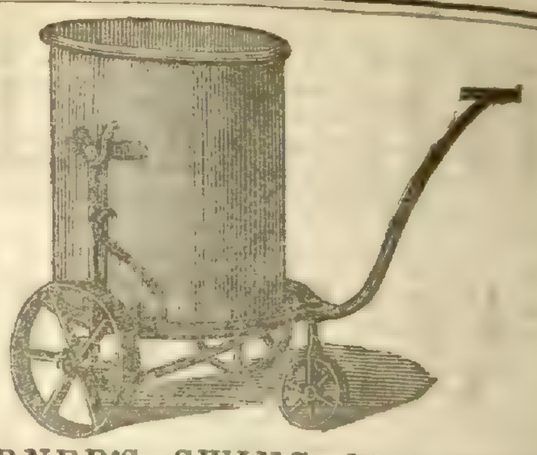
COTTAM and HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.

Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

Hand Glass Frames, Cast and Wrought Iron Flower Stakes, Garden Arches, &c.

Strong Iron Hurdles, and best Wire for Strained Wire Fencing.

Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom. Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.



WARNER'S SWING WATER-BARROW (TO HOLD THIRTY GALLONS)

Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l.* 3*s.*

Manufactured by

John Warner & Sons, 8, Crescent, Jewin Street, London.

(Fig. 1.)

(Fig. 2.)

J. TYLOR and SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons,	throws 30 feet high			...	£4 10
No. 2 „ 15 „	„ 45 „			...	5 10
No. 3 „ 28 „	„ 45 „			...	6 18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons,	throws 25 feet high			...	£2 15
No. 13 „ 12 „	„ 30 „			...	3 5
No. 11 „ 16 „	„ 40 „			...	4 0
No. 12 „ 24 „	„ 43 „			...	5 0
No. 14 „ 30 „	„ 45 „			...	5 13

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1¼ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 18*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

Read's Syringe, with two roses and one jet, 19*s.*

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR and SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

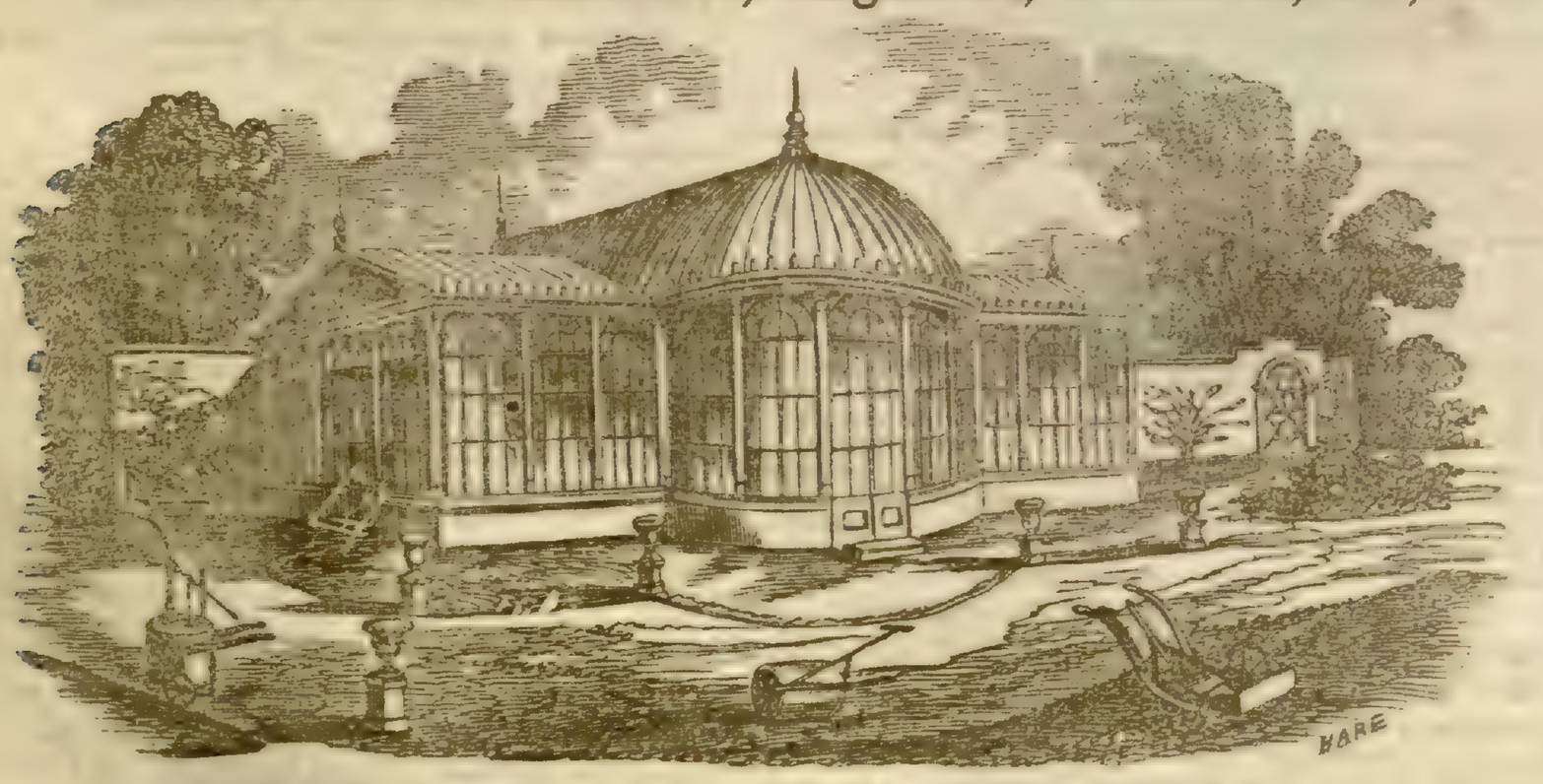
Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, &c.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

COTTAM AND HALLEN, Engineers, Founders, &c.,



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

AZALEAS AND ERICAS.

W. J. EPPS has much pleasure in offering the following fine, bushy, well-grown plants, and of the choicest and best varieties, in large 48 and 32-size pots.

AZALEAS 18*s.* per dozen; 5*l.* per 100.
ERICAS 12*s.* and 18*s.* per dozen; 4*l.* and 5*l.* per 100.

These will make very pretty specimens for the ensuing season; all orders to be accompanied with a remittance from unknown correspondents.—Maidstone, Aug. 4.

VINES FROM EYES.—Fine Plants of BLACK BARBAROSSA and the leading sorts in Cultivation are now in a sufficient ripeness to pack. Sorts and price upon application.—Royal Nursery, Stratford-on-Avon. August 4.

THE GEM OF THE SEASON.

GERANIUM CYDONIA CARMINIA.—This is the most beautiful variety ever sent out, either for the Conservatory or Bedding purposes: colour beautiful carmine, margin of each petal shaded with white, large truss, and abundant bloomer. Only to be seen to be admired. Now in bloom, and may be seen at the Nursery, Notting Hill.

W. Townsend will have a few strong plants, full of flower, in 8-inch pots, 1*l.* 1*s.* each; in 5-inch pots, 15*s.* each; and in 4-inch pots, 7*s.* 6*d.* each. The two first will be ready for sending out the middle of August, the young plants first week in September.—Post Office Orders to be made payable at Bayswater.

TO LOVERS OF PLANTS WITH HANDSOME FOLIAGE.

MESSRS. STANDISH and NOBLE are now sending out the fine new Greenhouse Evergreen, WEINMANNIA TRICOSPERMA, which for beauty of foliage cannot be surpassed. It was exhibited at the Royal Botanic Society's Meeting in June last, and also at the Crystal Palace. From the report of the latter exhibition, the following brief description is condensed:—"You might pass off the leaves of this beautiful plant for the fronds of a handsome Fern. They are compound and pinnate, just like Fern leaves. I do not recollect, even among Mimosas, a plant with more beautiful leaves than this." We may add that it is of good habit, and easily cultivated; and from being a native of Valdivia, it may possibly be hardy.

Strong plants, 21*s.* each.

The Advertisers have just published a new Catalogue, which will be forwarded free by post on receipt of a penny stamp.

The Nurseries, Bagshot.—Aug. 4.

NEW FUCHSIAS AND VERBENAS OF THIS SEASON AT REDUCED PRICES.

JOSEPH COURCHA, Florist, Wellington Row, Hart's Lane, Bethnal Green Road, London, has now ready for sending out nice healthy plants at the following prices:—

FUCHSIAS.

Mrs. Story	2*s.* 6*d.*	Nimrod	2*s.* 0*d.*
Queen Victoria	2 6	Orlando	2 0
Prince Albert	2 6	Maid of Kent	2 6
Raffaelle	2 6	Grand Sultan	3 6
Water Nymph	2 6	Beauty of the Bower	2 6
Empress Eugenie	2 0	Napoleon	3 6
Lady of the Lake	2 0	Violæflora pleno	3 6
Snowdrop	3 6	Princess of Prussia	2 6
Omer Pacha	2 0	Maculata superba, beautiful variegated foliage	3 6
Climax	2 0	Or 22*s.* per dozen.	
Coronet	2 0		

Verbenas, 15*s.* per doz. New Phlox, Queen Victoria, 2*s.* 6*d.*

SEEDS FOR PRESENT SOWING.

JOHN CATTELL has the following now ready to send out, post free, at the prices annexed. The CALCEOLARIAS are very superior, and warranted to give equal satisfaction to those sent out by J. C. for so many years.

	Per packet.—*s.*	*d.*
Calceolaria, saved from the finest vars., carefully hybridised	2	6
Do. from an entirely new class, of very rich colours, large, and extraordinary fine blooms	5	0
Cineraria, from finest varieties	2	6
Geranium, from first rate florist varieties	1	0
Do. do. fancy varieties	1	0
Schizanthus retusus and albus, each	0	6
Anemone, single Poppy, extra fine	0	6
Mimulus, from finest varieties	0	6
Mignonette, New Giant	0	4
Alstrœmeria acutifolia, splendid scarlet conservatory climber	1	0
Do. Van Houtte's, superb Chilian hybrids, mixed	0	6
Tropæolum tricolorum grandiflorum	1	0
Heartsease, from fine named varieties	1	0
Helianthemum, or dwarf rock Cistus, from 30 vars., mixed	0	6
25 varieties, fine showy hardy Annuals, for early spring flowering, in the open ground	5	0
12 varieties, from showy half hardy Annuals, for early flowering, in the greenhouse	3	0

A remittance in stamps or otherwise must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

"SIR HARRY."—To this STRAWBERRY has been awarded at all the Horticultural Exhibitions the highest honours, where it has competed, namely:—

1854—Chiswick, first class certificate; 21, Regent Street, highly commended: Botanical Gardens, Edgbaston, first prize.

1855—Edgbaston Botanical Gardens, first prize, in pots forced: Handsworth and Lozells, Hampstead Park, first prize forced: Edgbaston Botanical Gardens, first prize—the Judges declared it the best Strawberry in every point on the table, superior to Keens' Seedling, Cremorne Seedling, British Queen, Mrs. Trollope, &c.; Lancaster, first prize, and pronounced by the Judges to be the finest and best tasted Berry in cultivation; Preston, first prize; Carlisle, first prize; Wolverhampton, first prize, and certificate of merit; Watford, first prize; Aylesbury Horticultural Society, first class certificate.

Plants are ready for sending out (not less than a score).

Prices:—100 plants, 4*l.*; 80, 3*l.* 13*s.* 6*d.*; 60, 2*l.* 16*s.*; 40, 1*l.* 18*s.*; and 20, 1*l.* Plants may be had in pots (not less than 10), at 2*s.* each.

Apply to Mr. Richard Underhill, Sir Harry's Road, Edgbaston, Birmingham. Each application to be accompanied with a Post Office Order (on Birmingham), to receive attention.

For the Cultivation of Strawberries, refer to Mr. Underhill's Treatise, which may be obtained from a Bookseller in every principal town, where also may be obtained a handsome Lithograph of a plant of "Sir Harry" in full bearing.

CHOICE NOVELTIES OF THE PRESENT SEASON.

HENRY WALTON, Florist, &c., Edge End, Marsden, near Burnley, Lancashire, is now sending out nice healthy established Plants of the following at the reduced prices annexed.

FUCHSIAS, with white corollas, at 3*s.* 6*d.* each:—Story's Mrs. Story, Queen Victoria, Water Nymph, Empress Eugenie, Lady of the Lake, and Snowdrop. Other varieties of this season:—Barry's Prince Albert, 3*s.* 6*d.*; Beauty of the Bower, 2*s.* 6*d.*; Maid of Kent, 3*s.* 6*d.*; Climax, 2*s.* 6*d.*; Grand Sultan, 2*s.* 6*d.*; Omer Pacha, 2*s.* 6*d.*; Smith's Omer Pacha, 2*s.* 6*d.*; Nimrod, 2*s.* 6*d.*; Coronet, 2*s.* 6*d.*; Orlando, 2*s.* 6*d.*; and Violæflora pleno, 2*s.* 6*d.*, or 30*s.* per dozen; post free, where two or more are ordered.

VERBENAS:—Wonderful, Blue Beard, Lady Lacon, Commander-in-Chief, Empress of France, Florence Nightingale, Rose of England, Tyrian Prince, Eva, Boule de Feu, Lord Raglan, Emperor, Mrs. M'Neil, Violacea, Silistria, and Mrs. Woodroffe, at 1*s.* 6*d.* each or 18*s.* per dozen, post free.

A remittance respectfully requested to accompany all orders (unless reference is given), payable at Marsden, Lancashire.

For List of Choice new Achimenes, and other novelties of this season, see Advertisement in *Gardeners' Chronicle* of July 21 and previous Numbers.

A. VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to offer to the Trade the following NEW GLOXINIAS ERECTA:—

Gloxinia erecta Adamasoculata	Gloxinia erecta Mars cœruleus
" Princesse de Prusse	" Hauptmann Wüthe
" C. Flaacke	" J. Schäfer
" Rex igneus	" Stellata
" rosea Castilloni	

Price, without discount, 1*s.* each. The plants are strong and in full bloom.

NEW AND RARE PLANTS.

JOHN and CHARLES LEE have a fine stock of the following to offer:—

THUJA GIGANTEA.—A noble hardy evergreen tree, from the hills of California. From seed, 31*s.* 6*d.*; grafted, 21*s.*

THUJOPSIS BOREALIS.—A beautiful hardy evergreen tree, from Behring's Straits. Grafted, strong, 21*s.*

	s.	*d.*
Biota glauca	7	6
Thuja Doniana	5*s.* to 7	6
Wellingtonia gigantea,	5*s.* to 21	0
Podocarpus nubigena	21	0
" chilina	21	0
Berberis Jamesoni	5	0
" Neuberti, fine	7	6
Dammara obtusa	31	6
Begonia Thwaitesi	7	6
" Lapeyrousi	5	0
Echites Pelleri	10	6
Aphelandra Leopoldi	5	0
" Porteana	5	0
Ixora Lobbi	7	6
" alba, true	5	0
Sciadocalyx Warscewiczi	5	0
Episcea mellitæflora	3	6
Araucaria excelsa, from seed	25*s.* to 42	0
Araucaria Bidwilli	31	6
" Cunninghami	31	6
" Cooki	105	0
" gracilis	42	0
Bejaria æstuans	10	6
Acrophyllum venosum	7	6
Boronia Drummondi	5	0
Glycine sinensis alba	5	0
Azalea amœna, hardy, fine	3	6
Oxylobium Osborni	5	0
Eugenia ugni	3	6
Scutellaria villosa	5	0
Fabiana violacea	3	6
Swainsonia Osborni	3	6

FILBERT MERVEILLE DE BOLWYLLER, large and very prolific, 7*s.* 6*d.*

The Trade supplied.—Nursery, Hammersmith.

NEW INDIAN AZALEA, "EULALIE VAN GEERT."—This fine and distinct variety may be recommended as one of the best of this fine tribe of floricultural plants, and which has been admired by all the amateurs who saw it in bloom. It is of free growing and robust habit. The flowers of the largest are of good form and substance; colour rose and white, spotted with bright rose. Plants will be sent out next spring at 7*s.* 6*d.* and 21*s.* each, one over for every three taken; the first subscriber will, of course, obtain the best plants. Orders will also be received at my Agent's, Mr. R. Silberrad, 5, Harp Lane, Tower Street, London, from whom my Catalogue of Plants may be obtained on application.—N.B. The plants will be delivered free to London; see opinion in *Gardeners' Chronicle* of May 26th and it will be figured in the works of Messrs. Van Houtte and A. Verschaffelt of next month.

A. V. G. also begs to offer the following new and recommendable plants at reduced prices.

	s.	*d.*
Aphelandra Leopoldi	3	6
Agnostus sinuatus	5	0
Asplenium bulbiferum (Fern) per dozen	6	0
Azalea beauté de l'Europe, per dozen	36	0
Æchmea fulgens	2	6
Ardisia crenulata fructu albo	2	6
Alsophila nova sp. (Tree Fern)	10	6
Amaryllis Josephinæ, strong bulbs	7	6
Achimenes, the four new varieties, each	2	6
Berberis Hookeri	2	6
" Neuberti	5	0
Blechnum Corcovadense (Tree Fern), fine plants	2	6
Bilbergia thyrsoidea	2	6
" Liboniana	3	6
Begonia biserrata	5	0
Clematis Helena	2	0
" Sophie	2	0
" monstrosa	2	0
Clianthus magnificus	2	0
Clivia nobilis, strong plants	5	0
Chamærops humilis, strong plants	21*s.* to 42	0
Citrus sinensis, per dozen	18	0
Cleyera japonica, hardy, per dozen	12	0
Camellia Archiduchesse Marie, one of the finest red	5	0
Camellia Duchesse de Berri, prime white	5	0
Daphne Aucklandi	1	6
" oleoides variegata	1	6
Illicium religiosum, hardy, per dozen	18	0
Do. do. strong plants, each	3	6
Inga ferruginea	3	6
Kennedya eximia, per doz.	15	0
Isoloma trianea	2	6
Myrtus Ugni	2	6
Magnolia macrophylla	2	6
" Lenne, splendid	15	0
Marica tricolor	2	6
Prunus sinensis, fl. albo pleno	3	6
Passiflora princeps, strong	1	6
Pourretia mexicana	5	0
Phrynium sanguineum	2	6
Pimelea Neippergiana, per dozen	18	0
Rhododendron Camille de Rohan	7	6
" Duc de Brabant	7	6
" Alstrœmeriflora	7	6
Strelitzia reginæ	5	0
Thuja gigantea	7	6
Camellias, well set with bloom of the leading varieties, 6*l.* per 100.		
Indian Azaleas, 5*l.* per 100.		
Do. on stems, with fine heads, each	3*s.* 6*d.* to 5	0

N.B. The Ghent steamer Flèche, for London, sails now regularly *vice versâ*; by this way the expense of carriage is much reduced.

A. Van Geert, Nurseryman, Ghent, Belgium.

The Gardeners' Chronicle.

SATURDAY, AUGUST 4, 1855.

It is a wonderful vegetation, that of the Himalayas, so European yet so exotic, so mean and yet so surpassingly grand. The great illustrated works of Wallich and Royle, the Sikkim Rhododendrons of Hooker, the same author's Himalayan journals, and the numerous species now decorating our gardens, have all contributed their share towards making well-informed persons familiar with the plants produced in that favoured region, where a tropical and Alpine Flora blend their forms, and Hindostan and Chinese Tartary, Burma and China intermingle, and mutually contribute to a spectacle of surpassing richness and magnificence.

Nothing, however, has hitherto been made public so well calculated to impress the mind with admiration of the Himalayan vegetation as a thin folio volume* by Dr. Hooker which has just appeared. During his residence in India the author became acquainted with the late Mr. Cathcart, a most zealous amateur, who had formed at a great cost by means of native artists, and a corps of Lepcha collectors in his pay, a very extensive series of drawings of the vegetation that surrounded him. His residence is described as a singularly beautiful spot about 1000 feet below Darjeeling and 6000 feet above the sea, occupying a mountain spur overhanging the steep forest-clad gorge of the great Runjeet river, 5000 feet below, and descending in steep jungly slopes on either hand. "Through these forests he had caused the natives to cut paths, directing all their operations with all the taste and judgment of an experienced and skilful landscape gardener. These openings led through the tangled jungle and wound amongst tall trunks of giant timber trees, which were clothed with climbing Palms, wild Vines, *Pothos*, *Hodgsonia*, and Ipomœa, and laden with masses of Orchids and Ferns, suddenly emerging on eminences commanding views of 200 miles of snowy mountains, rising range behind range in dazzling beauty, and again descending by zigzags to cascades fringed with Ferns and Mosses, and leading thence along the margins of rippling streams, overshadowed by Tree Ferns, Bamboos, and wild Plantains." Surely this must be a scene in Fairy land! In such retreats were collected the materials out of which has been made the selection of drawings now laid before the public; aided, however, by Dr. Hooker's own sketches, and reduced to an artistic form by the inimitable pencil of Mr. Fitch. Of the merit of the plates it is difficult indeed to speak too highly. Undoubtedly they are the finest that have ever yet been prepared by any English artist; nor are they in any degree inferior to the drawings of the celebrated Austrian Bauers. For this reason we observe with much satisfaction in the subscription list the "Library, Marlborough House."

The high price of the work unfortunately places it far beyond the reach of many purchasers. We shall therefore be doing our readers a real service by bringing before them a short account of such of the plants as appear to possess the greatest horticultural interest. Passing by the tropical *Hodgsonia heteroclita*, a prodigious Cucurbit, with slender climbing stems 100 feet long, and gigantic flowers, every petal of which terminates in half a dozen corkscrews exceeding the span of any man's fingers, we arrive at the following account of a hardy tree of such magnificent beauty that even the Victoria Lily is eclipsed in its presence.

Magnolia Campbellii.—This is a large forest tree abounding on the outer ranges of Sikkim, at elevations of 8—10,000 feet, appearing on the road above Pacheem, and thence ascending to the top of Sinchul 8000 feet, and Tonglo 10,000 feet; though occasionally seen on the central ranges at the same elevations, it is much less frequent. The trunk is straight, often 80 feet high, and 12 to 20 in girth, covered with black bark. The flowers are produced abundantly in April, at the end of all the branches, when the tree is as yet perfectly leafless; they vary from white to deep rose colour or utmost crimson, and *in size from* 6 *to* 10 *inches* (*in diameter*). In May the tree is in full leaf, and the fruit ripens in October, when a few small and often deformed flowers are sometimes produced. The branch represented by Mr. Fitch only bears three flowers and a bud, and yet it is with difficulty included within the space of 224 square inches.

Meconopsis Simplicifolia.—The most beautiful and conspicuous of all the Alpine flowers of Sikkim, if not of the whole Himalaya; common in rocky and gravelly places at 12,000 feet elevation and upwards, where it expands its large delicate deep violet coloured blossoms in May, exposed to the violent winds and snow-storms of those inhospitable regions. It would be a most brilliant addition to out-of-door gardens, where it "would no doubt succeed perfectly, provided it be kept damp and cool, and not exposed to too long sunshine."

Meconopsis Nipalensis.—Of this grand species we have the following account:—"This superb plant, when seen from a distance, resembles a small yellow Hollyhock. It was discovered by Dr. Wallich's collectors in Nipal, and I found it in the damp interior valleys of Sikkim, growing amidst a rank and luxuriant herbage, on the skirts of Silver Fir forests (Abies Webbiana), at 10—11,000 feet above the level of the sea. The accompanying figure is taken from a sketch of my own of a specimen that was five feet high." We need not say that the two last plants are Poppies, and no doubt cultivable without difficulty. Let the reader imagine a mass composed of the scarlet *Papaver bracteatum* or *orientale*, surrounded by the golden bells of this *Meconopsis nipalensis*, and bordered with an edging of the intensely violet *Meconopsis simplicifolia*, and he will form a picture which, for brilliancy of colouring and magnificent breadth of effect, has never yet been realised.

Decaisnea Insignis inhabits wooded valleys in the central regions of the Himalaya. Dr. Hooker first gathered it in the Lachen and Lachoong valleys, at elevations of 7000 to 8000 feet, and afterwards at Chola, where it ascends to nearly 10,000 feet.

* "Illustrations of Himalayan Plants," chiefly selected from drawings made for the late J. F. Cathcart, Esq., of the Bengal Civil Service. The descriptions and analyses by J. D. Hooker, M.D., F.R.S. The plates executed by W. H. Fitch. Folio. Reeve. 5*l.* 5*s.*

Its green flowers appear in May, and are scarcely visible amongst the leaves; the fruit on the other hand, which ripens in October, is very conspicuous and handsome, of a pale yellow colour, and full of a white juicy pulp, that is very sweet and pleasant; its fruit is eagerly sought after by the Lepchas, who call the plant "Nomorchi," and it is the "Loodooma" of the natives of Bhotan. It would appear to be a plant of very uncommon aspect, resembling a young and very slender fast grown Ash tree, among the feathery leaves of which hang clusters of great yellow fruit, somewhat resembling ram's horns. Its learned discoverer regards it as well worthy of cultivation in England for its fruit alone. "It would require protection from spring frosts, but will, no doubt, prove otherwise hardy."

Vaccinium Salignum and Serpens.—"The genus Vaccinium, which is mostly represented in northern climates by deciduous-leaved shrubs with small flowers, assumes a very different habit and appearance in the tropical mountains of both the old and new world. In the lower Eastern Himalaya, Malay Peninsula, Java, and other of the Malayan islands, especially, there is an extensive section—to which the two species here figured belong—which could hardly be recognised as having much affinity with the Whortleberry of our moors. They are all epiphytical shrubs, *having the lower part of the stem often swelling out into a prostrate trunk, as thick as the human arm or leg*, and sending out branching fibrous roots that attach it to the limb of the tree upon which it grows. These trunks are *soft and spongy internally, and are reservoirs of moisture and nutriment;* they send out a few slender, generally pendulous branches, which bear often gorgeous flowers." The two plants which give rise to the above remark are most beautiful shrubs with large crimson flowers, and would be brilliant ornaments of a greenhouse should they prove to be cultivable.

Buddleia Colvilei.—"This is very unlike any other Asiatic species of Buddleia in its size and form of flower, colour, and the locality it inhabits, its congeners being almost without exception tropical or subtropical plants; in several respects it more closely resembles some of the species of the Andes, but it *has no rival anywhere for beauty and graceful habit.* It is abundant towards the summit of Tonglo, from 9000 feet to the top 10,000 feet, and is also frequent in the Lachen and Lachoong valleys at similar elevations, even ascending to 12,000 feet. This will probably prove perfectly hardy, as I have found it in very exposed places as well as in woods; and from the abundance of its flowers, and its lasting some weeks in bloom, it would be a most desirable addition to our gardens." Let us add that the flowers are as fine as those of Escallonia macrantha, and as deep a red, while they grow in panicles as large as that of a common Lilac.

Æschynanthus Peeli, found in the thick forests where there has been no clearance, is perhaps a more brilliant red plant than any of the gorgeous species previously met with.

To these have to be added a Rhubarb (*Rheum nobile*)* of most prodigious form, resembling a giantess flounced from head to foot; an Oak (*Quercus lamellosa*) with magnificent leaves, comparable to those of the Spanish Chesnut, rendered hard and evergreen, and acorns so woody as to render riding unsafe where they have fallen in large quantities; the Sikkim Larch now in our gardens, which appears to be tender only when raised from seeds gathered at 8000 feet of elevation, but to be hardy if produced by seeds from 13,000 feet; and *Vanda Cathcarti*, a fine epiphyte, with great fleshy flowers, streaked with cinnamon-coloured bars. Such things as these point unmistakeably to the scene of a new collector's labours; and it is to be hoped that the East India Company will forthwith despatch a skilful person in search of them. The Court of Directors having liberally subscribed for thirty copies of the work, every station of importance will be certain to possess it, and therefore the natives can have no difficulty in understanding what it is they have to search for.

In the month of July, just passed, there fell 6 inches and 3-tenths of an inch of rain at Chiswick; an amount only once registered in the same month since 1797. Howard, in his "Climate of London," knew of no such rainfall in any month whatever between 1797 and 1825. Since that time we have had two similar cases. In July, 1834, there fell 6.34 inches, and in November, 1852, 6.20 inches. It is worth considering how far this striking fact is likely to influence the remainder of the season.

The average depth of rain near London may be called in round numbers 24 inches. During the year 1854 there fell so little rain that at the beginning of the present year the total amount was nearly 5 inches *below* the usual quantity. Therefore to restore the average within the year it was necessary that 1855 should furnish 29 inches. What had actually been registered at the end of last June was as follows:—January, 0.10; February, 1.35; March, 1.75; April, 0.26; May, 1.94; June, 1.48; in all 6.88 inches; but this again was 3.07 below the average: the usual fall in the first six months of the year being 9.95 inches. Hence there remained at the end of June a deficiency of rather more than 8 inches of customary rain. Now, if the last six months of the year furnish on an average 14 inches out of the usual 24, we ought to receive 22 inches between Midsummer and Christmas; in other words, there must be in the present half-year nearly as much rain as usually falls in a whole year, provided the average is to be restored before Christmas.

July usually furnishes 2.42 inches. This year it has produced 6.30 inches. The average has therefore begun to be restored, and instead of 22 inches for six months we have to look for 16.70 inches in five months, or only about $2\frac{1}{4}$ inches less than fell in all 1854.

We draw no inferences from these facts; but it must be owned that they do not encourage us to expect a dry autumn.

We understand that Mr. N. H. Mason, a young and ardent botanist, is about to visit the Azores, Madeira, and the Canary Islands for purposes of scientific research. He proposes to collect plants, insects, shells, and objects of natural history generally, and will be glad to execute commissions, either for living plants (especially Ferns) to be sent to England in Ward's cases, or for dried collections. He is well acquainted with Madeira, having resided for two years in the island, and has also visited Teneriffe. We have had an opportunity of seeing some of his dried plants, and it is not too much to say that they are among the finest that have ever been prepared; not surpassed by even those of Bourgeau. In addition to the apparatus required for collecting plants, Mr. Mason takes out a dredging apparatus for shells and zoophytes.

We have no doubt so favourable an opportunity of procuring Madeira plants, especially the numerous beautiful species of Fern will be gladly seized by our horticultural friends, who can communicate their wishes to Mr. Mason, at 17, Compton Terrace, Islington.

New Plants.

138. Leptodactylon californicum. *Hooker and Arnott in Beechey's Voyage, p. 369 t. 89; alias* Gilia californica, *Bentham in De Cand. Prodr.* ix. 316.

When this beautiful plant was shown by Messrs. Veitch at Chiswick last June, under the name of Leptodactylon californicum, we supposed that some change of tickets had occurred, so entirely did it wear the appearance of the prickly Phloxes of Siberia and North America. Since that time we have been enabled to examine its structure, and it is now necessary to announce that it really is what it has been called. The genus Leptodactylon was founded upon two North American plants, one of which Sir Wm. Hooker had previously called Phlox Hoodii, but which have been found to differ from Phlox in the ovary containing a great many ovules instead of only one or two; to which must be added the division of the leaves into linear digitate segments, instead of being entire; a circumstance easily overlooked in consequence of the divisions being carried to the very base of the leaves.

Since Leptodactylon was founded by Messrs. Hooker and Arnott, the whole order to which it belongs has been re-examined by Mr. Bentham, who reduces the genus to Gilia, calling the plant before us Gilia californica. We own to a great difficulty in believing that the alteration will be permanent, and therefore retain the name first given, which is now beginning to be known in gardens. Into the botanical question of what is to be done with Leptodactylon we cannot enter in this place.

The plant before us is one of the most charming acquisitions of Mr. Wm. Lobb, who found it on the mountains of St. Barnardino, in California, and who describes it as an evergreen shrub from 2 to 4 feet high. We have before us some of his wild specimens, which entirely bear out the statement. The wood is hard, the branches closely covered with bright, green, stiff, finely-cut leaves, and loaded with rose-coloured flowers as large as those of our common Phlox. It may be compared not inaptly to a bush of Irish Furze loaded with the blossoms of Phlox maculata, only pale and delicate rose colour instead of deep purple. We presume the species will be a hardy greenhouse or frame plant, requiring more air and dryness than heat in winter. We may add that it has all the appearance of being well suited for summer bedding out.

VEGETABLE PATHOLOGY.—No. LXXXII.

343. Capsomania.—As the organs of fructification, properly so called, are formed by the terminal spires of their own individual axis, all appendages which are superior to the normal fruit may without inconvenience be considered as repetitions of the carpellary whorls. Those cases, therefore, in which, after the formation of the proper fruit, in a more or less perfect state, the axis is still further elongated, and furnished with leaf-like appendages, may be referred to this head.

344. It has even been supposed that the columella of Mosses is capable of being so elongated, and a case is figured by Dr. Montagne, under Conomitrium Berteri, D'Orbigny Voyage, Part 2, tab. 3, which at first sight seems to indicate such a fact, but Dr. Montagne has doubtless attributed it to the true cause, namely, the germination of a spore within the capsule.

345. It is doubtful, perhaps, whether the viviparous Grasses should be referred to the same group. They are in character nearly allied to bulbs, the true fruit being entirely suppressed.

346. The axis may be elongated either after or before the formation of perfect fruit. Perfectly formed Pears, for instance, occasionally produce a leafy shoot, as in the case figured in this Journal, 1845, p. 532, and the contrary condition is illustrated in the "Theory of Horticulture," Ed. I, p. 61. Roses assume a variety of forms, according to the mode in which the organs of fructification are transformed. Illustrative figures are given in *Gard. Chron.*, 1847, p. 171; 1845, p. 291, &c., of which one of the most characteristic is here introduced.

It is this latter form which in a lower stage of development produces the green-centred Roses, which are the bane of the amateur, however instructive they may be to the botanist. Some varieties of Roses, as for instance the Ohl, Great Western, Charles Louis, &c., are far more subject to this condition than others; but the same plant does not uniformly produce green-centred Roses; in the present season they are less prevalent in my own garden and some others which I have examined than in any previous year as far as I can remember; and on one plant which has usually had many green-eyed flowers I do not find a single deformed Rose. A mode of treatment which would insure their suppression would be gratefully received, but they occur under such different circumstances that perhaps it is impossible to suggest a certain remedy, though the finest and most perfect flowers will be found in general where the soil is moderately rich, combined with a certain degree of consistency. It appears at least quite certain that highly manured land, especially if the manure be raw and contain much nitrogenous matter, has a great tendency to produce deformed flowers, even in such varieties as are not usually subject to the affection: but a dry sterile soil, deficient in all forcing nutriment, is by no means necessarily exempt. Atmospheric conditions have therefore been brought under consideration. It has been supposed that warm wet weather following a long spring drought, especially if the temperature has been unusually low, is productive of green-eyed flowers, while other authorities attribute the same effect to dry weather succeeding excessive moisture; the first supposition is in harmony with the tendency of plants to elongate their terminal buds under such circumstances, but experience does not tally with either supposition, and that of the present year, if my own observations are generally borne out, is not in favour of the first. Forcing weather in spring has in like manner been alleged as a cause, but, I believe, equally without reason. If there be any truth that nitrogenous manure is productive of

* Of this we shall give some account in an early Number.

such flowers, experiment should be made, as suggested some 14 years since by Dr. Lindley, with a view to ascertain the effect of nitrate of soda, sulphate of soda, carbonate of ammonia, and muriate of ammonia, which are said to arrest the power of extension in plants.*

347. If these green-eyed flowers are carefully examined, their condition will be found to vary greatly. In some the common receptacle of the carpels is as concave as ever, though almost every carpel is more or less perfectly transformed into a leaf, while in others it is scarcely thicker than the common stalk, and the carpels with a few exceptions, or sometimes without one, are arranged spirally round a projecting axis. In most of these cases not only is there a tendency to produce frequent spires of leaves around the axis, but to develope their axillary buds. In one now before me there is a bud in every axil, and in many cases the petals are distinctly formed though almost destitute of colour; so perfectly indeed, that a little judicious treatment might probably cause the development of a bunch of new flowers from the centre of the old, a circumstance which in some rare instances does really take place.

348. We have before mentioned this production of distinct inflorescence from the axils of bracts. It occurs not unfrequently where the leaves are multiplied beyond their normal condition. It takes place, however, constantly in certain varieties, as in the Hen and Chicken Daisy and some other Compositæ, and indeed the normal inflorescence of some species in that large order is not very different. It occurs, however, where there is no question of mere bracts, as in the curious flower of Celastrus scandens figured after Kunth in the "Theory of Horticulture," Ed. 1, p. 59. The compound Strawberry figured in *Gardeners' Chronicle*, 1845, p. 496, belongs probably to the same category. *M. J. B.*

ECONOMY OF THE GOOSEBERRY CATERPILLAR.

Last year we had no caterpillars. Our garden is separated on the east side by a high wall from that of a market gardener. Last year about this time after the young growth was made his bushes were attacked and completely cleared of leaves. He has, however, had a fair crop of fruit this year, and with it a serious visitation of the pest, clearing off all the foliage and entirely stopping the growth of the young wood. Of course he can look for no fruit next season. Early in June the easterly wind brought the fly over the wall that separates us, and the Gooseberry trees on the east side of our garden were at once affected. In searching them minutely, here and there a leaf was found with a row of small oval-shaped eggs deposited on the midrib of the lobe of each leaf, but the number was entirely insufficient to account for the prodigious appearance of caterpillars, nor could there be found any traces of emptied eggs upon the leaves where the caterpillars, even in the very smallest state, were feeding. From this we infer that the eggs we found did not produce the Gooseberry caterpillar, and that we were at fault.

At their first appearance in June we tried to destroy them with soap-suds, sulphur in dust and fumes, tobacco-water, salt and soda, warm water, and lime dust quite fresh, but all in vain; the caterpillar fed and fattened through all. But this visitation was soon at an end, so that it was with the greatest difficulty about three weeks after its first appearance that we could procure a caterpillar to experiment upon. We succeeded, however, in capturing three or four, and placed them in a small wooden bowl, covered with gauze. They were properly supplied with fresh food. Two or three died after having made an attempt at forming cocoons at the bottom of the bowl; one succeeded in doing so after the manner of the silk-worm, on the back of a leaf. It was about the size and shape of a small sugar-plum. In about three weeks the fly emerged, answering to the figure at page 500. The abortive attempts to form cocoons at the bottom of the bowl would seem to indicate a natural tendency to burrow.

About a month ago the caterpillars reappeared, and in a short time stripped the Gooseberry trees of all their leaves; they then attacked the red and white Currants, finished them, and tried the black ones, but the latter proved unpalatable. During this last attack the ground was literally alive with them, and supposing they burrowed and deposited their cocoons in the ground, we placed a quantity of suitable mould in a circular Fern tray, covered sufficiently close with a large bell-glass to prevent escape, and under this we put a considerable quantity of the pest, keeping them well supplied with fresh leaves. Here they were observed, after a while, to change colour, and in time they disappeared. The earth was then carefully spread out and searched, but nothing could we find, save their old clothes left upon the surface. We presume "Ruricola," and others of your correspondents, are satisfied that they have found their cocoons in the soil under the bushes. We have not been so successful, though we have taken up the earth to the depth of 3 inches from under one tree which was completely stripped of its foliage. In what form do the pupæ exist in the ground? Our market gardeners here have various opinions about the trees which have suffered. Some recommend destroying them at once; others say let them remain, they will recover in the second year if unattacked. One thing is clear, if the trees form their young wood before the attack they will bear the following season. If they do not, they cannot produce a crop of fruit. ☞ [We hope our entomological friends will favour us with an explanation of the facts thus described.]

* Consult *Gard. Chron.*, 1841, June 26; 1848, p. 455, and the intervening volumes.

SCENTED TEA.

(Extracted from a Communication to the Athenæum by Mr. Fortune.

"I have been making inquiries for some time past about the curious process of scenting Teas for the foreign markets; but the answers I received to my questions were so unsatisfactory, that I gave up all hopes of understanding the business until I had an opportunity of seeing and judging for myself. During a late visit to Canton I was informed the process might be seen in full operation in a Tea factory on the Island of Honan. Messrs. Walkinshaw and Thorburn, two gentlemen well acquainted with the various kinds of Teas sent annually to Europe and America, consented to accompany me to this factory, and we took with us the Chinese merchant to whom the place belonged.

"In a corner of the building there lay a large heap of Orange flowers, which filled the air with the most delicious perfume. A man was engaged in sifting them, to get out the stamens and other smaller portions of the flower. This process was necessary, in order that the flowers might be readily sifted out of the Tea after the scenting had been accomplished. The Orange flowers being fully expanded, the large petals were easily separated from the stamens and smaller ones. In 100 parts 70 per cent. were used and 30 thrown away. When the Orange is used, its flowers must be fully expanded, in order to bring out the scent; but flowers of Jasmine may be used in the bud, as they will expand and emit their fragrance during the time they are mixed with the Tea. When the flowers had been sifted over in the manner described they were ready for use. In the meantime the Tea to be scented had been carefully manipulated, and appeared perfectly dried and finished. At this stage of the process it is worthy of observing, that while the Tea was perfectly dry the Orange flowers were just as they had been gathered from the trees. Large quantities of the Tea were now mixed up with the flowers, in the proportion of 40 lbs. of flowers to 100 lbs. of Tea. This dry Tea and the undried flowers were allowed to lie mixed together for the space of 24 hours. At the end of this time the flowers were sifted out of the Tea, and by the repeated sifting and winnowing processes which the Tea had afterwards to undergo they were nearly all got rid of. Sometimes a few stray ones are left in the Tea, and may be detected even after it arrives in England. A small portion of Tea adheres to the moist flowers when they are sifted out, and this is generally given away to the poor, who pick it out with the hand.

"The flowers, at this part of the process, had impregnated the Tea leaves with a large portion of their peculiar odours, but they had also left behind them a certain portion of moisture, which it was necessary to expel. This was done by placing the Tea once more over slow charcoal fires in baskets and sieves prepared for the purpose of drying. The scent communicated by the flowers is very slight for some time, but like the fragrance peculiar to the Tea-leaf itself, comes out after being packed for a week or two. Sometimes this scenting process is repeated when the odour is not considered sufficiently strong; and the head man in the factory informed me he sometimes scented twice with Orange flowers, and once with the 'Mo-le' (Jasminum Sambac).

"The flowers of various plants are used in scenting by the Chinese, some of which are considered better than others, and some can be had at seasons when others are not procurable. I considered it of some importance to the elucidation of this subject to find out not only the Chinese names of these various plants, but also by examining the plants themselves, to be able to give each the name by which it is known to scientific men in all parts of the world. The following list was prepared with great care, and may be fully relied upon. The numbers prefixed express the relative value of each kind in the eyes of the Chinese, and the asterisks point out those which are mostly used for scenting Teas for the foreign markets:—

1. Rose, scented (Tsing moi-qui hwa).
1 or 2. Plum, double (Moi hwa).
2*. Jasminum Sambac (Mo-le hwa).
2 or 3*. Jasminum paniculatum (Sieu-hing-hwa).
4*. Aglaia odorata (Lan-hwa, or Yu-chu-lan).
5. Olea fragrans (Kwei hwa).
6*. Orange (Chang hwa).
7*. Gardenia florida (Pak-sema hwa).

"It has been frequently stated that the Chloranthus is largely used. This appears to be a mistake, originating, no doubt, in the similarity of its Chinese name to that of Aglaia odorata. The Chloranthus is called 'Chu lan'; the Aglaia 'Lan' or "Yu-chu-lan. [Yet we can positively assert that the peculiar fruit of Chloranthus, as well as its flowers, occurs in some scented Tea.]

"The different flowers which I have just named are not all used in the same proportions. Thus, of Orange flowers there are 40 lbs. to 100 lbs. of Tea; of Aglaia there are 100 lbs. to 100 lbs.; and of Jasminum Sambac there are 50 lbs. to 100 lbs. The flowers of the Sieu-hing (Jasminum paniculatum), are generally mixed with those of the Mo-le (Jasminum Sambac), in the proportion of 10 lbs. of the former to 30 lbs. of the latter, and the 40 lbs. thus produced are sufficient for 100 lbs. of Tea. The 'Kweihwa' (Olea fragrans) is used chiefly in the northern districts as a scent for a rare and expensive kind of Hyson Pekoe—a Tea which forms a most delicious and refreshing beverage when taken *à la Chinoise*, without sugar and milk. The quantity of flowers used seemed to me to be very large; and I made particular inquiries as to whether the Teas that are scented were mixed up with large quantities of unscented kinds. The Chinese unhesitatingly affirmed that such was not the case, but notwithstanding their assertions, I confess I have some doubt on this point.

"The length of time which Teas thus scented retain their scent is most remarkable. It varies, however, with the different sorts. Thus, the Olea fragrans Tea will only keep well for one year; at the end of two years it has either become scentless, or has a peculiar oily odour which is disagreeable. Teas scented with Orange blossoms and with those of the Mo-le will keep well for two or three years, and the Sieu-hing kinds for three or four years. The Aglaia retains the scent longer than any, and is said to preserve well for five or six years. The Tea scented with the Sieu-hing is said to be most esteemed by foreigners, although it is put down as second or third-rate by the Chinese.

"It appears from these investigations that many kinds of fragrant flowers besides those used by the Chinese would answer the purpose equally well, and therefore in places like India, where Tea is likely to be produced upon an extensive scale, experiments in scenting might be made with any kinds of Jasmines, Daphnes, Aurantiaceous, or other fragrant plants indigenous to the country."

Home Correspondence.

Transplanting Evergreens.—Whatever may be experienced by different parties in various localities, I conclude that it will be granted by most men who are at all conversant with the subject that autumn is the safest and consequently the best time to transplant evergreens. When I say autumn I mean the latter half of September and first half of October: so much as to time in general. Nevertheless, I would in every instance advise the operation to be modified by the exercise of a sound discretion on the part of the manager—be he gardener or not; and by his judgment of the character and quality of the soil, the state of the weather at the time, the size and condition of the plants, &c. &c., all which must be regulated by the good sense of the planter, and on the right exercise of this, success or failure will follow. Without any high pretensions, I may state that I have had some experience in planting, the result of which is, that in this, as in most other things, there are exceptions to general rules; but, on the whole, my endeavour in transplanting an evergreen would be as to time to do it early enough to let the roots get a living hold of the soil before the vital action of the plant is arrested by the approaching cold of winter. It sometimes happens that evergreens planted in spring do well. If plants and ground are in relative right condition, and the atmosphere clouded, the roots act at once, and they are safe; this is an exception: but if keen dry winds and clear sky are then prevalent, adieu to the evergreens. Many years ago somebody (I have forgotten who) wrote something plausible about the safety of transplanting deciduous trees in summer when full of leaf; to test the matter, I transplanted some Black Italian Poplars (I think six in number) in free growth, and in an open sandy meadow near the side of a river. The trees were carefully lifted, saving all their roots, which were carefully and naturally laid out in wide and not deep holes, and saturated with water (which, however, the soil would not retain) most plentifully. The result was that every one died. Could anything else have been expected? So much for listening to idle day-dreamers. I ought to have stated that the Poplars were from 15 to 20 feet in height. *Quercus.*

Erica tetralix alba.—Allow me to furnish you with a piece of this. I have grown many thousands of it, and have always considered it a variety, but it appears from the specimen sent to be a sport. *John Cattell, Westerham.* [We suppose such to be the case, since the specimen sent consists of four branches, on one of which the flowers are red, the remainder being white.]

Dioscorea Batatas.—I begin to feel convinced that what has been said in favour of this esculent as a profitable acquisition to British industry is far from being true, and that the public has been led to spend money upon an article of no practical value. Nor does there appear to be any beauty in the foliage or habit of the plant to attract attention beyond that of a Scarlet Runner. Mr. Henderson's pamphlet contains much encouragement, but theoretical plausibility does now what it ever has done—fails to satisfy a practical public. I always feel it disagreeable to impugn or throw discredit over what appears to be respectable evidence, but in this case there is no other alternative, and now let us appeal to facts. Like others I was supplied with tubers, which were placed in small pots about the beginning of April, and submitted to a temperature of 60° till the shoots had grown 5 or 6 inches in length. The plants were then removed to a cooler situation, and ultimately to a cold frame, where they remained till they were planted in the open air, which was towards the middle of June. The situation chosen for them was a south border, well drained, and at the time of planting the heat of the border at 1 foot deep was 64°. The surface was formed into ridges from 5 to 7 inches high, and upon the top of these the shoots were closely pegged down. For three weeks the plants were covered every night with large bell-glasses, and as a precaution against cutting winds throughout the day Laurel branches were placed in rows between the ridges. With all this care and close attention to other matters, the shoots do not increase in

length; they wither at the points, die off, and are succeeded from below the soil by fresh growths, which share the fate of their predecessors. The above is the result of my experience, and I know that others who have tried the plant have fared no better. *A. Cramb, Gardener to the Right Hon. Earl Ducie at Tortworth.* [It is too soon to say what it is worth, the tubers not being formed till August and September.]

Gooseberry Caterpillar.—Some years ago we were visited in this neighbourhood with a green caterpillar which destroyed every leaf on the Gooseberry bushes, but since that time we have had none, though other gardens have suffered severely. I think this arises from a practice I have since adopted every spring about February. At this time the bullfinches attack the buds of the Gooseberry and Currant bushes, and in order to prevent them I scatter over the bushes on a damp morning a plentiful dose of soot; this sticks to the buds, and being bitter, the birds will not attack them—of course a considerable portion falls to the ground, and I have no doubt kills any larva or eggs of the caterpillar that may be deposited there. The soot is sown broadcast two or three times during the early spring, and the ground is forked over soon afterwards. *Anon.*——I have tried the following experiment, which came to my knowledge through an experienced gardener, and have found it quite satisfactory. In order to get rid of the number of caterpillars that were infesting our bushes my gardener put branches of common Furze or Gorse in the middle of each bush, and in my own garden the caterpillars disappeared in two days, neither could any trace be found of them, and the remainder of the leaves are now quite healthy. *A., July* 31. [We have the same statement from "a constant reader" at Liverpool.]——Some years since, when residing near Exeter, I had a small patch of Gooseberry bushes which were so voraciously attacked by caterpillars that scarcely a leaf was left, the fruit withered, and the stalks were left bare. Having read, I believe in the *Gardeners' Chronicle*, that lime round the roots in spring was an effectual remedy, I adopted the suggestion. Before the buds came out the following spring, I took away the earth from around the stems, just uncovering the roots, and replaced it with earth well mixed with lime, some three or four spadefuls to each bush. The effect was very satisfactory, as there were very few caterpillars the following summer. I repeated the liming the next spring and rarely saw a caterpillar afterwards. *Ephra, Birkenhead.*——Observing that Mr. Manser, of Kew, had suffered severely by the Gooseberry caterpillar, I have recommended him to try a decoction of Furze (Gorse) shoots, either from a syringe or rose water-pot. It will neither injure fruit nor tree, and in our case was eminently successful, seldom having to repeat it twice, and never, that I am aware of, oftener. We saw the recipe in print several years ago, and I think in your paper. *R. Harvey, Plassey, Limerick.*——My Gooseberry trees are entirely free from caterpillars this year, whereas last year the leaves were devoured, and the crop of fruit spoiled by them. Finding myself much more fortunate than my neighbours in this respect, I attribute it to the fact of my having had the trees well washed with strong tank water (from the stable) just as the bud was bursting, and I strongly recommend all those who have suffered from the Gooseberry scourge this year, to try this plan next spring. My Currant trees present about as miserable an appearance as they did last year; but had they been dressed as the Gooseberry trees were, I have no doubt they, too, would have been free from blight and caterpillar. *Ebor, York.*——The loss of the leaves of Gooseberry bushes from caterpillars does not always seem to injure the crop of fruit the following season. Last year the bushes in my garden were actually stripped in July; there was not a leaf left, and the fruit was all spoiled. In the autumn the bushes pushed fresh leaves, and I expected to have but little fruit this year; the contrary, however, is the case, a finer or more abundant crop of Gooseberies I never saw, and the foliage is very little injured. In April vast swarms of the insects were flying over the trees, but these were all males; the females are very sluggish, and fly but little. I was not aware till I saw Mr. Westwood's remarks that the male of this insect was so little known. *Henry Doubleday, Epping.*

Page & Co.'s Blight Composition.—The answer given at p. 488, concerning the utility of this composition, is so much at variance with the results of its application in my case, that I am induced to furnish you with my experience in the matter. I have a forcing-house, heated by hot-water, which was erected expressly for early and late work; in fact, for winter forcing. Early in March last I had Cucumbers and Kidney Beans in one division, and Strawberries, &c., in another. On one side of the house—which is span-roofed—I planted my spring Cucumbers to succeed the winter ones on the other side, which were then past their best, and a good deal eaten with thrips, notwithstanding a thorough syringing twice and sometimes three times a day. The Beans were also infested, and I think about half a dozen pots out of fifty of the Strawberries had red spider on them. I procured a cask of the composition, and choosing a cloudy afternoon, I raised the temperature in the house to 85°, and shut close up. I added one part water to two of the liquid, and gave a thorough syringing. I repeated the dose three times, and my Cucumbers recovered and amply rewarded me by their luxuriant growth and a fair crop. This mixture was applied the same strength to the Strawberries, and not a spider or thrip could be seen alive. My opinion is, that unless in a close house or pit the effect is less powerful, as it seems to me that the gases evolved in its application play a prominent part in the work of destruction. I have, however, used it with certain effect on green fly on Roses and other plants, and black fly on Cherries, and I am bound to say that having taken farewell of Tobacco at 4*s.* per pound, I have failed to procure so effective and economical a substitute as that under notice. *W. Watt, Aswarby Park.* [But what of mealy bug and scale?—that is the question.]

Protecting Wall Trees in Spring.—I am aware that in the present day when a generally received opinion has been established for some time, the observations of any one who wishes to differ widely from that opinion are thought unworthy of notice; but as "W. H." (see p. 502) has just made some remarks on the subject, I have ventured to say that whilst so much attention is paid to protecting from frost, I think too little is thought of protecting from rain as well, which your correspondent's remarks appear to show is requisite, and this has been my own idea for a long time. Indeed so much importance do I attach to this, that I do not consider a wall effectually protected unless some means are employed for carrying off the moisture, though I may add that neither the want of covering from frost or rain is the only cause of blossoms not setting. I should be glad to hear from those correspondents who have not protected at all how they, as well as "W. H.," have succeeded, for if only those who were to protect by slight coverings were to have a crop, doubtless there are many who would have none at all. *J. Divers, Maidstone.*——In about a fortnight there will be a splendid show of Apricots at St. Fagan's, for all those who can and have the time to view it, or for those who are still doubting to be convinced of the efficacy of my mode of covering, a woodcut representation of which you gave at p. 373. Every admirer of fine fruit must lament that the Moorpark is very apt to gum and die off, and leave our walls sadly vacant and obliged to be renewed. A gentleman of some experience proposed in order to remedy this evil to sow the stones of the Breda and Hemskirke Apricot, and when grown up to bud these stocks with the Moorpark, in the hope of giving that plant a better constitution and a firmer stamina. It is hoped that some spirited individual will put the scheme in practice, for while the nurserymen can readily sell their deficient Moorparks, it is to be feared they will not incur the trouble and expense of making the experiment. *W. B. M. Lisle, L.L.D., St. Fagan's, Cardiff.*

Strawberries.—As a private gentleman growing the above, I always paid attention to every article in your Paper on the subject. Those articles invariably recommend that the plants should be renewed every two or three years at the most; it is laid down to be imitated as the practice of the great growers, so I have understood it. Now will you kindly explain on what principle it is stated in the Calendar last week that if a certain course is pursued, "the plants will last for several years?" Why do not the great growers pursue that course?—they do everything in the best way, you say. If it would not pay them, why pay such as me? Now, from the foregoing the question is—a great and a private grower both plant Strawberries as directed in last week's Calendar; the first destroys his for a new bed every two or three years, the latter is to make his "last for several years?" *J. W.* [The writer of the Calendar will doubtless answer this inquiry.]

Hedges.—Thorn and Privet mixed make a good fence and look well; but where there is cattle to deal with Privet is too soft, and they eat it into gaps. The best hedge I ever saw was Thorn and Holly mixed. It was either slashed or clipped every year, and a perfect specimen it was both for fencing off cattle and for shelter. *W. Hopps, Lightcliffe, Halifax.*

Larch.—How true it is that almost "everything is done by fits and starts," and that "it never rains but it pours." A few years since, when Larch poles could be had in abundance at a low price, large quantities of young Larch were planted every year; now, when the demand for rails and posts, created by railroads and inclosures, has made Larch so scarce that it cannot be procured in sufficient quantity for farmers' purposes, and it has almost doubled in price, there is hardly any planting going on, at any rate in the midland counties. In a few years no doubt the owners of land will become awake to the fact, and then perhaps the large Scotch growers will be hardly able to meet the demand, and will reap a harvest in advanced prices. Few things are more important to good farming than a good supply of fencing. *J. R. Pearson.*

Heating and Ventilating Plant-houses.—Your notice of Mr. Hood's book on ventilation, &c., reminds me of a conservatory I saw near Derby in 1803, and in which the plants were remarkably vigorous. This plant-house had been heated and ventilated by Mr. William Strutt, in conformity to his conviction that in heating and ventilating buildings, these effects should be produced by the introduction of a large body of moderately heated air. In this manner he had kept his extensive cotton mills at Belper at about the temperature of 60° Fahr., which experience had shown to be the healthiest degree of heat for operatives to work in; his dwelling-house had open fires to look at, but it was warmed and ventilated by a hot air stove in the basement, the eduction pipes of the warmed air being in the hall; in the same manner he seasoned timber, dried malt in an extensive malt house, dried the linen in his laundry, &c. The originality of Mr. Strutt's mode consisted most in his employment of a large body of moderately heated air, thus insuring perfect ventilation, uniformity of it, and that without scorching the persons or matters exposed to it. It is evident that in a plant-house, by the introduction of a large volume of air at a moderate temperature, even a current of wind might be obtained by opening the windows, or other apertures, and that without danger of scorching or chilling the plants, for air would go out instead of coming in. It has, however, occurred to me that Mr. Strutt's plan might be slightly improved upon, by causing the warm air pipe to be carried the whole length of the house, piercing the pipe with holes more or less large, according to their distance from the influx of heated air, for in this way the whole house would be equally warmed and ventilated. Of course that pipe would be carried along the side opposite to that at which were situated the windows, or other apertures to the external atmosphere. *B.*

Leaf Burning (see p. 269).—If "G. L." will mix 2 pounds of bay salt with each pail of whitewash used, it may then be applied on the outside of his glass without the least danger of its washing off. There is, however, an old saying that there is no good without an evil, the truth of which I have experienced in reference to the use of whitewash; I employed it on a stove glazed with sheet glass, 16 oz. to the foot, and it certainly prevented burning, but it obstructed heat, and next spring none of my plants bloomed so profusely as I could have wished them. *J. Gadd, Bignor Park, Petworth.*

Societies.

Botanical of Edinburgh, *June* 14.—The President in the chair. The following papers were read:—1. Remarks on the Calamite and Sternbergia of the Carboniferous Epoch, by Dr. Fleming. 2. On the Dyeing Properties of Lichens, by Dr. W. L. Lindsay. In this paper the author endeavours to direct public attention specially to the two following facts, viz., first, that in our own country many native Lichens, which grow more or less abundantly, might, with advantage and economy, be substituted for the somewhat expensive and scarce foreign Roccellas and other dye-Lichens usually employed in the manufacture of ochil, cudbear, and litmus; and, secondly, that in our colonies and foreign countries to which we have access, species valuable as dye-Lichens probably grow in abundance—might be collected and transported easily and cheaply—and thus become important and lucrative articles of commerce. He is desirous of bringing the subject under the notice of the following classes of persons or scientific bodies, to whom he leaves its practical or scientific application, viz., firstly—chemists, orchil, cudbear, and litmus manufacturers; importers and exporters of Orchella weeds and other dye-Lichens, dyers, &c.; secondly, scientific societies, such as the Royal, Geographical and Botanical, and the Society of Arts; public boards, such as the East India, Army, and Admiralty Boards; industrial exhibitions, such as the Sydenham Crystal Palace and Paris Exhibition; scientific and exploring expeditions, &c.; and, thirdly, colonists, emigrants, travellers, officers of our commercial and royal navy, and of the army and East India Company, residents abroad, and in our own Highlands and islands, &c. He remarks, "This is pre-eminently an age of discovery and enterprise in scientific matters; the strongest tendency everywhere exhibits itself to multiply the natural resources of our native country and its colonies—to turn to practical account, for the improvement of our arts and manufactures, their hitherto valueless vegetable products. The efforts at present being made to introduce the fibre of the common Nettle, Thistle, and other native weeds, in the manufacture of textile fabrics and paper, as substitutes for Flax, is only one limited example of this utilitarian tendency. Believing that this desire requires only to be led into suitable channels, my object is to submit to scientific and commercial enterprise the importance of this particular field of inquiry, and the richness of the fruits it promises. The fact that manufacturers or importers might find it economical or remunerative to be supplied with substitutes for the Roccellas, which are fast becoming scarce and consequently expensive, is the most limited view we can take of the advantages of such an investigation. Indirectly a multiplied trade in dye-Lichens might scatter the seeds of civilisation, and place the means of a comfortable subsistence at the command of the miserable inhabitants of many a barren island or coast, at present far removed from the great centres of social advancement; for the dye-Lichens will probably be found luxuriant where no other vegetation can thrive, frequently attaining their highest degree of perfection on the most bleak rocky coasts, or on elevated mountain ranges. It is probable that many rocky isles in the broad Pacific and Atlantic—many hundred miles of desolate sea-coast and vast extents of mountain districts in Africa, America, Asia, and Australasia, which at present yield no products to commerce, and are too barren to support higher vegetation, might furnish an unlimited supply of Lichens, useful in dyeing. The vast continent of India and neighbouring countries and islands, for instance, already promise valuable results in this respect. In the Indian collection of raw vegetable products exhibited in the London Crystal Palace of 1851, several specimens of "Orchella weeds" from India, Ceylon, Socotra, &c., were shown; and an explanatory note appended to some from the vicinity of Aden in Arabia stated most suggestively "Abundant, but unknown as an article of commerce." Specimens of Roccella fuciformis were there exhibited from Ceylon, estimated as worth 300*l.*,

per ton, and Parmelia perlata at 190*l.* to 225*l.* But the whole world may be said to be an open field; in every clime, in every soil, at almost every elevation, and in all seasons, tinctorial species grow, and even luxuriate. In Northern Europe, in Scandinavia, and even in our own Highlands and Islands, many such species are abundant, and might surely be collected at a rate so cheap as to render it remunerative for the manufacturer to employ our destitute Highlanders in gathering them. Moreover, in connection with the development of the economical applications of Lichens, it is not unimportant to bear in mind that many species contain such an amount of starchy matter as to become, or to furnish excellent articles of food; many are used as fodder for cattle, some are eaten in Iceland and arctic countries, and one, at least, is frequently used in the making of jellies in this country. I need only here allude, in confirmation of this statement, to the Cetraria islandica, or 'Iceland Moss' of our shops; the Gyrophora or 'tripe de roche' of the arctic regions, whereby the lives of many intrepid travellers have been preserved; the Lecanora esculenta, a kind of Manna, peculiar to the steppes of Tartary, and the Cladonia rangiferina, or familiar 'Reindeer Moss' of Lapland. On the mountains of Scotland, Ireland, and Wales, species of Lecanora, Gyrophora, Umbilicaria, and Isidium, capable of yielding fine qualities of orchil, cudbear, and litmus are more or less abundant. While the cudbear manufacture flourished in Leith and Glasgow, the Lecanora tartarea, from which it was prepared, was collected to a great extent in our Western Highlands and islands, but with the transference of this manufacture into the hands of English orchil makers, this source of remunerative employment to our poor Highlanders suddenly ceased, and this Lichen is now chiefly or wholly imported from Norway and Sweden for the London market. The value of this Lichen in Scotland is said to have averaged 10*l.* per ton. Hooker states that, at Fort Augustus in 1807, a person could gain 14*s.* per week by collecting it, estimating its market price at 3*s.* 4*d.* per stone of 22 lbs. Pennant records it as an article of commerce about Taymouth in Perthshire. Miss Roberts mentions its having been collected in North Wales at 1½*d.* per lb. for the London market; and it appears also to have been largely gathered in Derbyshire, the price there given to the collector, who could gather 20 to 30 lbs. per day, being 1*d.* per lb. The re-introduction of this trade or means of employment might be a great boon to the Highlanders, who have, within the last few years, been deprived of another source of remunerative labour and comfortable sustenance,—the collection of 'Kelp' or 'Sea-wrack' on our rocky and stormy western coasts, and whom dire necessity now compels to transfer their energies to foreign lands." He then made observations on the mode of collecting Lichens, their mode of transport, and the mode of testing the colorific value, and of evolving the colouring matters. Finally, he gave tabular views showing the chief dye-Lichens applied by the peasants of various countries to the dyeing of stockings, yarn, woollen stuffs, &c., as well as showing the chief dye-Lichens used in this and other countries in the preparation of orchil, cudbear, and litmus. 3. On Diatomaceæ found in a sub-fossil state in Dumfriesshire, by R. Harkness, Queen's College, Cork. 4. Notice of the time of flowering of certain trees and shrubs in the Royal Botanic Garden during the past month, by Mr. M'Nab.

Name.	First flower observed open.	When in full flower.
Prunus avium	May 1	May 20
" Cerasus, Dbl. Flowered Cherry	" 5	" 23
Wistaria chinensis (on wall)	" 18	June 8
Prunus Padus, Bird Cherry	" 20	" 10
Azalea pontica	" 23	" 9
Sorbus domestica, Service tree ...	" 27	" 8
Cratægus coccinea	" 28	" 9
" præcox	" 28	" 8
Pavia flava	" 28	" 7
Prunus Mahaleb	" 30	" 8
Æsculus hippocastanum	June 1	" 12
Rhododendron catawbiense	" 1	" 14
Syringa vulgaris (varieties)	" 2	" 12
Sorbus aucuparia	" 3	" 10
Cytisus laburnum	" 4	" 13
Cratægus oxyacantha	" 8	" 20
Fraxinus ornus	" 9	" 20
Cratægus oxycantha rubra	" 12	" 20
Mespilus grandiflora	" 12	" 20
Cytisus alpinus, Scotch Laburnum ...	" 13	" 25

5. Notes on the Effects of last winter upon plants in the Royal Botanic Garden, Belfast, by Dr. Dickie. The following table shows the lowest point to which the thermometer fell during the month of February, 1855. It is taken from a register kept at Queen's College, Belfast—

Min. Thermometer for February, 1855.

Date.	Min.	Date.	Min.	Date.	Min.	Date.	Min. F.
1	27.0 F.	8	31.0 F.	15	13.0 F.	22	27.0
2	30.0	9	30.0	16	19.0	23	30.0
3	30.0	10	29.0	17	20.0	24	24.4
4	33.0	11	22.0	18	17.0	25	34.0
5	39.0	12	30.0	19	21.5	26	34.0
6	36.6	13	23.0	20	22.0	27	34.0
7	37.4	14	18.0	21	27.0	28	37.4

Mean temperature for the month	Mean Maxim.	Mean Minim.	Amnt. of Rain.
32.45	37.6	27.7	1.690

It will be observed that the absolute lowest temperature was on the 15th, viz., 13° F. In 1845, on March 5th, the thermometer in the Botanic Garden indicated 10° F., lower, than in 1855. The injury to the plants, however, in 1855, was greater, because in February last a generally low temperature, with east and north-east winds, prevailed during two weeks. The following list of plants injured or killed in the Belfast Garden during last winter has been made out by the curator, Mr. Ferguson — Pinus macrophylla, much injured, 12 feet high; P. apulcensis, killed, 8 feet high; P. patula, much injured, 6 feet high; P. pseudo-Strobus, slightly injured, 7 feet high; P. Devoniana, much injured, 2½ feet high; P. Russelliana, browned; P. palustris, killed; Abies Brunoniana, killed; A. Jezoensis, killed; Cupressus funebris, north side killed; C. Lhdeana, much injured; C. elegans, killed; C. mexicana, killed; C. torulosa, one killed, and the other much injured; C. lusitanica, killed; Juniperus macrocarpa, slightly injured; Fitzroya patagonica, killed, 4 feet high; Saxegothæa conspicua, killed, 4 feet high; Cephalotaxus Fortuni, not injured in the least, whereas the large-leaved variety has suffered very much; Erica arborea, killed, 10 feet high. For the sake of comparison, it may be interesting to insert here the following report by the late Mr. Templeton, of Orangmore, respecting the severe winter of 1813-14, as reported in the "Belfast Magazine" for that year:—"Viburnum Tinus, Cistus ladaniferus, C. creticus, Erica arborea, E. australis, E. mediterranea, Ulex Europæus, the common and Portugal Laurels, in many places were killed to the ground or had their young branches destroyed. Edwardsia microphylla and Coronilla glauca which, trained against a wall, had stood the frost of several winters, are either killed to the ground, or have their branches of two or three years killed. Calycanthus præcox, Pyrus japonica, and Corchorus japonicus, have passed the winter in the open ground. Timber trees suffered greatly, especially the Oaks, which were split with great violence. Walnut, Ash, and other trees had their last year's shoots killed. The frost began in November; on December 29, the thermometer fell to 7° F." 6. Account of the origin and of some of the contents of the Museum of Economic Botany attached to the Royal Botanic Garden of Edinburgh. By Professor Balfour.

Notices of Books.

Lectures on the Comparative Anatomy and Physiology of the Invertebrate Animals. By R. Owen, F.R.S. 2d edition. 8vo, pp. 689, with numerous woodcuts.

The name of the author of this important book is an ample guarantee for its being learned, able, and conscientious. Nowhere, indeed, will the reader find the interesting facts belonging to the lower forms of animals more amply or more philosophically explained than in the pages before us. They, however, relate but in a slight degree to the subjects properly included within our own field of discussion; and we can only recommend the careful study of Professor Owen's admirable work to all who are desirous of familiarising themselves with those progressive stages of animal life which stop only when the principal nervous system occupies the centre of a bony column, vertebra, or backbone.

One point, however, namely the difference that exists between plants and animals, may arrest our attention for a moment. We need not say that the distinctions which naturalists once thought they had found, such as locomotion, nitrogenous compounds, respiration, volition, perception, spontaneous action, have one by one given way before the march of investigation, so that no one can now say that a living body is an animal and not a plant because it moves from place to place, gives out ammonia, respires carbonic acid, obeys the impulse of its will, or perceives what passes around it, and regulates its movements accordingly. These properties belong, or appear to belong, to some plants as well as to animals, or are deficient in some animals as well as in plants. But when the naturalist broke down the barriers once thought to separate the vegetable and animal kingdoms, he failed to construct others in their room, and is now compelled to avow that they pass into each other by such insensible gradations that no man can say where one begins and the other ends. Let us hear what Professor Owen has to say upon this curious topic:—

"Thus, after reviewing the different characters by which it has been attempted to distinguish the special subjects of the botanist and zoologist, we find that neither sensation and motion, the internal assimilating cavity, the respiratory products, the chemical constitution of the tissues, nor the source of nutriment, absolutely and unequivocally define the boundary between the animal and vegetable kingdoms. We can only recognise the plant or animal when a certain number of their supposed characteristics are combined together.

"An internal assimilated cavity, whether in the form of cells, canals, or bags, is essential to all. The movement of a part, when stimulated, is a property continued from the higher organised forms far down into those that manifest the combined characteristics of the vegetable kingdom, as, *e. g.*, in the *Mimosa pudica* and the *Dionæa muscipula*, as to which the statement that such movements were destined solely for the furtherance of *formative* operations, would be purely gratuitous. Locomotion also crosses the supposed line, and is an endowment of the embryos or spores of the sea-weeds. On the other hand, the rooting or fixation of the organism is continued upwards from the vegetable kingdom into the Radiate, the Articulate, and the Molluscous divisions of the animal kingdom. The cellular and cellulo-vascular forms of the assimilative cavity, common to plants and sponges, is repeated in the cestoid entozoa, the astomous polygastria, the rhizopoda, and in the early embryos of all higher animals. Tissues of binary compounds are found in polygastria and acritiæ, and the chitinous coverings of insects and crustaceans have a much closer resemblance to ligneous fibre than to proper animal tissues. The presence of starch is of itself quite inadequate as a ground of distinction, even were it proved to form part of the proper cell-walls. And on the other hand, nitrogen combines with carbon and hydrogen to constitute the chief tissues of the sponges, algæ, and fungi. These exhale carbonic acid like well-organised animals, and the polygastria exhale oxygen like typical plants.

"Thus the groups of characters that are essential to the true definition of a plant and an animal interdigitate, so to speak, in that low department of the organic world from which the two great branches rise and diverge. Every naturalist or physiologist is at liberty, of course, to adopt any one of the characters that have been supposed to divide the two kingdoms; but the boundary, so defined, will be artificial, and each different character will bisect the debateable ground in a different latitude of the organic world."

This extract is not only very interesting in itself but furnishes a good example of the philosophical spirit in which the subject is here treated through above 600 pages.

Garden Memoranda.

Horticultural Society's Garden, Turnham Green.—In one of the stoves, which are now gay with Achimenes, Begonias, Orchids, &c, the new plant called Tydæa gigantea was in flower. When we say that its blossoms so much resemble those of Achimenes picta as to be scarcely distinguishable from them, some idea may be formed of what it looks like; its foliage, however, has none of those silvery markings about it which that of the last-named plant possesses. It appears to be a free flowerer, and to have the advantage of a rather more robust constitution than the Achimenes. In one of the greenhouses Platycodon chinensis was coming beautifully into flower; though hardy this well deserves a place under glass, for when in full blossom what can be handsomer, its colour and appearance forcibly reminding one of the Russell Lisianth, with which it may well be ranked. Another hardy plant in the same house worthy of notice was the well known Lilium chalcedonicum, whose waxy orange red blossoms contrasted well both in shape and colour with those of its associates. Impatiens Jerdoniæ was also here covered with showy blossoms remarkable as much for the singularity of their shape as for the brilliancy of their colour. Few plants of recent introduction promise to give more satisfaction than this Balsam.

The Rose house is again as gay as it well can be with flowers, which belong to a second crop this season, and there is every prospect of there now being abundance of blooms in it all through the autumn. The plants being clean and healthy are much admired by all who visit the garden.

In the great conservatory were beautiful examples of the blue and white Tracheliums, which though little better than annuals are very showy at this season of the year, and on that account should not be lost sight of by persons who have plant-houses to keep "dressy." The large Brugmansias have been cut "hard in," in order to keep them within bounds, and to clean them and prepare them for another crop of flowers. The Orange Cestrum is just coming freely into blossom. This we need scarcely say should be in every conservatory where there is room for it; for, when well flowered, nothing can be more ornamental. The beautiful Chrysanthemums which are so much admired in this house every year about Christmas have just been shifted out of their cutting pots into larger ones. They are grown three in a pot, and when shifted are spread out as much as possible, to make them fill the pots, and let air and light into the centre of the plants.

Among plants out of doors, annuals are now in full beauty. The more remarkable, new, or little known kinds were Iberis contracta, a lilac Candytuft, which will doubtless be a favourite; a double Sunflower, which does not rise at most above 2 feet in height; a dwarf very dark-coloured Nasturtium, a free-flowering and very handsome scarlet Alonsoa called Warsewiczi, Escholtzia tenuifolia, Messrs. Veitch's Whitlavia grandiflora, and Cacalia sonchifolia, which makes a showy bed of orange flowers.

Other novelties, in the shape of young plants raised from seeds furnished by Mr. Skinner and others, were a Rondeletia, reported to have orange and yellow flowers; a Geophila, said to bear handsome ultramarine-coloured seeds; a white Centradenia, called Skinneri; Rhexia glandulosa, a pretty plant with rose-coloured flowers; Tecoma velutina, called "Bucaro" by the natives, by whom it is much prized for its luxuriance and beauty; a Mexican Begonia, and other plants, which shall be more fully noticed hereafter. Among new trees raised from seed was an Ash from the Alma, apparently Fraxinus lentiscifolia; the Californian Plane tree, and a quantity of American Oaks of different kinds, the acorns of which were collected and presented to the Society by Mr. Frederick Rowe.

The orchard-house is every day becoming more interesting. Some of the trees have borne good crops, all have made wood satisfactorily, and are in excellent health. Some of the little Nutmeg Peaches are beginning to colour, and Fairchild's Early Nectarine is swelling rapidly. The Stanwick has also good sized

fruit on it, which as yet shows no appearance of cracking. As before remarked, Plums have thriven admirably, and are literally loaded with fruit. Smaller things, such as Black and other Currants and Gooseberries, have ripened their crops.

In the orchard, both on walls and standards, there is every appearance of plenty of fruit, and the trees this year have received no check. Strawberries have borne well. Ingram's Prince of Wales, notwithstanding the severity of the frosts in the spring, has had a good crop on it. The true old Pine has also been all that could be desired. This is still considered by many one of the best flavoured of Strawberries, and by means of top dressings of leaf-mould it will stand longer without renewal than most other kinds. Myatt's Cinquefolia is large but coarse; his Mammoth has not done well this year, probably owing to the dry weather we had in spring and early summer. For a late crop the Downton is one of the best.

The Black spined Chinese Cucumber, mentioned in our last report, has proved to be well adapted for ridges in the open air. It has a yellowish pleasant-tasted flesh, and appears to be a good bearer. The "hardy American Melon" has also set, and is swelling satisfactorily under a hand-glass. The fruit of the Australian Melon, mentioned last month, has assumed a beautiful yellow colour, but what its value may be remains to be proved.

In the kitchen garden are some excellent Peas of various kinds. If, however, we were confined to four sorts, we would choose Sangster's No. 1, *alias* Dan O'Rourke for a first crop; then Fairbeard's Champion, which is the best flavoured of all Peas, except, perhaps, Knight's Marrow. To succeed these we would take Victoria and Knight's Marrow, and if a fifth sort was wanted we would choose Dickson's Early Favourite, which appears to be so closely related to the Auvergne as to be easily mistaken for it. What has been sent to the Society under the name of the Somersetshire Pea has proved to be the Blue Prussian, and Hunt's Pea is not different from Victoria. Among Green Marrows, Bellamy's and Millford are good sorts. It may be mentioned that Green Coleworts have just been planted out to come in about Christmas. They stand about 9 inches apart every way.

FLORICULTURE.

National Floricultural Society, *July* 26.—A Certificate of Merit was awarded on this occasion to a lilac-flowered Verbena, called Eugenia, from Mr. Weatherill, of Hornsey Road. Its trusses were not very large; but the pips were of good form and substance. A similar award was also made to Petunia Hermione, from Mr. George Smith. This is of a greenish blush colour, curiously and regularly spotted and marked with light purple. The flowers are large and well formed, but rather flimsy in texture. Verbena Sir E. Lyons, from Mr. Todman, received a Label of Commendation. It is of a dull purplish colour, and in habit very like the old blue variety called Emma. Several extremely well-grown plants of what are termed Camellia Balsams were furnished by Mr. Smith, of Dulwich, and very handsome things they must be admitted to be. Among them were blush, purple, and scarlet kinds, and scarlet mottled with white, and when we state that many of the flowers measured quite 2½ inches across and an inch deep, some idea of the kind of display they made may be conceived. Their only fault was that they were scarcely sufficiently advanced in bloom. Calceolarias and cut Roses came from Mr. Cole, and Mr. Turner, of Slough, had beautiful collections of Carnations and Picotees. The last named grower had also some Dahlias and Hollyhocks.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Now that there is a profusion of flowers out of doors, it will not be possible to maintain the interest of this house, except by keeping it furnished with handsome specimens of showy plants in first-rate condition; and, with proper convenience, this is no difficult matter at this season. Nothing, therefore, should be brought here at present that is not a fair specimen, and well bloomed; nor should a single plant be allowed to remain a day here after it begins to get shabby, for it seems a waste of means, and certainly betrays bad management somewhere, to occupy glass structures with plants of inferior interest to such as are plentiful in the open air. It is not desirable in our opinion, however, to crowd the house with flowering plants, but the aim should rather be to have a moderate number of handsome specimens effectively arranged, which, while flowers are so plentiful out of doors, will be vastly more interesting and pleasing than a larger amount of floral display from plants of no individual interest or merit. This kind of display may be agreeable enough at a season when flowers are scarce, but it is useless to hope to maintain the interest of a house at this season by this kind of management. A thin arrangement of the pot specimens will also be advisable, on account of the permanent occupants of the beds or borders, which at this season should be allowed plenty of space, in order to secure strong well ripened wood; for unless this is obtained they will not bloom finely. Look over former directions, and use every means to keep insects in check, and to make order and neatness conspicuous in the arrangements of this house. Stove.—Such of the inmates here as are intended for the decoration of the conservatory in autumn and early winter should be carefully looked over, shifting such as are likely to want more pot room, without unnecessary loss of time, so as to get the pots well filled with roots before their flowering season. Also keep the shoots tied out rather thinly, and expose the plants to as much sunshine as they will bear without scorching their foliage, in order to promote stocky growth. Give clear weak liquid-manure water to young growing specimens, and report any of these that are intended to have another shift this season, so as to get the pots well filled with roots before winter. Maintain a moist growing atmosphere, and ply the syringe vigorously upon any plant at all infested with red spider.

FORCING DEPARTMENT.

Pinery.—Attend carefully to growing stock, keeping the bottom-heat regular, and the atmosphere warm and moist, and use every means to secure rapid vigorous growth. This will not be obtained, however, unless all is right at the root, therefore attend well to watering, and never allow any of the plants to become pot bound. Give air moderately to young stock, and shut up early in the afternoon, giving the plants a gentle wipe with the syringe, and the house a good steaming by wetting every available surface. Continue to pot a few suckers, as they can be obtained of sufficient strength, and do not allow too many to be produced by one plant, as they weaken each other. Indeed we never allow a sucker to grow to any size that is not likely to be wanted for stock, and unless in the case of any scarce sort, never more than two on a plant. Plants growing in beds of soil must be very carefully attended to with water, giving enough at each application to moisten the whole body of soil; for unless this is attended to, the bottom of the bed will sometimes get quite dry, while the surface is moist. Vineries.—The inside borders of houses intended to furnish a late supply of Grapes should be well soaked with manure water as soon as convenient, so as to allow of their becoming dry before the damp cloudy days of autumn set in, for damp will be most injurious then, and anything likely to cause it should be avoided. Muscats beginning to ripen should be assisted with fire heat, for it is hardly possible to ripen these properly at any season without artificial heat; and those for late use should be pushed on, so as to get them ripe by the end of next month at the latest; for those ripened later in the season are seldom of good quality, and we have always found them to hang better when ripened early in autumn than those that were ripened later in the season. Figs.—The second crop on the earliest trees will be fast advancing towards maturity; as soon as the fruit begins to ripen the atmosphere should be kept dry and rather cool, giving air freely every fine day, and using a little fire on wet cloudy days, to prevent damp and allow of a gentle circulation of air. Use every care to keep the foliage clean and healthy, and clear of insects, and do not crowd the young shoots. Melons.—Plants on which the fruit is ripening should be kept dry at the root, and freely exposed to air on fine days, avoiding moisture in the atmosphere as far as can be done without injury to the other plants. Do not allow the bottom heat to decline where the fruit is setting, which is a frequent cause of the young fruit dropping off. Keep a watchful eye on the foliage, and guard against red spider, which, if once allowed to establish itself, can hardly be removed without greatly injuring the tender foliage.

FLOWER GARDEN AND SHRUBBERIES.

Now that the effect of the present arrangement of the colours in the beds can be fairly seen, there is an excellent opportunity for noticing any mistakes, and determining upon the arrangements for next season, and this should be done without delay. When it is decided what each bed is to be occupied with next season, a plan of the garden should be made, writing the names of the plants on the beds according to the arrangement decided upon. This will be of the greatest service in showing at any time what quantity of each kind of plant has to be propagated; and unless some method of this kind is adopted, it not unusual to find at planting out time that there is a scarcity of some things and too many of others, whereas, those who have their plan to refer to can tell at a glance the exact number required of everything, and avoid mistakes in getting up too many of one thing and too few of another, and all the anxiety and confusion of working without a well defined object in view. Dahlias are growing very rapidly, and will require to be gone over frequently to keep the side branches securely tied in; for when left untied, they are readily broken off by a thunder-storm. Hollyhocks must also be securely tied to their stakes. Continue to remove dead flowers from Roses, and gave plenty of manure water to the autumn-blooming varieties. Plant out rooted cuttings of Pansies, &c., in nursery beds in a shady situation, keeping them well watered if the weather proves dry until they get established. Finish budding Roses at once, if not already done, and also get border Carnations, Picotees, and Cloves layered without farther loss of time.

FLORISTS' FLOWERS.

Take care that Carnations and Picotees do not suffer from drought. Layering may be commenced with those shoots sufficiently long. Cross breed flowers which have the desired properties; the anthers will be found low down in the calyx. The operation is a pleasing one and attended with but little difficulty. Mark seedlings, which promise well, and pull up those which are not up to the mark. Plant out Pink pipings, and put in a second crop of cuttings; these will often strike root, and make better plants than the early ones. Look over and divest of their loose skins the bulbs of Tulips. Arrange the rows of the bed so as to be ready for planting. Discard all impure flowers, whether stained in the base or on the stamens; whatever good qualities the flower may possess, these defects render it utterly worthless. Give Dahlias and Hollyhocks abundance of water; thin out the branches, and disbud the former where required, and shorten the flowering stem of the latter.

HARDY FRUIT AND KITCHEN GARDEN.

The main breadth of Spinach for furnishing the winter supply should be sown at once; also prepare ground for winter Onions. Get a good breadth of Lettuce and Endive planted out for the autumn supply, and sow some hardy sort of Lettuce for planting out against south walls, or in frames, to come in after the frost cuts off the out-door supply. Dig down exhausted plantations of Strawberries, and get the ground planted with winter stuff, if there is not already sufficient of this planted; and make a further sowing of Turnips, if these are likely to be scarce before the winter is over. Attend to cutting and drying herbs as they are ready, and do not allow Shallots to remain in the ground after the tops die down, as, in the event of wet weather, they will make fresh roots, which prevents their keeping. Get a good breadth of Cabbage planted thickly in rich ground to furnish winter greens.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Aug. 2, 1855, as observed at the Horticultural Society's Garden.

July and August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain.
Friday 27	13	29.787	29.812	75	49	62.0	64	62	S.W.	
Satur. 28	14	29.876	29.870	72	50	61.0	64	62	S.W.	
Sunday 29	○	29.927	29.899	77	53	65.0	64	61½	W.	
Mon. 30	16	29.872	29.828	75	55	65.0	65	62	S.W.	
Tues. 31	17	29.740	29.716	71	42	56.5	65½	62½	S.W.	
Wed. 1	18	29.853	29.773	74	54	64.0	67	62½	S.W.	
Thurs. 2	19	29.824	29.728	76	50	63.0	68	62½	S.W.	
Average.		29.849	29.802	74.3	50.4	62.3	65.3	62.1		

July 27—Overcast; cloudy; heavy clouds and showers.
— 28—Cloudy; heavy showers; cloudy.
— 29—Very fine throughout; cloudy at night.
— 30—Slight haze; very fine; overcast; rain.
— 31—Heavy rain; cloudy; clear and fine at night.
Aug. 1—Fine; very fine; densely overcast; slight rain.
— 2—Very fine; heavy rain at 6 P.M.; clear.
Mean temperature of the week 1 1-5th deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Aug. 11, 1855.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 5	73.1	52.8	62.9	14	0.43 in.	1	3	4	2	4	6	3	[illegible]
Mon. 6	72.2	52.0	62.1	12	0.53	—	6	2	1	4	7	7	[illegible]
Tues. 7	74.2	50.9	62.5	9	0.57	1	4	2	—	5	5	2	—
Wed. 8	75.3	49.6	62.4	10	0.26	2	5	2	—	4	11	3	—
Thu. 9	75.2	51.0	63.1	10	0.40	1	5	1	—	5	12	5	—
Frid. 10	75.1	52.6	63.8	13	1.06	1	3	2	—	2	[illegible]	[illegible]	[illegible]
Satur. 11	74.8	51.7	63.2	14	0.78	1	—	2	1	5	12	[illegible]	[illegible]

The highest temperature during the above period occurred on the 1[illegible] 1842—therm. 93 deg.; and the lowest on the 6th, 1833—therm. 36 deg.

Notices to Correspondents.

Abronia umbellata: *F K.* The time at which this flower depends upon the treatment it receives. Although hardy it does best under glass, and then flowers in the spring. It is a shy plant, and very easily lost.

Asphalte Floors: *J A.* It is not improbable that these cause your leaves to drop off if any smell remains perceptible—supposing always that no other cause can be assigned, such as a sudden exposure to unaccustomed dryness.

Budding Knife. We have received a new form of this instrument, designated "John Turner's Improved Budding Knife." Its peculiarity consists in a grooved hook for opening the bark of the stock after the usual incisions have been made. The blade is not essentially different in form from some of the [illegible] common use. The hook which is fixed at the other end of the handle resembles the curved beak of some bird: only instead of a ridge along the upper side of the curve, we have, in the instrument, a groove, narrow and shallow at the point, but wider and deeper towards the neck of the curve. No doubt by this contrivance bark may be opened a little, when the point of the instrument may be inserted, and with a steady hand drawn down the perpendicular incision. But this point cannot raise the bark on each side of the cut; the broad upper part is intended to do that. But being circular, before the broad upper part of the beak can be introduced, the point must be cut [illegible] incision about half an inch, and nearly an inch in length; the edges of the grooved part of the instrument must pass over the cambium, the delicate organisation of which must, in consequence, greatly injured. The late Mr. Knight, a most skilful budder, used no instrument to plough up the bark, if is any needed; he merely *lifted* it between the blade and the edge of his thumb; or if he did occasionally use the instrument handle of the budding knife, he still took care not to injure the bed of cambium, a precaution which does not appear to have been thought of by the makers of new budding instruments and which has most especially been forgotten in the contrivance before us.

Capers: *Tyro.* These are the flower-buds of Capparis spinosa. If you eat what are foolishly called Capers by country people here, you are very likely to poison yourself. Nasturtiums should be pickled when still soft—about half grown.

Cowslip Wine: *J R E.* Your bottles burst because the wine was not sufficiently fermented while in the cask. Wine making is an art not to be taught by recipes or precepts alone.

Peas: *J F.* There is no visible difference between your "New sugar Pea and the well known large variety that is always preferred by those who prefer stewed Peas in their pods to the English shelled and boiled Peas. We make it a point not to answer inquiries of this kind privately.—*J R.* It is impossible to name single pods of Peas—it is difficult enough to name them when growing in masses. What you have sent is some kind of green marrow.

Tank for Hot Water. Since cheapness is your object this may be constructed merely of deal well put together in the same way as the vats in which beer is set to cool.

The Crimea: *L L D.* We are not aware that the ancient Black Hellebore came from this country. It is a native of Asia Minor and the adjacent region, but appears to be quite a mountain plant. We could not find time, even if we had the ability, to answer antiquarian questions having no relation to plants; we must therefore refer you for the old history of Pontus to the classical writers. Spruner's "Atlas antiquus," Plate XXVII., gives a good map of the Crimea or Tauric Chersonese, and shows that the vallum you speak of stretched from Inkermann to Balaklava.

Yews: *E O.* You *may* cut them back now, as they are not making their growth. It would, however, be better to wait till next April. You may move them by the middle of September.

*** As usual, many communications have been received too late and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of many numerous correspondents, the insertion of whose interesting contributions is still delayed.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
Wm. Ingles Carne, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. Lawes' Factory, Deptford Creek:—Turnip Manure, 7l. per ton: Superphosphate of Lime, 7l.; Sulphuric Acid and Coprolites, 6l.
Office, 60, King William Street, City, London.
N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

CORN MANURE FOR SPRING SOWING.—
CONCENTRATED URATE FOR GRASS, RAPE, AND ALL ROOT CROPS.
SUPERPHOSPHATE OF LIME.
THE LONDON MANURE COMPANY continue to manufacture the above Manures, which have been used with so much success for the last 14 years.
The London Manure Company also supply PERUVIAN GUANO (direct from importers' warehouses), Nitrate of Soda, Sulphate of Ammonia, Fishery and other Salts, Bone Dust, and every artificial manure of known value. Edward Purser, Sec.
Office—40, Bridge Street, Blackfriars.

MANURES.—The following Manures are manufactured by Hodgson & Simpson, Calder Soap Works, Wakefield, and Matthews & Co., Manufacturing Agricultural Chemists, Driffield. Simpson's AMMONIA PHOSPHATE, a valuable Top-Dressing for Wheat, Barley, and Oats. Simpson's NITRO-PHOSPHATE for Turnips, Potatoes, and all other bulbous root crops, price 8l. per ton. N.B. Manures specially prepared for Grass and Flax. The above have been successfully tested for the last Seven Years by the leading farmers in Yorkshire and Lincolnshire, and other counties, and were applied last season to a breadth of upwards of 15,000 acres of land with the most beneficial results to the crops. A List of Testimonials and other particulars will be forwarded by post on application.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. Nesbit, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. Nesbit, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

DRAINAGE OF LAND.
MR. HUMBERT, of Watford, Herts, a practical Surveyor and Land-Agent of more than 15 years' standing, offers his services to Gentlemen about to drain Land and Bogs. He will undertake to set out and superintend himself the execution of the work at a charge of 5s. per acre, and the expenses incurred in his travelling; or he will contract to complete it in a specified manner to the satisfaction of the Inclosure Commissioners at a fixed price per acre. Mr. Humbert has drained strong stony land in the most careful and complete manner, with 1¼ inch pipes, and proper mains, the drains being 4 feet deep and 30 feet apart, at 4l. per acre and under, and he can give reference to his employers in that and in other instances.
Watford, Herts, Aug. 4.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Incorporated by Special Act of Parliament.
Offices, 52, Parliament Street, London.
Directors.
Henry Ker Seymer, Esq., M.P., *Chairman.*
Sir John V. Shelley, Bart., M.P., *Deputy-Chairman.*
George Thomas Clark, Esq. | William Fisher Hobbs, Esq.
John C. Cobbold, Esq., M.P. | Edward J. Hutchins, Esq., M.P.
Sir William Cubitt, F.R.S. | Sir S. M. Peto, Bart.
Henry Currie, Esq. | William Tite, Esq., F.R.S.
Thomas Edward Dicey, Esq. | William Wilshere, Esq.
Empowered to execute Drainage, Road-making, and other Land Improvements, and to Erect Farm Buildings upon Estates under Settlement, Mortgage, or otherwise; or Church property, and without investigation of Title to charge the whole outlay and expenses upon the Estate, to be repaid by instalments spread over any period determined by Landowners within the limits of 50 years for Drainage and Roads, and 31 years for Farm Buildings.
Landowners may arrange with the Company for the execution of the works by their own agents, with the use of their own or the Company's Capital. William Clifford, Sec.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected: Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the Plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable William Napier, Managing Director, 2, Old Palace Yard, Westminster.

ASCOT POULTRY SHOW, August 28, 29, and 30.—Entries close August 6th. Prize Lists may be had on application to the Secretaries.
Ascot, Surrey. Edgar Smallfield, Henry F. Wells, } Hon. Secs.

ROYAL AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

PROGRAMME OF THE NATIONAL CATTLE SHOW, and Exhibition of Stock, Horses, Sheep, Swine, Poultry, Dairy Produce, Flax, Implements, &c., open for general competition, to be held in CARLOW, on WEDNESDAY, THURSDAY, and FRIDAY, 8th, 9th, and 10th August. His Excellency the Lord Lieutenant has signified his intention to attend the Show.

Monday, 6, and Tuesday, 7.—On these days, at 7 o'clock a.m. the Judges of Implements will proceed with their inspections, when Exhibitors must be in attendance. The Show Yard will be open for receiving Cattle and other articles entered (except Horses) from 1 o'clock until 6 o'clock p.m., after which latter hour no Stock will be admitted. Special Meetings of the Council will be held on Monday, Tuesday, and Wednesday, each day at 1 o'clock p.m., in the Society's Offices in the Show Yard. The Members of the Society, Stewards, Judges, &c., will dine together in the Club House Hotel on Tuesday, at 7 o'clock p.m. Names to be sent in to the Steward of the Hotel not later than 12 o'clock noon.

Wednesday, 8.—The Judges will enter the Show Yard at 6 a.m., and commence their examination of the Stock, &c. Horses will be received into the Show Yard from 7 until 8 o'clock a.m. this day, after which latter hour none will be admitted. The Show Yard will be open to the Public from 2 o'clock until 7 o'clock p.m. Admission, 2s. 6d.; Children under 14 years, half-price. Tickets for admission will be issued at the Secretary's Office, available for the day, to Exhibitors of Stock and Agricultural Produce, for 2s. on Wednesday, and 1s. on Thursday.

The BANQUET DINNER of the Society will take place at the Railway Terminus, at half-past 6 p.m. Tickets, 10s. each, including a pint of wine—to be had of the Local Committee, or their Secretaries, at their offices, or at 24, Bachelors' Walk, Dublin, up to Saturday, 4th August. His Grace the Duke of Leinster, President of the Society, in the chair.

Thursday, 9.—The Show Yard open from 8 o'clock in the morning until 7 o'clock, p.m. Admission, 1s. No Cattle or other Articles exhibited will be allowed to be removed from the Yard till after 8 o'clock, p.m.

A BALL and SUPPER at the Railway Terminus, at 9 o'clock. Ladies' Tickets, 7s 6d.; Gentlemen's Tickets, 10s. To be had of the Local Committee and Secretaries, or 24, Bachelors' Walk, Dublin. Family Tickets to admit Three, 21s. All Tickets sold at door of Ball Room, 10s. each.

An Auction in the Show Yard at 12 o'clock, noon.

Stewards of the Yard.

Cattle (Short-horns).—William Hamilton, W. Fetherstone, H. and J. H. Macfarlane.
Cattle (Other Breeds and Mountain Sheep).—Lord Cloncurry and John Robinson Price.
Sheep.—William R. Fitzmaurice and Thomas Cook.
Swine.—H. Hans Woods and Thomas G. Mosse.
Horses.—Lord Dunlo and G. A. Boyd.
Dairy Produce and Flax.—The Hon. St. John Butler and Samuel Shane.
Poultry.—Thomas Crawford Butler and Arthur Fitzmaurice.
Implements.—The Hon. C. S. Gough, Thomas Cook, and William Hamilton.
Clerk of the Yard.—Andrew Corrigan.

By order, Thomas Harkness, Secretary.
Dublin, 42, Upper Sackville Street, July 19.

Directions.—The place for the Council and Committee Meetings, and Secretary's Offices, is at Entrance to gate of Show-yard; the Local Secretaries' Offices are in the Mechanics' Institute. Tickets for the Banquet and Ball to be obtained as above specified, and at 24, Bachelors' Walk, Dublin; and to prevent disappointment, an early application for these Tickets is requested. Exhibitors, or their Care-takers, on arrival in Carlow, must obtain Tickets for their respective entries to the Show-yard, at the Secretary's Offices, where Entrance Fees and Subscriptions will be received. All objections to decisions must be lodged with the Secretary there, in writing, before 1 o'clock on Thursday, the second day of the Show. No person can be admitted into the Show-yard until the Judges have made their adjudications.

T. H., Secretary.

The Agricultural Gazette.

SATURDAY, AUGUST 4, 1855.

The reports which reach us of the present state of the crops, and the prospects of the harvest—dated for the most part August 2d—do not indicate so much injury by the rain as we had anticipated. The Wheat midge seems to have been extraordinarily active, and more corn than usual is laid; but most of our correspondents anticipate a yield fully up to the average.

It is abundantly obvious from observation that the main source of Fertility in Soils lies in the economical management and liberal application of manure. That "Muck is the mother of meal" needs no other proof than every day agricultural observation; and the immense importations of guano; the activity of manure companies, which are every spring season brought into operation; the enormous consumption of bone dust; the increasing outcry upon the waste of town sewage; and, more than all these put together in its influence on fertility, the greatly improved management of the manure made upon the farm:—all these prove how much the improved fertility needed to feed our increasing population is dependent directly upon an increased supply of manure. Fertility is, in fact, no mere function or quality of soil; it is capable of *quantitative* estimation, and is directly due to the *quantity* of fertilising matter present. The causes of fertility in soil are all such as (1) add to the quantity of this fertilising matter, or such as (2) render it more easily and directly accessible to the roots of plants.

The fertility of such farms as Castleacre in the south, or Fenton Barns in the north, is owing not only to drainage, marling, liming, burning, processes all tending rather to the latter than the former of these objects, but to the direct importation of fertilising matter and its application to the land. "The principle adopted here is to manure for every crop." This is what the *Times* commissioner relates of Mr. Hudson's farm at Castleacre; and the enormous quantities of (1) purchased cattle food consumed and of (2) artificial manure applied are what enable this. Twenty-five shillings an acre spent upon the latter over the whole of the Turnip break (one quarter of the farm), and 200 tons of oilcake (the quantity of the former consumed upon 1200 acres of land), are illustrations of the way in which the fertility of Castleacre is maintained. And as to Fenton Barns, Mr. Hope, its tenant, has declared that except by an expenditure of 20s. per acre in guano, or other artificial manure, it could not be cultivated profitably.

Probably, however, the most extraordinary instance of artificial fertility in the kingdom maintained in this way by the continual and direct application of fertilising matter to the soil occurs in the case of Canning Park and other irrigated farms, in Ayrshire, to which the attention of our readers was directed a few months ago. We repeat in few words the substance of what was then stated.

Mr. Telfer's farm is situated close upon the shore, between it and the south line of road from Ayr. It is a plot of but 40 Scotch acres, and is a piece of the light sandy land which all along that line of coast (more especially north of Ayr) has been recently enclosed from the sandy waste in which it lay as rabbit warren. It is so light a sand as in some parts hardly to be distinguishable from the sea-sand close by it. This poor sand is made to produce the most extraordinary crops of all kinds; on one field which had been heavily clayed Mr. Telfer reaped last summer 85 bushels of Wheat per Scotch acre. The previous year had been Mangold Wurzel, and before that again the land had borne Italian Rye-grass, and had been irrigated and manured heavily for it. It is the result of this Italian Rye-grass crop that is the most extraordinary evidence of the artificial fertility conferred. The seed is sown in autumn, about 4 bushels per Scotch acre; and if sown early enough, it yields the following year four full cuttings, or between 70 and 80 tons of green food per Scotch acre. The quantity of stock kept in this way on the land is enormous. There are 48 cows kept on this farm in the neatest cow-house we ever saw; and the provision which we saw there last February for their next summer's food was 3½ acres sown down to Italian Rye-grass late the previous autumn and hardly yet up, and 3½ acres sown the previous spring, which had yielded several cuttings during the autumn. These latter 3½ acres have provided food till July, and now they will be allowed to go to seed; and the young plant of the former 3½ acres, being now fully productive, will keep the cattle on during the autumn. The treatment needed by the land, in order to yield this great produce, is extraordinarily liberal. The urine of the cows is all applied upon the land, along with about 400 tons of water per acre per annum. An inch of water is flooded on the land (by means of subterranean pipes, and the use of a long flexible pipe connecting with fixed hydrants) immediately after each cutting; but previously to this 4 cwt. of guano are sown broadcast on the land, and the water is then used to flood it into the land. About a ton of artificial manure per acre is thus employed, either 4 cwt. of mixed guano and sulphate of ammonia or 4 cwt. of nitrate of soda per Scotch acre being applied immediately after each dressing.

Here, then, is a barren sea-sand made beyond a doubt the most productive land in Great Britain; and this wonderfully liberal treatment, together with the system of Italian Rye-grass culture, is spreading in the neighbourhood of Ayr. Mr. Kennedy's land, near there, is a good soil, worth 35s. per acre. Mr. Telfer's was originally the poorest sand, Mr. Bell's is a stiff clay, Mr. Ralston's much the same as Mr. Kennedy's. It matters little what the land may be originally. The produce is extraordinary off them all, and the thing on which dependance is placed is not the natural fertility of the land, but the extraordinary supplies of food for plants that are artificially provided. Here, then, we have fertility as the result of manuring: and vegetable growth and produce are seen to be simply the result of so much raw material being provided for the living plant to act upon. An extreme case of this kind teaches what every farmer knows from ordinary experience, that upon the care with which he economises home manures, and on the liberality with which he applies imported manures, depend the produce and fertility of his farm.

Home Correspondence.

Liebig's new Principles of Agricultural Chemistry, &c.—This recent reply to Mr. Lawes' experimental papers having been approved in your columns, and fully endorsed by Dr. Gregory, the translator, I feel at liberty to offer some observations upon it; not to Liebig himself, who should be left entirely to Mr. Lawes, but

to Dr. Gregory, who will, perhaps, kindly reconcile the portions here objected to, and say how far the responsibilities may lie with the author or the translator. To Liebig we are indebted, not only for his direct discoveries, but for his very important efforts to elucidate and simplify great principles of agriculture on which our previous notions were indefinite and obscure. And if he is apt to write positively on cases which appear definite, rather from rejecting than explaining the numerous exceptions, it is not uncommon to enthusiasts, and gives value to the heavier corrective labours of men of more caution though less genius. If theory requires the knowledge of all the conditions affecting the subject (p. 6, 7), who can be a theorist? who knows all the natural laws (p. 8) affecting vegetable growth and culture? But from theory, such as we can attain, we infer yet untried practice; and it is to such inferences, not yet confirmed by experience, that the farmer objects as deceptive. Hence the R. A. S. motto, "Practice with science." Is it yet certain fact or theory that carbon in plants is assimilated from carbonic acid only, and nitrogen from only ammonia and nitric acid (p. 17)? Is it true that soil, air, water, and manure, influence the growth of plants only by their constituent parts (p. 16)? In what sense are we then to understand this of water, which acts more as a solvent than in any other way? and now the same property is awarded to ammoniacal salts; and common salt does it as well as sulphate of ammonia. Yet what can be more unlike than the manuring effects of these two salts? And are we yet in condition to affirm that other manures (even a majority of them) may not affect the growth, as well by their compound actions as by their constituent parts? Or what evidence have we, in this book, or any other, of the repeated declaration (p. 110, 115) that the diminution or increase of the crops is in (anything like) "exact proportion," to the diminution or increase of the mineral constituents conveyed to them in manure? Is it certain or theory that only exhaustion reduces the fertility of soils (p 62)? and are there not, very probably, chemical and electrical reactions amongst the soil and manure producing other benefits than mere solubility (p. 20, 21, 91)? Is the excrementitious theory of De Candolle yet absolutely disproved; and do not spores of unhealthy fungi, &c., after repeated crops, injure those following, unless duly decomposed into wholesome food? At p. 113, it is said that "principles, not recipes, are necessary;" but what is the farmer to do before the true principles are certainly ascertained, while so many "x"s (p. 80) yet remain "unknown" to us, in the vital forces and actions of vegetables and conditions of soil? And which may he safest trust for his present guidance—experiments decisive of select points, upon a select soil, such as rarely comes under his hands; or such as are deduced from extensive comparisons of the variety of soils in general use, embracing the unknown as well as the known conditions and causes of success? When all are known (if ever) recipes will be drawn from principles with delightful clearness: and for their gradual disentaglement, we owe no one hitherto so much as Liebig; but the doctrine that "the whole future of agriculture" lies in these 50 propositions (Advert. p. vii.), appears to me fitted to hinder the progress of agricultural science, by neglecting the results of often compared and corrected experience in behalf of an immature system of incomplete principles. Not that I mean to dispute their general truth or importance, nor to deny that they may be found in his previous works (except the 14th, p. 35), but how many others, different from these, may also be found there; and how many more may we yet expect, to enter by the 14th, exceptional to the preliminary postulate (p. 16), that "soil, air, water, and manure influence vegetable growth only by their constituent parts!" *J. Prideaux.*

Notes on the Culture of the Potato.—As the cultivation of the Potato is now again brought before the public in your pages in the form of an extract from Mr. Bennett's Essay, and as I see that a little discussion is expected to arise therefrom which I have no doubt will prove very useful, and perhaps instructive, amongst the agricultural community, I embrace the present opportunity of laying before you the plan I have practised in growing this useful vegetable, as well as a remark or two respecting its culture as observed amongst my neighbours, leaving all to form their own opinion upon the cultivation and produce. At the present time I am unable to say what the return has been with the produce since the visitation of the murrain, though from a report of W. H. Hyett, Esq., published in 1842, from experiments carried on on the same farm from which I now write, I find that his smallest return then under any mode practised was 85 bags of 2½ cwt. each to the acre, whilst his largest return was 117½ bags, from Jerseys. I am not going to say that we shall this year see a return at all like either of the above, but I merely mention it to give an idea of the return upon the same place previous to the disease. The soil on which my mode is practised is a light soil (stone brash on the upper oolite), in the parish of Painswick, Gloucestershire. Now for the mode of cultivation carried on. Taking Wheat stubbles as stated by Mr. Bennet, if the ground is foul, after the stubble is off, I run over the cultivator and set women to clear and burn up rubbish; if not foul I immediately set the plough to work; in this state it lies till spring, when I proceed to drag it down a little before time for planting; and again the women go over the ground to clear off all weeds that are to be seen. The ground being worked I immediately put on dung, about 12 tons to the acre, the carting and spreading being carried on at the same time, and then the plough directly follows, breaking it up as deep as we are able on this soil. After this is properly worked down, I set the marker to work running widths about 28 inches apart, after which follows close the bouting plough, which will keep four or five women alive setting at 14 inches apart in the rows, with a man to supply them with seed, and after these instead of the plough, as practised by Mr. Bennet, I set half-a-dozen men with hoes to cover up—this leaves an even surface; in this manner from 7 to 7 o'clock I can get about 3 acres planted. I plant about six bags to the acre; some plant more, the seed this year being worth 4*l.* 16*s.* per acre. Here I may remark that it is a common practice in this neighbourhood to have them put in with the breastplough, the dung being spread all over the surface previous to commencement. The man with the plough opens a trench, a woman or boy follows with the sets, the man covering up with the next run, the dung being thrown upon the top of the Potatoes; then follows another turn, and again the sets are planted—for this they pay about 10*s.* per acre; for several reasons I think this objectionable. Now for the cleaning, as soon as the Potatoes are visible all along the row, I set the horse-hoe to work, and a day or two after, as soon as the weeds worked up are dried, I set the hoes going so as to clear all along the rows; and again previous to earthing. I earth when the Potatoes have got about a foot high with the bouting plough, women following again to set all straight with their hoes; this is the last finishing until fit to dig. The price paid for digging, clearing, and pitting is about 1*l.* I have not given the price paid for labour throughout, because some can get it done much cheaper than others, that depending entirely upon the state of the land and the nature of the soil. I may here as well suggest that, for light soils, I think a marker might be made to prepare the rows for planting. *John Spriggs.*

Dairy Produce.—I believe I have had upwards of 25 oz. of butter per quart of cream, and I have often heard of "a pound a pint" during warm weather, when cows were fed on rich grass, and see no reason why the exception may not become the rule. No doubt this latter is an old story, handed down by our simple forefathers, but still it has its meaning. Let me ask three questions:—First, for example, did ever any of your readers see cream clouted by the heat of the weather?—and did they ever churn it to see what butter it yielded?—second, did ever any of those who follow the Devonshire system churn the clouts or clots separately from the thinner portion of the cream, or that imperfectly clouted, and ascertain the yield of butter therefrom; and, third, did they ever scald their milk by steam, according to M. Mabra's method of heating milk in preserving it for keeping? If not, perhaps they would oblige by trying one experiment, and giving the results in your columns. *W. B.*

Societies.

CARLISLE MEETING OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

We add to our last week's report the following farther remarks on some of the implements exhibited:—

On Stand 3 we noticed a cheap ventilator for stables invented by James D. Ferguson, of Bywell. It acts by valves for allowing the escape of vitiated air by the simple operation of pulling a cord, while at the same time, and by the same process, fresh air is admitted into the building below by air-drains and dampers, moving flush with the inside of the wall. Price (according to size) from 2*l.* to 3*l.*

Robert Tinkler's (of Penrith), barrel churn is well made and cheap. It is provided with three breakers, the first and second being to break the cream, and the third to gather the butter, which can be done from the commencement in 15 minutes; and it is so constructed as to be entirely free from all iron or other metal; and an improvement has been made in the castors and wheels, so as to diminish friction. It will churn at one time from 6 to 80 lbs. of butter. Price 4*l.*

Mr. Greening's (1 & 3, Church Gate, Manchester) combined washing and wringing machine and churn is clever. It effects by machinery the action given to the "Peggy" by the laundress, viz., a perpendicular motion at the same time as a circular one. The wringing is accomplished by rollers. When desired, the machine is readily converted into a churn by substituting a churn and churn-staff for the washing tub and "Peggy."

At Stand 7, Messrs. Reeves (Bratton, near Westbury) exhibited their improvements on Chandler's liquid manure drill. It is on the same principle as Chandler's patent, as far as regards the mixing of artificial manures with the liquid and drilling it with the seed; but instead of its being delivered by buckets, it is mixed by means of a stirrer, and flows out through the bottom of the liquid cistern. The apertures through which the liquid passes are kept open by means of steel springs fixed to the stirrers, which act as cleaners to the openings. Price 22*l.* 16*s.*

Sewell's (Longtown) roller, at stand 12, is a wooden cylinder covered with angle irons. Price 12*l.*

Boby's (Bury St. Edmunds) screen is a good one; a collar passes between each wire, rolling as the grain passes down the screen, and keeps all going and all clear.

Gilkenson's (Carlisle) churn is of barrel shape; no iron in the inside; worked well. Price 3*l.* 15*s.*

Messrs. Garrett & Son displayed their customary assortment of beautifully made implements. The prizes and commendations they receive will of itself sufficiently testify their merit; and the descriptions of several of the trials will suffice for a more lengthened notice. We highly approve their taste in making a good selection rather than bringing so far a greater number of implements.

Smith & Ashby (Stamford) have a choice selection of highly useful implements. Their celebrated haymaker has had some improvements, and their horse rake has undergone considerable alterations. Their cake breaker has undergone great improvements; the frame is now made in two sectional parts; the crushing rollers are in two parts only. The reversing of the action of the handle enables it to break for either cattle or sheep.

We were disappointed in not seeing Dussuc's steam cultivator or "machine labourer," affixed in catalogue at stand 22.

Crosskill's stand we thought larger and longer than usual. His exhibition of implements is exceedingly good, and, for the major part, we see them under varnish, and the woodwork is fully open to inspection. The mysteries of paint and putty are for once laid open to view; we give no opinion as to the utility of the change. The improvements we notice are, an additional wheel in front of the Norwegian harrow, an aid to the reversing motion applied to the haymaking machine, and the adaptation of a waggon for rough roads, by carrying most of the load on the hind wheels.

Jackson & Co.'s troughs, made of fire clay, are worthy of recommendation both as cattle and pig troughs, and very low priced.

Mr. Carson (Warminster), as usual, showed his well made chaff cutter; his safety clutch is very good and applicable. The implement requires more capacity for work.

Hornsby & Son exhibited a splendid lot of implements. Their threshing machine and cake breaker we have noticed elsewhere. Their drills kept up their well-earned reputation. We observed a comparatively trifling but important addition to the coulters of the ridge drill, whereby the mould is thrown upon guano in sufficient quantity to set aside all danger from drilling the seed too closely in contact with it. The improvement is by two upright blades being attached to the coulter iron, and working on each side the coulter track so as to mould it up. The India-rubber piping on tubes appears to possess great advantages to these drills, and we were much pleased with the easy mode of raising the pigeon-hole slides or feeding cups; it is done by a rod running the whole length of the box, supplied with small cog wheels over every slide, and by which they are raised up as required. Another improvement they have made is to raise the seed box on the side so as to qualify it for drilling hill sides with greater accuracy. This is done by two racks and pinions elevated by a screw.

There are many root-pulpers at the present Show. Garrett's consists of a pair of rollers covered with blunt teeth, attached underneath a Gardner's Turnip cutter, which has only one set of knives instead of two. One of the rollers revolves much faster than the other, and so cleans it. The machine, with two men, will reduce Turnips or Mangold to a pulp as quickly as the semi-slicer above can cut; that is, about 50 bushels an hour.

The prize pulper, by Phillips, of Brandon, Norfolk, has a shifting plate instead of the whole hopper being made to vibrate, as in the machine previously shown by this maker. It minces more efficiently than any other pulper, and tears to pieces 35 bushels per hour. The object of this machine is to introduce a more profitable method of feeding animals, by giving them minced roots mixed with straw-chaff or other chaff, or meal-bran, or Linseed or Rape-cake, instead of the old method of feeding them sometimes with roots only and sometimes with dry food only. Animals, by this mode of feeding, improve faster and at considerably less expense than by the old system. It is also particularly necessary in connection with the system recommended by the inventor of feeding animals with steam straw-chaff. This machine has been greatly simplified and rendered more efficient by the inventor, and reduced in price from 11 guineas to 6*l.* 10*s.* since its exhibition at the Lincoln Show of the Royal Agricultural Society, where it took the first prize. Price 6*l.* 10*s.*

Among the drills we observed some novelties, but did not see a single dibbling machine.

Howard's press drill (st. 91, art. 20) is a very admirable machine, in which the seed is covered by small shares which divide crest of the furrows. A most simple delivery is made by a zinc roller and brush, the level of the drill-box in no way affecting the quantity of seed sown.

Garrett's seed and manure drill, fitted with Chambers' patent distributor, is one of the most efficient of machines, the scrapers for cleaning the manure barrel being very prettily contrived.

Among clod crushers, that invented by Mr. Patterson, of Beverley, and exhibited by Mr. Palmer, of Stockton-on-Tees, claims particular notice. Its novelty consists in the use of a straight axle with eccentrics on it, thus placing each disc in a backward-and-forward position with regard to its neighbour. The eccentrics are so arranged on the shaft that their centres shall be in the same horizontal plane, or equidistant from the ground line. By this arrangement a perfect self-cleansing action is obtained, owing to the peripheries of the discs continually crossing and recrossing each other. The crushing action is greatly improved by this plan; for in consequence of the intersection of the discs at the part where they come in contact with the soil, a grinding action is exerted upon the clods, by which they are reduced to a fine mould. To insure durability the wearing part of the discs and eccentrics are chilled or case-hardened. Its peculiar form, having the side points near to the circumference of the rings (instead of being held some distance above the ground, as in Crosskill's), renders its pressing action upon Wheats more like the treading of sheep: and having plain instead of serrated rings, it has less tendency to lift the soil. Price, 30-inch discs, with travelling wheels, 18*l.*

Smith and Ashby's haymaker may still be considered the best yet made, although a rival has appeared in the machine of Mr. Nicholson, of Newark. The wheels have cast-iron knaves, each of which is boxed, and contains two spur-wheels, of internal and external gear; these work two pinions, both on the axle of the haymaker, and by sliding these pinions, without the complication of any intermediate pinion, the reversing movement is effected. The contrivance for lowering is ingenious, being merely a circular rack in which works a pinion with only two teeth or pins, which hold the rack in its place without any peg or catch being required. This machine cannot be made with double arms like Smith and Ashby's, that gives so much firmness to their fork bars, but the single hinge and spring is very neat and strong as constructed in this haymaker. By means of an extra simplicity of parts the price is unprecedentedly low.

Crosskill's clod crusher is improved by the alternate wheels being of larger size, the holes in them for the axle being of course correspondingly larger.

HORSES.

Class 1 contained stallions for agricultural purposes, foaled previously to the 1st January, 1853.

There are less entries by three in this class than at Lincoln. The first prize is carried off by Messrs. E. and M. Reed, who, with the same animal, won the second prize last year at Lincoln. This horse stands 16.3, and is Leicestershire bred. He looks quite fresh, though he has had a very heavy season; legs without a puff. The prize is deservedly awarded. Quite as deservedly is the second prize of 20*l.* awarded to Messrs. S. and R. Spencer, of Daventry, for their grey dray stallion, standing 16.2, though in some respects we could have wished him a little otherwise. He serves as a good type of the Warwick breed. Mr. Robert Brown's England's Glory, a son of the horse that carried off the 18*l.* prize at Windsor in 1851, deserves notice. He is admirably topped, and were his legs only as good, he would take a first place. He stands 16.3. His neck seems large enough to take a 3 feet collar!

Mr. Joseph Faulder, near Carlisle, exhibits a three-year old well furnished bay horse. Mr. William Wilson, of this county, shows a bony horse, but too light. His best point is the reach of hind quarters. Mr. Barthropp meets again another year in the class six others. He seems to have brought his Suffolk breed to perfection, but the perfection of the Suffolks does not seem to be the fashion, and so he goes minus prizes. As a breeder he makes a great deal of money however, and, of course, he is right in keeping to the "sort." Some of the

animals in the class have had very heavy seasons, and are not seen consequently in condition, but as a whole they are highly creditable. We never saw anything equal to Messrs. Reed's prize winner—the best conceivable legs to support the most noble top.

Class 2 (Two-year old stallions for agricultural purposes).—Mr. Robert Smith, of Ladyland, Dumfries, takes the first prize of 20*l.*, and Mr. W. Nixon, of Union Hall, Newcastle, the second of 10*l.* The award of these prizes arouses considerable discussion and difference of opinion. Some say Mr. Nixon's horse should have received the first prize. At first we confess to having been of this opinion, but upon minute inspection we concurred with the decision of the judges. Mr. Nixon's is a compact and better furnished horse, but there is more expansiveness about Mr. Smith's. One will grow, the other will not. One is nearly a hand higher than the other.

Class 3 (Agricultural stallions foaled in the year 1854).—Mr. Robert Howard proves the proverb, "those who are first shall be last," for being first—first beyond all hope of rivalry—at Lincoln, he falls at Carlisle quite into the rear. We hope he may be more successful at Chelmsford. The gentlemen who take the second prize in the first class take the first and only prize that is awarded to this, namely, 15*l.* Too much cannot be said in praise of this animal, which is nearly equal to the miracle that Mr. Howard exhibited at Lincoln. It is a light roan, with splendid black legs, standing 15.2. The chest is wide. It may be, as with animals arrived at this early maturity it at times occurs, that no further advance will be made to answer expectation. This is, of course, to be watched.

Class 4 (Mares and foals for agricultural purposes).—Mr. Bird, Penrith, takes the first prize, 20*l.*, for a splendid black mare. Magnificent hind quarters. Smaller than many in the same class, but excessively well bred, and beautifully proportioned. Our duties led us away, or we could have stayed longer to have looked and wondered. Mr. Murray, of Wigton, shows a very splendid grey mare, which receives the second prize, but the foal did not strike as as anything particular. This class contains a very creditable assortment of mares, never better either in number or quality.

Class 5 (Fillies for agricultural purposes, 2 years old). Here the first and second prizes are both borne off by one gentleman, Mr. Holland, Dumbleton Hall, Eavesham, Worcestershire. These fillies are half sisters by one horse, one red roan, the other iron grey. The one that takes the first prize is precisely the same description of animal to which the first prize in Class 3 is awarded.

Clydesdale Horses.—Those persons who have paid any attention to the draught of agricultural implements are aware that a horse naturally active, and whose natural walking pace is comparatively brisk and rapid, can plough a given extent of land with no more apparent exertion than a naturally slow-moving horse puts forth in ploughing a considerably smaller area. Hence the advantage of employing a smart-stepping team instead of a dull and heavy one; hence, again, one ground for the fame of the two very dissimilar breeds of the Suffolk-Punch and Clydesdale horses, the latter for the most part powerful animals, standing about 16 hands high, and being extremely active. They are found most extensively in the neighbourhood of the river after which they are called. There is no description of horse that appears better adapted for one-horse carts, or that can get through more work in the course of a day; and a team of Clydesdales will plough a larger breadth of ground than almost any other kind, though they require to be well fed. Their faults are a tendency to light bodies and long legs, and some of them are hot workers; the breed is susceptible of considerable improvement, in gaining greater roundness of barrel and compactness of form. The prevailing colour is black; but there are also many browns and some greys.

Class 1 (Stallion foaled previously to the 1st of January).—These horses are very admirable. Good judges, ever accustomed to the Clydesdale, assure us that the show is far from ordinary. Messrs E. & M. Reed are highly commended for a brown stallion, "Prodigy." But Mr. C. Phillips, Brompton, gains the prize 20*l.* for his grey stallion "Merry Tom," seven years old.

Class 2 (Stallions foaled in the year 1853).—To Mr. James Newbigging is awarded the 1st prize of 15*l.*

Class 3 (Mares with their foals). — Mr. James Douglass, near Drem, Haddington, received the prize of 10*l.*

Class 4 (Fillies foaled in the year 1853).—Mr. James Paterson, Langholm, Dumfries, for a brown filly of superior build takes the prize of 5*l.* Time does not admit of our doing more than barely to notice these facts, hoping upon another occasion to give a little more detailed report.

There were special prizes offered by the Carlisle Local Committee.

The 1st class (mares with foal at foot) contained 15 specimens of great beauty.

The 2d class contained four beautiful harness geldings; and in both these classes the prizes were most deservedly given to Sir Wilfred Lawson, the latter being the progeny of the former.

The 3d class (for mares for breeding hunters with foal at foot) contained 13 entries, some of which were out of place, being better adapted, in our opinion, to breed carriage horses. There were some fine old types of the true kind, pretty well past their day, with fine expansive nostril, pricking ear, and lively eye. A 13-year-old mare took the prize, the property of Mr. Swanbreck, of Sowerby. If breeders wish to study a model, let them take her for one.

In class 4 (3-year-old geldings for hunting) there are remarkable animals; and those in class 5 (3-year-old cart fillies) being so generally good that they are all commended.

Class 6 has two entries.

Class 7 has three.

We cannot treat as we would wish of those horses that have come attracted by Mr. Ferguson's special prizes. The thorough breds (Class 1) are first-rate; there are 13 entries. Class 2, coaching stallions, 14. Mr. Ferguson, of Carlisle, takes that in the first, value 40*l.*; Mr. Shaw, of York, that in the second, value 30*l.*

SHEEP.

Having omitted during the last two years our usual tabular history of the Society's sheep classes, we now resume what may be designated a synopsis of the progress of breeders and the extension of improved breeding. The first table shows the numbers of each breed exhibited at different meetings, the influence of locality upon each class, and the general increase of the Society's influence:—

Meeting.	Leicesters. Rams.	Leicesters. Pens of Ewes.	Southdowns. Rams.	Southdowns. Pens of Ewes.	Longwools. Rams.	Longwools. Pens of Ewes.	Other Breeds. Rams.	Other Breeds. Pens of Ewes.
Northampton, 1847	73	12	60	11	26	3		
York, 1848 ...	118	16	42	4	32	5		
Norwich, 1849 ...	88	14	62	17	24	5		
Exeter, 1850 ..	65	14	73	7	27	9		
Windsor, 1851...	121	15	112	20	24	5	Mountain, 13	6
Lewes, 1852 ...	48	7	74	14	12	3	Romney Marsh, 17	8
Gloucester, 1853	60	4	85	10	64	16	Shropshire, 86	17
Lincoln, 1854 ...	90	12	55	12	72	24	Lincoln, 82	6
Carlisle, 1855...	105	14	46	5	54	9	Mountain, &c. 78	19

Our next item of statistics relates to the proportion of exhibitors from the county, and those contiguous to it, in which the meeting is held, displaying the local benefit conferred by the Society, the breeding character of the district, spiritedness of the breeders, &c.

Place of Meeting.	Number of Counties represented.	Total number of Exhibitors.	Number of Exhibitors from the District of the Show.
Northampton	23	45	...
York.....	18	45	...
Norwich	16	35	...
Exeter	19	41	...
Windsor	32	65	8
Lewes	18	37	16
Gloucester ...	18	63	42
Lincoln.....	16	75	34
Carlisle	28	78	20

The following is a list of the prize men, showing how far the celebrated breeders are maintaining their ground, or yielding their honours to new competitors:—

Year.	Leicesters.	Southdowns, &c.	Long Wools.
1846	Turner, Devon	Webb, Cambs.	Large, Oxon
	Smith, Rutland	Duke of Richmond, Sussex	Handy, Gloucestershire
	Burgess, Notts	Barnard, Essex	Smith, Oxon
	Pawlett, Beds		
	Angus, Yorkshire		
1847	Pawlett	Webb	Large
	Smith	Harris, Berks	Faulkner, Oxon
	Sanday, Notts	Duke of Manchester, Hunts	Handy
		Barclay, Surrey	
1848	Borton, Yorkshire	Webb	Hewer, Gloucestershire.
	Harvey, Norfolk	Shelley, Sussex	Garne, ditto
	Hobbs, Essex	Sainsbury, Wilts	Handy
	Sanday	Drake, Hants	Large
		Duke of Richmond	Simpson, Yorksh.
1849	Abraham, Lincolnshire	Webb	Large
	Sanday	Hobbs, Essex	Garne
	Hobbs	Shelley	
	Simpson, Yorksh.	Overman, Norfolk	
1850	Abraham	Sainsbury	Hewer
	Sanday	Rigden, Sussex	Garne
		Duke of Richmond	Lane, Gloucestershire.
			Large
1851	Sanday	Webb	Garne
	Pawlett	Rigden	Lane
	Abraham		Hewer
1852	Sanday	Webb	Lane
		Earl of Chichester, Sussex	Garne
		Sainsbury	Beman, Gloucestershire
		Duke of Richmond	
1853	Sanday	Webb	Lane
	Pawlett	Lugar, Suffolk	Garne
		Rigden	Slatter, Gloucestershire
			Handy
1854	Pawlett	Lugar	Fletcher, Gloucestershire
	Borton	Duke of Richmond	Hewer
	Abraham	Sainsbury	Lane
	Walmsley, Yorkshire	Rigden	Garne
		Lord Walsingham, Norfolk.	
1855	Sanday	Rigden	Lane
	Pawlett	Earl of Chichester	Hewer
		Lugar	Garne
		Lord Walsingham	Beale, Gloucestershire

Leicesters.—*Judges:* Messrs. R. B. Aylmer, W. Torr, and J. Wright.

Class 1. Shearling rams. First prize to Mr. Sanday, a shearling, No. 228. This animal has a good back, good loin, good hand, plaits full; but has rather a defect in the flank and rump, and his leg rather too light. No. 227 (highly commended), is, in our judgment, a superior sheep; and, all things considered, better worth the prize. He has great substance, has a fine countenance, beautiful symmetry of form, a full broad chine and fore-quarter, considerable size and depth of frame, and a large quantity of good wool. Both belong to the same noted breeder, so that the turning point in the opinion of the judges is fortunately of slight consequence in this case. Second prize to Mr. Pawlett's shearling. This is a nicely formed sheep, well thrown out, and possessing besides many excellent points. Wool rather light. Mr. Pawlett's sheep generally, are characterised by their compactness of form, breadth of chine, width and fullness of fore-quarter, and good quality of mutton; their wool, however, is somewhat too straight in the staple. Mr. Beattie, of Newbie House, Annan, Dumfries, exhibits a well made shearling, with good straight back, fine bone, and good countenance. Mr. Porter, of Holmefoot, Kirklinton, Carlisle, shows an inferior animal, with considerable defects in back, neck, and leg.

Class 2. Rams of any other age. First prize to Mr Sanday, for a 52 months' old ram. This sheep has a pretty head, good neck, full chine, broad back, rather a falling off in the rump, and good wool and mutton. 2d prize also to Mr. Sanday, for a 40 months old ram. A very good sheep, with full deep chest and plaits, very firm good hand, but loin rather thinly covered. No. 372 (highly commended), is another of Mr. Sanday's extraordinary animals; beautifully shaped, and not only his fore-quarter, but his loin, rump, and twist, are exceedingly good. His mutton is very firm, and his fleece in no way deficient. Mr. Borton's sheep deserve a remark, as being very large, well formed, and most useful animals; they possess prime quality with great weight.

Class 3. Pens of five Shearling ewes.—1st and 2d prizes to Mr. Sanday. Very beautiful animals, compact and perfect in form, and all of the same looks and character. Mr. Mason, of Pallinsburn Cottage, near Wooler, Northumberland, exhibited two lots of fine ewes, but Mr. Sanday's were allowed by observers to be far ahead of any.

Short-Woolled Sheep.—*Judges:* Messrs. G. Brown, H. P. Hart, and J. Waters.

Class 1. Shearling rams. 1st prize to Mr. Rigden. This shearling is an exceedingly good sheep, having a level back, standing very wide, and possessing a good chine and breast, a wide well-covered loin, full rump, beautiful countenance, and his wool is very fine and thick set. 2d prize to the Earl of Chichester, for a shearling of remarkably beautiful form and character. His plaits and chest are very good, altogether a very fine sheep.

The Duke of Richmond, Lord Walsingham, and Mr Lugar exhibit some very beautiful and some very useful shearlings; those of the latter breeder are very large and heavy, and with plenty of wool.

Class 2. Rams of any other age. Both 1st and 2d prizes to Mr. Rigden. These sheep (the first 28 months, and the other 40 months old) are very compact, well formed, and with handsome looks. They are level on the back, have good necks, ribs well standing out, and their loins and legs are particularly good. Mr. Lugar's sheep in this class have very good frames, and fair quantity and quality of wool. Mr. E. Holland, of Dumbleton Hall, near Evesham, Worcestershire, shows a Shropshire Down, bred from the stock of Mr. Foster, and he certainly bears out the character which this breed has obtained for great size and good feeding properties combined.

Class 3. Pens of five Shearling ewes. 1st prize to Mr. Lugar, for a pen of ewes of very good quality, great frames, and handsome looks. 2d prize to Lord Walsingham, for a good lot of ewes, with very level backs, and many first-rate points of excellence. Another pen of his lordship's ewes are also commended, and from their compact frames and marks of true character, deservedly so.

Long Wools.—*Judges:* Messrs. H. Aylmer, T. B. Colton, and N. C. Stone.

Class 1. Shearling rams. 1st prize to Mr. W. Lane, for a very remarkable and noble shearling. His frame is very large; his depth very great; chest and plaits full; back, loin, and rump exceedingly good; hips uncommonly wide; fleece heavy, but not sufficiently curly. 2d prize to Mr. W. Hewer, for a very handsome sheep. He has a thick neck, good plaits, hips wide and well covered, and very good rump; wool pretty good in quality, and not deficient (for this breed of animals) in quantity. Mr. Lane and Mr. Hewer both have shearlings that are deservedly commended.

Class 2. Rams of any other age. 1st prize to Mr. Garne. This 40 months' old ram has a well-made frame; ribs well standing out, level back, broad loin, rump wide and fat, thighs full, neck large, and chest remarkably full and broad; he has a fine head, good looks, beautiful quality of mutton, and a fair amount of wool. 2d prize to Mr. Lane, for a 40 months' old ram, of great length and depth; broad full fore-quarter, and good rump and legs. Mr. Hardy, Mr. Fletcher, and Mr. Brown showed some very fine animals, but perhaps one of the best sheep was one of Mr. Garne's, which did not obtain the prize. This ram has rarely

been equalled, from beauty and proportion united to immense size, and carrying a heavy fleece of wool.

Class 3. Pens of five Shearling ewes. 1st prize to Mr. T. B. Browne. These ewes were large, well-shaped, some of them with straight backs, but they were not a level lot, and several had thin chines and deficient fore-quarters. 2d prize to Mr. Lane. These are handsomer, and more worthy the 1st prize (in our opinion) than those of Mr. Browne, which obtained that honour. They are very nicely matched; they have broad backs and loins, and fine pleasing countenances. The judges need scarcely have bestowed commendation upon the ewes belonging to Mr. Browne, Mr. Fletcher, and Lord de Mauley, as they were not at all remarkable, though good animals.

Mountain Sheep.—The class devoted to local breeds is becoming an important, as well as interesting branch of the Society's annual Exhibition.

At Lewes, in 1852, the Romney Marsh or Kentish sheep had a division of the show-yard to themselves; there were 17 rams and eight pens of ewes, valuable perhaps for their peculiar constitution, enabling them to endure the cold and fierce Channel gales, but defective in most of the points commonly allowed to denote good qualities. As far as mere size is concerned, irrespective of symmetry, there were certainly some animals among them exceeding the Leicesters, that is, as indicated by the tape-measure. At Gloucester, in 1853, were shown no less than 36 rams and 17 pens of ewes of the Shropshire breed. Visitors generally expressed their admiration at this class; and some judges were of opinion that the prize Shropshire ram had scarcely his superior in the yard for good useful qualities.

At Lincoln, last year, there were 32 rams and six pens of ewes in the class of improved Lincolns. They were remarked as being a very superior breed, possessing large frame, fine feeding quality, and unequalled quantity of wool; indeed, it was said that the prize sheep, measuring the great girth of 5 feet 8 inches, and length 4 feet 1 inch, and clipping 51¾ lbs. of wool in three years, must be one of the most valuable of long-wool animals, even though the character of frame natural to the breed is not conformable to the ideal which seems to govern judges of Gloucesters and Oxfordshires.

At Windsor, in 1851, mountain sheep were provided with a special class, mainly with a view of displaying the varieties of British sheep to the home and foreign visitors of the Great Exhibition. There were but 13 rams and six pens of ewes, including Cheviots, Exmoor Horns, Merinos, Herdwicks, Shetlands, and Spanish-and-Welch, and Merino-and-Ryland crosses. The judges to whom was confided the difficult task of singling out one breed for preference, awarded prizes to two Cheviot rams; to a pen of Cheviot, and another of Exmoor-Horn ewes.

At Carlisle we are of course in the very focus of mountain breeds; and meet here representatives of the hardy, nimble flocks scattered over the fells of Cumberland and the lofty moors of Yorkshire, Northumberland, and the Scotch border counties. They consist for the most part of the well-known Cheviot and Black-faced or Heath breeds, and of the Herdwicks—a variety not so generally known.

The Herdwick sheep are polled, and have brownish or speckled black and white or mottled faces; their wool is fine, only about the neck and fore-quarters being intermixed with kempy locks. The wool on the body is often little better than hair, but the flock-masters prefer this sort of fleece to one of better quality, as with such coats the animals can better withstand the severe winter upon the bleak mountains which are their home. The wethers will fatten without any better pasturage than they find upon the hills; and go off at 4½ to 5½ years old, weighing 10 to 12 lbs. per quarter. Their mutton possesses the very finest flavour; and consists of a larger proportion of lean meat than the flesh of any other sheep. The ewes are not put to the ram until 2½ or 3½ years old; the lambs drop about the second week in May; and are taken to the vales and lower grounds for the first winter. When at mature age they support themselves in the deepest snow blasts by scratching down to the herbage, and subsist throughout the winter without any supply of hay.

The Herdwicks are principally to be found in the central and western portions of the Cumberland Lake district; that is to say, on Langdale Pikes, in Wasdale, Eskdale, &c., extending from Windermere and Coniston to Keswick and Whitehaven; but great endeavours are being made by farmers in Westmoreland to spread the flocks of pure Herdwicks, with a view of displacing the old heath or black-faced breed.

There is a breed in the north of England, taken to the mountains in April and May and brought back to the lower grounds in November; these are not properly Herdwicks, but a cross with either the black-faced or the large white-faced sheep of the lower country.

Herdwick Mountain Sheep.—*Judges:* Messrs. W. Dodd, R. Donkin, and A. Douglas.

Class 1. Shearling rams. The prize is awarded to Mr. G. Robinson, of Orton Hall, Westmoreland, for a ram having a good level back and fair loin, still with a narrow chine.

Class 2. Rams of any other age. The prize to Mr. J. Mounsey, of Askham, near Penrith, for a 4 years and 3 months old ram. This appears to be very well shaped for the breed, but has narrow loins and flat sides; the wool of a fair quality.

Class 3. Pens of five shearling ewes. The prize to Mr. G. Robinson, for a pen of ewes which certainly match well, and have a fair form and pretty good forequarter.

Black-faced Mountain Sheep.—*Judges:* Messrs. W. Dodd, K. Donkin, and A. Douglas.

Class 1. Shearling Rams. The prize to Mr. H. Shield, of High Acton, Allendale, Northumberland. This shearling has a level back, good loin, wide chest, though the sides are too flat; the wool, also, is straight, and is hairy in quality.

Class 2. Rams of any other age. The prize to Mr. C. Summers, of Whitfield, near Haydon Bridge, Northumberland. This is certainly a pretty good sheep, having considerable length and depth, ribs standing pretty well out, but the wool not a very good sort.

Class 3. Pens of five Shearling ewes. The prize to Mr. J. Brydon, of Moodlaw, near Langholm, Dumfries, for a pen of well formed ewes, high standing, and having good fleeces of wool.

Cheviot Sheep. (Shown for special prizes offered by the Carlisle Committee.) *Judges:* Messrs. W. Dodd, R. Donkin, and A. Douglas.

Class 1. Rams not more than four shear. 1st prize to Mr. T. Elliot, of Hindhope, near Jedburgh, Roxburghshire, for a 38 months' old ram; a very good animal indeed; with thick neck, good chine, good shoulders and chest, wool plentiful and of good quality; 2d prize to Mr. T. C. Borthwick, of Hopsrig, near Langholme, Dumfries, for a 3 years and 3 months old ram; a large sheep, but rather better in the rump and loin than in the fore-quarter and neck. Mr. Elliot's ram, and also that shown by Mr. W. Aitchison, of Linhope, near Hawick, N. B., are highly commended; the latter of great size, though hardly so good in form as many others.

Class 2. Shearling rams. 1st prize to Mr. Elliot, for a ram having a straight back and good rump, but a long narrow frame, though good wool. 2d prize to Mr. Borthwick, for a pretty good animal. Mr. Elliot and Mr. Aitchison are both fortunate enough to obtain high commendations in this class also. Both these rams have good level backs, long though tolerably broad frames, and good fleeces.

Class 3. Pens of five ewes, of not more than 4 shear. The prize is given to Mr. Borthwick, who indeed is the sole competitor in this class. These ewes are large and of very good quality, with fine looks, and pretty good wool.

Class 4. Pens of five shearling ewes or gimmers. The prize to Mr. Elliot, though eight competitors showed against him. These are large and good ewes, with great frames and good looks.

PIGS.

Class 1. Boars of a large breed. The first prize boar, "Young Hector," the property of Mr. Horsfall, of Burley Hall, Yorkshire, is an exceedingly good animal, not possessed of very large frame, but rather short, scarcely exceeding 2 yards in length to the root of the tail. He is remarkable, however, for his good proportions, thick, deep carcass, and fair quality. In this case, the judges have wisely chosen an animal of use to breeders, and not with all the defects obscured by overfeeding. The second prize boar, shown by Mr. Charles Jackson, of York, is another suitably-fed animal, having an immense neck-chine, great thickness of frame, full thick hams, a covering of long hair, and short fine ears. No. 561, a remarkably good animal—large and symmetrical, with slender bone and fine quality of flesh, had been entered in the wrong class, being undoubtedly of small breed character, hence he was disqualified for competition.

Class 2. Boars of a small breed. Mr. Hatton, of Addingham, Yorkshire, takes the prize for a wonderful boar, under two years old, yet of extraordinary girth, depth, and width; having a very level broad back, beautiful quality, and fine snout and ears, and every point denoting a well-bred and quickly-feeding animal. The second prize goes to Mr. Turner, of Barton, Devonshire, for a black boar of beautifully fine quality. This pig is well formed, round, full and smooth in all points, but not excessively fat. A boar, bred and exhibited by Mr. Watson, of Bolton Park, Cumberland, struck us as being surprisingly forward for his age, which is only 7½ months; yet he displays the compactness of form and enlarged frame of a maturer animal.

Class 3. Breeding sows of a large breed. The prize sow belongs to Mr. Harrison, of Heaton Norris, near Stockport, and certainly she is an astonishing animal; of immense length and proportionate breadth, high-standing, yet with deep trailing belly; thick hams, full chine, and with all this largeness of dimensions and weight of carcass, having wonderfully small fine bone. A great sow, belonging to Mr. Horsfall, but much older than the above, well deserves the high commendation she received. Mr. Wainman's, of Carhead Grove Hill, near Leeds, was commended, but in our opinion was much too fat. No. 590, bred by Mr. Farish, of Dormanstead, Carlisle, was also commended; a long, level backed sow, with seven very fine pigs. No. 603, belonging to Mr. Taylor, of Oatlands, Leeds, is a large sow, not made up to an extravagant degree of fatness, having notwithstanding a remarkably good neck chine, though somewhat deficient in the hind quarters.

Class 4. Breeding sows of a small breed.—The prize sow, exhibited by Mr. Watson, was too fat, not of very great size, but straight, broad, of great girth and depth. A beautiful black sow, of Mr. Turner, was highly commended; also, Mr. Horsfall's sow, No. 625, a thick, level, well formed animal, of beautiful quality, with two fine pigs. No. 614, bred by Mr. Mangles, of Giverdale, Ripon, Yorkshire, was commended, a small short sow, round and fat, of good feeding properties. The sow shown by Mr. Hayward, of Folkington, Sussex, was also commended. It had a straight back, thick, deep frame, fine quality, light offal, and was very fat, indeed a remarkable animal for her age, which is only [illegible] months. A sow, bred by Mr. Hayward, and exhibited by Mr. Jupson, of Staveley, Westmoreland, was specially commended;" a remarkably well made sow, with wonderfully good neck chine, level back, and especially broad frame.

Class 5. Three breeding sow pigs of a large breed.—Mr. Sadler, of Bentham Purton, Swindon, takes the prize for a black and white sow pig, of beautiful symmetry, level, round, not too fat, with fine bone, and fine black hair, and these are three very uncommon animals. No. 632, a pen of the improved Yorkshire breed, bred and shown by Mr. Wainman, is highly commended, in our opinion, whatever may be the merits of the breed itself, these individual animals possess little claim to the honour, beyond the unfattened and natural condition in which they are exhibited.

Class 6. Three breeding sows of a small breed.—The prize pen belongs to Mr. Watson, and the three sow pigs (Faith, Hope, and Charity!) are broad, well shaped, fine, and extraordinarily fat. The sow pigs of Mr. Brown, of The Height, Wigton, Cumberland, were highly commended; they are short, small, and of beautiful quality.

It is worth while noting, in conclusion, that two arrivals of small breed character have been disqualified by the judges for having been entered in the large breed classes. And no less than four have been disqualified because their state of dentition indicated *over age*.

POULTRY.

The entries at Lincoln were 295; at Carlisle they are 185, which is a falling off.

The following table may in some sort be an index to popular feeling with respect to the various breeds:—

	Spanish.	Dorking.	Cochin.	Malay.	Game.	Hamburghs.	Polish.
Lincoln	13	72	50	3	34	47	9
Carlisle	17	51	15	3	39	27	9

The Cochin has had his day; the Dorking maintains his ground as the most valuable breed we possess, and the Game fowl seems to be much esteemed. The show of Dorkings was especially good—we refer to quality. The Ducks were fair, and the Geese below par.

The following is an attempt at a translation of the speech of the Baron Ricasoli, at the Pavilion Dinner of the Carlisle Meeting last week. To do justice to the beauty of the original is impossible. *C. W. H.*

It grieves me much that I cannot make use of your language gentlemen, in order to express in a manner that all might understand the sentiments of my heart and the thoughts of my mind. I am not sufficiently accustomed to your language to be able to make use of it in an extempore speech suitable to this joyful and honourable occasion. There are circumstances in which a man feels strongly the necessity of making all who hear him fully understand all that he feels and all that he thinks. The present is such an occasion for me, in which I would wish to tell you the deep impressions which my sojourn amongst you, although brief, has conveyed to my mind. Your language, therefore, being of no avail to me, I will speak in my own tongue, whose well-known beauty and richness are fully adequate to paint the heart's best feelings and the mind's best thoughts. The English are travellers, and many languages are familiar to them. Often have I heard Italian pronounced by English lips, and not seldom, I must say, has that language received a new grace from the purity with which it was spoken. I am confident therefore that in this numerous assembly there are many who will understand my words, and that they again will be my kind interpreters to the rest. It has fallen to my lot to-day to enjoy the honour of representing in the assembly here convened the Italian nation, and from being myself a native of one of its most cultivated and fertile provinces, well known to Englishmen, my case is rendered the more apposite, and the office confided to me more agreeable. I return my thanks to the illustrious president, whose kindness has procured for me a seat in the midst of you. I beg also to thank the stewards, members of Council, the secretary, and others, who on becoming acquainted with my wishes, and the object of my journey, have taken every pains to enable me to see and thoroughly examine all the machines and the stock which has been collected for trial in Carlisle. I also heartily thank all those who, from the moment when I first set foot on English land, have with generous hospitality, at once noble and wise, opened to me the way to this great meeting, and have also enabled me to learn what treasures of political, civil, and domestic life are gathered together in this noble country; so that having arrived in London on a short visit to some valued friends, when I think that five weeks have passed, and that my departure is near, I derive consolation from the hope that I have gathered much instruction and drawn many useful lessons from my short sojourn in your country. If it be true that, in order to know and appreciate a nation, a lengthened sojourn in it is not so necessary as to see its internal organisation, it is more true with respect to England than any other nation, because the primal law of her being lies in her customs and habits, to which her institutions and laws are accommodated with the most harmonious wisdom. The first condition of happiness lies in this; it is but a foolish pretension and a great misfortune if a nation endeavours, by institutions and laws, to give itself new customs, or to change them before the already changed custom imperiously demands it. Since custom is a composite result of the sentiments, the thoughts, and the habits which surround and penetrate life, constituting the national character, which never changes, and only in some places and very slowly even modifies itself—for this reason I believe there is no state more solidly constituted than the English nation; and none more adapted for development, Moral, Civil, and Political, those three phases of human life which must be jointly fulfilled in order that the ends of all true policy may be carried out. It is simply because I think thus that I utter these words; I could not stoop to flatter a people I so much esteem and honour.

Now it appears to me that one of the most prominent of your national customs is the way in which you treat agriculture. This is a great fact of which we will rapidly run through the most leading points. Here, agriculture is not only a science and an art, but the practice of life, a means not only for developing

material wealth, but also, and still more, for developing the moral condition. Honoured by all, it renders honourable all who make it their profession and their delight. Happy, in truth, do I hold that country to be where such a state of things comes to pass, because it reveals great qualities in the people who inhabit it. I do not look to the money which is spent in improving farms, but I do look to the eminent qualities which the practice of agriculture demands—Morality, Perseverance, and true Intelligence. When I see agriculture favoured alike by the small farmer and the noble lord; when I see Earls, Marquises, and Dukes assembled here to consider attentively the affairs of agriculture—distinguishing themselves by letting their own names figure on the best machines; when I think of the life which is spent in the lordly castles of England a great part of the year in improving the land and educating the people by precept, by example, as well as by munificence, a spontaneous feeling and thought induces me to exclaim, "Happy, happy is that country where the best example comes from the highest classes, where it is the custom to honour and to cherish agriculture, and to make it the source of pious and gentle pleasures, and the means of social and moral training." That husbandry is here pursued as an art and a means of pleasurable wealth with success, as well as perseverance and energy, let this great meeting witness—it is witnessed by the variety and quality of the animals—it is witnessed by the collection of agricultural machines, which from the simple scythe or rake rises to the threshing and the reaping machine, so that no part of farm work is left uncared for, but each may find the instrument best adapted to fulfil its purpose in the best manner and at the least expense. If time and language sufficed me I could tell how agriculture thus practised leads a nation to the most perfect results; but it is sufficient now to recall to the minds of my hearers that the greatest example of modern civilisation has been given to the world by the English nation, when it broke through the ancient walls of prejudice and jealousy, and gathered together in its bosom in the year 1851 all the nations of the world; proclaiming with a voice at once Christian and politic that hatreds and jealousies and rivalries were at an end: and that justice being the basis of all international relations, all were equally interested in emulation for the highest ends. This fact, I will not disguise, is the sign of a new epoch in the history of humanity; from that day the political world received new conditions, which the future will yet unfold. These praises of English agriculture may well come from one who was born on the soil of Tuscany. My country and yours, gentlemen, I may add, in the words of your illustrious president, are united in one common bond of sympathy in an alliance which nothing will dissever, and which I trust the circumstances of the future will render still more solid and close. Allow me, gentlemen, to close my speech by proposing the toast which is the expression of my warmest feelings:—"Health and prosperity to you who honour agriculture as the source of virtue and of wealth, and who pursue it with so much ardour and intelligence; health and prosperity to the noble English nation who first rose in the field against the errors of political egotism and immorality, and set the world an example of liberal and Christian policy!"

Monthly Council, *August* 1.—Colonel Challoner, trustee, in the chair. Twenty-five new members were elected.

Finances.—Mr. Raymond Barker, chairman of the Finance Committee, laid before the Council the monthly report on the accounts of the Society, from which it appeared that the current cash-balance in the London bankers' hands was 2,697*l.*

Mr. Pusey.—Lord Portman communicated to the Council his intention of moving, at the Monthly Council in December, the consideration of the best means by which the Society may express and record its deep sense of the value of the late Mr. Pusey's services, in promoting its objects, and the general advancement of English agriculture.

Implement Trials.—Mr. Fisher Hobbs, Senior Steward of the Implement Department at Carlisle, reported most favourably of the recent exhibition and trial of implements. He thought it also a strong fact that he had on that occasion no protest to present to the council against any of the awards made at Carlisle. He had several suggestions to offer on his own part, as well as on the part of the exhibitors, in reference to the exhibition and trial next year at Chelmsford. These he intended to lay before the Council in November, when they would no doubt be referred as usual to the consideration of the Implement Committee of the Society.

Foreign Stock and Implements.—Mr. Fisher Hobbs took that opportunity of stating that when the Council again assembled after the autumn vacation, he should move the following resolution:—"That special prizes be offered at the Chelmsford Meeting for the live stock and agricultural implements of foreign countries."

Veterinary Inspection.—Professor Simonds reported to the Council the result of his professional inspection of the animals exhibited in the Society's showyard at Carlisle. Amoug these animals, especially in the classes of pigs, several animals were satisfactorily ascertained to be considerably above the ages at which they had been entered for competition; and so gross and palpable were some of these cases, that the Council referred the whole details to the stewards of the yard, with a request for their general report on the subject in November next, in order that the Council might determine in what manner these erroneous certificates ought to be dealt with.

Chelmsford Meeting.—A General Chelmsford Committee, for the country business of next year, was appointed.

Adjournment.—The Council then adjourned over the autumn vacation, to Wednesday, the 7th of November.

MR MECHI'S ANNUAL GATHERING.

On Saturday about 400 gentlemen interested in the success of agriculture assembled, according to custom, at Mr. Mechi's Model Farm at Tiptree Heath, Essex, and had the opportunity of witnessing what can be done by a liberal expenditure of capital, followed up by unturing energy and zeal. A few years since and the spot which now marks this farm was a heath, hardly capable of producing a blade of nourishing Grass. Mr. Mechi, finding his land of the poorest description, set to work in earnest, and in a short time had his farm thoroughly drained, the hedges knocked down, the land added to his fields, and nearly every tree stubbed up. All this has, however, not been done at once. Mr. Mechi has had much to contend with, as will be seen from a lecture he recently gave, when he said, "Vainly did I try by solid manures to render this vile plastic clay into a useful pasture. It was like bird-lime in winter and cast-iron in summer; poor, indigenous, and drab-coloured Grasses choked and eradicated the finer kinds I had sown, and the animals wandered about hollow and dissatisfied. Now fine and fattening Grasses clothe the field with perpetual verdure, and it keeps three times as many animals, and the close and shaven pasture indicates their affection for it." The manure which is used at Tiptree is liquified, and underground pipes are laid throughout the farm, with plugs at intervals for the hose to be placed in and the manure distributed.

Shortly after the bulk of the company had arrived, they proceeded with Mr. Mechi to view the farm and stock. The Wheat, Barley, and Oat crops are all that could be wished, and the Mangold Wurzel and other root crops seemed to be in excellent condition. If one could be permitted to form an estimate applying to the county at large from Mr. Mechi's farm, we are promised a most abundant harvest. The cattle, pigs, sheep, and other live stock were healthy, and clean. But his stock is reduced in quantity; and as bad times found him adventurous, good times and high prices induce him to realise.

Not the least attractive part of the day's proceedings was the exhibition of new agricultural implements. A machine for thinning root crops, very simple in its construction, was pronounced successful. A ponderous machine, the invention of the Earl of Dundonald, for cutting up the ground and putting down pipes for draining purposes, also attracted some share of attention. Hussey's reaping machine, as made by Dray & Co., was tried upon some Wheat, a portion of which was very much laid, and the result was so satisfactory that several orders were given on the spot. The principal alterations made in its construction are the skeleton blade and the tilting platform—subjects of two separate patents. The knives are made to assume an outline instead of a solid form; this not only affords an egress for the rubbish, but having four cutting edges instead of two, it completely minces any weedy material which would otherwise hang to it; and thus renders choking or clogging an impossibility.

Messrs. Dray & Co. also exhibited an improved Grass and grain separator, which is referred to in our report of Carlisle.

The inspection of the crops and farmyards over, the company repaired to a large marquee, and partook of a cold collation. Mr. Mechi presided, and was supported on his right by the Lord Mayor, and on his left by the Marquis of Drogheda. Among the company present we noticed the Earl of Essex, Mr. D. Waddington, M.P., Mr. Bass, M.P., Mr. Apsley Pellatt, M.P., &c. &c. The usual loyal and constitutional toasts having been received with enthusiasm, the chairman proposed the "Bishop and Clergy of the Diocese, coupling with it the name of the Rev. Mr. Sidney." (Cheers.)

The Rev. E. Sidney in reply said, that when a few years ago he held an appointment in the county of Norfolk, and was then surrounded with a number of practical farmers, he first turned his attention to the subject of the diseases of Wheat. The more he looked into the subject, the more convinced was he that science must be brought to the aid of agriculture, and as a proof of that he need only refer them to the beautiful farm which they that day had inspected. And here he might mention that when a few years since a prize was offered for the best essay on the subject, so little was known of it that when the council read over the papers that had been sent in they refused to accept either of them. Upon going through the fields that day he had observed that some of the ears were diseased. Now that disease was an infliction of an insect, but it looked very much like the work of fungi. That insect was known to them as the midge. If they went into the fields in June just before sunset and examined the Wheat, they would discover a little straw-coloured insect which left its eggs, which were hatched and destroyed the grain. They were in turn destroyed by the ichneumon. In threshing, the chaff contained the midge and should be destroyed.

The Earl of Essex proposed the health of their worthy host (loud cheers). Among the 350 gentlemen whom he saw around him, there might be some amongst them who did not coincide with all Mr. Mechi's views on agriculture generally, but he would take it for granted that they were all admirers of that gentleman, and that they looked upon the work in which he was engaged as one which would tend to promote the happiness of mankind. Mr. Mechi was one of those who, when he had undertaken a work which he considered right and proper, if he failed to succeed in it the first year, did not tamely give in. He thought the agriculturists should show themselves grateful to those tradesmen who, having been successful in other trades, invested their surplus earnings in developing the full powers of the land of their country. Mr. Mechi, by his experiments and patience, had set himself up as a beacon to show them the quicksands which they ought to avoid; and on the other hand his conduct was an incitement to others to follow out his experiments. In such a light they ought to look upon him, and as he was a man who desired well of his country, he should call upon them to drink his health with three times three.

Mr. Mechi on rising was received with loud cheers, which were several times renewed. He said if he were a vain man they would most assuredly spoil him. When he first turned his attention to farming he looked at it in the same light that he should any other matter of business where there was room for improvement, and he could only say that he did no more than he would in taking any other business. Having purchased this and other farms, he turned his attention to whether they would or would not prove a profitable investment, and he set to work to find out what was wanted, and he soon ascertained that the great bulk of his property wanted draining, good roads, deeper cultivation, more manure, and more integrity in its management. He should never forget the time when he first went over the Tiptree property. It was on a 25th of September; the day was wet, the land being part light and part bog was very much like bird-lime, and the more he walked the deeper he got into it, and he then felt that it was a state of things that was not at all satisfactory. The tenant said the land was very poor, and that he could not afford to pay for improvements, so he determined to make them himself. He had at the outset made some errors of a practical nature; but they were all corrected now. No clay was so stiff but that it could be amended, and if it was yellow clay let them make a good deep fallow, and expose it to the light and air. He told them not to put too much seed in the ground; all he put was 1 bushel per acre. He was happy to say that this year he should make a very large profit by his crop. He said this in no vain, boasting spirit for he knew the difference between 80*s.* and 40*s.* per quarter, but he made all his improvements when corn was cheap and when, at the same time, labour was cheap. He was of opinion that the great future for agriculture lay in the further development of steam power, and although the steam plough had been pronounced a failure, he believed that it was a very triumphant beginning. He would venture to predict that steam would yet be the great motive power of agriculture, and there was high hope for it in the name of steam. Having given some details of the comparative powers of steam with that of horses, taking for his data the reports of that valuable society the Royal Agricultural Society of England, he stated that it was sheer folly to place the two in competition together, and concluded by thanking the company for the honour they had done him in drinking his health.

Other toasts having been given and responded to, the assemblage separated highly pleased with the day's proceedings.

Miscellaneous.

Sale of Short-horns.—We are informed that the four yearling short-horn heifers, and the yearling short-horn bull, "Panmure," exhibited by Mr. Stewart Marjoribanks at Carlisle, have been sold since the Show to a French nobleman for 500 guineas; and will, with some short-horn cows and Aberdeenshire Scots, shortly be forwarded to his estate in Normandy.

The Hog Population of Cincinnati.—What crocodiles were in Egypt, what cows are in Bengal, or storks in Holland, pigs are in Cincinnati, with this trifling difference, their sacredness of character lasts but as long as their mortal coil; and this is abbreviated without ceremony, and from the most worldly motives. In life, the pig, if free, is honoured; he ranges the streets, he reposes in thoroughfares, he walks beneath your horse's legs, or your own; he is everywhere respected; but let the thread of his existence be severed, and, shade of Mahomet, what a change! They think in Cincinnati of nothing but making the most of him. How many of his kind perish annually to cement the vast prosperity of the city of hogs can scarcely be told. About 20 years ago Cincinnati contained only one-fifth of its existing population. A few bold speculators began the trade. Selecting the hams and sides of the animals, they made pickled pork; of the rest they took small account. Soon, however, the idea occurred to one more acute than his fellows, that the head and the feet—nay, even the spine and the vertebræ—might be turned to account; trotters and cheeks had their partisans, and these parts looked up in the market. About this time the makers of sausages caught the inspiration. They found these luxuries saleable, and so many pigs were to be slaughtered that the butchers were willing to do it for nothing; that is to say, for the perquisite of the entrails and offal alone. The next step was due to the genius of France. A Frenchman established a brush manufactory, and created a market for the bristles, but his ingenuity was outdone by one of his countrymen, who soon after arrived. This man was determined, it seems, to share the spoil; and, thinking nothing else left, collected the fine hair or wool, washed, dried, and combed it, and stuffed mattresses with it. But he was mistaken in thinking nothing else left. As but little was done with the lard, they invented machines, and squeezed oil out of it; the refuse they threw away. Mistaken men again. This refuse was the substance of stearine candles, and made a fortune to the discoverer of the secret. Lastly came one who could press chemistry to the service of mammon; he saw the blood of countless swine flow through the gutters of the city; it was all that was left of them, but it went to his heart to see it thrown away: he pondered long, and then, collecting the stream into reservoirs, made prussiate of potash from it by the ton. The pig was thus used up, and nothing else was left to turn to profitable account. A large trade is carried on in sausage-skins; the entrails and bladders fetch a good price. The congealed grease, forming the lard of commerce, is in extensive use for culinary purposes, for perfumery, ointments, salves, &c. The oil expressed from lard is chiefly used for burning, for lubricating machinery, and generally as a substitute for olive and other oils. *Mr. P. L. Simmonds, in the Quarterly Journal of Agriculture.*

Calendar of Operations.

JULY AND AUGUST.

Essex, *July* 31.—The Coming Harvest.—The Wheat is blighted, and some of the ears defective, but I think the crop will be above an average. Barley a large crop, but very coarse in quality. Oats a very good crop. Beans and Peas an average crop. Hay very short crop. I have heard no complaints of the Potatoes. Mangold Wurzels are very good. Swede Turnips are good at places, but in others have been very much damaged by the fly. The White Turnips are doing well. *William Hutley, Powers Hall, Witham.*

Forfarshire Glens, *July* 28.—This has been the driest season that we have experienced in this district for many years. The winter from January onward was uninterrupted frost and snow, and the spring—if it at all deserved the name—was hard, dry and ungenial up till the beginning of June; since then a milder atmosphere has prevailed, with frequently a very high temperature, and within the last two weeks some fine moderate showers, but as yet no copious fall of rain such as the crops and pasture stand in need of. The seed was deposited in a well prepared dry bed, and the braird promptly made its appearance, in most cases too thick; the usual deductions arising from unsound seed, excess of moisture, birds, grubs, &c.—for which something is always allowed—seem not to have been made. An excess of plants with an unusually dry season are likely to produce a short crop, especially of Oats. Barley being of more rapid growth has more nearly kept pace with the forcing influence of the atmosphere, and is less deficient in length of straw; both are in about an

average state of forwardness. The produce in grain will likely be small, but very much will depend upon the kind of weather we may have before harvest. Hay making is in progress, the crop a very poor one. Turnips were "dorty" during the first stage, but since hoeing they have got on with life and vigour, plenty of plants, and a fair prospect of a full crop. The Potato never unfolded a broader leaf, or showed a fuller flower, even in its palmiest days before the "forty-five;" neither token nor talk of disease. Pastures have all along been deficient, both in hill and valley. The flush of the season is now past upon rotation fields, but the hills and all natural Grasses would yet make up if once well moistened. Sheep shearing is over, and the wool sold; the clip has rather unexpectedly turned out a full average one, and the price is fair, 9*d* per lb. for blackfaced washed wool. The crop of lambs is good as to numbers, but they are small, and not a few show evident signs of early privation. The young grouse are few and small, and to give them a fair chance, sportsmen would require to defer the assault until the end of August. Those who got early to the peat moss have secured their winter fuel in excellent order; others still await the chances offered by our changeful climate. An idea may be formed of the temperature of the early part of the season from the fact that some of the peat mosses were still frost bound on the 15th of June. *S.*

Lincolnshire, *July* 31.—We have been so engaged at Carlisle that I have had no time to look round, so my report will, I fear, be a poor one. Wheats are in full crop, and at present have not much injury. They have good ears, long and full, and should the weather be favourable, we shall have an abundant harvest. Oats have recovered much from the shocking state they were in two months since. The crops are not heavy, but now look healthy. Beans are a splendid crop, flowered well, and are well podded. Peas are good, but not equal to Beans, though the prospect is good for the crop. Barley we have so little that I need not speak of it. Potatoes are all looking well at present, and we have a large breadth set. I think the weather will cause some disease again; I recognised it on my way home. Mangold Wurzel have improved much, and grow fast, but Turnips have had too many showers, and look "starved." Hay and Clover crops are very light, and none got well, and it continues to rain daily. *Jn. Clarke, Long Sutton.*

Northumberland, *Aug.* 2.—Had I been called upon to give an opinion of the growing corn three weeks ago, it would have been more favourable than now. During the long continuance of cold weather in the late spring, all corn looked most unpromising, except on land that was drained and under high cultivation; never was there such a marked difference between land under liberal management and that which is still undrained and poorly cultivated. On the change to mild weather, a rapid improvement took place on all, and corn on the former description of land made great progress, bearing the appearance of a full crop. In many parts, however, it has proved too bulky to stand up against the very heavy rains which have prevailed for the last three weeks, and being laid while the straw was in a green and soft state, it is less likely to recover, or to fill well in the ear. This applies chiefly to Wheat. A brisk wind and bright sun would still do a good deal to recover it, but the weather continues to be unsettled and gloomy. The lighter crops which are standing are in good ear and may prove an average for such land as they occupy, but are backward. I should say, that under all the circumstances, and with the prospect of a late harvest, Wheat is not likely to come up to an average in this and the northern counties. Barley is a full crop, and in a few places beginning to change colour. Oats decidedly below an average. From present appearances, I should say that there will be no general harvest till September. Hay was generally a good crop, but much of it has been injured by bad weather in the making. Grass in pastures is very abundant. Early sown Turnips are good, but the weather has been too wet for the late ones. Potatoes are very promising, and so far free from disease. Leicester and half-bred wool has been sold readily at from 13*d*. to 14*d*. per lb. Store cattle and sheep continue to bring high prices. *John Grey, Dilston.*

Suffolk, *Aug.* 2.—Although the weather has been wet and unsettled for the last two or three weeks, our crops in this district generally promise favourably. Wheat is strong and healthy, and stands up well. The stiff staple soils this season will carry the day, although the light lands are marvellously improved. We have complaints as usual of midge, mildew, and defect in the set of the ear, but these are partial. I estimate the crop (at present) as a full average, and perhaps beyond; although, until the result be fairly tested by threshing, no accurate opinion can be formed. Harvest will commence upon Talavera in a week from this date. Barley is a very short crop; much of it is laid, and it is feared may be thin and inferior in quality. Beans and Peas, fair crop, but a good deal of disease has appeared in the last four days. Oats only grown to a small extent in this neighbourhood, but the early sown are unusually promising. Potatoes doing well—no disease worth naming. *J. Edwards, Jr., Woodbridge.*

Sussex, *August* 2.—The Wheat upon the hills in my neighbourhood is thin, and will be considerably below an average crop; upon the best soils it is good, and although much injured by the late heavy rains, will, I think, produce an average crop. Barley, Oats, and spring Beans good. Winter Beans very bad. *H. Scott Hayward, Willingdon.*

West Sussex, *Aug.* 1.—Since our last report we have a good deal of rain, and it has been very warm, so that now the Grass grows with a vigour that we have not been accustomed to for more than a year; the consequence is that lean stock of all kinds are in demand, and as most had run their live stock low they must now look to buying in even with high prices. But the rain that has done so well with the Grass has not had the good effect upon the Turnip crop that we expected; those that were hoed or fit for it at the time the rain came have done little since until the past few days that they seem to have recovered. The earlier sown Swedes are nearly all what we term "blind hearted." It appears to have been the effect of the dry weather causing them to make an effort to run to seed. The same disease has prevailed to a very great extent among the Cabbages in the gardens. The timely rain preserved the later sowings. Mangold does well, and does not show such a tendency to run to seed as last year. Potatoes look extremely well, so far as I have seen. There have been slight rumours of disease, but I have found no one who has seen it. Respecting the Wheat crop the accounts are very conflicting; some say it is very much blighted, which we believe is true on some of the lighter lands; and it is to some extent the case on the heavy and good land, and within the past three or four days it has not looked at all promising. It is not laid so much as we might have expected. Barley looks well, and Oats though shorter than usual promise to corn well. Harvest is now begun among Peas, which are generally a good crop. Wheat harvest will be general about the 13th; Oats may be a few days earlier. *G. S.*

Notices to Correspondents.

Corn Crushers, &c.: *Barrackpore.* The best hand chaff cutter at Carlisle was by Richmond & Chandler, of Salford; the best mill for grinding corn was by Clayton, Shuttleworth, & Co., of Leicester; the best corn-crusher by Turner & Co., St. Peter's Works, Ipswich. These awards are as good answer to your question as we can give.

As Lime: *J. Lake.* We do not know of any tract on this subject. Every work of recent date on agriculture contains reference to gas lime among the manures. It is chiefly useful for the gypsum which after long exposure to the air it is found to contain.

Lois Weedon: *A H.* We have not heard this year; but last year the produce was abundant and profitable, and the system up till then had realised the expectations expressed in the paper to which you refer.

THE HARVEST.

DRUMMOND'S IMPROVED REAPING SCYTHES continue to give every satisfaction, and the demand is yearly on the increase. They are as usual got up with every possible care, and are fitted with the very best picked blades. Price for three Scythes complete, 30*s*.; do. for six, 56*s*. Carriage paid to the principal Railway Stations throughout the kingdom. W. Drummond & Sons, Seed and Implement Warehouse, Stirling, N.B.

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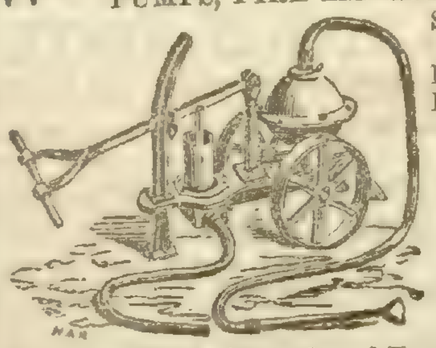

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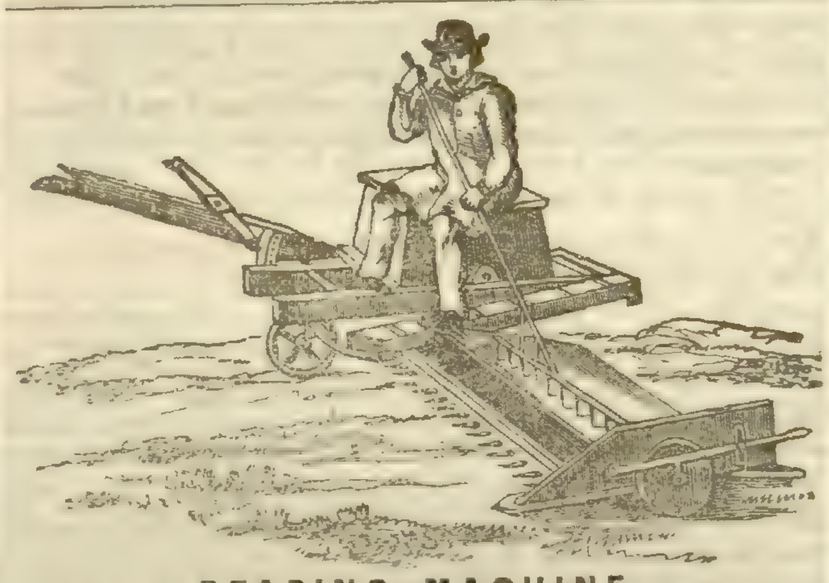

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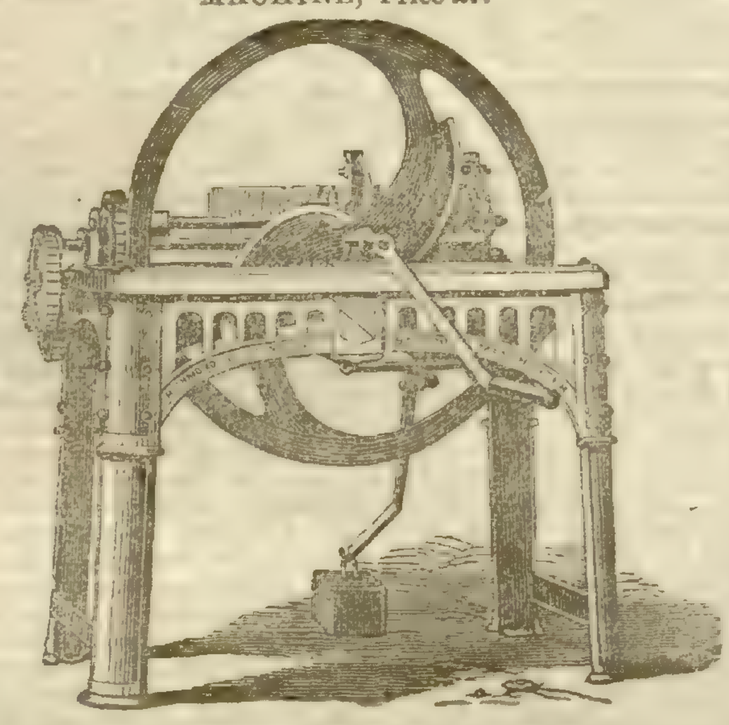

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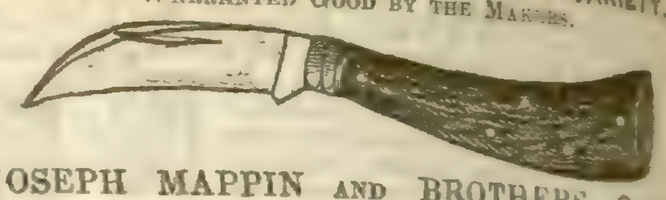

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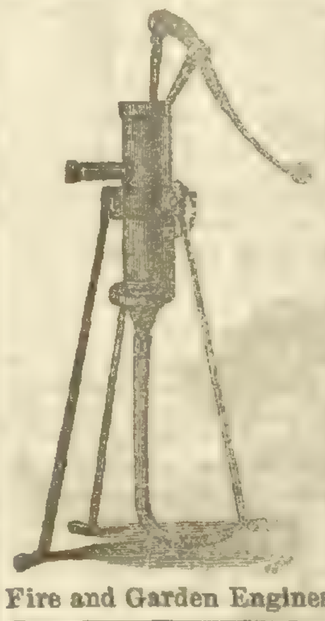

The valve is a ball of imperishable material, and cannot clog in acids. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs [illegible] The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe 1*s*. 6*d*. per foot.

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May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Sons, 8, Crescent, Jewin Street, London.

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PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£ s. d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 12 0
2½ „ long	3 „ 3 „		1 15 0
3 „ ditto	3 „ 6 „		2 12 0
3½ „ ditto	3 „ 6 „		2 18 0
4 „ ditto	3 „ 6 „		3 5 0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2 12 0
2½ in. long ditto	ditto	ditto	2 15 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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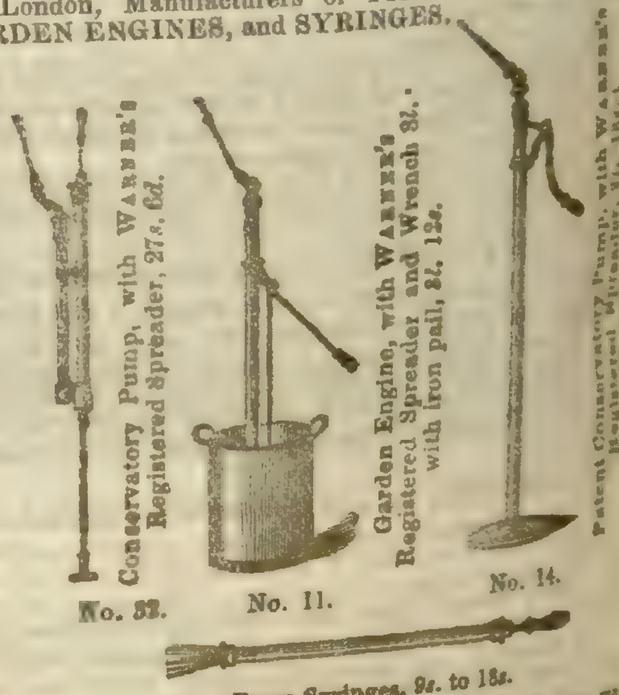

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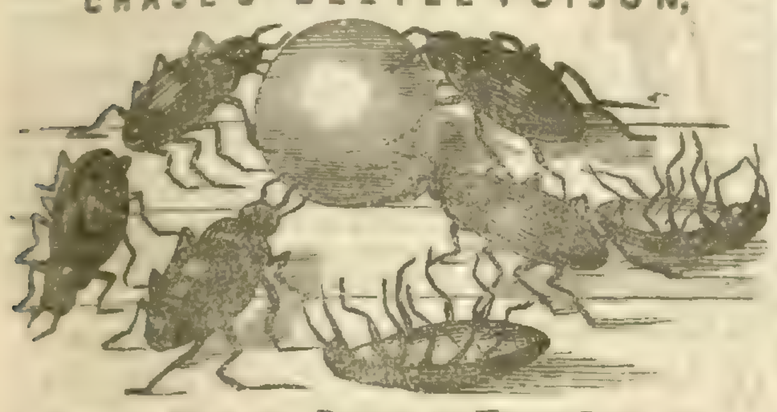

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(ED.—This is not a mere puff, but sent to us by a gentleman who has been benefited as he states.)

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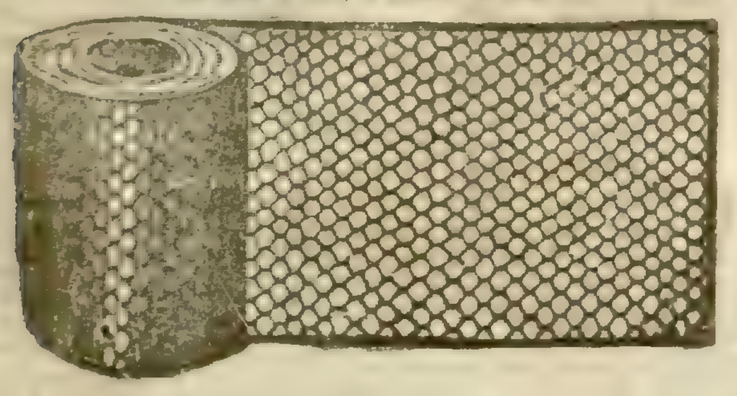

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All the above can be made any width at proportionate prices. If the upper half is a coarse mesh, it will reduce the prices one-fourth. Galvanised Sparrow-proof Netting for Pheasantries, 3d. per square foot. Patterns forwarded post free.

Manufactured by BARNARD & BISHOP, Market Place, Norwich, and delivered free of expense in London, Peterborough, Hull, or Newcastle.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES, consisting of MATTING, MATS, MATTRESSES, BRUSHES, NETTING, HORSE-HAIR, and BRISTLE SUBSTITUTE, are distinguished for superiority and excellency of workmanship, combined with moderate prices. Prize Medal both in England and America at the Exhibition of all Nations.

T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

THE COMFORT OF A FIXED WATER-CLOSET FOR £1.—Places in gardens converted into comfortable Water-closets by the PATENT HERMETICALLY SEALED PAN, with its self-acting valve, entirely preventing the return of cold air or effluvia. Any carpenter can fix it in two hours. Price £1. Hermetically-sealed Inodorous Chamber Commodes, £2., 3l. 4s., and 3l.; also Improved Portable Water-closets, with pump, cistern, and self-acting valve. A Prospectus, with Engravings, forwarded by enclosing two postage stamps.

At FYFE & Co.'s Sanatorium, 46, Leicester Square, London.

ONE THOUSAND BEDSTEADS TO CHOOSE FROM.—HEAL AND SON have just erected extensive Premises, which enable them to keep upwards of 1000 Bedsteads in stock, 150 of which are fixed for inspection, comprising every variety of Brass, Wood, and Iron, with Chintz and Damask Furnitures complete. Their new Warerooms also contain an assortment of BED-ROOM FURNITURE, which comprises every requisite, from the plainest japanned deal for servants' rooms, to the newest and most tasteful designs in mahogany and other woods. The whole warranted of the soundest and best manufacture. HEAL AND SON'S ILLUSTRATED CATALOGUE OF BEDSTEADS AND PRICED LIST OF BEDDING sent free by post.—HEAL AND SON, 196, Tottenham Court Road.

SISAL CIGARS, SISAL CIGARS, SISAL CIGARS!

GOODRICH'S CIGAR, TOBACCO, AND SNUFF STORES (Established 1780), 416, Oxford Street, nearly opposite Hanway Street. A Box, containing 14 fine Sisal Cigars for 1s. 9d.; post free for 27 stamps. None are genuine unless signed "H. N. GOODRICH."

COMFORT IN THE RAIN.

BERDOE'S ORIGINAL VENTILATING WATER-PROOF LIGHT COATS, CAPES, &c.; also Capes, Cloaks, &c., for Ladies; resist any amount of rain without obstructing free ventilation (the fatal objection to air-tight materials, and are adapted for general use equally as for rainy weather. Capes, 20s. to 30s.; Coats, 40s. to 50s.—W. BERDOE, Tailor, 96, New Bond Street, and 69, Cornhill, (only).

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work-boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed. Superior Hair and other Toilet Brushes.

METCALFE, BINGLEY, AND CO.'S OATMEAL and CAMPHOR SOAP, in tablets (registered Nov. 3, 1854). Price 6d. each. This soap will be found the purest and most perfect winter soap ever introduced to the public. It preserves the hands from chapping, and renders the skin soft and agreeable.—Sold wholesale and retail by the inventors and sole manufacturers, METCALFE, BINGLEY, & Co., Brushmakers and Perfumers to H.R.H. Prince Albert, 130B and 131, Oxford Street.

CAUTION.—To prevent fraud, each tablet bears the registered mark and the names and address of the inventors, as above.

METCALFE'S ALKALINE TOOTH POWDER, 2s. per box.—The above may be obtained of most respectable Chemists, Perfumers, &c.

NO CHARGE FOR STAMPING at LOCKWOOD'S, 75, New Bond Street. Good cream-laid Note-paper, five quires for 9d.; Thick ditto, five quires, 1s.; Albert and Queen's sizes, five quires for 6d., 9d., and 1s.; Note-paper made from Straw, 2s. 6d. per ream; Envelopes, 4d. to 1s. 6d. per hundred; Foolscap paper, 7s. 6d. per ream; Copybooks 2s. 6d. per dozen. Card Plate engraved, 2s. 6d.; 100 Cards printed, 2s. 6d. Wedding orders promptly executed. A large variety of Writing and Dressing Cases, Envelope Boxes, Blotting Books, Inkstands.—Copy address, LOCKWOOD'S, 75, New Bond Street. Country orders for 20s. sent carriage free. LOCKWOOD'S celebrated Nugget (Gilt) Pen, 1 doz. post free for 13 stamps.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City. Circulars free by post.

SOUND AND WHITE TEETH are not only indispensably requisite to a pleasing exterior in both sexes, but they are peculiarly appreciated through life as a blessing highly conducive to the purposes of health and longevity. Among the various preparations offered for the purpose,

ROWLAND'S ODONTO, or PEARL DENTIFRICE,

stands unrivalled in its capability of embellishing, purifying, and preserving the teeth to the latest period of life. Prepared from Oriental herbs with unusual care, transmitted to this country at great expense, this unique compound will be found to eradicate all tartar and concretions, and impart a pearl-like whiteness to the enamelled surface, remove spots of incipient decay, render the gums firm and red, fix the teeth firmly in their sockets and, from its aromatic influence impart sweetness and purity to the breath. Price 2s. 9d. per box. Caution.—The words "Rowlands' Odonto" are on the label, and "A. ROWLAND & SONS, 20, Hatton Garden," engraved on the Government stamp affixed on each box. Sold by them, and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.?—The most marvellous production of modern date is ROSALIE COUPELLE'S CRINUTRIAR, which is guaranteed to produce Whiskers, Moustachios, Eyebrows, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually checks greyness in all its stages. For the nursery it is recommended by upwards of 100 physicians, for promoting a fine healthy head of hair, and averting baldness in after years. Sold by all Chemists and Perfumers, price 2s., or will be sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London. Mrs. CARTER writes, "My head, which was bald, is now covered with new hair." Mrs. WILLIAMS—"I can show a fine head of hair from using your Crinutriar." Mrs. REEVE—"My hair is gaining strength and thickness." Sergeant CRAVEN——"Through using it I have an excellent Moustache." Mr. YATES—"The young man has now a good pair of whiskers. I want two packets for other customers."

CURE OF CHRONIC COUGH, BY DR. LOCOCK'S PULMONIC WAFERS. From Mr. J. Smedley, Bookseller, Sleaford.—"Gentlemen,—I can speak with confidence, particularly of the Pulmonic Wafers, with which I have been not only relieved, but cured, of a Chronic Winter Cough. Hundreds of boxes I have sold, and still the sale is as great as ever. Signed, J. Smedley"—Dr. LOCOCK'S Pulmonic Wafers give instant relief and a rapid cure of Asthma, Coughs, and all Disorders of the Breath and Lungs. To singers and public speakers they are invaluable, for clearing and strengthening the voice. They have a most pleasant taste. Price 1s. 1½d., 2s. 9d., and 11s. per box. Sold by all Chemists.

MEDICAMEN VIRTUTIBUS FLORENS.

DISCOVERY EXTRAORDINARY! Dr. ARNOT'S PILLS.—The speedy cures effected by this new discovery in Medicine, where all other remedies have failed, are most extraordinary, as testified to by the numerous testimonials daily received by the proprietor from all classes of society, who have been restored to health by these Pills. They create by their peculiar action on the LIVER and the DIGESTIVE ORGANS a new and sanatory state of the blood and other vital fluids, by which means the morbid conditions of the body are immediately removed. They, moreover, strengthen the constitution, and speedily restore the patient to health.—In boxes, at 1s. 1½d. Depôt, 50, Rathbone Place, London. Order through any Chemist. By post for 14 Stamps.

HOLLOWAY'S OINTMENT AND PILLS WONDERFUL FOR THE CURE OF SCROFULA.—Copy of a letter from Mr. Wm. Frite, bookseller, Sturminster, Newton. "To Professor Holloway. Sir,—Mr. Thomas Harris, yeoman, Hinton St. Mary, Dorsetshire, was for many years severely afflicted with Scrofula. He tried many medicines in the hope of effecting a cure, but all failed: the disease very materially retarded his usual occupation, therefore he determined on trying HOLLOWAY'S Ointment and Pills, and by their use he is rejoiced to be able to state that he is now recovered."—Sold by all Medicine vendors throughout the world, at Professor HOLLOWAY'S establishments, 214, Strand, London, and 80, Maiden Lane, New York; by A. Stampa, Constantinople; A. Guidicy, Smyrna; and Dr. Sankey, Malta.

THE BEST SHOW OF IRON BEDSTEADS in the Kingdom is WILLIAM S. BURTON'S.—He has two very Large Rooms, devoted to the exclusive show of Iron and Brass Bedsteads and Children's Cots, with appropriate Bedding and Mattresses. Common Iron Bedsteads, 16s.; Portable Folding Bedsteads from 12s. 6d.; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17s. 6d.; and Cots from 20s. each; handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2l. 13s. 6d. to 15l. 15s.

PAPIER MACHE AND IRON TEA-TRAYS.—An assortment of Tea Trays and Waiters wholly unprecedented, whether as to extent, variety, or novelty.

New oval Papier Maché Trays, per set of three	...	...	from 20s. to 10 guineas.
Ditto, Iron ditto	...	...	from 13s. to 4 guineas.
Convex shape, ditto.	...	...	from 7s. 6d.

Round and Gothic Waiters, Cake and Bread Baskets equally low.

BATHS AND TOILETTE WARE.—WILLIAM S. BURTON has ONE LARGE SHOW ROOM devoted exclusively to the DISPLAY of BATHS and TOILETTE WARE. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country. Portable Showers, 7s. 6d.; Pillar Showers, 3l. to 5l.; Nursery, 15s. to 32s.; Sponging, 15s. to 32s.; Hip, 14s. to 31s. 6d. A large assortment of Gas Furnace, Hot and Cold Plunge, Vapour, and Camp Shower Baths. Toilette Ware in great variety, from 15s. 6d. to 45s. the Set of Three.

WILLIAM S. BURTON has SIXTEEN LARGE SHOW ROOMS, all communicating, exclusive of the Shop, devoted solely to the show of GENERAL FURNISHING IRONMONGERY (including Cutlery, Nickel Silver, Plated and Japanned Wares, Iron and Brass Bedsteads and Bedding), so arranged and classified that purchasers may easily and at once make their selections.

Catalogues, with engravings, sent (per post) free. The money returned for every article not approved of.

No. 39, Oxford Street (corner of Newman Street); 1, 2, and 3, Newman Street; and 4 & 5, Perry's Place.

DR. DE JONGH'S

LIGHT BROWN COD LIVER OIL. Prescribed with complete confidence by the Faculty for its purity, and superior, immediate, and regular efficacy.

It is entirely free from nauseous flavour, and being invariably and carefully submitted to chemical analysis—AND ONLY SUPPLIED IN SEALED BOTTLES TO PRECLUDE SUBSEQUENT ADMIXTURE OR ADULTERATION—this Oil possesses a guarantee of genuineness and purity offered by no other Oil in the market.

TESTIMONIAL from ARTHUR H. HASSALL, M.D., F.L.S., M.R.C.P., Chief Analyst of the Sanitary Commission of the *Lancet*, Author of "Food and its Adulterations," &c. &c. &c.

"I have more than once, at different times, subjected your Light Brown Oil to chemical analysis—AND THIS UNKNOWN TO YOURSELF—and I have always found it to be free from all impurity and rich in the constituents of bile. So great is my confidence in the article, that I usually prescribe it in preference to any other, in order to make sure of obtaining the remedy in its purest and best condition."

Sold only in bottles, capsuled and labelled with Dr. DE JONGH'S Signature, WITHOUT WHICH NONE ARE GENUINE, by ANSAR, HARFORD, & CO., 77, STRAND, London, Dr. DE JONGH'S sole Consignees; and by most respectable Chemists in town and country.

Half-pints (10 oz.), 2s. 6d.; Pints (20 oz.), 4s. 9d.; Quarts (40 oz.), 9s.; IMPERIAL MEASURE.

PRUDENCE.

HOW much pain, regret, and evil may be avoided by timely forethought! If it be desirable to economise money and time, is it not still more important to economise our health?

The prudent man pays attention to the slightest derangement in his physical organisation. When he finds himself "out of order," he should resort to the world-famed remedy, PARR'S LIFE PILLS, and thus the incipient malady will be checked.

In all quarters of the globe the reputation of PARR'S LIFE PILLS is fully established; and it is a fact, that no "household words" are more familiar with the people than those of the invalid, who speaks of health restored as the consequence of using PARR'S PILLS.

☞ Ask for PARR'S Life Pills.

Sold by E. Edwards, 67, St. Paul's Churchyard; Barclay & Sons, 95, Farringdon Street; Sutton & Co., 10, Bow Churchyard; Hannay & Co., 63, and Sangar, 150, Oxford Street, London; and by all respectable Chemists and Medicine Vendors in town and country. In boxes, price 1s. 1½d., 2s. 9d., and in family packets 11s. each. Directions with each box.

Sales by Auction.

ORCHIDS—AN IMPORTATION FROM MANILLA.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on FRIDAY, 10th August, after the sale of Established Plants, an importation just received from Manilla of Phalænopsis amabilis and two species of Saccolabium, to which will be added a few fine Plants of Cattleya Acklandiæ and Miltonia maculata.—May be viewed on the morning of sale and Catalogues had.

ORCHIDS.

MR. J. C. STEVENS is favoured with instructions to Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on FRIDAY, August 10, at 1 o'clock precisely, a COLLECTION of ORCHIDS, the property of a Baronet who is declining their cultivation. The following are amongst the choice varieties included, viz.:—

Vanda suavis (Veitch's true)	Saccolabium Blumei
" cærulea	" " (major)
" tricolor	" guttatum
Cattleya labiata	Phalænopsis grandiflora
" violacea	&c. &c. &c.

Also three splendid plants of Nepenthes ampullacea.
May be viewed on the morning of sale, and Catalogues had.

NORBITON NURSERY.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MR. J. WILLMER is instructed by Mr. S. Hook to Sell by Auction, on the Premises, Norbiton Nursery, near Kingston, on MONDAY, August 6th, at 12 o'clock, the whole of the STOCK of the above Nursery, which comprises a choice and valuable collection of Geraniums, Fuchsias, Chrysanthemums, Dahlias in pots; a Span-roof Propagating House, Pits, Lights, Boxes, Striking Glasses, Garden Pots, Tools, a quantity of Leaf Mould, &c.—May be viewed the day preceding and morning of sale; and Catalogues had on the premises, and of the Auctioneer, Sunbury, Middlesex.

HURSLEY PARK, NEAR WINCHESTER.

IMPORTANT SALE OF PURE SOUTHDOWN SHEEP, &c.

MR. STRAFFORD has received instructions from Sir William Heathcote, Bart., M.P., to announce for Sale by Auction, on WEDNESDAY, August 22d, at the Home Farm, Hursley Park, the FLOCK of PURE SOUTHDOWNS, consisting of about 700 Ewes, of various ages, with Rams and Lambs; the whole of which have been bred from the best blood in the kingdom. Also some valuable Young Horses, Hursley Pigs, &c.—Catalogues, with particulars, will shortly be issued, and announced in future advertisements.

London, 13, Euston Square, August 4.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. Burgess & Key, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. Francis Parkes & Co.

DO YOU BRUISE YOUR OATS YET?—One bushel of Oats when Crushed will make two. Great saving. OAT BRUISERS, Chaff-cutters, Ploughs, Threshing Machines, Flour Mill Carts, Corn Dressing do., Horse and Steam Machinery put up, &c. Book on Feeding, 1s.

M. Wedlake, 118, Fenchurch Street, London.

PAXTON WORKS, SHEFFIELD.

SAYNOR and COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to Saynor & Cooke for their superiority of material and workmanship. Established 1738.

CLAYTON, SHUTTLEWORTH, & CO.'S PRIZE PORTABLE STEAM ENGINES, and COMBINED THRESHING, STRAW SHAKING, RIDDLING and WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as threshed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.

C. S. & Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading Agricultural Shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

NEW INVENTION IN LAWN MOWERS, which possess Superior Advantages to any Machines now in Use.—In the first place, they will cut the Grass either wet or dry; secondly, by the simple adjustment of a thumb-screw, they can be made to cut Grass either long or short; and, thirdly, these machines are drawn instead of being pushed and drawn, and consequently do not require half the usual power to work them. They are made to cut any width suitable for either man or horse. They will turn in very little room and cut at the same time. They are a perfect roller for the width they cut when thrown out of gear. The improvement can be attached to old machines, consequently old machines that are now laid aside, can be brought into use at a small expense.—N.B. These Machines can be adjusted and wrought by any unskilled labourer.

Price to cut 16 inches, £6 | Do. 20 inches, £7 | Do. 24 inches, £8.

Testimonial from Joshua Major, Esq., *Landscape Gardener, Knosthorpe.*

To Mr. Green, Leeds.

"Sir,—As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen and even ladies may work either the 16 or 20 inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the largest size (24 inches) would be most suitable, for even in undulating ground two persons may work it, but in flower gardens, when beds, &c, are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable and useful invention, which, in my opinion, entirely surpasses and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass Lawns, and a great boon to the public.—I am, Sir, your most obedient servant,

"Knosthorpe, near Leeds, July 19. Joshua Major."

Several Machines of the old kind, in stock, will be sold at half price, viz.:—16 in., 3*l.*; 20 in., 3*l.* 5*s.*; 24 ins., 3*l.* 15*s.*

THOMAS GREEN, Sole Manufacturer.

Iron and Wire Works, North Street and Briggate, Leeds.

UNDER THE PROTECTION OF HER MAJESTY'S ROYAL LETTERS PATENT.

JOSEPH PASCALL begs to announce to the Horticultural and Floricultural Public—amateur and professional, that he is manufacturing an entirely new Garden Pot, which possesses, in a cultural point of view, many permanent advantages over pots now in general use. In the first instance, it is intended to be used in the growing, forcing, and blanching of Seakale in winter; blanching Seakale, &c. &c. in the open garden; and, when not required for these purposes, it is so constructed as to be made available in the cultivation of plants of every description. These pots are manufactured in various forms and sizes, viz.—as propagating, seedling, shading, and protecting pots and pans; and are likewise admirably adapted to the cultivation of Mosses, Ferns, and many rare and choice exotic plants.—For a more detailed description see *Gardeners' Chronicle*, July 7, p. 453.

Joseph Pascall, Patentee.

West Kent Potteries, Chislehurst, Kent.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

THE BEST PROTECTOR from the HEAT of the SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of Elisha Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

GLASS PRESERVE JARS, Per Dozen.

	Without lids.		With lids.	
3 inches Diameter	£0 4*s.* 6*d.*	.....	6*s.* 6*d.*	per dozen.
4 "	0 6 0	.....	9 0	"
5 "	0 8 0	.....	11 0	"
6 "	0 10 0	.....	14 0	"
7 "	0 12 0	.....	16 0	"
8 "	0 16 0	.....	20 0	"
9 "	1 0 0	.....	26 0	"
10 "	1 4 0	.....	28 0	"

Intermediate Sizes in proportion.

Sold Wholesale and Retail by James Phillips & Co., 116, Bishopsgate Street Without, London.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London. Reduced Tariff of Agricultural and Horticultural Glass.

STRONG HORTICULTURAL SHEET, from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot.

PERFORATED GLASS for Ventilating Dairies, Stables, &c., from 1*s.* 6*d.* per foot. German-shaped Milk-pans, 21*s.* per dozen; Hely's Test Churns, 5*s.* each; Waring's Butter Slabs, 10*s.*; Glass Fern Shades and Stands, from 3*s.*; Bee-glasses, from 6*d.*; Cucumber Tubes, from 1*s.*; Propagating Glasses, from 3½*d.* to 7*s.* each; Flower Labels, 7*s.* per 100; Aquariums, complete, 10*s.* each; and every other description of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass, British and Foreign.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, Bishopsgate Street, Without.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. Rivers and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by 4	in. and 6	in. by 4½	in. ...	...	12*s.* 0*d.*	
6¼ "	4½ "	7 "	5	...	... 12	6
7¼ "	5½ "	8 "	6	...	... 13	0
8½ "	6½ "	9 "	7	...	... 13	6
9½ "	7½ "	10 "	8	...	... 13	6
10½ "	8½ "	11 "	9	...	... 14	0
12 "	9 "	13 "	9	...	... 14	0
10 "	10 "	10½ "	10½	...	... 14	0
11 "	10 "	11½ "	10½	...	... 14	0
11 "	11 "	11½ "	11½	...	... 14	0
12 "	11 "	12½ "	11½	...	... 14	0
13 "	11 "	13½ "	11½	...	... 14	0
13 "	12 "	13½ "	12½	...	... 16	0
13½ "	13½ "	14½ "	13½	...	... 16	0
15½ "	13½	... ...	...	...	... 16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.

Ditto, not exceeding 1 foot ... 2½ "

Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY and CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.	Inches.		Per foot.	Per 100 feet.
	Under 6 by 4	at	1½*d.*	is £0 12 6
From 6 by 4	" 7 " 5	"	2*d.*	" 0 16 8
7 " 5	" 8 " 6	"	2¼*d.*	" 0 18 9
8 " 6	" 10 " 8	"	2½*d.*	" 1 0 10
10 " 8	" 12 " 9	"	2¾*d.*	" 1 2 11

Larger sizes, not exceeding 40 inches long.

16 oz. from 3*d.* to 3½*d.* per square foot, according to size.

21 oz. " 3½*d.* to 5*d.* " " "

26 oz. " 3¾*d.* to 7½*d.* " " "

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to James Hetley & Co., 35, Soho Square, London.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, and CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Colebrook Dale Garden Seats and Chairs.

Averuncators	Gidney's Prussian Hoe	Pickaxes
Axes	[Scissors	Potato Forks
Bagging Hooks	Grape Gatherers and	Pruning Bills
Bills [terns.	Gravel Rakes and	" Knives, various
Borders, various pat-	Sieves	" Saws
Botanical Boxes	Greenhouse Doors	" Scissors
Brown's Patent Fu-	and Frames	" Shears
migator [struments	Hammers	Rakes in great variety
Cases of Pruning In-	Hand-glass Frames	Reaping Hooks
Daisy Rakes	Hay Knives	Scythes
Dibbles	Horticultural Ham-	Scythe Stones
Dock Spuds	mers and Hatchets	Shears, various
Draining Tools	Hoes of every pattern	Sickles
Edging Irons and	Hotbed Handles	Sickle Saws
Shears	Ladies' Set of Tools	Spades and Shovels
Flower Scissors	Labels, various pat-	Spuds
" Stands in Wires	terns, in Zinc, Por-	Switch Hooks
and Iron	celain, &c.	Thistle Hooks
Fumigators	Lines and Reels	Transplanting Tools
Galvanic Borders and	Marking Ink	Trowels
Plant Protectors	Mattocks	Turfing Irons
Garden Chairs and	Menographs	Wall Nails
Seats	Metallic Wire	Watering pots
" Loops	Milton Hatchets	Weed Hooks
" Rollers	Mole Traps	Wheelbarrows
" Scrapers	Mowing Machines	Youths' Set of Tools

DEANE, DRAY, and CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.

DEANE, DRAY, & CO. (Opening to the Monument), London Bridge.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 12*s.* per ton, 1*s.* 6*d.* per bushel, or 16*s.* per ton, delivered to the London Wharfs or Railways, or within a circuit of five miles. Sacks 2*s.* each. Kentish and other Peats and Loam of excellent quality.

Kennard Brothers, Swan Place, Old Kent Road.

HOW TO KILL RATS AND MICE BY HUNDREDS.—A Receipt may be had, honestly worth [illegible] without trouble, by sending 30 postage stamps and a [illegible] envelope to Mr. William Franklin, Post-office Street, Norwich, who will forward it with plain instructions, &c. This is a most extraordinary remedy, such as no Farmer, Merchant, or [illegible] ought to be without, as it will save them pounds yearly by killing every Rat or Mouse either in the field, stack, or house.

GAME NETTING.—The undersigned would be obliged by Specimens of Wire Netting adapted to keep out Hares and Rabbits, with price per yard; the width must be 36 inches.—J. R. & A. Pearson, Chilwell, Nottingham.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards 50*s.* Canvas, for Wall Fruit.—At EDGINGTON and Co.'s Flax Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe.

Manufactured only by Waithman & Co., Bentham, Lancaster.

No. 1 Quality, Inches in Diameter and Price Per Yard—½, 9*d.*; ¾, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d.*; 1½, 1*s.* 5*d.*; 1¾, 1*s.* 7*d.*; 2, 1*s.* 9*d.*; 2¼, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

Super Extra Stout Quality:—2, 2*s.*; 2¼, 2*s.* 3*d.*; 2½, 2*s.* 6*d.*; 2¾, 2*s.* 9*d.*; 3, 3*s.*

No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9*d.*; 1¼, 10*d.*; 1½, 11*d.*; 2, 1*s.*; 2¼, 1*s.* 3*d.*; 2½, 1*s.* 6*d.*

The Hose is Burnettised at an extra charge of 3*d.* per yard.

Union Joints, Branch Pipes, and Jets are also supplied.

FILTRATION BY ASCENSION.

RANSOME and CO., sole Patentees of the New AUTOMATON PURIFIER; also manufacturers of every variety of FILTERS (Portable or for Immersion) fitted with the Patent Purifying Medium. Pure Water, in any quantities, for Water Companies, Manufacturers, and others, obtained at a very moderate cost by the use of Ransome's Filtering Slabs. An Illustrated Priced List on application to the Depôt, Whitehall Wharf, Cannon Row, Westminster, or at the Patent Stone Works, Ipswich. A liberal discount allowed to the Trade. Filter Manufacturers and Exporters supplied with Ransome's Patent Filtering Medium separately, on the lowest terms.

Ransome & Co. are also the Patentees and sole Manufacturers of the Patent "Iris Fountains" for Drawing Rooms, Conservatories, &c.

RANSOME'S SILICEOUS STONE.

THE PATENT SILICEOUS STONE COMPANY are prepared to execute Contracts for the supply of all kinds of Ornamental Details for Buildings, &c., manufactured in this beautiful material, which has received the approval of eminent architects and scientific men, and which for sharpness of outline, durability, and cheapness, stands unrivalled. It is especially applicable for the elaborate details of Mediæval and Ecclesiastical Architecture, for Gothic Windows, Doorways, Pinnacles, &c.; Crosses, Corbels, Altar Screens, Pulpits, Fonts, Monumental Tombs, Tablets, Headstones, &c; also for all kinds of Garden Decorations, Fountains, Figures, Vases, and Pedestals, Flower Boxes, Wardean Cases, Balustrades for Terrace Walks, Gate Piers, Caps, Bases, &c. &c.; and for Coats of Royal Arms, Chimney Pieces, Brackets and Trusses, Ashlars, Quoins, String Courses, and other Dressings.—Further particulars, with illustrations, on application to Mr. Edwd. Mendham, Secretary, at the Company's Offices, Whitehall Wharf, Cannon Row, Westminster; or to Mr. F. Ransome, Patent Stone Works, Ipswich.

WATERPROOF PATHS.

BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one-fifth river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not seek its level, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. White & Brothers, Millbank Street, Westminster.

BLACK JAPAN VARNISH.—This article will be found from its durability and cheapness of the greatest utility for Painting Hurdles, Wire-work, Palings, Gates, Fences, &c., and out-door work of every description, whether of Wood or Iron. Its value has been proved by the test of time. It should be well stirred up before using and applied cold. This Varnish will retain its quality for any length of time, provided the cask be kept closed.

May be obtained through any ironmonger: or of John Watkins & Sons, 8, Jewin Crescent, London.

N.B. Sold in casks containing 14 or 7 gallons, at 2*s.* per gallon. Casks (which cannot be returned), 5*s.* and 3*s.* each.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the nobility, gentry, and clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything as the kind hitherto brought before the public notice.

Lists of colours, prices, together with a copy of the testimonials, will be sent on application to Walter Carson & Son, 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent thereto.

Printed by William Bradbury, of No. 13, Upper Woburn Place, in the Parish of St. Pancras, and Frederick Mullett Evans, of No. 27, Lincoln's Inn Street, in the Parish of St. Margaret and St. John, Westminster, both in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Charles Street, in the Parish of St. Paul, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, August 4, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 32.—1855.] SATURDAY, AUGUST 11. {Price Fivepence. Stamped Edition, 6d.

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GRAND
METROPOLITAN DAHLIA AND HOLLYHOCK SHOW.

THE ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.—Under the Patronage of Her Most Gracious Majesty the Queen.—The last Exhibition of the above Society for the present season will take place at the Royal Cremorne Gardens, Chelsea, on THURSDAY, August 30, in conjunction with the Grand Metropolitan Dahlia and Hollyhock Show (Open to all Exhibitors).

Lists of Prizes and the Rules of the Exhibition may be had of the Secretary, J. T. Neville, Ebenezer House, Peckham.

GRAND HORTICULTURAL AND FLORICULTURAL EXHIBITION, Open to All England, will be held at the Arboretum, Leamington, WEDNESDAY, August 22, 1855. Prizes for Collections and Single Specimen Stove and Greenhouse Plants, Cut Flowers, Fruits, and Vegetables, to the amount of 80*l.* are offered for general competition. Schedules and every particular may be had on application to

Priory Gardens, Warwick. J. Cheyne, Secretary.

SALISBURY HORTICULTURAL SOCIETY.—The ANNUAL DAHLIA EXHIBITION, offering the highest amount of Prizes that will be given this season at any Show, will be held in conjunction with the Horticultural Society, in the Gardens of the Lord Bishop of Salisbury, on THURSDAY, Sept. 6th.—Full particulars of John Keynes, Hon. Sec.

ROYAL PAVILION, BRIGHTON.

THE BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY will hold their Autumn Exhibition of PLANTS, FRUITS, CUT FLOWERS, &c., on WEDNESDAY and THURSDAY, 12th and 13th of September next, at the above splendid suite of Rooms and Grounds, on the same grand scale as former years. Prizes are offered with the same liberality as previously. Also the Railway Cup, value 10 guineas, for the best 24 Show Dahlias for Amateurs. By the liberality of the Railway company, all plants, &c., will be conveyed to Brighton and back, carriage-free, from all stations on the lines. Schedules can be had on application to E. Spary, Superintendent of the Exhibition; or the Secretary, E. Carpenter, 45, Lavender Street, Brighton. By order of the Committee, E. Carpenter, Secretary.

TO NURSERYMEN AND OTHERS.

Sewers' Office, Guildhall, Aug. 2, 1855.

CITY OF LONDON CEMETERY.—The Commissioners of Sewers of the City of London, acting as the Burial Board for the said City, hereby give notice that they will meet at Guildhall on Tuesday, the 11th day of September, at 12 o'clock precisely, for the purpose of receiving TENDERS for the supply of TREES and SHRUBS for the Cemetery now being formed at Little Ilford, in the county of Essex.

Forms of Specification with Schedules, to which the prices are to be affixed, may be obtained on and after the 20th day of August, at the office of Mr. William Haywood, Surveyor to the Commissioners, 14, Old Jewry Chambers; or at the Office of Mr. Davidson, Landscape Gardener, 36, Great Russell Street, Bedford Square.

Joseph Daw, Principal Clerk.

WILLIAM BARRATT, Landscape Gardener, Wakefield.

*** Plans and Estimates furnished.

JOHN HARRISON, Nurseryman, Seedsman, Florist, Landscape Gardener, &c.

Plans and Estimates furnished; Experienced Gardeners recommended; also several Young Men in the Nursery waiting for Under Gardeners' Situations.—Darlington, Aug. 11.

FERNS.

ROBERT SIM'S 16 page CATALOGUE of his GENERAL COLLECTION of FERNS may now be had for Four Stamps. Free to all previous purchasers.

Nursery, Foot's Cray, Kent.

PRICED CATALOGUE OF PLANTS.

THOMAS JACKSON AND SON'S Priced Catalogue of Plants may be obtained on application. It contains Stove, Orchidaceous, Ferns and Mosses, Greenhouse, Ornamental Shrubs and Trees, Roses, and Herbaceous Plants.

T. J. & Son are offering at very low prices a large Stock of Azaleas, Camellias, Ericas, Epacrises, Helichrysums, Rhododendrons, &c., well deserving the attention of purchasers.

Nurseries, Kingston, Surrey.

AZALEAS AND ERICAS.

W. J. EPPS has much pleasure in offering the following fine, bushy, well-grown plants, and of the choicest and best varieties, in large 48 and 32-size pots.

AZALEAS 18*s.* per dozen; 5*l.* per 100.
ERICAS 12*s.* and 18*s.* per dozen; 4*l.* and 5*l.* per 100.

These will make very pretty specimens for the ensuing season; all orders to be accompanied with a remittance from unknown correspondents.—Maidstone, Aug. 11.

ITALIAN RYE-GRASS AND TRIFOLIUM INCARNATUM *should now be sown for Early Spring Seed.* Sutton & Sons, Seed Growers, Reading, *have fresh Seed now ready.* Also

GRASS SEEDS for PERMANENT PASTURE.

NOW HARVESTING.

THE SWEDENBURGH CATTLE CABBAGE.—An improved variety of the Drumhead, heavier and more compact, and may be had for present and Autumn sowing, 4*s.* per lb. Price to the trade on application.

Bass & Brown, Sudbury, Suffolk.

NOW HARVESTING,
And Suited for Present Sowing.

THE LINCOLNSHIRE RED GLOBE TURNIP.—A fine large and quick growing variety. Also the Orange Jelly and other kinds for late sowing.

Bass & Brown, Sudbury, Suffolk.

HARDY AND SON, Seed Growers, &c., Maldon, Essex, are prepared to send to any address, free by post, their best selected kinds of CABBAGE and LETTUCE SEEDS, for July and August sowings, in one or four varieties. Also for early sowing, one or three varieties of their selected WHEATS, now in repute, sufficient for 1 rod, with directions, &c., on receipt of seven postage stamps for each variety, enclosed with an envelope properly addressed to its destination.

JOSEPH BAUMANN, Nurseryman, Ghent, Belgium, begs to offer the following Plants, with and without flower buds, at most reasonable prices:—

Azalea indica, good sorts, all grafted upon good stocks	Deutzia gracilis
Azalea indica, stocks	Gladiolus gandavensis
Ghent Azalea, hardy	Lilium lancifolium album
New Ghent Rhododendron	" " rubrum
Rhododendron arboreum	Kalmia glauca
Camellias	" angustifolia
	" latifolia

A. VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to offer to the Trade the following NEW GLOXINIAS ERECTA:—

Gloxinia erecta Adamas oculata	Gloxinia erecta Mars cœruleus
" Princesse de Prusse	" Hauptmann Wüthe
" C. Flaacke	" J. Schäfer
" Rex igneus	" Stellata
" rosea Castilloni	

Price, without discount, 1*s.* each. The plants are strong and in full bloom.

WHITE COROLLA AND BANKS' NEW FUCHSIAS, 21*s.* per dozen, from the following selection:—

White Corolla.	Florence Nightingale.
Queen Victoria.	Banks'.
Lady of the Lake.	Climax.
Water Nymph.	Maid of Kent.
Raffaelle.	Beauty of the Bower.
Snowdrop.	Omar Pacha.
Empress Eugenie.	Grand Sultan.
Mrs. Story.	Napoleon III.
Galanthiflora-pleno.	

Epps's Nurseries, Maidstone.

IMPROVED MUSHROOM SPAWN.—Patronised by many of the Nobility, the London Horticultural Society, &c. Sold in packages containing a sufficient quantity to plant 50 feet of bed for 5*s.*, with printed description and cultural directions.

Large Flowering ANTIRRHINUMS	... 2*s.* 6*d.*	per 100.
" " HEARTSEASE	... ... 2 6	"
" " DIANTHUS'S	... ... 2 6	"

See former Advertisements.

Address W. PRESTOE, Florist, &c., Basingstoke, Hants.

SEEDS FOR PRESENT SOWING.

JOHN CATTELL has the following now ready to send out, post free, at the prices annexed. The CALCEOLARIAS are very superior, and warranted to give equal satisfaction to those sent out by J. C. for so many years.

	Per packet.—*s.*	*d.*
Calceolaria, saved from the finest vars., carefully hybridised	2	6
Do. from an entirely new class, of very rich colours, large, and extraordinary fine blooms	5	0
Cineraria, from finest varieties	2	6
Geranium, from first rate florist varieties	1	0
Do. do. fancy varieties	1	0
Schizanthus retusus and albus, each	0	6
Anemone, single Poppy, extra fine	0	6
Mimulus, from finest varieties	0	6
Mignonette, New Giant	0	4
Alstrœmeria acutifolia, splendid scarlet conservatory climber	1	0
Do. Van Houtte's, superb Chilian hybrids, mixed	0	6
Tropæolum tricolorum grandiflorum	1	0
Heartsease, from fine named varieties	1	0
Helianthemum, or dwarf rock Cistus, from 30 vars., mixed	0	6
25 varieties, fine showy hardy Annuals, for early spring flowering, in the open ground	5	0
12 varieties, from showy half hardy Annuals, for early flowering, in the greenhouse	3	0

A remittance in stamps or otherwise must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

RHODODENDRONS.

JOHN WATERER begs to announce that he is now prepared to execute orders for his two New Hardy Hybrid Rhododendrons, in good established plants, at 42*s.* each.

Rhododendron JOHN WATERER, colour glowing carmine, large truss, fine foliage, and a most abundant bloomer, in perfection about the 15th June.

Ditto, MRS. JOHN WATERER, a bright rosy crimson, fine conical truss, a very free blooming kind, in flower about 15th of June.

To the admirers of this justly noble class of Plants, John Waterer has the pleasure of recommending the above as being the greatest acquisitions yet offered. They combine in a marked degree the necessary requisites for really first-rate hardy crimson varieties, viz., imposing colours, abundant bloomers, extreme hardiness, and flower at a time when they are not liable to be injured by spring frosts.

The American Nursery, Bagshot, Surrey, Aug. 11.

CALCEOLARIA AND CINERARIA SEED.

J. DOBSON AND SON are now sending out Seeds of the above, saved from an unequalled collection, in packets. Cineraria, 1*s.*; Calceolaria, 1*s.* 6*d.*, 2*s.* 6*d.*, 3*s.* 6*d.* and 5*s.* each.

Woodlands Nursery, Isleworth.

CALCEOLARIA AND CINERARIA.

MESSRS. E. G. HENDERSON AND SON beg to announce that the above FLOWER SEEDS, saved from the choicest varieties, may be had in packets at 2*s.* 6*d.* and 5*s.* each; the finest quality of CALCEOLARIA is only offered at 5*s.*; second quality, 2*s.* 6*d.*

This Season's CATALOGUE will be forwarded on application, and a Beautiful Coloured Plate of nine new Flowers will be sent on receipt of 12 postage stamps.

Wellington Nursery, St. John's Wood, Aug. 11.

CALCEOLARIA SEED.

J. SMITH, the raiser of SULTAN, has, with great care and perseverance, raised the finest Shrubby CALCEOLARIAS in England, and by impregnation has saved a small quantity of Seed, which he offers at 5*s.* per packet. If not turning out first-rate the money will be returned. Three new Seedlings will be sent out soon.

Apply to J. Smart, Hendon Place, Hendon, Middlesex.

CALCEOLARIA SEED.

R. PARKER has now ready for sending out Seed which he can recommend with the greatest confidence, it having been saved from flowers of the finest form and most beautiful markings, in packets at 1*s.* 6*d.* and 2*s.* 6*d.* each. Also choice CINERARIA seed saved from the finest named varieties, at 1*s.* 6*d.* and 2*s.* 6*d.* per packet. A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey Road, London.

N. GAINES having been fortunate in saving seed from the superb CALCEOLARIAS he exhibited so successfully at the Royal Botanic, Regents' Park, and Crystal Palace Exhibitions, he is prepared to offer it at 5*s.* per packet. Early orders are solicited as the stock is very limited.

Nursery, Surrey Lane, Battersea, August 11.

NEW PELARGONIUMS raised by J. Beck, Esq., of Isleworth; and T. White, Esq., of Wetherfield, Essex. Catalogues with full descriptions and prices of these fine varieties forwarded post free for one stamp, on application to John Dobson & Son, Florists and Seedsmen, Woodlands Nursery, Isleworth.

CARNATIONS AND PICOTEES in full bloom for Sale: 150 store pots of the best varieties, all Show Flowers. Each pot will make from four to eight pairs of plants.

To be seen at Mr. R. Parker's, Florist, Mayfield Road, Dalston, London.

DUTCH FLOWERING BULBS.

JAMES CARTER AND Co.'s comprehensive CATALOGUE OF DUTCH AND CAPE BULBS, AND SEEDS, for Autumn sowing, will be published on the 1st of September next, and will be forwarded, free of charge, and post paid, upon application to James Carter & Co., 238, High Holborn, London.

TO THE TRADE.

JOHN MORSE begs to offer fine mixed PERSIAN RANUNCULA, containing nearly 100 sorts, all good Double Flowers, at 20*s.* per 1000; also good mixture TULIPS, at 20*s.* per 1000. The above being the surplus stock of an amateur florist can be strongly recommended.

The Nursery, Dursley, Gloucestershire.

TRIPOLI ONION.—The trade can be supplied with SEED of the true flat Tripoli Onion, by Nutting & Sons, Seedsmen, 46, Cheapside, London.

WANTED, 5000 BLACK ITALIAN POPLARS, 10 to 12 feet high, good stout trees. Apply, with price, delivered free to the Ipswich Railway Station, to W. B. Jeffries, Nurseryman, &c., Ipswich.

MONTSERRAT PINES.

TO BE SOLD, about 35 MONTSERRAT PINES, Succession Plants.—For further particulars apply to Francis & Arthur Dickson & Co., Nurserymen and Seedsmen, 14, Corporation Street, Manchester.

TO MARKET GROWERS, NURSERYMEN, ETC.

TO BE SOLD, 80 dozen clean, large, well grown CYTISUS in 48 pots. The whole may be bought for 12*l.*—R. Bullen, Dulwich Common, Surrey. Inquire at the Alleyn's Head.

TO BE SOLD, a Case of Imported ORCHIDS, containing 54 pieces, mostly large and principally in fair condition; varieties of Oncidium, Epidendrum, Brassia, Schomburkia, Ionopsis, Phaius, Hedychium, &c.; price 2*l.* 14*s.* To be seen at Mr. George Roberts, 32, Moorgate Street, London.

CUTHILL'S STRAWBERRY PLANTS.—The early and hardy BLACK PRINCE, and late PRINCE OF WALES, two celebrated sorts, will be sent out on and after August 15th. They are both enormous bearers, and either of them makes a most delicious and solid preserve, to which upwards of 300 ladies round here can testify. The Black Prince, 5*s.* per 100; the Prince of Wales, 7*s.* 6*d.* per 100.

J. C.'s Pamphlet on the Potato, Strawberry, Asparagus, Seakale, Rhubarb, Wine, &c. Preserve, 2*s.*

J. C.'s Market Gardening round London, 1*s.* 6*d.* See the recommendation of it in the "Quarterly Review." Early orders requested. Post-office orders payable at Camberwell Green.

James Cuthill, Camberwell, London.

WARD'S OMAR PACHA STRAWBERRY.

WILLIAM JAMES WARD offers the above handsome fine flavoured Strawberry at the following reduced price:—100 plants, 1*l.*; 50 plants, 12*s.*; 25 plants, 7*s.*, strong and well rooted. In addition to the many flattering testimonials received last season, Dr. Lindley describes it as being exhibited at Chiswick, July 11, 1855:—"*Excellent in quality as well as attractive in appearance.*" See *Gardeners' Chronicle*, Leading article, July 14, 1855. The Editor of the "Florist and Fruitist," in the August Number report of the Exhibition at Chiswick, says—"Ward's *Omar Pacha is a new Strawberry, and considering its high flavour and comparative hardiness is a valuable acquisition.*"

A few last year's plants 5*s.* per dozen.

Prospect Hill, Reading, Berks.

WILLIAM YOUNG begs to call the attention of Noblemen, Gentlemen, Public Companies, and Planters in general to his extensive stock of CHOICE CONIFERÆ, HARDY EVERGREENS, ORNAMENTAL TREES, AMERICAN PLANTS, &c., which are this season particularly fine, and having been well prepared for removal, he can confidently recommend them to transplant with perfect safety.

W. Y. invites persons about to plant to inspect his stock, which is standing over 50 acres of ground, in which will be found all kinds of plants adapted to every description of ornamental planting. It consists of HARDY CONIFERÆ, containing some of the finest specimen plants ever offered.

	Feet high.
Abies Douglasi	6 to 8 by 5 to 6
" "	8 to 10 by 7 to 8
" "	10 to 12 by 8 to 9
" Menziesi	4½ to 5
" nigra, Black Spruce	4½ to 5
" alba, White Spruce	6 to 8
" canadensis, Hemlock Spruce ...	6 to 8 by 7
Pinus austriaca ...	6 to 8
" "	8 to 10
" Cembra	5½ to 6
" "	7 to 8
" excelsa	8 to 10
" insignis	2½ to 3
" "	3 to 4
Picea Pinsapo ...	5 to 6 by 6
" nobilis }	very
" Nordmanniana }	handsome
Araucaria imbricata .	2½ by 2½
do. do.	3 by 3
do. do.	4 by 4
do. do., very handsome	6 to 8
Cryptomeria japonica ...	3 to 4
Cedar of Lebanon ...	3½ to 4
" " ...	5 to 6
" "	7 to 8 by 6
" "	10 to 12 by 8
" Deodara ...	4½ to 5
" "	6 to 8
" "	9 to 10
" "	10 to 12

(The Cedars of Lebanon and Deodara are particularly handsome and well furnished.)

	Feet high.
Thuja orientalis, Chinese Arbor-vitæ	5 to 6
" " " ...	7 to 8
Thuja Wareana, Siberian	5 to 6
" "	7 to 8
Chinese Juniper ...	4½ to 5
" "	5 to 6
Upright "	4 to 5
" "	6 to 7
Taxodium sempervirens	6 to 8
" "	10 to 12
Irish Yew	4½ to 5
" "	6 to 7

A LARGE QUANTITY OF FINE EVERGREENS.

Green Hollies	4 to 6
" " ...	6 to 7 by 4
" "	8 to 10 by 6 to 7
Evergreen Oak	3½ to 4
" "	4½ to 5
" "	6 to 8 by 4 to 5
Spruce and Silver Firs	6 to 8
" "	10 to 12
Weymouth Pine ...	8 to 10
Yews	3½ to 4
"	4½ to 5
"	5½ to 6
Quercus oxoniensis—New Leucombe Oak...	6 to 7
" " ...	8 to 10

AMERICAN PLANTS.

Azaleas, fine named sorts
Rhododendron ponticum (good for cover).
Do. all the new and best vars.
Kalmias, Andromeda, Ledums, &c. &c.

STANDARD ROSES, of all the best varieties.
FRUIT TREES, ORNAMENTAL DECIDUOUS TREES, for Parks or Avenues, from 10 to 12 feet.
FOREST TREES, for Copse Planting, from 2 to 4 feet.
Prices given on application.

A Catalogue is in course of publication, and may be had the first week in September for two postage stamps.

The Nurseries are two miles from Godalming Station, South-Western Railway, where conveyances can always be obtained.

Milford Nurseries, near Godalming, Surrey.

BAINBRIDGE AND HEWISON, of the York Nurseries, beg to inform their friends that they are now prepared to supply the following New FUCHSIAS, VERBENAS, &c., at the reduced prices attached:—

NEW FUCHSIAS, 1855, 3*s.* 6*d.* each, or a dozen left to their selection, 36*s.*—Climax, Fairy Queen, Grand Sultan, Maid of Kent, Beauty of the Bower, Omar Pacha, Queen Victoria, Prince Albert, Mrs. Story, Empress Eugenie, Raffaelle, Snowdrop, Lady of the Lake, Water Nymph, Dominiana.

FUCHSIAS, New 1854, 1*s.* 6*d.* each, or the dozen for 12*s.*—Autocrat, Queen of Hanover, Telegraph, Vanguard, Omega, Magnifica, Charmer, Clio, Duke of Wellington, Elegans, Monarch, Ashfordiensis.

FUCHSIAS.—Good older varieties, 6*s.* and 9*s.* per dozen.

NEW VERBENAS, 1855, 2*s.* 6*d.* each.—Wonderful, Blue Beard, Lady Lacon, Commander-in-Chief, Empress of France, Florence Nightingale, Rose of England, Tyrian Prince, Eva. Other select older varieties, 9*s.* per dozen.

GERANIUMS.—Carlos, 2*s.* 6*d.*; Claudiana, 2*s.* 6*d.*; Duchess of Wellington, 2*s.* 6*d.*; Lucy, 5*s.*; Majestica, 2*s.* 6*d.*; Marginata, 2*s.* 6*d.*; Mary, 5*s.*; Regalia, 2*s.* 6*d.*; Rhoda, 2*s.* 6*d.*; Rosa, 2*s.* 6*d.*; Virginia, 2*s.* 6*d.*; Zeno, 2*s.* 6*d.*; or 30*s.* per dozen. Good older varieties, 6*s.* and 9*s.* per dozen.

NEW FANCY GERANIUMS.—Cloth of Silver, 10*s.* 6*d.*; Evening Star, 7*s.* 6*d*; Exhibitor, 7*s.* 6*d.*; or the three for 20*s.* Best older varieties, 6*s.* and 12*s.* per dozen.

STOVE PLANTS.

	s.	d.		s.	d.
Achimenes Earl Wolforth	2	0	Heliocentrum roseum ...	2	6
" Sir Trehern Thomas	2	0	Hippiela atrosanguinea ...	2	6
" gigantea	2	6	Cyrtanthera magnifica ...	2	0
Aphelandra Leopoldi ...	3	6	Echites picta	2	6
Begonia Prestoniensis superba ... 2*s.* 6*d.* and	3	6	Hebeclinium ianthinum...	2	0
" Zanthina	5	0	Passiflora amabilis	2	0
" Ingrami	2	6	" Decaisneana ...	2	0
Hexacentris mysorensis 2*s.*,	3	6	" Hartwessina ...	2	0
Medinella magnifica ...	3	6	Siphocampylos ne plus ultra	2	6
			" bicolor rosea	2	6

GREENHOUSE PLANTS.

Acacia oleifolia elegans ...	2	0	Kalosanthus L. Napoleon	1	0
" grandis (true) ...	2	6	Kennedya monophylla ...	1	0
Castrum aurantiacum ...	1	0	Lilium lancifolium album	1	6
Cheiranthera linearis ...	2	0	" " rubrum	1	6
Chorozema cordatum ...	1	6	" " rubrum speciosum	1	6
" " splendens ... 1*s.* and	2	0	Mahernia vesta	1	0
" Laurencianum 1*s.* and	2	0	Phlox General Radetzky	1	6
" varium nanum ...	1	0	" depressa criterion ...	1	6
Clianthus magnificus ...	2	0	Polygala cordifolia ...	1	6
Cyclamen persicum rubrum	3	0	" myrtifolia	1	6
Daphne indica alba 1*s.* 6*l.*,	3	6	Rhynchospermum jasminoides	1	6
" " rubra 1*s.* 6*d.*,	3	6	Statice Halfordi	2	6
Dillwynia cinnabarina 1*s.* 6*d.*,	2	6	Swainsonia galegifolia alba ... 1*s.* and	2	0
" Drummondi 1*s.* 6*d.*,	2	6	Tetratheca ericifolia 2*s.* 6*d.* and	3	6
" scabra ... 1*s.* 6*d.*,	2	6	" verticillata 1*s.* 6*d*,	2	6
Eugenia Ugni	2	6	Veronica Andersoni ...	1	0
Fagelia bituminosa 1*s.* 6*d.*	2	6	" variegata	1	0
Heliotropium Beauty of the Boudoir	1	0	" Liebmani	1	6
Kalosanthus coccinea ...	1	0	Sollya Drummondi 1*s.*,	2	6

MISCELLANEOUS PLANTS.

Per dozen.—	£.	s.	d.
Ericas ... 15*s.* to	1	10	0
Camellias ... 12*s.* to	12	0	0
Azaleas 12*s.*, 24*s.*, and	6	0	0
100 Herbaceous Plants in 50 vars.	2	0	0
100 ditto in 50 vars.	3	0	0
100 Fine Rock Plants in 50 vars.	2	0	0
Pansies, select vars., per dozen 6*s.* to	0	18	0

	£.	s.	d.
Phlox Dr. Andry ...	0	1	6
" Fanny Adam ...	0	1	6
" Alexandrina ...	0	1	6
" Madame Bosville	0	1	6
" " Domage	0	1	6
" Mr. Domage ...	0	1	6
The six for 7*s.* 6*d.*			
Phloxes in good variety per dozen 6*s.* to	0	12	0

B. & H. would call especial attention to their fine stock of Camellias and Azaleas. A Catalogue of Dutch Bulbs imported will be ready in September, and may be had free on application.

7, Bridge Street, York.—August 11.

WARNER'S SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)

Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l.* 3*s.*

Manufactured by
JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds	10 gallons,	throws	30 feet high		...	£4	10
No. 2	15	"	"	45	"	...	5	10
No. 3	28	"	"	45	"	...	6	18

J. TYLOR & SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds	8 gallons,	throws	25 feet high		...	£2	15
No. 13	12	"	"	30	"	...	3	5
No. 11	16	"	"	40	"	...	4	0
No. 12	24	"	"	45	"	...	5	0
No. 14	30	"	"	45	"	...	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

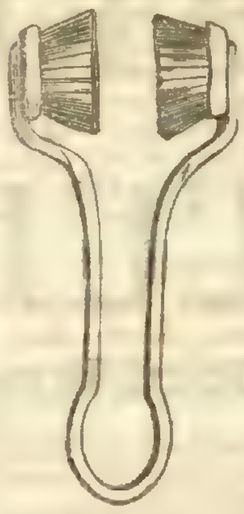
By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stooping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

IMPORTANT TO GROWERS OF ROSES.

NEWLY-INVENTED APHIS BRUSH, OR GREEN FLY DESTROYER.—The attention of Florists is particularly called to this Cheap and Ingenious Instrument, invented by the Rev. E. S. BULL, of Colchester, which, in a very simple and easy manner, instantly cleanses the Rose from that destructive insect the Green-fly (or Aphis), without causing the slightest injury to the bud or foliage.



Price 2*s.* 6*d.* each, or free by post, 4*s.*

MANUFACTURED BY
JOSLIN AND SONS,
IRONMONGERS, Colchester.

Retailed by all the principal Ironmongers.

Wholesale Agents:
W. THOMPSON & SON, 15, Upper North Place, Gray's Inn Road, London.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.
KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.
In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12*s.* 6*d*
7 " 5, — 7½ " 5½ } 8 " 6, — 8½ " 6½ }	0 14 0
9 " 7, — 9½ " 7½, 10 by 6 } 10 " 7, 10 by 8 }	0 16 0

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18*s.* per 100 feet. If cut to order not exceeding 40 inches long.
16 oz. from 2½*d.* to 3½*d.* | 21 oz. from 3½*d.* to 4½*d.*
26 oz. from 5½*d.* to 7½*d.*

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½*d.* per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	£1	17*s.*	6*d.*	per case of	50
3/16 "	2	1	3	"	60
⅛ "	1	17	6	"	60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London.

REDUCED TARIFF OF AGRICULTURAL AND HORTICULTURAL GLASS.

STRONG HORTICULTURAL SHEET, from 2d.; and HARTLEY'S PATENT ROUGH PLATE, from 4½d. per foot.

PERFORATED GLASS for Ventilating Dairies, Stables, &c., from 1*s.* 6*d.* per foot. German-shaped Milk-pans, 21*s.* per dozen; Hely's Test Churns, 5*s.* each; Waring's Butter Stamps, 10*s.*; Glass Fern Shades and Stands, from 3*s.*: Bee-glasses, from 6*d.*; Cucumber Tubes, from 1*s.*; Propagating Glasses, from 6*d.* to 7*s.* each; Flower Labels, 7*s.* per 100; Aquariums, complete, 10*s.* each; and every other description of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass, British and Foreign.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE.
87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by	4 in.	and	6 in. by	4½ in.	...	...	12*s.*	0*d.*
6½ "	4½	"	7 "	5	...	...	13	0
7½ "	5½	"	8 "	6	...	...	13	6
8½ "	6½	"	9 "	7	...	...	13	6
9½ "	7½	"	10 "	8	...	...	14	0
10½ "	8½	"	11 "	9	...	...	14	0
12 "	9	"	13 "	9	...	...	14	0
10 "	10	"	10½ "	10½	...	...	14	0
11 "	10	"	11½ "	10½	...	...	14	0
11 "	11	"	11½ "	11½	...	...	14	0
12 "	11	"	12½ "	11½	...	...	14	0
13 "	11	"	13½ "	11½	...	...	16	0
13 "	12	"	13½ "	12½	...	...	16	0
13½ "	13½	"	14½ "	13½	...	...	16	0
15½ "	13½	...	...	...	...	...		

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2¼ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Strikers and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

SPLENDID HERBACEOUS CALCEOLARIA AND SWEET WILLIAM SEEDS.

WILLIAM BARNES has now ready for sending out a small quantity of the above Seeds, the former of which is unrivalled, and has given the greatest satisfaction to all purchasers for the last four seasons. 2*s.* 6*d.* and 5*s.* per packet.

SWEET WILLIAMS, grown from the same stock as the seed now offered, may be seen at the present time in full bloom at his Nursery, where they are pronounced by all who have seen them to be unequalled. 1*s.* 6*d.* per packet. Payment can be made by postage stamps.

Camden Nursery, Camberwell, London.

CHOICE NOVELTIES OF THE PRESENT SEASON.

HENRY WALTON, Florist, &c., Edge End, Marsden, near Burnley, Lancashire, is now sending out nice healthy established Plants of the following at the reduced prices annexed.

FUCHSIAS, with white corollas, at 3*s.* 6*d.* each:—Story's Mrs. Story, Queen Victoria, Water Nymph, Empress Eugenie, Lady of the Lake, and Snowdrop. Other varieties of this season:—Bank's Prince Albert, 3*s.* 6*d.*; Beauty of the Bower, 2*s.* 6*d.*; Maid of Kent, 3*s.* 6*d.*; Climax, 2*s.* 6*d.*; Grand Sultan, 2*s.* 6*d.*; Omer Pacha, 2*s.* 6*d.*; Smith's Omer Pacha, 2*s.* 6*d.*: Nimrod, 2*s.* 6*d.*; Coronet, 2*s.* 6*d.*; Orlando, 2*s.* 6*d.*; and Violæflora pleno, 2*s.* 6*d.*, or 30*s.* per dozen; post free, where two or more are ordered. VERBENAS:—Wonderful, Blue Beard, Lady Lacon, Commander-in-Chief, Empress of France, Florence Nightingale, Rose of England, Tyrian Prince, Eva, Boule de Feu, Lord Raglan, Empress, Mrs. M'Neil, Violacea, Silistria, and Mrs. Woodroffe, at 1*s.* 6*d.* each or 18*s.* per dozen, post free.

A remittance respectfully requested to accompany all orders (unless reference is given), payable at Marsden, Lancashire.

For List of Choice new Achimenes, and other novelties of this season, see Advertisement in *Gardeners' Chronicle* of July 21 and previous Numbers.

NEW FUCHSIAS AND VERBENAS OF THIS SEASON AT REDUCED PRICES.

JOSEPH COURCHA, Florist, Wellington Row, Hart's Lane, Bethnal Green Road, London, has now ready for sending out nice healthy plants at the following prices:—

FUCHSIAS.

Mrs. Story	2*s.* 6*d.*	Nimrod	2*s.* 0*d.*
Queen Victoria	2 6	Orlando	2 0
Prince Albert	2 6	Maid of Kent	2 6
Raffaelle	2 6	Grand Sultan	3 6
Water Nymph	2 6	Beauty of the Bower ...	2 6
Empress Eugenie ...	2 0	Napoleon...	3 6
Lady of the Lake ...	2 0	Violæflora pleno ...	3 6
Snowdrop	3 6	cess of Prussia ...	2 6
Omer Pacha	2 0	aculata superba, beautiful variegated foliage	3 6
Climax	2 0	Or 22*s.* per dozen.	
Coronet	2 0		

Verbenas, 15*s.* per doz. New Phlox, Queen Victoria, 2*s.* 6*d.*

NEW AND RARE PLANTS.

JOHN AND CHARLES LEE have a fine stock of the following to offer:—

THUJA GIGANTEA.—A noble hardy evergreen tree, from the hills of California. From seed, 31*s.* 6*d.*; grafted, 21*s.*

THUJOPSIS BOREALIS.—A beautiful hardy evergreen tree, from Behring's Straits. Grafted, strong, 21*s.*

	s. d.		*s. d.*
Biota glauca	7 6	Episcea mellitæflora ...	3 6
Thuja Doniana ...	5*s.* to 7 6	Araucaria excelsa, from seed	25*s.* to 42 0
Wellingtonia gigantea,	5*s.* to 21 0	Araucaria Bidwilli ...	31 6
Podocarpus nubigena ...	21 0	" Cunninghami...	31 6
" chilina ...	21 0	" Cooki	105 0
Berberis Jamesoni ...	5 0	" gracilis ...	42 0
" Neuberti, fine ...	7 6	Bejaria æstuans	10 6
Dammara obtusa	31 6	Acrophyllum venosum ...	7 6
Begonia Thwaitesi ...	7 6	Boronia Drummondi ...	5 0
" Lapeyrousi ...	5 0	Glycine sinensis alba ...	5 0
Echites Pelleri	10 6	Azalea amœna, hardy, fine	3 6
Aphelandra Leopoldi ...	5 0	Oxylobium Osborni ...	5 0
" Porteana ...	5 0	Eugenia ugni	3 6
Ixora Lobbi	7 6	Scutellaria villosa ...	5 0
" alba, true	5 0	Fabiana violacea	3 6
Sciadocalyx Warscewiczi	5 0	Swainsonia Osborni ...	3 6

FILBERT MERVEILLE DE BOLWYLLER, large and very prolific, 7*s.* 6*d.*

The Trade supplied.—Nursery, Hammersmith.

NEW INDIAN AZALEA, "EULALIE VAN GEERT."—This fine and distinct variety may be recommended as one of the best of this fine tribe of floricultural plants, and which has been admired by all the amateurs who saw it in bloom. It is of free growing and robust habit. The flowers of the largest are of good form and substance; colour rose and white, spotted with bright rose. Plants will be sent out next spring at 7*s.* 6*d.* and 21*s.* each, one over for every three taken; the first subscriber will, of course, obtain the best plants. Orders will also be received at my Agent's, Mr. R. Silberrad, 5, Harp Lane, Tower Street, London, from whom my Catalogue of Plants may be obtained on application.—N.B. The plants will be delivered free to London; see opinion in *Gardeners' Chronicle* of May 26th and it will be figured in the works of Messrs. Van Houtte and A. Verschaffelt of next month.

A. V. G. also begs to offer the following new and recommendable plants at reduced prices.

	s. d.		*s. d.*
Aphelandra Leopoldi ...	3 6	Camellia Duchesse de Berri, prime white	5 0
Agnostus sinuatus ...	5 0	Daphne Aucklandi ...	1 6
Asplenium bulbiferum (Fern) per dozen ...	6 0	" oleoides variegata	1 6
Azalea beauté de l'Europe, per dozen	36 0	Illicium religiosum, hardy, per dozen	18 0
Æchmea fulgens	2 6	Do. do. strong plants, each	3 6
Ardisia crenulata fructu albo	2 6	Inga ferruginea	3 6
Alsophila nova sp. (Tree Fern, ...	10 6	Kennedya eximia, per doz.	15 0
Amaryllis Josephinæ, strong bulbs	7 6	Isoloma trianea	2 6
Achimenes, the four new varieties, each	2 6	Myrtus Ugni	2 6
Berberis Hookeri	2 6	Magnolia macrophylla ...	2 6
" Neuberti ...	5 0	" Lenne, splendid	15 0
Blechnum Corcovadense (Tree Fern), fine plants	2 6	Marica tricolor	2 6
Bilbergia thyrsoidea ...	2 6	Prunus sinensis, fl. albo pleno	3 6
" Liboniana ...	3 6	Passiflora princeps, strong	1 6
Begonia biserrata ...	5 0	Pourretia mexicana ...	5 0
Clematis Helena	2 0	Phrynium sanguineum ...	2 6
" Sophie	2 0	Pimelea Neippergiana, per dozen	18 0
" monstrosa ...	2 0	Rhododendron Camille de Rohan	7 6
Clianthus magnificus ...	2 0	" Duc de Brabant	7 6
Olivia nobilis, strong plants	5 0	" Alstrœmeriflora	7 6
Chamærops humilis, strong plants ... .. 21*s.* to	42 0	Strelitzia reginæ	5 0
Citrus sinensis, per dozen	18 0	Thuja gigantea	7 6
Cleyera japonica, hardy, per dozen	12 0	Camellias, well set with bloom of the leading varieties, 6*l.* per 100.	
Camellia Archiduchesse Marie, one of the finest red	5 0	Indian Azaleas, 5*l.* per 100.	
		Do. on stems, with fine heads, each ... 3*s.* 6*d.* to	5 0

N.B. The Ghent steamer Flèche, for London, sails now regularly twice a week; by this way the expense of carriage is much reduced.

A. Van Geert, Nurseryman, Ghent, Belgium.

TO LOVERS OF PLANTS WITH HANDSOME FOLIAGE.

MESSRS. STANDISH AND NOBLE are now sending out the fine new Greenhouse Evergreen, WEINMANNIA TRICOSPERMA, which for beauty of foliage cannot be surpassed. It was exhibited at the Royal Botanic Society's Meeting in June last, and also at the Crystal Palace. From the report of the latter exhibition, the following brief description is condensed:—"You might pass off the leaves of this beautiful plant for the fronds of a handsome Fern. They are compound and pinnate, just like Fern leaves. I do not recollect, even among Mimosas, a plant with more beautiful leaves than this." We may add that it is of good habit, and easily cultivated; and from being a native of Valdivia, it may possibly be hardy.

Strong plants, 21*s.* each.

The Advertisers have just published a new Catalogue, which will be forwarded free by post on receipt of a penny stamp.

The Nurseries, Bagshot.—Aug. 11.

SUPERB NEW STRAWBERRIES,

Grown and Offered for Sale by

WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.—Nicholson's Ajax, Ruby, Fill-basket, and Captain Cook, 6*s.* per 100; Sir Harry (Underhill's), 25*s.* per 25. Omar Pacha (Ward's), 15*s.* per 25; 1*l.* 5*s.* per 50. Prince of Wales (Ingram's), 10*s.* per 100. Scarlet Nonpariel (Patterson's), 12*s.* per dozen; 2*l.* per 50. Sir Charles Napier (Smith's), 12*s.* per dozen; 1*l.* 10*s.* per 50. Admiral Dundas (Myatt's), 16*s.* per 25; 1*l.* 10*s.* per 50. Nimrod (Pince's), 10*s.* per 100 plants.

A SELECTION OF THE BEST OLDER STRAWBERRIES.—Black Prince, 4*s.*; British Queen, 4*s.*; Eleanor, 4*s.*; Old Pine, Goliah (Kitley's), 4*s.*; Bicton Pine (White's), 5*s.*; Keens' Seedling, true, 4*s.*; Old Roseberry, 4*s.* per 100 plants. Box included. The above prices will be reduced whenever a reduction is made by the raisers. A descriptive Circular of the above sent on application. A Post Office Order payable at Yarm, Yorkshire, is requested with the order.

"SIR HARRY."—To this STRAWBERRY has been awarded at all the Horticultural Exhibitions the highest honours, where it has competed, namely:—

1854.—Chiswick, first class certificate; 21, Regent Street, highly commended; Botanical Gardens, Edgbaston, first prize.

1855.—Edgbaston Botanical Gardens, first prize, in pots (forced); Handsworth and Lozells, Hampstead Park, first prize (forced); Edgbaston Botanical Gardens, first prize—the Judges declared it the best Strawberry in every point on the table, superior to Keens' Seedling, Cremorne Seedling, British Queen, Mrs. Trollope, &c.; Lancaster, first prize, and pronounced by the Judges to be the finest and best tasted Berry in cultivation; Preston, first prize; Carlisle, first prize; Wolverhampton, first prize, and certificate of merit; Watford, first prize; Aylesbury Horticultural Society, first class certificate.

Plants are ready for sending out (not less than a score).

Prices:—100 plants, 4*l.*; 80, 3*l.* 13*s.* 6*d.*; 60, 2*l.* 16*s.*; 40, 1*l.* 18*s.*; and 20, 1*l.* Plants may be had in pots (not less than 10), at 2*s.* each.

Apply to Mr. Richard Underhill, Sir Harry's Road, Edgbaston, Birmingham. Each application to be accompanied with a Post Office Order (on Birmingham), to receive attention.

For the Cultivation of Strawberries, refer to Mr. Underhill's Treatise, which may be obtained from a Bookseller in every principal town, where also may be obtained a handsome Lithograph of a plant of "Sir Harry" in full bearing.

The Gardeners' Chronicle.

SATURDAY, AUGUST 11, 1855.

There is nothing in the valuable precepts upon Hyacinth growing on a large scale given the other day (see p. 483) which is not perfectly applicable to the smallest operation, if the principles that are involved are separated from the mere details of practice. Those principles are—1, never to use unsound bulbs; 2, to provide a rich, permeable, well-drained soil; 3, never to cover the bulb with soil; 4, not to expose the buds to light or warmth until roots are protruded in abundance; 5, not to keep the plants in the dark after the buds have made perceptible progress. Let us examine these maxims separately in their relations to growing Hyacinths in water.

1. The bulbs should be sound. The bulb of the Hyacinth consists for the most part of soft cells filled with organisable matter having a great tendency to run into a state of putrescence. This tendency is much increased by any wound or bruise, which enables water to pass freely among the soft tissues without being gradually imbibed through the sides of the cells, and altered by their vital force. It is further accelerated by the condition of the water itself, which in bad management acquires an offensive quality that increases any tendency to decay which may naturally exist in the parts it touches. Perfect soundness of the surface is the only guard against such accidents.

2. When water is employed instead of earth, permeability is secured, but little or nothing more. There is no drainage, that is to say no exchange of exhausted for fresh water, nor any ingredient presented to the roots equivalent to the ammonia, the phosphates, the carbonic acid, the alkaline matter, present in a soil composed of wholly decayed leaves and stable manure, loam and sand. All that is provided for feeding the Hyacinth is mere water containing a little carbonic acid, and perhaps some salt of lime. Such being the case, the Hyacinth, instead of being fed by the soil in which it grows, is mainly nourished by suckling itself. Nature stores up in this plant a soluble material called organisable matter, upon which leaves and flowers can subsist, just as bears are said to be supported in winter by absorbing the fat which they acquire in summer. The result of this artificial subsistence may be emaciated life, but must be anything rather than vigorous health. It would seem that we must ascribe to this circumstance in part, if not wholly, that weak, languid, drawn-up, pallid condition which is so usually characteristic of domestic Hyacinths fed upon water.

Drainage may be imitated by a diurnal removal and renewal of water; but with the glasses now in use it can only be effected by being poured off, for to take the roots out every day is to bend, bruise, or otherwise injure them. Were the glasses furnished with a tap at the bottom, or provided with a little siphon, it would be much more convenient: very frequent renewal of the water is at any rate necessary. The water itself should be impregnated with those nutritious ingredients which good Hyacinth soil always contains. Probably the best substance that could be provided would be pure guano water, prepared by thoroughly mixing an ounce of Peruvian guano with a pint of water, allowing it to stand for a couple of days, stirring it occasionally, and then, when perfectly clear, drawing it off carefully. A teaspoonful of this solution might be added to every glass, as often as the water is changed. A weak solution of phosphate of ammonia and carbonate of potash mixed in equal parts, might be substituted for the guano water; and it would be interesting to watch the difference in the effect produced by the two agents.

3. If a bulb is covered with water it will absorb it faster than it can decompose it; of which the inevitable consequence is disease or death. The parts to which Nature has limited the duty of suckling the leaves and flowers are the concave surface at the base of the bulb, and the roots as soon as they are formed. If other parts are brought into contact with water they also must absorb fluid to their own destruction; for plants, notwithstanding that they have a living principle like animals, possess no will of their own. They cannot refuse to take up what is presented to them, although their vital energy may be insufficient to enable them to assimilate it. Water then should be scarcely in contact with the lower part of the bulb; it is better indeed that a space of a quarter of an inch should be always left between them, for the vapour arising from water is enough for a bulb to feed upon until roots shall have been formed, and the powers of digestion called into full activity.

4. In all cases where plants behave as nature intends, the root, or its equivalent, appears before the leaves; we see it in seedling plants, we see it in cuttings and in layers, we see it in budded or grafted plants, where the cellular matter (callus) which binds the scion to the stock always precedes the appearance of leaves. The reason is obvious. It is necessary that the organ which is to feed a plant should precede the parts that are to be fed. If then, in the case of the Hyacinth, leaves and flowers are permitted to form before the roots have acquired their full power of action, the leaves and flowers must subsist upon the organisable matter contained in the bulb, not on that to be obtained from the water (or soil); and debility, deformity, or utter abortion are the result. Now the great stimulant of leaf development is light; the great antagonist of root development is light; therefore darkness is what should be provided for the Hyacinth in the beginning. This truth is pretty generally recognised, but is as generally misapplied. People think that if the roots are kept in darkness it signifies little what happens to the bud. But nature does not work in that manner, nor do Mr. Henderson's growers. The buds are buried as well as the roots. We have seen Hyacinth glasses carefully provided with worsted stockings, while the buds were left in the full glare of light, instead of being furnished with a good thick nightcap. Some of our readers will know what is meant without more particular explanation.

5. But if it is wrong to expose the bud of the Hyacinth to light until the roots are formed abundantly, it is quite as bad to withhold light after the roots are ready. As soon as the lower system is in full activity, the upper should be stimulated. At that time the neighbourhood of a window, especially an open one, if possible, where air is in the most free motion, should be selected for the residence of the Hyacinth by day—while at night it may be transferred to the coolest place in the house where frost gains no admission. A worse place than the mantelpiece cannot be selected, except to put the Hyacinth in when its flowers are formed and beginning to open. At that time the work of cultivation is over, and the plant may be transferred to the fair hands of those who are charged with the pleasant duty of making a sitting room as cheerful and beautiful as the open garden.

The time is evidently at hand when the true position of the Stanwick Nectarine among fruits of its kind will be determined beyond all cavil. When first ripened in this country its quality was admitted by some of the first judges, to whom the

duty of tasting it was confided, to be unapproached for richness of flavour. If we mistake not our own statement was that it ranked among Nectarines as the Greengage ranks among Plums.

When, however, other samples of the fruit, in another season, were sent from Stanwick they were declared to be, what in truth they were, no better than an Elruge, if so good. They were not properly ripened. Afterwards, when the fruit began to be borne by the trees propagated from the celebrated tree at Stanwick they were still found to be destitute of the high qualities first ascribed to the variety, and it was also discovered that the fruit was apt to crack before ripening.

Last year, however, rumours began to prevail that the fruit was getting more like its original state, and that cracking was not a necessary accompaniment of its maturation. And now the experience of Mr. M'Ewen, the Duke of Norfolk's skilful gardener at Arundel, has come to the support of the original reputation of the variety. He says it yet will realise the high expectations entertained of it; and we repeat that the specimens just sent from Arundel still show it to be among Nectarines what the Greengage is among Plums. To that description we adhere without reserve.

As to cracking, Mr. M'Ewen pooh poohs what is said about it, as he very well may. Stone fruits crack because they receive more water than they can digest or throw off by evaporation. There is no other cause whatever for the malady, unless the skin is dead, which is not the case with the beautiful and clear-skinned Stanwick. The remedy is less water and more heat, or both; the commonest sort of common sense tells that.

We therefore feel justified in reasserting the admirable quality of this variety, and in regarding it as a real Horticultural treasure. It has but one fault, that of requiring, when ripening, more heat than the inferior sorts found in everybody's garden.

Advices from Malaga announce the reappearance of the Vine Mildew. In 1853 it attacked the Muscatels or Raisin Grapes to such an extent, that in the case of one of the great growers there, only 14,000 boxes could be sent to the English market instead of 20,000, the usual quantity from his vineyards. In 1854 it left the Muscatels, or nearly so, and attacked the wine Grapes. We now learn that it has once more seized the Muscatels as well as others. What is very curious, the bunches of Grapes which touch the earth are free, *those alone being attacked which appear on the higher branches.* Of course, therefore, the trellised Vines have suffered most. Another remarkable fact is announced, namely, that the mildew now attacks the Grapes, leaving the foliage sound and healthy, whereas it formerly attacked the leaves first, and the Grapes at a later period.

NEW GARDEN FERNS.—No. III.

7. Davallia bullata, Wallich. Cat. No. 258. Hook — Sp. Fil. i., 169, t. 50 B.

Fronds ovately-deltoid, sub-membranaceous, tripinnate; lower pinnæ obliquely elongate-triangular acuminate; pinnules lanceolate oblong pinnatifid, the ultimate segments forming linear-acute falcato-incurved teeth, the inner side of which usually is occupied by the sori; involucres oblong cup-shaped; rhizome creeping, clothed with spreading subulate entire tawny scales, fronds articulated.

A very elegant small growing Fern, native of Nepal and Assam, introduced to Kew in 1852, and about the same time by Mr. Nuttall. We have also seen it in the collections of Mr. Veitch and Messrs. Henderson, probably all from the same source. It appears to be a deciduous species, the creeping rhizomes, clothed with

bright tawny subsquarrose subulate scales, being often if not always without fronds through the winter. The fronds are articulated with the rhizome; 9 inches to a foot high, bright green, submembranaceous, glabrous, deltoid, tripinnate, with the rachis winged throughout as is the upper part of the stipes; the lower primary pinnæ are sub-opposite, triangular-elongate acuminate; the pinnules lanceolate-oblong, deeply pinnatifid; the secondary pinnules oblong, with simple acute falcato-incurved teeth. The sori are solitary on the inner side of the falcate segments, and have short oblong cup-shaped truncate involucres. The fertile fronds are copiously bullate with oval swellings on the upper surface. It is sometimes called in gardens the Fox-tail Fern. A Fern very similar to this was imported from Java in 1853 by Messrs. Rollisson.

VEGETABLE PATHOLOGY.—No. LXXXIII.

349. Capsomania (*Bladder Plums*).—The curious affection described under this head is not confined to cultivated Plums; it is found also in Cherries, and is common on a species of Cerasus which occurs in the Himalayas, and which has in consequence been named Cerasus cornuta. A figure is given of it in *Gardeners' Chronicle*, 1850, p. 406, from a plant received from Yorkshire, and one other notice appears in our Journal* of the malady, which is, perhaps, not very unfrequent, though it has been little noticed by authors.

De Candolle speaks, in his memoir on the Leguminosæ, of a case which occurred in Chablais, and must have closely resembled that figured above, in which the transformed fruit assumes somewhat the form of a pod. No notice, as far as I have observed, is taken of it by Loudon.

350. Though a mere matter of curiosity or speculation amongst ourselves, the disease is so frequent in some parts of North America as to make the Plum scarcely worth cultivating, and it is from a memoir of Dr. Robb, in the 3d volume of Hooker's "Journal of Botany," p. 91,† tab. iv., that I extract the following information: The Plum is extensively planted in New Brunswick, but seldom bears a crop in consequence of this disease. Before or soon after the fall of the blossom the ovary acquires a greenish yellow tint and becomes soft and flabby; it, however, increases rapidly in size, becomes darker, and somewhat ruddy, and at the end of two or three weeks is as large or larger than a ripe Walnut, insomuch that on a casual glance the tree seems loaded with ripe Apricots; on trial it is perfectly insipid and tasteless. The fruit in general as soon as it has acquired its full size is infested with a green mould, in all probability Cladosporium herbarum, soon becoming black and shrivelled, so that at the end of a few weeks from the time of flowering the whole is rotten and decomposed. The flowers appear about the beginning of June, and before August there is hardly a Plum to be seen. Sometimes, however, a portion of the fruit advances to perfection, and occasionally of two ovaries proceeding from the same common point one assumes its normal form, size, and condition, while the other is enlarged and inflated. The form of the diseased ovaries on the same tree varies greatly, being sometimes perfectly globose, sometimes depressed, sometimes elongated, and even pod-shaped.

351. The structure when closely examined is extremely curious. The fruit, external to the ovules in its ordinary condition, consists of three parts, the exocarp, sarcocarp, and endocarp; of which the first forms the cuticle, the second the flesh, and the third the stone of the perfect Plum. Of these the first is the least altered; it, however, loses its even surface, and becomes wrinkled, and instead of putting on red or purple tints assumes a decided yellow. The sarcocarp has lost almost entirely its fleshy condition, presenting the loose and dry cellular tissues of an ordinary leaf, with strong radiating and anastomosing bundles of vascular tissue, of which the two largest correspond with the placenta and the external suture. The endocarp seems at first sight entirely deficient, but close examination shows that the ovuliform body attached to the placenta is, in fact, the endocarp greatly contracted and separated entirely from the sarcocarp at an early stage of growth, in consequence of the more rapid development of the latter, except at the single point of attachment. It is in fact, instead of a stone, a membranous sac within which are seen springing equally from the placenta one or two ovules, each of which presents three membranes, the innermost of which is filled with a watery pulp without a trace of embryo. When two ovules are present one is usually smaller than the other.

352. The cause of this extraordinary change is at present extremely obscure. It has been supposed to be due to the action of some aphis or thrips, but in many cases no insects are observed about the diseased fruit, or any trace of puncture. The occurrence, too, of the disease in three such remote quarters of the globe is also against its insect origin. Dr. Robb is inclined to think that it is due to the changeable weather of May and June, which is the rainy season of New Brunswick, when the air, cooled by the melting ice and snow, is subject to the rays of an already powerful sun. This, however, like most climatic theories, does not rest upon a series of accurate observations, without which they can be considered merely as suggestive of what is possible. Where isolated observations are made, we have often two statements, directly contrary to each other, brought forward in explanation of the same fact, as in the Rose disease described in our last article. The inhabitants of New Brunswick believe that lime water is a specific, but this wants confirmation. *M. J. B.*

* See *Gardeners' Chronicle*, 1843, p. 819, where an abstract is given of a paper by Dr. Harris, of Cambridge, Massachusetts, in *Hovey's Magazine*.

† Erroneously printed p. 99.

GOOSEBERRY CATERPILLAR.

The article upon the Economy of the Gooseberry Caterpillar, published in p. 517, contains one or two observations which require notice, as it seems to me that improper deductions have been drawn in these cases from insufficient data. It is certain that the eggs of this pest are deposited on the ribs of the leaves. That a number of caterpillars were hatched without your correspondent having discovered the eggs, is no proof that the caterpillars were not produced in the ordinary way, or that they were brought by the wind, which one might almost infer was the opinion of the writer.

Again, the circumstances mentioned in the third paragraph prove that the writer is not a sufficiently close observer. He found the cast skins of the caterpillars on the surface, and yet the caterpillars themselves had disappeared, he knows not how. If he had taken the trouble to break up some of the little lumps of what he supposed to be mould, he would, doubtless, have found a nicely-formed oval cell in the middle of the mass, within which he would either have found the curled up caterpillar or the pupa itself. The depth at which the caterpillars burrow doubtless varies according to the nature and condition of the soil at the time.

The practical result of the preceding remarks is, 1st, to enforce the necessity of removing the soil under the Gooseberry bushes as soon after the caterpillars have entered the ground as possible; and 2d, to collect every female (this sex being especially distinguishable by its bright yellow body), as soon as ever they make their appearance on the wing. My own garden has this year been almost entirely free from the pest, although my neighbours' trees have been stripped of their leaves, by the precautions I took—1st, in collecting the females in the middle of April, as stated in this Journal at that time; and, 2d, of looking carefully over the trees as soon as I saw that a little gnawing of the leaves had commenced, and destroying the few caterpillars then found. *J. O. Westwood.*

Home Correspondence.

Peas.—I fully agree with your remarks (see Gardeners' Memoranda, p. 520) in regard to the earliness of Sangster's No. 1 Pea, as I have proved it to be the earliest of which I have any knowledge. I speak assuredly, having tried most of the early kinds in cultivation. This season I sowed the Pea in question more than a fortnight after Warner's Early Emperor, and No. 1 was in first by a week. I question, however, if it is at all times, and in all cases, obtained true to name, as I have seen Peas grown for it which have been about as much like it as Bishop's Long-podded Dwarf is like the Tall Marrows. I am so perfectly satisfied with those I have being true that I have harvested sufficient for my own use next season. I may state that I pursue precisely the same mode of culture in the early sowings as that which was recommended in your pages some two or three years ago, viz., sowing in pots and turning them out entire; this certainly is the most advantageous plan that can possibly be

adopted, and can be done with little trouble and great economy. I did not sow my first crop this spring until the 27th of the second month—in fact, about a day before the 1st of March, and had the satisfaction in gathering Peas long before some of my neighbours whose seed had been deposited in the open garden some months previous to mine being sown. I am of opinion that we shall not see in future writers on modern gardening in their calenderal directions advising their readers to sow Peas in November, when the earth is every day losing heat by radiation; this system, with many others, is being very beneficially repudiated by all those who have and are taking steps in the right direction. For the earliest crop of Peas it is not necessary, when sown in pots, that they should be turned out before the end of March or the beginning of April. In 1854 I picked Peas the third week in May, which were sown on the 14th of February, and turned out the end of March; these Peas were in bloom when we had that memorable frost on the 24th and 25th April, but received no injury, being protected by a very high wall. Generally speaking I cultivate only about three or four sorts; this season I have grown the following—Sangster's No. 1, Early Emperor, Fairbeard's Surprise, do. Champion of England, and British Queen Peas; in my opinion of very first-rate excellence, and all that are really necessary to cultivate, let the consumption be what it may. *Geo. Fry, Lee, Kent.*

Great Tree of Upsala.—In looking over the curious old book "Olaus Magnus de Gentibus Septentrionalibus" I found the following passage (Book iii., cap 5) describing the splendid Pagan temple formerly standing at Upsala, at Sweden:—"Astabat ejus foribus arbor ingens ignoti generis, patulis diffusa ramis, æstate et hyeme juxta virens, non tamen de earum arborum genere quæ suapte naturâ, ut laurus, oliva, palma, et myrtus virere videntur: quin in Aquilone nulla unquam oliva vel laurus nisi in parvo frutice pro spectaculo vastenis exurgere visa est. Erat que fons huic templo propinquus qui scaturiit in locum sacrificiorum, &c." Now what tree could this have been? Not a Yew probably, as that would not be "*ignoti generis*." It would however, seem likely that our heathen ancestors who colonised England from the north kept up the tradition of this sacred tree, and from hence arose the custom of their christianised descendants of planting a Yew close to country churches. If not a Yew, could not the great tree of Upsala have been a Cedar of Lebanon? Whatever it was, it was probably raised from a cone brought by some of the Scythian migratory tribes from Russia or Tartary, as we know the priests or conjurors of savage tribes use all sorts of things of that sort in their ceremonies, and a cone would keep its vitality for years. Could it not even have been a Deodar? It would be curious to ascertain if any trees of that sort have been in existence in Sweden. Perhaps the severity of the climate prevented any ripening of more cones. *Antiquary.*

Gooseberry Caterpillar.—I can vouch for the following receipt being an infallible remedy for this pest, having applied it for 30 years and never known it fail. Make a strong decoction of Digitalis (Foxglove), and syringe the leaves of the tree affected with a common Mac Dougal's syringe or a rosed watering can; the former is preferable, particularly if it is an inverted one, so that the liquid may get under the leaves, as then there will be less chance of the rain washing it off. A dry day must, of course, be chosen for the application, and in two days after the grub will be found destroyed, the fruit remaining perfectly uninjured. The decoction is made by roughly gathering the Foxgloves, leaves and flowers indiscriminately, and boiling them a quarter of an hour in water. One dressing suffices for the year. *R. Underhill, Sir Harry's Road, Edgbaston, Birmingham.*——I have practised the following plan of keeping my bushes clean for these last eight years with complete success. The first year I commenced growing berries I was mortified to find the leaves of my trees eaten off by caterpillars, and the crop of fruit ruined. I therefore determined to experiment upon my leafless trees, and despite the remonstrances of a friend, I ordered a quantity of gas lime fresh from the purifier's, and spread upon the surface of the soil underneath the trees, all round as far as the branches extended; this was covered over with a thick coating of stable manure. The following summer I had the satisfaction to find my trees push strong healthy shoots, and also produce an excellent crop. I have continued this practice every alternate autumn, and have not been troubled with a caterpillar since; there were a few green flies upon the extreme end of the new shoots or branches this spring, but they were nipped off as they appeared, and I have now, for the eighth season, a crop of fruit as fine, and trees as healthy and clean as any in the kingdom. *T. W. M., Ashton-under-Lyne.*——I cannot throw any light upon the history of the Gooseberry caterpillar, but I can tell you how I have cleared bushes which swarmed with them. I cut a slit half way across a linen cloth, and drew the cloth under each bush to the end of the slit; then placing a forked stick against the stem, I suddenly gave a violent shake, and the caterpillars fell in showers, and were removed and destroyed. I proceeded thus from bush to bush, and by the time I had gone round the remaining caterpillars had loosed the hold which they had taken after the shake, and another shower fell by the second application of the fork. In two or three rounds I cleared my bushes, or so nearly cleared them that the ravages were afterwards inconsiderable. This is merely a simplification of Forsyth's plan of first laying sifted quicklime under the bushes, and then shaking down the caterpillars, to be followed by sprinkling lime on the bushes for the destruction of those which remain, but with the certain result of destroying the fruit also, or the leaves at any rate. *J. G., Bury St. Edmunds.*——I managed my Gooseberry trees this season as follows: I came to this place in September last, and found all the trees in question divested of their leaves and looking winterly, even the very shoots were wrinkled up to almost nothing. I pruned them in winter as usual, and in frosty weather gave them a good dressing with rotten manure, which I spread over the surface of the ground, and there let it remain for a few days, until the frost had gone through the manure and killed all the insects; then one frosty morning I began to carefully dig the manure in with a fork under the trees, so as not to injure the roots, say only just to bury the manure, and after that we had a severe frost, which I imagine completely destroyed all larvæ; after the frost the ground was gently moved over again and left loosely until spring, and the result has been that I have had all my trees bud and leaf with all the vigour I could desire, and they were loaded with blossoms, which had it not been for the frost in May would have produced a heavy crop. In the middle of the trees, however, I had good fruit, owing doubtless to the protection afforded them by the outside leaves and shoots. I have never seen a caterpillar on any one of them, and at the present time my trees are covered with foliage, both green and healthy, and the shoots are as strong and firm as I could desire. I shall of course try the same plan again next winter. *W. Hawkins, Thorney Abbey.*

Abronia umbellata (*see p.* 520).—In May last I purchased from Messrs. Veitch, of Exeter, several plants of this flower, which were immediately put into a bed in the flower garden, prepared as they recommended with plenty of sand, and they are now coming into profuse flower. *C. J. B., Abbotsley, Devon.*

Ventilating and Heating Plant-houses.—Will any of your correspondents kindly inform me whether there is any generally approved rule as to the proportion of superficial feet of ingress and egress ventilation respectively to the cubic contents of a span-roofed plant-house heated by hot-water pipes? I should also feel obliged if any of your subscribers would inform me what proportion the heating surface of the boiler ought to bear to the radiating surface of the pipes to be supplied in the hot-water apparatus for a span-roofed plant-house? In other words, what ought to be the size of a saddle-shaped boiler to heat about 650 feet of 4-inch pipes for a plant-house? *A Subscriber.* [You should consult Hood's work on Warming and Ventilating.]

Transplanting Evergreens, &c.—I think we must admit that all outdoor planting is best done early in October. Evergreens can, however, be successfully planted at any season by trenching, watering, raising, and doing the business properly, but this very winter and spring when frost was on the ground and the winds dry and boisterous for a long continuance, I went on with my work, and out of 3000 and odd shrubs planted in loose trenched ground I hardly think 20 have died, and many of them were very indifferent plants, as the nurserymen in my neighbourhood could not make out for me the quantity I wanted of the right size, health, and vigour. My plantations border on the sea-coast, but tolerably sheltered, and notwithstanding the March cutting winds and the hard winter, I find very few things have been injured. The plants that have been killed are the Aralia spinosa and some very fine specimen beds of Veronica. An American Aloe is now as green and healthy as it has been for many years out of doors, without any protection. None of the Pines or Cupressuses have been hurt. The Myrtles and Bays were much scorched, but they are all coming in full foliage again. Fuchsias are all right, as are all the Spiræas and Ferns, some of which are called half-hardy only. The Escallonia macrantha is worth naming, from its beauty, hardihood, and vigorous growth, seeming not to heed even a Crimean winter. Do what I will, Rhododendrons here just live, but nothing more. The reason given is that our soil lies on a limestone formation. *Anon., Rhyl.*——I quite agree with "Quercus" that as a general rule no particular day can be set down for planting on; still I think that those conversant with extensive planting will allow that under ordinary circumstances August, September, and October, are the best months for the purpose; for instance, who could wish for better weather than the present for planting Laurels, Hollies, Yews, &c., and he must be old in the profession who can remember a worse period than last year at this time, not only for planting but what is equally important, lifting. This is a branch in general wretchedly managed; indeed it is almost impossible to find a labourer with sufficient knowledge to lift with care and expedition. I had occasion to purchase a large quantity of valuable specimens last year, and being anxious for them to succeed I had them lifted at my own expense, and sent a man highly recommended to superintend the operation; however, the first waggon load that arrived led me to anticipate that they would not succeed, and now they are in the rubbish heap, while thousands planted at the same time around them that were better treated have done admirably. Where the ground is not adhesive I would strongly advise puddling. Half-a-dozen pots of water thrown into the pit, and mixed up well with the earth, so that the roots of the plant sink quite down into it, and a potful or two applied after it is partially covered up, are worth a dozen waterings afterwards. One word more. Where landscape gardeners, and especially contractors, are employed, I would advise proprietors not to enforce work to be done at this season that can be done equally well at a later period, so that there may be no excuse for losing an hour, for time in such an operation is important. *D. Ferguson, Stowe, Buckingham.*

Camellias.—Having experienced a failure in the blooming of my Camellias last season, I am anxious to avoid a repetition of the occurrence if possible, and, consequently, I shall feel obliged if any of your correspondents can point out the source whence the failure arose. The facts are just these:—The buds were firmly set, and did well up to the time of their showing colour, or, in fact, just as they ought to commence expanding, when they were seized with a kind of rot in the eye or heart of the flower, and in a day or two dropped off, the flowers not having been half developed. I may mention that a friend of mine has been quite as unsuccessful this season with his Roses, and under circumstances precisely the same as in my case. *C. P. W., Penzance.* [Is not cold and damp, and want of vigour in your plants, probably from their roots being in bad condition, the cause of the evil of which you complain?]

How to Cut Hedges.—Having noticed a paragraph in your Paper of the 28th ult., headed as above, I was in hopes some one would have replied to it before now, and denied that we northerns stands in need of your correspondent's advice. He probably, however, resides further north than it has been my lot to travel, or at all events not so far south as Yorkshire, or he would not say that nearly all the hedges he has seen are clipped square. As far as I have travelled north (Durham being the farthest) I have neither seen hedges square nor clipped to any extent. I own I have occasionally seen a cottager have a fancy for his garden hedge being clipped square or wall-shaped; but I am surprised to hear of any one adopting that system generally, as I should have thought that they would have been aware of the much better and cheaper plan of having their hedges slashed in the form of half an oval, or half round, as many have them (using a two-handed hooked slasher), or what is a great deal better, having them slashed pyramidally wedge-shaped, with a light straight slasher, the best of which I believe are made by Harrison, of Dunse, in Scotland. *A Yorkshireman.*

Rain Fall in July.—On Saturday afternoon, July 28, soon after 3 o'clock, we had a very remarkable fall of rain. The shower did not last more than three-quarters of an hour, but in that short space of time 1.550 of rain fell, or about 630 hogsheads per acre. There was a single clap of thunder and a few large hailstones, and the storm was very limited in extent. *Henry Doubleday, Epping, Essex.*——It is curious that at this place the fall of rain in July has been very small, though there has been rain enough in the neighbourhood. Our springs are still exceedingly low, and there has not been the slightest flood anywhere for miles around. *M. J. B., King's Cliffe, Wansford, Northamptonshire.*

Shaddocks and Forbidden Fruit.—It may perhaps be interesting to know that plants of these may be easily raised from the fruit to be purchased in the London shops. Two years ago I sowed seeds procured in that way. Out of a large number of plants I saved six of each kind, which stood the severe cold of last winter in a greenhouse (not heated), and I have now two plants of Forbidden fruit with fruit well set, and all the others are strong and healthy. *C. J. B., Abbotsley, Devon.*

Societies.

Botanical of Edinburgh, *July* 12.—The President in the chair.—1. On the Introduction of the Cinchona Tree into India, by Dr. Anderson. 2. On the presence of Diatomaceæ, Phytolitharia, and Sponge Spicules, in Soils which support Vegetation, by Dr. Gregory. Ehrenberg, in his late work, "Mikrogeologie," has stated that in specimens of soils from all parts of the world, he has found many microscopic organisms; he divides these into Siliceous and Calcareous, the former including Diatomaceæ, Phytolitharia and Polycystina, as well as Sponge Spicules, the latter minute Mollusks and other shells. The present observations are confined to the silicious organisms, and among these, chiefly to the Diatomaceæ, with Phytolitharia, and Sponge Spicules, the soils examined being such as are connected with fresh water, in which the Polycystina do not occur. Many of Ehrenberg's observations were made on the small portions of soil found adhering to dried plants in herbaria, and I requested Professor Balfour to supply me with such portions of soil if possible. By his kindness I obtained upwards of 60 such specimens, almost all of which were of very small bulk, on an average not exceeding that of a pinch of snuff, and sometimes less. Of these a certain number consisted chiefly of earth, with some half decayed vegetable matter, and many contained hardly anything but decaying vegetable matter, with a mere trace of earth. Of course, the latter are not fair specimens of soil, but I have subjected all to the same treatment, namely, boiling with nitro-muriatic acid, washing, straining through gauze, and examining the fine insoluble residue. This, of course, contained all the siliceous matter present, but it also contained much organic matter, of a brown or red colour, insoluble in acids, which, if necessary, might be destroyed by ignition, when it would leave a trifling ash. In every case I found Diatomaceæ in the residue, as well as Phytolitharia. Sponge spicules, apparently of fresh-

water sponges, were less frequent, but occurred in many. In a few cases, where the acid caused effervescence, there was calcareous matter present, but in most, this was not the case. Of course, in those cases in which the proportion of earth was small, the residue consisted chiefly of the insoluble organic matter, through which, however, Diatoms and Phytolitharia were scattered, in greater or smaller proportion. In the cases where the proportion of earth was larger, the residue was much richer in Diatoms and Phytolitharia, but almost always contained also the dark insoluble organic matter. In several, the proportion of Diatoms in the residue was so large, that it had the appearance of a regular Diatomaceous gathering, after boiling with acids. The most remarkable soils in this respect were one from the Sandwich Islands, one from Lebanon, one from the roots of a German Moss, and one from Ailsa Craig. It is to be noticed, however, that Diatomaceæ were found in every case, without exception, and that in all their proportion to the whole non-calcareous earthy residue was considerable, and often large. In many of those where the proportion of earth was smallest, there was no siliceous matter in the residue, except Diatomaceæ and Phytolitharia. The soils examined were from various and distant localities; there were about 20 from the Andes, several from Brazil and other parts of South America, a few from North America, a few from the West Indies, one from the Sandwich Islands, one from New Zealand, a few from India, one from Lebanon, a good many from Germany, some from France, a few from Spain, and some from Britain. The great majority of the species of Diatoms in all these were found to coincide with our British forms, but a good many species occurred in the exotic soils, which have not yet been found in Britain, and most of these not even in Europe, but which have been figured by Bailey, Ehrenberg, Kützing, Rabenhorst, &c. A good many were observed, which, so far as I know at present, have not yet been figured or described. Lastly, a certain number of species, lately found by Smith, Greville, and others, as well as by myself in Britain, and some of which are scarce, have occurred in these exotic soils. 3. On the Effects of the Severe Frost of last winter on Plants in the neighbourhood of Sligo, by the Right Hon. John Wynne, of Haslewood. The following facts indicate the severity of the frost:—First. The adjoining lake was frozen across, so as to bear skating for about one-third of its length for about a fortnight—a circumstance which never occurred in my recollection, and I believe only once during the lifetime of my father, who lived to be 85, and spoke of his having once skated across the lake, which we did several times this last season. Secondly. The number of birds killed by it was very great, especially sea birds—curlews and seagulls. After the thaw the sea-shore was covered with dead sea fowl. The thermometer at Markree Observatory, only six miles from this, and equally near the sea, on the 12th of February stood at 13.2 Fahrenheit, and on the 13th 17.6; on the 17th, 17.2; on the 18th, 15. There was no snow here during the continuance of the frost—only about 2 inches fell on the first day of the thaw, so that the plants were exposed to its full severity. Some days after its commencement I had the roots of the plants marked * covered with sawdust, but by no means soon enough. Plants killed—Erica arborea, Erica ciliaris, growing in bog; same very slightly injured in garden; Phyllodoce cærulea, Rhododendron altaclerense, Adiantum capillus Veneris, from Arran; *Davallia canariensis. This Fern has been for years in the rockery, covered during frost with a piece of calico. Plants much injured: Edwardsia tetraptera, old plants on west wall; E. microphylla, old plants on north wall; Laurus nobilis, *Myrtus communis, on wall, both narrow and broad-leaved; Ulex europæus in some places, not the least in others; Calluna vulgaris, in bog; *Abutilon striatum on east wall, out four or five years; Dabœcia polifolia, Verbena triphylla, *Aspidium longifolium, covered with calico. Slightly injured as to the leaves: Arbutus Unedo, much injured a few miles off; Photinia serrulata, both on wall and standard very slightly; Viburnum Tinus, some plants close to others which were much injured received no injury; *Ceanothus azureus on south wall. Uninjured: Fuchsia globosa major, on east wall; Magnolia grandiflora, on south wall; M. tripetala, standard; Rhododendron arboreum, Rhodothamnus Chamæcistus, Arbutus Andrachne, Olea excelsa, standard, sheltered; Daphne pontica, Pæonia Moutan, Pawlovnia imperialis, Erica mediterranea, also Irish variety; Cedrus Deodara, Araucaria imbricata, Cupressus tomentosa (*sic*), Taxodium sempervirens, Pinus canariensis, Abies Webbiana, A. cephalonica, Cryptomeria japonica, Quercus coccifera, Juniperus bermudiana, Buddlea globosa, Cistus ladaniferus, Garrya elliptica, Woodwardia radicans, covered with calico, as it has been for some years; Trichomanes brevisetum, Pinguicula grandiflora, Anomotheca cruenta, Mimulus moschatus.

Pomological, *August* 6.—Anniversary. Mr. Rivers in the chair. A report on the state of the Society's finances was read, from which it appeared that after all expenses were paid there remained 27*l.*, together with some outstanding debts due to the Society, in the hands of the treasurer. Officers for the ensuing year were then nominated, when Sir Joseph Paxton, M.P., was elected President; Mr. Davidson, Acting Secretary, at a small salary; and Mr. Taylor (of Messrs. Webber's), Treasurer, vice Mr. Spencer, retired. Amongst the more important fruits examined on this occasion were Stockwood Golden Hamburgh Grape, a sort first exhibited at the Horticultural Society's last July meeting, when it gained a Medal, as a valuable novelty. This opinion was now confirmed, it being regarded as a valuable acquisition to White Grapes, of which with the exception of Muscats, it was pronounced to be the best; also fruits of the Stanwick and Elruge Nectarines, from Arundel Castle, both excellent of their kinds; and a good looking juicy sub-acid Cherry from Mr. Rivers, considered to be valuable for its lateness.

Notices of Books.

The Philosophy of Reproduction. By R. J. Mann, M.D. Small 12mo. Longmans, pp. 160.

It is long since we met with a work in which the mysteries of nature have been more happily and intelligibly revealed. Dr. Mann's style of conveying the facts of high science in familar language is a model not only of skilful generalisation, but of pure English, undefiled by fearful Greek and Latin stains. That reader must be very dull of apprehension who fails to follow his lucid narrative even into the deepest depths of scientific revelation. We only regret that he never gives an authority for his statements, which necessarily rest mainly upon the researches of others, and which we certainly cannot in every case affirm to be susceptible of proof.

Without, then, professing to endorse all which this most instructive and entertaining volume relates, we are justified in saying that it is a lucid explanation of the opinions at present entertained by philosophers concerning what were once thought to be the impenetrable secrets of reproduction among living things, whether by eggs, seed, or other contrivances. From the animalcules that only microscopical eyes have ever looked upon, up to man, the most perfect of created beings, the chain of analogies is completed, as it also is between the green scum that floats upon our inland waters and the Pine of a thousand years that covers them with its shadow. In all these widely different forms the exact analogy of reproductive phænomena is sketched (for we have only a sketch) with very remarkable skill.

In explaining these curious operations, Dr. Mann takes as his point of departure Carpenter's happy idea of dividing all living matter into two forms, the Zöon and the Zöoid:—

"Each entire generation is in his nomenclature a zöon (*zoon*, Greek for animal); and every separate vesicle that forms an individual in this zöon is a zöoid. Thus, suppose, for instance, that one active vesicle of the yeast plant were dropped alone into a tun of sweet wort ready for fermentation, and were there to bud and multiply until a hundred millions of similar vesicles had been produced, each of these hundred millions would be one of Dr. Carpenter's zöoids; but all the vesicles contained at any one time in the tun would be a zöon. This is a very important generalisation, on account of the facility it affords for explaining what happens when complex instead of simple structures of organisation are concerned.

"Where the lowest and rudest kinds of vesicular life are alone in question, each new generation is cast off as rapidly as it is produced, and thus the entire zöon is widely scattered over the face of the earth. This, however, only happens with such rudimentary structures as the monad animalcules and many of the diatoms. In all other instances, the zöoid vesicles that are formed from one parent show more or less of a tendency to cling together. It has been stated that the vesicles of the yeast plant hang together in strings so long as the fermentation of the liquid in which they are developed continues. Many diatoms form chains after a similar fashion, sometimes holding together by the corners of their quadrangular frustules, at other times constituting staircases and jointed bars of very singular outline. In the higher developments of animal life, all the zöoid generation produced from a parent vesicle is retained in one skin. None are allowed to be scattered abroad until their work in the individual economy is finished. Each animal is therefore in itself one zöon of Dr. Carpenter. In the highly developed plants, the zöoids of a single generation are also attached together; but in this case subordinate clusters are capable of being removed from the general mass, and yet of possessing the power of individual life and further growth. Some plants propagate themselves by throwing off subordinate zöoid clusters of this kind; and the clusters are then called bulbs. Nearly every kind of perennial shrub and tree may be artificially multiplied after a similar fashion, by removing analogous zöoid clusters as cuttings. Cuttings are only artificially-produced bulbs."

It would be a vain attempt to show the manner in which this principle is applied, unless we were able to reproduce the woodcuts (admirable ones, by the way) with which the little volume is abundantly illustrated. All we can do is to select a passage or two, tolerably complete in itself, which we hope will not only prove instructive but induce the reader to consult the work itself.

Everywhere the first warm breath of spring arouses into life countless myriads of minute plants, whose presence is only ascertained, in the absence of the microscope, by the green colour they impart to stagnant water. They are thus described:—

"There is a little water plant known under the learned name of the Protococcus pluvialis ('primeval grain of the rain'), which consists of nothing more than a thin filmy wall rolled round into a globular form, and containing in its cavity a thick liquid dotted over with granules. If one of these plants is examined carefully by the microscope while floating in water, the granules will be seen to group themselves together under the eye until very soon a number of cell-like bodies have been formed in the interior of the primary vesicle. Commonly these new bodies mature into globular vesicles like their parent, burst its walls, and escape into the water to begin developing a like progeny in their interiors in turn. When this takes place, the occurrence is simply an illustration of one of the modes of cell multiplication already described. But sometimes a very curious change is made in these ordinary proceedings. The contained cells become oval or pear-shaped, instead of being globular, and a pair of delicate cilia or hairs are developed at one end. So soon as these cilia are perfected they begin to wave backwards and forwards with incessant motion, and create a great turmoil in the little chamber where all was so calm before. At length the parent vesicle, unable to stand this internal bustle any longer, gives way before it, and bursts, and its restless progeny swarm away into the open water, vigorously rowed by the vibrations of their ciliary oars. When these ciliated cells are observed soon after swarming they look very much like infusorial animalcules. Soon, however, a change comes over the spirit of the animated dream. The elongated vesicle plumps up into a globular outline, its oars drop off, and it is a motionless sphere—a simple unicellular plant in every particular like to its parent. Its day of roving is past, and its period for settling come. The vibratile oars are merely a temporary expedient provided for enabling the 'primeval grain' to flit to some distant locality, in order that it may deposit there its vital germs. This curious proceeding is a plan expressly provided for diffusing the race of this vegetable monad through the waters. Science, ever so free with names, has found a very appropriate appellation for these ciliated vesicles. They look like little animals, while performing their rapid evolutions in the water, and they obviously answer the purpose of seeds, which, wafted by the wind, transport the parent species to remote situations. They are hence termed 'animal seeds,' or, in the Greek form, 'zoospores' (from *zoon*, an animal, and *speiro*, to sow). Sometimes the first progeny of zoospores produces a brood like to themselves, instead of losing their oars and settling down. Then it is this second zoospore generation that matures into the globular condition, and becomes the staid and stationary creature."

In another place we have the following graphic explanation of the reproduction of the green-fly, blight, or aphis.

"One of the best known of the blighting parasites is the aphis of the Rose. There are few persons who have not, at some chance time or other, been annoyed by seeing the stalk of one of their favourite flowers of June completely ensheathed by a covering of little green viscid insects. Each of these unwelcome visitants of the Rose possesses a round, plump body, supported on six slender legs, and furnished with a pair of respectable feelers projecting out in front, and two oddly-shaped spikes protruding behind. The plump green body is crammed to overflowing with sap extracted from the plant. Pliny's 'saliva of the stars,' and the 'honey-dew' of later authorities, is merely the superabundance of this stolen matter overflowing from the gorged reservoirs into which it has been stowed. The aphis is marked by the extreme of philosophic indifference to surrounding things. It seems to live only to eat and to be eaten, and not quite to have made up its own mind as to which is the better fate of the two. It takes no trouble, in a general way, to conceal its presence, or even to shelter its body from passing inclemency of weather. Sunshine and storm are alike in its eyes; and while the emptied carcases of its neighbours are being piled up around its resting-place by some one of its numerous enemies, it goes on tapping the leaf beneath it, and quaffing the delicious juice, until its turn has come. Ladybirds and the grubs of the lacewing flies may often be seen sucking the juicy aphides as boys do ripe Gooseberries.

"Through the early summer the colonies of the aphides are wingless; but later in the season individuals appear in their grazing flocks, who have magnificent wings stuck rigidly and proudly up from their backs. Now these winged aphides are, like the winged ants, the males and females of the species. The individuals that form the great bulk of the colonies, and that are wingless, are not, however, neuters, as is the case with the ants; they are all females. No gentlemen ever make their appearance among them until quite the end of the summer. Yet those females go on producing generation after generation of forms of like organisation to themselves. This is the surprising peculiarity in the history under consideration. The fertilised germ-vesicle of the aphis is deposited as an ovum by one of the winged females at the close of the summer in the snug nook formed by the union of a Rose leaf with its stem. This egg is hatched by the returning warmth of spring; and out of it there then comes a wingless, six-footed grub, which is not only a grub, but also a female grub, and a wondrously productive one to boot: for after a few days she gives birth to eight wingless, six-footed creatures like to herself. Each of these is also a productive female, as well as a grub, and in her turn soon gives birth to another generation of eight forlorn grubs, who thus, strange to say, are not only fatherless, but really must have been fatherless, and have been in existence, in a physiological sense, even before their mother was born. The only paternal influence they received must have been handed down to them through

the primeval egg that produced their own grand-parent. This singular process of multiplication goes on, generation after generation, in favourable seasons up to the tenth or eleventh successive aphis brood; so that, if the ranks of the thriving race were not thinned by the attacks of depredators, the descendants of a single first-parent might number within one season ten thousand million of millions, and this too without any renewal of the fertilising influence."

"This extraordinary production of successive generations of distinct living creatures from one maternal parent, without any renewal of fertilisation for any of the broods, has been designated 'Parthenogenesis' (Virgin-birth) by Professor Owen."

After referring to a description, here omitted, the author proceeds as follows:—

"In this way, therefore, the analogy with the operations in the vegetable kingdom is made complete. Each of the grubs of the intermediate broods is really an aphis bud, rather than a perfect female, and is protruded from the parental body as leaf buds are pushed forth from the stems of plants. The early generations of the aphis are budded rather than born, each bud separating from the interior masses of the producing structure, and finding its way into external space through a channel left for the purpose in the organisation. The term virgin-birth might perhaps be advantageously exchanged for animal gemmation (animal budding). In growing trees young buds, that are the offspring of some primeval germ-fertilisation, produce successive generations of bodies like to themselves, without the intervention of any fresh fertilising influence; but after a time stamen and ovule-bearing flowers are formed, instead of more generations of ordinary branch-making buds. Then the matured seeds separate from the parent structure and fall to the ground, or are borne away to distant regions by wings (in this case the wings of the wind), in order that the race may be maintained in dormant existence through the winter's cold, and be subsequently again recalled into activity far and wide. But the wingless grubs of the aphis are scarcely more locomotive than the leaf-buds of a tree. So long as there remains the smallest drop of sap in the stalk or leaf on which they chance to be, they stick to their positions, unless forcibly driven from them. It only needs that a colony of them should be conceived to be bound together by a common investment of skin, as they lie in their lazy ranks, and that the new buds should continue to shoot from this connected mass without being separated from it, until the final generation of winged females and males are produced; and there is then before the imagination a picture of an aphis stem pushing forth its aphis buds, and at the appropriate season blossoming its special reproductive apparatus of aphis flowers. The wingless grubs are to the aphis colony precisely what the leaf-buds are to the perennial shrub or tree; and the winged and perfected insects are what the flowers and seeds are to the perennial tree. Each bears the same relation to, and performs the same office in, the general economy of the organisation to which it belongs, and on this account becomes as pleasant a spectacle to the physiological eye as it is a disagreeable one to the horticultural organ of vision."

Such being our opinion of Dr. Mann's very agreeable volume, we have no reluctance in pointing out little slips of the pen such as assigning to *different trees* of the Oak the property of bearing catkins and acorns, or the death of annual plants to the mere action of cold.

FLORICULTURE.

National Floricultural Society, *Aug.* 9.—Mr. W. Paul in the chair. At this meeting Hollyhocks formed, as was expected, the chief feature of attraction; but there were also beautiful exhibitions of cut Verbenas, Carnations, and Picotees, Dahlias, Balsams, Fuchsias, and other objects of interest. Of Hollyhocks Mr. Roake, gr. to E. Foster, Esq., of Clewer Manor, near Windsor, sent Mrs and Miss Ashley, Beauty of Cheshunt, Unique, Sulphur Queen, Comet, Pourpre de Tyre, Julia Roake, White Globe, and three Seedlings. In a collection from Mr. Turner, of Slough, we remarked very fine examples of Sir D. Wedderburn (improved), Mrs. Parsons (a Seedling), Little Gem, Standard (a salmon-coloured Seedling, to which a First Class Certificate was awarded), Lizzy, Pourpre de Tyre, Brennus, Lemonade, Unique, Eugenie, Beauty of Cheshunt and Argo, a Primrose seedling, to which a Certificate of Merit was awarded. The same grower had also three fine spikes of Criterion, Unique, and Emily. Mr. Bircham had a Certificate for Purple Perfection, a Hollyhock of good form, size, and substance, but deficient in guard petal. Mr. Parsons, of Welwyn, showed Bride, a promising creamy blush flower, but not in good condition. Mr. Chater also produced some cut blooms of Hollyhocks. Of Verbenas the best collection came from Mr. Lochner, who sent Lord Raglan, Empress, Mrs. Tysson, Reine d'Amazon, Hector, St. Margaret's, Queen, Mary Ann, Peter Dick, La Deesse, and two other French varieties. Mr. Weatherill, gr. to D. McNeill, Esq., who was second, had Vicomtesse de Balville, Brilliant de Vaise, Old Tom, Grandis, Eugenie, Mary, Cedo Nulli, Mrs. Woodruffe, Purple Defiance, Syuonie, Caliban, and Novelty. A third collection was furnished by Mr. Smith, of Hornsey, who had among others Urania, Lord Raglan, Hebe, Wonderful, and one or two promising seedlings. A First Class Certificate was awarded to Mr. Turner for Blue Bonnet, apparently a useful bedding variety. The Royal Nursery also furnished Premier, a pretty rosy crimson kind with a white eye, and Belle of the Village, a sort in the way of Mrs. D. Tysson. Of Picotees Mr. Turner sent Dr. Pitman, a very fine heavy red edged variety, to which a First Class Certificate was awarded; and Mrs. Lochner, also a heavy red edged Picotee, to which a Certificate was given. This was a well shaped and promising flower. A Certificate was awarded to Mr. Lochner for Angelina, a light rose edged kind of good form and breadth of petal. Mr. Turner received a certificate for Alma, a scarlet variegated Geranium, which looked as if it would make a good bedding kind. Mr. Smith, of Hornsey, had a Fuchsia in the way of Clapton Hero; Mr. Salter, of Hammersmith, a Phlox, for which he had a Certificate; and Messrs. E. G. Henderson some seedling Heaths, to two of which First Class Certificates were awarded. Messrs. Paul & Son had some cut Roses, whose beauty seemed to have been considerably impaired by the heavy rains we have lately had. Of Dahlias, Mr. Robinson sent Rachel Rawlings, Duke of Wellington, Eclipse, Essex, Triumph, Louisa Glossop, and Sir P. Pathurst. Mr. Turner had Beauty of Slough, Miss Burdett Coutts, Lilac King, Mr. Seldon, Robert Peace, and Sir P. Bathurst. Mr. Keynes also showed six blooms, among which were Duchess of Kent, Lord Raglan, Rachel Rawlings, &c. Of Fancy kinds, Mr. Turner sent Butterfly, Topsy, Laura Levington, Pigeon, and Comet. Among Mr. Keynes' flowers were Mrs. Spary, Admiration, and Baron Alderson, &c.: and Mr. Robinson had Motley, Miss Mathews, and Mrs. Heather. A Second Class Certificate was awarded to Miss Burdett Coutts (Turner), a salmon and brown flower of good form and substance, and a similar award was made to Mr Keynes for Lord Raglan, a buff variety, shaded with orange, and good in outline, but not very attractive in colour.

Miscellaneous.

The City of London Cemetery at Ilford.—This, under the control of the City of London Commissioners of Sewers, and occupying upwards of 90 acres, is progressing towards completion. The chapels, lodges, and other architectural matters are in a forward state. The turfing, roads, &c., are very far advanced, and the consecration is expected to take place about the end of September. The sum of 1800*l.* is allotted for the expenses of planting, and we observe that notice is given in our advertising columns that tenders for trees and shrubs are required. We understand that the landscape gardening matters connected with the cemetery have been intrusted to Mr. W. Davidson, of 36, Great Russell Street, Bedford Square.

European Vegetation in Van Diemen's Land.—Many common English weeds are naturalised about Georgetown, and some are perfect pests. Horehound is everywhere by the roadside, and Chamomile covers the fields and paddocks; in many places to the exclusion of Grasses. Thistles are fast going ahead all through Van Diemen's Land, and no one seems to trouble himself with them, although I have seen, I suppose, some hundreds of acres given over to them, and growing so thick in some places that I have walked over my shoes in the bed of Thistle-down which had blown from the withered stems. Sweetbriar, originally introduced as a hedge plant, is completely naturalised, and in places forms impenetrable thickets. It annually produces millions of hips, and if let alone will soon become as great a pest as the Thistles. The common Furze is also spreading, but not so rapidly in the western country. The Hawthorn grows perfectly, and forms excellent hedges as at home, but keeps within bounds; though it, too, fruits abundantly. I have seen Oaks heavily laden with well-grown acorns; but there are no trees, as yet, of large size. Elms and Ash are occasionally cultivated, but are not common. I do not think I have seen any of the Pine tribe in cultivation, except a few recently introduced to the Botanic Garden at Hobart Town. The great staple in the garden way of the colony is in Apples, Pears, and Plums, and Cherries; all of which thrive remarkably well, and they have already raised some seedling Apples and Plums, which are well-deserving of cultivation. There is a large trade in Apples to Melbourne. The smaller fruits are made into jams or consumed at home; and often suffered to rot on the trees, from their abundance. Gooseberries, Currants, Raspberries, and Strawberries grow equally well. But Peaches and Nectarines are only fit for tarts, and often fall off before they are ripe. Grapes just ripen and no more, and are of small size. I have been here the hottest months of summer without experiencing greater heat than we often have in England. There is less rain, and a greater number of clear days; but on the whole I scarcely think the summers hotter than those of England. People here complain (as in all the Australian colonies) of the rapid changes of temperature; but with less reason for complaining than in any other country I know of. To me the climate seems as nearly perfect as a sublunary climate can well be. *Harvey in Hooker's Journal of Botany.*

Preserving Sea-water in a Healthy State in Salt Aquaria.—Another very interesting experiment that I have had progressing very successfully for some time past, is the preserving sea-water in a perfectly transparent and healthy state without the use of vegetation of any kind, or in some cases, even of a scavengering mollusk. The adoption of these experiments was in a great degree forced upon me from circumstances which have been already published. In the paper read before the Meeting of the British Association at Hull, I stated that in consequence of the ravenous propensities of the crabs and the varieties of rock-fish, I had been obliged to establish several small imitation rock-pools, so as to separate these various depredators from each other; and as some of these, the blennies, also attacked the common periwinkle and other mollusks which were employed as scavengers, the plant or vegetation consequently became of little use, and was therefore omitted altogether from the arrangement. It may be asked then, how can the sea-water under such circumstances be possibly kept in a healthy state? Why, thus: by exposing a very extended surface of it to the action of the air, and at the same time limiting its depth. The means that I have been adopting for upwards of 12 months consist in the employment of shallow circular stone-ware pans of about 18 inches internal diameter by 5 inches deep; these are filled for about 2 inches with water, the bottom is supplied with sand and shingle, and numerous fragments of rock-work are arranged at the sides, some close below the surface of the water, others rising in gentle slopes above, and others again grouped to form cavities of retreat, so as to accord with the habits of the crabs, blennies, &c., placed in them. The whole is covered with a sheet of common window glass, raised about one-fourth of an inch from the edges of the pan by means of strips of wood, so as to allow a free current of air over the surface of the water, and at the same time impede the evaporation and prevent the greater part of the dust and soot from settling on it. By this arrangement, a very extended surface of water is submitted to the oxidising influence of the air, and the fish and crabs by their continual movements cause sufficient motion in the fluid to expose a fresh surface frequently to its action, and thus keep up its aëration. But it must be borne in mind that the oxygenation of the water thus effected is a very delicate equilibrium, and the maintenance of a healthy aëration is liable to be disturbed by very slight interfering causes; nor do I conceive that this method would be applicable except to such marine denizens as are either of such low organisation as to require but little aëration of the water, or to such as the crab tribe, the blennies, cotties, gobies, and those creatures which delight in very shallow water, or which have the power of climbing out of their liquid element. The varieties I have myself kept in perfect health for the period mentioned, are crabs, blennies, gobies, cotties, and varieties of Actinia. Cancer Mœnas has under these circumstances cast its skin three times during the present year, having increased in its dimensions most extraordinarily each time. *Warington in Annals of Natural History.*

The Unity of Science.—Each several science is linked and bonded to every other. The sciences possess no distinct or well-defined frontiers. Each science interlaces with every other; nor can we by any possibility study effectively a single branch without calling in the aid of several others. Astronomy yields us ample illustration of this. * * * Who could suppose that the labours of the old Greek geometers, while speculating on the plane sections of a cone, would have proved the source of the restoration of astronomical science? Or who could imagine that Archimedes and Appolonius, poring over their tablets scored with straight and curved lines, should have laid the foundation of the mariner's security while wandering over the wild and trackless ocean wastes? * * * Of chemistry, zoology, botany, geology, and mineralogy, what can be said at all commensurate with their great importance, singly and collectively? They are at once intimately united with each other, and to other branches of science. Chemistry has made wondrous progress since the days of the alchemists. They had secrets among them, too; but these have long since been discovered. The details of chemistry are so various, its points of union with other branches of science so diversified, as, within any moderate compass, to defy enumeration. Its applications in illustration of the processes going on in the organs of plants and animals are, perhaps, among the most interesting and instructive. Our planet, indeed, is one vast laboratory, where the wildest dreams of alchemy are more than realised. There the diamond is crystalised by means beyond our ken. Gold, too, is prepared, it may be, transmuted—for by some this doctrine is not considered untenable—by nature's gnomes, in a vast chemical arena, where the distillation of fluids and gases, the reduction and fresh incorporation of metals, and smelting of ores, is continually going on. * * * Physiology bears to the acts and movements of plants, and more especially animals, a relation similar to that which subsists between astronomy, dynamics, hydraulics, pneumatics, and inert matter. Kant defines an organised product as "that in which all the parts are mutually means and ends." It is, perhaps, more; for each part is not only a means and an end, it is also requisite to our just conception of the whole. Each portion must not only subserve some use, but depend for the exercise of its functions on the whole. To keeping this principle in view we are indebted for many of our greatest discoveries. To it physiology mainly owes its developement. * * * Thus, wherever we go, whether on the broad earth, or the heaving expanses of ocean; whether we pierce the briny depths, or soar amid the careering orbs in the starry vault above, there, everywhere, do we find the sciences sister goddesses, not one science, but all science; not physical science only, but that moral science, highest, most indispensable of all, walking in firm union, making a one out of many, constituting a unity of surpassing splendour—the Unity of Science! *Extracted from a Paper by Mr. William M'Cormac, read before the Literary and Scientific Society of Belfast.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—In cases where the gaiety of this house depends largely upon specimens brought from the stove, it will probably be necessary, should the present wet cloudy weather continue, to use a little fire heat, to prevent the flowers of tender things being injured by damp; but use this only if it cannot be safely done without, and in conjunction with a free circulation of air, for a high close temperature would be likely to injure hard-wooded greenhouse plants; and in the case of the stove plants, it is not cold that is to be dreaded, but damp. Look well to the Luculias, which are certainly our finest autumn-flowering plants, and keep them clear of their great enemy, black thrips; also see that they are well supplied with water at the root, giving weak manure water occasionally to encourage strong growth; but manure water should not be given to young

plants in vigorous health, as it might cause them to grow too freely, and late in the season for their blooming finely; also see that specimens of Camellias planted in the border are not allowed to get too dry at the root, after they have set their buds, as this is the great cause of the buds drooping; but in the case of young vigorous plants, it will probably be requisite to keep them very sparingly supplied with water for some time after their buds are set, in order to prevent their making a second growth; but this must be done cautiously, so as to avoid the opposite extreme, and plants that are at all likely to make a second growth should be freely exposed to light and air as soon as their wood is made. Look well to the stock of plants for autumn flowering, and afford these every necessary attention. Do not allow Chrysanthemums to suffer for the want of water, and those that have well filled their pots with roots should be liberally supplied with strong liquid manure to promote vigorous growth, and preserve the foliage in good condition. Keep the shoots thin by tying out, &c., and look sharply after mildew, applying sulphur the moment it is perceived. Seeds of the herbaceous Calceolarias ought to be sown at once if not already done; but we have now so many showy and handsome shrubby varieties, and these are so easily managed plants, and useful for decorative purposes, that the former, beautiful as they are, are hardly worth the trouble they cost. The shrubby varieties should be closely cut back after flowering, placing them in a shady situation out of doors until they break, and then be repotted, clearing away as much of the old soil as can be done without greatly injuring the roots. After repotting they may be placed in a cold frame, merely to guard them from heavy rains until the roots get hold of the fresh soil; but if strong bushy plants are desired they must be kept cool and airy at all times. Get the wood of Pelargoniums well ripened by removing the plants to a sunny situation out of doors as soon as they have done flowering, and keeping them rather dry at the root; for unless the wood is well matured before cutting back, there will be some danger that the plants will not break satisfactorily. Put in cuttings of Fuchsias, which if grown in a gentle heat through the winter, will make fine flowering specimens for next season. Stove.—The twiners here should be kept within due limits after this season, in order to prevent their shading the house too much; for although a thin shade during bright sunshine will be of great service to most of the inmates of this house, a constant shade will be most injurious to the great majority. Achimenes, Gloxinias, &c., which have done flowering for the season, should be placed in a light part of a rather cool house, or a cold frame kept close, and moderately supplied with water for some time, and not dried off at once, as is frequently done to the great injury of the tubers. Attend to tying out the shoots of young specimens of hard-wooded things, so as to keep them thin, and admit light, in order to secure short-jointed strong growth.

FORCING DEPARTMENT.

Pineries.—The plants intended to furnish the winter and spring supply of fruit must be treated with considerable care and judgment, in order to insure their showing at the proper time, or rather to do all that can be done to insure this, for the most experienced growers cannot always succeed in getting plants to fruit at the desired time. Attend to previous directions on this point, and continue to select the most promising plants, keeping them dry at the root, and fully exposed to light so as to check their growth, and induce a comparative state of rest for a few weeks. And those that have well-matured their growth, if wanted to fruit at once, should be kept close and warm, affording them a brisk bottom heat, and properly moistening the soil about the roots. Those intended to supply ripe fruit late in spring, if not considered sufficiently strong, may be encouraged to grow freely for some time yet, as if these can be got to show in November, they will be sufficiently early. Attend carefully to plants swelling their fruit, giving plenty of manure water at the root, and keeping the atmosphere warm and moist. In the present state of the weather a considerable amount of fire-heat will be indispensable where the fruit is ripening. Attend carefully to the watering of recently potted stock, as if too much is given the fresh soil is apt to become sodden, and if too little the old ball becomes so dry that it is not easy to get it properly moist again, and in either case the check the roots sustain frequently throws the plants into fruit prematurely. Get all succession stock requiring more pot room shifted as soon as circumstances will allow, in order that they may be well established in their pots before winter. Vineries.—The long-continued wet sun-cloudy weather is by no means favourable for Grapes that are ripe and expected to hang in good condition for a long time, and where the borders are of a strong adhesive nature, it will be advisable to cover with something to throw off the unusual falls of rain which we are experiencing; but where the soil of the border is of a light nature, and such that the water will drain through it freely, this will be unnecessary. Use gentle fires where the fruit is colouring, with a moderate circulation of air, and on fine days too much air can hardly be given at this stage. In the present state of the weather fire heat will also be necessary where the fruit is swelling. The wood will probably be well ripened in the early house, and the foliage turning brown, and in this case it will be desirable here also to prevent the border getting saturated with wet. If this house requires painting or any other repairs, this should be attended to as soon as the state of the weather will permit, while the house can be thrown open, and such work done more conveniently and much better than at any other season. Peaches.—The wood will probably be ripe in the early house by this time, but it will be advisable to keep the top sashes up at night until we have more settled weather, so as to prevent the borders getting saturated by rain. Give all the air possible, however, by the front ventilators, and keep the house cool and airy during the day. Give trees from which the fruit has just been gathered a good washing with the engine to clear the foliage of dust, &c. Melons.—Plants in dung frames will require considerable attention in the present state of the weather. Keep the bottom-heat as regular as possible, and endeavour to secure sufficient warmth from the linings to allow of giving a little air to prevent damp. Water very cautiously, and only when a fresh supply is absolutely necessary, and then give enough to moisten the whole mass of soil.

FLOWER GARDEN AND SHRUBBERIES.

The propagation of next season's bedding stock should be commenced at once, and gone about with the utmost possible expedition until every cutting is got in so as to ensure having strong and well established plants before winter, and this without the being under the necessity of keeping them so close and warm as to induce weakly growth. The wintering of bedding stock is generally a somewhat difficult matter, but the difficulty is often greatly increased through the cuttings being put in too late in the autumn to allow of having strong stocky plants before winter. It is doubtless true that the convenience for wintering bedding stock is insufficient in many cases, but however good the convenience may be the cuttings should be rooted early in the autumn, for many of our favourite bedding plants are troublesome subjects to carry over the winter with the best accommodation, unless properly prepared, whereas plants that are well established by the end of September and can be freely exposed to the open air on every favourable opportunity after that time, are by no means difficult to carry over the winter. Cuttings of such things as Anagallises and Nierembergias should be afforded a gentle bottom heat, and if this can be commanded without too much top heat, it will encourage the emission of roots in less time, without drawing or weakening the cuttings. Hollyhocks are unfortunately somewhat tedious to propagate, and do not afford cuttings very freely, consequently they are not over plentiful about most places. The choice sorts should be looked over frequently, putting in cuttings as they can be obtained, as autumn-rooted cuttings make prime strong plants for flowering the following summer, whereas those rooted in winter and spring often bloom but poorly the first season. Plants from which cuttings are wanted should be liberally supplied with manure water, mulching them with rotten dung in the event of dry weather, which will assist in promoting a vigorous habit of growth and inducing the formation of young shoots. See that these and Dahlias are secure against a sudden storm of wind. Go over the masses of Verbenas, &c., frequently, for the purpose of regulating the height, &c., and preserving the appearance of order and neatness over the whole garden. Get Stocks for spring flowering sown at once; also transplant Brompton and Queen Stocks to where they are to bloom, or, if this cannot be done, plant in nursery beds, allowing them plenty of space, in order to induce a stocky habit.

HARDY FRUIT AND KITCHEN GARDEN.

It is now too late for this season to prescribe a remedy for the Gooseberry caterpillar, but while the subject is exciting attention it may be worth while to state that syringing the affected trees with a decoction of Foxglove leaves will be found a certain cure. The Gooseberry and Currant trees here have escaped the pest this season, until some three weeks since, and then the caterpillars made their appearance so suddenly and in such force, that every leaf would have been devoured before all the hands at command could have saved them by picking off the insects. A quantity of Foxglove leaves were procured and steeped in a boiler of boiling water, and the decoction drawn off and sprinkled over the affected trees with a fine-rose syringe, taking care to wet the under sides of the leaves. The following day the insects generally seemed weak and inactive, and on the third day after dressing the trees very few were to be found alive, and any that may have escaped did no further perceptible damage. Therefore, where Foxglove leaves can be obtained, these afford a ready means of getting rid of this troublesome pest. Most fruit trees are growing very freely, owing to the moist state of the soil, and Peaches, &c., must be looked over occasionally. Winter Onions should be sown at once, also Cauliflowers for the early crop next season, a small bed of pickling Cabbage, Brown Cos, and some hardier sorts of Lettuce to stand the winter. The tops of the main crop of Onions had better be laid down if they are inclined to be too rank, going over the bed with a wooden-headed rake, and pressing the tops down sufficiently to check further growth. Plant out a good breadth of Endive on well-enriched soil of a light dry nature; also see to providing a good supply of Lettuce, &c., for autumn use. Attend to Celery, keeping it well supplied with water in dry weather, giving it as much manure water as can be spared for it, and keep the early crop rather closely earthed up. Vacant ground, or that which can be cleared of early crops, may still be planted with winter stuff, first giving it a good dressing of manure and a good deep digging. Stir the surface of the soil among growing crops. Cut Box edgings, and keep every corner clean and neat.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Aug. 9, 1855, as observed at the Horticultural Gardens.

August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.
Friday 3	20	29.780	29.639	74	52	63.0	67	63	S.W.
Satur. 4	21	29.713	29.664	72	53	62.5	68	63	S.W.
Sunday 5	22	30.022	29.929	73	41	57.0	68	63	S.W.
Mon.. 6	23	30.062	29.866	73	55	64.0	67	63	S.W.
Tues. 7	24	29.755	29.664	75	56	65.5	68	63	S.W.
Wed. 8	25	29.650	29.626	72	54	63.0	68	63	S.W.
Thurs. 9	26	29.918	29.828	71	38	54.5	68	63	W.
Average.		29.813	29.745	72.8	49.8	61.3	67.7	63.0	

Aug. 3—Very fine throughout.
— 4—Fine; cloudy; slight rain; fine.
— 5—Very fine; heavy, cold dew at night.
— 6—Uniformly overcast; fine; rain at night.
— 7—Cloudy and hot; very fine; cloudy; heavy rain.
— 8—Rain; thunder half past 12 P.M.; excessively heavy rain 5–6 P.M.
— 9—Fine; very fine; clear and cold with heavy dew at night.
Mean temperature of the week 1½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 29 years, for the ensuing week, ending Aug. 18, 1855.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 12	74.3	51.5	62.9	10	0.47 in.	2	2	1	5				
Mon. 13	73.1	50.4	61.8	14	1.14	—	3	2	4	1			
Tues. 14	71.8	51.0	61.4	9	0.58	—	6	1	3	1	4		
Wed. 15	72.7	50.4	61.6	11	0.61	3	4	1	1	1	4		
Thu. 16	72.9	52.4	62.6	12	0.58	—	3	3	1		4		
Frid. 17	73.1	50.9	62.0	16	0.76	2	1	1	2		1		
Satur. 18	73.6	51.9	62.7	11	0.38	1	2	1	1		4		

The highest temperature during the above period occurred on the 12th, 1842—therm. 92 deg.; and the lowest on the 13th, 1839—therm. 32 deg.

Notices to Correspondents.

Bees: *Tassaggart.* We are not acquainted with the process of stupifying bees with flax dipped in nitre. Who is Dr. de Burvoys? If you will refer us to his work, we will endeavour to ascertain.

Collomia grandiflora: *C.* It is not uncommon for this to be apetalous. It is a plant which seeds very freely, and we have sometimes seen the whole crop of one year apetalous, while in the next perhaps every calyx contains a pale buff corolla. Your plant was so crushed from the mode of packing, that it was impossible to ascertain from the specimen what was its condition. *M. J. B.*

Fruit Trees: *Diss.* For a wall, 160 feet long, you may plant the following:—Peaches: Royal George, Noblesse, Bellegarde, and Barrington. Nectarines: Elruge, Violette Hâtive, and Balgowan; and the Royal and Moorpark Apricots. At equal distances each tree will have about 17 feet 9 inches of the whole length of wall. Then, as you intend to extend the wall in a few years, your best plan will be to plant intermediately for training to remove a Bellegarde, Royal Charlotte, Grosse Mignonne, and Acton Scott Peach; an Impératrice, Downton, and Balgowan Nectarine; and a Moorpark and Turkey Apricot. We are not aware of anything new more appropriate.—‡ If you will furnish us with your locality we will then give you the information you seek. Fruit trees that will suit one part of the country often will not succeed in another.‡

Greenhouses: *C W B.* There is no sort of objection to carrying your Vine up to a first floor before it enters your greenhouse; and if you can obtain a Vine with ripe wood long enough to pass inside the ground flour, let it do so. But if your Vine is to make its growth when it is planted before it enters, then you must carry it up outside. What you must take care of is that the border, or borders, no matter which, where your Vines grow, are so placed as to be warmed by the sun, and at the same time are not exposed to excessive dryness in summer. The materials you propose to use for your border are suitable.

Insects: *W B C L.* The beetles which have attacked the young shoots of your Pinus insignis are the common Hylurgus piniperda, a very troublesome species, whose history is given in the *Gardeners' Chronicle*, 1846, p. 740. It is for food that the beetles attack the young shoots, which should be picked off and burnt as soon as they show the slightest symptoms of being infested. The eggs are deposited under the bark, and hence all decayed and cut trees should be moved as quickly as possible and the bark burnt.—*Althæa.* The Hollyhock stems exhibit a large wound in the neighbourhood of the crown, which we have found infested to a small extent with a small chesnut-coloured Acarus, like a little black beetle; but which we consider to have been attracted to the wound after it was made. We can form no idea from the specimens sent as to the original cause of the mischief.—*J W—s.* The insects you have sent are the wood-boring Sirex gigas, the history and representation of which is given in the *Gardeners' Chronicle* for 1850, p. 517. *W.*

Microscope: *P. S.* A pocket lens with an inch focus will answer your purpose.

Mildew: *S A.* You may dust your Vines efficiently with a dredger; but if you dislike that, then get an Epps's or Ripley's sulphurator. The Vines should be damped first to cause the sulphur to stick to them.‡

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*H D.* Apocynum androsæmifolium, a native of the United States.—*Erzeroum.* 473, Anthyllis Tourneforti; 116, Astragalus chionophyllus; 88, Geranium lineatum; 36, Geranium tuberosum.—*W F.* Polygonum compactum from New Zealand.

Orange Trees: *W W.* You do not say what insect you mean by "*The* insect." If it is the scale you must trust to frequent scrubbing with water at 160°—180°.

Ponds: *J E C.* Your small pond will never be clear of green slime until a stream of water is made to run constantly through it. ‡

Potatoes: *J R R.* You had better leave your Potatoes alone for the present. If the evil increases, the haulm might then be pulled up with advantage. ‡

Strawberries: *H Doubleday.* The seedling Strawberry which you had from Mr. Myatt may or may not be a good late one, but its freshness and flavour were lost from close packing and carriage, which similarly affects all varieties of this class of fruit. ‖

Variegated Laurel: *J B.* A Laurel! why it is the common variegated Euonymus japonicus.

Vines: *W G A.* The small transparent globules on the stems and leaves of your Vines are exudations of sap, and not insect deposit.

Misc.: *L M.* You can only send a *stamped* newspaper to Australia, and then a postage stamp must also be affixed to it.

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

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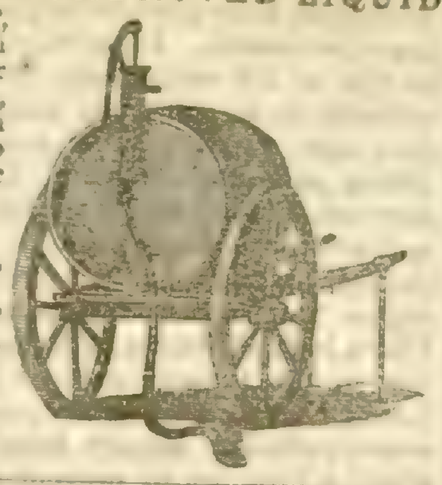
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

DRAINAGE OF LAND.
MR. HUMBERT, of Watford, Herts, a practical Surveyor and Land-Agent of more than 15 years' standing, offers his services to Gentlemen about to drain Land and Bogs. He will undertake to set out and superintend himself the execution of the work at a charge of 5s. per acre, and the expenses incurred in his travelling; or he will contract to complete it in a specified manner to the satisfaction of the Inclosure Commissioners at a fixed price per acre. Mr. Humbert has drained strong stony land in the most careful and complete manner, with 1¼ inch pipes, and proper mains, the drains being 4 feet deep and 30 feet apart, at 4l. per acre and under, and he can give reference to his employers in that and in other instances.
Watford, Herts, Aug. 11.

CLAYTON, SHUTTLEWORTH, & CO.'S PRIZE PORTABLE STEAM ENGINES, AND COMBINED THRESHING, STRAW SHAKING, RIDDLING AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to horn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as threshed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.
C. S. & Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading Agricultural Shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

NEW INVENTION IN LAWN MOWERS, WHICH POSSESS SUPERIOR ADVANTAGES TO ANY MACHINES NOW IN USE.—In the first place, they will cut the Grass either wet or dry: secondly, by the simple adjustment of a thumb-screw, they can be made to cut Grass either long or short; and, thirdly, these machines are drawn instead of being pushed and drawn, and consequently do not require half the usual power to work them. They are made to cut any width suitable for either man or horse. They will turn in very little room and cut at the same time. They are a perfect roller for the width they cut when thrown out of gear. The improvement can be attached to old machines, consequently old machines that are now laid aside, can be brought into use at a small expense.—N.B. These Machines can be adjusted and wrought by any unskilled labourer.
Price to cut 16 inches, £6 | Do. 20 inches, £7 | Do. 24 inches, £8.
Testimonial from JOSHUA MAJOR, Esq., *Landscape Gardener, Knostherpe.*
To MR GREEN Leeds.
"SIR,—As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen and even ladies may work either the 16 or 20 inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the largest size (24 inches) would be most suitable, for even in undulating ground two persons may work it, but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable and useful invention, which, in my opinion, entirely surpasses and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass Lawns, and a great boon to the public. I am, Sir, your most obedient servant,
"Knostherpe, near Leeds, July 19. JOSHUA MAJOR."
Several Machines of the old kind, in stock, will be sold at half price, viz.:—16 in., 3l.; 20 in., 3l. 5s.; 24 ins., 3l. 15s.
THOMAS GREEN, SOLE MANUFACTURER.
Iron and Wire Works, North Street and Briggate, Leeds.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50s.
1½-inch Flexible Rubber and Canvas Suction for ditto, 3s. 6d. per foot.
1½ Gutta Percha Suction, 1s. 6d. per foot.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3l. 3s. The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe, 1s. 6d. per foot.
1½ inch Flexible Rubber and Canvas Suction Pipe, 3s. 6d. per foot.
May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1 12 0
2½ „	long 3 „ 3 „	gutta percha,	1 15 0
3 „	ditto 3 „ 6 „	or cast iron	2 12 0
3½ „	ditto 3 „ 6 „	flanged pipe,	2 18 0
4 „	ditto 3 „ 6 „	as required.	3 5 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 12 0
2½ in.	long ditto	ditto ditto	2 15 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.
MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

CAUTION.
PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.
Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

PAXTON WORKS, SHEFFIELD.
SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to SAYNOR & COOKE for their superiority of material and workmanship. Established 1738.

THE HARVEST.
DRUMMOND'S IMPROVED REAPING SCYTHES continue to give every satisfaction, and the demand is yearly on the increase. They are as usual got up with every possible care, and are fitted with the very best picked blades. Price for three Scythes complete, 30s; do. for six, 56s. Carriage paid to the principal Railway Stations throughout the kingdom. W. DRUMMOND & SONS, Seed and Implement Warehouse, Stirling, N.B.
*** To prevent disappointment early orders are respectfully requested.
N.B. Unknown correspondents will please accompany their orders with a remittance.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the nobility, gentry, and clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.
Lists of colours, prices, together with a copy of the testimonials, will be sent on application to WALTER CARSON & SON, 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

The Agricultural Gazette.
SATURDAY, AUGUST 11, 1855.

AMONG the CAUSES OF FERTILITY which "Observation" recognises is the skilful adaptation of the crop to the land that is being cultivated. There is an essay in an early volume of the Journal of the English Agricultural Society on the natural indications of fertility in soils; there, of course, the adaptation both to soil and climate is complete; but where the selection of a crop depends entirely on the will of the cultivator, all other plants being kept down by force, the actual produce of the land may be no indication whatever of its fertility. To give that full exhibition and development, it needs that plants suited to its character and climate be selected. Mangold Wurzel would not show the fertility of soil in Scotland so well as Swedish Turnips, because the climate is against it. It will not show the fertility of a sandy soil so well as common Turnips, because it prefers a clayey loam. The adoption of a rotation of crops is important, not only as the means of perpetuating or increasing fertility, but also as the means of exhibiting and putting to the full measure of its power the actually existing fertility of the land; and conversely the introduction of a new plan to agriculture has been often useful, not only as furnishing a new and valuable form in which fertility may find vent, but also in the improvement which the very act of cultivating it confers upon the land. The introduction of Italian Rye-grass has been useful, probably, merely as an instrument of extraordinary power for the conversion of fertility into food. The introduction of Mangold Wurzel, on the other hand, has undoubtedly been of benefit by all the advantages of drill husbandry and fallow cultivation conferred by it on a stiffer class of soils than had been generally thought adapted to the growth of Turnips. The rotation of crops prevalent in any district is not only an indication of the fertility of that district, but of the intelligence of its cultivators; and exceptions to the general rule are often proofs of a superiority in the latter particular rather than in the former. Fertility finds expression, of course, simply through the crops grown upon the soil; and the due ordering of them so that in a given time the most valuable produce may result from a given expense is the problem which the farmer has to solve. The growth of Mangold Wurzel, or of Cabbage in place of Turnips; of Italian Rye-grass, or Trifolium incarnatum, in place of Rape or Rye, or Vetches; of Wheat, in the place of Oats; of Pota-

toes, in place of Beans or Peas, or perhaps in place of Swedes or Mangold Wurzel; of one rotation in place of another, or of any rotation with its greater annual produce in place of the constant growth of the Grasses, as in pasture land;—these are not, except in the long run, proofs of increased fertility of the soil. Whatever determination be arrived at as to the crops that shall be grown or retained, the result is, in the outset at any rate, only a more or less perfect expression of the actually existing fertility of the land. How important both that the most valuable expressions be given to this fertility; and that such a mode of expressing it be adopted as shall not tend to its diminution or exhaustion, is, of course, obvious enough. It is sufficient for the scope of these remarks to have alluded to this fact. The power of the different rotations of crops, whether as the exponents of fertility, or as in themselves fertilising agents, have been already abundantly discussed in volumes of the English Agricultural Society's Journal, to which we refer our readers. See especially vol. x. p. 345, where this subject is discussed in full detail.

It appears then that the lessons taught by observation in reference to fertility and barrenness in soils amount to this:—(1). That supposing climate to be favourable, or, if unfavourable, modified by shelter and by drainage, fertility is attainable on peaty soils by drainage, paring, and burning, claying and liming, and the use of portable manures; and after a year or two of cultivation, then by growing food for stock, as Grasses, &c., and waiting for consolidation by the lapse of time before breaking it up again for regular cultivation. (2). On sandy soils by marling, and the use of Rape-cake, guano, and bone-dust, as the means of growing food for sheep, whose consumption of this food with oilcake on the land shall still further fertilise, consolidate, and fit the land for growing Wheat and other grain crops: and (3), on clay lands by burning, liming, draining, and the use of dressings of bulky manures. It appears (4) that on *all* soils fertility is promoted by the use of water as a fertilising agent, whether this is obtained by means of irrigation or of drainage; that (5) on all soils, lime, when judiciously applied, is a fertilising agent; (6) that manure being simply food for plants, everywhere contributes to fertility; that (7) deepening the soil, and the thorough cultivation of it as a method of enlarging the home supply of food for plants are fertilising in their influence; and that (8) the adoption of a suitable rotation of crops is necessary both to give due expression to what fertility exists, and also to ensure its permanence and even increase.

As a last remark in reference to what observation teaches on this subject we may refer in general terms to the relations of landlord and tenant, and to the education and general intelligence of the population, as matters obviously and directly connected with it. The energy of individuals, shown in the opening of access to markets, and in the excitement of a neighbourhood out of the sluggish indifference and contentment with existing circumstances which so easily become habitual—instanced, let us say, in the successes of Lord George Hill around Gweedore, on the west coast of Ireland, almost as perfectly as in the history of the Ban de la Roche, under the pastorate of Oberlin—may be a subject of too general a character to claim detailed examination in an agricultural journal; but that the absence of markets, or of access to them, and that the listlessness and ignorance of the labouring class, are among the most obvious causes of barrenness of soil, observation will in many districts of Ireland and Great Britain testify.

DAIRY PRODUCTION.

The discussions at the Royal Agricultural Society's meetings between Messrs. Horsfall, Scott, and others, on the subject of dairy management and production (of which you have given copious details in your columns for some weeks past) will have at least this benefit—that they will cause agriculturists to pay some attention to the details of the operations carried on in their dairies.

In the case of far the greatest number of farms—viz., on those where only a few cows are kept, and these rather for the use of the family and servants than for the amount of profit to be derived—these operations have generally been left entirely to the skill and judgment of female members of the family. There were two reasons for the little attention paid to this branch of farming economics:—First, the "gentleman" farmer was apt to consider such dairy returns as a sort of pin-money, of which none would "go into the rent." Second, the lady considered dairy management as a craft mystery into which the other sex had little business to inquire; indeed, to inquire into which was an implied censure on the domestic management. But now, when the yield of milk from cows, the cream to be raised, the butter to be produced therefrom, form the subject of elaborate discussions before the Royal Agricultural Society, of lengthened papers of statement, counter-statement, and corrections in the leading agricultural journals, it is no longer *infra dig.* on the part of the male sex to inquire into details and "whisper suggestions" (we would not counsel more decided interference), nor an abandonment of time-honoured rights for the ladies to give such an explanation of their dairy experiences as can appear intelligibly in print.

Without entering into details for the past, I may state as the result I generally arrived at during several years' experience of a dairy of five or six cows (this number being as many as the ordinary domestics could attend to without an interference with other occupations, as the female members of the family could superintend without much labour), which was this—that each cow, besides bringing up its calf, gave a money return of 9*l.* to 12*l.* per annum: butter selling at 1*s.* per lb.; and milk at 1*d.* per quart for skimmed, and 2*d.* for sweet milk. This return could, of course, be obtained only by a tolerably liberal and careful system of feeding. Mine has generally consisted, during the summer and autumn quarters, of the run of a small Grass enclosure for a few hours each day, with cut mixed Clover and Rye-grass in the stall; during the winter and spring quarters, of Turnips and straw, with the addition of two daily cooked messes of chaff, Turnips, and meal.

Observing the discussions that were going on, I wished to know how the experiences of other dairies tallied with the results arrived at in my own, and for this purpose caused a careful record to be kept for one week, the details of which are given below. Of the six cows in my byre I had but three in milk, two not having yet calved, while a third was employed in nursing two calves; she has finished this with one pair born in March, and has entered on the charge of a second pair born in July. Of the three milking cows one (No. 1 in the following note) has been for some years in my possession; the other two were purchased in May a few weeks after calving, and in a very low condition. Thus, taking the three together, they were in less than average condition for milking; their breeding is a cross of the short-horn and Ayrshire; and their food was, as I have mentioned, cut Grass, with a daily run in an enclosure, where they have free access to water.

Their milking was as follows for seven days from June 26 to July 2. It will be observed that for two days each cow's milk was separately measured; for the other five days the collective quantity only was noted:

		Morning.	Noon.	Evening.	Total quarts.
		quarts.	quarts.	quarts.	quarts.
June 26	cow No. 1 ...	3½	3	3	... 9½ } 23
	" 2 ...	2½	1½	1	... 5 }
	" 3 ...	3	2½	3	... 8½ }
" 27,	the three ...	5	7½	7	... 19½
" 28,	ditto ...	8	7	8	... 23
" 29,	ditto ...	8	8	8	... 24
" 30,	ditto ...	8	8	8	... 24
July 1,	ditto ...	9	6½	7	... 22½
July 2	cow No. 1 ...	4½	3	3	... 10½ } 25
	" 2 ...	2	2	1½	... 5½ }
	" 3 ...	4	2½	2½	... 9 }
					Quarts, 161

which threw up 15 quarts of cream, and these churned on July 3 gave 16 lbs. 1 oz. butter and 9½ quarts buttermilk. Of the skimmed milk 64 quarts were sold or used; 82 quarts made 20 lbs. of curd.

The total returns for a week therefore were—

16 lbs. 1 oz. butter, at 1*s.*	£0	16	1
9½ quarts buttermilk, at 1*d.*	0	0	9
64 quarts skimmed milk, at 1*d.*	0	5	4
20 lbs. curd, sold at 2½*d.*	0	4	2
	£1	6	4

Supposing the milk had been sold fresh, the return at 2*d.* per quart would have been (161 × 2*d.*), 1*l.* 6*s.* 10*d.*; so that the manufacture into butter, &c., was, within a fraction, as profitable as would have been the sale (had that been practicable in the locality), of the sweet milk. This, then, gives a weekly return during summer of 9*s.* per cow. Suppose

20 weeks at that rate	£9	0	0
20 weeks at the lower rate of 6*s.*	6	0	0
12 weeks to run dry	.....		
	£15	0	0

We obtain 15*l.* per annum as the money return to be expected from a fair average cow fed liberally but not pampered. How does this tally with general experience? Possibly correspondents from different districts will kindly reply to this query. *S., Inverness-shire, July* 19.

THE SHOW OF HORSES AT CARLISLE.

We could not but be struck with the apparent slight put upon a breed most deservedly esteemed for agricultural purposes. The round barrel, compact form, and great activity of the Suffolk fit him peculiarly for farm work, and no horse is more staunch to the collar. At a late meeting of the Royal Agricultural Society the Suffolks took the majority of the prizes; but at Carlisle, though there were some capital specimens of great strength shown by Mr. Barthropp and Mr. Wilson, they received but one commendation. And perhaps this fact is the more observable since in what are esteemed the heavier and larger breeds, the very qualities of compactness and activity, for which the Suffolk is so remarkable, are those which most commend themselves to the judges. These two gentlemen are, however, bent upon bringing the breed to the highest possible perfection, and in certain instances, especially Mr. Barthropp's filly that obtained a commendation, competing as she did in one of the strongest classes, they have succeeded to admiration.

With respect to the Clydesdales we were not quite so well pleased as we expected to have been. We observed too many light bodies and long legs, several round nondescript gummy legs, and a very obvious irregularity as to size. The quick-stepping qualities of the breed we could not judge of, save from observing the disposition of the shoulders, which was good generally. We saw no specimen of the hardy, compact little Derbyshire horse, a breed much entitled to the notice of farmers. It may answer to breed large horses for London brewers, &c., but middle-sized, neat, active, enduring animals are required for farm-work; a kind that eats half as much as your great dray horse and looks better upon that half. Where the farmer has to contend with mud roads, great weight, combined with strength, is requisite.

We have to thank the local committee of Carlisle, and the worthy mayor of that town, Richard Ferguson, Esq., for having brought together such an assortment of thorough bred and coaching stallions, of hunting mares, fillies, and geldings, as we have never before had the pleasure to see. The breeding of horses for the chase, carriage horses and hacks is undeniably the business of farmers, and we hope that the Royal Agricultural Society will not allow any meeting to occur without having provided for the representation of the particular classes we refer to. She may migrate to towns where mayors not be so wealthy or so spirited as those of Lincoln and Carlisle. It is well, we think, to allow private liberality so to display itself, but failing this practical co-operation of local committees and official personages, we do hope the Society may take the matter into her own hands.

We do not think in England that we have to struggle against a defective taste—the love of, and the perception of a good horse seems inherent in the multitude. But nevertheless we do consider that the Royal Agricultural Society may do excellent service by giving to the public good models. We do not want the negative to guide us to excellence, but the positive. And as in art, no man attains to a true appreciation of beauty by the study of defect, neither as a breeder can a man reach to the perfection of the type but by an intimate study of its harmonious proportions. And there are types beyond which the breeder cannot go, for the same rule would seem to apply in the breeding of horses as in the breeding of horned cattle. It is now proved that considerable prizes will bring out valuable animals of this sort, and all we hope to see is, that the Society making use of the power she possesses, the farmers will show the appreciation of her efforts by strengthening her hands.

The six classes to which these breeds are confined contain 59 entries. At Lincoln there were but two classes and 17 entries.

The thorough bred stallions were well represented. "Ravenhill" and "A British Yeoman" compete very closely. The former is an Irish bred horse; he takes the prize offered by the mayor. For our part we prefer "The British Yeoman," who is certainly a fine horse, and receives more lustre from his stock exhibited in the yard than "Ravenhill" does from his, which are more abundant. The coaching stallions might have been better, we thought. Mr. Shaw showed three, for one of which he received the prize. This horse struck us as being a most perfect model of the class, not so heavy as of yore, but more in keeping with our increasing want of speed. It is extremely difficult to judge of these animals; we see them only in a state of quiescence. Many a horse has fatal imperfections that only reveal themselves when he is in motion. It is quite necessary that we hold our own opinions in abeyance to the decision of the judges, and the public should view them in the light of "confidential friends." Some of the mares with foals at foot are exquisitely beautiful animals, possessing lines of symmetry that every breeder should imprint indelibly upon his memory. Take Sir Wilfred Lawson's "Madam," the winner of the prize, for instance; take Miss Bell's "Vaultress" (and her splendid foal by "Ravenhill"), or take Mr. Pybus's "Miss Hudson," as examples.

May this good beginning have a good ending, the result being increased attention to the breeding of a class of horses for which England has ever been so deservedly famous. *H. R.*

GARDENS FOR COUNTRY SCHOOLS.

I refer to the uses of a garden or a plot of ground cultivated by the agricultural class in our schools—its uses not only as furnishing lessons in the practice, and illustrating doctrines in the theory of agriculture, and conferring bodily skill in the use of farm tools, but also as increasing the emoluments of the teacher or the funds of the school.

The assertion which I make—that the theory and practice of cultivation can be efficiently illustrated in a garden—is proved by a number of well-known facts.

Professor Daubeny's illustrations, in his lecture before the Royal Agricultural Society of England, of the power of successive crops of the same plant to exhaust the land off which they were continually reaped, were taken from garden plots. Tull's argument on the ability of the cultivator by careful pulverization of the soil and its exposure to the air, to balance in a great measure to his soil the want of manure, was originally built upon his observation of single plants and single garden rows, though no doubt it was afterwards corroborated by experiments in field culture. And the experiments of the Rev. S. Smith, of Lois Weedon, of the same kind, though extended over a small field, might well be prosecuted in a large garden, so as perfectly to illustrate his views. The most complete series of experiments on the relative value of the different Grasses

was conducted by Mr. Sinclair, gardener to the late Duke of Bedford, at Woburn, in the garden. And one of the most exact comparative inquiries into the relative merits of different varieties of Wheat is reported in the first volume of the English Agricultural Society's Journal as having been conducted in a garden in Gloucestershire. Many an instructive and satisfactory experiment, illustrative of the relative value of manures, will be found recorded in our agricultural journals as having been performed in garden plots. I would especially refer to a most valuable and instructive annual report of his experience of this kind, which has been published in the *Gardeners' Chronicle and Agricultural Gazette* for many past years by the Hon. and Rev. L. Vernon Harcourt. Modes of cultivation, methods of manuring, rotations of cropping, and the merits of the various crops—all these particulars, which among them pretty nearly complete the circle of the mere cultivator's experience—all of them are capable of perfect illustration in the garden. And how perfectly the rationale of any particular observation can thus be obviously presented to the eye and mind any one can perceive. You may talk to a boy for any length of time on the advantage of stirring the soil and of deep cultivation, inasmuch as it admits the air more perfectly throughout the substance of the soil, and thereby facilitates those chemical processes by which the soil and its contents are fitted as the food of plants; but no quantity of merely verbal instruction will equal in its force, either upon the understanding or the memory, the lesson on that subject which that same boy would receive if, after having dug a hole in the hardened ground, he were told to put into it again the earth he had just taken out of it. The heap remaining over, which he could not replace, would represent more distinctly to him the bulk of additional air thus introduced into the soil by its disturbance than any argument unsupported by this simple experiment could do. Well, I need not say anything more on this point. I hurry on to the usefulness of the garden, both as furnishing agricultural practice to the boys (I mean in the art of using the spade and hoe and other agricultural tools), and as adding to the emoluments of the schoolmaster. On these again I must be satisfied with a reference to the experience of others—in terms, too, so short as to be little more than an enumeration of the sources where information regarding it may be obtained. The Highland schools, under the committee of the General Assembly of the Church of Scotland, in which agricultural instruction has been introduced, have several acres of land attached to them; 4 to 6 acres is the usual extent; and a common report is in these terms in which the Elgin school is described:—"There are some acres of land attached which are farmed by the boys to the number of 25; two hours a day, on an average, are allotted to work. They dig, trench, weed, manure, sow, &c., under the management of a superintendent, and are trained to the use of the spade and other agricultural implements with considerable address." In Ireland, again, under the superintendence and inspection of Dr. Kirkpatrick, of Glasnevin, there are many agricultural schools in operation:—27 model schools in operation, 5 about to begin, 45 ordinary agricultural schools in operation, and 50 workhouse agricultural schools; and from the experience of any of them there might be drawn facts enough to bear out Dr. Kirkpatrick's testimony that it is perfectly practicable and highly important to connect this agricultural with ordinary literary instruction in our country districts.

Then, again, in England I can quote several instances:—First the schools on the plan of the late Mrs. Davies Gilbert, of Eastbourne, in Sussex, of which a full report will be found in a pamphlet by Mr. Cuthbert Johnson, published by Ridgway, "On Increasing the Demand for Agricultural Labour." These schools were said to be self-supporting—the children paying only 1*d.* a week, and receiving instruction during the morning of the day, and working during the afternoon; the land, 4 or 5 acres to each, was rented at a farmer's rent by the master of the school, who cultivated it by the aid of the boys.

My second instance, and a most instructive one, is recorded in a pamphlet by Thomas Batson, of Colley House, near Exeter, entitled "How to improve the Condition of the Agricultural Labourer,"—a self-supporting system by which boys may be trained in acts of industry, and at the same time receive a suitable education.* This publication describes an experience of five years in the employment of boys on a farm, who for their labour received their maintenance and education, they and their parents finding this maintenance and education, both ordinary and agricultural, to be an ample return for their services, and Mr. Batson finding, as he proves in great detail, their services to be quite worth the expense he was at in lodging, clothing, feeding, and instructing them. Mr. Batson's pamphlet deserves to be widely known and read.

My third instance is one of a class of similar cases—a reformatory, industrial, agricultural school, established and carried on at Hardwicke, near Gloucester, now for several years by the wise and painstaking benevolence of Mr. Bengough and Mr. Baker, two magistrates of the county of Gloucester.

Fifteen boys work more than 10 acres of stiff clay land, and their work goes a considerable way towards their support. The report and rules of the Children's Friend Reformatory School, Hardwicke, Gloucestershire, dated January of last year, states the successful result hitherto of this experiment. I believe that any one who will read the report of the General Assembly's Committee on their Highland schools, the reports of Dr. Kirkpatrick on the Irish Agricultural Schools, the report by Mr. Cuthbert Johnson of Mrs. Davies Gilbert's Schools, by Mr. Batson of his experience on the subject at Kynaston, in Herefordshire, and the report of the Hardwicke Reformatory School, may confidently accept the conclusion I propose for his adoption, that in a large garden boys may receive efficient practice in the use of tools, and in the conducting of agricultural processes; and that from a large garden so managed a skilful schoolmaster will derive sufficient return to make it a very considerable source of income to himself or to the school. The great fact as proved especially in the Irish schools is that all these advantages are obtainable without interfering with the main purpose of the school—the communication of sound instruction in the elements of an ordinary education; and I contend that in agricultural districts even these might usefully have an agricultural turn given to them—that reading books, for instance, might furnish lessons on agricultural subjects, and that lessons in arithmetic might have special reference, even from the beginning, to agricultural calculations, landing the pupil ultimately in questions of account and expense relating to all manner of farm methods and results, such as digging, and trenching, and hoeing, ploughing, grubbing, harrowing, rolling, drilling, horse-hoeing, manure-making and the application of it; sowing, whether by hand or by machine; mowing, reaping, and harvesting, measurement of land, manure, ricks, and building; estimation of produce, and all sorts of measure work connected with draining, embanking, fencing, planting, and building and road-making. I have lately had submitted to me a considerable quantity of MSS. by Mr. Ewart, of Newcastle, professing to be on agricultural arithmetic, which will probably be published by Messrs. Blackie, of Glasgow, and which appears very excellently adapted to the purpose of that kind of instruction to which I refer. *J. C. Morton.*

* Groombridge and Sons.

REPORTS OF THE CROPS.

Ayr.—Wheat.—Early and winter sown rather thin. Late good. An average crop on the whole. Oats.—On early thin soils light; on deep damp soils good but late. Barley and Bere.—Heavy crops, but little comparatively sown in this district. Beans.—Good. Turnips and Mangold.—Early: and in general very promising. Potatoes.—The healthiest, and will apparently be the most abundant crop since 1845. Harvest may commence partially on early soils in a fortnight, but not generally before the 1st September. Crops much in the same state of forwardness as at this time last year. *Alex. Ralston.*

Bucks: *Claydon.*—Wheat is a full average crop on the ground, but it is late, and of a dark unhealthy colour. Barley is very good where it has been sown in season: late sown is not good. Oats generally very good. Beans (spring) full crop. Beans (winter) very bad; did not stand the winter. Turnips generally very bad and late. Potatoes are very promising, but partially diseased. Hay less than half a crop; Grass is now plentiful. Harvest will not be general before the 22d, and not then unless we have bright clear weather. On the whole, with good harvest weather, the prospects are good. *Alex. Fraser.*

Cheshire.—Wheat about a week ago had the appearance of being more than an average. The crops generally were full on the ground, stiff in the straw, and filling well in the ear, without any defects from rust or blight of any kind: by the very heavy rain which fell on the 25th ult. all the full crops were laid flat, and it is to be feared great mischief has been done, as I have invariably noticed that if Wheat is laid only a week or ten days before being ripe, it does not prove so heavy in the ear as when it stands; of course much will depend upon the weather for the next fortnight or three weeks, both as to quantity and quality; but judging from present appearances, I cannot estimate the injury at less than from 15 to 20 per cent. Barley is a very full crop, but is beaten down, even more than the Wheat, and must, I fear, under any circumstances, prove an uneven sample. Oats have generally stood the best, and have the appearance of an average crop. Potatoes are very luxuriant, and little disease has yet shown itself; but the trying time has not arrived. There has been a serious loss in the hay crops; very little has been secured, and the floods have carried away and spoiled nearly all in the low meadow lands, which are the chief support of the dairy stocks during the winter. *William Palin.*

Devonshire: *Dartmoor.*—Breezy weather of late, with more or less rain daily. Grass here almost overpowering. Wheat in this county, should heat speedily come, will very partially be cut in about two weeks, but the general harvest will this year be during September, weather permitting. The crops of Wheat, as also Barley, vary considerably, about an average probably each may reach. Oats promise well, so do Potatoes. Two and three sowings of Swedes will only give very irregular crops—common Turnips the fly has spared, and these may be abundant if the weeds can be kept down. Mangolds magnificent. Hay much damaged—crops heavier than expected. Clover Grass fell very light. *Geo. Wm. Fowler.*

Devonshire: *Exeter.*—The appearance of the Wheat is full 10 per cent. worse than it was ten days ago, being much beaten down by wind and rain, and having a great deal of blight: and if this wet weather continues the consequences will be serious: on the contrary, should fine weather and plenty of sunshine take place we shall, I think, have an average crop. Barley and Oats are much laid: I think the latter will be an abundant crop. Peas and Beans are not much grown about here, but the former is, I think, an average crop. Swedish Turnips have failed, but common ones are likely to be good. The Potato disease has appeared with more than usual virulence. *George Turner.*

Devonshire: *Tavistock.*—"The rain it raineth every day." Much hay remains in the fields, and much that has been carried has been got in very indifferent order. A good deal not yet cut; the same wet that has hindered the hay harvest has impeded the growth of Turnips, which look stunted and patchy: many suffered from flea, which thay have never recovered. There are some appearances of disease among Potatoes. Hereabouts Wheat and Barley might have been an average crop; the former is now being damaged by rust, especially where it is heaviest: and Barley seems to change in colour (with a poor prospect of a good sample) very unevenly. Oats are a moderate crop—all very late. The last week of this month harvest may begin. The pastures were never known so bare; the backward spring has never been recovered, and stock have consequently not got fat; the frost destroyed all the old Grass upon the pastures, and both sheep and cattle were almost starved till after Midsummer, and there has been no help this year from Clover or Vetches, for both these suffered equally with the old Grasses. *John Benson.*

East Lothian.—Wheat is tall in the straw, the ears are large, and at least of average thickness on the ground. Some fields have been partially damaged by the Wheat fly, while others have wholly escaped. The crop is late, and there will be little Wheat harvest until near the close of the month: as yet there is nothing to prevent it being a full average, though the yield and quality may be inferior to last year. Barley is a remarkably heavy crop, almost every field being laid. Much of it may be ready for the sickle in less than three weeks. Oats are also changing colour, and are almost as bulky as is desirable. Beans are tall in the straw, and are still growing; they appear to be well podded. Altogether the appearance of the grain crops is highly satisfactory; at the same time a change from the present moist weather to a clear and dry atmosphere is earnestly to be desired. In regard to Turnips and Potatoes they are both most luxuriant. Numerous fields of Swedes, and the greater part of the Potatoes, are already so close that it is impossible to tell which way the drills run. Hay is still generally in the tramp-rick in the fields: it is but a light crop, and its quality has been considerably damaged by the late rains, the rain guage showing the fall to be 4 inches for the last month, which is almost unprecedented in this quarter. *G. H.*

Hants: *Lymington.*—The crop of Wheat is not at all a good one in this neighbourhood: thin on the ground, and latterly very much injured by the red rust. Barley good. Oats good, Beans and Peas inferior. Potatoes very much attacked with the disease these last few days. The weather has been very bad for the growing crops these last 10 or 14 days, cloudy sea fogs, rain, and mist. Turnips pretty good: hay very short; Grass also short. *James Lomax.*

Huntingdonshire: *Brampton.*—All our crops promise great abundance. The Wheats are good on the ground, with a fine ear, and at present are free from disease. The Barley is a magnificent crop on every description of soil. Oats, also, are good on our high lands. Potatoes are the finest crop I have seen for years, and at present show no symptoms of disease. Turnips are indifferent from having been so frequently re-sown, but are yet within the range of a good crop. The only exception to this good prospect are the Wheats on our fen soils. The severe spring killed the plants, and in many instances the crop will not reach the third of an average. Harvest will be general in three weeks from this date. *Peter Purves.*

Kent.—On some of the heavy land Wheat districts, as Whitstable, Herne, &c., the Wheats are a full average crop, and Wheat cutting commenced on the 6th inst. on most other soils. The Wheats are much blighted and laid by the heavy rains, and I never saw a greater defect in the ear in East Kent: we shall be under two-thirds of last year's crop. Barley is over an average crop. Peas—not half an average crop. Beans—a very partial crop, but a good average. Oats—a good average. Hay—not half a crop. Clovers—not half a crop. Swedes—very good where the land has been well managed, but there are failures, and the black caterpillar has been very destructive. Potatoes, previous to the 1st inst., never looked more promising: the last three days the disease has made its appearance, and so rapid is its progress that in 24 hours every stem in the gardens is diseased. East Kent will not grow two-thirds of last year's crop of corn. You may make whatever you please of this, and insert my name with it. I think that you will find a bad account of the Wheat crop. *Robert Matson.*

Lanarkshire: *Hamilton.*—The crops in this county are generally good, with the exception of Wheat, which is uniformly thin on the ground, and large breadths resown with Oats or Barley. This is the result of the severe and protracted frosts of winter and spring, and want of snow to protect the plants. Oats are a full and bulky crop, and on good soils, much lodged with the recent heavy rains. Barley, Beans, and Peas also promise a full average. As yet no definite time can be fixed for harvest. All will depend on the weather, and as it is now become very wet and unsettled, there is no reasonable prospect of cutting for three or four weeks. Green crops are abundant, and as yet no accounts of disease in the Potato have come under our knowledge or observation. *David Gardner.*

Lincolnshire: *Worlaby House.*—I consider Wheat in this neighbourhood rather under an average crop; very late, the colour bad, and some quantity mildewed. Barley an average crop; very much laid with the rains. Oats under an average. Beans and Peas none grown. *Wm. Hesseltine.*

Mid-Lothian: *Bath ...*—The Wheat crop is full, partly laid down with recent rains, and late. The Barley much down, but earlier. Oats, the lightest of the cereals, about an average. Beans bulky. Potatoes never so promising, and no disease. Turnips promising. Hay light, and injured with rains. Pastures abundant. Harvest the last week of August. *James Melvin.*

Notts, Newark.—Wheat is thin on the ground, and where there is a heavy crop (a rare thing) it is very much beaten down by the continual heavy rains we have had during the whole of last month; it begins to look very dark in the straw, as if inclined to mildew. I think it will be under average, and not likely to be ready to cut in general till September, except the weather alters. Barley is a heavy crop, and much laid and thrown about, but forwarder than Wheat. Beans poor; Oats a fair crop, and some nearly ready: hay and seeds very light, and but little hay got: Swedes and Turnips promise well, but it is hard to keep the weeds down, it has been so wet. This has been a fine drying day, but the glass is falling. Potatoes very fine; no sign of disease at present. Mangold, Carrots, and Cabbage very good. Little or no Wheat to thresh in this neighbourhood. *John Young.*

Norfolk: *Bacton Abbey.*—Our harvest will generally commence here about the 24th of the month. The Wheats are not promising quite so well as a fortnight since, many fields showing mildew more or less: the ears are large, but not well filled; the crop on the whole may reach, but not exceed, an average. Barley and Oats are good, and I should say more than an average. Peas and Beans are also pretty good. The hay was the lightest crop ever known here, and a part of it badly got in. Turnips and Mangold Wurzel very promising, indeed I never saw them better. *W. Cubitt.*

Northampton.—In answer to your queries respecting the growing crops of corn, I must report the crop of Wheat as not an average one. It is very backward, and if dry weather does not soon set in the consequence will be great. Maggot to some extent has also shown itself. Barley is a great crop, but very much beat down by storms. Oats and spring Beans about an average. Hay crop very light and not well got. Turnips very bad, Mangold Wurzel good, Potatoes good. *Wm. Gray.*

North Fife: *Drumond.*—Wheat—tall, thin on the ground, touched a good deal with fly: a fortnight later than usual, but with good weather may reach an average crop. Barley—a full average crop, and much earlier than usual. Oats—short and thick on the ground; may reach an average yield of grain, but will fall below it in straw. Beans and Peas—bulky and well podded. Hay—a lightish crop, with small appearance of a second cutting. Potatoes—very equal and luxuriant, and no symptoms of disease. Turnips—very fresh and vigorous. Mangold—good, where a "braird" was obtained; bad where the braid was tardy. *John Haxton.*

Northumberland: *Herham.*—We are sorry to say the hopes expressed in our last report as to a favourable hay harvest have not been realised. From the 2d to the 12th proximo we had very fine clear weather, and a good deal was done among the hay, but since the latter date we have had rain every day, with three exceptions, and a great quantity of hay has been very much destroyed. The barometer has ranged from 28.90 up to 29.57; mean of month, 29.39. The heavy thunder rains of Saturday the 28th have laid the crops very much, and the continued wet prevents our reporting so favourably of the crops as we did a month ago. Fine sunny and drying weather may still do much for the crops, but should this wet "muggy" weather

continue, both quantity and quality will be far below an average. We cannot now expect any general harvest till September. Turnips are looking well on Turnip soils, but even there the continued dashing rains are telling against them, especially the later sown fields. Potatoes are still keeping clear of disease, and looking very well. Grass is abundant, but stock are not doing so well as they would with less wet, even at the expense of less meat. Not only are they never dry, but they never get a dry mouthful. Grazing stock of all kinds are very high-priced. Stagshaw Bank Lamb Fair was held yesterday, and notwithstanding a very full show of lambs high prices were asked and given, though slowly. The show consists chiefly of half-bred (Leicester and Cheviot) lambs, and prices for these ranged from 24*s*. downwards.

Warwick: *Stratford on-Avon.*—Wheat.—A considerable quantity of Wheat in this district lost plant; a great portion resown, yet there is much thin, which the late rains have improved—where the crop is heavy it is badly laid—with fine weather it might be an average, yet in individual cases it must be under. Barley.—The early sown Barley is a heavy crop, and badly laid on good conditioned lands, and to some extent damaging, requiring fine weather immediately; later sown much improved by the rain; crop above an average. Beans. The dry weather continued too long for this crop; under an average. Peas.—Peas are a large crop, depending upon the weather; if fine, above an average. Turnips.—Swedes sown very early on strong soils are good plants; were sown later almost a failure. On light soils a considerable portion of good plant, with some failures. Hay.—A very light crop on most lands, and a quantity injured by the rains. Potatoes look well at present. Mangold Wurzel a fine crop. *W. Gibbs.*

Wilts: *Avebury.*—With reference to the crops in my neighbourhood they vary much, some being a free crop, others very far from a plant on the ground since the rain. The thin crops are much improved; the free crops are gone down, in consequence will receive great injury—that is, in reference to Wheat. Barley is very heavy, and also much injured from the rain. Oats a good average. Beans good. Peas in some instances blighted; still, on the whole, a fair crop. Turnips and Swedes in a very bad state for want of fine weather to clean them. Forward hay-making was good, a light crop with the exception of Sainfoin, which was good. We shall not commence reaping before the latter end of the month. Potatoes look well; if rains continue I fear they will feel the effects. *Geo. Brown.*

Worcestershire: *Vale of Evesham.*—The Wheat, Barley, and Oat crops in the Vale of Evesham are exceedingly good. The Wheat will be ready for the sickle about Monday, Aug. 20. The Barley and Oat crops are ripening fast, and will be fit for cutting the earlier part of next week, or about the 14th. The early Peas, which are an excellent crop, are cut, and many carried. The late Peas, which are equally good, will be ripe in a few days. Autumn planted Beans are an indifferent crop, spring planted are very good. The hay crop, of which much is damaged, will not average more than from 15 cwt. to 25 cwt. per acre. The Potatoes were gay and blooming until Friday last; but now the tops in some gardens and fields are spotted similarly to that of the last few years; the tubers, however, are sound and plentiful. The Swedish Turnips are very indifferent, having been destroyed again and again by the fly. The aftermaths of Grass and Clover are excellent. *Henry Hudson.*

Yorkshire: *Richmond.*—Wheat—an average crop, much laid, and being laid early the sample is certain to be inferior. Oats—an average crop. Barley—a full average crop. Beans—not many grown in the district, well laden though rather short in the straw. Turnips have had to struggle through many difficulties, but promise well now. Potatoes look exceedingly well, as yet I have heard of but one instance of the disease, but I fear this dull damp weather will develope more. Harvest will be late. *H. J. Turner.*

Yorkshire: *Thirsk.*—The Wheat crop up to the time of the rains falling was generally light and thin, but has since then much improved in growth of straw, but I am much afraid is far from being improved as to the growth of the grain. It is a good deal broken down and lodged, looks dark and brown in the chaff, and appears not to fill well in the ear. The present appearance of the Wheat crop is very doubtful. I have not as yet seen much decided mildew, only small patches; but the very dark colour seems very hazardous. Should the rains cease soon I scarcely think it an average crop, but should they not it may be much under. Present appearances are that scarcely any Wheat will be cut in August. Barley a heavy crop, but very much thrown down by wet. Oats a light crop. Beans look well; mine are well podded, but was told yesterday by three respectable farmers a few miles from here that their Beans had scarcely any pods on the stems. Turnips are much overdone by wet and very foul with weeds, which cannot be overcome till dry weather. Potatoes are good, and so far free from disease. Meadow Hay and Clovers light crop, much abroad, and very seriously damaged, particularly Clover; scarcely any secured in stack. Pasture land and sheep seeds growing rapidly. *Peter Stevenson.*

CROPS IN IRELAND.

The appearance of the crops in Ireland is most gratifying: the Potatoes are luxuriant, and hitherto there has not perhaps been half a dozen well authenticated instances of disease; there is, however, a report, not that I know resting on any good authority, that without any sign of disease in the leaf or stem the tuber has been found seriously affected. A very large quantity is planted this year, and as the disease ever makes its first and partial appearances, which it has not yet done, at the least a month before it becomes generally destructive, we may reckon on the crop approaching pretty near maturity before the pest shall sweep over the whole land; it happened in 1847 (I think) that the crop was so far matured before it was struck by disease that the consequent withering was supposed by the sanguine to be the natural effects of its age, and they fondly hoped that the disease had disappeared, forgetting that it was unobserved in 1845 till after the Potatoes were dug, when they rotted away rapidly in the house and the pit. And this year, from foregone experience, ought to be one of late attack; every alternate year has been so from the first notice of it. We may therefore reckon on an abundance of this valuable esculent. And as the Oat crop promises largely, Ireland may be expected to contribute a good share to the general food fund. Turnips also promise well, though the early sowings suffered much from the fly. The meadows, which are always late with us, have so benefitted by the early summer rain that I think they will be on the heavy side. *J. M. G.*

Home Correspondence.

Subsoiling.—To drain lands with the more impervious subsoils previous to breaking up these subsoils seems to be so settled a question that to consider it may hardly be permitted, yet is it not so settled relatively to the mode of breaking them up?—to subsoil ploughing—and does it not apply as strongly to deep ploughing and trench ploughing as to subsoil ploughing, and if it does not, why should it not? It seems generally put forth with something of empirical dogmatism that "in all sort of retentive lands subsoil ploughing does positive harm and no good, without the pre-construction of a system of deep subsoil drains," also that subsoiling should not take place till two years after this draining has been effected. But as I do not recollect that I have ever met with the whys and the wherefores, perhaps some of the better instructed correspondents of the *Agricultural Gazette* may have the kindness and condescension to enlighten me. To me it appears that the mere breaking up of the subsoil by the action of the subsoil plough, independent of draining—no doubt a desirable previous operation—must facilitate the fertilising of it, as well as the drying of the surface by the giving deeper channels for the escape of surplus water, in fact, placing the impervious sheet somewhat deeper. Why should it not in some degree pulverise it; why not increase its porosity; why not accelerate its decomposition, and enlarge its capacity for the circulation of air and moisture; why not in some degree effect all the beneficial ends which are effected by subsoiling when the nature of the ground or its artificial acquirement is such as to ensure them? Why should this operation do positive harm and no good? It is quite fair to take an extreme case; suppose a field with only 2 inches of fertile earth, of active soil on its surface on an impervious subsoil; can it be doubted that this field will be better conditioned when some 6 inches of this impervious subsoil has been rendered pervious? Shall we not have a similar result under the same management, however deep may be the surface or active soil? Will not the rain-water equally, in both cases, penetrate the broken earth and run along the top of the unbroken soil, as it did before, only at a greater depth, until it finds its natural outlet? There was a time, a palmy time, for subsoiling, when, consequent on the recommendation of Mr. Shaw Lefevre, subsoiling without draining prevailed to some extent in Britain, Sweden, Prussia, European Turkey, America, the West Indies. The practice was naturally opposed by Mr. Smith and the drainers, for it may be well supposed that, impressed with the value of subsoil draining, they were not prepared to admit of any efficacy in subsoil stirring without it. *J. M. Goodiff.*

Turnips Starting.—If I mistake not some discussion took place a short while ago in these pages on the premature starting of plants; I have but a clouded recollection of such having been the case, and cannot refer to the when or where, but possibly the case I am about to mention may throw some additional light on the subject. Some of Sutton's Six Weeks' Turnips got from them in 1851 were sown this spring at the same time, under the same manure and preparation, and in the same square with fresh Early Dutch seed; while the latter have all bulbed well, the former with the exception of about one in 20 or 25 have all started, having previously shown a most luxuriant growth far exceeding that of the Dutch. I have sown the same seed in the intermediate years, the last year, however, late, with scarcely any instance of a start. *J. M. G.* [Sutton's six weeks is intended for late sowing.]

Deep Draining.—We hear and read a good deal from time to time about the relative merits of deep and shallow draining in strong clay land; but it has not often happened to me to see a genuine clay farm drain satisfactorily on any principle. I myself have undertaken a farm of the above character, and think I have succeeded in bringing the soil into a perfect state as regards drainage, having carried out the principle of deep drainage to its fullest extent in a manner which to me has produced most satisfactory results; and in corroboration of my own opinion I am prepared to show at the present moment 100 acres of Wheat against any other 100 acres of Wheat in either Surrey or Sussex standing on an arable farm of equal extent with mine, 170 acres, for 20 guineas; or if that is not considered sufficient to induce parties to take so much trouble, I will say 50 guineas. The crops to be inspected by an independent person to be mutually agreed upon. *James Corry Sherrard, Kinnerley Manor, Reigate.*

Salt for the Gooseberry Caterpillar.—Observing in your last that soot has been used against this destroyer alone, and mixed with lime and with ashes, I was surprised not to find it also used with salt, which has been found one of the best mixtures with soot; but salt alone, or with lime, or with gas liquor, or soda ash alone, which will not smut the fruit, are all effective soil vermin killers. Gooseberry bushes, with their depth of root, would probably bear 10 cwt. of salt per acre, spread over the ground of the fly, and watered with diluted gas liquor (1 to 5 or 6 water) enough to carry it gradually down 2 inches. This done now and again, when the first flies begin to appear, would probably so pickle the cocoon as to kill the fly, if not the larva, the leafy fertilising quality of the ammoniacal liquor counteracting the hindering reaction of the salt on vegetation, while both co-operating in the destruction of vermin, might supersede the necessity of digging away and burning the soil. *J. Prideaux.*

Cow in Milk.—My master keeps one cow, of which I, who am the gardener, have the care. The one we now have is a half-bred Alderney, that gave, when in full milk, about 12 quarts per day of excellent quality. In the spring of 1850 she nearly died in calving, and the cow doctor, who got her through it, said she would not live through another calving, and advised us to milk her as long as she was worth her keep, and then sell her for killing. For the first year or two there was no particular diminution in the quantity of her milk; since that time it has decreased very gradually, and at this moment, after being milked over five years, she gives upwards of 4 quarts per day. As she was in very good health we determined to run the risk of her calving rather than part with so valuable an animal, and within the last 12 months have made several attempts to get her in calf; but they have been all fruitless, so that at length we have given it up, and determined on parting with her. We have now just got another. The object of my sending this statement is to inquire with a view to the treatment of our new cow, whether there is any objection to proceed with her as we have done with the other? We do not expect the same success, but we wish to ascertain from the opinion of better judges than ourselves whether it is injurious to an animal, or objectionable on any other account, to keep her from the bull as long as she continues to produce her full quantity of milk from her last calving? *J. G.*

Societies.

ANNUAL MEETING OF THE AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

Carlow, *August 8th, 9th, 10th.*—It is satisfactory to believe that whatever differences have arisen, and whatever evils have been permitted to creep into the administration of this Society, are on the eve of being adjusted and corrected, if they have not been actually so treated already; and it is owing to this we believe that, despite difficulties of weather, prejudice, &c., the present show, judging from early appearances, bids fair to be equal in importance to any, and superior to most, if not to all, of those which, under auspices apparently more favourable, preceded it. Carlow is being thronged by respectable people, many of whom have this day first seen this now very important inland Irish town.

The Judges of implements are proceeding with their task; and, considering the number and variety of specimens to be examined, the task on their industry, intelligence, and patience is onerous indeed. And, speaking of such implements, the applicability of many of them justly considered as highly important to England and Scotland is, to say the least of it, rather questionable, under the peculiar circumstances of Ireland at present. Still, complicated in their action and adjustment as to many in Carlow they must appear, and over costly as by many who know, or pretend to know, their use and application they will be considered, it is very well we should see them, at least in the hope that sooner or later, when more strongly pressed by high rates for manual labour very imperfectly performed, we may know there exist the means by which many of our difficulties can be overcome; know where such means can be acquired and the value of them when acquired. So far, in these respects, the Royal Agricultural Improvement Society of Ireland has done its duty; but much more still remains to be done before the Society can rest satisfied of having the undivided support of the Irish public generally. The Society have now not only a fine opportunity of showing their usefulness in this respect, but they have also in the present year apparently one of the most abundant harvests during the memory of the oldest amongst them, still one of the most uncertain as to maturity of produce that occurred in Ireland during the last 40 years at least; and we cannot now, with labour dear because the labourers are scarce and provisions high, and dearer still because what we have of it is both weak and unskilled, expect to bear up against the pressure of taxation if we cannot not only "make two blades of Grass grow where but one grew before;" but make 1*s*. expended in labour do as much work as two did before. Some of your readers may think I have dwelt too long on this latter subject when they expect a mere formal notice of the Show. We now proceed to give a description of such of the trials as have been conducted on the first days of the meeting.

The trial of implements took place in a field within half a mile of the town. For light and general ploughing there were tried six, and in the following order:—

No. 1. A Scotch plough, by Mr. Gray, of Belfast.
2. An Irish do., by Mr. Graham, Dublin.
3. An Irish do., by Messrs. Spindan, do.
4. An Irish do., by Mr. Miller, Dunbar.
5. An English wheel plough, by Messrs. Ransome.
6. An English do. do., by Messrs. Howard.

The work was done by all considerably but by some remarkably well. The general opinion amongst Irishmen was that No. 2 was superior, and No. 6 next. But it appears from the dynamometer that No. 6 proved first, No. 5 second, No. 4 third, and No. 2 fourth; and this to us farmers as well as implement makers is a lesson which we should profit by.

Much dissatisfaction at one time appeared to exist in the minds of some Englishmen, participated in by several of the Irish, on the arrangements for testing the ploughs, the objectors alleging that each plough should have a separate ridge or bed to act upon; but allowance should be made for the peculiar circumstances of the case. A sufficient number of strong steady horses could not be had to set all ploughs to work simultaneously, consequently one or two pairs of horses had to do all. Hereafter there may be less cause of such complaints. For the deep ploughing there started five ploughs, as follows:—

No. 1, Graham's, as above, by three horses, to which a fourth had to be added. No. 2, Gray's, as above. No. 3, Howard's, as above. No. 4, Ransome's, as above; and No. 5, a plough by a Mr. Smyth, through Mr. Eels, of Dublin. No. 1 did pretty fair work. No. 2 a comparative failure. Nos. 3 and 4 did their work in a most perfect manner; whilst No. 5 was an utter failure, and withdrawn. All at once agreed that the prize here

was between Nos. 3 and 4, and the dynamometer told in favour of No. 4. For the deep ploughing, the wheeled ploughs are admitted to be decidedly superior to the unwheeled; and it is to be hoped our Irish prejudices and prepossessions in these respects will be regulated more by common sense without regard to country; and if the Royal Agricultural Improvement Society of Ireland did nothing, or may still do nothing more for Carlow County than holding their show in its capital, these proofs alone of the utility of such shows and trials will cover a multitude of the sins laid, whether justly or otherwise, to the charge of some, if not of the whole, of their committees and council, or as some think to the inefficiency of some of their officers. My advice then would be to our plough and other implement makers to "take a wrinkle" from their English brethren in the manufacturing of ploughs for deep work, the more especially if they so wish it for the accommodation of parties entering on the cultivation of supposed worn out but still naturally rich deep Irish soils. The next trial was of Subsoilers, of which three were used. No. 1, Gray's, as above; 2, Ransome's Archimedian Plough; and 3, Bentall's Scarifier, stripped of its scarifying appendages by Mr. Stanley. They all did their work well as subsoilers, and so would a common Irish plough, the soil being sandy and deep, and consequently unfit for such a trial as subsoiling. Indeed, the same objection held good as to deep ploughing generally. This part of the judge's business over they repaired to the show yard, which is admirably arranged, and peculiarly well adapted for such purposes, to finish their inspection of implements. Whilst this was going on we had a look at the different kinds of stock as they entered the yard, of which more hereafter.

At the dinner of the Council on this day Mr. D. J. Wilson, Belvoir County, Clare, referred to the encouragement that should be held out to working farmers, to whom he is the steadfast friend, to join the Society. He referred to the conduct of the Society in sending the deputation to the Paris agricultural meeting, regarding which he composed a truly Irish poem, which he in part recited, amidst the cheers and laughter of the company, Captain Bell joining, though one of the objects of this poetic satire. A word or two now for the stock to be adjudged to-day, Wednesday morning.

Class A. *Short-horned.*—Section 1, bulls calved since 1850, 13; sec. 2, do. in 1853, 11; sec. 3, do. after January, 1854, 22; total, 46. Section 4, cows in calf of any, 22; sec. 5, heifers in calf calved in 1852, 9; sec. 6, do. do. in 1853, 17; sec. 7, do. calved after January 1, 1854, 17; total, cows and heifers, 65.

Class B. *Other Breeds.*—Section 1, Devon bull calved since Jan. 1850, 2; sec. 2, polled Angus, do., 2; sec. 3, Galloway, do., no entry; sec. 4, Ayrshire, do., 3; sec. 5, West Highland, do., no entry; sec. 6, Kerry, do., 3; total, 10. Sec. 7, Devon cow of any age, 1; sec. 8, heifer calved since Jan. 1852, 2; sec. 9, Devon heifer, 1854; sec. 10, polled Angus cow, any age, 1; sec. 11, do. heifer, 1852, 1; sec. 12, do. heifer, 1854; sec. 13, Galloway cow; sec. 14, do. heifer, 1852; sec. 15, do. heifer, 1854; sec. 16, Ayrshire cow, any age, 5; sec. 17, do. heifer, 1852, 5; sec. 18, do. heifer, 1854, 1; sec. 19, West Highland cow, any age; sec. 20, do. heifer, 1852; sec. 21, do. heifer, 1854; sec. 22, Kerry cow, any age, 2; sec. 23, do. heifer, 1852, 3; total, 21. Extra premiums, four sections, no entry. Townley challenge cup, one entry only.

Class C. *Horses.*—Section 1, stallions foaled since 1848 and before Jan. 1, 1853, 16; sec. 2, stallions foaled after 1853, 12; sec. 3, mares in foal or having reared one in 1855, 15; sec. 4, filly foaled in 1852, 5; sec. 5, do. foaled in 1853, 9; sec. 6, do. foaled in 1854, 6; total horses, mares, and fillies, 63.

Class D. *Sheep:* Leinsters.—Section 1, shearling rams, 38; sec. 2, two shear do., 31; sec. 3, any other age not exceeding 6 years old, 14; total, 83. Sec. 4, shearling ewes, 7; sec. 5, not exceeding 5 years old, 10; sec. 6, ewe lambs, 7; total, pens of 5, 24.

Class E. *Long-woolled Sheep*, not as Leinsters.—Section 1, shearling rams, 12; sec. 2, two shear do, 9; sec. 3, any other age not exceeding 6 years old, 4; total, 25. Section 4, shearling ewes, 4; sec. 5, not exceeding 5 years old, 9; sec. 6, ewe lambs, 3; total, pens of 5, 16.

Class F. *Cheviots*, or any other mountain kind.—Section 1, ram of any age not exceeding 5 years old, 4; sec. 2, shearling ewes, 2; sec. 3, not exceeding 5 years old, 4; total, pens of 5, 6.

Class G. *Southdowns.*—Section 1, shearling rams, 8; sec. 2, any other age not exceeding 5 years old, 10; total, 18. Section 3, shearling ewes, 4; sec. 4, not exceeding 5 years old, 7; total pens of 5, 11.

Class H. *Swine.*—Section 1, boar under 18 months old, 28; sec. 2, over 18, and under 36 do., 4; total boars, 32. Section 4, breeding sow under 18 months old, 18; sec. 5, do. over 18 months old, 17; total sows, 35. Section 4, breeding pigs not over 10 months old, 6 lots of 3.

Class K. *Poultry.*—Contained above 100 pens.

Class L. *Dairy Produce.*—Best firkin of butter for the English market, 38 lots; sec. 2, dairymaid six months in last employ, 2 prizes; sec. 3, best coopered six firkins of butter, one competitor; sec. 4, best firkin for the foreign market: sec. 5, dairymaid, 2 prizes; sec. 6, cheese, best coopered six firkins, one competitor; sec. 7, cheese, new milk, not less than 20 lbs., one competitor; dairymaid, 2 prizes.

Class M. *Flax.*—Section 1, best bundle mill-scutched, not less than 16 lbs., three competitors; sec. 2, ditto, hand-scutched, two competitors; sec. 3, flax seed saved by grower, three competitors; sec. 4, six hanks hand-spun yarn, one competitor.

Thus far the stock which, when analysed, will give the reader a better idea of our progress. This analysis I mean to give when I can have seen the stock properly, and have time to examine them. The same is all I can say for the implements; amongst the most novel here are the reaping machines about being tried, and when I witness the experiment will, if time permit, say a word or two on their applicability to our Irish grown corn. The trial over—but one appeared, that of Hussey, now Bray's patent; the first trial was made under peculiarly unfavourable circumstances, corn partly laid, and the horses badly adapted to such purposes. Still I saw enough to lead me to believe this machine will be extensively used in Ireland hereafter, and calculated to remedy some at least of the evils glanced at in the introductory part of this letter. The Irish public of all grades were much interested in witnessing the successful working of such machinery, as on my coming from the trial field I met some hundreds going there. There can be no doubt about its getting a prize, for although there is no competition the machine has decided merit. The implements exhibited in the show yard are in the following order:—

	Lots.
1. Messrs. Richmond & Chandler, Salford	37
2. Ransomes & Sims, Ipswich	31
3. Wm. Procter Stanley, Peterborough, Northamptonshire...	18
4. Alfred Croskill, Ironworks, Beverly, Yorkshire	15
5. Richard Coleman, Chelmsford, Sussex	5
6. Ganet & Son, Leiston Ironworks, Saxmundham, Suffolk	9
7. Hernulewicz, Mein, & Co., Glasgow	41
8. Smyth & Ashby, Stamford, Lincolnshire	11
9. Kennedy & Sons, Aston's Quay, Dublin	25
10. William Graham, Smithfield, Dublin	4
11. Richard Robinson, Belfast	5
12. Edmundson & Co., Dame Street, Dublin	14
13. Henry Shendon & Co., Bridgeport Street, Dublin ...	10
15. Thos. Eels & Co., Mary Street, Dublin	20
16. D. Millar, Dunleer, co. Louth...	5
17. Forshaw & Co., Liverpool	13
18. Jas. and Frederick Howard, Bedford	12
19. David Allen, Moneymore	10
20. Caldow and M'Kinnel, Dumfries	3
21. Pery & Mitchell, Dublin	4
22. Js. & J. Mitchell, Dublin	2
23. F. M. Spong, Carlow	52
— Ditto, Draining Tools	11
24. John Dickson, Gortnamond, Tullamore	6
25. John Wightman, Belfast	2
26. Meshail Kehal, Lisnevagh, Baltinglass	1
27. Thomas Rogers, Carlow	4
28. Thomas Halligan, Tullow, Co. Carlow	2
29. Rev. John Bonham, Ballitore	1
30. Thomas Murphy, do.	2
31. Samuel Johnson, Glasslough	1
32. Captain M'Clintock, Bunbury, Lisnevagh	1
33. William Walpole, Millgrove, Cahir	2
34. Edward Carroll, Crememore House, Clonegal	1
35. Messrs. Lyons, Windmill Street, London	1
36. William Dray & Co., Swan Lane, London	3
37. Messrs. Noble & Ryan, Dublin	1
38. James Nowlan, Belan, Castledermot	1
39. St. John Blacker, Ballydonohue, Tarbert	1
40. H. A. Betts, Wotton-under-Edge, Gloucestershire ...	1
41. James Nowlan, Belan, Castledermot, four kinds of Horse-shoes	1
42. John M'Grath, Anan Street, Dublin	3
43. Thomas E. Daly, Exchange Street, Dublin, a Collection	1
44. Samuel Houghton & Son, Carlow, Casks of Manure ...	10
47. John M'Arthur, Engineer and Valuator, Capel Street, Dublin, a Collection of Roots and Concentrated Manures	2
48. James Shekleton, Dundalk	5
49. Thomas Biggs, Great Dover Street, London	1
50. Joseph Long, Sheep-dipping Specifics and Specimens of Skins and Wools acted upon	14
Total Specimens	385

Wednesday evening.—I have had a short run through the Show-yard, and cursorily glanced over the different kinds of stock, produce, and implements shown. It has struck me that there are sad fallings off in some things, and great improvement in others on this occasion compared to former shows. Bulls, for instance, in all sections, and cows, aged particularly, appear to be deteriorating, whilst sheep are vastly improved. Pigs rather improved. Poultry falling off. Horses increasing in number, but not in quality. But in implements and machinery, a manifest improvement, both in numbers, finish, and applicability. *Carlow, Wednesday, August 8th.*

Yorkshire, Malton, *Aug. 2 and 3.*—The show, in all its departments, was excellent, the entries in horses and poultry exceeded anything previously known to the society. Among the implements that which attracted most attention in this department was the "Steam Horse," also shown at Carlisle. The Leeds and Yorkshire Flax Society offered two sets of prizes for green and scutched flax, to be exhibited at the show; and two sets of premiums for the best cultivated crops of flax grown within thirty miles of Leeds. The premiums for the green and scutched flax were, as will be seen below, awarded at the show; those for the crops will be decided hereafter. The premiums for the best five acres of flax brought five competitors; those for the next two acres induced four growers to enter as competitors. These crops will be viewed upon the land when the proper time has arrived for judging them. At the Council dinner a discussion took place on *The Causes Affecting the Productiveness of the Wheat Crop.* Mr. H. S. Thompson said—

The question, as they could not control the seasons, was, how are we to make our Wheat crops more productive? He believed that the great difference between a productive and an unproductive crop, was to be found in the great difference in the number of grains in the ear; for in all crops which might be called moderately good, there was nearly the same number of stems to the acre: and as an illustration of that opinion he had brought with him an ear of 1854 and one grown on the same kind of land in 1853. He admitted that the former was a picked head. On counting it the previous day he found that it contained 79 grains, whilst in the ears of the crop of 1853 the number ranged only from 20 to 30. The crops of 1854 yielded rather more than five quarters to the acre, whilst the crop of 1853, which looked quite as well, and had full as many stems, only yielded two quarters. The crop of 1853 was really a splendid looking crop, and everybody told him it would yield from five to six quarters an acre, but, in consequence of bad yield, there was only about two. Leaving out the thin starving crop, where they had to look about for a stem, he was satisfied that the great difference between a productive and unductive crop was in the yield of each head, and not in their number. If this was not the case how could they account for farmers being willing to give 2*l.* or 3*l.* more an acre for some descriptions of land? For instance, there was a good deal of land about the Lowlands and Dunbar which was let for from 4*l.* to 5*l.* an acre, which so far as they could see was not different from land in this country for which 30*s.* an acre was paid, and yet hey knew the Scotch farmers would not take farms to hurt themselves. The appearance of their homesteads and everything about them showed that they were making a profit. He had also some Oats with him, which had been grown under peculiar circumstances. In the first instance the crop had been thinned by wireworm, whilst in the latter there was a thick crop on the ground, but on taking the heads he found one of the former to contain nearly 600 grains, whilst the latter only contained from 30 to 40. He thought these facts proved the proposition he had advanced. If they accepted the proposition as proved, the next point would be to consider in what way they could make the heads productive. He would first take the case of light land, as it was land with which he had had more to do than any other. For the last 15 years he had farmed land, the history of which he could trace for 150 years. It was at that time bought for about 6*l.* 10*s.* an acre, and was let for 2*s.* 6*d.* an acre. During those years it had undergone a great many steps, and it was now let at 50*s.* an acre, and was as good arable land as any in the neighbourhood. Originally it was exceedingly light; but from time to time soil and clay had been put upon it, and after growing Turnips, and being put through other modes of culture from year to year, it had so improved that it now produced something like five quarters an acre. He looked upon the fact of the farmers in the Lowlands paying 5*l.* an acre for their land, and yet realising a profit, as a sort of model for their imitation, and he thought they should not rest satisfied until they had cultivated their land up to the point they believed it possible to attain. How were they to do this? They might take some 20 tons of farmyard manure, or a few cwts. of guano or lime, and put it upon the land, and the result would be that the crops would look well in the winter and spring; but when the heavy rains of summer came they would be laid as flat as their hands, and scarcely yield any corn at all. These manures were very good within certain limits, but they did not do used in excess. If they wanted to produce good crops, they must go to work cautiously. In truth, there was no royal road to farming. If they wished to get their land into a first-rate state of productiveness it must be by a number of steps extending over a number of years. He began with this land to which he had referred about 15 years ago, and it was then worth 40*s.* an acre. He began by putting clay upon it, and he had no hesitation in saying that every load of clay he had so put upon it had paid well; and he was satisfied that the putting of clay or marl on light land, at the rate of 100 loads per acre would be found to answer. He had had to lead his about a quarter of a mile, and it had cost him less than though he had given the land a good dose of lime. If they put clay upon the sand it would not wash down, but remain upon the surface, and even where it did go a little below, it might be brought up again by deep ploughing. It was a great improvement, without being costly, and was within the means of tenant farmers to try for themselves. The heavy clay lands of the country were generally considered to be the best Wheat lands, and he believed a great deal might be done to improve clay lands generally. He would not speak of drainage, because everybody admitted its necessity, who knew anything of agricultural pursuits, but there was the question "How are we to make the clay lands as productive as the light lands?" If they wished to make it productive, they must put upon it sand, and the object of that was to enable the roots of the plant to grow readily in the soil, so that they could get the full benefit of what there was to be got. They must begin by ploughing rather deeper, and then increase the depth from 1 to 2 inches every time they put it to fallow. If they could get the sand from their neighbourhood, it would be a great benefit; but if they could not, they must burn the land; he did not mean that they must burn the whole surface, for he should be very sorry to see them do so on any land. The best way was to put in a scarifier or grubber, and cut off all the weeds, take about 2 inches from the surface, and then collect them into small heaps as in Worcestershire, and set them on fire. If the land was dry they would burn with the stubble and the weeds, and if it was not dry they must put in a little coal, which would burn it thoroughly, and they would be surprised what a small amount of coal would do. Last year he had a field of about 9 acres which he burnt in this way, and though it came very wet before he had finished, 3 chaldron of coal (of small coal) enabled him to burn it completely. The whole cost of collecting, putting it into heaps, and of coals, did not amount to 6*s.* an acre, which was a cost thoroughly within the means of the tenant farmer. If they would set to work with their land, put clay and marl upon light land, and sand upon clay land or burn it, and at the same time expose it to the atmosphere, they might depend upon it they would succeed in bringing their land into a very much more productive state, without laying their money out at great risk, as was the case when they applied a great deal of hand tillage. He knew of no reason why they should not be able to bring any land into a much more productive state by continued cultivation in this manner, though they might not perhaps be able to bring it quite up to the Lothian level he had mentioned.

AWARD OF PREMIUMS.

[The Judges did not complete their labours until Thursday afternoon. The prizes awarded were the following:—

CATTLE.

Best bull of any age: 25*l.*, R. Booth, Northallerton; 10*l.*, Lord Feversham, Duncombe Park, Helmsley. 18 entries.

Best yearling bull: 20*l.*, F. H. Fawkes, Otley; 5*l.*, A. L. Maynard, Marton-le-Moor, Ripon. 14 entries.

Best bull calf, upwards of five months old: 10*l.*, C. Towneley; 3*l.*, F. H. Fawkes. 18 entries.

Best cow of any age: 15*l.*, R. Booth; 5*l.*, J. Booth. 17 entries.

Best 3-year-old cow: 10*l.*, J. Douglas, Athelstaneford, N.B.; 5*l.*, Lord Feversham. 3 entries.

Best 2-year-old heifer: 10*l.*, C. Towneley; 5*l.*, R. Booth; 8 entries.

Best yearling heifer: 10*l.*, J. Hall, Kiveton Park, Worksop 5*l.*, J. Douglas. 15 entries.

Best heifer calf: 7*l.*, C. Towneley; 3*l.*, R. Booth. 10 entries.

Best fat ox of any age: 5*l.*, H. Vynner, Newby Hall, Ripon. 8 entries.

Best fat ox of any age: 5*l.*, H. Ambler, Watkinson Hall, Halifax. 6 entries.

Best cow of any breed for dairy purposes: 7*l.*, Q. Clark, Bilton, York. 6 entries.

SHEEP.

Best shearling ram: 15*l.*, J. Borton, Barton-le-street, Malton; 5*l.* do. 32 entries.

Best ram of any age: 10*l.*, J. Borton; 5*l.*, J. Simpson, Spofforth Park, Wetherby. 18 entries.

Best pen of five ewes: 5*l.*, W. Taylor, Thorntherpe, Malton; 3*l.*, J. Holiday, Barmston, Lowthorp. 5 entries.

Best pen of five shearling wethers: 5*l.*, T. Dawson, Poundsworth, Driffield.

Best pen of five shearling gimmers: 10*l.*, W. Abraham, Barnetby-le-Wold, Uceby; 5*l.*, T. B. Browne, Hampen, Andoversford. 4 entries.

Best ram of any age: 5*l.*, Lord Walsingham.

Best pen of five shearling gimmers: 5*l.*, Lord Walsingham.

Best black-faced Scotch ram: 5*l.*, J. Estill, Blake House, Pickering; 2*l.*, T. Wilson, Bilsdale, Stokesby.

PIGS.

Best boar, large breed: 5*l.*, T. Horsfall, Otley; 2*l.*, W. Prince, West Ayton. 6 entries.

Best sow, large breed: 5*l.*, J. Harrison, jun., Heaton Norris; 2*l.*, T. Horsfall. 7 entries.

Best boar, small breed: 5*l.*, Lord Wenlock; 2*l.*, G. Mangles, Givendale, Ripon. 15 entries.

Best sow, small breed: 5*l.*, T. Horsfall; 2*l.*, Lady Meredith, G. Mangles.

Best three store pigs, of the same litter: 5*l.*, W. B. Wainman, Carrhead, Skipton; 2*l.*, M. Barroby, Dishforth, Thirsk.

Best sow of any breed: 5*l.*, W. B. Wainman, Carrhead, Skipton; 2*l.*, G. E. Taylor, Oatlands, Leeds.

Best boar of any breed: 5*l.*, G. Mangles; 2*l.*, G. E. Taylor.

HORSES.

Best stallion for hunters: 10*l.*, W. Daykins, Doncaster; 3*l.*, J. Smith, Martin Lodge, Bridlington.

Best stallion for coach horses: 10*l.*, J. Johnson, Brigham, Driffield; 3*l.*, D. Holliday, Newland, Hull.

Best stallion for roadsters: 10*l.*, J. Foxton, Waithwith, Richmond; 3*l.*, R. B. Ridsdale, Watergate, Ripley.

Best stallion for agricultural purposes: 10*l.*, J. Ramsbottom, Bilham Orange, Doncaster; 3*l.*, A. Hill, Normanby, Kirby-moorside.

Best mare and foal for hunting: 5*l.*, H. Marr, North Holme, Malton; 2*l.*, H. S. Thomson, Hirby Hall, York. 16 entries.

Best mare and foal for coaching: 5*l.*, P. Clark, Bilton, York; 2*l.*, G. Piercy, Garton, Driffield. 4 entries.

Best roadster mare and foal: 5*l.*, J. Staveley, Dotterill Park, Kilham; 2*l.*, T. Nicholson, Watton, Driffield. 10 entries.

Best mare and foal for agricultural purposes: 5*l.*, J. Simpson, Humnanby; 2*l.*, Earl Fitzwilliam, Wentworth House, Rotherham. 10 entries.

Best 3-year-old hunting gelding: 5*l.*, W. S. Gofton, Wharram-Percy, Malton.

Best 3-year-old hunting filly: 5*l.*, J. Kirk, Moor-Monkton, York.

Best 3-year-old coaching gelding: 5*l.*, B. Johnson, Frodingham Bridge, Driffield.

Best 3-year-old hackney for agricultural purposes: 5*l.*, F. Jordan, Eastburn, Driffield.

Best 3-year-old for agricultural purposes: 5*l.*, T. Chantrey, Acaster, Selby, York.

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Best 2-year-old coaching gelding: 5*l.*, T. Plummer, Thormanby, Easingwold.

Best 2-year-old coaching filly: 5*l.*, C. Pybus, Catterick.

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Best pair of horses for agricultural purposes, worked during the season: 5*l.*, Earl of Carlisle, Castle Howard.

Best hackney, not less than four years nor exceeding six: 5*l.*, R. Jones, New Malton.

Best 4-year-old hunter: a silver cup of the value of 20*l.*, T. Ellerby, Whitwell, York; 5*l.*, R. Stockdale, Skerne.

Notices of Books.

Whittington's Treatise on the new Anglo-French Patent, with Process and Proceeds for and from Mangold Wurzel. Kelly and Co., 19, 20, and 21, Old Boswell Court, Temple Bar.

This is an advertisement of the estimated profits of the manufacture of spirits from Mangold Wurzel. These hinge upon the possibility of purchasing the roots at 10*s.* a ton, with liberty to take back the pulp after all fermentable matter has been extracted. We should not be disposed to sell Mangold Wurzel on those terms, and do not believe that they could be profitably grown at such a price unless possibly close to the distillery, where the pulp may be consumed almost without expense of carriage. We extract a passage in which the author refers to his experience of Mangold Wurzel consumed in early autumn:—

"It is well known that—excepting only swine, which thrive and fatten amazingly on Mangold only, given at any season—animals do not thrive, but waste, if fed largely on raw Mangold before Christmas; were it otherwise, this bulb would be much more extensively grown, &c.; as it is, the Duke of Bedford and others parboil or steam, and so use beneficially in quantity, and early, without waiting for fermentation, &c., by stacking and process of time, to remove the deleterious properties; effects whereof I have proved by feeding a cow-team largely and solely thereon excepting some hay; the cows lost flesh, some were paralysed, some died; so I sent the coatings of their stomachs, which flaked off quite black, to Mr. Gibbs, the Honorary Secretary of the Royal Agricultural Society, and to Mr. Sewell, of the Royal Veterinary College, who pronounced the results above referred to as having arisen from the before-recited causes. I have kept small bulb Mangolds till Midsummer, shipped them in the spring with live-stock to India and Australia, finding them then to be better and keep longer than Swedes. I have made some very fine and fat sheep in the spring, fed only on Mangold and hay. The process of maceration and extraction will enable Mangold to be used safely, cheaply, and beneficially at all seasons and for all feeding purpose, besides saving time, trouble, and cost to many growers and consumers."

Calendar of Operations.

AUGUST.

North Hants.—With fine weather the prospect of a good and abundant harvest in this district is favourable, although reaping will not be general until the middle of August is passed, and hence conclusions may be drawn too early as to the probable yield. On the clay soils the Wheat is heavy and thick on the ground. On the light chalk hills the plant is deficient on some farms, and when this occurs the crop will be much under an average. Blight and a deficiency in the ear is visible to some extent, but these, as usual, are much exaggerated at the markets. All kinds of spring corn are more than usually promising, and will come to harvest as early as Wheat. Turnips are growing too rapidly for the hoers, and when fine weather comes much hoeing will remain to be done when the men are required in the (if possible) more important operations of the harvest. It is to be hoped that arrangement has been made to ensure a due number of workmen to meet the emergency when fine weather returns. No old hay is left, and the first cut of new (if we except Sainfoin, which has this season cut up splendidly) is very deficient in breadth and bulk. The second cut will doubtless be an abundant one. If we except a solitary patch here and there, where incipient signs of the disease are visible, the Potato is healthy and doing well. The question of the day with farmers is, will prices keep up? and we have still a few who hold back their last rick or two of old Wheat for higher prices. The favourable reports from abroad, the supplies that are reaching us more abundantly, and the knowledge that war has only partially barred our merchants from a comparatively small part of the corn-producing countries, must warn the holders of Wheat that a reaction in prices hinges on a balance, which a fine and abundant harvest at home will weigh downwards rather rapidly; and a moderate harvest would barely counterbalance the prospect of a good foreign supply. *H. A.*

Notices to Correspondents.

Flax: *Anon.* From 40 to 50 stones of the fibre, and 18 to 20 bushels of the seed, are a good crop.

White Mustard: *M.* Sheep eat it readily; perhaps some correspondent will state his experience of it with cattle or horses; we have not known it given to them.

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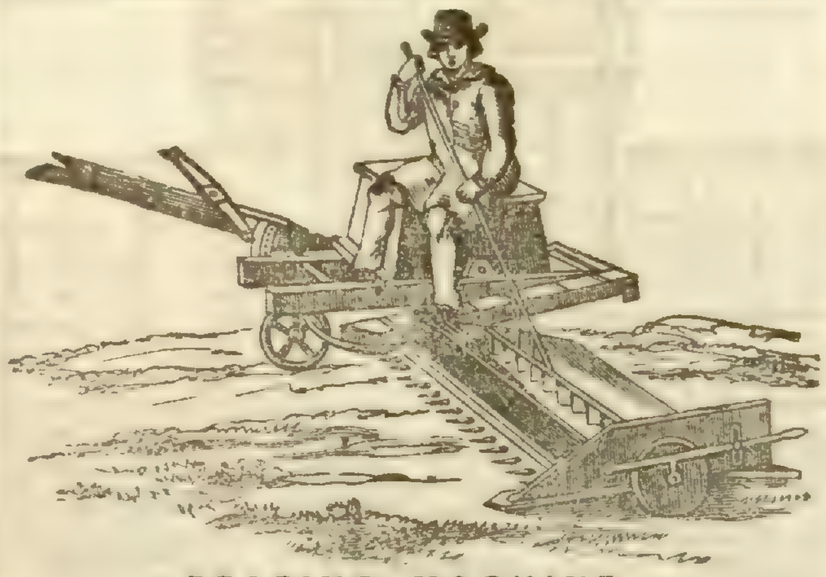

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A liberal allowance to the trade.

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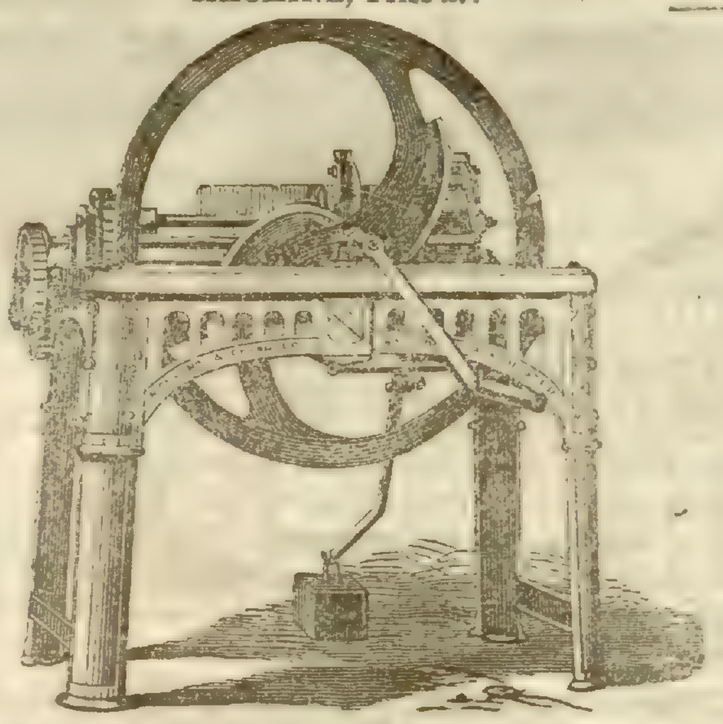

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GALVANISED IRON TUB GARDEN ENGINE,
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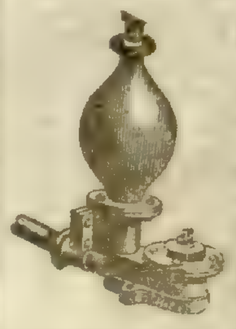
Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.



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A Safe and most Effectual Destroyer of Black Beetles and Cockroaches; one trial alone will suffice to prove its great efficacy, and one box will destroy thousands. The great advantage in this preparation is that it does not leave their bodies to decay and corrupt the air, but completely dries up and destroys them, so that nothing is left to cause an unpleasant odour when dead.
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To the Editor of the "Cottage Gardener," July 3d, 1855.
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(Ed.—This is not a mere puff, but sent to us by a gentleman who has been benefited as he states.)

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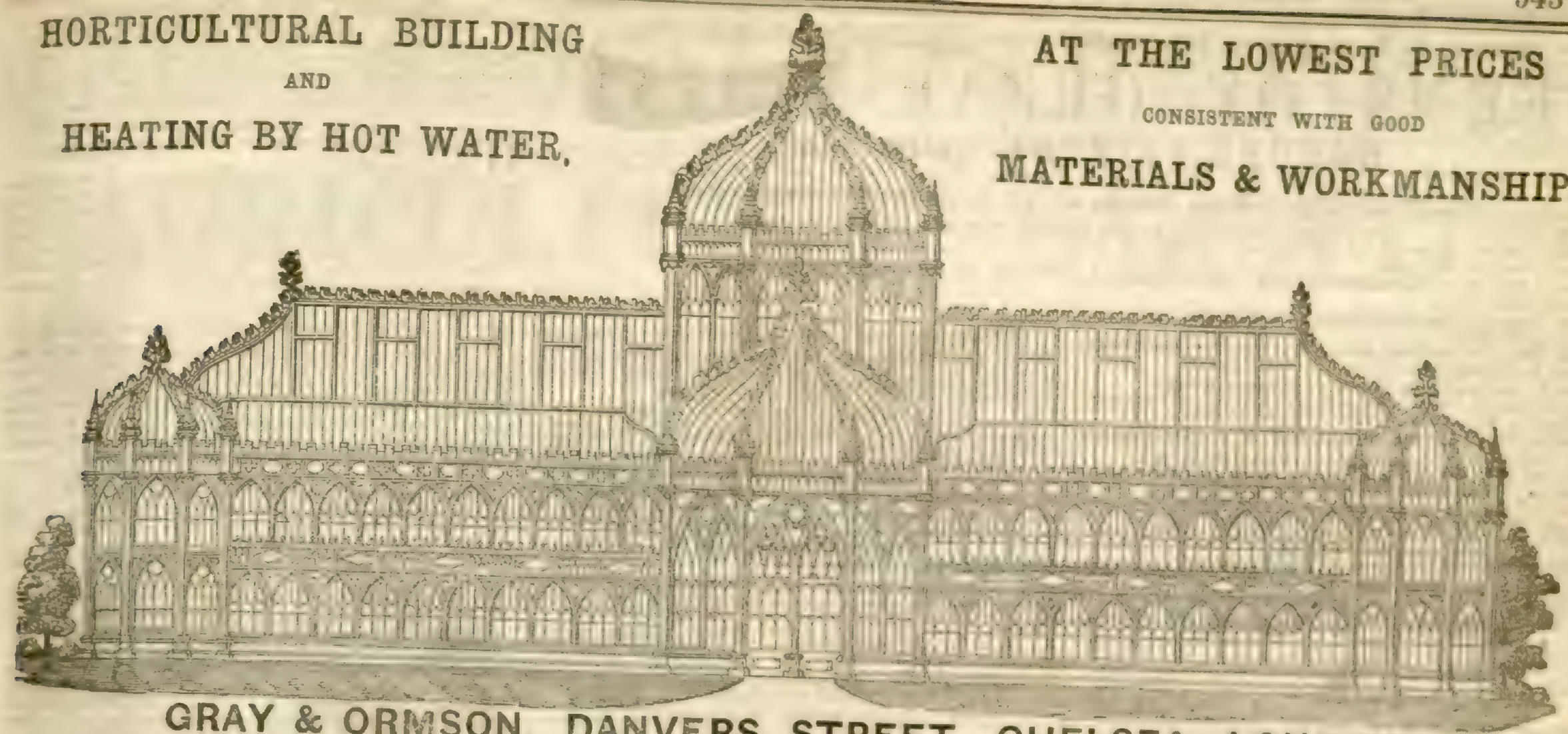

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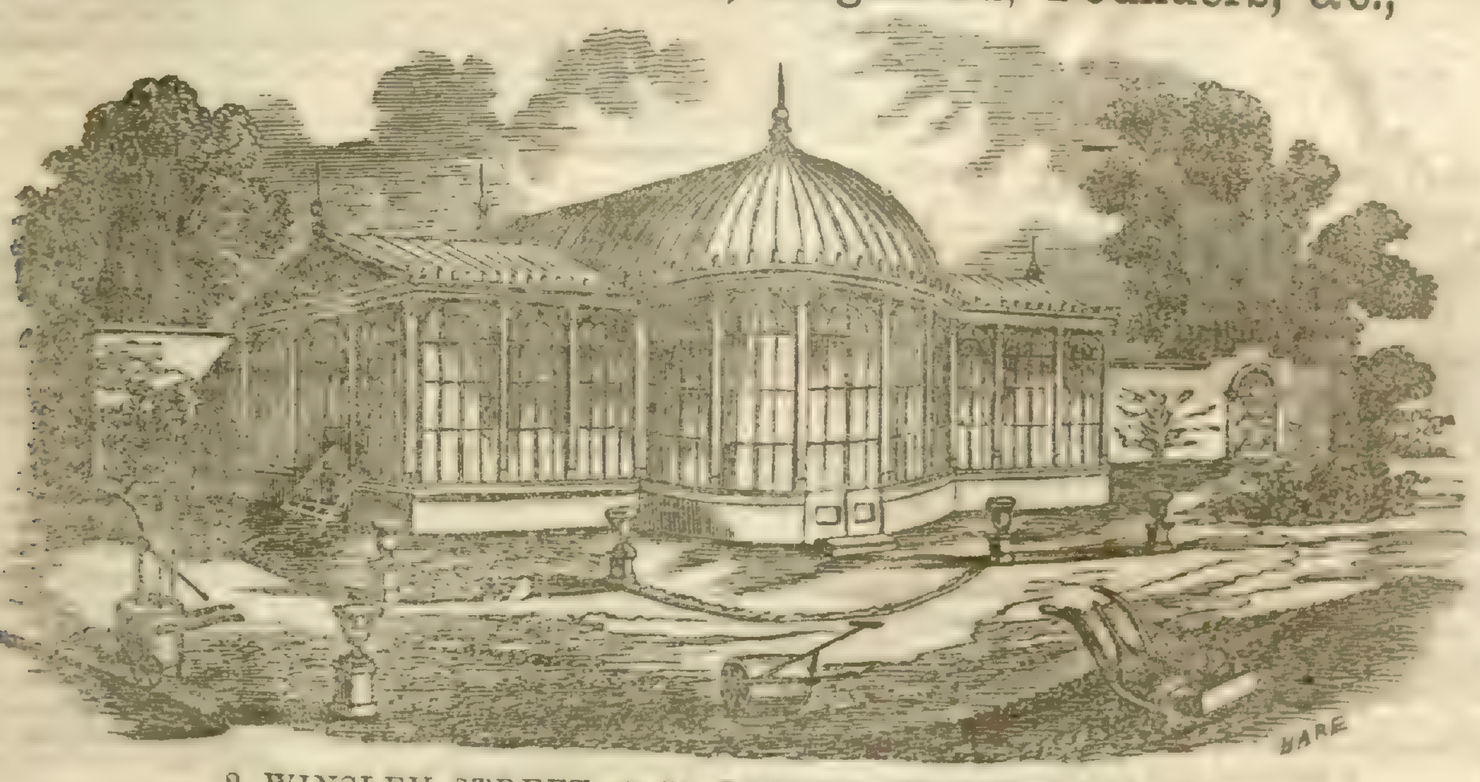

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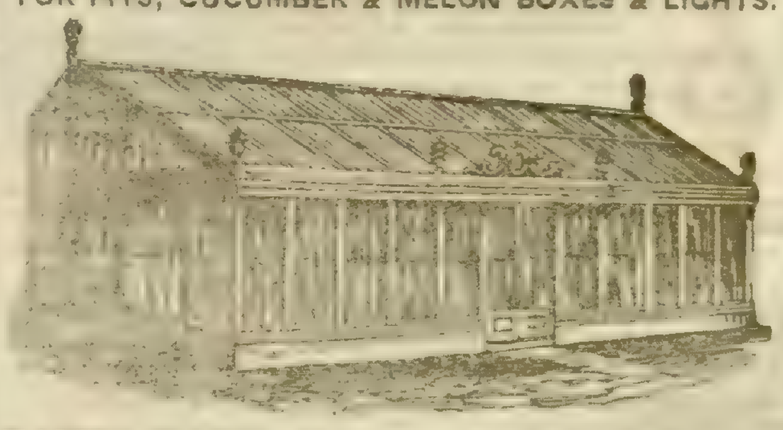

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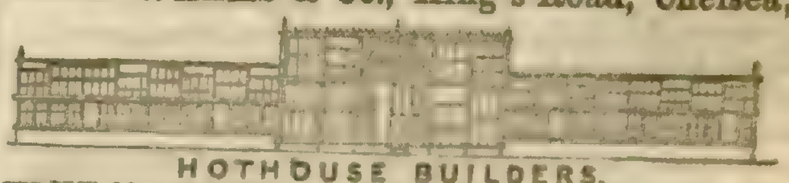

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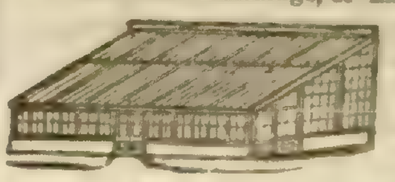

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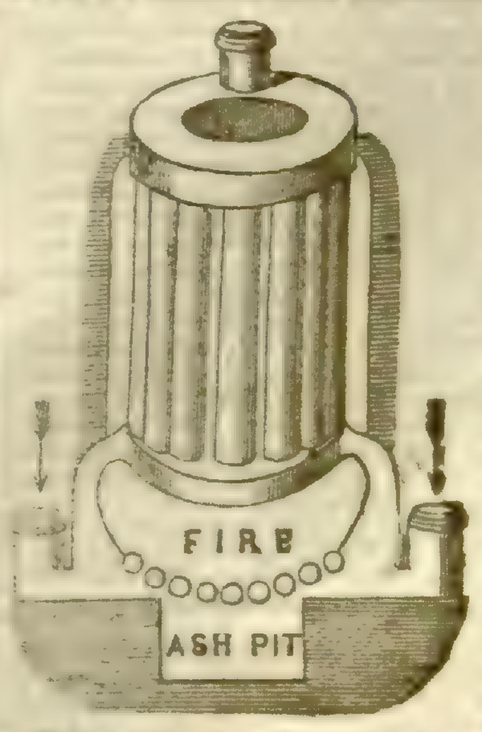

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THE LATE FLOOD AT CHELTENHAM.—On Thursday, the 26th ult., the town of Cheltenham was visited by a SEVERE FLOOD, the river Chelt overflowing its banks and causing great damage to the property of various individuals. The chief sufferers are the Nurserymen and Market Gardeners, whose land has been inundated, and their valuable stocks in some cases destroyed, and in others greatly injured. The total amount of loss to this class of property has been estimated by Messrs. Wheeler, of Gloucester, at nearly 1000l., of which the large sum of 520l. falls upon one individual, Mr. Charles Hale Jessop, alone.

Subscription Books have been opened, and it is thought that the sympathy felt in Cheltenham for the sufferers may also, through this medium, be shown in other parts of the kingdom, especially as Mr. Jessop's name and character are so widely known and esteemed. A list of Subscribers will hereafter be published in the *Gardeners' Chronicle*, meanwhile Subscriptions are respectfully solicited, which the following gentlemen have kindly consented to receive, viz., Messrs. WRENCH & SONS, London Bridge; Messrs. NOBLE, COOPER, & BOLTON, 152, Fleet Street; and Messrs. WHEELER & Son, Gloucester; or they may be sent direct to the Honorary Secretary.

Cheltenham, August 11. ANDREW PAUL, Hon. Sec.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 33.—1855.] SATURDAY, AUGUST 18. {Price Fivepence. Stamped Edition, 6d.

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GRAND
METROPOLITAN DAHLIA AND HOLLYHOCK SHOW.

THE ROYAL SOUTH LONDON FLORICULTURAL SOCIETY.—Under the Patronage of Her Most Gracious Majesty the Queen.—The last Exhibition of the above Society for the present season will take place at the Royal Cremorne Gardens, Chelsea, on THURSDAY, August 30, in conjunction with the Grand Metropolitan Dahlia and Hollyhock Show (Open to all Exhibitors).

Lists of Prizes and the Rules of the Exhibition may be had of the Secretary, J. T. Neville, Ebenezer House, Peckham.

CHICHESTER HORTICULTURAL SOCIETY.—The Autumn Meeting will take place on TUESDAY, August 28, in the Priory Park.—Particulars of premiums may be obtained of the Secretary. H. Silverlock, Jun.

SALISBURY HORTICULTURAL SOCIETY.—The ANNUAL DAHLIA EXHIBITION, offering the highest amount of Prizes that will be given this season at any Show, will be held in conjunction with the Horticultural Society, in the Gardens of the Lord Bishop of Salisbury, on THURSDAY, Sept. 6th.—Full particulars of John Keynes, Hon. Sec.

TO NURSERYMEN AND OTHERS.

Sewers' Office, Guildhall, Aug. 2, 1855.

CITY OF LONDON CEMETERY.—The Commissioners of Sewers of the City of London, acting as the Burial Board for the said City, hereby give notice that they will meet at Guildhall on Tuesday, the 11th day of September, at 12 o'clock precisely, for the purpose of receiving TENDERS for the supply of TREES and SHRUBS for the Cemetery now being formed at Little Ilford, in the county of Essex.

Forms of Specification with Schedules, to which the prices are to be affixed, may be obtained on and after the 20th day of August, at the Office of Mr. William Haywood, Surveyor to the Commissioners, 14, Old Jewry Chambers; or at the Office of Mr. Davidson, Landscape Gardener, 36, Great Russell Street, Bedford Square. Joseph Daw, Principal Clerk.

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James Kitley, Lyncombe Vale Nursery, Bath.

THOMAS BEACH, the well known Strawberry Grower, begs to inform the public that he has now ready a large stock of fine strong plants of his true BRITISH QUEEN, the same he beat the world with at the Crystal Palace and at Chiswick, and other places up to the present season, both in flavour and weight. Plants sent to any part of the world at 5s. per 100. Post-office orders on Hounslow to Mr. Thomas Beach, Strawberry Grounds, Worton, Isleworth, Middlesex.

CUTHILL'S STRAWBERRY PLANTS.—The early and hardy BLACK PRINCE, and late PRINCE of WALES, two celebrated sorts, will be sent out on and after August 15th. They are both enormous bearers, and either of them makes a most delicious and solid preserve, to which upwards of 300 families round here can testify. The Black Prince, 5s. per 100; the Prince of Wales, 7s. 6d. per 100.

J. C.'s Pamphlet on the Potato, Strawberry, Asparagus, Seakale, Rhubarb, Wine, &c. Preserve, 2s.

J. C.'s Market Gardening round London, 1s. 6d. See the recommendation of it in the "Quarterly Review." Early orders requested. Post-office orders payable at Camberwell Green.

James Cuthill, Camberwell, London.

MYATT'S ADMIRAL DUNDAS STRAWBERRY.—Strong plants packed and delivered free in London, 25s. per 100. Also Myatt's British Queen, Cinquefolia, Globe, Eliza, Mammoth, 5s. per 100; Keens' Seedling, Hooper's Seedling, Black Prince, Briton Pine, 5s. per 100.

MYATT'S BRITISH QUEEN.—In reply to several correspondents, and in confirmation of the private answers I gave last summer, I beg leave to state that the only Strawberry bearing the name of "British Queen" is Myatt's, and when Mr. Beach, in his advertisement says "his true British Queen," he is obviously in error, and arrogates to himself the credit due to my late father, Mr. Joseph Myatt, who was the originator of the variety in question.—W. Myatt, Manor Farm, Deptford.—August 18.

IMPROVED MUSHROOM SPAWN.—Patronised by many of the Nobility, the London Horticultural Society, &c. Sold in packages containing a sufficient quantity to plant 50 feet of bed for 5s., with printed description and cultural directions.

Address W. PRESTOE, Florist, &c., Basingstoke, Hants.

FERNS.

ROBERT SIM'S 16 page CATALOGUE of his GENERAL COLLECTION of FERNS may now be had for Four Stamps. Free to all previous purchasers.

Nursery, Foot's Cray, Kent.

PRICED CATALOGUE OF PLANTS.

THOMAS JACKSON and SON'S Priced Catalogue of Plants may be obtained on application. It contains Stove, Orchidaceous, Ferns and Mosses, Greenhouse, Ornamental Shrubs and Trees, Roses, and Herbaceous Plants.

T. J. & Son are offering at very low prices a large Stock of Azaleas, Camellias, Ericas, Epacrises, Helichrysums, Rhododendrons, &c., well deserving the attention of purchasers.

Nurseries, Kingston, Surrey.

WANTED,

GRAPES and PEACHES of Superior Quality. Forward to GEORGE TAYLOR, Jun., Fruit Salesman, St. John's Market, Liverpool. Terms Cash.

TO BE SOLD, two very fine healthy plants of ARAUCARIA IMBRICATA, in large slate tubs, price Twenty-five pounds as they stand.—Apply to Edward Beck, Isleworth, Middlesex.

CHOICE NEW FUCHSIAS, ETC., OF THIS SEASON.

HENRY WALTON, Florist, &c., Edge End, Marsden, near Burnley, Lancashire, is now sending out "the White Corolla'd," and "Banks," and other new Fuchsias, at 18s. and 21s. per doz. (nice healthy plants), post free or hamper and package included, or 2s. 6d. to 3s. 6d. each, for names of which see Advertisement in *Gardeners' Chronicle* of August 11th and previous Numbers.

New Verbenas of this season, 15s. per doz., or 1s. 6d. each. Choice Cineraria seed saved from the finest named varieties, 1s. 6d. and 2s. 6d. per packet, post free.

Post-office Orders are respectfully requested, with all orders (unless reference is given) payable at Marsden, Lancashire.

LANDSCAPE GARDENING, GARDEN ARCHITECTURE, AND GENERAL IMPROVEMENT OF DOMAINS, WOODS, PLANTATIONS, &c.

Charles M'Intosh, F.R.P.S., A.L.S., &c., Author of the "Book of the Garden" and other works on Horticulture, &c. Late Curator of the Gardens of his Majesty the King of the Belgians at Claremont and Brussels, and latterly of those of his Grace the Duke of Buccleuch at Dalkeith Palace.

Newcome Villa, Murrayfield, Edinburgh.

HOW TO KILL RATS AND MICE BY HUNDREDS.—A Receipt may be had, honestly worth 20*l.*, without trouble, by sending 30 postage stamps and a directed envelope to Mr. William Franklin, Post-office Street, Norwich, who will forward it with plain instructions, &c. This is a most extraordinary remedy, such as no Farmer, Merchant, or Miller ought to be without, as it will save them pounds yearly by killing every Rat or Mouse either in the field, stack, or house.

COWS.

HARVEY'S CELEBRATED COW DRINKS, 1*s.* each, have been used with great success. Plain directions are given with each Drink for the treatment of most diseases incidental to Cows, for which they will be found a safe and effectual remedy. One Drink given at the commencement of the Tick, or Feet and Mouth Distemper, will perfectly eradicate it in a few days.—Compounded by R. Harvey, Veterinary Surgeon, Macclesfield, Cheshire. Sold by all Medicine Vendors Wholesale Agents, Barclay & Sons, and Marsden & Sons, London.

WARNER'S SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)

Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l.* 3*s.*

Manufactured by
John Warner & Sons, 8, Crescent, Jewin Street, London.

JOHN WARNER AND SONS,
Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
With Warner's Registered Spreader,

is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe.

Manufactured only by Waithman & Co., Bentham, Lancaster.

No. 1 Quality, Inches in Diameter and Price Per Yard:—½, 9*d.*; ¾, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d.*; 1½, 1*s.* 5*d.*; 1¾, 1*s.* 7*d.*; 2, 1*s.* 9*d.*; 2¼, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

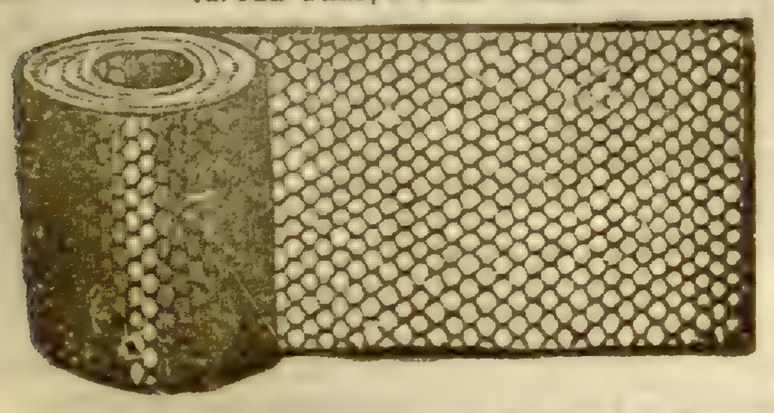
Super Extra Stout Quality:—2, 2*s.*; 2¼, 2*s.* 3*d.*; 2½, 2*s.* 6*d.*; 2¾, 2*s.* 9*d.*; 3, 3*s.*

No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9*d.*; 1¼, 10*d.* 1½, 11*d.*; 2, 1*s.*; 2¼, 1*s.* 3*d.*; 2½, 1*s.* 6*d.*

The Hose is Burnettised at an extra charge of 3*d.* per yard.
Union Joints, Branch Pipes, and Jets are also supplied.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.* Scrim Canvas, for Wall Fruit.—At EDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

GALVANISED WIRE GAME NETTING.—
7*d.* per Yard, 2 Feet Wide.



	Galvanised.	Japanned iron.
2-inch mesh, light, 24 inches wide ...	7*d.* per yd.	5*d.* per yd.
2-inch " strong " ...	9 "	6½ "
2-inch " extra strong " ...	12 "	9 "
1⅝-inch " light " ...	8 "	6 "
1⅝-inch " strong " ...	10 "	8 "
1⅝-inch " extra strong " ...	14 "	11 "

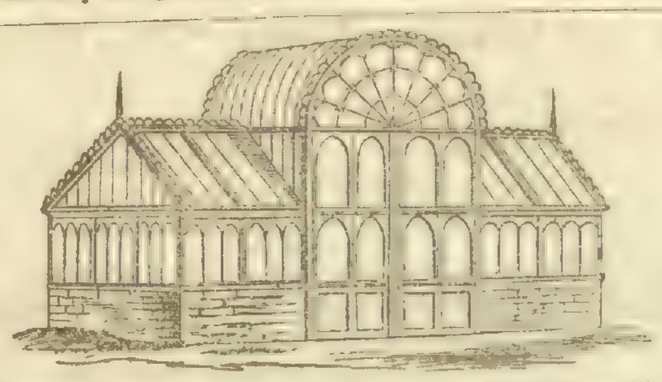
All the above can be made any width at proportionate prices. If the upper half is a coarse mesh, it will reduce the prices one-fourth. Galvanised Sparrow-proof Netting for Pheasantries, 3*d.* per square foot. Patterns forwarded post free.

Manufactured by Barnard & Bishop, Market Place, Norwich, and delivered free of expense in London, Peterborough, Hull, or Newcastle.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.
Kensal Green, Harrow Road, London.

JOHN TAYLOR and SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.



J. OVERALL begs to inform the Nobility, Gentry, Nurserymen, and others requiring Horticultural Buildings, Lights, and Frames, that by intrusting their orders to him, they may depend upon first-class workmanship and good materials at the most economical prices.

J. Overall, Horticultural Builder, 16, Shacklewell Lane, near Kingsland, London.

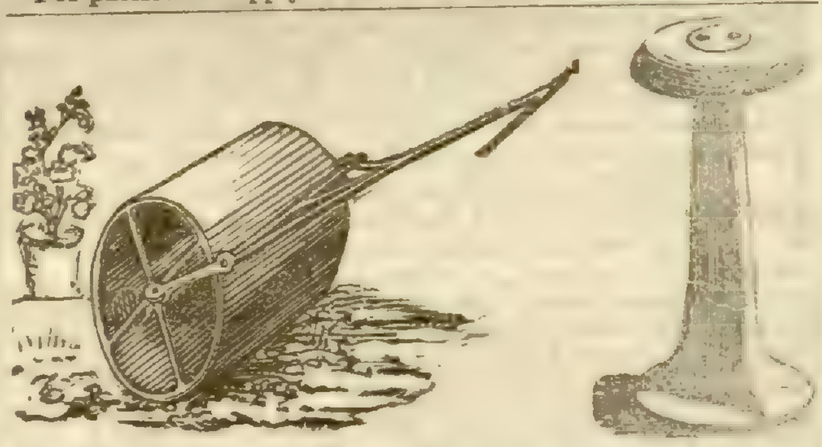
BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, Patent Hothouse Works, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the frame work, but covered with Galvanised Iron Sashes, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

TO HORTICULTURISTS.

TO BE SOLD, a modern built GREENHOUSE, 26 feet by 16 feet, in excellent repair, with Stand complete.—For particulars apply to Messrs. Thew & Son, King's Lynn.



COTTAM and HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.

Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

Hand Glass Frames, Cast and Wrought Iron Flower Stakes, Garden Arches, &c.

Strong Iron Hurdles, and best Wire for Strained Wire Fencing.

Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom. Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

IRON GATES, HURDLES, FENCING, ETC.

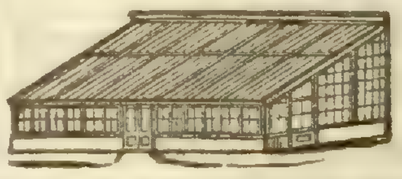
J. BULLOCK and CO., Hope Iron Works, Primrose Street, Bishopsgate, Ironfounders and manufacturers of the above; also Verandahs, Conservatories, Staircases, Iron Roofs, &c. N.B. Iron and Wire Fences fixed in all parts of the country by competent workmen, or the materials supplied painted or galvanised ready for fixing, and packed for shipment. Estimates on application.

HORTICULTURE IN ALL ITS BRANCHES.

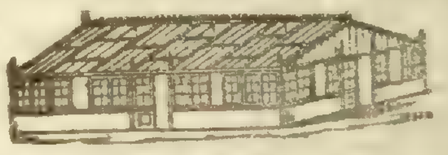
JOHN WEEKS & Co., King's Road, Chelsea.

HOTHOUSE BUILDERS.

THE NOBILITY and GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.

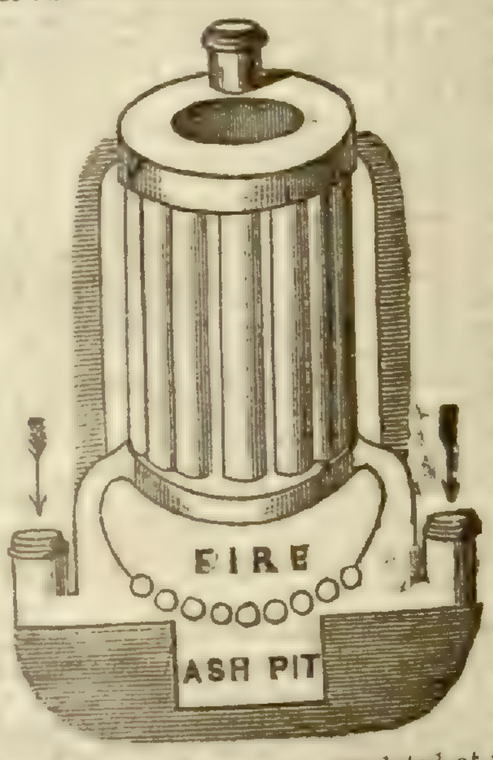


Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings: also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to John Weeks & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

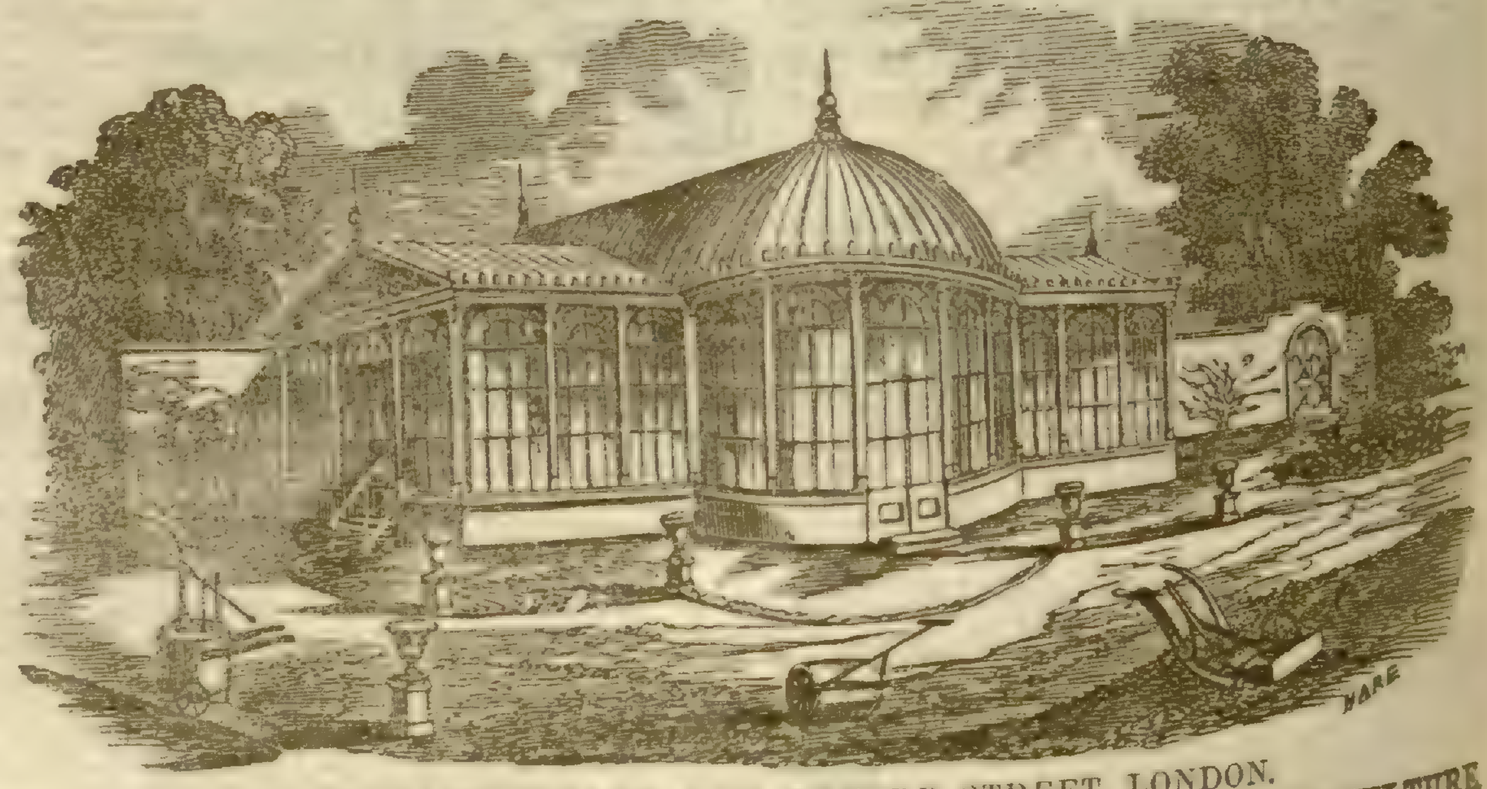
JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.



The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are 40 ft. wide and lofty dimensions, in length 1000 ft. and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the last severe winter it only cost us 3*s.* per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *our Boilers*, and any part regulated at pleasure. Plans, Models and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

John Weeks & Co., King's Road, Chelsea, London.

COTTAM AND HALLEN, Engineers, Founders, &c.,



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

NEW AND RARE PLANTS.

JOHN AND CHARLES LEE have a fine stock of the following to offer:—

THUJA GIGANTEA.—A noble hardy evergreen tree, from the hills of California. From seed, 31*s.* 6*d.*; grafted, 21*s.*

THUJOPSIS BOREALIS.—A beautiful hardy evergreen tree, from Behring's Straits. Grafted, strong, 21*s.*

	s. d.		s. d.
Biota glauca	7 6	Episcea mellitæflora ...	3 6
Thuja Doniana ... 5*s.* to	7 6	Araucaria excelsa, from seed ... ... 25*s.* to	42 0
Wellingtonia gigantea, 5*s.* to	21 0	Araucaria Bidwilli ...	31 6
Podocarpus nubigena ...	21 0	" Cunninghami...	31 6
" chilina ...	21 0	" Cooki	105 0
Berberis Jamesoni ...	5 0	" gracilis ...	42 0
" Neuberti, fine ...	7 6	Bejaria æstuans	10 6
Dammara obtusa	31 6	Acrophyllum venosum ...	7 6
Begonia Thwaitesi ...	7 6	Boronia Drummondi ...	5 0
" Lapeyrousi ...	5 0	Glycine sinensis alba ...	5 0
Echites Pelleri	10 6	Azalea amœna, hardy, fine	3 6
Aphelandra Leopoldi ...	5 0	Oxylobium Osborni ...	5 0
" Porteana ...	5 0	Eugenia ugni	3 6
Ixora Lobbi	7 6	Scutellaria villosa ...	5 0
" alba, true	5 0	Fabiana violacea	3 6
Sciadocalyx Warscewiczi	5 0	Swainsonia Osborni ...	3 6

FILBERT MERVEILLE DE BOLWYLLER, large and very prolific, 7*s.* 6*d.*

The Trade supplied.—Nursery, Hammersmith.

SEEDS FOR PRESENT SOWING.

JOHN CATTELL has the following now ready to send out, post free, at the prices annexed. The CALCEOLARIAS are very superior, and warranted to give equal satisfaction to those sent out by J. C. for so many years.

Per packet.—	s. d.
Calceolaria, saved from the finest vars., carefully hybridised	2 6
Do. from an entirely new class, of very rich colours, large, and extraordinary fine blooms	5 0
Cineraria, from finest varieties...	2 6
Geranium, from first rate florist varieties	1 0
Do. do. fancy varieties	1 0
Schizanthus retusus and albus, each	0 6
Anemone, single Poppy, extra fine	0 6
Mimulus, from finest varieties	0 6
Mignonette, New Giant	0 4
Alstrœmeria acutifolia, splendid scarlet conservatory climber	1 0
Do. Van Houtte's, superb Chilian hybrids, mixed	0 6
Tropæolum tricolorum grandiflorum	1 0
Heartsease, from fine named varieties	1 0
Helianthemum, or dwarf rock Cistus, from 30 vars., mixed	0 6
25 varieties, fine showy hardy Annuals, for early spring flowering, in the open ground	5 0
12 varieties, from showy half hardy Annuals, for early flowering, in the greenhouse	3 0

A remittance in stamps or otherwise must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

CHOICE FLOWER SEEDS FOR PRESENT SOWING.

BASS AND BROWN beg to offer a few choice FLOWER SEEDS for present sowing, as under:—

GREENHOUSE PERENNIALS. Per packet.—	s. d.
Calceolaria, very choice ...	1 0
" from new varieties	2 6
Calandrinia umbellata ...	0 6
Geranium, choice	1 0
" very choice new vars.	2 6
" finest mixed scarlet ...	0 6
" do. fancy varieties ...	1 6
" Zonale, white bedding	0 6
Gloxinia, choice, mixed ...	0 6
" new and choice vars.	2 6
Heliotropium, best, mixed	0 6
Ixia, mixed	0 6
Lobelia erinus grandiflora	0 6
" Limburgensis, ex.	1 0
Lophospermum scandens...	0 6
Latus Jacobeus	0 6
Mandevillea suaveolens ...	0 6
Nycterinia selaginoides ...	0 6
Petunia, new and choice ...	1 0
Primula sinensis, mixed ...	0 6
" denticulata ...	1 0
Silene orientalis, for bedding	0 6
Streptocarpus Rexi ...	0 6
Verbena, mixed, choice ...	1 0
" choicest new ...	2 6
Vinca rosea	0 6
" " alba	0 6
Anemone, new Russian ...	0 4

GREENHOUSE PERENNIALS. Per packet.—	s. d.
Antirrhinum, choice named sorts	0 6
Aquilegia, three choice varieties, each	0 6
HARDY PERENNIALS.	
Carnation, fine showy ...	0 4
" ex., from 400 vars.	2 6
Cistus Rock, splendid, mixed	1 0
Delphinium elata, bicolor, magna, and alba, each ...	0 6
Dianthus Dunnetti, superb dark dwarf Sweet William	1 0
" nanus, new and fine vars.	1 0
Gaura Lindheimeria, new	0 6
Gentiana, three fine vars.	0 6
Gladiolus, fine early ...	0 6
" from choice, named	1 0
Iris, English, splendid vars.	0 6
" " from named do., superb ...	2 6
Lindheimera Texana ...	1 0
Mimulus, mixed, choice ...	0 6
Pansy, extra, choice ...	1 0
Piccotee, fine showy vars.	0 4
Potentilla, splendid, mixed	1 0
" extra, best vars.	2 6
Ranunculus, very choice ...	2 6

Free by post.

Choice Imported Stocks and various Annuals suited for present sowing, to flower early.

BASS AND BROWN,
Seed and Horticultural Establishment, Sudbury, Suffolk.

STRAWBERRIES.

NEW STRAWBERRIES.—The following fine varieties have been thoroughly proved this season, and given the greatest satisfaction, viz.:—Sir Harry (Underhill's), 2*l.* 10*s.* per 100, or 7*s.* 6*d.* per dozen; Caroline Superb (Kitley's), 1*l.* 10*s.* per 100, or 5*s.* per dozen; Omar Pacha (Ward's), 1*l.* per 100, or 3*s.* per dozen; Colonel Dundas, 1*l.* per 100, or 3*s.* per dozen; Sir Charles Napier, 1*l.* per 100, or 3*s.* per dozen; Magnum Bonum, 15*s.* per 100, or 3*s.* per dozen; and all other fine old varieties, such as Trollop's Victoria, Ajax, Ruby, Eleanor, Nimrod, Prince of Wales, British Queen, Black Prince, Prolific, Keens' Seedling, and all others worth cultivating, at 4*s.* per 100.

SEEDLING HOLLYHOCKS, not to be surpassed, saved from all the finest and best varieties now in cultivation, and such as will bloom well next season, 1*l.* per 100, or 3*s.* per dozen.

SWEET WILLIAMS, from 50 of the most select and choice varieties ever grown, 4*s.* per 100, or 2*s.* 6*d.* for 50.

ANTIRRHINUMS.—Plants saved from a most splendid collection of striped and spotted varieties, 4*s.* per 100, or 2*s.* 6*d.* for 50.

FINE SCARLET GIANT BROMPTON STOCK.—White ditto, Crimson ditto, all 4*s.* per 100, or 2*s.* 6*d.* for 50.

The Plants before mentioned are now ready for planting out, and are such that must ensure satisfaction, and the whole or any part of the above will be sent, securely packed, on the receipt of a post-office order or penny postage stamps to the amount; or 25 of any of the new Strawberry Plants can be sent by post, when the charge will be 1*s.* extra for postage.

SEEDS. SEEDS.

HOLLYHOCK, saved from all the finest and best varieties in cultivation, 1*s* per packet.

SWEET WILLIAM, saved from 50 distinct varieties, 1*s.* per packet.

ANTIRRHINUM, saved from a most splendid collection of striped and spotted varieties, 1*s.* per packet.

The True Old BATH COS LETTUCE (the best ever cultivated), 1*s.* per packet.

*** Every order must be accompanied by penny postage stamps, or post-office order payable to

EDWARD TILEY, NURSERYMAN, SEEDSMAN, and FLORIST,
14, Abbey Church Yard, Bath, Somerset.

WILLIAM YOUNG begs to call the attention of Noblemen, Gentlemen, Public Companies, and Planters in general to his extensive stock of CHOICE CONIFERÆ, HARDY EVERGREENS, ORNAMENTAL TREES, AMERICAN PLANTS, &c., which are this season particularly fine, and having been well prepared for removal, he can confidently recommend them to transplant with perfect safety.

W. Y. invites persons about to plant to inspect his stock, which is standing over 50 acres of ground, in which will be found all kinds of plants adapted to every description of ornamental planting. It consists of HARDY CONIFERÆ, containing some of the finest specimen plants ever offered.

	Feet high.
Abies Douglasi	6 to 8 by 5 to 6
" "	8 to 10 by 7 to 8
" "	10 to 12 by 8 to 9
" Menziesi	4½ to 5
" nigra, Black Spruce	4½ to 5
" alba, White Spruce	6 to 8
" canadensis, Hemlock Spruce ...	6 to 8 by 7
Pinus austriaca ...	6 to 8
" "	8 to 10
" Cembra	5½ to 6
" "	7 to 8
" excelsa	8 to 10
" insignis	2½ to 3
" "	3 to 4
Picea Pinsapo ...	5 to 6 by 6
" nobilis } " Nordmanniana }	very handsome
Araucaria imbricata .	2½ by 2½
do. do.	3 by 3
do. do.	4 by 4
do. do., very handsome	6 to 8
Cryptomeria japonica ...	3 to 4
Cedar of Lebanon ...	3½ to 4
" " ...	5 to 6
" "	7 to 8 by 6
" "	10 to 12 by 8
" Deodara ...	4½ to 5
" "	6 to 8
" "	9 to 10
" "	10 to 12

(The Cedars of Lebanon and Deodara are particularly handsome and well furnished.)

	Feet high.
Thuja orientalis, Chinese Arbor-vitæ	5 to 6
" " " ...	7 to 8
Thuja Weareana, Siberian	5 to 6
" "	7 to 8
Chinese Juniper ...	4½ to 5
" "	5 to 6
Upright "	4 to 5
" "	6 to 7
Taxodium sempervirens	6 to 8
" "	10 to 12
Irish Yew	4½ to 5
" "	6 to 7

A LARGE QUANTITY OF FINE EVERGREENS.

Green Hollies	4 to 6
" " ...	6 to 7 by 4
" "	8 to 10 by 6 to 7
Evergreen Oak	3½ to 4
" "	4½ to 5
" "	6 to 8 by 4 to 5
Spruce and Silver Firs	6 to 8
" "	10 to 12
Weymouth Pine	8 to 10
Yews	3½ to 4
"	4½ to 5
"	5½ to 6
Quercus oxoniensis—New Leucombe Oak...	6 to 7
" " ...	8 to 10

AMERICAN PLANTS.

Azaleas, fine named sorts
Rhododendron ponticum (good for cover).
Do. all the new and best vars.
Kalmias, Andromeda, Ledums, &c. &c.

STANDARD ROSES, of all the best varieties.
FRUIT TREES, ORNAMENTAL DECIDUOUS TREES, for Parks or Avenues, from 10 to 12 feet.
FOREST TREES, for Copse Planting, from 2 to 4 feet.
Prices given on application.

A Catalogue is in course of publication, and may be had the first week in September for two postage stamps.

The Nurseries are two miles from Godalming Station, South-Western Railway, where conveyances can always be obtained.

Milford Nurseries, near Godalming, Surrey.

BAINBRIDGE AND HEWISON, of the York Nurseries, beg to inform their friends that they are now prepared to supply the following New FUCHSIAS, VERBENAS, &c., at the reduced prices attached:—

NEW FUCHSIAS, 1855, 3*s.* 6*d.* each, or a dozen left to their selection, 36*s.*—Climax, Fairy Queen, Grand Sultan, Maid of Kent, Beauty of the Bower, Omar Pacha, Queen Victoria, Prince Albert, Mrs. Story, Empress Eugenie, Raffaelle, Snowdrop, Lady of the Lake, Water Nymph, Dominiana.

FUCHSIAS, New 1854, 1*s.* 6*d.* each, or the dozen for 12*s.*—Autocrat, Queen of Hanover, Telegraph, Vanguard, Omega, Magnifica, Charmer, Clio, Duke of Wellington, Elegans, Monarch, Ashfordiensis.

FUCHSIAS.—Good older varieties, 6*s.* and 9*s.* per dozen.

NEW VERBENAS, 1855, 2*s.* 6*d.* each.—Wonderful, Blue Beard, Lady Lacon, Commander-in-Chief, Empress of France, Florence Nightingale, Rose of England, Tyrian Prince, Eva. Other select older varieties, 9*s.* per dozen.

GERANIUMS.—Carlos, 2*s.* 6*d.*; Claudiana, 2*s.* 6*d.*; Duchess of Wellington, 2*s.* 6*d.*; Lucy, 5*s.*; Majestica, 2*s.* 6*d.*; Marginata, 2*s.* 6*d.*; Mary, 5*s.*; Regalia, 2*s.* 6*d.*; Rhoda, 2*s.* 6*d.*; Rosa, 2*s.* 6*d.*; Virginia, 2*s.* 6*d.*; Zeno, 2*s.* 6*d*; or 30*s.* per dozen. Good older varieties, 6*s.* and 9*s.* per dozen.

NEW FANCY GERANIUMS.—Cloth of Silver, 10*s.* 6*d.*; Evening Star, 7*s.* 6*d*; Exhibitor, 7*s.* 6*d.*; or the three for 20*s.* Best older varieties, 6*s.* and 12*s.* per dozen.

STOVE PLANTS.

	s. d.		s. d.
Achimenes Earl Wolforth	2 0	Heliocentrum roseum ...	2 6
" Sir Trehern Thomas	2 0	Hippiela atrosanguinea ...	2 6
" gigantea	2 6	Cyrtanthera magnifica ...	2 0
Aphelandra Leopoldi ...	3 6	Echites picta	2 6
Begonia Prestoniensis superba ... 2*s.* 6*d.* and	3 6	Hebeclinium ianthinum...	2 0
" Zanthina	5 0	Passiflora amabilis	2 0
" Ingrami	2 6	" Decaisneana ...	2 0
Hexacentris mysorensis 2*s.*,	3 6	" Hartwessina ...	2 0
Medinella magnifica ...	3 6	Siphocampylos neplusultra	2 6
		" bicolor rosea	2 6

GREENHOUSE PLANTS.

Acacia oleifolia elegans ...	2 0	Kalosanthes L. Napoleon	1 0
" grandis (true) ...	2 6	Kennedya monophylla ...	1 0
Castrum aurantiacum ...	1 0	Lilium lancifolium album	1 6
Cheiranthera linearis ...	2 0	" " rubrum	2 6
Chorozema cordatum ...	1 6	" " rubrum speciosum	2 6
" " splendens ... 1*s.* and	2 0	Mahernia vesta	1 0
" Laurencianum 1*s.* and	2 0	Phlox General Radetzky	1 6
" varium nanum ...	1 0	" depressa criterion ...	1 6
Clianthus magnificus ...	2 0	Polygala cordifolia ...	1 6
Cyclamen persicum rubrum	3 0	" myrtifolia	1 6
Daphne indica alba 1*s.* 6*d.*,	3 6	Rhynchospermum jasminoides	1 6
" " rubra 1*s.* 6*d.*,	3 6	Statice Halfordi	2 6
Dillwynia cinnabarina 1*s.* 6*d.*,	2 6	Swainsonia galegifolia alba ... 1*s.* and	2 0
" Drummondi 1*s.* 6*d.*,	2 6	Tetratheca ericifolia 2*s.* 6*d.* and	3 6
" scabra ... 1*s.* 6*d.*,	2 6	" verticillata 1*s.* 6*d*,	2 6
Eugenia Ugni	2 6	Veronica Andersoni ...	1 0
Fagelia bituminosa 1*s.* 6*d.*	2 6	" variegata	1 0
Heliotropium Beauty of the Boudoir	1 0	" Liebmani	1 6
Kalosanthes coccinea ...	1 0	Sollya Drummondi 1*s.*,	2 6

MISCELLANEOUS PLANTS.

Per dozen.—	£. s. d.
Ericas ... 15*s.* to	1 10 0
Camellias ... 24*s.* to	6 0 0
Azaleas 12*s.*, 24*s.*, and	6 0 0
100 Herbaceous Plants in 100 vars.... ...	2 0 0
100 ditto in 50 vars.	3 0 0
100 Fine Rock Plants in 50 vars.	2 0 0
Pansies, select vars., per dozen 6*s.* to	0 18 0

	£. s. d.
Phlox Dr. Andry ...	0 1 6
" Fanny Adam ...	0 1 6
" Alexandrina ...	0 1 6
" Madame Bosville	0 1 6
" " Domage	0 1 6
" Mr. Domage ...	0 1 6
The six for 7*s.* 6*d.*	
Phloxes in good variety per dozen 6*s.* to	0 12 0

B. & H. would call especial attention to their fine stock of Camellias and Azaleas. A Catalogue of Dutch Bulbs imported will be ready in September, and may be had free on application.

7, Bridge Street, York.—August 18.

SUPERB NEW STRAWBERRIES,
GROWN AND OFFERED FOR SALE BY

WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.—Nicholson's Ajax, Ruby, Fill-basket, and Captain Cook, 6*s.* per 100; Sir Harry (Underhill's), 25*s.* per 25. Omar Pacha (Ward's), 15*s.* per 25; 1*l.* 5*s.* per 50. Prince of Wales (Ingram's), 10*s.* per 100. Scarlet Nonpareil (Patterson's), 12*s.* per dozen; 2*l.* per 50. Sir Charles Napier (Smith's), 12*s.* per dozen; 1*l.* 10*s.* per 50. Admiral Dundas (Myatt's), 16*s.* per 25; 1*l.* 10*s.* per 50. Nimrod (Pince's), 10*s.* per 100 plants.

A SELECTION OF THE BEST OLDER STRAWBERRIES.—Black Prince, 4*s.*; British Queen, 4*s.*; Eleanor, 4*s.*; Old Pine, 4*s.*; Eliza (Rivers's), 7*s.*; Surprise, 7*s.*; Victoria (Trollope's), 4*s.*; Goliah (Kitley's), 4*s.*; Bicton Pine (White's), 5*s.*; Keens' Seedling, true, 4*s.*; Old Rosberry, 4*s.* per 100 plants. Box included. The above prices will be reduced whenever a reduction is made by the raisers. A descriptive Circular of the above sent on application. A Post Office Order payable at Yarm, Yorkshire, is requested with the order.

WARD'S OMAR PACHA STRAWBERRY.

WILLIAM JAMES WARD offers the above handsome fine flavoured Strawberry at the following reduced price:—100 plants, 1*l.*; 50 plants, 12*s.*; 25 plants, 7*s.*, strong and well rooted. In addition to the many flattering testimonials received last season, Dr. LINDLEY describes it as being exhibited at Chiswick, July 11, 1855:—"*Excellent in quality as well as attractive in appearance.*" See *Gardeners' Chronicle*, Leading article, July 14, 1855. The Editor of the "Florist and Fruitist," in the August Number report of the Exhibition at Chiswick, says—"WARD'S *Omar Pacha is a new Strawberry, and considering its high flavour and comparative hardiness is a valuable acquisition.*"

A few last year's plants 5*s.* per dozen.

Prospect Hill, Reading, Berks.

"SIR HARRY."—To this STRAWBERRY has been awarded at all the Horticultural Exhibitions the highest honours, where it has competed, namely:—

1854.—Chiswick, first class certificate: 21, Regent Street, highly commended: Botanical Gardens, Edgbaston, first prize.

1855.—Edgbaston Botanical Gardens, first prize, in pots (forced); Handsworth and Lozells, Hampstead Park, first prize (forced); Edgbaston Botanical Gardens, first prize—the Judges declared it the best Strawberry in every point on the table, superior to Keens' Seedling, Cremorne Seedling, British Queen, Mrs. Trollope, &c.; Lancaster, first prize, and pronounced by the Judges to be the finest and best tasted Berry in cultivation; Preston, first prize: Carlisle, first prize: Wolverhampton, first prize, and certificate of merit; Watford, first prize: Aylesbury Horticultural Society, first class certificate.

Plants are ready for sending out (not less than a score).

Prices:—100 plants, 4*l.*; 80, 3*l.* 13*s.* 6*d.*; 60, 2*l.* 16*s.*; 40, 1*l.* 18*s.*; and 20, 1*l.* Plants may be had in pots (not less than 10), at 2*s.* each.

Apply to Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham. Each application to be accompanied with a Post Office Order (on Birmingham), to receive attention.

For the Cultivation of Strawberries, refer to Mr. Underhill's Treatise, which may be obtained from a Bookseller in every principal town, where also may be obtained a handsome Lithograph of a plant of "Sir Harry" in full bearing.

The Gardeners' Chronicle.

SATURDAY, AUGUST 18, 1855.

WE once more return to the subject of BOTANICAL GARDENS. Let it be determined that such an establishment should contain:—1. A general collection of hardy plants arranged according to the best botanical system. 2. An arboretum spread over an ornamental portion of the garden, shrubbery, or promenade. 3. One or more houses for plants which will not bear the climate. 4. A private propagation and reserve ground. The next question is: what proportion of ground should be allotted to each department? as preliminary to the ultimate determination of what plants each should contain.

The course which, judging from the results, would appear to be the most generally adopted is this: Let us have every hardy plant we can procure, let us lay out the whole garden as ornamentally as we can, let us have as many houses as we can procure funds for building and fill them with as many plants as we can cram in, and if, after that, our collections starve and perish from neglect or overcrowding, the fault lies in the miserable pittance we are allowed for maintaining it.

A far more rational mode of putting the question would be as follows: what are the means we have at our command? and what will they enable us to accomplish, as most conducive to the object in view? When that is determined, let us strictly confine ourselves to that, and attempt no more. Let us enter into no additional outlay, nor enlarge our collection, without first ascertaining that by additional funds and space, or by retrenchment in other departments of the garden, we can maintain these additions in a state of useful health and vigour.

I have known botanical gardens possessing a large acreage with annual allowances wholly insufficient to keep the ground tolerably neat, even in the cheapest form of shrubbery and walk; and as even here it was considered necessary for the character of the garden to make some attempt at maintaining the plant-houses and botanical collection, the greater part of the ground had become a mere wilderness of weeds. In such cases the only course to pursue is to reduce the ground to manageable dimensions, by setting out a portion as kitchen garden, pasture, or some such culture, which will pay its own expenses, until better times shall enable it to be taken into the botanic garden.

Having thus no more ground than can be kept in order, it is again in the first instance a matter of calculation what proportion can be taken for the botanical collection: the result will vary according to local circumstances, the elements of calculation

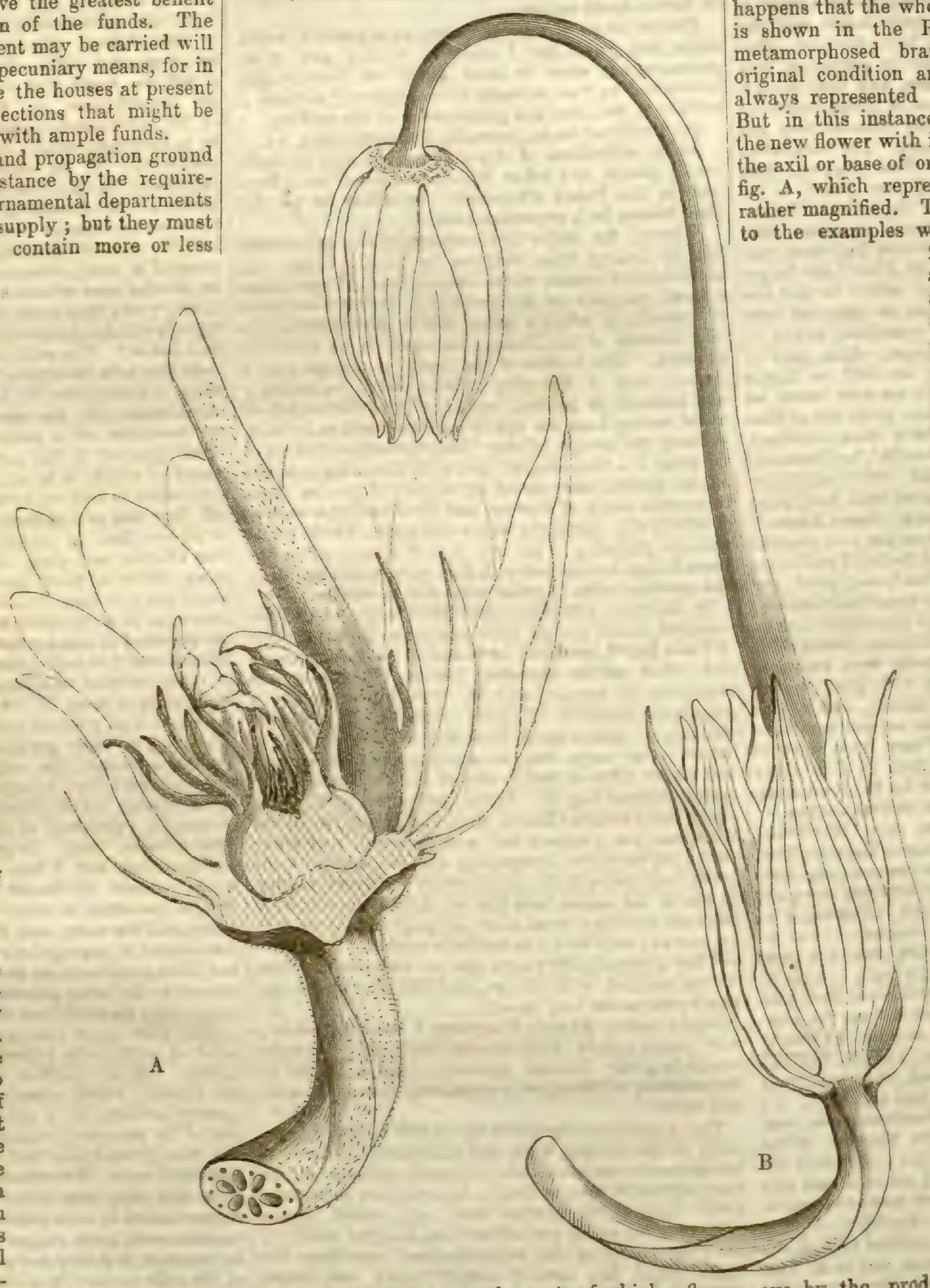
being the total acreage, the total annual sum available, the annual cost per acre of maintaining the pleasure garden, that of cultivating the botanical border (including in each case its corresponding reserve and propagation ground), and the annual expense per given measurement of hothouses and greenhouses. Where the means are very limited the plant-houses, especially the hothouses, must be first sacrificed, not by neglecting them, but by shutting up a portion or even the whole if necessary, and the botanical borders must then be restricted within the narrowest limits, the mere ornamental garden being the cheapest to maintain. As the available resources become more ample the botanical ground may be gradually expanded till it is capable of containing as full a collection as can be procured of instructive species that will bear the climate, provided the ornamental ground will bear being so far encroached upon. If, however, additional space is obtained with the increased funds, the arboretum may also be enlarged, even to a greater extent than the botanic garden. But it is the plant-house cultivation that must always derive the greatest benefit from the improved condition of the funds. The limits to which this department may be carried will indeed depend solely on the pecuniary means, for in no garden that I know of are the houses at present too large to contain the collections that might be usefully maintained in them with ample funds.

The extent of the reserve and propagation ground will be fixed in the first instance by the requirements of the scientific and ornamental departments which they are destined to supply; but they must also, in a botanical garden, contain more or less extra space for raising and testing new importations, for carrying on physiological experiments, or for the temporary cultivation of plants for any other scientific purpose, under the eye of the director or curator without the interference of the public. The exact proportion of ground to be devoted to these extra purposes will be limited either by the space available without detriment to the more important divisions of the garden, or by the demand of the director or curator who may have time, inclination, or capacity to avail himself of it.

Opinions are much divided as to the propriety of keeping the botanical and ornamental gardens distinct, the plants in the former being ranged in formal straight borders; or of blending them together by grouping the herbaceous collection in irregular beds. The former practice is the most prevalent on the continent, the latter generally finds more favour with us. I must confess that the separation appears best to answer the purposes of science and instruction. It is more easy so to arrange and label the plants that the principles of the system adopted may be taken in at a glance; it facilitates access to the individual specimens without trampling on the borders and disturbing the plants, and the peculiar kind of care and cultivation they require is given at less trouble and cost. On the other hand, where we devote to each natural order an irregularly shaped bed, larger or smaller according to the number of species we expect to have, and scatter these beds over a lawn in a kind of irregular flower-garden, it is a very difficult thing so to arrange them as to produce a whole agreeable to the eye. Supposing even this to be in some measure accomplished by a tasteful designer, availing himself of any irregularities of the ground or other local aids, still it is impossible to make the beds themselves ornamental if they are only to contain botanical specimens. At least half the species will have a weedy look, and there will always be gaps and empty spaces which we cannot fill up with showy flowers or extra plants for mere ornament, without destroying in a great measure the value of the collection for study or instruction. Such a moulding of botanical borders into the landscape-gardener's form appears to be justifiable only in those subscription gardens where science is the outward show, rational recreation the real object. *G. B.*

Few circumstances excite the surprise of observers more than the production of one flower by the interior of another. And yet there is no preternatural phenomenon more easily explained when the true nature of a flower is understood. That curious apparatus, with its panoply of brilliant colours, its transparency, its fragrance, and the important special duties confided to it by nature is, in the eyes of science, merely a collection of leaves in a transformed condition, and is itself but a branch stunted in its growth.

The truth of this theory is proved by the following circumstances more especially: 1. That every part of the apparatus of a flower, however unlike a leaf, will occasionally, in the presence of disturbing influences, become a mere leaf; 2, that that peculiar property of forming a bud, or rudimentary branch, in the axil, which is an especial attribute of a leaf, also belongs to the parts of which a flower consists; 3, that the floral organs stand in the same relation to each other as the ordinary leaves upon an ordinary stunted branch, such, for instance, as the rosette of a Houseleek (*Sempervivum*); and 4, that a flower will occasionally grow into a branch leaving its petals at the base.



The first case is illustrated by the green-flowered Primroses, proliferous Plantains, and those Potentillas whose flowers become in hot weather tufts, or rosettes, of leaves. The second by little branches shooting up from among the parts of the flower, as in the Pear tree, which will occasionally form two or three little Pears in its inside, each of which is traceable to the axil of some one or other of the floral parts, and by the common occurrence of a brood of little Roses starting up from among the petals of a common Rose. The third may be seen by any one who compares the rosette of the Houseleek with a double Camellia, a double Ranunculus, or a double Anemone. Of the fourth we have instances in Pears and Apples producing a branch from their centre, and in Roses such as that of which a figure was given the other day at p. 516.

In all these instances the secrets of floral structure are revealed by accident to the eye of intelligence. Nor have artists failed to profit by them, as we see in the carvings and scroll work of the sculptor and the architect. Even the curious fact that one flower will grow out of another has been seized upon by them for the purpose of decorating the points of separation of branches, and this in a manner which, however conventional, is perfectly consistent with the true forms of Nature.

Nowhere, however, has the tendency of one flower to give birth to another been shown in a more unexpected manner than in the case here illustrated. In the aquarium at Syon House it was observed a few weeks ago that the beautiful Water Lily called *Nymphæa Devoniensis* had produced a flower from the midst of which rose another Lily like itself, hanging gracefully at the end of another stalk.

When flowers thus become proliferous it usually happens that the whole central system lengthens, as is shown in the Rose already alluded to, the metamorphosed branch merely reverting to its original condition and lengthening by the point always represented by the centre of the flower. But in this instance the mode was changed, and the new flower with its stalk proceeded directly from the axil or base of one of the stamens, as is seen in fig. A, which represents a section of the flower rather magnified. The Nymphæa therefore belongs to the examples which are to be included in the 2d of the four classes mentioned at the commencement of this article, and it is by far the most striking instance of the kind yet on record.

But the disturbance of the natural condition of this Water-lily was by no means confined to the production of a second flower. On the contrary, it extended to the innermost organs, and forced the very stigmas to grow up into small green leaves, folded up, as they always are in the young bud. Two instances of the kind are shown in fig. A.

This monstrosity, for a monster it is, serves to illustrate a very important truth which those who are engaged in works of decorative art should never lose sight of. Any amount of departure from the strict forms of plant-objects is allowable in a conventional mode of representation, provided that departure is consistent with the rules by which is regulated the development of the plants to be represented. These rules constitute the theory of structure which every decorative artist ought to understand thoroughly, and the case before us shows how it may be applied in a direction which was perhaps very little expected. Flowers may be made to grow out of flowers, with perfect propriety when the exigencies of art demand it; although leaves cannot be made to grow out of leaves without violating the first principles of vegetable structure, and thus offending the educated eye by the production of that which is wholly irreconcilable with truth or possibility.

We announce with much regret the decease of Mrs. Lawrence, of Ealing Park, whose name has so long been honourably associated with the progress of modern gardening; and who for many years stood almost without a rival at the great flower exhibitions at Chiswick. The sad event occurred suddenly at midnight on the 14th inst.

EXHIBITION OF THE IMPERIAL SOCIETY OF HORTICULTURE OF PARIS.

(*Continued from p. 500.*)

The cut flowers are exhibited in the Pavillon Chinois (No. 8 of the plan), a raised structure tastefully built under the thick shade of the old Champs Elysées trees, with a long double T shaped table along the centre, and narrow tables and glass cases round the ends and back. These flowers have consisted chiefly of Roses, of which an abundant supply has been kept up for the last two months. Amongst them there has always been an

siderable variety, and good specimens of several of the kinds most admired with us, but in general little of novelty, and I cannot mention any as having appeared superior to our own. M. André Leroy's Magnolia grandifloras, exhibited last month, deserve especial mention for the enormous size of some of the varieties; there have also been Gladioli, Phloxes, Pinks and Carnations, &c., and in the earlier days some very fine boxes of double Ranunculus and Anemones.

In the same building there has also been kept up a succession of specimens of fruits in season, with occasionally a very few forced ones; but the permanence of the exhibition is a decided obstacle to the sending to it any valuable fruits that might suffer from a week's exposure. What we see here can, therefore, supply no criterion of the state of fruit cultivation in the neighbourhood. The show of forced fruits—Pine Apples, Melons, &c. — and even of Strawberries and other smaller fruits, has always been better in the shops of some of the great dealers, or in the windows of the show-restaurateurs, than on the tables of the Pavillon Chinois at the Exposition. In general the fruit market in Paris appears to have undergone but little alteration for many years past. There is still the same comparatively small demand for, and consequently supply of, forced fruits; and although early vegetables appear to be rather more prized than early fruits, still the generality of Parisian *bon-vivants* have the good sense to acknowledge that to have either in perfection they must be such as are truly in season, and they seldom commit the folly, so common with us, of giving enormous prices for indifferent fruits, merely because they are out of season and consequently rare. The cultivation of some pit fruits, especially Pine Apples, has, however, so much increased of late years as to be an important addition to their depôts, and Strawberries have been finer and more abundant than I ever recollect them. We have now had them constantly since the commencement of June: the larger varieties introduced from England within the last few years were selling, during the whole of July, all over the streets of Paris in immense quantities, at 1½*d.* to 2½*d.* the pound; and the small Alpines, which used to be the only ones cultivated, and are still so highly prized for their flavour, were in the markets when we arrived two months ago, and will now go on for at least two months more. Raspberries have been excellent, and very plentiful. Cherries also plentiful, but moderate in quality. Gooseberries few and little cared for. Apricots very abundant; the common ones very poor, but excellent at the good restaurateurs. Green Almonds were much eaten last month. Melons are now plentiful and good—all, as of old, the Red-fleshed Cantaloupe. Figs are just now coming in, and already very good; and the best restaurateurs begin to show some fine baskets of Peaches and Nectarines, with a few of the earlier Grapes.

But to return to the Pavillon Chinois. Some very fine Oranges and Citrons from Algeria were exhibited there in June and July, together with good looking Apples and Pears from the same colony, and at our first visits to the Exposition we saw several baskets of very well preserved Apples and Pears from some of the Parisian fruiterers. A large dish of Eriobotrya japonica was sent up from Hyères by M. Rantonnet, and a few other southern fruits from various sources.

Among the roots exhibited, the most interesting were the new Japanese Yams (Dioscorea Batatas) from M. Paillet of Paris. This esculent has not yet, however, got into the market, and horticulturists here are by no means so sanguine as to its advantages as published accounts would lead us to believe.

The wax and other models of fruits occupy a great space in the pavillion, and are generally beautiful. There are large collections of miscellaneous European fruits from four different Parisian exhibitors, the comparative merits of which would require a strictly juridical examination to determine; but M. Lédion's basket, presented by M. Chevet, struck me as peculiarly good. M. Humbert de Molard has sent specimens of a very remarkable set of models of Mauritius fruits, well known as having been offered to the Museum of the Jardin des Plantes many years ago, at a price which the museum then considered exorbitant; but it is said that it might now be obtained for a much more reasonable sum, and the collection is certainly worthy of a place in any large museum. It gives an excellent idea of the different species represented, although one is at first tempted to think them on a rather too large scale, especially those placed on the central table illustrating the Jack fruit, the Cocoa-nut, and its germination, and the Amorphophallus (introduced into the collection as a curiosity), which attract much attention from the public. The whole of the models are, however, evidently done from nature, and in some which are better known to us there is certainly not much exaggeration.

Vegetables are chiefly exhibited out of doors, along the edge of two of the narrow fruit-tree beds (Nos. 17 and 18 of the plan). Laid down on the soil under the shade, and half imbedded in Moss as they were in June and July, they kept up their freshness and consequent good looks much better than they do now when Moss appears to have become scarce and the sun more scorching. They have generally been fine of their kind, especially the Artichokes from Niort, and Vilmorin-Andrieux's Lettuces. Tomatoes and Aubergines (Solanum Melongena, with long purple fruits), remind one also of a southern climate; on the other hand the Cabbages have been such as would scarcely be looked at in any of our cottage shows.

The Pavillon or Tente d'Industrie (No. 23 of the plan) is a shed of considerable dimensions, in which are displayed various implements, manufactured articles, industrial products or other objects more or less connected with horticulture, but which, strictly speaking, would belong rather to the general Industrial Exhibition. Most of them are indeed repeated in the Great Palais d'Industrie, and in greater perfection. The chief articles here admitted are:—

Horticultural pottery, usual and ornamental, amongst which the elegant forms of Follet's and of Legendre's collections are conspicuous.

Stands, baskets, and other horticultural ornaments in iron, in wire, in wicker-work, &c.

Chairs, seats, and other garden furniture, none of them superior to those of the Usines Tronchon now in such general use in and about Paris.

A considerable variety of small heating apparatus and propagating frames, several of the latter very complete and compact for amateurs' cuttings on a small scale.

Mats, screens, and blinds, of various descriptions. Some of the blinds made of slight laths are very neat and light, and are much used in this neighbourhood for shading plant-houses.

Garden tools and implements, and large assortments of horticultural cutlery.

Garden labels of a great variety of materials—metal, china, and glass; but I observed nothing new of importance, not even in those which are conspicuously announced as "ne laissant rien à désirer," in point of solidity of the label and permanence of the writing.

Horticultural books, journals, drawings, plans, &c.

Small collections of Algerine agricultural products, textile plants, and other objects exhibited on a large scale in the Palais d'Industrie, for which we see but little reason for a repetition here.

A few of the larger implements, blinds, ornamental tubs for Orange trees, vehicles for moving them, &c., are exhibited outside the industrial shed. There is also a small specimen of the peculiarly elegant description of fountain, of which a larger one in the centre of the long Annexe of the Palais d'Industrie is so generally admired. The middle of the basin is occupied by a gigantic tuft of flowering aquatic plants, exceedingly well imitated in painted copper, with numerous jets of water issuing from the tips of the leaves, spikes, or buds.

Lastly the aviary of the Usine Tronchon (No. 53 of the plan) is a very elegant one, with flowering creepers up its angles, surrounded by a bed of two or three concentric rings of flowers, and inhabited by a variety of little birds, cardinals, widow birds, &c., whose bright plumage glittering in the sun is well shown off by the green foliage intermixed with flowers surrounding them, and proves a point of great attraction to visitors.

In the flower exhibition, the chief changes which have occurred during the last three weeks are the substitution of Pinks and Carnations for many of the Pelargoniums and other earlier flowering plants. Verbenas are beginning to appear, and M. Dufoix has already a numerous collection of good varieties. Hydrangeas continue to make a great show and are less uniform in colour. One large bed, including many blue ones, is well shown off by a double ring of dark-coloured Cockscombs surrounding it. Foras's collection of Fuchsias under the Pavillon Chinois is in full beauty, small low specimens, but compact and well flowered, with many very good varieties; I especially admired some with the petals and calyx both pink, but of different shades. In one of the annual beds the red Linum grandiflorum has been making a great show, although not of so rich a colour as I have seen it in southern gardens. Vilmorin's bed has a remarkably pretty row of very dwarf China Asters covered with flower, and his Portulacas and Brachycomes are very showy.

In the houses the only new thing I have noticed is a very pretty hybrid Achimenes spotted with a brownish colour in a very unusual manner. It is exhibited by Verschaffelt, of Ghent, who appears to have given it his own name.

The Exhibition continues to be well attended, especially on the Sunday, when the admission is reduced to half-price (50 centimes), and certainly nothing can be more agreeable than an hour's lounge there in the cool green shade; the verdure does not, indeed, appear to have suffered as yet, either from the dust raised by the great traffic of the neighbourhood, nor from the blight which has already turned brown and almost stripped so many of the Lime trees in the Tuileries, the Luxembourg, and the Jardin des Plantes. *Paris, Aug. 6.*

VEGETABLE PATHOLOGY.—No. LXXXIV.

353. Carpomania (*Phytolithes, grittiness*).—In the Plum disease, described in the last number, the endocarp, which is in its normal condition hard and woody, was reduced to a thin membrane, and detached from the sarcocarp: in the present instance the malady is confined to the sarcocarp, the cellular tissue of which is affected more or less according to the urgency of the case. The disease—if such it may be called, for it is only an aggravation of a condition which exists normally, and is intimately connected with the peculiar structure of the cellular tissue—is common to Pears, Quinces, Medlars, and similar fruit, but is not found in Apples, though so nearly related. It consists in an induration of certain parts of the cellular tissue, which if confined to minute detached points produces the gritty texture so common in Pears, and which is often betrayed, as in the Crassane, by the grating of the peel under the knife when pared, but if extending to many contiguous cells, generates gravelly masses which are large enough to justify the denomination of stones. Perhaps no single variety is absolutely destitute of these bodies, which exist often beneath the cuticle and in the neighbourhood of the tissue which immediately surrounds the carpels, but sometimes are scattered through the whole of the sarcocarp. The subject was circumstantially described by Grew in his "Anatomy of Plants," and afterwards by Duhamel; an elaborate memoir was read before the French Academy by Turpin, in 1838, but not published till 1840, containing much interesting matter, and accompanied by copious illustrations, but unfortunately holding forth many very erroneous views. He regarded the indurated cells, for instance, as crystals marked with many radiating wrinkles and a central scar, a statement which will be seen presently to be wholly at variance with truth. Corda also examined the subject, and published his observations as I believe in the "Œkonomische Neuigkeiten," but unfortunately I have not the portion of the work in which the memoir is contained; Meyen has described these bodies in his "Pflanzen-Physiologie," and illustrated the indurated cells at tab 1 fig. xi.; and finally Payen has figured their structure, as well as that of the neighbouring and connecting cells, in his "Organographie et Physiologie Végétale," published in the 22d volume of the Memoirs of the French Academy. If the figure of Grew be compared with those of Turpin and Payen, it will be found that it is very correct considering the imperfection of the microscope at the end of the seventeenth century, while Turpin failed rather in a misinterpretation of what he saw than in seeing incorrectly. If the sarcocarp of an Apple be compared with that of a Pear it will be found that the cellular tissue of the former is uniform, except where it is threaded by vascular bundles, while in the latter there are little scattered patches of sub-globose cells from which proceed in every direction elongated, radiating, simple or divided sacs which are necessarily much broader above, where they come in contact with the neighbouring cells which separate them from another similar system, than below.* The walls of the sub-globose cells may remain thin as in the others, but there is a tendency in their walls or protoplasm to deposit layer upon layer of ligneous matter till the whole becomes a solid mass with the exception of a minute cavity in the centre from which proceed to the outer walls numerous canals by means of which, as in so many vegetable tissues, communication is kept up between the contents of cell and cell (the scar and radiating wrinkles of Turpin), and it is evident that in proportion to the number of cells thus affected and their degree of attachment to each other, either a gritty sensation will be produced on eating the ripe fruit, or it will be found filled with stony masses so as to be absolutely uneatable. In wild Pears the presence of these masses renders the fruit worthless, independently of any natural roughness or acidity, and in many inferior varieties the same condition exists, while even in some of the highest flavoured sorts, the grittiness is so great as seriously to impair their value. The gritty or stony portions are of course destitute of sweetness because the amylaceous or gummy contents are converted into xylogen instead of sugar and pectinous matter, but the neighbouring softer tissues are not necessarily exhausted, as each individual cell in a certain sense lives for itself. In great measure the condition is constitutional, but it may be increased by any cause which retards or checks the growth. Pears, therefore, if deformed or otherwise dwarfed are unusually gritty, and the same may be said of the finest varieties if subjected to unpropitious weather or dry meagre soil; and these conditions are true of Medlars and other fruit subject to the same affection. I have observed that in cases where the epidermis of a Pear has been devoured by insects, when a new coat is generated, there is the same layer of gritty cells beneath it, as under the original cuticle. The acid portion of the Pear, called by Grew the acetary, which surrounds the carpels and is frequently isolated by a thick gritty stratum from the rest of the sarcocarp, consists of a nearly uniform tissue like that of the Apple, and is in general free from these indurated cells. Treviranus has in consequence imagined that they bear some relation to the quantity of sugar existent in each particular fruit. This, however, does not seem to be supported by facts, any more than his assertion that they are glandular bodies. The coats of the cells are merely thickened, as in a thousand other cases, and there is no necessity for regarding the cells as possessed of any peculiar character. It has been supposed further that the extreme grittiness of the Quince in Italy, where the fruit is in general nearly worthless, arises from the immense quantity of seeds which are brought to perfection in that country. Ré reports, on the authority of the Abbé Molini, that two kinds of Quinces occur in Chili which are destitute of these stony concretions, but except it were certain that they belong to the same species or variety as that cultivated in Italy, no argument can be deduced from the fact. *M. J. B.*

* I do not find the structure so regular as in Payen's figure, at least in the Glout Morceau. It is, however, essentially the same in all cases, and the quality of the fruit in many instances depends ultimately on the degree in which the intermediate connecting tissue is developed. The indurated cells are distinctly angular, as is the case with all closely packed globular tissue.

PITCHER PLANTS.

Where these plants are required to be grown to make fine specimens, they must have plenty of pot room; and the more vigorous the species, the larger the

pots that will be required. The soil for potting should consist of equal parts of fibrous peat and sphagnum cut short, with a little sand, the whole intimately mixed together. Some persons are afraid to repot their Pitcher Plants after they are once established; but I never experienced any injury from doing so. The best time for potting is about the month of March. In doing it, the pots in which they are should be broken, and the ball of roots carefully put into the larger pot, the soil being filled in all round nearly level with the top of the pot; then over the soil put a little living sphagnum, cut short and made level, so as to have a neat appearance. After this is done, give them a good watering with a fine-rosed watering-pot to settle the soil. The pots, in all cases, must be well drained with broken potsherds.

They should be placed at the hottest end of a stove, or Orchid-house, where a bank of Moss can be made of the size required in which to plunge the pots up to their rims, and deep enough to allow 2 or 3 inches of Moss under the pots, to prevent them from drying. A few holes made through the slab to allow the hot air to pass upwards through the Moss, thereby to cause continual evaporation about the plants, will prove beneficial. Particular attention must be paid to moisture. After they are repotted in March, they will require watering with a fine-rosed watering pot, and the Moss in which they are plunged must be well saturated about twice a week; and the plants should be syringed over head three or four times a day. As the summer advances, and the sun acquires greater power, they will require to be syringed oftener. When the temperature has risen under the influence of solar heat, in May, June, and July, perhaps to 80° or 85°, they will require syringing a dozen times a day. The rule is, the stronger the heat the oftener they will require syringing overhead. As the heat declines, decrease the moisture by degrees. In winter, if the weather is dull, syringe about once a day; but if there is a little sun, twice or three times; and the Moss in which they are plunged should be well saturated about once a week. They must be shaded from the burning rays of the sun. I would recommend to have the glass over them painted with a little thin paint to prevent them from burning, as they are very liable to get injured in that way before the other plants in the same house require shading.

Pitcher plants, if grown in perfection, like a hot moist atmosphere. In summer the temperature should vary from 75° to 80° by day, and at night from 60° to 70°. In winter it should vary from 65° to 70° by day, and at night from 55° to 60°. The sphagnum on the top of the pots around the plants must be kept growing, and frequently clipped with a pair of scissors; and the Moss must be replaced when required, in order to keep them always plunged up to the rim. They have been considered rather difficult things to manage, but by following this treatment they will be found to thrive, and will grow without difficulty. They are propagated by cuttings. *Alpha*

HITCHAM VILLAGE HORTICULTURAL SOCIETY.

The first meeting of this Society was fixed for July 11, but as it rained most incessantly it was postponed to the following day. The severe winter told manifestly upon the cottagers' productions, but they sent in what they had, and a very fair show was the result. The following programme will show the "orders of the day:"—

HITCHAM HORTICULTURAL SHOW.

Programme for Wednesday, July 11th, 1855

8 to 10 A.M. Specimens for competition sent to the rectory before 10 A.M.

9 to 10 „ Children to prepare their Wild-flower Nosegays at the rectory.

12 A.M. "Marquee Museum" ready for inspection.*

1 P.M. Show of flowers, &c., ready for inspection.

Lectures on some of the objects in the Marquee Museum will be given at intervals.

4 „ Prizes distributed. Various prizes. Announcement of Village Excursion down the Orwell.

5 „ Stewards to return specimens on receiving their check tickets from the exhibitors.

6 „ Tea, orderly and sociably, as usual.

8 „ The School Children to sing "All to join in" God save the Queen," "Good night," and may we continue "merry and wise" till and at the next Show, fixed for September 19th.

Animal Kingdom.

Mammalia.—Skin of red monkey of Bolivia; peccary of S. America; paradoxus of Phillippine Islands.

Birds.—Albatross, which had followed a ship 3000 miles before it was shot! Rhinoceros hornbill; Impeyan pheasant; resplendent trogon (male and female). Glass case of handsome small birds, and another of humming-birds (exhibited by Mrs. Henslow, of Bildeston).

Reptiles.—Monitor of the Nile; thorny lizard; five Jersey toads; and five Suffolk natter-jacks.

Fish.—Globe-fish; porcupine-fish; flying-fish; jaws of a large shark.

Mollusks.—A few sea-shells; and one land-shell species new for Hitcham (Helix carinata).

Insects.—Case of foreign insects, tussar cocoons, the wild silk of the East Indies; Suffolk wireworms and the beetles they produce.

Vegetable Kingdom.

New list of Hitcham wild flowers.

Dicotyledons.—Section of a Cork tree, grown at Chelsea. Fruit of Cachew-nut with swollen fruit-stalk larger than the neck of the bottle in which it is preserved. Fruit of Towel-gourd, used as sponge and for wadding; ornamental Gourd-box from Madagascar; ornamental Calabash-gourd apparently from South America.

Monocotyledons.—Palm oil with the (1) Glycerine and (2) Palmetic acid of which it is composed, these having been separated by a new process, for the candles at Price's manufactory. Wheat and Barley more than 3000 years old from the catacombs of Thebes; Rice in the ear; our four native pond weeds (Duckweeds, one never yet known to flower in England).

Acotyledons.—Oak stained bright green by the Verdigris Peziza, obtained from Hitcham Wood; with a load of timber; the samples prepared at Tunbridge Wells.

Mineral Kingdom.

Garnet in mica-slate; obsidian from Ascension, and the same mineral from Vesuvius, showing the mode of its passage into pumice; various polished and other specimens of fossil wood; state of the cetacean bones from different geological formations; state of the cetacean bones from the red crag of Suffolk, contrasted with the elephants bones from gravel beds of the same county.

Miscellaneous.

Diagram specimens to illustrate the process of glass manufacture:—

1. *Implements.*—Model of pot for fusing metal, of Stourbridge clay; Newcastle clay; blow-pipe; pontil; pincelle; scissors; model of workman at his table; iron moulds; wheels of (1) iron for grinding, (2) stone for smoothing, and (3) wheels for polishing; vase of cut glass; tumbler, which exhibits the successive processes.

2. *Ingredients.*—Sands of Alum Bay, Lynn, and America; pearl-ash and potash; soda; saltpetre; borax; red lead and litharge; various combinations to form "frit."

3. *Kinds of Glass.*—Flint, crown, plate, broad.

4. *Colouring by metallic oxides, viz.*—(1) Copper for green; (2) Manganese for purple; (3) Cobalt for blue; (4) Iron for yellow; (5) Gold for red, &c., &c.

5.—*Various ornaments and uses of Glass;* among them specimens of Pitchmanship, the ladies latest hobby!

Antiquities.—Ancient iron helmet. Alabaster vessels from the catacombs of Egypt, more than 2000 years old; Roman patera of Samaria ware from Coombs, with maker's name Licinus, 1500 years old.

Russian trophies, &c.—Musket, bayonet, pistol, sword, knife, and ring, taken from soldiers at the battle of Inkerman; enamelled picture of Virgin and child with Russian inscription at the back, "Most holy mother of God of Petchais," taken from a dead officer's neck, after the battle of Inkerman; fragment of a shell which killed one boy and wounded another on board the Bellerophon.

Curiosities of savage workmanship; cap, pouch, and mocassins of North American Indians; snuff-boxes, of horn, and of insect-cocoons, by the natives of Natal, South Africa.

Carvings, &c.—Box-wood model of a frigate; wooden figures and a spectacle-case carved by the ingenious peasants of Switzerland, and worthy of imitation by those ingenious labourers of Hitcham who intend to compete for the sculpture prizes in 1856. Model of St. Peter's Church in card-board, by the son of a labourer at St. Alban's (exhibited by Mrs. Henslow, of Bildeston). All the patterns of lace, in a model specimen from Warrington.

N.B.—A person of well-known spiteful character is suspected of having cut down an ornamental Rose before Miss Raffle's house, of having injured two double clocks in a cottager's garden, and pulled up six experimental Pea plants in one of the allotments. No one wishes to hear the name of this person until such evil deeds can be clearly brought home; and then we shall all be ready to expose and shun the perpetrator of them.

As usual the marquee museum was the object of general attraction, and Mr. Henslow had to deliver two lecturettes to more than usually crowded audiences. There was one new feature introduced into the proceedings of the day, viz., the examination of Mr. Henslow's village botanical class. How many of our university students would look with astonishment to see wee village maidens (the botanists are all girls) writing down on paper the minute description of each plant presented to them! One brief illustration of the progress the class is making will suffice. Mr. Henslow gave them a flower out of his garden they had never seen. It was pulled to pieces, and its botanical characters noted down; from these the class is, of course, easily determined. The order and family, however, require more botanical knowledge to detect; and I believe was only answered by the head scholar, Showell, who noted down correctly Ord., Onagrad; Fam., Willow Herb; not only evincing considerable progress in botanical knowledge, but adding another proof, were it necessary, to the value of a natural system. The day was fine and all passed off well. *C. R. E.*

Home Correspondence.

Gooseberry Caterpillar.—I am obliged to Mr. Westwood for his remarks on my communication. He has misunderstood me. I said, or meant to do so, that the wind brought the fly, not the caterpillar, over the wall from our neighbour's garden. I readily admit that my observations upon the mould were not minute enough. It was, perhaps, a hasty inference to say that the skins were found. Some decayed leaves were also on the surface of the mould, from which it was difficult to distinguish the remains of caterpillars. How are the following facts to be explained? Eggs were seen, but not in sufficient number to account for the thousands of caterpillars—the minutest caterpillars were found on leaves far removed from any appearance of eggs; indeed it was difficult to find an appearance of eggs when there were myriads of caterpillars. My neighbour has just informed me that a brother market gardener had the pest very severely three years ago and last year, and in both seasons quite early. This year he has had a capital crop of Gooseberries, and no caterpillars. I will endeavour next year, if I live, to look well after the fly, and try by attention to the surrounding soil this autumn to extirpate our dormant enemy. ☞ ——There can be little doubt in what form these pests remain in the ground all winter. I have found them in spring in a chrysalis state, when I put them into a slender chip box, and pricked holes through the wood for air. When I neglected looking at them for a day or two, I sometimes found the insects adhering to the side of the box dead, I supposed from the want of food, and not air. Had I excluded the air at first, I suppose the fly would not have been able to eat its way out of the cocoon. The cocoons were of a brown colour, about three-fourths of an inch in circumference, and seven-eighths of an inch in length. *Wm. H. Sea—, Lartington.* ——The following is copied from the "Georgical Essays," by Dr. Hunter, vol. iii., p. 223, and may probably be of use to your correspondents who are seeking for information on the subject of Gooseberry caterpillar. [But the insect mentioned below is not "the Gooseberry caterpillar"]. "The moths (Phalænæ grossulariatæ of Linnæus) from which the Gooseberry and Currant caterpillars (which are the same) are bred, are small, having yellow bodies with many black spots, and their wings white with yellow streaks spotted with black. They appear in the month of July, in the evenings, and ought to be attentively killed by all attentive gardeners. They seldom fly far from the bushes on which they deposit their eggs. They live about 20 days, during which time they (for many of the moth tribe have not even mouths) eat little. The eggs, which are yellow, are glued below the clefts, and under the larger arms near the bottom, and sometimes on the leaves of the bushes that are proper for serving the young progeny for food. One moth produces upwards of 150 eggs. The young worms generally appear in spring, but they are sometimes hatched in autumn. I have observed the young in great numbers devouring the leaves of the Gooseberry bush as early as the 15th of August, that is about three weeks after the eggs are laid. They sometimes eat up the embryo of the new leaves and flowers of the bush in October, which renders any hope of fruit for the ensuing year abortive. Neither the frost nor snow of winter destroys them. I have taken particular notice of some of these Caterpillars remaining on a Currant bush, without being affected by cold or hunger, from November to March. During winter and the early part of spring they lurk in clusters below the clefts, and then is the time they ought to be crushed." *Richard Hinde, Lancaster.*—My bushes suffered much last year, and this season the pest reappeared in full force; but I completely cured the disease by syringing the bushes, and especially the under surface of the leaves, with sulphuretted lime water prepared as follows:—One bushel of hot lime was slaked with a little boiling water, and to the intensely heated mixture about half a pound of flowers of sulphur was added and well stirred in; then about 15 gallons of cold water were added, stirring carefully all the time. The mixture was made in the evening, and the clear liquid applied by the syringe the next day. A neighbour also tried the same plan with equal success. *H. R. M.*

Sikkim Rhododendron Falconeri.—Can you oblige me by any information as to the cause of the noble leaves of this variety being sometimes subject to curling at the edges? I have five plants, all of which have had the same treatment in every respect; they have all completed their growth; two have made five leaves each, two four leaves each, and one three leaves; the leaves of the latter are now curling, whilst the other four are perfect; all are seedlings and fine healthy plants; none have ever been in heat; some of the leaves are now 14 inches long and 4½ wide. They are well worth growing for the foliage alone. *An Old Sub., Halifax.*

Olaus Magnus and his Unknown Tree.—Is it not probable that this ought to be referred to the same class of fables as Messrs. Huc and Gabet's wonderful letter-tree? Unless evidence is to be found in corroboration of the account given by Olaus Magnus, it seems to me that inquiry will be time ill-bestowed. *Jad.*

Potato Disease.—We are sorry to announce that the Potato blight has reappeared and attacked the leaves and stalks with a malignancy almost indescribable, and that the usual stench emitted by them is now everywhere unmistakeable, and none have escaped but very early kinds. It is spreading like wildfire, and no doubt ere this communication appears in type it will have progressed considerably. How far it may prove fatal to the tubers remains to be known; but judging from experience in past years, their luxuriance in foliage renders them very susceptible to decay. The only preventive we know of is cutting off their tops and leaving them to chance, thus bleeding them, as it were, to death by degrees, and causing those yet uninfested to be more dry and mealy, and in better keeping condition than they would otherwise be. Pulling the stalks up is not so well, as it destroys their vitality, and thus shuts in disease, subjecting them to further decay. Be this as it may, all should be done that can be before the tubers become too far contaminated. *Hardy & Son, Maldon.* ——About a fortnight ago I plainly discovered some symptoms of disease in this neighbourhood, and I regret to inform you that its virulence has since made rapid progress. The crop which had previously promised so well, looking most luxuriant, will in all probability be most seriously injured. Yesterday I took a walk through the parish of Rumboldswyke near this city, and there could be no mistake about the extent of the disease, owing to the disagreeable smell emitted by the plants in all directions. I observed that in some grounds the haulm had been removed, and some persons are digging up the tubers for immediate sale. *W. W., Chichester.* [We are sorry to be obliged to confirm these statements; but it is to be hoped that the tubers are not, as yet, much injured, and that this hot, dry weather will stop the mischief. Even Flukes, with us, have their leaves affected!]

American Aloe.—Is it the true American Aloe that your correspondent "Anon." preserved last winter out of doors, without any protection? or the Yucca gloriosa, a plant often confounded with it? *Vectis Consistorial.*

Reproduction of Aphides.—I have read your notice of Dr. Mann's interesting little book upon the "Philosophy of Reproduction" with much pleasure. I wish, however, to make one or two remarks upon Dr. M.'s description of the development of the aphis, and I do this more to excite the attention of naturalists to the subject than to offer the result of any matured investi-

* Chief *Novelties* exhibited in the Marquee Museum.

gation. Dr. M. says that—"Through the early summer the colonies of the aphides are wingless; but later in the season individuals appear in their grazing flocks, who have magnificent wings stuck rigidly and proudly up from their backs. Now these winged aphides are like the winged ants, the males and females of the species." This, I am aware, is a description which is received by naturalists. It is the fact upon which that singular modification of Steenstrup's theory of alternation of generation is applied to the reproduction of the aphis. But it certainly is not exactly correct, and I should not be surprised if the theory were itself upset upon more extensive examination and closer observation. It is not true that the winged species appear only at the end of summer or in the last brood, a fact of which I have long been aware; but whether these insects are all winged females or not I am unable at present to say; but the following facts are interesting, and may stimulate some of your readers to a further examination of the subject. In the latter end of June of this year, just when the Thistle began to show its unwelcome head in our fields, I found several of these plants in my meadow, close to my garden wall, covered with the pitchy black aphis Cardui. They were the first aphides I had seen out of doors this year. I dug up several of the plants, plunged the roots into a glass containing water, and placed them in a room for observation. The great majority of the aphides were wingless, but some of them had wings. In a few days they had increased considerably in numbers, but the wingless insects developed wings in great numbers—so much so that they became the most numerous of the two. I saw several of the wingless insects in the act of parturition, but none of the winged. I saw no conjunction of the sexes, but I admitted the possibility of this, as my observations were confined to a short time each day. The winged insects, when fully developed, took wing, and covered the small window of the room. I saw them in all stages of their wing growth. Now, perhaps, these observations are not sufficient to reason upon, but they are quite enough to prove that the winged aphides are not the last brood. Their wings are clearly given for locomotion; if they are all females, and viviparous, they are the means by which the family is so quickly propagated from plant to plant; if they are male and female, which I confess is very probable, there is an end to the generally received opinion of their reproduction. I confess I should be glad if this were the case, as the bud within bud theory, although very wonderful, has no other positive analogy in animal nature. In Steenstrup's "Alternation of Generations," the intermediate condition of the animal is dissimilar either to the first or last. It is not in the least more wonderful than larva, chrysalis, and imago among insects, but according to the theory of the development of the aphis we have the sexual intercourse but once in eleven generations of an insect precisely similar in all its phases. I beg you will accept these remarks only for as much as they are worth. I am quite confident my aphis Cardui brood was the first of the season. I saw the wings developed from the wingless insect; and I saw the viviparous birth of many from the wingless female, while the winged variety were clustering about my window. *O. R. Bree, Stricklands, Stowmarket, Aug. 13.*

Societies.

Horticultural, *August* 14.—At a special general meeting held this day, the Right Hon. Lawrence Sulivan in the chair, William Wilson Saunders, Esq., was unanimously elected a new Member of Council and Treasurer, in the room of Dr. A. R. Jackson, deceased.

Royal Botanic, *Aug.* 10.—Anniversary. J. W. Freshfield, Esq., M.P., in the chair. The Duke of Norfolk, E.M.K.G., was re-elected president, and Ed. Marjoribanks, Esq., treasurer. The Earl of Aberdeen, K.G., the Earl of Mansfield, General Buckley, and Professor A. Henfrey were elected new members of the Council for the ensuing year. In their report the Council represented "the condition of the Society as one of uninterrupted prosperity," although from the pressure of the times the amount of the receipts had been "somewhat less than it was last year," and "anticipating a greater diminution than has actually occurred the Council has not undertaken any expensive works," but "the garden has been continued in a high state of culture, and the character of the exhibitions has been fully maintained." The number of tickets sold was 24,887. In the report of the auditors it appeared that the receipts, including 5652*l.* 3*s.* 6*d.* for exhibition tickets, were 8639*l.* 2*s.*, besides the balance left in hand last year of 3810*l.* 16*s.* 2*d.*, making a total of 12,449*l.* 18*s.* 2*d.* The payments were 9369*l.* 13*s.* 2*d.*, which includes 1175*l.* repayment of debentures, and leaves in hand a balance of 3080*l.* 5*s.*, considerably more than all the floating debts of the Society, which include 1601*l.* 5*s.*, the sum awarded to the successful exhibitors of plants and fruit. From the secretaries' and curator's reports we gather that the attendance of students from the colleges and artists had increased materially; that the lectures were well attended; that a large number of cut specimens had been furnished to professors and lecturers, and that upwards of 400 species had been added to the collection of herbaceous plants. Sir H. P. Willoughby, M.P., asked a question relating to the sale of Exchequer bills, which appeared in the statement of receipts, and being told that they were part of the balance in hand last year and not capital, he expressed his approval of the accounts, and moved that the reports be received and printed. Votes of thanks to the President, Council, and officers, and similar routine business concluded the meeting.

Notices of Books.

Thompson's Gardening Book of Annuals (Simpkin) will be useful to the inexperienced amateur, who desires to know what to select for his annual garden, and how to cultivate it. The directions are plain and useful, and the list of species as long as any reasonable person can desire; to which we may add, what is no small praise in these days of book manufacturing, that the descriptions are faithful, with no tinge of exaggeration. We need not say that of all branches of cultivation, that of annuals best suits the purpose of persons of moderate means, as it is among the greatest aids to the decoration of places where cost is the last subject of consideration. In this most especially they possess a merit of their own that by skilful combinations of even the commonest of them, effects are to be produced in the open ground which the rarest and costliest of novelties cannot surpass. A few old-fashioned hardy annuals, *well-grouped* and *well-grown*, in the hands of a man of taste, will give to the meanest plot of ground all the brilliancy of a regal parterre. This has been admirably shown, as we are informed, in the permanent horticultural exhibition now open in Paris, and we hope that the lesson will have been diligently studied by the visitors. The great point is *how* to group well and *how* to grow well. Upon the former subject Mr. Thompson does not touch—upon the latter he gives useful advice, as a specimen of which may be taken the following remarks upon *soil*, a terrible stumbling block with the inexperienced:—

"*Soil.*—Perhaps the soil best suited to a majority of the annuals, and we might add of plants in general, is a light friable loam, containing a moderate amount of vegetable matter, and sufficient sand to render it porous; but as it rarely happens that the amateur has much choice of soil, it is fortunate that most of them will succeed in any but such as is of an extremely dry, sandy, or calcareous nature, or of a stiff, heavy, retentive character. In the former the plants are sure to be starved, and in the latter, if they ever fairly take root, there is generally an undue development of the foliage at the expense of the flowers. In soils of this description much may be done by thoroughly breaking up the superficial crust; or, as it is technically termed 'trenching' it at least one spade deep, digging in sand, road-scrapings, or in the absence of anything better, coal-ashes, which usually contain a large proportion of silicious matter; and if the operation be performed in autumn, so that the loosened soil is thoroughly exposed during the winter to the disintegrating influences of frost, and other atmospheric agencies, the advantage will be greatly increased. In soil of an opposite character, *i. e.* sandy or calcareous, the remedy will obviously consist in the addition of loam in conjunction with decayed leaves, or very old rotten manure; or, where expense is no object, the surface soil may be entirely removed to a depth of 6 or 8 inches, and its place supplied with the best loamy compost at hand. In town gardens, where the staple is of a dry burning nature, these ameliorative measures will be especially necessary; for when, as is usually the case, these are of limited extent, and walled in, the heat in summer is so great, that a soil of richer and moister character than might be necessary in other localities is indispensable. With these exceptions, however, it is only in extreme cases that the measures suggested will be necessary; measures which, let it be observed, parenthetically, though alluded to in connection with annuals, are really applicable to the culture of most other ornamental plants, whether herbaceous perennials, bulbs, or shrubs, the only difference in their requirements being that a smaller depth of soil will suffice than would be desirable for most perennial plants. In ordinarily good soil, an annual dressing of leaf-mould, decayed turves, or thoroughly rotten manure, in quantities proportioned to the requirements of the soil, dug into the depth of a few inches, will be all that is requisite; these should be applied in spring, only just previous to sowing the seeds, or much of the benefit resulting from their application will be lost, though a simple digging may be advantageously given in autumn. The use of strong crude manures of an animal nature should be carefully avoided, though for those who have a turn for experiments, we may state that bonedust, and the superphosphate of lime may be safely employed, and with some advantage in poor soils, as well in the culture of annuals as of plants of a longer duration. The bonedust must be as fine as possible, or but little advantage will result from its use, on account of the longer time required for its decomposition when in a coarser state of division. It should be dug in with leaf-mould, or in the same way, either in the precise spot where the seeds are to be sown, or over the general extent of the border. The superphosphate of lime, being more soluble, will be best applied only after the seedlings have attained the height of an inch or two, and should be strewn, in small quantities, around and over the patches in moist weather. Saline manures, such as nitrate of soda and sulphate of ammonia, are also unobjectionable, and may be employed in the same way, though they are more generally applied in a state of solution, a teaspoonful of the salt being sufficient for a gallon of water. Many annuals, especially those of a robust habit, will bear an occasional dose of weak liquid manure, of which, however, mention will be made more appropriately under another head. It may be useful to know that a large number of the annuals succeed well in peat or heath mould, and may therefore be sown in the borders of peat-beds, or round groups of Rhododendrons, or similar shrubs; but there are very few for which it is really indispensable, and for these a light sandy loam with an admixture of leaf-dust often answers nearly as well."

Garden Memoranda.

Gunnersbury Park, the seat of Baron de Rothschild.—The trees on that portion of the Peach wall here which has been faced with glass, as described at p. 550 of our volume for 1853, have again this year borne most excellent crops of large and finely coloured fruit, which with the exception of that on a tree of the Téton de Vénus, is already nearly all gathered. The advantage of thus covering existing walls with glass is well exemplified in this case, in which the size, appearance, and flavour of the fruit, owing to the facilities provided for giving plenty of air, are quite as good as those of Peaches grown on the open wall, while the certainty of having a crop is secured, and where the consumption is not very great, fruit of excellent quality might be had until it can be obtained from out of doors. The piece of wall covered here is 124 feet in length, the glass protection being put up in the form of a narrow Peach-house, with short sliding sashes on the roof, an upright front about 6 feet high, the back wall being 10 feet in height, and the width of the house about 5 feet. The front sashes are swung by their middle on pivots and move outwards, and additional ventilation is afforded through openings furnished with horizontal wooden slides in the slate panelling between the short piers which support the frontage. The interior can be warmed when required by means of a flow and return 4-inch pipe, which is led along the front immediately opposite the little ventilators last spoken of. Thus the cold air admitted gets partially heated before it reaches the trees, and that at a time when the leaves are young and tender, and therefore least will bear a check. Two narrow shelves, one above the other, run along the whole length of the front, forming convenient places for Strawberries in pots, not only for forwarding them a little for forcing, but also for keeping them from wet late in autumn, too much of which, it is well known, greatly injures them. The Peach trees are, of course, confined to the back wall, which has been plastered with cement and furnished with a wire trellis for training them on. The trees are extremely healthy, without any signs of mildew or red spider, and they have made abundance of good bearing wood for next year.

The young Vines with which all the vineries have been planted have made excellent wood, and such as are two and three years old have borne some good bunches. Vines in pots are also grown here to some extent, and with great success, as the beautiful exhibition of them produced by Mr. Forsyth, at Chiswick, in June last, served to indicate. They are struck from eyes put in in spring, and the rest of their treatment differs little from that practised in other places; the great point aimed at is to get the wood thoroughly ripened, without which no good results need be expected, and to this end they are placed on shelves, and have their rods trained as close to the glass as possible.

Two new span-roofed houses, each 50 feet in length, with paths up the middle and beds on either side of them, have just been put up here by Messrs. Gray & Ormson for growing plants in, and already one of them contains a small collection of some of the better and showier kinds of Orchids, as well as other things requiring the temperature of a stove. Among them was Coleus Blumei in excellent condition, the variegation of the foliage being unusually rich and beautiful. When skilfully grown, and its colours well brought out, as they were in this instance, few plants remarkable for fine foliage are handsomer or better worth cultivating than this.

The flower garden is, as a matter of course at this season, well filled with flowering plants; but owing to the late rains, the beds generally scarcely looked so gay as they evidently have done. Tom Thumb and pink coloured Geraniums in the way of Lady Holmsdale, Calceolaria viscosissima and integrifolia, Lobelia lucida, the white variegated Alyssum, and things of that sort were, however, in good condition. Two beds of Agapanthus umbellatus were coming nicely into flower, and will, doubtless, be beautiful late in the season. These were not planted out, but plunged in pots so as to be easily moved and taken under cover again for the winter. Two rustic baskets elevated on short pedestals and filled with Fuchsias were particularly striking. The plants measured nearly 4 feet across, and were beautifully in bloom. The variety was Defiance, a robust growing sort, which displays its crimson flowers in large clusters, well out at the ends of the branches, and is therefore well adapted for this kind of decoration. Two beds, one of crimson and the other of common China Roses, were also very pretty. These varieties, we need scarcely say, bloom most profusely, and last long in beauty. On the east side of the lawn the bedding plants are placed in baskets, the raised handles of which, covered as they are with Convolvuluses, Ipomœas, Maurandyas, Lophospermums, and Eccremocarpus scaber, serve to create variety and improve the flat appearance which is sometimes complained of in beds of low growing plants. Stationed at

short intervals along the terrace in front of the house were marble vases filled with Tom Thumb Geraniums, literally masses of flower, and nothing could possibly be more ornamental than they are at the present time. They consist of large plants cut in in autumn and wintered dry; and thus they are kept year after year for the purpose, till they become too large for the vases, when they are thrown away, and are replaced by young plants. We also remarked some handsome standard Fuchsias of the Carolina variety, about 8 feet high; these are treated in the same way as the Geraniums, and flower admirably every year.

The ornamental ground has lately been considerably increased in extent by taking into it a portion of the park on the west side of the house, and it has likewise been further improved by opening up a thicket of plantation which lay between the mansion and the lake, and converting it into a snug little dell carpeted with Grass, interspersed with Araucarias and other Conifers, and ornamented with a rustic basin and fountain in the centre. The Coniferous and other trees about the place have also lately been greatly enriched by adding to their numbers fine specimens of different kinds from various parts of the country. Among these the more remarkable are a Cupressus macrocarpa 20 feet in height and 15 feet in diameter, and others of the same species nearly as high, but not so thick; an Araucaria imbricata upwards of 13 feet in height, Pinus Pinsapo, quite 7 feet high and 10 feet through at the base; Cryptomeria japonica, 14 feet high; a Chinese Arbor-vitæ equally large; Deodars, 25 feet in height; Pinus insignis, 15 feet in height; Taxodium sempervirens, not much shorter; and Douglas Firs, quite 16 feet in height. One of the last named trees, a gigantic one placed in the park, was moved there by means of one of Mr. Barron's machines from Elvaston. This cannot measure less than 45 feet in height; since it has been transplanted it has pushed a little, but its top appears to be dead. These trees, together with many others, were all placed where they are in October last, and appear to have taken well with their new situations. They were all carefully moved with good balls, which were tunnelled underneath till a low truck could be got under them, on which, if the distance was short, they were conveyed at once to where they were to be planted; but if long the truck was run up into a spring van by means of an inclined plane, and then they could be carried with safety for miles, which many of them were. After they were planted the chances of success would, however, have been greatly diminished had they not been syringed over head every night during the dry weather which we had in spring and early summer; this, as might be expected, very much resuscitated their exhausted energies, and gave them strength to stand the heat of the succeeding day. These trees may now all be considered safe, and in time will doubtless form worthy companions to the magnificent Cedar trees for which this place is justly celebrated.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—The necessary quantity for a season's supply of the various kinds of soils used in potting should be got in at once before the ground gets sodden with the autumn rains; for the mechanical texture of even turfy soils is much injured by their being carted and stacked up in the wet. Therefore the soil should be cut in a rather dry state, and put up neatly in narrow ridges, so as to protect it from wet, and expose it as much as possible to the action of the air. And as success in plant-growing depends largely upon having suitable soils for potting, no necessary trouble or expense should be spared to procure these when well-grown specimens are expected. Moderately good loam is not difficult to procure in most neighbourhoods, but anything like good peat is not to be had in every locality. This is absolutely necessary, however, for the successful culture of the great proportion of our most esteemed plants, and two kinds are desirable if not essential, viz, one of a light heathy nature for Ericas, Epacrises, and fine-rooted plants generally, and a stronger Grassy sort for stove plants, Azaleas, and many New Holland plants. And these should be procured in sufficient time to allow of having them in a mellow state when wanted for use, and if the owners of gardens understood their own interest in this, they would not scruple the little expense necessary to keep up a sufficient stock of soils in a fit state for use, for there is nothing more disheartening to a gardener, or a greater tax upon his time, than being without suitable soil in working order whenever it is wanted. Look over such things as Achimenes, Clerodendrons, and other stove plants liable to injury from damp, daily, and remove decaying flowers immediately they are perceived, as a few days' neglect in the present state of the weather may injure a handsome specimen. Any of the twiners which have done flowering may be slightly cut in, so as to prevent their straggling, and they should not be allowed to shade the house too much; and canvas shading must not be used too freely after this season, particularly if cloudy weather such as has prevailed of late continues.

Greenhouse.—Maintain a moist state of the atmosphere by frequently sprinkling the passages, &c., on bright days, and dew growing plants overhead with a fine-rosed syringe towards evening. Look carefully after mildew on Heaths, and apply sulphur the moment it is perceived, for if neglected but for a few days it will disfigure the finest specimen. Remove the flowers from plants in bloom directly they begin to fade, and cut back the shoots so as to secure close bushy growth, placing the plants in a cool shady situation, until they fairly start into growth, sprinkling the ground about them frequently on dry days, and dewing the plants overhead morning and evening. Plants that have fairly started into growth after being cut back, and require more pot-room, should be repotted at once, observing to have the balls in a healthy state as to moisture, &c., and supplying them very cautiously with water after repotting, until the roots get hold of the fresh soil. Do not allow young stock in free growth to suffer for the want of pot room; and attend to stopping any over luxuriant shoots, so as to secure a compact bushy habit of growth.

FORCING DEPARTMENT.

Pineries.—Those who intend commencing the culture of Pines on the Meudon or open bed system, cannot begin at a more favourable season than the present, as there is now little chance of our experiencing much hot dry weather to cause the plants to show fruit before the roots get hold of the fresh soil, as is sometimes the case to the great disappointment of the beginner and the undue discredit of the system. The bed should be from 18 inches to 2 feet deep, and should consist principally of good rich mellow turfy loam, well broken up, and carefully intermixed with a liberal sprinkling of clean sand, and a small proportion of leaf soil or good rich fibry peat; for when rough turfy soil is used and the bed is ever, from any cause, allowed to get thoroughly dry it is very difficult to moisten it again, as the water passes off through the lumps without penetrating them. But if the loam is well broken up and mixed with some leaf soil, or peat and sand, it will be found to take water freely enough, and the roots will be almost as much under command as when the plants are grown in pots. Persons commencing this method of growing Pines should also endeavour to avoid planting out pot-bound plants, for these, whether young or old, seldom strike root freely into the fresh soil, and are very apt to fruit prematurely; but if such plants must be turned out, then care should be used to make the soil firm about the balls, so as to prevent the water passing off without moistening the balls. For persons who grow Pines largely, and have several houses or separately heated compartments devoted to their culture, the open bed system has many advantages; but where something like a regular supply of fruit is expected to be furnished from a comparatively limited number of plants and accommodation, we would still prefer the pot system of culture. Vineries.—The season has been anything but particularly favourable to young Vines planted this spring, and every possible attention must be afforded these where strong well-ripened rods are expected. As the weather has been lately, there has been no necessity for watering the outside border; but as the roots will be mostly near the surface, this must be attended to in the event of our experiencing dry sunny weather, for unless a vigorous root action can be secured strong well-ripened wood will not be obtained. Give air freely and early on fine days, so as to avoid any risk of scorching the foliage, but shut up early in the afternoon, sprinkling the floors, &c., so as to cause a genial moisture in the atmosphere, which will be of great service in strengthen- the Vines. If plants are grown in the house, and with the rage for plant-growing which is almost universal at present this will doubtless be unavoidable in many instances, see that the plants are not infested with black thrips, and on no account be induced to regulate the temperature, &c., of the house for the plants, but remove these to other quarters, or make them succumb to the treatment most suitable for the Vines. Keep a sharp look out for the appearance of red spider in houses where the fruit is ripening, and coat the pipes or flues with sulphur on the first appearance of this enemy. Indeed it is well to do this occasionally by way of a preventive, which, in this case as in most others, is vastly preferable to a cure. Vines in pots intended for early forcing will require attention to get the wood properly ripened, and this should be effected by exposing them freely to light and air.

FLOWER GARDEN AND SHRUBBERIES.

The beauty of bedding-out plants is but of comparatively short duration in most localities even in the most favourable seasons, and now that they are in full flower every care should be exercised to render them as attractive as possible, keeping everything in the most perfect order that the means at command will allow. Go over the beds frequently, and remedy any defect that may be perceptible, such as pegging down any plants that incline to grow too high for the others, and keep the edges of the masses well filled up without allowing them to become too bulky. Where the plants are growing very rapidly this will involve some considerable trouble in the way of stopping the shoots, &c., but this must be attended to sufficiently often to keep the plants within due limits, for nothing looks worse than to see them running over the edging, or encroaching upon the Grass, and nothing of this kind must be allowed where anything like high keeping is aimed at. Attend to plants in vases, and do not let these suffer for the want of water at the root, and some things in this way will be benefited by an occasional supply of manure water in a weak state. Take advantage of every leisure hour to put in cuttings, and use every possible dispatch with this work until the full stock is got in. Look over Hollyhocks occasionally, and secure any cuttings that can be obtained from varieties which it is desirable to increase. Cuttings of these rooted in autumn make fine strong flowering plants for the following season, and occupy less room in winter than the old plants, but the cuttings must not be put into heat at once, as strong sappy cuttings, such as are obtained from plants growing in the open ground, are very apt to damp off in heat. Give the plants a liberal supply of manure water in the event of the weather being dry, and Dahlias on light poor soils will well repay similar attention.

HARDY FRUIT AND KITCHEN GARDEN.

The long continued wet, cloudy weather which we have experienced, has induced very rapid growth in fruit trees generally, and except such as are well loaded with fruit, they appear in most instances to have already made as much young wood as there is much chance of getting matured in course of the autumn. Where this is the case, it will be advisable to go over the trees at once and stop a portion of the shoots, beginning of course with the strongest. This will be found to serve the end in view much more effectually than a general stopping at this season, which would probably be of no farther service than inducing the production of a mass of laterals, and do more harm than good, whereas, stopping the stronger shoots will only throw the sap into the weaker ones, and if we should be favoured with a fine autumn the buds and the shoots stopped will become plump without starting into growth, and in any case there will be fewer laterals produced by stopping only a portion of the shoots than there would be if the shoots were stopped generally.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Aug. 16, 1855, as observed at the Horticultural Society's Garden.

August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind
Friday 10	27	30.151	30.043	76	49	62.5	68	63	W
Satur. 11	28	30.201	30.145	80	56	68.0	68	63	W
Sunday 12	[illegible]	30.205	30.181	70	42	56.0	66	63	W
Mon.. 13	1	30.223	30.213	72	41	56.5	66	64	[illegible]
Tues. 14	2	30.189	30.174	73	57	65.0	67	63	W
Wed. 15	3	30.231	30.224	76	47	61.5	68	63	W
Thurs. 16	4	30.297	30.271	79	45	62.0	68	63	W
Average.		30.214	30.179	75.1	48.1	61.6	67.3	62.8	

Aug. 10—Foggy, with heavy dew; very fine throughout.
— 11—Slight haze; very fine; overcast; fine.
— 12—Overcast; fine; clear at night.
— 13—Fine; very fine; clear and cool at night.
— 14—Fine; overcast: cloudy and fine; uniformly overcast.
— 15—Overcast; very fine throughout; clear at night.
— 16—Very fine; hot sunshine; exceedingly fine throughout.
Mean temperature of the week 1 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 29 years, for the ensuing week, ending Aug. 25, 1855.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 19	72.8	51.6	62.2	14	0.42 in.	2	2	2	1	1	[illegible]	[illegible]	[illegible]
Mon. 20	72.7	51.5	62.1	13	0.33	2	1	1	—	2	[illegible]	[illegible]	[illegible]
Tues. 21	72.2	50.4	61.3	10	0.62	3	2	—	1	2	[illegible]	[illegible]	[illegible]
Wed. 22	70.9	51.1	61.0	12	0.67	1	3	2	—	1	[illegible]	[illegible]	[illegible]
Thu. 23	70.8	49.3	60.0	16	0.95	1	3	1	—	3	[illegible]	[illegible]	[illegible]
Frid. 24	70.8	47.9	59.3	14	0.23	1	6	1	—	5	[illegible]	[illegible]	[illegible]
Satur. 25	70.7	51.1	60.9	12	0.32	2	2	1	1	1	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the [illegible] 1826, and 21st, 1835—therm. 88 deg.; and the lowest on the [illegible] 32 deg.

Notices to Correspondents.

Bees: A question asked in our last paper about "stupifying bees with nitre," may be perhaps satisfied by the following advice:—If our correspondents will use chloroform they will find it perfect in its action and preferable to the fungus. The way to proceed is to put two teaspoonfuls of chloroform into a cup, to soak a bit of rag in it, and to put the rag into the hive, of course closing the entrance; the bees will almost immediately begin to drop, and in less than 10 minutes every bee will be stupified. They will come to themselves in about half an hour.

Books: *G. Stevens.* The new edition of the "Theory of Horticulture" costs a guinea. We now adopt the plan of always adding to our notices of books their price when we know it. But it continually happens that the price is not stated in none of the volumes, and then we have no ready means of knowing. *J Shearn.* Get "Lindley's School Botany;" to be had of all booksellers.—*Syringa.* Brown's "Forester."—*D. J.* There is much difference of opinion in regard to bee-books: but we have always heard Bevan "On the Honey-bee" well spoken of.

Cherry Stones, &c.: *C B.* Keep them in dry sand all winter and sow them in the spring.‡

Gooseberries: *J M.* Your seedling has the merit of being one of the large kinds; but we find no improvement in quality.

Justicia Leaf: *H R M.* Can you furnish us with another specimen?

Lime: *A Sub.* You will not find either this or chalk of much use in the absence of clay. The Cryptomeria and Hemlock Spruce will do better in the sandy land without chalk. Sand suits coniferous plants generally. American plants do not like chalk. Your lime rubbish from old buildings, mixed with clay and sand, will be a good soil for most things. Even sand will grow many plants well, provided it is both damp and well open at bottom; and you can give it frequent dressings of decayed vegetable matter, such as rotted vegetables, weeds, leaves, sticks, straws, and the like.

Names of Plants: We have been so often obliged to refuse to decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never said or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is only requested that, in future, not more than four plants may be sent us at one time.—*H D.* Lolium temulentum.—*J W.* Euphorbia cannabinum.—*P. Ealing.* Clitoria ternatea and Lonicera sylvatica longifolius.—*G S.* Spiræa ariæfolia.—*A Constant Reader.* A fragment of Aira cæspitosa.

Paper Materials: *Colo.* Number 1 is bad, two is pretty good if it will bleach. Plenty of such materials are to be found; the great question is the price at which they can be supplied, and how far they will bleach well.

Strawberry: *J A P.* Your fruit had been bruised to pieces before it reached us.‡

Misc: *Berks Gardener.* It is doubtful if liquid manure would be of use to American plants. If you employ it it should be on a small scale first by way of experiment. April is the best time to thin Laurels and other evergreens. Your Wistaria may be led along near the ground in the manner you propose without injuring it.‡

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 5l. per ton; Superphosphate of Lime, 7l.; Sulphuric Acid and Coprolites, 4l.

Offices, 49, King William Street, City, London.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda. Sulphate of Ammonia, and other Chemical Manures.

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CONCENTRATED URATE FOR GRASS, RAPE, AND ALL ROOT CROPS.
SUPERPHOSPHATE OF LIME.

THE LONDON MANURE COMPANY continue to manufacture the above Manures, which have been used with so much success for the last 14 years.

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MANURES.—The following Manures are manufactured by HODGSON & SIMPSON, Calder Soap Works, Wakefield, and MATTHEWS & Co., Manufacturing Agricultural Chemists, Driffield. SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-Dressing for Wheat, Barley, and Oats. SIMPSON'S NITRO PHOSPHATE for Turnips, Potatoes, and all other fallow root crops, price 8l. per ton. N.B. Manures specially prepared for Grass and Flax. The above have been successfully tested for the last Seven Years by the leading farmers in Yorkshire and Lincolnshire, and other counties, and were applied last season to a breadth of upwards of 15,000 acres of land with the most beneficial results to the crops. A List of Testimonials and other particulars will be forwarded by post on application.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

DRAINAGE OF LAND.

MR. HUMBERT, of Watford, Herts, a practical Surveyor and Land-Agent of more than 15 years' standing, offers his services to Gentlemen about to drain Land and Bogs. He will undertake to set out and superintend himself the execution of the work at a charge of 5s. per acre, and the expenses incurred in his travelling; or he will contract to complete it in a specified manner to the satisfaction of the Inclosure Commissioners at a fixed price per acre. Mr. Humbert has drained strong stony land in the most careful and complete manner, with 1½ inch pipes, and proper mains, the drains being 4 feet deep and 30 feet apart, at 4l. per acre and under, and he can give reference to his employers in that and in other instances.
Watford, Herts, Aug. 18.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
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THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing Any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected: Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland: Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the Plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

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WOOD STACK PEGS ENTIRELY SUPERSEDED BY FULLARD'S PATENT IRON SCREW THATCH PINS.—Great advantage is secured against having Corn and Hay Stacks unroofed, as is often the case in strong gales, by using the Patent Iron Screw Thatch Pins. They will wear many years, are easily and firmly inserted in all kinds of stacks, and a much less number than of the common wood pegs will suffice. They will be found extremely serviceable to the corners and sides of stacks that are much exposed to wind.

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THE QUEEN'S UNIVERSITY IN IRELAND.
QUEEN'S COLLEGE, BELFAST.—DEPARTMENT OF AGRICULTURE.

The Matriculation Examination for the Session 1855-56 will be held on FRIDAY, October 19th, and the Lectures will commence on November 1st.

Four Scholarships of the value of 15l. each are awarded by Annual Examination. Scholars are also exempted from one-half of the Class Fees. The College Fee is now reduced to 5s.

For the Times and Subjects of the Examinations, the amount of the Class Fees and the method of proceeding for the Diploma of Agriculture in the Queen's University, see "Belfast Queen's College Calendar for 1855." By Order of the President,
August 18. RICHARD OULTON, Registrar.

ANERLEY POULTRY SHOW, AUGUST 28, 29, and 30, will open 1000 Pens of the finest POULTRY AND PIGEONS in the World, including many new varieties.

Admission on the first day, TUESDAY, at 2 P.M., 2s. 6d. each; and on WEDNESDAY and THURSDAY, at 9 A.M., 1s. each. The Band of the Royal Artillery will attend each day. Crystal Palace Railway Tickets are available from Anerley Station.

The Agricultural Gazette.

SATURDAY, AUGUST 18, 1855.

IN order to the correct reading of the crop reports in the following pages it must be borne in mind that most of them were dated nearly a week ago, and that since then the country has enjoyed the very finest weather for the harvest that could be. The testimony of our correspondents bears out the assertion made a week or two ago in these columns, that the present crop of grain is more laid than any that has been reaped for years in this country. Probably notwithstanding all the excitement attending the trial of reaping machines at Carlisle, and that of the renewed competition to be witnessed during the week after next at Abbots Leigh, near Bristol, there has not been for several years a harvest so little fitted for cutting by machinery as the present is. And many of the purchasers of these implements will be disappointed by their lying useless, while hand-labour, at more than ordinary expense, is doing the work which they have proved unable to accomplish. The very hazardous condition in which most of the corn crop lay a week ago is well described by a Yorkshire correspondent as follows:—

"Besides filling up the enclosed tabular account of the appearance of crops, I think it well to give you some account of the weather, &c., since I wrote to you on the 4th inst. The 4th was a much finer day than we had had for some time. Sunday 5th, a little rain, but not heavy. Monday 6th, a steady soaking rain of 16 or 17 hours' duration. Tuesday, showers and dull day. Wednesday 8th, very heavy rain of 10 hours' duration, which lodged corn more and worse than all the previous rains. Thursday dull but fair. Friday a splendid sunny day. Saturday 11th, very close and hot without sun up to this time, 12 A.M. The Wheats are very much lodged, far more so than usual, a dark rusty colour, and I fear cannot be otherwise than damaged; of course much will depend on the weather to follow."

This condition of things, which was general, will account for a somewhat gloomier account of our harvest prospects than would be generally given now. Our report, corrected for the week of fine weather which we have since enjoyed, may, therefore, probably be read as follows:—Wheat not more than average, taking into account the inferior quality of the sample. Barley abundant, but coarse, and injured for malting purposes. Oats below average in Scotland, above average in Ireland, not more than average in England. Hay one of the worst crops ever known. Green crops generally good, but foul. Harvest from a week to a fortnight later than usual.

A word must be added on the Potato crop. Notwithstanding the generally encouraging tone in which this crop is referred to, especially in the north of England and Scotland, it will, we believe, be found that, during the past week in Ireland and in Southern and Midland England, a very rapid disease and destruction of the haulm has been going on—more rapid, according to our accounts, than has been known for several years. Whether this may be followed by the rotting of the tubers remains to be seen. All through the south of Ireland the crop has this leaf disease, and many of our correspondents in England as well as Ireland, who had been unanimous as to the splendid promise of the crop, have since written to say that the disease has spread rapidly since their original report was posted.

IT is important for the public to know how far the question of STEAM CULTURE has been advanced by the trials at Carlisle. The 200*l.* premium still invites competition, because no machine actually ploughed or dug there a certain area of ground in a workmanlike manner, and at an ascertained cost below that of ordinary farm labour. The judges would not be justified in awarding the prize for any less useful and economical invention.

Nevertheless, three steam cultivators, contrived on perfectly distinct principles, were exhibited, and to all thoughtful observers appeared at full pressure with information—"blowing-off" instruction, and flinging out rapid lessons at every revolution of their wheels.

Leaving the question of the form of tool, which is of secondary importance, let us try to show what the Carlisle Meeting has taught concerning the main difficulty, viz., *the mode of applying the power to the implement.*

In field tillage a steam-engine of necessity acts under great disadvantage. As the material to be manipulated (namely, the stratum of soil forming the cultivated staple), cannot be "fed" to the machine, the machine must be moved over every part of the wide-spread material. This involves a dilemma in applying the power. Either the motive power must travel with the implement, or be stationary and transmit its motion from a distance. In the former case it has the disadvantage of conveying its own great weight over a most difficult and opposing surface, involving loss of power; in the other case, the motor has the disadvantage of being at a distance (and an ever-varying distance) from its work; and must actuate the implement by means of connecting apparatus—involving likewise loss of power. But at last we have been rescued from the horns of this perplexity; and no longer impaled upon both, rest on one that has been rendered innocuous and secure. *The objections against*

a stationary engine have been completely overcome; so that the locomotive principle need not any longer deter us with its difficulties.

It was demonstrated at Carlisle that a locomotive steam-engine is unfitted for tilling *by traction.* BOYDELL'S *megatherium* strode with apparently marvellous ease over any inequalities of ground; but out of his 14 horse-power, *not half* was available for tilling the soil; the greater portion being absorbed in the mere propulsion of the engine. This mode of steam culture is, therefore, far too expensive; without mentioning the wear and liability to breakage inseparable from such usage of a ponderous machine. The principle of a locomotive engine actuating *a revolving digger* appeared to little more advantage.

USHER'S steam-plough economises power to a much greater extent than BOYDELL'S, being constructed, indeed, on a principle which involves a paradox. It propels itself forward over the ground, which must require the force of six or eight horses; and at the same time exerts its *whole* power in ploughing or tilling the land. This is accomplished by the cutting-shares being made to pass through the soil in an opposite direction to that in which the engine moves—their re-action thus tending to urge it forward. The power of the engine is 19-horse; and in spite of the utmost reductions and alterations from the original machine, the total weight is still very great. It is unfortunate that the non-appearance of this invention in the trial-field, and its downcast look just outside the showyard, gave the public a universal impression of its uselessness; yet soberer critics came to the conclusion that so heavy a mass of machinery could never answer in the long run, even had it made an admirable performance at first. Engineers generally agreed that it would knock itself to pieces in too short a period to be profitable. When the disappointed public in the trial field first heard how USHER was "foundered by the way," a witty wight suggested that BOYDELL should fetch him up; and, indeed, we are of opinion that the "endless railway" might be adapted to USHER'S engine with considerable advantage. At present, however, we see little hope of locomotive steam-engines being made by any contrivance to operate with economy upon the soil. All practical men know the excessive wear and tear of ordinary portable as compared with fixed engines; though this is occasioned by their travelling only to and from their place of work. An engine always travelling—not empty but working at the same time, must be in much more unfavourable circumstances; and having continually to traverse the uneven surface of arable land, must be greatly more liable to every species of derangement.

As far, then, as invention has yet progressed, we possess no effectual means of tilling the soil by the locomotive principle; for traction implements it is impracticable; for rotary tillers both cumbrous and costly.

On the other hand, the principle of actuating a travelling implement by a stationary engine has been proved to be sufficient for all the purposes of steam-culture; and in another article we hope to show how FISKEN'S steam plough demonstrates this truth.

In the meantime, it may be said "BOYDELL'S and USHER'S schemes may be improved upon." They may; but we believe that an extreme lightness of engine obtained by increasing the pressure of steam and the heat of the fire, or by employing mechanism of great delicacy, will tend only to augment danger and multiply the risk of derangement. Besides, logic applies the same apology to FISKEN'S method; improvements being just as likely to be made upon his principle as upon theirs; and the best horse now is ever the most probable sire of a best future progeny. *I. A. C.*

APPEARANCE OF THE CROPS.

THE FOLLOWING ARE ANSWERS TO A CIRCULAR DATED AUGUST 11.

COUNTY.	WHEAT.	BARLEY	OATS.	BEANS.	PEAS.	GREEN CROPS	POTATOES.	HARVEST TIME.	NAME AND ADDRESS.
SCOTLAND.									
ROSS	Middling	Good	Good	Good	.....	Promising	Look well	September 1	K. Murray, Lochlin
INVERNESS	Good	Light	Light	Good	.....	Very good	Good	September 1	J. Mackenzie, M.D., Ellemore
ABERDEEN	.....	Average	Very good	.....	.....	Luxuriant	Good	September 15	J. M'Donald, Huntly
FORFAR	Damaged; aver.	Under average	Under average	Good	.....	Good	Excellent	September 1	W. Smith, Brechin
	Fine crop	Average	Very light	.....	.....	Fine	Fine	September 1	Alex. Bell, Montrose
	Over average	Average	Under average	Excellent	Excellent	Full crop	Excellent	10 days late	R. Colville, Cairnton
FIFE	Hardly average	Full average	Under average	Over average	Over average	Over average	Over average	September 10	J. Haxton, Drumnod
	Fair; slightly hurt	Over average	Much under aver.	Full	.....	Great bulk	Flourishing	End of August	W. Veitch, Kinghorn
MORAY	Average	Over average	Various	.....	.....	Over average	Superior	September 1	J. Hamilton, Forres
	Average; laid	Average	Near average	Average	Average	Unequal	Luxuriant	End of August	P. Edie, Abernethy
RENFREW	Thin & under aver.	Fair average	Good average	Full average	.....	Strong	Luxuriant	September 1	G. Boyd, Renfrew
LANARK	Under average	Good	Heavy	Excellent	Good	Very fine	Abundant	September 1	D. Gairdner, Hamilton
AYR	Average; various	Good	Various	Good	.....	Very good	First-rate	September 1	A. Ralston, Ayr
MID-LOTHIAN	Bulky; laid	Much down	Middling	Luxuriant	.....	Promising	Most luxuriant	September 1	J. Melvin, Rutho
EAST LOTHIAN	Bulky, but 1-5th deficient by fly	Very fine	Good	Too bulky	.....	Excellent	Magnificent	August 27	G. Hope, Drem
ROXBURGH	Full average	Average	Under average	Average	Average	Very good	Looking well	September 5	P. Brodie, Selkirk
	Average; laid	Average; laid	Under average	Average	Average	Full average	Over average	September 8	J. Thomson, St. Boswell's
SELKIRK	Full average	Average	Average	.....	.....	Look well	Very good	.....	J. Stalker, Galashiels
BERWICKSHIRE	Bulky; badly laid	Bulky; laid	Bulky; laid	Bulky	.....	Hay bad; Turnips good	Never better	September 1	J. Wilson, Edington
	Average; laid	Average; laid	Average; laid	.....	.....	Average	Over average	Middle of Sept.	G. Logan, Greenlaw
WIGTON	Average	Good	Under average	Average	.....	Never better	Good	September 1	A. H. M'Lean, Auckneel
DUMFRIES	Thin; under aver.	Good; over aver.	Average	Very good	.....	Luxuriant	Excellent	September 8	W. Thomson, Dumfries
	Good	Fair crop	Average	.....	.....	Good	Very good	September 8	J. Little, Langholm
ENGLAND.									
NORTHUMBERLAND.	Great; much laid	Large; all laid	Under average	Very great	Great	Hay light	Splendid	September 1	P. Nairn, Warm Mills
	Average; laid	Good; laid	Good; laid	Good	Fair	Promising	Very good	September 1	J. Thomson, Coldstream
	Heavy	Good	Fair	Good	Good	Good	Good	Middle of Sept.	W. Glover, Newcastle
CUMBERLAND	Exceedingly bad	Average; much laid	Various	Over average	.....	The best	Excellent	September 1	T. Gibbons, Longtown
	Under average	Over average	Over average	.....	.....	Excellent	Superior	Late	S. Rigg, Wigton
	Under average	Pretty good	Good	.....	.....	Very good	Look well	September	T. Donald, Carlisle
	Various	Good	Average	.....	.....	Very good	Good	Middle of Sept.	G. Smith, Lechan
	Under average	Full	Average	.....	.....	Good	Luxuriant	September 10	J. Crosby, Kirkby Thore
WESTMORELAND	Average	Good	Good	.....	.....	Very good	Good	Middle of Sept.	J. Robinson, Warcop
	Under average	Average	Average	Good	.....	Very good	Promising	September 1	——, Milnthorpe
	Good and full	Very good	Very full	Full	.....	Very good	Good; diseased	End of August	W. Key, Kasterton Hall
DURHAM	Uneven	Pretty good	Good	Good	Good	Average	As last year	Late in Sept.	R. B. Dixon Darlington
	Under average	Good	Good	Middling	Bad	Favourable	Promising	September 20	J. Bell, Durham
	Various	Over average	Hardly average	.....	.....	Hay spoiled; Turnips good	Very good	End of Sept.	——, ——
LANCASTER	Good	.....	Good	Good	.....	Good	Excellent	September	M. Saul, Garstang
	Laid; various	Good	Good	.....	.....	Very good	Very good	August 25	S. Drewry, Holker
	Thin; or laid	Good	Good	Good	.....	Good	Luxuriant	September 1	F. Twining, Standish
	Under average	Much laid	Rather light	Good	.....	Promising	Good; diseased	September 1	J. A. Patterson, Ulverston
	Very good; laid	Good	Very good; laid	Good	.....	Fair	Very good	Middle of Sept.	E. Evans, Wigan
YORKSHIRE	Good; partly laid	Good; coarse	Over average	Bulky	.....	Luxuriant	Luxuriant	September 1	H. Briggs, Waterford
	Very much hurt	Pretty good	Various	Bulky	Bulky	Bad	Pretty well	Middle of Sept.	T. Parrington, Redcar
	Over average	Very good	Good	Good	Good	Good	Good	End of August	——, Askem
	Average	Over average	Under average	Average	Promising	Various	Promising	3d week of Sept.	——, Bedale
	Much laid and hurt	Much laid	Light; lodged	Good	.....	Various	Weak	September 1	P. Stevenson, Thirsk
	Laid; average	Laid; average	Good	Splendid	Hurt	Good	Good	September 1	J. Oldroyd, Barnsley
	Abundant; laid	Laid	Laid	Good	.....	Thin	Unusually good	Late	J. Horsfall, Wharfedale
CHESHIRE	Bulky; laid	Great; laid	Average	.....	.....	Various	Luxuriant	End of August	W. Palin, Stapleford
	Much laid	Very much laid	Good	.....	.....	Hurt by wet	Promising	End of August	R. Owen, Tarporley
	Good	Good; laid	Good; laid	Very good	.....	Promising	Not good	Beg. of Sept.	H. Tipping, Warrington
LINCOLN	Rather thin	Heavy; laid	Good	Good	.....	Good	Good	Beg. of Sept.	Croft Sharpley, Louth
	Very thin and laid	Heavy; laid	Light	.....	.....	Various	.....	.....	E. Darby, Greetham
	Full; partly laid	Good	Full crop	Splendid	Good	Too much rain	Good	September 1	J. Clarke, Long Sutton
	Various	Average	Average	.....	.....	Good	Good	End of August	F. Sowerby, Grimsby
RUTLAND	Good	Good	Good	Very good	Good	Good	Good	August 25	W. Fancourt, Empingham
DERBY	Good; late; laid	Very good	Average	Good	Fair	Good	Fine	August 20	——, Derby
	.....	.....	Fair	.....	.....	Very good	Very good	Middle of Sept.	D. Swaffield, Ashbourne
	Not average; laid	Heavy	Good	.....	.....	Pretty good	Very good	September 10	J. Pachin, Wirksworth
NOTTS	Average	Good	Average	Various	Light	Good	Very good	End of August	C. Walton, Newark
	Various	Heavy	Good	Good	Good	Late	Diseased	August 20	T. Stafford, Mainham
	Under average	Heavy; laid	Average	Poor	Fair	Weedy	Splendid	September 1	J. Young, Coddington
SALOP	Under average	Pretty good	Various	.....	.....	Good	Well	September	W. Minor, Market Drayton
	Average	Average	Average	.....	Good	Hurt	Healthy	Middle of Sept.	H. Davis, Little Wenlock
	Very thin	Heavy; laid	Heavy; laid	Good	Good	Promising	Good	.....	——, Shiffnal
	Under average	Good	Very good	.....	.....	Late	Diseased	September 1	E. Bowen, Ludlow
LEICESTER	Average	Unequal	Light	.....	.....	Under average	Good	End of August	G. Townshend, Hinckley
	Good	Good; laid	Good	Very good	Good	Very good	Good	September 1	T. Spencer, Knossington
NORTHAMPTON	Various	Good; laid	Good	Various	Foul	Good	Good	August 20	J. Whitwell, Peterborough
	Under average	Average	Average	Average	.....	Various	Good	August 20	W. Gray, Northampton
STAFFORD	Full; laid	Full; coarse	Very good	Good	Various	Late; foul	Very good	September 1	J. B. Smeeton, Welford
	Average; laid	Good	Very good	.....	.....	Very good	Good	End of Sept.	J. Johnston, Tunstall
WARWICK	Under average	Very good	Very good	Good	Good	Very good	Much diseased	August 30	J. Aston, Ashley
	Doubtful	Average	.....	Under average	Over average	Bad	Various	August 23	W. Gibbs, Stratford
	Good; laid	Over average	Average	Average	Average	Hurt	Luxuriant	End of August	J. Lane, Goodrest
	Average; laid	Heavy	Average	Indifferent	Very good	A failure	Promising	August 25	J. Ford, Newbold Pacey
	Under average	Good	Good	Average	Average	Bad	Good	End of August	J. H. Burbery, Kenilworth
	Average; hurt	Average; laid	Average; laid	Good	Hurt	Late	Good	August 27	W. Aitcheson, Berkeswell
	Average	Over average	Over average	Average	Average	Various	Good	End of August	J. Burbery, Wootton Grange
WORCESTER	Magnificent	Splendid	Abundant	Various	Excellent	Deficient	Good; blighting	August 20	H. Hudson, Pershore
	Fair average	Over average	.....	Fine	Fine	Promising	Large	August 20	R. Smith, Droitwich
	Full average	Heavy; laid	.....	Various	Over average	Deficient	Full crop	August 20	J. W. Fletcher, Worcester
	Fair average	Very good; laid	Good	Fine	Good	Turnips bad	Good; diseased	August 18	F. Woodward, Pershore
	Much laid	Very good	Good	Hardly average	.....	Late	Very good	August 25	C. Randall, Evesham
HEREFORD	Various; laid	Good	Average	Various	Average	Bad	Average	End of August	P. N. Edwards, Brinsop Court
	Very good	Good	Good	Bad	.....	Bad	Excellent	August 20	H. Pride, Monmouth

APPEARANCE OF THE CROPS—*Continued.*

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	GREEN CROPS	POTATOES.	HARVEST TIME.	NAME AND ADDRESS.
ENGLAND									
HEREFORD—*Continued*	Heavy; laid	Very good	Very good	Various	Various	Bad	Very good	September 1	C. Andrews, Laysters
	Aver.; much hurt	Bulky; laid	Good	Various	Bulky	Irregular	Good	August 20	———, Leominster
	Very good; laid	Very good	Very good	Various	Good	Bad	Very good	August 23	W. Bennett, Leominster
	Bulky; hurt	Over average	.....	.....	Not good	Various	Good; diseased	End of August	W. Price, Ross
	Good till laid	Hurt	Good; hurt	.....	Blighted	Bad; foul	Blight	August 24	J. Muscott, Leominster
MONMOUTH	Over average; laid	Very good	Good	.....	Fair	Hurt	Very good	End of August	———, Abergavenny
	Good; partly laid	Good; laid	Good	Fair	Good	Various	Good	August 25	T. Dyke, Monmouth
	Very good till late	Good; laid	Good; laid	.....	.....	Various	Good	August 24	G. R. G. Relphe, Usk
GLOUCESTER	Various	Good	Good	Under average	Good	Late	Great; diseased	August 24	J. Kearsey, Tarlton
	Under average	Bulky	Good	Average	Good	Various	Good; blighted	August 25	G. N. Hulbert, Bagenden
	Average	Average	Average	Over average	Over average	Swedes bad	Good; diseased	August 16	J. Hunt, Almondbury
	Laid; ears not well filled	Average	Good	Average	Very good	Late	Productive	September 1	J. F. Peacy, Winchcomb
OXFORD	White; indifferent	Fair	Good	Good	Fair	Indifferent	Good	August 20	S. Druce, jun., Eynsham
CAMBRIDGE	Very light in Fens	Much laid	Various	Not good	.....	Turnips hurt	Very good	August 20	A. S. Ruston, Chatteris
	Over average	Very good	Good	Not average	Moderate	Very good	Good	August 15	Page Howard, Granchester
HUNTS	Good	Good	Good	Average	Average	Good	Good	August 25	R. Beart, Godmanchester
	Very good	Very great	Good	Average	Average	Indifferent	Very fine	August 20	P. Purves, Brampton
	Luxuriant; various	Heavy; laid	Promising	Good	Average	Various	Large	August 20	W. G. Duncan, Bradwell
	Full average; unsound	Good	Very good	Various	.....	Deficient	Good	August 20	Alexander Fraser, Claydon
	Average; partly diseased	Average	Good	Various	Various	Too late	Good	August 20	R. Vallentine, Wing
BEDFORD	Average	Great; laid	Good	Average	Good	Not good	Good	August 20	W. Lavender, Biddenham
HERTS	Various	Good; laid	Very good	Various	Good	Very deficient	Fair	August 15	——, St. Albans
	Good; indication of blight	Very good	Very good	Good	Fair	Excellent	Good	August 21	C. H. Humbert, Watford
NORFOLK	2-3ds thin and mildewed; 1-3d good	Laid; various	Short; good	Under average	Well podded	Various	Good	End of August	T. Brown, Downham
	Aver.; mildewing	Over average	Good	Good	Good	First rate	Blighting	End of August	W. Cubitt, near Walsham
	Thin; mildewed; deficient	Good	Average	Average	Average	Good	Diseased	August 27	J. Hill, Bristow
	Average; mildewed	Very good	Good	Good	Good	Good	Good	August 20	J. Smith, Croomthorpe
	Under average; blight	Large; laid	Full average	.....	Failure	Various	Blighting	August 20	H. Taylor, Dilham
SUFFOLK	Under average	Good; laid	Generally good	Good	Good	Good	Good	August 20	G. Edwards, Framlingham
	Under average	Generally good	Very good	Average	Various	Suffering	Full	End of August	C. Gibson, Wayford
	Hardly average	Large; laid	Very excellent	Good	Good	Various	Diseased	August 25	G. Fenn, Beccles
	Under average	Under average	.....	Good	Average	Hurt by wet	Diseased	Middle of August	C. Welton, Wickham Market
	Average, if fine	Coarse	Various	Blighting	Injured	Various	Diseased	August 20	H. Edwards, Woodbridge
	Average	Bulky; injured	.....	Various	Good	Various	Good	August 23	J. G. Cooper, Saxmundham
	Average	Over average	Over average	Fair	Fair	Various	Blighting	August 28	L.O.Cottingham, Leiston Hall
ESSEX	Over average; blighted	Good; coarse	Good	Average	Average	Various	Some disease	August 13	W. Hutley, Witham
	Good; much laid	Laid; hurt	Good	Various	Various	Good	Good	August 15	C. Hall, Romford
	Average	Laid; good	Fair	Not good	Pretty well	Doing well	Good	August 20	A. Barfield, Dunmow
	Variable; average	Full; inferior	Full	Average	Hardly average	Various	Promising	August 20	R. Baker, Writtle
	Not over average; hurt by insects and fungi	Good; laid	Shot; corny	Partial	Good	Good; flat	Diseased	August 15	W. F. Hobbs, Colchester
WILTS	Hurt; not average	Pretty good	Pretty good	Good	Good	Very bad	Very good	Late	J. R. Maskelyn, Calne
	Average	Full; laid	Average	Good	Good	Average	Blighting	August 25	S. Brown, Avebury
	Bad colour; various	Heavy; laid	Very good	Good	Very good	Various	Blighting	August 27	T. Chandler, Aldbourne
	Various; under average	Bulky; laid	.....	Various	.....	Late	Good; diseased	August 23	T. Arkell, Swindon
	Laid; average	Average	Good	Various	Average	Under average	Good; blighting	August 15	J. Charles, Chippenham
SOMERSET	Good; laid	Very good	Average	Various	Average	Various	Blighting	September 1	C. P. Collyns, Dalverton
	Tolerable	Fair	Fine	Blighted	.....	Various	Blighting	End of August	H. Cottrell, Congresbury
BERKS	Under average	Hurt; laid	Average	Average	Average	Various	Blighting	August 25	E. W. Moore, Coleshill
	Average	Over average	Over average	Over average	Over average	Low estimate	Blighting	August 16	J. Adnams, Newbury
	Good; average	Good; average	Very large	Good	Various	.....	.....	.....	Sutton & Sons, Reading
MIDDLESEX	Laid; hardly average	Laid	Various	Various	Bad	Various	Good	August 20	——, Uxbridge
SURREY	Hurt	Good	Good	Healthy	Mildew	Various	Good	End of August	E. J. Lance, Frimley
	Average	Good	Average	Good	Good	Various	Good; blighting	August 20	J. M. Paine, Farnham
KENT	Over average	Over average	Over average	Average	Very good	Good	Blighting	August 20	——, Sittingbourne
	2-3ds of last year	Over average	Over average	Under average	Much under avg.	Good	Blighting	August 16	R. Matson, Wingham
	Nearly average	Good; laid	Full average	.....	Good	Hurt	Blighting	August 23	M. Sandford, Dover
SUSSEX	Much hurt	Average	Good	Good	Good	Partial	Good	August 15	H. S. Hayward, Folkington
	Under average	Heavy; laid	Very good	.....	Good	Good	Blighting	August 15	H. F. Sadler, Chichester
HANTS	Average	Nearly average	Over average	Near average	Average	Inferior	Very good	August 25	J. Brotherston, Robertsbridge
	Blighted	Good	Good	Not good	Not good	Average	Good; blighting	August 20	J. Eames, Lymington
	2-7ths under avge.	Average	Under average	Average	Average	Indifferent	Promising	August 15	J. S. Twynam, Winchester
	Average; blighting	Average	Average	Under average	Good	Various	Blighting	August 20	J. W. Clarke, Romsey
	Average	Over average	Over average	Average	Average	Average	Diseased	August 13	J. Blundell, Bursledon
	Average; various	Heavy; laid	Good	Good	Good	Good	Good	August 16	H. Raynbird, Basingstoke
DEVON	Average	Good	Good	Pretty good	Pretty good	Various	Diseased	August 16	W. C. Spooner, Eling
	Average	Average	Average	.....	.....	Irregular	Blighting	September	T. Michelmore, Totness
	Average; hurt	Full	Average	.....	.....	Bad	Little hurt	End of August	J. Benson, Tavistock
	Under average	Average	Average	.....	.....	Various	Much hurt	End of August	G. Langdon, Barnstaple
	Much hurt	Average	.....	.....	.....	Various	Blighting	End of August	S. Cornish, Kingsbridge
	Doubtful	Average	Full	.....	.....	Various	Good	September	G. W. Fowler, Dartmoor
DORSET	Rather over avrge.	Average; laid	Average	.....	.....	Good	Blighting	August 20	R. Damer, Wareham
	Much laid	Laid	Good	Good	Good	Promising	Blighting	August 20	J. Pope, Bridport
	Generally good	Good	Good	.....	.....	Good	Blighted	August 17	——, Corfe Castle
CORNWALL	Much laid; rust	Good; rust	Good	Good; rust	Good; rust	Late	Blighted	August 25	J. Furmedge, Beaminster
	Various	Coarse	.....	.....	.....	Late; various	Blighting	August 12	W. Elliott, Lanhulph
	Thin; good	Not average	Over average	.....	.....	Various	Blighting	End of August	G. Andrew, St. Austle
	Average	Average	Good	.....	.....	Poor	Blighted	August 23	J. Wills, Launceston
	Generally thin; laid	Not good	Fair	.....	.....	Various	Blighted	August 22	H. Tresawna, Probyn
	Thin; rusted	Thin	Average	.....	.....	Good	Diseased	End of August	J. Michell, Truro
	Average	Good	Good	.....	.....	Rust	Diseased	September 6	W. F. Karkeek, Truro
WALES									
CARMARTHEN	Fair average	Under average	Very good	.....	Bad	Various	Promising	End of August	J. Barnell, Llanelly
DENBIGH	Hurt, under aver.	Average, hurt	Average, injured	Average	Not average	Good	Looks well	September 15	E. H. Griffiths, Plasnewyd
CARNARVON	Good	Good	Good	Good	Good	Good	Good	End of August	J. Williams, Bodafr
IRELAND									
DOWN	Very fair; laid	Fine	Light	Very fine	.....	Promising	Luxuriant	September 1	J. Andrews, Comber
ANTRIM	Thin; good	Very good	Excellent	Very good	.....	Very fair	Good; diseased	September 1	R. R. Haughton, Lisburn
BOYLE	.....	.....	Very good	.....	.....	Good	Good	August 12	J. Knott, Battleford
DERRY	Very fine	Very good	Good	Very good	.....	Magnificent	Fine crop	August 22	S. Orr, Coleraine
TYRONE	Various	.....	Full average	.....	.....	Luxuriant	Good	.....	J. Knox, Strabane
	Pretty good	Very fair	Prime	.....	.....	Average	Good	End of August	A. C. Buchanan, Omagh
	Light	.....	Light	Average	.....	Good	Luxuriant	End of August	R. Smith, Stewartstown
MONAGHAN	.....	.....	Good	.....	.....	Good	Luxuriant	.....	G. B. Coulter, Castleblaney
CAVAN	Very fine	.....	Very fine	.....	.....	Fine	Good	September 1	J. A. Nesbitt, Belturbet
	.....	.....	Very good	.....	.....	Very good	Luxuriant	September 1	J. A. Goodiff, Scrabbey
LEITRIM	Good	Promising	Weighty	.....	.....	Very good	Blighting	September 6	J. Lindsay, Manor Hamilton
MAYO	Very good	Good	Middling	.....	.....	Very good	Excellent	End of August	W. B. Storey, Castlebar
	Excellent	Average	Excellent	.....	.....	Excellent	Excellent	September	A. S. Parkins, Killala
	Under average	Average	Over average	.....	.....	Fair	Excellent	September 8	G. Hildebrand, Westport
ROSCOMMON	Injured	.....	Heavy	.....	.....	Good	Never better	September 8	D. Boyd, Carrick-on-Shannon
	Good	Light	Good	Damaged	Damaged	Very superior	Good	Middle of Sept.	J. Kelly, Roscommon
MEATH	Average	.....	Very good	.....	.....	Average	Very fair	August	E. Beuley, Navan
WESTMEATH	Good	.....	Average	.....	.....	Very good	Diseased	September 10	W. Newburn, Gigbrook
	Good	Good	Very good	.....	.....	Very good	Very good	September 8	R. Bagnall, Tyrrell's Pass
GALWAY	.....	Middling	Good	.....	.....	Excellent	Very good	September 10	J. Ellis, Letterfrack
CARLOW	Various	Hurt	Very good	.....	.....	Magnificent	Great	September 1	J. De Renzy, Clonegal
	Good	Laid	Much laid	Good	.....	Promising	Partly hurt	End of August	P. B. Mosse, Carlow
	Heavy laid	Good	Heavy, blighting	.....	Fair	Excellent	Blighted stalks	End of Sept.	E. Carroll, Clonegal
KILKENNY	Average	Average	Very good	.....	.....	Very good	Blighted	September 1	D. A. Milward, Tullogher
TIPPERARY	.....	.....	Excellent	.....	.....	Very good	Stalks hurt	.....	J. R. Massey, Ballywire
	Good	Good	Good	.....	.....	Excellent	Very good	August 20	W. Ryall, Cashel
CLARE	Heavy laid	Much laid	Heavy laid	.....	.....	Very good	Leaf hurt	August 25	W. Digan, Killaloe
WEXFORD	Good	Hurt	Good	.....	.....	Late	Leaf hurt	September 1	A. Preston, Enniscarthy
KERRY	Very good	Very good	Very good	.....	.....	Good	Slight blight	September 1	J. Creagh, Tarbet
	Good	Good	Good	.....	.....	Good	Very bad	September 8	J. O'Sullivan, P.P., Keamare
CORK	Fair	Good	Very good	.....	.....	Middling	Very fine	August 24	D. Barclay, Blarney
	Good	Very good	Very heavy	.....	.....	Very good	Leaf blighted	September 1	T. C. Cole, Innisshannon
	Over average	Abundant	Very good	.....	.....	Good	Leaf blighted	September 1	F. A. Twinam, Kanturk
	Partly hurt	Favourable	Good	.....	.....	Looks well	Leaf hurt	End of Sept.	S. Piddell, Kilderrery
	Very good; laid	Tolerable	Very fine	.....	.....	Very good	Large; blighting	August 20	L. Clanchy, Charleville

THE SHOW OF HORSES AT CARLOW.

A stranger on first landing in Ireland is struck with surprise at the number of plain under-sized inferior horses, which are to be seen in the cars and other vehicles in the public streets, and he looks in vain for the massive forms of the English cart-horse. The Agricultural Improvement Society of Ireland, impressed with the importance of improving the breeds of agricultural horses, devote no less than six prizes to the purpose at the late Carlow show, scarcely inferior in amount to those offered by the Royal Agricultural Society of England :—

Section I.—For the best stallion of any breed for agricultural purposes, foaled on or after the 1st of January, 1848, and previous to the 1st of January, 1853. In this class there were 16 entries, and there ought to have been more, considering that two prizes were 30*l.* and 10*l.* Of these about one-half were of the Clydesdale breed, and although we should certainly like to have seen some specimens of the other English cart breeds, and particularly of the Suffolk Punch, yet we must confess that there is no description of horse better calculated either to breed a distinct breed or to improve the native breeds for purposes of draught than the Clydesdale; no other will assimilate so well with lighter mares, or less frequently produce those anomalous specimens which are so frequently the offspring of violent crosses. The Clydesdale is naturally an active animal, and therefore will improve without spoiling small and active breeds. It must not, however, be inferred that every Clydesdale is adapted for this purpose, or even that the majority of those either kept at home or sent out of their native shire are so suited. We must have none of the flat-sided, long-backed, long-legged animals that are often sold for high prices on account of the name, but a short-legged, compact, strong, and active animal, which good judgment can select and money can purchase. If such an animal is a Clydesdale so much the better. It was just such an animal that obtained not only the first prize but the medal, as being the best horse in any class. The owner was a Scotch farmer settled in Ireland, Mr. Selvester Rait, and who appears to have been a prize winner also in other classes. The horse was active, strong, and compact; not too large, dark brown in colour, and with much symmetry. The second prize was also taken by a Clydesdale belonging to Mr. John Pearson Bewley, a nice symmetrical animal, whilst a very superior brown horse of the same breed, No. 145, was highly commended, and would, no doubt, have received a prize if one or two exceptions had been passed over. No. 150, another Clydesdale, was commended. Several horses in this class were too light, and some too leggy.

Section II.—Of 2-year-old cart stallions there were ten entries, the first prize being awarded to Mr. S. Rait for a very superior brown Clydesdale colt, that bids fair to rival the winner in the first class. The second prize was given to No. 168, a fine young horse, but rather adapted for carriage than cart work, although quite as heavy (or more so) as the generality of farm horses in Ireland; the owner, Captain M'C. Bunbury, R.N. Some animals in this class were faulty and inferior.

Section III.—Draft mares in foal, or with foal at foot, or having reared a foal in the year 1855. The first prize of 10*l.* was taken by Mr. Rait, for a Clydesdale mare in foal, a very fine mare, and well calculated for breeding superior animals. A chesnut mare with a fine foal by her side was highly commended. The mare was a strong, useful, and active mare, but rather coarse, and with too much white about her legs. No. 176, a very compact, strong, and symmetrical grey mare, with a very pretty foal, belonging to Mr. James Hobson, was commended; as well as a fine old grey mare, No. 175, belonging to Mr. Thomas Butler. There were also several other useful mares in this class.

The prizes were withheld from Section IV., 3-year-old fillies, on the ground of want of sufficient merit. There were only four shown, and with the exception of one rather fine filly, No. 187, which was unrewarded for particular reasons, the animals were inferior. We doubt the propriety of offering a prize to this class at all: we think the money can be much better bestowed.

Section V.—The 2-year-old class afforded more promise certainly. There were 9 entries, and the prize was awarded to No. 194, a Clydesdale filly, belonging to Mr. James Kerr; whilst the second prize was taken by a promising Cleveland filly, belonging to Mr. James Waldie. No. 193, a very strong and compact black filly, belonging to Mr. James Cannon, was highly commended. No. 196, a Clydesdale cart filly, belonging to Mr. Peter B. Mosse, was commended; as well as 197, the property of Mr. E. B. Swift. It is interesting to note that No. 196, as well as the prize winner 194 were got by the prize horse (Glancer) in the first section.

Section VI.—For draft fillies foaled in 1854. The prize was given to No. 200, a draft filly belonging to Mr. James Kavanagh; and the second to No 202, belonging to Mr. John Ronaldson, both Clydesdales. No. 205 was commended. In conclusion the writer would beg to make the following suggestions: 1st, the horses and mares should be shown in roomy boxes instead of narrow stalls, so that every countryman should be able to carry away with him in his mind a correct outline of the best form of animal to propagate or to purchase. 2d. We would recommend that prizes should be given to the best stallion and mare calculated for breeding horses for the cavalry. Ireland with its extensive pastures and with its native breed of horses, now we fear degenerated but susceptible of so much improvement, is peculiarly adapted for this purpose. It is unnecessary to describe further the sort of animal required, as it is evident that he must be of a good height, strong, safe, and active, and with a fair amount of breeding. Such an animal would always command a market, not only in the army, but for numerous other purposes, and would also be available, until sold, for all the farmer's requirements.

If the funds of the Society are not sufficient, we think for such a purpose the sections for 3-year-old and yearling fillies may be dispensed with; indeed, we can see no good reason why double the number of prizes should be given, as at present, to mares and fillies over that of horses. *H. C. S.*

THE PRIZE LIST AT CARLISLE.

It certainly appears extraordinary that Scottish farmers, not usually deficient in enterprise, nor unmindful of their own interest, should neglect the favourable opportunity offered by the meeting of the Royal Agricultural Society at Carlisle of bringing their valuable local breeds—and especially Galloways and Ayrshires, of which the Scottish border counties are the head quarters—under the notice of English and foreign buyers, and of probably originating an extensive and important English and export trade in these breeds.

I believe the explanation may be found in the offence which I *know* has been taken by breeders in Dumfriesshire, and I believe in Galloway and Ayrshire also, at the Royal Agricultural Society, for adhering to their usual schedule of prizes for short-horns, Herefords, and Devons only, in a district where a Hereford or Devon is quite as great a rarity as an elephant or a rhinoceros. True, the show of these breeds at Carlisle was excellent, and thousands had an opportunity of becoming acquainted with their merits who had never before seen a single specimen of either: but, like "the fine old English gentleman all of the olden time,"

"Who while he feasted all the great,
He ne'er forgot the small,"

the Royal Agricultural Society of England, whilst supporting the great breeds of the country, should adapt her schedule of prizes to the district in which the meeting may take place, encouraging also those breeds which long experience has proved to be suitable to it, and not leaving them to the accident of local or special prizes. The attendance at Carlisle is an evidence of the warm interest which the northern farmers take in the success of the Society, and of their appreciation of he great benefits which she has conferred on agriculture.

In conclusion, I venture to suggest to the two great national Societies whether it would not conduce to the advantage of the farming interest on both sides of the border to combine once in ten years to have a great national show, alternately in England and Scotland. Their combined resources, aided, no doubt, by contributions from numerous local societies, and supported by the railway interest throughout the country, would produce a show surpassing all precedent. *A Northern.*

Home Correspondence.

Turner's Corn Mill.—In your notices of implements at the Carlisle Meeting you conclude your remarks upon our patent combined crushing and grinding mill with the observation—"The mill was too complicated, we thought." Being a new implement we are anxious to correct, by a little explanation, the impression its appearance has thus created. We have found by repeated experiments that there is a decided advantage obtained by first crushing the corn intended for grinding; but there is obvious inconvenience in passing the corn through an independent crushing mill, and then conveying it to the stones. To secure the advantages only, we have in our combined mill simply placed a pair of crushing rollers over a small pair of stones. No machine can be more simple than our ordinary crushing mill, and the stones in the grinding mill drive in the usual way by placing the one over the other, so that the corn as it falls from the rolls passes directly into the eye of the stones (motion to the rolls being obtained by a single strap from the horizontal spindle of the grinding mill). There can be, in reality, no complication—particularly as the independent action of either mill is preserved, the rolls admitting of being used for crushing Oats, malt, or Linseed, &c., whilst the stones are still, and the stones also without the action of the rolls, perfect facility being also secured for getting at the stones without interfering with the rolls beyond removing the frame in which they work, which is effected in two minutes, and replaced as quickly. Setting aside the advantages we claim from the combined processes, its adaptability as a crushing as well as grinding mill will, we anticipate, prove it to be really valuable. *E. R. & F. Turner, Ipswich.*

Autumn Digging of Potatoes.—The tubers of Potatoes have attained the ripened condition in the month of October over the greater part of the United Kingdom. There is less difference caused with the ripeness of Potatoes by early and late climates, or southern and northern situations in Britain, than in the case of grain crops, which are more susceptible of external impressions, and are more regulated by climatic affections. Potatoes contain a very large assemblage of field and garden varieties which exhibit an earliness or lateness in being ripened, and are used accordingly. The sorts that are grown in the fields of the farm are found in two large divisions, kidney shapes and round eyes, which are in many colours, derived and continued from accidental circumstances. The kidneys are the earlier in maturity, but the least prolific; the stems are weaker, and sooner decay. The round shapes are most abundant in produce, and strong in the stems; later in ripening than the kidneys, but not so distant as that one time of digging does not answer for both varieties. The stems are generally green, at least in the tops, when the kidneys are wholly decayed, and a half-way decay of the stems usually marks the time of raising the crops of roots. Two particular methods are adopted in digging from the ground the tubers of Potatoes on farms that produce a very considerable quantity of the vegetable. One way appoints a man to dig each drill of Potatoes with a spade or fork, which throws off its load of earth and Potatoes, the latter being gathered into a basket by a lad or woman, who is appointed to each digger. The stems are pulled by the hand of the gatherer from the raising by the spade, shaken from the soil and tubers, and thrown into heaps, then into carts, and carried from the field. The tubers are placed from the baskets into carts that are conveniently set down on the field, and conveyed to the place of winter accommodation. The field is now cleared of roots and tops, is harrowed in order to find any stray tubers, ploughed, and sown with Wheat, or lies over winter for spring Barley. The other method sends forward one-horse carts that are followed by a gang of workers, who pull the stems of the Potatoes, one to a drill, shake off the adhering earth and tubers, and throw them into the carts, which convey them away. Carts follow behind and receive the tubers from gatherers with baskets, which precede the carts to prevent the damage from wheels bruising the Potatoes lying abroad. The stems and tubers being thus removed, the common plough drawn by two horses having the coulter removed, lays over the drill of Potatoes by passing along the side or half way from the top of the ridglet to the bottom of the furrow. The tubers are thrown up and exposed to view, gathered into baskets, thrown into carts, and conveyed from the field. The harrows drag into view any stray tubers, level the inequalities, and the land is treated as before. The intervals between the drills of Potatoes having been wrought during summer by scufflers and horse hoed, the latter with duck feet, and the drills having been earthed up after all the operations of hoeing by a double mould-board plough with a long sole and cast-iron plate, the bottom will be hardened by the sledging action, in many cases refusing admission to the water that falls, and which runs to the end of the drills. When the Potatoes are raised from the ground by the plough this firm bottom of the intervals is not moved; the plough is directed along the ridglet and underneath the tubers with one furrow, which covers the loose soil; the intervals of the drills and the bottoms remain wholly untouched. In the case of the land being sown with autumn Wheat, it may be expected that the seed furrow will reach below this firm bottom, and raise the hardened soil into action; or it may slip over it, and leave the consolidation to exclude any percolation of air or moisture. When sown with spring Barley, the bottoms remain wholly unmoved; and though less objectionable on these light soils than on the heavy earths that are the proper lands for Potatoes, yet the benefit will be large that there be an open transmission of air and moisture through the greatest possible depth of ground. This object is most evidently not attained by the use of the plough in raising a crop of Potatoes from the ground. The following method is suggested in order to remove the objection of the land being made firm by the sledging action of the plough, remaining in that condition, and denying a passage to atmospheric elements. A man provided with the common three-pronged fork of the farm is appointed to each drill of Potatoes along with a woman or lad with a basket. The man digs the fork sideways into the ridge of tubers below one stem, which is held (if any) by the hand of the latter, pulled to assist the fork, and shaken by the hand from the attached roots and adhering earth, and thrown into heaps to be carted from the field. The tubers are gathered into baskets, which are emptied into carts on the field, and drawn to the stone pits. It is the most especial duty of the overseer of the gang of workers to attend that the consolidated bottoms of the intervals of the drills are dug by the fork in the depth of the length of prongs, and the earth laid in a level surface of trenched ground along with the loose dry soil that has formed the drill and contained the tubers. Along with the stems and roots there may be gathered and removed any weeds that may remain in the land from the fallowing during summer, and stones, also, if the time of sowing permits. A pronged fork is preferable to the spade for this purpose, as the wide blade of the latter tool cuts into slices the tubers as it is thrust into the ground, and the resistance of its use is greater to the workman. The three prongs of the fork pass easily into the earth, and with less damage in cutting the roots, the pointed ends penetrate the subsoil and leave holes in the bottom into which air and moisture can enter. The earth is loosely raised and thrown aside, and the mould ground and the pierced subsoil are alike made porous. It is an essential condition that the entire ground is dug and raised by the fork—the top of the drills in one spit which throws out the tubers—another moves the side of the ridglet, and a third may be necessary to dig the bottoms of the intervals; all the spits must be close to the depth of the prongs, and narrow in width, not to break the tool in raising a heavy weight. *J. D.*

Tillering of Corn.—Interrogations are frequently put to us, will Barley and Oats tiller or branch as much as Wheat by being planted early, and singly, and thinly? Our answer is, that the former will, and the latter, we believe, will not. Oats however are decidedly the most prolific, containing many more grains in each ear than either Wheat or Barley, and require to be planted or sown equally as thin. Every perfect grain of Oats, sown at equal distances, with only half a peck per acre (not 3 bushels) by proper cultivation, and one essential point of this is to keep it clean, will not fail to produce five ears; this we believe cannot be denied, and each ear will be found to average 200 kernels or 1000 fold, equal of course to 1000 half pecks, or 125 bushels, or 15 qrs. 5 bushels per acre. Every grain of Barley too, planted at the rate of half a peck per acre in equal distributions, by superior culture, will not fail to produce 20 ordinary full ears, containing in each 30 grains, or 600 fold, and as a necessary consequence, equal to 600 half pecks, or 75 bushels, or 9 qrs. 3 bushels per acre. The Peruvian variety of Barley contains double an amount of grains in each ear than the common, and although smaller in size, it follows that this kind is much more productive and lucrative of the two, especially as it far exceeds all others in point of weight and nutriment. It is also earlier, but it is to be regretted that destructive birds will attack it in no small degree, as they do all early ripened corn. *Hardy & Son, Seedgrowers, &c., Maldon, Essex, July 26.*

Predatory Birds.—Parliamentary statistical reports for 1854 have been published, and it appears that the following numbers of acres under tillage for corn in England and Wales (to say nothing of Ireland and Scotland) was — Wheat, 3,807,846 acres; Barley, 2,667,776; Oats, 1,302,782; Rye, 73,731, making a grand total of 7,852,135, say 8,000,000 acres, by including all kinds of seeds. It thus follows that at this moderate estimation of 1 peck per acre only (and how often is there much more, nay even one-half of entire crops consumed, or spoiled on small plots, and in

cottager's gardeners) 2,000,000 bushels are actually destroyed by birds, &c., every year in these two countries! No mean consideration is this surely, in a time of scarcity, coupled with other sad wastes of corn, which we have alluded to in a former paragraph. *Hardy and Son, Seed-growers, &c., Maldon, Essex.*

The Wheat Midge.—I have not observed in your agricultural reports any allusion to the Wheat midge, whose orange-coloured maggot is making serious ravages in the Wheat crops here, and as far as I can learn, through a considerable extent of the Weald of Kent and the adjoining part of Sussex. Here I should say that the deficiency from this cause threatens to be something like from one-fourth to one-fifth, and if this is general through England, it will most seriously affect the favourable estimates you have given of our prospects for the coming year. Hoping that this will call forth notices of the prevalence or otherwise of this little pest from your numerous correspondents. *W. C. Morland, Lamberhurst.*

Wheat Crop, Berkshire.—These Wheat ears were gathered from separate pieces of Wheat, containing in all many hundred acres; only one ear from each separate piece. As compared with last year, they seem to be at least one quarter deficient. The district whence they were taken is on the upper green sand and gravels of the country, which are good Wheat lands. *James Clutterbuck, Long Wittenham Vicarage.*

Making Beer with Sugar.—The practice of brewing from a combination of sugar and malt is rapidly extending itself in this country, and would, no doubt, be universally adopted at the present time were it known how important a saving is thereby effected, particularly to individuals brewing for home consumption who do not pay the excise duty on sugar. The following table shows the comparative cost of malt and sugar.

Price of malt per quarter		70*s.* 0*d.*	
Deduct grains at 4*d.* per bushel		2 8	
			67*s.* 4*d.*
1¾ cwt. sugar is about equivalent to a quarter of malt.			
Take Madras at 31*s.* per cwt.	1 cwt.	31*s.* 0*d.*	
	½ do.	15 6	
	¼ do.	7 9	
			51*s.* 3*d.*

Saving to private brewers 13*s.* 1*d.* per quarter. Excise duty, 3*s.* 9*d.* per cwt.; equals on 1¾ cwt., 6*s.* 7*d.* Saving to licensed brewers, 6*s.* 6*d.* per quarter. A faulty mode of employing the materials has given rise to the idea that beer made from sugar will not keep. The principal error has been boiling the sugar with the wort. This is a great mistake; the sugar should never be boiled in any stage of the operation. The Hampshire farmers brew very generally from sugar, and I have heard of a brewery in one of the home counties where, in consequence of the use of sugar, the waste beer returned by customers during the year was so much reduced as to be barely sufficient for finings. I have myself tasted capital bitter beer made according to the subjoined recipe, the excellence of which consisted, as I was informed, in the length of time it would keep without becoming hard.

Recipe.—Boil 54 gallons of water in copper; run it into mash tub, and let it cool to 90° Fahr. Put in 4 bushels malt; let it stand three hours covered with sacks, &c., to keep in steam; run into underback, and immediately pump into copper. Mix and stir 8 lbs. Hops with it. Boil three hours; run in trough to cooler, mixing 25 lbs. sugar with hand in the wort as it runs along trough. Cool to 70°, and let down into working tub. This will make very strong beer. If ordinary beer is required make second wort in same way, with some malt and Hops and 25 lbs. more sugar. Cool separately, and mix with first wort in working tub. Put 1 pint yeast into flat bowl; put bowl in wort, so that wort can just touch yeast. Let work 12 hours, during which skim off yeast three times. Keep covered except when skimming, and rack off into casks in cellar. It may work a fortnight. Fill up casks every morning with what has worked out of cork hole into tub beneath. Skim before returning it to cask, and clean away all yeast which rises to top of cask through bung-hole. Put three or four handsful of dry Hops into cask through bung-hole, and bung it up. The sugar should be of a damp pasty quality, such as low Madras. *Another Method of Mixing.*—Immediately before running wort into cooler, take out of copper two pailsful of wort and empty into small cask; mix sugar with it. Pour back into copper, mixing thoroughly, and directly run off into cooler. Do not boil wort after sugar is added. *S. C., Inner Temple.*

Food for Young and Growing Stock.—The following is an answer to a question addressed to us by a correspondent. Calves at a month old, by the 1st of April, have proved to do well on half a pint of good Oatmeal, or the same quantity of Linseed mixed in a little cold water, and boiling water poured over it, making the half pint of meal or Linseed into two or three quarts of liquid. This should be mixed 12 hours before given to the calves, as it should stand this time, and the vessel being covered it will be found then of sufficient warmth. Best Scotch oatmeal is most economical, and is perhaps better than Linseed. It should be given at first with a small quantity of milk, or the calves having been fed previously only on this will not readily take to this food; together with this, hay and some roots are a good preparation for their taking to Grass. Six weeks of this feeding will suffice, giving them the mixture only once a day the last week, and lowering its quality, to wean them from it; and by this time they will take to Grass as their only and sufficient food, if good wholesome pasture. Water should only be given very sparingly when required from drought, and on no account should calves at Grass have unrestrained access to spring water. As the nights get cold in October, they should have a small quantity of hay, and the tops of Carrots or early Turnips will now forward their growth until December, when a regular supply of Swedes with chaff of Oat or Barley straw, will keep them in good growing condition until the time for grazing, or they might be kept well through the summer on chaff and a plentiful supply of Mangold Wurzel until early Turnips take its place. This treatment should be repeated the second year, unless steers are intended to be fattened at two years old; therefore in October, at one year and a half, or at two years and a half old, they should get chaff of good hay, with two quarts of Barley or other meal, either from Oats, Beans, or tail Wheat, or instead of meal 3 lbs. of oilcake, with as many Swedes as they will consume given them twice each day, with no water. Heifers should be kept on similar treatment until the last winter before calving, when roots are not needed, and can be given to greater advantage to other stock, as a plentiful supply of straw, and a little hay, for the last two months before calving, is more healthy and likely to avoid risk from inflammation. At this time good hay, good water, which is very essential, and good pasture, is the staple food for cows in milk and during the three months of winter, December, January, and February, during which time it is usual they are dry before calving. The straw-yard, as beforesaid for heifers, with a good supply, a stream of water, shelter, and a little hay added a month before calving, will keep cows in good condition. *C. C. M.*

Deep Draining.—I quite concur with Mr. Sherrard, p. 540, as to the efficiency of deep draining. This estate, the greater part of which is strong clay, has been thoroughly drained within the last five years with 4-feet drains and upwards, and the results are highly satisfactory. The average crop of Wheat prior to draining and deep cultivation was five sacks to the acre. Last year the average was ten, and it promises to be equally good this, the straw being stiff and ripening of a good colour, and not laid so much as in many places. One field in particular has passed all expectation. Being close to the covers, it was sown with tall Sunflowers; that crop not coming so well as could be wished, after the first hoeing half a bushel of Buckwheat was sown to the acre, which is now a most luxuriant crop, many of the stems being as large as the finger, and upwards of 4 feet high. *J. W., Bignor Park, Petworth.*

Mr. Mechi's Lecture at Carlisle.—On this gentleman's opinions at Carlisle it was objected that the rain-fall was too great in Cumberland to allow of threshing in the fields; surely the rain-fall in Ireland is equal to, if it does not exceed, that of Cumberland, yet many of the small farmers in Ireland, for want of barns, thresh out their corn (Oats) (Wheat is not grown by them or by those who are not rich enough to have such an accommodation) in the fields, or more generally on the highways. Thin and rank sowings also met with objections on the same ground, or rather the same water feeling, the greater humidity of the climate to that of Tiptree Hall, yet I have not found in Ireland thin and rank sowings, where the thinness of the sowing has been proportional to the rankness of the soil, so liable to lodge or be beaten down by our heavy rains and storms as thick sowings; indeed, it is a common remark on a thick sown field, that if the harvest comes wet it will be lodged and little worth, and also that in a thin sown field the head will make up for any deficiency of stock; and, indeed, in proportion to the thinness of the sowing so is the strength of the stem. Barley in rows, 21 inches apart, has in rank semi-garden ground been lodged with four-sevenths produce of grain and straw 4 feet long, where, with intervals of 42 inches and 21 inches, it has been quite erect with seven-sevenths produce of grain and straw 5 feet long. Many years ago an English steward (a Mr. Alsop) of the late Lord Thomond's introduced in Cork (called the water-pot of Ireland) the drilling of Wheat at 9 inches, with a saving of one-third of the seed (the quantity sown being under two bushels). I believe not much more than one-and-a-half, and with this sowing he had crops superior to the general run of the country. *J. M. G.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Trial of Reaping-Machines.—Mr. Miles, M.P., the President of the Royal Agricultural Society of England at the Carlisle meeting, having on that occasion placed the crops on his farm at Abbot's Leigh, near Bristol, at the disposal of the Society for any subsequent trial of reaping machines that might be found requisite, the Stewards of Implements have availed themselves of this liberal offer, and have made arrangements that the *private trial* of the selected machines shall take place under the immediate superintendence of the Stewards, the Field Judges, and the Consulting-Engineer of the Society, in the presence of the respective implement makers, on Wednesday, the 29th of August, at 11 o'clock in the forenoon. This trial will be strictly private; but Mr. Miles has proposed to the owners of the machines that a *public trial* should take place on the following day, namely, on Thursday, the 30th of August, in order that an opportunity may be afforded, to all persons interested in the subject, of viewing the reaping machines at full work under ordinary circumstances.

Highland and Agricultural Society: *Half-yearly General Meeting.*—The Earl of Rosslyn in the chair. Eighty-seven gentlemen, 70 of whom are tenant farmers, were balloted for and admitted as members.

Agricultural Statistics.—Mr. Hall Maxwell then laid on the table the report by the Society to the Board of Trade, in reference to the statistics of occupants rented at less than 10*l.* in the lowlands, and 20*l.* in the highlands, which completed the statistical inquiry for 1854, of which the following is an abstract:—

	No. of Occupants.	No. of Arable Acres.	Total Stock.
1. Holdings in 26 counties rented at less than 10*l.*	16,144	77,220	47,760
2. Holdings in 7 counties rented at less than 20*l.*	26,085	160,438	287,548
Total	42,229	238,170	334,308

Mr. Hall Maxwell stated that Government having resolved to continue the inquiry, the Society had again consented to undertake the charge of it, and that the greatest part of the schedules for the present year had been issued, about 40,000 having been sent out since the 2d of July. He had pleasure in being able to report that the returns were being made promptly and accurately, above 4000 replies having been received within a week, and he begged to impress on every one the importance of completing and sending back his schedule. This was the more necessary, in consequence of a desire strongly expressed by the Board of Trade to have the average of crops published, if possible, before the rise of Parliament in August, which could only be accomplished in the event of no delay being incurred on the part of those to whom schedules had been sent. Last year the schedule included columns for acreage calculated to cover the whole area of a farm, the land in grain and in green crops, in fallow and in Grass, in sheep walks, waste, woods, houses, gardens, &c. So far as regarded the main object of the measure, the columns in the schedule of 1854 applicable to Grass, sheep walks, waste, wood, &c., were not absolutely required; and while these returns were not required for determining the produce of food, they were worse than useless, because deceptive in any question connected with area, and only calculated to create erroneous conclusions, and to weaken the confidence that might be otherwise reposed in the proper results of the inquiry. On these grounds, and on the general principle of excluding from statistics that which cannot be accurately ascertained, it was determined by the directors to curtail the acreage columns by restricting them to land under tillage—that is to say, land actually under crop of any description, in bare fallow, and in Grass under rotation. The two latter columns might, with reference to the food returns, have been omitted; but their presence made the schedule and the answers under it complete as regarded the tillage lands of Scotland, the extent of which could, with reliable accuracy, be given by every occupant.

Miscellaneous.

Oilcake.—The average composition of the cakes from different localities does not differ to any great extent; and the subjoined table, giving the average amount of oil, albuminous and saccharine matters in those cakes, of which more than one sample has been analysed, will suffice to render this obvious.

	No. of Analyses.	Oil.	Albuminous matters.	Saccharine matters.
British, ...	7	12.90	28.47	39.01
American, ...	8	12.96	28.28	34.22
Copenhagen	2	12.21	29.75	34.92
Flensburg ...	2	12.23	24.55	23.99
Italian ...	2	7.67	31.74	37.87

As far as the first four of these varieties are concerned, it is manifest that their composition is so similar that it may for all practical purposes be termed identical; the proportion of oil and albuminous matter in no case varying to the extent of much more than 1 per cent. The Swedish, Sonderberg, and Konisberg cakes contain a somewhat smaller quantity of oil—averaging about 10 per cent.; and the latter falls materially short in the quantity of albuminous matters. The Italian and French cakes are remarkable for the small proportion of oil which they contain, and, as a necessary consequence, by the proportionate increase in the albuminous compounds. The quantity of oil averages about 7 per cent.; and it is remarkable that Professor Way, in his analyses, found Silician cake to give, on the average, 6.80 per cent. of oil, although he found as much as 11.84 in Italian cakes. *A priori* we should have anticipated the smallest proportion of oil in home-made cake, as in most cases the machinery employed in the oil-mills of this country is much superior to that used abroad. Although we find that when the average is taken all cakes are tolerably similar, matters are altered when individual samples are compared, for then the differences become very material. Comparing, for instance, the different samples of American cake, we find that the oil varies from 9.5 up to 16.17 per cent.; that is to say by nearly 30 per cent. of the whole; and similarly the albuminous compounds fluctuate between 26 and 31 per cent. As a general rule, the higher the oil the lower the albuminous matters; but frequent exceptions are found, as some cakes are found to be remarkably rich in both. The estimation, however, of the feeding value of the different samples is a matter attended with some degree of difficulty, and must turn upon the point whether the oily or the albuminous compounds are most important in promoting the fattening and growth of cattle. At one time we held that the latter deserved the preference, and that they might be correctly taken as the measure of the value of any sort of food. We now know that this is not absolutely correct, for it has been distinctly recognised that a proper proportion must subsist between the different classes of nutritive matters; so that if we had a food containing abundance of albuminous matters, it would be of inferior value, unless a proper quantity of oily and saccharine matters were also present. In estimating the value of a Linseed cake it appears to me that we must take into consideration both substances, but that the greatest weight is to be attached to the albuminous compounds; thus, for example, the first sample of American cake, containing 13 of oil and about 31 of albuminous matters, and the Dublin cake, are to be preferred to any of the other samples. *Dr. Anderson, in the Transactions of the Highland Society.*]

Calendar of Operations.

AUGUST.

Border of the Fens, *August.*—"How is the glass?" has been the curious inquiry of many farmers during the last month whenever a heavy rain occasioned fears that it would continue; and, perhaps, at no former time was favourable weather more needed or has been more efficacious in maturing the corn crop than during that period, for although on clay lands and among the best loams the Wheat may have shown from seed time an unvarying progress, and maintained unchecked a regular growth and good appearance, yet it must be admitted that on all light lands it has since February been in an extremely precarious state, and even now throughout the Fens large tracts remain to attest the sad effects of wind and frost, whilst a considerable breadth of Wheat land has been either ploughed up or mown off to take the chance of half a crop of Oats or Coleseed: nor have the Oats escaped, many large pieces may be seen with a scant and uneven plant, rivalled and surpassed by intervening ling weed, which seem always ready to dispute the occupation with invalided corn, and have this summer assumed everywhere from the warm moist weather a rank luxuriance that has taxed all the energies of cultivators of fertile land to check or subdue. The Wheat "flowered" unusually late, yet without ripening too fast. So rapid has been the change, and so greatly has it been improved by alternate showers and sunshine, that we have heard it remarked by one gentleman who stole away from his farm for a fortnight that on his return he had 200 more quarters of Wheat than he could have estimated the future yield at when he left; indeed, we are fast getting out of the risk of blight and mildew. A fine bold ear seems everywhere to prevail, the thin crops have tillered out more than could be calculated on, and in this neighbourhood even the heavy Wheats have not been laid so much as might have been anticipated; the fact is, the straw is generally strong, and of a good colour, and the crops are now rapidly approaching maturity. It is stated that next week some odd pieces of Wheat will be commenced, and if the present fine weather continues, on the 13th a great deal of Highland Wheat will be fit for cutting. Oats are this year likely to be ready first, and we shall put some men in a fine piece of 12 acres next Wednesday. Barley is heavy, but knocked about with rain, and, therefore, will not be in a condition to be cut for a fortnight. We have just concluded harvesting hay and Clover; with a little patience, which is not "the badge of all our tribe," we have succeeded in getting rather good crops of both in capital condition, and as the bottom Grass is unusually thick, the eddishes of the late cut promise abundance of keep for the lambs which are removed from the ewes in the first week in August. Sheep require constant attention just now, flies being so troublesome; and it will be borne in mind that a few hours after being struck, if not discovered, will suffice to break the skin and inflict a memorandum on the unlucky sheep, which by getting wet, or by rubbing, or by scouring, has attracted the attentions of those most unwelcome but inevitable tormentors. After separating the ewes, and as soon as the flow of milk is somewhat diminished, the "culls" should be picked out, to be either sold or put into a good pasture in preparation for a future market. Beef is now selling well at from 8*s* to 8*s*. 6*d*. per stone; mutton also has advanced lately to about 7½*d*. per lb. Green crops require great care to keep clean and get out of hand before harvest; the Turnip crop is generally forward and promising; Mangolds grow fast; and we hear partial complaints of Potatoes; but as the tops have not yet been checked, we presume that the disease pays only partial visits. Flour has fallen 2*s*. or 3*s*. per sack; good household flour now selling at 56*s*. Barley and Barley meal both very dear; cake also is high; and, indeed, all feeding stuffs appear to be making stiff prices. *J. W., Peterborough.* [This was written August 4].

South Hants, *August* 8.—The crops in these parts looked more promising a few weeks back than at present. Wheat and Barley is blighted, and in the ears of Wheat beetles and small red maggots seemed to abound, as in a single ear half a dozen of these could be detected, and by the aid of a magnifying glass these insects were clearly exhibited. The straw of the Wheat plant, and also of Barley, is dark and dingy in colour, wanting that bright and clean appearance so common in healthy plants. The harvest will not be general for three weeks or a month to come. The Turnip crops in many places are very fine, in others the fly carried off the braird of the earlier sown crops as well as the later; indeed, the fly has been more busy this season for weeks together than was ever known—hundreds of acres have been ploughed up and re-sown. The Potato crop, so promising, has this week exhibited too plainly the presence of disease; early and late sorts are going off rapidly, and the decaying haulm is very offensive. Much hay is still about delayed by repeated showers, but these have amply compensated the farmer by the advantage derived from them to his Turnip crops. The Clover Hay was housed in good order, but the crops in general very light. We have seen an instance of a remarkable yield of Wheat of last year's crop, viz., 56 to 58 bushels per acre. The crop of this year is very doubtful, as the late high winds have been highly injurious to the Wheat and Barley. Tares very fine. *R. S. S., Hants.*

Notices to Correspondents.

Blood Manure: *B.* Blood is used by very many manure companies now. The Nitrophosphate Manure Company, the Cyanic Manure Company, the so-called Manchester Sewage Manure Company, and the London Manure Company, besides others, use it. The Nitrophosphate Company throw bones and blood together, and add sulphuric acid, thereby manufacturing a manure which, as it contains soluble phosphates along with nitrogenous manure, is as nearly perfect, whether for roots or corn, as anything ordinarily need be.

Hooded Sheaves: *W B.* The Warwickshire system is best for wet weather; high reaping, four sheaves stuck down on the long stubble and two sheaves reversed overhead with a band round both. But this is otherwise a bad plan, and this glorious weather has relieved you already from difficulty.

Light Carts: *D* asks who was the builder of a set of light carts lately sent to the Crimea. He saw them pass through the city of London, about 24 of them drawn by one horse.

Mangold Wurzel: *Alpha.* While the leaves are green they assist the growth of the plant, and when they wither they are useless as food. We would not as a general practice strip the lower leaves: you hinder the growth in doing so, and so injure the crop in more than one way.

Oats: *Rawdon Briggs.* The crop seems blighted and prematurely ripened. There are always complaints of this kind more or less prevalent at this season; blight may be the result of deficiency or excess in any one of the fifty influences to which a living plant is exposed.

Piper's Thickset: *W C M.* This and the velvet eared, the one red and the other white, are our two shortest Wheats. The former is not remarkable except for its short straw and thickset ear.

Trifolium incarnatum: *Fitz.* You must not plough the land. It must be hard or only just softened by a shower, and the seed sown and harrowed in. Manuring, if needed, must be as a top-dressing hereafter.

Salt: *H M.* You cannot depend on it as a fixer of ammonia, for although under some circumstances it and carbonate of ammonia undergo mutual decomposition, and so the latter assumes the fixed state of muriate of ammonia, yet practically in the dungheap it is not a fixer. Lime and salt when long mixed contain a quantity of carbonate of soda, which will hasten the decomposition of manure but does not fix ammonia.

Smut: *G Beardmon.* So large a quantity is very unusual. Could you give the history of the crop from seed time; it might be interesting.

*** We have further reports of the Carlisle Show, which are delayed by the publication of our crop reports.

THE HARVEST.

DRUMMOND'S IMPROVED REAPING SCYTHES continue to give every satisfaction, and the demand is yearly on the increase. They are as usual got up with every possible care, and are fitted with the very best picked blades. Price for three Scythes complete, 30*s*.; do. for six, 56*s*. Carriage paid to the principal Railway Stations throughout the kingdom. W. Drummond & Sons, Seed and Implement Warehouse, Stirling, N.B.

*** To prevent disappointment early orders are respectfully requested.

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MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
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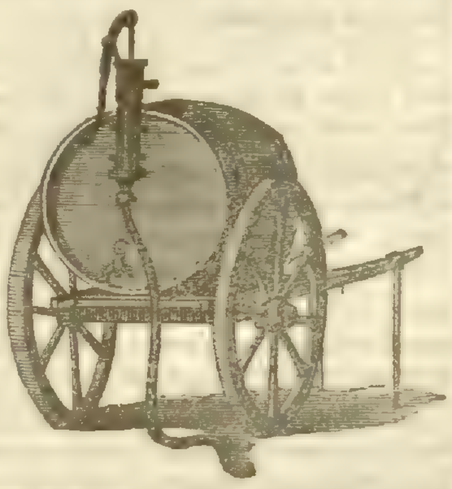
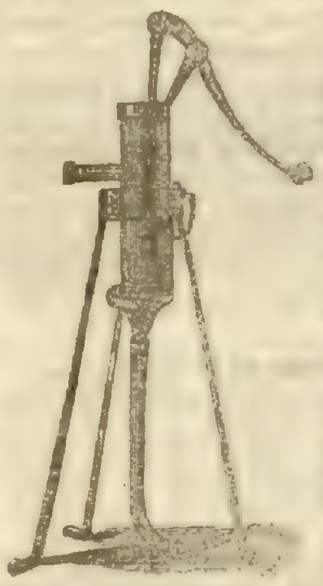
WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s*.
1½-inch Flexible Rubber and Canvas Suction for ditto, *s*. 6*d*. per foot.
1½ Gutta Percha Suction, 1*s*. 6*d*. per foot.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l*. 3*s*. The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s*. 6*d*. per foot.

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May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Sons, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1	12	0
2½ „	long 3 „ 3 „	gutta percha,	1	15	0
3 „	ditto 3 „ 6 „	or cast iron	2	12	0
3½ „	ditto 3 „ 6 „	flanged pipe,	2	18	0
4 „	ditto 3 „ 6 „	as required.	3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto ditto	ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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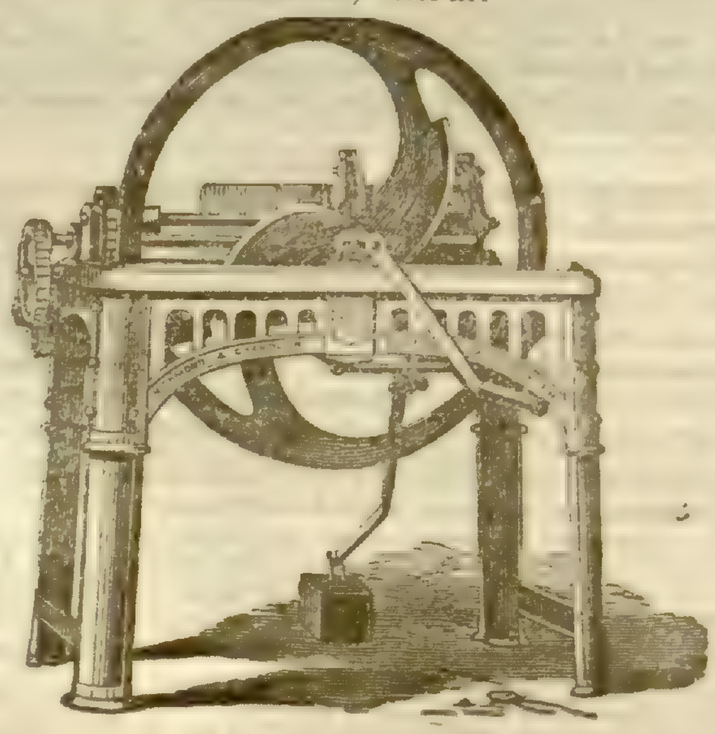

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UNDER THE PROTECTION OF HER MAJESTY'S ROYAL LETTERS PATENT.

JOSEPH PASCALL begs to announce to the Horticultural and Floricultural Public—amateur and professional—that he is manufacturing an entirely new Garden Pot, which possesses, in a cultural point of view, many permanent advantages over pots now in general use. In the first instance, it is intended to be used in the growing, forcing, and blanching of Seakale in winter; blanching Seakale, &c. &c. in the open garden; and, when not required for these purposes, it is so constructed as to be made available in the cultivation of plants of every description. These pots are manufactured in various forms and sizes, viz.—as propagating, seedling, shading, and protecting pots and pans; and are likewise admirably adapted to the cultivation of Mosses, Ferns, and many rare and choice exotic plants.—For a more detailed description see *Gardeners' Chronicle*, July 7, p. 453.

Joseph Pascall, Patentee.

West Kent Potteries, Chislehurst, Kent.

FILTRATION BY ASCENSION.

FREDK. RANSOME & CO., sole Patentees of the New AUTOMATON PURIFIER; also manufacturers of every variety of FILTERS (Portable or for Immersion) fitted with the Patent Purifying Medium. Pure Water, in any quantities, to Water Companies, Manufacturers, and others, obtained at a very moderate cost by the use of Ransome's Filtering Slabs. An Illustrated Priced List on application to the Depôt, Whitehall Wharf, Cannon Row, Westminster, or at the Patent Stone Works, Ipswich. A liberal discount allowed to the Trade. Filter Manufacturers and Exporters supplied with Ransome's Patent Filtering Medium separately, on the lowest terms.

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WILLIAM DRAY AND CO.'S Book of Testimonials from purchasers of their Patent Reaping Machines, also a List of Prizes, and full description will be forwarded, post free, on application to

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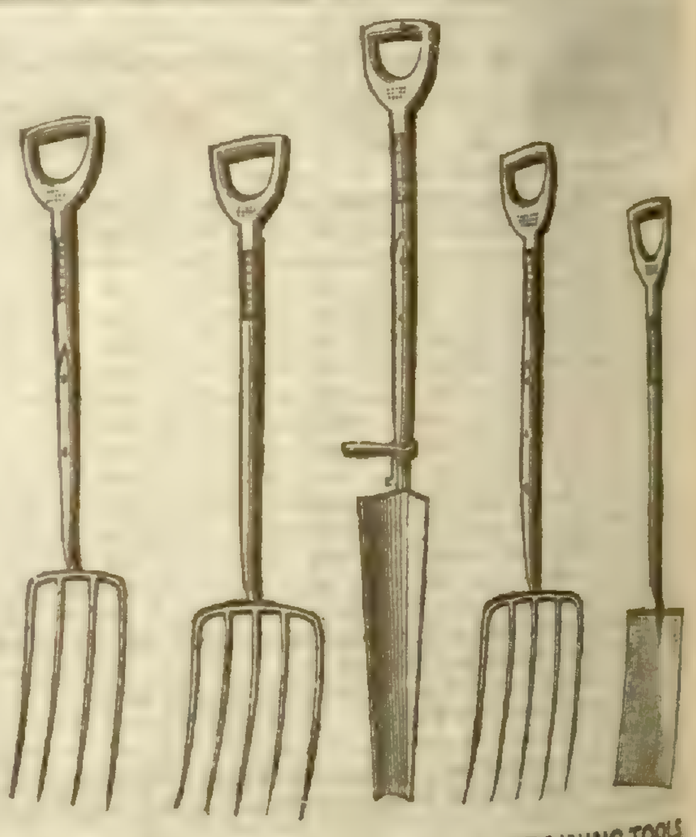
SCYTHES.—Boyd's Patent Self-Adjusting Scythes may be had of the Manufacturers, William Dray & Co., Swan Lane, London, and of all Ironmongers and Seedsmen.
A liberal allowance to the trade.



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MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. White & Brothers, Milbank Street, Westminster.

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SHEET SQUARES.

In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12s. 0d
7 „ 5, — 7½ „ 5½ }	0 14 0
8 „ 6, — 8½ „ 6½ }	
9 „ 7, — 9½ „ 7½, 10 by 6 }	0 16 0
10 „ 7, 10 by 8 }	

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18s. per 100 feet. If cut to order not exceeding 40 inches long.

16 oz. from 2½d. to 3½d. | 21 oz. from 3½d. to 4½d.

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Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½d. per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand.

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	£1 17s. 6d. per case of 50	
3/16 „	2 1 3 „	60
⅛ „	1 17 6 „	60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21s. per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

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See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London. REDUCED TARIFF OF AGRICULTURAL AND HORTICULTURAL GLASS.

STRONG HORTICULTURAL SHEET, from 2d.; and HARTLEY'S PATENT ROUGH PLATE, from 4½d. per foot.

PERFORATED GLASS for Ventilating Dairies, Stables, &c., from 1s. 6d. per foot. German-shaped Milk-pans, 21s. per dozen; Hely's Test Churns, 5s. each; Waring's Butter Slabs, 10s.; Glass Fern Shades and Stands, from 3s; Bee-glasses, from 6d.; Cucumber Tubes, from 1s.; Propagating Glasses, from 3½d. to 7s. each; Flower Labels, 7s. per 100; Aquariums, complete, 10s. each; and every other description of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass, British and Foreign.—Catalogues free.

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T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by 4 in.	and 6 in.	by 4½ in.	...	...	12s.	0d.
6½ „ 4½	„ 7	„ 5	...	...	12	6
7½ „ 5½	„ 8	„ 6	...	...	13	0
8½ „ 6½	„ 9	„ 7	...	...	13	6
9½ „ 7½	„ 10	„ 8	...	...	13	6
10½ „ 8½	„ 11	„ 9	...	...	14	0
12 „ 9	„ 13	„ 9	...	...	14	0
10 „ 10	„ 10½	„ 10½	...	...	14	0
11 „ 10	„ 11½	„ 10½	...	...	14	0
11 „ 11	„ 11½	„ 11½	...	...	14	0
12 „ 11	„ 12½	„ 11½	...	...	14	0
13 „ 11	„ 13½	„ 11½	...	...	14	0
13 „ 12	„ 13½	„ 12½	...	...	16	0
13½ „ 13½	„ 14½	„ 13½	...	...	16	0
15½ „ 13½	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.

Ditto, not exceeding 1 foot ... 2½ „

Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

RANSOME'S SILICEOUS STONE.

THE PATENT SILICEOUS STONE COMPANY are prepared to execute Contracts for the supply of all kinds of Ornamental Details for Buildings, &c., manufactured in this beautiful material, which has received the approval of eminent architects and scientific men, and which for sharpness of outline, durability, and cheapness, stands unrivalled. It is especially applicable for the elaborate details of Mediæval and Ecclesiastical Architecture, for Gothic Windows, Doorways, Pinnacles, &c.; Crosses, Corbels, Altar Screens, Pulpits, Fonts, Monumental Tombs, Tablets, Headstones, &c; also for all kinds of Garden Decorations, Fountains, Figures, Vases, and Pedestals; Flower Boxes, Wardean Cases, Balustrades for Terrace Walks, Gate Piers, Caps, Bases, &c. &c.; and for Coats of Royal Arms, Chimney Pieces, Brackets and Trusses, Ashlars, Quoins, String Courses, and other Dressings.—Further particulars, with illustrations, on application to Mr. EDWD MENDHAM, Secretary, at the Company's Offices, Whitehall Wharf, Cannon Row, Westminster; or to Mr. FREDK. RANSOME, Patent Stone Works, Ipswich.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work-boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed. Superior Hair and other Toilet Brushes.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City.

Circulars free by post.

THE LATE FLOOD AT CHELTENHAM.—On Thursday, the 26th ult., the town of Cheltenham was visited by a SEVERE FLOOD, the river Chelt overflowing its banks, and causing great damage to the property of various individuals. The chief sufferers are the Nurserymen and Market Gardeners, whose land has been inundated, and their valuable stocks in some cases destroyed, and in others greatly injured. The total amount of loss to this class of property has been estimated by Messrs. Wheeler, of Gloucester, at nearly 1000*l.*, of which the large sum of 520*l.* falls upon one individual, Mr. Charles Hale Jessop, alone.

Subscription Books have been opened, and it is thought that the sympathy felt in Cheltenham for the sufferers may also, through this medium, be shown in other parts of the kingdom, especially as Mr. Jessop's name and character are so widely known and esteemed. A list of Subscribers will hereafter be published in the *Gardeners' Chronicle*, meanwhile Subscriptions are respectfully solicited, which the following gentlemen have kindly consented to receive, viz., Messrs. WRENCH & SONS, London Bridge; Messrs. NOBLE, COOPER & BOLTON, 152, Fleet Street; and Messrs. WHEELER & Son, Gloucester; or they may be sent direct to the Honorary Secretary.

Cheltenham, August 18. ANDREW PAUL, Hon. Sec.

IMPORTANT TO QUICK AND RAPID WRITERS.

ARTHUR GRANGER'S celebrated BULLION PENS neither scratch nor corrode, and flexible as the Quill, 6d. per dozen, by post 4s. 6d. per gross. A few millions of ENVELOPES (all sizes), Adhesive at 3s. per 1000. Sample Packet of cheap Stationery by post for eight stamps.—Factory, 308, High Holborn, near Chancery Lane; 10, Fitzroy Terrace, New Road; and 9, Holborn Bars, City.

NO CHARGE FOR STAMPING at LOCKWOOD'S, 75, New Bond Street. Good cream-laid Note-paper, five quires for 9d.; Thick ditto, five quires, 1s.; Albert and Queen's sizes, five quires for 6d., 9d., and 1s.; Note-paper made from Straw, 2s. 6d. per ream; Envelopes, 4d. to 1s. 6d. per hundred; Foolscap paper, 7s. 6d. per ream; Copybooks 2s. 6d. per dozen. Card Plate engraved, 2s. 6d.; 100 Cards printed, 2s. 6d. Wedding orders promptly executed. A large variety of Writing and Dressing Cases, Envelope Boxes, Blotting Books, Inkstands.—Copy address, LOCKWOOD'S, 75, New Bond Street. Country orders for 20s. sent carriage free. LOCKWOOD'S celebrated Nugget (Gilt) Pen, 1 doz. post free for 13 stamps.

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GOODRICH'S CIGAR, TOBACCO, AND SNUFF STORES (Established 1780), 416, Oxford Street, nearly opposite Hanway Street. A Box, containing 14 fine Sisal Cigars for 1s. 9d.; post free for 27 stamps. None are genuine unless signed "H. N. GOODRICH."

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BERDOE'S ORIGINAL VENTILATING WATER-PROOF CLOAKS, MANTLES, CAPES, LIGHT COATS, &c., resist any amount of rain, without obstructing free ventilation, and are adapted for general use, equally as for rainy weather.—W. BERDOE, Tailor, 96, New Bond Street, and 69, Cornhill (only).

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HENRY BAKER calls the attention of the public to his Improved MODEL BAROMETER, made of solid Rosewood and mounted with Ivory Plates, with a Thermometer. The above Instrument for Accuracy and Style stands unrivalled; it is Portable, and WARRANTED to perform well; and being manufactured on the premises, it is highly recommended. Can be sent into the country without risk of breakage for 1s. extra.

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EXPOSED TO THE SCORCHING RAYS OF THE SUN, AND HEATED PARTICLES OF DUST, WILL FIND

ROWLAND'S KALYDOR a most refreshing preparation for the Complexion, dispelling the cloud of languor and relaxation, allaying all heat and irritability, and immediately affording the pleasing sensation attending restored elasticity and healthful state of the skin. Freckles, Tan, Spots, Pimples, Flushes, and Discoloration fly before its application, and give place to delicate clearness, with the glow of beauty and of bloom. In cases of sunburn or stings of insects, its virtues have long been acknowledged. Price 4s. 6d. and 8s. 6d. per bottle.

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Sold by A. ROWLAND & SONS, 20, Hatton Garden, London; and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.?—The most marvellous production of modern date is ROSALIE COUPELLE'S CRINUTRIAR, which is guaranteed to produce Whiskers, Moustachios, Eyebrows, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually checks greyness in all its stages. For the nursery it is recommended by upwards of 100 physicians, for promoting a fine healthy head of hair, and averting baldness in after years. Sold by all Chemists and Perfumers, price 2s., or will be sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London. Mrs. CARTER writes, "My head, which was bald, is now covered with new hair." Mrs. WILLIAMS—"I can show a fine head of hair from using your Crinutriar." Mrs. REEVE—"My hair is gaining strength and thickness." Sergeant CRAVEN——"Through using it I have an excellent Moustache." Mr. YATES—"The young man has now a good pair of whiskers. I want two packets for other customers."

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LIGHT BROWN COD LIVER OIL. Prescribed with complete confidence by the Faculty for its purity, and superior, immediate, and regular efficacy.

It is entirely free from nauseous flavour, and being invariably and carefully submitted to chemical analysis—AND ONLY SUPPLIED IN SEALED BOTTLES TO PRECLUDE SUBSEQUENT ADMIXTURE OR ADULTERATION—this Oil possesses a guarantee of genuineness and purity offered by no other Oil in the market.

TESTIMONIAL from ARTHUR H. HASSALL, M.D., F.L.S., M.R.C.P., Chief Analyst of the Sanitary Commission of the *Lancet*, Author of "Food and its Adulterations," &c. &c. &c.

"I have more than once, at different times, subjected your Light Brown Oil to chemical analysis—AND THIS UNKNOWN TO YOURSELF—and I have always found it to be free from all impurity and rich in the constituents of bile. So great is my confidence in the article, that I usually prescribe it in preference to any other, in order to make sure of obtaining the remedy in its purest and best condition."

Sold only in bottles, capsuled and labelled with Dr. DE JONGH'S Signature, WITHOUT WHICH NONE ARE GENUINE, by ANSAR, HARFORD, & CO., 77, STRAND, London, Dr. DE JONGH'S sole Consignees; and by most respectable Chemists in town and country.

Half-pints (10 oz.), 2s. 6d.; Pints (20 oz.), 4s. 9d.; Quarts (40 oz.), 9s.; IMPERIAL MEASURE.

THE BEST SHOW OF IRON BEDSTEADS in the Kingdom is WILLIAM S. BURTON'S.—He has two very Large Rooms, devoted to the exclusive show of Iron and Brass Bedsteads and Children's Cots, with appropriate Bedding and Mattresses. Common Iron Bedsteads, 16s.; Portable Folding Bedsteads from 12s. 6d.; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17s. 6d.; and Cots from 20s. each; handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2*l.* 13s. 6d. to 15*l.* 15s.

BATHS AND TOILETTE WARE.—WILLIAM S. BURTON has ONE LARGE SHOW ROOM devoted exclusively to the DISPLAY of BATHS and TOILETTE WARE. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country. Portable Showers, 7s. 6d.; Pillar Showers, 3*l.* to 5*l.*; Nursery, 15s. to 32s.; Sponging, 15s. to 32s.; Hip, 14s. to 31s. 6d. A large assortment of Gas Furnace, Hot and Cold Plunge, Vapour, and Camp Shower Baths. Toilette Ware in great variety, from 15s. 6d. to 45s. the Set of Three.

WILLIAM S. BURTON has SIXTEEN LARGE SHOW ROOMS, all communicating, exclusive of the Shop, devoted solely to the show of GENERAL FURNISHING IRONMONGERY (including Cutlery, Nickel Silver, Plated and Japanned Wares, Iron and Brass Bedsteads and Bedding), so arranged and classified that purchasers may easily and at once make their selections.

Catalogues, with engravings, sent (per post) free. The money returned for every article not approved of.

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CAUTION.—To prevent fraud, each tablet bears the registered mark and the names and address of the inventors, as above.

METCALFE'S ALKALINE TOOTH POWDER, 2s. per box.—The above may be obtained of most respectable Chemists, Perfumers, &c.

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TO BE SOLD, a NURSERY BUSINESS, established upwards of 40 years, and successfully carried on, as the present proprietor wishes to retire. The fine situation of the grounds embraces a variety of sloping banks to every aspect. There is an abundance of fine peat soil, and an almost inexhaustible supply of fine sand. There are about 12 acres of land, with the option of having more if required. The Glass erections are very extensive, and adapted for all Propagating and other purposes. A Dwelling-house, Stable, Packing-house, Cellars, &c., in excellent condition. The Stock of Plants is select, including those recently introduced from China, California, Himalaya, Sikkim, Cape, Australia, New Zealand, and other general Nursery Stock. The distance is within two days' sail of London, and half that time by railway, and within half a mile of the General Railway Station of Aberdeen.—Full information may be obtained by addressing Mr. J. ROY, Jun., at Ferry Hill Nursery, Aberdeen, or 141, Strand, London.

TO NURSERYMEN, GARDENERS, & HORTICULTURISTS.

TO BE SOLD, by Private Contract, the BUSINESS and STOCK IN TRADE of Mr. Charles Montague Atkinson, of Gloucester, Nurseryman, consisting of a choice and beautiful Collection of Variegated Stove and Greenhouse Ornamental Plants, comprising all the newest and best soft-wooded in cultivation; also Azalias, Camellias, Ericas, &c. &c., too numerous for detail. The Grounds are situated in one of the best parts of Gloucester, and contain a general Nursery Stock. The Seed business is an important branch and is rapidly increasing. Satisfactory reasons can be given for disposing of the business.

To view, apply at the Nursery, Worcester Street, Gloucester; or to Mr. Thomas White, Green Dragon Lane, Gloucester. And to purchase apply to Mr. FREDERICK SHIPTON, Solicitor, Saint Nicholas Chambers, Nicholas Street, Bristol.

TO NURSERYMEN, SEEDSMEN, AND FLORISTS.

TO BE SOLD, in consequence of the proprietor retiring from business, a Capital Business in the above line, with a first-rate connection, and of 17 years' standing. The premises, which are convenient and well situated, will be sold, together with the Business. Such an opportunity as the above seldom occurs.—For particulars, apply to Mr. LENDON, Nurseryman, &c., Wellington, Somerset.

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TO BE SOLD, young BIRDS of the following breeds:—Dorking Fowl (first prizes at Colchester, 1854, and Ryde, 1855); Turkey (parent Cock and Hen weighed 43 lbs.); Goose (second prize, Ryde, 1855); Aylesbury Duck, White Peruvian Musk Duck (from birds now in the possession of the Queen); also a Cock and six Dorking Hens, adult.—For price, apply to Mr. WARWICK, Donyland Lodge, Colchester.

Dorking Eggs from prize and other first-rate birds, at 6s. 6d. per dozen, including basket, for the rest of the season.

Sales by Auction.

HURSLEY PARK, NEAR WINCHESTER.

IMPORTANT SALE OF PURE SOUTHDOWN SHEEP, &c.

MR. STRAFFORD has received instructions from Sir William Heathcoate, Bart., M.P., to announce for Sale by Auction, without reserve, on WEDNESDAY, the 22d of August next, at the Home Farm, Hursley Park, the FLOCK of PURE SOUTHDOWNS, consisting of about 700 Ewes, of various ages, with Rams and Lambs, which have been bred with great care and attention for several years, from the far-famed Flocks of the Duke of Richmond, Hon. Captain Pelham, Messrs. Ellman, Northeast, and Jonas Webb. Also a few Valuable Young HORSES, bred on the Estate; with a quantity of HURSLEY PIGS, which are chiefly descended from the stocks of the Right Hon. the Speaker, Mr. Fisher Hobbs, and other celebrated breeders, the whole of which will be found, on inspection, worthy the attention of Gentlemen seeking first-class stock, and are sold in consequence of having let two Farms recently in hand.—Catalogues, with particulars, may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. Fowlie, Red House, near Winchester.

ILFORD.

TO GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MR. GEORGE COLLIS is instructed to Sell by Public Auction, on the premises at the Nursery, Green Lane, Ilford, Essex, on THURSDAY, August 23, at 11 o'clock, without any reserve, the whole of the glass erections, consisting of two span-roofed greenhouses, a saddle boiler; hot water pipes, several pits and frames, striking-glass, and sundry other effects; also the whole of the nursery stock of Evergreens, &c., and the Greenhouse Plants, consisting of choice sorts of Azalea indica, Geranium, Fuchsias, &c.—May be viewed prior to the Sale. Catalogues may be obtained on the premises; at the Red Lion Inn, Ilford; of the principal Seedsmen in London; and of the Auctioneer, North Street, Romford, Essex.

Just Published,

ARTHUR HENDERSON AND CO'S CATALOGUE. No. I., containing Orchideæ, Exotic, Greenhouse, and Hardy Ferns, Select Stove Plants, including Aquatic, Variegated-leaved Plants, and Plants suitable for suspending in the Stove and Orchideæ House, Greenhouse Plants, Indian Azaleas, Camellias, Ericas, Herbaceous and Alpine Plants, which may be had on application to them at Pine-apple Place, Edgware Road.

SIR W. J. HOOKER'S KEW GUIDES.

New Edition, in 16mo, with many Woodcuts, price Sixpence,

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The Tenth Edition, corrected, enlarged, and improved, with Portrait, numerous Plates, and Woodcuts. Price One Guinea.

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N. G.'s collection of Pæoneasters, Verbenas, and Dahlias are now in flower, and can be seen gratis any day, Sundays excepted, at the Nursery, Surrey Lane, Battersea.—August 25.

PRIZE CALCEOLARIAS.—Packets of Seed saved from the group of Seedling Calceolarias, to which a Prize was awarded at the Great Exhibition at the Crystal Palace, may still be obtained (price 10*s*. 6*d*.) by application to William Sandford, Gardener to Mr. Henchman, Edmonton.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.
LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior
CINERARIAS AND CALCEOLARIAS,
which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.
Packets of each, sealed and warranted by them, at 2*s*. 6*d*., free by post.—Exeter Nursery, Exeter. Established 1720.

SPOTTED CALCEOLARIA & CINERARIA SEED.
F. AND A. SMITH beg to offer seed of the above at 2*s*. 6*d*. and 5*s*. per packet. They obtained a Certificate of Merit from the Floricultural Society of London for a Collection of Seedling Cinerarias, from which the seed they now offer has been saved. Both Calceolarias and Cinerarias are well known to the London trade as pre-eminent in colour, habit, and form.
Dulwich, Surrey.

TO GARDENERS.
WANTED, half an ounce or more of warranted FIMBRIATED PRIMULA SINENSIS SEED, White and Red; for the Trade, say price.—Address A. B., White House, Marsh Lane, Tottenham, Middlesex.

WANTED, a quantity of BLACK JAMAICA and QUEEN PINES, either suckers or rooted plants that will fruit next year. They must be clean. This would be a good opportunity for any one giving up business to dispose of the whole stock. Also a quantity of the Coniferæ, particularly of the Deodar and of Araucarias; also Seeds of the Coniferæ. Terms, cash.—Address, with prices, F. M., Post Office, Huddersfield.

TO BE SOLD, a Case of Imported ORCHIDS, containing 54 pieces, mostly large and principally in fair condition: varieties of Oncidium, Epidendrum, Brassia, Schomburkia, Ionopsis, Phaius, Hedychium, &c.: price 2*l*. 14*s*., or may be selected from at 2*s*. each. To be seen at Mr. George Roberts, 32, Moorgate Street, London.
Also a small number of Cones of Abies Menziesi, from N.W. coast of America, 2*s*. each, or 2*s*. 4*d*. post free.

TO NURSERYMEN AND GARDENERS.
REIGATE SILVER SAND, 12*s*. per ton, 1*s*. 6*d*. per bushel, or 16*s*. per ton, delivered to the London Wharfs or Railways, or within a circuit of five miles. Sacks 2*s*. each. Kentish and other Peats and Loam of excellent quality.

HOW TO KILL RATS AND MICE BY HUNDREDS.—A Receipt may be had, honestly worth 20*l*., without trouble, by sending 30 postage stamps and a directed envelope to Mr. William Franklin, Post-office Street, Norwich, who will forward it with plain instructions, &c. This is a most extraordinary remedy, such as no Farmer, Merchant, or Miller ought to be without, as it will save them pounds yearly by killing every Rat or Mouse either in the field, stack, or house.

WASPS! WASPS!—The finest FRUIT in England will be secured from Wasps, Flies, Birds, &c., by using HAYTHORN'S HEXAGON GARDEN NET, to be seen in most Gardens. Patterns, prices, and testimonials free by post. Orders directed to Mr. Haythorn, Nottingham, will have immediate attention.

FISHING NETS.—A 20-yard Drag Net, with Purse complete, 2*l*. 10*s*. A Single Walled Drag Net, any length and depth, 1*s*. per square yard. Casting Nets, complete, 1*s*. to 1*s*. 6*d*. per yard, measured round the lead line. Flue Nets, any size, 1*s*. per square yard, complete. Minnow Nets, Eel Nets, and Landing Nets equally cheap, all warranted first-rate quality and workmanship.—At W. Cullingford's, 1, Edmund Terrace, Ball's Pond Road, Islington, London.

TANNED NETTING, for the protection of Fruit Trees from frost, blight, and birds, and for the security of fresh sown seeds, either in Gardens or Fields, at 1*d*. per square yard; 200 yards, 14*s*.; 500 yards, 30*s*.; 1000 yards, 50*s*. Scrim Canvas, for Wall Fruit. — At LIDGINGTON and Co.'s, Rick Cloth, Tent, and Waterproof Cloth Manufacturers, 17, Smithfield Bars, City, and Old Kent Road, Southwark; Emigrant Outfitters, Ship Chandlers, and Export Merchants, Brunswick Street, near the East India Export Dock, Blackwall.

HOSE PIPING.
WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe.
Manufactured only by Waithman & Co., Bentham, Lancaster.
No. 1 Quality, Inches in Diameter and Price Per Yard:—½, 9*d*.; ¾, 11*d*.; 1, 1*s*. 1*d*.; 1¼, 1*s*. 3*d*.; 1½, 1*s*. 5*d*.; 1¾, 1*s*. 7*d*.; 2, 1*s*. 9*d*.; 2¼, 2*s*.; 2½, 2*s*. 3*d*.; 2¾, 2*s*. 6*d*.; 3, 2*s*. 9*d*.
Super Extra Stout Quality:—2, 2*s*.; 2¼, 2*s*. 3*d*.; 2½, 2*s*. 6*d*.; 2¾, 2*s*. 9*d*.; 3, 3*s*.
No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9*d*.; 1¼, 11*d*. 1½, 11*d*.; 2, 1*s*.; 2¼, 1*s*. 3*d*.; 2½, 1*s*. 6*d*.
The Hose is Burnettised at an extra charge of 3*d*. per yard.
Union Joints, Branch Pipes, and Jets are also supplied.

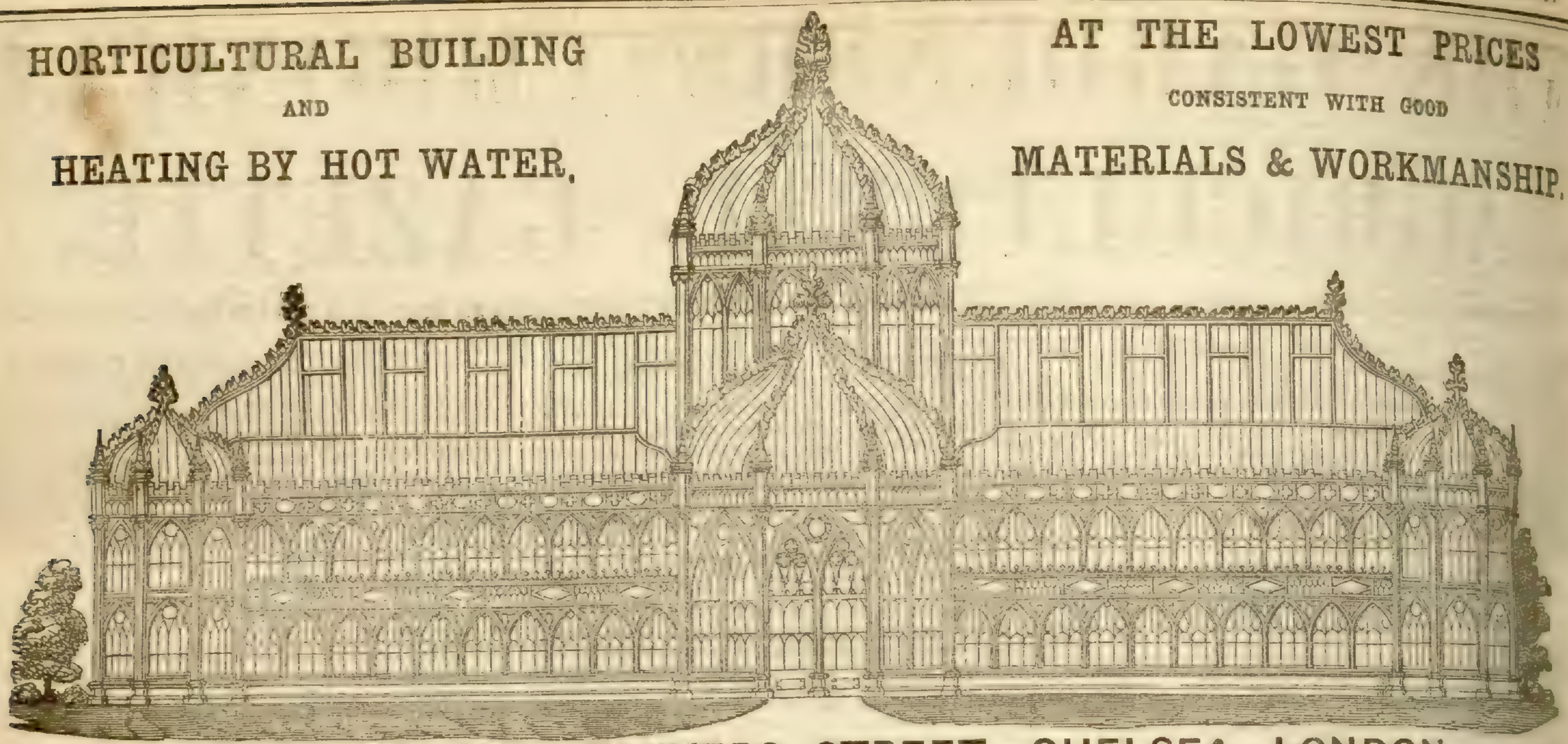
IRON GATES, HURDLES, FENCING, ETC.
J. BULLOCK AND CO., Hope Iron Works, Primrose Street, Bishopsgate, Ironfounders and manufacturers of the above; also Verandahs, Conservatories, Staircases, Iron Roofs, &c. N.B. Iron and Wire Fences fixed in all parts of the country by competent workmen, or the materials supplied painted or galvanised ready for fixing, and packed for shipment. Estimates on application.

UNDER THE PROTECTION OF HER MAJESTY'S ROYAL LETTERS PATENT.
JOSEPH PASCALL begs to announce to the Horticultural and Floricultural Public—amateur and professional, that he is manufacturing an entirely new Garden Pot, which possesses, in a cultural point of view, many permanent advantages over pots now in general use. In the first instance, it is intended to be used in the growing, forcing, and blanching of Seakale in winter; blanching Seakale, &c. &c. in the open garden; and, when not required for these purposes, it is so constructed as to be made available in the cultivation of plants of every description. These pots are manufactured in various forms and sizes, viz.—as propagating, seedling, shading, and protecting pots and pans; and are likewise admirably adapted to the cultivation of Mosses, Ferns, and many rare and choice exotic plants.—For a more detailed description see *Gardeners' Chronicle*, July 7, p. 458.
Joseph Pascall, Patentee.
West Kent Potteries, Chislehurst, Kent.

FILTRATION BY ASCENSION.
FREDK. RANSOME & CO., sole Patentees of the New AUTOMATON PURIFIER; also manufacturers of every variety of FILTERS (Portable or for Immersion) fitted with the Patent Purifying Medium. Pure Water, in any quantities, for Water Companies, Manufacturers, and others, obtained at a very moderate cost by the use of Ransome's Filtering Slabs. An Illustrated Priced List on application to the Depôt, Whitehall Wharf, Cannon Row, Westminster, or at the Patent Stone Works, Ipswich. A liberal discount allowed to the Trade. Filter Manufacturers and Exporters supplied with Ransome's Patent Filtering Medium separately, on the lowest terms.
Fredk. Ransome & Co. are also the Patentees and sole Manufacturers of the Patent "Iris Fountains" for Drawing Rooms, Conservatories, &c.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER,

AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.

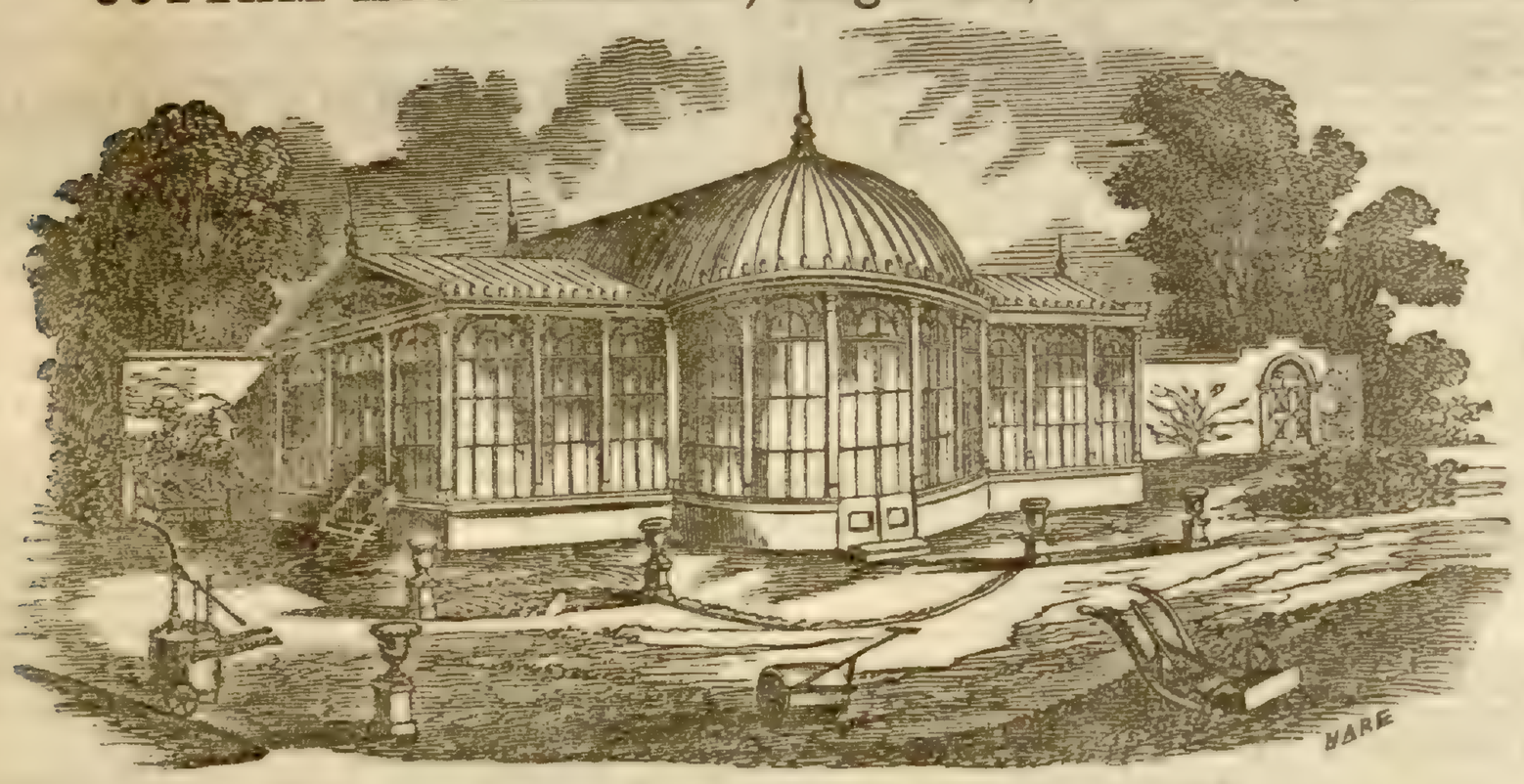


GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

COTTAM AND HALLEN, Engineers, Founders, &c.,



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

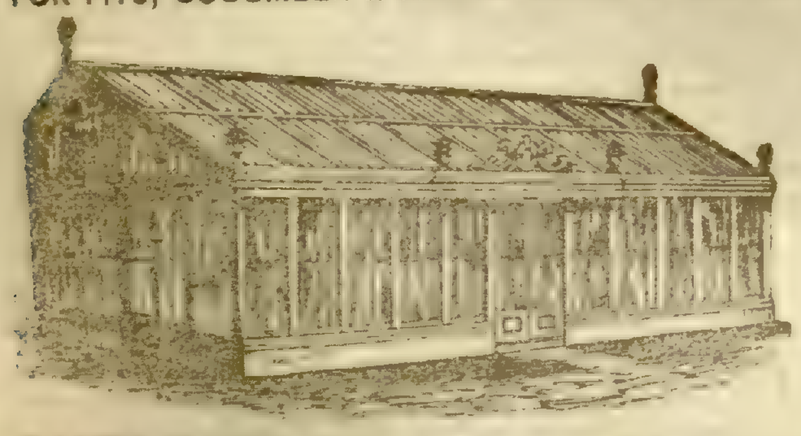
EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY,
KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance or design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

J. SMITH, HOTHOUSE BUILDER, New Road, Hammersmith, begs to call the attention of Horticulturists to his extra low list of prices.

Greenhouses substantially built, first-rate materials, glazed with 16 oz. glass, from 1s. 6d. per foot complete. Garden Lights from 8d. per foot. Specimens of the above may be seen on the premises. N.B. Second-hand Greenhouse, 11 feet by 20, 12l.

BY SPECIAL APPOINTMENT TO HER MAJESTY THE QUEEN.

WILLIAM WALKER, Victoria Foundry, Walmgate, York.

Manufacturer of Hot Water Apparatus for Heating Greenhouses, &c.
Garden Rollers, Handglass Frames
Iron Fencing and Gates
Liquid Manure Pumps
Iron Palisading, Iron Bedsteads
Galvanised Ga ue Netting
Stable Packs and Mangers
Kitchen Ranges and Smoke Jacks on a superior principle

Every Description of Plain and Ornamental Cast and Wrought Iron Work.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the frame work, but covered with Galvanised Iron Sashes, and all completed for 1s. 3d. per foot super. Hundreds of references can be given, and Printed Price Lists sent.

SLATE WORKS, ISLEWORTH, MIDDLESEX

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted

Priced Lists of Plant Tubs and Boxes forwarded on application.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description, by Hot Water.—Prices and Estimates furnished upon application.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea.

HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.

The HOT-WATER APPARATUS, which passes through the Houses and Pits affording bottom and bottom heat in constant operation and particularly worthy of attention.

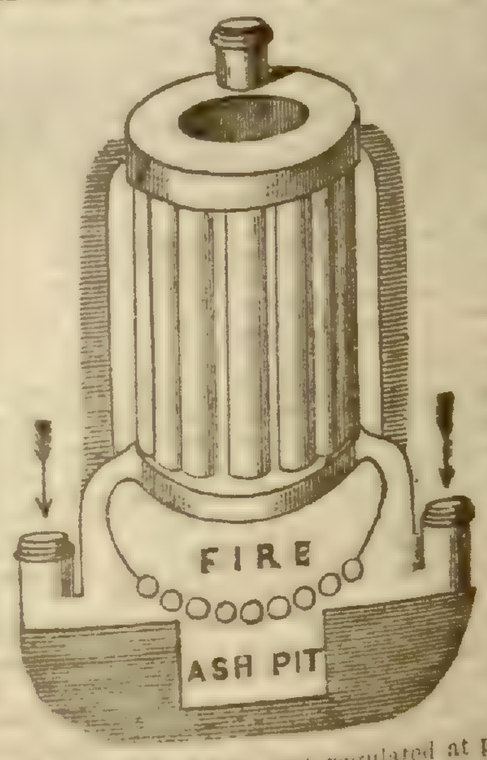
Many of the Houses and Pits are of wide and lofty dimensions and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3s. 8d. per day, as the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature.

splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings and Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.



The accompanying sketch represents our Improved Boiler. The Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, occupying only 5 ft. by [illegible] The Houses heated consist of forcing-houses, various descriptions, many of them very wide and lofty dimensions, in length [illegible] and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the severe winter [illegible] us 3s. per day, and we have [illegible] and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

JOHN WEEKS & Co., King's Road, Chelsea, London.

WARD'S OMAR PACHA STRAWBERRY.

WILLIAM JAMES WARD offers the above handsome fine flavoured Strawberry at the following reduced price:—100 plants, 1*l.*: 50 plants, 12*s.*: 25 plants, 7*s.*, strong and well rooted. In addition to the many flattering testimonials received last season, Dr. LINDLEY describes it as being exhibited at Chiswick, July 11, 1855:—"*Excellent in quality as well as attractive in appearance.*" See *Gardeners' Chronicle*, Leading article, July 14, 1855. The Editor of the "Florist and Fruitist," in the August Number report of the Exhibition at Chiswick, says—"WARD'S *Omar Pacha is a new Strawberry, and considering its high flavour and comparative hardiness is a valuable acquisition.*"

A few last year's plants 5*s.* per dozen.

Prospect Hill, Reading, Berks.

SUPERB NEW STRAWBERRIES,
GROWN AND OFFERED FOR SALE BY

WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.—Nicholson's Ajax, Ruby, Fill-basket, and Captain Cook, 6*s.* per 100; Sir Harry (Underhill's), 25*s.* per 25. Omar Pacha (Ward's), 25 plants, 7*s.*; 50 do., 12*s.*; 100 do., 1*l.* Prince of Wales (Ingram's), 10*s.* per 100. Scarlet Nonpareil (Patterson's), 12*s.* per dozen; 2*l.* per 50. Sir Charles Napier (Smith's), 12*s.* per dozen: 1*l.* 10*s.* per 50. Admiral Dundas (Myatt's), 16*s.* per 25; 1*l.* 10*s.* per 50. Nimrod (Pince's), 10*s.* per 100 plants.

A SELECTION OF THE BEST OLDER STRAWBERRIES.—Black Prince, 4*s.*; British Queen, 4*s.*; Eleanor, 4*s.*; Old Pine, 4*s.*: Eliza (Rivers's), 7*s.*; Surprise, 7*s.*; Victoria (Trollope's), 4*s.*; Goliah (Kitley's), 4*s.*; Bicton Pine (White), 5*s.*; Keens' Seedling, true, 4*s.*; Old Roseberry, 4*s.* per 100 plants. Box included. The above prices will be reduced whenever a reduction is made by the raisers. A descriptive Circular of the above sent on application. A Post Office Order payable at Yarm, Yorkshire, is requested with the order.

"SIR HARRY."—To this STRAWBERRY has been awarded at all the Horticultural Exhibitions the highest honours, where it has competed, namely:—

1854.—Chiswick, first class certificate; 21, Regent Street, highly commended; Botanical Gardens, Edgbaston, first prize.

1855.—Edgbaston Botanical Gardens, first prize, in pots (forced): Handsworth and Lozells, Hampstead Park, first prize (forced): Edgbaston Botanical Gardens, first prize—the Judges declared it the best Strawberry in every point on the table, superior to Keens' Seedling, Cremorne Seedling, British Queen, Mrs. Trollope, &c.; Lancaster, first prize, and pronounced by the Judges to be the finest and best tasted Berry in cultivation; Preston, first prize; Carlisle, first prize; Wolverhampton, first prize, and certificate of merit; Watford, first prize; Aylesbury Horticultural Society, first class certificate.

Plants are ready for sending out (not less than a score).

Prices:—100 plants, 4*l.*; 80, 3*l.* 13*s.* 6*d.*; 60, 2*l.* 16*s.*; 40, 1*l.* 18*s.*; and 20, 1*l.* Plants may be had in pots (not less than 10), at 2*s.* each.

Apply to Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham. Each application to be accompanied with a Post Office Order (on Birmingham), to receive attention.

For the Cultivation of Strawberries, refer to Mr. Underhill's Treatise, which may be obtained from a Bookseller in every principal town, where also may be obtained a handsome Lithograph of a plant of "Sir Harry" in full bearing.

STRAWBERRIES.

NEW STRAWBERRIES.—The following fine varieties have been thoroughly proved this season, and given the greatest satisfaction, viz.:—Sir Harry (Underhill's), 2*l.* 10*s.* per 100, or 7*s.* 6*d.* per dozen; Caroline Superb (Kitley's), 1*l.* 10*s.* per 100, or 5*s.* per dozen; Omar Pacha (Ward's), 1*l.* per 100, or 3*s* per dozen; Colonel Dundas, 1*l.* per 100, or 3*s.* per dozen: Sir Charles Napier, 1*l.* per 100, or 3*s.* per dozen; Magnum Bonum, 15*s.* per 100, or 3*s.* per dozen; and all other fine old varieties, such as Trollop's Victoria, Ajax, Ruby, Eleanor, Nimrod, Prince of Wales, British Queen, Black Prince, Prolific, Keens' Seedling, and all others worth cultivating, at 4*s.* per 100.

SEEDLING HOLLYHOCKS, not to be surpassed, saved from all the finest and best varieties now in cultivation, and such as will bloom well next season, 1*l.* per 100, or 3*s.* per dozen.

SWEET WILLIAMS, from 50 of the most select and choice varieties ever grown, 4*s.* per 100, or 2*s.* 6*d.* for 50.

ANTIRRHINUMS.—Plants saved from a most splendid collection of striped and spotted varieties, 4*s.* per 100, or 2*s.* 6*d.* for 50.

FINE SCARLET GIANT BROMPTON STOCK.—White ditto, Crimson ditto, all 4*s.* per 100, or 2*s.* 6*d.* for 50.

The Plants before mentioned are now ready for planting out, and are such that must ensure satisfaction, and the whole or any part of the above will be sent, securely packed, on the receipt of a post-office order or penny postage stamps to the amount; or 25 of any of the new Strawberry Plants can be sent by post, when the charge will be 1*s.* extra for postage.

SEEDS. SEEDS.

HOLLYHOCK, saved from all the finest and best varieties in cultivation, 1*s.* per packet.

SWEET WILLIAM, saved from 50 distinct varieties, 1*s.* per packet.

ANTIRRHINUM, saved from a most splendid collection of striped and spotted varieties, 1*s.* per packet.

The True Old BATH COS LETTUCE (the best ever cultivated), 1*s.* per packet.

*** Every order must be accompanied by penny postage stamps, or post-office order payable to

EDWARD TILEY, NURSERYMAN, SEEDSMAN, and FLORIST,
14, Abbey Church Yard, Bath, Somerset.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s.* per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. COBBETT'S Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

CHOICE NEW FUCHSIAS, ETC., OF THIS SEASON.

HENRY WALTON, FLORIST, &c., Edge End, Marsden, near Burnley, Lancashire, is now sending out "the White Corolla'd," and "Banks," and other new Fuchsias, at 18*s.* and 21*s.* per doz. (nice healthy plants), post free or hamper and package included, or 2*s.* 6*d.* to 3*s.* 6*d.* each, for names of which see Advertisement in *Gardeners' Chronicle* of August 11th and previous Numbers.

New Verbenas of this season, 15*s.* per doz., or 1*s.* 6*d.* each. Choice Cineraria seed saved from the finest named varieties, 1*s.* 6*d.* and 2*s.* 6*d.* per packet, post free.

Post-office Orders are respectfully requested, with all orders (unless reference is given) payable at Marsden, Lancashire.

SPLENDID NEW BEGONIA,
SEMPERFLORENS SAUNDERSI.

GARAWAY, MAYES, AND CO. are now prepared to execute orders for this fine Seedling Begonia (raised by Mr. F. Saunders, Gardener to W. Miles, Esq., M.P., Leigh Court), which is, without exception, the most useful and beautiful variety in cultivation. The original plant first bloomed in May, 1854, when only 6 inches high, and has continued without ceasing to produce from the axils of every leaf its splendid panicles of transparent vermilion buds, which develope to fine clear brilliant rose flowers, emitting a most agreeable odour. Its habit is close and compact, seldom attaining more than 3 feet; foliage small and extremely bright, forming altogether an object of beauty unrivalled by any other variety in its class. Price 10*s.* 6*d.* each, with an allowance to the trade of one upon every three ordered; also a few extra sized plants at 15*s.* and 21*s.*

Durdham Down Nurseries, Bristol.

THE PAMPAS GRASS,
"GYNERIUM ARGENTEUM."

LUCOMBE, PINCE, AND Co. have now for sale a healthy stock of well established Plants of the above, which will bloom finely this autumn, varying from one to two and three flower stems. Few Plants are more ornamental than this gigantic Grass, the leaves (which are more than 7 feet in length curving gracefully outwards) grow in large tussocks, thereby producing a very fine effect, and from the midst of these numerous flower stems arise to the height of from to 6 to 8 feet surmounted by elegant panicles of inflorescence nearly 3 feet long, resembling beautiful waving plumes of silvery feathers. It is perfectly hardy, and is also easy of cultivation. A grand specimen of this noble plant is now in the Exeter Nursery, pushing up nearly twenty large flower stems and numerous small ones, and will continue to be an object of great attraction for a considerable time. Prices and full particulars may be had on application to

LUCOMBE, PINCE, & Co., EXETER NURSERY, EXETER.
Established 1720.

WILLIAM YOUNG begs to call the attention of Noblemen, Gentlemen, Public Companies, and Planters in general to his extensive stock of CHOICE CONIFERÆ, HARDY EVERGREENS, ORNAMENTAL TREES, AMERICAN PLANTS, &c., which are this season particularly fine, and having been well prepared for removal, he can confidently recommend them to transplant with perfect safety.

W. Y. invites persons about to plant to inspect his stock, which is standing over 50 acres of ground, in which will be found all kinds of plants adapted to every description of ornamental planting. It consists of HARDY CONIFERÆ, containing some of the finest specimen plants ever offered.

	Feet high.
Abies Douglasi	6 to 8 by 5 to 6
" "	8 to 10 by 7 to 8
" "	10 to 12 by 8 to 9
" Menziesi	4½ to 5
" nigra, Black Spruce	4½ to 5
" alba, White Spruce	6 to 8
" canadensis, Hemlock Spruce ...	6 to 8 by 7
Pinus austriaca ...	6 to 8
" "	8 to 10
" Cembra	5½ to 6
" "	7 to 8
" excelsa	8 to 10
" insignis	2½ to 3
" "	3 to 4
Picea Pinsapo ...	5 to 6 by 6
" nobilis }	very
" Nordmanniana }	handsome
Araucaria imbricata .	2½ by 2½
do. do.	3 by 3
do. do.	4 by 4
do. do., very handsome	6 to 8
Cryptomeria japonica ...	3 to 4
Cedar of Lebanon ...	3½ to 4
" " ...	5 to 6
" "	7 to 8 by 6
" "	10 to 12 by 8
" Deodara ...	4½ to 5
" "	6 to 8
" "	9 to 10
" "	10 to 12

(The Cedars of Lebanon and Deodara are particularly handsome and well furnished.)

Thuja orientalis, Chinese Arbor-vitæ	5 to 6
" " " ...	7 to 8
Thuja Wareana, Siberian	5 to 6
" "	7 to 8
Chinese Juniper ...	4½ to 5
" "	5 to 6
Upright "	4 to 5
" "	6 to 7
Taxodium sempervirens	6 to 8
" "	10 to 12
Irish Yew	4½ to 5
" "	6 to 7

A LARGE QUANTITY OF FINE EVERGREENS.

Green Hollies	4 to 6
" " ...	6 to 7 by 4
" "	8 to 10 by 6 to 7
Evergreen Oak	3½ to 4
" "	4½ to 5
" "	6 to 8 by 4 to 5
Spruce and Silver Firs	6 to 8
" "	10 to 12
Weymouth Pine ...	8 to 10
Yews	3½ to 4
"	4½ to 5
"	5½ to 6
Quercus oxoniensis—New Leucombe Oak...	6 to 7
" " ...	8 to 10

AMERICAN PLANTS.

Azaleas, fine named sorts
Rhododendron ponticum (good for cover).
Do. all the new and best vars.
Kalmias, Andromeda, Ledums, &c. &c.

STANDARD ROSES, of all the best varieties.
FRUIT TREES, ORNAMENTAL DECIDUOUS TREES, for Parks or Avenues, from 10 to 12 feet.
FOREST TREES, for Copse Planting, from 2 to 4 feet.
Prices given on application.

A Catalogue is in course of publication, and may be had the first week in September for two postage stamps.

The Nurseries are two miles from Godalming Station, South-Western Railway, where conveyances can always be obtained.

Milford Nurseries, near Godalming, Surrey.

ORANGES AND CAMELLIAS, suitable for producing an immediate effect in Conservatories and large Greenhouses, 7*s.* 6*d.* to 105*s.* each. Many of the Orange Trees are covered with fruit, and all the Camellias with bloom buds.

CAMELLIAS, in large variety, with flower buds, of choice imbricated kinds, 30*s.* to 42*s.* per dozen.

Otaheite and other small-growing ORANGES, at 30*s.* to 42*s.* per dozen.

Choice free flowering AUSTRALIAN and CAPE PLANTS, in strong healthy specimens, at 18*s.* to 42*s.* per dozen.

HEATHS, in fine autumn-flowering sorts, strong plants, in 25 varieties, 12*s.* per dozen: do. in 25 other sorts, strong, at 18*s.* per dozen; do. in 25 different and more rare sorts, at 24*s.* per dozen; do. fine hard-wooded kinds, strong plants, at 30*s.* to 42*s.* per dozen; half-grown specimens of the above, well adapted for provincial exhibitions, at 2*s.* 6*d.* to 7*s.* 6*d.* each.

AZALEAS, in great variety, fine bushy plants, that will flower freely next spring, at 12*s.* to 42*s.* per dozen; large plants of the above, 3*s.* 6*d.* to 21*s.* each.

New, erect, and other GLOXINIAS, in small plants, of the choicest sorts, at 18*s.* to 30*s.* per dozen.

ACHIMENES—Chirita, Gigantea, and other fine sorts, strong flowering plants, at 18*s.* to 42*s.* per dozen.

EPACRISES, strong plants, and of the finest sorts, at 10*s.* to 30*s.* per dozen.

GREENHOUSE VERONICAS, six vars., 9*s.* to 12*s.* per doz.

CONIFEROUS PLANTS, including many of the best and newest kinds out, in young plants, mostly raised from seed, at moderate prices, including Araucarias, Libocedrus, new Californian Pines, in seven or eight varieties, the Thuja gigantea, Cupressus excelsa, and many others.

STOVE, GREENHOUSE, and HARDY CLIMBERS, in considerable variety, consisting of free flowering and sweet scented kinds, strong plants, at 1*s.* 6*d.* to 3*s.* 6*d.*

APHELEXIS, in five leading sorts, fine young plants to train as specimens, at 1*s.* to 2*s.* 6*d.* each.

PERENNIAL HERBACEOUS PLANTS, in showy species, well adapted to make a display in the flower garden in autumn, at 42*s.* to 10*s.* per 100. Established in pots.

ALPINE PLANTS, suitable for rockwork, in variety, 50*s.* per 100.

A large assortment of Show, Fancy, new French Spotted, Variegated, and Scarlet GERANIUMS, at moderate prices.

New White Corolla and Double FUCHSIAS Prince Albert, and other new dark varieties, at 3*s.* 6*d.* to 5*s.* each.

VERBENAS, including all the new and best kinds, both English and French, at 9*s.* to 18*s.* per dozen.

Large Flowering and Pompon CHRYSANTHEMUMS, strong flowering plants, 9*s.* to 12*s.* per dozen.

An assortment of Tropical and Hardy FERNS, of about 200 species, including some of the Arborescent kinds from Valdivia and Juan Fernandez, which are not to be seen in any other European collection, prices from 1*s.* 6*d.* to 10*s.* 6*d.* each, except in a few of the rare sorts, which will be from 105*s.* to 210*s.* each.

A large collection of ORCHIDEOUS PLANTS, of most of the leading sorts in cultivation, many of which have been imported during the last six months from Guatemala, Orizaba, Venezuela, the West Indies, Borneo, and Assam, in large numbers, and can therefore be offered at very *different prices* from what is *usually charged* for the same class of plants.

HUGH LOW AND CO., Clapton Nursery, London.—Aug. 25.

FLOWER SEEDS FOR PRESENT SOWING.

BASS AND BROWN'S superior Selected Seeds per packet, as under:—

CALCEOLARIA, choice, 1*s.* From new vars. of our superb Collection, Extra 2*s.* 6*d.*—GERANIUM, choice, 1*s.* Extra from new vars. of our superb Collection, 2*s.* 6*d.*—GLOXINIA, choice, 6*d.* Extra from new vars. of our superb Collections, 2*s.* 6*d.*—VERBENA, choice, 1*s.* Extra from new vars. of our superb Collection, 2*s.* 6*d.*—CARNATIONS, extra from 400 vars., 2*s.* 6*d.*

For a variety of other choice seeds for present sowing see advertisement in *Gardeners' Chronicle*, August 18.

Seed and Horticultural Establishment, Sudbury, Suffolk.

CALCEOLARIA AND CINERARIA.

MESSRS. E. G. HENDERSON AND SON beg to announce that the above FLOWER SEEDS, saved from the choicest varieties, may be had in packets at 2*s.* 6*d.* and 5*s.* each; the finest quality of CALCEOLARIA is only offered at 5*s.*; second quality, 2*s.* 6*d.*

This Season's CATALOGUE will be forwarded on application, and a Beautiful Coloured Plate of nine new Flowers will be sent on receipt of 12 postage stamps.

Wellington Nursery, St. John's Wood, Aug. 25.

SPLENDID SPECIMEN GREENHOUSE PLANTS.

WILLIAM BARNES is commissioned by a private gentleman to offer for sale some of the finest specimens in the country of the following kinds of Greenhouse Plants:—

Azalea delicata	Erica vestita alba
" variegata	Epacris miniata
" Lawrenciana	Pimelea decussata
" Gledstanesi	Pultenæa stipularis
Chorozema angustifolia	Polygala acuminata

Particulars can be obtained by application to
WILLIAM BARNES, Camden Nursery, Camberwell.

WADSON'S SCARLET & OTHER TREE CARNATIONS.

J. WADSON having raised from Seed, and grown as Cut Flowers for Covent Garden several beautiful varieties of the above (which have been so much admired and Plants often asked for), is now prepared to send out the following, viz.:—

Scarlet Brilliance, brightest known ...	3*s.* per pair.
Eliza, bright scarlet flake	5*s.* "
Tom King, rose flake, very large	5*s.* "

The above are three very fine varieties of the Tree Carnation.

Also,

Tree Pink, very fine	1*s.* 6*d.* per pair.
French White Heliotrope...	1*s.* each.

The above may be seen in flower, and Plants obtained of J. WADSON, Florist, near the Thatched House, Albion Road, Hammersmith, for cash only.

The Gardeners' Chronicle.

SATURDAY, AUGUST 25, 1855.

A NOTICE has just appeared in the *Maidstone Journal*, signed by all the leading Hop factors in the borough, which declares that the brewers have sustained most serious losses from the use of the SULPHUR to check the mould in the Hops, and that they shall feel it their duty to demand from the growers a declaration that this practice has not been adopted before they purchase any Hops.

Their manifesto contains the following paragraphs: "It has now been practically ascertained beyond all question that Hops grown under such treatment impart so obnoxious a smell and flavour to the beer brewed from them as to render it unsaleable; and, unhappily, we could multiply instances of losses arising from this cause to the extent of thousands of pounds.

"It would appear that sulphur in moderation applied in vapour during the process of drying produces no deleterious effects; when actually incorporated into the plant by its application during its growth, it impregnates the beer with its flavour to such an extent as to render it undrinkable."

There are one or two statements here which, we think, require some observation. It is quite incorrect, for instance, to state that the sulphur is ever incorporated into the plant by its application during its growth. The application is wholly external, and it is probable that it is the combination of the nascent oxygen due to the mere process of vegetation with the sulphur, that produces sulphurous acid, and so destroys the mildew, and if it were really found that the application of crude sulphur in quantity were injurious to the quality of the Hops, the vapour of sulphur, which consists of sulphurous acid, might be equally efficacious if properly managed.

We, however, beg leave to doubt the justice of the statement of the Hop factors without more distinct data than they have yet thought proper to bring forward. The Hops which are submitted to the vapour of sulphur in the kiln must be impregnated with sulphur to a great extent. So much sulphur is used that a kiln man is as easily recognised at a few yards distance as the unhappy outcast, the ointment of whose hand bewrayeth him. Grapes, though so delicate, treated with sulphur, produce as good wine as those which have received no such dressing, and it is notorious how trifling a circumstance will affect the flavour of the vintage. It must be remembered, too, that a very few Hop growers only used the sulphur, and it seems therefore almost impossible that losses to the extent of thousands of pounds should have been sustained in cases where it is capable of proof that the Hops were derived from gardens in which sulphur was used. The solution of the case is in all probability far more easy. The extremely high price of Hops has induced brewers to use noxious substitutes for Hops, or to buy cheap and damaged foreign samples, and they are now willing to cover such practices, which

could only lead to bad results, by the pretence that the evil has been due to sulphur dredging.

We ourselves bear testimony that foreign Hops have produced ill-flavoured and unwholesome beer in an establishment celebrated in general throughout its neighbourhood for the excellency of its brewing, and we strongly suspect that something of the kind has taken place where the blame has been laid upon the sulphur. At any rate the Hop factors, if they have recourse to such an extreme measure as to refuse to buy Hops without a certificate that they have been grown without sulphur, are bound to give circumstantially the data upon which their manifesto is grounded, and except the names be stated of the several brewers who profess to have suffered, and of the Hop growers from whom they purchased, together with precise figures, capable of verification by any one who has the necessary practical knowledge of the subject, no reliance can be placed upon the manifesto. If the matter is capable of proof, the sooner it is proved the better; but if nothing appears beyond assertion, it is impossible not to suspect a wilful mis-statement of facts somewhere.

The same prejudice which, as we all know, was so long successfully opposed to the general introduction of vaccination, and to so many other important discoveries, will to the end of time be opposed to every suggestion for the relief of any widely spread evil. The general introduction of sulphur dredging or washing in some of its forms would, beyond doubt, have long since saved an infinity of suffering in the wine districts; but a multitude of prejudices in those countries are against anything new, and the public benefactor who proposes them may fall a victim to some accusation of poisoning the people, or of flying in the face of Providence. It is quite certain that sulphur dredging has been a great boon to the Hop grower, and we must make it our business to see that he is not sacrificed either to ignorance or malice. *M. J. B.*

Few things have more perplexed gardeners than the different degree in which the same species of plant has been affected by frost in the same locality. The last two winters have afforded abundant examples of plants destroyed and unharmed in the same garden, or park, or village, under what have been thought to be identical circumstances. Many of these cases have appeared to be so little explicable by differences of temperature, that he who would interpret such phænomena has been obliged in some instances to assume that different individuals of the same species possess different degrees of vitality, which renders some more able than others to resist a low temperature.

We find in the "Revue Horticole" some valuable observations upon this point, by M. Charles Martins, who has very carefully studied as a physicist* the effects of the two last winters at Montpellier. Without denying that the vital power of individuals differs considerably, he has nevertheless sought to explain the phænomena which were presented to him by reference to mere differences in temperature; and we cannot do better than give a concise account of the result of his inquiries.

In the first place he points out the great differences in temperature which are known to occur in places quite contiguous to each other, but which are unsuspected by the ordinary observer. By way of illustration he takes some details supplied by M. Renou from Vendôme in 1852. The valley of Huchingy, about a mile and a half from that place, is 200 yards wide, and bordered by little eminences only 40 yards high. In this place it is always found that the winter temperature, when the wind is in the north, is from 5° to 15° lower than at Vendôme. For instance, Jan. 24, 1852, the temperature at Vendôme was 26°, and at Huchingy at the same hour 21°. Feb. 21, Vendôme, 26°, Huchingy, 19°. March 4, Vendôme, 28½°, Huchingy, 17½°. Finally, on the 20th of April, while the air of Vendôme was 30°, the thermometer fell at Huchingy to 15°. Such differences, he remarks, are the necessary consequence of the laws of heat, and it would be most surprising if they did not exist. An observer of the weather who should announce his having remarked the same temperature in the centre and environs of a town, on the north and south sides of a hill, in a low place and on a height, would gain little credence from those who understand these subjects. Gardeners are most especially those who should appreciate and provide against such differences.

As an example of their effect, M. Martins cites the following instances, which occurred this last spring at Montpellier to the Sweet Bays, Olive trees, and Fig trees. Of these plants some perished while others escaped, and it was here that the effects of aspect and shelter were most conspicuous. In fact, had not the ordinary thermometers shown that the minima of temperature greatly differed, these trees—real living thermometers as sensitive as those of the philosophical instrument maker—would have plainly indicated it.

To begin with the Bay. In a low part of the Botanic Garden, where the temperature was ascertained to have been + 3° on the north side of a wall, and — 1° away from all shelter, the Bays almost all died. But it was different in a part of the garden called the Bosquet de Narcisse, where a swell of the ground raised the surface about 6 yards; here the Bays suffered little; a few were scorched, but the foliage of most of them remained green. At this place the thermometer did not fall lower than + 6½°. Undoubtedly in the Bosquet de Narcisse the Bays were sheltered by high Cypresses and great Celtises; but in a neighbouring garden they suffered very little, although not at all sheltered. Moreover, in the low part of the garden the Bays died, although they were sheltered. In short they escaped wherever there was any rise of the ground. Hence it appears that the difference of a few yards in the level affects temperature so much as to produce entirely different effects upon vegetation. M. Martins remarked, however, that Bays stronger than the rest escaped the frost in the midst of others that died.

It was the same with the Olive trees. In low places where the thermometer fell to — 1° they perished down to the old limbs. In a place protected from the north by a house they only lost their leaves. In all the district between Montpellier and Nismes the Olive trees of the plain suffered more or less, and had to be cut back, while those on the low hills sustained no injury. None of these hills are above 60 yards high and many much lower. There was a pair of young Olive trees (*Olivettes*) planted near each other, but with a difference of elevation between them of 10 yards only; in one the leaves were all scorched, in the other they were scarcely hurt. Many cases of the same kind were observed in other places. These facts appear to establish a general law that "cold is most injurious in low places where radiation is most intense in consequence of the tranquillity of the air, and least injurious in exposed places where the agitation of the air opposes the effects of radiation."

Fig trees and Pomegranates presented the same general results.

Hence M. Martins infers that one of the first duties of a gardener is to make himself acquainted with local climates, the differences among which are far greater than is generally imagined. For example, there occur in the Botanical Garden of Montpellier no fewer than four local climates. 1° *The coldest in winter and hottest in summer;* this is the lowest place unsheltered to the north and west, and only protected to the east by some tall trees. 2° A space to the north of this, protected by houses and walls; *it is not so cold, but as hot as the first.* 3° The Botanical arrangement, sheltered on the north by an Orangery and greenhouse, surrounded by trees and buildings, and overlooked on the south-west by the hill du Peyrou; *this is not so cold in winter, but excessively hot in summer.* 4° The Bosquet de Narcisse and other elevated places; *here the climate is more equable, less cold in winter, less hot in summer.* The mildest place of all is the south slope of a little artificial mound, occupied by evergreen Oaks, Aleppo Pines, Loquats, &c.

These circumstances appear to be deserving of notice, for they show that in addition to the well-known protection afforded by walls and aspects, a very important practical effect is produced by such slight elevations as even a few yards; a point too often very little attended to in forming a garden, and very possibly the cause of some of the apparently conflicting results obtained by those who have recorded the effect of cold upon exotic trees. Most especially are they important as demonstrating the fallacy of thinking that a place is warm in winter because it is low, and cold at the same season because it is high. The defect of M. Martins' observations seems to us to consist in his taking no account of the drainage of the places described by him.

We understand that Sir W. J. Hooker, Dr. Royle, Mr. Bentham, and Mr. Wentworth Dilke, the four Fellows of the Horticultural Society of London who a short time since formed a deputation to the Imperial and Central Society of Horticulture in Paris, have been elected corresponding members of the latter body. The Council of the London Society have ordered a similar compliment to be paid to our French Horticultural friends as soon as the formalities required by the English charter can be complied with after the autumnal recess.

* This word has been lately proposed as the English form of the French word *physicien*, and we willingly adopt it.

New Plants.

139. Lilium napalense. *D. Don. Wallich Plant. as. rar.*, iii. t. 291.

A small single-flowered bulb, with alternate lanceolate leaves. Flower nodding, with revolute smooth segments as long as the tube. Stamens shorter than the flower, with deep orange-coloured pollen. According to Dr. Wallich the flowers are dull yellow; in the specimen before us they are greenish, much speckled with purple inside. It is from a very weak bulb presented to the Horticultural Society by the East India Company, and which opened on the 16th July, that this note has been made. The Indian drawings represent the flower to be 5 inches long, and this corresponds with Dr. Wallich's account and our wild specimens. As soon as it gets into health, it will no doubt become a valuable addition to our hardy Lilies. It never seems to grow more than 2 or 3 feet high. Odour it has none worth mentioning.

140. Strophanthus capensis. *Alph. De Cand. Prod.* viii. 419. Christya speciosa. *Ward and Harvey in Hook. Journ. Bot.*, iv. 134, t. 21.

A greenhouse shrub, with obovate convex verticillate leaves, and short dichotomous panicles of flowers. The corolla is funnel-shaped, with five long narrow bluntish yellow lobes marked with deep orange at the base, where also, namely at the orifice of the tube, are 10 small acuminate teeth standing in pairs. It has flowered in a glass wall in the garden of the Horticultural Society, where it was received from Messrs. Backhouse. In what respect this plant can have been supposed to differ from *Strophanthus* we are unable to discover. The stigma is cylindrical as in that genus, and by no means of the form represented in the Journal of Botany. In every particular it, in fact, agrees with the description of *S. capensis*, a plant we have not seen, except in the number of its leaves being usually four, not three, in a whorl, and in its corolla-teeth being acute, not blunt; differences which are probably unimportant, even if real. The calycine scales are exactly such as Prof. Alph. De Candolle assigns to his plant.

VEGETABLE PATHOLOGY.—No. LXXXV.

354. Phylloptosis, Carpoptosis, Anthoptosis (*Fall of the Leaf, Fruit, Flower*).—When organs have fulfilled their functions it is natural that decay should commence, and necessary, if the organism is to continue in life and to repeat the same cycle of functions, that the effete organs should make way for others. Organs so abundant, and in general so indispensable as leaves, which answer not only the purpose of lungs but promote other material processes, could not remain long on the tree after they have performed their functions without inconvenience, and their fall renews in some measure the waste of the soil due to the absorption of its nutritious matter by the spongelets. In some cases their fall is a slow process; there being no provision by which separation can naturally take place, the lamina remains attached to the stalk till it is torn into strips by the wind, and ultimately dries or rots off. Where there is no articulation, as in the Melon,* their decay is a fruitful source of mischief, insomuch that it is often advisable in those cases where it is absolutely necessary to thin the foliage for the sake of procuring a freer circulation of air and transmission of light, to leave a small portion of the lamina upon the petiole, as decay in such a case takes place far less rapidly.

355. In many cases, however, the fall takes place by a tolerably clean section passing through the cellular tissues and the inclosed vascular bundles. The leaf gradually loses its natural hue, assuming yellowish or reddish tints from a chemical change in the chlorophyll; the tissues dry up and refuse to perform their functions any longer, the sap ceases to flow and return by its accustomed channels, till at length the cells which still retain their vitality and those which are effete are in contact; separation takes place, and the organ falls. Now there is no process of inflammation, so far at least as we can ascertain, by which the new and old tissues are separated, as in the limb of some animal, a portion of which has been injured, and has in consequence passed into a state of mortification. The progress of decay goes just so far as to be capable of affecting the adjacent vital organs only, and as there was already some peculiarity of structure by which the organ seemed to possess an articulating process, the dead and living tissues part at that point. It is asserted by Schacht that the cells at the plane of separation are cork cells, and that the scar is subsequently covered with them, but this requires confirmation. He speaks positively indeed of having ascertained in Dracæna reflexa the presence of tabular cells resembling perfectly in form and character the cork cells of the bark, perforated by the vascular bundles, and where the blade of the leaf is withered, perfectly resembling true cork cells in chemical composition. The transmission of sap is consequently impeded, and at length entirely cut off, insomuch that the leaf hangs loose upon the stem and finally falls. I have in vain endeavoured to confirm Dr. Schacht's views, which I am inclined to think are much impaired by other analogous cases, as the separation of branches of different sizes from trunks, which will be mentioned in a following article. And any change which may take place in the superficial cells of the scar with a view to

* Sometimes, as in the Potato, the diseased leaf or leaflet is thrown off at the base, and the decay does not extend, but not so frequently the dead leaf hangs upon the stem which becomes rapidly affected, and within a few days the whole haulm perishes.

protect the subjacent tissue from the effect of the weather in the absence of cuticle may be entirely independent of the phenomenon in question. It is possible indeed that some such transformation may take place with a view to cut off the transmission of any morbid matter from the dead leaf to the living tissues. That disease does take place occasionally from such transmission I have traced clearly in the case of canker, and there is no reason why this should not be the case, exactly as pus absorbed into the animal frame from ulcers is frequently as fatal as if direct inoculation from another subject had taken place. And if these views be true, the formation of the cork cells may be a consequence of the effete state of the leaves, which might equally have fallen had no such cells been formed. The whole matter is, however, at present quite conjectural. Certain it is that such separation does take place sometimes where there is no appearance of a suture. The fall of fruit, flowers, anthers, &c., from its point of attachment belongs to precisely the same set of phenomena as the fall of the leaf, though there is merely a cessation of active growth and not of the functions of the cells which are as active as ever in some respects, or the fruit would in many instances never arrive at perfection, but there is the weight of the fruit in one case in addition to assist the operation. The separation of seeds from their placenta is not exactly parallel with either, though more analogous to the last. The component parts have all arrived at perfection, and therefore neither require any more nutriment from the mother plant, nor are in a condition to make any further interchange, and, as in the two former cases, separation takes place. We must then, on the whole, regard this separation as a vital process; and if we consider that leaves and fruit do not in general fall from a branch killed by abrupt separation, we shall be the more inclined to adopt some such view. *M. J. B.*

THE CROP OF PEARS IN THE SOUTH OF ENGLAND.

At last the spring frosts have spared us, and our Pear trees without being subjected to any new system of pruning are laden with fruit—a great contrast to last season, when scarcely a Pear could be seen on standard or dwarf trees not trained to walls; and yet the blossoms last spring were not so finely developed as in 1854, the weather previous to the 24th of April having been so dry and warm that I scarcely ever remember the blossoms of fruit trees to have been so perfect and beautiful as then.

I have a plantation of 2000 trees of the Louise Bonne of Jersey Pear. On the 24th of April, 1854, the fruit had all set vigorously and beautifully, and were about the size of small Acorns; on the morning of the 25th the thermometer stood at 25°, and scarcely one escaped, for all were frozen through to the core and dropped off. The spring of 1855 was, as must be well recollected, very cold; severe frosts all through April, and May commencing with the same winterly weather, for on May 3d we had 12° of frost (our December frosts are rarely more severe); on May 5th, 8° of frost, and on the morning of the 9th 11°. The weather all this time was dry, and the blossoms of the Pear trees unexpanded. On May 20th my Louise Bonne Pear trees were in full bloom, and I then found a few blossoms on the outside of each cluster injured, but the greater portion were perfect; the weather continued dry, and they set their fruit well. I have now a crop such as is rarely seen, the fruit of a clear red, without spot or crack; two rows (150 trees) of the Beurré d'Amanlis are equally beautiful, all studded with clear waxy-looking fruit, seeming as if they had been placed on the trees by the hand of an experienced gardener, so regular and beautiful are they. These trees are all pyramids and bushes on the Quince stock; the soil is a sandy loam inclining to clay for about 15 inches in depth, under which is a stratum of brownish white clay, with numerous chalk stones, and then calcareous sand, so that the soil is cool and moist, yet well drained. To the calcareous nature of the soil (which without manure gives a yellow tint to the foliage) I imputed the brilliant colour of the fruit, excelling both in flavour and appearance any Pears of the same kind imported from France or Jersey.

In connection with the Quince stock I may mention a curious fact. The Louis Bonne Pear, grafted on the Pear stock, after growing vigorously some four or five years on the soil as described above, begins to canker and rarely gives a fruit free from spots. A few days since, observing one or two trees in my plantation without fruit, I was induced to examined them, and I found that, owing to their being planted too deeply, they had struck root from the Pear at its junction with the stock; these roots, instead of being fibrous, and keeping near the surface, like those of the Quince, are large, and have struck deeply into the subsoil; the consequence is barrenness, and a tendency to canker, for the branches are full of cankery spots: whereas, all those growing on the Quince stock, although differing to a great extent in vigour, have not a spot of canker on them. In two rows of the Beurré d'Aremberg of 150 trees, budded on the Quince stock and laden with fruit, I observed one tree showing most vigorous growth, being double the height of the others; on taking a close view I found not a single fruit upon it; this tree is on the Pear stock, and its roots having apparently struck deeply into the subsoil, have thus lost the influence of run-heat and the consequence is sterility. This simple fact seems to me to tell us how imperative it is to keep the roots of our fruit trees near the surface, and thus to let them have that ripening warmth so necessary to the fruitfulness of the tree. I saw this further exemplified so recently that it is perhaps worth mentioning. A friend having read in some recent publication that orchard-house trees in pots should always be plunged, had all his pots plunged to their rims in early spring. The consequence is that his Peach and Nectarine trees have become quite unhealthy and the fruit is dropping off without ripening. The roots of Peaches and Nectarines benefit largely by the pots being surrounded by the warm air of the house. *T. Rivers.*

RHEUM NOBILE.

"The present is certainly the most striking of the many fine Alpine plants of Sikkim; and though in every botanical character, as also in the acid juice of the stem, a genuine Rhubarb, it differs so remarkably in habit and general appearance from any of its congeners, that at first sight it could not be recognised as one of them. I first saw it from a distance of fully a mile, dotting the black cliffs of the Lachen Valley at 14,000 feet elevation, in inaccessible situations, and was quite at a loss to conceive what it could be; nor was it till I had turned back the curious bracteal leaves and examined the flowers, that I was persuaded of its being a true Rhubarb.

"The individual plants of Rheum nobile are upwards of a yard high, and form conical towers of the most delicate straw-coloured, shining, semi-transparent, concave, imbricating bracts, the upper of which have pink edges; the large, bright, glossy, shining, green, radical leaves, with red petioles and nerves, forming a broad base to the whole. On turning up the bracts the beautiful membranous, fragile, pink stipules are seen like red silver-paper, and within these again the short-

branched panicles of insignificant green flowers. The root is very long, often many feet, and winds amongst the rocks; it is as thick as the arm, and bright yellow inside. After flowering, the stem lengthens, the bracts separate one from another, become coarse red-brown, withered and torn; finally, as the fruit ripens they fall away, leaving a ragged looking stem covered with panicles of deep brown pendulous fruits. In the winter these naked black stems, projecting from the beetling cliffs or towering above the snow, are in dismal keeping with the surrounding desolation of that season."

Such is Dr. Hooker's account of this curious Rhubarb, of which the accompanying sketch is taken from his recent work on Himalayan plants (see p. 515). The natives call its stems "chuka," and eat them, their acidity being pleasant. Some of the seeds which were sent to Kew grew, and the seedlings lived two years; but we regret to learn that they have now been lost. Let us hope that the plant will be reintroduced with more success.

Home Correspondence.

Why should not Part of an Extensive Pleasure Ground be Appropriated as a Winter Garden?—Not merely a few evergreens planted amongst deciduous trees and shrubs, but such a winter garden as existed in Kensington Gardens nearly seventy years ago. There was then a pavilion open to the south; in front a broad gravel walk, which also surrounded a smooth shorn green, and thus the sun's rays were not obstructed in their passage to the pavilion. Excepting the part it occupied was a shrubbery of evergreens beyond the gravel walk; cold winds were kept off by Pines and Firs; the sombre hue of these trees was relieved in front of them by the bright green of the Laurel, and by the admixture of variegated evergreens, together with the gay Holly and its bright berries. Towards the walk were Heaths, and near the Box edging Christmas Roses, Snowdrops, and Crocusses. In 1829 I sought the winter garden, but not a vestige of it remained save a few Firs and Pines; deciduous shrubs had grown up amongst these trees, thus banishing the charm of the former winter garden where nought but verdure presented itself. The vast variety of evergreens now cultivated would enable a gardener of the present day to vary greatly the appearance of such a spot. It may, indeed, be said against a winter garden that it would at times be covered with snow, but snow is not on the ground during the four, five, or more months of our ordinary winter. A winter garden need not prevent those who like a long walk from taking it, but such a sheltered, cozy, green garden would be a cheerful retreat for persons advanced in years, and for those who most enjoy a book when read in the open air. *B.*

Sir Harry Strawberry.—Never before have such pains been taken to introduce a new Strawberry to the gardening world as have been taken with this. It will now, therefore, be very interesting to learn from your correspondents whether or no its qualities are at all equal to its high-sounding descriptions. Is it larger, hardier, and of higher flavour than the British Queen? Has it been exhibited in London at any of the great exhibitions? It was shown at Carlisle in July last, and not thought highly of. It was also shown at Watford, July the 16th, and obtained the third prize, its flavour being poor and flat. *Fragaria.*

Transplanting Large Trees at Gunnersbury Park.—In the report of Gunnersbury Park last week, I see I stand sponsor for the Douglas Fir, "45 feet in height; since it has been transplanted it has pushed a little, but its top appears to be dead." So much for Mr. Barron and his mode of transplanting large trees. It is not for me to say whether this report be carelessly or unfairly written, but in either case allow me to put the matter right. The majority of the large trees transplanted at Gunnersbury in October last were removed by my machines, under the superintendence of one of my men, all of which are doing well, with one exception, viz., the large Douglas Fir. This tree was removed under my own superintendence; but before I was applied to to remove it, a trench had been cut quite round it, severing every root very much too near, upon Sir Henry Stewart's principle, and totally at variance with my plan of transplanting. I stated distinctly to Baron de Rothschild and Mr. Forsyth at the time, that with the roots in such a state it could not survive unless protected by an awning, and careful top watering. This was carried out, and notwithstanding such a severe winter and spring the tree lives. The dead top is the result of having its toes too closely pared. This system I protest against. Much has appeared in your Paper within the last three years on the subject of transplanting large trees. Little more than two years ago it was stated that a new system then in vogue would "supersede every other," and the writer of those articles racked his brain to find subjects of comparison to set off this favourite system. Planters ancient and modern were placed in juxtaposition, but luckily the writer forgot that either Elvaston Castle or Mr. Barron were in existence, notwithstanding all that had appeared in the *Chronicle* but a short time before. I remained quiet. Nevertheless some made honourable mention of what had been done; amongst others Sir Joseph Paxton told Dr. Lindley that "Mr. Barron's system was still the best for removing large trees." Since then I have transplanted in Kent, Sussex, Berkshire, Hampshire, and Staffordshire most successfully several hundreds from 25 to upwards of 50 feet high; and on 4th of July last, on my last built machine, at Elvaston Castle, in the presence of thousands of people, I removed an Oak 46 feet 7 inches high, and not a leaf flagged. It is now doing well. *J. Barron, Elvaston.* [We do not know what our correspondent complains of. Not a word was said or implied in disparagement of Mr. Barron's skill in transplanting large trees.]

Potato Disease.—When I wrote to you last week, I said "no Potato disease." On the Friday, however, of last week, it made its appearance in force; and in accordance with the plan always successfully pursued by me, I mowed off the tops at once, and I do not fear having a crop of healthy Potatoes; more especially as the disease appeared this year fully a month later than usual, which is about the time all vegetation has been protracted in its growth this year by the cold winter and spring. Does not this show most unmistakably that this singular disease is connected with a peculiar period in the growth of the Potato plant? If the cause is electrical or atmospherical, still it only produces mischief at this particular point. It would be interesting if a number of your readers would record each year the date of the first day upon which they observed the invasion of the disease. *C. R. Bree, Strickland, Stowmarket, August* 22.—— The disease commenced in this neighbourhood with the late rains, and increased with a rapidity I never before witnessed. The stench emitted from the allotment field

gardens, belonging to Melville Portal, Esq., M.P., consisting of about 10 acres, was almost intolerable. Having had an opportunity of visiting several adjacent villages, I observed that the haulm of the early Potato was completely scorched, while that of the later sorts is considerably damaged. On examining a root of the Fluke Kidney the other day it yielded ten fine tubers, neither of which exhibited the least signs of decay, although the leaves were diseased. On lifting a root of Yorkshire Kidneys in a contiguous bed, I found two out of three of the tubers diseased and unfit for use. Should the present dry weather continue, the decayed leaves may cease to generate a parasitical fungus, and a plentiful crop may yet be realised. Should wet weather, or a humid atmosphere return, I fear that the lately promising crops of Potatoes, as well as the hopes of the growers, will be blasted. *C. Taylor, Whitchurch, Hants.* ——Within the last fortnight the Potato crops in this neighbourhood have become unmistakably affected—the disease diffusing itself with alarming rapidity. It appeared here simultaneously with mildew, which attacked some of my crops of Peas, and so far as I have been enable to observe its nature and apparent progress on the affected plants, I feel disposed to conclude that it is a fungus analogous to the mildew which is so destructive to Vines, wall trees, Peas, &c; but it appears to me that owing to the succulent nature of the Potato, its pernicious property is imbibed and conveyed into its whole system far more instantaneously than in the case of hard-wooded plants; hence the rapid changes which so soon take place after the watery tissues of the Potato are attacked; and I think it may and has been observed that the nearer the plant approaches maturity the more certain is its safety. If that be so we cannot do better than follow the advice from time to time given in your Paper, viz., to plant early so as to be able to lift the crops before the disease is likely to make an inroad amongst them. If taken up free from disease and stored in as dry a state as possible out of the reach of atmospheric influence, they may be considered perfectly safe. I have found it an excellent plan to keep by me a lot of dry mould in sheds (and air-slaked lime) such as old potting soil, &c.; this I sprinkle amongst the Potatoes as they are laid by, and likewise cover them with it to the depth of an inch or two. By adopting this plan I find that they keep much better, being in a more uniform state, and the air—humid or otherwise—is, as it were, more perfectly excluded. I took up some Potatoes about a week or 10 days ago which were housed, with the exception of the smaller ones, which I intended for seed. These were spread thinly on an exposed surface, and on examination to-day they were found to be very much diseased, while the others are perfectly free. Thus I consider the malady to result from the peculiar state of the atmosphere which we have experienced of late. *Geo. Fry, Lee, Kent.*

Hedges.—In the winter of 1849 extensive alterations were made here, and quantities of Quick hedges were planted in double rows. I gave 4*s.* per thousand for the Quick. Immediately it was planted I had it all cut to within 4 inches of the ground, and such has been the progress of these Quickset hedges that they are now 4 feet 6 inches high and 3 feet through at the ground, without a gap. A portion of one of these fences will have to be moved this autumn. How am I to proceed? *J. M.* [Take them up in September, and cut them down to within a foot of the ground.]

Hedge Knives.—Your correspondent, "A Yorkshireman," has made a mistake in the name of the best hedge-knife maker in Scotland. It is Mr. Sanderson, of Dunse, Berwickshire (not Harrison). His No. 70 is very good for switching where the hedges are trimmed twice a year; but I always preferred the No. 80 for switching, whether the hedges are trimmed once or twice. No. 90 is a useful implement for breasting (cutting large hedges over), but hedge-hooks of all sizes can be had from Mr. Sanderson. His hooks are also supplied by all the principal nurserymen in Scotland; but I would recommend nurserymen and others who supply Sanderson's hooks to have them handled the same length as those supplied by Messrs. E. Lang & Sons, Nurserymen, &c., Kirkaldy, Fife, N.B. They are 4 inches, or perhaps a little more, shorter in the handle than those in general use. *A. S., Horningsham.*

How to Cut Hedges.—In reply to "A Yorkshireman," who says the hedges in his district are not clipped square, I beg to state that only the north of Ireland was referred to in the observations made by me. *A Northern.*

Camellias. — Having observed that "C. P. W., of Penzance," is wishful to know how to bloom Camellias with success, I send the following from an experienced gardener:—How to set Camellias with or without artificial heat. When the growth is nearly made, that is, when the leaves have expanded in the young shoots, water should be withheld so as to allow the plants to flag but not shrivel. This should be repeated twice, after the first flagging water them copiously, filling the pot three or four times after the water has sunk; only water them this once, then let them flag as before; care is required not to allow them to flag too long or the leaves will be injured. This sudden check at that period I have always found will cause the plants to form buds, but unless they are in health this process to set them for flower will be useless, as it would weaken them still more. I have been enabled by these means to cause Camellias to bloom that have not flowered for three or four years. *Bella Donna.*

Bees v. Fruit.—I have found bees so destructive to fruit that I have long since given up keeping them myself. My neighbours' bees are now attacking my Gooseberries and Raspberries, and will doubtless make sad havoc with a fine crop of wall fruit. There is no help for this, but I should be glad to know whether in other localities bees are so mischievous. *Henry.*

How to make Yeast.—Your correspondent "W. B." complains (see p. 502) of the difficulty and expense of procuring yeast for baking, and also of the bitterness of that generally had from the brewer. In order to obviate the many difficulties mentioned by "W. B.," allow me to suggest the propriety of his becoming his own manufacturer, so that (after the first time) he may be quite independent either of the English brewer or German distiller. The accompanying formula is much used in Monmouthshire, and from my own experience efficient. I may add that the term yeast is scarcely known in that locality, but that it is universally known by the name of Barm. To make the latter, boil 1 ounce of Hops in rather more than 2 quarts of water during one hour. Strain; if less than 2 quarts make up the measure by straining more water through the Hops. Add one table-spoonful of salt. Mix together intimately ½ lb. of fine flour and ¼ lb. of brown sugar. When the Hop liquor is rather more than milk warm, stir the mixed flour and sugar into it, and at the same time a teacupful of good yeast. Put the mixture into a covered jar in a tolerably warm place (the hob of the grate) stirring frequently during 24 hours, when it will be fit for use. Keep it in a stone bottle in a cool place not too tightly corked. It will keep good for three months. It is necessary to stir and shake before use. *C. Clifton, Bristol.*

Page and Co.'s Blight Composition.—In my experiments with this mixture, I have found it to kill red spider with as much facility as it does aphides, and mealy bug as effectually as thrips or scale, and all with one syringing. I have tried it upon Hop-bines, and with one syringing it has completely cleansed them from lice and fly. When better known, it will therefore, doubtless, be extensively used by Hop growers as well as by gardeners, for mealy bug and scale. I take a large pan and lay the head of the plant in it, playing upon it with all the force I can with a syringe. The pan prevents waste, and I can use the same composition on the plants two or three times. This mode of applying it is therefore very economical. *Henry Barham, Springfield Nursery, Hastings.*

Discovery of Red Crag at Comb, near Stowmarket.—Your geological readers will feel interested in the fact that the red crag has been found 12 miles further inward than has hitherto been recorded. Some shells, and ferruginous shelly sand in which they were found, were sent to me a few days ago. The bed was discovered while deepening a well at the malting of Mr. Webb, close by the turnpike-road, near the bridge, leading to Stowmarket. I at once recognised them as belonging to the red crag, and my opinion was confirmed by Professor Henslow, to whom I sent a shell and some of the sand. This morning I found a phosphatic nodule, commonly called coprolite, among the sand. Unfortunately the well was closed before I heard of the circumstance. The men say it was deep and full of shells, and filled with water. It is below, considerably, the bed of the river, which runs through the premises. *C. R. Bree, Strickland, Stowmarket, Aug.* 22.

Gooseberry Caterpillar.—The Gooseberry leaves furnished by "T." exhibit two distinct kinds of objects on their under surface. The small semi-transparent oval bodies placed along the chief ribs of the leaves are the eggs of the Gooseberry grub. There are about 20 on one leaf alone. This will, I apprehend, fully answer "[illegible]'s" observations in last week's *Gardeners' Chronicle.* The other objects are minute vegetable excrescences, probably arising from wounds made by insects sucking the leaves. *J. O. Westwood.*——White Hellebore powder is by far the most efficacious remedy for this pest I have met with, and is of easy application, whereas syringing, removing the surface soil, or repeated dusting of soot &c., over the bushes would be exceedingly troublesome on a large scale. I have had two attacks this season, but have sustained very slight damage, not more than 1 bush in 100 being seriously injured. Early in the season we captured and destroyed the flies before breakfast; since that we have trusted to Hellebore alone, and friends who have adopted this treatment at my suggestion report its perfect success. *R. Varden, Seaford Grange, near Pershore.*

American Aloes. — In the year 1842 I furnished an account of the different plants of American Aloe that from time to time had flowered in the open air at Salcombe, near Kingsbridge, South Devon, which was published in the 44th number of your Journal for that year. I have now the pleasure of stating that, in different gardens in that favoured locality, four plants are rapidly coming into bloom which have never received protection of any kind. The first is at "The Molt," the marine seat of Lord Courtenay, and the summer residence of Lord Justice Turner. This plant displayed, early in July, a faint and almost doubtful symptom of blooming, yet the flower stem is now (Aug. 13) 18 feet high. The two next are situated in a small garden belonging to Henry Strong, Esq., a gentleman resident in the village of Salcombe, who with industry and taste has formed a pleasurable retreat in the wild, overhanging sea cliff; there, surrounded by the tangled brushwood, many tender plants luxuriate. Among them rise the lofty stems of the Aloes, one of which was planted about 30 years ago; the other 27. Their growth has averaged 5 or 6 inches in 24 hours, and they are now about 23 feet high, with the prospect of attaining 3 or 4 feet more. The fourth is in the garden of Cliff House, the residence of Mrs. Prideaux, and has been planted within the last 20 years: it grows on an esplanade a few feet above high-water mark, and, with many others, is conspicuous for its luxuriance, which is seemingly produced by its close proximity to the sea. I believe Salcombe is almost the only spot in England where the Agave Americana has flowered in the open air, and certainly it has no rival in producing four blooming plants in one season. Whether the late rigorous winter, in concentrating the sap, has produced the flowering results, I leave to botanical physiologists to determine. *A Devonian.*——I have an American Aloe in my garden that has been exposed without any shelter during these last 14 or 15 winters. It was an offset from an Aloe which, I apprehend, flowered at Salcombe, and it is now about 40 years old. Its height from the ground is 4 feet 6 inches; this likewise is the length of most of the larger leaves, one being 5 feet. The plant has far less grandeur and symmetry than when grown under shelter, as the lower leaves decay annually, and many get bruised or broken by the wind. Nearly all the numerous suckers from the roots were killed last winter. About five years since it was thought to show signs of flowering, but having little care bestowed on it, this was not realised. Ten or 12 years ago it was transplanted, and its roots completely disturbed, the weight being otherwise more than four or five men could readily command. The pit destined to receive it was filled nearly to the surface with rubble, and a brick wall raised about 16 inches, with apertures in the sides to allow of complete drainage. The soil in which it was planted was garden earth, with a large proportion of Jersey sand. The plant is now for the second time much out of the perpendicular, as we see it frequently pictured in views of the tropics, probably from the effect of the wind, and the slight holding of its roots. *L. P., Plymouth.* ——Permit me to say, in answer to "Vectis, Carisbrook," that the American Aloe which stood out last winter without covering is a sucker springing from the old plant that blossomed in the open air in the year 1847, and which was reported in your columns. The original plant was brought into Wales above 90 years ago, where it remained for 45 or 50 years under glass, but from its being large and cumbersome to place in a new range, it was laid in its tub in a warm south border of the kitchen garden, and was never covered, and to the surprise of many (as stated) it flowered, throwing up two stems 12 and 10 feet high. *Anon., Rhyl, August* 22.

Flowers of the Crimea.—We have a number of very beautiful plants here, and their profusion in rapid succession grouped in masses is very striking. I have seen at least 100 acres of Larkspurs and Poppies mixed, the Larkspurs 5 feet high; acres of yellow Centaurea; two or three sorts of Boragineæ, especially a beautiful *Echium.* But none of these equal the carpet of Crocuses in the spring. I have already found 42 species of Gramineæ, many of them peculiar species, with some few wandering Indian ones. A species of *Secale* is common, and so is that remarkable *Phalaris bulbosa*, which has always bulb-like excrescences in whatever soil it may grow. *Triticum villosum, monococcum*, and *cristatum* are all very beautiful species. The Composites are very pretty; one, an everlasting, has so much flower and so little leaf that it ought to be a very desirable plant to cultivate. I enclose a flower. *W. M., before Sebastopol, Aug.* 3. [The flower referred to is Xeranthemum radiatum.]

Honey Dew.—Justus Liebig says that certain diseases of trees, as the so called honey-dew, are evidently produced by a disproportion in the azotised and non-azotised matters which act as the food of plants. It would reward the labour to put this view to the test of experiment, and I believe the result would be in favour of it against the prevailing notion that honey-dew is derived from aphides. *Quæstor.*

Societies.

Entomological *Aug.* 6.—J. Curtis, Esq., F.L.S., in the chair. Amongst the numerous donations announced as having been received since the last meeting was an extensive collection of Indian insects presented by Major Hamilton, containing many rare and very beautiful species of all orders; also various rare species of British carabidæ by the Rev. Hamlet Clark. The secretary gave notice that a requisition had been presented to the President and the Council with a view to settling the disputed question regulating the admission of Associates. M. Pectet, of Geneva, was elected one of the honorary foreign members in the stead of the late Dr. De Haan, of Leyden. The secretary also announced that a new part of the Transactions of the Society was ready for distribution, containing, in addition to several memoirs descriptive of new species of various orders, a continuation of Mr. Desborough's researches on the history of the Honey Bee. Dr. Power exhibited various Coleoptera recently captured in the New Forest, including the very rare Agrilus chryseis, Anthaxia nitidula, Drypta emarginata, &c. Mr. Douglas exhibited a specimen of Trochilium chrysidiforme taken near Dover on the 25th June, thus proving that this species, which had been doubted by some writers as British, is a genuine native of this country; another specimen has also occurred during the present summer. He also exhibited various rare Microlepidoptera recently captured in Kent; Mr. James Dutton a number of rare species from the Isle of Wight; and Mr. F. Bond others from the fens of Cambridgeshire. A specimen of the

rare Cryptocephalus nitens from Cobham, Kent, was exhibited by Dr. Baly; and by Mr. H. Doubleday specimens of two distinct species of Noctuidæ, generally confounded in collections under the name of Caradrina blanda. Other rare species of Lepidoptera were exhibited by Messrs. Weir, S. Stevens, and Foxcroft. Mr. Westwood exhibited a living scorpion, imported from Mexico, among plants by the Horticultural Society. Also specimens of the eggs and living larvæ of the dog flea, the former of which are deposited singly and loosely by the females: specimens of the latter, as well as of the living insect in the perfect state, had recently been communicated by him to Mr. Halliday, and the result of this examination he believed would tend to prove the propriety of regarding Pulex as the type of a distinct order and not as portion of the Diptera. He also exhibited specimens of the perfect silk moths, recently under cultivation in Malta, received from Dr. Templeton, where it has unfortunately been found impracticable to rear the insects successfully. Specimens of the true Saturnia Cynthia, which produces the Eria silk of India, received from Major Jenkins, were also exhibited by Mr. Westwood, who considered, from analogy with other domesticated insects and other animals, that there were not sufficient grounds for considering the Malta specimens as distinct from the Indian ones, contrary to the opinion of Dr. Boisduval, who had described the former under the name of Saturnia Ricini. A discussion took place on the great number of moths which, notwithstanding the long hard winter, have appeared during the present summer, during which Mr. Westwood stated that he had observed these insects to be attracted in vast numbers to the saccharine secretion left by aphides on the leaves and stalks of Beans, and also to Gooseberries which have been cracked by the rain.

Botanical of Edinburgh, *July*.—This meeting was chiefly occupied with a report upon the results of Professor Balfour's late excursion with the botanical pupils of the University of Edinburgh. We can only find room for the following record of localities for rare plants:—Diatomella Balfouriana, Bracklin Bridge; Littorella lacustris, near Lead-burn; Galium uliginosum, near Lead-burn; Jungermannia decipiens, Wilson, near Ardglass; Eorrera flavicans, Ach., on Ardglass Downs; Rubus Chamæmorus, Hill South of Habbie's Howe; Potamogeton prælongus, Kinghorn Loch; Eriophorum latifolium, near Crichton Castle; Saxifraga oppositifolia, Allermuir Burn, Pentlands; Lactuca muralis, near Musselburgh; Silene anglica, side of Peebles Railway; Tulipa sylvestris, near Ravelrig, Donibristle, near Aberdour; Valeriana dioica, Marsh at foot of Middle Eildon Hill, Melrose; Crepisbiennis, field at Luffness; Campanula Trachelium, Luffness; Lathræa squamaria, woods near Melrose; Neottia Nidus-avis, woods near Melrose, near Ayton Castle; Carex incurva, near Longniddry; Carex Œderi (true form), Gullane Links; Asplenium germanicum, Minto Crags, near Hassendean; Lycopodium alpinum, near Tynehead; Grimmia deusta, Eildon Hills; Sticta scrobiculata, near Melrose; Calicium furfuraceum, ground in a plantation at Bonaly; Gyrophora polyphylla, Arthur's Seat; Gyrophora proboscidea, stones on the top of Carnethie; Bryum atropurpureum, experimental garden (G. Lawson); Closterium Lunula, road behind Edinburgh Academy (G. Lawson); Campanula latifolia, Eaglescairnie Woods, Craigcrook; Cypripedium Calceolus, Arncliffe, Craven.

Dr. A. Douglas Maclagan exhibited specimens of plants received by him from the Crimea, among which were the following: Convolvulus cantabrica; Paronychia serpyllifolia; Salvia Horminum; Sideritis sp.; Onobrychis petræa; Lathyrus tuberosus; Helianthemum vulgare; Linum hirsutum, L.; Adonis æstivalis, L.; Myosotis sp.

Notices of Books.

Chloris Andina. Essai d'une flore de la région alpine des Cordillères de l'Amérique du Sud. By H. A. Weddell, M.D. 4to. Paris: Bertrand. To be published in 16 parts, at 12f. 50c. each part.

The Alpine Flora of Peru and Bolivia is full of interest, and no traveller has gained more accurate information respecting it than Dr. Weddell, a distinguished botanist, of whose interesting travels in the Cordilleras we have on two former occasions given some account (1845, p 632, and 1850, p. 55). The copious materials obtained in those voyages form the basis of the present work, which is however augmented with the discoveries of other travellers. The plates are executed by M. Riocreux, an artist of great botanical skill.

The part before us contains Composite plants exclusively, of that singular bilabiate race which is so characteristic of western South America. The specific characters are in Latin, the descriptions in French; the arrangement adopted is that proposed by the late lamented Adrien de Jussieu, in which monopetalous orders are to take precedence of all others.

Garden Memoranda.

Visit to the Crystal Palace.—The progress made in the establishment generally during the past season has been, for the magnitude of the place, very satisfactory. Portions of the ground became developed that on my last visit were chaotic, and the trees and shrubs already assume a character. The general keeping is excellent, and time alone is required to develope beauties now in embryo.

At this visit I saw the display of water works for the first time. I was in the building the first part, and afterwards on the upper terrace, and finally on the level of the fountains. From above the space was so vast that the water was anything but effective—there did not appear enough in quantity, nor was its range sufficiently high. At each stage on my descent these defects became less apparent, and I came to the conclusion that when those farthest from the eye are in work, what failed to satisfy will then fill up the interstices, and also attain an altitude that will leave nothing to desire. As it is I could have waited longer, so as to have seen them for the first time in perfection, and I doubt not that thousands have had a similar feeling. Many persons expressed opinions in favour of St. Cloud and Versailles, and in one sense they were right (as now seen), for the quantity of water is in either of these two celebrated gardens more in proportion to the space than that at the Crystal Palace. At those places the trees are grown up, and confine the eye to such limits as show off the waters as occupying the entirety of the middle ground. Whenever the time arrives that our trees have obtained their growth, and when also the lower fountains and cascades are in full activity, I venture to predict that the water works at the Crystal Palace will take rank far beyond their celebrated rivals. Give only time for the noble forms of the Deodars and Araucarias to develope themselves repeating their effects "each beyond each," and they will combine with the grand architecture and water in a manner that hitherto no eye—save those of the poet, the painter, and the landscape gardener—can have seen.

Arrived at the geological illustrations I found the inimitable Hawkins, to whom so much is due for the restoring the forms, texture, nay very expression of the animals that peopled this world at its earlier periods, and when the skill of the Infinite produced creatures for the then circumstances, although of magnitudes and kinds that seem to us most strange. I found Hawkins in deep study over some three or four hundred pieces of Portland stone that had once been an exogenous tree. It was found prostrate, and had every piece of it been marked, it could have been put together without difficulty, and would have formed an object of great interest, as proving that, although surrounded by endogens, mostly Cycas gigantea, yet that trees like our Oaks and Elms did then also, as now, clothe the earth. Upon looking over the fragments, the annular layers of growth, the axis, a branch, and also that part where the branch is given off from the trunk, as well as a suppressed branch, were all perfectly distinguishable. If Dr. Lindley could find time he would be enabled to arrange the disjecta membra.

The geological portion of the ground at present is the least finished. The animals have been transferred from the studio in considerable numbers, and have been placed in groups with great skill; but until the water is introduced in greater volume, and also the ground "licked more together," as the artists' phrase is, we cannot expect a oneness of effect. Where things vast and strange arrest the eye on all hands, it is difficult to speak of one; but there is a thing of beauty, so exquisite and rare, that it cannot be passed by—for it becomes "a joy for ever." I allude to the head and neck of the female Irish elk—so much grace and delicacy of expression, and so unlike and yet so true, that I have never yet seen its equal in animal modelling. Vastness will be expressed by the mammoth now in progress, strangeness by many, but beauty is personified by that one female elk.

On my way back I passed by the new rootery, which is on a grand scale, and will become very effective so soon as the plants gain character. The rockwork is too little advanced to pass an opinion upon, but its site is well chosen. I have before said that the general keeping is all that could be desired, but there is one portion of the arrangement where the shrubs are made to straggle out of their beds upon the lawn; this part without an army of gardeners defies subjection. The arrangement is very pretty, very natural, and breaks up most thoroughly the hard edges of the outline, but as the Grass is evenly mown up to these outlying shrubs, so to speak, and is allowed to grow up amongst them, it does give a weedy and unsatisfactory appearance.

A few words on the interior of the Palace, and I have done. The greatest improvement is occasioned by taking away the shop stalls—they were incongruous and out of keeping in a place devoted to science, literature, and art. The marble basins are now enriched with Victorias, Nymphæas, Hydrocharis Humboldti, &c., and are seldom to be met with in greater perfection, the Oxford botanic garden excepted. The Oranges have acquired a healthy hue, and do good service, as do the Pomegranates, as far as their foliage is concerned, but I fear they will not flower as profusely as we see them on the Continent.

The large introduction of the hard-wooded shrubs of Africa and Australia, to the exclusion of the soft-wooded species, is a decided improvement; the one class showing evident signs of being too far away from the light, and the other seeming to be perfectly at home and happy. The baskets of plants are even more attractive this than they were the preceding season. Many of the stove plants bear their position well, but there are some that seem to ask for more warmth and a closer atmosphere. The Date Palms that were imported from Egypt as yet show no signs of life, though every care that knowledge could suggest has been bestowed upon them.

My eye now falls upon what Dr. Lindley terms "the ethnological absurdities," and I proceed to examine whether they are really well pourtrayed—whether, as far as I have seen the varieties of the great human family, they are fair types. I am satisfied that they are. I further ask myself whether the variety of statures, form, complexion, &c., that the Creator has stamped upon the varieties of the human race are not worthy to be noted; and also whether the dress, however slight, however grotesque in others, is not worth exhibiting upon the form of Nature's mould?—and, lastly, whether the rude implements, either for war, securing their food, or for any other of their requirements, implies any absurdity by being associated with the figures and their dresses? My answer is, certainly not. Where then the absurdity? Why, in placing men of various tribes of full stature in a mimic array of plants in pots to represent the forest jungles made up of trees of gigantic proportions, and overgrown with an entanglement of creepers that occasionally strangle the monarchs of the forest themselves. Here is the absurdity.

Would I then do away with the ethnological series? Oh, no; but increase, and, if possible, fill up the whole series upon the same principle, till Dr. Pritchard's book should be illustrated with the beings he describes, from the first form to the last. This would be a work, as far as I know, never yet attempted, and one worthy of the grandeur of the building, as I can imagine no series more novel, more instructive, and more interesting than such an one, disposed in a long series in an aisle by themselves. Surely a deeper interest must be felt in recognising the members of our own family than in noting those of the inferior races of the creation. A commencement is made to illustrate such portions of the vegetable and mineral kingdoms as afford food, medicine, or material for the various purposes of domestic economy; this, when further advanced, will be an extremely valuable adjunct; already we have a goodly display of cereals that look like those we remember to have seen at the Exhibition of 1851, by the Messrs. Lawsons. The natural and prepared cocoa and coffee and tea are in samples large enough to identity the quality, as far as the eye goes, with their names written legibly upon them. Then we have the gums, the woods, the dyes of commerce, with the names of the trees that produce them, a series of fruits modelled in wax, but they are not so good as I remember to have seen, and must be replaced as soon as specimens more illustrative can be procured. The idea is a good one, and when worked out, as at the museum at Kew, it will become a most useful and interesting gallery, which a man cannot even lounge through without gaining knowledge.

But I must return, or I shall tire my readers as much as most visitors are fagged after a day of research, and we will descend by the long gallery, whose wall is latticed and which a number of goodly creepers have appropriated for their support. The whole length of this gallery has a border for the growth of the creepers, and I would suggest that if it were filled with Hyacinths, Squills, Crocus, Narcissus, Tulips, and the like, it would prove attractive to visitors in February, March, April, and May, and on leaving they would have the grateful remembrance of the effect of a spring pasture, gorgeous in colour, grateful in scent, and sheltered from the winds and variableness of our spring months. *William Masters, Exotic Nursery, Canterbury.*

Arundel Castle Gardens.—In addition to the annual opening of these gardens and grounds to the inhabitants of the town and their friends, his Grace the Duke of Norfolk has kindly granted this season another privilege of a novel character, viz., the illumination of the flower gardens, which are now in great perfection. Nearly 3000 lamps were in use on the occasion, and being disposed in straight and drapery lines on the terraces with festoons, wreaths, and arches on the arcades and walls, together with a liberal admixture in the flower beds and by the fountain, the effect of the whole was very striking. Upwards of 3000 visitors promenaded in the gardens from half-past 8 to half-past 10 o'clock. The duke's brass band was stationed on the terraces. It is gratifying to add that not the slightest injury was done, and an excellent tone pervaded the gathering. *G. M'Ewen, August 22.*

FLORICULTURE.

National Floricultural Society, *August 23.*—Mr. Robinson in the chair. Dahlias formed the principal feature of this meeting. Twenty-five varieties were entered for the opinion of the judges, and among them some possessed both novelty and fine form. Hollyhocks, both Seedlings and named varieties, were also exhibited in good condition. Of Dahlias, Mr. Holmes, of Hornchurch, sent three blooms of a white-ground variety, strongly tipped with purple. It is large in size, with a full compact centre, and will make a good kind for exhibition. The same exhibitor also sent Circassian Beauty, a fancy below the average in quality. Mr. Wheeler, of Warminster, sent Emperor of the Yellows, a yellow slightly tinged with lake; and Eclipse, a dark plum-coloured kind; the latter was the best of the two, but neither were in good condition. Mr. Keynes, of Salisbury, exhibited five varieties. The one selected by the judges for reward was Reginald, a pale primrose sort, slightly tipped with purple: a full sized compact flower, but rather low in the centre. The others were a fancy, named Mrs. Spary, rather dull in colours; Argo, a large yellow; General Simpson, a bright orange, with high centre, but long petal; and Lord Raglan, buff, which maintained the character given to it at the previous meeting. Mr. Rawlings, of Bethnal Green, sent 6 blooms of Robert Hogg, a shaded purple, of medium size, and broad in the petal; a little ribbiness detracted from its merits. The same exhibitor also sent 3 blooms of Archbishop of Canterbury, a dark purple, with a high centre, and good outline. It was not a large size, but very double. A Label of Commendation was awarded it. Sambo, also from Mr. Rawlings, was poor. Mr. Salter, of Hammersmith, had a fancy variety; a striped kind, but the colours were not sufficiently distinct, being red striped

with crimson. It was good in form, but confused in the centre. Mr. Smith, of Crookham, Hants, had three kinds, named Helen Smith, Lord Cardigan, and General Codrington, none of which were in good condition. Mr. Charles Turner received a Certificate for Bessie, a deep bright yellow, which appeared to be very constant. The same grower also sent another good yellow, named Yellow Beauty; together with Miss Burdett Coutts, which the judges reported fully maintained its previous character—a Certificate having been awarded to it last meeting day. Lollypop (G. Holmes), had a similar mark of distinction from the censors, it having been successfully exhibited last season. Mr. Weatherill received a First Class Certificate for Verbena King of Roses, a finely-formed flower; the same award was also bestowed upon Eugenie, a pale lilac, of good form. A Certificate of Merit was given to Mr. G. Smith for Dandy, an orange kind with a crimson centre and lemon eye; a similar award was also made to Unanimity, which is an improvement on Annie Laurie. There were several others shown, but none deserving of especial mention. Mr. Laing, of Twickenham, contributed several Seedlings, among which was a blue kind, with less purple in it than usual. For Hollyhocks, Mr. Roake, of Clewer, received a First Class Certificate for Perfection, a pink or blush kind, very close in the flower; of this a spike was shown. Messrs. Paul received a Certificate for a delicate peach variety, 3 cut blooms of which were exhibited; it is a full sized large flower. For Cut blooms—12 kinds—Mr. Roake was first with Rosy Circle, Eugénie, Leonice, Mrs. Ashley, Julia, Seedling, Perfection, Lemonade, Primrose Perfection, Mont Blanc, Seedling 6, and Pourpre de Tyre. Messrs. Paul were second with Glory of Cheshunt, Darius, Lord Jocelyn, Pearl, Beauty of Cheshunt, Boadicea, White Globe, and 4 Seedlings. Messrs. Paul also furnished three magnificent spikes of Glory of Cheshunt, Mrs. Ashley, and Beauty of Cheshunt; these were deservedly much admired. Messrs. F. and A. Smith sent an interesting collection of Cut Antirrhinums, showing that progressive improvement is going on in this class of plants. Mr. Salter exhibited 12 varieties of Cut Phloxes, one or two of which were very bright in colour. Messrs. Paul sent 12 varieties of Asters, all very beautiful kinds. Messrs. Fraser also sent 24 varieties of this flower. Mr. Lochner contributed 24 bunches of Verbenas, all good kinds; and Mr. Smith sent his Petunia Hermione, which fully maintained the good character it always has had. A new white Verbena was exhibited by Mr. Westwood, which is much the best of its class out, but it is a very strong grower. Messrs. F. and A. Smith again sent a collection of Balsams, still in good condition.

Miscellaneous.

Effect of the Water-snail in Keeping Fresh-water Aquaria Healthy.—As an evidence of the permanency of the balance capable of being established between the animal and vegetable organisms by the introduction of the water-snail or other phytophagous mollusk, I may state that the same water in which my original experiments were made in March 1849, has been in continual use up to the present time, several fish living constantly in it, without disturbance, and that it is now as bright and in as healthy a state as at the first period of its being employed. Again, in a small jar of about one pint capacity, having a single plant of Vallisneria spiralis growing healthily in it, and with a few small water-snails as scavengers, I succeeded during the spring of 1853 in hatching and rearing a young trout. The egg was obtained from Mr. S. Gurney, jun., and had been removed from his preserves in the river Wandle; the shell ruptured the day after my receiving it, and it was maintained in a perfectly healthy state during the whole of the period required for the development of the respiratory organs, and the complete though gradual absorption of the ovum. This development was perfected in 15 days from the bursting of the shell, till the period that the fish could sustain itself continuously in the water, and was able to swim strongly. Having arrived at this stage of maturity, the vessel became far too small for the free use of its active powers of locomotion, and it was therefore transferred to a small tank containing several minnows, when to my great annoyance it was immediately seized and devoured. As another instance of the voracity of the finny tribe, and their destruction of each other, I may mention here that I had on a previous occasion placed several small trout fry over-night in an aquarium containing some gold fish, but they must have been rapidly preyed upon, as no trace could be seen of them the following morning. These facts will demonstrate clearly the havoc which must take place in rivers and streams among the young fry of various fish under ordinary circumstances, when they are proved to be devoured with such extraordinary rapidity even by such species as the gold fish or carp tribe and the minnow. *Warington in Annals of Natural History.*

Calendar of Operations.

(*For the ensuing week.*)

Conservatory, &c.—New Holland plants, as Acacias, Hardenbergias, &c., growing on the rafters and pillars of this house, will flower all the better for being kept sparingly supplied with water at the root for a few weeks in autumn, after they have made their season's growth, so as to get the young wood well matured, which is essential to a first-rate display of bloom. These plants are subjected to long periods of excessive drought in their native habitats, and are said to thrive in situations where there is hardly the appearance of moisture in the soil for many weeks; but they cannot safely be subjected to such treatment under artificial circumstances, and there is no necessity to do so, as they will flower very profusely if kept sufficiently dry at the root to check growth and get the young wood well ripened before winter: and similar treatment will be suitable for many of the things planted out in the borders, particularly Orange trees, for these and many other hard-wooded plants bloom but poorly unless the young wood is well ripened in autumn. Shading must be used sparingly after this season, particularly on cloudy days. Many of the Fuchsias will be past their best, and should be removed to make way for the Liliums, which will now be coming into bloom, throwing away at once every plant which is not likely to be wanted for next season, especially large specimens of worthless varieties which are not worth wintering, as good sized plants can be grown for next season from cuttings put in now. The varieties with white corollas will be universal favourites; but they appear to be rather weakly growers, and parties wishing to have specimens of them next season should see about securing promising young plants at once. Young stock of hard-wooded things in pits and frames will be growing freely, and must have every necessary care afforded them. Water freely, but avoid getting the soil too wet, and dew the plants over-head with a fine-rosed syringe on the evenings of fine days, drawing off the lights at night whenever it can be safely done, so as to expose the plants to the night dews, which will greatly assist in securing strong vigorous growth. Attend at once to anything requiring more pot room, in order to get the plants moderately well rooted into the fresh soil before winter. Stove.—Specimens of such things as Echites splendens, Stephanotis, Allamandas, &c., which have done their season's work, will be better removed to a cooler and drier house, which will be a more suitable situation for them while ripening their wood than the moist warm stove, but if this cannot be done, then they should be placed in the coolest end of the stove, keeping them rather sparingly supplied with water at the root, and exposing them as freely to air as circumstances will allow. Take advantage of every leisure hour to wash the foliage of such things as require it, looking carefully for and destroying mealy bug and scale. Ixoras and many hard-wooded stove plants are very subject to the latter, and in most cases require to be frequently looked over to keep them clean. Keep the shoots of young specimens nicely tied out, and give timely attention to training, so as to secure the desired form of specimen. Look well to the stock of things for winter flowering, re-potting any that require more pot room, keeping such as have made their wood and require a period of comparative rest to bloom well rather dry and cool, and encourage any that may be backward in their growth with plenty of warmth and moisture.

FORCING DEPARTMENT.

Pineries.—Plants growing in dung pits must be freely supplied with air to prevent their getting drawn, and they should also be kept near the glass and not allowed to stand too closely together, for strong robust plants need hardly be expected unless this is attended to, and weakly drawn plants seldom or never yield fine fruit. Give careful attention to plants swelling their fruit, affording them plenty of warmth and moisture, and as much manure water at the root as the soil will bear. Remove useless suckers and gills as soon as they are perceived, which, if left on the plant, only rob the fruit and weaken the suckers which it may be necessary to leave on the plant for keeping up the stock. Do not allow young stock in free growth in the succession pits to stand too closely together, nor to sustain any check through neglect in watering, or the want of pot room. Shading, if not already discontinued, may safely be dispensed with for the season. Plants growing in beds of soil must also be carefully attended to with water, keeping the soil in a nice moist state. Where rapid growth is required keep as warm and moist as can be done without drawing the foliage, and give plenty of strong clear manure water at the root, and the plants will make rapid progress for the next two months. Vineries.—See that Vines from which the fruit has just been cut are free from insects, giving the foliage an occasional washing with the engine if red spider is at all troublesome; and use every precaution to keep the leaves in health as long as possible. Prevent the growth of laterals, which only shade and injure the principal foliage. Late Grapes colouring should be assisted with slight fires in cloudy weather, especially Muscats, which, after this season, where they are not already all but ripe, will require gentle fires, unless the weather should prove unusually fine. Thrips are frequently very troublesome in late Vineries where plants have been grown under the Vines, and where there is any reason to expect these, the foliage should be frequently examined closely; giving the house a heavy smoking as soon as they are perceived, and repeating this for two or three times at intervals of about a week, shading the house the day after smoking, where it can be done so as to be able to keep it rather close, will render the cure more effectual; and if the pest is taken before it gets quite established, it will be easily got rid of by two or three smokings, but unless taken in time it is very difficult to eradicate. Peaches.—Give every attention to getting the wood well ripened, as next year's success will very much depend upon this being properly effected. Keep the foliage clean and free from insects, and endeavour to preserve it in health as long as possible. Give air freely both day and night, but keep the roots as dry as can conveniently be done, therefore guard the inside borders from heavy falls of rain, shutting up the sashes at night when there is reason to apprehend much wet. Any gross shoots that may still incline to grow should be stopped, as if left they encourage the action of the roots, and cause a greater tendency to growth than would otherwise be the case. Loosen the surface of the border where this is at all close, in order to admit air and warmth, and promote evaporation.

HARDY FRUIT AND KITCHEN GARDEN.

Fruit trees have already made as much young wood as there is much chance of getting matured. Where this is the case, go over the trees at once and stop a portion of the shoots, beginning of course with the strongest. This, as was stated last week, will be found to serve the end in view much more effectually than a general stopping at this season, which would probably be of no farther service than inducing the production of a mass of laterals, and do more harm than good; whereas, stopping the stronger shoots will only throw the sap into the weaker ones, and if we should be favoured with a fine autumn the buds and the shoots stopped will become plump without starting into growth, and in any case there will be fewer laterals produced by stopping only a portion of the shoots than the reverse would be if the shoots were stopped generally. Winter Onions should be sown at once, also Cauliflowers for the early crop next season, a small bed of pickling Cabbage, Brown Cos, and some hardier sorts of Lettuce to stand the winter.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Aug. 23, 1855, as observed at the Horticultural Gardens.

August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind
Friday 17	5	30.282	30.244	83	45	64.0	67	[illegible]	[illegible]
Satur. 18	6	30.232	29.760	79	53	66.0	69	[illegible]	[illegible]
Sunday 19	7	29.791	29.689	76	56	66.0	[illegible]	[illegible]	W
Mon. 20	8	29.929	29.809	66	58	62.0	67	[illegible]	[illegible]
Tues. 21	9	29.878	29.817	74	42	58.0	67	[illegible]	W
Wed. 22	10	29.994	29.961	76	52	64.0	67	[illegible]	W
Thurs. 23	11	29.898	29.601	81	56	68.5	66	[illegible]	[illegible]
Average.		30.000	29.853	76.4	51.7	64.0	67.3	[illegible]	

Aug. 17—Slight fog; very fine throughout; clear and fine at night.
— 18—Very fine.
— 19—Very fine; overcast at night; slight rain.
— 20—Slight rain; showers in forenoon; cloudy and boisterous.
— 21—Fine; rather boisterous; dry air and windy; clear at night.
— 22—Fine; very fine throughout.
— 23—Very fine; rain; much sheet lightning, and thunder at night.
Mean temperature of the week 2 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 29 years, for the ensuing week, ending Sept. 1, 1855.

August and Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds: N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 26	72.1	49.1	60.6	10	0.51 in.	1	2	3	—	[illegible]	[illegible]	[illegible]	[illegible]
Mon. 27	72.5	50.6	61.6	9	1.12	1	2	4	—	[illegible]	[illegible]	4	[illegible]
Tues. 28	72.5	50.8	61.7	13	0.20	2	5	3	—	4	[illegible]	[illegible]	[illegible]
Wed. 29	71.4	48.8	60.1	11	0.58	4	3	4	1	2	[illegible]	[illegible]	[illegible]
Thu. 30	71.8	49.1	60.5	6	0.92	2	4	2	—	4	[illegible]	[illegible]	[illegible]
Frid. 31	70.4	49.0	59.7	12	0.92	2	6	1	2	4	[illegible]	[illegible]	[illegible]
Satur. 1	70.2	48.7	59.4	15	1.50	2	4	3	4	3	4	2	[illegible]

The highest temperature during the above period occurred on the [illegible] 1843—therm. 85 deg.; and the lowest on the 29th, 1850—therm. 32 deg.

Notices to Correspondents.

Diseases: *E W.* Your Medlar and White-thorn leaves are infested with Æcidium laceratum, a common parasite on White-thorn. *M J B.*

Greek and Latin Names: *R I.* We will attend to your suggestion.

Insects: *W Y.* The grub taken from the inner bark of the Pyrus Sorbus of course gnawed a hole through the pasteboard box and escaped before reaching us. It was doubtless the caterpillar of the wood leopard moth, Zeuzera Æsculi; a few whiffs of tobacco smoke directed into their burrows will dislodge them.—*[illegible]* The large insect is Sirex gigas, which lives in Fir timber, and the dark coloured wasp is Vespa Britannica.—*C P T.* The patches you allude to on the bark of your Pear tree are masses of eggs of some kind of moth.—*J S.* The leaves of your Pear trees are infested with the slimy larvæ of a black winged saw-fly, Tenthredo (Blennocampa) tethrops. Dust the leaves with lime or syringe them with lime water.—*W B.* See last answer.—*E K S.*—Your Swede Turnips are attacked by the [illegible] grub of the Turnip saw-fly (Tenthredo spinarum). Repeated dusting with lime is very serviceable, but lots of young cabbages turned into the field are still better.—*G F.* The caterpillar you have sent from the inner bark of the Oak is that of the goat moth, Cossus ligniperda (see *Gardeners' Chronicle*, 1847, p. 303, for figure and description). They may be dislodged by means of tobacco smoke blown into their burrows. *W.*

Lease: *A H.* We never answer legal inquiries. Your solicitor is the proper person to consult upon the covenants of your lease. We suppose that in the eye of the law a bush would be regarded as a tree.

Monstrous Sweet William: *G.* You will find a monstrous one similar to that you have sent figured at p. 452 of our present year's volume. ‡

Names of Fruits: *J M E G.* Peaches: 1, perhaps Grosse Mignonne; 2, Noblesse; 3, Noblesse; 4, R. George. Nectarines: Part Elruge and part Violette Hâtive: those that are red at the stone are the Violette Hâtive; those that are pale, the Elruge.—*G D Vallance.* 1, a small oval purple Plum, not known, but certainly not worthy of its situation on a wall; 2 resembles the Nectarine Plum, but is not so good.—*M F.* Your Gooseberry is the early Green Hairy.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Caroline.* Euphorbia Peplus, and what appear to be fragments of a small starved state of Ranunculus sceleratus.—*T D.* Asplenium Adiantum nigrum.—*W C.* Pteris aspericaulis, *Wall.*, a native of Nepal and other parts of India: your plants are probably the only living specimens in this country. *S.*—*J M.* Rhus Cotinus, the common Venetian Sumach.—*R J.* It is Phallus impudicus, the most filthy of plants.—*E M.* Genista tinctoria and Cytisus nigricans.—*Dee.* 1, 2, and 4 are Q. sessiliflora; the other is pedunculata.—*West Cotton.* Blumei is a native of Java; we do not know when it was first introduced into England.—*R A A.* Polystichum [illegible], *Presl. S.*—*F M.* Todea africana, *Willd. S.*

Puddling: *Bertra.* We do not believe that wet clay will ever stop eels. We should certainly use concrete, the cheapness of materials: but at what price it can be executed depends upon whether good sharp gravel is at hand or has to be carted from afar. Any labouring man, furnished with good fresh lime, water, and clean washed gravel, can make this concrete. If filled in between your two walls, the mass will soon become as hard as rock, and perfectly impenetrable by either eels or rats.

Roses: *J M.* Smoke from fires of burning brushwood could not, we think, injure your Moss Rose 80 yards from them. The failure doubtless arises from some other cause. ‡

Erratum: In Mr. Cole's advertisement inserted last week, for "Seedling Shilling's Calceolarias, read "Seedling Shrubby Calceolarias."

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

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DRAINAGE OF LAND.

MR. HUMBERT, of Watford, Herts, a practical Surveyor and Land-Agent of more than 15 years' standing, offers his services to Gentlemen about to drain Land and Bogs. He will undertake to set out and superintend himself the execution of the work at a charge of 5s. per acre, and the expenses incurred in his travelling; or he will contract to complete it in a specified manner to the satisfaction of the Inclosure Commissioners at a fixed price per acre. Mr. Humbert has drained strong stiff land in the most careful and complete manner, with 1½ inch pipes, and proper mains, the drains being 4 feet deep and 30 feet apart, at 4l. per acre and under, and he can give reference to his employers in that and in other instances.

Watford, Herts, Aug. 25.

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SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened as frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to SAYNOR & COOKE for their superiority of material and workmanship. Established 1738.

CLAYTON, SHUTTLEWORTH, & CO.'S PRIZE PORTABLE STEAM ENGINES, AND COMBINED THRESHING, STRAW SHAKING, RIDDLING AND WINNOWING MACHINE may be seen at their London Establishment, 6, Fitzroy Terrace, New Road, where all information relative thereto can be obtained. These Machines are constructed to barn Barley, and make a perfect separation of the chaff from the pulse. They are fitted with Elevators, which deposit the grain into bags, and beyond the feeder of Machine require no hands except to take away the Corn, &c., as threshed, the whole of the operations being performed by self-acting machinery, whereby the Corn, Straw, Chaff, and Pulse are delivered in the places assigned for them.

C. S. & Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading Agricultural Shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

THE BEST PROTECTOR FROM THE HEAT OF THE SUN. "FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 6d. per yard run, of EDWIN THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

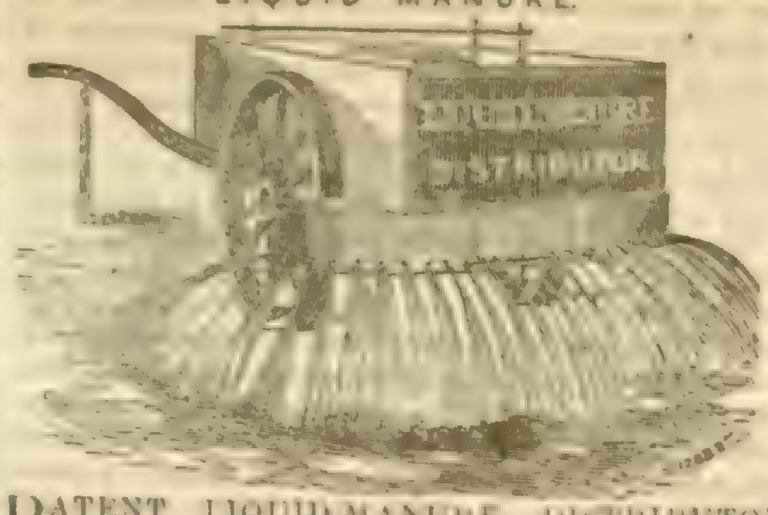
WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the trowel, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

LIQUID MANURE.



PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its Liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is therefore fully adapted for Drill Crops or Pasture Land, or for Watering Streets.—Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

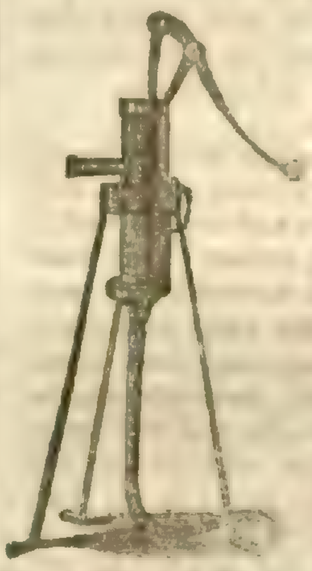
WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water butt or Cart, as shown in drawing.

Price of Pump and Union, 50s.

1½-inch Flexible Rubber and Canvas Suction for ditto, 3s. 6d. per foot.

1½ Gutta Percha Suction, 1s. 6d. per foot.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3l. 3s. The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1s. 6d. per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3s. 6d. per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells at a depth not exceeding 30 feet.

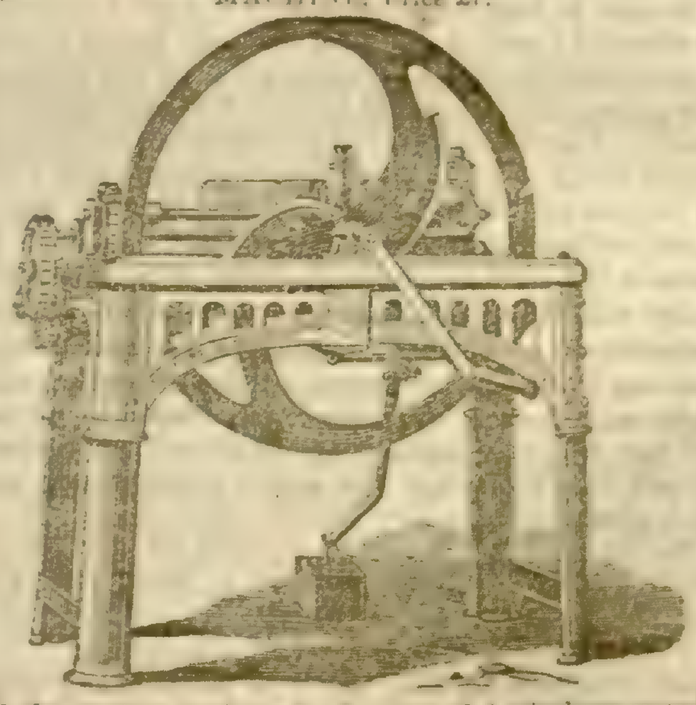
Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ „	long 3 „ 3 „		1	15	0
3 „	ditto 3 „ 6 „		2	12	0
3½ „	ditto 3 „ 6 „		2	18	0
4 „	ditto 3 „ 6 „		3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto	ditto ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of troughs and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses: they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.
MEETING AT CARLISLE, JULY, 1855.
FIRST PRIZE AWARDED TO
RICHMOND AND CHANDLER'S No. 3 B CHAFF MACHINE. Price £7.



All the various modern Implements of Agriculture manufactured on the most scientific and improved principles, suitable for home use and exportation.—Address, RICHMOND & CHANDLER, Salford, Manchester; and 32, South John Street, Liverpool.

☞ CATALOGUES GRATIS.

CLARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronized by the Queen and other Governments, the East India Company, the principal Dock Companies, many public bodies and by the nobility, gentry, and clergy, for continuing years at their country seats. The Anti-Corrosive is particularly recommended as the most durable outdoor Paint ever invented for the preservation of every description of Iron, Wood, Stone, Brick, Canvas, Cement, &c., which has been proved by the practical test of upwards of ten years, and by the testimonials herewith (50 and 100 testimonials in his favour), and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of colours, prices, testimonials with a copy of the testimonials, will be sent on application to WALTER CLARSON & SON, 2 Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be addressed direct.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1855.—The SEVENTH GREAT ANNUAL EXHIBITION of CATTLE, SHEEP, PIGS, and DOMESTIC POULTRY, will be held in Bingley Hall, Birmingham, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, the 11th, 12th, 13th, and 14th of December next, when PRIZES will be awarded as follows:—

	£	s.	d.
CATTLE.—Including Two Extra Prizes of 20l. each and Two Gold Medals or other pieces of Plate of the value of 20l. each, for the best Ox or Steer and the best Cow or Heifer	340	0	0
SHEEP.—First Prizes of 7l., and Second Prizes of 5l., for Leicesters, Long-Wooled Sheep not being Leicesters, South or other Down Sheep, Shropshire, and other Black or Grey-faced Short-Wooled Sheep—10 classes	170	0	0
PIGS.—Including Prizes for Pens of BREEDING PIGS of a large and small breed	60	0	0
ROOTS.—Including a Silver Cup, value Five Guineas, for the best Collection of four different varieties	27	0	0
POULTRY.—Including Nine Silver Cups, of the value of Ten Guineas each, for the best pen of Dorkings, Hamburgh, Spangled Hamburgh, Polish, Spanish, Dorking, Cochin China, Game, and Gold or Silver Bantams, also for the best two pens of Pigeons, to be exhibited specially for this prize	451	10	0
	£1,037	10	0

Exclusive of Silver Medals to the Breeders of Cattle, Sheep, and Pigs, and Prizes in the Extra Classes and for Cottagers' Poultry.

Mr. OTTLEY has also offered a Gold Medal of the value of Ten Guineas as an Extra Prize, for the best pen of POLISH FOWL of any colour, to be selected from the several classes for this variety.

Prize Lists, and any further information may be obtained from the Secretary.

JOHN MORGAN, Jun., Secretary.

Offices, 38, Bennett's Hill, Birmingham.

The Agricultural Gazette.

SATURDAY, AUGUST 25, 1855.

WE have seldom seen so curious a case of disease as one which has affected the Oat crop of one of our correspondents during the present season, and threatening destruction to about a fourth part of the produce. It is unfortunately one of those maladies which are as obscure in their origin as they are difficult of treatment, and which are most probably altogether independent of culture, and inveterate in the seed before it is committed to the ground. A concurrence of some peculiar external conditions has no doubt, in the first instance, produced the disease; but even if disease had been suspected, and had there been any opportunity of studying its several phases as they arose, affections of this kind are frequently of so subtle a nature as to baffle inquiry. In the present instance, however, the seed was procured from Scotland at a distance of a hundred miles or more from the farm where it was sowed, and there was apparently no suspicion of mischief till the crop approached maturity. Our specimens are not indeed all we could desire, for we have nothing more than two panicles without leaves or investing sheath. It is probable, however, from the condition of the common stem, which is decidedly striped, that the leaves must have presented a variegated or partially chlorotic appearance long before the panicles were developed, and even when they were yet within the sheath. In one panicle there is not a single flower which is not bleached in every part. The anthers and stigmas are perfectly formed, and even the pollen grains have gone through part of their growth, though they are evidently abortive. In the other panicle about 12 spikelets only have proceeded beyond the first expansion of their valves, and in these too partial chlorosis has taken place in every part, but not to such an extent as to prevent impregnation or the development of the seed, though the latter is clearly in an unhealthy state, and totally unfit for producing a sound and trustworthy sample. It is very possible that the crop from whence the seed originated was in a similar condition, and there is every probability that if the scanty harvest, which must be the result of the crop in question, were used for seed, the produce would be more or less tainted. It is not certain, indeed, that such would be the case, for the seed of variegated plants does not necessarily produce a parti-coloured crop, though it is always probable that such will be the result. Under the present system, the cultivator must always be at the mercy of others, but the time must ultimately come when it will be a profitable employment to raise crops purposely for

seed, in the hands at least of men of probity and talent, whose judgment and integrity will be equally a guarantee for acquisition of seed as true and pure as it is possible to procure. The farmer can in no case be completely insured against failure; but we do not doubt that the best results would arise from some well digested system of raising agricultural seeds for the market. At present it is a mere chance, whether the seed be sound or not; for the more subtle complaints are not indicated by any external signs, or at least by such as would be likely to awake the suspicions of the purchaser. The agitation of these questions of Vegetable Pathology, though it seldom falls to our lot to be able to suggest a present remedy, will at last direct attention to many a point which has hitherto escaped notice. In the half-grown seed before us there is indication enough of disease; how far that might be discoverable in the ripe seed is more than we are able to assert. Our correspondent* will at least take care that none of the produce of his diseased Oat field can by any means be used for seed corn, for there is no knowing to what extent a malady may be propagated, though in the first instance its appearance may seem altogether fortuitous. *M. J. B.*

Having made the bold announcement that all mechanical difficulties in Steam Culture have been conquered—namely, by Fisken's *method of ploughing with a stationary engine;* we are bound to make good our assertion by facts. And here some critical reader may question whether, in adopting the principle of a stationary motive power, communicating motion to an implement by wire ropes and pulleys, we are not running counter to all that has been advanced for years in this Journal concerning the fallacy of a steam *traction implement*, and the necessity for a *revolving* tiller, the speed of which must be always proportionate to the rate of onward movement of the carriage it is attached to; this indispensable condition pointing to the locomotive engine with digging-cylinder behind as the best form of machine, &c., &c.

Now we have space only to say in a word—the locomotive idea was the best that could be had when the subject was first studied, and may be subsequently renounced for a better, without affecting the principles advocated. The principal points taught by Mr. Hoskyns on this subject we continue to maintain, and welcome the new invention not because it has applied steam power to a common plough, but because its *peculiar mode of so doing supplies us with the means of driving a rotatory or any other form of tiller.*

When Fowler's clever system of tackle for the draining plough first appeared, everybody regarded it as a foundation for steam ploughing, though evidently a considerable modification was necessary before the apparatus for drawing a tremendous implement of 100-horse draught, at a slow pace and in "furrows" (as they may be called) several yards apart, could manage a light quickly-moving implement making 9-inch furrows upon the entire surface of the ground. The chief difficulty was in fixing and shifting the anchorages, each pulley having so firm a hold upon the headland as to sustain a strain equal to double the draught of the ploughs *plus* the draught of a wire rope hundreds of yards in length, and at the same time being readily shifted forward at intervals of a few minutes. Hitherto, no plan had been proposed that did not require too much labour in the digging of anchor holes, setting down posts, &c.; but at last an inventor has surmounted the obstacle, not by improving the old form of anchorage or any other detail, but by a stroke of genius producing a new scheme of action altogether.

Mr. Fisken's aim seems to have been *to lessen the strain upon the anchorages,* and to reduce to a *minimum* the labour connected with their fixing and adjustment. When an implement is dragged across a field by means of a rope, of course the purchase at the end of the rope must bear a horizontal strain equal to the draught of the implement and of the rope itself; and with an endless rope passing round a pulley, this strain, of course, will be *doubled:* but if the rope is left at rest, and we make the implement propel itself along *by winding up a single fixed rope,* the strain upon the anchor will be reduced simply to the draught of the implement. Instead of pulling the ploughing implement by main force, then, we fix upon it a grooved barrel, and give the stationary drag-rope (fastened down at each end of the field) one turn round this barrel, so that when slowly revolving it may work its way along the rope, taking the implement with it; and next we have to communicate motion to the barrel from the steam-engine, which is at a distance, in such a manner as will cause least additional strain upon the anchors. An endless rope, driven by the engine, and passing round pulleys attached to the anchors, is a necessity of the case; and by giving one line of this rope a turn round the rigger upon the plough-carriage, the barrel may be driven, and the work proceed. But if an endless rope be a necessity, wherein lies the value of a fixed rope and barrel as an addition? Well; the originality of the plan consists in this endless rope *moving at a high velocity*; the strain it has to bear, and consequently its requisite strength and weight, being reduced in inverse proportion to its speed. The principle is just that of applying one's little finger at the long end of a lever in order to lift a ton weight.

In Fisken's most ingenious invention, as at present exhibited, the leverage gained is eleven to one; that is, the driving-rope is running 22 miles per hour when the plough-carriage is going only two. The strain upon the rope is thus only *one-eleventh* of the whole draught of the implement. The rope does not reverse its motion, but works round the rigger upon the plough-carriage, always in one direction; so that as the implement traverses backward and forward, this strain is alternately exerted for and against its progress, the anchorage at the far side of the field having to sustain a drag equal to the draught of the implement *plus* one-eleventh; and the other, which is nearer to the engine, the draught of the implement *minus* one-eleventh—or rather, as it is used to divert the direction of the rope, it is subjected to a strain equal to the draught of the implement. How much more easy to fix and shift these anchorages, than when they must be made to bear double the strain?

But this is not all. The weight and draught of the rope itself add to the strain upon the anchors. With a wire rope strong enough to drag the implement by direct traction, this is found to be very considerable; if running along the ground, the friction is great, and if supported by friction-rollers mounted upon stand frames (as Fisken's driving-rope is), the weight must occasion also a very great strain upon the anchors. On the contrary, a rope running at a high velocity may be exceedingly light, Fisken employing merely *a hemp cord three-eighths of an inch thick* to work two ploughs at once. This being so light, and running on friction-wheels set at intervals along the field, occasions only a trifling pull upon the anchorages.

The *economy of power* is no less remarkable than the ease and *portability* arising from this arrangement; and this point we will elucidate in our next paper. *I. A. C.*

Before winding up our remarks on the observed causes of infertility we should have referred to instances where defective fertility is attributable to excessive stiffness and adhesiveness of soil. The clays with which we are best acquainted are those upon the blue lias formation. The poor pastures on this clay become good pasture under the influence of manure. The "home" ground upon a blue lias dairy farm is generally green, when all the rest is brown. Drainage too has benefitted these clays. An arable farm with which we are acquainted on this formation, after drainage 3 feet deep and 20 feet apart, has been most productive of heavy crops of Beans and Wheat, repaying the expenditure most liberally; and drainage and manuring will, we believe, thus cure most clays of infertility. Instances exist of land in the neighbourhood of Bristol where the town and stable dung brought out from Bristol have so enriched and loosened the poor and stiff clay soils upon the lias, that crops are produced which are obtained only from land in the highest state of fertility. Gas lime is used near Bristol, a waggon load per acre, with good effect on these stiff soils.

Burning is another remedy which not only diminishes the stiffness of clay soils directly, but which renders them more able to give up to plants the fertilising matters they contain. In the fifth volume of the Journal of the Royal Agricultural Society of England will be found the history of an improvement of this kind effected by Mr. Randell, of Chadbury, on a farm near Evesham. Land worth 7*s.* 6*d.* per acre—a foul Bean stubble entered to in autumn—was skimmed to the depth of about 1½ inch, and all that the plough raised was burned with faggots, at the cost, including spreading, of 42*s.* per acre. It was then ploughed and scuffled, and, the weather being favourable, was rendered perfectly clean. It was then planted in October with Vetches, which the following summer were eaten off by sheep folded on them, and this was succeeded by Wheat, which produced one bushel in the field more than 45 bushels per acre. The produce was sold for 7*s.* 6*d.* per bushel, and this crop therefore produced more than the fee simple of the land in its former state. Mr. Randall states other instances in which clay land thus burned to the extent of perhaps 200 cubic yards per acre by faggots and by coals was rendered fertile by this means. In a subsequent volume of the Journal Mr. Pusey relates a somewhat similar case as coming under his own observation at Longwater in Berkshire, where the "very stiffest clay," worth 10*s.* per acre, had, by draining with stones at 10 feet apart and 45*s.* spent in burning, yielded 45 bushels of Wheat per acre; the effect of ashes (50 cubic yards per acre), by themselves being ascertained by the crop (37 bushels per acre) obtained where none were used. Even on the still stiffer clays of Kent and Sussex, drainage, we are told, is effectual for their amelioration and improvement. This, and the application of bulky manures, and the practice of burning, seem then to be the means which observation ascertains to be efficient in the fertilisation of stiff infertile clays.

The application of lime must not be forgotten in our enumeration of the means of fertilising land. No dressing is more universally in vogue than lime, whether in the form of the heavy application once in the commencement of the lease which is common in Scotland, or in the more frequent smaller quantities applied in England, or in the still more frequent, and still lighter dressings recommended by Professor Way. Lime is admitted by all, whether theorists or farmers, to be one great cause of fertility in soils. How it directly acts in the removal of infertility has been observed in the case of many a moor and boggy soil, and how it increases the productiveness of fertile lands, is witnessed in the farm practice of every county in the kingdom and on every kind of soil, from the loosest sand to the stiffest clays. We know a farm which when broken out of Grass received a heavy dressing of lime over the first corn stubble; and in one of the newly broken up fields a ridge was left unlimed as an illustration of the application; and this it continued to illustrate, more especially by the produce of the grain crops on that field, for many subsequent years. The direction of the ridges had been altered since that blank was left; but there, lying obliquely across the new furrows, was the perch wide land as plainly marked as ever in each alternate year by the relatively scanty straw and yield of the grain crop grown upon it. The heavy dressing of 250 to 300 bushels per acre, which is sometimes practised, is advisable only in the case of peaty soils, or land full of vegetable matter which has never been limed before. The more common application of half a bushel to the perch once in a six or eight years' rotation is an abundant dressing under ordinary circumstances.

A SKETCH OF PIPE IRRIGATION IN SCOTLAND, June, 1855.

There was a time, and it is not so very long since, when it was popularly supposed that any man could be a farmer; when the tradesman who had failed from want of ability to carry on the business to which he had been brought up, when the idle careless dissipated younger son, or the middle-aged butler who had married the housekeeper, or in short any one whose habits and education had previously been the very reverse of agricultural, found no difficulty in procuring a farm, and for a time at least continuing to hold it. Routine was supposed to be the only thing requisite, in addition to some small capital often ridiculously insufficient. The rent was probably not great, but the produce of the land was small, and the finale too often ruin to the tenant and trouble and embarrassment to the landlord.

Matters are now different, or at least a change is going on. It is true that there still exist large tracts of country in primitive agricultural slumber, but it cannot last; there is a restless spirit abroad which will permit no sleepiness, and there is a power more potent than steam or electricity which is urging on the progress of agricultural improvement, and which will continue to excite the agricultural mind until the most unlikely and unwilling are swept along with the current: and that is Necessity. The abolition of Protection has acted upon British agriculture like the unaccustomed spur upon the highbred courser, it has literally bounded forward under the sharp persuasion of Necessity, and landlord and tenant have alike set their minds to work, calling to their aid the science of the chemist and the constructive skill of the engineer, in order to avert the ruin which they fancied was before them. The principle is the same taught by the old story where a new landlord having been asked by an old tenant for a reduction of rent, instead of granting the request, actually increased it. Aware of the capabilities of the farm, and also of its careless cultivation, from personal inspection, he took this method of inculcating a useful lesson to all. The tenant not liking to quit the home of his childhood tried it again, and under the fresh stimulus to exertion, not only paid the increased rent but never more wanted a reduction. Of course the plan would not succeed in every case, but in this instance the good judgment of the landlord led him to see what was required.

A perfect farmer is as difficult to meet with as a perfect horse, so many qualifications are requisite.

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* We should be extremely obliged when the crop is ripe, if the "Lancashire Farmer" would forward to us a few seeds, and if possible from partially abortive panicles.

Capital he must have, of course, but that is not as some seem to suppose all that is necessary. Much is undoubtedly lost to individuals and to the country by the working of farms without enough capital, but it is also true that much money is often squandered on so called agricultural improvements and high farming most needlessly. The modern and model farmer requires education, enterprise, and energy, but, above all, a sound judgment, that he may not be led away by the thousand and one speculative experiments of the day on the one hand, nor satisfied to resist all modern improvements as mere innovations on the other. Nor must the perfect farmer be a mere amateur—he must require to live by his farm. The spur of necessity must keep him to his work. For illustration of this, on a large scale, we have only to look at the sister kingdom of Scotland. We shall there see what great things have been done for agriculture, chiefly under the pressing exigencies of a less favourable climate and a less fertile soil than generally speaking are enjoyed in England. The rent paid for land in Scotland in many cases is a marvel to the English farmer.

The example set in Scotland so many years ago by the establishment of the Highland and Agricultural Society, with its shows and premiums, was a great step towards the progress of agriculture. But without entering minutely into all the Scottish improvements, it will be sufficient to point to some of the most obvious, such as the universal adoption of the two horse iron plough and one horse cart, and the late Mr. Smith's, of Deanston, frequent drain and subsoil plough system, and now we have the system of liquid manuring by means of reservoirs and pipes, which it is the object of this paper more particularly to notice.

The importance of this system cannot easily be overrated, if it be found to answer in the application of the sewage of our large towns. The wonderful effects of town sewage in large quantities, distributed by means of open gutters, has long been known, and is demonstrated most satisfactorily at Edinburgh, where land so treated lets as high as 30*l.* per acre, but it has yet to be ascertained whether if administered in smaller quantities by the subterranean pipe system with the flexible hose and jet, it will be sufficiently remunerative to warrant the necessary expenses. This question will soon be set at rest, as the system is now in full operation at Rugby in Warwickshire, and elsewhere, and the close of the present season will probably give it a final settlement. But apart from the town sewage question, there remains the important one of house soiling, and the distribution of its liquid by the pipe system, which began in Scotland, and is fast gaining ground there.

In England, Mr. Mechi, of Tiptree Hall, has done much to make it known, and several other gentlemen have practised it with success, but in Scotland we find it working on in quietness where it might be least expected. A slight sketch of what is doing there at present may not be uninteresting to the agricultural world.

Being about to erect some farm buildings in England on the liquid manure system, we determined upon making a personal inspection of the various establishments in Scotland, and we give the result of our observations, in the hopes that it may be of use to some brother agriculturist, or at least serve to point out to him where he may see and judge for himself.

It was natural that we should first turn our attention to that locality where the experiment of liquid manuring on the pipe system was originally attempted, and is still carried on with complete success. Accordingly, we took the Caledonian Railway to Glasgow, where we arrived about the middle of a fine day towards the end of April, and the same afternoon proceeded to find out the celebrated cow-feeding establishment of Mr. Harvey. Wending our way towards the higher regions of Glasgow, we found ourselves in the very dirty, but no doubt very busy and very healthy locality of Port Dundas. Proceeding some distance along the banks of the blackest of canals, after being three times wrongly directed (once by a policeman), we reached our destination. If any pleasing scene of rural happiness or rustic beauty had ever crossed our countrified imagination in connection with the stream of lacteal fluid said to flow so copiously from this fountain head of milk, it was speedily dissipated. No neat farmyard, no rosy milk maids, nor even the sweet breath of cows was here. All externally was dark, dingy, and redolent of pot-ale, as the sour distillery wash is called. But external appearances are not everything, and however much we might have felt disappointed outside, we confess that the first view of the interior of one of the cow byres in a great measure restored our equanimity. It is a fine sight to see a hundred cows at one view, especially where they look clean, healthy, and in fine condition, as they did here. In our admiration of the inhabitants we forgot altogether the habitation; not that there was a great deal to find fault with there either. It was not intended evidently for a show or a fancy farm, but a good business speculation or money-making concern, and therefore economy had been studied. Nor is there any cause for blame; one might as well find fault with money-making Glasgow for not being so romantically beautiful as Edinburgh.

There can be little doubt as to its being highly remunerative. We were informed that there were about 800 cows in the different byres at that time, and that there had been sometimes as many as 1000. It did not strike us that the animals were particularly well arranged; generally they were placed in two long rows, with their heads to the wall, and a division between each pair. There was a wooden feeding trough, about 1 foot in width, running along the whole length, at one end of which the distillery wash or pot-ale was admitted by a tap for the cows to drink; at the opposite end it was let off into the open gutter or manure drains at the heels of the cows, and then flowed back with the urine to the main sewer at the other end, and so into the great tank. The space allowed for standing room from the wall to the heel drain was 8 feet; the heel drain itself was 3 feet wide and 3 inches deep. There is a continuous flow from the main sewer, which takes the draining from all the cows, together with the pot-ale and water, into the large tank sufficient to fill a 2-inch pipe at least. From the tank it is pumped up to a level 80 or 90 feet higher into large wooden vats or reservoirs, from whence it flows by gravitation over the farm through 4-inch iron pipes.

In the different fields are hydrants, from which by means of iron pipes in joints about 6 feet long each, with about 30 feet of flexible canvass or india-rubber hose, and a tin distributor or jet, the liquid is shed over the fields. The farm consists of about 400 acres. There is a second farm steading about a mile from the distillery, at a lower level, where there were 100 more cows in a house, and about 260 pigs. Although no particular attention seemed to be paid to mere appearances at the distillery, the cows all looked in good health and condition, and were very tolerably clean, but it must be admitted that the smell was offensive, chiefly owing to the pot-ale. One man takes care of 50 cows, that is, he cleans and feeds them, and every 13 cows have a woman to milk them. The milk is kept in flat wooden vessels, and conveyed to the Glasgow public by means of one-horse spring carts, in neat wooden barrels with taps. The superfluous milk is made into butter by means of two large plunge churns, holding about 100 gallons each, worked by horse power. The chief part of the solid manure, which is very considerable, is disposed of by sale to the public, as much as 2000 tons in the course of the year; this at 6*s.* per ton would be no very bad rent for the land itself, something like 30*s.* Mr. Harvey's farm is held from different proprietors, and the rents vary, but the highest is only 3*l.* per acre. In the winter season the cows are fed upon the distillery grains, hay, Turnip, and Bean-meal. In summer and autumn, of course, they have the more succulent food, such as Rye-grass and Clover, Italian Rye-grass, Cabbage, &c. The Italian Rye-grass does not appear to stand the winter. It is sown early in April, and the first cutting is usually about the end of June, and it gives four cuttings in the season.

We saw the liquid applied to land in preparation for green crops, and again at a higher level on a field of seeds. The flow was very weak indeed. There were two men employed, and they did not go over one acre in the course of the day. We saw it again in operation the same day nearer to Glasgow, not far from the Cowlairs station of the Edinburgh and Glasgow railway, and in the same way with iron pipes in joints of 6 feet.

Everything was very far behind for the time of year; the herbage very bare, and the Italian Rye-grass not above ground. One month later we again visited the farm on the 24th May, and although from the unusually dry and cold season all vegetation was behindhand, the effect of the liquid was most evident. In the fields of seeds we visited a month before, the herbage was as thick as it could stand on the ground, and of the darkest green colour, but not quite long enough to cut. One part of this field is at too high an elevation for the liquid from the pipes, and the difference between the crops in the same field was extraordinary, the undulating line of the distribution was most clearly marked. Where the liquid had not been applied the crop was thin, poor, and of a yellowish brown hue. The Potatoes which were planting in April were not yet above the ground, but the drills were being harrowed down; the Cabbage seems to thrive very well upon the liquid, and large quantities are planted here for autumn use.

The kind of cow chiefly used by Mr. Harvey is the Ayrshire, but there are a good many crosses, and he had a Durham bull in one of the stalls. Rearing calves was tried, but did not succeed. The cows are kept as long as they milk well, when they are fattened on distillery grains and Bean-meal for the Glasgow butchers.

This large establishment is well worthy of a visit from all who are interested in the results of liquid manuring. The most sceptical must admit that the effect produced by the liquid is very great indeed. The question of the expenses is another point on which we are not in a position to enter minutely at present. The locality is highly favourable to the system, and Mr. Harvey's great merit is his ready perception of the fact, and turning his position to the best advantage. It has all the appearance of a thriving concern, and we trust it may long continue to remunerate him handsomely for the enterprise and sound judgment he has evinced.

(*To be continued.*)

CARLISLE MEETING OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

REPORT OF IMPLEMENTS—*Continued.*

As it is unnecessary for us to make these columns a mere catalogue of articles exhibited, we shall confine our present notices chiefly to the novelties of the show, contenting ourselves with a mere mention of such machines as have been repeatedly described in former years.

In going through the stands we selected for especial mention Richmond & Chandler's Chaff Cutters, both the prize one and that commended; their Root Washer, constructed with a rack and pinion for raising and emptying the cylinder, which though less simple than Crosskill's Archimedean, costs 26*s.* less money. Their Steaming Apparatus with a 30 gallon boiler, and a 4 bushel wrought iron pan, is very complete, and at the same time cheap.

Coulson's combined Machine for Morticing and Boring Naves, Felloes, Gates, Posts, &c., is calculated to save a great amount of time in making and mending the farmer's vehicles and gates.

Greening's Washing Machine seems rather too complicated for the farmer's wife to manage, but is exceedingly ingenious in its motions; it works a "Peggy" with an up and down and reciprocating circular motion (which will also serve for churning), and it wrings the wet clothes between rollers.

Chandler's Liquid Manure Drill with Reeves's patent improvements is simpler and cheaper than the original machine; instead of buckets to deliver the liquid, there are small holes in the bottom of the cistern, and a revolving stirrer regulates the quantity flowing out by scraping away the sediment from above the holes with greater or less rapidity.

Garrett's Prize Drills maintain their title to the Society's honours, and their Manure Distributor (Chambers's patent) is a most beautiful invention for delivering pulverised manures in small and regular quantities.

Huckvale's Turnip Thinner bids fair to become a very valuable implement; it is now made to take two rows at a time, and the draught of the single hoe is so arranged that the horse can walk on one side the plants. The price is only 7*l.*

Garrett's Root Pulper is a clever adaptation, consisting of a pair of toothed rollers added underneath a Gardner's Turnip slicer; it will crush and mince a large quantity of roots in a very little time, requiring, however, two men to turn it.

Smith and Ashby exhibit their first-rate Haymakers, Horse Rakes, and Chaffcutters; and their Cultivator is a very strong and effective implement.

Crosskill's Clodcrusher has been improved by making every alternate disc of somewhat larger diameter than the others; the discs all press on the ground together, but the larger discs having an eccentric motion as well as free play upon the axle, prevent all possibility of clogging.

Hornsby's Engines, Threshing Machines, Dressing Machines, and Drills are well known; and deservedly received their share of prizes and high commendations. Their fore-carriage steerage is certainly the best yet brought out, and is invaluable upon lands where straight and perfectly regular drilling is found indispensable, that is, where Garrett's horse-hoe or Smith's simpler implement are in use.

Bentall's Broadsharer continues the best, notwithstanding its being denied the prize on this occasion. For sticking close to its work even in the most unfavourable ground there is no known implement like it; wherever a single one has been introduced, scores more have been immediately demanded; this maker has an immense sale for them, and may be considered as a great benefactor to English agriculturists for furnishing them with a cheap as well as invaluable implement.

Bentall's new Harrows, constructed by machinery, are remarkably strong: the teeth fixed in a very firm and enduring manner; and the price very low.

Gibson's Revolving Grubber or Forker must be regarded, we fear, as a failure, after the trial to which it has been subjected; it is useless on lea ground, and we consider that the common cultivators are superior to it for stirring land already ploughed.

Fowler and Fry exhibit a very cheap iron Oil-cake Breaker, and some very excellent Root-graters, which tear into fine shreds about 1 bushel per minute; price only 3*l.* 10*s.*

Fowler's Steam Draining Engine was at work outside the Show-yard. We cannot refrain from again urging all practical men interested in land drainage to ascertain for themselves the character of this engine's performances, and to avail themselves of its extraordinary powers wherever wet lands remained to be drained, and clay farms to be improved. It completes drains at any depth, laying in the pipes in a more perfect manner than is possible by manual labour; and its cheap and expeditious work ought to recommend it constant employment, or, at least, in any locality where the pickaxe is unneeded to loosen a subsoil of rock.

Holmes & Son show a clever and very useful Manure Distributor. It has brass deliverers, which will not corrode, and a sliding (as well as a rotary) motion is given to the stirrer without any complicated system of worms and levers—this being effected simply by the side action of a wheel hung "untrue."

Nicholson's Haymaker is a great improvement. It has a reversing movement, without any intermediate pinion; and its very simple machinery is so constructed and arranged as to secure great durability and freedom from excessive wear. We believe the inventor intends to have still stronger spur wheels and pinions next year; and then, we think, this machine, for effectiveness, simplicity, easy management, light draught, freedom from clogging, and lowness of price, will be unsurpassed by any.

Nicholson's One-horse power Portable Steam Engine seems to be useful for farms where much stall feeding is carried on.

Phillips's Root Pulper, improved by the substitution of a vibrating plate for a shaking hopper, is the most efficient machine for its purpose, mincing most effectually 20 to 30 bushels per hour. Price 6*l.* 10*s.*

Stanley exhibits Cambridge's Press-wheel Roller, with patent scrapers attached, which is certainly an improvement.

William Lister shows a new implement for tailing and loosening Turnips in the ground—a sort of horse hoe, with knives passing under the rows of roots. The price is 6*l.*, and with this implement and a new form of hand hoe for topping, the inventor states that Turnips may be topped, tailed, and raised, ready for throwing into carts, at 1*s.* per acre.

Tuxford & Sons exhibit, besides their Steam Engine and Threshing Machine, a very improved Saw Table, with an adjusting spring attached to the fence plate, for taking the twist out of deals, together with several other good arrangements for facilitating the work.

Balls' Cultivator is remarkably simple; the driver raises the tines out of work by merely bearing upon the handles. The price is 6*l.*

Samuelson's Turnip Cutter is still the best for its purpose.

James Blair's Potato Riddle is a capital contrivance for sorting and dressing. It is a modification of the common corn winnowing machine. Price 3*l.* 10*s.*

Coleman's excellent Dray Harrow and Scarifier obtained the prize, and is a very efficient implement.

Lucock's Drain Tile and Pipe Machine has a clever self-acting cutting apparatus, consisting of horizontal wires strained between two endless bands of spring steel, which continually travel round riggers placed above and below the machine. All is done by a continuous rotary motion.

Palmer exhibits Patterson's new Clod Crusher, which resembles Crosskill's in appearance, only the rings have an even instead of indented periphery. Each alternate disc works eccentrically, thus insuring a good self-clearing action.

Gray's Subsoil Pulveriser is an admirable implement. Three tines are so attached to a beam that they precede each other though in different tracks—each time thus having loosened soil on one side—which facilitates working and lightens draught.

Howards' have several very admirable implements besides his first-class ploughs. Their Drill Presser first sows the seed with a zinc roller and brush, which distribute very regularly, whether going up and down hill, and then small shares follow, covering in the corn with the crests of the furrows. Their Horse-hoe, made entirely of wrought iron, is a very good tool, working with remarkable steadiness. Their Horse-rake is perhaps the best that can be had, having light and strong steel teeth, a neat and easy method of raising for delivery, and an adjustment of the shafts by which the accumulation of soil and rubbish may be prevented.

On Ransomes & Sims' long stand, in addition to the prize ploughs, the chief objects of interest were Cotgreave's Subsoil and Trenching Plough, Lord Beauclerk's Archimedean Subsoiler, in which a horizontal revolving screw follows in the loosened soil behind a tine or subsoiling coulter; Biddell's Bean

Cutter and the Steel Oat Mill, which has steel blades cast in an iron barrel.

Not the least interesting of the stands was that of Messrs. Gibbs & Co., which contained an immense variety of samples and specimens of Grasses, natural and artificial, grains, roots, &c. The extraordinary perfection of the dressing and cleaning of the seeds excited general admiration; and, indeed, the cleanliness and trueness of the samples is the more remarkable from the fact that instead of being got up merely to show how seeds can be made to look, they are all taken from the bulk of Messrs. Gibbs' stock, and are precisely of the same quality which they supply to customers.

REPORT OF CATTLE—*Continued.*

HEREFORDS.

Class 1. Bulls calved previously to the 1st July, 1853, and not exceeding 4 years old.—The first prize was awarded to No. 105, the Right Hon. Lord Berwick's bull. This is a truly noble animal, of great weight and beauty; we have not his superior in the yard. He is tall, and of excellent form and symmetry, almost equal to the heifers of his breed shown in subsequent classes; his colour is red, with white face; he is 2 years, 9 months, 26 days old, and is called "Altringham," and bred by Lord Berwick. To begin with him as he stood before us—his frame is long, rotund, and deep; his ribs, thighs, tuts, twist, and flank exceedingly good; loin, chine, and back level and broad, and well covered; his girth very large, head handsome, neck full, and well set to chine and shoulder, which are well out and of full form; his hand and coat good, and offal fine. No other in his class comes near him. No. 102, the Earl of Radnor's bull, receives the second prize. He is a well made animal, and his form excellent, being rather oval than round; his fore-quarters are very good, but his hind-quarters are defective; he is not large, but good in quality of flesh. No. 99, Mr. W. S. Powell's bull, was highly commended. His hips and rump are not well formed, twist superior and well out, thighs long and full, chest and chine good and deep, ribs not out enough, but of great length, forming a deep frame. No. 103, Mr. R. Hill's bull, was highly commended. He is a well made animal, heavy, and of deep form. No. 106, Mr. Monkhouse's bull, was highly commended. He is not very large, but is of very good form, and of superior quality in flesh.

Class 2. Bulls calved since 1st July, 1853, and more than 1 year old.—No. 109, also the property of Lord Berwick, received the first prize. He is of good and regular form, and his quality of flesh exceedingly good; he has broad even hips, and wide good rump, flanks full, rather short bosom, good girth, chine fair, ribs deep, and not sufficiently out from ribs. No. 110, Mr. J. Monkhouse's bull, receives the second prize. His hips and rump are wide and good, and flank fair, but his ribs are not round enough, nor is his girth large, his form pretty good.

Class 3. Bull-calf above 6 and under 12 months old.—The prize of 5*l.* was awarded to No. 112, the property of Mr. E. Williams. He is a very handsome calf, of much promise, very good fore-quarters. This class was well sustained, though the animals were few.

Class 4. Cows in milk or in calf.—The first prize was awarded to No. 122, the property of Mr. J. Monkhouse. This is a large, good animal, her hips very ponderous, tuts very large, her loin rather defective, ribs fairly out, chine and girth deep, and shoulder well out, bosom full, her frame large and well proportioned. Second prize was given to No. 121, Mr. J. Turner's cow. She is a very handsome good animal, exceedingly good frame, and excellent in quality of flesh. Her points admirably developed. No. 118, Mr. James Acker's cow, was commended—this she richly deserved. She is of good frame, with full hips, fat tuts and twist, shoulder and chine good, thighs rather thin; she is very fat, and a compact and large made cow, suckling a precious thin calf.

Class 5. Heifers in milk, or the calf not exceeding 3 years old.—The first prize in this class was given to No. 124, Mr. J. Walker's heifer. She has large tuts and great hips, beautiful form, stands wide; a good representative of the breed. The second prize was given to No. 123, Mr. W. Perry's heifer. This is a very creditable animal, prettily formed, rather too slender in general frame, but of beautiful quality, and betokens good milking properties.

Class 6. Yearling heifers.—The first prize is given to No. 128, Lord Berwick's heifer. She has a very compact, symmetrical form, her whole outline and points good, without any being particularly noticeable. The second prize is given to No. 125, Mr. W. Mayberry's heifer. She is a truly handsome specimen of the breed, well formed throughout; her lower parts very good (*i. e.*, flank, plaits, breast, twist), all good; head rather large for her size.

DEVONS.

Class 1. Bulls calved previously to July 1st, 1853, and not exceeding 4 years old.—The first prize was given to No. 134, Mr. John Quantly's bull. He is exceedingly well formed, most compactly filled out, and of prime quality; his hips, like most of his breed, are too narrow, as are his flank and repping parts; his head and looks very good. The second prize is given to No. 133, also Mr. Quantly's bull. He has very level complete frame, beautifully proportioned where good, and short deep ribs, not quite enough out; his tail is low, and twist full. No. 132, Mr. Farthing's bull, was commended. His peculiarity was an immense twist, almost disfiguring his thigh; his form is very deep, and good in proportion; his flank first rate, and superior in quality.

Class 2. Bulls calved since July 1st, 1853, and more than 1 year old.—The first prize was given to No. 135, Mr. G. Turner's bull. He is an admirable specimen of the Devon breed—most symmetrical in frame, and his quality of meat very superior; his only fault, like all the breed, too narrow hips. The second prize was given to No. 136, Mr. W. Farthing's bull. He is not of perfect form; his shoulder is out of proportion; chine and girth defective; his frame is deep and long.

Class 3. Bull calf above 6 and under 12 months old.—The prize was given to No. 137, Mr. G. Turner's bull calf. This is a very complete and beautifully formed little fellow, denoting most of the best points in his breed.

Class 4. Cows in milk or in calf.—The first prize was given to No. 141, Mr. G. Turner's cow. She is a very complete animal, so uniformly good in all essential points except her hips, which are as usual too narrow; but her loin is very good, and ribs well thrown out; her great fault is her size, she is too small, quality perfect. The second prize was given to No. 140, also Mr. G. Turner's cow. She is not so perfect as her competitor, but has a good deep frame, of excellent proportions; her chine is somewhat too narrow, and sides a little too flat. No. 142, Mr. W. Farthing's cow, was highly commended; she has a better hind quarter, having wide hips and good tuts, her tail stands well.

Class 5. Heifers in milk or in calf.—The first prize was awarded to No. 146, Mr. J. Quartley's heifer. She is small, but of almost perfect form and quality of flesh, very compact and proportionate in all parts. The second prize was awarded to No. 144, Mr. G. Turner's heifer. She is also small but beautifully formed; her twist not so good as No. 146, but her quality of flesh quite equal. No. 145, Mr. W. Farthing's heifer, was highly commended. This is a large heifer, of good substance, roomy and well formed, but not equal in quality of her meaty parts to the preceding. No. 147, Mr. T. Webster's heiter, was highly commended. This heifer has a large and roomy frame for the breed, but common in appearance and not equal in quality. This was a good class.

Class 6. Yearling heifers.—The first prize was awarded to No. 152, Mr. J. Quartley's heifer. This is a very handsome and compactly formed heifer, of perfect symmetry and fine proportions; her outline so even as to leave no point for especial notice except in praise. The second prize was awarded to No. 151, also Mr. J. Quantley's heiter. This has also a beautifully formed frame of deep proportions. She is not so well and evenly filled up in all her points as 152; her tail is too high and tuts short. No. 153, Mr. F. Wilken's heifer, was commended; she denotes a larger frame and more lean flesh and substance.

AYRSHIRES.

Class 1. Bulls of any age.—The prize was given to No. 154, Mr. John Stewart's bull. He is a very useful young bull, straight back, chine narrow, and ribs flat, good flank, and deep chest. His character stands high in his class, having already taken forty prizes in his own country.

Class 2. Yearling bulls.—The prize was given to No. 156, Mr. John Stewart's bull. This is a very small and by no means a good specimen of the breed. We asked ourselves if the Judges had done right in this class.

Class 3. Cow of any age.—The prize was given to No. 163, Mr. W. Muir's cow. She is a slight formed little animal with level back, and denotes fair milking qualities.

Class 4. In calf heifer.—The prize was given to No. 164, Mr. J. Stewart's heifer; she has a fair frame but small and profitable looking. No. 165 was commended—she has a rather better frame, but don't look so profitable.

ANGUS AND OTHER POLLED BREEDS.

Class 1. Bull of any age.—The prize was given to No. 166, Mr. M'Combie's bull. This is a large and long-framed bull, deep and heavily formed throughout; he has a good tut, flank, and twist; hips not wide, but an even straight back, chine and shoulders well formed, and very deep through. A good and profitable animal.

Class 2. Yearling bull.—No competition.

Class 3. Cow of any age.—The prize was given to No. 168, Mr. M'Combie's cow. She has full-formed hips and long rump; her hind quarters are good, and her frame is deeply formed, but ribs not out enough, and girth defective.

Class 4 In calf heifer.—The prize was given to Mr. M'Combie's heifer. She is one of the best of her breed, having a capital hind quarter, good tuts, hips fair, long and full rump, shoulders well out, chine rather sharp, girth fair.

HIGHLAND AND OTHER BREEDS.

Class 1. Bull of any age.—No competition.

Class 2. Yearling bull.—The prize was given to No. 171, Mr. Neil Malcolm's bull. He has a fair form, and possesses other useful points, but not a good animal.

Class 3. Cow of any age.—The prize was given to No. 172, Mr. Neil Malcolm's cow. She is a fairly formed poor cow, nothing more.

Class 4. In calved heifers.—No competition.

SPECIAL PRIZES GIVEN BY G. HEAD HEAD, ESQ.

GALLOWAY CATTLE.

Class 1. Bulls not more than 4 years old on 1st July, 1855.—The first prize was given to No. 745, Mr. J. Graham's bull. This is a good animal; his hips and loin are not wide, and his sides are too flat, but he has capital thighs and under parts, his rump good, a deep chest and full large shoulders, and very deep frame. The 2d prize was given to No. 746, Mr. J. Carruther's bull. This is a very heavy weighing animal, denoting an unusual amount of lean flesh; his sides too flat, as are those of all the breed, but he is very deep through; his frame rather too long, and not quite even back; hips too close, and tail high; neck too high. No. 744, Mr. J. Sutton's bull, was commended. He has a deeply formed frame; his ribs too close, making long flat sides; a heavily formed animal with much good lean meat; tail high and rump prominent.

Class 2. Bulls calved since 1st July, 1853, and more than one year old.—The first prize was given to No. 751, Mr. James Beattie's bull. He is more compact than his breed generally, has good shoulders well out, a level and rather broad back with deep thighs and good flank. The second prize was given to No. 756, Mr. J. Borrell's bull; this is also a compact well formed animal, and rather shorter than is usual in the breed, but his sides are like the class, flat and deep, hips too close, but he denotes many useful points.

Class 3. Cows in milk or in calf.—The first prize was given to No. 761, Mr. James Beattie's cow; this is a very good poor Galloway cow, and her frame though poor is equal to any in her class, while her general characteristics are superior. The second prize was given to No. 770, Mr. J. Grainger's cow; this is a smaller animal, but very compact and well formed, her sides not so flat as many others, rather low hips and her udder is long; she has a good chine and level back.

Class 4. Pairs of heifers in calf or milk, and not exceeding 3 years old.—The first prize was given to No. 781, Mr. G. Reddick's heifers. They are two very well matched and good heifers; the smaller one of excellent qualities for fatting and in good form. The second prize was given to No. 779, Mr. J. Pearson's heifer. They are a pair of very compactly framed animals, form rather long in proportion, and denote much lean flesh of good quality.

The Galloway Cattle Classes formed an interesting feature in the exhibition, particularly to Southerners, and they were well and very well creditably represented.

Home Correspondence.

Fingers and Toes.—I have about 3 acres of Turnips in one field, a sandy soil, sown at different times, and all are infected with the disease called fingers and toes, or anbury (*unde deriv.* ?). Even the last sown are infected, a specimen of which I have enclosed. [It did not reach us.] In those sown six weeks or two months back (both white and Swedes) the excrescences, many of them, have a small maggot or small black creeping insect inside them—are these the cause or consequence of the disease? If the cause, how is it that the young plant is diseased before it has attained a size large enough to hold the maggot? It is the first year of my having this particular field; I remember three or four years back seeing in it a capital crop of Turnips, but that season was a good deal drier than this. What is the remedy for the future? and what the cause of the disease? and will the crop this year be useless, at least those Turnips which are diseased, which constitute two-thirds of the whole? *Amateur.* [Try marling or liming; and sow Rape instead of Turnips now.]

Dairy Statistics.—Feeling interested in the "Dairy Statistics" recently published in the *Agricultural Gazette*, I send you the result of one week's experience in my dairy. The milk of two cows has been carefully measured, and 8 quarts of milk have yielded 1 quart of cream, which when churned produced 15¼ oz. of butter to each quart of cream. One cow was an Alderney, which calved in May of her first calf; the other cow, an animal of the common Yorkshire breed, calved about five months ago. These cows are part of a dairy of seven, which, with other stock, have the range of a pasture of about 15 acres of fair average Grass land, meadowed last year, and deep-drained the autumn before last. The cows were turned out late in May. The farm on which the above yield has been obtained lies under the Cleveland hills, in the North Riding of Yorkshire. Cheese is usually made on the neighbouring farms during the summer months. *D. M.*

Gardens for Schools.—Reading an article in the *Gazette* for August 11 upon this subject, I beg to communicate a few facts respecting a school of this kind I visited on the 3d inst. I had been apprised of a cricket match, horticultural show, and tea party to be held in the schools on the above day, and accordingly repaired early to the scene of action—a quiet village in the county of Surrey. The country here is remarkably flat and densely wooded, but I was soon able to distinguish where lay the object of my search by observing the Union Jack flying from the top of a lofty pole (the climbing pole in the play-ground). The joyous shouts of the boys in an adjoining field attracted my attention for a time in their contest at cricket, but I soon began to look for the "horticultural show." This, I was informed, was not open till 3 o'clock, so I amused myself by strolling about the grounds and buildings, &c. The extent of these grounds is upwards of 5 acres, a part of this being exclusively devoted to gardening purposes. Here the boys are instructed for an hour and a half daily in the practice of spade husbandry. I observed on the field garden very promising crops of Barley, Potatoes, Mangold Wurzel, Cabbage, Italian Rye-grass, and Turnips, which certainly show what little hands can do when well directed. The workers in this case, however, are none of them of the class mentioned by J. C. Morton, but are chiefly resident scholars, paying at the rate of 16*l.* per annum, receiving in addition to the instruction I have named the usual elementary education of other schools. As a means of interesting and useful pastime, each boy is allowed an allotment of 30 to 100 square yards, the produce of which, after defraying expenses, belongs to the occupier. I should have spent more time in investigating these matters had not 3 o'clock invited me to the show tent. Here I found nicely arranged various vegetables, flowers, and fruit for competition for prizes; the collection on one side being from the cottagers, and on the other from the boys' allotment gardens as mentioned above. The judges had some difficulty in deciding in several cases, but concluded about 4 o'clock, when all sat down to a plain tea provided at a charge of 2*d.* After tea the prizes were distributed as below:—

1. Parsnips	Lee	...	2*s.* 6*d.*
2. Onions	Tanner	...	2 0
3. Wheat	Faithful	...	1 6
4. Broad and French Beans	Sink	...	1 0
5. Peas	Bixley	...	1 0
6. Potatoes	Sink	...	1 0
7. Bunch of flowers	Fuller	...	1 0
8. Apples	Baker	...	1 0

BOYS (from allotments).

1. Potatoes	Hoinville	Aged 12	2*s.* 6*d.*
2. Ditto	Spenser	" 14	2 0
3. Mangold	T. Symonds	" 11	1 6
4. Beans	E. Symonds	" 15	1 6
5. Onions	"		1 0

FOR THE BEST CULTIVATED ALLOTMENT.

James Elliott	Aged 15	2*s.* 6*d.*
Thomas Hanson	" 13	2 0
John Fowler	" 13	1 6

That such institutions and exhibitions as these are productive of much good there cannot be a doubt, and I think the day will come when nearly every parish will be able to boast of its school of industrial training. By this means a more intelligent race of labourers will spring up capable of keeping pace with the many new appliances to modern farming. As a word of encouragement to those who may be desirous of making an experiment in this way, I may add that I was informed the school was entirely self-supporting. How such a school may be started in the best way I am not in possession of sufficient facts to advise, though I have no doubt those persevering ladies, the managers of this school, with their usual kindness, will but be too glad to do so, for no one could, I am confident, be more zealous than they for the spread of a system, which under them is making rapid strides towards perfection—a zeal which on the 3d seemed truly appreciated in the deafening cheers which followed hurrah for the Miss —'s schools. *J. J., Ockham, Ripley, Surrey.*

Crops in Hants.—I must trouble you to alter my report of the crops. Our Wheat in this neighbourhood is very bad; all suddenly ripe from blight, and much of it will not be more than half a crop of "chicken meat," small, thin corn; our reapers look more like ruddle men after their day's work than reapers. Our Potatoes are all cut down, and in a short time there will be no sign of greens left; the roots are beginning to rot. The weather is splendid—all that we can wish. *James Eames, Lymington.*

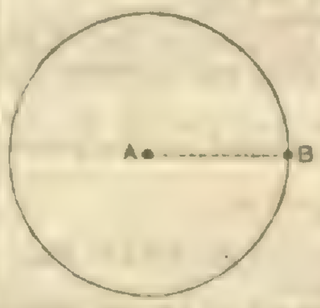
Best Mode of Cultivating Potatoes.—I have read with some interest the notice of Mr. Charles Hicks's "best mode of cultivating Potatoes," in a late *Agricultural Gazette.* The only novelty, however, I saw in the extract consisted in the following:—"There is, however, one evil attending this mode of covering, for the horse in walking either treads upon or displaces many of the sets; but I do not well know how this difficulty is to be obviated." I will, with your permission, now tell Mr. Hicks how he can obviate this difficulty, thus: Let him get a good Irish ploughman, accustomed as all good Irish ploughmen are, to drill, as we call it, but to ridge, as Mr. Hicks calls such Potato planting. But should it be inconvenient to him to get such a ploughman as I recommend, let him try his hand in training in one of his juvenile neighbours, thus: let the horse in covering the tubers walk on the top of the ridgelet or space between the drills. If he works a double mouldboard, as it is presumed he, like a good farmer, does, after the first "bout" he will with each succeeding one finish a drill or ridgelet. Should he use two horses, as most extensive Potato cultivators do, let what we call in Ireland his "large swing," and in England I believe "long-whippletree," be so long as that each end of it when in

use will nearly reach the tops of the first and third drills or ridgelets, the plough will then "split" the second. In returning let the inner left hand, or leading horse, walk in the space thus cleared by the plough, and the off-hand horse walk on the top of the fourth drill or ridgelet, and so on till the work is done, returning finally to the half-round drill, the first done. If he uses a single mould-board plough the same rule will hold, but varying a little because of the double space travelled by the horse or horses. I hope I have made myself sufficiently understood to enable Mr. Hicks to get over his difficulty. If not, and that the matter is of sufficient importance to him, let him come or send over his ploughman to me next spring, and he shall be taught the simple practice "with a ceadth millhe failthe." *Edward Carrell, Cranemore House, Clonegal.*

Steam Cultivation.—By referring to my last letter p. 459, the readers of the *Gazette* will see I affirmed the grand condition to be fulfilled by a steam-cultivating machine was, that it should do more work in less time, and for less money, than is now done by the plough, &c.; and they will further notice, that after investigation the fulfilment of that condition appeared to resolve itself into this simple proposition, viz., by what figure or method is it possible to move a heavy body like a steam-engine over a superficies, so as to overcome the greatest possible amount of work by the least expenditure of time and power! Now there may be many farmers who do not know the value or nature of reasoning by induction. Hence, for their information, I may tell them it goes before experience, and is the guide of it, and that all the "science" of the philosopher differs only in degree from that source of information which is the fruit of the commonest experience. The foundation lies in our expecting that similar effects or results are sure to arise from similar causes. Lord Bacon in defining the value and conduct of the method, lays down the following as a fundamental aphorism:—"Man, the servant and interpreter of nature, can only understand and act in proportion as he observes or contemplates the order of nature; more he can neither know nor do." Nature stands ever ready to minister to our wants and furnish us with the examples we need, if we have but the sagacity to separate the essential points from the cloud of perplexing circumstances with which they are generally surrounded. Let us see whether we can apply these principles to the useful subject we have in hand, viz., how to introduce the steam-engine to tillage purposes. The "conditions" to fulfil may be restated in these two propositions: 1st. To move a great weight, such as a steam-engine, with the least expenditure of power, over arable land; 2d. How to cause the definite amount of power possessed by such engine to operate upon such arable land with the greatest economy of time, power and expense. Let us see how Nature operates when she has a heavy weight to move and yet desires to execute as much work as possible in a limited time. We will select as examples a cow grazing, a sheep feeding, a hawk hunting, a man broadcasting, or tethering a horse. We will not stop to inquire whether these several illustrations are prompted to operate as they may do by instinct or by reason; it will be sufficient for our purpose to discover what conditions they fulfil by the *modus operandi* they pursue, and then seek to apply it to the useful purpose we have in view. The first example is that of the cow. Now, a cow has a heavy body, and she is desirous of filling her stomach with the least exertion, and in the least possible time execute the greatest amount of her work, viz., grazing. How does she behave? The gate is opened. She rushes into the field and begins to eat the Grass. Do you observe how she manages that sort of work? She does not advance in a straight line, eating a narrow ribbon of Grass right across the field; but stands nearly in one spot, advancing a foot now and foot then at very slow intervals of time; but mark in what manner and how quickly she directs her mouth, swaying it from side to side in the form of a semicircle; in fact she shows a decided tendency to devour the Grass all around her before she moves her heavy body an inch. The same with the sheep; and now observe that hawk. He is out beating and exploring certain fields for his prey; how does he proceed? does he fly "right ahead," like a crow? No. What is it then which prompts him to describe so many circles—now one, then another—over that 10 acre field? The answer is simply this, that by the method he pursues, whilst he moves his body the least distance he executes his work (searching) over the greatest amount of superficies or surface. It is instinct that prompts him, of course; but still it is evident to us if he were to fly "right ahead," like a crow, he would go, or carry his body a long distance, it is true, yet see very little of the country; hence as such an "up-and-down-field" course of proceeding would be inconsistent with time and economy in labour, Nature has prompted him to circumgyrate one spot (whose area contains as much surface as would have taken his heavy body many linear miles to traverse. Performing his revolutions around a 10-acre field, his vision radiating to the centre, he can see in a few moments every living speck contained in such field. Here is economy of time and power by means of right "method." I will only adduce another example, and that shall be "man." Have you watched a labourer in the act of broadcasting? his aim is to distribute seeds or manure over the greatest amount of surface, with the least fatigue and in the least possible time. He is left to himself. How does he proceed? Does he take the seeds, and rapidly advancing, jerk them in a straight line before him! No; he does nothing of the sort; his instinct (I must have it "instinct" here) readily informs him such a *modus operandi* as that would not fulfil the conditions he has before him; so observe him—he dips his hand in the seedlip, advances a step, stands still, and casts the seeds from his hand in the form of a semi-circle: again his foot advances, his body stops, his hand describes a semicircle, and he has found out this mode of operating fulfils the conditions required—viz., that of carrying his heavy body the least possible distance whilst his hands perform work over the greatest practicable area, thus economising time and power. Again, who instructed man to tether a horse? The object here is to provide the animal with as much food as possible in the least time, &c. To fulfil the conditions would a man fix down a peg at A, and from it stretch a rope 2420 yards in length to another peg at B, causing the

A ———————————————— B

horse to feed up and down such fixed rope? No. How then does man—even a savage—contrive to fulfil the conditions required! Why, as is well known (but not noticed) he takes a short piece of line, a few yards in length, fastens one end to a peg, which he knocks into the ground at A, and the other end he attaches to the horse's foreleg at B; the horse, with this short bit of line as his radius, is now able to describe a great circle, and the man quickly discerns he thereby fulfils all the conditions required; and I believe any farmer of even the most moderate "happytite"* will see that if the horse's mouth were but as long as the line, he could be made to bite up a tremendous surface of Grass in a very short time, and yet not have to carry his heavy body very far to do it. Now, we want to cultivate land by a heavy body called a steam tillage machine; what profitable deduction can we make from the above natural illustrations! Why, backed by their scrutiny and further supported by our knowledge of the particular method Nature invariably pursues in all her vegetable and physical labours—from a Turnip to a tree, or a small stone to the great globe itself—I advance the following conclusion, viz., that she always includes the work to be done within the area of a "*circle*," as this particular figure enables her to fulfil the condition of doing most work with the least expenditure of time, power, and material (money). Hence, what is the course we should pursue in respect to the tilling of the land by the agency of steam? Why, that we also should include the work to be done by a heavy body like a steam-engine within the area of a "*circle*;" and in my next letter I will explain how this can be done without leading to any "neutralising disadvantages" in relation to our present farm economics. *Chas. Burcham, London.*



Fences.—In a recent Number of your Paper there is a communication signed "A Northern," in which it is stated "that nearly all the Thorn hedges one sees are clipped square, &c." As this is expressed one has difficulty in getting at the true meaning. It may happen that the writer spends most of his time in some small town or village, where the only hedges he sees bound gardens or paddocks, and where the fences are clipped into the shape he describes, for the purpose of bleaching or drying clothes upon. If this is what is intended to be expressed, it is very likely true, and I have nothing to remark upon it. If, however, it is meant to state that the writer is extensively acquainted with the district his name denotes, and that he wishes it to be understood that the practice of square clipping he describes is general in that district, I beg most positively to deny the allegation. You are tolerably well acquainted with this district yourself, and know I am justified in affirming that in the north of England are many farms and some whole estates where the fences are second to none. It is true there are many bad and neglected fences in this as in every district, but their inefficiency most certainly does not arise from their having been treated as your correspondent describes. *Another Northern.*

Farmers' Clubs.

READING. — *Guano and Superphosphate as Specific Manures.*—This subject was introduced at the last monthly meeting. Farm-yard manure contains all the ingredients requisite for the different crops we cultivate, but unfortunately we cannot, or do not, obtain it in sufficient quantities, and therefore we have recourse to guano and superphosphate to make up the deficiency. But how, in many cases, are these expensive adjuncts used on the farm? I have known men, when their dung has run short for Wheat, apply superphosphate as a substitute; and I have known others use Peruvian guano for Turnips, when phosphates with but little ammonia would have produced them better crops. In such cases there is money lost both to the producer and the consumer, because the maxim of growing the greatest possible amount of food at the lowest possible expense is totally reversed. If you saw a man feeding his pigs on hay and his bullocks on wash, you would say he was acting absurdly; but, in my opinion, not more so than he who gives his corn crops phosphorus and his root crops nitrogen. After nearly 18 years' experience, I have found one thing is pretty certain, and that is, Wheat requires nitrogen. You might as well ask your shoemaker to make a pair of shoes from a yard of calico, or any other absurd thing, as to ask of dame Nature to give you a crop of Wheat, while you supply her with materials suitable only for a crop of straw. I have seen farms produce heavy crops of straw and light crops of Wheat, when, if there had been less carbon and more nitrogen in the soil, the result would have been very different. Nature explains to us most emphatically, that "what a man sows that shall he also reap." Wheat contains gluten, and this gluten is produced by nitrogen, and therefore nitrogen in sufficient quantity must be present in the soil, or we shall fail to reap a full crop of corn, however good and heavy our crop of straw might be. When I make a statement I like to give a reason for doing so. Look for a moment at the analysis of Wheat—the Flour of Wheat. In 100 lbs. of flour there are 50 lbs. starch and 10 lbs. gluten. I need not mention the other ingredients, as they are unimportant to this inquiry. The starch is composed of carbon and water (36 lbs. carbon and 45 lbs. water, making 81 lbs. of starch), and this can be obtained by the decomposition of vegetable matter, found in farm-yard manure generally in sufficient quantities. The gluten (the part most difficult to supply), is composed of nitrogen, *i. e.*, nitrogen is essential to its production in the flour of Wheat; and if nitrogen be wanting in the soil, there can, of course, be no gluten formed, and consequently no Wheat. In farm-yard manure, however, there is nitrogen, though in most cases so deficient in quantity, that the production of a full crop of corn may not be reasonably expected; and this is the time when the farmer requires assistance in the shape of some specific manure which will give him a full supply of this fertilising gas. Now, if I have satisfied you that the specific for Wheat is nitrogen, then the question arises, how is it to be obtained at the cheapest rate! Let us refer for a moment to the prices of some fertilizers usually recommended to supply nitrogen. Carbonate of ammonia supplies, at its present commercial value, ammonia at 1*s.* 6*d.* per lb. (It should be observed here that nitrogen is taken up by plants in the shape of ammonia—14 lbs. nitrogen and 3 lbs. hydrogen making 17 lbs. of ammonia.) Sulphate of ammonia contains 14 per cent. of the gas in question, and at its present value (18*l.* per ton), yields ammonia at about 1*s.* 3*d.* per lb.; muriate of ammonia produces it at 8*d.* per lb.; soot about the same price, and shoddy perhaps rather higher than 8*d.*; but in the best Peruvian guano I find an article which yields ammonia at a little over 6*d.* per lb., *i. e.*, supposing it to cost 12*l.* per ton, which is now, I think, about its market value. The reason that Wheat almost invariably produces a fair crop after Clover, Beans, Rape, &c., is owing to the fact that these vegetables are all collectors and depositors of ammonia, and therefore the natural precursors of Wheat in the usual routine of farming. The heavier your crop of Clover the more nitrogen will be accumulated and laid up for your future crop of Wheat; the practice therefore now prevalent of puttin: dung on the young Clover must be a good one. I will now give you the particulars of an experiment tried on a piece of land exhausted for the purpose, which, I think, will show that ammonia is a specific for Wheat, and that superphosphate is of little use to it. The first portion, without manure, gave a produce of 16¾ bushels per acre; the second, with 700 lbs. superphosphate, 16¾ bushels; third, with 14 loads dung, 22 bushels; fourth, with superphosphate as above, and a portion of sulphate of ammonia, 26¼ bushels. I think, as the 700 lbs. superphosphate evidently did no good, the amount of produce being the same (16¾ bushels) as that on the unmanured land, and that, as in the fourth case, the produce at once rose by the application of ammonia to 26¼ bushels, there can be no doubt that the presence of nitrogen in the soil is not only necessary, but that an ample supply must be found there, before you can reasonably expect a full crop of Wheat. The experiment showed also that superphosphate did no good in that instance. As I at first stated, Wheat requires nitrogen, and generally to a greater extent than farmers, from the size and quality of their manure heaps, can afford. I have also stated that Peruvian guano is rich in this gas, producing ammonia at a little over 6*d.* per lb. the lowest price at which it can be obtained in the market. I usually apply it as a top dressing, in the month of February; but in clay lands it should, I think, be drilled in at seed time. I have stated that Peruvian guano is a specific for Wheat, and now I shall attempt to prove that superphosphate is the best manure for Turnips. In doing this, I shall confine myself to the results of experiments only, made by myself and others. In the year 1851 I made an experiment in a field of 5 acres, which was exhausted of its fertility, and therefore suitable for the purpose. The first portion was drilled without manure; second, with ashes only; third, with ashes and 4 cwt. ammoniated peat; fourth, with 3 cwt. ammoniated peat and 1 cwt. dissolved bones. Where no manure was used, the crop was very bad, not worth standing, in fact. The ashes produced a small crop, say about 5 tons per acre. The ammoniated peat, with ashes, was much better; but in that portion where the dissolved bones were used with ammoniated peat, the difference was remarkable indeed, producing at least 20 tons per acre. I regret that I did not have the different lots accurately weighed, as it would have proved very strongly the superiority of superphosphate as a specific manure for Turnips. It should be remarked that experiments of this kind are not of much value unless made in exhausted soils, as land in a fair ordinary state of cultivation

* "Talpa."

would with a favourable season produce tolerable crops perhaps without much assistance from specific fertilizers. The next is an experiment made by the Yorkshire Society on an exhausted clay soil.

	Tons.	Cwt.
1st, natural produce	1	6
2d, with 12 tons dung	12	0
3d, „ 2 cwt. guano	4	6
4th, „ 2 cwt. coprolites	11	8

Coprolites (natural phosphates) contain about 55 per cent. of bone earth. This experiment proves that, in a poor clay soil, superphosphate would produce for 10*s*. nearly three times the weight of Turnips that would result from an application of guano costing 20*s*. As far, however, as my own experience goes, I would recommend that a portion—say one third guano—should be used with dissolved bones for Turnip culture on heavy soils, as it causes a more rapid action of the manure, which is desirable in cold lands. Another experiment showed that 10 loads of dung, with 2 cwt. superphosphate, produced a heavier crop than 30 loads without superphosphate; and in another instance, where a field was equally dunged all over, showed that 2 cwt. superphosphate (a part being manured with it for the purpose of testing its efficacy) gave an increase of 5 tons weight in bulb over the rest of the field where no specific manure was used. I could relate many similar cases, but I think enough has been said to prove that phosphorus is the specific for Turnips. As many are in the habit of using guano for Turnips, in preference to superphosphate, I would mention an experiment that was made, the result of which showed that its addition to the dung caused the Turnips to grow more rankly, but gave a less weight of bulb per acre, than dung alone—a result just contrary to the one above mentioned, where the addition of superphosphate gave an increase of 5 tons of Turnips per acre. Superphosphate is admirably adapted to the growth of Turnips in their first stages of vegetation. It is like milk to the young animal, pushing the plant forward at a time when its infant system could not possibly derive sustenance from rougher or less suitable food. Guano is too pungent, too strong for this delicate office, and not calculated to take the place of superphosphate, as food for the young Turnip. The superphosphate I refer to is that made entirely from bones dissolved in sulphuric acid, and the mode of producing it is very simple. I have made a great many tons for my own use, and for other parties; and the mode I have adopted is as follows:—To 100 lbs. fine bone dust put 30 lbs. best white acid and 30 lbs. water; in making it, place a portion of the bone dust in a tub or trough, then add water, then sulphuric acid. Do this alternately, until your vessel is full; the whole may then remain until cold, when it is fit for use.

Calendar of Operations.

AUGUST.

West Sussex, *August* 21.—We have now got well into harvest, and have had 10 days of such weather for it as must have pleased us all. Those of us who began about the 9th or 10th, as some did, have got nearly all secured; but it is this week which is the most important for securing it. Wheat cutting may be said to have been general about the 15th, on the early low coast land, and it is about commencing on the higher land now. The appearance is good upon the ground, but the sample is not anything like last year. In every field there is more or less blight, especially where it is laid. And it will not yield according to appearance, but still it will be an average crop, and it has not suffered so much from being low as we might have expected; with Barley this is especially the case—it is good, and the young Clover in it is all that could be desired. But of course so much yet depends upon the weather that any estimate as to the quality is premature. The barometer has been tending downward since the 17th, but that may only be caused by the present high wind. Since I wrote last the Potato disease has shown itself in a manner not to be mistaken; it is worse than it has been for several years. It came I believe about the 9th, as it was noticed first on the 10th, and on the 17th we found the first Potatoes affected by it, and now nearly one-half are found unfit for use. In the gardens I have seen black Currants affected at the same time and in the same manner, and also the leaves of the Hollyhock. The general appearance of the Turnip crop is good, but I have found some Swedes rotting on the crown of the bulb, and the leaves drop off with a touch; but such seems only the case in spots, and that may only be caused by the nature of the land or the manure, which was partly dung from a town. Pasture is abundant, and lean stock are in demand. New corn will be in the market soon, as the steamers are already engaged to thresh it. But I do not think it will be pushed in so fast as last year, as many found then that they were too rash, and everything tends to induce them to take more time this year. *G. S.*

Notices to Correspondents.

Egyptian Wheat: *Anon.* It is very productive of a coarse sample. Yours are very fine ears; and if there are plenty of them the crop will be very valuable per acre, though not worth so much per bushel as other kinds.

Farm Pupils: *W H S.* They usually pay from 100*l*. to 150*l*. a year; in the latter case, unusual advantages are to be expected.

Small Carts: *D.* We have received the following in reply to yours:—"In answer to your correspondent 'D.,' who inquires where the light carts were built that he saw passing through London on their way to the Crimea, I should think it most probable that they were manufactured at the Beverley Iron-works, as I have lately supplied the Government with between 600 and 700 carts, and above 400 waggons, and they are all taken through London from the King's Cross Railway station to Woolwich. *A. Crosskill.*

Yester Deep Land Culture: *J H.*—The work describes the very successful cultivation of untoward and unpromising soils, in an unfavourable climate. The principles so energetically developed there ought to be generally known and admitted, though their application must vary in different districts.

Erratum.—For "under an average," in the case of the Barley Crop as reported by Mr. Welton, from Wickham Market, read "Good, but much laid by recent storms; for malting purposes under an average."

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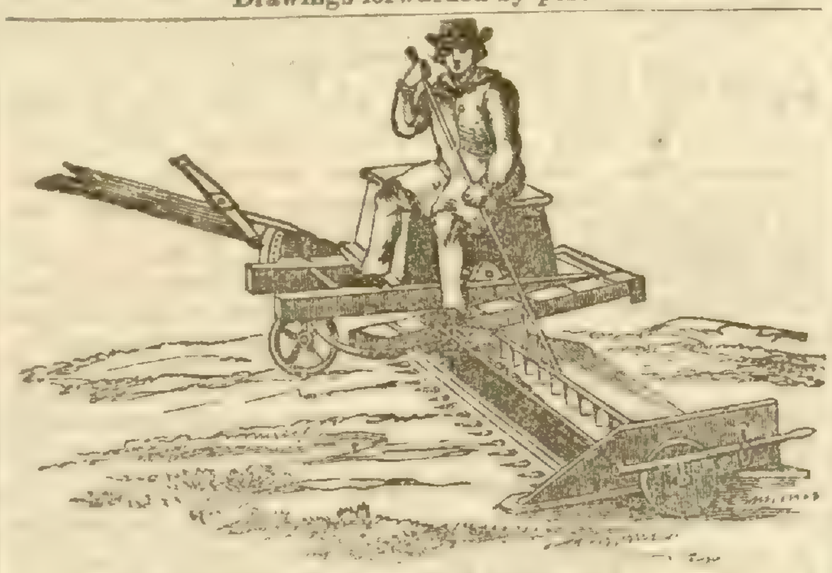

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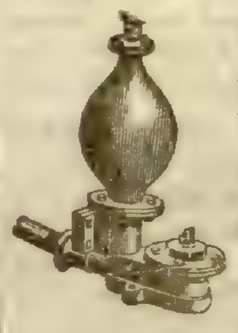

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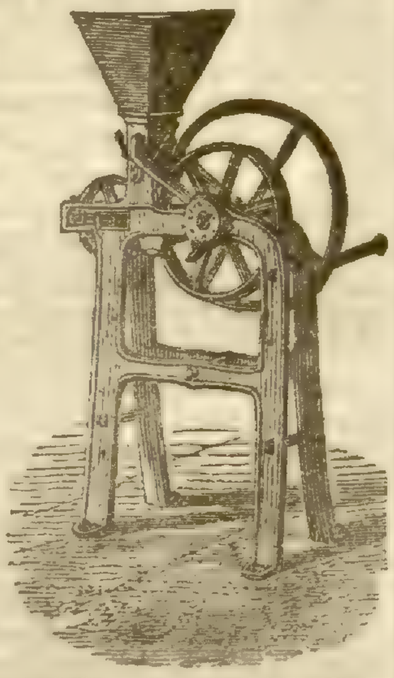
OAT-CRUSHING and BEAN-SPLITTING MILL
(Turner's No. 5).

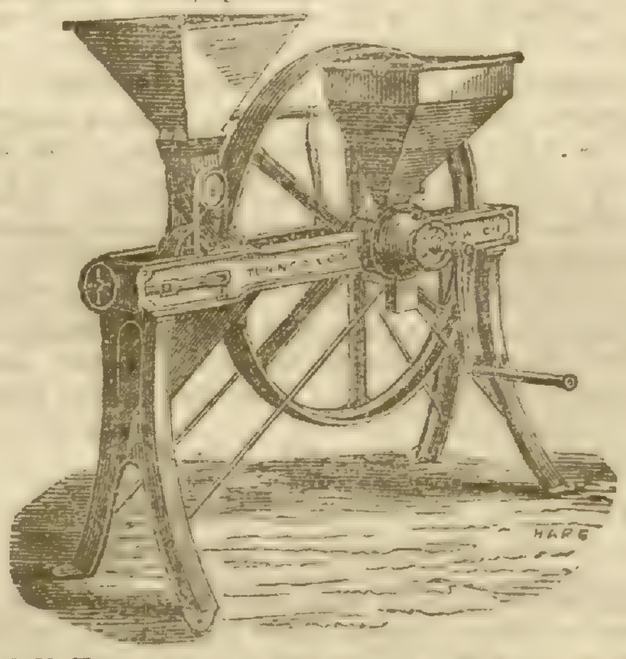


This Mill is recommended to the use of every person keeping a Horse, as superior for efficiency, durability, and ease in working to any manufactured. Two bshls. of crushed corn afford more nourishment both to old and young horses than three bushels of uncrushed!

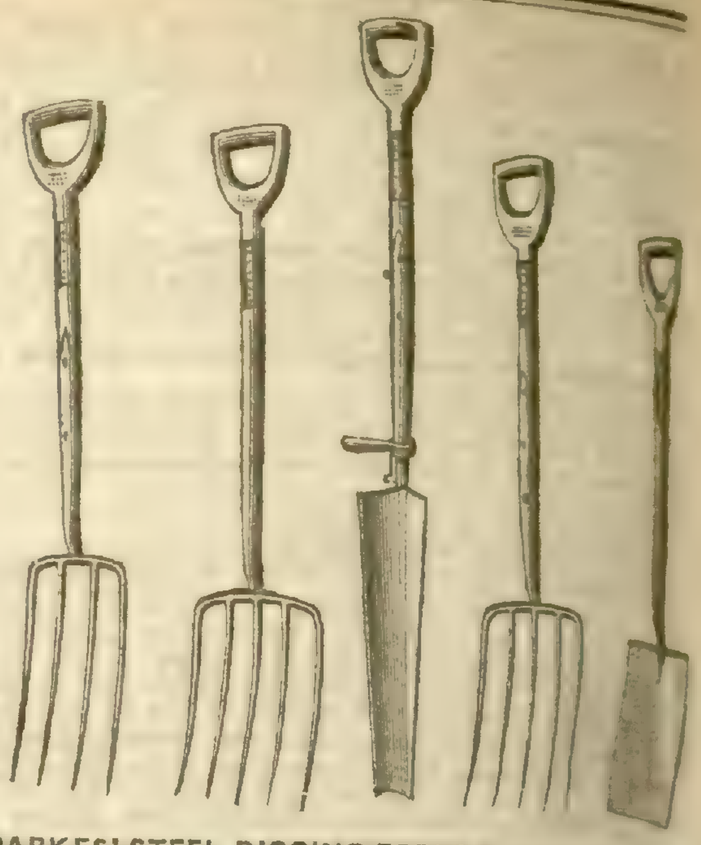
Price £5 15*s*. 6*d*.

Made and Sold by
E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.
AT THE NORWICH, GLOUCESTER, LINCOLN, and CARLISLE SHOWS, the Prize for the best LINSEED and CORN CRUSHER was awarded to E. R. & F. Turner, St. Peter's Iron Works, Ipswich.

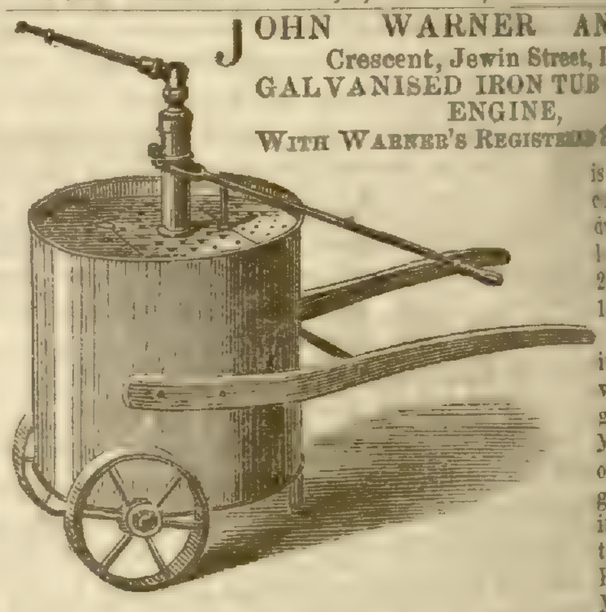


E. R. & F. Turner invite the attention of Agriculturists and others to the following machines of their manufacture:—
ROLLER MILLS for Crushing Linseed, Oats, Barley, Malt, &c., of various sizes, with or without Bean-mill combined. The numerous prizes awarded these Mills by the Royal and other agricultural societies, render comment on their merits unnecessary.
PATENT COMBINED GRINDING and CRUSHING MILL, for reducing Barley, &c., to a fine and soft meal, and crushing Oats, Linseed, &c., is strongly recommended for the variety of purposes to which it is applicable, and for its perfect and economic working. Price 25*l*.
CHAFF CUTTERS, for horse or steam power, cutting three lengths, with facility for changing the length of the cut almost momentarily, and other valuable improvements.
OILCAKE BREAKERS, made entirely of iron, with case, hardened teeth suitable for all descriptions of cake. Price 3*l*. 10*s*.
FIXED STEAM-ENGINES, on the horizontal direct acting principle. Long experience and attention to the practical working of steam-engines of every variety, have enabled the manufacturers to offer these Engines as inferior to none—either for efficiency, economy, or durability—and at prices which will be found comparatively low.
Superior Portable Steam-Engines and Threshing Machines, Horse-Power Threshing Machines, Circular Saw Tables, One Horse Carts, and various other Implements, are also manufactured at the above Works.
Illustrated Price Lists sent free on application.

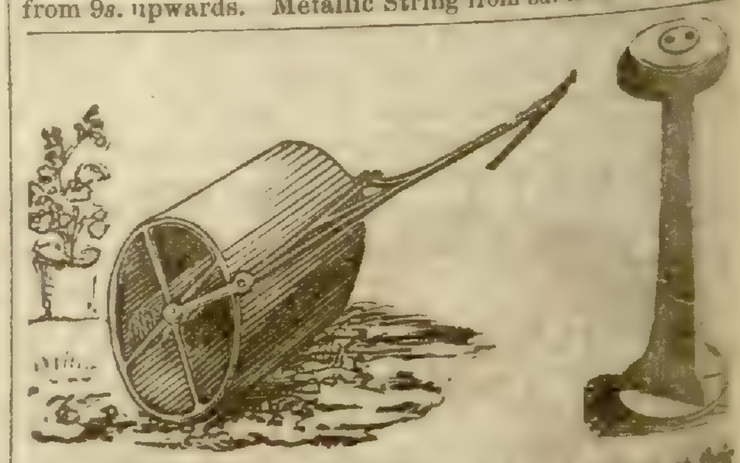


PARKES' STEEL DIGGING FORKS & DRAINING TOOLS
MESSRS. BURGESS and KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

WARNER'S SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)
Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l*. 3*s*.
Manufactured by
John Warner & Sons, 8, Crescent, Jewin Street, London.



JOHN WARNER AND SONS,
Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
With Warner's Registered Streamer,
is strongly recommended for durability and low price, viz., 2*l*. 10*s*., to hold 10 gallons.
Larger sizes in wood or iron, viz., 14 gals., 18 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers
as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s*. upwards. Metallic String from 5*d*. to 1*s*. 3*d*. per lb.



COTTAM and HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Bucksaws, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.
Ornamental Wire Flower Stands, Pot Trainers, Rose Trees Guards, Flower Bordering, and every description of Wire Work both plain and ornamental.
Hand Glass Frames, Cast and Wrought Iron Flower Stands, Garden Arches, &c.
Strong Iron Hurdles, and best Wire for Strained Wire Fencing.
Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom. Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

THE COMFORT of a FIXED WATER-CLOSET for £1.—Places in gardens converted into comfortable Water-closets by the PATENT HERMETICALLY SEALED PAN, with its self-acting valve, entirely preventing the ingress of cold air or effluvia. Any carpenter can fix it in two hours. Price 1*l*. Hermetically-sealed Inodorous Chamber Commodes, 1*l*. 2*s*., 2*l*. 4*s*., and 3*l*.; also Improved Portable Water-closets with pump, cistern, and self-acting valve. A Prospectus, with Engravings, forwarded by enclosing two postage stamps.
At Fyfe & Co.'s Sanatorium, 46, Leicester Square, London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.—In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12s. 0d
7 „ 5, — 7½ „ 5½ }	0 14 0
8 „ 6, — 8½ „ 6½ }	
9 „ 7, — 9½ „ 7½, 10 by 6 }	0 16 0
10 „ 7, 10 by 8 }	

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18s. per 100 feet. If cut to order not exceeding 40 inches long.
16 oz. from 2½d. to 3½d. | 21 oz. from 3½d. to 4½d.
26 oz. from 5½d. to 7½d.

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½d. per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand.

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

½ of an inch thick	£1 17s. 6d.	per case of	50
⅝ „	2 1 3	„	60
¾ „	1 17 6	„	60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21s. per dozen: Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Cameys' Milk Syphons, Wasp Traps: Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by 4 in.	and 6 in.	by 4½ in.	...	...	...	12s. 0d.
6½ „ 4½	„ 7	„ 5	...	...	...	12 6
7½ „ 5½	„ 8	„ 6	...	...	...	13 0
8½ „ 6½	„ 9	„ 7	...	...	...	13 6
9½ „ 7½	„ 10	„ 8	...	...	...	13 6
10½ „ 8½	„ 11	„ 9	...	...	...	14 0
12 „ 9	„ 13	„ 9	...	...	...	14 0
10 „ 10	„ 10½	„ 10½	...	...	...	14 0
11 „ 10	„ 11½	„ 10½	...	...	...	14 0
11 „ 11	„ 11½	„ 11½	...	...	...	14 0
12 „ 11	„ 12½	„ 11½	...	...	...	14 0
13 „ 11	„ 13½	„ 11½	...	...	...	14 0
13 „ 12	„ 13½	„ 12½	...	...	...	16 0
13½ „ 13½	„ 14½	„ 13½	...	...	...	16 0
15½ „ 13½	...	...	...	...	...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.
Ditto, not exceeding 1 foot ... 2½ „
Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

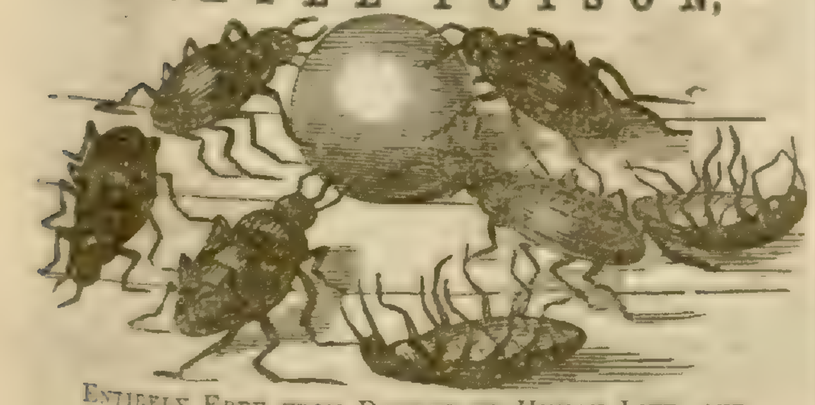
BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London. REDUCED TARIFF OF AGRICULTURAL AND HORTICULTURAL GLASS.

STRONG HORTICULTURAL SHEET, from 2d.; and HARTLEY'S PATENT ROUGH PLATE, from 4½d. per foot.

PERFORATED GLASS for Ventilating Dairies, Stables, &c., from 1s. 6d. per foot. German-shaped Milk-pans, 21s. per dozen: Hely's Test Churns, 5s. each: Waring's Butter Slabs, 10s.: Glass Fern Shades and Stands, from 3s; Bee-glasses, from 6d.: Cucumber Tubes, from 1s.; Propagating Glasses, from 3½d. to 7s. each; Flower Labels, 7s. per 100; Aquariums, complete, 10s. each; and every other description of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass, British and Foreign.—Catalogues free.

CHASE'S BEETLE POISON,



ENTIRELY FREE FROM DANGER TO HUMAN LIFE, AND PERFECTLY HARMLESS TO CATS AND DOGS.

A Safe and most Effectual Destroyer of Black Beetles and Cockroaches: one trial alone will suffice to prove its great efficacy, and one box will destroy thousands. The great advantage in this preparation is that it does not leave their bodies to decay and corrupt the air, but completely dries up and destroys them, so that nothing is left to cause an unpleasant odour when dead.

Directions for use: Place four or five of the Balls each night where the Beetles mostly resort.

Sold in boxes at 1s. each, by THOMAS CHASE, Chemist, 14, Holborn (opposite Furnival's Inn), London. And may be obtained through all wholesale medicine vendors.

To the Editor of the "Cottage Gardener," July 3d, 1855.

"Some of your readers may be glad to hear of an effectual poison for these disagreeable pests. I have succeeded in completely clearing my house of them by the use of Chase's Beetle Preparation (14, Holborn). I recommend those who are troubled with these insects to place the pills in every place in the house haunted by them, and to repeat the application twice after intervals of 10 days; by this means the successional crops of young beetles are destroyed."—*C. W. J., Croydon.*

(Ed.—This is not a mere puff, but sent to us by a gentleman who has been benefited as he states.)

ONE THOUSAND BEDSTEADS TO CHOOSE FROM.—HEAL AND SON have just erected extensive Premises, which enable them to keep upwards of 1000 Bedsteads in stock, 100 of which are fixed for inspection, comprising every variety of Brass, Wood, and Iron, with Chintz and Damask Furnitures complete. Their new Warerooms also contain an assortment of BED-ROOM FURNITURE which comprises every requisite, from the plainest japanned deal for servants' rooms, to the newest and most tasteful designs in mahogany and other woods. The whole warranted of the soundest and best manufacture. HEAL AND SON'S ILLUSTRATED CATALOGUE OF BEDSTEADS AND PRICED LIST OF BEDDING sent free by post.—HEAL AND SON, 196, Tottenham Court Road.

A CLEAR COMPLEXION,

GODFREY'S EXTRACT OF ELDER FLOWERS is strongly recommended for softening, beautifying, and preserving the skin, and giving it a blooming and charming appearance, being at once a fragrant Perfume and delightful Cosmetic. It completely removes tan, sun-burn, redness, &c., and by its balsamic and healing qualities renders the skin soft, and free from dryness, scurf, &c.; clears it from every humour, pimple, or eruption, and by continuing its use only a short time the skin becomes and continues soft and smooth, and the complexion clear and beautiful. In the process of shaving it is invaluable, as it annihilates every pimple and all roughness, and affords great comfort if applied to the face during cold easterly winds.—Sold in Bottles, price 2s. 9d., with directions for using it, by all Medicine Vendors and Perfumers.

TOURISTS, TRAVELLERS, AND OTHERS,

EXPOSED TO THE SCORCHING RAYS OF THE SUN, AND HEATED PARTICLES OF DUST, WILL FIND

ROWLAND'S KALYDOR a most refreshing preparation for the Complexion, dispelling the cloud of languor and relaxation, allaying all heat and irritability, and immediately affording the pleasing sensation attending restored elasticity and healthful state of the skin. Freckles, Tan, Spots, Pimples, Flushes, and Discoloration fly before its application, and give place to delicate clearness, with the glow of beauty and of bloom. In cases of sunburn or stings of insects, its virtues have long been acknowledged. Price 4s. 6d. and 8s. 6d. per bottle.

ROWLAND'S MACASSAR OIL, a delightfully fragrant and transparent preparation, and as an invigorator and purifier beyond all precedent.

ROWLAND'S ODONTO, OR PEARL DENTIFRICE, a White Powder, compounded of the rarest and most fragrant exotics. It bestows on the teeth a pearl-like whiteness, frees them from Tartar, and imparts to the Gums a healthy firmness, and to the breath a grateful sweetness and purity.

Sold by A. ROWLAND & SONS, 20, Hatton Garden, London; and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.?—The most marvellous production of modern date is ROSALIE COUPELLE'S CRINUTRIAR, which is guaranteed to produce Whiskers, Moustachios, Eyebrows, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually checks greyness in all its stages. For the nursery it is recommended by upwards of 100 physicians, for promoting a fine healthy head of hair, and averting baldness in after years. Sold by all Chemists and Perfumers, price 2s., or will be sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London. Mrs. CARTER writes, "My head, which was bald, is now covered with new hair." Mrs. WILLIAMS—"I can show a fine head of hair from using your Crinutriar." Mrs. REEVE—"My hair is gaining strength and thickness." Sergeant CRAVEN—"Through using it I have an excellent Moustache." Mr. YATES—"The young man has now a good pair of whiskers. I want two packets for other customers."

METCALFE AND CO.'S NEW PATTERN TOOTH BRUSH, PENETRATING HAIR BRUSHES, AND SMYRNA SPONGES.—The Tooth Brush performs the highly-important office of searching thoroughly into the divisions and cleansing in the most extraordinary manner—hairs never come loose. Peculiarly penetrating Hair Brushes, with durable unbleached Russian bristles, which will not soften like common hair, and immense stock of genuine unbleached Smyrna Sponge, with every description of British and Foreign Perfumery, at METCALFE, BINGLEY, & Co.'s only Establishment, 130 and 131, Oxford Street, second and third doors west from Holles Street.

CAUTION.—Beware of the word "from" Metcalfe's, adopted by some houses. Metcalfe's Alkaline Tooth Powder, 2s. per box.

TO NERVOUS SUFFERERS.

A RETIRED CLERGYMAN having been restored to health in a few days, after many years of great nervous suffering, is anxious to communicate to others the means of cure; he will therefore send free, on receiving a stamped envelope, properly addressed, a copy of the prescription used.—Direct Rev. E. DOUGLASS, 18, Holland Street, Brixton, London.

HOLLOWAY'S OINTMENT AND PILLS EFFECTUAL IN THE CURE OF SCROFULA.—Copy of letter from Mr. Campbell, of Hastings:—"To Professor HOLLOWAY. Sir, I am happy to bear witness to the wonderful efficacy of your Medicines in cases of Scrofula. A friend of mine was severely afflicted with this complaint for several years, indeed so bad that several experienced surgeons said he was incurable. After all hopes of recovery a friend persuaded him to try your Medicines, and the consequence was that he has now entirely got rid of his complaint."—Sold by all Medicine Vendors throughout the World; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and H. HOOD'S, Malta.

MEDICAMEN VIRTUTIBUS FLORENS.

DISCOVERY EXTRAORDINARY! Dr. ARNOT'S PILLS.—The speedy cures effected by this new discovery in Medicine, where all other remedies have failed, are most extraordinary, as testified to by the numerous testimonials daily received by the proprietor from all classes of society, who have been restored to health by these Pills. They create by their peculiar action on the LIVER and the DIGESTIVE ORGANS a new and sanatory state of the blood and other vital fluids, by which means the morbid conditions of the body are immediately removed. They, moreover, strengthen the constitution, and speedily restore the patient to health.—In boxes, at 1s. 1½d. Depôt, 50, Rathbone Place, London. Order through any Chemist. By post for 14 Stamps.

WESTON-SUPER-MARE, SOMERSET.

To NURSERYMEN AND SEEDSMEN.

TO BE LET, for a term if required, with immediate possession, a capital NURSERY, standing upon Three Acres of Land, with a well arranged Dwelling House, containing one Sitting Room, four Bed Rooms, Kitchen, and all other necessary and convenient Offices recently erected thereon, together with Green and Forcing Houses, of large dimensions, adjoining thereto. This property is situate within three minutes' walk of the Weston Station of the Bristol and Exeter Railway, in the well known flourishing and rapidly improving watering place of Weston-super-Mare, is well sheltered from the east, west, and north winds, and presents such an opportunity to a party desirous of embarking in the business of Nurseryman as seldom occurs. The tenant will be required to take the stock now being upon the premises at a valuation.—To view and for all further particulars, apply to LOVIBOND & GLYDE, Solicitors, Weston-super-Mare.

ESSEX.

TO BE SOLD, upon advantageous terms to any party, approved by the proprietor, an unexpired LEASE of Four Years of a valuable FARM in the above county, within 15 miles of London, and three miles of a railway station. It is in a high state of cultivation, containing about 350 acres of Arable and 30 acres of Upland Pasture.—For particulars apply to Mr. BARNES, Belstead Hall, near Ipswich, Suffolk.

GLAMORGANSHIRE.—THE GNOLL ESTATE.

TO BE SOLD, by Private Treaty, the CASTLE, with either 600 or 6000 Acres of Land, or, separately, about Forty Farms, varying in size from 20 to 300 Acres, nearly all let to yearly tenants.—Applications to treat for any portions of the above must be made to W. BRIGNOR WHITTON, Esq., the Gnoll, Neath. Rentals and full particulars may be obtained either from him, or of Messrs. OSBORNE, WARD, & Co., Solicitors, Bristol. N.B. A great portion of the Neath House Property and Off-lying Farms have been sold.

VINERIES.

TO BE SOLD, by Private Contract, in one or two Lots, an extensive range of three newly-erected FORCING HOUSES, with Iron Framing, Wood Sashes, and all Copper Bars, the whole measuring upwards of 78 feet long (i.e., the centre House, 26 feet by 15 feet 6 inches, and the wings about 26 feet by 13 feet each). The Houses are in the most perfect order, and having been built by Messrs. Jones & Clarke, and finished in a very superior manner throughout, are well deserving the attention of gentlemen requiring Hothouses. In the centre House is a very superior and expensive Iron Tier Flower Stage, and a crop of Grapes, which may remain until ripe if desired.—For further particulars, apply to Messrs. COOKES, SONS, & MERES, Agents, Leamington.

SHORT-HORN COWS AND HEIFERS FROM HORNCASTLE AND MELTON FAIRS.

MESSRS. JOHNSONS', of the Manor Farm, Highgate, beg to inform Gentlemen and the Trade that they will Show on TUESDAY next, the 28th inst., from 200 to 300 first-rate Cows and Heifers from the above Fair. Out of this lot will be found several animals of pure blood for breeding or exportation.

Sales by Auction.

ORCHIDS.

MR. J. C. STEVENS is favoured with instructions to announce for Sale by Auction at his Great Room, 38, King Street, Covent Garden, early in SEPTEMBER, a most important and valuable collection of ORCHIDS, the property of a private gentleman, and consisting of fine specimens of all the best varieties of Vandas, Ærides, Cattleyas, &c. Further particulars will be shortly announced.—38, King Street, Covent Garden.

MR. D. A. RAMSAY begs respectfully to announce to his numerous friends and the public that he has RESUMED the BUSINESS of an AUCTIONEER, Valuer, Estate and Land Agent, and, from his long practical experience of the value of property, feels great confidence in soliciting the support of his former patrons and friends, and in doing so begs to call their attention to the central position of his offices; and to assure them that all business entrusted to his charge shall be conducted with the greatest promptitude and despatch, and to their entire satisfaction. Mr. D. A. R. respectfully invites the attention of all parties having property to let or sell, to furnish him with full particulars, when the same will be duly registered, free of charge.—Auction and Estate Agency Offices, 79, King William Street, City. Aug. 25.

HARROW ROAD.

LEASEHOLD CARCASES, IN PRIVATE RESIDENCES AND SHOPS.

MR. D. A. RAMSAY is instructed to Sell by Auction, at the Mart, on FRIDAY, September 21, at 12, in six lots, 16 well-built CARCASES of 12 roomed RESIDENCES (four having shops), situate in Delamere Crescent, Westbourne Grove north, within three minutes' walk of the Paddington Station on the Great Western Railway, and overlooking the Grand Junction Canal. Held on lease for a long term unexpired, at low ground rents. May be viewed, and particulars obtained in due time of Messrs. ROOKS, LANE, & RHODES, solicitors, 62, Chancery Lane; at the Mart; and of Mr. D. A. RAMSAY, auctioneer and estate agent, 79, King William Street, City.

NOTTING HILL.

LONG LEASEHOLD PROPERTY, OF THE VALUE OF 200l. PER ANNUM, FOR OCCUPATION OR INVESTMENT.

MR. D. A. RAMSAY is instructed to Sell by Auction, at the Mart, on FRIDAY, September 21, at 12, in four lots, a LEASEHOLD ESTATE, comprising four substantially erected Family Residences, containing 12 rooms each, being Nos. 21, 25, 27, and 29, Portland Road, of the estimated value of 200l. per annum. Held on lease for long terms unexpired, at low ground rents. May be viewed, and particulars obtained of Messrs. Western, Solicitors, 7, Great James Street, Bedford Row; at the Mart; and of Mr. D. A. RAMSAY, Auctioneer and Estate Agent, 79, King William Street, City.

SOUTH DEVON.

STOCK FARM, 218 ACRES, WITH WATER POWER.

MESSRS. DAVIS AND VIGERS are directed to Sell by Auction, at the Mart, London, on THURSDAY, September 27th, at 12 for 1 o'clock, the FREEHOLD FARM, called "Hutcherley," situate in the parishes of Blackawton and Halwell, south of the high road, five miles from Kingsbridge and six miles from Totness. It includes 20 acres of rich water Meadow, 66 of fine Pasture, 9 of Orchard, 14 of Woodland, and 111 of Arable, with Residence and Farm Buildings. The climate is singularly mild, salubrious, and favourable to stock, and the soil is adapted to Grass and Root cultivation, as well as Corn. The Pasture may be grazed either to fatten or for dairy purposes.—May be viewed on application to Mr. JOHN GRANT, on the premises, of whom particulars with plans may be had; also of JOHN ANDREWS, Esq., Solicitor, Modbury; at the Stars Inn, Totness, the King's Arms Inn, Kingsbridge; the Castle Inn, Dartmouth; at the Mart, and Auctioneers' Offices, 3, Frederick's Place, Old Jewry, London.

COLESHILL, BERKS.

IMPORTANT SALE OF HEREFORD CATTLE & SOUTH-DOWN SHEEP.

MESSRS. FIDEL AND DYKE have been directed by Mr. Moore to offer to public competition, on FRIDAY, the 14th of September, at 12 for 1 o'clock, on the premises at Coleshill, the valuable Herd of 70 HEREFORD BULLS, COWS, HEIFERS, and CALVES, and also 176 pure SOUTH-DOWN BREEDING EWES and TEAVES belonging to the Right Honourable the Earl of Radnor. This Herd has been bred with the greatest care from some of the best herds in the counties of Hereford and Salop, and with an infusion of the best blood from the herds of the late Earl Talbot and Sir F. Lawley. It includes animals which have taken prizes at Smithfield and Lincoln; also the Bull which took the second prize at Carlisle, in a class which had ten competitors, and was allowed by the Judges to be the best lot ever exhibited. The Sheep are also of a superior character, and are bred from the flocks of Messrs. Jonas Webb, Northeast, and Sainsbury.—Catalogues with pedigrees will be published immediately, and may be had of the Auctioneers, Faringdon, Berks: or at the place of sale.

Coleshill is four miles from the Shrivenham and eight from the Swindon stations on the Great Western Railway.

On the 31st inst. will be published, price 6s., PART VI. of the

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No. 35.—1855.] SATURDAY, SEPTEMBER 1. { Price Fivepence. Stamped Edition, 6*d*.

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A MEETING OF THE BRITISH POMOLOGICAL SOCIETY will be held at the Rooms, 20, Bedford Street, Covent Garden, on MONDAY, September 17th, at 1 o'clock, for examining and reporting upon collections of Fruit; and it is hoped that all who take an interest in the cultivation of Fruits and Fruit trees will aid the Society by sending such specimens of Fruits as they can command. Persons desirous of being elected members are requested to make application to the Secretary, to whom also all packages are to be addressed,

ROBERT HOGG, Secretary.

HEREFORD HORTICULTURAL SOCIETY.—The THIRD EXHIBITION for the present year will be held on the Castle Green, Hereford, on TUESDAY next, Sept. 4, when Special Prizes will be given for Plants, Stove and Ornamental Flowers, Fruits, and Vegetables.—WM. PHILLIPS, 23, High Town, Hon. Sec.—Sept. 1.

TO DAHLIA GROWERS.

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Clapton Nursery, London.—Sept. 1.

CALCEOLARIA SEED.

J. SMITH, the raiser of "Sultan," has with great care and perseverance raised the finest Shrubby Calceolaria in England, and by impregnation has saved a small quantity of Seed, which he offers at 5*s*. per packet. If not turning out first-rate the money will be returned.—Apply to JAMES SMITH, Hendon Place, Hendon, Middlesex, by post-office order on Hendon.

CALCEOLARIA.

JOHN CATTELL is still sending out seed of very superior Calceolaria, saved from the finest varieties of Major's and other growers, carefully hybridized, 2*s*. 6*d*. per packet. Ditto, saved from an entirely new class to any hitherto sent out by J. C., having very large flowers, with distinct and splendid colours, extra free bloomers, 5*s*. per packet.

The other seeds advertised in the *Gardeners' Chronicle*, Aug. 4th, and following numbers, may still be had.

Nurseries, Westerham, Kent.

CALCEOLARIA AND CINERARIA.

MESSRS. E. G. HENDERSON AND SON beg to announce that the above FLOWER SEEDS, saved from the choicest varieties, may be had in packets at 2*s*. 6*d*. and 5*s*. each; the finest quality of CALCEOLARIA is only offered at 5*s*.; second quality, 2*s*. 6*d*.

This Season's CATALOGUE will be forwarded on application, and a Beautiful Coloured Plate of nine new Flowers will be sent on receipt of 12 postage stamps.

Wellington Nursery, St. John's Wood, Sept. 1.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior

CINERARIAS AND CALCEOLARIAS,

which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.

Packets of each, sealed and warranted by them, at 2*s*. 6*d*., free by post.—Exeter Nursery, Exeter, Established 1720.

SPLENDID HERBACEOUS CALCEOLARIA AND SWEET WILLIAM SEEDS.

WILLIAM BARNES has now ready for sending out a small quantity of the above Seeds, the former of which is unrivalled, and has given the greatest satisfaction to all purchasers for the last four seasons, 2*s*. 6*d*. and 5*s*. per packet.

SWEET WILLIAMS, grown from the same stock as the seed now offered, may be seen at the present time in full bloom at his Nursery, where they are pronounced by all who have seen them to be unequalled. 1*s*. 6*d*. per packet. Payment can be made by postage stamps.

Camden Nursery, Camberwell, London.

HYACINTHS AND OTHER BULBS JUST IMPORTED BY SUTTON AND SONS, SEED GROWERS, Reading, Berks.—This is a superior assortment of Bulbs, and will be sent out carriage free (except small parcels), at very moderate prices. A List may be had post free.

DUTCH HYACINTHS AND OTHER BULBS.

J. AND J. FRASER beg to announce that they have received their annual importation of HYACINTHS and other FLOWER ROOTS, of which a descriptive Catalogue may be had by enclosing one postage stamp. This Catalogue contains some instructions for the successful cultivation of the various roots.—Lea Bridge Road, Sept. 1.

DUTCH BULBS.

JAMES VEITCH, JUNIOR, Exotic Nursery, Chelsea, begs to announce that he has received his annual supply of BULBOUS ROOTS from Holland, and is pleased to say that they are particularly fine and in excellent condition. Catalogues are now ready, and will be forwarded on application.

N.B. J. V. Jun., desires to impress on those who patronise him the great advantage of giving him their orders early, as the successful cultivation of Bulbs depends in great measure on their being planted early in the season.—Sept. 1.

DUTCH FLOWER ROOTS.

HUGH LOW AND CO. are now receiving their annual importation of the above, and would solicit the early orders of their Friends. Catalogues may be had on application.—Clapton Nursery, London, Sept. 1.

DUTCH FLOWER ROOTS, ETC. ETC.

PETER LAWSON AND SON, SEEDSMEN AND NURSERYMEN TO HER MAJESTY THE QUEEN, and to the Highland and Agricultural Society of Scotland, beg to intimate the arrival of their first assortment of DUTCH FLOWER ROOTS, Catalogues of which may be had, free, on application, and orders for which are respectfully solicited,

They have also on hand very select stocks of foreign Italian Rye-grass, Crimson Clover (Trifolium incarnatum), Alsike Clover (Trifolium hybridum), Dwarf Essex Rape, Winter Tares, Stubble Turnip, &c. &c.

London: 27, Great George Street, Westminster.—Sept. 1.

IMPORTED DUTCH FLOWER ROOTS.

T. F. WINSTANLEY begs to announce that his Priced Catalogue of Dutch Bulbs for the present season will shortly be ready, and can be had free on application. It contains a list of all the newest and leading sorts in cultivation, including Hyacinths, Narcissus, Jonquils, Amaryllis, Early Single and Double Tulips, Crocus, &c., all of which have been grown by one of the first growers in Holland, and can be relied upon as being good sound Bulbs, and true to name.

28, Market Place, Manchester.

DUTCH FLOWERING BULBS.

JAMES CARTER AND CO.'s comprehensive CATALOGUE of DUTCH and CAPE BULBS and SEEDS for Autumn sowing, is now published, and will be forwarded free of charge and post paid upon application to JAMES CARTER & CO. 238, High Holborn, London.

WILLIAM CUTBUSH AND SON beg to acquaint their patrons and friends that their ANNUAL CATALOGUE of DUTCH BULBS can be had, postage free, on application. The superior quality of their roots is well known, but as a further guarantee they obtained the Awards at the Horticultural Society's Rooms, Regent Street, last spring.

Highgate Nurseries, near London.

SCARLET CARNATION.

J. WADSON begs leave to call attention to his advertisement of the above, with other Carnations, &c., in the *Gardeners' Chronicle* of last week.

Albion Road, Hammersmith.

HOLLYHOCKS.—The collection of Hollyhocks at the Cheshunt Nurseries is now in full bloom, and may be seen daily. Packets of choice Seed, 1*s*., 2*s*. 6*d*., and 5*s*. each.—A. PAUL & SON, Nurseries, Cheshunt, Herts.

TO THE SEED TRADE.

GEORGE TABER, of Ravenhill, Essex, begs to inform the Trade that his growing crops of Seeds are now open to inspection. All Turnip Seeds grown from sound transplanted roots. Lists sent on application.—Sept. 1.

CABBAGE PLANTS.

THOMAS WELLAND begs to offer TRUE CATTLE DRUMHEADS at 3*s*. per thousand; 8000 for 1*l*., packed and delivered at Godalming Station.—Surrey Gardens, Godalming, Surrey.

R. SMITH still continues to send out strong runners of his SEEDLING STRAWBERRY, SIR CHARLES NAPIER, which this season has proved itself good; both for forcing and natural it has no equal. Price 2*l*. per 100.

R. SMITH, Market Gardener, Twickenham.

BARRATT'S MAGNUM BONUM has this year fully sustained its high character as one of the finest flavoured STRAWBERRIES known, and may now be had at 2*l*. per 100, or 3*s*. per doz.—Catalogues containing all the leading varieties of the day may be obtained from WILLIAM BARRATT, St. John's Nurseries, Wakefield.

NEW STRAWBERRY.

KITLEY'S CAROLINA SUPERBA, not surpassed in flavour, habit, and productiveness by any Strawberry extant, at the low price of 2*l*. per 100, 9*s*. per doz., free by post, to be had of Messrs. GARRAWAY, MAYES, & Co., Bristol, agents for the west of England and South Wales, or of any respectable nurseryman. For a full description, testimonials, &c., see this Paper, April 14, 1855.

JAMES KITLEY, Lyncombe Vale Nursery, Bath.

PRICED CATALOGUE OF PLANTS.

THOMAS JACKSON AND SON'S Priced Catalogue of Plants may be obtained on application. It contains Stove, Orchidaceous, Ferns and Mosses, Greenhouse, Ornamental Shrubs and Trees, Roses, and Herbaceous Plants.

T. J. & SON are offering at very low prices a large Stock of Azaleas, Camellias, Ericas, Epacrises, Helichrysums, Rhododendrons, &c., well deserving the attention of purchasers.

Nurseries, Kingston, Surrey.

THE PAMPAS GRASS,
"Gynerium Argenteum."

LUCOMBE, PINCE, and Co. have now for sale a healthy stock of well established Plants of the above, which will bloom finely this autumn, varying from one to two and three flower stems. Few Plants are more ornamental than this gigantic Grass, the leaves (which are more than 7 feet in length curving gracefully outwards) grow in large tussocks, thereby producing a very fine effect, and from the midst of these numerous flower stems arise to the height of from to 6 to 8 feet surmounted by elegant panicles of inflorescence nearly 3 feet long, resembling beautiful waving plumes of silvery feathers. It is perfectly hardy, and is also easy of cultivation. A grand specimen of this noble plant is now in the Exeter Nursery, pushing up nearly twenty large flower stems and numerous small ones, and will continue to be an object of great attraction for a considerable time. Prices and full particulars may be had on application to

LUCOMBE, PINCE, & Co., Exeter Nursery, Exeter.
Established 1720.

SPLENDID NEW BEGONIA,
SEMPERFLORENS SAUNDERSI.

GARAWAY, MAYES, and CO. are now prepared to execute orders for this fine Seedling Begonia (raised by Mr. F. Saunders, Gardener to W. Miles, Esq., M.P., Leigh Court), which is, without exception, the most useful and beautiful variety in cultivation. The original plant first bloomed in May, 1854, when only 6 inches high, and has continued without ceasing to produce from the axils of every leaf its splendid panicles of transparent vermilion buds, which develope to fine clear brilliant rose flowers, emitting a most agreeable odour. Its habit is close and compact, seldom attaining more than 3 feet; foliage small and extremely bright, forming altogether an object of beauty unrivalled by any other variety in its class. Price 10*s.* 6*d.* each, with an allowance to the trade of one upon every three ordered; also a few extra sized plants at 15*s.* and 21*s.*

Durdham Down Nurseries, Bristol.

WILLIAM YOUNG begs to call the attention of Noblemen, Gentlemen, Public Companies, and Planters in general to his extensive stock of CHOICE CONIFERÆ, HARDY EVERGREENS, ORNAMENTAL TREES, AMERICAN PLANTS, &c., which are this season particularly fine, and having been well prepared for removal, he can confidently recommend them to transplant with perfect safety.

W. Y. invites persons about to plant to inspect his stock, which is standing over 50 acres of ground, in which will be found all kinds of plants adapted to every description of ornamental planting. It consists of HARDY CONIFERÆ, containing some of the finest specimen plants ever offered.

	Feet high.
Abies Douglasi	6 to 8 by 5 to 6
" "	8 to 10 by 7 to 8
" "	10 to 12 by 8 to 9
" Menziesi	4½ to 5
" nigra, Black Spruce	4½ to 5
" alba, White Spruce	6 to 8
" canadensis, Hemlock Spruce ...	6 to 8 by 7
Pinus austriaca ...	6 to 8
" "	8 to 10
" Cembra	5½ to 6
" "	7 to 8
" excelsa	8 to 10
" insignis	2½ to 3
" "	3 to 4
Picea Pinsapo ...	5 to 6 by 6
" nobilis }	very
" Nordmanniana }	handsome
Araucaria imbricata .	2½ by 2½
do. do.	3 by 3
do. do.	4 by 4
do. do., very handsome	6 to 8
Cryptomeria japonica ...	3 to 4
Cedar of Lebanon ...	3½ to 4
" " ...	5 to 6
" "	7 to 8 by 6
" "	10 to 12 by 8
" Deodara ...	4½ to 5
" "	6 to 8
" "	9 to 10
" "	10 to 12

(The Cedars of Lebanon and Deodara are particularly handsome and well furnished.)

	Feet high.
Thuja orientalis, Chinese Arbor-vitæ	5 to 6
" " " ...	7 to 8
Thuja Weareana, Siberian	5 to 6
" "	7 to 8
Chinese Juniper ...	4½ to 5
" "	5 to 6
Upright "	4 to 5
" "	6 to 7
Taxodium sempervirens	6 to 8
" "	10 to 12
Irish Yew	4½ to 5
" "	6 to 7

A Large Quantity of fine EVERGREENS.

Green Hollies	4 to 6
" " ...	6 to 7 by 4
" "	8 to 10 by 6 to 7
Evergreen Oak	3½ to 4
" "	4½ to 5
" "	6 to 8 by 4 to 5
Spruce and Silver Firs	6 to 8
" "	10 to 12
Weymouth Pine ...	8 to 10
Yews	3½ to 4
"	4½ to 5
"	5½ to 6
Quercus oxoniensis—New Leucombe Oak...	6 to 7
" " ...	8 to 10

AMERICAN PLANTS.

Azaleas, fine named sorts
Rhododendron ponticum (good for cover).
Do. all the new and best vars.
Kalmias, Andromeda, Ledums, &c. &c.

STANDARD ROSES, of all the best varieties.
FRUIT TREES, ORNAMENTAL DECIDUOUS TREES, for Parks or Avenues, from 10 to 12 feet.
FOREST TREES, for Copse Planting, from 2 to 4 feet.
Prices given on application.

A Catalogue is in course of publication, and may be had the first week in September for two postage stamps.

The Nurseries are two miles from Godalming Station, South-Western Railway, where conveyances can always be obtained.

Milford Nurseries, near Godalming, Surrey.

MESSRS. WILLIAM ROLLISSON and SONS are desirous of directing the attention of the Nobility and Gentry, who are about to plant or make alterations in their Ornamental and Pleasure Grounds, to their immense Stock of AMERICAN PLANTS, in all sizes, which extends over an area of several acres. In large plants there are several thousands, and of such as Rhododendron catawbiense, Kalmia latifolia, Rhododendrum ponticum in varieties, and other choice hardy hybrids: many of them stand 5 to 6 feet high, and the same through, and literally covered with flower-buds.

Messrs W. R. and Sons are happy to say that their Dwarf and Standard trained, and other Fruit Trees, are this season remarkably fine; they have also a splendid lot of fruiting plants of Peaches, Nectarines, and Apricots in pots, which can be recommended as being exceedingly fine.

NEW PLANTS.

Messrs. William Rollisson and Sons are now prepared to offer the annexed:—

COLEUS BLUMEI PECTINATUS.—This variety is a great acquisition; the foliage is variegated similar to Coleus Blumei, but the leaves are beautifully laciniated; 7*s.* 6*d.* each.

MANDIROLA ROEZLI.—A very fine flowering gesneraceous plant, producing fine spikes of lilac coloured blossoms, 15*s.* each.

ORTHOSIPHON SPICATUS.—A beautiful new greenhouse plant from Oeano, much to be desired for its foliage alone, which is deliciously fragrant; the flowers are large and white; 10*s.* 6*d.* each.

MANDIROLA LANATA.—A very curious free flowering gesneraceous plant of a delicate violet colour inside the mouth of the blossoms, and shaded lilac outside; 15*s.* each.

NEW CHRYSANTHEMUMS.

The Undermentioned can be supplied at 24s. per dozen.

Aureole, Aigle d'or, Arc-en-ciel, Adèle Prissette, Alexandre Pelé, Comtesse de la Chastnes, Créole, Duruffe, Danais, Eldorado, Fortunio, Figaro, Fimbriata rosea, Homène, Iris, Il Brasiero, Io, La Promise, La Carmélite, General Lafont, Mdlle. Clemence, Néréide, Precarieuse, Parpaillot, Rachel, Robert Bruce, Rose Bouquette, St. Agathe, St. Flore, St. Thais, Stellata Globosa, Trophée, Uranie, Vicomte de Caumont, Vicomte de Macarthy, Zenobie.

The Nurseries, Tooting, London.

MYATT'S ADMIRAL DUNDAS STRAWBERRY.—Strong plants packed and delivered free in London, 25*s.* per 100. Also Myatt's British Queen, Cinquefolia, Globe, Eliza, Mammoth, 3*s.* 6*d.* per 100; Keens' Seedling, Hooper's Seedling, Black Prince, Bicton Pine, 3*s.* 6*d.* per 100.

MYATT'S BRITISH QUEEN.—In reply to several correspondents, and in confirmation of the private answers I gave last summer, I beg leave to state that the only Strawberry bearing the name of "British Queen" is Myatt's, and when Mr. Beach, in his advertisement says "his true British Queen," he is obviously in error, and arrogates to himself the credit due to my late father, Mr. Joseph Myatt, who was the originator of the variety in question.—W. Myatt, Manor Farm, Deptford.—Sept. 1.

AZALEAS AND ERICAS.

W. J. EPPS has much pleasure in offering the following fine, bushy, well-grown plants, and of the choicest and best varieties, in large 48 and 32-size pots.

AZALEAS 18*s.* per dozen; 5*l.* per 100.
ERICAS 12*s.* and 18*s.* per dozen; 4*l.* and 5*l.* per 100.

These will make very pretty specimens for the ensuing season; all orders to be accompanied with a remittance from unknown correspondents.—Maidstone, Sept. 1.

CHOICE NEW FUCHSIAS, ETC., OF THIS SEASON.

HENRY WALTON, Florist, &c., Edge End, Marsden, near Burnley, Lancashire, is now sending out "the White Corolla'd," and "Banks," and other new Fuchsias, at 18*s.* and 21*s.* per doz. (nice healthy plants), post free or hamper and package included, or 2*s.* 6*d.* to 3*s.* 6*d.* each, for names of which see Advertisement in *Gardeners' Chronicle* of August 11th and previous Numbers.

New Verbenas of this season, 15*s.* per doz, or 1*s.* 6*d.* each. Choice Cineraria seed saved from the finest named varieties, 1*s.* 6*d.* and 2*s.* 6*d.* per packet, post free.

Post-office Orders are respectfully requested, with all orders (unless reference is given) payable at Marsden, Lancashire.

SPLENDID DUTCH ROOTS, ETC.

W. STEWARD, late Superintendant for W. E. RENDLE & CO. (before selling by public auction) begs to offer a consignment of the above at the following Low Prices till September 16.

No. 1, a splendid and extensive collection	£3	3	0
No. 2, " smaller quantities	2	2	0
No. 3, " " "	1	1	0
No. 4, a small good collection	0	15	0

Packets of superb Calceolarias, Cinerarias, Primulas, and Geraniums, 1*s.* 6*d.* and 2*s.* 6*d.* each, or the four for 3*s.* 6*d.* or 7*s.*

All orders will be executed in strict rotation as received, till the consignment is disposed of.

Orders above 20*s.*, Carriage and Packages free; above 42*s.*, for cash with order, Cost of Post-office Order and 5 per cent. may be deducted. Reference required from unknown parties.

A complete Seed Catalogue published shortly, which we shall be happy to forward in all orders, and to any address, on receipt of two postage stamps.

Stores near the Great Western Docks, (S. D. R. T.)
Stonehouse, Plymouth.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

Kensal Green, Harrow Road, London.

JOHN TAYLOR and SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

BY SPECIAL APPOINTMENT To Her MAJESTY THE QUEEN.

WILLIAM WALKER, Victoria Foundry, Walmgate, York.

Manufacturer of Hot Water Apparatus for Heating Greenhouses, &c.
Garden Rollers, Handglass Frames
Iron Fencing and Gates
Liquid Manure Pumps
Iron Palisading, Iron Bedsteads
Galvanised Game Netting
Stable Packs and Mangers
Kitchen Ranges and Smoke Jacks on a superior principle

Every Description of Plain and Ornamental Cast and Wrought Iron Work.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 12*s.* per ton, 1*s.* 6*d.* per bushel, or 16*s.* per ton, delivered to the London Wharfs or Railways, or within a circuit of five miles. Sacks 2*s.* each. Kentish and other Peats and Loam of excellent quality.

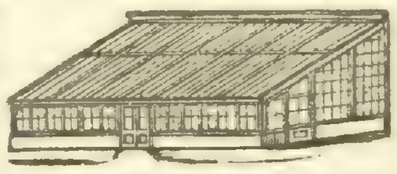
Kennard Brothers, Swan Place, Old Kent Road.

HORTICULTURE IN ALL ITS BRANCHES.

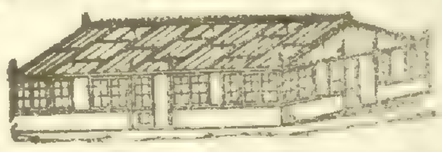
JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

THE NOBILITY and GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.

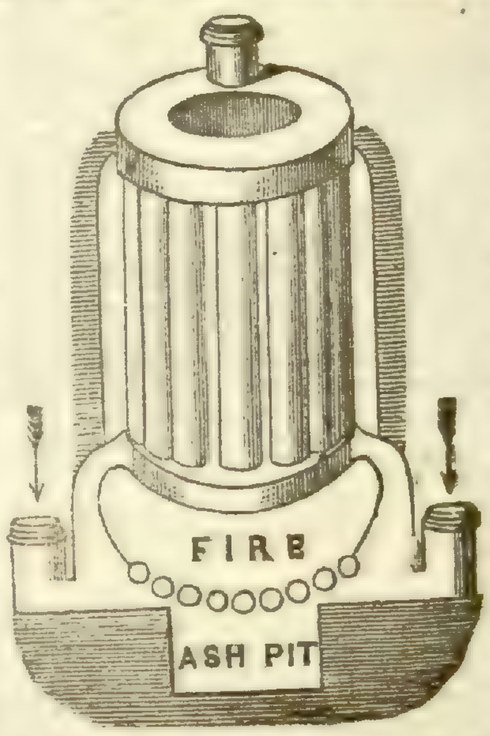


Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings: also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to John Weeks & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

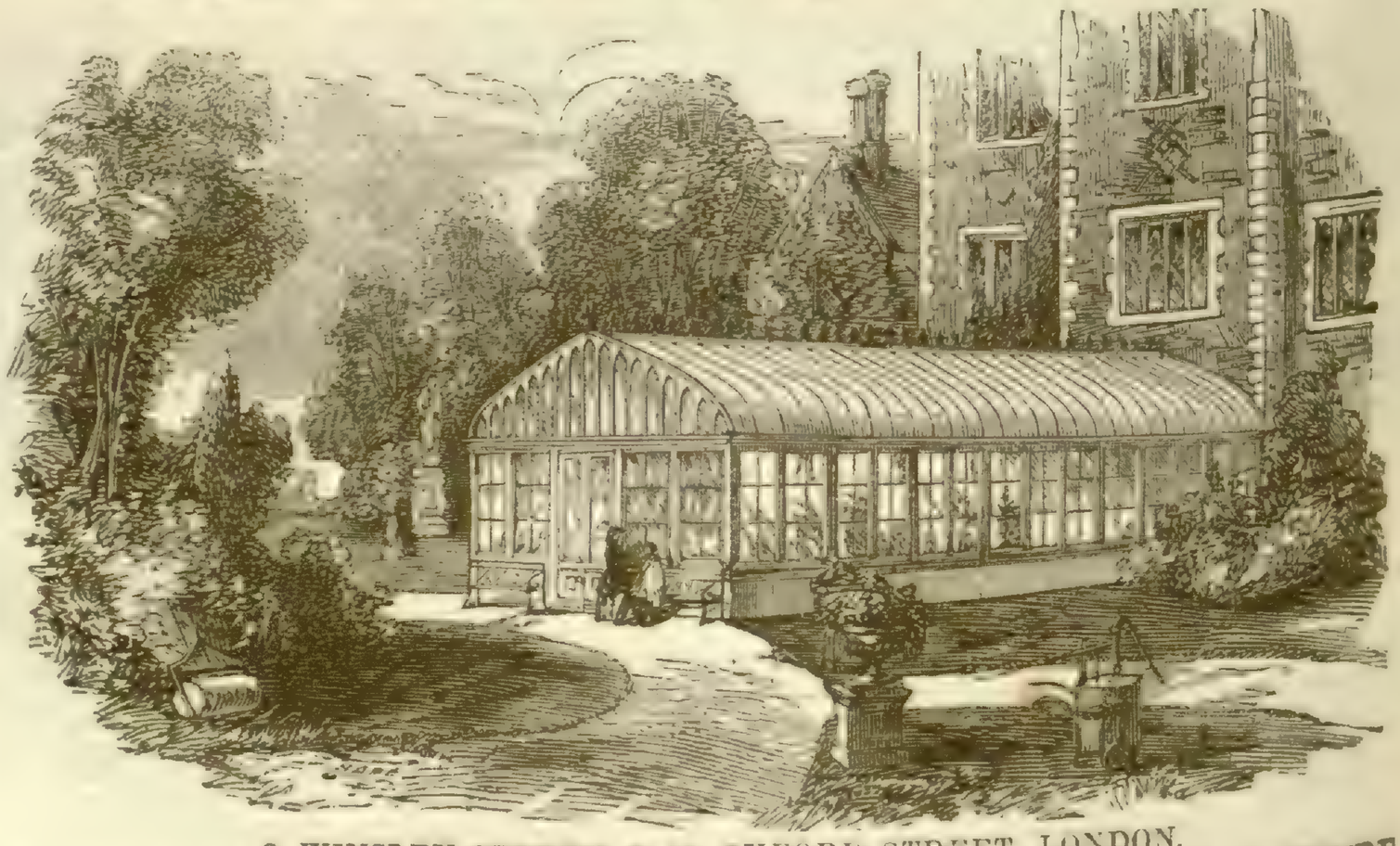
JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.



The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft., and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the last severe winter it only cost us 3*s.* per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *one of our Boilers*, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

John Weeks & Co., King's Road, Chelsea, London.

COTTAM AND HALLEN, Engineers, Founders, &c.,



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

STRAWBERRIES.

NEW STRAWBERRIES.—The following fine varieties have been thoroughly proved this season, and given the greatest satisfaction, viz.:—Sir Harry (Underhill's), 2*l.* 10*s.* per 100, or 7*s.* 6*d.* per dozen; Caroline Superb (Kitley's), 1*l.* 10*s.* per 100, or 5*s.* per dozen; Omar Pacha (Ward's), 1*l.* per 100, or 3*s.* per dozen; Colonel Dundas, 1*l.* per 100, or 3*s.* per dozen; Sir Charles Napier, 1*l.* per 100, or 3*s.* per dozen; Magnum Bonum, 15*s.* per 100, or 3*s.* per dozen; and all other fine old varieties, such as Trollop's Victoria, Ajax, Ruby, Eleanor, Nimrod, Prince of Wales, British Queen, Black Prince, Prolific, Keens' Seedling, and all others worth cultivating, at 4*s.* per 100.

SEEDLING HOLLYHOCKS, not to be surpassed, saved from all the finest and best varieties now in cultivation, and such as will bloom well next season, 1*l.* per 100, or 3*s.* per dozen.

SWEET WILLIAMS, from 50 of the most select and choice varieties ever grown, 4*s.* per 100, or 2*s.* 6*d.* for 50.

ANTIRRHINUMS.—Plants saved from a most splendid collection of striped and spotted varieties, 4*s.* per 100, or 2*s.* 6*d.* for 50.

FINE SCARLET GIANT BROMPTON STOCK.—White ditto, Crimson ditto, all 4*s.* per 100, or 2*s.* 6*d.* for 50.

The Plants before mentioned are now ready for planting out, and are such that must ensure satisfaction, and the whole or any part of the above will be sent, securely packed, on the receipt of a post-office order or penny postage stamps to the amount; or 25 of any of the new Strawberry Plants can be sent by post, when the charge will be 1*s.* extra for postage.

SEEDS. SEEDS.

HOLLYHOCK, saved from all the finest and best varieties in cultivation, 1*s.* per packet.

SWEET WILLIAM, saved from 50 distinct vars., 1*s.* p. packet.

ANTIRRHINUM, saved from a most splendid collection of striped and spotted varieties, 1*s.* per packet.

The True Old BATH COS LETTUCE (the best ever cultivated), 1*s.* per packet.

*** Every order must be accompanied by penny postage stamps, or post-office order payable to

EDWARD TILEY, NURSERYMAN, SEEDSMAN, and FLORIST,
14, Abbey Church Yard, Bath, Somerset.

KEENS' SEEDLING STRAWBERRY.—True and strong plants of the above sort for potting and bedding out can now be obtained from the grounds in which it was originally produced, on application to WARLEN'S (late KEENS') Gardens, Isleworth, Middlesex. Price 5*s.* per 100.

WARD'S OMAR PACHA STRAWBERRY.

WILLIAM JAMES WARD offers the above handsome fine flavoured Strawberry at the following reduced price:—100 plants, 1*l.*; 50 plants, 12*s.*; 25 plants, 7*s.*, strong and well rooted. In addition to the many flattering testimonials received last season, Dr. LINDLEY describes it as being exhibited at Chiswick, July 11, 1855:—"*Excellent in quality as well as attractive in appearance.*" See *Gardeners' Chronicle*, Leading article, July 14, 1855. The Editor of the "Florist and Fruitist," in the August Number report of the Exhibition at Chiswick, says—"WARD'S *Omar Pacha is a new Strawberry, and considering its high flavour and comparative hardiness is a valuable acquisition.*"

A few last year's plants 5*s.* per dozen.

Prospect Hill, Reading, Berks.

NEW STRAWBERRIES AT REDUCED PRICES.
GROWN AND OFFERED FOR SALE BY

WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.—The following splendid varieties have been well proved this season and given complete satisfaction, viz., Sir Harry (Underhill's), 100 plants, 4*l.*; 40, 1*l.* 18*s.*; and 20, 1*l.*; or 12*s.* 6*d.* per dozen. Omar Pacha (Ward's), 1*l.* per 100; 12*s.* per 50; 7*s.* per 25. Scarlet Nonpareil (Patterson's), 2*l.* per 100; 1*l.* per 50; 12*s.* per 25. Sir Charles Napier (Smith's), 1*l.* per 100; 12*s.* per 50; 7*s.* per 25. Admiral Dundas (Myatt's), 1*l.* per 100; 12*s.* per 50*s.*; 7*s.* per 25. Nicholson's Ajax, Ruby, Captain Cook and Fill-Basket, 6*s.* per 100; Ingram's Prince of Wales, Nimrod, Eliza (Rivers's), Surprise (Myatt's), and Bicton Pine, a large white one, 6*s.* per 100; British Queen, Black Prince, Eleanor (Myatt's), Old Pine, Trollope's Victoria, Goliah (Kitley's), Keens' Seedling, Old Roseberry, all at 4*s.* per 100; Crystal Palace, a very large and late variety, 10*s.* per 100. Post-office Orders payable at Yarm are expected with all orders. The plants will be securely packed and forwarded to any part of the kingdom.

RHODODENDRONS.

JOHN WATERER begs to announce that he is now prepared to execute orders for his two New Hardy Hybrid Rhododendrons, in good established plants, at 42*s.* each.

Rhododendron JOHN WATERER, colour glowing carmine, large truss, fine foliage, and a most abundant bloomer, in perfection about the 15th June.

Ditto, MRS. JOHN WATERER, a bright rosy crimson, fine conical truss, a very free blooming kind, in flower about 15th of June.

To the admirers of this justly noble class of Plants, JOHN WATERER has the pleasure of recommending the above as being the greatest acquisitions yet offered. They combine in a marked degree the necessary requisites for really first-rate hardy crimson varieties, viz., imposing colours, abundant bloomers, extreme hardiness, and flower at a time when they are not liable to be injured by spring frosts.

The American Nursery, Bagshot, Surrey, Sept. 1.

"SIR HARRY."

THE EMINENT SUCCESS of this new SEEDLING STRAWBERRY at the only Floral and Horticultural Exhibitions where it has been shown, induces the Proprietor (hitherto an amateur grower only) to offer it for sale. To this Strawberry has been awarded at all the Horticultural Exhibitions, where it has competed, the highest honours, namely:—

1854.—Chiswick, first class certificate; 21, Regent Street, highly commended; Botanical Gardens, Edgbaston, first prize.

1855.—Edgbaston Botanical Gardens, first prize, in pots (forced); Handsworth and Lozells, Hampstead Park, first prize (forced); Edgbaston Botanical Gardens, first prize—the Judges declared it the best Strawberry in every point on the table, superior to Keens' Seedling, Cremorne Seedling, British Queen, Mrs. Trollope, &c.; Lancaster, first prize, and pronounced by the Judges to be the finest and best tasted Berry in cultivation; Preston, first prize; Carlisle, first prize; Wolverhampton, first prize, and certificate of merit; Watford, extra prize; Aylesbury Horticultural Society, first class certificate.

The characteristics of the Plant are these.—Ripening as early as Keens' Seedling, but continuing fruiting a much longer time; a great cropper, bearing a very large handsome dark crimson berry, which carries that superb colour not only quite through, but to its very end, whilst being both firm and juicy, it separates itself entirely from its calyx, without having a tasteless core. The delicious and luscious flavour of the fruit, united with its high perfume, throws utterly into the shade the Keen and British Queen. The leaves are few, and the vigorous extension of its bearing branches exposes the fruit to the ripening influence of the sun, the want of which exposure is a great failure in many sorts of this class of plant. An oil painting of a one-year old runner, with its gigantic fruit in the respective stages of growth (as sketched from nature), is now in the Paris exhibition.

Plants are ready for sending out (not less than a score).

Prices:—100 plants, 4*l.*; 80, 3*l.* 13*s.* 6*d.*; 60, 2*l.* 16*s.*; 40, 1*l.* 18*s.*; and 20, 1*l.* Plants may be had in pots (not less than 10), at 2*s.* each.

Apply to Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham. Each application to be accompanied with a Post Office Order (on Birmingham), to receive attention.

For the Cultivation of Strawberries, refer to Mr. Underhill's Treatise, price 1*s.*, which may be obtained from a Bookseller in every principal town, where also may be had a handsome Lithograph of the Oil Painting, price 3*s.*

TESTIMONIALS.

From the *Gardeners' Chronicle*, August 1854.—The Strawberry "Sir Harry."—Reading in your last number a letter from Mr. D. Beaton, describing the Chiswick Fête, I noticed the following observations about two new Strawberries there exhibited:—'I recommended two sorts of the Strawberries to my late worthy employers, Sir William and Lady Middleton, as most useful in the dessert, but whether they are of good flavour is more than I know. The kinds were the Bicton White Pine Strawberry, and a very dark one from near Birmingham, the name is Sir Harry. This was sent by Mr. Underhill, of Edgbaston.'—Having for many years had much experience, and taken great interest in the cultivation of fruit, I called upon Mr. Underhill for the purpose of making more particular inquiries, and possessing myself of some information as to flavour, &c., which Mr. Beaton could not give. Mr. Underhill politely invited me to walk through and inspect his beds, when I was perfectly astonished at the enormous size and deep colour of the fruit, combined with the excessive cropping of the plant. I then tested the flavour with Keens' Seedling and British Queen (both equally well ripened) when its superiority to either was so evident, that I pronounce it the most exquisitely flavoured berry I have ever tasted. It is both firm and juicy, and carries its rich red colour entirely through. The other distinguishing characteristics of the plant are these: its leaves are few, and it spreads its bearing branches out so wide as to thoroughly expose the fruit to the full influence of sun and air. For the information of horticulturists, and in justice to the excellence of the seedling, I shall feel obliged by your inserting this letter in your next weekly number.—I am, Sir, yours, &c., JAMES BOUCHER, formerly head gardener to Lady O. B. Sparrow, King's Heath, Worcestershire.

"Extract from an article in the "Florist and Fruitist" of September, 1854, written by Mr. J. Powell, of the Royal Gardens, Windsor and Frogmore, on new Seedling Strawberries.—'Sir Harry.' A fine variety raised by Mr. Underhill, of Edgbaston, Birmingham, and originated by seed of British Queen, impregnated with Hooper's and Keens' Seedling. The berries are exceedingly large, and very dissimilar in appearance to other kinds, mostly of a thick cockscomb form, and sometimes wedged shape, with large calyx, and long stout fruit stalks. Its colour is deep purplish red or mulberry, glossy, and ripens well throughout. The flesh is red, solid, and fine grained, juicy, and saccharine, with a delicious perfumed flavour.' The above description was taken through the kind permission of Mr. Underhill, from the fruit exhibited at Chiswick, in July last, for which he deservedly received a first class certificate."

"Preston, July 21, 1855.

"SIR,—Your Strawberry was greatly admired during the whole afternoon; in fact, it seemed to be the greatest attraction in the Exhibition. Will you let me know, as soon as convenient, the price of Plants, and how early in the autumn you will be ready to supply orders.—I am, dear Sir, yours respectfully,

"RICHARD TEEBAY,
"Secretary to the Preston Floral and Horticultural Society.
"R. Underhill, Esq., Sir Harry's Road, Edgbaston, Birmingham."

"Glasgow, August 13, 1855.

"DEAR SIR,—We inclose Post-office orders in payment of your account (which please return discharged), and we have much pleasure in bearing testimony to the superior excellence of your Seedling Strawberry 'Sir Harry,' which fully merits the high commendations given of it in the printed circulars you sent us. Without solicitation we write this, because we consider it a duty to commend what is really deserving, as it is to condemn such varieties of Plants, Flowers, and Fruits, as are too often foisted on the trade and the public, with equally high characters, but only to cause disappointment to growers.—We are, dear Sir, yours truly,

"DRYSDALE & Co.
"Mr. R. Underhill, Edgbaston."

"Aylesbury, July 27, 1855.

"SIR,—We feel great pleasure in informing you that the two splendid dishes of Strawberries shown by you at the Aylesbury Floral and Horticultural Society, July 26th, and called the 'Sir Harry,' were considered by all present the finest ever shown in the neighbourhood, both for flavour, colour, and size, and for which a first class certificate was awarded.—We remain, yours respectfully,

"J. F. FRASER, } Secretaries.
"H. MARGESSON, }
"R. Underhill, Esq., Sir Harry's Road, Edgbaston, Birmingham."

"Aux Sablons, near Morêt, Sur Loing (Seine Marne),
"July 4, 1855.

"DEAR SIR,—I have much satisfaction in announcing to you the result of my crop of 'Sir Harry' Strawberry. I must confess that I have never eaten anything so delicious, and I assure you that you did not speak too highly of the qualities of this beautiful fruit, which, in reality, is far superior to any other known, and consequently cannot fail to find its way into the garden of every amateur. The plants which I have kept under glass proved that 'Sir Harry' is equally well adapted for forcing—it even seemed that its fruit had a better flavour than those grown afterwards in the open air. Several of my friends having seen your 'Sir Harry,' and lithograph of the same, might desire to possess it. If you have to spare some plants for September next, will you be kind enough to let me know the price at your earliest convenience? I trust my letter containing some remarks on your French Treatise on the 'Cultivation of Strawberries' safely reached you, and hoping soon to have the pleasure of hearing from you,—I remain, dear Sir,

"Yours very truly and respectfully, FERD. GLOEDE.
"R. Underhill, Esq., Sir Harry's Road, Edgbaston, Birmingham."

"Bellaney, Ireland, July 10, 1855.

"DEAR SIR,—I feel that I should be really ungrateful did I longer delay writing to you, to say how truly the 'Sir Harrys' have merited the character you have published of them. My opinion is that they are extremely large, splendid colour, good shape, superfine flavour, and ripening so equally all through, which is the more to be appreciated when their great size is to be taken into consideration; this latter merit is superinduced greatly by the very small quantity of leaves in proportion to the fruit. In fact, to sum up all, they are the best bearers, and the best Strawberry I have ever seen.—I have the honour to be, &c., dear Sir, yours most respectfully, THOMAS W. BLANDFORD."
"R. Underhill, Esq., Sir Harry's Road, Edgbaston, Birmingham."

"Lancaster, July 20, 1855.

"DEAR SIR,—According to promise I now enclose you the Prize Ticket for 'Sir Harry,' upon which you will find the remarks of the Judges. The dish of 'Sir Harry' was literally besieged with admirers from the opening to the close of the exhibition, many were the inquiries for the owner, and having in my capacity to remain in the room all day, visitors soon found out that you had returned home, and also that you had kindly presented me with the fruit on the termination of the show. So numerous were the wishes of ladies and gentlemen to taste the berries, that I promised them I would send half a dozen in each instance, and you would hardly credit it, when I tell you that when I returned to my house I found it full of servants waiting with plates and baskets, in so great a number, that even the very large dish you specially brought for my own use, together with those exhibited, were distributed down to one dozen berries which I reserved to take home.—And believe me, faithfully yours,

"THOS. D. TOWNLEY,
"Hon. Secretary to the North Lancashire Horticultural and Floral Society.
"To Richard Underhill, Esq., Edgbaston."

MR. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 1, 1855.

IN our article of last week on the improbability of Hops which have been dressed with sulphur being really injurious to beer, we drew attention to the fact that no part of the sulphur was at all likely to enter into the organic tissue of the plant. Any portion of that substance, therefore, which could possibly impair the flavour of the beer must be attached to the outer surface.

Now, if it is remembered how liable the dressing is to be washed off by rain or dispersed by the wind which eddies amongst the tall hop-poles, it is not very likely that any quantity which could possibly prove injurious should adhere to the bur when picked and carried to the ost-house. Indeed, that no great quantity can remain a few days after the dressing is proved by the necessity, in many cases, of repeating the application, which would not be needful if there were still a fresh supply to be acted upon day by day by the oxygen given off from the plant.

If a chemical solution, as of sulphuret of calcium or potassium with the addition of an acid, were applied, from which a precipitate would be formed following every inequality of the leaves and in close contact with them, the sulphur might indeed remain more permanently on the plant than when it is administered by the dredging box or fumigator. But to place the matter beyond mere reasoning or conjecture, we have examined a specimen of Hops gathered by ourselves in 1854, in a garden where sulphur had been largely and successfully applied. No sulphur could be traced by ocular inspection, and on burning a considerable quantity not the slightest trace of sulphurous acid could be detected, either by its peculiar stifling odour, or by the application of litmus paper, which would have been bleached had any been present.

We trust, however, that the subject will be taken up by persons resident in the Hop districts who have better opportunities of investigation than ourselves, for it is highly necessary that the truth of the case should be ascertained. If the sulphur is really injurious, its use should of course be rejected; but if the truth is on the other side, it is not for the public benefit that curative measures which seem really to be attended by success when properly applied, should be impeded by a despotic manifesto. *M. J. B.*

In saying this we by no means charge the Hop factors with intentional misrepresentation. Doubtless they announce what they believe to be true. But is it true? Is there anything in their circular which contains a shadow of proof that sulphuring the growing Hops produces the injury alleged? Certainly not. This will be manifest if the notice from the Hop factors, which we now print in another column, is attentively considered.

Their first assertion is that brewers have sustained "serious losses;" a second that this has been caused by "the application of sulphur" to the growing crop. It is obvious that the two statements have no necessary connection with each other. We may grant that large losses have been sustained by brewers; for this is always the case, whether growing Hops are sulphured or not. That the sulphur dressing has been the cause we must wholly disbelieve until some clear proof of the fact shall have been adduced. Who have sustained the losses in question? Whose Hops were used when the losses took place? What evidence is there that the one fact has anything to do with the other? The beer may have been spoiled by many other causes. We have heard of such a plan as using picric or carbazotic acid, an intensely bitter deleterious substance, to replace Hops; we have known other contrivances, and without pretending to say that the instances of loss alluded to by the Hop factors are traceable to this cause, the public is entitled to require proof that they were caused by Hops saved from mildew. We have the greater right to insist upon this, because we are in a

condition to prove that when a bag of the Hops thus unceremoniously condemned and a pocket of the growth of 1852 or 1853 have been mixed together, beer of the finest quality has been the result. Another probable cause will occur to those who are familiar with Hops; it is notorious that those which come from the United States and Canada have usually a bad taste, owing to some defect in their preparation or packing. The quantity of foreign Hops last year imported was very large. The Hop growers may fairly require to know that the losses in question were not attributable to the employment of foreign instead of home-grown Hops.

The circular goes on to say that "it is now practically ascertained beyond all question" that sulphured Hops spoil the beer. Let us know the nature of this practical proof, how conducted, by whom and when. If, as we learn from the circular, this has been so positively made out, it is surely due from the factors to the growers, that the latter should be furnished with full particulars, and not be called upon to receive without question an assertion which, as far as it at present appears, rests on no evidence that can be produced.

The Hop growers have the more right to ask for proof, when they see upon what sort of reasoning the factors found their circular notice. The factors say that sulphur applied to Hops in drying does no harm; it is only "when actually *incorporated into the plant* by its application during its growth" that mischief ensues. Are we to understand from this that Hops absorb sulphur when applied to them in the open air, on the vines while in a state of growth? and that they refuse it when large doses are administered in the kiln? We should take such to be the meaning of the circular if it were conceivable that a body of intelligent men could really suppose the Hop growers capable of accepting such an extraordinary assertion without question. If Hops absorb sulphur at all it will be on the kiln. We have no reason to suppose that live plants are capable of absorbing through their skin any form of matter except such as is gaseous; and if living plants were to absorb sulphur in its gaseous combinations they could only do so at the expense of their lives. We therefore beg to withhold our belief from all statements to the contrary, until, as we have already said, they are accompanied by satisfactory proof. Let that be produced, and we shall be among the first to announce so great a discovery. In the meanwhile we rely upon the *proof to the contrary* mentioned in a previous paragraph.

We are far from supposing that the Hop factors have intended more, by the course they have taken, than to protect themselves and their customers the brewers. They probably overlooked the grievous wrong they were doing to the grower, or they thought themselves so sure of the ground on which they stood that no private interests could be considered. Upon either supposition we must take the liberty of calling upon them to prove their case, if they can. The subject is one of immense importance and cannot be treated lightly. As we have already said, we believe ourselves able to prove that Hops sulphured while growing do no injury to beer; we are, therefore, the more justified in requiring the factors to prove if they can that the losses they speak of have really been traceable to the use of the same article.

Sulphur is one of the most powerful of known agents in destroying mildew. It is to gardeners what vaccine is to surgeons. In horticulture it has been used for many years without imparting a bad flavour to fruit or other vegetable products. The sudden discovery that Hops are an exception to the rule might well then have excited our consternation, had not long experience convinced us that the supposed discovery must be in reality a delusion, caused by what we can only suppose to be hasty inferences drawn from insufficiently examined data.

We are now prepared to give the result of the experiments which, by the kindness of Mr. G. H. Hoffman, of Margate, we were enabled to make as to the germination of seeds which had been immersed in salt water. The method adopted for this purpose was explained before. There was no convenience for placing the little bags containing the seeds actually in the sea. Fresh sea-water was therefore supplied every day, and at the end of three weeks the bags were removed. The seeds were then so soft and swollen that it was impossible to transmit them without danger of their perishing on the journey. Measures were therefore taken to dry them sufficiently for package, and while quite damp they remained after their arrival, in consequence of our absence from home, four days without being unpacked. The immersion, therefore, was equivalent to one of more than a month. Sixty-one species were submitted to the salt water; but of these seven must be subtracted, as they had not germinated when placed meanwhile in common soil. The others consisted of 18 culinary plants, 15 endogens, and 20 exogens; 53 in all. Of the first the only ones which did not vegetate were Peas and Kidney Beans; of the second three did not vegetate; and of the third nine, being respectively one-ninth, one-third, and nine-twentieths.

The following tabular arrangement will show the result of the whole experiment at a single glance.

CULINARY PLANTS.

Germinated.	Did not Germinate.
1. Carrot	1. Pea
2. Spinach	2. Kidney Bean
3. Yellow Turnip	
4. Celery	
5. Onion	
6. Lettuce	
7. Capsicum	
8. Black Radish	
9. Corn Salad	
10. Endive	
11. Golden Cress	
12. Beet	
13. Cabbage	
14. Melon	
15. Aubergine	
16. Tomato	

ENDOGENS.

1. Oats	1. Colchicum autumnale
2. Wheat	2. Indian Corn
3. Barley	3. Uropetalum serotinum
4. Arum maculatum	
5. Bulbine annua	
6. Anomotheca cruenta	
7. Asphodelus luteus	
8. Babiana plicata	
9. Asphodelus ramosus	
10. Trichonema pudicum	
11. Sisyrinchium Iridifolium	
12. Iris triflora	

EXOGENS.

1. Monolopia californica	1. Godetia Lindleyana
2. Lupinus pubescens	2. Gilia tricolor
3. Cenia turbinata	3. Eutoca viscida
4. Godetia rubicunda	4. Cosmos luteus
5. Chryseis crocea	5. Campanula pentagonia
6. Erysimum Perowskianum	6. Nemophila insignis
7. Malope grandiflora	7. " atomaria
8. Fedia graciliflora	8. " maculata
9. Limnanthes Douglasi	9. " discoidalis
10. Silene compacta	
11. Nolana grandiflora	

Of these, Chryseis crocea germinated very imperfectly, though the single plant is still alive. The others succeeded as well as if the seeds had never been steeped, except the Lupine, of which the greater part of the seeds rotted, like those of the Pea, Kidney Bean, and Indian corn. Not a single Hydrophyl succeeded, though five were sown, and we were unsuccessful with the closely allied family of Phloxworts. In other families the number of species submitted to trial were too few to suggest any general probability, and it will be seen that while one Godetia failed the other succeeded. Seeds which have large fleshy cotyledons like Leguminosæ seem the most liable to decay, where the shell is thin and readily imbibes water, though it is believed that species with hard woody shells are amongst those which bear a long immersion the best. On the whole, out of 53 species 39 succeeded, or nearly three-fourths. So far, then, it is clear that immersion in salt water for a month is not sufficient to prevent the germination of a large quantity of species, and during that time a floating plant laden with seed might travel through many hundreds of miles. From the experiments of Mr. Darwin, however, which were made with artificial sea-water, it appears that a still longer immersion is not sufficient to prevent vegetation. Beet and Rhubarb germinated after immersion for 65 days, Oats, Canary seed and Capsicum, after 70; Cress, Lettuce, Radish, and Carrot after the same period, but only a few plants of each came up, Orach after 82 days, and Celery and Onion after 85 days. Mr. Darwin also instituted experiments on seeds thoroughly dried after immersion in salt water, but an unfortunate accident prevented his arriving at any results. *M. J. B.*

New Plants.

141. Pelargonium Endlicherianum. "*Fenzl. Abbild. und Beschreib. selt. Pfl. t.* 3." According to *Walper's repert.* 2, 820.

This is a handsome novelty and a great curiosity. It is a fleshy branched shrub, with soft, roundish, kidney-shaped, crenated, fragrant leaves, and trusses of large deep rose-coloured flowers, each consisting of two petals only, as in *P. tetragonum*. In addition to their deep ground colour the petals are boldly marked by rich crimson veins. The flowers on the specimen before us from the garden of the Horticultural Society are only five in a truss; but our wild specimens have *more than twenty*. The plant was received at Chiswick from Mr. Francis Rauch, in charge of one of the Austrian Imperial Gardens.

What gives so much additional interest to this plant is its native country. We need not say that the principal country of Pelargoniums is the Cape of Good Hope, a few species only being found in the Australian colonies. None had been observed in the northern hemisphere, except one species in the Canary Islands, and two or three in Abyssinia, until Kotschy in his travels in Caramania met with the present plant and sent it to Vienna. It occurred on limestone rocks, facing the east, in the ravines of the beautiful mountain region near the village of Güllek, where it was seen in flower on the 30th of July, 1853, as we learn from specimens in our herbarium. Güllek is not to be found in any map to which we have access, but we suppose it to be somewhere on the southern side of the Bulgar Dagh, or chain of Taurus.

A geographical parallel to this case is the occurrence of a species of Stapelia, another great Cape genus, on the south side of Sicily. The present plant will require a greenhouse in winter, and the more so because of the succulence of its branches; but it may be expected to prove a gay bedding-out plant in summer, and perhaps even the parent of a new breed of garden mules.

VEGETABLE PATHOLOGY.—No. LXXXVI.

356. Phylloptosis, Carpoptosis, Anthoptosis.—(*Accidental and Organic*).—Fall of the leaf, fruit, flower. In the last number those cases were considered in which a separation takes place between the stem of a leaf, or fruit, &c., and the base from which it springs when it has performed its proper functions, and is no longer wanted. There are, however, many cases in which leaves and fruit fall from constitutional or accidental causes, when these functions have not been performed. In most cases of sterility the separation takes place, either before or after the fruit shows signs of incipient decay, and the fall of blossoms and leaves without any previously diseased condition may take place, from excessive drought, moisture, cold, heat, &c. Thus on the approach of winter, at the first frost many leaves fall while yet green, and before they betray positive signs of decay, in which case, whatever may be the structure of suture by which the stalk is attached to the stem, it appears clear that the fall is the result of the antagonistic force between the depressed vitality on the one side, and the full vigour of life on the other, though we are not prepared to say in what the principle of life consists. In the case of drought, a fresh supply of water may reinstate the foliage in all its vigour, and separation will not take place, provided the drought has not been of too long continuance. The drought of the hot season in tropical climates strips many deciduous trees as effectually of their foliage as those of more temperate climates, where the foliage falls on the cessation of its functions by natural decay.

357. Land which has been flooded has a peculiar tendency to cause trees to cast their leaves, and a similar condition exists in conservatories where the pots in which the plants are grown are ill-drained, though in this case the dry air which surrounds them often increases the evil, the evaporation from the leaves being so great as not to be capable of being compensated by the more or less diseased or suffering spongelets. But even where the house is properly syringed, many plants still cast their leaves, in consequence, probably, of deficiency of light. In fact, all extremes seem to have the same effect. In plants which have been delicately treated all the winter, especially if they have been crowded, the first thing which takes place on their being exposed to the open air is the loss of many of their leaves; and precisely the same effect may take place under contrary conditions, though it is not uniformly the case. It should be observed that the fall of fruit in an early stage is not always due to want of impregnation. In the Scarlet Bean, for instance, after the flowers have been impregnated and the legumes have been formed, a single ungenial night will cause thousands to fall, which under other circumstances would have been perfected. It is because of some circumstance unfavourable to their healthy vegetation that the Peaches and Nectarines in Van Diemen's Land, as mentioned by Dr. Harvey, frequently fall before they are ripe, and are so seldom brought to sufficient perfection even for culinary purposes; and the same may be said of multitudes of plants cultivated in our conservatories and stoves. When the unexpanded buds of the Camellia fall we know at once that the condition of the roots is bad, while in other cases we are as sure that the temperature is not that which a healthy condition of the plant requires. A correction of such conditions, according to the exigencies of each plant, where practicable is absolutely indispensable to health or vigour.

358. Meyen remarks with regard to the normal fall of leaves that it is strongly affected by external climatic conditions, by which it may be delayed for a considerable period, or, on the contrary, be greatly accelerated. He remarks moreover that those plants which cast their leaves periodically exhibit surprising differences in this respect, for while some retain their dry leaves* for months, others part with them at the first frost, even those which are still green and in no respect discolored.

359. As we have considered the fall of fruit and other superficial organs under the same head as that of leaves,

* Oaks afford a ready example. The younger trees retain their leaves more tenaciously than the older, but in the same plantation great differences are observable, and the same remark is applicable to Beech trees.

it will be right to mention here the disease which is so fatal to Vines in many parts of France and other Continental districts, known under the name of *coulure*, or the premature fall of the inflorescence. This arises frequently from spring frosts, but it is also caused by poverty of sap, as is proved by the fact that removing a ring of bark a few days before the expansion of the flower entirely prevents the calamity, provided the temperature and other climatic conditions be favourable. The fall of the fruit is known by the same name, but in the Vine this can scarcely take place, except at a very early period of growth or when it is fully ripe. The fall of fruit in other cases may arise from anything which checks growth, and where the crop is too abundant, some privileged individuals appropriate the nourishment, and the others fall. *M. J. B.*

NOTES ON TRANSPLANTING.—No. I.

Autumn is at hand, and planting will soon be commenced. A considerable experience as a landscape gardener assures me that good practical knowledge on the subject does not generally obtain among those most interested in the results. If this, and the succeeding papers which I purpose writing on the subject, should in any way remedy that, I shall be pleased.

Professional men are, I believe, pretty well agreed as to the best time and mode of transplanting; and there are many excellent treatises from which, as far as principles are concerned, the amateur may glean the best advice, but while principles alone are of the highest value to the initiated, they often prove stumbling-blocks to the mere novice. To benefit him those principles must be illustrated both in the rule and in the exception. I hope to do that.

As a general rule the best season in which to transplant trees and shrubs is the autumn, from the last week in September till the same period in November. Evergreens especially should, if possible, be removed then. Of course they may be safely planted at other periods; in fact, there is scarcely a month in the year in which evergreens, under certain conditions, may not be transplanted with perfect success: but as a general rule, and in all operations of magnitude, some time between the periods named above should be chosen.

Deciduous plants should be removed between the decay of the leaf in autumn and the swelling of the bud in spring. So soon as the leaf begins to fade, is, however, the best time for the operation; but, as in the case of evergreens, the rule admits of many exceptions. These will be noticed in due course.

Of the comparative advantage of different periods of the year for removing evergreens, the following will furnish good examples. A year or two since a large number of shrubs and trees, principally evergreens, was removed under my directions. Circumstances which I had no influence over rendered it imperative that the operation of transplanting should be tardily proceeded with. In fact the work was begun in the middle of August and was hardly finished in the succeeding May. Every week during this long period, when the weather would allow, some shrubs were transplanted. I watched the results of these proceedings with great interest, and I confess to have gleaned some valuable information from them.

I should observe that the kinds of shrubs were principally Portugal Laurels, Laurestines, Arbutus, variegated Hollies, Sweet Bays, and Aucubas. Those moved in August suffered considerably in the loss of their leaves, especially the Laurestines, and assumed generally a yellow sickly hue. Others transplanted during the first 10 days of September succeeded little better; while those removed during the latter part of the same month, and in October and November, hardly indicated any effects of the operation. The weather, from the commencement of the work up to the beginning of November, was upon the whole dry. After this heavy rains set in and continued till the middle of January. The plants removed during that time did not start so freely into growth in the following spring as those transplanted in October and the early part of November. The soil, it may be observed, was a stiff loam, and, from being newly trenched, was rendered by the digging and treading, consequent on the planting, anything but favourable for the roots. To this cause may undoubtedly be attributed the comparative ill success of the plants removed then.

Towards the close of January frost set in and planting was suspended for a month; but during part of February and the whole of March and April the work was carried on, and, as the succeeding summer showed, with varying success. Those removed in March, however, on the whole suffered most, many of them, especially some large Portugal Laurels, died back to within a foot or two of the ground; others lost the greater part of their branches. These on being cut back made vigorous growth in the following year. Of all the plants removed I do not think more than half a dozen died outright.

Some of the shrubs transplanted in April deserve a special notice. Of these several were large Portugal Laurels, requiring the united assistance of eight or ten men to lift. As they were placed in very important positions every care was taken to ensure success by careful removal, and each was well watered when planted. The only indication of their having changed places was the casting of a few of the older leaves.

Notwithstanding the few failures, and the otherwise varying success, the result of the work on the whole may be considered as satisfactory. Two points in particular contributed to this success. The ground to be planted, from being trenched previously, had become thoroughly settled, and the plants themselves having to be carried but short distances received no material injury from being kept out of the ground. Whenever planting is to be extensively undertaken, much of the success will depend on timely preliminaries being carried out. It is too much the practice to procrastinate in this, and to defer the preparation of the soil till it is time to plant the trees.

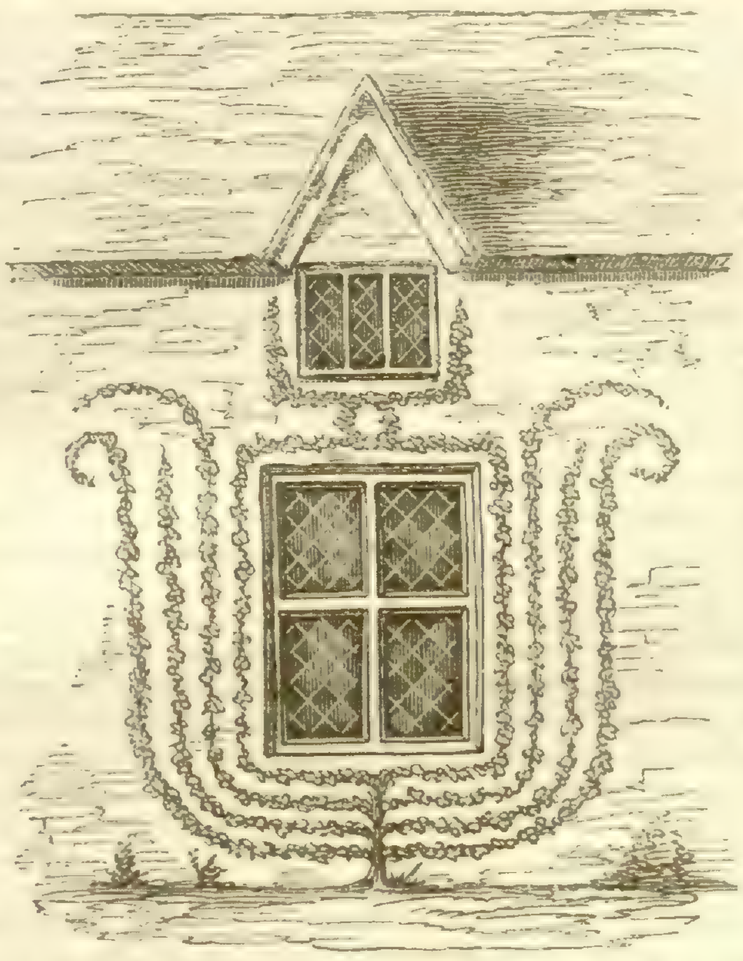
Supposing the soil to require both draining and trenching, and in all new grounds these operations may be calculated on, by all means let them be finished in the summer preceding the planting season. If the soil is very stiff and unfavourable, a year's cultivation previous to planting would be of immense advantage; but under any circumstances trenching should precede planting at least several weeks if possible. The soil then becomes settled, and, from the action of the weather, well pulverised, and will be, in fact, in an excellent condition to receive the plants. The difference in the success of shrubs planted in a nicely pulverised and otherwise well prepared soil, and in one newly-trenched, stiff, and full of unbroken clods, is very great. In soils which require preparation much of the success of the shrubs to be planted in it will depend on its being timely and efficiently performed.

Two years ago I made plans for a new garden in the neighbourhood of London; the proprietor of the ground superintended their execution, and, with the exception of a preliminary visit at the commencement of the work, I did not see the gardens until the ensuing spring, when I was consulted as to the cause of the almost general failure of the shrubs. This was at once evident. The soil was very stiff—clay, in fact, and as it was trenched in the autumn and winter, and the plants immediately placed in it, it is easily imagined what kind of medium the roots enjoyed. The soil was in fact but a collection of lumps of clay with nothing to fill the interstices; nevertheless attempts had been made at planting—it would be libellous to say that it was really performed. The winds of March, assisted by the sun, had converted the lumps of clay into brick, and robbed the ill-covered roots of every particle of moisture: the plants were of course dead or dying, and no art could save them then.

In this case an early preparation of the soil was not only advisable but imperative, if anything like success with the shrubs was to be hoped for. Such a soil should be broken up a year before planting, and well worked at intervals to bring it into a proper condition. All soils will yield to well-directed labour; the end to be attained is merely a question of time, labour, and expense. Those who are unfortunate enough to have an unfavourable soil to deal with must incur all that if the best results are to be obtained. *G. W. L.*

GARDENING IN SOMERSETSHIRE.

I send you the accompanying design from a cooper's garden in this county from a neighbourhood singularly devoid of gardening or other taste; it is a Pyracantha in very full flower; every spray must have been watched



weekly. Cheiranthus Marshalli in marly soil makes an admirable bedding plant. Flowers are very pale this season, and fade very quickly, Laburnum unusually so. *Somerset.*

HOP DISEASE.

For years past I have urged my Hop growing friends when the mould attacks the leaves to dress them with sulphur, for I felt convinced that the mould would be as rapidly destroyed by its action as similar parasites are upon plants in our cultivation. The usual objections started have been the expense, the difficulty of application, and lastly, the resolution of certain Hop factors not to buy, except the grower would certify that no sulphur had been used in their culture.

In giving the history of what has occurred in the parish of Basschild, near Sittingbourne, in this county, I propose to say a few words on each of the objections. But first to the facts I wish to narrate. In the parish named may now be seen two adjoining Hop grounds belonging to two different growers. The variety of Hop is the Canterbury White Lime. Up to a month from this date, they were each in a similar state of health, when suddenly the mould appeared simultaneously upon each.

At this time the plants were not in blossom, although they were in each case nearly so. One of the growers commenced with sulphur, the other allowed the disease to range unmolested. A mere low hedge parts the grounds, and now to see the difference between the one and the other, even to the rows that nearly meet, would astonish and ought to convince the most sceptical, for in one ground of 5 acres there is every appearance of being 15 cwt. per acre, and in the other, the owner will probably not put a basket into the ground. Here, then, the experiment is conclusive as to the use of sulphur; and now let us look into the expense that has been the means of this success. The mineral cost 9*l.* only, and the labour of twice dusting the plants over the 5 acres was less than 3*l.*, but say 12*l.* for the extreme outlay. Then, whether we have 4 tons of clean good Hops to market, or whether we have our year's expenses and no produce, in this case is clearly whether we think it advisable to expend 12*l.* The argument upon expenditure is, therefore, put at rest. Next, the difficulty of the application. This need be no bar, seeing that the expense is less than 3*l.*; nor need we be alarmed at the difficulty, when we know that all that is required is a dredge or duster of tin capable of holding 1½ pints, and that it must be made to hold a stick or handle long enough to go over the top of the Hops. It must not be filled, and is better to have about one pint, which will then leave space to allow of shaking, which is essential to the operation. A slight jerk or a blow on the handle will scatter the dust over the top, and similar treatment will cover the leaves by going round the stool. In this manner, when the whole ground had been attended to, and every plant dusted over, it was observed that the whiteness of the mould had turned to a violet colour—a sure sign of the decay of the mould; but to prevent any chance of missing the infected branches and leaves, the same operation was again performed. From that time to the present the Hops have flourished—flowering as if nothing had occurred, and now presenting that peculiar beauty that a healthy ground is proverbial for.

Having disposed of the two first objections let us consider the third—namely, the grounds for the Hop factors' manifesto. It relates that certain growers, by the use of sulphur last year, grew Hops, and that the brewer using them spoilt the beer, and therefore they state that they will not buy Hops without a certificate that no sulphur has been used in the culture. Let us see how this doctrine would apply to our present case. Of course they would not buy the growth because sulphur *has* been used. Is not this the height of absurdity, for the sulphur was used before the plants were in flower, and consequently the Hop could not in any way be affected by it?

The gentleman who drew up this manifesto evidently supposes that sulphur would pass into the pores of the plant, and thus find its way into the Hop from the leaves and stems. This every physiologist knows to be a thing impossible, and consequently any deduction from it is simply absurd. It is now only necessary for me to conclude by stating that I possess a branch from each ground, and shall be happy to show them to any interested upon the question. *William Masters, Exotic Nursery, Canterbury, August* 29.

CIRCULAR ADDRESSED TO THE HOP-GROWERS OF KENT AND SUSSEX.

The very serious losses which brewers have sustained from the application of sulphur to the growing crop of Hops, with the view of checking the spread of mould, render it our duty to call the attention of the Hop-growers generally to the subject, and we would hope that it will only be necessary to make them acquainted with the disastrous results of the practice to ensure its discontinuance.

It has now been practically ascertained, beyond all question, that Hops grown under such treatment impart so obnoxious a smell and flavour to the beer brewed from them as to render it unsaleable, and, unhappily, we could multiply instances of losses arising from this cause, to the extent of thousands of pounds.

It would appear that while sulphur, in moderation, applied in vapour during the process of drying Hops, produces no deleterious effects, when actually incorporated into the plant by its application during its growth, it impregnates the beer with its flavour to such an extent as to render it undrinkable.

As large purchasers of Hops we shall feel bound, for the protection of our customers, to require some guarantee from those of whom we buy them that any lots offered to us for sale have not been sulphured while on the poles; and without obtaining such an assurance, we shall be obliged to decline their purchase.

This subject, however, appears to us to be of the most vital importance to the growers of Hops themselves, as the practice, if not abandoned, must encourage the consumers in the use of foreign Hops, which have already been so extensively introduced and found favour; for as mould is comparatively unknown abroad, the brewers

will have no apprehension in their use of suffering from the remedy adopted in England for the cure of that disease.

Wood, Field, and Hanbury; Lockwood, Randall, and Co.; Wigan, White, and Wigans; Jones, Armstrong, and Moon; Craster, Humble, and Son; Jackson and Greenslade; Tim. Richardson and Sons; Hubbard and Strutter; Thomas Waterman and Co.; Kitchin Thoruton; Pike, Leake, and Co.; G. Hewitt and Co.; Preston, Baker, and Co.; S. and W. H. Teulon; W. Cosier; J. P. Knight; R. and T. Collis.

Home Correspondence.

Fences.—Observing of late several articles on fencing in your Journal, I submit that one kind may be suitable for one place but might not be so in another; for instance, a cold bleak country would like to have shelter and protection, whereas in warmer or more genial localities, the more fields are open to the influences of the sun and air and freed from hedge-row timber the better. At this moment I will more particularly consider the question of fences generally. Grant we have stone, iron, and different sorts of living stuff at command—stone-walls to many may be unsightly, but where quarries are near and stones large enough to make a jagged topping, make good fences, take up little space, are inexpensive and durable. The second I prefer to any other, viz., a good substantial iron hurdle, with 4 uprights, with an iron post buttressed alternately on either side, taking up no room, harbouring neither weeds nor vermin, removable from place to place, and has its worth as old metal. But what's the last?—balance the first and greater outlay with the second and lesser expenses; remembering, however, the annual outlay for keeping live fences in repair. I have nothing to say against the following kinds of hedges:—Hollies, Blackthorn, Quicks, or Sweetbriar mixed with Beech or Privet, but one and all of them require time to become real and substantial fences; all require two-sided posts and rails—often to be renewed, often stolen, always closely to be looked after; and if you will count your cost of labour, timber, and nails for 5 or 6 years, you will find a good deal of money has been disbursed. It may be asked whether it is better to plant your live fence on the surface of the soil or on a bank; if on a bank a ditch on either side to form it is usual, which cattle breast, and the ditches are trampled in and pouched, and the outflow of drains are stopped up if carried into them. If on the surface, it requires a long time before a substantial good fence can be got up; and if the fields are pastured with sheep, vacancies and gaps are sure to be made in it by being browsed. The best Quickset hedge I ever saw was made after this fashion—a wall of 18 inches high and 9 inches wide, with Quicks planted on both sides of it. Although an advocate (from experience) of an iron hurdle being the best and the cheapest in the end, it must be a strong one, with buttressed props; a slight one does not answer in any way the view I take upon the subject. *Rhyl.*——As regards mixing and rearing hedge plants no general rule can be laid down, for scarcely two men can agree as to what is the best hedge mixture. Soil and climate are the two most essential points to be studied in the rearing of plants adapted for hedging. In good soil and for agricultural purposes nothing can supersede the White Thorn. For ornamental and lawn fencing the kind of plants to be chosen must be left to the taste of the planter; a good many varieties of evergreen plants have been recommended, and many more might be named, all well adapted for forming beautiful hedges, provided such suits the owner's taste, and the soil in which they are to be planted. As to keeping hedges when reared, surely "A Northern" is acquainted with better implements than a pair of rusty scissors for clipping or cutting hedges; keeping the latter narrow at top instead of broad, which is generally termed "wedge-shaped," is certainly the best form. "A Northern" must have few hedges under his management if he can find time to dress them annually with a pair of scissors; I hope that he will try the implement mentioned by "A Yorkshireman" last week; Sanderson's (of Dunse) is the best hedge bill I ever tried, it can be had of any respectable ironmonger or seedsman. I have travelled in Scotland and in the north of England, and I can safely say that the best hedge fences I ever saw were wedge-shaped; they are the easiest kept, and with fair management live longest; they should be dressed annually. *The Far North, Abernethy, Strathspey, Scotland.*

My Flemish Pears have been much destroyed by myriads of yellow flies, and three remedies, which I have tried for them, have proved useless. I washed one tree with the engine, and while wet dusted it all over with soot. I allowed that to remain on four days and then washed it off. For another tree I used 2 lbs. of sulphur in solution, and for a third tobacco-juice. None of these applications, however, were effectual in removing the evil. Do you know of any remedy? Would it be well to give the trees liquid manure at the roots in order to improve the size of the fruit; and if so, is it proper to mulch with a view to prevent evaporation? Would mulching with Grass have a bad effect in preventing the sun's rays promoting the ripening process? Any information on these points would oblige *A Constant Reader, Cupar, Fife.* [Do not use Grass-mulching. As to the fly, before suggesting any remedy for it we must know what it is.]

Vanilla.—Having succeeded this spring in ripening a considerable number of Vanilla pods, a phenomenon has come under my observation which appears worth noticing, namely, the formation of very delicate needle-shaped crystals, both on the surface and in the interior of the pods when slowly dried. I suspect they will prove some peculiar alkaloid to which the plant owes its flavour. My mode of treatment after they were gathered was first to dry them slowly by hanging them up in the stove in which they had been cultivated; they were afterwards laid to dry in a warm sitting room, and finally put away in a wide-mouthed glass bottle, exposed to moderate light. Notwithstanding all the drying to which they had been subjected, one or two pods showed symptoms of mould, but the crystallisation of which I speak is quite distinct from this, the crystals being needle-shaped and prismatic, apparently triangular, about one-twentieth of an inch long and under. The interior of the pods where, in ripening, they have burst open, is quite brilliant with them. *J. Rogers.* [The crystals are understood to be of either benzoic or cinnamic acid.]

"Sir Harry" Strawberry.—In answer to the paragraph signed "Fragaria," in last week's Number, I have advertised in another column some few testimonials respecting this Strawberry from amongst numerous others which I have received from various parties. I was not aware, until I was favoured by the paragraph in question with the information, that this Strawberry was held in such slight estimation at the Horticultural Fête at Carlisle. Having had awarded it there the 1st prize, I of course imagined that the award of the judges at such an exhibition was right and indisputable. *R. Underhill, Sir Harry's Road, Edgbaston, Birmingham.*

Vine Disease.—I do not know whether it may be among the facts tending to throw light on the Vine disease, that in the case of our own houses the Grapes were first affected at the western end, the blight gradually passing on through the last month or more to those that until lately appeared quite healthy at the eastern end; and within a day or two I have observed that some of the leaves and branches are assuming the same mouldy appearance. All were, I imagine, quite healthy in colour until the early part of last month. The two houses have a southern aspect, are separated by a stone wall, and are ventilated from the roof. They receive but little care; but last year so few branches were blighted by the mildew as to lead to the hope these were accidental, and that the disease had not attacked the Vines. It is now unmistakeable. *L. P., Plymouth.*

Importance of Urine as Manure.—This, when allowed to become putrid, contains a large quantity of ammonia. This is clearly appreciable when it is stirred up, the effect produced being such as to affect the eyes similarly to salts of ammonia. This valuable manure then is easily attainable, inexpensive, and only requires the trouble of collecting. The exact quantity of this liquid that plants will make use of, or are capable of assimilating, I am unable to determine. But it is wiser and better to apply such substances weak and often than to furnish them in excessive doses. The proportions in which I have used it to Pine plants, vigorous growing soft-wooded stove plants, Vines in pots, &c., first allowing the liquid to become putrid, was 1 pint to a 4 gallon pan, and that the leaves of plants do to a certain extent absorb ammonia from the atmosphere is undoubted (see Dr. Lindley's "Theory of Horticulture"). I have, therefore, used the urine in the above proportion for syringing Pine plants; under such treatment the leaves assume a deep green and a robustness of growth which is not effected in the absence of such matters being applied. To Celery, Cauliflowers, Onions, Lettuce, and the like, I have used 1 quart to 4 gallons of water, with equally good effect. The above experiments were carried out in gardening, but they equally apply to farming. An easy method for the practical farmer to obtain a valuable manure, either to drill with Turnips or to apply as a top dressing to Wheat, would be to collect the parings of hedge banks, clay or strong loam, burn or char them, and soak them with the liquid. After burning or charring, such substances possess the power of fixing ammonia to a great extent. Such work could be carried out on a farm, as well as in a garden, when the weather in winter would permit of little else being done. *G. G. W.*

Transplanting Large Trees at Gunnersbury Park.—Mr. Barron is mistaken in stating that the major part of the trees here were moved under his direction or that of his man. Such superintendence certainly did not extend to more than a fourth of the number transplanted here last autumn; and with the exception of the large Douglas Fir, a Spanish Chesnut, the Cupressus macrocarpa, many equally large as he transplanted, such as Deodars, Cryptomerias, &c., from 10 to 20 feet in height, were moved by myself, and as you have correctly reported, with perfect success. I observe that Mr. Barron attributes the loss of the top of the Douglas Fir to its toes having been too closely pared. This may or may not be the case. Throwing out a trench round a tree in spring, as was done in this instance, and filling up with prepared soil to induce fibres previous to transplanting in autumn, is however considered by many safe practice. *Wm. Forsyth, Aug.* 30.

Transplanting Machines—Which is the Best?—Without entering into the merits or demerits of the different transplanting machines now in use, I have thought that an excellent way of settling the matter would be by a public competition at such places as might be agreed upon, giving the competitors a certain number of equal sized trees to transplant, the kinds of trees and conditions of soil, &c., to be as near the same as possible. This would certainly aid in settling the many conflicting opinions as to the cheapest and most efficient contrivance for the purpose. It would of course take some time to settle the success or otherwise of the trees and shrubs lifted, but a year or so would also determine that point. I think (it may be ignorantly), that Mr. M'Glashen's machine surpasses Mr. Barron's and I too could quote authorities in support of this view, but I prefer throwing out the above suggestion, leaving the animus of Mr. Barron's letter in last week's Number to speak for itself. *An Observer.*

Anacharis alsinastrum.—There is at Weybridge and Walton a land drain about 5 or 6 feet wide which empties itself into the Thames. Both at its upper end at Weybridge, and at its lower end at Walton, 2 miles apart, this plant is abundant. The drain, which is called the Engine River, runs for some distance through my land, and to any one calling on me I shall be glad to point out the plant. It bloomed very plentifully, and indeed nearly covers the whole bottom of the Engine River from end to end. *J. Cox, Clinton House, Weybridge, Surrey.*

How to make Yeast.—In your last Number is a recipe for making yeast; I send another from the "European Magazine" for 1790, which does not require yeast itself for a foundation as the one printed at p. 566 does. It seems to have been considered worthy of a prize 60 years ago. The following is extracted from the magazine above named, vol 18, p. 192:—Recipe for the Generation of Yeast.—A premium of 20*l.* having been given to Joseph Senyor, a servant of the Rev. Mr. Mason, from the Society of Arts, Manufactures, and Commerce, we think we shall oblige our readers by extracting from the Transactions of that Society the following recipe. Procure three earthen or wooden vessels of different sizes and apertures, one capable of holding two quarts, the other three or four, and the third five or six. Boil a quarter of a peck of malt for about 8 or 10 minutes in three pints of water, and when a quart is poured off from the grains, let it stand in the smaller vessel in a cool place till not quite cold, but retaining that degree of heat which the brewers usually find proper when they begin to work their liquor; then remove the vessel into some warm situation near a fire, where the thermometer stands between 70° and 80° Fahrenheit, and then let it remain till the fermentation begins, which will be plainly perceived within 30 hours; add then two quarts more of a like decoction of malt, when cool as the first was, and mix the whole in the second or larger vessel, and stir it well in, which must be repeated in the usual way as it rises in a common vat; then add a still greater quantity of the same decoction, to be worked in the largest vessel, which will produce yeast enough for a brewing of 40 gallons. *M. N., Aug.* 26.

Suffolk Natural History Club.—On the 26th of July Professor Henslow, with a party of naturalists from Ipswich, started a working club under the above name. The object is to examine the natural history of the entire county by excursions during the summer, and the establishment of correspondents in various parts of the county. It is hoped that by this means the natural history of the county will in a few years be pretty well explored; a correct record will be kept of all plants, insects, birds, or any other object in natural history which are met with during the excursions. Any person in the county desirous of encouraging and joining this club will do well to communicate their wishes either to Mr. Henslow, or to Dr. Drummond, of Ipswich. This club is considered to be in a certain degree in connection with the museum, and Mr. Knight, the active and intelligent curator, will gladly take charge of all specimens committed to his care which are intended to illustrate a complete Fauna of the county of Suffolk. If other counties will do the same, how much will be effected in a few years? The meeting on the 26th July was at Bentley, and Dadnish Wood was explored. Rain came on unfortunately in the middle of the day. *C. R. B.*

Æschynanthus, &c., without Artificial Heat.—In your Journal of the 14th July, you gave an extract from Hooker's "Journal of Botany" respecting the injudicious treatment of Orchids, in the keeping them in too high a temperature. Many other plants besides that particular class will be found to thrive without any artificial heat. I send herewith flowers from an Æschynanthus now suspended from the roof of my greenhouse, which has had no artificial heat, but actually stood several degrees of frost last winter. I have also Lagerstrœmia indica coming well into flower, trained against the glass of the greenhouse. Both these are usually, I believe, considered to be stove plants. *C. J. B., Abbotsley, Devon.*

The Dioscorea Batatas.—I fear this will prove one of the most complete horticultural flams we have had for a long time. In common, I suspect, with some hundreds of your readers, I purchased some tubers in February last and planted them in pots, placing the pots in bottom-heat in a forcing house. The shoots were a long time before they made their appearance above ground, seeming to require much heat; however, in May they progressed rapidly, so that by the 16th of June each plant had formed a tuber about as large as a nutmeg. On that day, after hardening them off, I planted them out, having first prepared a ridge on a south-eastern slope, the soil being a very light sand; this I stirred to 2 feet in depth, mixing with it a good quantity of rotten manure. I placed no glasses over them, considering that if it is really to prove a hardy esculent fit for general culture, such extreme care should not be required. And now for my success! By the 30th of June they were much less than when planted out; the heavy rains in July gave them a "heavy blow and great discouragement," and at this moment only two out of six are alive, and they have shoots perhaps 6 inches long.

In the extreme south of France, and in Spain, with careful culture, it may succeed, but with our cloudy skies and equable temperature, I fear it will not even reward the amateur gardener, who looks only for small returns after much labour. As an article of general culture it never can be of the slightest utility, and it is really a pity that so much was done in the puffing way with it. A very clever French gardener has made a fortune by it, and when he was with me a short time since I showed him my plants, telling him at the same time that I was aware it had filled his pocket, but that I thought it would never fill our stomachs. His sagacious grin and shrug were things worth looking at. *Yam.*

Notices of Books.

In a closely and admirably printed 4to volume, of 370 pages, Mr. Newdegate has collected *The Customs' Tariffs of all Nations, up to the Year* 1855 (Murray). Of such a work, if executed with care, as this evidently is, it is difficult to overestimate the importance as a book of reference by financiers and merchants. Even to those who only seek for general information the details of foreign tariffs possess the highest value, demonstrating as they do what products are abundant enough to be exported, and what in such demand as to be imported. Mr. Newdegate's avowed object has been to obtain better commercial information than is furnished to Parliament, and to collect in one volume the data upon which all changes in our own tariff should be founded. He has taken as the basis of his work Mr. Otto Hübner's "Commercial Tariffs," but to the information collected by that eminent statist in 1852 he has added all that has since been done in our own or other countries. So complete, indeed, is the compilation that Mr. Newdegate announces the tariffs of the Sandwich Islands, Nicaragua, Honduras, and the Mosquito Territory as being the only four he has been unable to procure.

Mr. Gosse has published the first part of a *Manual of Marine Zoology* (Van Voorst, 12mo), explaining the distinctions between the orders and genera of those curious animals which have become familiar even to Londoners through the marine vivaria in the Zoological Garden. The classification seems well managed, has the great merit of being concise as well as clear, is written wholly in English, and is illustrated by woodcuts which, although slight, are amply sufficient for the purpose intended. We can recommend it as a capital seaside companion for all who wish to know something of the zoology of their native shores. It will afford pleasure to the old, and excellent exercise to the young and intelligent. A good pocket lens will generally show all the structure with which it is necessary to become acquainted in order to understand Mr. Gosse's little book. The second part, to contain animals of a higher order, up to Mammals, is announced as being nearly ready. Much as we esteem the manner in which the author has proceeded in this attempt at popularising an obscure subject, we should have much preferred seeing the names of the orders Anglicised a little, by converting Poriphora into Porifers, Cirrhipedia into Cirrhipeds, and so on.

The Isthmus of Suez Question (Longmans & Galignani), is a pamphlet by M. de Lesseps, written with a view to showing the mercantile advantages of a ship canal connecting the Mediterranean and Red Seas. We believe it to be admitted by practical engineers that the operation, whether from the Bay of Pelusium, as M. de Lesseps proposes, or by the Gulf of Akaba, as Captain Allen suggests, is opposed by no difficulties that would be insuperable provided money enough is applied to the operation. But it strikes us that politicians, not engineers, are the persons to consult; and that the true question is not whether the plan is feasible but whether it is advisable. Upon such a point we have no opinion to offer. The reader who wishes to look at the subject from M. de Lesseps' point of view will do well to peruse his pamphlet, which is accompanied by two good maps of the country, and a third which was scarcely called for.

A Sunday Book for the Young (Van Voorst), is a nicely printed and plainly written account of the habits of patriarchal times in the East, as illustrated by the customs still observed in the unchanging countries once governed by Noah and his descendants.

Garden Memoranda.

ROYAL BOTANIC GARDEN, KEW.—This great public garden appears to be undergoing a thorough revision not only in one department but in all; and we have reason to believe that the spirit of improvement at present in operation here will not be satisfied till everything connected with it shall have put on an aspect very different from what it ever has done. For the magnificent collection of Aloes, Agaves, &c., now kept in an old lean-to house, better accommodation has been provided in the shape of a handsome new span-roofed greenhouse, which is all but ready for their reception. This is situated near the end of the large Orchid house, which is now almost wholly occupied with Ferns, the Orchids having been removed to another house, and is no less than 200 feet long and 26 feet wide inside measure. Its greatest height is 13½ feet, and it is glazed with green tinted glass, deeper coloured than that of the great Palm house. It is heated with four rows of hot-water pipes from one of Burbidge and Healy's boilers, and it is well ventilated, every second sash in the roof moving as well as those in the upright side which are set on a brick wall 3 feet in height. The bricks for this wall were obtained from an old New Holland house (No. 7), which has been pulled down for the purpose, and the plants which were wont to occupy it, but which are now out of doors, will, we are informed, be wintered in the old Aloe house, till the new conservatory is built.

The most important improvement, however, about to be effected here is the erection of a new museum, for which, as our readers have already been informed, a grant of money has been voted. The size and form of this building are, we believe, not definitively determined; but we understand that it is to be placed at the south-east corner of the garden, near the entrance from the Richmond Road called the Unicorn Gate. It is not intended to supersede the museum at present in existence in the garden, but to be as it were a kind of auxiliary to it, the objects worthy of exhibition in such places accumulating so fast that it has been found absolutely necessary to provide additional accommodation for them. Of the more important rarities treasured up here, some account was given at p. 451; that they greatly interest the public is certain from the numbers of persons that daily inspect them, even to overcrowding, and on that account it has been deemed better to have two moderate-sized buildings in different parts of the ground than one very large one, in order as much as possible to avoid this evil.

The supply of water to the plant houses has hitherto been maintained only by keeping an engine continually pumping it up to the top of a tower by the side of the lake; but it has been thought that if accommodation for storing up a greater quantity than could be done in the water tower alone could be provided, it would be more convenient, as well as economical, and to that end a reservoir has been formed under ground, on the summit of the rising knoll at the upper end of the lake. This is an oblong square, 25 feet in length, and 9 feet in depth, lined inside with Portland cement, and being turfed all over, can offer no unsightly object to offend the eye.

As regards the general collection of plants under glass, it appears to be in a better condition than ever we remember to have seen it. The services of a new cultivator (Mr. Brown, late foreman to the Messrs. Rollisson, of Tooting), have been obtained. The Orchids more especially have been put under his care, and since he has had them he has repotted nearly the whole of them, and otherwise placed them under circumstances as advantageous as the season of the year would permit. One great drawback to the successful culture of plants of this kind here, as indeed it must be in all gardens to whose houses the public has access, is the continual opening of doors in winter, by which cold air is admitted, and for this there is no remedy except shutting up the house during the coldest months. In summer, we need not say, the evil is but little felt. Pitcher plants have also all been fresh potted, and plunged in Moss at the warmest ends of the stoves, and the extensive and very valuable collections of Ferns which this establishment contains, and which Mr. Smith himself takes special care of, have also all been gone over and shifted wherever they required it; and some of the hardier New Zealand, Madeira and Mexican kinds that were planted out on a bank in a house with a north aspect have been lifted and potted, and replaced in the same house on terraces, faced with burs which will doubtless in time be covered with rock plants. The appearance of these Ferns may not at once be improved by lifting them and putting them in pots; but the operation has given them as it were more individuality, and their names are more conspicuous and accessible than they were before. Many of them have acquired a size which they could not have done had they been kept all their time in small pots.

The Victoria regia, both in the house specially devoted to its culture and in the large square slate tank of the old aquarium, is, we regret to state, not thriving. The water with which the tank is now supplied is loaded with a green slimy Conferva that fastens on the under sides of the leaves and rots them. Last year it grew and flowered tolerably well; but this season it is doubtful if it will blossom at all. Other aquatics, such as white, blue, and red Nymphæas, Nelumbiums, and even the Euryale ferox succeed as well as could be desired; but the water in which they are growing, especially that in the great basin of the new Victoria house, is anything but clear and pleasant to look at, and all that can be done to clean it has failed to make it better.

The Palms in the great stove have made much progress in growth since we last saw them: the different kinds of Cocos have already reached the top of the house, and other sorts have proportionately increased in size. Of Urania speciosa, we remarked a magnificent specimen with a stem quite 18 inches in diameter at the base. Some Bamboos have grown to the surprising height of 68 feet in 5 months. This includes a long period in their first stage in which they make little or no progress, but after they have attained a certain altitude they rush up at the rate of 2 and often 3 feet a day. Of Strelitzia augusta we observed very fine specimens, as well as of Seaforthia elegans, Sabal umbraculifera, and others. It may be worthy of notice that the great dead looking trunks of Encephalartos pungens received here some three years ago from South Africa, have pushed noble heads of leaves, and are now remarkable for their size and grotesque appearance. The various kinds of Cycas in the south end of this great building have also become objects of much interest.

Passing on to the Cactus house we remarked the change mentioned by our correspondent at p. 466, of raising the ground on which the plants stand, and edging it with Lycopods, and we agree with him that the aspect both of the place and plants is agreeably improved by the alteration. Most of the plants here, with the exception of some huge specimens of Echinocacti, have been re-potted, and the condition of others, where this was unadvisable, has been carefully looked to; in short, everything is being done to increase the interest which has always attached to this singular tribe of plants.

Of real novelty there was little. It will, however, be welcome news to many to know that some hundreds of young plants of the Pampas Grass (Gynerium argenteum) have been raised here from seed sent home from Buenos Ayres. It was sown in pans in peat and loam, mixed with a little sand and leaf mould, and placed in a cold frame. Treated thus it germinated freely, and the young plants have now nearly all been potted off into 3-inch pots. Among the useful plants may be remarked an extraordinary and new species of Sanseviera, with very large *terete* leaves, from Angola. Beautiful cordage made of this has been received by the Admiralty, and there are also samples in the great "Exposition" at Paris.

Out of doors the flower beds along the sides of the main walk and in front of the Palm-house are now in very good order, considering the heavy falls of rain we have had, which has somewhat impaired their brilliancy. The Grass too is in fair condition, considering the disorder occasioned by the pulling down one large plant-house and the erection of one still larger, and at no time during this season has the garden looked better than it does now. The herbaceous ground is very attractive, and we learn that a thorough revision of the names in it is in progress, under the direction of Dr. Hooker.

Among Conifers in tubs placed out of doors we remarked some noble specimens, more especially one of Araucaria Bidwilli, which could not measure less than 10 feet in height, and as much in width. Of the New Zealand Dacrydium cupressinum there was also a noble tree, as well as of Cunninghamia lanceolata and others. It may be worthy of mention that Araucaria Cooki, which, by-the-bye, is so like the Norfolk Island Pine (A. excelsa) as to be scarcely distinguishable from it, was injured by the frost which we had on the morning of the Chiswick exhibition on the 20th of June last, and other of the more tender Conifers, even the Funereal Cypress, also suffered slightly on that occasion. It is evident that many fine Mexican and other tender Conifers, as well as the larger greenhouse shrubs generally, are suffering from want of space, especially height, and of more pot or tub room. While speaking of the effects of frost, we may mention that no fewer than 2000 Scarlet Geraniums perished by it here last winter, and other bedding plants in proportion. They had been stored in pits to which no artificial heat could be supplied, and therefore there were no means of keeping the frost from them. This would indicate the advantage of running a hot water-pipe round such places. A good span-roofed pit has, however, now been put up here with the old lights from the New Holland house, and this has been efficiently heated with hot water.

SHRUBLAND PARK, NEAR IPSWICH.—I send you a report of a grand promenade concert held in the flower gardens here on Friday, the 24th inst. The promenade was in aid of the funds of the Ipswich Hospital. Princess Mary, the Grand Duchess of Mecklenburgh, the Duchess of Cambridge, and a very numerous assemblage of nobility who were guests at Shrubland, honoured the gardens with their presence. The bands of the Grenadier and Scots Fusilier Guards were in attendance. Upwards of 7000 people entered the flower gardens by the north and south entrances; not the slightest thing occurred to mar the pleasure of the gay and exciting scene; every one seemed highly delighted, and apparently felt grateful to Sir William and Lady Middleton, who with the Royal personages were loudly cheered when retiring from the gardens. *R. G. Foggo.*

FLORICULTURE.

HOLLYHOCKS.—A beautiful exhibition of these took place at Cremorne on Thursday last, a full report of which will be given next week. Much has been said of the beauty of French Hollyhocks, but they must be fine indeed if they surpass those of English growth. According to Mr. Paul, however, they are inferior to ours on this side of the channel. He says (see Hour with the Hollyhock), "I have taken considerable pains to visit the principal French collections, to ascertain whether they were worthy of introduction to British gardens. Those of MM. Pelé and Bacot, both in the neighbourhood of Paris, are the best. They are superior to old English varieties, but inferior to the modern ones. In conversing with the French growers, it was evident that the Hollyhock had not yet taken a very high standing in their country; they had not learned to view it critically; it had not, so to speak, become a Florist's flower; and hence any variety, the *tout ensemble* of which produced a pleasing effect, was cherished, without much regard to the individual points of form, colour, substance, &c. Some of the mottled, or variegated kinds, were very pretty and distinct; but I could not discover any that would stand the test to which they would be submitted by the English florist." It is, however, to the culture of Hollyhocks and to the kind of appearance they produce

in garden scenery, that we wish at present to direct attention, and on these points we find the following excellent instructions in the second edition, just published, of the little work we have already mentioned. "The Hollyhock is a capital plant for the borders of plantations or shrubbery walks: it forms a finer distant object in such situations than the Dahlia, is less lumpish, and continues blooming to a later period of the year. Again, it may be planted to advantage in the back ground of an herbaceous border, so that the lower part of the stem is hid from view by the plants in front. In both these situations it may be planted singly, in irregular lines, or in groups of three or five. And here, perhaps, the less choice kinds are more in character than the finest, as a high state of culture is neither convenient nor expected. To be effective *en masse* is all that is looked for, and the showiest should be chosen, the hardy kinds of brilliant colours, and left to assume their natural form of growth. It is sometimes said that it is not a suitable plant for small gardens. I think, however, it may be agreeably disposed there in avenues, or in groups of three or five near the boundary, filling up in front with dwarf shrubs, herbaceous, or summer-flowering plants. It appears to me anything but difficult to effect such an arrangement with this plant as shall relieve the flatness often so tiresome in small gardens. The amateur who cultivates with the view of producing the flowers or spikes in the highest state of perfection, will probably prefer planting in square beds or rows. This is convenient for shading, and places the whole under the eye at one time. If planted in beds set them 3 feet apart; if in rows 3 feet from plant to plant, and 4 feet from row to row, that one may walk conveniently between them. In regard to the soil suitable for the Hollyhock, it happily is not over fastidious in this respect. It is a gross feeder, as its fleshy porous roots and large soft leaves, with high perspiratory powers, abundantly testify. It is found to thrive well in common garden soil, although, if a choice is at hand, a rich moist loam may be preferred. I need, perhaps, scarcely say, that a situation, airy, and freely exposed to the sun, is indispensable if we wish to carry culture to the highest pitch of success. Let us suppose the beginner to have a supply of plants in October or March, and from that period let us trace their culture. First, let us ask, "Have these plants been raised from grafts, cuttings, or from seed?" Cuttings or seedlings I think preferable, where the correctness of the latter can be guaranteed by the raiser having previously bloomed them; but as some kinds only are reproduced true from seed, it is likely the stock will consist partly of plants raised from cuttings or grafts. Whether obtained in autumn or spring, they should be at once transferred from the small pots, in which they have been kept for convenience in removal, to larger ones, using a compost of turfy loam, sand, and decomposed manure, placing them in a cold pit until they may be safely planted in the open ground in May. In preparing the ground for planting, it should be dug two-spit deep. Where spring planting is intended, throw up the earth in ridges in autumn, that it may become mellowed by the winter's frost. In all cases this practice is beneficial, but it is especially so where the soil is of close texture or retentive of moisture. A good dressing of manure, not too far decomposed, may be strewed over the soil previous to ridging, and mixed in during the operation. One advantage of this is, the manure will keep the clods light, and give the sun and air a free entry; and, farther, the soil will become more evenly impregnated with the nutritious properties of the manure as they are washed down by the rain. One point, when planting, of too great importance to be overlooked, is the state of the ground. To use a common gardening phrase, the earth should "move like an ash-heap" at the time this work is done: rather would we wait a fortnight beyond the most advantageous season, than plant when the ground is wet or clammy. The plants should be set firmly in the ground 3 feet apart, not too low, pressing the soil well round the neck with the hands or by a gentle stroke of the foot. This done, watering must be attended to, if the season be dry, using weak liquid manure, breaking the surface of the ground with a hoe the day after the water is given.

Tree Carnations: *J L.* You certainly have been furnished with wrong kinds. Among tree Carnations we have scarlet and white flakes, salmon-pink striped and mottled with crimson, bright cerise, lavender mottled with white, deep rose striped with crimson, blush white mottled with rose, scarlet, purple, and large dark selfs, and white sorts mottled with rose on the edge; but we have never heard of Picotees being among them. You will find good directions for their culture at p. 23 of the current year's volume.

SEEDLINGS.

Asters: *P & Co.* All beautiful specimens, large, broad in the petal, and very double, and in every way equal to the blooms sent us last year from France.

Verbenas: *A P.* All handsome sorts, more especially General Markham, which is large and showy, and if not too strong a grower, will make an effective bed.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—The Japan Lilies will now be coming freely into bloom, and should be neatly staked before the flowers get injured through being blown about. When removed to the conservatory they should be placed in a cool airy part of the house, shaded from bright sunshine, and liberally supplied with water, so as to preserve the beauty of the flowers as long as possible; for except they are properly cared for their beauty is apt to be but short lived. Continue to trim and regulate the growth of twiners, cutting out any shoots that have done flowering, which will tend to strengthen those left, and cause them to bloom later than would otherwise be the case. Maintain an active war against insects, and endeavour to get these thoroughly subdued before the damp cloudy weather of autumn sets in, when it will not be safe to use the engine with the same freedom as now. Also get any repairs, painting, &c., which must be done this season finished as soon as possible, for the period is fast advancing when the plants must be got into their winter quarters, and it is exceedingly inconvenient having workmen about the houses among the plants. See that Chrysanthemums are liberally supplied with water, and do not allow them to be injured for the want of staking.

FORCING DEPARTMENT.

Pineries.—Endeavour to afford plants swelling their fruit a high temperature with as little assistance from fire-heat as possible, which, as it tends to render the atmosphere dry is not conducive towards obtaining large finely swelled fruit. Therefore economise the sun's influences as much as possible, shutting up early on the afternoons of bright days after syringing the plants and moistening every available surface, and maintain a high temperature during the day, giving air sparingly. But fruit approaching maturity will be improved in flavour by a moderate use of fire-heat, a freer circulation of air, and a dry atmosphere, and where there are no means of avoiding having plants swelling their fruit and those ripening it in the same compartment, then it will be advisable to keep the atmosphere rather dry and airy while fruit is colouring, as size is of little importance unless combined with quality; but this will be best decided by employers' tastes, &c. Give careful attention to securing a fair supply of fruit for winter and spring use. Look over stock in pots frequently to make sure that it is properly supplied with water at the root, and give a liberal supply of clear strong manure-water where free vigorous growth is desired. Vineries.—Give abundance of air on all favourable opportunities where the fruit is ripening, using fire-heat rather freely when the weather is damp and cloudy, and be careful to secure a dry state of the atmosphere where the fruit is ripe and expected to hang for any length of time, using a little fire-heat when necessary to dispel damp. See that ripe fruit is secure from the depredations of wasps, if these are at all troublesome. Give every possible attention to Vines in pots intended for fruiting early next season, and endeavour to get the wood strong and thoroughly ripened as early in the autumn as possible so as to allow of giving the plants a fair season of rest. Keep Vines planted this season growing as freely as possible, and see that they are kept clear of insects, for as a house with the Vines in this stage is found very useful for growing plants, and is often used for this purpose, insects are apt to find their way off the plants upon the Vines and greatly injure them. Therefore if plants are grown under the Vines see that they are not in a state to communicate black thrips or red spider to the Vines, for unless the foliage is kept in health there will be no possibility of getting the wood well ripened, or the Vines to break strongly next season.

FLOWER GARDEN AND SHRUBBERIES.

The earliest put-in cuttings should be potted off as soon as they are sufficiently rooted to bear the operation, placing them in a close pit or frame until they get fairly established in their pots, when they should be freely exposed to the air, in order to induce short-jointed firm growth, which, with ordinary care, will be easily carried over the winter, whereas, plants got up late in autumn in a close moist atmosphere will, despite every care and attention, be largely thinned before spring. Push forward the putting in of cuttings, and get the autumn propagation out of hand as speedily as possible. Where alterations involving the removal of large trees or shrubs are in view for this autumn, the necessary arrangements for commencing them cannot be made too soon; for although large plants may be removed successfully at almost any season of the year, it can be done more cheaply, and with less risk of failure, in September than at any other period of the year.

HARDY FRUIT AND KITCHEN GARDEN.

See that the Strawberry plants for forcing are well cared for, as nothing but proper attention in preparing the plants will insure a good crop. Keep them regularly supplied with water, expose them fully to the sun, pinch off runners immediately they are perceived, and use every means to secure fine strong plants with bold crowns early in autumn, with which there will be no risk of failure next spring. Cover Morello Cherries with thin nets, to protect them from birds, without excluding the air; also, if not already done, net up some of the latest keeping Gooseberries, to afford a late supply. The Red Warrington is one of the best to hand late on the trees, and is also of good quality. Gather early Apples and Pears as they become ripe, and before the greater portion is blown down and injured. Tomatoes must be kept thin of wood, checking all shoots, and exposing the fruit to the action of the sun's rays as much as possible. Take advantage of dry days to earth up early Celery, sprinkling a good dusting of quicklime or soot about the plants in the lines, and over the surface of the ground for some distance on each side, to destroy slugs, which generally do considerable damage to Celery, especially in wet seasons. The soot or lime should be applied two or three times before soiling up the plants, at intervals of a few days, and early in the morning, before the pests have retired to their hiding-places. Take up and dry Onions that have completed their growth.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Aug. 30, 1855, as observed at the Horticultural Gardens.

August.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain.
Friday	24	12	29.876	29.725	74	40	57.0	67	62½	S.W.	.00
Satur.	25	13	30.006	29.961	73	49	61.0	68	63	S.W.	.00
Sunday	26	14	30.007	29.775	74	39	56.5	66	62	N.	.00
Mon..	27	○	29.983	29.878	77	49	63.0	65	61½	S.W.	.00
Tues.	28	16	29.858	29.777	81	44	62.5	66	61½	S.W.	.00
Wed.	29	17	30.025	29.991	75	42	58.5	67	61½	W.	.00
Thurs.	30	18	30.284	30.050	72	40	56.0	66	61	N.E.	.00
Average.			30.007	29.908	75.1	43.3	59.2	66.4	61.8		0.00

Aug. 24—Fine; very fine; cloudy.
— 25—Very fine throughout; overcast at night.
— 26—Very fine; clear and fine, with heavy dew at night.
— 27—Very fine; cloudy and fine at night.
— 28—Very fine throughout.
— 29—Uniformly overcast; clear and fine.
— 30—Very fine throughout.

Mean temperature of the week ½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Sept. 8, 1855.

Sept.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday	2	71.0	47.7	59.3	10	0.44 in.	5	5	2	1	2	5	7	2
Mon.	3	70.3	48.5	59.4	10	0.48	2	6	3	1	4	6	6	1
Tues.	4	70.3	47.7	59.0	12	0.58	5	7	4	—	4	4	3	2
Wed.	5	69.7	48.1	58.9	14	0.30	3	5	7	—	5	3	4	2
Thu	6	70.0	46.3	58.1	12	0.70	1	8	3	—	1	9	6	1
Frid.	7	69.2	48.3	58.7	15	0.55	1	4	5	2	4	9	3	1
Satur.	8	68.0	48.2	58.1	12	0.65	3	6	2	2	3	9	2	1

The highest temperature during the above period occurred on the 3d, 1835, 5th, 1818, and 7th, 1843, and 1846—therm. 83 deg.; and the lowest on the 4th and 6th, 1810—therm. 30 deg.

Notices to Correspondents.

Apricot Tree: *H O P.* There can be little doubt that in your case drought at the root is the cause of failure.‡

Araucaria: *B B.* If you cut a very narrow circular trench round the plant now, at about 3 feet from the stem, and fill the earth in again, you will be able to move the plant in October.

Books: *E P.* Don's "Hortus Cantabridgensis," or Loudon's "Hortus Britannicus," and for the "poor man" Paxton's "Cottagers' Calendar."

Brandy Cherries: *J W B.* Cut the stalks half off. Do not prick them. Fill a wide-mouthed bottle with them; then fill the bottle up with brandy. Use no sugar. Cork the bottle well, or tie the mouth over with a bladder, and store them where you like. A wine cellar is a good place.

Deodorizers: *F.* The Nettle a deodorizer! who says so?

Diseases: *H R M.* A further examination of the Justicia leaves which you have kindly forwarded shows a number of subglobose semitransparent bodies, consisting of a membrane filled with oily matter and a few granules. From the interior of this membrane creeping threads with short patent branches are produced, ultimately assuming the form of a Sporotrichum. The primary disease consists of the globules, but the mould which springs from them may ultimately produce mischief by appropriating the matter contained in the tissue of the leaf. Sulphur would probably destroy the mould, but it would have no effect upon the other bodies. *M. J. B.*

Insects: *W Y.* Your insects taken from the Pyrus Sorbus prove to be, not the Leopard, but the Goat-moth, Cossus ligniperda. See *Gard. Chron.*, 1847, p. 303, for figure and description.—*J A.* The leech-like insects on the leaves of your Cherry trees are the slimy larvæ of the black-winged Sawfly, Tenthredo (Blennocampa) Æthiops. See *Gard. Chron.*, 1842, p. 692, for figure and description. The most effectual method of destruction is to dust the leaves and grubs with lime, or syringe them with lime-water, which instantly kills them.—*J R.* The pest on your Pear trees is the same species of insect which attacks the Cherry leaves. See the last answer. *W.*

Legal Questions: *A Sub.* We are obliged to object to such inquiries. It is understood that you cannot remove shrubs and trees at the end of your tenancy, unless there is some special covenant in your lease.

Names of Fruits: *E Pike.* 1, Orange d'Eté; 3, Passe Madeleine; 4, Green Chisel.—*J E X.* The Diamond Plum, large, black, and very coarse.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Erzeroum.* 1367, Puschkinia scilloides; 302, Gladiolus Byzantinus; 13, Tulipa persica? 1358, Iris iberica; 1291, Fritillaria tulipifolia; 155 and 155 A are undoubtedly the same; 173, Anemone albana; 1365, Eremurus spectabilis; 1347, Delphinium ochroleucum; 124, Campanula Steveni, a dwarf state with scabrous ovary.—*F H S.* Nos. 1 and 2 are the same species of Epidendrum; but we do not recognise it unless it be E. bidentatum. The other plant is Acropera Loddigesi.—*G W.* The red flower is Humea elegans, a handsome ornament of out-door gardens in summer; but impatient of cold. The other we do not remember, and must examine at leisure. Where does it come from? We will notice it again next week. The Humea is too large for a window greenhouse. *J.* A variety (very slight) of Lythrum Salicaria and Palmella cruenta.

Potato Disease. We have to thank several correspondents for communications concerning the spread of this malady, or for speculations as to the cause. The first we hear of with much regret: with the latter the public has been surfeited. If we should be so fortunate as to find anything which is at the same time *both new and true*, we shall not fail to make it known.

Raspberry Plants: *Barton.* We are quite unable to form any opinion concerning your method—not having been informed what it is.

Russian Mats: *R G F* will be obliged by some of our correspondents informing him what they have found to be the best substitute for Russian mats.‡

The Hare's-foot Fern: *M A W.* This is named Davallia canariensis. It is named in allusion to the resemblance between its creeping curved hairy rhizome and a hare's foot. A similar comparison has led to the fable of the Barometz, Baranetz, or Scythian Lamb, for which see Darwin.

Yeast: *Lucy Gray* will be obliged by our correspondent who in last Number gave a recipe for making yeast stating how much is required of the yeast for 4 lbs. of flour, and if it is necessary to mix it the night before it is made into loaves.

*** As usual, many communications have been received too late and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

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The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

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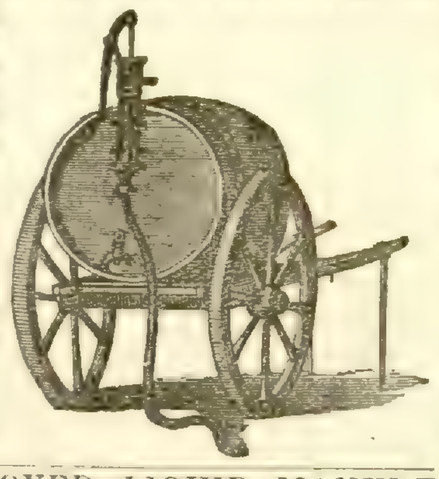

Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 6*d.* per foot.

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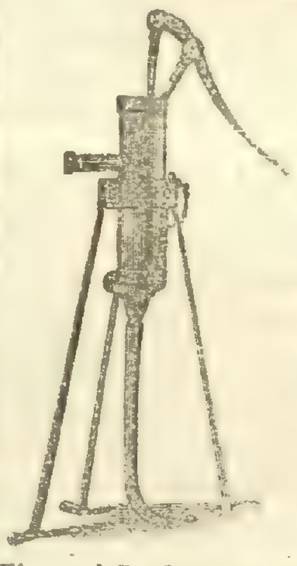

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

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May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

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2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ „	long 3 „ 3 „		1	15	0
3 „	ditto 3 „ 6 „		2	12	0
3½ „	ditto 3 „ 6 „		2	18	0
4 „	ditto 3 „ 6 „		3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto	ditto ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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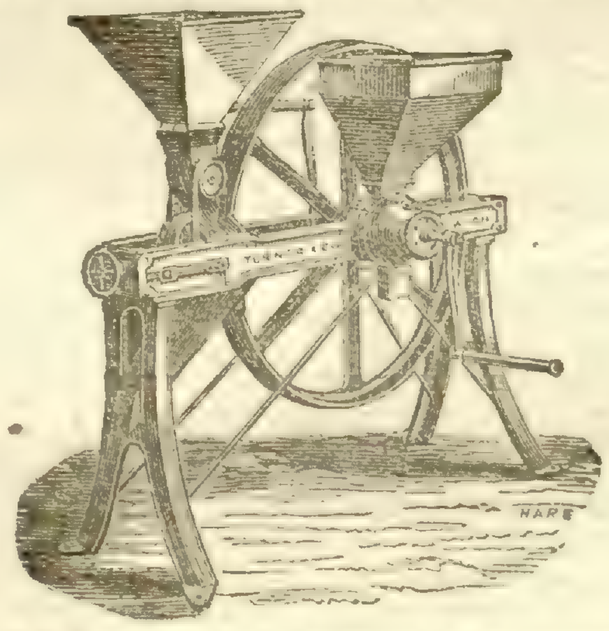
The Prize for the best LINSEED and CORN CRUSHER was awarded to E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.



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ROLLER MILLS for Crushing Linseed, Oats, Barley, Malt, &c., of various sizes, with or without Bean-mill combined. The numerous prizes awarded these Mills by the Royal and other agricultural societies, render comment on their merits unnecessary.

PATENT COMBINED GRINDING and CRUSHING MILL for reducing Barley, &c., to a fine and soft meal, and crushing Oats, Linseed, &c., is strongly recommended for the variety of purposes to which it is applicable, and for its perfect and economic working. Price 25*l.*

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FIXED STEAM-ENGINES, on the horizontal direct acting principle. Long experience and attention to the practical working of steam-engines of every variety, have enabled the manufacturers to offer these Engines as inferior to none—either for efficiency, economy, or durability—and at prices which will be found comparatively low.

Superior Portable Steam-Engines and Threshing Machines, Horse-Power Threshing Machines, Circular Saw Tables, One Horse Carts, and various other Implements, are also manufactured at the above Works.

Illustrated Price Lists sent free on application

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PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

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C. S. & Co. have paid special attention to this class of Machinery, and Fixed Barn Machinery, and from the position they have taken at the Royal and all the leading Agricultural Shows of England, flatter themselves that for efficiency, durability, and simplicity, their Engines and Machines are not surpassed by any other maker in England. All letters forwarded to the Works at Lincoln will have immediate attention; and Illustrated Catalogues forwarded to all parts of the kingdom postage free.

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J. BULLOCK AND CO., Hope Iron Works, Primrose Street, Bishopsgate, Ironfounders and manufacturers of the above; also Verandahs, Conservatories, Staircases, Iron Roofs, &c. N.B. Iron and Wire Fences fixed in all parts of the country by competent workmen, or the materials supplied painted or galvanised ready for fixing, and packed for shipment. Estimates on applicaion.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 1, 1855.

WE last year referred to a remarkable sample of Wheat in the ear sent to us by General ARBUTHNOT from Northamptonshire. We have just received from the same land samples of the same Wheat—Bristol Red—which then proved so productive, along with specimens of two other varieties—Viper Red and Tiny's Success. The first-named variety has not so perfectly developed its wonderful productiveness in the ears sent to us as it did last year, but the sort called Tiny's Success is certainly one of the most remarkable samples we have ever seen. The ears carry 20 to 24 spikelets, arranged at rather large intervals, so that the whole spike is of remarkable length, and the spikelets carrying from three to five fruitful florets, we have on each stalk upwards of 80 well-formed grains.

Mr. THOMPSON did well to point out at the meeting of the Yorkshire Agricultural Society that the difference between a good and a poor crop lay more generally in the number of grains yielded by each ear than in the number of ears standing on a given extent of ground, and it becomes therefore of the highest importance to choose sorts like the Bristol Red and Tiny's Success—such as possess originally the germs of the largest number of parts which intelligent management during the growth of the plant is able to feed and mature.

General ARBUTHNOT has grown this year 128 acres of Wheat, and on no former occasion, he tells us, have the crops been so fine. Tiny's Success was grown in a field much exposed to the north and west, and although in its immediate vicinity whole fields are beaten down, this field may be called an exception, scarcely any being laid. Many persons have been to see it, and rarely has a field of 26 acres presented a more uniform fine appearance.

We add, in reference to the crops generally throughout the country, that they have everywhere benefited by the magnificent harvest weather we are enjoying, and the quality and yield of grain will no doubt exceed the estimate which a few weeks ago had been formed of it. As an illustration of this, we insert the following, received just as we are going to press, from Mr. EDWARDS, of Framlingham, Suffolk:—

Sir,—In my return of expectations as to the crops, written before harvest, I stated the Wheat to be "various, under average." I went from this place to Bury St. Edmund's yesterday, and must report the

Wheat crop in High Suffolk to be very good indeed. My own cuts up very good, far better than I had any idea of.

Since our remarks were published on the chlorotised Oats received from Lancashire, our correspondent has kindly forwarded additional examples, with the promise of ripe seed on some future opportunity. He confirms our conjecture that the original evil was in the seed, inasmuch as the ridges in the very same field, which grew from some of his own seed, are quite free from disease; and a further proof is afforded by the fact that in two distant fields of very different texture, and at a considerable distance, the crop is similarly affected. We shall hope to make an experiment with the seed of some of the diseased plants next year, in order to ascertain positively whether the affection is capable of being propagated by sowing. Should this notion be confirmed, there will be increased ground for carefulness in the selection of seed, either from ocular inspection of the crop when growing, or from confidence in the character of the party from whom it is purchased. *M. J. B.*

In further considering the causes of Fertility and Barrenness in Soils, we come to the second division of the subject, which relates to what science has ascertained upon the subject. And in the outset we may remark that *its* teachings, too, are the result of observation. It is too much the custom among farmers to regard science as synonymous with mere speculation and theory, than which nothing can be more unjust to scientific men. Science is just classified experience—the results of observation arranged, or rather the truth which those results when so ordered illustrate and exhibit. That which is true in any particular case becomes *a truth* when in a multitude of cases it has been observed, and scientific truth may certainly be depended on so much the more for the wide basis of observed facts on which it rests. When the chemist states that phosphoric acid and ammonia are essential to the fertility of a soil, it is no mere fancy that he is teaching; but a truth which he has laboriously ascertained by the chemical examination of a multitude of natural soils, and the agricultural trial of many artificial ones. And so, with every other truth in agricultural chemistry, and in the geology and botany of agriculture—in its mechanics too—men who are acquainted with these several sciences may be trusted by the farmer as teaching *facts*, when announcing scientific truth. If they go beyond this, and recommend a course of practice in the field because it appears to them to be founded upon this truth, then indeed they may be criticised and doubted. The truth they teach, no doubt, will ultimately influence practice; but *they* may not know how to make it influential: all they have to do is to teach it independently, and let cultivators find out how to use it. Farmers will turn it to a profit ultimately; but this, in order to be safe, must be a work of time, and in the commencement of the process it is a wise determination to attack the giant *difficulty* with the usual sling and stone, rather than trust to weapons that have not been proved. Just as certainly, however, as "sling and stone" have disappeared before the exhibition of better modes and instruments of warfare, must former practice yield where it is faulty before those truths which chemists teach, and which must make themselves felt whether in the inert soil or in the living plant and animal.

Perhaps the best way of communicating what science teaches in reference to fertility in soils is to consider (1), plants as beings needing food under particular circumstances as to temperature and moisture; and (2), soils as a combination of laboratory, warehouse, and machine, by means of which this food is manufactured, stored, and administered. It is the latter division of the subject especially that we wish to discuss. Fertility depends, according to this illustration of it, upon the ability of a soil to manufacture, store, and administer food for plants, and to these points respectively we shall in future articles address ourselves.

LOIS WEEDON WHEAT GROWING.

To the Editor of the Agricultural Gazette.

Dear Sir,—I very willingly comply with your request for a report "with especial reference to the standing of my Wheat crops and the brightness of the straw."

That on the four acre gravel piece, carried on the 18th, was excellent, the straw perfectly bright and upstanding, with a slight bend from the weight of the ears from west to east; and you will judge of the quality of the Wheat from the accompanying sample of Lammas and Bristol red.

The crop on the home piece of clay land, carried to-day, was the best and heaviest I have ever had, standing so thick that it shut out the intervals, and seemed to cover the whole land; not at all down, with the exception of a few yards, which did not touch the ground, and the straw quite bright. The ears I send for your inspection are a very fair specimen of the whole; and they are so bulky and well filled that I think you will agree with me and many others that we are not far wrong in estimating the yield at 6 quarters.

A report like this, without an ulterior object, would be valueless and obtrusive. But I conceive there are circumstances connected with these results which are generally interesting and conclusive as to more than one point in this theory of growing Wheat.

The leading point in this theory is, that if with a deepened and pulverised fallow interval a due supply of mineral food be provided for the Wheat plant, the atmosphere will abundantly provide the organic portion; and that clays and loams generally, though not universally, do afford this requisite mineral supply.

The safe theory, further, is, that on soils which do not contain all or any of the mineral constituents of the Wheat plant, every such deficiency must be supplied from without.

When these conditions are fulfilled, the experience of many years has taught me that, for this plan of growing Wheat, land cannot be too much exhausted of its organic elements of fertility; exhausted, that is, of previous manuring, or of that which—so to speak—naturally exists in the soil from the decay of animal or vegetable matter.

And now to the proof. I have said that the crop on the clay land was the best and heaviest I have ever had—I may even add that it was the best crop of Wheat I ever saw anywhere. And yet it was the tenth crop in succession on a great portion on the same acre of land, that original portion being the best of the whole. Why was it the best crop? Simply because the land (referring to the original piece) was comparatively exhausted in the sense I spoke of before. And if the proof be required, not from mere reasoning, but from fact, it is here: The fresh portion of this piece of land had been manured for a root crop two years ago, and—on an after thought—was added at that time to the original piece and sown with Wheat; and all that fresh portion was fearfully blighted last year, and the original portion was comparatively clean. Comparatively clean, for, as a further confirmation of the fact, out of the triple rows the two outer lines which had readier access into the intervals were damaged, while each middle row was sound. That the original piece was blighted at all was owing to the sort of Wheat grown (Payne's bearded Wheat) which is unsuited to this deep mode of cultivation on clays and heavy loams.

With regard to this year's crop on the clay, the line was distinctly marked to a foot between the old portion and the new, the former being bright as fine gold, while the latter was late and discoloured, and only saved from mildew by the extraordinary season.

The 4-acre piece of light gravelly loam is thoroughly exhausted of organic food, having now borne five crops in succession after Wheat in the ordinary four-course rotation. Finding it deficient also in a due supply of mineral ingredients for the Wheat, a portion of it before the last sowing was dressed with clay. On the portion not dressed with clay, the crop was weak, and that portion of the field I am now supplying with mineral food by similar means.

As a proof that a due supply of mineral substances was wanting in that portion, and that mineral food alone was required, I must here state that the field being foul with a century's filth, I pared the stubble before sowing and burnt it together with the weeds on that particular portion; and wherever the heaps were burnt, necessarily leaving on those spots more ashes than were spread elsewhere, there the crop was the heaviest and highest by 6 or 8 inches.

As a proof that exhausted land is best suited to this plan of growing Wheat, being a security, to a great extent, against mildew and a bad sample, there is the fact that the whole crop of this original 4-acre piece, both last year and this, was good in straw and in grain, while an added piece of about two chain, which had been manured for roots, and was in Wheat two years ago, was badly mildewed the first year, and barely escaped it this.

I have presumed to make public these details of growing Wheat without manure, because I cannot consider it otherwise than a matter of some public interest. For if out of an arable farm, say of 400 acres, a farmer could thus grow Wheat with profit year after year successively, without manure, on the same hundred acres; if he could thus grow his most paying crop, which, on this plan, neither requires nor will bear to be forced, he would have his great want supplied, and be enabled to dress the remainder of his farm more abundantly for those other crops, which will not only bear it, but, in most cases, absolutely require it. *S. Smith, Lois Weedon, August* 28.

A SKETCH OF PIPE IRRIGATION IN SCOTLAND, June, 1855.

(*Continued from p.* 571).

The next farm steading we visited was in Argyleshire. Taking a passage in the steamer which leaves every morning at 7 o'clock, we sailed down the Clyde, and through the Kyles of Bute to Ardrishaig, on Loch Fyne, arriving about noon. To those who do not know this locality, we can only say that the earlier they make themselves acquainted with it the better. The whole sail is a continued series of pictures, mountain, wood, and water, in endless variety of combination. At Ardrishaig, which is a small village situated at the entrance of the Crinan Canal, we found a first-rate hotel and posting establishment. The farm we visited is situated about six miles from the inn, on the high road to Oban. It is called Killinochanoch, and is the property of Neil Malcolm, Esq., of Poltalloch, who has a very large landed property in the neighbourhood, and whose splendid mansion, Calton Mhor, occupies a conspicuous place in the distant landscape. The farm steading is placed on a rising ground at the base of a hill, and immediately in front of it a vast extent of flat peat Moss is being gradually brought into cultivation. We believe it was principally with a view to the profitable improvement of this Moss that the experiment of the liquid manure system was commenced. We found two houses or byres for feeding cattle, and one house for sheep, all of which, together with the stables, house, and other farm buildings and dung courts, are drained into a small tank, and from thence the liquid is pumped up by water-power into a large reservoir on the hill above to an elevation of 100 feet. There are here two tanks, one for a reservoir, the other a mixing tank. A large reservoir of water fed by a small mountain stream at a still higher level completes the arrangement. From the mixing tank the liquid is conveyed in 3-inch iron pipes to the fields on the flat below by gravitation, and there applied by means of gutta percha 2-inch hose. There are at present about 67 acres under pipes. The whole of the buildings are built of stone and lime, with slated roofs and cast iron posts, and appear most substantial, without any needless expense in ornament or finish. The cattle sheds labour under the disadvantage of not having been built originally for the liquid system, but are, nevertheless, very complete. One byre 34 feet wide contained 66 head of cattle, in two rows of 33. A feeding passage ran along the centre 6 feet 6 inches wide, paved with asphalte. The cattle are tied in single stalls 3 feet wide, with a stone division between each 3 inches thick, 3 feet 6 inches high, and 3 feet long. The length of the stall is 8 feet from the feeding passage to the heel drain, including the feeding trough, which is 2 feet wide and 1 foot 2 inches high. The first 3 feet of pavement in the stalls are of brick, the next as far as the heel drain are of asphalte, but above this last is a flooring of wood, in spars 4 inches wide, 3 inches thick, and 2 inches apart, with a 9-inch drop into the heel drain, which is 2 feet wide, and the manure passage, which is 4 feet 4 inches wide. We observed that the feeding trough, which is formed of asphalte in a semicylindrical shape, runs the whole length of the byre without division, and the water is let in by means of a tap at one end. The supply of water is ample, and the pressure being great, the whole is kept very clean by means of hose and jet.

Another byre contained tyings for 66 cattle on the same principle. These sheds are ventilated by means of sliding wooden spars, which run along the whole of one side, and there are no roof lights; consequently, when the slides are closed there is but little light. This was done purposely, to keep the beasts quiet, and keep away flies in summer.

There was a house for feeding sheep, which seemed very well adapted to its purpose, and at the same time not expensive. The roof was slated, and supported on iron posts, 100 feet long by 20 feet wide; the side walls, 7 feet high, were built with stone and lime to the height of 3 feet, and above that were carried up to the eaves with wooden spars 6 inches wide and 1 inch thick, one half of which is made to slide in a groove on small iron wheels, so as to admit or exclude light and air at pleasure, the same as in the cattle house. A feeding passage 4 feet wide ran down the centre, paved with asphalte, and on either side were the sheep pens, raised 30 inches from the ground, and floored with wooden spars 1 inch apart, so that all the manure passed through the openings on to the asphalte pavement beneath, which sloped towards an open gutter bounding the feeding passage for its whole length, from thence passing through iron gratings into a drain beneath, which again conveyed the whole into the receiving tank. A feeding trough ran along the whole front of the pens next to the feeding passage, and a smaller one with a continuous stream of water at the back. The rails which kept the sheep in the pens in front were ingeniously contrived, by being hung on pivots to move from the front to the back of the feeding trough, in order to be able to fill or to clean them without interruption from the sheep. The whole cost of this building was not more than 100*l.* or about 1*l.* the running foot. The feeding of sheep had been most successful. We were sorry to observe that the late winter had been too severe for the Italian Rye-grass, the greater part had been destroyed—a thing always to be apprehended in severe winters from the character of the soil, improved peat Moss, which from its spongy nature, although admirably adapted for the Italian Grass in summer by imbibing large quantities of the liquid manure, is on this very account ill adapted for it in the winter, the young plant being apt to be thrown out of the ground by the expansion and contraction consequent upon the alternations of severe frost and warm sunshine. This system being here only in its infancy no pecuniary results can be given, but so far as it went last year on a small scale it paid sufficiently well to justify its extension, and it is now being carried out on a much larger scale. The tanks are constructed to contain 275,000 gallons, and there are houses for cattle and sheep, besides horses, &c.

Our next visit was to an establishment which we had heard much spoken of in the same county. It is situated in the island of Luing on the property of the Marquis of Breadalbane, by whom it has been called

into existence. As a liberal and patriotic nobleman his lordship's name has been often before the public, and if we require a proof that the enterprise and perseverance of the Scottish character is not confined to any one class, that it belongs to the peer as well as to the peasant, we have it here. Who could have expected to find in one of the isles of the Hebrides the latest improvements in agriculture carried out on a grand scale, and in a first-rate style of excellence? Yet here it is to be seen in full operation.

Through the polite attention of Alexander Pitcairn, Esq., factor and general manager on the Breadalbane estates in that part of Argyleshire, we were conveyed by means of an open boat and four oars from Ardmaddy House, one of the marquis's residences, to the Island of Luing, where we landed at the small village and harbour of Toberonochy. A straight road leads from the landing place to the farm buildings, which are situated on a rising ground a few hundred yards distant. The appearance of the large mass of substantial stone buildings, with the neat slated roofs, formed a strong contrast to the black houses or huts of the inhabitants which we passed at the landing-place. The space occupied by the buildings and courts is 231 feet by 219 feet, affording accommodation for 12 horses, 192 bullocks, 600 sheep, and 100 pigs, all under cover, and all drained of their liquid manure into a large reservoir or tank, containing 360,000 gallons. The tank is subterranean, built of stone, with groined arches resting upon two rows of pillars. It is immediately under one of the dung courts. The whole arrangements of the cattle house are admirable. The animals are all in one large apartment, ranged in 8 rows of 24 each, running from north to south. Along the northern end of the rows runs a wide platform or passage paved with dressed Dundee stone, with a door at each end; entering by the door at the eastern end, the rows of cattle run at right angles on the left hand, and on the right is a range of doors opening from the various compartments for food, dry or steamed. Here also is situated the steam-engine, with threshing, bruising, and chaff-cutting machines, forcing-pump, &c. On the left hand side of the stone passage or platform, and on the same level, between every 2 rows of cattle, run the 4 feeding passages, likewise paved with dressed stone, 5 feet 4 inches wide. On each side of this feeding passage is a wooden division, 4 feet high, finished on the top with a broad ledge or rail. In the wooden partition are 12 doors on each side, answering to the number of stalls for the cattle, which are tied up in pairs. These doors slide sideways on small wheels, and through them the food is passed into the feeding mangers from wheeled trucks. The manger is 2 feet wide, and has two divisions, leaving a large central compartment for the food opposite the sliding door, and giving a separate water trough in the corner before each beast. A sliding handle, like a bell-pull, in the passage opens a valve, and admits or excludes the water in each watering-trough, as required. The stalls are separated by divisions of solid stone, 4 inches thick and 3 feet 9 inches long. Into this are inserted the iron rods, which are upright, or rather diagonal, sloping backwards at top, on which traverse the rings of the chain with which the cattle are tied up.

Besides these four feeding passages, there are six passages running in the same direction, behind the cattle, for removing the manure and taking them in or out. These are made at a level 16 inches lower than the feeders, and entered by the stone steps from the platform at the north end, but terminated by doors at the south, leading into the manure courts outside, on the same level. These passages are 9 feet wide, except of course those at each end of the building, which are only half this width, being used only for a single row of stalls each.

The stalls for each pair of oxen are 6 feet 6 inches wide, and 7 feet long, or 9 feet including the manger. They are paved with asphalte and have a slope from the manger to the drain for their droppings, which is 18 inches wide, and 6 inches deep next the cattle, and 3 inches next the passage, which is also floored with asphalte. The difference of level between the passages is a good arrangement; it enables one to see the cattle to advantage before and behind, and gives less trouble to the person feeding. The side walls are 10 feet high, the roofs open, the woodwork planed and varnished, supported on hollow cast-iron pillars, down the last of which, nearest the wall, the rain from the gutters empties itself. There are large square ventilators at certain distances along the roof ridge, with louvre boarding sides. There is also a large stone built air pipe under each feeding passage, with grated openings at regular distances communicating with the external air by means of a grating at the end of the air pipe, which can be closed at pleasure. There is an abundant supply of water, which by means of flexible hose can be carried to any part of the building. The stalls and passages are kept constantly washed and clean, the water running away into the liquid manure tank. The cattle were chiefly 3-year old bullocks of the short-horned breed, and well on in condition, perhaps rather drier in the hair and more confined in their bowels than they should be; but as the Turnips were just over, and the Grass not yet come in, the time was most unfavourable for seeing them. They were getting steamed chaff with a little corn prepared in large iron steam vessels containing 180 gallons each, of which there were 12. The spare steam from the engine is made use of for this purpose, passing by pipes through a false bottom perforated with small holes. The heavy iron lids are hinged on the side next the wall, and hauled up by means of blocks and tackle; when down they are secured by thumb-screws, and rendered steam-tight by an ingenious insertion of a leaden circle where the rim of the boiler meets the lid, an invention of the factor, Mr. Pitcairn; perhaps balance weights and pulleys would be better for raising and lowering the lids, as saving time and labour. A tap is inserted in the boiler between the false and real bottoms, by which the liquor from the steamed food can be drawn off at pleasure. The steam-engine is of 10-horse power, and consumes half a ton of coal per diem. The diameter of the force-pump is 6 inches, the length of stroke 18 inches. The suction-pipe from the tank is 5 inches in diameter, and for two lengths of the discharge pipe it is the same; it then diminishes for 100 feet to 4 inches, then to $3\frac{1}{2}$, and after this to 3, and lastly to $2\frac{1}{2}$. The hydrants in the fields are 100 yards apart. The pipes are at present laid for 55 acres, which are all under Italian Rye-grass for the first time. Cutting commenced on the 18th of June, after which the irrigation commenced for the first time, and is continued as the Grass is cut. There are 75 acres under Turnip for winter keep. The stable is as perfect as possible: the walls 10 feet high, roof open woodwork planed and varnished as in the bullock house, width of building 19 feet, depth of stall 8 feet, width 6 feet 6 inches, iron foot-posts, asphalte pavement, grooved to prevent slipping, drained into tank. In the wall behind each pair of stalls is a recess, in which is a corn bin below and a cupboard above. The weekly allowance of corn is put into the bin, the lid of which cannot open when the cupboard above is locked. In the cupboard each carter has his shovels, broom, and all the etcetera of the stable. The sheep-house we did not approve of; it appeared to us to want free circulation of air. The sheep pens being in two tiers or rows one above the other, are too much crowded; the foul air does not escape as rapidly as it should, nor is there sufficient fresh air admitted for the number of sheep; in fact the experience of one season only in which it had been tried had been sufficient to prove the necessity of having fewer animals and more air. No animals thrive better in houses than sheep, if properly treated, but a certain degree of space and abundance of fresh air seem absolutely necessary to keep them in health.

The pig-house had not been fitted up, and it is probable that it will be put to some other use, as the expense of feeding these animals on a farm of this description and in such a situation is greater than the profit. We can give no results of the liquid system here, as the pipes were only laying down and much of the land only just drained and brought into regular cultivation; but everything seemed to be done in the most perfect manner, and in the mild and moist climate of the western highlands there can be little doubt as to the large crops of succulent food which may be obtained. The island of Luing is about 6 miles long by 2 miles broad, but not more than a third of it is in the Marquis's occupation at present. The acreage of the whole island is about 3500 acres, of which in 1848 about 1200 were arable. The land in the Marquis's occupation consists of about 936 acres, of which in 1848 there were 377 acres arable; now, however, the arable land has been much increased by draining and cultivation.

It may give some idea of the spirited manner in which these improvements are carried out if we give the dimensions of the great leading cut or open water-course into which all the land is drained. Its average depth is from 9 to 10 feet; width at the top, from 9 to 12 feet; width at the bottom, 3 feet. It is paved with slate flags where there is no rock, and built up the sides with stone for 3 feet for security. It has two branches running up separate valleys, and the whole length is above $1\frac{1}{2}$ mile, or 2891 yards exactly. The soil is fertile, but much requires to be done yet before it can be brought into good farming condition. Too much praise cannot be given to the noble proprietor for this magnificent attempt to bring out the capabilities of these western islands, and so afford natural employment to the population by the development of their county's resources. *J. A. C., of Argyle.*

(To be continued.)

WATER MEADOWS.

By Sir Stafford Henry Northcote, Bart.

[From the Journal of the Bath and West of England Agricultural Society.]

The system upon which water meadows have been laid out and managed in the West of England is generally admitted to be superior to those followed in other parts of the country. The skill displayed in bringing water upon lands on the hill-side at very high levels, and the economy of the process when compared with the costly systems adopted in some other counties, have excited the warm admiration of competent judges.* So highly have the advantages of water meadows been valued in some of the southern counties that as much as 30*l.*, 40*l.*, or 50*l.* per acre has in many cases been expended in forming them, by casting the whole surface of the ground into high regular ridges, with gutters along their crests and along the valleys between them, the former to bring the water on, the latter to carry it off when it has overflowed the slopes of the ridges. In our own districts it has long been the practice to water our land in a manner quite as efficacious as that to which we have alluded, but at an outlay of little more than one-tenth of that of our neighbours. This we have done by means of our catch-meadows, which have commonly been laid out at an expense not exceeding 4*l.* or 5*l.* per acre.

The principle adopted in making a catch-meadow is that of leading the water along the natural inclination of the ground in such manner as to keep it at the highest possible level along the field which is to be watered, and cutting gutters, one below the other, to catch the water as it flows down over the land, and to distribute it regularly over each successive portion. In some cases the process is to cut a number of branches to take the water from the carriage gutter in various directions, and to direct the stream into one or other of them by means of "stops," according to the part of the field which it is desired to irrigate. When the supply of water is insufficient to cover the whole surface of the land, one portion is watered at a time, which is of course a less satisfactory and a more expensive process than watering the whole at once, inasmuch as the water cannot be laid on all over the ground while it is at its best, *i. e.* after the first heavy autumn rains; and the necessity of frequently altering the stops and attending to the progress of the water as it is brought off one piece and on another involves additional labour.

It is therefore obvious that any improvement in the system of irrigation which tends to effect an economy of water must be of considerable importance; and if such improvement can be accomplished by a system which renders the original formation and periodical restoration of the water meadow simpler and cheaper, it is well worthy of general adoption.

The credit of having introduced into practice a system answering to this description belongs to Mr. Bickford, of Crediton, to whose improvements atten ion has already been called in the "Journal of the Royal Agricultural Society."† His plan is as follows:—

A carriage-gutter is in the first place cut in the usual manner along the line of the highest ground. The inclination of this gutter should, if possible, be such as to give a fall of 2 inches in 4 land-yards, or 1 in 396; but if such a fall cannot be obtained, a much less rapid one will answer the purpose. The gutter should be about 1 foot wide, and about 6 inches deep. These dimensions, which are much less than those usually observed upon the old system, should be gradually contracted as the gutter approaches its termination, so that it may at last die into the ground. Below this carriage-gutter, and in the same direction with it, are cut other and smaller gutters, which are perfectly level from end to end, and which successively catch the water as it trickles over the land immediately above them, collect it, and when they are full, begin to overflow at all points at once, and so to distribute it evenly over the next section.‡ In laying out these gutters the use of the spirit-level is superseded by a very simple and convenient instrument. It is composed of three pieces of wood, put together in the form of the letter A, standing about 5 feet high, and having a span of about 4 feet at the bottom. A plumb-line is suspended from the top, and a notch is made in the centre of the cross-piece, so that when the two feet stand on the same level the line crosses the notch. The gutterer rests one of the feet upon the ground, and, using this as a pivot, turns the whole round like a pair of compasses till he finds by the plumb-line that the two feet stand even; he then marks the spot where the first foot stood, and, using the other foot as a pivot, finds the next level spot in the same manner, and so proceeds with great rapidity to trace out a level line through the field, marking each spot as he goes on. When this is accomplished, he takes the gutter-plough (an important part of the system), and proceeds to cut a furrow of about 4 inches wide, and about 3 or 4 inches deep, along the line of the marks, thus producing a small level gutter, quite as large as is necessary for catching and distributing the water, but not large enough to be an annoyance to the occupier of the land by upsetting his hay-carts, throwing down his horses, or serving as a pit-fall for his lambs.

The old-fashioned gutters, besides being open to the objections just alluded to, have the further disadvantage of absorbing a large quantity of water, rendering it difficult or impossible to irrigate with a small stream, retaining a considerable proportion of the wealth of the water in the shape of a deposit of sediment at the bottom, and promoting the growth of coarse, sedgy Grasses along their margin. They are, moreover, more expensive both to cut in the first instance, and to clean out in each succeeding year, than the small Bickford gutters, which are rapidly and easily cut with the plough every year, and therefore require no cleaning.

The plough which is made use of for this purpose is simply an adaptation of the common horse-hoe, the feet of the latter being replaced by two upright knives in front, and a furrow-slicer § behind. The two knives

* See Mr. Pusey's interesting article "On the Theory and Practice of Water Meadows" in the "Journal of the Royal Agricultural Society," No. 24, 1849, vol. x.

† Any one who wishes to try this plan may be strongly advised to read attentively the two articles in the "Journal of the Royal Agricultural Society," written respectively by Sir Stafford Northcote and Mr. Bickford. They have the advantage of being illustrated by several good plans and diagrams. The articles are in vol. xiii., pp. 162 and 172.

‡ The practical purpose of the level gutters is explained in the text with perfect clearness, and, theoretically speaking, in order to fulfil the purpose indicated they should be perfectly level. In practice, however, it will be found advisable to give and take a little—that is to drop the gutters over the hills or projecting surfaces, and to raise them in the valleys or receding surfaces,—in the first case to insure the water covering the hills; in the second, in order to prevent its lingering in the hollows.

§ The knives answer to the coulter of a plough, and cut the sides of the gutter. The furrow-slicer performs the part of the fin, or the wing as it is sometimes called, that is, it severs the furrow-slice from the ground on its under surface. I have found

are set at a distance of 6 inches from one another, but may be screwed up closer, so as to leave a space of but 4 inches. Their distance regulates the width of the gutter, which they mark out and cut vertically as the plough proceeds; the furrow-slicer, which is placed behind them, and which is fixed horizontally, scooping out the sod at the proper depth. The instrument is easily managed; and when once a meadow has been laid out, a common labourer can keep it in order, by cutting every year fresh gutters by the side of the old ones, and filling up the latter with the earth he takes out. This is better than cleaning out the old gutters, as it checks the tendency to the production of aquatic Grasses. The expense of cutting the fresh gutters, the level having once been ascertained, does not amount to more than 1*s.* an acre; whereas the cleaning out of old gutters with the ordinary tools cost at least 2*s.* The price of the plough is 3*l.*

The expense of laying out a water-meadow on Mr. Bickford's principles must of course in great measure depend upon the character of the ground. From the best information I can obtain I am led to believe that it may be reckoned on the average at about 1*l.* an acre. On the land in my own occupation to which I have applied the system the cost has been somewhat less, but then the land had been previously watered in the old way, and portions of the former carriage-gutters were available for the new work. The gutterer whom I employed (Mr. Edward Ellis, of Newton St. Cyres) has since had a good deal of occupation in laying out meadows in various parts of England, and I understand from him that he considers 1*l.* an acre a fair average price. Looking to the great benefit conferred upon the land by the process, the cost must be regarded as wholly insignificant. In many cases the whole outlay may be recovered in a single year.

EXPERIMENTAL GRASS FARMING.

I propose to make an experiment in the management of Grass land, on which I shall be glad to see the observations of yourself or of such of your intelligent readers and correspondents as may choose to offer their opinions in anticipation of the result. I propose to make the experiment on a field of 6 imperial acres, which is in pasture, and is now rented at 16*l.*, from May 1 to November 1; land of good quality, and well drained. The experiment is as follows:—

1st. To apply in the spring 4 cwt. of the best guano in solution and mixture with 5000 gallons of water per acre; the irrigation to be made by means of iron pipes laid underground, and by hose and jet, from a tank placed 80 feet above the level of the field, so that the water and guano will be distributed with facility and efficiency under that pressure. The irrigation will be regulated as to time by the season and weather; but it is proposed to apply it in February or March—perhaps early in April; and if the month of May should be very dry, there will be no difficulty in applying by the same means 5000 gallons of pure water per acre.

2d. It is proposed to take a crop of hay, which ought to be of the finest quality, and it is expected that it will come early, and probably be cut and made by the middle of June.

3d. As soon as the hay can be moved to a corner of the field, it is intended again to apply 4 cwt. of guano in solution and mixture, as before, with 5000 gallons of water per acre; and again to allow the Grass to grow for a hay crop, which it is supposed may be cut for the second time about the time of harvest in the fields around, and saved as well as the adjacent crops, more or less well, according to the season. The question is, Whether the powerful manuring will not produce a second fine crop, and what, under such treatment, may be the probable value of the two crops? Is it too much to expect that the first crop of hay may be worth 12*l.*, and the second 8*l.* per acre—together, 20*l.* per acre?

4th. If such should be the result, how will the account stand at the end of the first and second years? for it is proposed to pursue the system, and to apply the same treatment in consecutive years, in the belief that the benefits, such as they may be, will proceed in an increasing ratio. The expense will be as follows:—

Cost of tank, pipes and hose		£65	0	0
24 cwt. of guano—1st crop } about		30	0	0
" " 2d crop }				
Total cost 1st year		95	0	0
If the crop should be worth, 1st crop ...	12*l.*			
2d crop ...	8*l.*			
Per acre ...	20*l.*			
Six acres ...	6			
	120*l.* ...	120	0	0
Surplus of produce over expenditure, 1st year ...		£25	0	0

This presents a remarkable result, and at all events so great a margin as to make the experiment at least a safe one; and if it be assumed that the expenditure is repaid in the *first* year, the second year would stand thus, and no interest is charged because the capital is repaid.

Value of two crops, as before	£120	0	0
Cost of guano, or an equivalent quantity of nitrate of soda for one of the dressings ...	30	0	0
Net surplus produce	£90	0	0
Or 15*l.* per acre.			

Again there is a fair margin to meet a short-

it answers my purpose best to separate the two actions; to fit the knives or coulters into the iron cross-piece of Newington's hand cultivator, which one man can easily draw by hand; the piece of turf is then severed on its under surface by a narrow sharp shovel.

coming in produce or such casualties as are incident to all rural affairs, but it is difficult to see that there is any great practical fallacy in the system, and if so there seems to be proved that in very positive fact additional value may be conferred on land in Grass, the large money transactions which are attendant on arable cultivation being avoided.

If such advantages are attainable where irrigation can be effected by the power of gravitation, the power of steam could be afforded where water could be had, but where the shape of the country did not admit of gravitation.

If the system were pursued for a series of years, it is believed that a beneficial effect would arise from the application of a small quantity of lime, were it only 10 bushels per acre, to be washed in in the same manner, the expense only 7*s.* or 8*s.* per acre. It would be easy to test the utility of such an application on a small scale before it was resorted to. *A. B.*

Home Correspondence.

Potato Growing.—I think the following plan of growing Potatoes more simple and judicious than the details given by your correspondent at page 522. In autumn a piece of stubble land is thoroughly cleaned, then towards the end of November green or fresh fold-yard manure is applied broadcast, at the rate of 8 to 10 tons per acre. The land is then immediately ploughed a good depth, and thus it remains exposed to the free agency of the atmosphere till spring, when the surface is occasionally stirred by the grubber, harrows, &c., so as to keep the weeds in check. At the time of planting we are content with having the land lightly ribbed over, say at a depth of about 4 inches; then at this depth, and about 27 inches apart, we place the tubers whole 10 inches asunder, and before covering them a sprinkling of Peruvian guano is strewed along with the tubers, at the rate of 10 stone per acre. By having recourse to this treatment and selecting a tolerably dry soil there would be no fear of success as regards the growth of the Potato, and I am not very sure too that this practice has not something to do with diminishing the amount of disease. I have tried the use of lime by sprinkling it at this season along the tops of the drills and found no good effects from it any more than where this was not done. There can be no use in giving the expenses attending the above plan, as every practical man will be able to estimate that in his own locality. *P. Deane.*

Dairy Statistics.—If the following is of any use to you, or any of your readers, you are welcome to it. I had in the year

		£	s.	d.
1847 ... 4 cows, average value of produce per cow		13	15	6
1848 ... 7	" "	13	10	0
1849 ... 8	" "	13	18	6
1850 ... 6	" "	12	9	6
1851 ... 7	" "	13	3	9
1852 ... 8	" "	12	16	2½
1853 ... 8	" "	13	0	0
1854 ... 8	" "	11	7	11½

The produce was made up thus:—

	£	s.	d.
8041¾ lbs of butter	404	12	2
51 calves	118	3	6
Milk and cream	203	6	3½

The cows were about half of them Alderney, the others short-horns. They were not highly fed; they eat Cabbages or Turnips while being milked, and neither buttermilk nor cream was injured. *G. F. D.* [Many thanks. Pray tell us what method was employed when the cows fed on Cabbages and Turnips to keep the butter sweet.]

Yorkshire Crops.—I spent the whole of last week in journeying through the North and West Ridings of Yorkshire, and over a great portion of the midland counties, and the following is the result of a very attentive examination of the corn and root crops seen during my progress. The Wheat crop is in general a very bulky one; but on good land it is everywhere much lodged—rust is seen here and there, though not to any very great extent—but a fine heavy bright crop is nowhere to be seen. From my own observation, aided by the opinion of the most intelligent farmers I have met with, I can have no doubt but the Wheat sample of this year will prove generally a very mixed one; on all the fields where the crops were much and early lodged, many of the ears have a deaf or imperfectly filled side, and hence, when the grain is rubbed from the chaff it either gives very few grains, or one half of them are long and lean and will yield nothing but bran when ground. Oats are a full average crop, and although a good deal lodged are not nearly so much damaged as Wheat. Barley is also an average crop, a good deal down, and will not I fear prove a very bright sample. Potatoes are a good crop, but the disease is showing itself unmistakeably, and in my opinion will extend itself as the Potato becomes more generally ripe. Turnips are on the whole a late and, I think, a very inferior crop, and in many places nearly lost in weeds. The harvest will be general in Yorkshire this week; in the midlands most of the Oats and Barley will be in the stackyard in this month, but very little Wheat will be secured so soon. *Roaldus.*

Oilcake.—If the information that I have lately received be correct, the adulteration of oilcake is being carried on to an unprecedented extent, and the profit on it throws guano making into the shade. A neighbour of mine has been in the habit of buying the sweepings and rubbish of different mills, sifting it, and fatting old sows with the dust and dirt, selling what whole corn he gets to the miller, broken corn to his neighbours for their chickens, Charlock and other seeds to an oil-mill, at 1*s.* per bushel, to be mixed with and sold for an article which costs seven times as much. But now his occupation is gone, the cake-makers have overbid him, and are using this precious compound, which costs under 1*l.* per ton, in making cake for which we have to pay 12*l.* and 13*l.* per ton. The manager of a mill told my informant that they were bid more money for it. A carman overhearing, says, "That is to go into Essex, we often send 100 tons a week." The first part of my communication is perfectly correct, and can be proved. The latter is not so well authenticated, but if such practices are going on, I thought you the most likely party to ferret it out; the majority of agriculturists look upon you as their protector and instructor. If such practices are going on, it would put the parties on their guard. *B* ——.

Crops in Lincolnshire Fens.—Our harvest being so very late I did not think I could give a correct report before the 11th. The Wheat crop on peaty soils will be very deficient, I think the worst I have ever known; and upon the fine soils in this parish and neighbourhood all that is laid, of which there is a considerable quantity, the quality will be very bad, 4 lbs. to 5 lbs. per bushel less than last year. *T. Aitken, near Spalding.*

Potato Culture.—I should like to solicit your opinion on a plan which I adopted in the cultivation of early field Potatoes called Shaws. I prepared my ground in the usual way—ridge culture. The usual practice in my neighbourhood is to set the plants 9 inches apart, the rows being 27 to 30 inches wide. I resolved to plant 27 inches by 27 inches, for in this way I felt that light and heat would more readily be transmitted to the plant; and I moreover split that portion of the ridged earth between the plants so as to afford a convex surface to the space it occupied. In this way I expected to insure a larger surface exposed to the sun's heat. As it is important to get the Potatoes early to market, I expected the bine of my plants would not be unnaturally forced, and that the energies of the plant would be directed to the formation of tubers. The result has not met my expectation; not that I consider it has failed under the conditions. I had a very large growth of bine, and my Potato plants suffered under the fangs of the wireworm. What I wish to elicit is, in dealing with the Potato plant which is the best plan to insure a growth of tuber? Can it be attained by wide or close planting? *A. B., August* 27.

Wheat Midge.—I observe in the Agricultural part of last week's *Chronicle* an inquiry about the Wheat midge. I may mention that one field I saw was much affected with it, and I have heard by the remarks of others that it is to be found in some of the fields round here, but I think not to any great extent generally; but would it not be well for those whose corn is affected to take great care at the time of threshing out to burn all the chaff and dust winnowed from this corn—that they might destroy it while in its chrysalis state and thereby benefit themselves and neighbours another year? *J. Divers, Maidstone.*

Alderney Cow.—As you have thought the statement mentioned in my letter worth noticing (see p. 540), I will add that within the last few days the quantity of butter made from the milk of the cow has been ascertained, viz., 7 oz. from one day's milk, being 4½ quarts. We make butter after the Devonshire manner. *J. G.*

Foreign Correspondence.

Dairy Produce.—Observing that you have lately taken up this subject in the *Agricultural Gazette*, and that you are desirous of obtaining as much information as possible thereupon, I am induced to offer you the result of my experience on this side of the Atlantic. I have for several years kept an exact register of all my dairy produce in the following manner. The milk of each cow is measured morning and evening, and the quantity entered by me in a book under the name of the cow; in different columns I enter the quantity of milk furnished to the house, consumed by calves, &c.; the remainder is what is to be made into butter. I make butter (in the Devonshire manner—scalding the cream) three times a week in summer, and twice a week in winter. At the end of each week I register the quantity of milk made into butter, the quantity of butter made, and the number of quarts of milk it has taken to make a pound of butter; at the end of the month I enter in another book the average number of quarts of milk it has taken to make a pound of butter during the month, and when the twelve months are completed, the average number for the whole year. I am thus enabled to show at any moment what quantity of milk was required to make a pound of butter in any given week; I can also tell from my book what the food of the cows was during the week, or the average for any month, and finally the average for the year. I find that in 1854 the average for the year was 8½ quarts of milk to make a pound of butter; the smallest quantity was 6 quarts in the first week of May, and the greatest 9½ quarts in the month of August. My cows are not extraordinary milkers; they are a cross between the short-horn and Ayrshire. I find they fatten easily, being always kept in good condition. I have no difficulty in disposing of them to the butcher when I no longer want them for the dairy. Their food in summer is Clover, Vetches, and Indian Corn cut green. We can rarely get a bite of Grass before the 20th of May, and our Clover is ready to cut about the second week in June; the Vetches come between the two; cuttings

of Clover and the Indian Corn, which does well in our hot and dry summers, gives green food up to the middle of October. With the exception of a fortnight before the first Clover is ready to cut, the cows are kept in the stable, being turned out for about an hour every morning. The food in winter is hay, chaff, roots, and about 3 lbs. of the meal of Indian Corn, Beans, Peas, or Barley, given in a warm drink to the cows giving milk. After repeated experiments I find that I obtain the greatest quantity of butter from the smallest quantity of milk. When the food is hay, Bean-meal, and Parsnips, I have invariably found the quantity of butter to increase with Parsnips; with Turnips, Mangold Wurzel, and Carrots, I have not found much difference. Red Carrots give the butter rather a deeper colour during winter; in other respects I have not found them superior to Mangold Wurzel. Turnips give a taste to the butter which prevents their being made much use of. *T. Edmund Campbell, President of the Board of Agriculture of Lower Canada, St. Hilaire, Canada East.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

THE deferred trial of the Reaping-machines selected at the Carlisle Meeting took place at Abbot's Leigh, near Bristol, on Wednesday, the 29th of August, in the presence of Mr. MILES, M.P. (President of the Royal Agricultural Society of England at the Carlisle Meeting), Sir Stafford Henry Northcote, Bart., M.P. (Steward of Cattle at Lincoln), Sir Archibald Keppel Macdonald, Bart. (Steward Elect of Implements at Lincoln), Mr. Dyke Acland (one of the Editors of the Journal), Mr. Raymond Barker (Vice-President and Chairman of Finance), Mr. Brandreth Gibbs (Honorary Director of the Show), Mr. Granger (Judge of Field Implements), Mr. Hamond (Steward of Implements at Exeter, Lewes, Gloucester, and Lincoln), Mr. Fisher Hobbs (Steward of Implements at Lewes, Gloucester, Lincoln, and Carlisle), Mr. Hudson (Secretary of the Society), Mr. Huskinson (Judge of Field Implements), and Mr. Clare Sewell Read (Judge of Field Implements); including, among the exhibitors, Mr. Burgess, Mr. Alfred Crosskill, Mr. Dray, Mr. Key, Mr. Peter Love, Mr. Mackenzie, Mr. Palmer, and Mr. Suttie; and among the general company Sir John Key, Bart., Captain Gordon, Mr. Philip Miles, Mr. Knatchbull, Mr. Pitman, and Mr. George Pope.

Mr. Miles having directed every arrangement to be made for the supply of his own horses to work the machines, and for the order in which successive crops of Wheat and Barley, under the most favourable as well as under the most unfavourable circumstances for reaping, were to be cut, the competing machines were set to work simultaneously, under the orders of Mr. Fisher Hobbs, and the inspection and critical examination of the judges. No pains were spared by every one engaged to render the trial in every respect perfect and satisfactory. This result was finally attained, and it is probable that no reaping-machines in this or any other country have ever been more severely, impartially, or satisfactorily tested than in the trial at Abbot's Leigh.

I. PRIZES OFFERED.—For the best Reaping-machine, 30*l.*; for the second-best ditto, 20*l.*

SPECIAL CONDITION.—In adjudicating on the Reaping-machines, the attention of the Judges will be particularly called to the best mode of delivery.

II. JUDGES' AWARDS:—

"Leigh Court, August 29, 1855.

"We award the 1st Prize of 30*l.*, for the best reaping machine, to Stand 68, Article No. 1, Messrs. Burgess & Key, for M'Cormick's reaper improved by themselves.—The 2d Prize of 20*l.*, for the second best ditto, to Stand 79, Article No. 3, Mr. John Palmer, of Stockton-on-Tees, for Forbush's reaper improved by the exhibitor.—We highly commend Stand No. 34, Article No. 3, Messrs. Dray & Co., for Hussey's reaper improved by themselves.

"T. W. GRANGER.
"THOMAS HUSKINSON.
"CLARE SEWELL READ."

III. EXHIBITORS' CATALOGUE-SPECIFICATIONS.

Stand No. 68. Burgess & Key, of 103, Newgate Street, London. Article No 1. (New Implement).—A reaping machine; invented by Cyrus Hall McCormick, of Chicago, United States of America, improved and manufactured by the exhibitors. It received the Council Medal at the Great Exhibition in 1851; the Prize Medal at the Yorkshire Show in 1852, the award of the Driffield Farmers' Club; first prize of the Durham County Meeting at Sunderland; and the award of the jury appointed at the nine days' trials of reapers at the Royal Agricultural College at Cirencester, and after the test of four years it is found to be a machine which will cut under any circumstances when desirable. It is so constructed and of such materials that it is not liable to get out of repair, and is easy draught for two horses, and when required can be repaired by any carpenter and blacksmith on a farm without sending it to the manufacturer. The only objection to this reaper was owing to the fact that our crops being much heavier than those grown in America (where some thousands of these machines have been in work for the last 14 years), it is found in some cases to be very hard work for the man to rake the cut crop off the machine; and this objection we believe we have completely overcome by means of our patent Archimedian screw platform, which, without adding to the draught, delivers the cut crop off the side of the machine in a perfect swathe. The only labour, therefore, now required to work this machine for a day on level land is two horses and a lad of about 15 to drive; on hilly land the draught is, of course, more, and a change of horses would be required. Price 35 guineas.

Stand No. 79. John Palmer, of Stockton-on-Tees, Durham. Article No. 3.—(New implement.)—A combined reaping and mowing machine; invented by Forbush & Co., of Buffalo, United States; improved by the exhibitor; and manufactured by Forbush & Co., and the exhibitor. This machine is especially adapted for small occupations, and it is also suitable for large occupiers, when it is thought desirable to deliver the corn in sheaves. The driving works of the machine are so arranged as to prevent a side-draught or a tendency in the machine to run into the uncut corn. There is no pressure upon the horses, the machine being evenly balanced. The knife cuts from the centre of the driving-wheel, hence the stubble is left the same length on the ridge as in the furrow. From the peculiar construction of the guards, and the pierced or skeleton knife, the tendency to choke is completely overcome. By the application of Palmer's roller platform, the heaviest and longest crops are delivered with ease. By using the radiating roller platform, Barley, Oats, and short Wheat are delivered at the side, out of the track of the horses. Price, with back platform, 25*l.*; with radiating platform, 5*l.* extra.

Stand No. 34. William Dray & Co., of Swan Lane, Upper Thames Street, London. Article No. 3.—A patent Reaping-machine; invented by Obed Hussey, of the United States, improved and manufactured by the exhibitors. This machine has considerable advantages over that known as "Hussey's Reaper," and received the prize of the Royal Agricultural Society at Lincoln, 1854, in addition to those of the Bath and West of England, the Stirling, the Burnley, and North Lancashire, all in 1854; thus gaining every prize for which it competed. Its great advantages consist in its having a tilting-platform, which enables the attendant to deliver the grain with the greatest ease; a patent skeleton knife, instead of the solid blade in the original, which effectually prevents choking; has a leverage for raising and lowering the cut, and a wheel to relieve the horses of the weight of the machine. Price 25*l.*

Thus has concluded a trial which will be memorable in its immediate effects, and in the future results to which it will doubtless lead. The report of the stewards and judges, in reference to its details, along with the report of Mr. Fairburn (communicated to Mr. Miles), on the trial of reaping-machines at Paris, will appear in the next part of the Journal of the Society. In the meantime, Messrs. Garrett & Son, of Saxmundham, and Messrs. Ransomes & Sims, of Ipswich, have entered into arrangements to manufacture for Messrs. Burgess & Key the reaping-machine which has gained the first prize at Abbot's Leigh.

The splendid character of the weather, the beauty of the scenery, and the truly English hospitality displayed at Leigh Court; the excellence of the trial, and the satisfaction and generous rivalry only of the competing exhibitors, were all of them gratifying circumstances, which appropriately terminated Mr. Miles's presidency of the Royal Agricultural Society of England, in the same spirit and with the same decided effect as had marked its progress in every transaction from the commencement.

ANERLEY POULTRY SHOW.—A show of Poultry, remarkable for both the quality and quantity of the birds exhibited, has been held during the past week in the Anerley Gardens. Many of the classes were remarkably well illustrated, and deserved a larger number of visitors and admirers than, from the state of the grounds when we were in them, there appeared to be. There were thirty-six pens of Spanish of admirable quality—Mr. Davies, of Hounslow, and Mr. Plummer, of Brislington, being the most successful of their exhibitors. One hundred pens illustrated the merits of the Dorking breed in its several varieties of coloured, speckled, and white; and among the successful owners were Mr. Davies, Mr. Lewry, of Crawley, Mr. Elgar, of Reigate, Mr. Antil, of Portsea, and others.

There were no fewer than 122 pens of Cochins—cinnamon and buff, grouse and partridge feathered, and white—and a very remarkable show they made. Mr. Fookes, of Whitechurch; Mr. Fairlie, of Cheveley Park; Rev. G. F. Hodson, of Bridgewater; Mrs. Ford, of Ide; Mr. Chase, of Birmingham; and Mrs. Herbert, of Powick, carrying off the first prizes in the several classes. The Game classes, Polands and Hamburghs, were represented respectively by 80, 60, and 101 pens:—Messrs. Monsey (Norwich), Matthew (Stowmarket), Titterton (Birmingham), Shield (Sydenham), and Strange (Bedford), being the 1st prize holders for Game fowl. Messrs. Marshall (Taunton), Worrall (Liverpool), Dixon (Bradford), Fellowes (Norwich), Burnett (Lancashire), Archer (Malvern) and Botham (Slough), succeeding among the Hamburghs; and Messrs. Adkins, of Edgbaston, Battye, of Holmfirth, Bush, of Bath, Dixon, of Bradford, and Symonds, of Milborne, St. Andrew's, being prize-holders among the Polands.

We have not space to specify the other classes. The geese were remarkably fine, and the ducks were good too. The accommodation for them was defective, owing to want of shelter from the extreme heat of the day. The silver cups for the best collections of poultry were awarded to Mr. Davies and Mr. Botham. The show generally was one of the best opportunities we have seen of studying leisurely and satisfactorily the merits of the different breeds and specimens. This we regret was owing partly to the comparatively small number of visitors present.

Miscellaneous.

Value of Farm Labour.—Labour being one of the most serious items of expenditure on a farm, ought to be the subject of the most accurate calculation, and may be divided into two parts—manual and team-work. My object is, therefore, to endeavour to arrive at some fixed value of each as a basis for calculating the expense of cultivating the different crops, thereby enabling the farmer to judge for himself, with very little trouble, how he stands with regard to profit and loss in his different fields. Bayldon, on "Rents and Tillages," devotes his fifth chapter to the same subject; but the rapid strides of agriculture, and the various customs prevailing in the different counties, render a work adapted to one of very little use to those residing in another. The principle Bayldon assumes is that the daily wages of a labouring man are equal to the price of a peck of Wheat. This I believe will be found incorrect. As far as this county is concerned, for the last seven years it would stand as follows:—

	Average per bushel.	Daily wages.
1847	8*s.* 8¼*d.* ...	2*s.* 2*d.*
1848	6 3½ ...	1 7
1849	5 6½ ...	1 4½
1850	5 0½ ...	1 3
1851	4 9½ ...	1 2½
1852	5 1 ...	1 3¼
1853	6 8 ...	1 8

The principle of laying down any stated rule to calculate wages on cannot be carried out: the very fact of the loss of the Potato crop would in itself overthrow any calculation adapted to previous years. In 1853 we have the nearest approach to the average of our wages: 1*s.* 10*d.* per day may, I think, be stated as the average of ploughman's wages, or 1*s.* 8*d.* per day and cider, and other labourers 1*s.* 6*d.* per day and cider, or 1*s.* 9*d.* altogether; the ploughman's additional 2*d.* per day being fairly earned by his extra hours in the care of horses. For the sake of calculation, therefore, and from past experience, I think I may fairly adopt the 1*s.* 10*d.* and 1*s.* 9*d.* per day as the value of manual labour. With regard to the value of team-work, a very different calculation requires to be made. In order to estimate it, we must presume that the horse is healthy and in good condition, and that he works 300 days in the year, allowing 65 days' rest for Sundays, bad weather, and other causes; we must calculate, however, on 365 days' keep, as he is getting the same food all that time. Now horses, when kept on dry food, cannot, to do them justice, have less than 1 peck of Oats and 21 lbs. of hay per day. During the last seven years Oats have averaged a trifle more than 2*s.* 6*d.* per bushel, but I will take them at 2*s.* 9*d.* per bushel; consequently the horse's consumption, being 1¾ bushels per week, will be equal in value to 4*s.* 10*d.* and his hay (good clover), at 2*l.* 10*s.* per ton, to 3*s.* 3*d.* On this he is supposed to be kept 30 weeks; his keep, therefore, during that time would amount to about 12*l.*; the remaining 22 weeks he will be on green food, and eat as near as possible in value about 5*s.* per week, or for the 22 weeks 5*l.* 10*s.*

30 weeks' keep, at say 8*s.* per week	£12	0	0
22 weeks' keep, at 5*s.* per week...	5	10	0
	£17	10	0

or 6*s.* 9*d.* a week as the cost of a horse's keep. No doubt some will differ from me in this calculation, for, as a general rule, more horses are kept at a less than at a higher rate; still they must allow it is not more than the necessary food to keep a good horse in fair working condition. In this county farms are not generally large, and 200 acres may be taken as a fair size to make calculations on; and for such an estate the following horses and implements would be required:—

7 horses, at 30*l.* each	£210	0	0
3 carts, at 8*l.* each	24	0	0
3 wains, at 8*l.* each	24	0	0
3 ploughs, at 3*l.* each	9	0	0
2 pair harrows, at 3*l.* each	6	0	0
Drag harrow	4	0	0
Seed harrow	2	0	0
Rollers	7	0	0
Grubber	7	0	0
Clodcrusher	18	0	0
Turnip hoe	3	0	0
Turnip drill	10	0	0
Corn drill	10	0	0
Grass seed sowing machine	3	0	0
Hay turner	10	0	0
Thrashing machine and chaff cutter	50	0	0
Winnowing machine	8	0	0
Turnip cutter	8	0	0
Harness (both cart and plough)	20	0	0
Bags	8	0	0
Sundries (rakes, weights, &c.)...	9	0	0
	£450	0	0

The sum of 450*l.* is, therefore, to be divided amongst seven horses, leaving about 64*l.* 5*s.* average capital per horse. Fifteen per cent. may be considered as a fair average for wear, tear, and repairs, and should be added to the 64*l.* 5*s.*, making the average capital per horse 73*l.* 17*s.* From this it appears that on a farm of 200 acres, to carry on the different farming operations, the sum of 73*l.* 17*s.* per horse is required, and as the farmer has not the means of turning over his capital so quickly as the merchant or manufacturer, another 15 per cent. on his sunk capital should be added. The value of horse and man having already been fixed, it will stand as follows:—

Keep of two horses, 13*s.* 6*d.* per week, or per working day	2*s.*	3*d.*
Man's wages	1	10
15 per cent. on sunk capital, at 73*l.* 17*s.* for each horse ...	1	5
	5	6

giving 5*s.* 6*d.* as the value per day of a man and pair of horses working on a farm, after allowing the farmer a fair interest for wear, tear, and sunk capital. I trust these few calculations will be received as the endeavours of one whose aim is to draw the attention of agriculturists to the necessity of not confining themselves to the mere knowledge of the gross expenses of the working of their farms generally, and to aid them in becoming more intimate with the detailed cost of their crops in each field, thereby placing them in a position to see the more readily what each crop should sell at, to return a fair remuneration for their outlay. *Journal of the Bath and West of England Agricultural Society.*

Calendar of Operations.

AUGUST.

SOUTH HANTS, *Aug.* 29.—As the Wheat falls before the sickle the quality and probable yield become more apparent and certain. The early and strong winds from the westward during the blooming of the Wheat has affected the Wheat plant much

there are large and numerous areas of the Wheat plant black and dingy in colour, and this more apparent in the more backward breadths of Wheat, but even in the more advanced the straw was coated its full length with red dust (rust) which covered the reaper's face and arms with "a coppery hue;" the ears contained many shrunk corns, and the character of the sample denotes there will be much "tailing" when it becomes to be "managed." "Horny berries" are numerous. Some fields are blighted in patches, and in other parts of the country the whole field presents both in the ear and the straw a dirty, smutty, dingy character. Indeed, smut prevails in certain districts also. The yield of straw is bulky, but the generality of the ears are small, and unevenly filled, and a non-agriculturist driving along the roads of this county might imagine by the sight of the numerous "aisles" (?) it was a fine crop; but they are like the painted sepulchres of the Jews—the inside not so fair as the outside. Black bearded Wheat is to be seen in parts of Hants, but though it yields largely the flour it produces is rough and gritty, and not so sweet as other varieties. The size and bulk of straw is immense. All the early-sown Barley looks well, and the bulk is great, but on middling soils after Wheat (a common Hampshire rotation), the yield is poor. The land bears an analogy to stock; the well-fed and clean animal thrives and escapes many disasters from weather, but the ill-fed are poor, mangy and miserable. So on poor soils or lands lacking manure the crop is poor and light, and more liable by reason of its backwardness to all the ills of blight, smut, and a poor sample as well as yield. Hampshire farmers are late sowers in autumn and spring; but of late years some chosen few follow the golden rule, "When the land is ready the husbandman ought to be ready likewise." But this terrestrial "diagnosis" falls to the lot only of the minority of farmers. Oats are very fine in some districts. The black Tartar on the strong loams of this county are the most prolific as well as the most profitable. We may here observe that there is a general complaint of all the cereal crops, that the straw this year cuts "so dead and dull," and that more "flags" hang about the Wheat stems. All this is true enough, as I narrowly observe all agricultural phenomena from season to season. Peas are not a good crop. Beans an average one. Potatoes sadly diseased, and the tubers very decayed, even when as large as your fist, and six or eight together so on a single root. Swedes mend rapidly, and the late storms have set them onwards in growth. All kinds of cattle look well, and there will soon be plenty of food for them. What the yield of Wheat per acre is this harvest we have yet seen no samples. Much was cut green, and housed green in the straw. As usual all scrambling to make ricks, and the boast how many they have each made when they meet in the market-room; the condition of their ricks seems to be a secondary consideration. *R. S. T., Hants.*

Wester Ross, *August* 20.—Turnip hoeing is all but concluded, and the work has been greatly better performed these last 10 days than it could have been in the previous month. The ground was so thoroughly saturated with the incessant rain that our hoeing, grubbing, and harrowing had only the effect of shifting the weeds from one place to another, the continuous growth being little interrupted. Our Turnips promise well, and as somewhat beyond an average breadth has been sown, the likelihood is, that of this useful commodity there will be no lack. Never did the Potatoes present a gayer or more promising appearance, yet there is not a field in this neighbourhood without unmistakeable symptoms of the damaging presence of that dire disease, and still we have hopes. Its progress is slow, and should that slow step be continued for a fortnight, the earlier kinds at least would be well matured, and what would be saved would be fit for food. Last year the remnant that was saved was well nigh useless. Since dry weather set in, the fields have very hurriedly whitened to the harvest. Last year we commenced operations on the 28th; this year we will commence about the 24th. A few fields in this neighbourhood have been already cut. The crop, on the whole, is rather under an average, and the quantity of straw is greatly less than last year. Wheat on deep well cultivated soils is heavy, but on fields such as this, blight and rust to some extent prevail. On lighter soils Wheat is thin and stinted, but will yield a good sample. Barley that found in spring a suitable seed bed, dry and well pulverised, is luxuriant, but where the soil turned over wet and unbroken, the braird came up thin and starved, and is now an inferior crop. Oats are, with few exceptional fields, light throughout the north. Peas and Beans are grown to a very limited extent in this neighbourhood. Continued high prices have given an additional stimulus to agriculture in the north. Improvements of all kinds, such as trenching, draining, liming, high manuring, are carried on with great spirit, and in this way some security is had against coming days of adversity. Wages of servants and labourers are still on the increase, and although provisions of all sorts are high, no whisper of dissatisfaction is heard.

Notices to Correspondents.

Agricultural Education: *Subscriber*. For Turnip husbandry the best districts of Northumberland, Berwickshire, or East Lothian; for arable dairy husbandry, Ayrshire, Galloway, &c.; for pasture dairy farming, Cheshire, Gloucestershire; for general good arable management, North Lincolnshire, Norfolk, &c. But every county can boast of instances of energetic and intelligent management, in which the circumstances of soil, climate, markets, &c., are perfectly taken advantage of. It is hardly likely, though, that a young man would be admitted without a premium either received or paid on to such farms. He might obtain work and receive wages, and would then be responsible—or he might obtain instruction and pay a premium, and the farmer would then be responsible for his improvement. We doubt if any energetic farmer would be satisfied with any other arrangement than such as would involve distinct services on one side or the other and payment for the same.

Barm: *A B* says C. Clifton has furnished us a method of preparing barm. Will he be so kind as to acquaint us with the quantity of barm required to a given weight of flour? How does he renew his stock when the preparation is exhausted? Does he resort to the original process of manufacture?

Cheese: *J J B.* You will hinder your cheese becoming mity by having new boards for them to lie on, and by keeping them continually clean.

Lime, &c.: *J T B.* We should be disposed to apply at least 40 bushels per acre, now or a month before seed time. The ten bushels per acre as an annual application is proper only after the dressing which a soil needs at first, if it has not been dressed for a long time. If you have arable land you had better apply the compost to it, and let the water improve your irrigated meadow, which it will do unassisted. Pull Thistles, but trust to the water to kill Daisy, Rib-grass, &c.

Pillars of Rickstand: *J G R.* An ordinary height is 30 inches, and the cap overhanging about 10 inches. But mice are carried in the sheaves from the field, and rats seldom fail of having an opportunity once in the season of getting in by something lying carelessly against the rick.

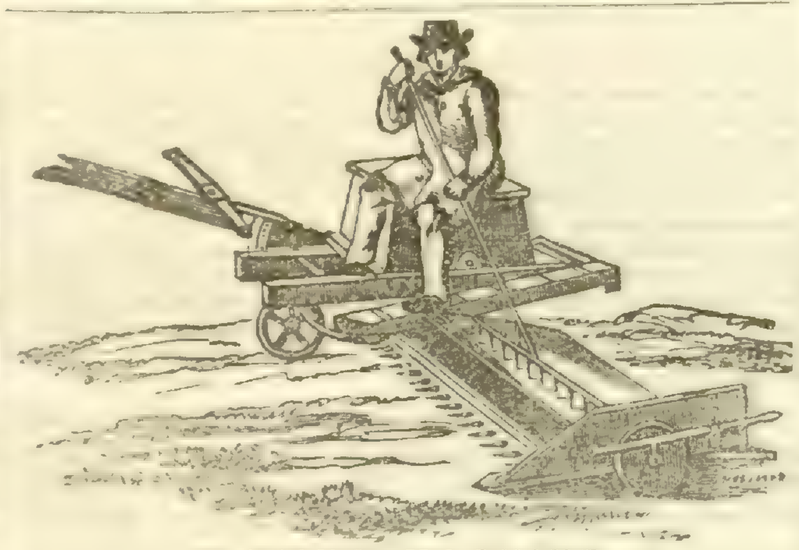
Straw with Green Clover: *Birkenhead* asks for any instances in which this practice has given satisfaction. Mix layers in the rick according to your judgment of the quantity of sap remaining in the Clover. Of course the Clover is dried somewhat, though too green to put together by itself.

Wheat Sowing: *P H.* Loamy soil well drained, in the county of Kent, not exposed to the attacks of game, vermin, &c., may be well seeded with 5 pecks of Wheat per acre, in rows at intervals of 1 foot. In the experiments at Whitfield farm all the intervals from 6 inches to 2 feet, viz., 6, 9, 12, &c., were tried, and the 12-inch interval was most productive.

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
Warranted Good by the Makers.

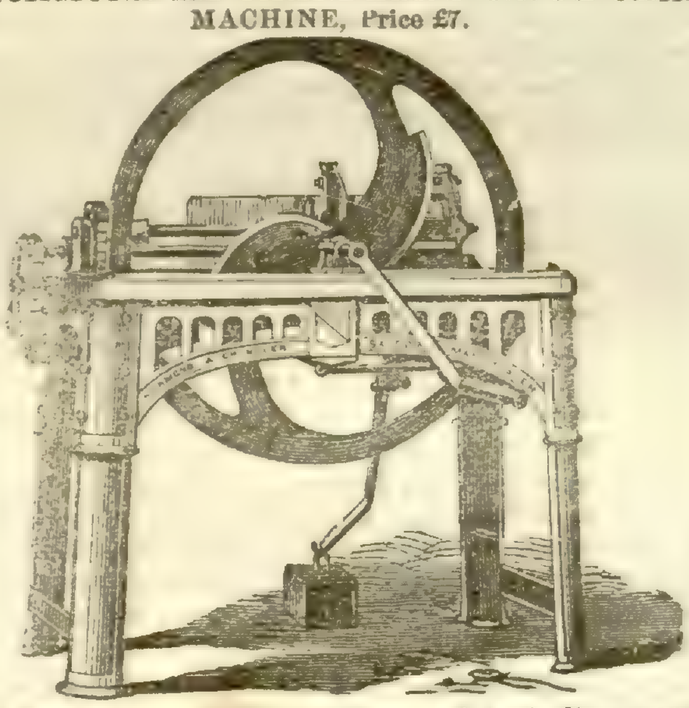
JOSEPH MAPPIN and BROTHERS, Queen's Cutlery Works, Sheffield; and 37, Moorgate Street, London.
Drawings forwarded by post.



REAPING MACHINE.
WILLIAM DRAY and CO.'S Book of Testimonials from purchasers of their Patent Reaping Machines, also a List of Prizes, and full description will be forwarded, post free, on application to
Wm. Dray & Co., Swan Lane, Upper Thames Street, London.

SCYTHES.—Boyd's Patent Self-Adjusting Scythes may be had of the Manufacturers, William Dray & Co., Swan Lane, London, and of all Ironmongers and Seedsmen.
A liberal allowance to the trade.

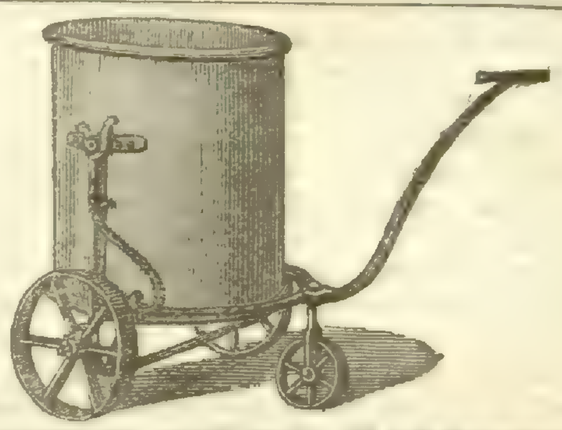
ROYAL AGRICULTURAL SOCIETY OF ENGLAND.
MEETING AT CARLISLE, JULY, 1855.
First Prize Awarded to
RICHMOND and CHANDLER'S No. 3 B CHAFF MACHINE, Price £7.



All the various modern Implements of Agriculture manufactured on the most scientific and improved principles, suitable for home use and exportation.—Address, Richmond & Chandler, Salford, Manchester; and 32, South John Street, Liverpool.
Catalogues Gratis.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.
MESSRS. BURGESS and KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps

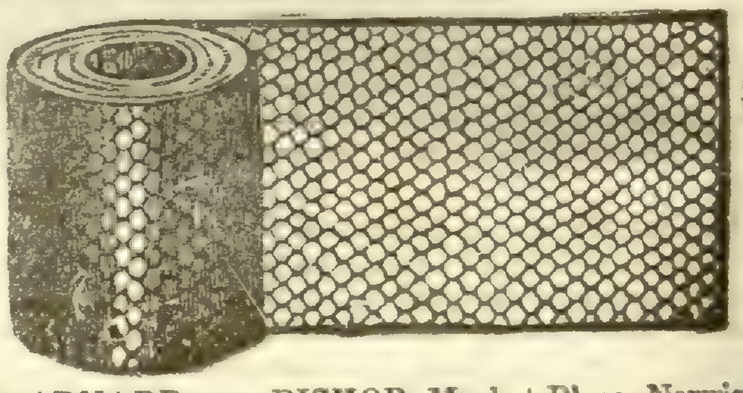
"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
THE BEST PROTECTOR from the HEAT of the SUN.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of Elisha Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."



WARNER'S SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)
Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l.* 3*s.*
Manufactured by
John Warner & Sons, 8, Crescent, Jewin Street, London.

JOHN WARNER AND SONS,
Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
With Warner's Registered Spreader,
is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons. Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

GALVANISED WIRE GAME NETTING,
6*d.* per Yard, 2 Feet Wide.

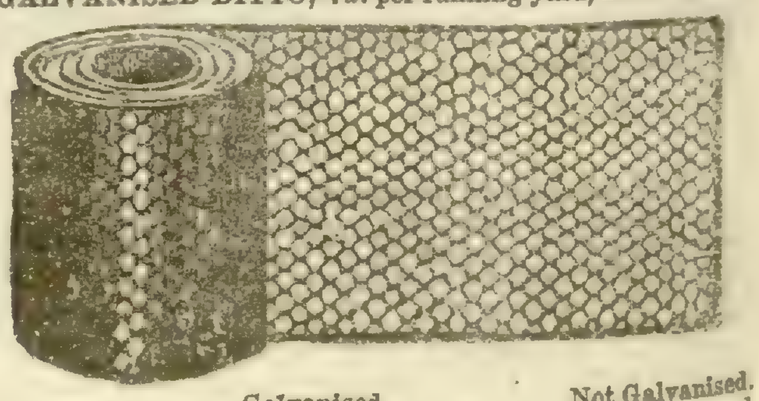


BARNARD and BISHOP, Market Place, Norwich in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	6*d.* per yd.	4½*d.* per yd.
2-inch " strong, do.	8 "	6 "
2-inch " intermediate, do.	9½ "	7½ "
2-inch " extra strong, do.	11 "	9 "
1⅝-inch " 24 inches wide	7 "	5½ "
1⅝-inch " strong, do.	9 "	7 "
1⅝-inch " intermediate, do.	11 "	9 "
1⅝-inch " extra strong, do.	13 "	11 "

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.
Strong Galvanised Poultry Netting, 10*d.* per yard; Galvanised Sparrow-proof Netting for Pheasantries, 3*d.* per square foot.
Illustrated Catalogues and Patterns forwarded by post. Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

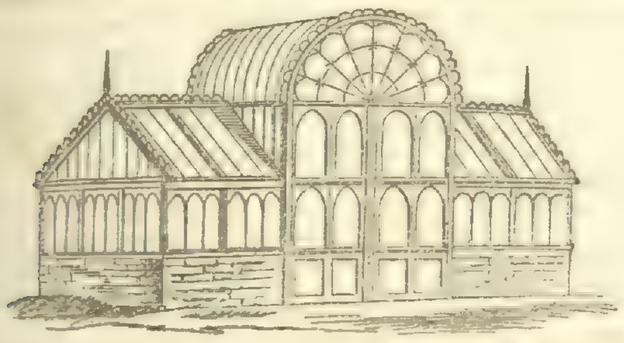
CHEAP WIRE, GAME, & POULTRY NETTING
5*d.* per running yard.
GALVANISED DITTO, 7*d.* per running yard, 2 feet wide.



	Galvanised.	Not Galvanised.
24 in. wide, 2 in. mesh,	7*d.* per yard.	5*d.* per yard
30 in. " 2 in. "	9*d.* "	6½*d.* "
36 in. " 2 in. "	10½*d.* "	7½*d.* "
48 in. " 2 in. "	1*s.* 2*d.* "	10*d.* "

Sparrow Proof Netting, Galvanised, 3*d.* per square foot, made to any size for the same proportionate price. This article was shown at the Great Exhibition, where it was so much admired for its light and durable appearance, and acknowledged to be the cheapest and best article of the kind ever offered. Extra strong Wire Sheep Netting, 3 feet high, 1*s.* 6*d.* and 2*s.* 3*d.* per yard. Also every description of Flower Trainers, Dahlia Rods, Garden Arches, Bordering, Flower Stands, Tying Wire, Trellis Work, Invisible Wire Fencing, Hurdles, and every description of Wire Work for Horticultural purposes.—Illustrated Catalogues of Patterns forwarded, post free, on application to T. H. Fox, City of London Wire Work and Iron Fence Manufactory, 44, Skinner Street, and 6 and 8, Snow Hill, London.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the strongest, best, and cheapest safeguards extant.
Milner's Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47a, Moorgate Street, City.
Circulars free by post.



J. OVERALL begs to inform the Nobility, Gentry, Nurserymen, and others requiring Horticultural Buildings, Lights, and Frames, that by intrusting their orders to him, they may depend upon first-class workmanship and good materials at the most economical prices.

J. OVERALL, Horticultural Builder, 16, Shacklewell Lane, near Kingsland, London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.—In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12s. 0d
7 „ 5, — 7½ „ 5½ }	0 14 0
8 „ 6, — 8½ „ 6½ }	
9 „ 7, — 9½ „ 7½, 10 by 6 }	0 16 0
10 „ 7, 10 by 8 }	

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18s. per 100 feet. If cut to order not exceeding 40 inches long.

16 oz. from 2½d. to 3½d. | 21 oz. from 3½d. to 4½d.
26 oz. from 5½d. to 7½d.

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½d. per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	£1 17s. 6d.	per case of 50
3/16 „	2 1 3	„ 60
⅛ „	1 17 6	„ 60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21s. per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London.

REDUCED TARIFF OF AGRICULTURAL AND HORTICULTURAL GLASS.

STRONG HORTICULTURAL SHEET, from 2d.; and HARTLEY'S PATENT ROUGH PLATE, from 4½d. per foot.

PERFORATED GLASS for Ventilating Dairies, Stables, &c., from 1s. 6d. per foot. German-shaped Milk-pans, 21s. per dozen; Hely's Test Churns, 5s. each; Waring's Butter Slabs, 10s.; Glass Fern Shades and Stands, from 3s.; Bee-glasses, from 6d.; Cucumber Tubes, from 1s.; Propagating Glasses, from 3½d. to 7s. each; Flower Labels, 7s. per 100; Aquariums, complete, 10s. each; and every other description of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass, British and Foreign.—Catalogues free.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.		Inches.		Per foot.		Per 100 feet.
		Under 6 by 4	at	1½d.	is	£0 12 6
From 6 by 4		„ 7 „ 5	„	2d.	„	0 16 8
7 „ 5		„ 8 „ 6	„	2¼d.	„	0 18 9
8 „ 6		„ 10 „ 8	„	2½d.	„	1 0 10
10 „ 8		„ 12 „ 9	„	2¾d.	„	1 2 11

Larger sizes, not exceeding 40 inches long.

16 oz. from 3d. to 3½d. per square foot, according to size.
21 oz. „ 3½d. to 5d. „ „ „
26 oz. „ 3½d. to 7½d. „ „ „

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to JAMES HETLEY & Co., 35, Soho Square, London.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,
87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included. — Per 100 ft.

6 in. by 4	in. and 6	in. by 4½	in. ...	...	12s.	0d.
6½ „ 4½	„ 7	„ 5	...	...	12	6
7½ „ 5½	„ 8	„ 6	...	...	13	0
8½ „ 6½	„ 9	„ 7	...	...	13	6
9½ „ 7½	„ 10	„ 8	...	...	13	6
10½ „ 8½	„ 11	„ 9	...	...	14	0
12 „ 9	„ 13	„ 9	...	...	14	0
10 „ 10	„ 10½	„ 10½	...	...	14	0
11 „ 10	„ 11½	„ 10½	...	...	14	0
11 „ 11	„ 11½	„ 11½	...	...	14	0
12 „ 11	„ 12½	„ 11½	...	...	14	0
13 „ 11	„ 13½	„ 11½	...	...	14	0
13 „ 12	„ 13½	„ 12½	...	...	16	0
13½ „ 13½	„ 14½	„ 13½	...	...	16	0
15½ „ 13½	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.
Ditto, not exceeding 1 foot ... 2½ „
Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe.

Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

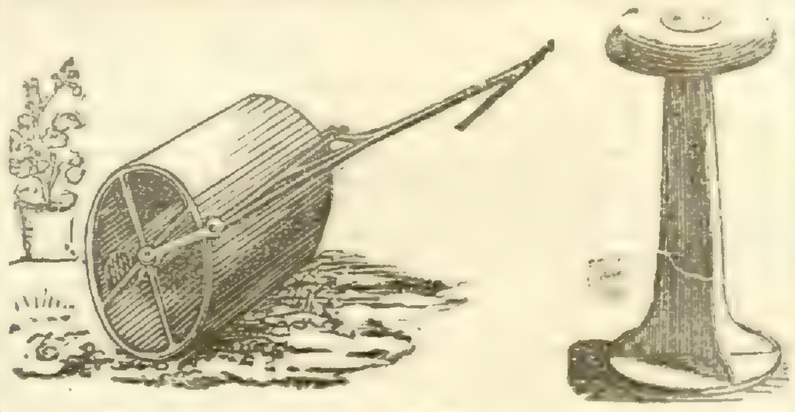
No. 1 QUALITY, INCHES IN DIAMETER AND PRICE PER YARD:—½, 9d.; ¾, 11d.; 1, 1s. 1d.; 1¼, 1s. 3d.; 1½, 1s. 5d.; 1¾, 1s. 7d.; 2, 1s. 9d.; 2¼, 2s.; 2½, 2s. 3d.; 2¾, 2s. 6d.; 3, 2s. 9d.

SUPER EXTRA STOUT QUALITY:—2, 2s.; 2¼, 2s. 3d.; 2½, 2s. 6d.; 2¾, 2s. 9d.; 3, 3s.

No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9d.; 1¼, 10d. 1½, 11d.; 2, 1s.; 2¼, 1s. 3d.; 2½, 1s. 6d.

The Hose is Burnettised at an extra charge of 3d. per yard.

Union Joints, Branch Pipes, and Jets are also supplied.



COTTAM AND HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.

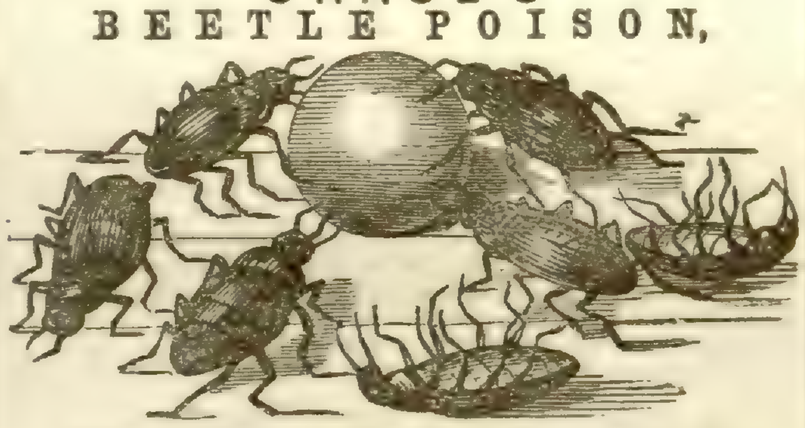
Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

Hand Glass Frames, Cast and Wrought Iron Flower Stakes, Garden Arches, &c.

Strong Iron Hurdles, and best Wire for Strained Wire Fencing.

Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom. Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

CHASE'S BEETLE POISON,



ENTIRELY FREE FROM DANGER TO HUMAN LIFE, AND PERFECTLY HARMLESS TO CATS AND DOGS.

A Safe and most Effectual Destroyer of Black Beetles and Cockroaches; one trial alone will suffice to prove its great efficacy, and one box will destroy thousands. The great advantage in this preparation is that it does not leave their bodies to decay and corrupt the air, but completely dries up and destroys them, so that nothing is left to cause an unpleasant odour when dead.

Directions for use: Place four or five of the Balls each night where the Beetles mostly resort.

Sold in boxes at 1s. each, or sent free to any part of the kingdom for 20 stamps, by THOMAS CHASE, Chemist, 14, Holborn (opposite Furnival's Inn), London. And may be obtained through all medicine vendors.

To the Editor of the "Cottage Gardener," July 3d, 1855.

"Some of your readers may be glad to hear of an effectual poison for these disagreeable pests. I have succeeded in completely clearing my house of them by the use of Chase's Beetle Preparation (14, Holborn). I recommend those who are troubled with these insects to place the pills in every place in the house haunted by them, and to repeat the application twice after intervals of 10 days; by this means the successional crops of young beetles are destroyed."—*C. W. J., Croydon.*

(ED.—This is not a mere puff, but sent to us by a gentleman who has been benefited as he states.)

TOURISTS, TRAVELLERS, AND OTHERS,
EXPOSED TO THE SCORCHING RAYS OF THE SUN, AND HEATED PARTICLES OF DUST, WILL FIND

ROWLAND'S KALYDOR a most refreshing preparation for the Complexion, dispelling the cloud of languor and relaxation, allaying all heat and irritability, and immediately affording the pleasing sensation attending restored elasticity and healthful state of the skin. Freckles, Tan, Spots, Pimples, Flushes, and Discoloration fly before its application, and give place to delicate clearness, with the glow of beauty and of bloom. In cases of sunburn or stings of insects, its virtues have long been acknowledged. Price 4s. 6d. and 8s. 6d. per bottle.

ROWLAND'S MACASSAR OIL, a delightfully fragrant and transparent preparation, and as an invigorator and purifier beyond all precedent.

ROWLAND'S ODONTO, OR PEARL DENTIFRICE, a White Powder, compounded of the rarest and most fragrant exotics. It bestows on the teeth a pearl-like whiteness, frees them from Tartar, and imparts to the Gums a healthy firmness, and to the breath a grateful sweetness and purity.

Sold by A. ROWLAND & SONS, 20, Hatton Garden, London; and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.?—The most marvellous production of modern date is ROSALIE COUPELLE'S CRINUTRIAR, which is guaranteed to produce Whiskers, Moustachios, Eyebrows, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually checks greyness in all its stages. For the nursery it is recommended by upwards of 100 physicians, for promoting a fine healthy head of hair, and averting baldness in after years. Sold by all Chemists and Perfumers, price 2s., or will be sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London. Mrs. CARTER writes, "My head, which was bald, is now covered with new hair." Mrs. WILLIAMS—"I can show a fine head of hair from using your Crinutriar." Mrs. REEVE—"My hair is gaining strength and thickness." Sergeant CRAVEN——"Through using it I have an excellent Moustache." Mr. YATES—"The young man has now a good pair of whiskers. I want two packets for other customers."

A HANDSOME PORTABLE BAROMETER FOR 21s.

HENRY BAKER calls the attention of the public to his Improved MODEL BAROMETER, made of solid Rosewood and mounted with Ivory Plates, with a Thermometer. The above Instrument for Accuracy and Style stands unrivalled; it is Portable, and WARRANTED to perform well; and being manufactured on the premises, it is highly recommended. Can be sent into the country without risk of breakage for 1s. extra.

HENRY BAKER, Instrument Maker to the Board of Admiralty, 90, Hatton Garden, London.

ONE THOUSAND BEDSTEADS TO CHOOSE FROM.—HEAL AND SON have just erected extensive Premises, which enable them to keep upwards of 1000 Bedsteads in stock, 150 of which are fixed for inspection, comprising every variety of Brass, Wood, and Iron, with Chintz and Damask Furnitures complete. Their new Warerooms also contain an assortment of BED-ROOM FURNITURE, which comprises every requisite, from the plainest japanned deal for servants' rooms, to the newest and most tasteful designs in mahogany and other woods. The whole warranted of the soundest and best manufacture. HEAL AND SON'S ILLUSTRATED CATALOGUE OF BEDSTEADS AND PRICED LIST OF BEDDING sent free by post.—HEAL AND SON, 196, Tottenham Court Road.

METCALFE, BINGLEY, AND CO.'S OATMEAL and CAMPHOR SOAP, in tablets (registered Nov. 3, 1854). Price 6d. each. This soap will be found the purest and most perfect winter soap ever introduced to the public. It preserves the hands from chapping, and renders the skin soft and agreeable.—Sold wholesale and retail by the inventors and sole manufacturers, METCALFE, BINGLEY, & Co., Brushmakers and Perfumers to H.R.H. Prince Albert, 130B and 131, Oxford Street.

CAUTION.—To prevent fraud, each tablet bears the registered mark and the names and address of the inventors, as above.

METCALFE'S ALKALINE TOOTH POWDER, 2s. per box.—The above may be obtained of most respectable Chemists, Perfumers, &c.

WHITTINGTON NURSERY, HOLLOWAY, ISLINGTON.—The above Nursery, with 2 Acres of ground well stocked with Evergreens (for which it is noted), with Dwelling House and Shop, Two Greenhouses and Plants, with Sheds, and every other convenience for carrying on the above business, held by the owner for the term of 99 years, 57 years of which remains unexpired at a ground rent.

TO BE SOLD, by Private Contract, a Small ORNAMENTAL CONSERVATORY, nearly new, a Ten-light GREENHOUSE, lights and framework complete; also a Six-light MELON-PIT, including brickwork, &c., and several One and Two-light CUCUMBER-FRAMES in good working order. The whole the property of a gentleman who has no further use for them.—Apply to J. CUNNINGHAM, 2, Bute Street, Old Brompton, Middlesex.

TO BE SOLD, a CONSERVATORY, 20 feet long, 11 feet wide; likewise several small GREENHOUSES.—Address to Mr. SMITH, Greenhouse Builder, Painter, and Decorator, 4, Canonbury Cottages, Lower Road, Islington.

☞ Greenhouse Lights and Window Sashes made and glazed at 8d. per foot, and all kinds of Joiners' Work Estimated for. Reference given.

SHROPSHIRE RAMS.

TO BE SOLD, two superior SHEARLING RAMS of the above breed, from the stock of Mr. Foster, near Stourbridge, who obtained a prize at the Gloster Meeting. They are bred by the owner, and are more than he requires for his use. The farm is a high dry sheep farm, and the Rams have been kept with the ordinary stock, where a large flock is run. The price Ten Guineas each, delivered free to the Exeter Station.—Address R. W. GIBBONS, Abbot's Hill, Beaford, Devon.

Sales by Auction.

ORCHIDS.

MR. J. C. STEVENS is favoured with instructions to Sell by Auction at his Great Room, 38, King Street, Covent Garden, on WEDNESDAY, 12th September, at 1 o'clock precisely, a most important and valuable collection of ORCHIDS, the property of ROBERT HANBURY, Esq., consisting of all the best varieties of Ærides, Saccolabiums, Vandas, Cattleyas, &c., in fine specimens.—May be viewed on the morning of Sale, and Catalogues had.

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No. 36.—1855.] SATURDAY, SEPTEMBER 8. { Price Fivepence. Stamped Edition, 6*d*.

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A MEETING OF THE BRITISH POMOLOGICAL SOCIETY will be held at the Rooms, 20, Bedford Street, Covent Garden, on MONDAY, September 17th, at 1 o'clock, for examining and reporting upon collections of Fruit; and it is hoped that all who take an interest in the cultivation of Fruits and Fruit trees will aid the Society by sending such specimens of Fruits as they can command. Persons desirous of being elected members are requested to make application to the Secretary, to whom also all packages are to be addressed,

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H. BIGLAND AND CO. beg to state that the LEASE of their NURSERY having now expired, they have concluded to offer the remainder of their STOCK (consisting of Evergreens, Fruit, and Forest Trees, Greenhouses, &c.) by Auction this autumn; the precise time will be named in a future Advertisement.

Britannia Nursery, Whalley Range, Manchester.

WANTED IMMEDIATELY, about 20 FRUITING and 30 SUCCESSION PINE PLANTS, of the following varieties, viz.:—Queens, Providence, Jamaica, and Cayenne. They must be clean, healthy, and very strong plants.—Address, with prices, to W. W. P., Post Office, Newent, near Gloucester.

WANTED, a quantity of BLACK JAMAICA and QUEEN PINES, either suckers or rooted plants that will fruit next year. They must be clean. This would be a good opportunity for any one giving up business to dispose of the whole stock. Also a quantity of the Coniferæ, particularly of the Deodar and of Araucarias; also Seeds of the Coniferæ. Terms, cash.—Address, with prices, F. M., Office of this Paper.

WANTED,

GRAPES AND PEACHES OF SUPERIOR QUALITY. Forward to GEORGE TAYLOR, JUN., FRUIT SALESMAN, St. John's Market, Liverpool. Terms CASH.

GRAPES.

TO BE SOLD, a House of BLACK HAMBURGH GRAPES, of good quality.—J. H., Post Office, Epsom.

TO BE SOLD, the LODDIGES' COLLECTION OF ORCHIDS.—This unrivalled collection containing upwards of 1200 species and 2000 specimens (many of which are unique), in the finest possible health, is now to be disposed of in one Lot, affording an opportunity to any nobleman or gentleman desirous of commencing the cultivation of this beautiful tribe of plants which has never before occurred.—For terms and to view apply to C. LODDIGES, Hackney.

FOR PRESENT SOWING.

NEW ITALIAN RYE-GRASS AND TRIFOLIUM INCARNATUM SEED MAY NOW BE OBTAINED FROM SUTTON AND SONS, SEED GROWERS, Reading, Berks.

Remittances or references are requested from unknown correspondents.

SUTTON'S RENOVATING GRASS SEEDS MAY NOW BE SOWN.—The Grass Lands sown with these Seeds last Spring are greatly improved (*vide* letters recently received).

Price of Seed 9*d*. per lb., or 80*s*. per cwt. Quantity required, 8 to 12 lbs. per acre.

HYACINTHS AND OTHER BULBS JUST IMPORTED BY SUTTON AND SONS, SEED GROWERS, Reading, Berks.—This is a superior assortment of Bulbs, and will be sent out carriage free (except small parcels), at very moderate prices. A List may be had post free.

DUTCH HYACINTHS AND OTHER BULBS.

J. AND J. FRASER beg to announce that they have received their annual importation of HYACINTHS and other FLOWER ROOTS, of which a descriptive Catalogue may be had by enclosing one postage stamp. This Catalogue contains some instructions for the successful cultivation of the various roots.—Lea Bridge Road, Sept. 8.

DUTCH HYACINTHS, ETC.

CLAPHAM.

CHARLES SOUTHBY, late FAIRBAIRN, Seedsman, &c., begs to inform the kind Patrons of the late JOSEPH FAIRBAIRN that he has received an importation of the above, which are particularly fine this season, and in very good condition. Priced catalogues can be had postage free on application.—High Street, Sept. 8.

DUTCH FLOWERING BULBS.

JAMES CARTER AND CO.'s comprehensive CATALOGUE of DUTCH and CAPE BULBS and SEEDS for Autumn sowing, is now published, and will be forwarded free of charge and post paid upon application to JAMES CARTER & Co., 238, High Holborn, London.

DUTCH FLOWERING BULBS.

HENRY WALTON'S CATALOGUE of DUTCH and other BULBS is now in course of preparation, and may be had as soon as ready on receipt of one postage stamp. Apply, HENRY WALTON, Florist, &c, Edge End, Marsden, near Burnley, Lancashire.

H. W. can also supply all the new White Corolla'd and other new Fuchsias at 18*s*. and 21*s*. per doz., or 2*s*. 6*d*. to 3*s*. 6*d* each. New Verbenas, 15*s*. per doz., or 1*s*. 6*d*. each. See advertisements in previous *Gardeners' Chronicles*.

DUTCH FLOWER ROOTS.

JAMES DICKSON AND SONS beg to intimate that they have received their First Annual Importation of HYACINTHS, and every other variety of DUTCH BULBS, in fine condition, and of the first quality.—Nursery and Seed Warehouse, 32, South Hanover Street, Edinburgh. Catalogues forwarded on application.—Sept. 8.

DUTCH FLOWER ROOTS, ETC. ETC.

PETER LAWSON AND SON, SEEDSMEN AND NURSERYMEN TO HER MAJESTY THE QUEEN, and to the Highland and Agricultural Society of Scotland, beg to intimate the arrival of their first assortment of DUTCH FLOWER ROOTS, Catalogues of which may be had, free, on application, and orders for which are respectfully solicited,

They have also on hand very select stocks of foreign Italian Rye-grass, Crimson Clover (Trifolium incarnatum), Alsike Clover (Trifolium hybridum), Dwarf Essex Rape, Winter Tares, Stubble Turnip, &c. &c.

London: 27, Great George Street, Westminster.—Sept. 8.

WILLIAM CUTBUSH AND SON beg to acquaint their patrons and friends that their ANNUAL CATALOGUE of DUTCH BULBS can be had, postage free, on application. The superior quality of their roots is well known, but as a further guarantee they obtained the Awards at the Horticultural Society's Rooms, Regent Street, last spring.

Highgate Nurseries, near London.

DUTCH BULBS.

JAMES VEITCH, JUNIOR, Exotic Nursery, Chelsea, begs to announce that he has received his annual supply of BULBOUS ROOTS from Holland, and is pleased to say that they are particularly fine and in excellent condition. Catalogues are now ready, and will be forwarded on application.

N.B. J. V. Jun., desires to impress on those who patronise him the great advantage of giving him their orders early, as the successful cultivation of Bulbs depends in great measure on their being planted early in the season.—Sept. 8.

DUTCH BULBS AND FLOWER ROOTS.

THOMAS JACKSON AND SON respectfully inform their patrons and the public that they have received in the finest condition their annual consignment of Bulbs and Roots, and that they are of the largest size and very finest quality. Good Double Hyacinths 4*s*. per dozen; mixed Polyanthus Narcissus, 3*s*. per dozen; Double Roman Narcissus, 4*s*. per dozen. Their Priced List of Bulbs, &c., and also their General Priced Catalogue of Stove, Orchidaceous, Greenhouse Plants, Ornamental Shrubs and Trees, and Herbaceous Plants may be obtained on application.—Nurseries, Kingston, Surrey.

IMPORTED DUTCH FLOWER ROOTS.

T. F. WINSTANLEY begs to announce that his Priced Catalogue of Dutch Bulbs for the present season will shortly be ready, and can be had free on application. It contains a list of all the newest and leading sorts in cultivation, including Hyacinths, Narcissus, Jonquils, Amaryllis, Early Single and Double Tulips, Crocus, &c., all of which have been grown by one of the first growers in Holland, and can be relied upon as being good sound Bulbs, and true to name.

28, Market Place, Manchester.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s*. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. CORBETT's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

NEW SEEDS.—GROWTH OF 1855.

WILLIAM E. RENDLE AND Co, SEED MERCHANTS, Plymouth, are now harvesting in fine condition their General Collection of Agricultural and Garden Seeds for the coming season.

In order to give increased facilities for conducting their Seed Business, they are now considerably enlarging their offices and warehouses, which, when completed, will enable them to attend to all orders with promptness and despatch.

WILLIAM E. RENDLE & Co, Seed Merchants, Plymouth. Established 1786.

FLOWER SEEDS FOR PRESENT SOWING.

BASS AND BROWN'S superior Selected Seeds per packet, as under:—

CALCEOLARIA, choice, 1*s*. From new vars. of our superb Collection. Extra 2*s*. 6*d*.—GERANIUM, choice, 1*s*. Extra from new vars. of our superb Collection, 2*s*. 6*d*.—GLOXINIA, choice, 6*d*. Extra from new vars. of our superb Collections, 2*s*. 6*d*.—VERBENA, choice, 1*s*. Extra from new vars. of our superb Collection, 2*s*. 6*d*.—CARNATIONS, extra from 400 vars., 2*s*. 6*d*.

For a variety of other choice seeds for present sowing see advertisement in *Gardeners' Chronicle*, August 18.

Seed and Horticultural Establishment, Sudbury, Suffolk.

DICKINSON'S ITALIAN RYE-GRASS SEED is now ready for delivery, for present payment only, 7*s*. per bushel.—New Park, Lymington, Hants.

SKIRVING'S NEW PURPLE-TOP'D SWEDE.—A prime lot of Seed just harvested. For price apply to W. BURGESS, Iden, near Rye.

FINE FRINGED CHINESE PRIMROSE.

J. AND J. FRASER beg to offer some excellent Seed of the above, saved from plants which obtained the award of the Horticultural Society last winter, in packets at 2*s*. 6*d*. each.

A remittance in stamps is requested from unknown correspondents.—Lea Bridge Road, Sept. 8.

FERNS.

ROBERT SIM'S 16 page CATALOGUE of his GENERAL COLLECTION of FERNS may now be had for Four Stamps. Free to all previous purchasers.

Nursery, Foot's Cray, Kent.

TO THE SEED TRADE.

GEORGE TABER, of Ravenhill, Essex, begs to inform the Trade that his growing crops of Seeds are now open to inspection. All Turnip Seeds grown from sound transplanted roots. Lists sent on application.—Sept. 8.

CAMELLIAS, ETC.

CHANDLER AND SONS, NURSERY, Wandsworth Road, beg to inform their friends and customers that their Camellias are finely set with flower buds this season; they are now sending out good bushy plants from 30*s*. and upwards per dozen. The best Chrysanthemums, 12*s*. per dozen. Also a great variety of Ornamental Plants for furnishing conservatories, at reasonable prices.

TO GENTLEMEN PLANTING.

CHANDLER AND SONS, NURSERYMEN, Wandsworth Road, have a quantity of fine Green and Variegated HOLLIES, ARBORVITÆ, BOX, LAURELS, RHODODENDRONS, AZALEAS, WHITE AND PURPLE LILACS, &c., all of a large size, in a fit state for transplanting, and at very moderate prices.

CALCEOLARIA.

JOHN CATTELL is still sending out seed of very superior Calceolaria, saved from the finest varieties: Major's and other growers, carefully hybridized, 2*s*. 6*d*. per packet. Ditto, saved from an entirely new class to any hitherto sent out by J. C., having very large flowers, with distinct and splendid colours, extra free bloomers, 5*s*. per packet.

The other seeds advertised in the *Gardeners' Chronicle*, Aug. 4th, and following numbers, may still be had.

Nurseries, Westerham, Kent.

TREE CARNATION.

J. WADSON begs leave to call attention to his advertisement which appeared in the *Gardeners' Chronicle* of August 25, page 563, and the "Cottage Gardener" of the 4th instant.

J. W. has no objection to take in exchange for the above Rose Scent, Double White Primula, Camellias, &c.

Albion Road, Hammersmith.

R. SMITH still continues to send out strong runners of his SEEDLING STRAWBERRY, SIR CHARLES NAPIER, which this season has proved itself good; both for forcing and natural it has no equal. Price 2*l*. per 100.

R. SMITH, Market Gardener, Twickenham.

BARRATT'S MAGNUM BONUM has this year fully sustained its high character as one of the finest flavoured STRAWBERRIES known, and may now be had at 20*s*. per 100, or 3*s*. per doz.—Catalogues containing all the leading varieties of the day may be obtained from WILLIAM BARRATT, St. John's Nurseries, Wakefield.

NEW STRAWBERRY.

KITLEY'S CAROLINA SUPERBA, not surpassed in flavour, habit, and productiveness by any Strawberry extant, at the low price of 2*l*. per 100, 9*s*. per doz., free by post, to be had of Messrs. GARRAWAY, MAYES, & Co., Bristol, agents for the west of England and South Wales, or of any respectable nurseryman. For a full description, testimonials, &c., see this Paper, April 14, 1855.

JAMES KITLEY, Lyncombe Vale Nursery, Bath.

AZALEAS AND ERICAS.

W. J. EPPS has much pleasure in offering the following fine, bushy, well-grown plants, and of the choicest and best varieties, in large 48 and 32-size pots.

AZALEAS 18*s*. per dozen; 5*l*. per 100.
ERICAS 12*s*. and 18*s*. per dozen; 4*l*. and 5*l*. per 100.

These will make very pretty specimens for the ensuing season; all orders to be accompanied with a remittance from unknown correspondents.—Maidstone, Sept. 8.

HYACINTHS.

MESSRS. E. G. HENDERSON & SON

BEG to announce that they have now received their noted collection of HYACINTHS in excellent condition. They also beg to state, that having been for nearly 50 years the largest and most successful cultivators of this highly popular Flower in the vicinity of London, they can with confidence recommend the varieties named in their Catalogue as being the most suitable for pot or glass culture, and every way worthy the attention of Amateurs, &c.

Catalogues can be had on application, and for the assistance of those persons unacquainted with the culture of the Hyacinth, printed instructions will be given gratis with each order they are kindly favoured with.

CUCUMBER—HENDERSON'S "NAPOLEON III."

E. G. H. & SON have great pleasure in informing those who are fond of a really good Cucumber that they have succeeded in obtaining the stock of the above variety. It is one of the best for Winter culture and early forcing; is a free bearer and perfect in its form, possessing, indeed, all those qualifications of a good Cucumber which the most fastidious could desire. In packets, containing two seeds, 3*s.* each; ditto ditto, four seeds, 5*s.* 6*d.* each.

FLOWER SEEDS FOR AUTUMNAL SOWING.

It is not generally known that many of the hardy annuals, especially the Californian varieties, may be sown with great advantage in the month of September, and will resist ordinary winters with perfect safety, by which means the plants become much stronger and flower nearly a month earlier than those sown in the Spring, thereby giving a gay appearance to the garden at that particular period when most needed. Collections containing 12 distinct varieties, with printed instructions, 3*s.* 6*d.* each, postage free; ditto, 24, 6*s.*; 36, 8*s.* 6*d.*; 48, 10*s.* 6*d.*

CALCEOLARIA AND CINERARIA.

Saved from the choicest varieties, may be had in packets at 2*s.* 6*d.* and 5*s.* each; the finest quality of CALCEOLARIA is only offered at 5*s.*; second quality, 2*s.* 6*d.*

NEW PLANTS.

In the possession of E. G. Henderson & Son, and will be sent out for the first time in October.

SHOW GERANIUMS.

EXCELSIOR (HENDERSON'S).—Brilliant crimson, with dark maroon blotch, the lower petals are also beautifully spotted with maroon, fine form and stout petal, a splendid truss, good habit, and one of the most conspicuous of the new French spotted flowers. 42*s.*

LA BELLE ALLIANCE (FOQUET).—Top petals rich maroon spot shading off to scarlet and edged with rose, lower petals salmon with intense bright orange crimson spot, clear white centre, fine form, petals of great substance, good habit, and large truss, the most lovely coloured flower of all the new spotted class. 42*s.*

PURPLE KING (FOQUET).—A splendid purple flower, top petals intense dark maroon edged with crimson, lower petals rich mulberry painted, fine habit, free flowerer, and large truss. 31*s.* 6*d.*

MIDNIGHT (FOQUET).—Black top petals, with rich painted lower petals, fine habit and truss. 21*s.*

Or the above four varieties, 6l. 6s.

FANCY GERANIUMS.

AMPHITRITE (HENDERSON'S).—Rich bright maroon crimson, laced with white, fine free habit. Distinct. 10*s.* 6*d.*

DUKE OF CAMBRIDGE (HENDERSON'S).—Rich violet crimson, light centre, good form, fine habit, extra. 21*s.*

GIOVANNA (HENDERSON'S).—White, with maroon spot. Very fine flower. Distinct. 10*s.* 6*d.*

LA STELLA (HENDERSON'S).—Distinct and novel. Deep maroon, crimson self, laced with white, and clear white centre, fine shape, and very dwarf. 21*s.*

MOONLIGHT (HENDERSON'S).—Delicate lilac rose edged with white, lower petals spotted, large pure white throat, extra fine form, dwarf, and compact. Distinct. 21*s.*

REINE DU BAL (HENDERSON'S).—Dark crimson top petals, blush coloured centre, lower petals crimson blotched. 10*s.* 6*d.*

ROSY-LIP (HENDERSON'S).—Rosy crimson upper petals, with rose lower petals, fine form, good habit, free flowering. 10*s.* 6*d.*

QUEEN OF THE FETE (HENDERSON'S).—Purplish crimson upper petals, with blush white lower petals, large and showy, fine habit. 10*s.* 6*d.*

SWEET LUCY (HENDERSON'S).—A white flower, with pale lilac rose arch on the top petals. 10*s.* 6*d.*

TITANIA (HENDERSON'S).—White, with bright lilac rose spot in upper petals, free flower, similar to G. Delicata. 10*s.* 6*d.*

Or the above ten varieties for 6l. 6s.

CINERARIAS.

ADMIRAL LYONS (HENDERSON'S).—Large full-sized flower, white, with purplish violet edging, dark dice, fine form. 10*s.* 6*d.*

FUCHSIAS.

BANKS' FAVORITE.—Rich scarlet crimson, with violet purple corolla wide sepals, well reflexed, short tube, a free flowerer, and graceful habit. 10*s.* 6*d.*

PRINCE OF WALES.—A magnificent large crimson, with violet blue corolla, fine reflexed sepals, larger and finer than Glory. 10*s.* 6*d.*

RHODODENDRONS.

The following magnificent new species, collected from the Bhotan Mountains, by Thomas J. Booth, Esq., are now, for the first time, offered for sale.

BOOTHI, | HOOKERI, | CALOPHYLLUM, | KENDRICKI, | EXIMIUM, | WINDSORI LEUCANTHUM.

For full descriptions, with prices of the above splendid varieties, see Spring Catalogue, page 85.

GYNERIUM ARGENTEUM (THE PAMPAS GRASS).

E. G. H. and SON having in their possession the largest stock in the country of this noble ornamental Grass, will supply healthy plants in October at 2*s.* 6*d.* each or 25*s.* per dozen.

N.B.—Price to the Trade per 50 or 100 can be obtained on application.

GLOXINIA ERECTA.

Messrs. E. G. HENDERSON & SON have great pleasure in announcing that they were the first to introduce this new class of splendid and showy upright flowering variety of the Gloxinia into this country. They are most abundant flowerers, containing among them some of the most lively contrasts of colours imaginable, such as clear white, with rich velvety carmine, lavender and white, white with rich velvety violet. Price 5*s.* and 7*s.* 6*d.* each, or 60*s.* per dozen.

The Spring Catalogue or General List of Plants will be forwarded post free on application; and a beautiful Coloured Plate of NINE NEW FLOWERS *will be sent on receipt of* 12 *postage stamps.*

Wellington Nursery, St. John's Wood.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the following Superb Flower Seeds, saved from the best varieties, post free:—

	Per packet.
Calceolaria, from the best new spotted varieties	1*s.* 0*d.*
Minulus, from a choice collection	0 6
Pansy, from 100 of the best show flowers ...	1 0
Double Daisy, from 60 choice kinds	0 6
Antirrhinum, from 100 best striped varieties ...	0 6
Sweet William, from 50 superb double varieties	1 0

67, High Street, Battle, Sussex.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe.

Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

No. 1 QUALITY, INCHES IN DIAMETER AND PRICE PER YARD:—½, 9*d.*; ¾, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d.*; 1½, 1*s.* 5*d.*; 1¾, 1*s.* 7*d.*; 2, 1*s.* 9*d.*; 2¼, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

SUPER EXTRA STOUT QUALITY:—2, 2*s.*; 2¼, 2*s.* 3*d.*; 2½, 2*s.* 6*d.*; 2¾, 2*s.* 9*d.*; 3, 3*s.*

No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9*d.*; 1¼, 10*d.* 1½, 11*d.*; 2, 1*s.*; 2¼, 1*s.* 3*d.*; 2½, 1*s.* 6*d.*

The Hose is Burnettised at an extra charge of 3*d.* per yard.

Union Joints, Branch Pipes, and Jets are also supplied.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B WHITE & BROTHERS, Millbank Street, Westminster.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 12*s.* per ton, 1*s.* 6*d.* per bushel, or 16*s.* per ton, delivered to the London Wharfs or Railways, or within a circuit of five miles. Sacks 2*s.* each. Kentish and other Peats and Loam of excellent quality.

KENNARD BROTHERS, Swan Place, Old Kent Road.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

FILTRATION BY ASCENSION.

FREDK. RANSOME & CO., sole Patentees of the New AUTOMATON PURIFIER; also manufacturers of every variety of FILTERS (Portable or for Immersion) fitted with the Patent Purifying Medium. Pure Water, in any quantities, for Water Companies, Manufacturers, and others, obtained at a very moderate cost by the use of RANSOME'S Filtering Slabs. An Illustrated Priced List on application to the Depôt, Whitehall Wharf, Cannon Row, Westminster, or at the Patent Stone Works, Ipswich. A liberal discount allowed to the Trade. Filter Manufacturers and Exporters supplied with RANSOME'S Patent Filtering Medium separately, on the lowest terms.

FREDK. RANSOME & Co. are also the Patentees and sole Manufacturers of the Patent "Iris Fountains" for Drawing Rooms, Conservatories, &c.

RANSOME'S SILICEOUS STONE.

THE PATENT SILICEOUS STONE COMPANY are prepared to execute Contracts for the supply of all kinds of Ornamental Details for Buildings, &c., manufactured in this beautiful material, which has received the approval of eminent architects and scientific men, and which for sharpness of outline, durability, and cheapness, stands unrivalled. It is especially applicable for the elaborate details of Mediæval and Ecclesiastical Architecture, for Gothic Windows, Doorways, Pinnacles, &c.; Crosses, Corbels, Altar Screens, Pulpits, Fonts, Monumental Tombs, Tablets, Headstones, &c; also for all kinds of Garden Decorations, Fountains, Figures, Vases, and Pedestals; Flower Boxes, Wardean Cases, Balustrades for Terrace Walks, Gate Piers, Caps, Bases, &c. &c.; and for Coats of Royal Arms, Chimney Pieces, Brackets and Trusses, Ashlars, Quoins, String Courses, and other Dressings.—Further particulars, with illustrations, on application to Mr. EDWD. MENDHAM, Secretary, at the Company's Offices, Whitehall Wharf, Cannon Row, Westminster; or to Mr. FREDK. RANSOME, Patent Stone Works, Ipswich.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.—In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12*s.* 0*d*
7 „ 5, — 7½ „ 5½ }	0 14 0
8 „ 6, — 8½ „ 6½ }	
9 „ 7, — 9½ „ 7½, 10 by 6 }	
10 „ 7, 10 by 8 }	0 16 0

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18*s.* per 100 feet. If cut to order not exceeding 40 inches long.

16 oz. from 2½*d.* to 3½*d.* | 21 oz. from 3¾*d.* to 4¾*d.*
26 oz. from 5½*d.* to 7½*d.*

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½*d.* per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	£1 17*s.* 6*d.*	per case of 50
3/16 „	2 1 3	„ 60
⅛ „	1 17 6	„ 60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 8*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London.

REDUCED TARIFF OF AGRICULTURAL AND HORTICULTURAL GLASS.

STRONG HORTICULTURAL SHEET, from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot.

PERFORATED GLASS for Ventilating Dairies, Stables, &c., from 1*s.* 6*d.* per foot. German-shaped Milk-pans, 21*s.* per dozen; Hely's Test Churns, 5*s.* each; Waring's Butter Slabs, 10*s.*; Glass Fern Shades and Stands, from 3*s.*; Bee-glasses, from 6*d.*; Cucumber Tubes, from 1*s.*; Propagating Glasses, from 3½*d.* to 7*s.* each; Flower Labels, 7*s.* per 100; Aquariums, complete, 10*s.* each; and every other description of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass, British and Foreign.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,
87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by 4 in. and 6 in. by 4½ in. ...						... 12*s.* 0*d.*
6½	„	4½	„ 7	„ 5	...	... 12 6
7½	„	5½	„ 8	„ 6	...	... 13 0
8½	„	6½	„ 9	„ 7	...	... 13 6
9½	„	7½	„ 10	„ 8	...	... 13 6
10½	„	8½	„ 11	„ 9	...	... 14 0
12	„	9	„ 13	„ 9	...	... 14 0
10	„	10	„ 10½	„ 10½	...	... 14 0
11	„	10	„ 11½	„ 10½	...	... 14 0
11	„	11	„ 11½	„ 11½	...	... 14 0
12	„	11	„ 12½	„ 11½	...	... 14 0
13	„	11	„ 13½	„ 11½	...	... 14 0
13	„	12	„ 13½	„ 12½	...	... 16 0
13½	„	13½	„ 14½	„ 13½	...	... 16 0
15½	„	13½	...	...	...	... 16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ „
Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

IRON GATES, HURDLES, FENCING, ETC.

J. BULLOCK AND CO., Hope Iron Works, Primrose Street, Bishopsgate, Ironfounders and manufacturers of the above; also Verandahs, Conservatories, Staircases, Iron Roofs, &c. N.B. Iron and Wire Fences fixed in all parts of the country by competent workmen, or the materials supplied painted or galvanised ready for fixing, and packed for shipment. Estimates on application.

TO BRICKMAKERS.

CLAY GROUND AND STOCK BRICKS made at one and the same time, with ease, by One Horse, at the rate of from Eight to Ten Bricks the minute. Price of Machine at Hull, 35*l.* Reference given and particulars forwarded.—Apply to W. HODSON, Patentee, Kingston Square, Assembly Rooms, Hull.

EDWARD ELY, Hot-Water and Improved Hot-Air Works, opposite the Eagle Tavern, City Road, London, Manufacturer of the various description of Hot-Water Apparatus for Heating Horticultural Buildings, Churches, Mansions, Public Buildings, Offices, &c., &c., on the most scientific principles. Manufactories requiring Artificial Heat fitted up with effective and economical apparatus by contract or otherwise. Old work taken down, re-modelled, and re-fixed.

HOT-AIR AND STEAM WORK FOR DOMESTIC OR MANUFACTURING PURPOSES.

E. ELY, being a practical and scientific workman, is able to execute work at prices that defy competition. Parties by sending a rough sketch of the building and dimensions, can be supplied with the most improved Pipe Boilers, or any other description, with connections and pipes fitted and marked according to an accompanying plan; also Cement for joints, so that their own Tradesmen or Gardeners can fix them.

N.B. To those gentlemen who prefer one Boiler to heat the whole series of Hot-houses, &c., he recommends his large economical and powerful Boiler, capable of doing a larger quantity of piping than any boiler in use; and all works executed by him warranted perfect.

E. E. does not make a practice to praise his own works, but would be most happy to refer to numerous Gentlemen and Nurserymen, where Apparatus, &c., fitted up by him, can be seen in full operation.

Please to observe the Address, having no connexion with any other House in the Trade.

THE PAMPAS GRASS,
"GYNERIUM ARGENTEUM."

LUCOMBE, PINCE, AND Co. have now for sale a healthy stock of well established Plants of the above, which will bloom finely this autumn, varying from one to two and three flower stems. Few Plants are more ornamental than this gigantic Grass, the leaves (which are more than 7 feet in length curving gracefully outwards) grow in large tussocks, thereby producing a very fine effect, and from the midst of these numerous flower stems arise to the height of from to 6 to 8 feet surmounted by elegant panicles of inflorescence nearly 3 feet long, resembling beautiful waving plumes of silvery feathers. It is perfectly hardy, and is also easy of cultivation. A grand specimen of this noble plant is now in the Exeter Nursery, pushing up nearly twenty large flower stems and numerous small ones, and will continue to be an object of great attraction for a considerable time. Prices and full particulars may be had on application to

LUCOMBE, PINCE, & Co., EXETER NURSERY, EXETER.
Established 1720.

SPLENDID NEW BEGONIA,
SEMPERFLORENS SAUNDERSI.

GARAWAY, MAYES, AND CO. are now prepared to execute orders for this fine Seedling Begonia (raised by Mr. F. Saunders, Gardener to W. Miles, Esq., M.P., Leigh Court), which is, without exception, the most useful and beautiful variety in cultivation. The original plant first bloomed in May, 1854, when only 6 inches high, and has continued without ceasing to produce from the axils of every leaf its splendid panicles of transparent vermilion buds, which develope to fine clear brilliant rose flowers, emitting a most agreeable odour. Its habit is close and compact, seldom attaining more than 3 feet; foliage small and extremely bright, forming altogether an object of beauty unrivalled by any other variety in its class. Price 10*s.* 6*d.* each, with an allowance to the trade of one upon every three ordered; also a few extra sized plants at 15*s.* and 21*s.*

Durdham Down Nurseries, Bristol.

MESSRS. WILLIAM ROLLISSON AND SONS are desirous of directing the attention of the Nobility and Gentry, who are about to plant or make alterations in their Ornamental and Pleasure Grounds, to their immense Stock of AMERICAN PLANTS, in all sizes, which extends over an area of several acres. In large plants there are several thousands, and of such as Rhododendron catawbiense, Kalmia latifolia, Rhododendrum ponticum in varieties, and other choice hardy hybrids; many of them stand 5 to 6 feet high, and the same through, and literally covered with flower-buds.

Messrs W. R. and Sons are happy to say that their Dwarf and Standard trained, and other Fruit Trees, are this season remarkably fine; they have also a splendid lot of fruiting plants of Peaches, Nectarines, and Apricots in pots, which can be recommended as being exceedingly fine.

NEW PLANTS.

Messrs. WILLIAM ROLLISSON and SONS are now prepared to offer the annexed:—

COLEUS BLUMEI PECTINATUS.—This variety is a great acquisition; the foliage is variegated similar to Coleus Blumei, but the leaves are beautifully laciniated; 7*s.* 6*d.* each.

MANDIROLA ROEZLI.—A very fine flowering gesneraceous plant, producing fine spikes of lilac coloured blossoms, 15*s.* each.

ORTHOSIPHON SPICATUS.—A beautiful new greenhouse plant from Oeano, much to be desired for its foliage alone, which is deliciously fragrant; the flowers are large and white; 10*s.* 6*d.* each.

MANDIROLA LANATA.—A very curious free flowering gesneraceous plant of a delicate violet colour inside the mouth of the blossoms, and shaded lilac outside; 15*s.* each.

NEW CHRYSANTHEMUMS.

The Undermentioned can be supplied at 24s. per dozen.

Aureole, Aigle d'or, Arc-en-ciel, Adèle Prissette, Alexandre Pelé, Comtesse de la Chastnes, Créole, Duruffe, Danais, Eldorado, Fortunio, Figaro, Fimbriata rosea, Homène, Iris, Il Brasiero, Io, La Promise, La Carmélite, General Lafont, Mdlle. Clemence, Néréide, Precarieuse, Parpaillot, Rachel, Robert Bruce, Rose Bouquette, St. Agathe, St. Flore, St. Thais, Stellata Globosa, Trophée, Uranie, Vicomte de Caumont, Vicomte de Macarthy, Zenobie.

The Nurseries, Tooting, London.

ORANGES AND CAMELLIAS, suitable for producing an immediate effect in Conservatories and large Greenhouses, 7*s.* 6*d.* to 105*s.* each. Many of the Orange Trees are covered with fruit, and all the Camellias with bloom buds.

CAMELLIAS, in large variety, with flower buds, of choice imbricated kinds, 30*s.* to 42*s.* per dozen.

Otaheite and other small-growing ORANGES, at 30*s.* to 42*s.* per dozen.

Choice free flowering AUSTRALIAN and CAPE PLANTS, in strong healthy specimens, at 18*s.* to 42*s.* per dozen.

HEATHS, in fine autumn-flowering sorts, strong plants, in 25 varieties, 12*s.* per dozen; do. in 25 other sorts, strong, at 18*s.* per dozen; do. in 25 different and more rare sorts, at 24*s.* per dozen; do. fine hard-wooded kinds, strong plants, at 30*s.* to 42*s.* per dozen; half-grown specimens of the above, well adapted for provincial exhibitions, at 2*s.* 6*d.* to 7*s.* 6*d.* each.

AZALEAS, in great variety, fine bushy plants, that will flower freely next spring, at 12*s.* to 42*s.* per dozen; large plants of the above, 3*s.* 6*d.* to 21*s.* each.

New, erect, and other GLOXINIAS, in small plants, of the choicest sorts, at 18*s.* to 30*s.* per dozen.

ACHIMENES—Chirita, Gigantea, and other fine sorts, strong flowering plants, at 18*s.* to 42*s.* per dozen.

EPACRISES, strong plants, and of the finest sorts, at 12*s.* to 30*s.* per dozen.

GREENHOUSE VERONICAS, six vars., 9*s.* to 12*s.* per doz.

CONIFEROUS PLANTS, including many of the best and newest kinds out, in young plants, mostly raised from seed, at moderate prices, including Araucarias, Libocedrus, new Californian Pines, in seven or eight varieties, the Thuja gigantea, Cupressus excelsa, and many others.

STOVE, GREENHOUSE, and HARDY CLIMBERS, in considerable variety, consisting of free flowering and sweet scented kinds, strong plants, at 1*s.* 6*d.* to 3*s.* 6*d.*

APHELEXIS, in five leading sorts, fine young plants to train as specimens, at 1*s.* to 2*s.* 6*d.* each.

PERENNIAL HERBACEOUS PLANTS, in showy species, well adapted to make a display in the flower garden in autumn, at 42*s.* to 100*s.* per 100. Established in pots.

ALPINE PLANTS, suitable for rockwork, in variety, 50*s.* per 100.

A large assortment of Show, Fancy, new French Spotted, Variegated, and Scarlet GERANIUMS, at moderate prices.

New White Corolla and Double FUCHSIAS, Prince Albert, and other new dark varieties, at 3*s.* 6*d.* to 5*s.* each.

VERBENAS, including all the new and best kinds, both English and French, at 9*s.* to 18*s.* per dozen.

Large Flowering and Pompon CHRYSANTHEMUMS, strong flowering plants, 9*s.* to 12*s.* per dozen.

An assortment of Tropical and Hardy FERNS, of about 200 species, including some of the Arborescent kinds from Voldivia and Juan Fernandez, which are not to be seen in any other European collection, prices from 1*s.* 6*d.* to 10*s.* 6*d.* each, except in a few of the rare sorts, which will be from 105*s.* to 210*s.* each.

A large collection of ORCHIDEOUS PLANTS, of most of the leading sorts in cultivation, many of which have been imported during the last six months from Guatemala, Orizaba, Venezuela, the West Indies, Borneo, and Assam, in large numbers, and can therefore be offered at very *different prices* from what is *usually charged* for the same class of plants.

HUGH LOW AND CO., Clapton Nursery, London.—Sept. 8.

WARD'S OMAR PACHA STRAWBERRY.

WILLIAM JAMES WARD offers the above handsome fine flavoured Strawberry at the following reduced price:—100 plants, 1*l.*; 50 plants, 12*s.*; 25 plants, 7*s.*, strong and well rooted. In addition to the many flattering testimonials received last season, Dr. LINDLEY describes it as being exhibited at Chiswick, July 11, 1855:—"*Excellent in quality as well as attractive in appearance.*" See *Gardeners' Chronicle*, Leading article, July 14, 1855. The Editor of the "Florist and Fruitist," in the August Number report of the Exhibition at Chiswick, says—"WARD'S *Omar Pacha is a new Strawberry, and considering its high flavour and comparative hardiness is a valuable acquisition.*"

A few last year's plants 5*s.* per dozen.

Prospect Hill, Reading, Berks.

NEW STRAWBERRIES AT REDUCED PRICES.

GROWN AND OFFERED FOR SALE BY

WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.—The following splendid varieties have been well proved this season and given complete satisfaction, viz., Sir Harry (Underhill's), 100 plants, 4*l.*; 40, 1*l.* 18*s.*; and 20, 1*l.*; or 12*s.* 6*d.* per dozen. Omar Pacha (Ward's), 1*l.* per 100; 12*s.* per 50; 7*s.* per 25. Scarlet Nonpareil (Patterson's), 2*l.* per 100; 1*l.* per 50; 12*s.* per 25. Sir Charles Napier (Smith's), 1*l.* per 100; 12*s.* per 50; 7*s.* per 25. Admiral Dundas (Myatt's), 1*l.* per 100; 12*s.* per 50*s.*; 7*s.* per 25. Nicholson's Ajax, Ruby, Captain Cook and Fill-Basket, 6*s.* per 100; Ingram's Prince of Wales, Nimrod, Eliza (Rivers's), Surprise (Myatt's), and Bicton Pine, a large white one, 6*s.* per 100; British Queen, Black Prince, Eleanor (Myatt's), Old Pine, Trollope's Victoria. Goliah (Kitley's), Keens' Seedling, Old Roseberry, all at 4*s.* per 100; Crystal Palace, a very large and late variety, 10*s.* per 100. Post-office Orders payable at Yarm are expected with all orders. The plants will be securely packed and forwarded to any part of the kingdom.

VARIETIES OF BRITISH FERNS.

ROBERT SIM begs to offer fine plants, in luxuriant health, suitable for hardy Fernery or pot culture, of the following perfectly distinct, elegant, and scarce varieties, selected from his catalogue, which see for description.

Asplenium Trichomanes var. cristatum	2*s.* 6*d.*
Athyrium f. fœmina var. multifidum	5 0
Lastrea filix-mas var. cristatum	2 6
Polystichum angulare var. proliferum	3 6
Scolopendrium vulgare var. digitatum	3 6
" " var. Endiviæfolium ...	2 6
" " var. multiforme	5 0

Carriage paid to London. Post-office orders on Chislehurst.
Nursery, Foot's Cray, Kent.

SPLENDID SPECIMEN GREENHOUSE PLANTS.

WILLIAM BARNES is commissioned by a private gentleman to offer for sale some of the finest specimens in the country of the following kinds of Greenhouse Plants:—

Azalea delicata	Erica vestita alba
" variegata	Epacris miniata
" Lawrenciana	Pimelea decussata
" Gledstanesi	Pultenæa stipularis
Chorozema angustifolia	Polygala acuminata

Particulars can be obtained by application to
WILLIAM BARNES, Camden Nursery, Camberwell.

BECK'S, WHITE'S, & DOBSON'S NEW & BEAUTIFUL PELARGONIUMS.

JOHN DOBSON AND SON have much pleasure in offering the following unequalled varieties, which will be sent out early in October:—

Rosa Mundi (Beck's)	...42*s.* 0*d*	Sultan (Dobson)...	...31*s.* 6*d*
Margaret (Beck's)	... 21 0	Juliet (Dobson) ...	... 31 6
Constancy (Beck's)	... 31 6	Mr. White (White's)	... 31 6
Quadroon (Beck's)	... 21 0	Fandango (White's)	... 21 0
Evelyn (Beck's) ...	... 21 0	Delicatum (Dobson)	... 21 0
Euphemia (Beck's)	... 21 0	Gaiety (Dobson) ...	... 21 0

Pretty Poll (White's) gratis to purchasers of any of the above. All orders executed in strict rotation. The stock of one or two varieties being limited early orders are necessary. Catalogues, with full descriptions of the above, and all the best varieties out may be had in exchange for one stamp for postage.

Woodlands Nursery, Isleworth.

WILLIAM YOUNG begs to call the attention of Noblemen, Gentlemen, Public Companies, and Planters in general to his extensive stock of CHOICE CONIFERÆ, HARDY EVERGREENS, ORNAMENTAL TREES, AMERICAN PLANTS, &c., which are this season particularly fine, and having been well prepared for removal, he can confidently recommend them to transplant with perfect safety.

W. Y. invites persons about to plant to inspect his stock, which is standing over 50 acres of ground, in which will be found all kinds of plants adapted to every description of ornamental planting. It consists of HARDY CONIFERÆ, containing some of the finest specimen plants ever offered.

	Feet high.
Abies Douglasi	6 to 8 by 5 to 6
" "	8 to 10 by 7 to 8
" "	10 to 12 by 8 to 9
" Menziesi	4½ to 5
" nigra, Black Spruce	4½ to 5
" alba, White Spruce	6 to 8
" canadensis, Hemlock Spruce ...	6 to 8 by 7
Pinus austriaca ...	6 to 8
" "	8 to 10
" Cembra	5½ to 6
" "	7 to 8
" excelsa	8 to 10
" insignis	2½ to 3
" "	3 to 4
Picea Pinsapo ...	5 to 6 by 6
" nobilis }	very
" Nordmanniana }	handsome
Araucaria imbricata .	2½ by 2½
do. do.	3 by 3
do. do.	4 by 4
do. do., very handsome	6 to 8
Cryptomeria japonica ...	3 to 4
Cedar of Lebanon ...	3½ to 4
" " ...	5 to 6
" "	7 to 8 by 6
" "	10 to 12 by 8
" Deodara ...	4½ to 5
" "	6 to 8
" "	9 to 10
" "	10 to 12
(The Cedars of Lebanon and Deodara are particularly handsome and well furnished.)	
Thuja orientalis, Chinese Arbor-vitæ	5 to 6
" " " ...	7 to 8

	Feet high.
Thuja Weareana, Siberian	5 to 6
" "	7 to 8
Chinese Juniper ...	4½ to 5
" "	5 to 6
Upright "	4 to 5
" "	6 to 7
Taxodium sempervirens	6 to 8
" "	10 to 12
Irish Yew	4½ to 5
" "	6 to 7

A LARGE QUANTITY OF FINE EVERGREENS.

Green Hollies	4 to 6
" " ...	6 to 7 by 4
" "	8 to 10 by 6 to 7
Evergreen Oak	3½ to 4
" "	4½ to 5
" "	6 to 8 by 4 to 5
Spruce and Silver Firs	6 to 8
" "	10 to 12
Weymouth Pine ...	8 to 10
Yews	3½ to 4
"	4½ to 5
"	5½ to 6
Quercus oxoniensis—New Leucombe Oak...	6 to 7
" " ...	8 to 10

AMERICAN PLANTS.

Azaleas, fine named sorts
Rhododendron ponticum (good for cover).
Do. all the new and best vars.
Kalmias, Andromeda, Ledums, &c. &c.

STANDARD ROSES, of all the best varieties.
FRUIT TREES, ORNAMENTAL DECIDUOUS TREES, for Parks or Avenues, from 10 to 12 feet.
FOREST TREES, for Copse Planting, from 2 to 4 feet.
Prices given on application.

A Catalogue is now ready, and may be had for two postage stamps.

The Nurseries are two miles from Godalming Station, South-Western Railway, where conveyances can always be obtained.

Milford Nurseries, near Godalming, Surrey.

PANSIES, PHLOX, DELPHINIUMS, AND PINKS.

BY NAME, AS WELL AS A LARGE STOCK OF EARLY BORDER VARIETIES, AND TRUE DARK CRIMSON CARNATION CLOVE.

JAMES MAY begs to inform the Trade and Growers in general, that he has now ready a large stock of strong plants of the above; price per 100 or per 1000 on application.

J. M. at the same time begs to inform his friends that he has a limited stock of the new white Cloves "Purity" and the "Ghost," price per pair on application.

Pansy Seed 2*s.* 6*d.* to 5*s.* per packet, all carefully gathered from 100 of the best show varieties.

Shortland Nursery, Hammersmith.

RHODODENDRONS.

JOHN WATERER begs to announce that he is now prepared to execute orders for his two New Hardy Hybrid Rhododendrons, in good established plants, at 42*s.* each.

Rhododendron JOHN WATERER, colour glowing carmine, large truss, fine foliage, and a most abundant bloomer, in perfection about the 15th June.

Ditto, MRS. JOHN WATERER, a bright rosy crimson, fine conical truss, a very free blooming kind, in flower about 15th of June.

To the admirers of this justly noble class of Plants, JOHN WATERER has the pleasure of recommending the above as being the greatest acquisitionsye t offered. They combine in a marked degree the necessary requisites for really first-rate hardy crimson varieties, viz., imposing colours, abundant bloomers, extreme hardiness, and flower at a time when they are not liable to be injured by spring frosts.

The American Nursery, Bagshot, Surrey, Sept. 8.

PYRAMIDAL PEARS ON QUINCE STOCKS, AND ORCHARD HOUSE TREES IN FULL BEARING.

MR. THOS. RIVERS begs to announce that the large Collection of the above at Sawbridgeworth is now in perfection. The Harlow Station of the Eastern Counties Railway, about one mile from the Nursery, is the most convenient.

The Nurseries, Sawbridgeworth, Sept. 8.

NEW PLANT LIST.

JOHN AND CHARLES LEE'S CATALOGUE OF STOVE AND GREENHOUSE PLANTS for the present Autumn is just published, and may be had, post free, on application.—Nursery and Seed Establishment, Hammersmith, near London.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 8, 1855.

IN his new work on VENTILATION,* Dr. ARNOTT relates the following cases, by way of illustrating the importance to human beings of constant access to fresh air.

1. "In a family living in a good house, near Russell Square, one of the children aged four years was observed to have a gland of the neck beginning to swell, and the mother was much pained by hearing that some person had called the affection scrofulous. She was not yet aware that the foul air of a crowded dwelling is all-sufficient to produce scrofula, as well as many other diseases. The medical friend consulted on the occasion had at former times remarked favourably on the healthfulness of the children and the management of the mother. Now, however, within a short time, twin children had been added to the family, with another servant, and low grates had been substituted in the sleeping rooms for the old-fashioned grates with high mantel-pieces which favoured ventilation by allowing escape for hot air from above the level of the children's beds. All the children, therefore, during the night were now breathing the impure air which accumulates in the upper part of unventilated bed-rooms. On examining the whole family, it was found that the general health, not only of the little patient with the swollen gland, but of the others also, had of late become notably impaired. There could be no doubt that the new state of the atmosphere in the house was the cause of the evils. Ventilating valves were introduced. Not more than a month afterwards the medical adviser was again called, but then only to witness the happy effect of the simple remedy prescribed—for to the new ventilation the mother was attributing all the good obtained. A single fact, however, remained unexplained. The nurse who had entered the family long before had for more than a year become so weak, and liable to what she called a constant weight on her head, that she was incapable of much active exertion, and was retained in her post chiefly for her trustworthiness and experience. She also now had regained health and activity, but as she had been ill for more than a year, while the children remained well, and she was supposed to have been breathing the same atmosphere as the children, it was concluded that the cause of her illness could not be the same as that of theirs. The truth was, however, that the nurse had not always breathed the same atmosphere, for being taller than the children, and constantly in the nurseries, with her head in the comparatively stagnant air above the level of the chimneys, while the children until the lowering of the grates were always in a comparatively pure air below that level, she had breathed the impure air much longer than they. The high ventilating valve cleared away the pernicious air from both nurse and children."

2. "There are many facts to show that the im-

* *On the Smoke-less Fire-place, Chimney Valves, and other means old and new, of obtaining Healthful Warmth and Ventilation.* By Neil Arnott, M.D. F.R.S. &c. 8vo, pp. 232. Longmans (6*s.*)

purity of retained and corrupted breath, scarcely heeded in general, has been the chief element of the foul atmosphere which has led to numerous cholera outbreaks. Thus, in England, it has been in public institutions, clean to the eye, not very offensive to the nose, and where the inmates were well fed and well clothed, and otherwise well-cared for under frequent public inspection, but where ventilation was overlooked and defective, that some of the most shocking scenes of destruction from cholera have occurred. Such was the school at Tooting, of above a thousand parish children, among whom about 300 cases of cholera suddenly occurred, and killed more than half of those affected before the crowd was dispersed. And various union workhouses, lunatic asylums, prisons, &c., in London and elsewhere, were similarly visited. Such places in the end of 1849 produced more than half the cases of cholera which then occurred about London, as is set forth at page 37 of the valuable 'Report on Cholera,' prepared by Dr. Baly and Dr. Gull, and issued by the College of Physicians. The very crowded school of the union-house at Taunton, in Somersetshire, became a remarkable example: 30 cases suddenly appeared in the room of the girls, in which the glass of the windows remained entire, while in the adjoining room of the boys, *where panes of glass were broken, and so admitted fresh air, not a single case occurred*, and there was only one other case in the whole town."

In another place the same experienced physician makes a further remark:—"One of the most hurtful to man of all the aerial poisons is that of his own expelled breath, when detained long around him and breathed again. A considerable proportion of the solid aliment and drink which he receives is thrown off by the lungs and skin, as kinds of excrementitious matter, in the forms of carbonic acid, water, and aëriform organic matter. The last-named portion gives a certain odour to the breath and bodies of many persons even in good health, by which a dog often can trace his master, and with impaired health it becomes copious, offensive, and pernicious. This organic matter, probably at first, when it may be called fresh, is harmless, for a mother does not fear to kiss her beautiful child, nor do persons in a crowded church, or other place where healthy people assemble, much fear their neighbours, but there is no doubt that it soon becomes putrid and noxious. In early states of society, before glass windows were used, and when men lived almost in the free air, they had no notion of this poison, and that ignorance continuing through later times explains to us many of the facts connected with the generation and spread of plagues or epidemics."

These are very striking statements, the truth of which no intelligent person will venture to question. But it occurs to few that Dr. Arnott's cases have everywhere their counterpart in the vegetable kingdom. The instance of the girls shut up close in the school at Taunton, and of the boys in an adjoining room, with broken windows, is precisely parallel with the plants cooped in the greenhouse, and others living in the open air. We will not pause to inquire what the exact reason is. It may be that plants are starved in the first case by want of atmospheric food, and abundantly fed in the other; or it may also be that "one of the most hurtful to a plant of all the aërial poisons is that of its own expelled breath when detained long around it and breathed again;" for if the carbonic acid removed from their system is injurious to animals, so may the oxygen or other gases expelled from their system by plants be equally prejudicial to them, for aught we know to the contrary. But it is needless to inquire how the case may really stand; if physiology cannot explain the precise reason why stifled plants do not thrive, it is enough for practice to know that the fact is so; and having gained the knowledge, to apply it.

Let a number of growing plants be shut up for many days in a chest perfectly close; all know that at the end of those days most will have died, and that such as continue to live are bleached, feeble, and perishing. This result is said to be caused by want of light; and is, no doubt, aggravated by it. But if the chest has holes cut in its sides, the evil consequences are for a long time averted; and yet the amount of light admitted by the holes is very small. Is it not rather the freer access of air which sustains life in this case? If there is no proof of the affirmative, there is an equal absence of all disproof. A glass house, shut close, is nothing but a chest, the sides of which are partially transparent. Cooped up in such a box for many days, some plants will die, and those which live will be pallid and sickly. Cut holes in the sides of the box in the form of doors and opening windows, and then also evil consequences are long averted; but they come at last. Take off the roof and sides, and robust health permanently supervenes. Yet the quantity of additional light admitted by removing the roof is but inconsiderable; plants have little more than before. What they do enjoy in abundance is free air, or it would be better to say, unimpeded respiration, with a complete absence of their own atmosphere whether it be vitiated by exhaustion or deterioration.

There can be no doubt that the instances given by Dr. Arnott of evil consequences manifestly derived from a polluted atmosphere are precisely analogous to what attend plants under similar circumstances. The yellow spindling Geraniums in Mr. Absolon Chilly's greenhouse are the scrofulous children of Russell Square. The dead and dying in Sir Simeon Suffocate's grand conservatory are the poor parish children at Tooting.

In the last number of his very interesting "Journal of Botany" Sir William Hooker laments over the want of skill yet so manifest in gardens notwithstanding our boasted horticultural eminence. Speaking of the Rice-paper plant, which has been flowering magnificently at Hong Kong in the garden of Sir John Bowring, but which still remains a poor sterile thing at Kew, he writes as follows:—

"Captain Mellersh, late in command of H.M. steamer Ranter, which conveyed Sir John Bowring and his suite to Siam, has just arrived from Hong Kong, bringing from J. C. Bowring, Esq., noble flowering racemes of the Aralia papyrifera, which have flowered in high perfection in the Governor's garden at Hong Kong, and the plants have attained to a great size: while in our European stoves our plants, imported by Sir John Bowring from Formosa at the same time with his, and of the same age, have continued small and shown no disposition to flower: forcing upon us the humiliating conviction that, however high our nation may stand as successful gardeners, we have yet much to learn in regard to the skilful cultivation of tropical plants, which, speaking generally, and of the larger and especially the shrubby kinds, so seldom yield flowers, and infinitely more rarely fruits. Mr. J. C. Bowring, whose letter accompanies these flowering specimens, observes:—'The two specimens now sent, one in bud, with copious bracteas, the other with the flowers fully expanded, are from the large plant at head-quarters here, which was a shoot from my original plant, but has much outgrown its parent. I was obliged to cut the latter down, to save its life; but it is now again a fine healthy plant, and I hope will flower next winter. The species has a very handsome appearance when flowering. The one above mentioned threw out 12 fine panicles of blossoms (besides two which I cut off before the flowers burst forth), more than 3 feet in length, and they crowned the shrub in beautiful style, drooping like magnificent plumes, in regular form over the large, dark, palmate leaves below.'"

Now, there is nothing whatever in Hong Kong which England is unable to supply, except that combination of heat and free air which nature provides in China.

Such being the case it cannot be admitted that the imperfection of modern gardens is owing to an absence of horticultural skill. The blame lies quite as much, or indeed much more, at the door of the garden architect. His business is to provide means for combining heat and the freest ventilation wherever a plant has to grow. That the garden architect cannot do. Let us hope then that a man like Dr. Arnott, eminent among the most eminent in his application of philosophy to matters of daily necessity, will turn his attention to garden structures and show how that is to be done, without which all exotic gardening is but a pretence, unless effected at enormous cost. In his most interesting volume, which concerns the exigencies of man's dwelling-places, he deals successfully with everything except the atmosphere of plants. We earnestly hope that, his first object having been gained, he will be able to direct his eyes upon lower matters, and to show us how to sanitarise the air of a plant house as well as of a dwelling house.

So much has been heard of "sports," and "varieties," and "mules, hybrids, or cross breds," and of all manner of forms produced no one knows how, from Adam's Laburnum up to Boghos Bey's trifacial Orange, that one would have thought the list exhausted. Nevertheless a Scotch correspondent tells us of a case as strange as the strangest yet recorded, and more puzzling than most.

We learn that he has a Gooseberry bush which bears indifferently on each small twig red or yellow berries, the red superior in flavour to the yellow, and both dissimilar; the reds, too, are unlike, for some are rough and others smooth; and the yellows bear seed that is red. Had a handful of yellow berries been thrown in among the reds and accidentally stuck to the branches the mixture could not be more complete. Three twigs close together may be described as follows:—

1.	2.	3.
Red	Yellow	Red
Yellow	Yellow	Red
Yellow	Red	Red
Yellow	Yellow	Red
	Yellow	Yellow

We hope to receive specimens shortly at our office. In the meanwhile those who live near Glasgow may satisfy themselves as to the reality of the sport by calling on Mr. Thomas Telfer, of Woodhouse Hurlet.

New Plants.

142. Eremurus spectabilis. *Bieberst. fl. Taur. cauc. III.*, 269. *Bot. Mag.*, *t.* 4870.

A very fine showy herbaceous hardy plant, with the habit and appearance of an Asphodel. The flowering scape is 2 or 3 feet high, and terminated by a fine compact pyramidal raceme of yellow flowers, the effect of which is greatly heightened by long rich orange-brown stamens. It is said to be found wild in Siberia, the Caucasus, Koordistan, the Crimea, and even in Scinde, where the late Dr. Stocks appears to have met with it. No doubt it is a plant of the most easy cultivation. At Kew it flowers in June.

We may add to the description in the Botanical Magazine that this is the famous *Cherish* or *Tchirish* plant of Eastern people, as we know from specimens in our herbarium collected by Dr. Dickson for Mr. Brant, her Majesty's Consul at Erzeroum, and by our excellent correspondent, Mr. H. Calvert, of the same place. The latter gentleman, in recently communicating specimens of the article to Sir William Hooker for the Kew Museum, makes the following statement:—"Jaubert, in the 'Voyages d'Aucher Eloy,' p. 200, mentions the Tchirish plant to be Asphod. ramosus, but you will see by the specimen marked No. 1365, sent to Dr. Lindley, that Jaubert is in error. The roots of this plant are dug up in May, and after separating the young tubers of the year from the older ones (the former being finer in quality than the latter), the roots are bruised, dried, and then ground to powder, and in this state are exported from Koordistan to various parts of Turkey. Its adhesive qualities render it useful to saddlers, shoemakers, bookbinders, &c., and for 'filling' for the coarse native cotton cloth, &c., wheaten flour paste never being employed in this country as a gluten. To make Tchirish paste the powder has merely to be added gradually to cold water and then stirred. Pouring water on the powder is not so effectual, as the Tchirish clogs into lumps. In May and June the young shoots are sold in town as a vegetable. When cooked, green Tchirish has a taste intermediate between Spinach and Purslane, with the glutinous property of Okra; in fact, it is by no means a disagreeable vegetable. I had hoped to have sent you seeds, but in the disturbed state of the country I could not induce any one to go for them."

It is rather curious to find our own "Bath Asparagus," namely the young shoots of Ornithogalum pyrenaicum, thus imitated among the delicacies of Koordistan.

VEGETABLE PATHOLOGY.—No. LXXXVII.

360. Cladoptosis*—(*Fall of Branches*).—It was stated above that the fall of the leaf was in many cases, and perhaps in all, a vital process, put in force by the growing plant to get rid of dead incumbrances. This view is confirmed by what takes place in the fall of branches. Fruit, moreover, follows the same laws as leaves, and when it has acquired its full growth and development separates in like manner from the parent stem. In some cases, new buds have been developed from the scar, the margin of which often swells extremely, and acquires quite a new aspect; but more frequently where the fruit has been but one of many branches on a panicle, the separation does not ultimately cease at the first scar. In the Pear, for instance, a series of sub-horizontal fissures gradually takes place as the superior parts decay, till the origin of the whole panicle is reached, and if separation does not take place, which is sometimes the case when the vital action below is not sufficiently active, the living parts are infected by the dead matter above, and canker is the consequence. Now, though there is an evident articulation at the base of each peduncle, there is none at the junction of the individual internodes, nor is there in many cases any transverse tissue of different structure from the rest which might induce rupture.

361. This disintegration of the stem of the panicle after the fall of the fruit may be considered as a sort of Cladoptosis, but there are other more palpable instances to which the name may more strictly be applied. The common white Willow is extremely subject to such an affection, and one precisely similar in the Oak was many years since forwarded by an unknown correspondent to Dr. Lindley. The cause of death in the branches is uncertain, sometimes perhaps it may be cold, sometimes the superior demands of other parts of the tree which divert that nourishment which was destined for their use. Unless some process of this kind took place, every bud upon a tree would be equally developed, and there would be no room left for the circulation of air or the admission of light. Now, if the branchlets were simply broken off by the wind, a ragged surface would be left, easily affected by the weather, and calculated to cause decay. A vital action, however,

* From κλάδος, a young branch, and πτῶσις, the act of falling.

takes place, by which the tissue of the living bark is separated from that of the dead branch, so regularly as to present on a section a concave facet; the living and dead tissues are separated by a few friable cells, and the first high wind snaps the wood, so that the branch falls out, leaving a smooth even cup. This process sometimes takes place again and again, imitating on a large scale what takes place in the common stem of the panicle in the Pear tree. Except some vital force were exercised, it is difficult to conceive how the fracture should always be so regular.

362. The disarticulation of Vine shoots, called by Ré Phriganoptosis (a word of doubtful origin), which takes place principally when the previous summer has been cold and cloudy, and the wood in consequence imperfectly ripened, is different from either of the cases mentioned above, inasmuch as there is a distinct tissue corresponding with each eye, in the line of which the fracture takes place. It may be observed most years in small lateral shoots; the larger ones fail only under a pressure of severe weather. This disease was well known to the ancients, and was called by Pliny after Theophrastus *articulatio*. As in all cases where morbific matter is likely to be communicated to the main stem, close pruning is imperative. It is the practice of some to bury the shoots of their Vines in winter; but this is in no case a good practice, and where the wood is ill-ripened can only be followed by disappointment. The only remedy which is available is the exposure of the young shoots as much as possible to light and air by thinning out everything which is superfluous, and in any case this is advisable, for good crops or well-flavoured produce can only be expected from perfectly ripened wood.

363. Larger branches are not in general thrown off, but remain when dead from accident or disease upon the tree till natural decay takes place, which, as in the Elm, is often promoted by such fungi as Agaricus ulmarius. Nature, meanwhile, has not been idle; but a cushion of healthy bark is formed all round the base ready to close up the aperture by its rapid growth so soon as the decayed matter shall have fallen out. *M. J. B.*

NOTES ON TRANSPLANTING.—No. II.

I have urged early attention to the preparation of the soil for planting, and I repeat it, because I am convinced of its importance. I could give many examples, not only of great inconvenience arising from a retardation in the progress of works, but of the waste of much time and money, resulting solely from an indifference to, or a total disregard of, such council. Half the failures in planting arise directly or indirectly from procrastination in this respect, and I shall have effected good service if fortunate enough to convince any apathetic reader of the fact.

In very stiff soils where the spaces for the shrubberies, as well as those for the smaller clumps, only are trenched, something beyond the general drains (which will be of course laid down before any other work is commenced) will be required, if, as will often be the case, no general drain passes through them. Such spaces, from the compactness of the unbroken soil around, become reservoirs for water unless some means of escape is provided for it. This should always be given. An auxiliary drain entering a contiguous one is easily added, and will be found an effectual remedy. I have seen the worst effects result from non-attention to this. The bed so circumstanced becomes converted into a quagmire, the roots of the shrubs perish, and, as a natural consequence, the plants sicken and die.

In planting single specimens on the lawn, too, similar results will have to be guarded against, where the whole area of the grounds has not been trenched. Whether a large or small site is prepared there are few situations where a drain from the bottom will not be necessary. I remember an instance—one among many similar ones—where a number of Conifers were planted singly on a lawn, the soil of which was very tenacious. Holes were properly prepared by deep trenching, and the addition of new soil, and the trees planted at the end of September. For a time all seemed well enough; but by the following spring many were dead, and others, especially the Junipers, of which there were several, had lost many branches from sheer rottenness. On examining the soil it was found to be little better than mud, especially at and near the bottom of the holes. The autumn and winter had been very wet, and as there was no outlet for the water, which of course collected in the loose soil, the trees had stood for three or four months with their roots in it, with what effect may easily be inferred. And to make the matter worse, the plants had not been placed high enough at the collar in the first instance, and the soil having settled down below the natural level, that important part of every plant was nearly always surrounded by a pool of water. Great care should be taken to prevent this, and as it is difficult to calculate to a nicety when a tree is planted in newly-moved soil, it should, when possible, be allowed to subside before the tree is placed in it. Every specimen on a lawn should stand a few inches at least above the natural level. It is important to secure this, both on account of the well-being of the plant and its appearance also. A tree standing on a gentle elevation, which seems to spring naturally from the surrounding lawn, has an infinitely superior appearance to one placed in a hollow, other circumstances being equal.

Of course the success of a transplanted shrub or tree will depend in no small degree upon the condition in which it is removed. A shrub may be planted with perfect success at a period by no means favourable to the operation if it is carefully taken up; while a similar one will fail at the best of all seasons from damage to its roots by unskilful or careless hands. A plant, it should be borne in mind, derives the chief amount of the fluids which support it by the agency of its succulent root-tips, and in proportion as these are destroyed so are the resources of the plant cut off till new ones are formed. If I were not convinced by the practice I have often seen that this advice is needed, I would not venture on so common-place an observation.

Presuming the preparation of the soil for planting to be in every respect perfect, and the season fitting, subsequent labours will be greatly influenced by circumstances attending the plants to be removed—whether they have merely to be taken from one part of the grounds to another, or at most but a short distance; or received from a nursery many miles away, and after a journey, possibly, of two or three days' duration—it will be readily understood that the conditions of the respective plants must differ materially, and will consequently demand a different mode of treatment.

I must here beg permission to say, that nurserymen are frequently charged with sending inferior plants from their being found dead a month or two after planting, when, in reality, the person who superintended the work is the guilty party. Having made this charge I must in fairness give the evidence upon which it is founded—evidence, be it understood, by no means circumstantial, but essentially practical, and which I have seen many times confirmed.

Well, then, a nurseryman receives an order for a given number of trees and shrubs, with instructions to send them by rail to a certain station, from which they will be taken by the waggons of his customer. They are of course despatched, and in due time reach the ground where they are to be planted, though, thanks to the tardiness of railway transit, they are often a long time on the road. Now, it frequently happens that the weather is very warm and sunny during the whole time the plants are out of the ground, and when they reach their destination the roots are completely dried up, and the plants otherwise drained of their moisture by evaporation. In this condition have I seen plants, and that not seldom, thrown in heaps upon the ground where they were to be planted, with perhaps an old mat or two cast over them as an apology for a covering from the wind and sun, but often with no covering at all, and then put into the ground without any other care or preparation. Small deciduous plants may, and in a measure do, bear up against such treatment; but that evergreens should survive it is a standing miracle to any one at all conversant with the constitution and requirements of vegetable life. Of course very many failures do result; nothing less could, under the circumstances, be reasonably hoped for.

I have no wish to hold up nurserymen as immaculate, or to deny that some of them do not at times send out coarse-rooted plants, and that numerous deaths are the consequence; but I also know that losses arising from the causes above noticed are often unjustly laid to their charge. I am sure I shall be pardoned for making this little digression.

Now supposing a large number of plants to arrive in the condition above described, this is how I would treat them:—Procure a tub or two each a yard or so in diameter, and 2 feet deep. Fill them to within 6 inches of the rim with water and loam mixed to the consistency of cream. Let the roots of every plant be dipped in this, and immediately "laid in," taking care that they are well covered with soil. For convenience the plants should be placed in rows, and as each row is finished give a good watering, and not only at the root, but by means of a rose to the watering-pot well sprinkle their stems and branches. All the plants will imbibe a large amount of moisture through the soft parts of their stems and branches, and the evergreens in addition by their leaves. If in the day, and the sun is at all powerful, some mats or even straw thrown over them will be very beneficial. At night this may be taken off for the sake of the dew; but nevertheless another good sprinkling from the watering-pot may be given them with advantage. By the following morning the plants will be found to have imbibed moisture equivalent to what they lost on their journey. The roots, too, will be moist and in a condition to resume their functions immediately. The value of such treatment to exhausted plants can hardly be over-rated, and will often be found the turning point between failure and success.

Plants which are merely transplanted from one part of a garden to another are always benefited by the application of a few gallons of water at their removal. The best time to apply it is when sufficient soil has been thrown in to fairly cover the roots. If applied then, the mould is washed well in among the fibres, and by filling in the remaining soil upon the wetted portion, evaporation is checked, and the moisture secured to be gradually appropriated by the plant. Mere surface watering is of little avail, unless very carefully and liberally supplied.

Newly planted trees are, however, often much benefitted by mulching, and if employed as an auxiliary to watering, a double advantage is afforded by it. *G. W. L.*

DR. JOHNSTON, OF BERWICK-UPON-TWEED.

This excellent naturalist, I regret to announce, died from the effects of a paralytic attack on the 30th July last. He was born, I believe, at Ilderton, in Northumberland, and educated at the Berwick Grammar School until his removal to Edinburgh University. In that city he resided several years as an inmate of the house of Dr. M'Crie, the ecclesiastical historian, and as the pupil and ultimately the assistant of the celebrated Dr. Abercrombie. About 1820, having graduated in medicine, he returned to Berwick and commenced practice there, carrying with him the love for natural history which he had imbibed at college, and from that time to the end of his active and useful life all the leisure he could command was devoted to his favourite studies. His residence on the sea-coast directed his attention to ichthyology, as well as to the marine worms and insects, zoophytes and sponges; and a series of his original observations and discoveries appeared from time to time in "Loudon's Magazine" and in the "Annals of Natural History," the value and correctness of which have been acknowledged by all subsequent labourers in the same departments.

His first separate work was a "Flora of Berwick-upon-Tweed" (2 vols. 1829 and 1831), which is not a mere classed catalogue of species, but a truly readable book enlivened, and not overloaded, by valuable information and appropriate poetical quotations. These volumes are illustrated with drawings of new and rare plants drawn and engraved by Mrs. Johnston, who was indeed a helpmeet to her husband in all his publications.

His medical skill and pleasant friendly manners had in the meantime gained for him a large and increasing medical practice; and the active interest he took in the welfare and progress of society led to his being appointed a magistrate, and on different occasions mayor and sheriff of Berwick.

It was during his mayoralty in 1838 that he brought out the first edition of his "History of British Zoophytes." In the preface he observes (in reference to his studies in the midst of occupation) that "idleness has no leisure." He was again mayor in 1841, when the Highland Society held their show at Berwick, when his hospitality and urbanity and varied powers of mind had full room for their display, and were gratefully acknowledged both by his townsmen and by strangers.

In 1842 appeared his "History of British Sponges and Lithophytes;" and in 1847 an enlarged edition of his "Zoophytes" in two vols. This is not only the standard text book on the subject, but is distinguished by its literary excellence no less than its scientific merits.

In 1850 he published an "Introduction to Conchology," describing not only the shells but their molluscous inhabitants. It was reviewed by the late Professor Edward Forbes in the "Westminster Review," and hailed by him as a most delightful addition to the literature of natural history. Its merits are also recognised on the continent, and it has been translated into German by Prof. Brown, of Heidelberg.

Of his last work, "The Natural History of the Eastern Borders," only the botanical portion has appeared. This was evidently to its author a labour of love, his last-born child, and it affords ample proof of the eager delight which he took in the beauties of nature, and of his genial sympathy with all those pursuits and aspirations which constitute the true happiness of man. We may particularise (what may appear to some a superfluous addition, but forms a very charming episode) a lecture read before the Berwick Mechanics' Institute on "Our Wild Flowers and our Pastoral Life," full of kindly feelings and beautiful images. In this work he refers to the assistance received from the members of the Berwickshire Naturalists' Club, a local association which embraced several distinguished names, but of which he had been the originator, its secretary and treasurer, in fact its life and soul, for more than 20 years. The transactions of the club, printed yearly for private circulation, contain many valuable papers from his pen, such as descriptions of rare plants and animals found in the locality, and complete monographs of the Sepiæ, the Mollusca and the Acarides of Berwickshire. The monthly excursions of the club during the summer months to places within 25 miles of Berwick, leave a grateful impression of pleasure enjoyed and information acquired in the memories of all who had the opportunity of attending them. *T. R.*

Home Correspondence.

Sulphured Hops.—Having read with considerable interest your opinion on this subject, I trust you will allow me to make a few remarks. I am a grower of Hops, as well as a consumer, and I state, without fear of contradiction, that I have used many tons of Hops which have been sulphured without any loss or injury, and this over a space of six years. It is a well known fact that Goldings are more susceptible of mould than any other sort, and that they also are the best when grown free from disease. I therefore consider it of importance to the brewer that this sort should be grown more extensively, which can be done if sulphur judiciously applied to them, when in a growing state, can be proved to be of no injury to the beer. To make this apparent, I offer to any of the leading houses in London, Messrs. Barclay in particular, as they have suffered from the use of sulphured Hops, that I will supply them with a sufficient quantity for a brewing, and if at the end of three or six months they consider the beer injured by the quality of the Hops, I will not only forfeit the Hops but any loss they think has arisen from the use of them. I will also pay a man, whom they shall depute, to see that they have been sulphured, picked, packed, and sent

to London. It must appear that this offer is presumptuous; but having more than 100 acres of Hops, and those principally Goldings, my apology must be that I am anxious to prove the truth of my assertion. *Charles Lency, Wateringbury, Kent, Sept. 8.*——Allow me to offer a few remarks on the controverted question whether or not the application of sulphur to Hops in their growing state occasions a bad flavour in beer brewed from them. It is admitted by those opposed to the use of sulphur, that there are only two ways in which this evil can be produced: one is that the sulphur combines with the oxygen given out by the plants, producing a deleterious gas; the other is, as stated in the Hop merchants' circular, that the sulphur is "actually incorporated into the plant during its growth." Now, with regard to the first supposition, if it were possible that sulphur could unite with oxygen without the aid of heat, the same gas would be produced as that to which Hops are exposed in the oast-house, though in much less quantity, yet the larger doses have never been accused of injuring the quality. As to the statement put forth by the Hop merchants and factors that the sulphur is actually incorporated into the plant during its growth, it is well known that no food, physic, or poisons, can be absorbed by the leaves, nor even by the roots of plants but such as are in a state of solution. I would therefore request the Hop dealers to try whether they can dissolve sulphur in water; furthermore, to bring it more under the treatment it would receive if mixed with Hops in brewing, I would ask them to boil it in water, and when perfectly cool try whether nose or palate can discover that bad flavour which sulphur is *said* to impart to beer. But they say—"It has been practically ascertained that Hops treated with sulphur impart so obnoxious a smell and flavour to beer as to render it unsaleable." If this *has* been "ascertained beyond all question," let them bring forth their proofs, and if they are sound, there is an end of all controversy; till then I remain *Dubius, Tunbridge Wells.*

Yeast.—Allow me to inform your correspondent Lucy Grey (see p. 584) that a small teacup-full of yeast is sufficient for 4 lbs. of flour, and that the best way is to mix the flour the evening before baking with a quart of warm water in the usual manner—then stir in the teacup-full of yeast. In reply to notice, p. 590 (Barm), when the stock of barm is nearly exhausted use a teacup-full in the manufacture of another quantity. *C. Clifton, Sept. 6.*

Everlasting Pea.—Has the Everlasting Pea (as it is commonly called) ever been tried as a food plant? In gardens it comes up year after year with undiminished vigour, throwing up its flowering stems from 7 to 9 feet high. Why should it not be grown in the same way as Lucerne? Its deep roots make it independent of drought. The flavour is very agreeable (like that of green Peas), and there can be no fear of its perfect wholesomeness. I believe it would bear several cuttings, and yield an immense weight of highly nutritious produce. Have any of your enterprising readers cultivated it? If not, I commend it to them as well worthy of a trial. *Wm. Marshall, Ely.*

Some Observations on the Progress of Vegetation during the Past Spring and Summer.—To both the physiologist and the gardener the past spring and summer have afforded much valuable information. The unusually cold and backward spring seemed to threaten destruction, or at least considerable damage, to advancing vegetation. General opinion placed the season nearly a month later than usual, so far as it affected the growth of plants; yet who can recollect a summer when the crops throughout the country looked more luxuriant than in the past one, or an autumn which gave a more abundant harvest than the present? To the cause, therefore, of this rapid change in the appearance of the crops I now intend to direct attention; and I shall set out with the dogma that a late spring must always be highly beneficial to the progress of vegetation in this country. I have long entertained this opinion, and the observations of successive years only confirm me in it. I do not mean to infer that a late spring has not its peculiar evils, and that some plants are not occasionally injured by it; what I contend for is that the staple crops of the country are always more abundant, and are never prejudicially late in arriving at maturity, from being retarded in the early periods of their growth; in fact that they are benefited rather than injured by what we are pleased to call a late spring. This I conceive is easily accounted for upon the recognised principles of horticulture. Everybody knows that a plant, to push luxuriantly in its branches and to ripen an abundant crop of fruit, must of necessity be strong and active at root; and, moreover, that such root action should not only keep pace with, but precede the development of its shoots. Now this is precisely what a late spring does. It must be recollected that we invariably have very early in the year, and before the proper spring season begins, a series of sunny days. The earth during this period absorbs heat to a large amount; this favours root action; succeeding this precocious spring weather we get a second edition of winter, of more or less duration; if of long continuance, we experience what in common language is termed a late spring, and all progress in vegetation above ground is checked, or kept at bay altogether; not so, however, the root, that is progressing and gathering strength for the coming demands upon its energy; and in proportion to its strength and healthy action so will be the progress of the branch when the conditions favourable for its development are present. On the other hand, an early spring, which is only another name for a warm one, is favourable to precocious development of leaf and branch; and that, too, before the root has gathered strength to support the demands upon it; and if the former once take precedence of the latter, in a plant growing in the open ground, the order of things can never be reversed. A plant existing under such conditions can never be otherwise than deficient in natural vigour. The constitutions of all ordinary plants resemble each other in this particular; if you place the bulb of a Hyacinth in a situation where its leaves and flower-stems are advanced before roots are made, you lose half the real beauty of the plant, and so of every other. *G. W. L.*

Page and Co.'s Blight Composition.—Being troubled with mealy bug I was led to try this composition, but I find that it will not kill it, and to my vexation I discovered that it burned the young tender leaves of such plants as Dipladenia crassinoda, Gardenia Fortuni, &c. Nor is this all; the smell was so offensive that no lady or gentleman could go into the house where it had been used for at least a week afterwards. *W. H. Good, Greenlands, Henley-on-Thames.*

"Calico" Potato exempt from Disease.—At p. 565 of your Number of August 25th, I find communications from several of your correspondents on the subject of the Potato disease, which is stated to have set in with severity in parts of Kent and Hants. It may be useful to such correspondents to know that there is a kind of Potato which has never been attacked by what is termed the Potato disease, and which is believed not to be liable to it. This Potato is called "the Calico," and is extensively cultivated in the township of Cornwallis, in King's County, Nova Scotia. It has this peculiarity—that the tubers and the tops grow simultaneously in this species, whereas in all other varieties the growth of tops precedes the formation of the tubers. So remarkable has been the exemption from disease of this sort of Potato, that many farmers of the township of Cornwallis, who were poor men a few years ago, are now in prosperous circumstances, the very general failure of the Potato crop for several consecutive years in various parts of the United States having caused a ready sale at high prices for their produce. *F.*

Planting.—I prefer to plant both evergreen and deciduous trees from the beginning of April to the beginning of July; my preference is founded upon extensive practice. Having, *nolens volens*, to move a great number of large bushes and trees one year, I commenced early in autumn and was not able to finish before midsummer. The trees moved correctly recorded what was best for them. Those transplanted in early autumn did pretty well; but as we gradually descended the scale of time to March, so did the appearance of the trees vary from green to russetty brown, and wan death-looking yellow, indicating as much as anything could do the months best suited for their removal, February and March being the worst. Those moved in April began to show that sap, life, and vigour had entered every spray, and they were not much hurt by the shift; those transplanted in May felt removal still less, and those in June never "looked over their shoulder." Since then I have planted many trees and shrubs of various dimensions, but have always found that the nearer midsummer the planting took place the better the success. I will here, by way of example, state what I did this season, leaving to others to prove by argument what they consider the best season for such operations. I planted between the 1st of April and the middle of July the following: 150,000 one-year old seedling Larch, of which I lost hardly any; 20,000 Birch, without loss; 20,000 Beech, of which very few died; 10,000 Alder, without any deaths; 100,000 Hazel and 30,000 Oak, with similar result, although they were not planted until the middle of June, when they had made from 6 to 9 inches of young growth. To the above must be added 80,000 Quick, of which none died; 12,000 Fruit Tree Stocks, of which not more than 60 died; 2000 Fruit Trees, of which not one died; 5000 Turkey Oak, without loss; 2,000 Roses, of which about 100 died; the latter were in full leaf when moved. Besides these there were 5000 shrubs and trees, of various deciduous kinds; these were not begun to be transplanted until the middle of May, and finished the last week in June, yet none died; the last planted are now the finest, the first planted the worst. Of 200,000 three-year old Spruce, all lived; I finished planting them the first week in July, and they are now beautiful healthy plants. Of 10,000 Spruce, from 2 to 4 feet high, all are alive and healthy. Of 20,000 Silver Firs, from 6 inches to 18 inches high, all grew; 3000 ditto, from 3 to 9 feet in height, were moved in June, when they had grown from 6 to 9 inches, yet not one died. Of 30,000 common Laurel from 1 foot to 3 feet high not one died, planted in the middle of June; 20,000 Hollies all grew, in fact this is the only safe time to move them. I could multiply instances of large numbers having succeeded when moved at this season, suffice that during the last 3 years I have moved upwards of 100,000, all of which grew; they average 2 to 5 feet, the largest of them had not been moved during 6 years, not since they were 6 inches high; some of them were when moved 6 feet high. 3000 Yews of all sizes to 6 feet; many of these were planted in a hedge, the middle of last year's July, during 3 or 4 intensely hot days, all but one grew; many hundreds of Portugal Laurel were moved at midsummer, all did well. 3000 Laurestinus moved in June did well. 1000 Laurestinus moved in October were very nearly killed. 2000 Evergreen Oaks, 4 to 7 feet, all moved in summer, only one died. 3000 small ditto, moved in June this year, all lived. and I could go on to show that hundreds, nay thousands, of Arbor-vitæ, Red Cedars, Deodars, Cedars of Lebanon, Pinuses, Cryptomerias, Junipers, &c., have been moved by me, and transplanted (many of them apparently hopeless cases) with hardly a failure. Surely I have now given examples enough—examples which can be seen daily by any one who may favour me with a call—to warrant me in advocating late spring and early summer as a good time for transplanting trees; in fact, when I have a fear of losing a tree by transplanting, I defer the operation until May or June. I may here offer one precaution which I have found requisite—viz., whenever a plant has made a start to grow, then is the time to move it; and never to move plants, as a general rule, after they have grown beyond 3 or 4 inches. To this rule Coniferæ, generally speaking, form an exception; many of them will not hurt if they have grown a foot. *John Scott, Merriott Nurseries, Crewkerne, Somerset.* [We should very much like to have the remarks of Mr. Scott's neighbours upon the experiments here described.]

What is Ozone?—This is a question that has been frequently asked within the last few years, but seldom have we met with persons capable of answering it, or of giving us any information as to what is really meant by the word. Without attempting to give a learned disquisition on the subject, it will perhaps answer every useful purpose if we bear in mind the definition that was given of ozone some two or three years ago in the *Gardeners' Chronicle* by a facetious writer, who called it "the smell of electricity." Nor is this definition inappropriate when we consider that the recently discovered agent is only a variable condition of oxygen, having a peculiar odour, by which its presence or absence in the atmosphere may be detected. The researches of chemists inform us that where there is much ozone respiration is impeded, and it proves fatal to small animals. Its chemical effects are most remarkable. It has a power similar to that of chlorine of bleaching vegetable colours, and produces the highest possible oxidation of most metals. From a communication lately made to the Royal Society by Dr. Andrews, Professor of Chemistry in Belfast, we learn that two substances have been thought to be confounded under the name of ozone, one a compound body, the other an allotropic variety of oxygen; but the result of his numerous experiments confirms the fact that ozone is formed by the action of the electrical spark on pure and dry oxygen, and that its properties, even when derived from different sources, are in every respect the same. Thus ozone, however prepared, is destroyed, or rather converted into ordinary oxygen, by exposure to a temperature of about 237° C. It is not absorbed by water, but when sufficiently diluted with other gases, is destroyed by agitation with a large quantity of water; and, contrary to the common statements, it is also destroyed by being agitated with lime-water and baryta-water, provided a sufficient quantity of those solutions be used. From the whole investigation Dr. Andrews draws the conclusion that ozone, from whatever source derived, is one and the same substance, and is not a compound body, but oxygen in an altered or allotropic condition. *W. B. B.*

Transplanting Machines—which is the best?—At page 582, a correspondent directs attention to a mode of determining this point, which (if practicable) certainly possesses some claim to the consideration of noblemen and landed proprietors who may be desirous of improving the scenery around their domains or mansions; but the practice of transplanting large trees applies more especially to laying out new places, when the object of the proprietor is to produce an immediate as well as the most picturesque effect which the extent, situation, and local circumstances of the place will admit of. The most striking effect of this kind, I believe ever produced in this country, is at the Right Hon. E. Strutt's, Kingston Hall, where some hundreds of large trees, varying in height from 15 feet to 40 feet, have been transplanted, and some trees of the latter height have been conveyed a distance of 15 miles; among these are now to be seen growing luxuriantly some fine specimens of Yew and Cedar of Lebanon. The machine employed for the purpose is somewhat similar to Mr. Barron's, but considerably improved, which the nature and the circumstances of the work required; at the same time it is but justice to Mr. Barron "to say" that to him belongs the merit of the invention of the original. Any person who wishes to form a correct idea of the merits of this machine, will do well to pay a visit to this establishment. If they happen to see the large vinery there when in full bearing (as I have), where upwards of 25 cwt. weight of Grapes are annually produced, they will be well repaid for their visit. *T. C., Tadcaster.*

Transplanting Large Trees at Gunnersbury Park.—You said in a paragraph in connection with my letter in the *Gardeners' Chronicle* of the 25th ult., that you did not know what I complained of—true; but it appears some of your correspondents were in the secret. Your report of the large trees transplanted at Gunnersbury Park would have remained unnoticed by me but for the unfair way (unintentionally on your part I dare say) in which I was made to figure in the notice. No doubt a certain meed of praise was intended for the person who had conducted the operations you mentioned so successfully. Now, not a word was said about any of the trees having been transplanted upon my system, or by my machinery, except one with a dead top! Was not this a "mistake?" [Our reporter did not know that more than one tree had been so moved. The statement was founded upon information given on the spot, at Gunnersbury.] I like to have mistakes rectified, especially when public interests are concerned. In the *Chronicle* of 1st inst., I find Mr. Forsyth says—"Mr. Barron is mistaken in stating that the major part of the trees here were moved under his direction, or that

of his man." "Such superintendence certainly did not extend to more than a fourth of the number transplanted here last autumn." I said "large trees," Mr. Forsyth leaves out large, and makes me say trees; I think this is a mistake. Most people can transplant shrubs or small trees with tolerable success, and I was not required to operate upon them; therefore I should be sorry to rob Mr. Forsyth of this honour, and to correct all further mistakes I hope he will furnish your readers with a correct statement of the names, numbers, and dimensions respectively of the large trees removed by my man and machines in September and October last, and also of those removed under his own superintendence afterwards. One more favour and I have done. Let us have the names, numbers, and dimensions of those he removed before my man taught him how to remove large trees. One word for your correspondent "Observer." I observe it is the best way to keep clear of those dangerous fellows who amuse themselves by skulking behind a bush, in order that they may indulge in a random shot without being seen. If he will throw away his popgun, and show himself among honest men who are never afraid of being seen, I can easily put him in a way to get the information he seeks for. I dare say he is not much disposed to pay for experiments. I have generally thrown my system open to all planters for the last 25 years, without charging anyone for instruction or royalty; and for upwards of 3½ years my system, with engravings of machines, has been open to the world in a published form; and unless "Observer" had been rather wanting in observation, he must have noticed that my system has long been an established fact, and not a thing depending upon his opinion. When he gives his name I am prepared to place my facts alongside of his opinions, for the benefit of the public. *William Barron, Elvaston Castle.*

Notices of Books.

Pescatorea. Iconographie des Orchidées de la Collection de M. Pescatore. Parts 6, 7, 8. Folio.

In the three parts now before us of this fine work we have representations of 12 of the most showy garden Orchids. Among these one of the most remarkable is *Cycnoches Pescatorei*, which Prof. Reichenbach distinguishes, as a new genus, naming it after Mr. Lüddemann under whose care the fine collection at the Celle-St. Cloud has long been placed. His merits entitle him to the compliment, in which his name is happily associated with that of M. Pescatore, his munificent patron. Another is *Cattleya elegans* of Morren, a very fine thing. A third is a good figure of *Cypripedium* or *Selenipedium caudatum, apropos* of which Prof. Reichenbach mentions three other long-tailed species, namely *S. Warczewitzii, Boissierianum* and *Czerwiakowianum*, the last of which names we should be thankful to know how to pronounce. Mr. Linden has contributed for a plate a most beautiful variety of *Odontoglossum maculatum*, the yellow and purple of which are as brilliant as anything in the whole order. Other plates are occupied by *Vanda cærulea, Coryanthes macrantha*, and *Schomburgkia undulata*, which we learn from the text has been named by some person *Deckeria speciosa!* Buyers of Orchids should remember the fact. We congratulate the authors of this brilliant work upon the continued success with which they obtain fine specimens for representation.

Could they not, without impropriety, occasionally admit plates of non-introduced species by way of variety, and for the purpose of guiding collectors to what is wanted. Suppose three or four species of the beautiful genus *Masdevallia*, such as *sanguinea, rosea*, &c., were put upon one plate; on another as many of the gigantic Peruvian *Pleurothallids*, very different from the uninviting things occasionally seen in cultivation; a third were occupied by *Chlorœas*, and a fourth by *Telipogons*, the most lovely of occidental Orchids, the interest of the Pescatorea would be greatly enhanced. Our friends Linden and Reichenbach could easily find the materials, and Riocreux would do the rest.

Taylor's Beekeeper's Manual (Groombridge) has reached a fifth edition. To those who want something good and cheap this may be recommended. But it must never be forgotten that beekeeping is like sheepkeeping, although it may be improved by precept, it can only be learned by practice; and also that the rudest contrivances, in a good bee country and in skilful hands, will prove infinitely more profitable than all the fine modern contrivances of boxes and boards, in the care of those who do not understand the subject.

Black's Guides to Hampshire and Derbyshire (24mo), are little directions for the guidance of tourists in these counties, well written, neatly got up, and as full of useful information as any reasonable man can expect for a shilling.

Mr. Herring has published a volume *on Paper and Paper-making*, ancient and modern (Longmans, 8vo, pp. 116), which, although of the slightest possible texture, will we doubt not be welcomed by those who are desirous of information upon a subject which is still shrouded in trade mysteries, and which deeply concerns us all.

Garden Memoranda.

Horticultural Society's Garden, Turnham Green.—In one of the pits here we observed a panful of young plants of Pampas Grass, raised from seeds presented by E. Brande, Esq., Fellow of the Society, and E. Hazlewood, Esq., of 15, Angel Court, Throgmorton Street. While speaking of this Grass it may be well to state that the fine plant of it which has been so much admired in the American garden here, but which was very much injured by the severity of last winter, has pushed strongly, and is again covered with green leaves. Before it suffered several offsets had been taken from it, all of which struck root freely.

Among novelties noticed in the above-mentioned pit, in addition to those named in our last report, were Begonia echinata, a pretty species with rough hairy leaves inclined to be variegated; B. villosa, a large-flowered kind raised from seeds imported with Botteri's dried specimens; a species of Dalea from the same collector; a Grass from Texas; and various plants raised from Sikkim-Himalayan, New Holland, and Guatemala seeds: the last were chiefly furnished by Mr. Skinner.

In one of the stoves was the curious hybrid Gesnerwort called Mandirola Roezli, mentioned at p. 451. It has large leaves somewhat resembling those of Gesnera zebrina, from among which it throws up a spike of handsome Gloxinia-like flowers. It is reported to be a cross between Scheeria mexicana and Gesnera zebrina, and is certainly a very pretty plant.

The Rose house is at present undergoing some repairs, and well do its occupants deserve such attention. Everybody knows how gay they have been all the summer, and with the little pruning-in which they received after the first bloom had begun to fade they promise to keep on flowering up to Christmas.

The Orchard house we need not say gets more interesting as its fruits become ripe; Apricots, Cherries, Gooseberries, and Currants, have all been gathered, and the trees are at present placed out of doors. Plums are an immense crop; Huling's Superb, a kind something like the Washington, Reine Claude de Bavay, Dennison's Superb, and others are, as we have before reported, loaded with fruits which on the last-named variety and the Early Prolific are nearly ripe. Peaches and Nectarines generally are also swelling fast; the Nutmeg Peach has been gathered, and Fairchild's Nectarine is nearly fit for table; the Stanwick as yet shows no signs of cracking, nor indeed of ripening. Pears, even on the very small trees, are a good crop, and the different varieties generally have done remarkably well considering the short time they have been in pots.

Vines, both in Ewing's glass wall and on open walls, have grown well this year and have plenty of fruit on them, but mildew has already made its appearance, although those out of doors were cleaned last winter, the loose bark removed, and the stems carefully painted with a mixture of tobacco water, sulphur, soft soap, and clay.

In the great conservatory one of the large Brugmansias, which serve so much to ornament this house, has been closely pruned and washed over with the composition just named. The other tree of this kind was treated in a similar way a short time ago; but it has now pushed strongly. Managed in this manner they bloom in succession, and keep the house longer gay than it otherwise would be. Hydrangeas now beautifully in flower are intermixed with the plants in the bed of this house, and during the present dull season are found to be very useful for the purpose.

In the orchard Pears and Apples on standards are a good crop, and even the young espaliers are bearing fruit; but, as we have before stated, there is little on dwarfs, the spring frosts having deprived them of most of their bloom. Among Apples gathered into the fruit room, the best at present is the Early Harvest, which was ripe this year on the 15th of August, but in ordinary seasons it is ready by the 1st. In shape it resembles a small Hawthornden; it has a crisp flesh with a rich brisk flavour. Like all early Apples it is rather precarious as to time of gathering, for if taken too soon it wants briskness, and if left too late its flavour is flat. Among Pears were some good Jargonelles from standards, also of Vallée Franche, an old French variety with a flavour something like that of the Moorfowl Egg. We also remarked fruit of the Summer St. Germain, an immense bearer and, like the Beurré de Capiaumont, a profitable Pear for market.

On the Peach wall there is plenty of fruit, which is now beginning to increase in size rapidly. We observed that a tree of the Shanghai Peach, on a Peach stock, had got the "yellows," but that another of the same variety and on the same kind of stock was green and healthy. The latter we were informed stands behind a chimney which runs up through the wall; it, therefore, has had more heat than the other. It may be mentioned that under Colonel Challoner's glass frame, which covers a tree on this wall, there is an excellent crop of Peaches, which are more forward than those on trees of the same kind that have had no such protection. By removing the sashes the fruit is now permitted to have abundance of air, without which, we need not say, it could not be expected to ripen in perfection, and the tree is thus kept in excellent health, and has made plenty of good wood for next year.

In the kitchen garden Spinach for winter use is just coming through the ground. Various kinds have been sown with a view to test their merits. Onions are a good crop here, and free from disease. One of the best sorts is the White Globe, which is also an excellent keeper. Onion d'Anvers, from Vilmorin, is a brown-coloured medium-sized kind, which is worth attention on account of its earliness.

Plants of Dioscorea Batatas, put out on an open border here under handglasses early this summer, have as yet succeeded no better than those of our correspondents, whose experience with this Yam has already been given at pp. 517, 582. Our climate evidently appears to be too cold for it.

The result of the trial of Peas sown on the 26th of June last, with the view of proving whether early or late sorts are best adapted for this season, is that Sangster's No. 1 is now fit for use, and that Prize-taker, a late sort, is very nearly so; while the Victoria and Milford Marrow are only in flower. On none of these Peas has any mildew appeared; as a preventive, however, they were all dusted with sulphur some three weeks ago, and now their health and vigour is such that even the latest of them cannot fail to yield a crop.

Miscellaneous.

Best kind of Sea-weed for Small Salt Water Aquaria.—In my previous experiments in this branch of the subject, commenced in January, 1852, and of which some results were communicated to the British Association at their meeting last year at Hull, I stated that the result of my experiments to ascertain the kind of sea-weed best fitted for maintaining the balance with the animal life was, under ordinary circumstances, in favour of the Chlorosperms, and that the Rhodosperms submitted to the like conditions did not answer the purpose desired and at the same time retain their colour and beauty, inasmuch as they very soon became coated with a growth of short green and brown Confervæ (Conferva tortuosa?), which entirely mantled the whole surface of the fronds and destroyed their characteristic appearance. During these investigations, however, it occurred to me that it might be possible to obviate this drawback, and I have I believe succeeded, after a series of experiments, in overcoming this inconvenience, and can now retain them in all their natural loveliness and render them quite efficient for all the purposes required, that is, as consumers of carbonic acid and generators of oxygen. The ground on which I have reasoned as a basis for these experiments has been the consideration, that nearly the whole of these red or pink-coloured sea-weeds are found either in deep water or under the shade of other Algæ, and from the fact that they were also often known to occur in shallow rock-pools; it was hence fair to assume that the pressure of the column of water could not be an important element in the production of these coloured growths, and therefore that it must depend upon a modification of the light. Hence my idea was that the effects of the depth of the water might be capable of being imitated by tinting the light through the interposition of coloured media, and thus all the results observed in the vegetation, and much even of the healthy animal life of deep sea-water could be, under this arrangement, assimilated; and this, I am happy to state, has proved experimentally to be the case, so that, by very simple means and with very little trouble, we shall be enabled to grow and preserve these elegant and beautiful plants in all their varied hues, as well as many of the wondrous forms of animal life usually found associated with them for any length of time; and thus a much enlarged field for observation will be brought within the limits of our aquarium. In order to obtain this desideratum, a medium having a blue or green tint has been had recourse to, and of such a nature as merely to colour, soften, or diffuse the light, without materially diminishing its quantity. This was at first accomplished by the employment of a thin film of paint of the desired shade, of a thin silk gauze of a blue colour, by layers of tissue paper tinged blue and green, sometimes oiled to render them more transparent, at others the sheets of paper being superposed until the desired effect was produced; or by coloured varnishes, blue, and blue and yellow, and mixed to the tint required. These materials should be applied to the surface of the glass, or interposed between the source of light and the water, in such a way that the whole of the light which directly illuminates the aquarium may be tinted of the proper colour. In proportion to the quantity of light at command and the varying aspect to the sun's rays, so must the transparency of the colouring medium be adjusted. In my own case, I have been obliged partially to employ coloured glass, as the other methods were found to impede too much of the direct light; but it must be borne in mind that this is in the midst of a crowded city, in a smoky atmosphere, and surrounded by tall houses. To such an extent has this plan succeeded, that several small attached pieces of delicate red sea-weed which I had received in October, 1852, and had become thickly mantled with the brown and green confervoid growth already alluded to, and which had not exhibited the least signs of vitality, on being placed in a small glass jar arranged with tinted and oiled tissue paper, soon lost the whole of this parasitic growth, from its gradually decaying, and being then consumed by the mollusks, the fronds assuming their deep crimson hue, becoming perfectly clear, and even, after so long a period, throwing out numerous young shoots or leaflets; and on one of these pieces several beautiful specimens of the Coryne sessilis made their appearance, together with groups of Lepralia and corallines. *Warington in Annals of Natural History.*

The Nut (Corylus avellana), is said by Pliny to derive the name of avellana from Abellina in Asia, supposed to be the valley of Damascus, its native country. He adds that it had been brought into Asia and Greece from the Pontus, whence it was also called nux pontica. Theophrastus calls these nuts by the name of Heracleotic Nuts, a name derived from Heraclea, now Ponderachi, on the Asiatic shores of the Black Sea. Hippocrates gives them the name of Carya thusia. Dioscorides says they were also known by the name of leptocarya, or small Nuts. Other ancient writers confound the Nut with the Chestnut and the Walnut. But all the above indications of importation from the East relate only to particular varieties, for the species, as is well known, is common enough in Italy, as in the rest of Europe and a great part of Asia, in a really wild indigenous state. *Journal of the Horticultural Society of London.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Hyacinths and other Dutch bulbs are now being offered by the dealers in this country, and should be procured and potted without delay where they are wanted for early forcing, and even where early forcing is not intended there will be a better chance of procuring first-rate bulbs now than some months hence; for as a matter of course the earliest purchasers endeavour to secure the most promising bulbs. Plants of the Citrus family meant for forcing in winter for the decoration of this house should now be fully exposed to the sun and air, in order to get their wood well ripened, upon which their flowering freely will greatly depend. The Mandarin Orange being a free grower, with a dwarf bushy habit and small foliage, and a most abundant bloomer, is probably the best for this purpose, but any of the varieties flower profusely provided the wood is thoroughly ripened in autumn. These and the deliciously fragrant Daphne indica are invaluable for winter blooming, and should be largely grown for this purpose wherever sweet-scented flowers are in demand at that season. Also see to having plenty of the old Salvia splendens, which is an exceedingly gay plant and very useful for mixing among the Chrysanthemums in the show-house. We have found it a good practice to place the largest plants of Salvias in a shady situation out of doors for a few weeks in autumn, and plants so treated will be found to bloom more strongly, and last longer in beauty than others run up in a warm house.

Greenhouse. — Look carefully after the watering of large specimens of hard-wooded things, especially Heaths and other fine-rooted plants, which are soon injured by being either over or under-watered. Examine the specimens often and carefully, and where they are found to be dry water thoroughly, so as to moisten the whole of the ball; also look sharply after mildew on the soft-wooded Heaths, and dress the plant with sulphur directly the enemy is perceived. These will, however, be mostly out of doors, where mildew is seldom troublesome, but they must be guarded against getting too wet at the root—laying the pots on their sides during heavy rains, especially plants that have been recently repotted. Get Azaleas that have set their buds tied into form as soon as can be done, in order to give them a neat appearance. Also attend to the staking and training of other things as leisure time can be found. Look carefully after red spider on Bossiæas, Chorozemas, and anything else found to be liable to this pest, and see that it is eradicated before the plants get disfigured. Page & Co.'s composition, according to some parties, appears to be a cure for all kinds of insect pests, but there must be different samples of this sent out, for we had much the same success with it as Mr. Gordon (see p. 488), who seems to have found it about as useful as soap-suds. Red spider is, however, easily got rid of by laying the affected plant on its side, and well washing the under sides of the leaves with the engine, applying the water with as much force as the foliage will bear. Shake out and repot Pelargoniums that are sufficiently advanced after having been cut back, keeping them rather close and moist until they strike into the soil. But plants that are fairly established after repotting can hardly be too freely exposed to air, or kept too cool. Also keep Cinerarias cool and moist, and attend to repotting such as require it, and fumigate immediately aphides are perceived upon any of the plants. Primulas must also be carefully attended to, in order to encourage them to make rapid growth, particularly the double varieties, which are hardly surpassed as useful subjects for winter decoration. Keep Tree Violets clear of their great enemy, red spider, by a liberal use of the syringe, and give them plenty of manure water, which will assist in keeping them in vigorous health.

FORCING DEPARTMENT.

Pineries.—Where the pot system of cultivation is practised, any of the stock which may appear to require repotting should be examined and shifted at once, if this is found necessary, in order that the roots may get hold of the fresh soil before dull cloudy weather sets in, when it will not be safe to encourage free growth. And any necessary re-arrangement of plants growing in the open bed should also be effected as soon as possible, as with a little care in shading on bright days and keeping the atmosphere moist, this can be effected at present with very little risk of checking the plants, so as to throw them into fruit, and there is also plenty of time to get them well established after removal before the dormant season. Encourage plants expected to show fruit next January to make vigorous growth, for these should be sufficiently advanced by the middle or end of next month to allow of keeping them rather cool and dry through November and December, so as to check and thoroughly mature their growth, as unless this is attended to there will be considerable risk about getting them to show fruit at that season. Plants which have been prepared for fruiting, and which it is desired to get up at once, should be encouraged with a moist warm atmosphere, keeping the soil about their roots in a healthy state as to moisture. Some persons have a dread of applying water at the root in the case of plants that have been kept dry for a time to check growth, and withhold it until the fruit is perceptible; but this is an error, causing loss of time as well as injuring the plants, as unless root action is encouraged, plants cannot be expected to start freely. If artificial treatment must be resorted to in order to get the plants to fruit at the desired time, there is no method so certain or so little injurious to the plants as keeping them cool and dry for a month, exposing them to as much sunshine as the foliage will bear without scorching, and then affording them a moist warm temperature and a brisk bottom-heat, giving sufficient water at the root to properly moisten the soil. Take off and pot, or plant out suckers at short intervals as they can be obtained of sufficient strength, for having a regular succession of plants is the most likely way to secure a regular supply of fruit. Vineries.—Take advantage of the present dry weather to give air freely in houses where the ripening of the wood is the object, and if a little fire heat is used, with air, this will be much more efficacious now than later in the season, when the sun will be less powerful. But save in the case of young Vines with a very gross habit it will hardly be necessary to use fire heat while the weather continues dry and sunny. Keep the surface of the border in a free open state, so as to encourage evaporation, for keeping the roots too wet is the main cause generally of the wood being backward in ripening at the proper time. Figs.—Where the second crop is ripening keep the atmosphere as dry as can conveniently be done, and also let the trees be on the side of dryness at the root, but avoid such a degree of dryness as would be likely to injure the foliage or the bearing wood for next crop. Keep the shoots thin and neatly tied in, so as to expose it fairly to light and air, but avoid stopping young shoots at this season. Keep the atmosphere moist where the fruit is swelling, giving the foliage a good washing with the syringe frequently to prevent red spider, and give plants in pots or tubs a liberal supply of manure-water. Melons.—Take advantage of bright weather to give the soil a good soaking of water where this is necessary, and also to trim the vines, removing all useless laterals, &c., which is best done in bright weather, as then there is little danger of the canker ensuing. Give air as freely where the fruit is ripening as the state of the weather will permit, and keep the atmosphere as dry as possible. If any of the late plants are unfortunately infested with spider, play the syringe morning and afternoon as freely as can be done without injuring the foliage; and use every means to get the plants perfectly clean while the syringe can be used without danger of damp, &c. Where a supply of Cucumbers is required through the winter vigorous young plants should be procured at once, either from seed or cuttings, as plants that have been bearing through the autumn, however promising they may look at this season, seldom answer well for winter fruiting.

FLOWER GARDEN AND SHRUBBERIES.

The stock of cuttings should be carefully looked over to see that nothing has been omitted, and that a sufficient quantity of everything is in a promising state for making nice stocky plants before winter, and if it is found that the stock of anything is insufficient not a day must be lost in getting in cuttings, for it is already late in the season for this kind of work, and it will be well to bear in mind that plants of things which are at all difficult to winter rooted after this season may be considerably thinned before spring, and also that they will not be sufficiently strong to furnish many cuttings for spring propagation, and consequently to provide a larger quantity than would have been necessary had the cuttings been put in a month ago. But if there is a reserve stock of strong plants in pots, which is a safe practice where there is a large quantity of bedding stuff required, and proper convenience for growing them and propagating in spring, these will furnish a large quantity of cuttings next March which will form equally good plants by turning out time as cuttings put in now. In the case of such things as Ageratums, Heliotropes, and dwarf Lobelias, it is useless wintering young stock, as these grow so freely in heat, and are so easily propagated from soft cuttings that a few good sized old plants which require but little room or attention in winter will furnish a very large quantity of plants by turning out time. See, however, where there are not plants to furnish spring cuttings, that plenty are got in at once, so as to provide while it can be done against the risk of being short of stock at turning out time. Attend to the potting of such cuttings as are sufficiently rooted, and give every after attention to these in order to get them well established before winter. Sow hardy annuals in the reserve ground for transplanting to assist in furnishing an early display next season, for which they are exceedingly useful. Persevere with mowing and other routine work, and go over the beds frequently, removing dead flowers, &c., and while the garden is in full beauty, spare no effort to have everything in and about it in the best possible state of keeping.

HARDY FRUIT AND KITCHEN GARDEN.

Take advantage of the present dry state of the ground to get Celery earthed up, first thoroughly soaking the lines with manure water, also apply quicklime where slugs are troublesome. On heavy soils it is sometimes necessary to surround the plants with sand or sifted ashes to prevent their rotting off in winter, which they are apt to do if surrounded with soil that holds much water. Where anything of this kind is necessary it will be advisable to defer earthing up till later in the season, as frequent soilings of this sort would be very troublesome. Also pull Onions where ripe, and get them dried while the weather is favourable. Thin young crops of Turnips, Spinach, &c., before they become weakly and drawn, through standing too closely together. Stir the surface of the soil deeply among growing crops, to admit air to the roots, and keep down weeds. Let nothing suffer for want of water, especially recently planted Strawberries; these will be benefited by liberal applications of manure-water. Get spare ground manured and dug or trenched for another crop whenever time can be spared for this kind of work.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Sept. 6, 1855, as observed at the Horticultural Gardens.

August and Sept.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Friday 31	19	30.210	30.181	78	41	59.5	65½	61	E.	.00
Satur. 1	20	30.346	30.282	68	45	5[illegible].5	65	61	N.W.	.00
Sunday 2	21	30.315	30.146	67	45	56.0	61	60½	N.	.00
Mon. 3	22	30.151	30.058	71	50	60.5	61	60	N.E.	.02
Tues. 4	23	29.997	29.962	68	44	56.0	61	60	N.W.	.01
Wed. 5	24	30.018	29.987	64	42	53.0	60	60	N.E.	.00
Thurs. 6	25	30.274	30.226	62	36	49.0	59½	59	N.E.	.07
Average.		30.184	30.120	68.3	43.3	55.8	61.8	60.2		.03

Aug. 31—Very fine throughout.
Sept. 1—Clear; fine; clear and cold at night.
— 2—Flying clouds; cloudy; overcast.
— 3—Clear; showers occasionally; fine.
— 4—Overcast; cloudy; slight shower; fine.
— 5—Fine; cloudy; clear and cold.
— 6—Clear; cloudy; fine; cold at night.

Mean temperature of the week 3½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 29 years, for the ensuing week, ending Sept. 15, 1855.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 9	68.1	48.9	58.5	13	10.9 in.	—	5	2	2	5	7	6	2
Mon. 10	69.3	47.1	58.2	17	12.7	—	4	2	1	6	6	8	3
Tues. 11	68.5	46.3	57.4	9	0.46	2	3	1	3	4	4	8	4
Wed. 12	67.7	45.6	56.6	10	0.49	4	4	1	4	1	4	10	1
Thu. 13	67.2	46.0	56.6	13	0.40	2	3	6	2	2	5	6	3
Frid. 14	66.7	46.9	56.8	14	0.84	1	3	6	3	2	6	6	2
Satur. 15	66.6	46.5	56.6	15	0.63	—	5	4	2	7	1	5	5

The highest temperature during the above period occurred on the 12th, 1841—therm. 84 deg.; and the lowest on the 9th, 1851, 11th, 1854, and 12th, 1848—therm. 31 deg.

Notices to Correspondents.

Apricots: *Cardiff.* Arrived quite safely this time, although misdirected.

Books: *Sub.* Barron's "Winter Garden."—*J Br.* We cannot assist you. If the publishers do not continue to sell the "Vegetable Kingdom" in parts, we presume that they have reasons for refusing. At all events it is no affair of ours.

Californian Laurel: *J N L.* Sow the seeds in pans now—taking care not to bury them too deeply—and winter them in a cold frame. They will come up in spring. ‡

Fir Trees: *W P.* Single specimens may be transplanted any time between Sept. 1 and Oct. 30, provided proper precautions are taken. If the operation is on a large scale with small plants wait till November.

Fleas: *Voyageur.* No plant growing in this country is known to have the power of repelling vermin. Both the common Chrysanthemum Leucanthemum and Inula Pulicaria are *said* to possess the property—but we cannot vouch for it. It is not known what plant is used in preparing the Piré-oti of Orientals.

Glass: *Subscriber.* We are decidedly of opinion that *Hartley's* rough horticultural plate glass is the best for Melon pits. It is altogether a mistake to suppose that Hartley's glass does not transmit light enough. We speak from experience.

Heating: *J K R.* A common flue is the least expensive mode of heating your small greenhouse, and it will be found quite sufficient to keep frost out of it.‡

Hollies: *D Q.* They do not form berries because the flowers are destroyed by cold in spring.

Insects: *W D.* Your Pear and Cherry trees are infested with the slimy grubs or larvæ of the black-winged sawfly, Tenthredo (Blennocampa) æthiops. Dust the leaves with lime or syringe them with lime-water. A boy with a large camel's hair pencil dipped in the lime will be able to destroy all the grubs on a tree in a quarter of an hour, touching each grub with the brush. This is a more certain and less unsightly plan than dusting the trees indiscriminately.—*Q H.* See the last answer; you will find the history and figure of the insect in *Gardeners' Chronicle*, 1842, p. 692. Its appearance is in no ways connected with the darkness which suddenly came over Blackheath a fortnight ago.—*M J B.* Your larvæ feeding on the parenchyma of Geranium leaves are the very young caterpillars of one of the Noctuidæ, most probably Mamestra oleracea.—*W B.* The insects found on your Juniperus Virginiana are apparently young wingless individuals of Lachnus Juniperi, of De Geer (Mem. III., tab. iv., fig. 7.) Fumigation under a parapetticoat would destroy them.—*A Constant Reader.* The yellow flies which have attacked your Pear leaves are a small froghopper (Typhlocyba flavescens?). Dusting the leaves with lime will prevent them attacking the parts covered with the dust; but as the insects are very active, and the lime cannot be made to cover the leaves entirely, the flies cannot be thus destroyed. A few sheets of paper coated with the slimy matter used for the common fly-papers and laid under the trees, the leaves of which should then be shaken, would destroy numbers of them. *W.*

Names of Fruits: *T C.* Red Astrachan Apple. ‖

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*J.* Rosa microphylla and Clethra arborea. —*J O'B.* Pteris aspericaulis Wall., a native of Nepal and other parts of India. *S.*—*R A A.* Physianthus albens, a Mexican plant.—*Erzeroum.* 378 and 118, Astragalus aduncus; 529, Ast. echinus; 332, Astr. Lagurus; 1382, some form of Pinus Pumilio. —*T C.* Campanula Loreyi.

Pæony-seeds: *E A G.* Sow them now in pans, in light loam and peat. Just cover them with soil; keep them on the north side of a wall, and they will come up next year or the year after. Do not water them, but let them take their chance of weather.

Russian Mats: *A Correspondent* says, in answer to "R. G. F.," that the best substitute for these is Frigi Domo, *if of good quality;* but he adds that it will not do for packing or tying purposes.‡

Scotch Firs: *A Sub.* The enemy is the well-known Hylurgus piniperda. The subject is so important that we will refer to it at length next week.

Sir Harry Strawberry.—The letter from Lancaster is an advertisement. The inquiry by Fragaria has been sufficiently answered already. No doubt the Strawberry in question is a good one.

Misc.: *T T.* All stove plants except Erythrina laurifolia and Statice Holfordi.

*** As usual, many communications have been received too late and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*

Office, 69, King William Street, City, London.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE LONDON MANURE COMPANY'S NITRO-PHOSPHATE OR WHEAT MANURE FOR AUTUMN SOWING.—This Manure, composed of blood, animal matter, and dissolved bones with silicates, is most strongly recommended to the notice of Agriculturists. It contains from 7 to 8 per cent. of nitrogen, in a form yielding ammonia by slow decomposition, and is therefore particularly adapted for Wheat. The quantity required is 2 to 3 cwt. per acre drilled in with the seed. Price, per ton, 7*l.* 10*s.* in London.

PERUVIAN GUANO, FISHERY SALT, and every other MANURE on best terms, strictly warranted.

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CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

FIRST PRIZE REAPING MACHINE.

NOTICE.

MESSRS. BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to SAYNOR & COOKE for their superiority of material and workmanship. Established 1738.

PORTABLE STEAM THRESHING MACHINES.—The time run by the four highest Portable Steam Engines at the Carlisle Meeting of the Royal Agricultural Society in July last, with 14 lbs. of coal to the horse power, was:—

Tuxford & Sons	3 hours and	47 minutes.		
Clayton & Co.	3	do.	27	do.
Barratt & Co.	3	do.	10	do.
Hornsby & Son's...	2	do.	54	do.

At the North Lincolnshire Society's meeting at Boston, in August last, Tuxford's and Hornsby's Engines again came into competition, when Hornsby's was again left a long way behind, with 14 lbs. of very inferior coal; the time run was:—

Tuxford & Sons	3 hours and	3 minutes.		
Hornsby & Son's...	2	do.	43	do.

And had the testing apparatus which was supplied to the society from Grantham not indicated the steam pressure falsely by several pounds on the inch, the difference would have shown fully twice as much to the advantage of Tuxford & Sons' Engine.

At the recent trials of Threshing Machines at the Paris Universal Exhibition, M. Tresca, the Government Engineer, employed as the motive power one of Tuxford's Portable Machines which had been purchased by the French Government.

The COMBINED THRESHING, SHAKING, and DRESSING MACHINE of Tuxford & Sons, was "highly commended" this year by the Royal Society at Carlisle; the Bath and West of England Society at Tiverton, &c.

Illustrated Catalogues, with prices, forwarded on application to TUXFORD & SONS, Engineers, Boston, Lincolnshire.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, His Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

THE BEST PROTECTOR FROM THE HEAT OF THE SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

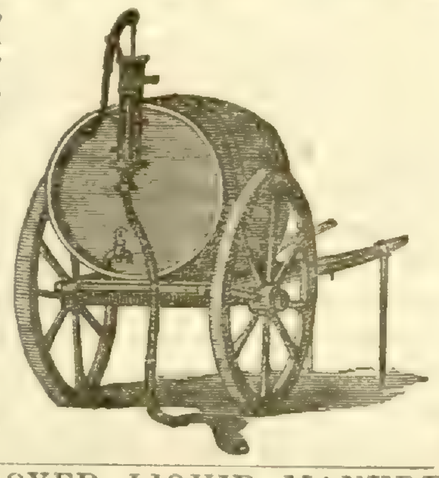
CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the nobility, gentry, and clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of colours, prices, together with a copy of the testimonials, will be sent on application to WALTER CARSON & SON, 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY, WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

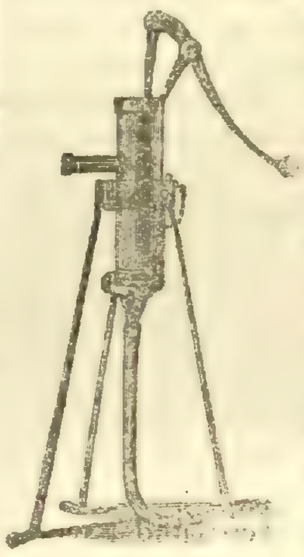


Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 6*d.* per foot.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2¾ „	long 3 „ 3 „		1	15	0
3 „	ditto 3 „ 6 „		2	12	0
3½ „	ditto 3 „ 6 „		2	18	0
4 „	ditto 3 „ 6 „		3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto	ditto ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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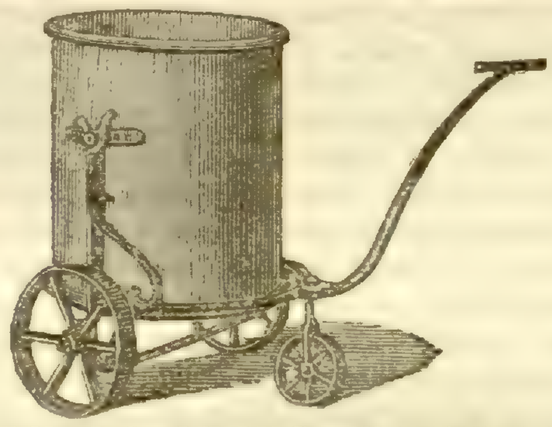

WARNER'S SWING WATER-BARROW (TO HOLD THIRTY GALLONS)

Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l.* 3*s.*

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GALVANISED IRON TUB GARDEN ENGINE, WITH WARNER'S REGISTERED SPREADER,

is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

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DRAINAGE OF LAND.

MR. HUMBERT, of Watford, Herts, a practical Surveyor and Land-Agent of more than 15 years' standing, offers his services to Gentlemen about to drain Land and Bogs. He will undertake to set out and superintend himself the execution of the work at a charge of 5*s.* per acre, and the expenses incurred in his travelling; or he will contract to complete it in a specified manner to the satisfaction of the Inclosure Commissioners at a fixed price per acre. Mr. Humbert has drained strong stony land in the most careful and complete manner, with 1¾ inch pipes, and proper mains, the drains being 4 feet deep and 30 feet apart, at 4*l.* per acre and under, and he can give reference to his employers in that and in other instances.

Watford, Herts, Sept. 8.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 8, 1855.

THE subject of Agricultural Statistics is probably exhausted in the report of the Lords Committee appointed to inquire into it, which has just been published. Mr. HALL MAXWELL, Sir J. WALSHAM, and Mr. HAWLEY, and others who have superintended the experiments hitherto made and the successes hitherto achieved in this direction have here recorded their experience and their opinions. Mr. CAIRD, Mr. TORR, Mr. LEONE LEVI, and other gentlemen practically engaged in agriculture, or students of its relations to the general interests of the country, have also been called on for such information and advice as they could give. And the committee, as the result of all this comparison and in some instances contest of opinion and of information, have arrived at a report, from which we extract the following paragraphs:—

"1. That the systematic collection of agricultural statistics throughout the United Kingdom is an object of national importance, and that amongst the many classes that would benefit by it, none would derive greater advantage than those connected with agriculture.

"2. That it is expedient that powers should be given by Act of Parliament to compel the occupiers of land to make the necessary returns, in case of their neglect or refusal to do so.

"3. That the Board of Trade should be intrusted with the general superintendence of the collection of the statistics in Great Britain, through the medium of the Poor-law machinery in England, and the Highland Society in Scotland; and that the Irish Government, in continuing to superintend the collection for Ireland through the agency of the constabulary, should from time to time consult with the Board of Trade on the subject, for the purpose of securing as much uniformity as possible in the returns obtained for the different portions of the kingdom.

"4. That two classes of returns should be annually obtained, the first containing facts and the second estimates; and that the facts should consist of returns of live stock, and of the acreage under each description of crop, while the estimates should consist of estimates of the produce of the harvest. The acreage and stock returns should be sent in by the 15th July, and the estimate returns made up between the 1st and 30th of November.

"6. That the inquiries should not be required to extend below holdings of two acres in England and Wales."

These conclusions seem borne out by the evidence in the Blue book which accompanies the report, and we may presume therefore that we shall next year have a greatly enlarged development, in England at any rate, of the experiments made in some of the counties with reference to last year's crop, while in Scotland, where complete success has been achieved, the matter will properly remain in the hands of the

Highland Society and their indefatigable secretary Mr. Hall Maxwell.

It appears from the perusal of the evidence that there are three plans proposed for the collection of the information sought—that of the Board of Trade, by which schedules placed in the hands of individual occupiers are collected by parish or union officers, and collated at a central Government office, which is responsible merely for the arithmetical process of addition, and for the correct publication of the result: that of Mr. Hall Maxwell, by whom in his capacity of Secretary to the Highland Society schedules are in like manner issued, received, and collated—he wielding, however, something more than the influence which Government possesses, seeing that there has been a long standing and inherited relationship existing between Scottish farmers and their national Agricultural Society which gives to the former confidence in the requests and recommendations of the latter, while it gives to the latter reasonable confidence in the good faith and intelligence of the former: and, lastly, there is the plan of Mr. Caird, who would employ district officers having such an extent of land under his supervision as he could traverse in the three months before harvest, visiting all the occupiers of it during that time, and ascertaining from them the acreage of the several crops. These inspectors would thus furnish the acreage of the several crops before harvest, and having access to parish maps and other sources of information, they would be to a certain extent a check upon the inaccuracies of the returns of the several occupiers. So far the result of their labours would be the same as that furnished by Mr. Hall Maxwell's correspondents; but there would be this special advantage in connection with Mr. Caird's plan, that a series of official reports of the prospects of harvest would be obtainable during the few months of summer from qualified reporters scattered over the country at the rate of about five to a county—reports which would furnish the best information possible at a time when correct information on the food prospects of the country is especially valuable. After harvest these reporters would, on their own responsibility, return their judgment of the crops with reference to that very vague term which is called "the average of the district," and we should learn the united opinion of these officers as to the extent to which the produce has exceeded or fallen below an average. Mr. Hall Maxwell's reports of the harvest are the opinions of committees not as to the relations of the crop to "an average," but as to the actual yield per acre—and we suppose that the estimate of a crop formed by any one who has walked through it is generally given in this form rather than in the other: he concludes in the first place that it is so much per acre, and *then* he perceives that it is so much above or below what is generally yielded. Mr. Caird's *inspectors* will no doubt obtain and avail themselves of the assistance of the farmers in forming their own conclusions as to the probable yield per acre, and so far their returns would probably be as trustworthy as those of Mr. Maxwell's committees; and after all, it matters very little whether the gross produce of a district be obtained by multiplying the acreage into the surplus or deficiency per acre, and adding or subtracting that from a total average yield previously calculated, or by multiplying the acreage into the directly estimated yield per acre of the district—the latter is the simpler method, and proceeds upon data that must be taken for granted in the other case as well. The methods of determining the acreage of the crop are the really important features of the several plans; and while we think Mr. Maxwell's plan under the circumstances personal and national in which he and Scottish farmers are placed should be persevered in, there can be little doubt that the method of paid and responsible inspectors of districts, suggested by Mr. Caird, is much superior to that which has been hitherto pursued in England, by which the returns are obtained through the intervention of the Board of Guardians. There is a good deal of force in the objection of Mr. Maxwell to the employment of any machinery that would connect in the mind of the farmer the returns he was asked for with any possible use of them for the purposes of taxation; and, on the other hand, there is undoubtedly great force in Mr. Caird's objection to all plans which have not within them the operation of a test of the accuracy of the returns received. Such a test, whether merely occasional, and so to speak accidental, as in Mr. Maxwell's plan, or systematic and inherent as in Mr. Caird's, will ensure the greater trustworthiness of the results of the inquiry as year by year it is repeated; the absence of any such test may result in untrustworthy conclusions, which, making trade calculations false instead of uncertain, as at present they are, will make so-called agricultural statistics more an evil than at present the absence of them is.

The effects of Climate on Fertility are but little under our control. Such ability as we have depends upon the influence of shelter and of drainage, together, let us add, with the adoption of such means for supplying food as shall enable a plant more rapidly to attain maturity, and so complete its growth during the best season of the year. We have no power over the constitution of the plant itself. The idea of acclimatation by the influence of habit on the plant is founded in mistake. Our highest authority on such subjects is perfectly clear on this point:—"Nothing seems more perfectly made out," he says, "than that all plants demand a particular climate—that is to say, a peculiar combination of temperature, moisture, light, and atmospheric pressure, in order to arrive at perfection; and that all considerable disturbances of the proportion in which such combinations are naturally provided are prejudicial or fatal to the health of plants. A particular temperature of the soil is required for germination; one seed will vegetate at 33°, and another requires 80°. A particular heat is requisite to healthy growth; the Almond will expand its flowers at 40°; the Horse-Chesnut demands perhaps 60°: the temperature which is favourable to the growth of one plant is prejudicial to another, and fatal to a third. At 40° the Cabbage thrives, the Kidney Beans and Cucumbers languish, and the Sugar Cane dies."* We have to accept these conditions of the life of the plants we cultivate as absolute and ultimate truths without explanation and without remedy. But although we cannot alter the character of a plant, we can to some extent alter the circumstances under which we cultivate it. "It is a great mistake," as Dr. Lindley states, "to suppose that plants are affected only by the temperature of the air; they are perhaps more affected by that of the soil in which their roots are placed: and there can be no doubt that crops can bear with less inconvenience a warm soil and a cold air, than a cold soil and a warm air." It is at this point, then, that, so far as fertility depends on climate, the power of the cultivator is apparent. "With ordinary field crops a difference of a few degrees of the temperature of the soil causes a most material difference in the healthiness of vegetation or the fitness of the land for the cultivation of a given species. According to the experiments of Mr. Ferguson the mean temperature of the soil near Edinburgh may be taken to be 52° during the summer months. But if it were to fall to 47° it is doubtful whether Wheat would ripen well, or at all." As regards, then, this important agent—temperature of soil—our power of influencing it chiefly depends on drainage. The warm showers of spring in well drained soils at once penetrate and raise the temperature of the mass, and seeds and shoots spring up with vigour. That is one way in which drainage operates at the most important season of the year. Its main influence, however, depends on the diminished evaporation thus permitted from the surface of the land, for the quantity of water which escapes by drainage from a field is much larger than the quantity which runs off the surface of an undrained field of similar size adjoining it; and the difference between either and the rainfall is, of course, evaporated. The one is a vessel open below, the other will hold water, and both being exposed to rain and showers, with intervals of fair weather, it is plain that *all* that falls upon the latter must escape by evaporation, except such portions as run over the edge when the vessel is full; and this evaporation reduces temperature. In his paper on the Fens of Lincolnshire Mr. Clarke says—"So great is the amount of heat stolen from the soil in the process of evaporation that it has been estimated every gallon of water prevented from evaporating by being drained away, adds as much to the temperature of the soil as six gallons of boiling water poured into it." The correcter way of putting it would have been to say that every gallon so evaporated abstracts as much heat as would need so much boiling water to replace it. "Evaporation removes from this district on an average throughout the year about 45 gallons per acre in an hour, which, however, is reduced to 18 gallons in the wet months; if, therefore, water is allowed to lie on a fen three days longer than it could do, there are 1296 gallons more per acre evaporated than there would otherwise be, and an amount of heat lost from the soil equal to that contained in 144 hogsheads of boiling water." But the greater coldness of wet soils and the advantage in point of temperature which is gained by ensuring the passage of air-warm water *through* the soil are referred to in great detail in Mr. Parkes' well-known paper in the fifth volume of the Journal, and we will not dwell further on them. It must be understood as one ascertained cause of the greater fertility of a drained soil, that its higher temperature has a most material influence on the abundance and early maturity of its produce.

Leaving then, the adaptation of the soil as regards temperature to the constitution of the plants we cultivate, we come to its powers as a laboratory, store-room, and machine for feeding plants. Perhaps even yet another exception must be made before we can discuss this purely manufacturing treatment of the subject; for independently of the power of soil to feed the plant, the relations of the former to the latter when they are adapted to one another may, to a certain extent, be asserted, just as its climatic conditions are, as a mere ultimate fact, originating in the habit, constitution, life, of the plant itself, and so remaining without explanation. Thus Wheat and Beans affect a stiff soil, and Barley a light one; Cabbage and Mangold Wurzel affect adhesive loams, and the common Turnip a sandy soil, apart, to some extent, from the powers of these soils to supply their natural growth. This is, we believe, to a certain extent, the case, but less so than is generally imagined. The case of Italian Rye-grass may be taken as an illustration. The two farms in this country where it has been grown most successfully are Willesdon, near London, and Cunning Park, near Ayr—the one a stiff and heavy clay, the other a light and almost blowing sand. The former is the natural soil of the plant, but the natural deficiencies of the latter have been more than made up by the abundant artificial supplies provided through it.

Leaving then this reference to those requirements of a plant which, as they have not been explained, must be taken simply as natural distinctions inherent in its original character, we now come to the soil considered as the food supply of vegetation: and its power to administer this food must be first referred to. This is effected mainly by the passage of water through it. Plants are unable to range at will in search of food: they must have it brought to them, and fertility depends upon the certainty and facility with which this work is done. It is not enough that the food is in the land, it must be placed in solution before the rootlet before it is of any use to the plant; and so (1) the water drill is coming into use—and (2) liquid manuring, as carried on in Ayrshire, and at Tiptree and elsewhere, is found to increase so wonderfully the growth of Rye-grass, and (3) irrigation similarly is so productive of early and abundant growths of meadow grass, and (4) Mr. Wilkins finds his plan of liquid manuring underground at enormous and indeed absurd expense tends to such extraordinary fertility, and (5) land drainage is everywhere so useful. For this is one chief source of the fertilising influence of drainage. The powers of the soil to administer the food it has within it, or which is given to it, are thus increased. Rain-water, valuable in itself as containing food for plants, and valuable as a solvent for its ability to reduce the solid particles of food existing in the earth, so that they can find their way into the plant, is thus enabled to pass through the soil and by the roots of plants, which absorb it as it passes them. Some portion of those differences in fertility, attributable generally to differences in the mineral structure of soils, is no doubt owing to their varying powers in the mere administration of food to plants, and apart altogether from their wealth as store-rooms of that food; and so clay soils are especially improvable by drainage. Drainage is in fact the key by which access is made easy to the food for plants which soils contain.

We come, therefore, now to consider a fertile soil as a well filled store-room of food for plants. It is here that chemical analysis has thrown so much light upon our subject, and to some of its results we shall now refer. It is well in the first place, however, to determine the limits within which this source of information may be trusted. Its affirmative assertions are more likely to be true than its negative assertions. If after long experience the analyst asserts that any substance *is* an essential element of a fertile soil, he is more likely to be correct than if he should venture to declare that some other substance is *not* essential to fertility—for his means of seeing and of judging, keen as they doubtless are, yet have their limits. He can indeed determine the presence of a mere "trace" of any substance present in the glass before him, but a "trace" in the quantity that he deals with is many cwts. per acre in the field; and it may be considered pretty certain that the chemist cannot determine quantitatively the presence of any substance in a soil of ordinary depth nearer than within a cart-load per acre.

* Dr. Lindley in the "Cyclopedia of Agriculture."

There is a power more capable of detecting the presence, whether of food or poison in a soil, than any power the chemist wields—this power is vegetable life. The living plant will make use of fertilising agents though present in quantity so small that the chemist cannot measure it; and the composition of plants, the many analyses that have been published of them, are thus to be considered better indices to what a fertile soil must have within it than is furnished by the direct chemical examination of the soil itself. Last spring Dr. DAUBENY delivered a lecture at Oxford in which a striking illustration of this point was given. His subject was the presence of phosphoric acid in certain of the older rocks; and this, though inappreciable by the ordinary chemical tests, had been made evident by the growth of Barley in artificial soils prepared from the rocks in question. The subsequent analysis of the Barley plants proved the presence of more phosphoric acid than had existed in the seed; and there is this curious agricultural interest incidentally attaching to the experiment, that from the extremely small quantity of phosphoric acid present in the older rocks, as compared with those of more recent formation, the inference drawn "would seem to be, that we had approached the border at least of the lower limit of organic existence"—the stunted, dwindled, puny stems of the half grown Barley, barely vegetating in the artificial soils manufactured from these ancient rocks, proving to the philosopher that the scantiest animal existence alone could there have been, just as a puny crop of grain upon infertile soil proves to the farmer that but little stock is kept upon that land.

EXPERIMENTS ON THE COMPARATIVE FATTENING QUALITIES OF DIFFERENT BREEDS OF SHEEP.

UPON the whole, the general results of this comparative trial between the Leicesters and their cross with the Southdown are:—That the cross-breds consumed slightly more food, in relation to a given weight of animal, within a given time, than the Leicesters. That the Leicesters and cross-bred wethers consumed all but identical amounts of food to produce a given amount of increase, and the cross-bred ewes rather less than either. That the cross-breds yielded slightly the most increase upon a given weight of animal within a given time. That the Leicesters gave rather more wool, both per head and per cent. upon their weight, and the cross-bred ewes more than the wethers. That the fat Leicesters averaged only about 4 lbs. more weight per carcass than the cross-breds. That the cross-breds gave, within a given time, slightly the highest per centage of dead weight to live weight; rather the most loose or inside fat (especially the ewes), and slightly the highest price per stone of mutton. And, finally, when sold dead, the Leicesters—and when sold alive the mixed cross-bred—gave slightly the highest average price per head.

With the above observations we conclude the comparison between the Leicesters and cross-breds alone, as rapid fatteners on a liberal system of feeding and management; and in the usual "Tabulated Summary" of the results which next follows (Table XIX.), we include those of the Hampshire and Sussex Downs and Cotswolds. Henceforth, therefore, the whole six lots of sheep will be compared together.

Taking the items of comparative interest somewhat in the order in which they stand in this Tabulated Summary, it is seen that of the six lots that have been experimented upon, the Cotswolds give by far the largest average weekly increase per head; indeed, about half as much more than either the Sussex, Leicester, or cross-bred sheep, and nearly one-fourth more than the Hampshires, which are the second in order of rate of increase per head per week.

The increase per 100 lbs. live weight per week, as given in the last line of the first or upper division of the Summary Table, does not show by any means such a variation in the rate of increase among the six lots, when it is thus calculated in relation to their respective weights instead of per head. Still, even in this respect, the Cotswolds stand the first; next come the cross-breds; then the Hampshires and Leicesters; and lastly the Sussex Downs. The rate of increase thus calculated in relation to the average weight of the animal is for the Cotswolds one-tenth more than for the cross-breds, and from one-seventh to one-sixth more than for the Hampshires, Leicesters, and Sussex Downs. It is here worthy of observation, that, excluding the Leicesters, the order in which the different lots gave increase in relation to their weight is obviously pretty nearly the inverse of that of the quality of the mutton. That is to say, those which have given the greatest increase in proportion to their weight yield the coarsest mutton, and those which gave the least increase in relation to their weight the finest mutton. Consistently with this view, the Leicesters, however, fall somewhat short in the rate of their increase considering the somewhat inferior quality of their mutton compared with that of the cross-bred and Hampshire sheep.

In the second main division of the Summary Table we have the various particulars of the consumption of food by the different lots of sheep. Leaving the point of the amounts of food consumed per head, the variations in which, so far as the dry foods are concerned, depend on the varying original weights of the different lots; and looking only to the amounts consumed per 100 lbs. live weight of animal, or to produce 100 lbs. of increase, we see that, although the oilcake and Clover chaff were in each case given in proportion to the original weights of the sheep, yet the result was that, taking the average throughout the entire period of the experiment, the Leicesters had less of these dry foods in relation of their average weight than any of the other lots, and more particularly than the Hampshires, Sussex Downs, and Cotswolds. Notwithstanding this, however, the Leicesters also ate less in relation to their average weight of the Turnips, which they were allowed *ad libitum*, than any of the other breeds. This less consumption of total food in relation to their weight by the Leicesters might be in their favour, if the result were that they consumed also less for the production of a given amount of increase. But the fact is seen to be that, in relation to the increase they yielded, the Leicesters consumed quite as much food as the cross-breds, and notably more than the Cotswolds. Leicesters, cross-breds, and Cotswolds, however, all give a larger amount of gross increase for a given amount of food consumed than either the Hampshires or the Sussex sheep. Such are the results of the experiments as they stand on the point of the amount of food required to yield a given amount of increase. But we must not forget that the trials were not all made side by side and in the same season; those with the Hampshire and Sussex Downs being made together in 1850-1, those of the Cotswolds alone in 1851-2, and those with the Leicesters and cross-breds in 1852-3. And although the quality of the respective foods was in all cases as nearly alike as circumstances would allow, yet the actual stocks used were different for the three seasons. There is, nevertheless, much of consistency in the general character and direction of the actual numerical results; which are, indeed, much what we should expect, considering the generally admitted distinctions between the different breeds, though perhaps not on all points what is currently stated of them.

With respect to the wool, it is seen that the long-woolled Cotswolds and Leicesters gave the greatest weight, both per head and per 100 lbs. live weight of animal; next in order come the cross-breds; and lastly, the Hampshire and Sussex Downs. The order of highest amount of wool per head is:—

Cotswolds	Cross-bred wethers
Leicesters	Hampshires
Cross-bred ewes	Sussex Downs.

The order of highest amount of wool per 100 lbs. live weight is:—

Leicesters	Cross-bred wethers
Cotswolds	Sussex Downs
Cross-bred ewes	Hampshires.

It is worthy of notice, that of the cross-breds which were fed in the same season and side by side with the Leicesters, the ewes gave considerably more wool both per head and per 100 lbs. live weight than the wethers; the female offspring, therefore, inheriting more prominently the qualities of the male parent so far as the fleece is concerned. Comparing together the Hampshires and the Sussex Downs, which were fed side by side with each other, the Hampshires gave an average of 1¼ lb. more wool per head; but the Sussex, on the other hand, gave nearly one-fourth more than the Hampshires per 100 lbs. live weight of animal.

Looking to the question of the quantity of mutton or weight of carcase yielded by the different breeds thus fed only to the age of about 15 or 16 months, it is seen that the Hampshires and Cotswolds averaged nearly 12½ stones (8 lbs. per stone) of marketable meat or dead weight, equal to 24 or 25 lbs. per quarter; these Cotswolds were, however, six weeks less time on fattening food than the Hampshires, and were nevertheless somewhat too fat. The Sussex Downs and Leicesters gave only about three-fourths as much dead weight per head as the Hampshires and Cotswolds; that is, little more

TABLE XIX.—GENERAL SUMMARY OF EXPERIMENTS WITH HAMPSHIRE AND SUSSEX DOWNS, COTSWOLDS, LEICESTERS, CROSS-BRED WETHERS, AND CROSS-BRED EWES.

PARTICULARS.	40 Hants. Nov. 1850, to May 1851, 26 weeks.	40 Sussex. Nov. 1850, to May 1851, 26 weeks.	46 Cotswolds. Dec. 1851, to April 1852, 20 weeks.	40 Leicesters. Dec. 1852, to April 1853, 20 weeks.	40 Cross-bred wethers. Dec. 1852, to April 1853, 20 weeks.	40 Cross-bred Ewes. Dec. 1852, to April 1853, 20 weeks.
	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.
Average weight per head when put up	113 7	88 0	119 13	101 5	95 1	91 4
" " when fat, including wool	183 1	140 12	183 7	145 14	139 9	133 12
" total increase per head	69 10	52 12	63 10	44 9	44 8	42 8
" increase per head weekly	2 10¾	2 0¼	3 2¾	2 3½	2 3½	2 2
" weekly increase per 100 lbs., live weight	1 12¾	1 12¼	2 1	1 12¾	1 14¼	1 14
Average food consumed per head weekly ... Oil-cake...	7 12¾	6 0½	8 1	5 14	5 14	5 9½
Clover-hay	7 0	5 12½	6 14½	5 9½	5 9½	5 5
Swedes	106 3¼	77 12½	113 4	83 13	82 14	78 0
Average food consumed weekly per 100 lbs. live weight of animal ... Oil-cake...	5 4¼	5 4¼	5 3¾	4 12	5 0	4 15½
Clover-hay	4 11½	5 0¾	4 7½	4 8½	4 12¼	4 11½
Swedes	71 10¼	68 0¼	73 6½	67 13	70 10	69 5½
Food consumed to produce 100 lbs. increase of live weight of animal .. Oil-cake...	291 9¼	297 6¼	253 10¼	263 13¾	264 4¼	263 8¼
Clover-hay	261 6¾	285 7	216 11¾	251 4¾	251 10¾	250 5½
Swedes	3966 12	3835 12	3557 8	3761 0	3725 4	3671 0
Average wool per head	6 4	5 10	9 4¾	8 2¼	6 7	7 8½
Average wool per 100 lbs. live weight of animal when shorn	3.77	4.57	5.44	5.58	4.60	5.40
	st. lbs.	st. lbs.	st. lbs.	st. lbs.	st. lbs.	st. lbs.
Average dead or carcase weights (in stones of 8 lbs.) Weights taken at home. Of the 4 of largest and 4 of smallest increase	12 6¼	9 4	12 6¼	9 4½	9 1¼	8 5½
Of the 8 of medium increase...	12 4¾	9 5¾	12 3½	9 4	9 2¾	8 6¼
Of the 16 killed*... ...	12 5½	9 5¼	12 5	9 4¼	9 2	8 6
Weights allowed at Newgate market. Of the 4 of largest and 4 of smallest increase	12 4	9 2	.....	9 2¼	8 7	8 3½
Of the 8 of medium increase...	12 2	9 4¼	.....	9 2¼	9 0¼	8 4
Of the 16 killed	12 3	9 3	12 2	9 2¼	8 7¾	8 3¾
Proportion of carcass in 100 lbs. of the gross, or unfasted live weight. Of 4 of largest increase ...	56.9	57.2	59.1	56.2	56.4	55.0
Of 4 of smallest increase ...	56.4	56.1	57.4	51.9	53.2	55.1
Of 8 of medium increase ...	56.8	57.4	57.8	55.4	55.7	55 3
Of total 16 killed	56.7	57.0	58.0	54.7	55 3	55.2
Proportion of carcass in 100 lbs. of the fasted live weight. Of 4 of largest increase ...	61.2	61.8	62.9	61.6	61.4	61.3
Of 4 of smallest increase ...	60.0	59.3	60.4	57.0	58.7	61.0
Of 8 of medium increase ...	60.6	60.6	61.2	60.8	60.8	60.7
Of total 16 killed	60.6	60.6	61.4	60.1	60.5	60.9
	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.
Average weight of loose fat per head, weighed warm. Of 4 of largest increase ...	12 15½	10 4½	8 11¾	8 3¼	7 2	7 7
Of 4 of smallest increase ...	11 5	8 6¾	8 2¼	3 15¼	6 3	6 7
Of 8 of medium increase ...	12 7	10 2½	9 8½	6 8	7 3½	7 2¾
Of total 16 killed	12 4¾	9 12	8 15½	6 4½	6 15	7 0¾
Proportion of loose fat in 100 lbs. of the fasted weight. Of 4 of largest increase ...	6.54	7.08	4.57	5 00	5.09	5.74
Of 4 of smallest increase ...	7.34	7.17	5.08	3.59	5.20	5.74
Of 8 of medium increase ...	7.24	7.45	5.53	4.90	5.55	5.84
Of total 16 killed	7.09	7.29	5.18	4 60	5.35	5.79
Average weight of lung and windpipe per head, weighed warm. Of 4 of largest increase ...	1 10¾	1 4½	1 14¾	1 6¼	1 8½	1 3½
Of 4 of smallest increase ...	1 9¾	1 3¾	1 9	1 8¾	1 6½	1 4½
Of 8 of medium increase ...	1 9½	1 6¼	2 0½	1 6	1 5¾	1 3½
Of total 16 killed	1 9¾	1 5¼	1 14¼	1 6¾	1 6½	1 3¾
Proportion of lungs (including the windpipe) in 100 lbs. of the fasted weight. Of 4 of largest increase ...	0.84	0.89	1.01	0.85	1.09	0.94
Of 4 of smallest increase ...	1.03	1.05	0.99	1.43	1.18	1.15
Of 8 of medium increase ...	0.93	1.03	1.19	1.05	1 05	0.99
Of total 16 killed	0.93	1.00	1 06	1.10	1.09	1.02

	1851.		1852.	1853.		
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Average price of the carcases, per stone of 8 lbs.	3 0	3 2¼	2 10	4 1½	4 2	4 2
Average gross money return per head of those sold dead (without wool) ...	40 8½	32 6½	37 1½	40 9¼	39 11½	38 1
Average gross money return per head of those sold alive (without wool) ...	40 4	34 4	35 4	38 4	40 4	37 11½
Average money return of the wool per head	7 0¼	6 6¾	9 8	10 2	9 3½	10 3
Price of the wool per lb.	1 1½	1 2	1 0½	1 3	1 5	1 5

* In the case of the Cotswolds, all the averages in this table are calculated from the results of the five of largest, the five of smallest, and the 10 of medium increase—in all 20 killed, instead of only 16 killed, as in the case of all the other breeds.

than 9¼ stones each, equal to about 19 lbs. per qr.; the long-woolled Leicester, again, giving an equal weight of mutton with the short-woolled Sussex after six weeks' shorter time on fattening food, though probably, it is true, not in point of fact six weeks younger, owing to their earlier date of lambing. Of the cross-breds, the wethers gave about 9, and the ewes about 8½ stones of meat per head—equal respectively to about 18 and 17 lbs. per quarter.

The Hampshires, therefore, after an equal length of time on fattening food, were brought to about one-third more carcase-weight per head than the Sussex sheep. The Cotswolds, with six weeks less on fattening food than either the Hampshire or Sussex sheep, gave an equal carcase-weight with the former and one-third more than the latter. And again the Cotswolds, with an equal length of time on fattening food, gave about one-third more carcase-weight than the Leicesters, and nearly one-half more than the cross-breds. *From the Journal of the Royal Agricultural Society of England.*

A SKETCH OF PIPE IRRIGATION IN SCOTLAND, June, 1855.

(*Concluded from p. 587*).

On the 26th of May we visited the celebrated farm of Myre Mill, in Ayrshire, belonging to one Mr. Kennedy, and occupied by another gentleman of the same name. We took the first train from Glasgow to Ayr, and then proceeded about 9 miles through a pleasant and well cultivated country. We did not find Mr. James Kennedy at home, but were shown over the buildings by a very intelligent man. The farm consists of about 230 acres, all laid with iron pipes; but Mr. Kennedy has two other farms near at hand, making altogether about 700 acres which he occupies. There are about 60 acres under Italian Rye-grass. In 1854 27 tons weight were cut at the first cutting. It was cut four times, and then pastured: 600 sheep and 230 beasts are kept on this food in summer. The sheep are changed three times in the course of the year, or rather there are three lifts or sales. The sheep-house was the most remarkable feature here. It contained 460 sheep in pens, with sparred floors raised 18 inches from the ground, 10½ feet by 7; width of house 18 feet, one side opening at pleasure with sliding wooden rails; a feeding passage of 4 feet wide down the centre. There are 10 sheep in a pen. The man who had charge of the sheep said that he thought a better width for the house would be 16 feet, so as to give more front for the pens to the feeding trough, by making them 12 feet by 6 feet. The black-faced Highland wethers seemed to thrive best, we were informed.

It is worthy of notice that Mr. Kennedy gives his sheep distillery grains, and goes to some expense to obtain them. They are brought all the way from Campbelltown, in Argyleshire, by steamer, to Ayr, where the cost is 3½*d.* per bushel; from thence they are carted 9 miles, with a toll to pay of 6*d.* per cart. Sheep like them best when old and fermented. There are four tanks for liquid manure, holding 30,000 gallons. The ammoniacal liquor from the gas-works mixed with water is sometimes applied, the liquid being brought in barrels. The Italian Rye-grass seemed to have suffered from the late severe winter. It was thin on the ground, with a considerable amount of weeds or natural herbage, and not more than 8 or 9 inches high on the 26th of May. The spring sown Grass was coming up, but foul with weeds, thin, and not regular. The cattle-house is 33 feet wide for two rows of cattle, two feeding passages 4 feet 6 inches wide next to the walls; double stalls 6 feet wide; stone divisions 4 feet high, length of the stalls 7 feet 6, including stone feeding-troughs. Heel drain 2 feet wide, manure-passage in centre, 5 feet between the heel drains. A single rail along the top of the feeding passage, side open from thence down to stone feeding troughs. Floor of stalls tile, no wooden floor; rails and bedding as usual. There were many cattle besides in boxes, two in each. The pigs were given up, and the houses about to be turned into sheepsheds.

On the 25th of May we visited the farm of Lagg, about six miles from Ayr, on the property of the Marquis of Ailsa, and in the occupation of Mr. Ralston. This farm is situated at a very high elevation, and the application of the liquid manure is done on the most economical plan. The liquid from the farm buildings is conducted by means of earthen pipes into three small circular open tanks, and from them flows down by gravitation upon about 40 acres of land at a much lower level. Besides the liquid, artificial manures are sometimes applied. We were shown one field of 10 acres, where Peruvian guano and sulphate of ammonia had been used on different portions, but in equal quantities. The latter had produced the more marked effect. The Italian Rye-grass had been mixed with Clover, and sown with a Wheat crop the year previous. The two years' old Italian Rye-grass had been all destroyed by the severe winter, and the ground ploughed up. There were two cattle houses for 30 beasts each, but no attention paid to appearances alone. The cattle were in single rows, with a feeding passage at their heads, at one end of which was the boiling-house and an iron railway from it along the passage. There can be little doubt that the application of liquid manure, as carried out on this farm, must be remunerative from its economical application.

On the 25th of May we also paid a visit to Canning Park, the well-known farm of Mr. Telfer, and we derived more gratification from this visit than from any other on our tour, from the fact of forming the acquaintance of the proprietor, whom we found to be not only an exceedingly well-informed and intelligent gentleman, but most politely ready to give the results of his scientific studies, his persevering experiments, and practical experience.

The cow-house here has been so often described that we do not propose to enter minutely into it at present; we can only say this, if the cows are not comfortable here, they can be so nowhere under cover. We found 48 tied up in double stalls, 6 feet 6 inches wide, and 7 feet 6 inches long from the feeding passage to the heel drain. This drain has a perforated iron bottom to drain away the liquid, and there is a neat shovel on wheels, which fits into it exactly, for removing any solid excrement. Each cow has her own stone feeding trough, and the divisions and pavement of the passages are also of dressed stone. Each cow has matting of cocoa-nut fibre the first 3 feet of her stall to kneel on, and the skirting of the walls behind the cows, we observed, was lined 4 feet high with slate. There were sky-lights in the roof with sliding blinds, and double doors and windows made to slide also—glass and wood for winter, and a kind of close net-work of hemp or cocoa-nut fibre for summer. The whole of the arrangements for the dairy were excellent. No pains or expense is spared to produce the best description of butter, and we were not surprised to hear that it was sent regularly to London, where it brings a high price, from its superior quality. The whole of the milk is weighed at each milking, for which purpose there is a weighing machine in the cow byre.

The crops were looking well, notwithstanding the severe winter and spring. Some of the two-year-old Italian Rye-grass had given way entirely, and had to be resown. Mr. Telfer uses the sulphate of ammonia as well as the liquid manure for his Italian Rye-grass with the best effect. His young Wheat crop was the thickest we ever saw upon the ground, and we ventured to observe that if each alternate row was removed there would be quite sufficient plants for a first-rate crop. His answer was the result of his last year's Wheat crop, as follows:—On 4¾ acres of Wheat he averaged 85 bushels per acre, of 60 lbs to the bushel, although four-fifths were lodged six weeks before reaping. The straw weighed 5 tons to the acre, and the seed sown on the whole field was 12 bushels. One acre produced 108 bushels, of 60 lbs. to the bushel.

It would take up too much space and time to enter upon the various subjects, deeply interesting to the agricultural world though they be, which were discussed during an agreeable interview with Mr. Telfer. It is to be hoped that he will himself give the results of his experience and various scientific experiments to the world in the shape of a pamphlet. There is no subject more interesting than the management of a dairy farm, and the remunerative results obtainable from that most valuable of our domestic animals—the cow. We rejoice to see "science combined with practice" brought to bear upon the question, and we hope and expect before long to be in a condition to know what to put into the land and what to take from it again, in order to obtain from the cow the greatest proportion of milk, or butter, or cheese, according as it suits the particular locality of the dairy farmer, and that of the best quality. Mr. Telfer is doing much in the right direction.

The last place we visited was in Fifeshire. Leaving Edinburgh at half-past 6 A.M., we proceeded by the Edinburgh, Perth, and Dundee Railway, crossing the Frith of Forth in a steamer to the King's Kettle Station, which we reached at 9 A.M. After taking breakfast at the small village inn, we walked about a mile and a half to Burn Turk, a farm belonging to Alexander Lawson, Esq. We were not so fortunate as to find him at his farm, but his overseer civilly showed us over the buildings, which are not only very complete but very compact, and as substantial as stone and lime and slates can make them. The farm consists of about 150 acres of arable land, 40 of which are under pipe and hose. There were 65 head of cattle in byre, boxes, and yard. The chief byre, or cattle house, was a lofty and spacious apartment, 60 feet long, by 35 feet 6 inches wide, with a feeding passage down the centre, 5 feet wide, on each side of which was a stone division 4 feet high, with a broad cast-iron ledge or rail on the top, running at the heads of the cattle the whole length of the byre. The cattle stood in double stalls with a 3-inch stone partition between each pair, into which the iron rods were fixed diagonally for the rings of the neck chains to traverse. The stalls were 9 feet long, including the feeding trough, 19 inches. This was divided into three compartments — a large centre one for food, and two small ones in each corner for water. The food was admitted through sliding wooden doors in the stone division, opposite the centre of the troughs, and the water by means of a handle in the feeding passage. All the partitions, floors, and troughs were of dressed stone. Behind the cattle was a passage 4 feet 4 inches wide, and a manure drain 15 inches wide. Under the feeding passage, which was raised 10 inches or more from the manure passage, was an air pipe communicating with the external atmosphere, to open or shut at pleasure, with an iron grating opposite to each stall. At one end of the byre was a large room for Turnips, Grass, &c.; at the other another room for straw, &c., connected with the threshing mill, steam engine of 7-horse power, flour mill, and other machinery, all very complete. The cattle were chiefly crosses between the Angus and short-horn, and looked very clean and healthy; they had plenty of fresh straw under them for bedding. Besides the byre, there were boxes 10 feet by 14 for containing three beasts each. These had wide sparred doors communicating with the dung court, and which moved up and down by means of balance weights. In the dung court were 15 more beasts. This ought to have been covered to make the whole complete. There was an arched tank under it containing 50,000 gallons. The liquid from this was this year carted upon a field where the pipes were not laid; the field was 12 acres, and it took four water carts 1½ days. The crops here had suffered from the winter. The Italian Rye-grass was cutting for the first time, and only 9 or 10 inches long on the 8th of June.

We give these hasty sketches of some of the establishments where the new system of pipe irrigation is carried on in Scotland, in the hope that they may induce others to look into the subject. We have a strong opinion that the system is a good one, but its application is a question of expense, and, to a certain extent, of locality. Where a farm steading is situated in high ground, and the gravitation principle can be used, as at Mr. Ralston's farm of Lagg, in Ayrshire, it will surely pay. Where there exists a steam engine or water power on a farm, we believe it will answer also, provided that in both cases there be an abundant supply of water. When new farm steadings are about to be built, it may be well also to prepare for having a portion of the land at least under pipe irrigation, but we require some more accurate account of profit and loss, before we can say decidedly that establishments such as that of the Marquis of Breadalbane will be remunerative in a pecuniary point of view. We hope that his lordship will favour the public with a balance sheet by and bye.

In the case of Mr. Malcolm's (of Poltalloch) farm of Killinochanoch, the result of the first year's trial was a clear profit of 4*l.* 7*s.* 2¼*d.* per acre, after allowing 35*s.* per acre of rent upon land, part of which a few years before was not worth as many pence. Here it will be observed that water power existing upon the farm was made use of to pump the liquid manure daily up to the reservoir, from whence it descended again as wanted, by gravitation.

We conclude this article with something for our agricultural readers to ruminate on. One ton of Italian Rye-grass is stated from analysis to contain nutritive qualities equal to 4 tons of White Turnip, so that 80 tons of Italian Rye-grass, which under the liquid manure system has been grown by Mr. Telfer, and from our own experience, we believe may be grown by any one, on a single acre, are equal in feeding properties to 320 tons of White Turnip! A pretty fair return for one acre. *J. A. C.*

WHAT IS TO BE CONSIDERED THE STANDARD COMPOSITION OF SUPERPHOSPHATE OF LIME?

In attempting to give a reply to this question it will be necessary for me to give the results of analyses of different kinds of superphosphates; and before doing so, it may be well to explain the way in which the results are stated, particularly as regards the soluble phosphates. I have already mentioned, that in a superphosphate, part of the phosphate of lime is converted into the biphosphate by the action of the sulphuric acid, but in the analyses the quantity of the latter is not given, but the phosphates are divided into two portions, called soluble and insoluble phosphates. The mode in which this is to be understood will be best rendered intelligible by an individual example. Thus, on the first of the subjoined analyses, we find 15.08 per cent. of soluble, and 18.01 of insoluble phosphates; the sum of these, 33.09, expresses the quantity of phosphates existing in the manure previous to the addition of sulphuric acid, and the soluble phosphates are the quantity of common phosphate of lime which is converted into biphosphate by the sulphuric acid. This conversion is effected by the sulphuric acid, of which the proportion is given lower down in the analysis; and the sulphate of lime which also appears, indicates the quantity of lime which has existed as carbonate in the original substance, or which has been deliberately added for the purpose of drying up and giving bulk to the product. It is to be observed, then, that the soluble phosphates actually exist as biphosphate, although not so represented in the analysis; and though it would be more correct, in a scientific point of view, to give the proportion of biphosphate, yet the course I have employed has advantages for practical purposes, as it shows the mode in which the manure has been manufactured. The proportion of sand and of alkaline salts requires no comment.

The first two analyses are examples of superphosphate apparently made entirely from bones, and in which the proportion of soluble phosphates is large. In the one, a small quantity of gypsum, and in the other of alkaline salts, has been added, apparently for the purpose of drying the product.

	I.	II.
Water	10.70	17.50
Organic matter	12.74	15.63
Soluble phosphates...	15.08	13.08
Insoluble phosphates	18.01	24.65
Sulphate of lime	2.22	15.87
Sulphuric acid	18.39	6.23
Alkaline salts	13.06	4.63
Sand	9.80	2.41
	100.00	100.00
Ammonia	2.07	2.35

In both these we have examples of superphosphate of

high quality, containing a large quantity of soluble phosphates, and a fair proportion of ammonia; and the importance of the latter becomes obvious, when we bear in mind that it adds 1*l.* 2*s.* per ton to the value of the first, and 1*l.* 5*s.* 6*d.* to that of the second sample.

The following are illustrations of superphosphates also from bones, but of lower quality than the preceding:

	III.	IV.	V.
Water	13.60	18.26	17.22
Organic matter	24.90	11.95	14.83
Soluble phosphates	8.71	7.06	4.50
Insoluble phosphates	29.14	31.27	31.35
Sulphate of lime	10.76	11.93	18.74
Sulphuric acid	7.49	4.93	4.43
Alkaline salts	1.82	11.18	1.20
Sand	3.58	3.42	7.73
	100.00	100.00	100.00
Ammonia	3.13	3.24	3.25

In these superphosphates the quantity of sulphuric acid employed has been deficient, and hence, though the total quantity of phosphates is as large as in the previous ones, a much smaller proportion is soluble; and as we shall afterwards more particularly point out, the value of the superphosphate is diminished. The quantity of ammonia, however, is large, and forms an item of some importance in estimating their value.

From these we turn to another variety, apparently made from a mixture of bones and coprolites, in which the ammonia little exceeds 1 per cent.; the quantity of phosphates is rather lower, and of sulphate of lime higher than in those from bones alone.

	VI.	VII.	VIII.
Water	17.98	24.33	13.84
Organic matter	17.29	10.60	7.95
Soluble phosphates	21.22	14.38	14.18
Insoluble phosphates	3.41	14.36	7.44
Sulphate of lime	20.82	16.00	21.71
Sulphuric acid	5.19	6 48	19.62
Alkaline salts	6.13	3.98	3.92
Sand	7.96	9.87	11.34
	100.00	100.00	100.00
Ammonia	1.66	1.03	0.93

	IX.	X.	XI.
Water	32.39	16.10	21.04
Organic matter	8.63	10.53	12.42
Soluble phosphates	12.97	10.62	10.16
Insoluble phosphates	16.12	10.48	9.53
Sulphate of lime	18.54	3.92	33.90
Sulphuric acid	6.10	23.89	3.94
Alkaline salts	3.32	19.55	2.46
Sand	1.93	4.81	6.50
	100.00	100.00	100.00
Ammonia	0.79	0.80	1.10

And, finally, we have examples of superphosphates made entirely from coprolites or other mineral phosphates, distinguished by a small proportion of organic matter, and abundance of sulphate of lime. In one only, however, is ammonia entirely absent; the others contain small quantities, though none of them, except the last, in sufficient quantity to be of value.

	XII.	XIII.	XIV.	XV.	XVI.
Water	8.43	18.20	23.77	23.78	14.00
Organic matter	0.00	2.83	3.00	1.70	0.63
Soluble phosphates	15.37	14.04	12.19	10.24	13.90
Insoluble phosphates ...	15.07	6.15	7.77	7.95	23.98
Sulphate of lime	36.03	36.88	36.23	38 56	31.57
Sulphuric acid	11.24	11.51	8.44	4.15	8.24
Alkaline salts	1.60	3.17	0.01	7.56	1.06
Sand	12.26	7.22	8.59	6.06	6.62
	100.00	100.00	100.00	100.00	100.00
Ammonia	0.00	0.56	0.49	0.45	0.60

It would be easy to multiply analyses of the different sorts of superphosphate, but those given are sufficient to show how greatly different samples, all made with the desire of supplying a reasonably good article, vary in composition and value. Yet it is probable that no great difference in price will exist among the greater number of them. Those made entirely from bones, and coming from manufacturers of high standing, are generally dearer; but no commercial distinction is drawn between the others, a fixed market price generally being charged, altogether independently of composition. Yet a moment's inspection suffices to show that the differences in value are exceedingly great.

Some difficulty exists in forming a satisfactory estimate of the value of a superphosphate from its composition, owing to there being no fixed value to attach to the soluble phosphates, except that calculated from the manure itself. But, taking as a starting-point the samples produced from bones, we may arrive at some definite idea in the following manner: I assume ammonia at 6*d.* per lb., or 11*s.* for every per cent., and insoluble phosphates at ¾*d.* per lb., or, in round numbers, 1*s.* 6*d.* for each per cent. Now, such superphosphates as Nos. 1 and 2 are sold at about 8*l.* per ton; and if we calculate the value of the ammonia and insoluble phosphates, and deduct this from 8*l.*, we have the value of the soluble phosphates. Thus we have for Nos. 1 & 2—

	No. 1.	No. 2.
Value of ammonia per ton ...	£1 2 0	£1 17 0
Value of insoluble phosphate ...	1 7 0	1 6 0
	£2 9 0	£3 3 0
Deducting this from 8*l.*, leaves for the value of the soluble phosphates	£5 11 0	£4 17 0

And dividing these sums by 15 and 13, the respective per-centages of soluble phosphates, we find it in both cases to give a value of almost exactly 7*s.* 6*d.* for each per cent. of these substances. The better class of the other superphosphates give a similar, though somewhat higher value for the soluble phosphates, except No. 6, which, if sold at 7*l.*, would give a lower value; but as I do not know its price, we must not allow it to influence the calculation. It is probable that we shall not err greatly by assuming 7*s.* per cent. as the value of soluble phosphates. Now, if we apply this mode of calculation, we see that the values differ excessively. Thus, No. 3 gives—

29 per cent. insoluble phosphates, at 1*s.* 6*d.* per cent.	£2	3	6
8.71 per cent. soluble phosphates, at 7*s.* per cent. ...	3	1	0
3.13 per cent. ammonia, at 11*s.* per cent.	1	14	6
Value per ton	£6	19	0

And in the same manner, No. 5 is worth 5*l.* 13*s.*; No. 7 ought to cost 6*l.* 10*s.*; No. 15, 4*l.* 8*s.*, and so on.

No. 6, calculated upon this principle, shows a higher value than any of the other samples, by virtue of its large proportion of soluble phosphates; its calculation giving—

21 per cent. soluble phosphates at 7*s.* ...	£7	7	0
3 per cent. insoluble phosphates at 1*s.* 6*d.*	0	4	6
1.6 per cent. ammonia, at 11*s.*	0	17	0
Value per ton	£8	8	6

Now, if we take into consideration the preceding calculations, and the composition of the commercial samples of superphosphate, it appears to me that we may assume a standard to which all well manufactured samples should attain. It would appear that a good superphosphate should contain 15 per cent of soluble phosphates, and 15 insoluble; and if made from bones, in addition to these, not less than 2 per cent. of ammonia. A superphosphate made from coprolites, and containing these proportions of phosphates, should be sold for 7*l.*, and from bones at 8*l.* According to my experience, the samples coming from the best manufacturers have about this composition; but the farmer would do well to remember that a large proportion of soluble phosphates adds most materially to the value, as is seen in the analysis No. 6. It is very desirable that this fact should be distinctly brought before the manufacturers, who would find it decidedly to their advantage to aim at producing a manure containing a large proportion of soluble phosphates, which, they would find, repays them better than productng the inferior qualities, particularly if got from coprolites, because a considerable proportion of the acid is consumed in neutralising the carbonate of lime. Thus, suppose a sample of coprolite to contain 20 per cent. of carbonate of lime, and the manufacturer to add to it 30 per cent. of sulphuric acid, 25 of the acid would be consumed in converting the carbonate into sulphate of lime, and only 5 per cent. would remain over to convert the insoluble into soluble phosphates; but if he added 35 per cent. of acid, 10 per cent. would remain, and he would then produce a superphosphate with twice the quantity of soluble phosphates contained in the former.

These observations I have thought it well to bring before the farmer, as I know that large quantities of very inferior superphosphates go into the market. It is not my intention to refer particularly to these articles here; it will suffice to say that many tons, containing 2 or 3 per cent. of soluble phosphates, are yearly disposed of in different parts of Scotland. *Dr. Anderson, in the Transactions of the Highland Society.*

Home Correspondence.

Clod-crusher.—I beg to hand a design for a new clod-crusher for insertion in the *Gardeners' Chronicle and Agricultural Gazette;* the discs are all of the same diameter, work on three centres, and self-cleansing. *Henry Cobby*, 10, *Walker Street, Hull.* [The drawings exhibit an axle with a number of eccentrics upon it placed so that each alternately and in succession shall attain its greatest elevation or depression during the revolution of the axle. On these eccentrics the discs, as in Crosskill's clod-crusher, revolve. The same self-cleansing and irregular motion of the discs is attained by Crosskill by an ordinary axle passing through a larger slot in the disc, so that this irregular motion is permitted, not enforced, as in Mr. Cobby's proposal; but the motion in question, though only permitted, is ensured by the irregular surface of the soil as perfectly as if it were enforced.]

Hardy's Wheat Crop.—Many friends from far and near have seen our experimental Wheat crop, which was sown on the thin principle, in about 10 different plans and distances, on nearly 3 acres of common ploughed land. One and all pronounced it a very good crop. But some will not believe us, that there was so little seed sown on the whole breadth as 1 bushel and 5 pints. This, however, is a fact. Why should they doubt this statement, since, at 20,000 grains in 1 quart, it amounts in round numbers to 670,000 kernels, and supposing the breadth to be exactly 3 acres, viz., 18,817,920 square inches, and all the ground were covered or planted, without any 4 feet furrows and 4 feet spaces between the double rows on the greatest part of the breadth as we have them, then it would allow 28 square inches and a fraction for each grain or plant, equal to about five plants on each square foot (and is this not enough plants or enough space)? Why then should any one doubt our words, our land being not above half planted? The fact is, a very great deal of seed was actually wasted, even on this, and ought not to have been planted on it. One-half acre, however, planted with only 4 pints, and reduced to 3 pints by thinning the plants, which stood in pairs, with 4 feet furrows, far exceeded any of the rest, in the estimation of all who saw it, except the 4-rowed planted entire at 2 feet apart on ½-rod ridges, with 4 feet furrows, at 1 peck to the acre. Also about 4 rods transplanted at 1 foot apart, which will certainly come up equal to 8 quarters per acre, notwithstanding it has partaken of the prevailing blight, and been pecked by birds, even as other. The broad-casted, at 2 pecks the acre, is decidedly the worst crop, as it could not be kept clean. We promise to give full particulars in a future number. *Hardy & Son, Maldon.*

Crops in Ireland.—Wheat, which is now generally cutting, from very many inquiries I can only report middling. The plant was generally thin in the ground, owing to the severe winter; in many places it was broken down before ripe by wind and rain; in some places I find it "malted." Barley will be much under an average in produce, the sample being uneven, owing to a second growth, and being nearly all laid long before fit for the sickle. Oats very variable in different localities, but below an average on the whole; straw plentiful, grain not well filled. Green crops promise near an average, I think, where properly attended to. Potatoes—tops all gone, tubers under size; a large breadth of land sown, in general quality deficient, in many places bad for table, disease in roots increasing. Weather for the last few days very propitious, glass up to nearly set fair. *George Gordon.*

Farm Memoranda.

NEAR STALYBRIDGE.—I must commence by stating that my farm is 20 miles from my works on the Yorkshire side of the moors, and at an elevation of 850 feet above the sea; that I have abandoned milking and feeding as unprofitable, considering the price of labour and farm produce; and with the exception of a few sheep have entirely devoted my land to crops, Turnips, Potatoes, hay, and corn. The whole of my produce is consumed at my works (charged market prices) which will realise on an average for Turnips per ton from 15*s.* and 1*l.*, hay, 4*l.* and 5*l.* per ton, straw, 50*s.* and 3*l.* per ton, Oats and Wheat market prices. With this management I can realise a satisfactory profit, but not so when feeding, although I took the butcher's profit by selling my meat to my workpeople. Now, with respect to manure I have an abundance (being very favourably situated at both ends with stations on the rails, the one at farm is fair in the centre), whether it is human manure, horse manure, or bones. My human manure can be laid down per rail at 5*s.* per ton on my farm. It is conveyed in old large oil casks, which contain 1 ton each, neat out of the privies (disinfected with a little sulphate of iron); my horse manure, including carriage and all expenses, at 8*s.* per ton; and with respect to bones, I have erected a small bone and size works upon my farm, and boil about 6 tons per week, just enough to keep one man going; my size and tallow is sent to Manchester to stiffen fustians with, and make soap of, the boiled bones are then crushed in an old gin mortar mill and passed through a riddle having three squares to the inch. Whatever bones I do not need are readily sold to the farmers about. I dissolve with acid as many as I use, and sell the rest to my neighbours, so that I am in capital condition for manuring land. Now Professor Johnson in his "Lectures on Agricultural Chemistry," p. 8, states that 1 ton of bones is equivalent to 40 tons of ordinary farm manure; if such is a fact, 40 tons at 8*s.* would be 16*l.*, whilst bones would not exceed 6*l.*, the carriage from my place to the farm being the same in each case, viz., 2*s.* 7*d.* per ton, so that bones are by far the cheapest manure. The question that now puzzles me is, shall I be justified in totally abandoning farm yard or vegetable manure, and will my land be deteriorated by relying on bones alone, or is it absolutely necessary that vegetable manure should be used in order o keep up the fertility of the soil?

Notices of Books.

The Village Lesson Book for the Use of Schools. By Martin Doyle. Groombridge & Son.

THIS is a little book of 116 pages, containing 10 square inches each, in which are given lessons on the duties of the bird-keeper, cow-boy, shepherd-boy, and plough-boy, and on land measurement, digging, and field labour. It is very desirable that country children should receive instruction in the occupations in which as men they are to be engaged; and by the use of books in country schools, such as this of Martin Doyle's, they can be thus instructed in the very act of learning to read.

Miscellaneous.

Artificial Formation of Ammonia.—The vapours which escape from iron blast furnaces may be regarded simply as the atmosphere highly charged with carbon, or as a mixture of carbonic oxide, cyanogen, and nitrogen. When steam at a sufficiently high temperature, and air excluded, is mingled with these gases, the oxygen of the steam decomposes the cyanogen, and converts the carbonic oxide into carbonic acid, while the hydrogen and nitrogen combine to form ammonia; thus carbonate of ammonia will result; but as it may prove difficult to condense this effectually, if the vapour of ammonia were conveyed into a chamber charged with an insoluble lumpy material, so arranged that the ammonia in ascending would come in contact with the cold solution of salt trickling down, carbonate of soda and muriate of ammonia might be at once obtained. If, however, an ample supply of sulphate of iron could be procured, it

would be more advisable to fix the ammonia by means of sulphuric acid expelled from sulphate of iron, because at the same time pure oxide of iron would be produced, which would prove valuable in the subsequent forging of iron. Alkali refuse should be composed of sulphuret of calcium and coke dust. When this is acted upon by steam with sufficient heat, the oxygen of the steam converts the calcium into lime, while the sulphur and hydrogen pass off as sulphuretted hydrogen. When the latter is mingled with the vapours from a dense purely carbonaceous fire, consisting of carbonic oxide and nitrogen, the latter combines with the sulphuretted hydrogen, and forms sulphuret of ammonia. If these vapours are then partially cooled down and a large quantity of cold air admitted, the carbonic oxide becoming carbonic acid combines with the ammonia, and disengages sulphur; thus carbonate of ammonia and sublimed sulphur might be obtained. If, on the other hand, the heat of the vapours is maintained, and a large quantity of heated air thrown in, the sulphuret of ammonia is converted into sulphite, which rapidly passes into sulphate of ammonia; by means of which more salt may be decomposed, and thus alkalia refuse may be brought to yield sulphate of soda, muriate of ammonia, and carbonised lime dust. This latter material will be valuable in agriculture; it should be worked into the land when preparing it for seed, muriate of ammonia being afterwards applied to the growing crop, when the first shower of rain will carry it into the soil, when carbonate of ammonia will be disengaged in direct contact with the root of the plant. By treating gypsum as sulphate of lime, with small coal and high heat in a reverbatory furnace, it would be reduced to sulphuret or calcium, and may, by a similar mode of treatment, yield the same products as alkali refuse. *Mining Journal.*

Calendar of Operations.

AUGUST AND SEPTEMBER.

Gloucestershire, *August.*—There is a much greater growth of Wheat this year than last, and with the prospect of pretty tolerable crops. The plant, however, is thin both in the hill and vale districts; in the former, however, the average will be made up by generally well formed ears, all of which is in a tolerably healthy condition; here, too, on account of the usual shortness of straw and thinness, the heavy pelting rains have caused little injury by laying. In the Vale the heavier crops are much laid, but as it is progressing fast to ripeness, fine weather will ensure an average harvest. With us, Barley may be considered quite a Barley year; the prospects of the crops are exceedingly good, and the late rains have caused the seeds sown with the crop to assume a more healthy appearance than those of last year. Oats are promising well, and I think a greater extent is sown than I remember to have seen formerly. Winter-sown Beans suffered much from the long frosts, but have wonderfully recovered in the last few weeks. Spring-sown promise best this year; in both cases they are with us tolerably free from blight. The prospect of the Turnip crop is somewhat serious, as many of the early sown were so taken with the Turnip flea as to compel re-sowing sometimes for the third time, and now they are so smothered with the weeds which the late rains have accelerated in growth, without allowing time for their removal, that weed sowing farmers will suffer greatly here; and there will be seen a fair prospect of a crop of Swedes, but it is a rare exception, but the Turnip has suffered most, and the greater part of them will be exceedingly late, as few crops have escaped the necessity of re-sowing at least once. The Potato crop promises at present exceedingly well; the yield of the early sorts has been very abundant, neither deficient in size or quantity; in these are few signs of the disease of former years, still the haulm has not been unscathed, though the tubers as yet do not seem to have suffered. As respects the later sorts we can at present say little, for though they looked well everywhere, yet the rains which have brought a cold night or two seems to have told upon the tops; however, should much of the crop be doomed to suffer (and we incline to think the virulence of this disease is wearing out), there will not be the scarcity of former years, as far more of this plant is grown this year than for three or four years last past. Hay is by no means an abundant crop, and though the greater part has been tolerably well harvested, yet still enough remains undone to make farmers regret that they did not "get among it earlier," for which neglect the excuse pleaded is the scantness until the rains caused it to grow; however this is at best but bad economy, as if the farmer will wait for the springing up of fresh herbage while the seed is ripening, it is sure to be at the expense of the latter-math, and frequently the crop of the season, and must necessarily weaken the prospects for the forthcoming year; it being a fact, with most herbaceous plants, that the allowing them to seed is the termination of their lease of life.

Hexham, *Sept* 3.—The weather during the month that has just closed has been a decided improvement upon what we experienced during the previous months. We had some heavy rains in the early part of the month, which completely flattened any strong corn which had withstood the rains of July. Though a few fields were cut during the week ending the 25th ult., harvest was not general till last week, when a considerable breadth of grain was cut, and should the weather continue fine (which, however, a falling barometer and north-east wind do not indicate), there will be a good deal carried this week. Crops are not cutting up so well as was at one time expected, and both in yield and in quality will be deficient. Turnips continue to look well, and we have as yet seen no appearance of the Potato blight, and as the earlier varieties are now approaching maturity, we hope this district has escaped for this year.

Notices to Correspondents.

Compost: *R H.* Slake 20 bushels of lime with brine and mix it with 10 cart-loads of the pond cleanings; it will be a good dressing for an acre of land.

Food for Pigs: *R H.* As a general rule cooked food is more digestible and fattening. The meal had better be boiled; the same quantity of meal in its porridge state will be more nourishing.

Lodged Grain: *R H.* You had better sow short-strawed Wheats.

The Gapes: *A Farmer's Wife* must take the bird on its back in her left hand, holding the beak open with the fingers of that hand, and with the right holding the end of a small quill feather, properly trimmed and dipped in sweet oil, she must, watching her opportunity, slowly insert the feather end 2 inches into the windpipe of the unfortunate bird, and turn it once round and withdraw it. The bird will cough up the worms which occasion the disease.

Tiney's Success: *To several Correspondents.* We presume application should be made to General Arbuthnot.

*** As usual, many communications have been received too late, and others are unavoidably detained till the necessary inquiries can be made.

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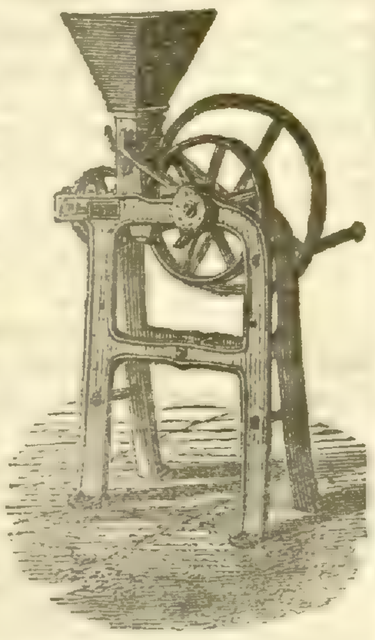

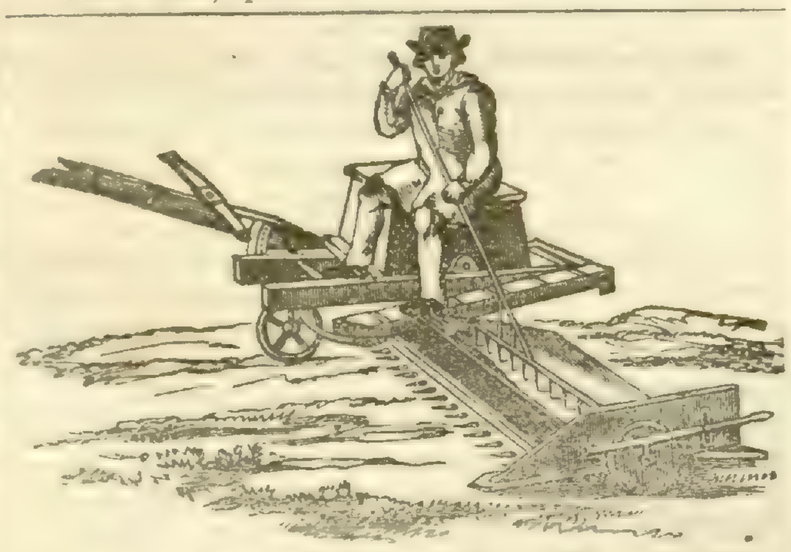

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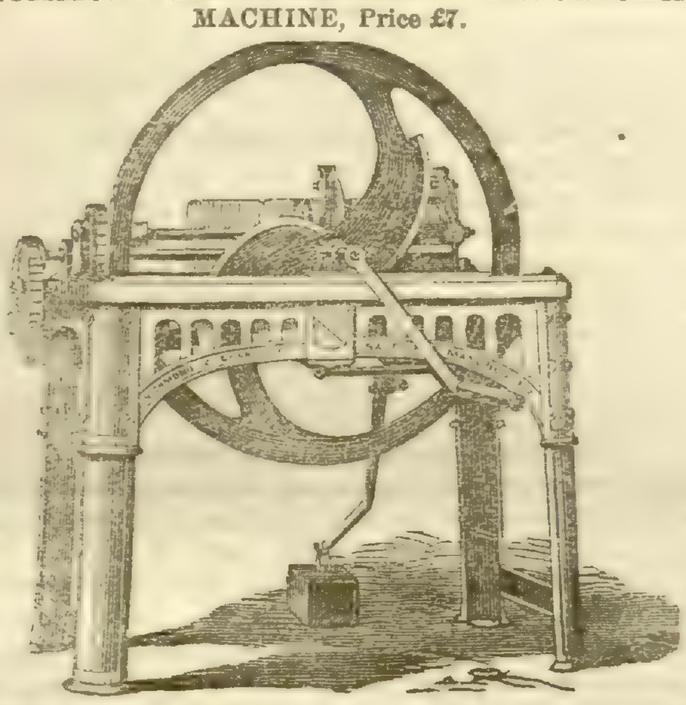

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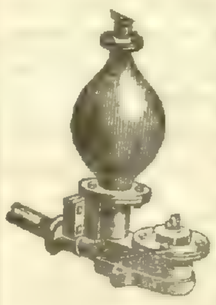

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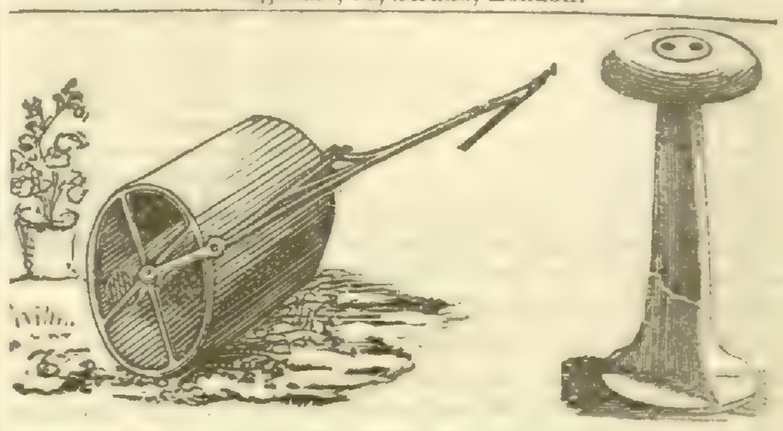

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HOLLOWAY'S PILLS AN EXTRAORDINARY REMEDY FOR THE CURE OF BILE AND LIVER COMPLAINTS.—Copy of a letter from Mr. W. Baldwin, of New Brompton, Kent, dated August 25, 1855. "To Professor Holloway: Dear Sir,—Having suffered for several years from a disordered liver, and finding medical aid of no avail, I was induced to try your invaluable Pills, and after taking them for a short time, I have the greatest pleasure to inform you that they have been the means of restoring me to perfect health. Signed, W. Baldwin."—Sold by all Medicine Vendors throughout the world; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and H. HOODS, Malta.

DR. ARNOT'S PILLS WILL CURE YOU!! The extraordinary curative properties of this new discovery in medicine will be proved by a trial. Through their peculiar action upon the system new and pure blood is manufactured, the morbid conditions of the body removed, the constitution strengthened, and health restored. Indigestion, bile, stomach, and bowel complaints, gout, rheumatism, asthma, scrofula, dropsy, ulcers, &c., and all diseases arising from impurities of the blood, and other vital fluids are speedily eradicated by this MIRACULOUS MEDICINE.—Sold in boxes at 1*s.* 1½*d.*, by all chemists. By post 14 stamps. Depôt, 50, Rathbone Place, London.

DEBILITY AND NERVOUSNESS.—Encouragement to those in despair, and suffering from debility, spermatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, by E. J. ROBERTS (late Army), Surgeon, 9, North Terrace, Moor Edge, Newcastle-on-Tyne.

TO NURSERYMEN, GARDENERS, AND OTHERS.

THE BURIAL BOARD FOR THE PARISH OF HADLEIGH, in the County of Suffolk, is desirous of receiving TENDERS for the LAYING-OUT, FENCING, and PLANTING the NEW BURIAL GROUND, containing 3½ acres, according to the Plan and Specification of Mr. E. G. Pennington, which may be seen at my Office on any day between the hours of 9 and 6 o'clock, at which place Tenders must be delivered on or before WEDNESDAY, the 12th day of September next. The Board does not pledge itself to accept any Tender. J. F. ROBINSON, Clerk to the said Burial Board.

Hadleigh, Suffolk, Sept. 8.

WANTED, at Michaelmas, a FARM of about 200 Acres of good Land. Rent must be moderate. Essex or Kent preferred.—Direct B. H., Post-office, Hockley, Essex.

TO BE LET ON LEASE, SION NURSERY, CROYDON, situated on the road between Norwood and Croydon, and two miles from the Crystal Palace. It contains nearly 7 acres of Land, a good Dwelling-house, several Greenhouses and Pits, with Stable shed, &c. It is well stocked with Shrubs, Trees, and Plants, which can be taken at a valuation.—Further particulars can be had of the present occupier at the Nursery.

TO FLORISTS, GENTLEMENS' GARDENERS, & OTHERS.

TO BE SOLD, by SAMUEL RODWAY, with immediate possession, a FLORIST and SEED BUSINESS, in the best situation within 20 miles of Birmingham; the present proprietor retiring, who has for the last 12 years gained more prizes than any other nurseryman in the Midland Counties. To any industrious party who understands the above business such an opportunity rarely occurs. The stock of Plants, Greenhouses, &c., to be taken at a fair valuation, which will be about 300*l.*, part of which may remain upon approved security. The rent moderate, and payments exceedingly low.—For particulars and to treat, apply to SAMUEL RODWAY, Auctioneer and Appraiser, Woodman Inn, Pershore Road, Birmingham.

TO BE LET, an old-established NURSERY, with a Seed Trade, situate near a large Market Town, and on a main line of railroad, in a very eligible situation for business. The quantity of Land can be made to suit the convenience of the tenant, in proportion to which there is a fair extent of glass.—For further particulars, address A. B., Office of this Paper.

TO GENTLEMEN, GARDENERS, FLORISTS, & OTHERS.

TO BE SOLD, about three miles from Covent Garden, a NURSERY and FLORIST'S BUSINESS, consisting of 1½ acres of Land, 15,000 feet of Glass: comprising Greenhouses, Pits and Frames; the whole well stocked and in excellent condition; together with two cottages (one with a shop) in a first-rate situation for business. Held in an unexpired Lease of 18 years. Rent free. The whole Stock, Houses, Land, and Goodwill of a thriving trade for One Thousand Pounds! The Advertiser wishes to leave solely on account of joining some relatives abroad.—Address A. B., Mr. Rogers (Clock House), King's Road, Chelsea.

TO BE SOLD, a CONSERVATORY, 20 feet long, 11 feet wide; likewise several small GREENHOUSES.—Address to Mr. SMITH, Greenhouse Builder, Painter, and Decorator, 4, Canonbury Cottages, Lower Road, Islington.

☞ Greenhouse Lights and Window Sashes made and glazed at 8*d.* per foot, and all kinds of Joiners' Work Estimated for. Reference given.

TO BE SOLD, a few one and two SHEAR GIMMERS, price 2*l.* 2*s.*, by a gentleman who has for several years paid great attention to the breeding of the Black and White Spotted Spanish Sheep; also some RAM LAMBS, 1*l.* 10*s.* each, delivered at the Thirsk Station of the North Eastern Railway. —Address to Mr. W. KIRBY, Kirkby Wiske, Thirsk.

Sales by Auction.

ORCHIDS.

MR. J. C. STEVENS is favoured with instructions to Sell by Auction at his Great Room, 38, King Street, Covent Garden, on WEDNESDAY, 12th September, at 1 o'clock precisely, a most important and valuable collection of ORCHIDS, the property of ROBERT HANBURY, Esq., consisting of all the best varieties of Ærides, Saccolabiums, Vandas, Cattleyas, &c., in fine specimens.—May be viewed on the morning of Sale, and Catalogues had.

THE LATE MRS. LAWRENCE'S COLLECTION OF ORCHIDS.

MR. J. C. STEVENS is favoured with instructions to Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, September 18, and following day, at 1 o'clock precisely, the Valuable Collection of Orchids removed from Ealing Park; comprising fine healthy specimens of the rarest Saccolabiums, Vandas, Aerides, Phalænopsis, Dendrobiums, Cypripediums, Cattleyas, and other choice South American and East Indian Species, cultivated in the best possible manner by Richard Franklin. May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. Stevens, 38, King Street, Covent Garden.

EALING PARK.

THE LATE MRS. LAWRENCE'S RENOWNED COLLECTION OF PLANTS.

MR. J. C. STEVENS is favoured with instructions to Sell by Auction, at the Gardens of Ealing Park, on THURSDAY, September 20, and two following days, at 1 o'clock precisely, the whole of the PLANTS contained in the 15 Stoves and Greenhouses at Ealing Park, comprising about 1200 specimens of the choicest Exotics, Heaths, Camellias, Azaleas, &c. This unrivalled collection is in the best condition, the cultivation having been for some years past under the able superintendence of Mr. William May, whose ability as a grower of specimen plants is proverbial.—Catalogues (which are preparing) will be ready about ten days before the sale, and may be had of Mr. J. C. STEVENS, 38, King Street, Covent Garden. (Four stamps if prepaid).

IMPORTANT SALE OF VALUABLE TULIPS.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. John Slater, Florist, Cheetham Hill, near Manchester, to Sell by Auction, on WEDNESDAY, September 19, at the Auction Mart, at 12 o'clock, a VERY SELECT PORTION OF THE FINEST STRAINS OF HIS TRULY VALUABLE COLLECTION OF TULIPS, amongst which may be enumerated Arlette, Colbert, Queen of the North, Lady Catherine Gordon, Ethelstan, La Belle Nanette, &c., the finest varieties of the Chellastons, as well as a few of his own Seedlings, remarkable for form and purity, many of which have not yet been distributed.—Catalogues may be had on application to the Auctioneers, American Nursery, Leytonstone, Essex, on Tuesday, Sept. 11th; or of Mr. John Slater.

SOUTH DEVON.

STOCK FARM, 218 ACRES, WITH WATER POWER.

MESSRS. DAVIS AND VIGERS are directed to Sell by Auction, at the Mart, London, on THURSDAY, September 27th, at 12 for 1 o'clock, the FREEHOLD FARM, called "Hutcherley," situate in the parishes of Blackawton and Halwell, south of the high road, five miles from Kingsbridge and six miles from Totness. It includes 26 acres of rich water Meadow, 66 of fine Pasture, 9 of Orchard, 4½ of Woodland, and 111 of Arable, with Residence and Farm Buildings. The climate is singularly mild, salubrious, and favourable to stock, and the soil is adapted to Grass and Root cultivation, as well as Corn. The Pasture may be grazed either to fatten or for dairy purposes. —May be viewed on application to Mr. JOHN GRANT, on the premises, of whom particulars with plans may be had; also of JOHN ANDREWS, Esq., Solicitor, Modbury; at the Stars Inn, Totness; the King's Arms Inn, Kingsbridge; the Castle Inn, Dartmouth; at the Mart, and Auctioneers' Offices, 3, Frederick's Place, Old Jewry, London.

ROTHERHITHE, SURREY.

TO MARKET-GARDENERS, NURSERYMEN, AND OTHERS.

MR. W. T. ATTWOOD has received instructions to sell by Auction, without reserve, on the premises, Lower Road, Rotherhithe, on THURSDAY, Sept 20, at 12 o'clock, the Live and Dead STOCK and CROP of a Market Gardener, comprising about 20,000 roots of Linnæus, Victoria, and other Rhubarb, 3 acres of Horseradish, 15,000 yearling Seakale plants, young Mint, Potatoes and other crops; also 30 3-light Boxes and Lights, 200 Hand-glasses, Cart Horse, Market Carts, Baskets, Implements, Tools, &c.: 300 loads of Manure.—May be viewed previously to sale.

GATE BURTON, NEAR GAINSBOROUGH.

IMPORTANT SALE OF SHORT-HORNED CATTLE.

MR. STRAFFORD is favoured with instructions to announce for Sale by Auction, without reserve, on WEDNESDAY, the 26th September next, at Gate Burton, near Gainsborough, Lincolnshire, the entire herd of SHORT-HORNED CATTLE, the property of Wm. Hutton, Esq., consisting of about 75 head of Bulls, Cows, and Heifers, chiefly bred from Cows purchased of the late Earl Spencer, and since crossed by first-class bulls from the far-famed Wiseton Herd, and others bred by Lord Feversham, Messrs. Fawkes, Wilkinson, &c. The Cattle are in a healthy breeding state, not having been forced for sale, and are well worthy the attention of purchasers of superior stock. They are to be disposed of in consequence of Mr. Hutton having let a portion of the farm recently in hand.—Catalogues, with pedigrees and other particulars, may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of WRIGHT, Knaith, near Gainsborough.

HORTICULTURAL BUILDING

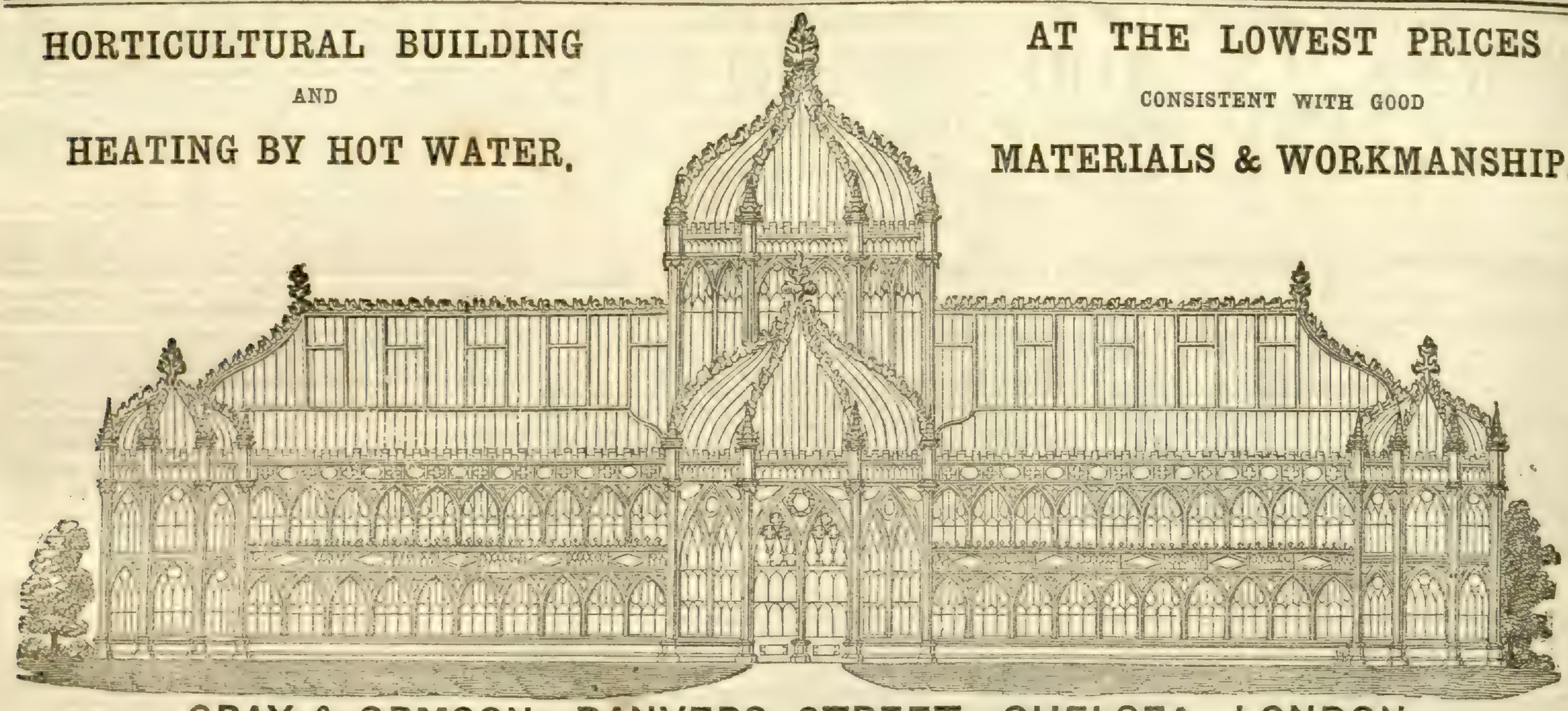
AND

HEATING BY HOT WATER.

AT THE LOWEST PRICES

CONSISTENT WITH GOOD

MATERIALS & WORKMANSHIP.

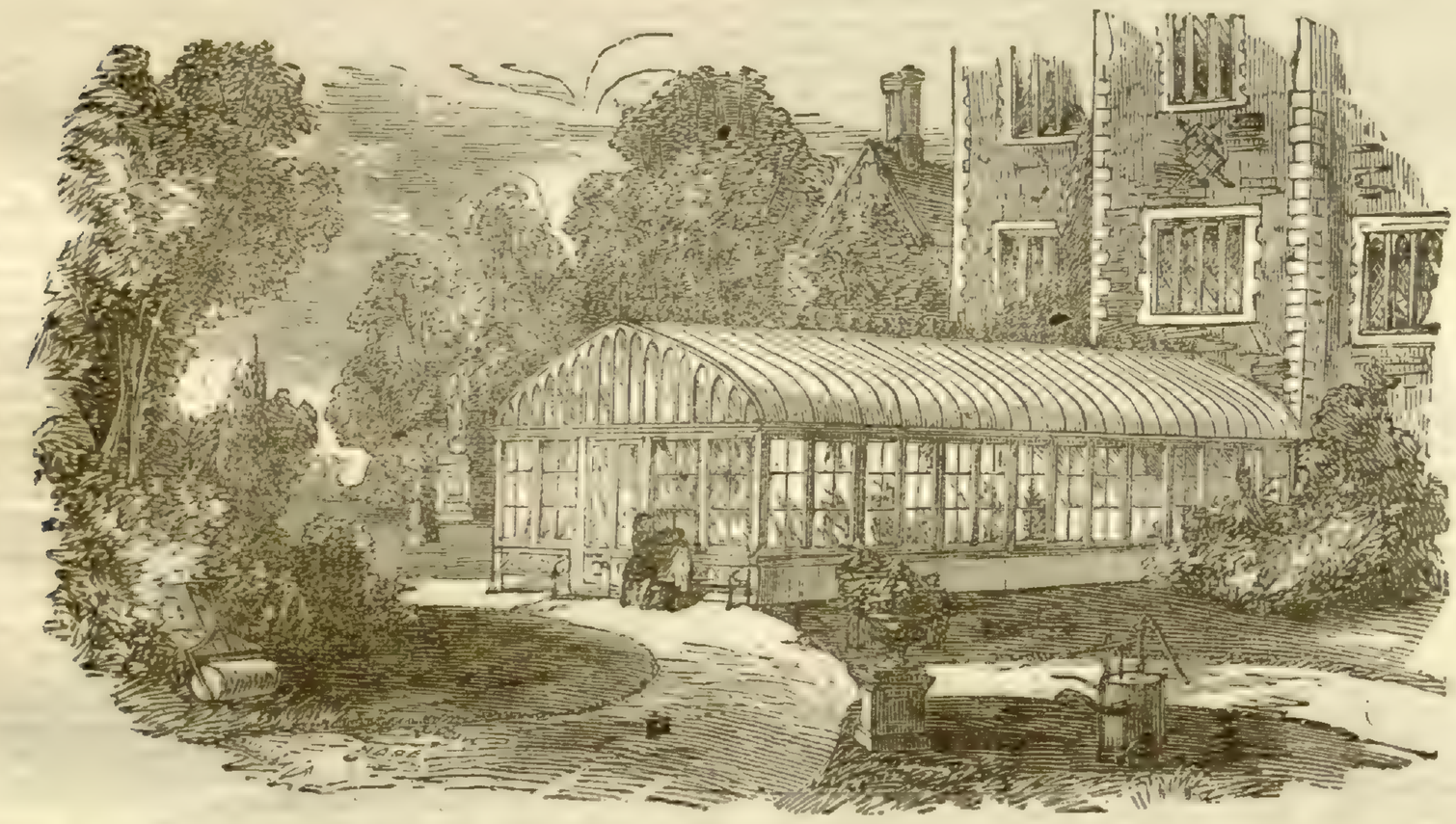


GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

COTTAM AND HALLEN, Engineers, Founders, &c.,



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description, by Hot Water.—Prices and Estimates furnished upon application.

BY SPECIAL APPOINTMENT TO HER MAJESTY THE QUEEN.

WILLIAM WALKER, Victoria Foundry, Walmgate, York.

Manufacturer of Hot Water Apparatus for Heating Greenhouses, &c.	Liquid Manure Pumps
Garden Rollers, Handglass Frames	Iron Palisading, Iron Bedsteads
Iron Fencing and Gates	Galvanised Game Netting
	Stable Packs and Mangers
	Kitchen Ranges and Smoke Jacks on a superior principle

Every Description of Plain and Ornamental Cast and Wrought Iron Work.

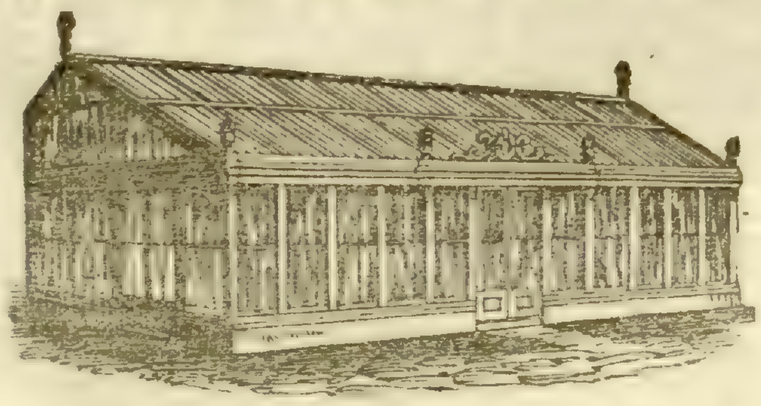
HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY,

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

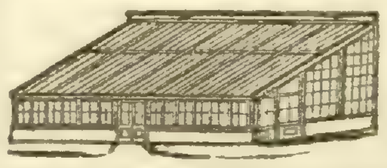
AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work-boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed. Superior Hair and other Toilet Brushes.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



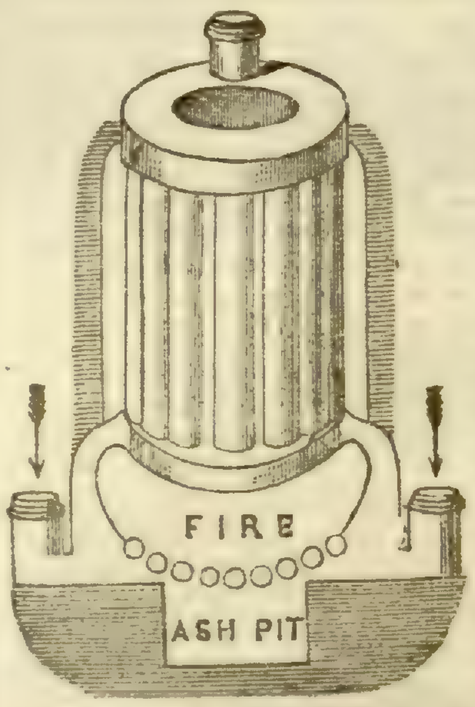
The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.



The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft., and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the late severe winter it only cost us 3*s.* per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *one of our Boilers*, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

JOHN WEEKS & Co., King's Road, Chelsea, London.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, September 8, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 37.—1855.] SATURDAY, SEPTEMBER 15. { Price Fivepence. Stamped Edition, 6*d*.

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NORTH LONDON FLORICULTURAL SOCIETY.—An EXHIBITION of Dahlias, Fuchsias, Verbenas, and Miscellaneous Plants, open to all England, will be held under the auspices of this Society, in the Penton Rooms, Pentonville, on TUESDAY, September 18th. Omnibuses every five minutes from the North-Eastern, London Bridge, Great Western, North Western, and Great Northern Railways, pass within a few yards of the Exhibition, which promises to be one of the most attractive metropolitan displays of the season. Seedling productions will be furnished in great abundance by all the best raisers; lovers of novelty may, therefore, make sure of a treat.—For Schedules, tickets, &c., apply to George Smith, Hon. Sec.

Tollington Nursery, Hornsey Road, Islington.

*** The Advertisement of this Society inserted last week announced by mistake the Exhibition to take place on *Wednesday*, the 19th.

NATIONAL FLORICULTURAL SOCIETY, 21, Regent Street.—The THIRTEENTH EXHIBITION will be held on THURSDAY next, September 20th, when all subjects in competition for Prizes must be staged by 12 o'clock; Seedlings for examination by 1 o'clock. The Prizes and Awards shall be made known at 3 o'clock, when also will be PAID the SEVERAL PRIZES AWARDED during the past season. Prizeholders are therefore requested to attend.

Censors:—Dr. Sladden, Ash; Messrs. C. J. Perry, Birmingham; Thomas Barnes, Stowmarket; and J. Dodds, Salisbury.

John Edwards, Secretary.

TO NURSERYMEN AND OTHERS.

IPSWICH CEMETERY.—The BURIAL BOARD for the BOROUGH OF IPSWICH are prepared to receive TENDERS for PLANTING to be done in their Cemetery during the present autumn. Forms of Specification with Schedules, and quantities may be obtained on payment of 5*s*. for each copy, on and after the 26th day September, at the Offices of the Board, in the Woodbridge Road, Ipswich, and at the office of Mr. Davidson, Landscape Gardener, 36, Great Russell Street, Bedford Square, London.—Ipswich, September 15.

WILLIAM BARRATT, Landscape Gardener, Wakefield.

*** Plans and Estimates furnished.

LANDSCAPE GARDENING, GARDEN ARCHITECTURE, AND GENERAL IMPROVEMENT OF DOMAINS, WOODS, PLANTATIONS, &c.

Charles M'Intosh, F.R.P.S., A.L.S., &c., Author of the "Book of the Garden" and other works on Horticulture, &c. Late Curator of the Gardens of his Majesty the King of the Belgians at Claremont and Brussels, and latterly of those of his Grace the Duke of Buccleuch at Dalkeith Palace.

Newcome Villa, Murrayfield, Edinburgh.

MR. THOMAS LOBB respectfully offers his service as BOTANICAL COLLECTOR to any gentleman who takes an interest in the importation of Indian Plants. Ten years' experience in the above capacity has rendered him familiar with the native languages, modes of travelling, and the best localities for valuable Plants. He is able to state with confidence that a mission undertaken at this favourable season of the year would enable him to form extensive collections of Orchideæ, &c., for immediate transmission.—Letters prepaid, addressed to Deveron, Truro, Cornwall.

DICKINSON'S ITALIAN RYE-GRASS SEED is now ready for delivery, for present payment only, 7*s*. per bushel.—New Park, Lymington, Hants.

SEEDLING CINERARIAS, 1*s*. 8*d*. PER DOZEN, Box and Package Included.

W. WHITEHOUSE has to offer a few hundreds of strong healthy plants, raised from all the new varieties of last year. Post-office orders payable at Birmingham, or postage stamps required with the orders.

Mount Pleasant Nursery, Harborne, Birmingham.

PYRAMIDAL PEARS ON QUINCE STOCKS, AND ORCHARD HOUSE TREES IN FULL BEARING.

MR. THOS. RIVERS begs to announce that the large Collection of the above at Sawbridgeworth is now in perfection. The Harlow Station of the Eastern Counties Railway, about one mile from the Nursery, is the most convenient.

The Nurseries, Sawbridgeworth, Sept. 15.

WANTED,

GRAPES AND PEACHES OF Superior Quality. Forward to GEORGE TAYLOR, Jun., Fruit Salesman, St. John's Market, Liverpool. Terms Cash.

TO BE SOLD, the LODDIGES' COLLECTION OF ORCHIDS.—This unrivalled collection containing upwards of 1200 species and 2000 specimens (many of which are unique), in the finest possible health, is now to be disposed of in one Lot, affording an opportunity to any nobleman or gentleman desirous of commencing the cultivation of this beautiful tribe of plants which has never before occurred.—For terms and to view apply to C. Loddiges, Hackney.

FOR PRESENT SOWING.

NEW ITALIAN RYE-GRASS AND TRIFOLIUM INCARNATUM SEED MAY NOW BE OBTAINED FROM SUTTON AND SONS, Seed Growers, Reading, Berks.

Remittances or references are requested from unknown correspondents.

SUTTON'S RENOVATING GRASS SEEDS MAY NOW BE SOWN.—The Grass Lands sown with these Seeds last Spring are greatly improved (*vide* letters recently received).

Price of Seed 9*d*. per lb., or 80*s*. per cwt. Quantity required, 8 to 12 lbs. per acre.

NEW SEEDS.—GROWTH OF 1855.

WILLIAM E. RENDLE AND Co., Seed Merchants, Plymouth, are now harvesting in fine condition their General Collection of Agricultural and Garden Seeds for the coming season.

In order to give increased facilities for conducting their Seed Business, they are now considerably enlarging their offices and warehouses, which, when completed, will enable them to attend to all orders with promptness and despatch.

William E. Rendle & Co., Seed Merchants, Plymouth. Established 1786.

TO THE SEED TRADE.

GEORGE TABER, of Ravenhill, Essex, begs to inform the Trade that his growing crops of Seeds are now open to inspection. All Turnip Seeds grown from sound transplanted roots. Lists sent on application.—Sept. 15.

BARRATT'S MAGNUM BONUM has this year fully sustained its high character as one of the finest flavoured STRAWBERRIES known, and may now be had at 20*s*. per 100, or 3*s*. per doz.—Catalogues containing all the leading varieties of the day may be obtained from William Barratt, St. John's Nurseries, Wakefield.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s*. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. Cobbett's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

FINE FRINGED CHINESE PRIMROSE.

J. AND J. FRASER beg to offer some excellent Seed of the above, saved from plants which obtained the award of the Horticultural Society last winter, in packets at 2*s*. 6*d*. each. A remittance in stamps is requested from unknown correspondents.—Lea Bridge Road, Sept. 15.

VINES FOR FRUITING IN POTS.

MESSRS. J. AND J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to announce that they have a very choice selection of the best sorts of VINES from eyes grown in 12 and 15-inch pots, Price 5*s*. and 7*s*. 6*d* each.

N.B. Strong Vines for planting out, 3*s*. 6*d*. each.—Sept. 15.

GRAPE VINES FROM EYES.

JOHN BUTCHER has fine Plants of BLACK BARBAROSSA and the leading sorts in cultivation are now in good condition for packing; also BLACK JAMAICA, QUEEN, and PROVIDENCE, FRUITING PINE PLANTS.—Price on application to John Butcher, Royal Nursery, Stratford-on-Avon.—Sept. 15.

EMPEROR NAPOLEON, a New Scarlet Geranium.

John Butcher can now supply good Plants of the above splendid Scarlet Geranium, 18*s*. per doz.; was exhibited at Regent's Park, Royal Botanic Garden, London; see *Gardeners' Chronicle*, June 16.

Royal Nursery, Stratford-on-Avon; London Agents, Messrs. Dawe, Cottrell, and Benham, 36, Moorgate Street, London.

NEW PLANT LIST.

JOHN AND CHARLES LEE'S CATALOGUE OF STOVE AND GREENHOUSE PLANTS for the present Autumn is just published, and may be had, post free, on application.—Nursery and Seed Establishment, Hammersmith, near London.

FERNS.

ROBERT SIM'S 16 page CATALOGUE of his GENERAL COLLECTION of FERNS may now be had for Four Stamps. Free to all previous purchasers.

Nursery, Foot's Cray, Kent.

"A LIST OF PLANTS," including RARE and HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS and CLIMBERS, GREENHOUSE PLANTS, ERICAS, EPACRIS, CAMELLIAS, GERANIUMS, CARNATIONS, PICOTEES and PINKS, HOLLYHOCKS, PHLOXES, CHRYSANTHEMUMS, HARDY HERBACEOUS PLANTS, &c.

Cultivated and Sold by Youell and Co., Royal Nursery, Yarmouth, Norfolk, is now ready, and will be forwarded on receipt of two postage stamps.

CHOICE HYACINTHS, NARCISSUS, TULIPS, CROCUS, ETC. ETC.

JAMES CHARTRES AND CO., Importers of Dutch Flower Roots, Seedsmen, &c., beg to announce that their unrivalled Stock of the above have arrived in splendid condition; the Roots are remarkably large and handsome.

J. C. & Co. earnestly solicit early orders to insure the finest Roots. A Catalogue may be had on application.

74, King William Street, City, and York Nursery, Hanger Lane, Stamford Hill, London.—Sept. 15.

AZALEAS AND ERICAS.

W. J. EPPS has much pleasure in offering the following fine, bushy, well-grown plants, and of the choicest and best varieties, in large 48 and 32-size pots.

AZALEAS 18*s*. per dozen; 5*l*. per 100.
ERICAS 12*s*. and 18*s*. per dozen; 4*l*. and 5*l*. per 100.

These will make very pretty specimens for the ensuing season; all orders to be accompanied with a remittance from unknown correspondents.—Maidstone, Sept. 15.

DUTCH FLOWERING BULBS.

JAMES CARTER AND CO.'s comprehensive CATALOGUE of DUTCH and CAPE BULBS and SEEDS for Autumn sowing, is now published, and will be forwarded free of charge and post paid upon application to James Carter & Co., 238, High Holborn, London.

HYACINTHS AND OTHER IMPORTED BULBS.

DAWE, COTTRELL, AND BENHAM (Successors to Frederick Warner), Wholesale Seedsmen, have just received their annual importation of DUTCH and other BULBS in very fine condition. Catalogues on application.

3, Laurence Pountney Lane, and 36, Moorgate Street, London. Established 1720 at 28, Cornhill.

GUERNSEY AND JERSEY LILIES may now be had of Dawe, Cottrell, & Benham, 3, Laurence Pountney Lane, and 36, Moorgate Street, London.

DUTCH HYACINTHS AND OTHER BULBS.

J. AND J. FRASER beg to announce that they have received their annual importation of HYACINTHS and other FLOWER ROOTS, of which a descriptive Catalogue may be had by enclosing one postage stamp. This Catalogue contains some instructions for the successful cultivation of the various roots.—Lea Bridge Road, Sept. 15.

IMPORTED DUTCH BULBS.

JAMES GRAHAM begs to announce that his priced Catalogue of DUTCH BULBS is now ready, and can be had free on application.—Seed and Horticultural Establishment, Northgate, Chichester (late Silverlock and Son.)—Sept. 15.

R. PARKER begs to inform his friends and patrons that his PRICED CATALOGUE of DUTCH BULBS is now ready, and will be forwarded post free upon application.

Paradise Nursery, Hornsey Road, Holloway.

SPLENDID DUTCH ROOTS, CALCEOLARIAS, &c. Carriage and Package Free.—In collections of 15*s*., 21*s*., 42*s*., and 63*s*., or otherwise. See second page, Sept. 1st.—W. Steward & Co., Seedsmen, &c., Stonehouse, Plymouth.

DUTCH BULBOUS ROOTS.

MARTIN AND SON have much pleasure in informing their friends that they have received in good condition their annual importation of the above, which are particularly fine, and trust to be favoured with early orders.—Catalogues may be had and also of their Nursery Stock for two stamps.—Nursery and Seed Establishment, Cottingham (1788); Hull Branch, Junction Street.

DUTCH FLOWER ROOTS.

JAMES DICKSON AND SONS beg to intimate that they have received their First Annual Importation of HYACINTHS, and every other variety of DUTCH BULBS, in fine condition, and of the first quality.—Nursery and Seed Warehouse, 32, South Hanover Street, Edinburgh. Catalogues forwarded on application.—Sept. 15.

WILLIAM CUTBUSH AND SON beg to acquaint their patrons and friends that their ANNUAL CATALOGUE of DUTCH BULBS can be had, postage free, on application. The superior quality of their roots is well known, but as a further guarantee they obtained the Awards at the Horticultural Society's Rooms, Regent Street, last spring.

Highgate Nurseries, near London.

DUTCH FLOWERING BULBS.

HENRY WALTON'S CATALOGUE of DUTCH and other BULBS is now in course of preparation, and may be had as soon as ready on receipt of one postage stamp. Apply, Henry Walton, Florist, &c., Edge End, Marsden, near Burnley, Lancashire.

H. W. can also supply all the new White Corolla'd and other new Fuchsias at 18*s*. and 21*s*. per doz., or 2*s*. 6*d*. to 3*s*. 6*d* each. New Verbenas, 15*s*. per doz., or 1*s*. 6*d*. each. See advertisements in previous *Gardeners' Chronicles*.

DUTCH FLOWER ROOTS, ETC. ETC.

PETER LAWSON AND SON, Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland, beg to intimate the arrival of their first assortment of DUTCH FLOWER ROOTS, Catalogues of which may be had, free, on application, and orders for which are respectfully solicited.

They have also on hand very select stocks of foreign Italian Rye-grass, Crimson Clover (Trifolium incarnatum), Alsike Clover (Trifolium hybridum), Dwarf Essex Rape, Winter Tares, Stubble Turnip, &c. &c.

London: 27, Great George Street, Westminster.—Sept. 15.

DUTCH AND OTHER BULBS.

JOHN CATTELL begs to inform his patrons and the public that his DUTCH BULBS have arrived in unusually fine condition. Among the bulbs of J. C.'s own growing he has a very large stock of the beautiful sky-blue Squill (Scilla siberica) which is without exception the most distinct and showy, as well as the hardiest of all our early spring flowers. Also a large stock of Japan and other Lilies, Tritonia aurea, Hybrid, and other Amaryllis, Tropæolum tricolorum grandiflorum, very strong; fine assortments of Gloxinia, Cyclamen, Gladiolus, Alstræmeria, &c. A priced catalogue of which may be had on prepaid application.—Nurseries, Westerham, Kent.

IMPORTED DUTCH FLOWER ROOTS.

T. F. WINSTANLEY begs to announce that his Priced Catalogue of Dutch Bulbs for the present season will shortly be ready, and can be had free on application. It contains a list of all the newest and leading sorts in cultivation, including Hyacinths, Narcissus, Jonquils, Amaryllis, Early Single and Double Tulips, Crocus, &c., all of which have been grown by one of the first growers in Holland, and can be relied upon as being good sound Bulbs, and true to name.

28, Market Place, Manchester.

NURSERY STOCK.

H. BIGLAND AND CO. beg to state that the LEASE of their NURSERY having now expired, they have concluded to offer the remainder of their STOCK (consisting of Evergreens, Fruit, and Forest Trees, Greenhouses, &c.) by Auction this autumn; the precise time will be named in a future Advertisement.

Britannia Nursery, Whalley Range, Manchester.

NEW STRAWBERRY.

KITLEY'S CAROLINA SUPERBA, not surpassed in flavour, habit, and productiveness by any Strawberry extant, at the low price of 2*l.* per 100, 9*s.* per doz., free by post, to be had of Messrs. Garraway, Mayes, & Co., Bristol, agents for the west of England and South Wales, or of any respectable nurseryman. For a full description, testimonials, &c., see this Paper, April 14, 1855.

James Kitley, Lyncombe Vale Nursery, Bath.

NEW STRAWBERRIES AT REDUCED PRICES.

Grown and Offered for Sale by

WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.—The following splendid varieties have been well proved this season and given complete satisfaction, viz., Sir Harry (Underhill's), 100 plants, 4*l.*; 40, 1*l.* 18*s.*; and 20, 1*l.*; or 12*s.* 6*d.* per dozen. Omar Pacha (Ward's), 1*l.* per 100; 12*s.* per 50; 7*s.* per 25. Scarlet Nonpareil (Patterson's), 2*l.* per 100; 1*l.* per 50; 12*s.* per 25. Sir Charles Napier (Smith's), 1*l.* per 100; 12*s.* per 50; 7*s.* per 25. Admiral Dundas (Myatt's), 1*l.* per 100; 12*s.* per 50*s.*; 7*s.* per 25. Nicholson's Ajax, Ruby, Captain Cook and Fill-Basket, 6*s.* per 100; Ingram's Prince of Wales, Nimrod, Eliza (Rivers's), Surprise (Myatt's), and Bicton Pine, a large white one, 6*s.* per 100; British Queen, Black Prince, Eleanor (Myatt's), Old Pine, Trollope's Victoria, Goliah (Kitley's), Keens' Seedling, Old Roseberry, all at 4*s.* per 100; Crystal Palace, a very large and late variety, 10*s* per 100. Post-office Orders payable at Yarm are expected with all orders. The plants will be securely packed and forwarded to any part of the kingdom.

STRAWBERRIES.

NEW STRAWBERRIES.—The following fine varieties have been thoroughly proved this season, and given the greatest satisfaction, viz.:—Sir Harry (Underhill's), 2*l.* 10*s.* per 100, or 7*s.* 6*d.* per dozen: Caroline Superb (Kitley's), 1*l.* 10*s.* per 100, or 5*s.* per dozen; Omar Pacha (Ward's), 1*l.* per 100, or 3*s.* per dozen; Colonel Dundas, 1*l.* per 100, or 3*s.* per dozen; Sir Charles Napier, 1*l.* per 100, or 3*s.* per dozen; Magnum Bonum, 15*s.* per 100, or 3*s.* per dozen; and all other fine old varieties, such as Trollop's Victoria, Ajax, Ruby, Eleanor, Nimrod, Prince of Wales, British Queen, Black Prince, Prolific, Keens' Seedling, and all others worth cultivating, at 4*s.* per 100.

SEEDLING HOLLYHOCKS, not to be surpassed, saved from all the finest and best varieties now in cultivation, and such as will bloom well next season, 1*l.* per 100, or 3*s.* per dozen.

SWEET WILLIAMS, from 50 of the most select and choice varieties ever grown, 4*s.* per 100, or 2*s.* 6*d.* for 50.

ANTIRRHINUMS.—Plants saved from a most splendid collection of striped and spotted varieties, 4*s.* per 100, or 2*s.* 6*d.* for 50.

FINE SCARLET GIANT BROMPTON STOCK.—White ditto, Crimson ditto, all 4*s.* per 100, or 2*s.* 6*d.* for 50.

The Plants before mentioned are now ready for planting out, and are such that must ensure satisfaction, and the whole or any part of the above will be sent, securely packed, on the receipt of a post-office order or penny postage stamps to the amount; or 25 of any of the new Strawberry Plants can be sent by post, when the charge will be 1*s.* extra for postage.

SEEDS. SEEDS.

HOLLYHOCK, saved from all the finest and best varieties in cultivation, 1*s.* per packet.

SWEET WILLIAM, saved from 50 distinct vars., 1*s.* p. packet.

ANTIRRHINUM, saved from a most splendid collection of striped and spotted varieties, 1*s.* per packet.

The True Old BATH COS LETTUCE (the best ever cultivated), 1*s.* per packet.

*** Every order must be accompanied by penny postage stamps, or post-office order payable to

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somerset.

VEREA CRENATA (*Syn.* Kalanchoe varians), —the Leaf of Life—*Nat. Ord.* Crassulaceæ.—A small importation has lately been made of the leaves of this interesting botanical curiosity, which matures plants in the serrations of its leaves.—Leaves on sale at 2*s.* 6*d.* each, post free, at George Roberts, 32, Moorgate Street, London, where a drawing of the plant in flower may be seen. Further described in reply to letters.

WILLIAM YOUNG begs to call the attention of Noblemen, Gentlemen, Public Companies, and Planters in general to his extensive stock of CHOICE CONIFERÆ, HARDY EVERGREENS, ORNAMENTAL TREES, AMERICAN PLANTS, &c., which are this season particularly fine, and having been well prepared for removal, he can confidently recommend them to transplant with perfect safety.

W. Y. invites persons about to plant to inspect his stock, which is standing over 50 acres of ground, in which will be found all kinds of plants adapted to every description of ornamental planting. It consists of HARDY CONIFERÆ, containing some of the finest specimen plants ever offered.

	Feet high.
Abies Douglasi	6 to 8 by 5 to 6
" "	8 to 10 by 7 to 8
" "	10 to 12 by 8 to 9
" Menziesi	4½ to 5
" nigra, Black Spruce	4½ to 5
" alba, White Spruce	6 to 8
" canadensis, Hemlock Spruce ...	6 to 8 by 7
Pinus austriaca ...	6 to 8
" "	8 to 10
" Cembra	5½ to 6
" "	7 to 8
" excelsa	8 to 10
" insignis	2½ to 3
" "	3 to 4
Picea Pinsapo ...	5 to 6 by 6
" nobilis }	very
" Nordmanniana }	handsome
Araucaria imbricata .	2½ by 2½
do. do.	3 by 3
do. do.	4 by 4
do. do., very handsome	6 to 8
Cryptomeria japonica ...	3 to 4
Cedar of Lebanon ...	3½ to 4
" " ...	5 to 6
" "	7 to 8 by 6
" "	10 to 12 by 8
" Deodara ...	4½ to 5
" "	6 to 8
" "	9 to 10
" "	10 to 12

(The Cedars of Lebanon and Deodara are particularly handsome and well furnished.)

	Feet high.
Thuja orientalis, Chinese Arbor-vitæ	5 to 6
" " " ...	7 to 8
Thuja Weareana, Siberian	5 to 6
" "	7 to 8
Chinese Juniper ...	4½ to 5
" "	5 to 6
Upright "	4 to 5
" "	6 to 7
Taxodium sempervirens	6 to 8
" "	10 to 12
Irish Yew	4½ to 5
" "	6 to 7

A Large Quantity of fine EVERGREENS.

Green Hollies	4 to 6
" " ...	6 to 7 by 4
" "	8 to 10 by 6 to 7
Evergreen Oak	3½ to 4
" "	4½ to 5
" "	6 to 8 by 4 to 5
Spruce and Silver Firs	6 to 8
" "	10 to 12
Weymouth Pine	8 to 10
Yews	3½ to 4
"	4½ to 5
"	5½ to 6
Quercus oxoniensis—New Leucombe Oak...	6 to 7
" " ...	8 to 10

AMERICAN PLANTS.

Azaleas, fine named sorts
Rhododendron ponticum (good for cover).
Do. all the new and best vars.
Kalmias, Andromeda, Ledums, &c. &c.

STANDARD ROSES, of all the best varieties.
FRUIT TREES, ORNAMENTAL DECIDUOUS TREES, for Parks or Avenues, from 10 to 12 feet.
FOREST TREES, for Copse Planting, from 2 to 4 feet.
Prices given on application.

A Catalogue is now ready, and may be had for two postage stamps.

The Nurseries are two miles from Godalming Station, South-Western Railway, where conveyances can always be obtained.

Milford Nurseries, near Godalming, Surrey.

HYACINTHS.

MESSRS. E. G. HENDERSON & SON

BEG to announce that they have now received their noted collection of HYACINTHS in excellent condition. They also beg to state, that having been for nearly 50 years the largest and most successful cultivators of this highly popular Flower in the vicinity of London, they can with confidence recommend the varieties named in their Catalogue as being the most suitable for pot or glass culture, and every way worthy the attention of Amateurs, &c.

Catalogues can be had on application, and for the assistance of those persons unacquainted with the culture of the Hyacinth, printed instructions will be given gratis with each order they are kindly favoured with.

CUCUMBER—HENDERSON'S "NAPOLEON III."

E. G. H. & Son have great pleasure in informing those who are fond of a really good Cucumber that they have succeeded in obtaining the stock of the above variety. It is one of the best for Winter culture and early forcing; is a free bearer and perfect in its form, possessing, indeed, all those qualifications of a good Cucumber which the most fastidious could desire. In packets, containing two seeds, 3*s.* each; ditto ditto, four seeds, 5*s.* 6*d.* each.

FLOWER SEEDS FOR AUTUMNAL SOWING.

Collections containing 12 distinct varieties, with printed instructions, 3*s.* 6*d.* each, postage free; ditto, 24, 6*s.*; 36, 8*s.* 6*d.*; 48, 10*s.* 6*d.*

CALCEOLARIA, CINERARIA, AND PRIMULA,

Saved from the choicest varieties, may be had in packets at 2*s.* 6*d.* and 5*s.* each; the finest quality of Calceolaria is only offered at 5*s.*; second quality, 2*s.* 6*d.* The finest fimbriated Primula in the country, 2*s.* 6*d.*

NEW PLANTS.

In the possession of E. G. Henderson & Son, and will be sent out for the first time in October. Full Descriptions of the following may be seen in the New Autumn Catalogue, just published.

SHOW GERANIUMS.

EXCELSIOR (Henderson's) | LA BELLE ALLIANCE (Foquet) | PURPLE KING (Foquet) | MIDNIGHT (Foquet)

FANCY GERANIUMS.

AMPHITRITE (Henderson's)
DUKE OF CAMBRIDGE (Henderson's)
GIOVANNA (Henderson's)
LA STELLA (Henderson's)
MOONLIGHT (Henderson's)
REINE DU BAL (Henderson's)
ROSY-LIP (Henderson's)
QUEEN OF THE FETE (Henderson's)
SWEET LUCY (Henderson's)
TITANIA (Henderson's)

CINERARIAS.

ADMIRAL LYONS (Henderson's).—Large full-sized flower, white, with purplish violet edging, dark dice, fine form. 10*s.* 6*d.*

FUCHSIAS.

BANKS' FAVORITE. 10*s.* 6*d.* | PRINCE OF WALES. 10*s.* 6*d.*

RHODODENDRONS.

The following magnificent new species, collected from the Bhotan Mountains, by Thomas J. Booth, Esq., are now, for the first time, offered for sale.

Boothi, | Hookeri, | Calophyllum, | Kendricki, | Eximium, | Windsori Leucanthum.

For full descriptions, with prices of the above splendid varieties, see Spring Catalogue, page 85.

GYNERIUM ARGENTEUM (The Pampas Grass).

E. G. H. and Son having in their possession the largest stock in the country of this noble ornamental Grass, will supply healthy plants in October at 2*s.* 6*d.* each or 25*s.* per dozen.

N.B.—Price to the Trade per 50 or 100 can be obtained on application.

GLOXINIA ERECTA.

Messrs. E. G. Henderson & Son have great pleasure in announcing that they have a very large stock of this new class, and most showy upright flowering Gloxinias. They are the most abundant flowerers, containing among them some of the most lively contrasts of colours imaginable. The Collection includes the new varieties sent out this season. Price 5*s.* and 7*s.* 6*d.* each, or 42*s.* and 60*s.* per dozen.

The following can be supplied in fine plants for flowering next season :—

CAMELLIAS and ORANGES, at 30*s.* and 42*s.* per dozen. | AZALEAS, ERICA, EPACRIS, and APHELEXIS, at 12*s.*, 18*s.* to 42*s.* per dozen.

N.B. Price to the Trade per 100 or 1000 can be had on application.

The Spring Catalogue or General List of Plants will be forwarded post free on application; and a beautiful Coloured Plate of NINE NEW FLOWERS *will be sent on receipt of* 12 *postage stamps.*

Wellington Nursery, St. John's Wood.

ROSES.

S. PONSFORD, Nurseryman, Seedsman, and Florist, begs to say that his fine collection of ROSES is now in the beauty of the Autumn blooming, open to visitors every day (Sunday excepted). The Stock comprises everything good and useful. To Gentlemen anticipating planting in the coming season, S. P. can offer his general Nursery Stock with perfect confidence, not only containing everything in general demand, but unusually good in condition, and as low in price as any honest tradesman can render. New ground work executed to any extent.

Loughborough Park Nursery, Cold Harbour Lane, Brixton.

N.B.—A Descriptive Catalogue forwarded on the receipt of two postage stamps.

GEORGE P. TYE'S Registered HYACINTH BOTTLES and FLOWER SUPPORTS are an age before all others for quality and utility. May be had everywhere retail and wholesale in great variety, from G. P. Tye, 107, Great Charles Street, Birmingham. All are carefully selected and marked G. P. Tye on the bottom of each article.

GLASS FOR CONSERVATORIES, ETC.

HETLEY and CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to James Hetley & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London. Reduced Tariff of Agricultural and Horticultural Glass.

STRONG HORTICULTURAL SHEET, from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot.

PERFORATED GLASS for Ventilating Dairies, Stables, &c., from 1*s.* 6*d.* per foot. German-shaped Milk-pans, 21*s.* per dozen; Hely's Test Churns, 5*s.* each; Waring's Butter Slabs, 10*s.*; Glass Fern Shades and Stands, from 3*s.*; Bee-glasses, from 6*d.*; Cucumber Tubes, from 1*s.*; Propagating Glasses, from 3½*d.* to 7*s.* each; Flower Labels, 7*s.* per 100; Aquariums, complete, 10*s.* each; and every other description of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass, British and Foreign.—Catalogues free.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS and Co. have the pleasure to hand their present reduced prices of Glass for Cash :—

SHEET SQUARES.—In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12*s.* 0*d.*
7 " 5, — 7½ " 5½ } 8 " 6, — 8½ " 6½ }	0 14 0
9 " 7, — 9½ " 7½, 10 by 6 } 10 " 7, 10 by 8 }	0 16 0

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18*s.* per 100 feet. If cut to order not exceeding 40 inches long.

16 oz. from 2½*d.* to 3½*d.* | 21 oz. from 3½*d.* to 4½*d.*
26 oz. from 5½*d.* to 7½*d.*

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½*d.* per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, the same quality as we supply to Mr. Rivers, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	£1 17*s.* 6*d.*	per case of	50
⅜ "	2 1 3	"	60
½ "	1 17 6	"	60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,

87, Bishopsgate Street, Without.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. Rivers and the leading men of the day. Reduced tariff, boxes included. — Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in. ...	... 12*s.* 0*d.*
6½	"	4½	"	7	"	5	...	... 12 6
7½	"	5½	"	8	"	6	...	... 13 0
8½	"	6½	"	9	"	7	...	... 13 6
9½	"	7½	"	10	"	8	...	... 13 6
10½	"	8½	"	11	"	9	...	... 14 0
12	"	9	"	13	"	9	...	... 14 0
10	"	10	"	10½	"	10½	...	... 14 0
11	"	10	"	11½	"	10½	...	... 14 0
11	"	11	"	11½	"	11½	...	... 14 0
12	"	11	"	12½	"	11½	...	... 14 0
13	"	11	"	13½	"	11½	...	... 14 0
13	"	12	"	13½	"	12½	...	... 16 0
13½	"	13½	"	14½	"	13½	...	... 16 0
15½	"	13½	...	...	...	...	...	... 16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. White & Brothers, Milbank Street, Westminster.

THE PAMPAS GRASS,
"GYNERIUM ARGENTEUM."

LUCOMBE, PINCE, AND Co. have now for sale a healthy stock of well established Plants of the above, which will bloom finely this autumn, varying from one to two and three flower stems. Few Plants are more ornamental than this gigantic Grass, the leaves (which are more than 7 feet in length curving gracefully outwards) grow in large tussocks, thereby producing a very fine effect, and from the midst of these numerous flower stems arise to the height of from to 6 to 8 feet surmounted by elegant panicles of inflorescence nearly 3 feet long, resembling beautiful waving plumes of silvery feathers. It is perfectly hardy, and is also easy of cultivation. A grand specimen of this noble plant is now in the Exeter Nursery, pushing up nearly twenty large flower stems and numerous small ones, and will continue to be an object of great attraction for a considerable time. Prices and full particulars may be had on application to

LUCOMBE, PINCE, & Co., EXETER NURSERY, EXETER.
Established 1720.

MYATT'S ADMIRAL DUNDAS STRAWBERRY.—Strong plants packed and delivered free in London, 25*s.* per 100. Also MYATT'S British Queen, Cinquefolia, Globe, Eliza, Mammoth, 3*s.* 6*d.* per 100; Keens' Seedling, Hooper's Seedling, Black Prince, Bicton Pine, 3*s.* 6*d.* per 100.

MYATT'S BRITISH QUEEN.—In reply to several correspondents, and in confirmation of the private answers I gave last summer, I beg leave to state that the only Strawberry bearing the name of "British Queen" is MYATT'S, and when Mr. Beach, in his advertisement says "his true British Queen," he is obviously in error, and arrogates to himself the credit due to my late father, Mr. JOSEPH MYATT, who was the originator of the variety in question.—W. MYATT, Manor Farm, Deptford.—Sept. 15.

VIOLETS.

R. SHACKELL begs to offer strong Plants of his superior Violet Russian Superb, at 4*s.* per dozen; strong plants of the Neapolitan Violet, now fit for potting, at 4*s.* per dozen; Double Perpetual Tree Violet, at 4*s.* per dozen; single sweet winter blooming White Violet, at 4*s.* per dozen; Double White do., 4*s.* per dozen; old Russian Violet, 10*s.* per 100 plants. hamper and package included for all orders above 10*s.*

R. S. would be happy to enter into arrangements with any retail Florist for supplying Bouquets of Violet blooms after the 1st of October until the 1st of March, provided the weather permit, at 5*s.* per 100. Bouquets almost to any extent.

ROBERT SHACKELL, Locksbrook Nursery, Bath.

NEW PELARGONIUMS.

GEORGE SMITH has a fine Stock of the following first class PELARGONIUMS in strong Plants, at from 30*s.* to 40*s.* per dozen, according to the sizes of Plants, hamper included with Plants to compensate for carriage:—(Forster's), Jessica, Phaeton, Seraskier; (Hoyle's), Hubert, Lord Raglan, Omar Pasha, Serena, Topsy, Wonderful, Yerda, Zoe; (Beck's), Conqueror, Dido, Fidelia, Laura, Lydia, Silenus; (Turner's), Grand Sultan, Pandora; (Forquett's) Petruchio; (Story's), Fair Ellen, Snowflake; (Horken) Una; (Cant's) Vespa; (Dobson's) Commander-in-Chief; (Fuller's) Gem of the West. With a choice assortment of show and fancy kinds. A descriptive Catalogue on application. Unknown correspondents forwarding a remittance with their orders will be liberally dealt with. Post-office orders payable at Islington.

Tollington Nursery, Hornsey Road, Islington, London.

SPLENDID NEW BEGONIA, SEMPERFLORENS SAUNDERSI.

GARAWAY, MAYES, AND CO. are now prepared to execute orders for this fine Seedling Begonia (raised by Mr. F. Saunders, Gardener to W. Miles, Esq., M.P., Leigh Court), which is, without exception, the most useful and beautiful variety in cultivation. The original plant first bloomed in May, 1854, when only 6 inches high, and has continued without ceasing to produce from the axils of every leaf its splendid panicles of transparent vermilion buds, which develope to fine clear brilliant rose flowers, emitting a most agreeable odour. Its habit is close and compact, seldom attaining more than 3 feet; foliage small and extremely bright, forming altogether an object of beauty unrivalled by any other variety in its class. Price 10*s.* 6*d.* each, with an allowance to the trade of one upon every three ordered; also a few extra sized plants at 15*s.* and 21*s.*

Durdham Down Nurseries, Bristol.

RHODODENDRONS.

JOHN WATERER begs to announce that he is now prepared to execute orders for his two New Hardy Hybrid Rhododendrons, in good established plants, at 42*s.* each.

Rhododendron JOHN WATERER, colour glowing carmine, large truss, fine foliage, and a most abundant bloomer, in perfection about the 15th June.

Ditto, MRS. JOHN WATERER, a bright rosy crimson, fine conical truss, a very free blooming kind, in flower about 15th of June.

To the admirers of this justly noble class of Plants, JOHN WATERER has the pleasure of recommending the above as being the greatest acquisitions yet offered. They combine in a marked degree the necessary requisites for really first-rate hardy crimson varieties, viz., imposing colours, abundant bloomers, extreme hardiness, and flower at a time when they are not liable to be injured by spring frosts.

The American Nursery, Bagshot, Surrey, Sept. 15.

NEW FUCHSIAS.

STEWART AND NEILSON have selected the following fine varieties from 3000 Seedlings of this year that may now be seen in flower, plants of which will be ready to be sent out by the 1st of April, at the prices named. The usual allowance to the trade.

EMPRESS EUGENIE.—Tube and sepals white, corolla rosy purple, well reflexed, good habit, free bloomer. 10*s.*

LOUIS NAPOLEON.—Tube and sepals fine crimson, corolla violet, well reflexed, extra good habits, free bloomer. 10*s.*

PRINCESS ROYAL.—Tube and sepals pure white, corolla dark rose, not reflexed, good habit, free bloomer. A very distinct variety. 10*s.*

PRINCE OF WALES.—Tube and sepals rosy crimson, corolla dark violet, well reflexed, dwarf habit, free bloomer. 10*s.*

GENERAL SIMPSON.—Tube and sepals dark crimson, corolla dark purple brown, well reflexed, free bloomer. 7*s.* 6*d.*

COLONEL LAWRENCE.—Tube and sepals crimson, corolla dark purple, well reflexed, extra large flower. 7*s.* 6*d.*

MRS. J. NAYLOR.—Tube and sepals bright crimson, corolla fine puce, well reflexed, good habit, free bloomer. 7*s.* 6*d.*

Nursery, Liscard, Cheshire, near Liverpool, Sept. 15.

THE IMPROVED BROWICK RED AND OTHER SEED WHEAT.

WILLIAM BARNES, in returning thanks to his customers for SEED CORN, begs to offer this season the following sorts, which have been procured from the finest and best varieties, regardless of expense in the purchase and cost in the cultivation—viz., Improved Browick Red, Spalding's Red, Old Red or Lammas Wheat, White Chaff Red, and Bristol mixed with White, all of which he will warrant *true and clean.*

Mr. B. can recommend the Improved Browick Red with much confidence as being one of the greatest acquisitions in Red Wheat, for light or black land, yet offered to the farmer. In this locality (Deeping Fen) it was less injured by frosts and mildew than other Reds, and was pronounced by all who inspected it whilst standing over several acres to be unrivalled by any in the district.—For further particulars, address WILLIAM BARNES, the Elms Farm, near Spalding, Lincolnshire.

DOWNIE AND LAIRD, NURSERYMEN and SEEDSMEN, 17, South Frederick Street, Edinburgh, beg to intimate that they are now sending out their NEW PHLOX "Countess of Home," figured in Turner's "Florist" of December last; it has been awarded First Class Certificates at the Royal South London Floricultural Society on the 30th August and the National Floricultural Society on the 6th August, and is unquestionably one of the finest Phloxes yet raised; white with distinct dark crimson centre, form perfect, grows to the height of 2 feet. Price 5*s.* each, and may be had of any of the following nurserymen in England:—

Messrs. Hugh Low & Co., Clapton, London.
Messrs. E. G. Henderson & Son, Wellington Road, London.
Messrs. William Rollison & Son, Tooting.
Messrs. Arthur Henderson & Co., Pine-apple Place, London.
Mr. Wm. Barnes, Camberwell, London.
Mr. John Salter, Hammersmith, [London.
Messrs. Wm. Wood & Son, Maresfield, Uckfield.
Mr. John Keynes, Salisbury.
Mr. Charles Turner, Slough, Windsor.
Mr. John Cattell, Westerham, Kent.
Mr. W. B. Bircham, Hedenham Rosary, Bungay, Suffolk.
Mr. Wm. Chater, Saffron Walden, Essex.
Messrs. Wm. Paul & Son, Cheshunt, Herts.
Messrs. Cole & Sharp, Birmingham.
Messrs. Moore & Son, Perry Barr, Birmingham.

Also from most of the leading Nurserymen in Scotland.

FISHER, HOLMES, AND CO. beg to offer the following, all of which are good healthy Plants.

Abelia uniflora, each 9*d.* to 1*s.* 0*d.*		Escallonia pterocladon	5*s.* 0*d.*
Azalea amœna	1 0	Eugenia Ugni ... 1*s.* 6*d.* to	2 6
„ Stanleyana... ...	1 6	Fuschia, Florence Nightingale	1 6
„ Symmetry	1 6	„ Lady of the Lake	1 0
The following are from 1*s.* to 1*s.* 6*d.* each:—		„ Climax ... 1*s.* to	1 6
Azalea Frosti		„ Empress Eugenie	1 0
„ aurantia superb		„ violæflora pleno ...	1 0
„ lateritia pulchra		„ Dominiana... ...	1 6
„ Apollo		Henfreya scandens ...	1 0
„ white		Hexacentris mysorensis	1 6
„ „ double		Hoya bella	1 0
„ fulgens		Hydrangea japonica variegata ... ... 1*s.* to	2 6
„ Duke of Wellington		Ixora coccinea	1 6
„ optima		„ javanica	1 6
„ extrani		„ salicifolia	2 6
„ decora		Impatiens Jerdoniæ, 1*s.* 6*d.* to	2 6
„ amabilis		Lycopodium umbrosum	0 9
„ Hebe.		„ inæqualifolia ...	1 0
Æschynanthus speciosus, fine plants ...	1 6	„ Poeppigiana ...	1 0
„ splendidus, do. ...	1 6	„ viticulosa	0 9
Acacia verticillata ...	1 0	„ apothecum	1 0
Agapanthus umbellatus, fol. var....	1 6	„ formosum	1 0
Begonia Prestoniensis, fine plants	1 0	„ cœsium arboreum...	1 0
Boronia Drummondi ...	2 6	Mandevillea suaveolens	1 6
Burchellia capensis 1*s.* to	1 6	Maranta alba lineata ...	2 6
Caladium bicolor superba... ... 1*s.* 6*d.* to	2 6	Mitruria coccinea ...	0 9
Clerodendron splendens	1 6	Mussænda frondosa ...	1 6
Cyrtoceras reflexum ...	2 6	Pentas rosea	1 0
Dipladenia crassinoda ...	1 6	Pimelea Hendersoni ...	2 6
Desmodium gyrans ...	1 6	„ spectabilis	2 6
Eranthemum leuconervum	1 0	Swansonia Lessertifolia	2 6
Erythrina crista-galli, 1*s.* to	1 6	Statice Halfordi, fine plants ... 1*s.* 6*d.* to	2 6
		„ sinuata	0 9
		Veronica variegata ...	1 0

Remittances respectfully requested from unknown correspondents.—Handsworth Nursery, Sheffield, Sept. 15.

MESSRS. WILLIAM ROLLISSON AND SONS are desirous of directing the attention of the Nobility and Gentry, who are about to plant or make alterations in their Ornamental and Pleasure Grounds, to their immense Stock of AMERICAN PLANTS, in all sizes, which extends over an area of several acres. In large plants there are several thousands, and of such as Rhododendron catawbiense, Kalmia latifolia, Rhododendrum ponticum in varieties, and other choice hardy hybrids; many of them stand 5 to 6 feet high, and the same through, and literally covered with flower-buds.

Messrs W. R. and Sons are happy to say that their Dwarf and Standard trained, and other Fruit Trees, are this season remarkably fine; they have also a splendid lot of fruiting plants of Peaches, Nectarines, and Apricots in pots, which can be recommended as being exceedingly fine.

NEW PLANTS.

Messrs. WILLIAM ROLLISSON and SONS are now prepared to offer the annexed:—

COLEUS BLUMEI PECTINATUS.—This variety is a great acquisition; the foliage is variegated similar to Coleus Blumei, but the leaves are beautifully laciniated; 7*s.* 6*d.* each.

MANDIROLA ROEZLI.—A very fine flowering gesneraceous plant, producing fine spikes of lilac coloured blossoms, 15*s.* each.

ORTHOSIPHON SPICATUS.—A beautiful new greenhouse plant from Oeano, much to be desired for its foliage alone, which is deliciously fragrant; the flowers are large and white; 10*s.* 6*d.* each.

MANDIROLA LANATA.—A very curious free flowering gesneraceous plant of a delicate violet colour inside the mouth of the blossoms, and shaded lilac outside; 15*s.* each.

NEW CHRYSANTHEMUMS.

The Undermentioned can be supplied at 24s. per dozen.

Aureole, Aigle d'or, Arc-en-ciel, Adèle Prissette, Alexandre Pelé, Comtesse de la Chastnes, Créole, Duruffe, Danais, Eldorado, Fortunio, Figaro, Fimbriata rosea, Hemène, Iris, Il Brasiero, Io, La Promise, La Carmélite, General Lafont, Mdlle. Clemence, Néréide, Precarieuse, Parpaillot, Rachel, Robert Bruce, Rose Bouquette, St. Agathe, St. Flore, St. Thais, Stellata Globosa, Trophée, Uranie, Vicomte de Caumont, Vicomte de Macarthy, Zenobie.

The Nurseries, Tooting, London.

THE CHELTENHAM FLOOD.—A Subscription has been opened for the relief of the sufferers in the destructive flood which visited Cheltenham a few weeks since. This sad calamity has caused great loss and damage to Mr. C. H. Jessop, Mr. Hodges, Messrs. Jessop Brothers, and others. Greenhouses, Gardens, and Aviaries have all suffered more or less from the rush of waters in which they were, for five or six hours, completely submerged, and by which the most beautiful and valuable of their shrubs and plants were altogether destroyed. A great part of Mr. Jessop's Nursery was covered with 6 or 8 feet of water, and the damage done to the plants has been immense. In addition to about 270*l.* which has been subscribed in Cheltenham, the following gentlemen have handsomely come forward to the help of the sufferers:—

Messrs. Noble, Cooper, & Bolton, London ...	£10	10*s.*	0*d.*
„ Hurst & M'Mullen, London	5	0	0
„ Waterer & Godfrey, Woking ...	5	0	0
„ John Sutton & Sons, Reading ...	3	3	0
„ Peter Lawson & Son, Edinburgh ...	2	2	0
„ J. C. Wheeler & Son, Gloucester ...	2	2	0
„ John Palmer, Annan	2	2	0
„ John Waterer, Bagshot	2	2	0
„ Thomas Gibbs & Co., London ...	1	1	0
„ E. G. Henderson & Son, London ...	1	1	0
„ Moore & Son, Birmingham	1	0	0
„ Ward & Son, Bath	0	10	0

A further list will appear next week; in the meantime subscriptions will be thankfully received by Messrs. JACOB WRENCH & SONS, London Bridge; NOBLE, COOPER, & BOLTON, Fleet Street; WHEELER & SON, Gloucester; or A. PAUL, Esq., Cheltenham.

DUTCH BULBS AND FLOWER ROOTS.

THOMAS JACKSON AND SON respectfully inform their patrons and the public that they have received in the finest condition their annual consignment of Bulbs and Roots, and that they are of the largest size and very finest quality. Good Double Hyacinths 4*s.* per dozen; mixed Polyanthus Narcissus, 3*s.* per dozen; Double Roman Narcissus, 4*s.* per dozen. Their Priced List of Bulbs, &c., and also their General Priced Catalogue of Stove, Orchidaceous, Greenhouse Plants, Ornamental Shrubs and Trees, and Herbaceous Plants may be obtained on application.—Nurseries, Kingston, Surrey.

DUTCH ROOTS.

BASS AND BROWN beg to announce the arrival of their first Importation of DUTCH ROOTS for the present season. Their stock of Bulbs of imported and home growth is very select, among which will be found those of the finest sorts in cultivation, including their extensive assortment of Gladioli and other Cape Bulbs.

Imported DUTCH HYACINTHS, with printed instructions for their culture:—

50 varieties in 50 choice sorts	30*s.*
25 varieties in 25 do. do.	16*s.*
Best named varieties, per dozen ... ... 6*s.*, 9*s.*, and	15*s.*
Separate colours without name, per dozen	3*s.*

If required for forcing, we particularly recommend early planting.

The BULB LIST is now ready and may be had on application, and the whole of the Autumn Catalogue will shortly be completed.

Seed and Horticultural Establishment, Sudbury, Suffolk.—September 15.

BROWICK RED WHEAT.—SEED WHEAT of the above description, and true, may be obtained immediately by addressing Mr. EDWARD BALL, Bailiff, Post Office, Beaconsfield. Price, by quarter or sack, 10*s.* per bushel. All orders to be accompanied by a Post Office order in remittance.

WARD'S OMAR PACHA STRAWBERRY.

WILLIAM JAMES WARD offers the above handsome fine flavoured Strawberry at the following reduced price:—100 plants, 1*l.*; 50 plants, 12*s.*; 25 plants, 7*s.*, strong and well rooted. In addition to the many flattering testimonials received last season, Dr. LINDLEY describes it as being exhibited at Chiswick, July 11, 1855.—"*Excellent in quality as well as attractive in appearance.*" See *Gardeners' Chronicle,* Leading article, July 14, 1855. The Editor of the "Florist and Fruitist," in the August Number report of the Exhibition at Chiswick, says—"WARD'S *Omar Pacha is a new Strawberry, and considering its high flavour and comparative hardiness is a valuable acquisition.*"

A few last year's plants 5*s.* per dozen.

Prospect Hill, Reading, Berks.

SPLENDID SPECIMEN GREENHOUSE PLANTS.

WILLIAM BARNES is commissioned by a private gentleman to offer for sale some of the finest specimens in the country of the following kinds of Greenhouse Plants:—

Azalea delicata	Erica vestita alba
„ variegata	Epacris miniata
„ Lawrenceana	Pimelea decussata
„ Gledstanesi	Pultenæa stipularis
Chorozema angustifolium	Polygala acuminata

Particulars can be obtained by application to
WILLIAM BARNES, Camden Nursery, Camberwell.

RARE BRITISH FERNS.

JAMES BACKHOUSE AND SON can now offer nice Plants of the rare PSEUD-ATHYRIUM FLEXILE, from the Clova Mountains, Forfarshire, discovered by themselves in 1852, at ... ... 21*s.* 0*d.* each

PSEUD-ATHYRIUM (Polypodium) ALPESTRE	5*s.* 0*d.*	„
WOODSIA ILVENSIS,* 5*s.* each, extra strong	7*s.* 6*d.*	„
LASTRÆA RIGIDA	2*s.* 6*d.*	„
CYSTOPTERIS DICKIEANA	3*s.* 6*d.*	„
POLYSTICHUM LONCHITIS	3*s.* 6*d.*	„
CYSTOPTERIS MONTANA	10*s.* 6*d.*	„
Ditto ditto a few extra strong	21*s.* 0*d.*	„

*Though a British species, the roots offered are Norwegian.

York Nurseries, Sept. 15.

VARIETIES OF BRITISH FERNS.

ROBERT SIM begs to offer fine plants, in luxuriant health, suitable for hardy Fernery or pot culture, of the following perfectly distinct, elegant, and scarce varieties, selected from his catalogue, which see for description.

Asplenium Trichomanes var. cristatum	2*s.*	6*d.*
Athyrium f. fœmina var. multifidum	5	0
Lastrea filix-mas var. cristatum	2	6
Polystichum angulare var. proliferum	3	6
Scolopendrium vulgare var. digitatum	3	6
„ „ var. Endiviæfolium ...	2	6
„ „ var. multiforme	5	0

Carriage paid to London. Post-office orders on Chislehurst.

Nursery, Foot's Cray, Kent.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 15, 1855.

THOSE who wish to see the effects of skilful cultivation should now visit the ORCHARD HOUSE in the Garden of the Horticultural Society. They will there learn how to estimate at their true value the assertions put forth by gardeners who have either wanted the practical knowledge demanded by this sort of cultivation, or who, *more atavorum,* proceeded without ceremony to condemn what they had no experience about, for the sagacious reason that it was new and of no use.

Since Mr. RIVERS directed attention to this interesting kind of gardening it has been imitated in many places; a few old sashes, some posts, and weatherboarding being all that is absolutely required to carry out the experiment. That many succeeded, if others failed, has been shown by the extension of the practice, and by the significant fact that the preparation of fruit trees for orchard houses has already begun to become a trade. Nevertheless, we have been assured that growing fruit trees in orchard houses would never succeed. Some said that the fruit would never set, or if it did, that it would not stone, or if it got past that critical period of life it would never swell, or if it did swell it would crack. One man cried out—"Mildew;" another "red spider;" a third hinted "expense;" a fourth muttered—"a fine deal of trouble this will be." Nor can it be denied that cases occurred to which

an appeal might be made in support of all such objections.

Luckily, however, there were cases of another kind, in which appeared neither mildew, nor red spider, nor shrivelling, nor any of the evils that had been predicted. Small trees in pots loaded with fruit were seen at exhibitions; Stanwick Nectarines reached their natural excellence; and Pears, Plums, and Peaches ripened here and there most beautifully. And so the experiment continued to make progress.

In the autumn of last year the Rose-house in the Garden of the Horticultural Society, which had been found unsuitable to its original purpose, came under the management of Mr. Gordon. In November and December a variety of young fruit trees were placed in pots from 12 to 14 inches in diameter, for the service of this house; and as many as it would hold were collected in it. Not quite 10 months have elapsed, and a result, which we think remarkably satisfactory, has been obtained. The house is span-roofed, between 50 and 60 feet long, has half its sashes sliding down, and the others fixed; and there is additional ventilation through doors which fall down in the wooden sides. Artificial heat there is none. The centre is occupied by a raised flat bed, and near the sides is a similar bed, on which the pots are placed. Nothing can be more simple. A hundred and eight pots of one kind or other are now standing in it.

During the whole season, from the first week in May to the present day, this house has produced a succession of fruit. First came Strawberries, abundant and excellent, which strange to say did not require to be perched up just under the glass, in the most approved manner, but were borne by strong healthy plants standing on the side borders 4 or 5 feet from the glass; but then, whenever the door and side ventilators were opened air blew freely over them. These were followed by Gooseberries, Raspberries, Currants red and black, and Apricots; Peaches, Nectarines, and Plums are now ripe, to be succeeded by Pears, and in another year by Figs and Grapes. It is impossible for trees, under any circumstances whatever, to be in more robust health. Their leaves are the deepest green, their wood firm and short jointed, their skin as clean as if they had been duly washed every morning, and the fruit itself well swelled, beautifully coloured, and perfect in flavour. Even the little Kai-sha, the best and ugliest of Apricots, gained all its Syrian excellence in this place.

The fruits now ripening consist wholly of Peaches, Nectarines, Plums, and Pears. Some idea of the appearance of the House last Monday may be gathered from the following enumeration of the more striking specimens:—

Peaches.

Violette Hâtive; six on one plant and three on another.
Early York; three.
Royal George; nine.
Grande pourprée hâtive; five.
Grosse Mignonne; three.
A late seedling; fourteen.
Admirable Jaune; seven.
Acton Scott; thirteen.
Mercaton (?) hâtif; three.
Early grosse mignonne; seven.
Chancellor; seventeen.
Monstrueuse de Douay; three.

Nectarines.

Violette hâtive; seventeen on each of two plants, and nine on a third.
Stanwick; six.
Elruge; six.
Pitmaston Orange; six.
Orange précoce; three.
Fairchild's; twenty-one.

Pears.

Passé Colmar doré; eight.
Triomphe de Jodoigne; six.
Charlotte Beurré; seventeen.
Beurré gris d'hiver nouveau; six.
Doyenné Goubault; seven—beauties.
Beurré d'Anjou; four.

Plums.

Denniston's superb; forty-eight.
Huling's superb: a most excellent, large, and handsome green table kind; twenty-four.
Reine Claude de Bavay; ninety-six.
A late Plum without a name; ninety-six.

Such specimens as some of the Plums, two of the Violette hâtive Nectarines, the Acton Scott Peach, and the Fairchild's Nectarine were perfect; and yet it must be remembered that it is hardly ten months since the trees were presented to the Society by Messrs. Lee, of Hammersmith, and Mr. Rivers, of Sawbridgeworth. Another year, with more age, will doubtless witness even a greater result.

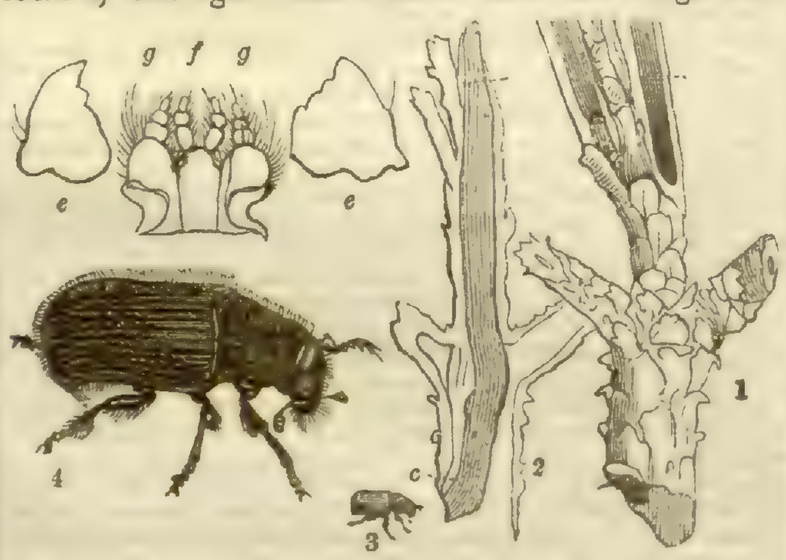
The possibility of obtaining immediately and with certainty an abundance of fine fruit in an Orchard House has been thus demonstrated. There is nothing wonderful in the arrangements of the house in question, or in its glass, or its ventilation. In some respects it certainly might be improved. Nor need such a plan be made with the good workmanship employed at Chiswick. A very rough arrangement would answer just as well. The first cost is therefore the least which it is possible to conceive where wood and glass are to be used.

The purchase of plants can be calculated by any one; their price will, of course, depend upon their age and previous management in the nursery. The rest consists of pots, earth, labour, and skill. Is it worth while to apply these to a kind of cultivation, the effect of which is to produce certain and large crops of fine fruit upon little trees, many of which would in fact be magnificent decorations of a dinner table? Most people will reply in the affirmative, for we know of no piece of luxury more cheaply purchased.

"Being last month," writes a correspondent, "on a visit to a place in Warwickshire which has a remarkably fine avenue of old Scotch Firs (which a few years since appeared in perfect health), I was shocked to see some dead and the rest apparently dying. The proprietor informed me that he had observed the ground strewed with the young shoots, and had attributed this to the wind and the squirrels. Upon closer examination he had detected in the severed shoots a small black beetle, which eats its way up the young wood, leaving its white perforated road easily discernible. Upon my return home, I anxiously inspected some old Scotch Firs of my own, which I highly prize, and was well pleased to observe their seemingly sound condition. This morning, for the first time, I found a number of the new shoots scattered on the ground. The enemy has invaded them. What is to be done? Is it a new infliction, or one of which there is previous experience? If the latter, there may be some known remedy. You would much oblige me by imparting any knowledge you may have on the subject, and by advising the measures most likely to save my trees."

We wish to draw attention to this case, in the hope that some one may be able to mention a remedy for what has hitherto been found irremediable. The injury complained of by our correspondent is caused by the attacks of the *Hylurgus piniperda*, or little black Pine beetle, one of the most destructive pests in plantations. We have seen thousands of young plants of the common Scotch Fir ruined by this insect in the open quarters of nurseries, and the practised eye detects its presence in all directions among older trees. In a former volume Mr. Curtis gave a figure which we reproduce, since it shows what the offender is like and how he works.

At fig. 3 he is represented of his natural size, and at fig. 4 much magnified; *e f* and *g* are his jaws and feelers, and figs. 1 and 2 show how the twigs that



he attacks are pierced. In the early summer, when the wood is tender and succulent, he alights at the base of a young shoot where he soon effects an entrance (fig. 2, *c*); thence he works upwards, devouring the pith and killing the shoot. Now it is to be remarked that the Hylurgus does not act thus for the sake of finding a place in which to lay its eggs, but is actuated by the pure and simple motive of hunger. It is therefore useless to search in the young shoots for the eggs, since none are there. We are assured by entomologists that the eggs are hatched *below the old cracked bark*, where the maggot, a fleshy, dumpy, yellow-headed fellow, like that of a Hazel nut, feeds on the soft inner bark. It is there, we presume, that the insect undergoes its transformations, and where it hatches in the warm days of spring. As soon as it finds its way out of the hole it is born in, it alights on old pales and Fir trees, basks in the sunshine, pairs, lays more eggs in the old bark, and then, having done what it was born for, proceeds to enjoy itself, like a true epicure, by selecting the tenderest morsels within its reach.

Such being the way of life in which Hylurgus indulges, it is evidently no easy thing to stop his proceedings. To catch him on the wing, in the early spring, would be the right way, but how to do it? and where to find him? To scrape bark down to the quick for the chance of picking out his maggots is to cure one mischief by producing more of another kind. To gather up dead twigs, and most especially to pull off *every dying shoot* as soon as it begins to change colour, and immediately to burn them on the spot has been suggested as a practicable remedy. But the misfortune is that the eggs of a new brood will have been already laid, and that the insects burnt are only the exhausted individuals which would probably have died in a few weeks. How this may really be, however, is we think not conclusively made out by entomologists; and we venture to entreat their renewed attention to the subject. The question is one of some natural history interest, as well as of practical importance, and science cannot do better than lay aside classification for the moment in order to take up natural œconomy.

Last week mention was made of a very singular sporting Gooseberry, to be seen in Mr. Telfer's garden, near Glasgow. Since that time we have been favoured with some of the fruit; and we can confirm the statement. Seventeen berries reached us; of these six were red and hairy, three were red, smaller, and smooth, one was green and seven were yellowish tinged with buff. Both the green and yellows were furnished with *crimson seeds surrounded by crimson pulp*. It would be very interesting to trace, if possible, the history of the bush, and to ascertain whether its seedlings have any such constitutional tendency. We cannot call to mind an exactly parallel case.

New Plants.

143. Pinus Royleana, *Jamieson in Journ. of Hort. Soc.*, ix. 52. *Carrière conif. p.* 399.

This plant was published in the Journal of the Horticultural Society, upon the authority of Dr. Jamieson, superintendent of the East India Company's Botanic Garden, Saharunpur, as a native of Nepal, where it forms "a noble tree growing at an altitude of 8—10,000 feet." The name sent with it by Dr. Jamieson was preserved, and its distinctness *as an Indian Pine* recognised; for "previously we had no Pine from India with only two leaves in a sheath, and very small cones."* The appearance of the seedlings seemed to confirm the opinion, for they bore no resemblance to any Indian Pine.

When however the statement from Saharunpur became known to Drs. Hooker and Thomson these distinguished botanists, so familiar with the vegetation of N. India, at once expressed doubt about the accuracy of the information furnished to Dr. Jamieson; their experience of native collectors led them to question whether the tree grew in Nepal at all, and to suggest that the cones and seeds which had been sent to England might very probably have been gathered in some garden.

It turns out that these doubts were perfectly well founded, at least in part; for the second year's growth of the seedlings has enabled Mr. Gordon, whose practical acquaintance with Coniferous plants is unrivalled, to ascertain beyond all doubt that the so-called Nepal *Pinus Royleana* is no other than the New Jersey Pine of the United States (*Pinus inops*). We have ourselves verified the exactness of the identification. So much for Indian collectors.

It should, however, be remarked that this same *Pinus inops* also exists in cultivation here under another name—that of *P. intermedia*, given it by the late Dr. Fischer, of St. Petersburgh, who sent the seeds to this country. A plant so called, and so obtained, is now growing in the garden of the Horticultural Society, where Mr. Gordon long ago identified it with *Pinus inops*. Whence did the Russians procure this *Pinus intermedia*?

LANDSCAPE GARDENING.

(*From Turner's Florist, Fruitist, and Garden Miscellany*).

In the course of our professional journeyings immediately round about the metropolis, it has been a matter of surprise to us that the gardens of villas, large and small, exhibit in their arrangement less good taste than those of similar dimensions in provincial districts. Not that this has been the result of accident; for they almost invariably boast of a large amount of laying out, and not uncommonly is it their misfortune to have too much of it, in that an attempt is made to accommodate within a small space a certain quantity of all the different ingredients which go to the making up of a large garden; and these are obtruded upon each other in such admired discord that a visitor is inclined to compare the *tout ensemble* to a marine store shop of odds and ends of gardens. We have frequently seen, within the space of half an acre or so, geometrical arrangements, sweeps of shrubbery, herbaceous borders, serpentine walks, arbours of different kinds and patterns, with stone vases and statues scattered about upon the ground or mounted

* M. Carrière, in his work on Coniferous plants, in translating the passage within inverted commas, omits the words *from India*, and thus makes Dr. Lindley say that we had previously had no Pine with only two leaves in a sheath and very small cones; which would have been absurd. We trust that M. Carrière has been more exact in other parts of his work.

upon picturesque old stumps; finally, no garden of the kind is considered complete without its fountain, rockwork, and lake.

These various items are crowded together in so small a space, that from the windows of the house they are all under the eye at the same time; and care has generally been taken, for the sake of contrast, that the parts least in harmony with each other should be placed most closely in juxtaposition.

It is only confusion and disorder we would be understood as objecting to, not variety. The exhibition of skill in arranging a garden consists not only in the careful adaptation of the parts to their proper effects and purposes, but also in arranging their order with reference to each other, so that they shall combinedly form a harmonious whole; and these points duly kept in view, as much variety should be introduced as the space admits of without crowding.

As examples are more illustrative than a long dry discourse, we have selected a case in point from amongst those which have come under our consideration, and give engravings by which we can render more intelligibly an idea of what the garden was and of what it is now.

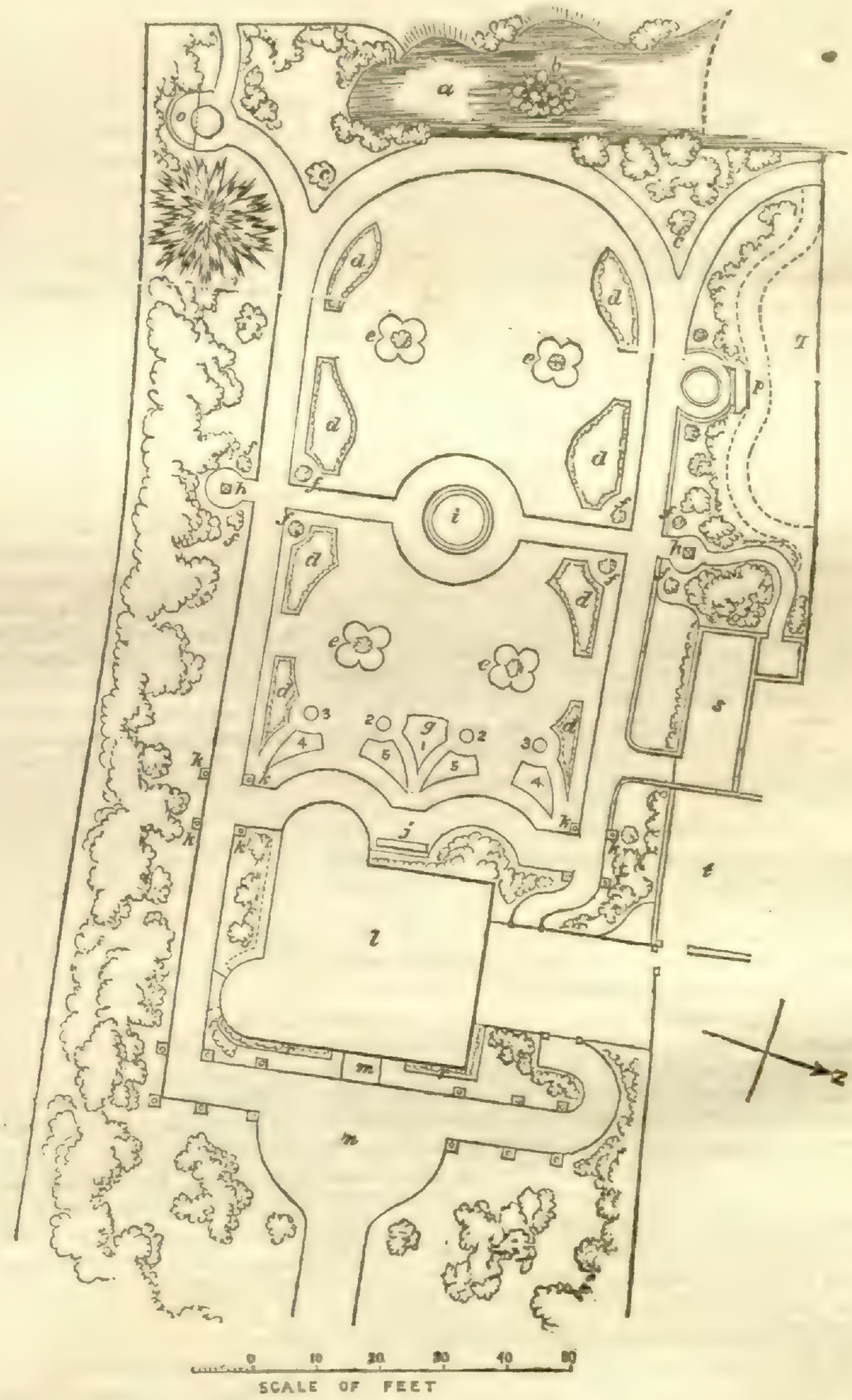
The house is pleasantly situated in one of our suburban villages, having its entrance towards the public road, and looking from the garden side over a flat agricultural scene, with which the house stands too much on a level. In front of the house a respectable piece of garden extends itself, flanked by a shrubbery on both sides, and bounded by a pond between and the extended meadows beyond. On the right is the greenhouse, at the end of one of the offices, inconsiderately placed so close to the garden as to make it an impossibility to conceal it by planting without materially encroaching upon the ground. Further to the right stand coach-house, stables, and other offices, and beyond these a large kitchen garden.

The house itself is of plain red brick, unpretending in its architecture, and of a description which would require considerable outlay to give it a degree of ornamentation. The drawing-room, ending with a large bow on the left hand side of the group, being the only important room on that side of the house, it rendered the arrangement of the garden difficult; this, however, had been managed without the slightest reference to any windows of the house or in any other way with regard to it. The ground was simply cut longitudinally by a walk somewhere about the middle, and across again about half way in the other direction, and, strangely enough, without any regard to right angles; and where these two lines intersected a fountain was introduced—other walks were made on each side of the garden, on one side a straight one, and on the other an example of the serpentine, and were joined at each end by other irregular ones; two arbours were added with as little regard to symmetry as possible, and an arrangement of clumps containing large shrubs crossed the end of the garden, completely shutting out the view of the meadow, and diminishing the prospect of the distant country. Near the centre of each compartment of turf was a peculiarly unplantable bed, with four long points, having a shrub in the centre, and intended to contain half-hardy plants, &c. The outer borders were all bounded with Box-edgings, and contained mixtures of common flowers and shrubs. Bits of rockwork, shellwork, and old blocks and stumps were scattered about, and generally these specimens of the grotesque were surmounted with a vase or statuette.

The great faults in this case were the shutting out of the extended prospect, the cutting up of the garden into small patches, and the complete exposure of all the walks as though they were the most important features of the garden. The first of these was rectified by clearing away the clumps near the pond, the second by

ORIGINAL PLAN.

IMPROVED PLAN.



destroying the centre walk, and the third by fringing the broad turf plot so obtained with clumps for flowering and other shrubs of moderate growth, which would rectify the obtrusiveness of the side walks, and be subservient to the larger shrubs beyond them.

In the new arrangement a centre was obtained upon a line from the fountain, at right angles with the building; and to give a balance to the basis of operations, a large projecting mass of close-clipped evergreen was introduced, to correspond with shape of drawing-room bow, which also served to aid in concealing the offices and yard on the right hand side of the house, and the yard itself was considerably contracted, that it might be effectually planted out on both sides from the garden.

Parallel with this centre line, and equidistant from it, the two side walks were laid down, and the use of Box edging confined to the right hand side, where double lines are shown, and where it was most in keeping from its contiguity to the greenhouse; on the left hand side turf was used up to the shrubs, which were pegged down to meet it and conceal the margin. The two side walks were curved round so as to meet each other near the pond, which was made less artificial in outline, and rendered a more endurable object from wherever it could be seen. From these walks a branch was made to lead to the summer-house and meadow wicket on one side, and on the other side towards the kitchen garden. The branch walk leading to the back of the greenhouse was so curved as to render it less obvious, and in a circle of gravel, as shown, was placed, upon a suitable pedestal, one of the best of the statues—one we found stuck up in the fork of an old Mulberry tree; and on the opposite side of the garden a corresponding niche was made for its companion. The other architectural embellishments, in the shape of vases, were furnished with proper pedestals, and appointed to suitable positions as near the mansion as possible.

We deemed that the house itself and the laundry could be most economically improved in appearance by covering them entirely with creepers, and especially with evergreen Roses, Pyracanthas, variegated and other ornamental Ivies, and the like, with a due admixture of Clematis, Honeysuckle, Wistaria, &c.

As the greenhouse and frame accommodation was limited, we were not justified in proposing a very extensive parterre, even if the extent of the ground warranted it; its natural flatness, however, suggested the propriety of a certain quantity of such arrangement, and it was obviously important that such feature should be as near the house as possible.

The apparent breadth of the garden, and indeed its general extent, being so much increased by these arrangements, the four beds *c e e e* were introduced on one side, in line with centre of drawing-room window, and in a corresponding position upon the other. It is admissible that these should be filled either with dwarf flowering shrubs or with half-hardy plants, annuals, according to convenience, &c. A Swedish Juniper has a satisfactory effect in the centre of each.

So much more having been made of the ground in front, it became a reasonable matter to have nothing but shrubs and turf on that side of the house, and arrange that carriages might come quite up to the front door, instead of unloading at the wicket gate against the road in all weathers. Other matters are, we consider, so fully explained by a comparison of the two plans, and the reference thereto, that it will be needless to lengthen the article with further description.

Reference to Engravings.

a Pond.
b Mass of Water Lily.
c Large Chinese Arbor-vitæ.
d Clump on turf for herbaceous plants and small flowering shrubs, and bordered by clipped evergreen hedges of Cotoneaster, &c.
e Beds on turf, with Juniper in centre, flowering plants round.
f Irish Yews.
g Parterre on turf.
1. Blue with white margin.
2. Scarlet.
3. Light pink.
4. Brownish orange.
5. Deep violet or purple.

h Statues on pedestals.
i Fountain.
j Seat on centre line.
k Vases on pedestals.
l House.
m Porch.
n Coach ring.
o p Alcoves.
q Back ground for reserve, &c.
r Border for creepers against house.
s Greenhouse.
t Laundry.

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VEGETABLE PATHOLOGY.—No. LXXXVIII.

364. Carcinodes * (Canker).—The word canker is used popularly to designate several diseases which are essentially distinct. It is applied, in fact, to all cases in which the branches or parts of them become covered with unsightly depressions or excrescences leading more or less speedily to death. There is, however, the greater need to distinguish between them, because there is a possibility of confounding in the same tree affections which may be either constitutional or caused directly by the attack of insects, and where the treatment is consequently altogether different. Nothing, for instance, is more common than for Apple trees to be covered with rugged, depressed, ulcer-like spots, penetrating to the base of the bark and denuding the wood, to the ultimate destruction of every part on which they appear. These spots, however, are not constitutional, but are caused by the irritation consequent on the presence of the woolly aphis, commonly known under the name of the American blight. If proper measures be taken to destroy and prevent the spreading of the insect, though the parts already affected cannot be thoroughly cured, the new shoots will be clear. There is, however, another affection of somewhat similar appearance which is altogether constitutional, and therefore cannot be entirely suppressed, though injurious consequences may be warded off by timely excision of the parts affected. New branches will not, indeed, be exempt from attack, as in the case just indicated.

365. It was mentioned above that many trees have a tendency to throw out roots from their bark, where moisture is purposely or accidentally applied, where the natural perspiration is prevented by the intervention of any thick substance in contact with it, or where the sap stagnates in more than usual abundance by mere gravitation. The roots which appear so often on Vine branches, or where felt is in contact with the smooth bark of the Fig, are familiar examples. Such circumstances may be attended by no ulterior consequences, or they may induce disease where they are not considered indications of a morbid condition in themselves. In the common Laurel, for instance, nothing is more common than for branches to become cankered where roots have made their appearance. Had such spots been in contact with the ground, they would have increased and ramified, without any detriment to health, tending only to spread the tree over a wider surface; but where they are pushed forward into the air alone, their tips soon wither, decay commences, the bark separates, and the whole branch ultimately falls from the infection of contiguous tissues. Such roots are sometimes, however, protruded in very different positions, where there is no force of gravitation, and where they frequently lead to evil. A young Apple tree for instance may appear to be in the most perfectly healthy condition, fruitful spurs are abundantly produced, a sufficient quantity of fruit arrives at perfection, and all seems likely to be well for an indefinite period; when most unexpectedly, just above the scars of the leaves, which have now become immensely expanded on the smooth stems, little raised spots appear, which soon give rise to fascicles of short roots. The tips soon wither from lack of moisture, the adjacent and subjacent tissues change their colour from the oxydation of the contained chlorophyll, decay commences, and ultimately the trunk is covered with unsightly patches, which give admission to external moisture, afford a fit nidus for destructive larvæ, and in the end induce serious mischief. The wisest course is to cut out carefully the spots as soon as they appear, so that they may shortly be covered by healthy bark. If neglected, there can be little doubt about the ultimate consequences. Such spots, moreover, afford a ready hiding-place for the woolly aphis, and the blame is laid upon the insect, though the first attack was perfectly constitutional, and might have led to serious mischief without the agency of more than mere atmospheric causes. *M. J. B.*

* From καρκινος, a cancer; and ειδος, resemblance.

Home Correspondence.

Trees Transplanted at Gunnersbury Park.—Permit me, in reply to Mr. Barron's request, to furnish you with the names and heights of the trees moved by him and me respectively. Of these Mr. Barron transplanted Magnolia cordata, 22 feet; two M. grandiflora, 15 feet; one ditto, 12 feet; a Spanish Chesnut, 20 feet; Cupressus macrocarpa, 17 feet; ditto, 16 feet; Pinus cembra, 17 feet; ditto, 11 feet; Abies Douglasi (not the large one about which so much has been said), 16 feet; two Pinus insignis, 14 feet; Chinese Arborvitæ, 15 feet; a Chinese Juniper, 13 feet; Juniperus excelsa, 10 feet; Pinus excelsa, 12 feet; and two variegated Hollies, each 11 feet in height. The above constitute the whole of the trees operated on by Mr. Barron or his man. The following were moved by me, viz.:—Two Deodars, each 21 feet in height; one ditto, 16 feet; four ditto, each 15 feet; two ditto, 13 feet; two ditto, 12 feet; and one ditto, 10 feet; also Taxodium sempervirens, 11 feet; a Cryptomeria, 14 feet; and another, 15 feet; Araucaria imbricata, 13 feet; ditto, 11 feet; ditto, 10 feet; ditto, 9 feet; Pinus Pinsapo, 10 feet; P. macrocarpa, 11 feet; P. Ayacahuite, 8 feet; Buxus Balearica, 10 feet (and 20 feet in circumference); a Cork tree (Quercus suber), 10 feet: besides numbers of other trees, the mention of whose names would occupy too much of your space. From the above it will be seen that there was no "mistake" in my former statement to rectify, and that even the "major part of the *large* trees" was not transplanted by Mr. Barron, whose skill in tree moving I considered established; and this was the reason, and nothing else, why he was only made to "stand sponsor" for the large Douglas Fir, 45 feet in height, the only tree transplanted worthy of his name—an opinion in which I think most people will concur when I state that with the exception of it, the Spanish Chesnut, and the Magnolias, all the others were transplanted three years ago by means of a *common truck!* Nevertheless, such is the kind of trees for the removal of which Mr. Barron is disappointed he did not receive "a certain meed of praise!" Those transplanted by me had no such previous preparation to facilitate their removal as that just described; and all the Deodars, together with the largest Araucarias and others planted by me, were brought a distance of from 18 to 20 miles nearly two months later in the season than when Mr. Barron moved his trees; therefore, of course, diminishing my chance of success, yet, as Mr. B. himself admits, "all have done well." In taking leave of this subject I may add that I have not a word to say against Mr. Barron or his machine, which, by the way, is a very good one; and to do his man justice, he certainly did give me a "notion" how to work it—a piece of knowledge I regret to say I was unable to put into practice, as my trees were moved by a different apparatus. *William Forsyth, Gunnersbury Park.*

Dwarf Fruit Trees.—Are Apples and Pears on dwarf trees less hardy than on standards or espaliers? Your observations in the last Number on the hardy fruits at Chiswick show such to be the case this season. Do you suppose it generally will be so? *R. Varden, Seaford Grange, near Pershore.* [The coldest stratum of air is that next the ground. You can ascertain this by placing three thermometers, some cold bright night, one next the ground, one 6 feet above it, and another 6 or more feet higher. Therefore dwarf trees are most apt to lose their blossoms in very cold bright spring nights.]

Dioscorea Batatas.—Whether our friend "Yam" in writing down this Dioscorea is right or wrong yet remains to be seen. I have no great opinion of its ever being a substitute for or superseding the Potato, yet it may, when we become better acquainted with it, prove a useful auxilliary. "Mr. Yam" seems to have had very meagre success in his endeavours to cultivate this new root. I have only one, of which I will now give you a concise history. I received a small (very small) tuber from Paris in the spring of last year; I potted and started it in heat, and subsequently planted it out, not, to tell the truth, setting much store by it. The plant in the course of the summer and autumn got overrun by Cucumbers, and was forgotten. In autumn I took it up, when it had grown somewhat larger than my middle finger. It was placed in a pot of light, dry earth, and set on the bench in the potting-shed throughout the severe weather in winter. In spring it was started in heat, and when it had pushed some length, I raised a hillock at the corner of a border, turned it out and tied it to a stick about 3½ feet high. It has grown luxuriantly without any further care, the shoots hanging by the stick and twining round each other in wild confusion. What the root or tuber will be remains to be seen; but at present the plant is luxuriant. Since planting it out a pot of water when dry is all the care it has had. It may possibly not succeed in every description of soil; but ours is far from being any of the best. *Quercus.*

New Belgian Strawberry.—At page 739 of last year's *Chronicle* you noticed very favourably a new Belgian Strawberry called Délices d'Automne; shortly afterwards Mr. Verschaffelt, of Ghent, advertised it at the rate of six plants for 10*s*. I immediately ordered that quantity, and in due time received them. I potted them and placed them in a cool pit for the winter, and brought them gently forwards with a late crop of forced Strawberries. I planted them out in May on a south border, where they have made a great quantity of runners, but not a single blossom has as yet appeared. I shall, therefore, be glad to know if any of your correspondents who may have purchased and tried this variety has been more successful than myself. *S. B., Elton.*

To make Guava Jelly.—Have Guavas ready peeled by midday; put them whole into, say a 4-quart glazed jar; put the jar into an iron pot of boiling water, and as the Guavas sink, by the drawing of the juice, fill up with other Guavas. Keep a fire under the pot during the night. Next midday strain off the juice through linen; put it into a preserving pan; to each teacupfull of juice add a teacup of sugar, clayed sugar will do, refined preferable; just as the juice and sugar are well mixed and boiled up, take off the fire and carefully strain; clean the preserving pan, put again on the fire and constantly skim till it becomes of proper consistence, which you see by dropping a little on a plate from the ladle, immediately cooling and becoming hard. *J. Salmon, Jun., Goshen, St. Elizabeth, Jamaica, Aug.* 1.

Propagation of Gynerium argenteum, or Pampas Grass.—The hardiness of this Grass has been sufficiently tested, several large plants of it in the neighbourhood of London having withstood the sharp frost of last winter; it is, however, generally admitted to be difficult to propagate. There are few herbaceous plants capable of being propagated by division that do not grow freely, provided the division be effected after the parent plant has ceased flowering. This does not appear to be the case with the Gynerium. Two instances occurred last autumn in which the offsets were separated from the old plant a short time after the flowers of the latter had disappeared. The offsets were all rooted, and one lot was wintered in a cool frame; by being rooted, I of course mean that the offsets had pieces of root attached to them when they were potted. The compost in both instances consisted of peat and sand. The second lot was kept close under hand-glasses in the cutting house. Those wintered in the frame all perished, and all but 5 out of 25 offsets which passed the winter under hand-glasses likewise died. In consequence of these failures I was induced to detach a few more offsets late this spring; I potted them as before, and placed them in a shady situation in the open air. These plants are now growing vigorously. *R. Miles, Bristol.*

The Laurustinus seeds so abundantly, and grows so freely from seed, that I think it is to be regretted that we content ourselves with taking advantage of its propensity for rooting at every joint, and constantly raise our supply of plants from layers or cuttings; and it must be in a great measure owing to this mode of propagation that we possess so few varieties of this much esteemed shrub. I have been led to offer these remarks from seeing a bed containing several thousands of seedlings, and a most interesting robust various-leaved group they presented. I found that they withstood the severity of the past winter, when thus only a few inches high, without even the assistance of that excellent protector snow. They consequently suggest the probability of belonging to a hardier race, and assure us of their being different in form by already assuming the perfectly upright pyramidal shape so generally the characteristic of the plant from seed. This alone, irrespective of the chance of a diversity of flower or foliage, would amply compensate for a little more trouble being paid to this subject than it has hitherto received. *J. M., Folkestone.*

Transplanting Machines.—I observe with satisfaction and regret the discussion which has commenced in your Paper on this subject, which appears calculated to lead to the comparative value of the various machines for the purpose which, within the last four years, have been brought before the public; with satisfaction because a good honest conclusion thereupon is of importance to proprietors of estates generally, and to professional men in particular; with regret because it is mixed up with an expression of feeling displaying acerbity of manner, and which in all cases is liable to lead to recrimination. Cannot such matters be managed with a simple reference to facts? It would be more creditable to all parties. I must express my regret that a gentleman of Mr. Barron's well known high standing in regard to personal character and professional ability, should in the third person have "slashed" so pointedly at your favourable report of Mr. M'Glashen's apparatus and experiments a few years since; and have attributed the manner of the report of Gunnersbury to neglect of his merits, or an intention to underrate them, or cast or leave them in the shade. I think no candid man, on reading the said report, would have seen in it a sufficient call for Mr. Barron's sharp rebuke; and if he felt that omissions or inaccuracies existed in it, a simple rectification of them would, I am sure, have received all due and respectful attention from you, and have been perfectly satisfactory to your readers. I cannot, moreover, see in "Observer's" letter any sufficient cause for Mr. Barron's manner in his reply thereon. I considered the suggestions of "Observer" very valuable, and if they can be acted upon they would tend much to give each machine its fair place in the eyes of the public. As your Paper is so extensively circulated amongst landed proprietors, perhaps some of those who desire to have large trees moved would allow a fair competition of the kind to be carried out upon their property, and I would move an amendment to the suggestion that, if possible, several experiments be made on different soils, giving the competitors also any choice of time and season, with liberty to make such preliminary preparations as they deemed necessary, within twelve months of the arrangement being made. As to terms I would suggest that the proprietors should defray the usual charges of the operators; that the public might be made acquainted with the comparative expense as well as with the result; and further that perfect fairness may be insured, the operations should be watched by a committee of professional men to which each competitor should name a member; and the proprietors of the several estates on which the experiments were conducted should also be on the committee themselves or name a deputy; and with yourself as chairman. I hope Mr. Barron will believe that I have no interested motive in recommending this course save that of obtaining conclusive information; and I offer the suggestion as one by which he may have fair play, but no favour. I believe Mr. Barron desires no more. *William Davidson, Landscape Gardener, 36, Great Russell Street, Bedford Square, London.*

Cattleya Mossiæ.—I have this with three seed pods on it, each more than an inch in diameter. The plant had 16 flowers all expanded upon it at one time, and in order to keep it in perfection as long as possible, I had it suspended in a shady corner of an airy greenhouse. There were at the time quantities of humble and other bees working amongst the greenhouse flowers, and to these I attribute its having been fertilised and set for seed. I have flowered this Cattleya some years along with others, but I never got one to seed before. From the description given of one shown in June last from Sion I judge mine to be the same variety; it has very large flowers; one which I measured was 8 inches across, and it had the deepest-coloured purple blotches or markings on the lip which I ever saw on any of the

many varieties belonging to this genus. *W. Hopps, Lightcliffe, Halifax.*

Which is the best Season for Transplanting?—I can bear testimony to the remarks of Mr. Scott on the perfect safety of lifting all kinds of trees in summer. I have done so from choice, and sometimes from necessity. I ventured on the experiment from supposing that if gardeners can conduct many transplanting operations in the flower, kitchen, and forcing garden with success, why not shrubs and trees. Various causes will always operate against the plan being much adopted, but as to its success when done properly there can be no doubt whatever. *Observer.*

Galvanised Wire.—Several statements have appeared in your columns respecting the bad effects of employing this wire in the formation of lattice work, or espaliers for plants, and more especially for fruit trees. Now as this kind of wire possesses great recommendation for such purposes, being rendered extremely durable, and no disturbance of the plants for the purpose of painting (as the continual expense of such an appliance is unnecessary) being required, I think it important that we should know how far the serious charges brought against it are founded on fact, and I must say that so far as my own experience goes I have found them to be entirely groundless. This opinion has been much strengthened by an examination made this day of an entire garden so espaliered, on the estate of the Hon. J. D. Bligh, at Sandgate, on the whole of which there is no instance of any blight or canker whatsoever, and finer grown trees for the time they have been planted (some five or six years), it is impossible to imagine. No doubt plenty of cankered and diseased trees are to be found upon galvanised trellising, I have no intention of saying that it will prevent such evils; but the great fact that trees do grow so admirably upon it proves that it possesses nothing to engender them, and I know that others can bring forward evidence to the same effect. *J. M., Folkestone.*

Notices of Books.

A System of Botanical Geography. Géographie Botanique Raisonnee. By Alph. De Candolle. 2 vols. 8vo. Paris. Masson.

Under this title we have a long-looked-for desideratum in botanical science, a book embodying the principles of the study of the geography of plants, skilfully planned and conscientiously executed. M. Alph. De Candolle, son of the late distinguished systematist, has, it is well known, been devoting his energies and ability to the preparation of an elaborate work on this subject; and as he is also known to possess attainments and facilities for its successful completion which few or no other naturalists do, the result is, as was to be anticipated, in every way worthy of the great name he bears.

The work itself is a very full one, consisting of two thick octavo volumes, with 1300 pages of closely printed matter. It is, of course, addressed chiefly to botanists and physicists, and it is written in French, with admirable clearness and logical precision of style and diction. That it will soon be translated into English cannot be doubted, and it will then command the attention of every lover of science; as, however, the direct application of its principles to horticulture and gardening ought at once to be laid before the English public, we shall devote a few articles to a summary of these, as illustrated by the contents of the work.

Few naturalists are, perhaps, fully aware of the wide range of preliminary acquirements necessary to the study of botanical geography; the nature and amount of these, together with the length of time which has elapsed since the publication of any good general treatise on this subject, have combined to render the task of systematising it one of the most difficult philosophical problems of the day.

Since the publication of Humboldt's "Essai sur la Géographie des Plantes," in 1805, and Brown's Appendixes to "Flinders' Voyage to Australia," and Tuckey's "Voyage to the Congo," little had been done up to Schouw's time towards combining all into a general whole, and deducing laws from the result, and the additional materials now accessible from the countries whose vegetation was explored by Humboldt and Brown, have demanded the complete revision of their labours, previous to their incorporation with those of their successors, by the author of the work now under consideration.

During the thirty years which have intervened between the publication of Schouw's "Pflanzen Geographie" (Geography of Plants) and the present time, facts have been accumulating with unprecedented rapidity, but, with the exception of the elder De Candolle's, Watson's and the late E. Forbes's admirable efforts, there have been few extended attempts to classify and arrange them. Since Botany was first systematised by Linnæus, a multitude of local "Floras" have been published, with prefaces or appendixes (often of great value) detailing the distribution of species over areas more or less intruded upon by man; and a host of travellers, more or less skilled in Botany, in powers of observation, in geography, and in collecting materials, have illustrated their published travels with scattered notices of species and their ranges, or devoted chapters to a laborious tabulation of details, arranged geographically or systematically.

We have already alluded to M. De Candolle as possessing in an eminent degree the attainments necessary to a right understanding of the principles of botanical geography. These may be arranged under two classes—those that depend on a study of groups and species of plants in their several relations to one another, and those which are based on a study of plants in relation to the physical phenomena of geographical site, soil, climate, &c., under which they are found growing; hence arises the division of the whole subject into the two branches of Botanical geography and Geographical botany; the attempt to consider which under all aspects has often tended much to obscure both, and our author has done wisely to dwell upon them separately. Towards the elucidation of the physical problems M. De. Candolle has devoted many years of careful experiment and observation. He early directed his attention to physical geography, and was schooled in methods of applying it to the solution of botanical problems by his father, while, as he informs us, he had always a natural taste for arithmetical operations, and has published a valuable essay on the elevations of localities in the neighbourhood of Geneva, deduced from observations of his own as well as of others. He has besides himself investigated the influence of soil, temperature, and light on plants, experimentally and in the field, proposing and carrying out new plans of operation and new methods of working out their results. In pure botany too, M. De Candolle's attainments are of a high order, he has long been in the practice of studying in a most extensive and well arranged herbarium, has systematically elucidated several large and important natural families of plants, has studied in almost all the great European herbaria, has taught botany in its several branches, and has had the direction of one of the largest and best botanical gardens in Europe. When to these advantages are added that he has such a competent knowledge of French, English, and German, as to be able to read fluently in those languages the literature of these branches of science—that he combines great accuracy and industry with skill in the arrangement of his materials, a full appreciation of the labours of others, and an extensive correspondence with his fellow botanists everywhere—we shall have summed up the requirements for the task he has undertaken, and may safely affirm that no other naturalist can produce so many and such varied qualifications for its successful accomplishment.

In the preface to the first volume M. De Candolle alludes to many important points relating to the object and extent of the study of botanical geography, which have never before been treated in so able a manner, but which lie at the very threshold of the inquiry; he says that "the prevalent opinions as to its nature and limits are still very vague; these are too often regarded as comprised in the idea that it consists in the accumulation of innumerable facts relating to the relations between species and their habitats and localities: such a definition," he adds, "is far too general, and is inconsistent with the definitions given of other branches of botany. Thus organography is not the description of all organs of all plants, but has for its object the development of general laws from a study of the organs of a few well selected types. A treatise on vegetable physiology is in like manner based on the examination of a very few species; and so in botanical geography a vast number of isolated facts must be eliminated, and the attention devoted to such few as have the most general interest.

Having acquired a competent knowledge of what had been done by his predecessors, and prepared his own data, the difficulty of so arranging his materials as to deduce general laws from them seems to have delayed M. De Candolle's progress during many years of anxious thought and study. Thus, with regard to the influence of temperature, he truly states that it has long been a problem whether it is the mean or the sum or the extremes of the given temperatures that most influence the plant. M. Boussingault he considers to have first approached a solution of the problem, by his experiments on cultivated plants, extending which, and applying them to wild ones, has gradually led M. De Candolle to results which will hereafter be detailed, and which he thinks indicate general laws. The influence of light has in like manner been all along recognised but never defined; a study of its effects upon special examples conjointly with those of temperature has led him to regard their combined effects as limiting the distribution of species towards the north, and in their ascent of mountains.

Another class of facts for whose explanation no satisfactory theory had for many years been proposed is that which relates to the extension and limitation of species—why one species should be local and another cosmopolitan. The effects of climate and the relative facilities with which species propagate will not account for it, for many an exotic transported artificially to another country becomes even more abundant in the latter than it was in its native locality. To these problems M. De Candolle saw no solution till geology opened up a new path for investigation, and proved that we are not to look to existing causes or relations alone to account for the geographical distribution of existing species, these having often survived extensive changes in the relative positions of sea and land, and may not now exist where they were originally created.

From such points of view our author tells us that geographical botany ceases to be a dry accumulation of facts, and takes a high position as a scientific pursuit. Henceforward its main object is to show how far the present distribution of plants is explicable by the existing conditions of climate, or what must be attributed to anterior causes. The wide field of botany in connection with geology, or rather of the life of species in their relation to time, once entered upon, the mind is hurried on to regions of inquiry where all, in the present state of our knowledge, is impenetrably dark; referring to epochs antecedent to our own all data are incomplete; all facts are recognised only by halves, and are capable of the most opposite interpretations. We acknowledge the existence of a species on the face of the globe which we believe did not exist at what we assume is an immediately antecedent epoch, but our argument for its absence in the latter is a negative one, derived from the fact of its remains not having been found. On the other hand we have positive proof of species that are not living now having existed at previous epochs; and the sum of our evidence leads to the belief in a replacement of species. These subjects are ably handled in this work, and demand our especial attention at a future time; it will suffice to mention here, as theoretical data which must have influenced the author's treatment of the subject, however much he no doubt has striven to avoid it, that M. De Candolle believes existing species, in the ordinary acceptation of the term, to be definite creations, successively created, each at one spot only; but that all the individuals of each have not in all cases proceeded from one parent or pair only.

There is one other subject in the Preface to which allusion must be made, and upon which we venture to differ from our author; he justly prides himself upon not having introduced a single new term into his work, and for this he will have the cordial thanks of every well-wisher to botanical science. In the same desire to avoid confusion, he has adopted the scientific names of the species, genera, and families alluded to throughout his work in preference to their German, French, or English appellations; but whilst we agree with him entirely as to the necessity of using the Latin names, and the propriety of diffusing a knowledge of them, we can hardly agree with him in saying that amongst the uneducated classes the Latin name of a plant will be liked equally well with one in their native language, supposing both to be new and the choice offered. There is, it cannot be doubted, something in the sound and intonation of a native name that renders it more easy of retention by the memory, and more readily recalled and applied to the object when again encountered, than is the case with a foreign one; added to which, that it is often derived from some prominent peculiarity of the plant, or suggests some object of comparison or contrast. The instance quoted by M. De Candolle offers a case in point; he says, "Talk to an English operative of the plant called Nipple-wort, and you will find that he will appreciate the botanical one of Lampsana quite as much, and he will probably laugh at both, only because he has heard neither before." Now we will venture to say that for every ten uneducated persons who would remember the English name, not one would the Latin, for the obvious double reason, that the English suggests definite ideas (accurate or inaccurate it matters not), and the Latin none; added to which, the English word will bear much alteration without destroying its English sound, whilst it would be difficult to make the Latin one sound English by the change or transposition of the letters. We have had some experience in the relative facility with which new Latin and English words are acquired by children, who have no prejudice in favour of either, and can confidently state, though for the sake of science with much regret, that the preference with the uneducated classes will always be given to a vernacular name.

FLORICULTURE.

Royal South London Floricultural Society.—At the last exhibition of this Society for the season, lately held in Cremorne Gardens, the display of cut flowers was excellent, Dahlias of both classes being present in considerable numbers. Hollyhocks, both in the shape of spikes and cut blooms, Verbenas and miscellaneous collections were all shown, in first-rate condition, by growers from all parts of the country. In Dahlias, 24 varieties, the Rev. C. Fellows, of Shottesham Rectory, near Norwich, was first with Pre-eminent, Miss Caroline, General Faucher, Fanny Keynes, Rachel Rawlings, Robert Bruce, The Nigger, Mr. Seldon, Cossack, Bishop of Hereford, Annie Salter, Richard Cobden, Queen of Whites, Lemonade, Lilac King, Beauty of the Grove, Susan Sainsbury, Fame, Diadem, Malvina, Queen of Beauties, Sir F. Bathurst, Amazon, and Duchess of Kent; 2d, Mr. J. Robinson, Pimlico, with Duke of Wellington, Mrs. Seldon, M. Dugere, Admiral, Absolom, British Queen, Rachel Rawlings, Annie, Scarlet Gem, Sir F. Bathurst, Beauty of the Grove, Agincourt, Miss Caroline, Royal Sovereign, Triumphant, Sir C. Napier, Princess Radzwill, Cossack, Mr. Seldon, Louisa Glenny, Sir J. Franklin, and Rose Unique; 3d, Mr. Cooke, Notting Hill; 4th, John Sladden, Esq., Ash, near Sandwich; 5th, Mr. Maher, gr. to J. M. Strachan, Esq., Teddington Grove. For 12 varieties: George Holmes, Esq., Brook Lodge, Norwich, was first with 12 large and beautiful flowers. These consisted of Pre-eminent, Miss Caroline, Lord Palmerston, Fanny Keynes, The Nigger, Robert Bruce, Amazon, Advance, Sir J. Franklin, Sir F. Bathurst, Duke of Wellington; 2d, Mr. Pope, Chelsea, with Mrs. Seldon, Miguet, John Keynes, Amazon, Scarlet King, Absolom, Rachel Rawlings, Duchess of Kent, Princess Radzwill, Lilac King, Robert Bruce, Richard Cobden: 3d, Mr. Shrimpton, Thame, Oxon: 4th, Mr. Castles. Fancy varieties, 12 blooms, not more than two of a kind: 1st, Rev. C. Fellowes with Jonas, Triumph de Roubaix, Topsy, Baron Alderson, Flower of the Day, Triumphant, Duchess of Kent, Imperatrice Eugenie, and Miss Ward: 2d, Mr. Robinson, with Mrs. Hansard, Phæton, Jonas, Triumphant, Flora McIvor, Marvel, Butterfly, Miss Herbert, and Duchess of Kent: 3d, J. Sladden, Esq.; 4th, Mr. Maher. Nurserymen, 24 dissimilar blooms: 1st, Mr. Turner, of the Royal Nursery, Slough, with Bessie, Mr. Seldon, Triumphant, Robert Bruce, Pre-eminent, Rachel Rawlings, Miss Spears, Lollipop, Constancy, Sir R. Whittington, Miss Caroline, Cossack, Yellow Beauty, Duke of Wellington, Amazon, Miss Burdett Coutts, Duchess of Kent, Fearless, Annie, Annie Salter, Sir C. Napier, Lilac King, Empress, and Agincourt: 2d, Mr. Keynes, Salisbury, with Triumphant, Rachel Rawlings, Argo, Pre-eminent, Ruby Queen, Annie, Orange Perfection, Miss Caroline, Primrose Perfection, Dr. Reid, Sir J. Franklin, Colonel Baker, Lady Folkestone, Sir C. Napier, Malvina, Duchess of Kent, Lord Bath, Lilac King, Richard

Cobden, Robert Bruce, John Keynes, Annie Salter, Queen of Whites, Essex Triumph; 3d, Mr. Legg, Edmonton; 4th, Mr. Walker, Thame; 5th, Mr. C. E. Allen, Shacklewell. Fancy varieties, 24 blooms, not more than two of a kind: 1st, Mr. Keynes, with Triumph de Roubaix, Claudia, Lady Grenville, Elizabeth, Mrs. Hansard, Mrs. Willis, Emperor de Maroc, Duchess of Kent, Baron Alderson, Jonas, Marvel, La Tropique, Mrs. Spary, Princess Charlotte, Phæton, Pigeon, Comet; 2d, Mr. C. Turner, with Baron Alderson, Triumph de Roubaix, Emperor de Maroc, Marvel, Laura Lavington, Glorie de Kain, Admiration, Jonas, Mrs. Hansard, Comet, Flora M'Ivor, Pigeon, Butterfly, Duchess of Kent, Miss Frampton, Kossuth, Semiramis, Elizabeth, Attraction, Jenny Lind, Reine de Fleurs. Holly-Locks, spikes, 7 varieties: 1st, Mr. Grant, gr. to Robert Fellowes, Esq., Shottesham Park, with Pourpre de Tyre, Sulphur Queen, Eva, Elegans, Charles Turner, Solfaterre, and Brennus; 2d, — Benningfield, Esq., Brocksbourne, with Souvenir, Sulphur Queen, Mrs. Ashley, Joan of Arc, Eva, and Sir David Wedderburn; 3d, — Bower, Esq.; 4th, — Dyson, Esq., Stoke. Nurserymen: 1st, Mr. Chater, of Saffron Walden, with Empress, Salmonius, Sulphur Queen, Elegans, Mont Blanc, and two seedlings; 2d, Mr. Bircham, Hedenham, with Unique, Norfolk Hero, Duchess of Sutherland, Pourpre de Tyre, Eva, Lemonade, and Purple Perfection; 3d, Messrs. Paul, with tall fine spikes. 24 Cut Blooms, not more than two of each—Amateurs: 1st, Mr. Rooke, Clewer, with Eugenie, Julia, Emperor, Pourpre de Tyre, Mrs. Ashley, Souvenir, Miss Ashley, Lilac Model, Beauty of Cheshunt, and eight seedlings; 2d, — Benningfield, Esq.—the varieties in this collection dissimilar from the first were Pearl, Sulphur Queen, Emily, Sir D. Wedderburn, Eva, Comet, Joan of Arc, Lizzy, and Conspicua; 3d, Mr. J. Long, Watford; 4th, Mr. C. Grant. Nurserymen, 24 dissimilar varieties: 1st, Mr. Chater, with Fearless, Boule de Feu, Mrs. Ashley, James, Malvina, Empress (very fine), Mulberry Superb, Finella, Alpha (fine), Salmonius, Autocrat, Nitilina, Pourpre de Tyre, Walden Rival, Alexandrina, Julia, Golconda, Ochre (fine), Lilac Queen, Summit of Perfection, Mont Blanc, Walden Gem, Model, and a seedling; 2d, Mr. C. Turner. The varieties in this collection, which were fine, and not in the first, were Standard, Mrs. Parsons, Argo, Miss Parsons, Little Gem, Pilot, Orestes, Rosy Circle, Felicia, and Beauty of Cheshunt; 3d, Messrs. Paul and Son. Verbenas: 1st, Mr. G. Smith, Tollington Nursery, Hornsey, with Brilliant de Vaise, Viscount de Beleval, Empress, Lord Raglan, Joan of Arc, White Perfection, Sobraon, Morpha, Beauty, Madame de Lavalliere; 2d, Mr. J. August, Beddington. In Seedlings, Dahlias formed the principal feature. These were contributed in considerable numbers, some of which were marked improvements on existing varieties. For instance, there were two good yellows—Bessie, and Yellow Beauty, both superior flowers, there were 12 blooms of the former and six of the latter. Six blooms were also shown of Orange Perfection, a bright orange Dahlia of fine form; Miss Burdett Coutts, fawn colour, shaded; Lollipop, salmon; Eclipse, dark maroon, and shaded; Model, a flower with the same colours as General Faucher, but of good form. Three blooms were shown of Mrs. Wheeler, a glowing scarlet crimson flower of first-rate build; and Enchantress, a purple and white fancy variety, striped. This is a large flower, of good form. There were several other kinds exhibited, some of which possessed good points, but they were not in condition to form an accurate estimate of their merits. Those selected for First Class Certificates were:—Mrs. Wheeler, Bessie, Miss Burdett Coutts, Lollipop, Orange Perfection, and Enchantress. The same reward was also awarded to a new Phlox named Countess of Home, sent from Edinburgh. This is a light variety, and is a very pretty thing. Mr. Rooke received a First Class Certificate for his blush Hollyhock Perfection. This is a first-rate variety in form, but nothing particularly new in colour. Mr. Chater received similar awards for two kinds—Empress and Queen of the Buffs. These were large and attractive sorts. There were some very excellent new Verbenas: Criterion, Cremorne, and Mrs. Halford were selected as the best by the judges.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—It will hardly be safe to depend upon a continuance of fine weather after this time, therefore preparations should be made at once for protecting all plants of any value from heavy rains or slight frosts at night. Where there is proper accommodation for plants under glass there certainly is no propriety in keeping greenhouse stock out of doors as late in autumn as can be done without positive danger from frost, but in cases where many plants have to be wintered in Vineries it is often necessary to make every possible shift to keep the plants out of doors until the state of the Vines, &c., allows of managing the houses with something like regard to the well-being of the plants. And with the aid of skeleton frames or pits, constructed so that they will ward off a few degrees of frost, and a waterproof cloth, old sashes, or anything for covering that will throw off heavy rains, most greenhouse plants may be kept safely enough for some time yet, unless the weather should prove more unfavourable than ordinary, and will be found to do much better under such shelter than crowded too thickly together in the greenhouse, or in houses where fire-heat must be used. Indeed where plants have to be wintered under make-shift circumstances, as in forcing-houses, &c., which cannot always be had in a fit state for their reception at the proper time, some temporary shelter is indispensable to save the plants from drenching rains and cold winds in autumn; and a very suitable one would cost but little and would be found useful at most seasons of the year. But whatever arrangements may be deemed most advisable under individual circumstances should be seen to at once, as it will be very unsafe to leave the plants at the mercy of the weather much longer. Should heavy rains occur before the plants can be afforded any protection, be careful to prevent their getting too wet at the root. Luculias and other winter flowering things growing in the border of the conservatory must be freely exposed to light and air, in order to get the growth well matured and insure a fine display of bloom. Also see that all plants are clear of black thrips, for this pest is particularly active at this season wherever it is allowed to gain a footing, especially on Luculias and such things as are in a growing state. Stove.—Where there is but one house for the accommodation of the tropical plants, considerable care and attention are necessary to properly manage these at this season, as some having completed their season's growth require to be kept cool and rather dry, in order to ripen the wood, while others in free growth require to be encouraged with warmth and moisture. If there is no convenience for removing to a cooler house such things as have made their growth, these should be placed together at one end of the stove, keeping them sparingly supplied with water at the root, and giving air rather freely, which will generally serve to prevent any attempt at a second growth; and those requiring to be kept warm and moist should also be placed together at the opposite end of the house, where very little air should be given, using every care to keep the atmosphere about them moist, &c. Allamandas, Clerodendrons, &c., which have done blooming, may be removed to a Vinery where the Grapes are ripe or ripening, for as these will require very little water, they will not do much mischief in the way of causing damp, and their room in the stove will be found very useful for other things. See that everything is free from insects, and keep the foliage of such things as Ixoras, &c., clean by washing with a sponge and soapy water when necessary.

FORCING DEPARTMENT.

Pineries.—Take advantage of bright weather while it continues, to encourage free growth where this is desirable, giving the plants a liberal supply of water at the root, using manure water for such as are moderately well rooted, and keeping the atmosphere warm and moist. Shading will of course be dispensed with by this time—at least it should be, as growing plants will require exposure to all the light possible, in order to induce fine strong foliage and a dwarf stocky habit. See that the succession stock is properly supplied with water at the root, as any neglect in this respect while the weather continues bright would be liable to cause some of the plants to fruit prematurely. Also keep the atmosphere moist by frequently sprinkling the paths, &c., and syringe them lightly over-head, and shut up early in the afternoon, so as to husband the solar heat as much as possible: be careful, however, in syringing to spare plants in flower, as syringing these over-head would probably cause deformed fruit. Give plants swelling their fruit plenty of clear strong manure water, and young plants growing in open beds will enjoy an occasional soaking of the same. Vineries.—If bright weather continues, it will be advisable to shade fruit that is thoroughly ripe and expected to hang for a considerable time; for although the quality of the fruit may be rather improved by warmth, &c., some sorts soon lose their fresh plump appearance. Give air freely, and keep the house as cool and dry as circumstances will admit. Stop laterals in the late house, and keep the foliage regularly exposed to light, so as to have it as healthy and vigorous as possible. Fruit beginning to colour should be encouraged with plenty of warmth and air, as Grapes ripened during this fine weather will be very superior in quality, and more likely to hang well than such as have to be ripened by artificial means late in the season, when there will be comparatively little sunshine. Keep thrips in check where at all troublesome by repeated fumigations, and use every means to preserve the foliage from red spider. Vines planted this season, and which are growing freely, will probably be found to be getting too dry at the root; and where this is found to be the case, if it is desirable to encourage free growth for some time longer, give the border two or three slight waterings to moisten it about the surface roots, but by no means give it a soaking.

FLOWER GARDEN AND SHRUBBERIES.

That the present month is a favourable time for transplanting large sized shrubs and trees is seldom disputed by any person professing to possess any experience or knowledge of the subject; nevertheless, it annually happens that a great amount of this kind of work is put off until so late that the plants have no chance of pushing a few fresh roots to enable them to resist the cold drying winds of March: and there are doubtless many of our readers purposing to shift large shrubs and trees this season who have hardly thought of commencing yet; but we would strongly advise all such to start as soon as circumstances will admit, and they will find that things shifted during this month will require but little attention in the way of watering next spring and summer, compared with others transplanted in winter and spring. Also get ground intended to be planted with young things from the nursery turned up as soon as possible, especially in the case of strong adhesive soils, which are quite unfit for planting until they have been some considerable time exposed to the mellowing influence of the sun and air. Give diligent attention to the propagation of bedding out stock, and get cuttings that are sufficiently rooted potted off at once, keeping them close and moist until they become established. Those that have been potted off some time and have got established in their pots should be gradually inured to exposure to the open air, stopping the shoots to keep them dwarf and stocky. But plants that are not very strong should be shaded from bright sunshine for a few hours in the middle of the day, or placed in a shady situation out of doors; let them have the benefit of the night dews however if kept under glass, and guard them from cold drying winds if removed from under shelter. If any of the beds appears to be suffering from the want of water, give them a good soaking at once, and see that late Hollyhocks are afforded a liberal supply, which will greatly assist us in prolonging their beauty. We have already had some indications of the near approach of frosty nights, and it will be well to be prepared with something with which to cover any of the beds liable to be injured by slight frost, such as Heliotropes, &c., and the variegated Geraniums, the foliage of which is very readily injured by frost.

HARDY FRUIT AND KITCHEN GARDEN.

Any of the Peach or Nectarine trees which are observed to be growing too freely should be gone over, stopping all the stronger shoots, and those that were treated in this way a few weeks ago should also be looked over again, stopping a further portion of the shoots if this appears necessary, to prevent the formation of gross strong wood. Pear, and indeed, all trained fruit trees should also be gone over, removing all superfluous wood, so as to expose the trees to sun and air as fully as possible, which will be of service towards getting the fruit spurs and bearing wood well matured before winter. Where mulching has been used for Peach and Nectarine trees, this should be removed at once, if not already done, for the fruit seldom flavours well if the roots are excluded from the action of the sun and air during the period of ripening. See that Strawberries in pots for forcing next season are well cared for, placing them in an open sunny situation where they will have all the light possible, and do not allow them to suffer through the want of moisture at the root. Exhausted crops, as Peas, &c., should be cleared away as soon after they are done with as possible, and the ground manured and trenched, when it will be in readiness for planting with Cabbage, &c., and will look fresh and clean if not wanted for immediate planting. Tie up Endive to blanch, and plant out the late crop in a warm sheltered situation. Attend to Tomatoes, keeping the shoots closely stopped in order to prevent useless growth, and expose the fruit fully to the sun, for these are backward generally, and are hardly likely to ripen unless well exposed to the sun, &c.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Sept. 13, 1855, as observed at the Horticultural Gardens

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain.
Friday 7	26	30.415	30.384	66	28	47.0	59	59	N.E.	.00
Satur. 8	27	30.4 9	30.199	74	33	53 5	57	58½	S.W.	.00
Sunday 9	28	30 164	30.100	73	33	53.0	57	58	W.	.00
Mon.. 10	29	30.122	30.050	70	36	53.0	57	59	E.	.00
Tues. 11	[illegible]	30.155	30.051	72	37	54 5	60	58	N.E.	.00
Wed. 12	1	30 161	30.059	73	39	56.0	58	58	W.	.20
Thurs. 13	2	29.976	29.887	69	50	59.5	58	57½	S.W.	.23
Average .		30.193	30.104	71.0	36.5	53.7	58.0	58.3		.43

Sept. 7—Very clear; cloudy; fine.
— 8—Frost early A.M.; dense fog; clear and very fine; cold at night.
— 9—Fine; very fine; clear and cool.
— 10—Foggy; fine; very clear.
— 11—Very fine; clear at night.
— 12—Slight fog; very fine throughout; rain at night.
— 13—Rain; showery; cloudy; rain at night.
Mean temperature of the week 4 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Sept. 22, 1855.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 16	67.8	48.2	58.0	12	0.50 in.	3	5	4	1	9	2	4	1
Mon. 17	68.7	46.6	57 7	11	0.90	1	4	5	1	2	9	4	3
Tues. 18	66.2	45.4	55.8	14	0.84	1	7	2	1	2	7	5	4
Wed. 19	67.0	45.1	56.5	13	0.60	3	5	3	1	5	6	4	2
Thu. 20	66 8	44.7	55.8	14	0.45	1	6	2	3	3	5	6	3
Frid. 21	66.5	45.0	55.7	14	0.50	2	3	5	2	6	4	5	2
Satur. 22	66 8	46.3	56 6	13	0.40	—	2	7	2	5	6	5	2

The highest temperature during the above period occurred on the 17th, 1843—therm. 84 deg.; and the lowest on the 17th, 1840—therm. 29 deg.

Notices to Correspondents.

Crystallised Fruit: *J L F.* Beat the white of an egg to froth; dip your fruit in it; then roll it in white sifted sugar candy; when quite dry place the fruit in a stove to be very slowly dried. Or you may dry your fruit first, then dip it in white of egg, and then dust it with white sugar or sugar candy, finally drying it off.

Glass: *A D.* Hartley's patent rough plate will be found to answer your purpose best.‡

Grape Houses; *Cavanensis.* No doubt it is best for fruit houses to face the south—but the S.W. or S.E. will answer quite well if your gardener understands his business. Of course the proposed houses will not be overshadowed by trees, &c.

Insects: *A Novice.* The caterpillars which have attacked your Turnips are those of the common dart moth, Agrotis segetum (See *Gardeners' Chronicle*, 1852, p. 741, for figure and description). Salt and water or lime water applied to the roots of the plants will drive them away; but the surest plan is to pull up the infested roots and search for the grubs either in the bulb or adjacent earth. They must then be destroyed, or they will extend their ravages to the neighbouring plants, as they are not yet full grown. *W.*

Lawn: *A Subscriber.* If you will favour us with your address we will answer your inquiry privately.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*T W P.* It is the bulbous variety of the Arrhenatherum avenaceum.—*N B.* 1 and 3, Lastrea dilatata; 2 and 4, Lastrea Filix-mas. *S.*—*D J E.* Plumbago capensis. —*J B S.* Solanum dulcamara, a poisonous plant, but not the Deadly Nightshade.—*A Z.* Spiranthes autumnalis.

Names of Fruits: *F.* The Minchal Crab.—*Hector.* Your Plum appears to be the Wine Sour. The gum which has exuded from it is similar to that which proceeds from the branches of Plum trees, only more transparent, for it is actually brilliant, almost like the diamond. Vicissitudes of dryness and moisture are the principal causes of gumming.

Tree Seeds: *E N.* Every great seedsman can procure you the seeds of American and other forest trees. He will obtain them from the importers, if he does not import them himself. The Locust tree is the common Acacia, as is known to every garden labourer, but unknown, as it seems, to Mr. Cobbett, who has been dead many years.

Misc: *H E.* A man is not a nurseryman or grower for sale if he merely raises a seedling flower and sends it out himself. We should regard him as an amateur and place him accordingly.

* As usual, many communications have been received too late and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

BLOOD MANURE FOR WHEAT.

THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY.

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CHARLES DIMSDALE, Esq., Essendon Place, Herts.
EDWARD BALL, Esq., M.P., 8, Belgrave Road, Pimlico.
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MANUFACTORY, PLAISTOW MARSHES, ESSEX.

The Directors of the above Company (many of whom are eminent agriculturists), beg to call the attention of their friends and the agricultural community to their Patent Blood Manure, which is composed of Bones dissolved with sulphuric acid, to which is added about 1500 lbs. of pure Blood to every ton of the Manure, carefully dried and prepared for the drill or hand sowing. Being rich in Nitrogen and other necessary ingredients, it is especially adapted for the Wheat Crop, and has been used with the greatest success in all parts of England.

It is a very remarkable fact that the analysis of Blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists; it contains all the elements which plants require, and when properly prepared and applied, will become the essence of vegetable as well as of animal life.

The highly fertilising properties of Blood has been commented upon by Professor WAY, and others, and the success of the Blood Manure for Wheat Crops has been fully proved upon all soils, by the practical experience of numerous agriculturists, a few of whom are the following:—

Sir Archibald M'Donald, of Woolmer Lodge, Liphook, says: "The Wheat manure I purchased of you has answered its purpose admirably."

Jonas Webb, Esq., Babraham, Cambridgeshire.—"Your Wheat manure I tried by the side of guano, and if anything it had the advantage, as the quality from it is superior."

Mr. Baker, Steward to His Grace the Duke of Bedford, Park Farm, Woburn, Bedfordshire.—"I used your manure upon a piece of poor land after Peas, and have grown an excellent crop of Wheat."

Mr. Benjamin Goulton, Gedney Marsh, Long Sutton, Lincolnshire.—"I drilled your manure at the rate of 2½ cwt. per acre, along with the Wheat over 30 acres, and although the field is the poorest land I have on my farm, the crop ranked amongst the best I have. I do not know how I can recommend it better than by saying I shall use it much more extensively this season."

"Mr. Walter Murton, East Stour, Ashford, Kent.—"I sowed your Wheat manure last autumn, and the consequent increase in the crop both of corn and straw has convinced me of its great utility."

Mr. H. Steed, Nonington, near Wingham, Kent.—"I used Odams' Patent Manure for Wheat last November, and never have I used any artificial manure with such benefit."

Mr. Frederick Robinson, Southery, near Downham Market, Suffolk.—"I last autumn used 2 cwt. of your manure per acre on a piece of fen land; it came up very strong in plant, assumed a most healthy appearance during the winter, and has produced me one of the finest crops I ever grew."

Extract from the *Agricultural Gazette*, 7th April, 1855.—"The Nitro-Phosphate Company throw blood and bones together, and add sulphuric acid, thereby manufacturing a manure, which, as it contains soluble phosphate along with nitrogenous matter, is as nearly perfect, whether for roots or corn, as anything can ordinarily be."

Extract from the *Mark Lane Express*, of January, 1854.—"Amongst the new things which appeared this year for the first time was Odams' Patent Blood Manure; and it is this addition to our fertilisers which falls to our province to review. Blood has long been acknowledged one of the most enriching of all our manures, a proposition the soundness of which has been proved by innumerable experiments. Now that the startling fact has reached the ears of the agricultural public that Peru will be exhausted of Guano in a few years, surely the prospects of an everlasting supply at home will be accepted with some degree of national satisfaction, more especially since the latter is superior to the former in quality."

The Public are cautioned against spurious imitations; as security to the purchaser every Bag is marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

OFFICES, 109, FENCHURCH STREET.

Price 7*l.* 10*s.* per ton, free at any Railway or Wharf in London.

DIRECTIONS FOR USE.—From 2 to 4 cwt. per acre, according to the condition of the soil. It may either be drilled in with the seed or sown broadcast; if the latter it should be well harrowed in.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected; Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the Plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard Westminster.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*

Office, 69, King William Street, City, London.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE LONDON MANURE COMPANY'S NITRO-PHOSPHATE OR WHEAT MANURE FOR AUTUMN SOWING.—This Manure, composed of blood, animal matter, and dissolved bones with silicates, is most strongly recommended to the notice of Agriculturists. It contains from 7 to 8 per cent. of nitrogen, in a form yielding ammonia by slow decomposition, and is therefore particularly adapted for Wheat. The quantity required is 2 to 3 cwt. per acre drilled in with the seed. Price, per ton, 7*l.* 10*s.* in London.

PERUVIAN GUANO, FISHERY SALT, and every other MANURE on best terms, strictly warranted.

40, Bridge Street, Blackfriars. E. PURSER, Sec.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

DRAINAGE OF LAND.

MR. HUMBERT, of Watford, Herts, a practical Surveyor and Land-Agent of more than 15 years' standing, offers his services to Gentlemen about to drain Land and Bogs. He will undertake to set out and superintend himself the execution of the work at a charge of 5*s.* per acre, and the expenses incurred in his travelling; or he will contract to complete it in a specified manner to the satisfaction of the Inclosure Commissioners at a fixed price per acre. Mr. Humbert has drained strong stony land in the most careful and complete manner, with 1¾ inch pipes, and proper mains, the drains being 4 feet deep and 30 feet apart, at 4*l.* per acre and under, and he can give reference to his employers in that and in other instances.

Watford, Herts, Sept. 15

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

Patron—His Royal Highness Prince ALBERT.
President of Council—Earl BATHURST.
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Professors, &c.:—
Chemistry—J. A. C. VOELCKER, Ph.D., F.C.S.
Zoology, Geology, and Botany—JOHN BUCKMAN, F.G.S., F.L.S.
Surveying, Civil Engineering, and Mathematics—F. ARMSTRONG, C.E.
Manager of Farm—G. AUSTIN.

Students are admitted after the summer and winter vacations, also in April and October. The annual fees for boarders vary from 45 to 80 guineas, according to age and other circumstances. The fee for out-students is 40*l.* per annum. The College course of lectures and practical instruction is complete in one twelvemonth, although a longer course is recommended. There is a department for general as well as for agricultural purposes. Prospectuses and information can be had on application to the Principal.

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The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

SMITHFIELD CLUB, 1855.—FAT CATTLE SHOW.—The ANNUAL CHRISTMAS SHOW of FAT CATTLE, SHEEP, and PIGS, will take place on the 11th, 12th, 13th, and 14th of December, 1855, at the Carriage Bazaar, King Street, Portman Square, when nearly 800*l.* will be awarded in Prizes and Medals.

The printed forms of Certificates, properly filled up, must be returned to the Honorary Secretary on or before SATURDAY, November 10th. Prize Sheets and the necessary printed forms of Certificates are now ready, and can be obtained on application to B. T. BRANDRETH GIBBS, Honorary Secretary, Corner of Half-moon Street, Piccadilly, London.

All communications on the Club's business should bear the words "Smithfield Club" on the outside.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 15, 1855.

A SOIL is to be regarded as a laboratory in which food for plants is prepared: its fertility depends not only on being under suitable climatic conditions, fitted for administering what food for plants it may contain; not only on the abundance of this food that may be present in it, but also on the means it has within it of preparing rapidly and properly that food for use. Under this head, accordingly, should come an explanation of the fertilising influence of all tillage operations: of liming and burning, and of those absorptive properties on which Professor WAY has shown fertility to be so much dependant.

Tillage is useful by increasing the amount of surface within the soil on which atmospheric solvents operate, by facilitating the access of such solvents to that increased surface, and by introducing air within the soil. That it has the last effect will be seen by any one who shall try to return the earth into the hole which he has just dug in the hardened ground; the heap remaining over obviously represents the increased bulk of air which has been thus mixed in, and that its effect there is favourable to fertility is apparent from such experiences as those of TULL and of the Rev. Mr. SMITH, of Lois Weedon, which have already been frequently referred to in these columns. This subject has been well discussed by Dr. DAUBENY in the lecture which he lately gave at Oxford on Lois Weedon cultivation and its results, and which was published shortly after its delivery in this Journal. He expresses his belief that the exposure of the soil in complete detail to the influence of rain-water and of heat and cold and air, which is effected by tillage operations, will enable it to yield in a form capable of immediate use sufficient phosphoric acid and other mineral substances needed for plants to supply successive annual crops for many years without any artificial addition; and that the natural supply of nitrogen in a useable form—as that of ammonia in rain-water, or of nitrates created in the soil by the action of ozone* on the nitrogen of the air in the presence of certain earths, or let us add of the carbonate of ammonia floating as a gas in the air, and capable of direct absorption by the leaves of plants; that these natural supplies may, in certain classes of plants, prove sufficient without artificial dressings of ammoniacal manures for the vigorous growth and productiveness of these plants. But whatever the explanation of it may be, the fact is that by tillage operations Mr. SMITH has obtained many successive crops of Wheat, and his experience at Lois Weedon, and that everywhere obtained on fallow ground, and the well known results of tillage operations equally universal, seen in the vigour of crops so treated, as instanced in the hand-hoeing of Wheat and the horse-hoeing of Turnips—all these teach that fertility is dependant in a great degree on tilth; that many a case of comparative barrenness is removable by the use of tillage implements even without the manure cart; and thus, as the fable tells us, that there is a treasure lying buried in the field which only needs industrious, deep, and thorough search for its discovery.

We must refer especially to the burning of clay as a means of increasing the fertility of clayey soils—both because practice has long sanctioned the operation and because Dr. VOELCKER has very skilfully and thoroughly investigated it. The results of his investigation are best given in his own words, which are extracted from his paper in the xiith volume of the Journal of the English Agricultural Society.

(1.) "The mechanical changes produced in clay upon burning, which by no means are *unimportant*, nevertheless do not sufficiently explain the fertilising effects of burnt clay.

(2.) "These are dependent on the chemical as well as on the mechanical changes both produced upon burning clay.

(3.) "The fertilising effects of burnt clay are mainly dependent on the larger amount of potash which is liberated from the insoluble silicates of the clay in the process of burning.

(4.) "Burnt clay contains more soluble potash than the same clay unburnt.

(5.) "In burning clays similar effects are produced as in bare fallow.

(6.) "Burnt clay improves especially Turnips, Carrots, Potatoes, and other green crops, because it supplies potash, which these crops largely require, more readily than unburnt clay."

These conclusions at which he arrives exhibit burning, when properly conducted, as one of the most efficient laboratory operations that can be carried on in a stiff soil, yielding, it is said, large quantities of soluble material as food for plants which formerly lay in an inaccessible and useless state, resembling thus in its effects those of tillage operations.

Liming too must be referred to as another important laboratory operation on and in the soil. It acts in many ways; partly, no doubt, by its influence on the texture of the soil; partly by its influence on the crude vegetable matters which the soil contains; partly by neutralising mischievous acids, to the presence of which, as in the case of boggy land, infertility is sometimes due; partly by displacing the mineral alkalies and silica from inaccessible positions, and bringing them into use as food for plants; partly by decomposing poisonous proto-salts of iron uniting with their acid and placing the mischievous prot-oxide with which that acid was united in a position to become per-oxidised, rendered harmless and even useful; and partly perhaps as a direct food to plants, but chiefly, we believe, in the manner which Prof. WAY related in his lecture to the Agricultural Society last year. For "(1.) the presence of lime in a certain quantity in the soil is found to increase its power to absorb carbonate of ammonia from the air; and (2) when added in greater quantities it is found to detach ammonia from the soil and render it available for the use of the plants growing on it." The latter is the ordinary and long known effect of the use of lime, the novelty brought out by Professor WAY's research on this point being the very large quantity of ammonia present in the soil for such use. An ordinary top soil of London clay contained one grain of ammonia in every 1000 grains of soil—an

* Ozone is a peculiar condition of the oxygen of the air produced during combination and analogous chemical processes.

enormous quantity—and such as would not be supplied by several tons of guano. But the former power which lime is believed to confer upon the soil, that of facilitating the absorption of ammonia from the air, is altogether new to agricultural theory, and though not yet certainly established by Professor Way's experiments is rendered probable by the results of very many of them, and it is consistent (in a somewhat singular manner) with known chemical analogies.

This connection of lime with the absorptive powers of soils leads us to the last topic we shall have to treat of in enumerating the causes of fertility which science has ascertained. This power of the soil to remove from their solutions ammonia, potash, lime, &c., which in the first of these particulars had been observed by Mr. Thompson, of Moat Hall, has been investigated with the most valuable results, as has long been well known to the agricultural world, by Mr. Way. His writings in the Journal of the English Agricultural Society must, of course, be consulted by those who wish to learn fully the nature and the sources of this obviously important power in fertile soils. That barrenness must for the most part follow the absence of this power in soils is plain—for plants cannot be dependent on the daily attention of the farmer to supply them with food. As a general rule, if that is given once a year it is the most the cultivator can effect; and it is well that in the soil itself there are means for retaining what is given it till the plant requires it. These absorptive powers are no mere function of the whole soil, arising out of texture, &c.; but seem to be dependent on the presence of certain substances in it, so that the addition of these substances will remove any infertility arising out of any deficiency of these powers. But the principal result of Mr. Way's investigation may be best given in his own words: "Soils were found to possess in a greater or less degree the power of removing from solution in water certain animal and vegetable substances, but still more the alkaline bases, ammonia and potash, and the earths, magnesia and lime. These bases the soils were capable of separating from their salts, and retaining more or less in spite of the action of water. It was afterwards discovered that a certain class of artificial double alkaline silicates had a similar power, and for several reasons it was concluded that it was to the presence of portions of these double silicates that soils owed the power in question." That is the main fact which Mr. Way's researches have determined. Upon the relation of lime to this faculty of the soil, he further says: "It was observed that an ordinary soil had the power of collecting from the air and incorporating with itself gaseous carbonate of ammonia in the atmosphere with which the soil was in contact, and as in the previous case the action was referred to the presence of one or other of these double silicates in the soil: and then follows his reference to the theory regarding the fertilising agency of lime—its relations to the absorption of ammonia to which we alluded as probable, but only to some extent confirmed by the experiments that had been made. Mr. Way goes on to say: "An essential difference here presented itself. Ammonia could be removed by soils from its solution in water, in virtue of their containing either the double lime or double soda silicate—the two substances of the class supposed to be most usually present; whereas it was found that the lime salt alone was capable of removing ammonia from its atmospheric solvent. In several soils that I examined a good deal of the double silicate of soda was present, and it seemed probable that its conversion into the corresponding lime salt would put the soil into a better condition for absorbing ammonia from the atmosphere. Now as the natural fertility of soils is evidently in some very distinct way connected with this absorption of atmospheric ammonia, it will at once be seen that a very important part would thus be found for lime to play, in enabling the soil in a given time to absorb a larger amount of valuable alkali. In this view the application of lime would in fact be indirectly a manuring with ammonia." The reader must be referred for a detailed explanation of this theory, and for a recital of the experiments on which it is based, to Professor Way's lecture in the last volume of the Journal.

But we must not pursue this subject further. It is chiefly, we may add in conclusion, by means of this admirably conducted research of Mr. Way's into the absorptive properties of soils, that an explanation is given of that great agricultural paradox which meets the student on the very threshold of his readings on the chemistry of agriculture. He is told that agriculture is simply a food manufacture; that the produce of its processes is made of materials existing in the air and soil, that only substances soluble in water are available for this purpose, and yet of the whole mass of mineral matter concerned in this manufacture not only does he find that it is thinly spread, some 6 or 8 inches thick, in a layer over an enormous surface, and there washed annually by four times its own bulk of one of the most powerful natural solvents; but that positively this manufacture is most productive, its produce largest, where this solvent is permitted to run *through* the land in its escape downwards to the sea. Fresh from the manipulations of the laboratory, acquainted with the processes by which precipitates are deprived of any soluble mixtures which they may contain, having himself patiently superintended the washing of earthy deposits on his filter, how is he to reconcile the assertion of science, that fertility depends on the presence of soluble matter in the soil, with that of practice that fertility depends very materially upon your enabling the water which falls upon the surface of the land to pass through its whole thickness, and escape through channels in the subsoil. Mr. Way has satisfactorily removed the difficulty. Not only does rain water, when allowed to traverse that thin layer out of which our food is made, improve the underground climate, on which, as we have seen, the luxuriant growth of plants materially depends—not only does it by its passage act as waiter at the repast, carrying food to the roots of the growing plants—not only does it bring to the soil the riches of the air, and so add to its wealth as a well filled storeroom—not only does it by the additions which it thus supplies and the activity which drainage gives it, and its own solvent power, make the whole an active laboratory in which food for plants is being prepared for use; but its liability to waste the contents of this storeroom and the products of this laboratory by the access and egress which it possesses, is held in check by these means which Professor Way has so well investigated—so that a fertile soil is really not only one of the pleasantest sights on which the eye can rest, but one of the most beautiful specimens of ingenious and conservative contrivance on which the mind can dwell.

GREAT REAPING MACHINE COMPETITION AT STIRLING.

This competition came off on Thursday last on the adjoining farms of Stewarthall and Muirton, tenanted respectively by Mr. Forrester and Mr. MacLaren. The interest excited was not of course so great as in former years, in consequence of this being the third competition that has taken place here, and from the fact that no new machine was on the ground. The place selected for the competition was exceedingly convenient, and very nearly the same as the ground that was travelled over last year. The crops in general were good, but if anything too ripe. This was especially applicable to the Barley, which should, we think, have been cut nearly a week ago. The most noticeable feature of this year's trial was that no new machine was entered for competition, there being only the three distinctive principles represented, namely, Bell's, Hussey's, and M'Cormick's. These were of course varied by the different exhibitors, but no new principle was brought out. Eleven machines were entered for competition last year, while this year only eight made their appearance. These were as follows:—

1. Crosskill's Bell.
2. M'Cormick's improved by Lord Kinnaird, and made by Bury, of Mylnefield.
3. Dray's Hussey, exhibited by Mr. Forrester, Stewarthall.
4. Dray's Hussey, exhibited by himself.
5. M'Cormick's, exhibited by Mr. Alexander, Taylorton.
6. Dray's Hussey, exhibited by Mr. MacLaren, Craigton.
7. Dray's Hussey, exhibited by Mr. Mackie, Kersepatrick.
8. Bell's, exhibited by Mr. M'Queen, Arnhieve.

It will thus be seen that the principle best represented on the field was that of Messrs. Dray & Co., who are the makers of Hussey. This probably arises from the fact that this machine is the favourite in this locality among the farmers; and three of them exhibited their own machines.

1. Crosskill's Bell. The first grain cut by Bell's was Oats, a full crop, a good deal laid. In this the work was very well performed, and three quarters of an acre cut down in a very short space of time. Afterwards it was sent to the Barley, and four cuts having satisfied the judges, it was next sent to Beans, of which it made excellent work, and we must say, better than anything on the field. In Wheat it also did well; but the crop being very much laid indeed, the work was not nearly so well accomplished as in the case of the other kinds of grain. The great objection to this machine is its high price, 42*l.*, which is, we believe, to be raised; and the great draught upon the horses. The pair we saw in the machine were fatigued to such an extent that the perspiration was running off them as if they had been bathed. The horses were, however, shifted, and the work on the whole went on most satisfactorily. The breadth cut by this machine was 6 feet 2 inches.

2. M'Cormick's, improved by Lord Kinnaird. There was no apparent improvement upon this machine since last year. It performed its work very indifferently sometimes, and once or twice stuck altogether. Its peculiarity consists in the application of the endless web, of Bell's, to the principle of M'Cormick's. It has not hitherto made much progress among the agricultural community, although sometimes we have seen it work admirably.

3. Hussey's with Dray's improvement, attached by Gardner, of Stirling, exhibited by Mr. Forrester, of Stewarthall. This machine went through all its work very well indeed, especially the Oats and Wheat. It is destitute of the latest improvement by Dray; and we were rather surprised at its being preferred before Dray's own with the latest alterations, which are most certainly improvements. However, its work was fully equal to anything on the field, and it took the second prize.

4. Dray's Hussey with the latest improvements. The principle of these consists of a protecting shield of zinc to secure the stray stalks from getting entangled with the foot, and preventing the tilting table from being wrought easily. The work which this machine made was very fair. It was, if anything, a little defective among the Beans—cutting we thought, through a mistake, too high. In the Wheat, which was very much laid indeed, and in fact altogether the worst crop we ever saw cut with machines, it did its duty well, and cut comparatively clean and smooth. This machine cut a breadth of 5 feet, and was much admired by the practical men present. A great many are in use among the agriculturists of this locality.

5. M'Cormick's original, exhibited by Mr. Alexander, of Taylorton. This machine has been wrought by Mr. Alexander for a year or two, and has given great satisfaction. It performed its work in good style, only stopping once or twice to be put in order.

6. Dray's Hussey, exhibited by Mr. Maclaren, of Craigton. This gentleman is the agent in this locality for Dray's machines; and the one he has had at work on his own farm was used by him on this occasion. Its work among the Oats was admirable, while in the Beans it did not cut so clean, but on the whole there was nothing to find fault with.

7. Dray's Hussey, exhibited by Mr. Mackie, of Kersepatrick. There was no difference between this and the other machines manufactured by Mr. Dray.

8. Bell's, as exhibited by Mr. M'Queen of Arnheive. This machine wrought equally well with the rest, cutting the various crops with cleanness and efficiency.

It will be seen from the above report that all the machines were as near perfection as possible; and the judges must have had a very arduous task to accomplish in deciding between them.

The judges were Messrs. John Miller, C.E., of Millfield; John Gibson, Woolmet; Robert Walker, Portlethan; Peter M'Ewan, Blackdub; and James Stirling, C.E., Edinburgh. Their award was as follows:—"We, judges appointed to award the premiums offered by the Highland and Agricultural Society of Scotland, for the most approved reaping machine of the values undermentioned, and competed for this day on the farms of Stewarthall and Muirton, under the auspices of the Stirling General Agricultural Association, do hereby award the same as follows, viz., the premium of 20*l.*, for the best reaping machine of any price, to No. 1 of the Committee's list—Messrs. Wm. Crosskill and Sons, Beverley; and the premium of 20*l.* for the best reaping machine not exceeding 25*l.* in price, to No. 3 of the Committee's list—Mr. Wm. Forrester's Hussey, with Dray's improvement attached by Gardner, of Stirling. That while the judges were unanimous in the foregoing award, they think it right to express their satisfaction with the performance of the other machines on the ground, which was, on the whole, superior to that of former years."

This award will give, we believe, much satisfaction, as it was the opinion of every practical man with whom we conversed that those two made the best work on the field. *From the Stirling Journal.*

THE SOIL AS A STORE-ROOM OF FOOD FOR PLANTS.

The maxim "the more stock the more corn" is related to the subject of the series of papers on Fertility which have been published in another section of this Journal, through the fact that a fertile soil is a store-room of food for plants: but the practical aspect of the question—the supply and economical management of manures—has already been discussed, and must be merely named here. I will now state some of the results of the chemical analysis of soils. The examination of plants proves that by means of soil and air they must have access to carbon, oxygen, hydrogen, nitrogen (which are supplied by water), carbonic acid, and ammonia (found both in the air and in fertile soils); also to the alkalies—potash and soda; the earths—lime and magnesia; certain metallic oxides—those of iron especially, if not exclusively; and certain acids—phosphoric, silicic, hydrochloric, and sulphuric. All fertile soils, therefore, besides their bulk of mineral matter—sand and clay and lime in due proportion, so as to bring about a fitting consistency and texture—must contain ammonia, the mineral alkalies, phosphoric and silicic acid (in soluble silica), sulphuric acid, and chlorine. Add to this that all fertile soils have contained vegetable matter, and therefore, it is presumed, *must* contain it. Such matters by their decay furnish organic and inorganic food for plants in the fittest state for use, and at the same time act as ferments in the soil, facilitating further disintegration; they are also useful as tending to a good texture of soil.

Fertility is, however, not by any means to be supposed proportioned in any degree to the quantity of

vegetable matter present in a soil; many barren soils have, in fact, been so, owing to the *presence* of vegetable matter *in excess*. The following specimens of the result of the chemical examination of soils are taken from Dr. Voelcker's essay on the subject in Morton's "Cyclopedia of Agriculture."

	1.	2.	3.
Water driven off at 212° Fah. ...	...	...	5.539
Organic matter and combined waters	12.000	16.70	3.621
Potash	1.026	.06	.269
Soda	1.972	...	.220
Ammonia	.060	...	
Lime	4.092	.13	Carbonate of lime, 740
Magnesia	.130	.03	.605
Peroxide of iron	9.539	.64	3.070
Protoxide of iron ... — ...	.352		
Protoxide of manganese ... —	.288	—	
Alumina	1.364	.78	
Phosphoric acid	.406	.13	.386
Sulphuric acid	.896	.02	
Carbonic acid ... — —	6.085		
Chlorine	1.240	.01	
Soluble silica	2.340	81.50	1.45
Insoluble silicates (clay)... ...	57.646		84.100
Loss	1.006	0.02	

1. Fertile soil in North Holland by Mulder. 2. Poor sandy mould in Brunswick, by Sprengel. 3. Clay soil near Cirencester, by Dr. Voelcker.

It would be easy to multiply instances in which such differences in mineral structure should occur in respect of the alumina, silica, lime, magnesia, and in vegetable matter, as creates those broad distinctions amongst soils such as clayey, light and marly, calcareous, peaty, moulds, loams, sands, clays, &c.; but it would be found that fertility is not so dependant on the relative quality of these bulky ingredients as upon the presence of phosphoric and ammonia alkalies, and a certain proportion of decaying vegetable matter in their midst; not so dependant on the structure of the warehouse provided drainage, &c., have given us access to it, as upon its contents, namely, the quantity of those more important substances present generally in small quantities. It will be seen in Nos. 1 and 2 above, that the contrast in fertility between them is accounted for by the differences in the alkalies, ammonia, and phosphoric acid—substances which are supplied in manure, and to which the fertilising influence of manure is due. It is obvious then that soils may either differ or be like one another as regards their texture or mechanical structure, and their fertility may be altogether independant of such differences or resemblances. The following analyses of brashy soils are instructive on this point; they are by Dr. Voelcker:—

	1. Brash of the inferior oolite	2. Brash of the great oolite.	3. Cornbrash.
Carbonate of lime	86.20	86.346	89.195
Magnesia	.54	.739	.771
Sulphate of lime	.09	.204	.241
Oxides of iron		...	
Alumina	4.14	1.432	2.978
Phosphoric acid	.06	.124	.177
Soluble silica ...	2.75	1.016	1.231
Insoluble siliceous matter	3.27	.533	4.827
Alkaline salts ..	Undetermined.	Undetermined.	Undetermined
	99.85	99.384	99.420

And Professor Buckman's comment on them is quite in keeping with our present subject:—"They all resemble one another in mineral texture, but differ materially in agricultural value, as their chemical constitution readily explains. These three stone brashes represent, as nearly as may be, a large tract of country which occupies the middle of England, and rising more or less abruptly from the vales of Berkeley, Gloucester, and Evesham, forms the Cotteswold range of hills. Of this range about one half is composed of the inferior oolite, which is for the most part but a poor sheep-farming district. Towards Cirencester, or the more southern part of the Cotteswolds, the great oolite sets in, there is at once a visible improvement in the land, and an increase of produce; but even this improved state of things meets with still greater improvement south of Cirencester, where will be found, here and there, districts of limited extent covered with cornbrash: the cornbrash of all the brashes being good natural corn land, and hence the name, while the other brashes only yield corn that is, as it were, wrung from them with great labour and expense.

"The great cause of expense is the obtaining manure, and much of the recent improvements, which may everywhere be noticed, may be traced to the extended use of bones, which have enabled the Cotteswold farmer to increase his Turnip crop. Now, inasmuch as bones consist of phosphoric acid and lime, a glance at the three analyses just quoted will show how one rock makes a soil naturally better than another, for No. 1 yields .07, No. 2, .124, and No. 3, .177 of phosphoric acid, the important element of bones. The plain conclusion, therefore, is that corn-brash affords the best corn-growing land, because it has the most bones in it. If we look to the average yield of grain for the three brashes here commented upon, we shall see the same facts illustrated in what may be termed the practical way. The following table represents the average of grain in bushels per acre:—

Crops.	1. Stonebrash. Inferior oolite.	2. Stonebrash. Great oolite.	3. Cornbrash.
Wheat	15 to 20	20 to 25	25 to 30
Barley	25 to 30	30 to 35	40 to 45
Oats	25 to 30	35 to 40	45 to 50

This table illustrates facts and principles which will be readily understood by the cultivator of the soil, and we therefore now offer the landlord's touchstone of value in the following table representing the average rent:—

Formation.	Rent the acre.
1. Stonebrash, inferior oolite	7s. to 20s.
2. Stonebrash, great oolite	14s. to 25s.
3. Cornbrash	20s. to 40s.

"These facts tend to show that the reasons for practical results may be clearly made out by the scientific inquirer, and from these he is enabled to illustrate great principles, a right understanding of which would, as true knowledge always does, lead us to think more modestly of ourselves; for if we are fortunate enough to live in a district where everything looks prosperous, the crops good, and farmers rich, and, consequently as the term goes, respectable, we are not always to conclude that this has arisen from our superior knowledge or intelligence, for it may be after all merely that there are more bones in the soil."

The same truth, namely, the need to fertility of these mineral substances—phosphoric acid and the others present in small quantity—is gathered from an examination of our manures, bone-dust, guano, &c., small quantities of which applied per acre produce such marvellous increase of fertility. The examination of bulkier manures, farmyard dung, and even marl, is equally illustrative of this truth. The following are marls analysed by Professor Way, much used, and deservedly valued as dressings; and these analyses, by a reference to the phosphoric acid and the alkalies which they prove to be present, amply explain the value which in practice has been attached to them.

	1. Fossiliferous gree marl.		2. Gray marl or malm.	
	Soluble in dilute acids.	Insoluble in dilute acids.	Soluble in dilute acids.	Insoluble in dilute acids.
Silicic acid (silica) .	31.88	22.06	2.16	16.68
Carbonic acid	Undetermined.	...	29.16	...
Sulphuric acid ..	.45	...	0.21	...
Phosphoric acid ..	3.76	...	0.21	...
Chlorine	Trace.	...	0.08	...
Lime	5.61	1.52	41.52	1.71
Magnesia	.85	1.09	.30	A trace.
Potash	3.21	.45	.26	.32
Soda	1.20	.31	1.64	.07
Protoxide and peroxide of iron ..	16.91	5.75	2.20	5.57
Alumina ..	.74		.11	

No. 1 is from the green sand formation.
No. 2 Chalk marl, extensively applied as a manure.

It is on the natural wealth of the soil as a storeroom of these substances—I refer to those which in the above table are described as soluble in weak acids—and the artificial addition of them, where naturally they are deficient, that fertility in a great measure depends. Beside the alkalies and phosphoric acids, ammonia and nitrates, as supplying the nitrogen that plants need, especially to form seed, are of course essential elements of all fertile soils; and guano, farm-yard dung, and other manures, owe their fertilising influence largely to their presence. Fertility is to be maintained and increased by the economical management of all sources of such substances and the liberal application of them to the land; and seeing that the common forms in which ammonia exists are volatile, the more care is needed to ensure its preservation, whether in the solid or the liquid manure to which the farmer has access. It is right to add one word in reference to the influence of depth of soils on their fertility. It is connected especially with this aspect of the subject, for it is obvious a soil of double depth is a warehouse twice as large, capable therefore of containing twice the food for plants, and not so liable to exhaustion. One word too must be allowed upon that barrenness which arises from cross cropping, and from continuous export of dairy and other produce; it is attributable for the most part simply to a more rapid issue of the contents of this warehouse than either the direct supplies from without in the shape of manure, or the defective agencies at work as in a laboratory within the soil itself, permit. Such infertility accordingly is removable by manuring: the addition of bone dust to the pasture lands of Cheshire has restored that fertility which had been lost through the export of bone dust in the milk and cheese sold off the farm. Such infertility is also removable by giving fresh life to all those agencies at work within the soil itself for the supply of food for plants, and so tillage has to a certain extent proved the equivalent of manure.

INFLUENCE OF STATISTICAL INFORMATION ON THE CORN TRADE.

[From the Minutes of Evidence taken before the Lords' Committee on Agricultural Statistics.]

LEONE LEVI, Esq., examined.—I believe merchants consider it of very great importance to them to be as early as possible made acquainted with the probable wants of the country in matters of food; because I need not say that the prices of grain have a very great influence on the prices of all other articles, and the *Mark Lane Journal* is the barometer by which the value of all other articles is regulated. It is also of the utmost importance to merchants, in order to regulate their speculations and their orders abroad for other articles of consumption, to be specially informed whether we shall have abundance of grain at home, or whether we shall have to seek from foreign countries very large supplies. The influence of such uncertainty upon the funds is always remarkable, and upon the bullion in the Bank. The possibility of having to send a great deal of gold abroad has very considerable influence on private credit, discounting bills, &c. &c. All those transactions are very considerably affected by the uncertainty which prevails as to the result of the crops in this country. Suppose at the very last moment we should find ourselves to be in want of about five or six millions of quarters to be imported into this country in two or three months, of course the price of grain would rise enormously. Let us calculate that, owing to the suddenness of the demand, the rise might be about 6*s.* a quarter beyond the natural rise that would have taken place if it had been known before. Then to these 6*s.* there must be added, also, a very considerable rise in the rate of freights; for instance, I find that, during 1846 and 1847, the freight from Odessa to this country for tallow ruled from 50*s.* to 110*s.* a ton; and from the Danube from 9*s.* to 21*s.* per quarter; and from Alexandria from 6*s.* to 12*s.* during 1846. Now, let it be admitted that, owing to the suddenness of the rise, as we must have the grain speedily brought in, the rate of freight also should rule 6*s.* per quarter higher than need be; that would make nearly 10*s.* a quarter, which, upon six millions, would prove a loss to the public of about 3,000,000*l.* sterling. And this may actually be ascribed to our finding all at once to be in want of large supplies, and to the fact that for that reason speculation did not go on regularly from the commencement of the season to the last. There are other reasons besides in favour of obtaining such statistics as soon as possible: the later we are in foreign countries for our purchases, the less chance we have to obtain the grain. Our harvest here is about two months later than the harvest in Italy or France, and it is natural that, immediately as these countries find their crops to be very deficient, they should at once send for supplies, and as they are nearer to the Danube, from Marseilles for instance, than we are, they get their supplies provided for from the Danube, Alexandria, and other places, before almost we know ourselves that we also want them. This of course affects very materially the commerce of the country. The influence of such suddenness of rise in the price of grain, together with the rise of freight, has also great influence on the rise or on the decline of the prices of other articles of consumption here, because the more we have to pay for grain, the less we have to bestow upon other articles, and our relations with such countries from whom we receive such articles of luxury; our exports are also affected from the same causes, and thus it acts and re-acts in many ways. I have thus contented myself in indicating what are the evils resulting from the present want of correct agricultural statistics. I know that estimates of the harvest are constantly made by private merchants and farmers, and these are abundantly published in the *Mark Lane Express*, and other papers; yet these estimates are generally uncertain, and are often made by interested parties. Indeed the conflicting nature of such information is often the source of extraordinary fluctuation of prices. I have not detailed the direct benefits of agricultural statistics, whether of those referring to the number of acres under cultivation, and under the several crops, to the estimate annual yield, or to periodical statistics of agriculture on an extensive plan. I believe they are likely to prevent great fluctuation of prices; to diminish the speculative character attached to all transactions in grain, and to enable us to obtain the necessary supplies for the year from foreign countries at lower rates, and with greater ease; and I believe, moreover, that such statistics will have a further important effect in calling forth greater energy among our farmers in the application of science into agriculture: in improving all the processes of cultivation, and in extending materially the agricultural resources of the country. I consider the farmer stands upon the same level as the merchants, because, no doubt, whilst the merchants have often to pay dearer for grain on account of their ignorance, the farmer often sells a larger quantity in the first instance at lower prices than he was justified in doing; and this is especially the case with those who, being least acquainted with the general state of the country, go on selling; and, perhaps, after they have sold all they have, they find that those who have been fortunate enough to hold get double for their produce. If information were more general, they would only be disposed to sell such portions as they are under necessity of selling, and that would enable them all to participate in the rise when that rise happens.

The witness is then examined on the subject of the imports of grain and its variation in price. He says:—

And there is another curious observation out of these prices; it appears that the months when the highest prices ruled were mostly July and August; for this there may be two reasons. It may arise from sudden deficiency in the quantities of grain on hand of the old crop, from the non-arrival of foreign grain, or from the bad prospects of the next harvest. In many cases where a sudden rise in August takes place from a sudden want, it shows a want of agricultural statistics: because if we knew it sooner we should not be all on a sudden finding our rick-yards empty, and all on a sudden wanting extra supplies from abroad. I presume if we had agricultural statistics in time, the rise would not take place in August, but would take place in March or April, or earlier still, and so on progressively from the commencement of the year, immediately, in fact, as the harvest operations are over. In 1847 the highest was in June; in 1842, 1849 and 1851 the highest price was in July; in 1841, 1843 and 1850 the highest prices were in August. I am not now specifying what were the reasons, as I said it may have arisen from bad prospects of the crops in this or other countries, and again from the scanty remainder of the former years. As to the lowest prices in 1840, 1841, 1842, 1847, 1849, and 1852, the lowest prices ruled in December and January. If we had agricultural statistics after a bad harvest, prices would generally begin to rise in December and January, and yet these are the months when generally prices ruled the lowest. There are reasons to believe that in those months prices under ordinary circumstances would rule the lowest, because farmers have then generally larger quantities on hand, and they bring it freely to market; at the same time, if agricultural statistics were to point out that prices during the whole year are likely to rule higher than immediately after the harvest, the farmer and speculator would at once become acquainted with it; and the one would keep the grain back, and the other would give higher prices, and so would prevent prices ruling very low up to a very considerably advanced period. As it is, all on a sudden, the harvest may be found to have been very deficient; and instead of having abundance at home, we are at the last moment reduced to the necessity of obtaining from abroad very large quantities at any prices it can be had.

ON FATTENING POULTRY.

PRIZE ESSAY.

[The following Paper is taken from the Journal of the Yorkshire Agricultural Society.]

* * * * * "And Chauntecleere so free,
Song merrier than the Mermaid in the see."—CHAUCER.

The consideration of the best method of Fattening Live Stock, of any description, may be most advantageously arranged under two heads, namely, the scientific principles which have been ascertained respecting feeding; and their practical application as verified by experience.

In the following essay these subjects will be treated in separate chapters; so that those readers who require merely the practical details may omit the consideration of the scientific truths on which they are based.

CHAPTER I.—THE PRINCIPLES OF FEEDING.

SECTION I.—*The Purposes served by Food.*

The purposes served by food, when taken into the body, are of several distinct kinds, and may be spoken of as—

1. The production of animal warmth.
2. The supply of the materials required for the growth and waste of the muscles, &c.
3. The supply of the mineral and saline substances contained in the body.

4. The supply of the waste or increase of fat.

The warmth natural to living animals depends upon the consumption of a certain portion of the food in the process of breathing; the substances consumed in this manner are chiefly those which contain a large quantity of carbon, which passes off in the breath, in the form of carbonic acid.

The most important warmth-giving foods are, starch, sugar, gum, the softer fibres of plants, and oily or fatty substances; as the natural warmth of an animal in health remains the same at all times, it necessarily follows that a larger supply of warmth-giving food is required in cold situations than in warm ones.

During motion, or under excitement of any kind, the breathing is hastened, and consequently a larger amount of carbon is thrown off by the lungs. In quietude and sleep, or the contrary, the breathing is slower, and the quantity of food consumed in this manner is lessened. These circumstances will render evident the utility of keeping fattening animals in a house of moderately warm temperature, and one sufficiently quiet and darkened to conduce to rest and sleep.

To supply the materials of the growth of young animals, and repair the waste arising from the daily action of the limbs, and from other causes, a second variety of food is required; for the starch and other substances before enumerated have been proved, by direct experiment, to have not the slightest action in supplying these wants. Substances possessing this power may be termed flesh-forming foods. The most important are the gluten, and similar substances, existing in variable quantities in different grains; and, in larger proportion, in the varieties of Pulse, as Beans, Peas, &c.; and in the materials which form the solid parts of the flesh of animals, of eggs, of milk, &c. In consequence of their containing the element of nitrogen, which is wanting in the other varieties of food, these flesh-forming substances are frequently termed nitrogenous foods; whilst the fat-forming and warmth-giving are called carbonaceous foods.

The mineral and the saline substances contained in the bones, and in other parts of the bodies of animals, occur in larger proportion in the bran than in the inner part of the grain. A due supply of bone-making and saline materials is absolutely requisite to the growth of a healthy animal; as, if wanting in the food, the bones become soft, and the general health speedily fails.

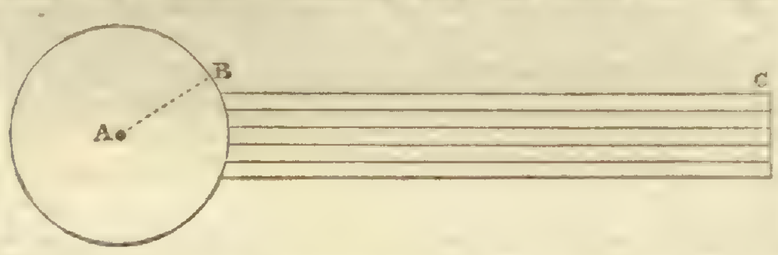
In reference to the present subject, those substances which supply the materials for replacing the waste or the increase of fat are the most important. It is still a point unsettled, amongst scientific authorities, whether the starchy materials before spoken of as warmth-giving food, are, or are not capable of being converted, by the living forces of the body, into fat; although there is but little doubt that under favourable circumstances they are so, but it is unquestioned that where it is desired to fatten animals rapidly (or supply fat to be consumed in generating warmth, as is necessary in all cold regions), it is the absolute requisite that the food eaten should contain oily and fatty matters which can be readily absorbed by the digestive organs, and either stored up or applied to the immediate wants of the body. There appears no doubt but that the fatty materials in the food are rapidly absorbed by the body without undergoing much alteration, therefore, the nature of the food influences very greatly the character of the fat; and, not to seek for examples beyond the animals whose fattening is at present under consideration, the writer knows of an extensive feeder of geese, who always sends his birds to market in an excessively fat condition, but which nevertheless do not command the prices paid for some others in a less fatted state, from the very soft and oily character of the fat, and its being known to lose excessively in cooking. This feeder keeps his process of feeding a secret; but there is little doubt but that oil-cake or Linseed enters largely into his dietary. The rapid fattening effects of cod liver oil on men and animals prove also, that fatty substances can be rapidly assimilated by the vital powers; and the following extract from the 11th volume of the "Pharmaceutical Journal" substantiates the fact, that they are absorbed without undergoing much change:—

"A quantity of refuse cod livers were sent into the country, and turned under some rubbish for the purpose of forming manure. Some time after several pigs discovered the treasure, and fed extensively upon it; although not put up to fatten they became in very high condition—so much so that they were killed without any further preparation. On dressing them it was found that the fat was yellow, and the flesh very peculiar; during cooking it gave out a very strong smell, similar to that of boiled cod livers, and was so offensive that it was unfit for food; in fact it was saturated with the oil, which even exuded from the lean when pressed. The fat of the pork did not solidify, but was soft, and smelt like rancid cod liver; even the lungs and the liver appeared saturated with oil; the hams had the appearance of having been soaked in that liquid, and could not be made to take the salt. This circumstance appears to prove that the fatty matters are absorbed without their sensible qualities being altered; the liquid character and rancid flavour of the cod liver oil affecting the fat of the pork."

(To be continued.)

Home Correspondence.

Steam Cultivation.—The readers of the *Gazette* must not consider (until they shall have heard me out) that I am about to make a retrograde movement in field mechanics, when I shall show them they must in a measure return to that simplicity of operation from which they are fast departing, before they can advantageously employ the power of steam in place of the living horse. Agriculture in the field is remarkable beyond all other arts for its simplicity; such being the fact, you must agree with me there need not be the least necessity to farm by algebra when it can be done by simple arithmetic. The business of farming may be difficult, but agricultural processes ever have been and are simple enough. I once knew a "promoted scarecrow" who could perform every operation connected with tillage in first-rate style; and I also knew a farmer who could not write his name, yet made a fortune off 500 acres of land. Hence agriculture must be a simple, not an elaborate practice in its general principles; as such I wish your readers to regard it, because I shall have occasion to make some (apparently) very simple overtures for the purpose of bringing my "method" of tilling the soil, sowing the seeds, and hoeing the weeds, &c., into practical operation. By turning to my last letter, p. 573, it will be seen I adduced certain examples to show that Nature, when she desires to execute as much work as possible in the least time and with the least expenditure of labour or *matériel*, invariably includes the work to be done within a circular figure. It now remains to me to demonstrate how and why the work of tillage or cultivation, to be offered to the steam-engine to execute, should also be included within a circle of a definite and practicable area. The point is difficult to elucidate by mere words, I admit—being an argument of a practical, or rather material, nature, it requires to be shown by practical illustration in the field; that is, to explain myself convincingly, I ought to have the power of addressing the eye, rather than the understanding; this cannot be, therefore we must make the best of it, bearing in mind that he who is not convinced at a glance will never be convinced by a multiplicity of words. The proposition is this, viz., we want to do a great deal of work in a very short time, and for very little money; the power we propose to employ is that of steam; the material we have to operate upon is an extensive plane surface. Now as we know we cannot act upon a vast plane surface all at once by mechanic means, we will without hesitation divide it into parts, and take a portion, say a half-acre (or, entire acre); this is strictly admissible, because "What is a farm?" Why it is an acre of land, or, an aggregation of acres from 5 to 500, but all as separate and distinct, the one from the other, as much as our fields are, if we choose to view it so. Therefore, my proposal is to cultivate only one acre of land by steam-power; knowing full well that if we fulfil the required conditions in executing that one acre, we can by a repetition of the same means accomplish 500 acres or any greater number. It will be understood in this letter we are endeavouring to find out the method of application—not the machine which is to till the land. When we shall have first found out the method or railway (to speak figuratively), then we will describe the tillage-machine or locomotive which is to run, or operate according to the nature or requirements of the method discovered. We have here a circle and a parallellogram, each of which contains half an acre of land.



The parallelogram exemplifies the angular or square method by which tillage mechanism is now worked, and the circle shows the method by which I propose to grind up the soil so as to obtain a seed-bed, &c. Now let us consider the relative advantage of the two systems. The first condition required from a steam cultivator was that it shall do more work in less time; hence, suppose the motive power employed is situate at B on the circumference of the circle, the length of the line representing the circumference will be (in round numbers) 168 linear yards; now arises the question, what time will it take a cart-horse or a steam-engine moving at horse pace to travel this distance? The answer will be 2½ minutes; hence, if we can (hereafter) show it is practicable to construct a steam tillage machine, which shall extend its arm from the motive power at B to a fixed point (point d'appui) at A, in the centre of the circle, and be connected therewith, we know to a certainty that the traversing movement of the engine at B would cause mechanism to sweep over the entire surface included within the circle in the same period of time as its own description; and that, as a consequence, proper mechanism being provided, we could execute all the customary processes of tillage over half an acre of land in 2½ minutes of time. Now this rate of operating would perfectly fulfil the condition we proposed, viz., of doing more work in less time than is now done. Therefore it is proven that a circular movement round a fixed point, the power moving having connection with that point, is the method by which we can fulfil the condition of time. Let us now examine the parallelogram, which also contains half an acre, and exemplifies the present method of operating. Owing to the want of a point of attachment, or fixed point for machinery to work from, and also from the extreme difficulty of turning at the headlands, to complete the "bout," our present field mechanism is limited (as a rule) to 9 feet. Now suppose each of the lines engraved in the parallelogram to be 336 yards long, or twice the length of the circumference of the circle, it will follow that by the time a machine can be dragged 168 yards, or one quarter of one "bout," the steam machine worked on the circular method would have executed in the same period of time an entire half acre of land. Here is economy of "time" in operating on extensive surfaces by machinery! Who can object to it? Who can object to the obtaining such great results by so simple a change in method? Let me observe, if a field were to be worked up by a steam tillage machine in separate portions (half acres or acres), of course it would present an unusual appearance; in fact it would resemble a lot of "molehills" or beautifully pulverised circular areas, such being the visible and practical result of my method. I hope I may claim the hearty support of "Talpa," because he has, with that prescience for which he is remarkable, in his letters alluded to this probable "molehill" method of cultivation:* he writes, "There's the tiny mole, a fierce sub-navigator in his way, but his track turns up some pretty cultivation, it only wants spreading far and wide; it's not so wise to throttle him as you think; I grieve to see him hanging gibbetted, his clever paddles stopped by cruel ignorance. For he is your only granulation-master; he taught us drainage and sub-cultivation, and we shall learn of him another and a greater lesson some day, and call him a prophet." It will be evident from the above quotation that "Talpa" evidently discerns that the "molehill" method of pulverisation presents the finest and most perfect tillage imaginable; although his mind instructed him of this fact, yet he might not discern how the like could be effected by mechanical means, but this will not detract from his merit. I also claim the suffrage of the gardener. For years past writers in the *Gazette* have talked about and stated that they desired "horticultural agriculture." Now we propose to divide a field into half acre or acre plots, and to pulverise them mechanically by steam-power; such being the case, what expression (figuratively) would the gardener apply? Why he would call it his "flower-pot" system on a larger scale. And what better than that? Surely if he with his weak hands can pulverise the soil and grow his finest plants in a 2-feet flower pot, we could grow our plants far finer than is now the case within the area of an half acre, or whole acre "pots," or "molehills," tilled by a steam-engine! Of what use is it talking about "horticultural steam-agriculture," unless some farmer boldly steps forth to try it? I also ask the honest opinion of the very small farmer; for it has long been notorious that the smaller a man's plot of land is the more he will grow upon it in comparison with larger. On first inspection of my "method" I shall be charged with an apparent loss of land, through the intervals between the circles; but here (although it requires no ghost to see there need be no loss, unless the farmer chooses), I claim the testimony of Mr. Smith, of Lois-Weedon, the skilful disciple of Tull, as to whether there be any real loss by having intervals (or interstitial spaces) among growing plants; he demonstrates by his practice that from the fact of his free use of the "interval" among growing crops, it enables him to grow more, and also to grow the same crop year after year, with impunity, on the same land; and he attributes it entirely to the use of the "interval"—hence we may consider it as proven that blank spaces among growing crops instead of being a disadvantage may be turned into a real profit. *Charles Burcham, London.*

Thin Seeding.—The very intelligent master of the Newmarket Union sowed on 8th September last one grain of Wheat of the crop 1852. It threw up seven spires, which were transplanted about 14th November. On about the 20th August, when the crop was gathered, there were 131 heads; these contained 5700 grains and a few over. The yield more than filled a tumbler, and the weight of it was 9¼ oz. The master counted and weighed the grains himself. I enclose a few grains as a sample. Contrast this with the ordinary yield. Two bushels per acre would be considered a thin sowing, and 40 bushels per acre a good yield—in other words 20 fold; here we have 5700 fold. On a former occasion he sowed one grain in September, and transplanted the spires in November; and again in February; and the yield then was above 6500; but he has not the exact particulars. Again, in order to see whether old or new Wheat threw up the strongest spires, he sowed on the 25th August, one grain of the crop 1851; one do. 1852; one do. 1853; one do. 1854; one do. 1855. And the relative heights of the species on the 7th September were—1851, 5½ inches; 1852, 4⅞; 1853, 5; 1854, 4⅜; 1855, 3¼—the spires from the old seed taller and stronger. *I. H. W.*

Case of the "Collins'."—In a severe comment made by the *Times* on the punishment of two labourers who left their work to go and see a review, no mention of the hay-spoiling is made; now, if labourers can leave their work at a most critical time, and only lose their day's wage, farming cannot be carried on. Only suppose a score of Irish labourers employed in a hay-field carrying hay, and a storm coming on; what is the loss of one day or a week's wages compared to the loss of a crop! All other trades are protected from such accidents, pray why should not farmers! There was, moreover, in this case a conspiracy, or what would in a manufacturing district amount to it, namely, in the man persuading the boy to leave work. *No Cockney.* [The offence was sanctioned or forgiven or condoned by the master

* *Agricultural Gazette*, No. 15 1850.

accepting the services of the men after their return, until his crop was secured. To try and punish them after that was a mean-spirited thing in the master, and that he should succeed in his attempt proves, under the circumstances, so far as they have been published, unsound judgment in the magistrate.]

Societies.

TYNESIDE, *August* 28.—*Demands upon the Farmer.*—At this Society's show held at Hexham, Mr. Grey, of Bilston, stated the two great requirements made of the farmer by the wants of the age. 1. To increase the produce of his land. 2. To diminish the expenditure by which that produce is obtained. Owing to emigration, to the distressing war in which we were engaged, and to other circumstances, there had been a falling off in the supply of labourers—a destitution in the labour market; and if more produce was to be extorted from the soil it must be by liberality and judgment in its cultivation, and by (what it was the main object of this society's exhibitions to promote) the introduction of the most productive and profitable stock. To agricultural societies like the Tyneside much gratitude was due for the stimulus which they had given to increased production; and they must all rejoice that the recent meeting of the Royal Society in Carlisle had proved a most successful one. Many important machines had been exhibited and tried. The reaping machine, now so much a desideratum, had not, so far, been productive of any great effects in agriculture. Many failures and disappointments had marked the persevering efforts to bring it into use. In the present harvest, however, such had been the weather for some time past, that farmers were not in a condition to use any other machine than the old-fashioned one of the sickle—not even the scythe. But if, at Carlisle, no decided step had been gained as to the reaper, other machines had been tried successfully and conclusively. The chairman had referred to the threshing machine; and truly it was surprising, as Mr. Errington had remarked, to see farmers—large farmers—straining and wearing the sinews of their horses, when a little fuel and a little steam would do the work so much more effectually and economically. (Hear, hear.) In this respect, however, progress was being made, for farmers were mending their ways; and it was important to know one economical result of a competition between two threshing machines at Carlisle—namely, that the one consumed one-third less fuel than the other in doing the same amount of work. The more such machines were used, the more they would be improved. Then, again, there was the plough. It was found that a plough made by that eminent manufacturer, Ransome, did its work with one-third less power than another, whose work was done about as well. Was not that an important fact? If two ploughs of one kind could do the work of three of another, every farmer must see the extraordinary saving which accompanied the use of the superior implement; or if one plough could turn up a furrow of 9 inches, and the other a furrow of only 6, was not the former a great desideratum as compared with the other? The importance of a deep cultivation of the soil had often been impressed on the agricultural mind; and in seeking a deep foundation for their manures, the most economical means should be used. If, to vary the illustration, two acres could be made, without additional cost, to bear the produce of three, was not that preferable to the cultivation of 3 acres, and the attainment of the produce only of the two? Many desirable things have been brought under notice at Carlisle; and one thing, which was very desirable, was the collection of the best possible information as to the science and practice of agriculture. When, however, prophets came from a distance to lecture the farmers of any district on their usages, they should be sure that they knew what they were talking about. The farmers of the north had been called to account for their deficiency in hay-making. They were told that their hay should have been in stack three days after it was cut, and that the antiquated practice of putting hay in pikes should be discarded. He should like teachers of agriculture to come to the north, and serve an apprenticeship in our climate, before they again gave lectures on hay-making. They would soon find their fallacies overthrown by the seasons. Mr. Mechi lived in a dry climate. His farm was not watered by one-half—probably not one-third—the rain which fell in the north of England. Were he to make hay in the north as he made it in the south, he would find himself in possession of a mass of rottenness. Mr. Mechi farmed a poor soil, which, generously dealt with, yielded large crops. The same system, if followed here, as Mr. Mechi recommended, would prove ruinous. He (Mr. Grey) farmed a little himself, and he had tried various experiments. He had applied artificial manures in the manner advised. And what was the result? Heavy rains had fallen, and his manures were washed away and lost. The produce was inferior to that of his lighter crops. He was not one who advised the farmer to be niggardly in his management, but only to be judicious as well as liberal. Those gentlemen who came into the north—in a spirit that could not be too highly commended—to instruct the farmers of the district in agriculture, should be told that their systems, however good and profitable in Surrey or Cambridge, or even on the Welds of Yorkshire, were not applicable to this more northern part of England, or to Tweedside. Were they to do in the north as they did in the south, they would run great risk of over-doing it, and of inflicting injury on themselves.

MANCHESTER AND LIVERPOOL.—At the annual meeting of this Society, held last week, Lord Stanley, who presided, made the following remarks in reference to the history and progress of agriculture:—

England ranks among the first of the nations of the earth. We have intelligence, we have industry, we have wealth, we have public order, we have science. One requisite, and one thing only is wanting to our greatness. Now, what is that weak point? I will tell you. It is narrow area and circumscribed territory. No nation materially and morally so great is territorially confined within such narrow limits. (Hear.) It appears that we cannot extend the national area; there are no unoccupied lands near us; colonisation at home is impossible, and the days of conquest are gone by; and the only resource, therefore, that remains to us, if we cannot extend our territory, and if at the same time its smallness is the only limit of our power as a nation—is the principal limit of our power as a nation—to do what is equivalent to extending our territory, by increasing the productive power of the soil within the same area. It is for that object—an object within our power by many applications of the scientific means known to us all to attain—it is for this object that nations have quarrelled, that battles have been fought, that blood has been shed, that countless treasure has been wasted; and that object, I say, is within our power to obtain by applying the resources of science. I do not speak of continental competition; from that I fear little, but there is another kind of competition to which we are even now exposed, and to which we shall be more exposed than we are—I mean to that of the new world. If we are permanently to hold our own against countries like the United States and Canada, against countries where you can buy land out and out for little more than one-fourth of the price per acre for which you rent it in this country—I say our only chance, our only hope of retaining our national position as against this new competition—the only chance of holding our heads above water—is to apply mechanical aid and use the resources of science to an extent of which we have never hitherto dreamt. Now, what are the practical changes necessary to bring about that state of things? There is one particularly which I would venture to lay down with all confidence. I think that land in this country ought to be easier and freer to buy and sell than it is. You may be told there are legal difficulties in the way. So there are, no doubt, but those legal difficulties are comparatively slight. It is not there the real obstacle, the real impediment lies; it is a social difficulty, and not a legal difficulty. The community has the right to say to every one, either use your property profitably yourself or let others use it for you. I am not now talking of a legal remedy; I do not want an Encumbered Estate Act for England—that is not necessary here, whatever it may be elsewhere; but I do want and I do desire to see that every landlord shall be an encumbered estate court in himself. Until that is done you will not place the tenure of land, you will not place the agriculture of this country, on a sound and rational footing (applause). There are other points which I would pass over lightly. Mr. Mechi told this society last year that it was absurd to send to the Pacific, a distance of 10,000 miles, to buy bird dung for manure, while thousands of tons of the natural manure of this country were poisoning our rivers and choking our seas. But I suppose in that we are all agreed; and so far, as it is hardly a practical question, no single landowner or farmer can do much in that respect. The towns must take it in hand. I am told that experiments have been made; I am told that those experiments have not been always so successful as they deserve to be. If that is so, more is the pity. But the principle is, notwithstanding, a right and a sound one, and whatever may now be wrong in the details will doubtless come right before long. One word you will expect from me on that which is, perhaps, a great feature of our age in all the departments of labour—I mean the application of machinery. No doubt, when you apply mechanical power to agriculture you have to encounter many difficulties which do not exist in other cases and in other business operations. In the factory or in the town you bring the material on which you want to operate to the machine; but on the farm you must generally bring the machinery to the material. This is no doubt a great drawback and a great disadvantage; but, notwithstanding its existence, I believe firmly that at no distant period inanimate labour will have almost, if not entirely, superseded brute labour of every kind. That will be, whenever it takes place, not merely a mechanical, not merely an industrial, but a moral and social change, and which we can hardly overrate. (Hear, hear.) An obstacle to the more extensive introduction of machinery here is the comparative smallness of our holdings. It is so costly that very few of our farmers can purchase it to a large extent for themselves. If, therefore, it is to be introduced practically to the extent to which it may be, and ought to be, I believe it will be done in this way—it must be provided either by the landlords or by some person letting it out to the tenants, who must pay a rent for the use of it to the owners of the machinery.

Notices to Correspondents.

BOKHARA CLOVER SEED: *Constant Reader.* Any of our principal agricultural seedsmen will supply you.

BRAN: *X.* Professor Johnstone gives the following analysis:—Water, 13.1; albumen, 19.3; oil, 4.7; husk and a little starch, 55.6; ash, 7.3.

CHURN: *Melinda.* The common box churn is as good as any for so small a dairy.

GUANITE: *Anon.* We do not know it.

GRASSES: *Subscriber.* Sow in March next, along with a thin seeding of Barley, 1 lb. of Alopecurus pratensis, 1 lb. of Avena flavescens, 2 lbs. of Dactylis glomerata, 2 lbs. of Festuca duriuscula, 1 lb. of F. heterophylla, 2 lbs. of F. rubra, 3 lbs. of Lolium italicum, 5 lbs. of L. perenne, 2 lbs. of Poa nemoralis, 1 lb. of P. pratensis, 1 lb. of Medicago lupulina, 3 lbs. of Trifolium pratense perenne, and 4 lbs. of T. repens; in all, 28 lbs. per acre.

GUANO: *Sub.* First introduced to Europe by Humboldt. Who has the credit of inducing the importation for agricultural purposes we do not know. Mr. Skirving, of Liverpool, if we mistake not, was one of the earliest importers or users of it.

NEXT FALKIRK TRYST: *Eboracum.* October 14 and 15.

OSIERS: *A Sub.* There is no work specially on the subject that we know, but most systematic works on agriculture give instructions. See article Osier in Blackie's "Cyclopedia of Agriculture;" or look at instructions given some weeks ago in this Journal. We should not like the bottom of a pond for an Osier bed. Land that will hold water is by no means the best for such a purpose.

TRIFOLIUM INCARNATUM: *Mr. Powell* should sow 20 lbs. per acre now, or just previous to a change in the present dry weather; sowing it broadcast over any *clean* stubble, having first harrowed it. A harrowing after sowing is all the cultivation it needs, and manure may be applied to it broadcast in spring. The land must be clean and hard.—*J. P.* The plant is safe enough. The shedding of the seed will furnish young plants against next year.

WEEDS: *Novice.* Your plants are a Polygonum and an Equisetum—Knot-grass and Horsetail—both common on sandy soils; the latter especially, when wet. Fallow crops well cultivated will get rid of them ultimately. As to lime, we would apply it at the rate of two "Scotch cart-loads" per acre, making into a compost with vegetable mould of any kind, as ditch cleanings, turf, &c. An old compost of this sort might be applied on the young Clover in autumn, if you intend to grow Clover; and if not, apply it on any stubble before ploughing it in for winter.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

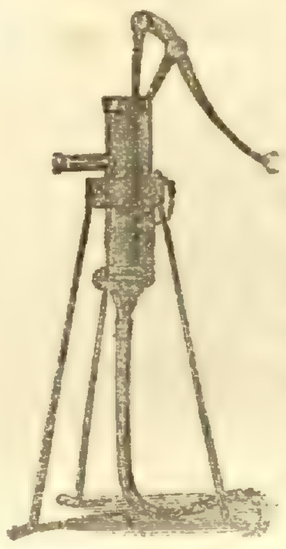
WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 6*d.* per foot.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1	12	0
2½ „	long 3 „ 3 „	gutta percha,	1	15	0
3 „	ditto 3 „ 6 „	or cast iron	2	12	0
3½ „	ditto 3 „ 6 „	flanged pipe,	2	18	0
4 „	ditto 3 „ 6 „	as required.	3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto ditto ditto		2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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WARNER'S SWING WATER-BARROW (TO HOLD THIRTY GALLONS)

Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l.* 3*s.*

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GALVANISED IRON TUB GARDEN ENGINE,
WITH WARNER'S REGISTERED SPREADER,

is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 8*d.* per lb.

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J. BULLOCK and CO., Hope Iron Works, Primrose Street, Bishopsgate, Ironfounders and manufacturers of the above; also Verandahs, Conservatories, Staircases, Iron Roofs, &c. N.B. Iron and Wire Fences fixed in all parts of the country by competent workmen, or the materials supplied painted or galvanised ready for fixing, and packed for shipment. Estimates on application.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

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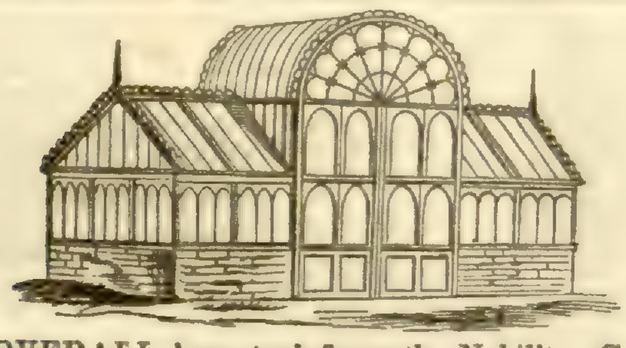
These Patent Horticultural Buildings are superior to all others, wood being used for the frame work, but covered with Galvanised Iron Sashes, and all completed for 1s. 3d. per foot super. Hundreds of references can be given, and Printed Price Lists sent.

BY SPECIAL APPOINTMENT To Her MAJESTY THE QUEEN.

WILLIAM WALKER, Victoria Foundry, Walmgate, York.

Manufacturer of Hot Water Apparatus for Heating Greenhouses, &c.
Garden Rollers, Handglass Frames
Iron Fencing and Gates
Liquid Manure Pumps
Iron Palisading, Iron Bedsteads
Galvanised Game Netting
Stable Packs and Mangers
Kitchen Ranges and Smoke Jacks on a superior principle

Every Description of Plain and Ornamental Cast and Wrought Iron Work.



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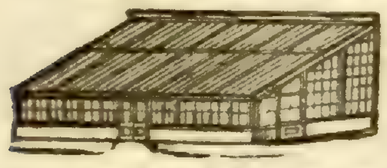
JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

THE NOBILITY and GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



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Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3s. 8d. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to John Weeks & Co., King's Road, Chelsea, London.

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The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft., and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the late severe winter it only cost us 3s. per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *one of our Boilers*, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

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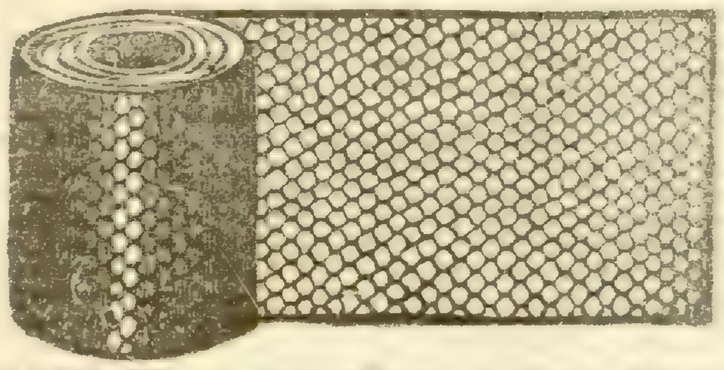
Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

GALVANISED WIRE GAME NETTING,
6d. per Yard, 2 Feet Wide.



BARNARD and BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	6d. per yd.	4½d. per yd.
2-inch " strong, do.	8 "	6 "
2-inch " intermediate, do.	9½ "	7½ "
2-inch " extra strong, do.	11 "	9 "
1⅝-inch " 24 inches wide	7 "	5½ "
1⅝-inch " strong, do.	9 "	7 "
1⅝-inch " intermediate, do.	11 "	9 "
1⅝-inch " extra strong, do.	13 "	11 "

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 10d. per yard; Galvanised Sparrow-proof Netting for Pheasantries, 3d. per square foot.

Illustrated Catalogues and Patterns forwarded by post. Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

COTTAM and HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.

Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.

Hand Glass Frames, Cast and Wrought Iron Flower Stakes, Garden Arches, &c.

Strong Iron Hurdles, and best Wire for Strained Wire Fencing.

Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom. Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. Burgess & Key, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. Francis Parkes & Co.

FIRST PRIZE REAPING MACHINE.
NOTICE.

MESSRS. BURGESS and KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30l. was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—Burgess & Key, 103, Newgate Street; and 52, Little Britain, London.

PAXTON WORKS, SHEFFIELD.

SAYNOR and COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to Saynor & Cooke for their superiority of material and workmanship. Established 1738.

PORTABLE STEAM THRESHING MACHINES.—The time run by the four highest Portable Steam Engines at the Carlisle Meeting of the Royal Agricultural Society in July last, with 14 lbs. of coal to the horse power, was:—

Tuxford & Sons	3 hours and	47 minutes.
Clayton & Co.	3	do.	27	do.
Barratt & Co.	3	do.	10	do.
Hornsby & Son's...	2	do.	54	do.

At the North Lincolnshire Society's meeting at Boston, in August last, Tuxford's and Hornsby's Engines again came into competition, when Hornsby's was again left a long way behind, with 14 lbs. of very inferior coal; the time run was:—

Tuxford & Sons	3 hours and	3 minutes.
Hornsby & Son's...	2	do.	43	do.

And had the testing apparatus which was supplied to the society from Grantham not indicated the steam pressure falsely by several pounds on the inch, the difference would have shown fully twice as much to the advantage of Tuxford & Sons' Engine.

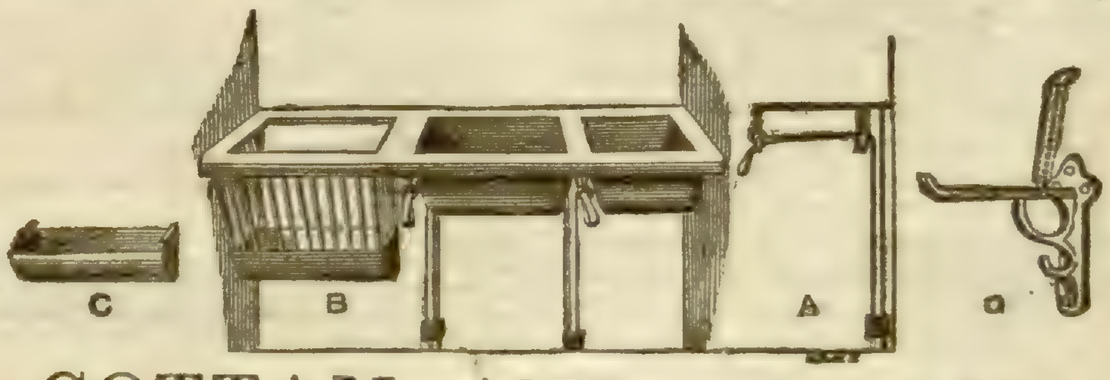
At the recent trials of Threshing Machines at the Paris Universal Exhibition, M. Tresca, the Government Engineer, employed as the motive power one of Tuxford's Portable Machines which had been purchased by the French Government.

The Combined Threshing, Shaking, and Dressing Machine of Tuxford & Sons, was "highly commended" this year by the Royal Society at Carlisle; the Bath and West of England Society at Tiverton, &c.

Illustrated Catalogues, with prices, forwarded on application to Tuxford & Sons, Engineers, Boston, Lincolnshire.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work-boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed. Superior Hair and other Toilet Brushes.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.



COTTAM AND HALLEN

HAVE made important additions to their original Invention of PATENT ENAMELLED MANGER RACK AND WATER TROUGH AT ONE FIXTURE, the main features of which are shown in the above engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—Descriptive Catalogues and Estimates on application.

TO NURSERYMEN AND GARDENERS.

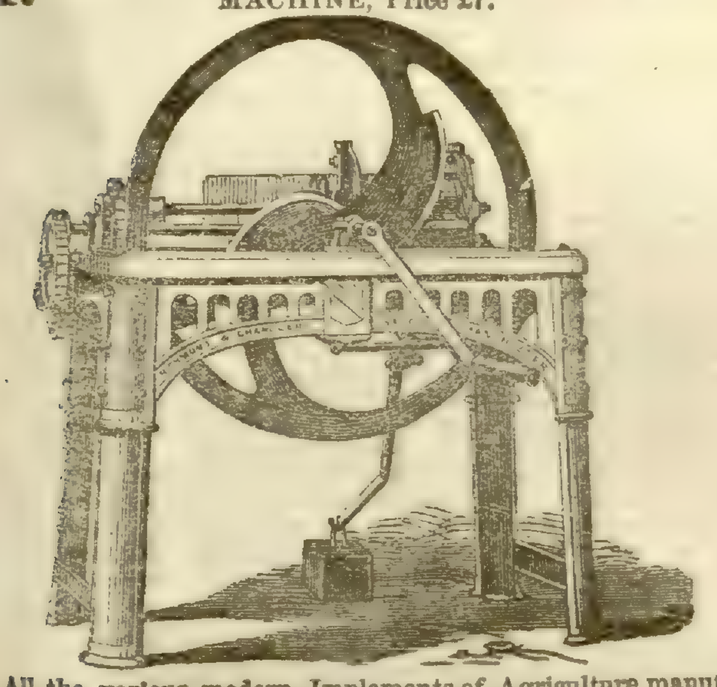
REIGATE SILVER SAND, 12*s.* per ton, 1*s.* 6*d.* per bushel, or 16*s.* per ton, delivered to the London Wharfs or Railways, or within a circuit of five miles. Sacks 2*s.* each. Kentish and other Peats and Loam of excellent quality. KENNARD BROTHERS, Swan Place, Old Kent Road.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps. 103, Newgate Street, London.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.
MEETING AT CARLISLE, JULY, 1855.
FIRST PRIZE AWARDED TO

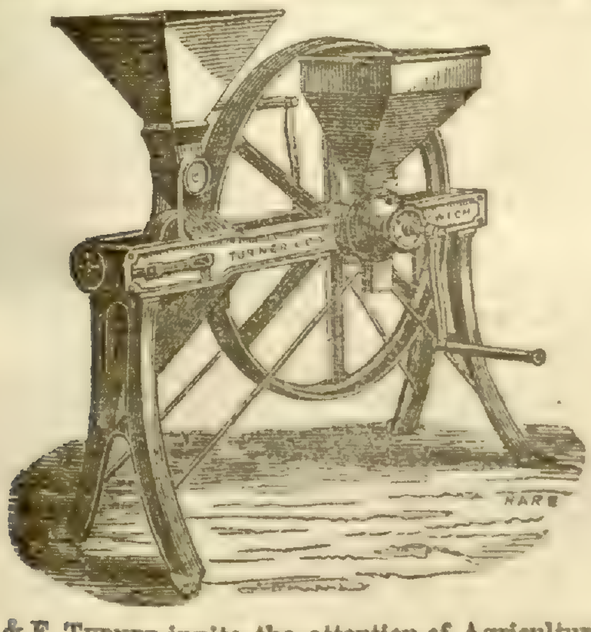
RICHMOND AND CHANDLER'S No. 3 B CHAFF MACHINE, Price £7.



All the various modern Implements of Agriculture manufactured on the most scientific and improved principles, suitable for home use and exportation.—Address, RICHMOND & CHANDLER, Salford, Manchester; and 32, South John Street, Liverpool.
☞ CATALOGUES GRATIS.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

AT THE NORWICH, GLOUCESTER, LINCOLN and CARLISLE SHOWS,
The Prize for the best LINSEED and CORN CRUSHER was awarded to E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.



E. R. & F. TURNER invite the attention of Agriculturists and others to the following machines of their manufacture:—

ROLLER MILLS for Crushing Linseed, Oats, Barley, Malt, &c., of various sizes, with or without Bean-mill combined. The numerous prizes awarded these Mills by the Royal and other agricultural societies, render comment on their merits unnecessary.

PATENT COMBINED GRINDING and CRUSHING MILL for reducing Barley, &c., to a fine and soft meal, and crushing Oats, Linseed, &c., is strongly recommended for the variety of purposes to which it is applicable, and for its perfect and economic working. Price 25*l.*

CHAFF CUTTERS, for horse or steam power, cutting three lengths, with facility for changing the length of the cut almost momentarily, and other valuable improvements.

OILCAKE BREAKERS, made entirely of iron, with case-hardened teeth suitable for all descriptions of cake. Price 3*l.* 10*s.*

FIXED STEAM-ENGINES, on the horizontal direct acting principle. Long experience and attention to the practical working of steam-engines of every variety, have enabled the manufacturers to offer these Engines as inferior to none—either for efficiency, economy, or durability—and at prices which will be found comparatively low.

Superior Portable Steam-Engines and Threshing Machines, Horse-Power Threshing Machines, Circular Saw Tables, One Horse Carts, and various other Implements, are also manufactured at the above Works.

Illustrated Price Lists sent free on application.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe.

Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

No. 1 QUALITY, INCHES IN DIAMETER AND PRICE PER YARD:—½, 9*d.*; ¾, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d.*; 1½, 1*s.* 5*d.*; 1¾, 1*s.* 7*d.*; 2, 1*s.* 9*d.*; 2¼, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

SUPER EXTRA STOUT QUALITY:—2, 2*s.*; 2¼, 2*s.* 3*d.*; 2½, 2*s.* 6*d.*; 2¾, 2*s.* 9*d.*; 3, 3*s.*

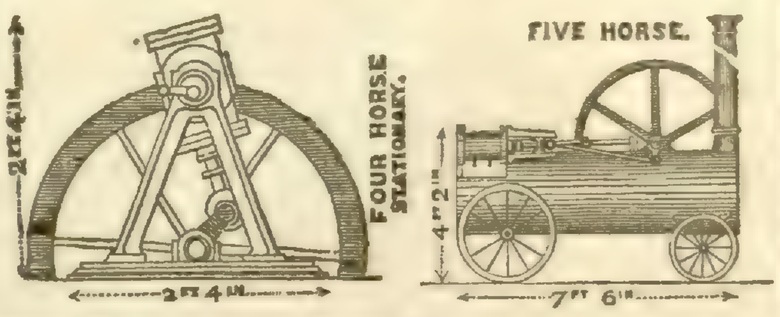
No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9*d.*; 1¼, 10*d.* 1½, 11*d.*; 2, 1*s.*; 2¼, 1*s.* 3*d.*; 2½, 1*s.* 6*d.*

The Hose is Burnettised at an extra charge of 3*d.* per yard.
Union Joints, Branch Pipes, and Jets are also supplied.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the nobility, gentry, and clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of colours, prices, together with a copy of the testimonials, will be sent on application to WALTER CARSON & SON, 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

TO AGRICULTURISTS AND OTHERS.



SIMPSON AND BARNES, Openshaw, near Manchester, beg to call the attention of parties requiring power to their PORTABLE and STATIONARY STEAM-ENGINES, from one-horse power and upwards, having the boiler and engine attached. They require no foundation, are simple and cheap, and are sent from the works ready to start when they arrive at their destination.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City. Circulars free by post.

NO CHARGE FOR STAMPING at LOCKWOOD'S, 75, New Bond Street. Good cream-laid Note-paper, five quires for 9*d.*; Thick ditto, five quires, 1*s.*; Albert and Queen's sizes, five quires for 6*d.*, 9*d.*, and 1*s.*; Note-paper made from Straw, 2*s.* 6*d.* per ream; Envelopes, 4*d.* to 1*s.* 6*d.* per hundred; Foolscap paper, 7*s.* 6*d.* per ream; Copybooks 2*s.* 6*d.* per dozen. Card Plate engraved, 2*s.* 6*d.*; 100 Cards printed, 2*s.* 6*d.* Wedding orders promptly executed. A large variety of Writing and Dressing Cases, Envelope Boxes, Blotting Books, Inkstands.—Copy address, LOCKWOOD'S, 75, New Bond Street. Country orders for 20*s.* sent carriage free. LOCKWOOD'S celebrated Nugget (Gilt) Pen, 1 doz. post free for 13 stamps.

TOURISTS, TRAVELLERS, AND OTHERS,
EXPOSED TO THE SCORCHING RAYS OF THE SUN, AND HEATED PARTICLES OF DUST, WILL FIND

ROWLAND'S KALYDOR a most refreshing preparation for the Complexion, dispelling the cloud of languor and relaxation, allaying all heat and irritability, and immediately affording the pleasing sensation attending restored elasticity and healthful state of the skin. Freckles, Tan, Spots, Pimples, Flushes, and Discoloration fly before its application, and give place to delicate clearness, with the glow of beauty and of bloom. In cases of sunburn or stings of insects, its virtues have long been acknowledged. Price 4*s.* 6*d.* and 8*s.* 6*d.* per bottle.

ROWLAND'S MACASSAR OIL, a delightfully fragrant and transparent preparation, and as an invigorator and purifier beyond all precedent.

ROWLAND'S ODONTO, OR PEARL DENTIFRICE, a White Powder, compounded of the rarest and most fragrant exotics. It bestows on the teeth a pearl-like whiteness, frees them from Tartar, and imparts to the Gums a healthy firmness, and to the breath a grateful sweetness and purity.

Sold by A. ROWLAND & SONS, 20, Hatton Garden, London; and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.?—The most marvellous production of modern date is ROSALIE COUPELLE'S CRINUTRIAR, which is guaranteed to produce Whiskers, Moustachios, Eyebrows, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually checks greyness in all its stages. For the nursery it is recommended by upwards of 100 physicians, for promoting a fine healthy head of hair, and averting baldness in after years. Sold by all Chemists and Perfumers, price 2*s.*, or will be sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London. Mrs. CARTER writes, "My head, which was bald, is now covered with new hair." Mrs. WILLIAMS—"I can show a fine head of hair from using your Crinutriar." Mrs. REEVE—"My hair is gaining strength and thickness." Sergeant CRAVEN ——"Through using it I have an excellent Moustache." Mr. YATES—"The young man has now a good pair of whiskers. I want two packets for other customers."

TO NERVOUS SUFFERERS.

A RETIRED CLERGYMAN having been restored to health in a few days, after many years of great nervous suffering, is anxious to communicate to others the means of cure; he will therefore send (free), on receiving a stamped envelope, properly addressed, a copy of the prescription used.—Direct Rev. E. DOUGLASS, 18, Holland Street, Brixton, London.

DR. ARNOT'S PILLS WILL CURE YOU!! The extraordinary curative properties of this new discovery in medicine will be proved by a trial. Through their peculiar action upon the system new and pure blood is manufactured, the morbid conditions of the body removed, the constitution strengthened, and health restored. Indigestion, bile, stomach, and bowel complaints, gout, rheumatism, asthma, scrofula, dropsy, ulcers, &c., and all diseases arising from impurities of the blood, and other vital fluids are speedily eradicated by this MIRACULOUS MEDICINE.—Sold in boxes at 1*s.* 1½*d.*, by all chemists. By post 14 stamps. Depôt, 50 Rathbone Place, London.

METCALFE, BINGLEY, AND CO.'S OATMEAL and CAMPHOR SOAP, in tablets (registered Nov. 3, 1854). Price 6*d.* each. This soap will be found the purest and most perfect winter soap ever introduced to the public. It preserves the hands from chapping, and renders the skin soft and agreeable.—Sold wholesale and retail by the inventors and sole manufacturers, METCALFE, BINGLEY, & Co., Brushmakers and Perfumers to H.R.H. Prince Albert, 130B and 131, Oxford Street.

CAUTION.—To prevent fraud, each tablet bears the registered mark and the names and address of the inventors, as above.

METCALFE'S ALKALINE TOOTH POWDER, 2*s.* per box.—The above may be obtained of most respectable Chemists, Perfumers, &c.

TO BE LET ON LEASE, SION NURSERY, Croydon, situated on the road between Norwood and Croydon, and two miles from the Crystal Palace. It contains nearly 7 acres of Land, a good Dwelling-house, several Greenhouses and Pits, with Stable shed, &c. It is well stocked with Shrubs, Trees, and Plants, which can be taken at a valuation.—Further particulars can be had of the present occupier at the Nursery.

TO BE LET, an old-established NURSERY, with a Seed Trade, situate near a large Market Town, and on a main line of railroad, in a very eligible situation for business. The quantity of Land can be made to suit the convenience of the tenant, in proportion to which there is a fair extent of glass.—For further particulars, address A. B., Office of this Paper.

TO BE LET, CHERINGTON WOODSIDE FARM, in the parish of Warkworth, Northumberland; tithe free, and entered to at May-day, 1856, containing about 566 acres, of which 90 acres are in old Grass. The tillage land is of sound good quality, and the old Grass is very valuable fattening pasture. A large portion of the farm has been thorough drained under Government grant. The Farm is within two miles of the Addington Station. Mr. Thos. Brown, of Whitefield House, near Acklington, will show the farm with a plan.—Further particulars may be had by application to GEORGE A. GREY, Esq., Millfield, Northumberland, by whom offers will be received till 12th Nov.

TO BE SOLD, a SEED BUSINESS in London having a very extensive Retail connection throughout the kingdom.—For further particulars apply to C., 10, Stranraer Place, Maida Hill, London.

TO BE SOLD, a few one and two SHEAR GIMMERS, price 2*l.* 2*s.*, by a gentleman who has for several years paid great attention to the breeding of the Black and White Spotted Spanish Sheep; also some RAM LAMBS, 1*l.* 10*s.* each, delivered at the Thirsk Station of the North Eastern Railway.—Address to Mr. W. KIRBY, Kirkby Wiske, Thirsk.

TO BE SOLD, a few WHITE DORKING CHICKENS.—Very choice birds.—Apply to Mr. HORNE, Egham, Surrey.

Sales by Auction.

PERIODICAL POULTRY SALES.
SEASON 1855 AND 1856.

MR. J. C. STEVENS begs to notify that his Sales of FANCY POULTRY for the ensuing Season will take place Monthly as undermentioned, viz:—

TUESDAY, 2d October.	TUESDAY, 4th December.
TUESDAY, 6th November.	TUESDAY, 1st January,

and on the First TUESDAY in every succeeding Month during the Season, with extra sales at intervals. Persons having surplus stock to dispose of are requested to send particulars at least Ten days before the Sale.—38, King Street, Covent Garden.—Sept. 15.

THE LATE MRS. LAWRENCE'S COLLECTION OF ORCHIDS.

MR. J. C. STEVENS is favoured with instructions to Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, September 18, and following day, at 1 o'clock precisely, the Valuable Collection of Orchids removed from Ealing Park; comprising fine healthy specimens of the rarest Saccolabiums, Vandas, Aerides, Phalænopsis, Dendrobiums, Cypripediums, Cattleyas, and other choice South American and East Indian Species, cultivated in the best possible manner by Richard Franklin. May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. Stevens, 38, King Street, Covent Garden.

EALING PARK.
THE LATE MRS. LAWRENCE'S RENOWNED COLLECTION OF PLANTS.

MR. J. C. STEVENS is favoured with instructions to Sell by Auction, at the Gardens of Ealing Park, 10 minutes walk from the Brentford Station, South Western Railway, on THURSDAY, September 20, and two following days, at 1 o'clock precisely, the whole of the PLANTS contained in the 15 Stoves and Greenhouses at Ealing Park, comprising about 1200 specimens of the choicest Exotics, Heaths, Camellias, Azaleas, &c. This unrivalled collection is in the best condition, the cultivation having been for some years past under the able superintendence of Mr. William May, whose ability as a grower of specimen plants is proverbial.—May be viewed two days before the sale by Catalogues only (1*s.* each, returnable to purchasers), to be had on the premises, and of Mr. J. C. STEVENS, 38, King St., Covent Garden.

IMPORTANT SALE OF VALUABLE TULIPS.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. John Slater, Florist, Cheetham Hill, near Manchester, to Sell by Auction, on WEDNESDAY, September 19, at the Auction Mart, at 12 o'clock, A VERY SELECT PORTION OF THE FINEST STRAINS OF HIS TRULY VALUABLE COLLECTION OF TULIPS, amongst which may be enumerated Arlette, Colbert, Queen of the North, Lady Catherine Gordon, Ethelstan, La Belle Nanette, &c., the finest varieties of the Chellastons, as well as a few of his own Seedlings, remarkable for form and purity, many of which have not yet been distributed.—Catalogues may be had on application to the Auctioneers, American Nursery, Leytonstone, Essex, on Tuesday, Sept. 11th; or of Mr. John Slater.

ROTHERHITHE, SURREY.
TO MARKET-GARDENERS, NURSERYMEN, AND OTHERS.

MR. W. T. ATTWOOD has received instructions to sell by Auction, without reserve, on the premises, Lower Road, Rotherhithe, on THURSDAY, Sept 20, at 12 o'clock, the Live and Dead STOCK and CROP of a Market Gardener, comprising about 20,000 roots of Linnæus, Victoria, and other Rhubarb, 3 acres of Horseradish, 15,000 yearling Seakale plants, young Mint, Potatoes and other crops; also 30 3-light Boxes and Lights, 200 Hand-glasses, Cart Horse, Market Carts, Baskets, Implements, Tools, &c.; about 200 bushels of Mushroom Spawn; 300 loads of Manure.—May be viewed previously to sale.

GRANGE ROAD, BERMONDSEY.
TO NOBLEMEN, GENTLEMEN, AND PINE GROWERS.

MR. W. T. ATTWOOD will Sell by Auction, on the premises, without the least reserve, the extensive stock of healthy PINE PLANTS, principally Queens, together with the various Ranges of Graperies and Forcing Pits, also the whole of Hot-Water Apparatus, comprising about 1500 feet of pipe and three large Boilers. The above property is in good condition, and offers a valuable opportunity to persons requiring Pine Plants and Forcing Houses. Due notice of the sale will be given in the course of a few weeks.

Just Published.

ARTHUR HENDERSON AND CO'S CATALOGUE. No. I., containing Orchideæ, Exotic, Greenhouse, and Hardy Ferns, Select Stove Plants, including Aquatic, Variegated-leaved Plants, and Plants suitable for suspending in the Stove and Orchideæ House, Greenhouse Plants, Indian Azaleas, Camellias, Ericas, Herbaceous and Alpine Plants, which may be had on application to them at Pine-apple Place, Edgware Road.

Now ready,

THE FERNS OF GREAT BRITAIN: Illustrated by JOHN E. SOWERBY. The Descriptions, Synonyms, &c., by Charles Johnson, Esq. In One Vol. cloth boards, containing 49 Plates, full coloured, 27*s.*; partly coloured, 14*s.*

JOHN E. SOWERBY, 3, Mead Place, Lambeth.

Shortly will be ready, Part I., of

THE FERN ALLIES; A SUPPLEMENT TO "THE FERNS OF GREAT BRITAIN." Illustrated by JOHN E. SOWERBY, Descriptions by C. JOHNSON, Esq. To be completed in about Six Parts. Full coloured at 3*s.*, partly coloured at 1*s.* 6*d.* per Part.

Subscribers are requested to send in their names to the Publisher as early as possible, in order that a sufficient supply may be prepared.

JOHN E. SOWERBY, 3, Mead Place, Lambeth.

Just published, price 1*s.*,

AGRICULTURAL STATISTICS: A LECTURE. By JOHN HANNAM, Secretary to the Yorkshire Agricultural Society; Author of "The Economy of Waste Manures;" Treatises on Manures in Morton's "Cyclopædia of Agriculture;" and "Prize Essays of the Royal Agricultural Society of England, the Royal Highland Agricultural Society of Scotland," &c. &c.

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TO GENTLEMEN PLANTING.

CHANDLER AND SONS, Nurserymen, Wandsworth Road, have a quantity of fine Green and Variegated HOLLIES, ARBORVITÆ, BOX, LAURELS, RHODODENDRONS, AZALEAS, WHITE AND PURPLE LILACS, &c., all of a large size, in a fit state for transplanting, and at very moderate prices.

"A LIST OF PLANTS," including RARE and HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS and CLIMBERS, GREENHOUSE PLANTS, ERICAS, EPACRIS, CAMELLIAS, GERANIUMS, CARNATIONS, PICOTEES and PINKS, HOLLYHOCKS, PHLOXES, CHRYSANTHEMUMS, HARDY HERBACEOUS PLANTS, &c.

Cultivated and Sold by Youell and Co., Royal Nursery, Yarmouth, Norfolk, is now ready, and will be forwarded on receipt of two postage stamps.

BROWICK RED WHEAT.—SEED WHEAT of the above description, and true, may be obtained immediately by addressing Mr. Edward Ball, Bailiff, Post Office, Beaconsfield. Price, by quarter or sack, 10*s*. per bushel. All orders to be accompanied by a Post Office order or remittance.

WANTED, a quantity of BLACK JAMAICA and QUEEN PINES, either suckers or rooted plants that will fruit next year. They must be clean. This would be a good opportunity for any one giving up business to dispose of the whole stock. Also a quantity of the Coniferæ, particularly of the Deodar and of Araucarias: also Seeds of the Coniferæ. Terms, cash.—Address, with prices, F. M., Office of this Paper.

HYACINTHS AND OTHER IMPORTED BULBS.

DAWE, COTTRELL, AND BENHAM (Successors to Frederick Warner), Wholesale Seedsmen, have just received their annual importation of DUTCH and other BULBS in very fine condition. Catalogues on application.

3, Laurence Pountney Lane, and 36, Moorgate Street, London. Established 1720 at 28, Cornhill.

GUERNSEY AND BELLADONNA LILIES may now be had of Dawe, Cottrell, & Benham, 3, Laurence Pountney Lane, and 36, Moorgate Street, London.

DUTCH FLOWERING BULBS.

JAMES CARTER AND CO.'s comprehensive CATALOGUE of DUTCH and CAPE BULBS and SEEDS for Autumn sowing, is now published, and will be forwarded free of charge and post paid upon application to James Carter & Co., 238, High Holborn, London.

R. PARKER begs to inform his friends and patrons that his PRICED CATALOGUE of DUTCH BULBS is now ready, and will be forwarded post free upon application. Paradise Nursery, Hornsey Road, Holloway.

IMPORTED DUTCH BULBS.

JAMES GRAHAM begs to announce that his priced Catalogue of DUTCH BULBS is now ready, and can be had free on application.—Seed and Horticultural Establishment, Northgate, Chichester (late Silverlock and Son.)—Sept. 22.

WILLIAM CUTBUSH AND SON beg to acquaint their patrons and friends that their ANNUAL CATALOGUE of DUTCH BULBS can be had, postage free, on application. The superior quality of their roots is well known, but as a further guarantee they obtained the Awards at the Horticultural Society's Rooms, Regent Street, last spring.

Highgate Nurseries, near London.

DUTCH HYACINTHS AND OTHER BULBS.

J. AND J. FRASER beg to announce that they have received their annual importation of HYACINTHS and other FLOWER ROOTS, of which a descriptive Catalogue may be had by enclosing one postage stamp. This Catalogue contains some instructions for the successful cultivation of the various roots.—Lea Bridge Road, Sept. 22.

LARGE AND VERY CHOICE ASSORTMENT OF IMPORTED DUTCH BULBS.

CLARKE AND COMPANY, Wholesale Seedsmen, 86, Borough, London, beg to inform country dealers they have received from the best growers in Holland their annual supply of the above, which are very fine and well matured Bulbs this season. Catalogues forwarded on application. The usual credit given upon a satisfactory reference.

DUTCH BULBOUS ROOTS.

MARTIN AND SON have much pleasure in informing their friends that they have received in good condition their annual importation of the above, which are particularly fine, and trust to be favoured with early orders.—Catalogues may be had and also of their Nursery Stock for two stamps.—Nursery and Seed Establishment, Cottingham (1788): Hull Branch, Junction Street.

DUTCH AND OTHER BULBS.

JOHN CATTELL begs to inform his patrons and the public that his DUTCH BULBS have arrived in unusually fine condition. Among the bulbs of J. C.'s own growing he has a very large stock of the beautiful sky-blue Squill (Scilla siberica) which is without exception the most distinct and showy, as well as the hardiest of all our early spring flowers. Also a large stock of Japan and other Lilies, Tritonia aurea, Hybrid, and other Amaryllis, Tropæolum tricolorum grandiflorum, very strong; fine assortments of Gloxinia, Cyclamen, Gladiolus, Alstræmeria, &c. A priced catalogue of which may be had on prepaid application.—Nurseries, Westerham, Kent.

IMPORTED DUTCH FLOWER ROOTS.

T. F. WINSTANLEY begs to announce that his Priced Catalogue of Dutch Bulbs for the present season will shortly be ready, and can be had free on application. It contains a list of all the newest and leading sorts in cultivation, including Hyacinths, Narcissus, Jonquils, Amaryllis, Early Single and Double Tulips, Crocus, &c., all of which have been grown by one of the first growers in Holland, and can be relied upon as being good sound Bulbs, and true to name.

28, Market Place, Manchester.

DUTCH FLOWER ROOTS, ETC. ETC.

PETER LAWSON AND SON, Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland, beg to intimate the arrival of their first assortment of DUTCH FLOWER ROOTS, Catalogues of which may be had, free, on application, and orders for which are respectfully solicited,

They have also on hand very select stocks of foreign Italian Rye-grass, Crimson Clover (Trifolium incarnatum), Alsike Clover (Trifolium hybridum), Dwarf Essex Rape, Winter Tares, Stubble Turnip, &c. &c.

London: 27, Great George Street, Westminster.—Sept. 22.

CHOICE HYACINTHS, NARCISSUS, TULIPS, CROCUS, ETC. ETC.

JAMES CHARTRES AND CO., Importers of Dutch Flower Roots, Seedsmen, &c., beg to announce that their unrivalled Stock of the above have arrived in splendid condition: the Roots are remarkably large and handsome.

J. C. & Co. earnestly solicit early orders to insure the finest Roots. A Catalogue may be had on application.

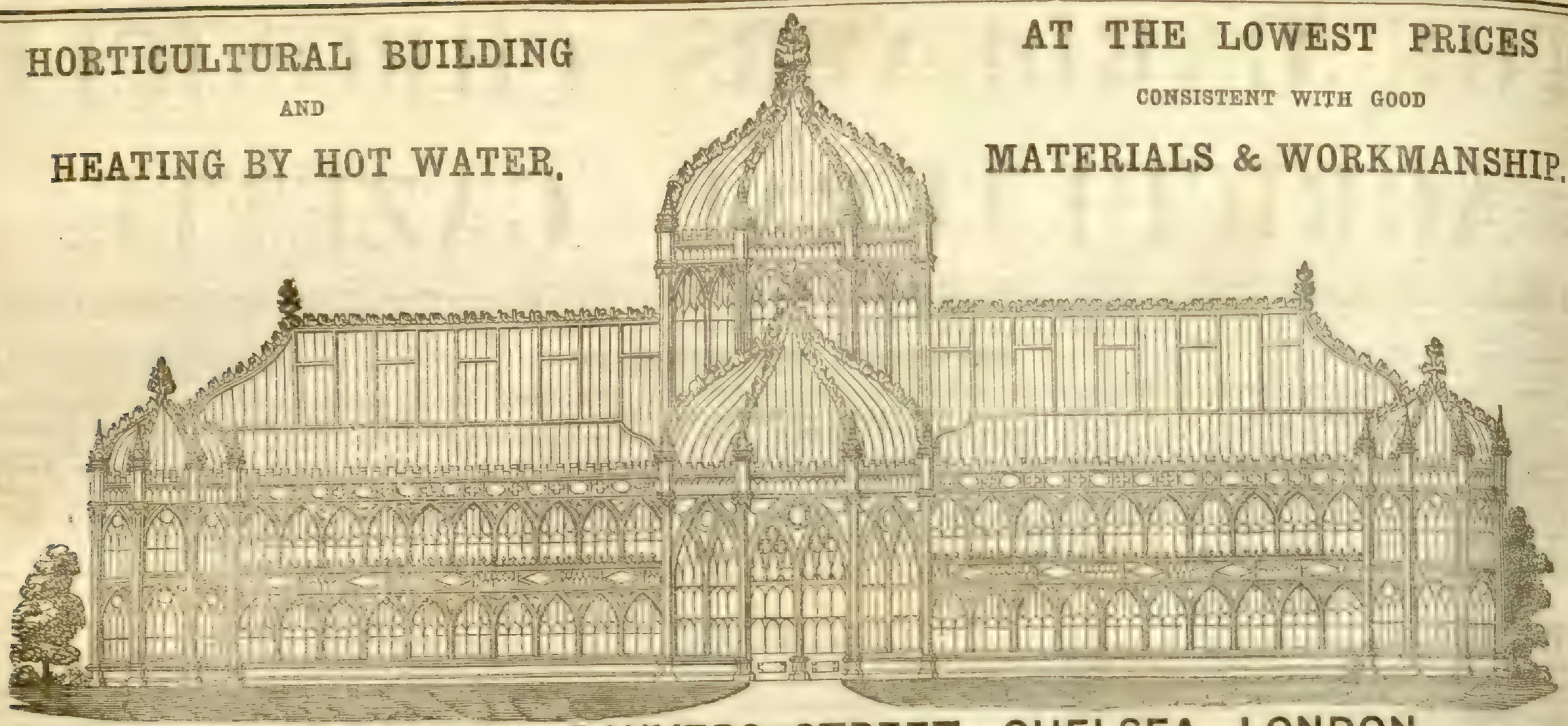
74, King William Street, City, and York Nursery, Hanger Lane, Stamford Hill, London.—Sept. 22.

GEORGE JACKMAN begs to state his PRICED CATALOGUE of choice CONIFERA, HARDY EVERGREENS and ORNAMENTAL TREES, which are well grown, and constantly removed: also Roses, Standard, Dwarf, and dwarf-trained Fruit Trees, and Forest Trees, can be had on application by enclosing one Postage Stamp.

G. J. respectfully invites persons planting to pay a visit to his extensive nursery, one and a half mile from Woking Station, South Western Railway, where all trains stop, and conveyances can be had.—Woking Nursery, Woking, Surrey.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.

AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.

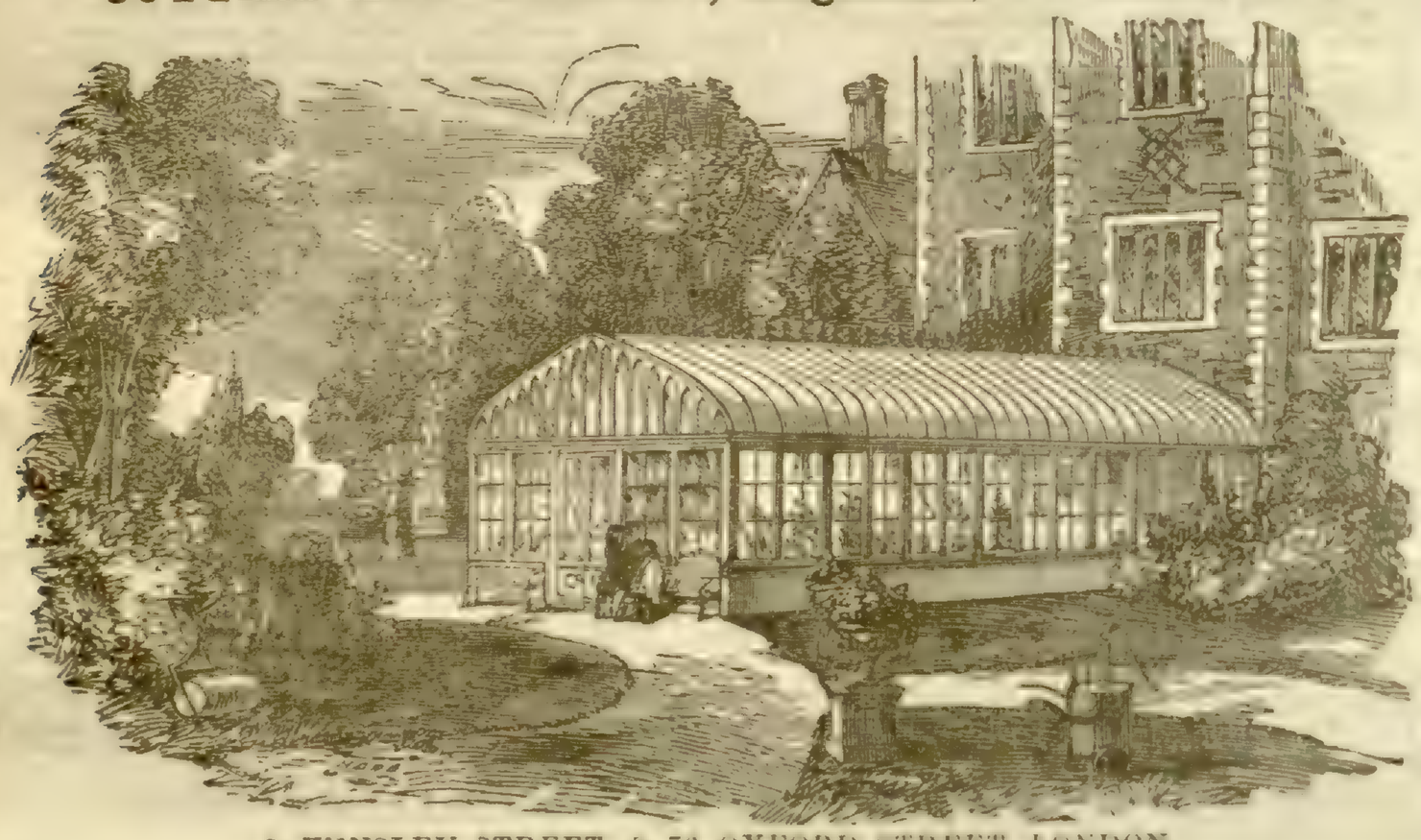


GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

COTTAM AND HALLEN, Engineers, Founders, &c.,



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

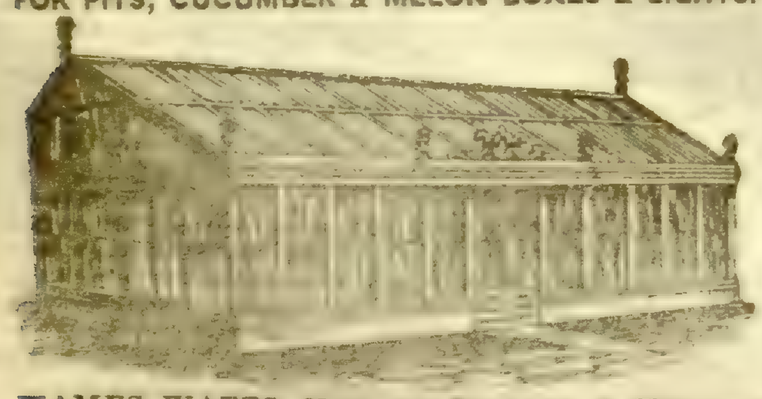
EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, Patent Hothouse Works, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the frame work, but covered with Galvanised Iron Sashes, and all completed for 1s. 3d. per foot super. Hundreds of references can be given, and Printed Price Lists sent.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, Hothouse Builder, 3, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

BY SPECIAL APPOINTMENT TO HER MAJESTY THE QUEEN.

WILLIAM WALKER, Victoria Foundry, Walmgate, York.

Manufacturer of Hot Water Apparatus for Heating Greenhouses, &c.	Liquid Manure Pumps
Garden Rollers, Handglass Frames	Iron Palisading, Iron Bedsteads
Iron Fencing and Gates	Galvanised Game Netting
	Stable Racks and Mangers
	Kitchen Ranges and Smoke Jacks on a superior principle

Every Description of Plain and Ornamental Cast and Wrought Iron Work.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

Kensal Green, Harrow Road, London.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

IRON GATES, HURDLES, FENCING, ETC.

J. BULLOCK AND CO., Hope Iron Works, Primrose Street, Bishopsgate, Ironfounders and manufacturers of the above; also Verandahs, Conservatories, Staircases, Iron Roofs, &c. N.B. Iron and Wire Fences fixed in all parts of the country by competent workmen, or the materials supplied painted or galvanised ready for fixing, and packed for shipment. Estimates on application.

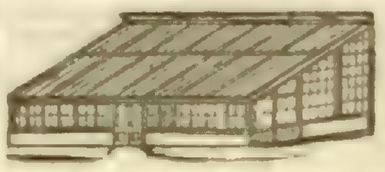
C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description, by Hot Water.—Prices and Estimates furnished upon application.

HORTICULTURE IN ALL ITS BRANCHES.

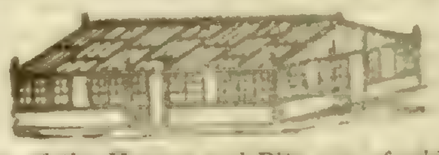
JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

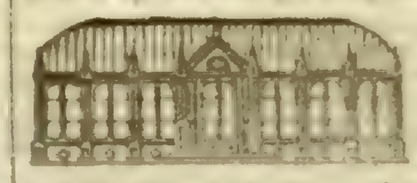
THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.



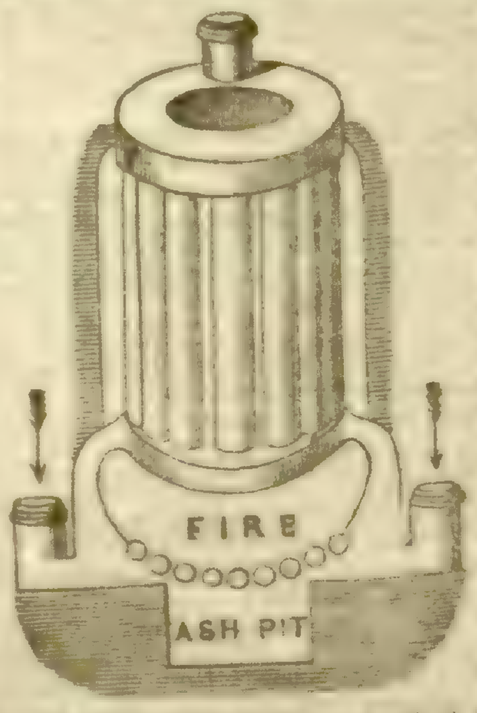
Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by one boiler, which, during the severe winter months does not cost in labour and fuel more than 3s. 8d. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to John Weeks & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.



The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by one boiler, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft., and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the late severe winter it only cost us 3s. per day for fuel, and we had no [illegible] than a sufficient command of heat. A number of forcing-houses can be heated by one boiler, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

John Weeks & Co., King's Road, Chelsea, London.

VIOLETS.

R. SHACKELL begs to offer strong Plants of his superior Violet Russian Superb, at 4*s.* per dozen; strong plants of the Neapolitan Violet, now fit for potting, at 4*s.* per dozen; Double Perpetual Tree Violet, at 4*s.* per dozen; single sweet winter blooming White Violet, at 4*s.* per dozen; Double White do., 4*s.* per dozen; old Russian Violet, 10*s.* per 100 plants. Hamper and package included for all orders above 10*s.*

R. S. would be happy to enter into arrangements with any retail Florist for supplying Bouquets of Violet blooms after the 1st of October until the 1st of March, provided the weather permit, at 5*s.* per 100. Bouquets almost to any extent.

ROBERT SHACKELL, Locksbrook Nursery, Bath.

NEW GERANIUMS.

JOHN SCOTT, FLORIST, Bathford, Bath, can supply nice healthy plants, package and hamper included, for 42*s.* per dozen:—Grand Sultan, Hubert, Jessica, Lord Raglan, Omar Pasha, Pandora, Petruchio, Phaeton, Queen Eleanor, Seraskier, Serena, Topsy, Fair Ellen, Una, Vesper, Wonderful, Yerda, King of Portugal; the above 18 for 56*s.* The following at 18*s.* per dozen:—Carlos, Eugenie, Governor-General, Ladybird, Leah, Lucy, Majestic, Mary, Optimum, Pictum, Pilot, Purple Perfection, Queen of May, Regalia, Rival Queen, Sanspareil, Virginia. The following 10 French spotted varieties, with Sanspariel and Eugenie, 16*s.*:—Auguste, Miellez, Colonel Foissey, Etoile de Jardins, Jaques Duval, James Odier, Gustave Odier, Gloire de Bellevue, General Cavaignac, Madame Lamoricière, Triomphe de la Tour. The above three sets for 4*l.* 10*s.* They are all nice strong well-rooted plants, which could not fail to please.

Post Office Orders, payable at Bath, requested from unknown correspondents.

THE IMPROVED BROWICK RED AND OTHER SEED WHEAT.

WILLIAM BARNES, in returning thanks to his customers for SEED CORN, begs to offer this season the following sorts, which have been procured from the finest and best varieties, regardless of expense in the purchase and cost in the cultivation—viz., Improved Browick Red, Spalding's Red, Old Red or Lammas Wheat, White Chaff Red, and Bristol mixed with White, all of which he will warrant *true and clean.*

Mr. B. can recommend the Improved Browick Red with much confidence as being one of the greatest acquisitions in Red Wheat, for light or black land, yet offered to the farmer. In this locality (Deeping Fen) it was less injured by frosts and mildew than other Reds, and was pronounced by all who inspected it whilst standing over several acres to be unrivalled by any in the district.—For further particulars, address WILLIAM BARNES, the Elms Farm, near Spalding, Lincolnshire.

THE PAMPAS GRASS,
"GYNERIUM ARGENTEUM."

LUCOMBE, PINCE, AND Co. having now for sale the finest stock of flowering plants in this country of the above, are enabled to offer their well established plants to bloom this autumn at the following prices:—

Fine specimens with two flower stems ...	21*s.* 0*d.* each.
Ditto with one ditto	10*s.* 6*d.* „
Smaller plants to bloom next year	7*s.* 6*d.* „

L., P., & Co. have also healthy seedlings at 30*s.* per dozen, which will be ready in October, which, however, they deem it right to say will most probably not bloom for two years. To such parties as wish at once to see the plant in its beauty, L., P., & Co. would strongly recommend the larger sizes, as they are much better and cheaper.

Few plants are more ornamental than this Gigantic Grass, the leaves (which are more than 7 feet in length, curving gracefully outwards) grow in large tussocks, thereby producing a very fine effect, and from the midst of these numerous flower stems arise to the height of from 6 to 8 feet, surmounted by elegant panicles of inflorescence nearly 3 feet long, resembling beautiful waving plumes of silvery feathers. It is perfectly hardy, and is also easy of cultivation. A grand specimen of this noble plant is now in the Exeter Nursery, pushing up nearly twenty large flower stems and numerous small ones, and will continue to be an object of great attraction for a considerable time.

EXETER NURSERY, EXETER.
ESTABLISHED 1720.

CUCUMBER SEEDS FOR WINTER SOWING.—The three best and most certain varieties ever sent out, and such as are sure to give satisfaction for winter growing. General Canrobert, fine black spine, length 15 inches, 2*s.* 6*d.* per packet. Lord Kenyon's Favourite, length 12 inches, very handsome, free setter, and most prolific bearer, 2*s.* 6*d.* per packet. Gordon's White Spine, length 20 inches: this has proved to be the best long winter variety now in cultivation, 1*s.* 6*d.* per packet.

DIGITALIS, OR FOX-GLOVE SEED.

This beautiful hardy biennial has been so much improved within the last two or three years by continual hybridising, that the brilliancy of the colours, the numerous varieties into which it has sported, and the dwarfness of the plants, will cause it when once known to be planted in the largest and smallest of flower gardens, round the borders of shrubberies, and for making beds in large pleasure grounds where brilliancy and effect is required. They will grow well on rock-work or sloping banks, where numerous other varieties of plants will not thrive at all. The seed should be sown now in pans or boxes, and planted out early next spring; by so doing they will bloom well next season.

Sold in packets at 1*s.* 6*d.*, or double packets at 2*s.* 6*d.* Every order must be accompanied by Penny Postage Stamps, or Post Office Order payable to

EDWARD TILEY, NURSERYMAN, SEEDSMAN, & FLORIST,
14, Abbey Churchyard, Bath, Somerset.

JOHN WESTWOOD will be prepared on and after the 10th of October next to send out good well-rooted plants of the following novelties, at the very low prices undernamed, viz.—

VERBENA "MRS. HALFORD."—The finest white yet raised; no other will be grown wherever it is introduced. Having had plants in his possession before any other florist, J. W. has now on hand many thousands, and is therefore enabled to offer them at 9*s.* per dozen, or 3*l.* per 100.

PETUNIA "MARQUISE DE LA FERTE."—A decided improvement on Shrubland Rose, and must entirely supersede it. The highest praise has been awarded this flower in the *Gardeners' Chronicle*, "The Cottage Gardener," and by all who have seen it. 8*s.* per dozen, or 2*l.* 15*s.* per 100.

All the White Corolla'd and other FUCHSIAS of 1855, let out by Chauviere, Epps, Henderson & Co., and Smith, at 10*s.* per dozen.

The last new VERBENAS sent out by Chauviere, Smith, Turner, &c., many of which (especially those raised in France) are superior to the older varieties. 8*s.* per doz., or 2*l.* 15*s.* per 100.

Seedling Herbaceous CALCEOLARIAS from plants of first-rate quality (superior to any exhibited during the past season), carefully impregnated by the Rev. E. Trimmer, who has hitherto been remarkably successful with this flower. Best selection, 8*s.* per dozen, or 2*l.* 15*s.* per 100; 2d selection, 5*s.* per dozen, or 1*l.* 15*s.* per 100.

Seedling CINERARIAS from all the best named varieties, 4*s.* per dozen, or 1*l.* 10*s.* per 100.

Fimbriated PRIMULA SINENSIS, raised from plants inferior to none in the trade, of last year. 5*s.* per doz., or 1*l.* 15*s.* per 100.

J. W. has also for immediate sale Vines from Eyes of the best and leading sorts, at 24*s.* per dozen.

The carriage will be paid to London; and where an order exceeds 2*l.* additional plants will be given in, and the hamper and package not charged for.

The Floral Nursery, Acton Road, Turnham Green.

DUTCH ROOTS.

BASS AND BROWN beg to announce the arrival of their first Importation of DUTCH ROOTS for the present season. Their stock of Bulbs of imported and home growth is very select, among which will be found those of the finest sorts in cultivation, including their extensive assortment of Gladioli and other Cape Bulbs.

Imported DUTCH HYACINTHS, with printed instructions for their culture:—

50 varieties in 50 choice sorts	30*s.*
25 varieties in 25 do. do.	16*s.*
Best named varieties, per dozen ... ... 6*s.*, 9*s.*, and	15*s.*
Separate colours without name, per dozen	3*s.*

If required for forcing, we particularly recommend early planting.

The BULB LIST is now ready and may be had on application and the whole of the Autumn Catalogue will shortly be completed

Seed and Horticultural Establishment, Sudbury, Suffolk.—September 22.

NEW STRAWBERRIES AT REDUCED PRICES.
GROWN AND OFFERED FOR SALE BY

WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.—The following splendid varieties have been well proved this season and given complete satisfaction, viz., Sir Harry (Underhill's), 100 plants, 4*l.*; 40, 1*l.* 18*s.*; and 20, 1*l.*; or 12*s.* 6*d.* per dozen. Omar Pacha (Ward's), 1*l.* per 100; 12*s.* per 50; 7*s.* per 25. Scarlet Nonpareil (Patterson's), 2*l.* per 100; 1*l.* per 50; 12*s.* per 25. Sir Charles Napier (Smith's), 1*l.* per 100; 12*s.* per 50; 7*s.* per 25. Admiral Dundas (Myatt's), 1*l.* per 100; 12*s.* per 50*s.*; 7*s.* per 25. Nicholson's Ajax, Ruby, Captain Cook and Fill-Basket, 6*s.* per 100; Ingram's Prince of Wales, Nimrod, Eliza (Rivers's), Surprise (Myatt's), and Bicton Pine, a large white one, 6*s.* per 100; British Queen, Black Prince, Eleanor (Myatt's), Old Pine, Trollope's Victoria. Goliah (Kitley's), Keens' Seedling, Old Roseberry, all at 4*s.* per 100; Crystal Palace, a very large and late variety, 10*s.* per 100. Post-office Orders payable at Yarm are expected with all orders. The plants will be securely packed and forwarded to any part of the kingdom.

FISHER, HOLMES, AND CO. beg to offer the following, all of which are good healthy Plants.

Abelia uniflora, each 9*d.* to 1*s.* 0*d.*		Escallonia pterocladon	5*s.* 0*d.*
Azalea amœna	1 0	Eugenia Ugni ... 1*s.* 6*d.* to	2 6
„ Stanleyana... ...	1 6	Fuschia, Florence Nightingale	1 6
„ Symmetry	1 6	„ Lady of the Lake	1 0
The following are from 1*s.* to 1*s.* 6*d.* each:—		„ Climax ... 1*s.* to	1 6
Azalea Frosti		„ Empress Eugenie	1 0
„ aurantia superb		„ violæflora pleno ...	1 0
„ lateritia pulchra		„ Dominiana... ...	1 6
„ Apollo		Henfreya scandens ...	1 0
„ white		Hexacentris mysorensis	1 0
„ „ double		Hoya bella	1 0
„ fulgens		Hydrangea japonica variegata ... ... 1*s.* to	2 6
„ Duke of Wellington		Ixora coccinea	1 6
„ optima		„ javanica	1 6
„ extrani		„ salicifolia	2 6
„ decora		Impatiens Jerdoniæ, 1*s.* 6*d.* to	2 6
„ amabilis		Lycopodium umbrosum	0 9
„ Hebe.		„ inæqualifolia ...	1 0
Æschynanthus speciosus, fine plants ...	1 6	„ Poeppigiana ...	1 0
„ splendidus, do. ...	1 6	„ viticulosa	0 9
Acacia verticillata ...	1 0	„ apothecum	1 0
Agapanthus umbellatus, fol. var....	1 6	„ formosum	1 0
Begonia Prestoniensis, fine plants	1 0	„ cœsium arboreum...	1 0
Boronia Drummondi ...	2 6	Mandevillea suaveolens	1 6
Burchellia capensis 1*s.* to	1 6	Maranta alba lineata ...	2 6
Caladium bicolor superba... ... 1*s.* 6*d.* to	2 6	Mitruria coccinea ...	0 9
Clerodendron splendens	1 6	Mussænda frondosa ...	1 6
Cyrtoceras reflexum ...	2 6	Pentas rosea	1 0
Dipladenia crassinoda ...	1 6	Pimelea Hendersoni ...	2 6
Desmodium gyrans ...	1 6	„ spectabilis	2 6
Eranthemum leuconervum	1 0	Swansonia Lessertifolia	2 6
Erythrina crista-galli, 1*s.* to	1 6	Statice Halfordi, fine plants ... 1*s.* 6*d.* to	2 6
		„ sinuata	0 9
		Veronica variegata ...	1 0

Remittances respectfully requested from unknown correspondents.—Handsworth Nursery, Sheffield, Sept. 22.

WILLIAM YOUNG begs to call the attention of Noblemen, Gentlemen, Public Companies, and Planters in general to his extensive stock of CHOICE CONIFERÆ, HARDY EVERGREENS, ORNAMENTAL TREES, AMERICAN PLANTS, &c., which are this season particularly fine, and having been well prepared for removal, he can confidently recommend them to transplant with perfect safety.

W. Y. invites persons about to plant to inspect his stock, which is standing over 50 acres of ground, in which will be found all kinds of plants adapted to every description of ornamental planting. It consists of HARDY CONIFERÆ, containing some of the finest specimen plants ever offered.

	Feet high.
Abies Douglasi	6 to 8 by 5 to 6
„ „	8 to 10 by 7 to 8
„ „	10 to 12 by 8 to 9
„ Menziesi	4½ to 5
„ nigra, Black Spruce	4½ to 5
„ alba, White Spruce	6 to 8
„ canadensis, Hemlock Spruce ...	6 to 8 by 7
Pinus austriaca ...	6 to 8
„ „	8 to 10
„ Cembra	5½ to 6
„ „	7 to 8
„ excelsa	8 to 10
„ insignis	2½ to 3
„ „	3 to 4
Picea Pinsapo ...	5 to 6 by 6
„ nobilis } very handsome	
„ Nordmanniana }	
Araucaria imbricata .	2½ by 2½
do. do.	3 by 3
do. do.	4 by 4
do. do., very handsome	6 to 8
Cryptomeria japonica ...	3 to 4
Cedar of Lebanon ...	3½ to 4
„ „ ...	5 to 6
„ „	7 to 8 by 6
„ „	10 to 12 by 8
„ Deodara ...	4½ to 5
„ „	6 to 8
„ „	9 to 10
„ „	10 to 12

(The Cedars of Lebanon and Deodara are particularly handsome and well furnished.)

	Feet high.
Thuja orientalis, Chinese Arbor-vitæ	5 to 6
„ „ „ ...	7 to 8
Thuja Weareana, Siberian	5 to 6
„ „	7 to 8
Chinese Juniper ...	4½ to 5
„ „	5 to 6
Upright „	4 to 5
„ „	6 to 7
Taxodium sempervirens	6 to 8
„ „	10 to 12
Irish Yew	4½ to 5
„ „	6 to 7

A LARGE QUANTITY OF FINE EVERGREENS.

Green Hollies	4 to 6
„ „ ...	6 to 7 by 4
„ „	8 to 10 by 6 to 7
Evergreen Oak	3½ to 4
„ „	4½ to 5
„ „	6 to 8 by 4 to 5
Spruce and Silver Firs	6 to 8
„ „	10 to 12
Weymouth Pine ...	8 to 10
Yews	3½ to 4
„	4½ to 5
„	5½ to 6
Quercus oxoniensis—New Leucombe Oak...	6 to 7
„ „ ...	8 to 10

AMERICAN PLANTS.

Azaleas, fine named sorts
Rhododendron ponticum (good for cover).
Do. all the new and best vars.
Kalmias, Andromeda, Ledums. &c. &c.

STANDARD ROSES, of all the best varieties.
FRUIT TREES, ORNAMENTAL DECIDUOUS TREES, for Parks or Avenues, from 10 to 12 feet.
FOREST TREES, for Copse Planting, from 2 to 4 feet.
Prices given on application.

A Catalogue is now ready, and may be had for two postage stamps.

The Nurseries are two miles from Godalming Station, South-Western Railway, where conveyances can always be obtained.

Milford Nurseries, near Godalming, Surrey.

AZALEAS AND ERICAS.

W. J. EPPS has much pleasure in offering the following fine, bushy, well-grown plants, and of the choicest and best varieties, in large 48 and 32-size pots.

AZALEAS 18*s.* per dozen; 5*l.* per 100.
ERICAS 12*s.* and 18*s.* per dozen; 4*l.* and 5*l.* per 100.

These will make very pretty specimens for the ensuing season; all orders to be accompanied with a remittance from unknown correspondents.—Maidstone, Sept. 22.

ROSES.

S. PONSFORD, NURSERYMAN, SEEDSMAN, AND FLORIST, begs to say that his fine collection of ROSES is now in the beauty of the Autumn blooming, open to visitors every day (Sunday excepted). The Stock comprises everything good and useful. To Gentlemen anticipating planting in the coming season, S. P. can offer his general Nursery Stock with perfect confidence, not only containing everything in general demand, but unusually good in condition, and as low in price as any honest tradesman can render. New ground work executed to any extent.

Loughborough Park Nursery, Cold Harbour Lane, Brixton.

N.B.—A Descriptive Catalogue forwarded on the receipt of two postage stamps.

E. R. GREENUS, from his PROXIMITY to the Watford Station (London and North-Western Railway), begs to say that he can execute all orders with the UTMOST DESPATCH. His Stock (being FINE this season) of FRUIT TREES, Trained and Untrained; STANDARD and DWARF ROSES of the best sorts; well grown FLOWERING SHRUBS, EVERGREENS, FOREST TREES, AMERICAN PLANTS, and NURSERY STOCK in general, all which, from FREQUENT TRANSPLANTING, can be removed with perfect safety and success. Carriage paid to London on all orders above 2*l.* Garden and Agricultural Seeds supplied.—Railway Nurseries, Watford and Rickmansworth.

VEREA CRENATA (*Syn.* KALANCHOE VARIANS), —THE LEAF OF LIFE—*Nat. Ord.* CRASSULACEÆ.—A small importation has lately been made of the leaves of this interesting botanical curiosity, which matures plants in the serrations of its leaves.—Leaves on sale at 2*s.* 6*d.* each, post free, at GEORGE ROBERTS, 32, Moorgate Street, London, where a drawing of the plant in flower may be seen. Further described in reply to letters.

NEW PELARGONIUMS.

GEORGE SMITH has a fine Stock of the following first class PELARGONIUMS in strong Plants, at from 30*s.* to 40*s.* per dozen, according to the sizes of Plants, hamper included with Plants to compensate for carriage:—(Forster's), Jessica, Phaeton, Seraskier; (Hoyle's), Hubert, Lord Raglan, Omar Pasha, Serena, Topsy, Wonderful, Yerda, Zoe; (Beck's), Conqueror, Dido, Fidelia, Laura, Lydia, Silenus; (Turner's), Grand Sultan, Pandora; (Forquett's) Petruchio; (Story's), Fair Ellen, Snowflake; (Horken) Una; (Cant's) Vespa; (Dobson's) Commander-in-Chief; (Fuller's) Gem of the West. With a choice assortment of show and fancy kinds. A descriptive Catalogue on application. Unknown correspondents forwarding a remittance with their orders will be liberally dealt with. Post-office orders payable at Islington.

Tollington Nursery, Hornsey Road, Islington, London.

RHODODENDRONS.

JOHN WATERER begs to announce that he is now prepared to execute orders for his two New Hardy Hybrid Rhododendrons, in good established plants, at 42*s.* each.

Rhododendron JOHN WATERER, colour glowing carmine, large truss, fine foliage, and a most abundant bloomer, in perfection about the 15th June.

Ditto, MRS. JOHN WATERER, a bright rosy crimson, fine conical truss, a very free blooming kind, in flower about 15th of June.

To the admirers of this justly noble class of Plants, JOHN WATERER has the pleasure of recommending the above as being the greatest acquisitions yet offered. They combine in a marked degree the necessary requisites for really first-rate hardy crimson varieties, viz., imposing colours, abundant bloomers, extreme hardiness, and flower at a time when they are not liable to be injured by spring frosts.

The American Nursery, Bagshot, Surrey, Sept. 22.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 22, 1855.

THE expression "trifacial Orange" used by us lately (p. 596) has puzzled some of our readers. The explanation of the term will be found at length in the Theory and Practice of Horticulture, p. 359. It was applied to a tree found in a garden at Alexandria, having an Orange, a Citron, and a Lemon, all combined into one fruit beneath one common rind. Of this as a fact there is no doubt: as some at least of those who have been in Egypt and known Boghos Joussouff are probably aware.

The history of this singular production has been inquired into. Mr. ST. JOHN, who first brought it under the notice of the public, assures us, of course upon the authority of the native Egyptians, that it may be obtained by grafting the embryos of a Lemon, a Citron, and an Orange in the following manner. One of the three seeds is wholly skinned, so as to lay the embryo quite bare. Each of the other two is half skinned, that is to say the skin is removed from one side only. This being done the naked embryo is placed between the two others so as to be in contact with their skinned sides, and the whole are bound together with fine Grass. They are then committed to the ground in the usual way, the embryos grow together into one plant, and ultimately the trifacial fruit in question is borne. We are further assured that this practice is of great antiquity.

The first question which naturally arises is whether the story told to Mr. ST. JOHN is true. Since no evidence exists in Europe upon that point, the next is whether such an operation as is described is possible. We are not aware that gardeners have ever attempted to graft seeds on each other; so that the experiment remains to be tried, and its possibility or impossibility must for the present remain conjectural. There is however a class of facts which render it probable that seeds, that is to say

embryos, may be thus treated artificially, for nature sometimes performs the operation by accident.

In his examination of the common Miselto M. Decaisne found not only that the seeds often contain two embryos, which was known before, but that the latter occasionally grew to each other, forming a true vegetable twin. (See his *Mémoire sur le développement du Gui* in the Transactions of the Royal Academy of Brussels, volume xiii.; or a copy of one of his figures in the Vegetable Kingdom, p. 790, fig. 524.) Here we have one case of embryos naturally grafted by contact.

Prof. Röper mentions a similar case in the *Euphorbia platyphylla*, where two embryos appeared to be conjoined; we must, however, add that he could not wholly satisfy himself whether the wound observed where they separated might not have been accidentally caused by the knife used in dissecting the seed (see this author's *Enumeratio Euphorbiarum*, p. 17, t. 1, fig. 67—71.)

A similar condition of the common garden Cress is said to have been observed; but we do not recollect where the fact is recorded.

The most remarkable case is, however, that of the Salisburia mentioned by Endlicher, apparently on the authority of Siebold. "In the seed of this plant," he says, "are frequently found two, or three, or even more embryos, which, when they germinate form young plants so closely pressed against each other that in the first season they often grow together into one common trunk. And this is imitated by the Japanese and Chinese gardeners, who when they propagate the Salisburia by suckers graft several stems together in order to give vigour to the specimen, which sometimes grows with an immense trunk, and a noble wide-spreading head." (*Synops. Conif.*, p. 237.) The first part of this statement is adverted to by Dr. Hooker and Mr. Binney in their admirable article on the fossils called Trigonocarpon and Sigillaria, lately published in the Philosophical Transactions.

Such instances seem to show that it is far from impossible to graft one embryo on another. Nor is there anything in the nature of plants opposed to such a conclusion. On the contrary, one of the great peculiarities of the vegetable world is the tendency which young parts always have to unite, if in contact. The whole art of budding and grafting turns upon the facility with which this natural process can be imitated; all that is necessary being to bring together the young *cellular matter*, which is exclusively the part of the structure by which adhesions are effected. Now, the embryo of a plant consists of nothing except cellular matter.

The difficulty of performing the operation will hardly deter such dexterous manipulators as we have in abundance among amateurs as well as professional propagators, and it seems well worth a fair trial. Now is the time to do it, when seeds are ripening and not yet hardened. Good races to submit to the operation are not only the whole Citron tribe, but the Peach and Nectarine, the various breeds of Plums, Oaks, Chesnuts, and Filberts. All that we would suggest is, that the seeds be taken a little before they are quite ripe, that they be planted in a gentle bottom heat the moment they are grafted, and that in the case of plants like Oaks, which abound in gallic acid, a silver knife should be used instead of a steel one.

By way of encouraging young gardeners to set about this experiment, we offer to the first who shall produce satisfactory evidence of his success a free copy of the *Gardeners' Chronicle* for seven years.

What plants should be admitted into the different departments of the Botanical Garden is a question of great practical importance, which is but too often lost sight of. It being generally supposed that the more complete the collection is the better it will be, the endeavour is to cultivate anything that can be had. But completeness never can be obtained. A limit is always set to the botanical collection either by want of space or of pecuniary means, or of scientific time or capacity for keeping it in order, and it is a good selection, not a complete collection, that must be aimed at. The more restricted the space and the means the more pains it requires to make such a selection as shall best answer the purpose of instruction. No more species should be planted in the herbaceous borders than can be correctly named and maintained in health and vigour of a sufficient size or in sufficient numbers for the purposes required. To render these as instructive as circumstances will permit, they must be selected in each family from as many different types as possible; and in every genus where several species can be admitted, these should be made to represent as many as possible of the distinct forms assumed by the genus. If, out of several species equally instructive, room can only be found for a portion, a preference should always be given to those which afford some practical interest, such as medicinal or œconomico-technical plants; and where the pecuniary means are very limited it becomes important that the plants admitted should be of easy cultivation. Even in the richest gardens a selection is better than a collection. A few well defined species, accurately named, good representatives of the really different forms included under one generic type, authentic specimens of useful plants, are infinitely more conducive to facilitate the study of botany than the masses of ill-defined garden varieties, running one into another under false or doubtful names, which disfigure nine-tenths of the botanical gardens I have visited.

Let us take for example the first genera of Ranunculaceæ, and suppose our limits very confined, our climate that of central Europe or rather colder, we might plant in the herbaceous border Clematis Vitalba, Flammula, Viorna, Viticella, alpina, and cirrhosa or nepalensis; Thalictrum aquilegifolium and minus; Anemone nemorosa, coronaria, sylvestris, and japonica; Hepatica triloba; Ranunculus flammula, ficaria, arvensis, acris or bulbosus, sceleratus, and aconitifolius; and so on: we should thus give in a small space a very fair idea of the several genera, which will be much improved if we have a pond where we can grow Ranunculus aquatilis, or an alpine border to include Thalictrum alpinum, Anemone baldensis, and some of the alpine species of Ranunculus. If our means are larger, we might add such species as Clematis erecta, sibirica, azurea, and florida; Thalictrum macrocarpum, angustifolium, dioicum, and tuberosum; Anemone apennina, ranunculoides, stellata, vitifolia, virginiana, and alpina; Ranunculus thora, muricatus, philonotis, parviflorus, asiaticus, reptans, chærophyllus, monspeliacus, auricomus, &c.; and our collection is still more satisfactory: but what can be the use to the student of ten or a dozen plants under the names of Thalictrum majus, medium, saxatile, concinnum, glaucescens, elatum, &c., &c., which neither he nor the professor can satisfactorily distinguish from T. minus; or of innumerable forms with the general characters of Ranunculus acris, but labelled nemorosus, lanuginosus, polyanthemos, brutius, Steveni, sericeus, velutinus, &c., which if ever distinguishable in their native stations require a different diagnosis in almost every garden where they are grown? And so it is with all genera which have hardy variable species; they swarm in botanical gardens, monopolising the places and labels of their more distinct but tender allies. How often do we not see eight or ten real or supposed species of Reseda represented by R. alba, lutea, and luteola; at least as many names to Helianthemum vulgare, Isatis tinctoria, Nepeta grandiflora, Stachys germanica, &c., &c.; and as to Asters, Solidagos, Hieracia, Rubi, Potentillas, Heraclea, and such like, the chaos is generally such that the identifying of any one species is perfectly hopeless.

It is argued that the great use of cultivating closely allied forms, whether species or varieties, is to test the constancy of their character, and, when tested, to prove to all the world their value as species, good or bad. This testing of characters may be of great importance as long as it is carried on by the director or curator under his own eye, especially if in a private or reserve garden, where it is easier to guard against accidents and mistakes. He can there raise seeds taken by himself from authentic specimens, and follow the growth of the plant through several years or several generations with a tolerable certainty of its identity, even if it may lose the characters which distinguished the original parent. He has obtained a result which will be admitted by all who rely on his accuracy and good faith, and specimens dried and labelled by him to accompany his notes will be good corroborative evidence to future botanists. But living plants in the herbaceous collections, however satisfactory they may be to the director or curator who has raised and proved them, are of little authority to those who succeed him, when they come to consider how many are the chance of labels misplaced by a labourer, of a sickly specimen having died down and become replaced by a seedling or sucker from a vigorous neighbour without even the gardener's being aware of it, and many similar accidents well known to the practical botanic gardener. The labels of plants require constant checking by a verification of the characters of the specimen; and, if these characters are vague and uncertain, all control over the correctness of the nomenclature is gone.

One consequence of this excessive multiplication of closely allied forms (varieties, races, or allied species) of the more hardy and variable Linnean types, is the great labour which conscientious directors bestow on their discrimination, a labour generally entirely lost, for we very seldom find two gardens where such forms designated by the same names are distinguishable by the same characters.

The first step, therefore, to be recommended for the reform of the generality of botanic gardens is to go through the whole herbaceous collections, root up and throw away every specimen which we cannot confidently name and readily distinguish from its nearest allies, and bestow all our pains on the correct nomenclature and appropriate cultivation of the remainder. Let us always remember that an unnamed plant is useless and bewilders the student, a wrong named one is a positive nuisance as leading him astray.

We have said that annuals and biennials, as well as low shrubs, may well be mixed off with the perennial herbaceous collection. The former certainly give more trouble, requiring usually preliminary raising every year in seed beds in the reserve ground and transplanting into the borders; their number will therefore be restricted where the pecuniary means are small. But the growing them in separate beds saves little expense, and takes much from their utility. As to shrubs those only can be admitted into the herbaceous borders which are naturally small, or can be pruned down to manageable dimensions without losing their characters.

The labelling is a simple but important consideration; the names should be conspicuous, clear, and without useless words. In some gardens the words "class," "order," "genus," "native of," &c., being inserted, only add to the expense, so much so that the labelling never gets completed, or at any rate maintained after having been once done. In the best-named gardens, the name of the natural order stands alone in one word at the head of the order, and to each species is a separate label with the generic and specific names, both at full length. This is strictly speaking sufficient in a purely botanic garden with limited means. A further economy is sometimes practised by writing the generic name only once at full length, and for the other species giving only the initial letter; but that is apt to puzzle the student, and, still worse, to lead to the accidental exchange of labels between genera with the same initials, without immediate detection of the error. Where the means are more ample, the addition of the indigenous name and native country are useful, together with the indication of the application of practical plants, thus:—

> Linum usitatissimum,
> Flax,
> Europe,
> Textile, medicinal, oleaginous.

In some gardens the plants have numbers only, corresponding to a list kept by the director, in which more details can be entered; but this confines the use of the garden to the director himself, or to those few to whom he may lend his list. *G. B.*

It is not uncommon for Pears while they are yet hanging upon the tree to lose their colour in one or two places, gradually acquiring a brown tint and presenting evident symptoms of decay. This may take place where no trace of any wound is visible on the outer surface, and great surprise in consequence is felt at the unaccountable seizure. Such a case has lately been submitted to us, and though a microscopical examination indicates the cause, we are utterly unable to say why it has been exerted in any particular instance or why some fruit on a tree should fail, while other remains uninjured. In the case transmitted, the fruit exhibited two brown patches, one on either side. The evil was clearly derived neither from the stalk nor the eye, which were perfectly healthy, but the most intimate tissues, especially the vascular bundles, whether central or scattered through the flesh, were traversed in every direction with strong and abundant mycelium penetrating the inmost recesses of the cells. The discoloration of the vessels was visible at once to the naked eye, and there was a paler but decided discoloration elsewhere. Though the fruit was placed in the most favourable condition for the development of the mould, it could not be coaxed into the production of fruit, though the mycelium burst out abundantly in little patches in every direction from its surface. In all probability, however, the mould is Oidium fructigenum, a species which is often destructive to Pears and other fruit, as Apricots, Apples, &c.

Our principal object in noticing the subject is to call attention to the fact that in most cases where plants are attacked by mould it is the vascular bundles which suffer the most evidently. In the Turnip, for instance, when decay is induced by mildew the inside of the ducts is perfectly black. The probability is that as these vessels contain air only when perfectly developed, and communicate by means of the superficial organs with the outward atmosphere, they are the medium by which the infection is communicated. In this country, at least, no well instructed observer thinks of solving the

difficulties attendant on the appearance of parasites in apparently closed cavities, by having recourse to the uncertainties of spontaneous generation. Close observation has already cleared up some of the mystery in which the subject of the appearance of intestinal worms in the most unexpected situations was long involved, and we are inclined to think that if any new light is to be thrown upon the appearance of internal moulds, it will probably arise from a closer study of the vessels. The difficulties with which such investigations have to contend can scarcely be exaggerated, but they may not prove insurmountable if proper care and intelligence are exercised. *M. J. B.*

New Plants.

144. ONCIDIUM SKINNERI.

O. (verruciluberculata) pseudobulbis ovatis ancipitibus obsoletè carinatis, folio oblongo-lanceolato basi complicato apiculato subtùs glaucescente scapo ipso valido ter breviore, paniculâ glaucâ apertâ rigidâ ramis ascendentibus simplicibus 5-6-floris dimidiâ inferiore nudâ, bracteis lineari-lanceolatis herbaceis arctissimè adpressis, sepalis obovato-oblongis acutis dorsali erecto lateralibus recurvis, petalis paulò latioribus crispioribus reflexis, labelli lobo medio oblato apiculato subsessili lateralibus angustioribus rotundatis convexis, cristâ corrugatâ inordinatim multi-tuberculatâ dente duplici inæqualiter 3-lobo a fronte altero sæpius emarginato segregato utrinque, c. alis semiovatis denticulatis acutis buccis 2 prominentibus, rostello mutico.

THIS is one of the finest of the yellow-flowered Oncids. Its leaves are 9—10 inches long, the scape more than 2 feet up to the panicle, which is itself 10 inches long by 8 across. The branches of the panicle are covered by a very delicate bloom. The flowers, as large as the largest form of *O. ampliatum*, are a brilliant golden yellow, with about three cinnamon blotches at the base of each division, and a stain of the same colour across the lip immediately below the crest and at the base of its side lobes. The numerous sinuosities of the crest are white. The nearest approach to this in the verruci-tuberculate group is *O. Batemannianum*, from which it differs in the form and colouring of the flower and in all the particulars of the crest. It has just flowered in the garden of the Horticultural Society, to which it was presented some years ago (1849) by Mr. Skinner, whose name it is well worthy of bearing. Its petals being rather broader than the sepals, it may seem that it should have been placed among the *Pentapetalous macropetalous* herd, but it is desirable to admit none into the latter except such species as have their petals very considerably broader than the sepals.

THE PROPOSED ROAD ACROSS ST. JAMES'S PARK.

To the Editor of the Gardeners' Chronicle.

[No. 1.] "Maresfield Park, Sept. 20, 1855.

"Sir,—In consequence of communications which have been made to me by some of my constituents in relation to a proposed road from Pall Mall to the Birdcage Walk, I have felt it my duty, as Parliament is not sitting, to write to the Chief Commissioner of Public Works, for the purpose of ascertaining what the views of Her Majesty's Government are; and as the subject is one of great interest both to those who are opposed to the road as well as to those who are in favour of it, I forward you a copy of the letters which have passed between Sir Benjamin Hall and myself. I have the honour to be, Sir, your obedient servant,

"JOHN VILLIERS SHELLEY."

[No. 2.] "Maresfield Park, Sept. 16, 1855.

"My dear Hall,—I find amongst some of my constituents considerable alarm at the intended new road across St. James's Park. In the absence of Parliament the only course I can adopt for the purpose of acquiring information as to the intentions of the Government, is to write to one of its members, and as the proposed alteration is one especially affecting Westminster, I am anxious that an opportunity should be offered to a deputation to state to you the objections made to the scheme, and to hear from you the grounds upon which you believe the proposed new road would be beneficial to the metropolis at large. Be so good as to tell me when it would be convenient to you to receive a deputation of my constituents, who will be ready to attend upon you at any time.

"Believe me, my dear Hall,

"Yours very truly,

"JOHN VILLIERS SHELLEY.

"The Right Hon. Sir B. Hall, Bart., M.P., &c."

[No. 3.] "Llanover, Sept. 18, 1855.

"My dear Shelley,—I hasten to reply to your letter of the 16th, in which you request information as to the intended road across St. James's Park, in consequence of an apprehension which has been excited in the minds of some of your constituents lest it should interfere with the interests of the inhabitants of Westminster, and in which you also express your desire that an opportunity should be afforded to a deputation to hear from myself the grounds on which it is believed that the proposed new road would be beneficial to the metropolis at large.

"I shall be happy to receive any deputation for the purpose named, on Saturday, 6th October, at at the Office of Works, at 2 o'clock, and meantime I will give you a brief outline of the real facts of the case.

"For some time great inconvenience has been occasioned to persons in carriages (not having the *entrée* to St. James's Park) being obliged to go by Piccadilly and Grosvenor Place from Pall Mall to Pimlico. In the year 1851 the permission to go through St. James's Park was extended; but since which time representations have been made that if a right of way was granted through the Stable Yard it would be a great advantage. The danger of the sharp turning, and the narrow passage at the corner of Cleveland Row and St. James's Palace is well known, and to obviate accidents it was proposed that a road should be made through Lord Sidney's house into the Green Park, and by a turning in front of Buckingham Palace to Pimlico Gate. This route would cut up the Green Park to some extent, merely for the purpose of additional accommodation to those who reside in Belgravia, and that part of the town west of the Birdcage Walk.

"It was considered that if any new road was to be made, it should be so laid out as to afford the greatest possible accommodation to the public at large, and not be constructed merely for the benefit of one comparatively small portion of the inhabitants of the metropolis.

"As Chief Commissioner of Works, I was therefore requested by the Secretary of State to prepare a plan for a line of road, direct from Pall Mall to the Birdcage Walk, by throwing a bridge over the water near the spot upon which a bridge formerly stood, and terminating the road at such a point in the Birdcage Walk as would give a direct road to that densely crowded part of Westminster, which now has only a most circuitous route to the Park and the northern part of Pall Mall, it being considered that such a road, independent of the vast accommodation thus offered to the great mass of the community, would at the same time give easy access to Pimlico and Belgravia on the west, and a shorter road to the Houses of Parliament and Bridge Street on the east, and the whole of the borough of Lambeth, and relieve the immense traffic which during the London season is much too great for Charing Cross. This line, if made, will be open to carriages and cabs day and night, and those who remember the wooden bridge which once crossed the water of the enclosure in St. James's Park, will recollect the great number of pedestrians who passed over it, and profited by the convenience of such a direct connection between the north and the south of the park.

"It has been stated in the public papers that the Government intended to avail themselves of the period when Parliament was not sitting to commence the road and erect the bridge; and it has within the last few days been positively asserted in one of the London journals that the works are already begun! There is not one word of truth in these statements—such proceedings were never contemplated; nothing will be done till Parliament meets: the public will then have an opportunity for considering the plans, which will be presented to the House of Commons; and it will be seen whether the accommodation they offer to the public is the best which should be granted, and whether these plans do not obviate wholly or sufficiently those objections which have been raised against the project.

"The object contemplated by the Government is to make such a line as would be most beneficial to the public in general, but not to construct a road for the convenience of one particular locality. Instructions were given to me with the above view, and I repeat that it was never intended to proceed with any works in relation to this object till Parliament should have had ample opportunity to consider it in all its relations.

"I remain, my dear Shelley, yours sincerely,

"Sir John Villiers Shelley, Bart., M.P." "B. HALL."

NOTES ON TRANSPLANTING.—No. III.

Now while the season in which trees and shrubs that have to be carried long distances may be transplanted with a fair prospect of success, or even such as occupy but a day or so in their transit, must of necessity be comparatively limited; where they have to be removed merely a few hundred yards at most, the circumstances are very different, and will allow transplanting to be carried on, at least in a limited degree, during the greater part of the year. It is often of much importance to do this. That it may be safely accomplished, the directions and examples to be presently given will show.

In laying down rules for guidance in any operation, it becomes exceedingly difficult to particularise between the general and the special. In fact, it is almost impossible to do so; something must always be left for experience to ascertain. And it is in consequence of those who seek guidance from such principles expecting too much from a mere rule of thumb application of them, that complete failure is so often experienced, or at least that the true value of such principles is so seldom ascertained.

These observations are not only applicable to the theory of transplanting, but to every other operation of which the principles can (and it would be difficult to name one of which they could not) be conveyed in a written treatise. Thus most persons who know anything about planting at all will have learned that evergreens should be transplanted in autumn, or under certain conditions in spring; and that deciduous trees and shrubs should be removed at some period between the falling of the leaf in autumn and the swelling of the bud in the following year. These may be considered as the broad principles, which, if duly and properly carried out in practice, all other circumstances being favourable, will be productive of much success. But as regards both evergreens and deciduous plants these principles may be practically violated to a wide extent; with the former, however, much more than with the latter. It will be borne in mind that the observations and illustrations now to be given have sole reference to plants that can be replanted immediately after being taken up. And first of deciduous kinds.

Somebody—in the *Gardeners' Chronicle*, I think—once recommended as a principle that deciduous trees should be transplanted when in full leaf†. This advice, taken in a general sense, as it was by more than one person, is simply ridiculous, and in practice would lead, as I know it did, to most disastrous results. But if understood as only partial in its meaning, and as applicable only to certain plants, and those to be removed under certain conditions, it becomes in a measure valuable, and may be safely followed.

At the end of June in the present year I determined on moving two large plants of Forsythia viridissima which were monopolising too much space in a bed of small flowering shrubs in my own garden. In the places which I intended them to occupy, holes were dug and well watered. The plants being put in, and sufficient soil thrown upon the roots to cover them, another good watering was given, and the remaining soil filled in. The plants were growing luxuriantly at the time; nevertheless they gave no indications of being injured. In fact, not a leaf drooped. Of course growth for the season was checked, but that was rather an advantage than otherwise, for it induced short sturdy shoots, which, in a Forsythia, constitute perfection. Obtain these and you have flowers in abundance.

Now, the success of these plants depended in no small degree on the peculiar character of their roots. They have an abundance of succulent fibres which, if the plant is at all carefully removed, are ready to resume their functions immediately after transplanting; and those of the plants in question being supplied with plenty of moisture, and kept out of the ground but a short time no material check was given. In transplanting under similar conditions this is an important point to attend to; and, in fact, under any circumstances whatever, it should be kept in view.

Of course there are many other deciduous shrubs than the Forsythia, which, if necessary, might be transplanted in summer with perfect safety. Plants with long woody roots having but few fibres, and those principally at the extremities, it would be hazardous to experiment upon; but such as have an abundance of succulent rootlets, principally within a foot or two of the base of the stem, may with proper care be as successfully transplanted in summer as at any other season. Recollect it is not recommended to transplant any shrub or tree in summer in preference to autumn, but where circumstances render it necessary or advantageous to do so, it may with certain plants be ventured upon with perfect safety.

Evergreens, as before hinted, afford much more scope for variation in the periods of removal than deciduous shrubs and trees. It would be difficult to name a month in the whole year when some of them may not be transplanted with success. Much will however, of course, depend upon the condition of the individual to be removed. If it has occupied its situation for a series of years, and has consequently become coarse rooted, it is hardly a fit subject to be transplanted in summer. In fact such a plant would require very careful treatment if removed at the best of all seasons, autumn, and under the most favourable circumstances, to give it a chance of success. Plants so circumstanced mostly require a special course of education to fit them for a change of place when advisable to transplant them at all.

But such as are of a reasonable size and in a good moveable condition may be transplanted successfully at widely different periods of the year. Thus Conifers may be transplanted safely when the young shoots are 3 or 4 inches long and in a succulent state, provided proper precautions are taken and plenty of water given at the time. I recollect an instance where some hundreds were moved in the middle of June, and a very hot June too, with hardly the loss of a plant. Nor were they in the best possible condition at root either for such an experiment. However, circumstances rendered it necessary that they should be moved, and moved they accordingly were. Each plant as it was taken up was dipped as described in a former page, and also well wetted at root when planted. The young shoots drooped beneath the sun for a day or two, but in the course of a week the plants were established, and the general result was all that could be desired. Again, in order to finish the planting of a new garden it was necessary to carry on the work far into the spring. The last plants removed were some common Laurels, five or six feet in height. The ground was loose and gravelly, and prevented anything like a ball of earth being secured with the roots; in fact, when each plant was taken up all the earth fell away, leaving the roots wholly bare. Great care was exercised to preserve, as far as possible, the succulent and active rootlets, which were in abundance, from injury.

The plants were removed about the sixth of May, when the young shoots had pushed several inches in length; nevertheless, not one plant died; nor, indeed, did any receive much damage. A few showery days succeeded their removal, and doubtless contributed much to their success. If it is urged that such natural conditions can rarely be calculated on, and that planting at that season is consequently not generally practicable, it must be admitted that the results of such experiments teach us under what various conditions planting may be carried on, and that in a limited practice at least, these conditions may, to some extent, be given artificially.

The Evergreen Oak is perhaps one of the most difficult trees to transplant successfully, yet, if the proper conditions be secured it succeeds well enough. I once saw a number, a week or two after their removal, that had been transplanted in May, when their young shoots were an inch or two long. Hardly a plant had failed. I learned that they had been well dipped at root and copiously watered when planted. In Guernsey, where the Evergreen Oak is much employed for shelter on the most exposed places—where, in fact, it is often covered with salt spray—they remove large specimens of it with perfect safety at midsummer. If the plant to be removed has a very large head in proportion to the roots some of its branches are shortened back, but no other precautions are taken to ensure success. A failure is very rare indeed. The damp climate of the island of course contributes mainly to this success; for no newly-planted tree suffers more from the effects of evaporation from its leaves than the Evergreen Oak. When subjected to a dry atmosphere with a feeble root action, as a recently planted tree would naturally be in our climate, then speedy dissolution from dessication of the tissues would almost certainly follow.

Now this evaporation from the leaves and succulent branches of newly-planted trees is the primary cause of their failure, and in proportion as it can be guarded against or compensated for, so will success be found. Deciduous trees when moved, as they must generally be, when the leaf has fallen, are, of course, not subject to the draining of their juices by evaporation to a like extent—a condition which gives them in some respects

* An old gardener with whom I was well acquainted was regarded by his labourers and pupils as foolishly nice in such matters, and it was only with great difficulty that he could prevail upon them to employ the necessary time and labour. The result, however, was evidently so good, that one of the most restive has often told me since that he is convinced that no labour is more profitable.

† Since this was written I see another correspondent has advocated a like practice.

an advantage over evergreens in sustaining the casualties of transplanting.

Now nothing favours evaporation so much as a dry *moving* atmosphere; as, for instance, during bright windy days in March. From this circumstance that month is deemed, and rightly too, the worst in which to transplant evergreens throughout the year. No one who can possibly avoid it should attempt it then. It is easy to imagine that, from the constant passing away of the fluids of a plant with no means of replenishing them, the individual must soon cease to exist. And in March, too, vegetation is often as inactive as at midwinter, which circumstance, coupled with its invariably dry atmosphere, is an additional reason for not planting then.

When a shrub or tree is transplanted it should be under conditions which will allow it to recommence growth immediately, to enable it, by absorbing at the roots, to counteract the loss of fluid at the leaves. To ensure this the plant must be removed before it is completely at rest in the autumn, or after vegetation has commenced in spring. At either of these periods nature immediately sets about repairing any injury which the plant may have received. The roots which are destroyed, and many will inevitably be so, are then replaced by others, the work of nutrition goes on, and the natural functions of the plant are resumed.

If you examine a shrub that has been transplanted while vegetation was active in autumn, even a few days after its removal, you will perceive the roots covered with myriads of white shining points; the new rootlets in fact hastening to re-establish the plant before winter sets in and renders the vegetative principle all but inert. Plants require both at root and branch a certain degree of warmth to enable them to fully perform their functions. In autumn the soil retains a considerable amount of heat, and is favourable to the formation of roots.

In mid-winter this is not apparent, even though the weather should be open, for the soil has lost the greater part of its acquired warmth by radiation then, only to be again obtained from the returning sun in spring. Plants removed in spring are in conditions somewhat analogous to those transplanted in autumn. Vegetation not being dormant, their roots are immediately formed, and the plant is not materially checked. The great drawbacks to spring planting are the daily increasing power of the sun and the periods of dry weather which are frequently experienced at that season. Where plants are coarse rooted and have to be carried a long distance, spring planting becomes hazardous, and great care will be required in its execution if attempted then. *G. W. L.*

Home Correspondence.

Sulphured Hops.—You have already so well exposed the folly of supposing that sulphur applied to the Hop during the period of its growth could communicate any taste to beer, that it is needless to add anything on the subject. It might, however, be worth while inquiring whether the sulphur used in such large quantities as it is during the drying of the Hop may not produce the effect complained of. I am credibly informed that one grower in this place has ordered no less than 10 tons; but, without pledging myself to the truth of this statement, I may state this as a fact, viz., that it is impossible to drive through the town of Farnham without the most unpleasant taste being produced and a feeling of suffocation experienced. The sulphur is added for the sake of making the Hops look more bright; in other words *for the sake of deception*, and if factors would turn their attention to this subject, and protest against the use of sulphur in Hop drying, they would, I believe, confer a real benefit upon brewers and their customers. *An Observer, Farnham.* [We entertain no doubt that the mischief complained of by the brewers is committed in the oost house, in which sulphur should not be permitted. We have ascertained that a very large quantity of impure sulphur, smelling strongly of sulphuretted hydrogen, has found its way into the Hop districts—and there doubtless is the source of the evil. Hop factors should refuse to buy Hops sulphured in the oost house. There would be reason in that, and there is no good reason to the contrary.]

Chloroforming Bees.—The method you recommend (see p. 552) of using chloroform in taking honey from bees I have practised with success, having followed the directions closely. It is a matter of great importance to preserve the bees alive here, their working season being so short; I intend to use chloroform always. *John Conlon, Stornaway Castle, Island of Lewis.*

What Constitutes a Nurseryman?—In your Number of the 15th inst., p. 616, I see in answer to "H. B." you say—"A man is not a nurseryman or grower for sale if he merely raises a flower and sends it out himself; we should regard him as an amateur, and place him accordingly." I imagine the case cannot have been put in its real light or you would not have given such an answer. The facts are these: Our society is divided into growers for sale and private growers. Now the party in question raised a seedling, named it "Incomparable," offered it to several nurserymen who would not give him so much as he wanted for it, whereupon he says, 'I will retail it myself'—and did so, selling plants struck this spring at per plant, and not the whole stock to one man; and is then allowed to show Dahlias in the private growers' class. If not too much trouble I shall esteem it a favour if you will let me know if you are of the same opinion; *i. e.*, if I raise seedlings and retail them, can I show in the private growers' class in London? *John H. Hill, The Oil-mills, Ipswich.* [We think not. The case was not put in this form in the first question put to us.]

Transplanting at Midsummer.—I observe that Mr. Scott, of the Merriott Nurseries, Somerset, asserts that it is better to transplant the numerous varieties of trees and shrubs he mentions at midsummer than to follow the ordinary way of proceeding. I am not going to say that Mr. Scott did not plant at such a time, or that his success was otherwise than he describes; for I am aware that such operations may be carried on at nearly any time of the year, but I cannot agree with him that midsummer is best for the operation, even supposing that the weather is not sufficiently dry to cause the plants to suffer from want of moisture; for with the ordinary care bestowed in lifting, a plant must receive a great check when moved in full growth, and consequently, to say nothing of other disadvantages, it must lose a portion at least of the time allotted to it by nature for the formation and ripening of its wood. Mr. Scott I understand has been in the nursery business about five years, and no doubt he will, as I have done after 40 years' experience, find out that October and November are the best months for planting; and also that advertisements look much better and have more weight with the public when properly inserted in the *Gardeners' Chronicle* or elsewhere, than in the shape of Mr. Scott's letter, for in my opinion as well as that of many others, Mr. Scott's article on "Transplanting" is an advertisement of his stock and nothing else. *An Old Woodman.*

New Belgian Strawberry (see p. 614).—Your correspondent's plants which did not bear this year probably failed from having been planted on very light land; or in his part of the country the autumn might have been wet, which, instead of inducing the plants to ripen their flower-buds, might have caused them to grow into leaf. This frequently happens with large fruiting Strawberries in very light soils, and it will even take place in loam the first year, when it has been dunged and trenched up, but as soon as the loamy soils get more solid the plants go on bearing every year. If growers of Strawberries wish to succeed in very light soils, after dunging and trenching they must tread all as solid as the feet well can do, making allowance for wet or dry weather; then plant the Strawberries. When I lived with the present Earl of Harrington, then at Cedar Lodge, Putney, some 25 years ago, the soil there was light and sandy. I tried all I then knew to make Strawberries succeed, but they always failed, until by mere chance I turned some plants that had been forced out of pots with their balls entire; these produced a famous crop the second year; but the third year they rooted out of the old balls and got into the sand, and bore no fruit at all that year. In 1834 I lived in another light sandy garden at Broom House, Fulham. I followed the same plan of turning out the plants after they had been forced. They had been grown in Wimbledon loam; and I think that it was while I was with Mr. Sulivan that I discovered the value of the plan of treading the ground, after dunging and trenching, as hard as a road, in proof of which I may mention that after the Strawberries have borne their crop, in order to get plenty of good runners I have had the ground forked between the rows to enable them, as I then thought, to grow quicker and get more easily into the ground. I soon found, however, that by not forking at all, but by leaving the soil trodden as it had been in gathering the fruit, the plants always produced the best and earliest rooted runners. Yesterday, upon having a piece of ground well dunged and trenched, an Irishman who did the work asked of the lad who was treading it before planting—"What is the use of trenching ground and then treading it as hard as it was before?" One thing, however, is certain, viz. that the Strawberry plant will not thrive unless the mould is very firm for the roots to grow in, and then it matters little what sort of mould is employed. I have lived these 16 years where I now am, and what with dunging heavily and annually putting on the ground the Cucumber mould out of the pits, my Strawberry ground is now the lightest round London, and I am obliged to adopt all sorts of plans to keep such ground in good bearing and without any rotation of crops. There is one more plan which I practise, and that is, every spring I have prepared a large quantity of rotten dung, and throw it over the beds to the depth of an inch; this is very beneficial to the crop. The plants immediately make fresh top roots, and are more able to bear a large crop, as well as swell the fruit to its utmost size, and if this plan is adopted annually the same plants will last for many years. I have a large Pine of Black Prince at least nine years old, as well as a Pine of Prince of Wales six years old, and every succeeding year they bear enormous crops. *James Cuthill, Camberwell.*——I beg to say that from the favourable report which was made in your columns of the Delices d'Automne, I was induced to purchase a few plants, but to my great disappointment I have experienced exactly the same result as your correspondent. The plants, which have done well this summer, are now showing no fruit whatever, which it was stated they would do; on the contrary, they are throwing out abundance of suckers, which it was stated they would not do. *Henry Manton, Sleaford.*

Hylurgus Piniperda.—In Ratzeburg's "Forstinsecten" several instances are given of this beetle having been effectually kept in check by means of decoy trees laid in the parts of the Pine wood affected in the months of March and April and removed and destroyed in June and July, whilst containing the larvæ and pupæ. Some other modes of attacking the insect are mentioned, such as the removing and burning of the bored twigs which have fallen from the trees in August and September; but most importance is attached to these decoy breeding-trees, and to the careful clearing of the plantation in June and July of all felled Pine stems and branches, and especially of all sickly and over-ridden plants, which last are chiefly selected by the insects as breeding places when they leave their winter quarters in March and April. Ratzeburg says he is satisfied, from long continued observation, that there is only one brood annually of this species, and that the beetles rarely if ever winter in the perforated twigs, which either remain on the trees or fall to the ground in autumn; but that they pass the winter in the bark of those roots which are covered with Moss at the base of the Pines. If this is correct, and if, as is said, the beetles are found not isolated but in quantities together, might it not be practicable in small plantations to destroy them in winter, after removing the Moss, by means of some liquid which would not injure the trees, as perhaps lime-water or urine? *W. S.* [No; unless corrosive sublimate could be given them.]

Filter.—Can any of your correspondents favour me with directions how to construct a filtering tank to filter and hold rain-water for domestic uses. What are the best materials for filtering large quantities of water for such purposes, and how many filtering chambers should there be. Should the reservoir to receive the filtered water be air-tight? Useful instructions on these points will oblige. *C. C. C., Milton, Abingdon.* [You will find directions for constructing a very good filtering tank at p. 102 of our Vol. for the current year.]

Orchard Houses.—Having read Mr. Rivers' "Orchard House, or the Cultivation of Fruit Trees in pots under Glass," I determined to visit Sawbridgeworth and judge for myself of the feasibility of the plan. Having for many years lost our crops of wall fruit from spring frosts, and from the lateness of this season having few Peaches and Nectarines perfectly ripened, I last week visited these nurseries, and I can only say that I was more than satisfied. I minutely inspected this system of cultivation, and can not only bear testimony to the truth of all Mr. Rivers has stated in his little work, but can conscientiously affirm that what I saw exceeded my expectations. The small trees are in 11-inch pots, loaded with fruit of large size, perfect in colour and flavour, the trees looking exceedingly robust and healthy; the new shoots, although very luxuriant, are well ripened and not at all drawn up, the trees being Peaches, Nectarines, Apricots, Pears, Plums, and Figs, which, although bearing abundant crops, I am informed from the ripened state of the wood are capable of bearing the same crop every season, the chief art being perfect ventilation and root pruning, which is conducted on a most simple method, the roots being allowed to grow through the bottom of the pot into a shallow border of compost, from which their chief nutriment is derived; if the growth become too luxuriant, the pot is merely tilted on one side, by which means both the size and growth of the tree is regulated with the greatest nicety, and after the leaves have fallen off and the plant becomes in a dormant state, the pots are removed from the borders and stowed away into close winter quarters, where they require no further care or attention, the hardest frost appearing not to affect them. These houses, although admirably answering the intended purpose, were constructed at surprisingly low prices, some of them, with Beech hedges forming the sides, at not more than 12*l.* each. Being thoroughly convinced of the advantages to be derived from this system, I have determined on building two houses 110 feet long, and I find by adopting the plans laid down in the "Orchard House" I can construct them at a most trifling price; and having by me a stock of fruit trees purchased last winter from Mr. Rivers, I look forward to an abundant crop next season, the trees from previous cultivation having thriven beyond my expectations. A visit at this season of the year would amply repay any one interested in this most delightful of all systems of horticulture; they would also see 90 acres of Rose and fruit trees of the choicest description, the latter laden with fruit to the earth of the deepest and richest colour; and the same originality of ideas would be perceived all through, carried out in the most judicious and skilful manner, affording food for contemplation for many months afterwards. *S., Newington.*——I can bear ample testimony to the usefulness of orchard-houses; I had one erected at this place, on Mr. Rivers's plan, late in the autumn of 1853—it is 85 feet in length and 13 feet 6 inches in width. I purchased at the same time 80 Peach and Nectarine trees, all except 12 maiden plants; I potted them in accordance with the rules laid down by Mr. Rivers in his little work on the Orchard-house. The plants cost 12*s.* per doz.; I cut them down in the usual way, potted them in 14-inch pots, and treated in every respect according to Rivers's directions, and this year they are bearing a most splendid crop of fruit; I have at least 120 dozen of fine full-sized Peaches and Nectarines of first-rate flavour and quality. Figs I have not found to succeed so well, they bear abundantly but drop a great deal of their fruit just when beginning to ripen; notwithstanding this, however, they have ripened a tolerably good crop. Apricots have not yet been tried; they were only potted last spring, but they have made fine wood. Strawberries I have found to ripen perfectly; I place them in the vacancies between the trees, a situation in which I bloom all my forcing Strawberries after the beginning of March, and then I remove them into heat. I also keep the whole of my

bedding plants that are established in the same place, after all danger of such severe frost is over as would be likely to penetrate through the glass. Last year I hardened off 5000 bedding plants in this way. Orchard-houses are also first-rate places for protecting winter salads in after the plants are dried off and put to rest—they then occupy but little space. *J. Daniels, Gardener, Swyncombe House, Henley-on-Thames.*

Notices of Books.

Meteorological Essays. By François Arago. With an Introduction by Baron A. von Humboldt. Translated under the superintendence of Colonel Sabine, R.A. Longmans. 8vo, pp. 504.

In this insular variable climate the weather is the great subject of everybody's attention; and all works relating to it are welcome to the English public. Will it be fine? Will it cease raining? What sort of weather shall we have to-morrow? Can we reckon upon a Queen's day? Is the next month likely to be fair or stormy? These and a hundred similar inquiries are heard everywhere, and are constantly repeated; for no one knows with certainty how to answer them. A work then by such a man as Arago, although relating to only a small portion of the weather subject, will be read with interest as well as with the respect due to so great a name.

More than half the volume before us is occupied by thunder and lightning. About another hundred pages treat of the aurora borealis, and the remainder relates to electro-magnetism, animal electricity, and terrestrial magnetism. Each of these questions is illustrated by a crowd of facts patiently gathered from an infinite multitude of sources, and constituting a set of data with which all theories must be reconcileable if true. Many of the relations are extremely curious, while all are made to have a direct bearing upon the points they are intended to elucidate.

Our scanty space forbids our doing more than concisely touching upon some of the questions discussed in that division of the work which is assigned to thunder and lightning. It is a disputed point whether lightning occurs without thunder or the reverse. M. Arago is scarcely able to answer these questions.

"The phenomenon of lightnings without thunder, with a perfectly clear sky, is too well known, and rests on too general experience for it to be necessary for me to cite on this point the testimony of any particular meteorologist. Who, indeed, in our climates has not seen and remarked 'heat-lightnings?' Bergman tells us that in Sweden, where they are also very common, the peasants call them 'Barley lightnings' (korn-bleck), because they are usually seen in August, when the Barley is beginning to ripen.

"It is by mistake that it has been asserted that heat-lightnings always remain near the horizon. Their light sometimes overspreads the whole visible extent of the heavens. This remark will not be without its use when we come to inquire whether heat-lightnings have an independent existence, or are only the reflection of other lightnings.

"Seneca asserted that thunder sometimes takes place without lightning. (*Quæst. Nat.* lib. ii. § 18.)

"I am ashamed to have to confess that as respects Europe I am almost reduced to Seneca's statement. Thunders without lightning, notwithstanding the points of theory on which they might afford solutions, have but little excited the attention of observers. The citations which I am enabled to make from other parts of the world leave, I think, little room to doubt the reality and generality of the phenomenon.

"Thibault de Chanvalon wrote in October, 1751, in his register of meteorological observations at Martinique:—'Of eight days in this month on which it thundered there were two days *without lightning.*' In November, I read:—'Thunder only on one day; three rather strong thunderclaps, but *without lightning.*'

"On the 19th March, 1768, near Cosseir, in the Red Sea, a violent thunder-clap spread consternation among the crew of the small bark on which the traveller James Bruce was proceeding. This thunder-clap *had not been preceded by any lightning.*"

The precautions which may be adopted by persons afraid of lightning are described as follows:—

"Franklin has given some precepts for the use of such persons who, during thunderstorms, are in houses not provided with lightning conductors.

"He recommends them to avoid the neighbourhood of fire-places. Lightning does indeed often enter by the chimney, on account of the internal coating of soot, which is one of the bodies for which, as for metals, lightning evinces a preference.

"For the same reason avoid, as much as possible, metals, gildings, and mirrors, on account of their quicksilver.

"The best place is the middle of the room; unless, indeed, there should be a lamp or chandelier hanging from the ceiling.

"The less the contact with the walls or the floor, the less the danger. A hammock suspended by silken cords in the middle of a large room would be the safest place. In the absence of means of suspension, the next best place is on substances which are bad conductors, such as glass, pitch, or several mattresses.

"According to Nollet, with similar elevations, and all other circumstances equal, spires and steeples covered with slates are more often and more violently struck by lightning than those which are built of stone.

"I do not think that the cause of such a difference should be sought in some specific difference between the substance of the slate and that of the stone. It would be more likely to be found in the humidity which, during heavy rain, so easily penetrates between the slates to the timber and laths on which they rest, and to the number of iron nails employed in fixing them.

"The greater the mass and the volume of the conducting matter brought together in one place, the greater the chance of being struck by lightning in its neighbourhood. This being once admitted, since living man is a sufficiently good conductor of the fulminating matter, ought we utterly to reject the opinion of some able physicists (of Nollet, for example), who think that the danger of being struck by lightning in a church increases with the number of persons assembled there.

"There is another cause which may contribute to render numerous assemblages of men or animals dangerous during thunder-storms. Their perspiration cannot fail to occasion an ascending column of vapour; and, as it is well known that moist air is a better conductor of lightning than dry air, such a column has a natural tendency to attract the lightning by preference to the place from which it proceeds. Need we therefore be surprised that flocks of sheep are so often struck by lightning, and that a single stroke should sometimes cause the death of 30, 40, and even 50 of those animals?

"In America it is a generally received opinion, that barns full of grain or of forage are more often struck by lightning than other buildings.

"This circumstance would also seem to be attributable to an ascending current of moist air, of which the origin may be easily accounted for, since crops are usually housed before they have arrived at a state of great dryness.

"It sometimes happens that one person in the midst of a numerous group is struck by lightning, without the determining causes of this kind of selection being at all discerned,—without the sufferer wearing more metal about his person than the rest of the party, and without his position relatively to surrounding objects presenting any apparent peculiarity.

"I say any *apparent* peculiarity, because a cause may be active without being apparent; for a mass of iron concealed in the thickness of a wall produces just as much effect as if it was uncovered, &c. It can very rarely happen that it can be safely affirmed, that all circumstances were identically the same in the situations occupied by the persons struck and those who were spared. The latter may have been further from some mass of metal, water, &c., existing, concealed and unsuspected, under the floor, behind a wainscot, in the earth, &c.

"It would seem difficult to arrive, in this manner, at discovering whether there are any specific differences between different individuals in their degree of liability to being struck. This doubt could only be elucidated by the aid of indirect experiments, which will be examined in a future chapter. In this place I content myself with saying that there are specific differences; and that, during a thunder-storm, in situations perfectly similar, one man may, by the nature of his constitution, be in greater danger than another.*"

Differences of opinion still exist here and there as to the true value of lightning conductors. From very early times it has been believed that the effects of lightning might be averted.

"Herodotus (book iv. chap 94), relates, that when it thunders and lightens the Thracians are in the habit of shooting arrows against the sky, to threaten it. Remark that he distinctly says 'to threaten it.' There is no question at all of the power which the arrow, being metallic and pointed, would have of taking from the clouds some little portion of their fulminating matter. This is so clear, that even the fanatically-ardent admirer of antiquity, Dutens, drew back from the idea of assimilating the Thracian arrows to the lightning-conductors of modern times, and from making the invention of Franklin's apparatus go back to the time of Herodotus."

"In the 15th century, a naked sword was placed at the mast-head of ships to turn aside lightning from them. St. Bernardine of Sienna, who has been the means of transmitting the knowledge of this custom, speaks of it as a prejudice. (Laboissière, *Academie du Gard*, 1822.)"

"Ctesias of Cnidos, one of the companions of Xenophon, relates, in a passage which has been preserved to us by Photius, that he had received two swords, one from the hands of Parisatis, mother of Artaxerxes, the other from those of the king himself; he adds:—'If these swords are planted in the ground with the point uppermost, they drive away clouds, hail, and thunder-storms. The king,' he goes on to say, 'made the experiment in my presence, at his risk and peril.'"

"In the time of Charlemagne, it was usual to put up long poles in the fields to drive away hail and thunder-storms; but lest fanatical admirers of old times should see in this practice an anticipation of Franklin's lightning conductors, I hasten to add that the poles were not to be efficacious unless they were surmounted by pieces of paper. Such papers or parchments were no doubt covered with magic characters, since Charlemagne in proscribing this practice, in a capitulary of 789, described it as superstitious."

At last we have the experiments of Sir Snow Harris and others which have ended in the present system of trusting to sharp-pointed metallic rods as certain means of attracting and nullifying the action of lightning. The explanation of this is given by Arago with admirable clearness and conciseness.

"All other circumstances being equal, lightning directs itself, generally speaking, by preference to the most elevated portions of edifices. It is there, consequently, that the preservative means, whatever they may be, should be applied.

"All other circumstances being equal, lightning directs itself by preference to metals. When, therefore, a metallic mass occupies the most elevated point of a house, we may feel pretty nearly certain that lightning, if it falls, will strike that point.

"Lightning which has entered a metallic mass only does mischief to surrounding masses at the moment when it quits the metal, and in the vicinity of the point or points at which it issues from it. A house may, therefore, be rendered safe from its highest point to its foundations, if the metallic parts of the roof are prolonged without interruption to the ground.

"Damp earth offers to the fulminating matter which is passing along a metallic bar a channel by which it escapes easily and without effort, without detonation, and without producing any kind of damage, providing the bar plunges a little deeply into the earth. By carrying the continuous bar which has already preserved from injury the exterior of a building down some way into the ground, which is always damp, the foundation, and, speaking generally, the whole subterranean portion of the building will be similarly preserved."

In like manner he deals with paragrèles or apparatus for averting hail.

"The formation of hail appears to be indisputably connected with the presence of an abundant quantity of fulminating matter in the clouds. Withdraw that matter, and the hail will either not be formed, or will remain in its rudimentary state, so that all that falls will be a harmless, extremely minute hail or sleet. Does any one doubt the great benefit which, in some countries, agriculture would receive from the disappearance of hailstorms? I reply, that in 1764 an enlightened inhabitant of the south of France wrote in the 'Encyclopedia,' 'There is hardly ever a year in which hail does not ravage the half, and sometimes three-quarters, of the dioceses of Rieux, Comminges, Conserans, Auch, and Lombez.' The single storm of the 13th of July, 1788, smote in France 1039 communes. An official inquiry made the damage amount to 25 millions of francs (one million sterling)."

Instead of kites or other contrivances of that kind Arago makes a very different though analogous suggestion.

"What I would wish is, that captive balloons should be resorted to for this great and important experiment. I should wish them to be sent up to a much greater height than that attained by Romas's kites. If by rising 300 or 400 feet above the elevations ordinarily reached by the upper extremities of the rods of lightning conductors, there were obtained, instead of little plumes or tips of flame, flames 10 or 12 feet long, what may we not expect would happen when the whole apparatus, having risen to a height three, four, or ten times as great, according to circumstances, would almost graze the under surface of the clouds? and when, moreover (and this is an important particular), the metallic point which is to attract the fulminating matter, and which would be in communication with the long semi-metallic cord which officiates as conductor, being fixed on the upper part of the balloon, is presented to the clouds nearly vertically, or in the position of the rod of an ordinary lightning conductor? It does not appear to me that there would be anything too bold in supposing that it might be possible to dissipate the most violent thunder or hail storms by such means. At all events, an experiment so highly and directly interesting both to science and to the agricultural wealth of countries is well deserving of trial. If balloons of moderate dimensions were employed, the expense would certainly be less than the Vine-growing districts now expend uselessly in firing so many guns and mortars."

Our last extract must be that which relates to the organs which are most usually affected in deaths or injuries occasioned by strokes of lightning.

"John Hunter said, that lightning in traversing the body produces an entire and instantaneous destruction of the vital principles. I must be pardoned for saying that this is but repeating known facts in obscure terms. According to Brodie, death follows from the action of the lightning matter on the head.

"Edwards considered death caused by lightning to be the result of a disorganisation of the nervous system. Others confine the action to the cerebro-spinal system,

* "The matter which darts in sparks from the conductor of an electric machine after the plate has been turned for some time, is fulminating matter. Like fulminating matter, or lightning, it is transmitted almost without loss of power through great extents of metal, water, &c. It also traverses pretty freely a number of men joined hand in hand, and forming a chain. It is, however, found that there are some persons who abruptly arrest, or even form an obstacle to, the communication, and who do not feel the shock, even if placed next to the first person in the file. Such exceptional persons must be classed exceptionally among the non-conducting or imperfectly-conducting bodies which lightning respects, or at least rarely strikes.

"Such strongly marked differences imply intermediate shades. Now every degree of conductibility corresponds during a thunder-storm to a certain degree of danger. A man, who should be as good a conductor as a metal, would be as liable to be struck as a mass of metal; a man who would interrupt the transmission of electricity when forming one of a chain, would be almost as little likely to be struck as if his body were of the nature of glass or of resin. Between two such extreme cases there would be persons whose liability would be similar to that of wood, of stones, &c. Thus it would seem that the place occupied by each person is not the only influential circumstance: the physical constitution of the individual may also have some share in the result."

but without however citing any decisive experiments in support of their opinions.

"Lightning produces on animated bodies struck by it considerable mechanical effects, which for the most part have some manifest relation to the portions of metal disseminated in the clothing of the sufferer. Sometimes the marks left by the lightning are merely superficial, being entirely confined to the skin; under other circumstances the very bones are broken. A case has even been reported in which the skull of a man struck by lightning appeared as if it had been crushed by a heavy bruising instrument. It is not uncommon for the clothes of the person struck to take fire.

"It has been said on the authority of Hunter, but without sufficient proof, that the blood of a man or of an animal struck by lightning does not coagulate in the body, and that the muscles never acquire the rigidity of an ordinary corpse; but this assertion is shown to be incorrect by authentic anatomical examinations and dissections made by Schultes of Landshut. It has also been said that in this kind of death putrefaction manifests itself sooner than usual.

"When it happens that the person struck to death by lightning had about him a knife, needles, or anything made of steel, the powerful magnetism which is at the same time imparted to those objects is perhaps the most evident proof which a surgeon or magistrate could receive of the nature of the fatal accident.

"Instances have been cited in which strokes of lightning, not sufficiently strong to cause death, had occasioned deafness, or had produced amaurosis, with dilatation of the pupil and loss of its power of contraction. In some cases the deafness or the amaurosis very soon disappear; in other instances they have lasted several days, or for several weeks.

"The most frequent result of strokes of lightning of moderate intensity is partial paralysis, more or less persistent, of the legs or arms.

"Mr. Edouard Robin attributes death occasioned by lightning to a kind of asphyxiation, or a sort of sudden disappearance of atmospheric oxygen. He thinks he finds a confirmation of his theory in observations made by an Italian physician, from which it would follow that in the body of a person whose death has been occasioned by lightning, putrefaction is, comparatively speaking, but little active."

With curious and useful matter like this the volume before us is filled to overflowing. Let us add that it is well translated, and that no library can be even tolerably complete without it.

Miscellaneous.

The late Mrs. Lawrence's Plants.—The sale of these commenced on Tuesday last, and will finish to-day. What kind of prices they realised may be gleaned from the following: Orchids.—A splendid specimen of Saccolabium guttatum fetched 31*l.* 10*s.*; S. retusum, 12*l.*; Cattleya labiata, 11*l.*; Phalænopsis amabilis, 27*l.* 6*s.*; P. grandiflora, two fine plants, 17*l.* and 14*l.* 10*s.*; Dendrobium anosmum, 12*l.*; D. Devonianum, 10*l.*; Vanda suavis, 22*l.* 1*s.*; Aerides Larpentæ, 14*l.*; A. maculosum, 13*l.* 10*s.*; Odontoglossum citrosmum, 12*l.*; Cypripedium Lowi, 8*l.* 8*s.*; C. caudatum, 6*l.* 6*s.*; C. barbatum, 5*l.* 5*s.*; Angræcum eburneum, 5*l.* 15*s.*; Epidendrum macrochilum album, 6*l.* 10*s.*; Coryanthes macrantha, 6*l.* 5*s.*; Trichopilia tortilis, 8*l.*; T. coccinea, 3*l.* 3*s.*; Phaius Wallichi, 8*l.* 10*s.*; Calanthe veratrifolia, 4*l.*; Lælia purpurata, 5*l.* 15*s.*; Chysis bractescens, 5*l.* 10*s.*; other lots, of which there were in all about 330, fetched from 1*l.* 1*s.* to 4*l.* per lot. Stove and Greenhouse Plants. Amherstia nobilis, 10*l.* 10*s.*; Dipladenia crassinoda (two plants), 2*l.* 2*s.*; Stephanotis floribunda, 2*l.* 2*s.*; Allamanda grandiflora, 2*l.* 10*s.*; Ixora coccinea, 2*l.*; Curcuma Roscoeana, 2*l.* 8*s.*; Pimelea spectabilis, 5*l.*; Hedaroma tulipiferum, 3*l.* 7*s.*; Gompholobium polymorphum, 3*l.*; Chorozema Henchmanni, 3*l.* 5*s.*; Adenandra fragrans, 4*l.* 15*s.*; Leschenaultia biloba, 2*l.* 12*s.*; other lots from 10*s.* to 30*s.* per lot. Azaleas.—A. Perryana, a very fine plant, 11*l.*; Juliana, 5*l.*; Glory of Sunning Hill, 3*l.*; Exquisita, a good plant, 6*l.*; maculata (semi-double), 4*l.* 4*s.*; vesta, 3*l.*; other lots from 10*s.* to 20*s.* per lot. Cape Heaths, with the exception of a handsome E. Cavendishi, for which 4*l.* was paid, fetched from 10*s.* to 1*l.* 1*s.* per plant. From the above it will be seen that the highest prices by far were realised for the Orchids, and that the stove and greenhouse plants went comparatively cheap. Should the remainder of the sale to-day produce anything of importance it will be given next week.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Last week's directions as to the housing or protecting of tender plants should be attended to at once; for although such things as Camellias, Acacias, Cytisus, &c., may be exposed to a few degrees of frost, and, if not over potted, to heavy falls of rain without much danger of their being injured, there is considerable risk in having plants exposed too late in autumn, and this should be avoided if possible: but such things as Heaths, Chorozemas, and, indeed, the majority of our best greenhouse plants, cannot with any safety be left fully exposed to the chances of the weather after this season; and where proper accommodation cannot be found for these in the houses, some efficient shelter from heavy rains and frost ought to be provided at once. Where valuable stove plants have to be kept in the conservatory while in bloom, these will require careful management to prevent their being injured by damp, and they must not be overwatered at the root, as stove plants are soon injured in a low temperature if kept too wet at the root. Give air freely on bright days, but if the house contains many stove plants it will be advisable to shut up rather early in the afternoon, so as to retain a little warmth for the night; and in the event of wet cloudy weather setting in, it will probably be found necessary to use a little fire-heat, to dispel damp and preserve the blossoms of tender things, and this should be seen to before handsome specimens get disfigured or ruined for the season; for these in bloom are not over plentiful about most places at this season of the year, and are therefore worth caring for. Keep everything in this house as clean and neat as possible, removing decaying flowers and leaves, &c., immediately they are perceived, and examine pot specimens frequently, particularly such as may not occupy the most suitable places, turning them partly round in order to expose all their sides equally to light and air.

FORCING DEPARTMENT.

Pineries.—A rather dry state of the soil about the roots and also of the atmosphere is essential during the ripening of the fruit where high flavour is the object, therefore be careful not to over-water plants on which the fruit is approaching maturity, and it will be advisable to use slight fires on dull days, so as to allow of giving sufficient air to prevent a stagnant state of the atmosphere, for fruit of prime quality cannot be expected from plants growing in sodden soil or a damp unhealthy atmosphere. Endeavour to afford growing stock a steady bottom-heat of about 85°, and keep it well supplied with manure-water at the root, but avoid getting the soil too wet. As fire-heat will now be necessary to a considerably larger extent than has been the case during the summer, care must be exercised to secure a properly moist state of the atmosphere, keeping the evaporating pans or troughs regularly supplied with water, and moistening the floors &c. frequently, as any sudden change from a moist to a dry state of the atmosphere would be most injurious to growing stock, and also to plants swelling their fruit. Be as sparing of fire-heat, however, as circumstances will allow, and shut up early on the afternoons of bright days, so as to husband the sun's influences as much as possible. Where young stock is grown in dung-pits care must be exercised after this season not to get the plants weakly through keeping too close and warm, giving air freely on every favourable opportunity, and sufficient command of warmth should be secured from the linings to allow of giving a little air at night and on cloudy days. Vineries.—Use gentle fires when the weather is damp in houses where the fruit is ripe; but only just sufficient to keep the atmosphere dry, and look over the bunches, frequently removing any tainted berries immediately they can be perceived, for these if left in the bunches communicate the malady to others, and cause it to spread much faster than would otherwise be the case. It is still a too common practice to expose the Vines to the weather immediately the fruit is cut, and some persons deem this practice essential to the ripening of the wood. When the weather happens to be warm and dry, such treatment may answer very well, but to expose Vines in wet, cloudy weather, when the object is the ripening of the wood, is sure to result in disappointment; therefore, where the wood is not properly ripened, keep the atmosphere dry and moderately warm, and use sufficient fire-heat to allow of giving air freely both day and night. Use brisk fires in houses where the fruit is not yet ripe, giving air freely, and be careful to guard the foliage from insects, particularly where the fruit has to be kept for any length of time after it is ripe. Peaches.—As the trees will now be freely exposed to the air day and night, very little attention will be required here for the present. The foliage should, however, be kept clear of red spider, by an occasional washing with the engine where necessary, so as to preserve it in health until it has performed its functions and decays naturally. If any trees have to be removed from the open wall to here, this may be done immediately the present crop of fruit is gathered, as the removal if very carefully effected and the tree properly attended to afterwards will not prevent the wood ripening, and there will be plenty of time for the trees to make fresh roots and get sufficiently established to carry a crop of fruit next season if not forced too early.

FLOWER GARDEN AND SHRUBBERIES.

If previous directions have been attended to, the propagation of next season's "bedding stock" will by this time be well advanced, and where, from the pressure of other work or other causes, this is not the case, every possible dispatch must be used while the weather is favourable for such work. Where cuttings of Verbenas and such like things have yet to be put in they should be inserted rather thinly in deep pans or shallow pots, in which they can be wintered, as they will be got established sooner in this way than would be the case if they were to be potted off before winter, and we have frequently found late cuttings managed in this way to winter fully as well as stronger plants; and, except plants intended to furnish cuttings in spring, it is very immaterial how small bedding plants are before winter, provided they are well rooted without having been got up in a close warm atmosphere to render them sappy and tender. Many parties, through anxiety to secure large plants, keep bedding out stock close and moist until late in autumn, and frequently in frames on dung beds, where size is soon obtained, but plants treated in this way are necessarily so soft and tender that it is almost impossible to carry them over the winter without serious loss. Therefore avoid keeping such things too warm after this season, and if they are placed in bottom heat give air freely at night, and whenever it can be done without the cuttings flagging, so as to prevent weakly growth.

HARDY FRUIT AND KITCHEN GARDEN.

Where wasps are troublesome means must be taken to preserve ripe fruit from their depredations, and Plums and Apricots had better be netted up, as wasps, if at all numerous, soon do serious damage to these. Also look frequently over any varieties of Pears ripening, and gather those that are fit, for if allowed to hang after they are ripe the wasps are sure to find them, and will attack the fruit before it is fit for gathering, so that the crop will probably be spoiled unless it can be netted up. Where Currants are covered with mats, which, by the bye, are very inferior to close nets for this purpose, and much more expensive, the trees should be uncovered occasionally on fine dry days, so as to expose the fruits thoroughly to the air, in order to prevent their being injured by damp, &c. Trim and dress Strawberry plantations, and be careful to injure the leaves of the plants as little as possible, and avoid deep digging between the rows which is of no farther use than to injure the roots, as the Strawberry rather prefers a somewhat firm soil.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Sept. 20, 1855, as observed at the Horticultural Garden.

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain.
Friday 14	3	30.007	29.926	51	45	49.5	53	58	N.E.	.32
Satur. 15	4	30.093	30.040	64	45	54.5	58	58	S.W.	.00
Sunday 16	5	30.133	29.954	63	54	61.0	58	58	W.	.04
Mon.. 17	6	30.026	29.944	62	55	58.5	56	58	E.	.06
Tues. 18	7	29.952	29.941	69	54	61.5	60	58½	S.W.	.00
Wed. 19	8	30.042	29.965	68	47	57.5	62	59	N.E.	.00
Thurs. 20	9	30.130	30.112	75	44	59.5	64	59	S.W.	.00
Average .		30.054	29.990	65.7	49.1	57.4	59.4	58.3		.42

Sept. 14—Constant rain; densely clouded and cold; overcast.
— 15—Uniformly overcast; fine; overcast.
— 16—Overcast; cloudy; overcast at night.
— 17—Rain; hazy; overcast.
— 18—Hazy; overcast; cloudy; fine.
— 19—Uniformly overcast; slight haze; fine.
— 20—Foggy, with heavy dew; very fine throughout.
Mean temperature of the week ¾ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 29 years, for the ensuing week, ending Sept. 29, 1855.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 23	63.7	46.5	56.1	14	1.21 in.	—	6	5	1	6	5	5	1
Mon. 24	65.4	45.7	55.6	13	0.75	2	6	2	1	4	8	5	1
Tues. 25	65.8	45.4	55.6	13	1.30	2	4	2	2	4	10	4	1
Wed. 26	65.2	45.2	55.2	15	0.72	—	4	5	1	8	7	1	3
Thu. 27	64.9	44.9	54.9	17	0.63	—	2	4	2	4	8	6	3
Frid. 28	64.6	44.2	54.4	13	0.80	—	3	4	1	8	6	4	3
Satur. 29	64.5	44.9	54.7	18	0.46	1	3	3	2	5	10	2	3

The highest temperature during the above period occurred on the 28th, 1852—therm. 82 deg.; and the lowest on the 27th, 1828—therm. 24 deg.

Notices to Correspondents.

Astragalus: *Minna.* Nothing can be more variable than the form of the pod in this genus, or the manner in which it splits. The accompanying figure represents that of a species gathered at Eupatoria by Captain George Elliot, R.M., in which the valves are separating by their dorsal (or carinal) suture, quite through the spurious septum which is peculiar to this genus.

Books: *S B.* Mackintosh's work is excellent, but too much for a beginner. You had better commence with Loudon's Encyclopædia of Gardening, an old edition of which may often be picked up at second-hand book shops for a few shillings. Abercrombie's Gardening is also a good old book for a young man to work by.—*J Brown.* The third edition of the Vegetable Kingdom was published in 1853, and contains very numerous additions.

Names of Fruits: *J J P.* The Pear which accompanied the diseased Marie Louise appears on comparison to be exactly like the Easter Beurré, notwithstanding its coming to perfection so early. As far as our experience goes, the time of maturity of this variety extends over a wide range. *M. J. B.*

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Creeper.* Smilax sarsaparilla, *L.* It wants more summer heat than we can give it, in order to produce its flowers.—*J B K L.* Jaborosa longiflora. *D Bowman.* Is it not a proliferous monster of Plantago lanceolata?—*W S.* Humea elegans.—*Mus.* Apparently a morsel of Quercus Phellos. We are unable to recognise the other plant by your description. —*G W.* The other is Hydrangea japonica, a plant hardy in any good climate, but best treated as a greenhouse plant in winter.—*Cranmer.* Your fungus is Uredo Rubigo vera, the red rust of Wheat. *M. J. B.*—*Q.* 1, Scutellaria splendens; 2, indeterminable.—*W T S.* Grewia asiatica.

Peach Tree: *D A.* Red spider has attacked it because the roots are kept dry. It has not touched the Vines because their roots are in the open border. There is no doubt about it.

Temperature: *T W.* The hottest day this year was the 6th of June, when the maximum temperature was 86°.‡

Vinegar Plant: *A K.* This is the spawn of a fungus called Penicillium glaucum. It thrives in a weak solution of sugar, which it soon turns to vinegar. You may cut the plant to pieces as often as you like. Every piece will grow.‡

*** As usual, many communications have been received too late and others are unavoidably detained till the necessary inquiries can be made. We must also beg the indulgence of those numerous correspondents, the insertion of whose interesting contributions is still delayed.

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It is a very remarkable fact that the analysis of Blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists; it contains all the elements which plants require, and when properly prepared and applied, will become the essence of vegetable as well as of animal life.

The highly fertilising properties of Blood has been commented upon by Professor WAY, and others, and the success of the Blood Manure for Wheat Crops has been fully proved upon all soils, by the practical experience of numerous agriculturists, a few of whom are the following:—

Sir Archibald M'Donald, of Woolmer Lodge, Liphook, says: "The Wheat manure I purchased of you has answered its purpose admirably."

Jonas Webb, Esq., Babraham, Cambridgeshire.—"Your Wheat manure I tried by the side of guano, and if anything it had the advantage, as the quality from it is superior."

Mr. Baker, Steward to His Grace the Duke of Bedford, Park Farm, Woburn, Bedfordshire.—"I used your manure upon a piece of poor land after Peas, and have grown an excellent crop of Wheat."

Mr. Benjamin Goulton, Gedney Marsh, Long Sutton, Lincolnshire.—"I drilled your manure at the rate of 2½ cwt. per acre, along with the Wheat over 30 acres, and although the field is the poorest land I have on my farm, the crop ranked amongst the best I have. I do not know how I can recommend it better than by saying I shall use it much more extensively this season."

Mr. Walter Murton, East Stour, Ashford, Kent.—"I sowed your Wheat manure last autumn, and the consequent increase in the crop both of corn and straw has convinced me of its great utility."

Mr. H. Steed, Nonington, near Wingham, Kent.—"I used Odams' Patent Manure for Wheat last November, and never have I used any artificial manure with such benefit."

Mr. Frederick Robinson, Southery, near Downham Market, Suffolk.—"I last autumn used 2 cwt. of your manure per acre on a piece of fen land; it came up very strong in plant, assumed a most healthy appearance during the winter, and has produced me one of the finest crops I ever grew."

Extract from the *Agricultural Gazette*, 7th April, 1855.—"The Nitro-Phosphate Company throw blood and bones together, and add sulphuric acid, thereby manufacturing a manure, which, as it contains soluble phosphate along with nitrogenous matter, is as nearly perfect, whether for roots or corn, as anything can ordinarily be."

Extract from the *Mark Lane Express*, of January, 1854.—"Amongst the new things which appeared this year for the first time was Odams' Patent Blood Manure; and it is this addition to our fertilisers which falls to our province to review. Blood has long been acknowledged one of the most enriching of all our manures, a proposition the soundness of which has been proved by innumerable experiments. Now that the startling fact has reached the ears of the agricultural public that Peru will be exhausted of Guano in a few years, surely the prospects of an everlasting supply at home will be accepted with some degree of national satisfaction, more especially since the latter is superior to the former in quality."

The Public are cautioned against spurious imitations; as security to the purchaser every Bag is marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

OFFICES, 109, FENCHURCH STREET.

Price 7*l.* 10*s.* per ton, free at any Railway or Wharf in London.

DIRECTIONS FOR USE.—From 2 to 4 cwt. per acre, according to the condition of the soil. It may either be drilled in with the seed or sown broadcast; if the latter it should be well harrowed in.

LIQUID MANURE.

PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its Liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.—Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 6*d.* per foot.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ „	long 3 „ 3 „		1	15	0
3 „	ditto 3 „ 6 „		2	12	0
3½ „	ditto 3 „ 6 „		2	18	0
4 „	ditto 3 „ 6 „		3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto	ditto ditto	2	15	0

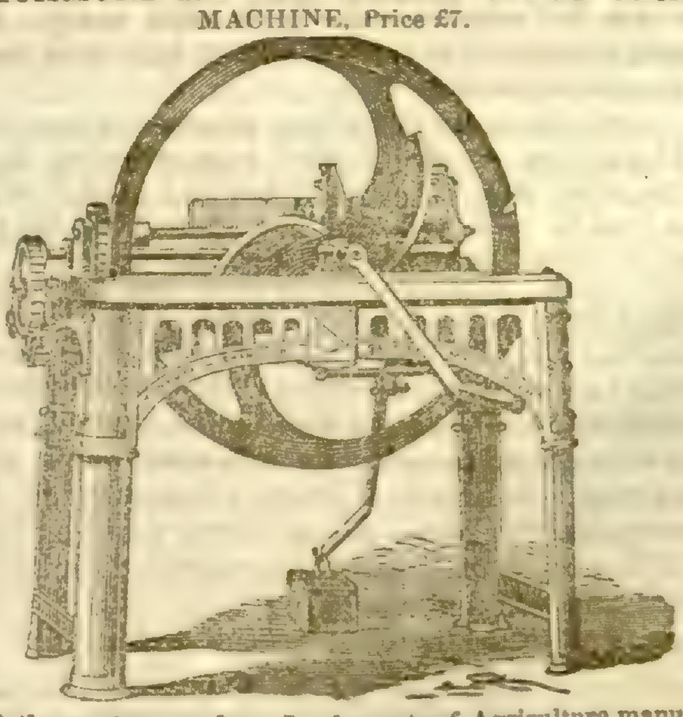
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.
MEETING AT CARLISLE, JULY, 1855.
FIRST PRIZE AWARDED TO

RICHMOND AND CHANDLER'S No. 3 B CHAFF MACHINE, Price £7.



All the various modern Implements of Agriculture manufactured on the most scientific and improved principles, suitable for home use and exportation.—Address, RICHMOND & CHANDLER, Salford, Manchester; and 32, South John Street, Liverpool.

☞ CATALOGUES GRATIS.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

FIRST PRIZE REAPING MACHINE.
NOTICE.

MESSRS. BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

DRAINAGE OF LAND.

MR. HUMBERT, of Watford, Herts, a practical Surveyor and Land-Agent of more than 15 years' standing, offers his services to Gentlemen about to drain Land and Bogs. He will undertake to set out and superintend himself the execution of the work at a charge of 5*s.* per acre, and the expenses incurred in his travelling; or he will contract to complete it in a specified manner to the satisfaction of the Inclosure Commissioners at a fixed price per acre. Mr. Humbert has drained strong stony land in the most careful and complete manner, with 1¾ inch pipes, and proper mains, the drains being 4 feet deep and 30 feet apart, at 4*l.* per acre and under, and he can give reference to his employers in that and in other instances.

Watford, Herts, Sept. 22

SMITHFIELD CLUB, 1855.—FAT CATTLE SHOW.—The ANNUAL CHRISTMAS SHOW of FAT CATTLE, SHEEP, and PIGS, will take place on the 11th, 12th, 13th, and 14th of December, 1855, at the Carriage Bazaar, King Street, Portman Square, when nearly 800*l.* will be awarded in Prizes and Medals.

The printed forms of Certificates, properly filled up, must be returned to the Honorary Secretary on or before SATURDAY, November 10th. Prize Sheets and the necessary printed forms of Certificates are now ready, and can be obtained on application to B. T. BRANDRETH GIBBS, Honorary Secretary, Corner of Half-moon Street, Piccadilly, London.

All communications on the Club's business should bear the words "Smithfield Club" on the outside.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 22, 1855.

THE COMPOSITION OF THE SUPERPHOSPHATE OF LIME in the market ranks in importance as an agricultural subject next to that of guano. There is hardly a testimonial published by any manure company to the merits of their particular form of this manure that does not end with an order for 5, 8, or 10 tons of it, and a very large proportion of all the Swedish Turnips grown in the country are indebted to it for their growth. The soluble form of phosphate of lime seems especially adapted to hasten the growth of the young Turnip plant through the period when it is most liable to injury by the fly, and the heavy crops grown after the application of 3 cwt. per acre of good "superphosphate" to a good Turnip soil, prove the manure to be equally efficient till the very close of growth. No wonder, then, that all our manure companies and manufacturers profess to make superphosphate of lime—or that one company, of whose respectability the names of its trustees, directors, and auditors are sufficient guarantee, seems by its title to devote itself exclusively to the production of this important fertilizer. This company styles itself, indeed, the "Superphosphate *Compost* Manure" Company; but then superphosphate is always given in the form of a compost: the biphosphate of lime is to be obtained alone only by a nice chemical process. In its manufacture from bones or coprolites it remains in the midst of the other ingredients which beside phosphate of lime those substances contain, and in the midst also of those other matters which the materials added may have formed. All superphosphate agriculturally is superphosphate "compost;" but everybody understands that the real value of any manure to which the term applies depends essentially upon the quantity of phosphorus in a soluble form which it contains.

Now, manures to which this term applies, vary in a very remarkable degree in this their characteristic feature. Superphosphates vary in

the quantity of phosphorus they contain much more than guanos do in the quantity of their ammonia. The former are artificial, and depend for their composition on the skill as well as the intention of the manufacturer, and in what these result may be gathered from analyses before us by Messrs. Way, Anderson, Nesbit, and others. These gentlemen have had samples of "superphosphate" under their examination which contained 21 per cent. of superphosphate, and samples of superphosphate which contained no superphosphate at all! The article by Dr. Anderson published a fortnight ago in our columns tells us what may reasonably be expected in a manure claiming this name, and the assertion with which it concludes, that many tons are sold containing but ½ a cwt. in the ton of what they are called, ought to be enough to put farmers on their guard. Our columns have before this shown instances in which either fraud or the grossest carelessness in manufacture has sent out superphosphates worth but 50*s.* a ton, the market value of the name being 7*l.* 5*s.* In July, three years ago, we called attention to a case of this kind, and we now republish the letter of Professor Way on which that exposure hinged:—

"The sample of superphosphate of lime is, as you supposed, a very inferior article, and I am afraid from its composition that its inferiority cannot be mercifully imputed to the mere ignorance of the maker. A good superphosphate should contain 12 or 15 per cent. if not more of soluble phosphate—the sample in question does not contain 1 per cent. Moreover the total proportion of phosphate of lime is so much smaller than it should be that I cannot help believing that some of the gypsum was put in as such—not produced by the ordinary action of sulphuric acid. In fact, I believe that it is a mechanical mixture of ground bones and gypsum, but I cannot assert this positively. Anyhow it is a bad sample of superphosphate. I should not value it at more than 2*l.* or 2*l.* 10*s.* per ton, because it can only be worth the bone it contains. Its analysis gave,

	Per cent.
Moisture	16.09
Organic matter and ammoniacal salts	14.56
Sand, &c.	11.30
Biphosphate of lime (equal to neutral phosphate rendered soluble 0.61)	0.41
Neutral phosphate of lime, insoluble	13.00
Hydrated sulphate of lime (gypsum)	37.27
Alkaline salts, with some carbonate of lime	7.37
	100.00

Nitrogen 1.51 per cent., equal to ammonia 1.83 per cent."

Instances of a nearly similar kind to this are now before us, to which a correspondent has called our attention, where superphosphate compost has proved on analyses by Professor Way to contain but 2.86 and 3 per cent. respectively of soluble phosphate of lime. We do not know that our correspondent charges fraud on the manufacturer from whom this substance was obtained, but the result of carelessness is just as bad as that of fraud—and a manure containing 2¼ cwt. of water, 2 cwt. of sand, 8½ cwt. of gypsum, and 2 cwt. of "chiefly common salt," with only 2 cwt. of bone earth, and less than 70 lbs. of superphosphate in each ton is none the less a source of loss to the purchaser, whether it be ignorance or fraud that overlooked its manufacture. It is worth rather less than 50*s.*, but probably 150*s.* was paid for the ton of it, and 3 cwt. only having therefore been applied per acre, the Turnip crop is lost, and the loss of that affects the productiveness of a whole rotation of crops.

It may be sufficient for the present that we have called attention to the fact that very worthless stuff is sold as superphosphate; no quantity of this manure should be purchased without the guarantee of an analysis. It needs but little skill in manufacture to ensure the value of the substance, and the failures instanced are the less excusable. In the little pamphlet recording his experience, which our correspondent has distributed in his county, analyses of superphosphates purchased from Mr. W. J. Carne, of Markham, from the London Manure Company, and from Mr. Lawes are given, and the quantity of soluble phosphate of lime in these varied from 15 to 28 per cent. Mr. Lawes guarantees 16 per cent., and is manufacturing from apatite a superphosphate in which he will guarantee the existence of 30 to 35 per cent. of soluble phosphate. These facts will become known, and those whose intelligence, good faith, and skill result in composts of the composition quoted above, will infallibly and happily lose their custom.

By the novel and admirable arrangement of the ropes in Fisken's Steam-plough, which we have before described, a wonderfully simple and light form of anchor is rendered sufficient. It consists of a cast-iron plate 8 inches wide and a yard-and-a-half long; and this being laid edgeways in a crease cut in the ground, presents a powerful resistance to a sidelong strain; while it can be easily drawn forward endways *in* the soil. By means of a stake set down upon the headland, and a rope connecting it with a small windlass on the anchor, one boy can shift the latter forward as fast as required. A beam of wood attached at right angles to the iron blade prevents it from tipping over or rising out of the ground; and an upright iron standard carries the pulley in a nearly horizontal position.

The arrangement of the ropes we need not stay to describe: merely observing that the endless hemp-cord traverses up and down along one headland as well as across the field in the direction of the ploughing, so that by an adaptation of the travelling-crane principle, the pulleys can be shifted without involving any alteration in the length of the cord. To fit different-sized plots of ground, the cord can be cut and spliced again in a few minutes.

Let us now proceed to the economical qualities of the invention. By means of the apparatus already described a steam-engine set in one corner of a field causes a barrel to revolve upon a continuously-travelling carriage; and *had any efficient digging-cylinder been invented*, it could have been actuated just as well as this barrel, but in the absence of such a tool, Mr. Fisken has employed the barrel to drag behind it a series of ploughs, by winding along a fixed rope. The carriage, with two ploughs attached (as exhibited at Carlisle), weighs 15 cwt.; and it was set in motion by 400 yards of driving rope; yet it worked one plough at a pace of about two miles per hour, when the engine had a pressure of only 7 lbs. per square inch—and this engine was of 7-horse power at 45 lbs. pressure. From the condition of the land at the time we saw it, we should say that one horse would have easily ploughed as large a furrow at the same pace; but *the trial perfectly proved how small a per-centage of power is lost in the transmitting tackle.* Concerning this essential point, however, we are able to adduce the testimony of a high authority, namely James Stirling, Esq., C. E., of Edinburgh.

In April, 1852 (for the steam-plough has been hatching for some years), this gentleman was instructed by a Special Committee of the Highland and Agricultural Society of Scotland to report upon the invention; and, having seen his report, we give the following details.

The inventors, Messrs. W. D. and F. Fisken, first put their plough in operation upon the farm of Gellyburn, in Strathearn (six miles from Auchterarder, Perthshire), occupied by one of the brothers. For the sake of a motive-power for experimenting, they dammed a small brook passing the farmstead and falling into the river Earn, and set up a water-wheel. This was an overshot, 10 feet diameter, and 3 feet in breadth, having an average speed of 10 revolutions per minute; and by means of a spur-wheel, pinion, and large rigger, communicated to the driving-rope a velocity of 745 feet per minute.

The travelling windlass or plough carriage was differently constructed from the present one, having two drums alternately coiling and uncoiling two ropes: the ploughs also were made of wood, and the workmanship of the entire apparatus had much the appearance of a pocket-knife manufacture about it. The principle, however, was just the same as in the present machine; only instead of the speed of the driving-rope to that of the plough-carriage being as 11 to 1, it was as 7 to 1—the ploughs moving 108 feet per minute. By carefully measuring the quantity of water passing to the wheel, and making all requisite allowances, Mr. Stirling found that the effective power of the wheel did not exceed 2 horse-power; and this propelled one plough at the rate of about 1¼ mile per hour—ploughing a furrow 9 inches wide and 7 inches deep in "ground of a moderate stiffness." The carriage itself weighed 12 cwt.; there were upwards of 500 yards of driving-rope in motion; and the greatest distance of the plough from the wheel was 250 yards. Mr. Stirling states his opinion that a calculated mechanical horse-power being greater than that of an ordinary animal, the difference between the nominal and actual horse-power will be sufficient to make up the loss from the friction and inertia of the transmitting apparatus—in other words, that *a 2-horse engine will do with this machine the work of two real horses.* An economy of power equal to this has never been approached by any other steam-plough; and to show that it is both satisfactory and profitable, we invite consideration to a few figures.

It will not do to calculate a horse's power from the draught he may be pulling when walking at a smart pace. Take the draught of a 2-horse plough at 36 stones, and the pace of the horses 2¼ miles per hour; and you find that each horse is doing duty equivalent to 54,000 lbs. raised 1 foot high per minute, which is equal not only to 1 but to 1.636 mechanical horse-power. But the fair way is to say that, ploughing 9-inch furrows, the team accomplishes 1 acre in eight hours; the *average* pace being not 2¼, but 1.375 mile per hour; and each horse pulling 18 stones, does duty equal to 30,492 lbs. lifted 1 foot per minute, which is considerably under the usual estimate of a mechanical horse-power (namely, 33,000 lbs. raised 1 foot per minute).

A steam horse, could it work without any loss of power in the connecting machinery, would draw a plough, therefore, at an average pace not only of 1.375, but 1.480 mile per hour, doing 1.11 instead of only 1 acre in eight hours. Then, as it can work ten hours a day instead of eight, it will do one-quarter more than this quantity, or 1.387 acre per day. The speed of the roughly made implement in the above trial was 1¼ mile per hour—rather slower than the average pace of a team, but still equal to 1.138 acre in ten hours; and, as no time is lost in resting and breathing the horses, and very little lost in shifting at the ends of the work, the 2-horse power water-wheel may be estimated to plough as nearly as possible 1 acre per day. Messrs. Roger, of Stockton-on-Tees, have manufactured a neater machine; and with some slight alterations in the adjustment of the ploughs (and, it may be, a small wire rope in place of the hemp cord, and a pitch-chain instead of the wire drag-rope), we do not see why the Messrs. Fisken may not *plough any land where two horses are the common team, and turnwrest work no objection, for 4s. or 5s. per acre.*

The inventors, Messrs. Fisken, of Stamfordham, by Newcastle-on-Tyne, have made considerable sacrifices in a study foreign to their profession, in order to bring this invention before the public; and as the machinery is inexpensive, and so easily applied that a common portable steam-engine can work it without any alteration or addition, merely by attaching a rigger to the fly-wheel, we hope that some landowner or occupier will now be found to give the new steam plough a thorough trial upon his farm. *I. A. C.*

THE ROYAL AGRICULTURAL SOCIETY'S TRIALS OF REAPING MACHINES.

In the *Mark Lane Express* of this week I observe an article from the *North British Agriculturist* upon the trials of reaping machines, in which it is attempted to be shown that the tests of reapers generally, and at the last trial in particular, at Leigh Court Farm, were not sufficiently comprehensive and practical, so as to realise the object of such trials, viz., that the decisions of the judges may so thoroughly be relied upon, that agriculturists run no risk in acting upon their judgments by purchasing reaping machines according to their conclusions.

Now, though it would be easy to show that the Royal Agricultural Society have rendered an immense benefit to the agriculturists of Great Britain by causing a great number of valuable new implements to be brought into general use which would either not have been invented, or if so merely been used locally, had it not been for the existence of the Society, the proof of this assertion I leave in abler hands, nor shall I attempt on paper to prove that the judgment passed upon the reaping machines at the late trial on the farm of W. Miles, Esq., M.P., was according to evidence, or whether the evidence was complete; but I intend to try to prove in the field, that as far as my machine is concerned, the judges did not make an error in awarding me the 20*l.* prize; to those who think otherwise I beg to say that I hope that they will not decide upon the assertions of the *North British Agriculturist*, but will see the machine at work.

The first trial will take place to-morrow, the next on Tuesday, on a farm in the parish of Melsonby, Darlington, and another trial or two will be announced by advertisement.

Justice to myself as an exhibitor at Leigh Court farm, and an earnest desire to see the long debated question of reaping by machinery settled, are the best excuses I have to offer for occupying your columns. *John Palmer, Stockton-on-Tees, Sept.* 18.

METHODS for COLLECTING AGRICULTURAL STATISTICS.

[Evidence given before the Lords' Committee by Mr. Hall Maxwell and Mr. Caird.]

J. Hall Maxwell, Esq., *examined.*—Will you explain to the Committee the mode which you adopted to obtain the returns, and what success you met with?—The mode adopted then was very much the mode which was followed in 1854, and is now in course of operation; for example, taking the county of Roxburgh, we divided it into certain districts for our purpose, grouping the parishes with a view to their agricultural features, so as to have, as far as possible, a district similar in its agricultural products, and in the character of its farming. We selected and secured the services of an influential, intelligent, active practical farmer in each district, as the enumerator, and we gave him a committee to aid and to work under him, consisting of farmers of a similar stamp, connected with the different parishes, so that in fact each parish in the district was represented at the committee. I prepared a form of schedule, of which I hold a copy in my hand; in some respects it has since been altered, and in one important point in particular we have since deviated from the plan of 1853. The necessary number of schedules were then sent by me to the enumerators of districts, by whom they were circulated amongst the occupants of land; they were returned to him, examined, and sent by him to me, and then I tabulated and booked them. Now, we found that that system did not work well; I found, particularly in the pastoral districts, that there was a decided disinclination to pass the filled up schedule, containing answers to the queries, through the hands of any neighbour, however respectable or well liked he might be.

I held a meeting on this point; among other places, at Hawick, when there was a sort of compromise effected; the farmers agreeing to support the inquiry provided they were allowed to direct their answers to myself; they seemed to prefer that I should receive and look at them rather than any neighbour. I have described the staff; I shall now describe the schedule. The occupant was asked to state, first, the total number of acres on his farm, then the total number of these arable, and the manner in which the farm was subdivided; that is, the acreage of every crop, of fallow, Grass, sheep-walk, waste, roads, fences, &c. A return of wood was taken exclusively from the proprietor. The schedule also contained columns of stock. I have already stated that the tillage farmer was required merely to state, as a basis for after inquiry into his produce, that which was patent to any one, the acreage of his crops; but as acreage affords no criterion, in pastoral districts, of the stock maintained on it, the stock farmer had to return directly the number of head possessed by him. The Committee will observe, with reference to stock, that when I got the answers to the schedule, the work was done. I had merely to add the individual returns in each district, and to put the results of different districts together, in order to show the stock of a county; but I had another process to go through in order to arrive at the yield of the crops: though I had received from every occupant a return of his acreage, and of how that acreage was subdivided into Wheat, Barley, Oats, &c., such a return did not tell me how many bushels per acre he had raised. It was deliberately considered, and it was very early resolved, that it would be most impolitic and inexpedient, with a view to success, to ask the farmer any direct question as to his produce. We believed that, as a voluntary measure, it would not succeed if he were so asked; and that there was less risk of deception by resorting to some indirect method, such as we did adopt. The method was this: the enumerator of a district and his committee, the committee being a jury for the district, and the enumerator, you might say, being the chancellor of that jury, received written instructions from me in the course of the summer to keep their ears and their eyes open, to observe how the crops were looking, to inspect their respective parishes, and to ascertain their neighbours' opinions as to the prospects of the harvest; and by such a course of inquiry, commenced before and continued after harvest, while the crop was growing, when it was cut, after it had been stacked, and up to the time of some of it being threshed or weighed, each man in his own parish was directed to form an estimate of the probable average yield per acre of each grain and root crop. The enumerator then summoned his committee or his jury together; they compared notes for the different parishes, struck an average for the district, and reported to me that for their district, in their opinion, the average yield amounted to so many bushels of Wheat per acre, so many bushels of Barley, Oats, &c., and so many tons of Potatoes, Turnips, &c. I issued the schedules on the 1st of May; there were two reports that year, one of acreage and stock, and the other the estimate of the crops; the first report was dated 25th of July. The supplementary report or estimate of produce was not published by the Board of Trade, but by their permission by the Society on our own responsibility; it was dated 19th November; so that it took from the 1st of May to the 19th of November to complete the inquiry.—Will you state what alterations you introduced in 1854, and what alterations you think might with advantage be introduced in the collection of the statistics? In 1854, at a conference with the Board of Trade in relation to the Industrial Museum, which has since been established in Scotland, the Duke of Hamilton, the Duke of Buccleugh, and other members of the Highland Society, availed themselves of the opportunity to urge the prosecution of the statistical inquiry, and I was required by Mr. Cardwell to estimate the cost of putting the same measure into operation over the whole of Scotland, which had been tried experimentally in three counties; the sum estimated was 6000*l.*, which was granted. I may mention, that the same system generally was followed in 1854 as in 1853. There were only two alterations of any moment to which I think I need allude: the first I have already explained, namely, that the schedules were issued directly by me, and returned to me. The other alteration was, that in 1853 we served schedules upon all occupiers holding as small a portion as 2 acres, so far as my memory serves me; but in 1854 we made rent, and not extent, the line of demarcation: we still believed it to be absurd to send schedules to every little occupant of land, who could neither comprehend the schedule, nor fill it up; but we thought rental was a better limitation than acreage: a man might hold 2 acres, and pay a comparatively large rent, much larger than one in the Highlands holding 20 acres, and paying a few shillings; we therefore adopted the money limitation to fix the point at which schedules should be issued. We found it necessary again to draw a distinction between the Highland and the Lowland districts; we believed we might safely send schedules to all persons in the Lowlands paying a rent of 10*l.* and upwards; but we were told that it would generally be fruitless to seek direct information from Highland tenants paying less than 20*l.*, so that it was resolved to take direct information, by the service of schedules, from all tenants in 26 Lowland counties rented at 10*l.* and upwards, and in the seven Highland counties at 20*l.* and upwards. With regard to those below these marks, it was further resolved that I should devise some means or other of getting, through indirect channels, information to lay before Goverment, in order to exhaust the margin down to the lowest possible figure. This supplemental report is now ready to be lodged with the Board of Trade. The issue of the schedules by me, and the mode of treating the small holders, are, therefore, the two principal changes in 1854 as compared with 1853.

JAMES CAIRD, Esq., *examined.*—You are aware of the mode which has been pursued in England by the Poor-law Commissioners, through the agency of their officers, in attempting to obtain information during the past year?—I am so, in so far as their report gives me that information. Is it your opinion, that that is the best means of obtaining such information, or can you suggest to the Committee any other mode which in your opinion would be better calculated to obtain the desired results?—I do not think it the best mode of obtaining that information; I myself suggested to Mr. Cardwell, about two years ago, a mode which I subsequently read before the Society of Arts, and which, if your lordships will permit me, I will again go through. The main object is to obtain trustworthy returns, and those with the least necessary expense. Trustworthy returns can only be obtained through trustworthy officers, responsible for the correct performance of their duty, and working under a system which affords a ready test of accuracy. Economy will be promoted by employing a small number of competent and responsible men, rather than a very numerous body of local officials, each of whom must receive a fee, while they would be comparatively irresponsible, and, from their numbers, subject to no satisfactory test of accuracy. The first point to be ascertained is the acreage under each different crop, and this is by far the most important part of the inquiry. This will not be an estimate, but a record of facts. It is requisite, therefore, that it be conducted with care and deliberation, and, as it may be begun as soon as the seed is sown, the three months of May, June, and July may be occupied in this part of the inquiry. There could be no reasonable objection on the part of any occupier to an inquiry as to the manner in which the surface of his farm is cropped. That is quite a different question from demanding to know the total produce of his crops. It may be proper, therefore, to make answers to this inquiry compulsory, if necessary, which necessity, it is believed, would very rarely arise; nor would there be the same objection on the part of the farmers to answer such questions when put by a responsible and confidential officer, as by what might be thought a prying and irresponsible neighbour. The acreage under each different crop having been ascertained, the occupier would be required to say not what was the actual produce of a particular field, but what was the average produce per acre of each crop on his farm in ordinary years. Before harvest these important facts would thus have been ascertained, viz., first, the extent under each kind of crop; secondly, the average produce per acre of ordinary years. Taking the foregoing data as the principles on which to conduct the inquiry, the following would be the plan of operations,—(I do not say that this is the only plan, or anything like it, but it is one which I have considered). I will suppose a branch of the Tithe and Inclosure Commission Office, or such other office as the Government may deem most suitable, to be the central office for issuing instructions, comptrolling officers, inspecting and testing the accuracy of the returns, and for arranging them for publication. One, two, and in some cases, three collectors of returns for each county, according to its extent, would be appointed. These would be selected as men of known competence; each collector would be employed, on an average, 90 days before harvest in ascertaining the acreage under each crop, and other particulars; and 10 days after harvest in ascertaining the comparative yield of the last crop. The collector, provided with his map and list of occupiers, would, between the 1st of May and the end of July, personally visit every occupier of land within his district, and mark down in a book the several particulars required to be ascertained. This book would, when completed after harvest, be forwarded to the central office in London, and would be preserved for the purpose of being afterwards tested by the personal inquiry of a superior officer. Immediately after harvest the collector would again visit each parish in his district, and satisfy himself as to whether the crop of each kind was an average, or how far it was above or below an average. Having already calculated the average produce of each crop in a parish, he would alter that to correspond with the actual produce of the particular season. Thus, for example, if he had ascertained that a certain parish had 1500 acres in Wheat, which at the rate of the average of years yielded 39,000 bushels, but that the actual yield of that year had proved 2 bushels an acre below the average, he would subtract 3000 bushels from the above quantity, and return 36,000 bushels as the estimated yield of Wheat in that parish. The main part of the calculations having been completed before harvest, the alterations necessary after harvest would be made with great facility, and the gross returns of the crops be ready for publication by the 10th of October. Monthly reports of the state of the growing crops at the most critical period would be made during the three months of inquiry. It would be part of the duty of the central office to test the returns of every collector, by an inspector taking his returns for a particular parish, and investigating on the spot each statement recorded. This should be done in spring, so that the estimate might be compared with the fact after the crop was threshed out, and thus any carelessness or gross inaccuracy would be detected and a useful guide be supplied for the future. Incompetency or carelessness would be visited with loss of employment. After the gross returns of produce were issued (which would be the first object), it would be the duty of the central office to compile from the returns such valuable statistics as had a special bearing on the agricultural improvement of the kingdom, and of every separate district in it. I think the mode which was adopted in Scotland of sending returns direct to the Secretary of the Highland Society, and having local committees to fix the averages, was an extremely good one in theory, but there was no opportunity of checking the correctness of the returns, which were sent direct to Edinburgh. It appears to me that there is a machinery in Scotland at the present moment, upon which this inquiry might be with advantage engrafted. I have here a copy of a schedule which has been issued under the Land Valuation Act of Scotland, which has just come into force, and under which the occupiers and proprietors are, under a penalty, bound to return the nature of the subject they occupy, the parish in which it is situated, the estimated extent; the grain rent, the kind of grain if a grain rent, the amount of conversion in converting it into money; the drainage interest, if any is paid by the tenant; and it would be easy to add three or four columns, embracing the returns with reference to each crop; this is required under an Act of Parliament; and there have been in every county in Scotland valuators appointed who would be very useful men for obtaining this information.

J. H. MAXWELL, ESQ., *further examined.*—With regard to the opinion which Mr. Caird has expressed, that there is a want of means of testing the accuracy of the returns as now made, can you suggest to the committee any mode by which an efficient test may be furnished, if you think none at present exists? Mr. Caird, to a certain extent, is right; but, to a certain extent, he is wrong as to the want of any test of accuracy under the scheme which was devised and worked out by me. There is to a certain extent, a test of accuracy; I described on Tuesday how incidentally I had here and there a valuable test of accuracy, by the investigations of certain members of the committee who conceived it was their duty to collect the acreage of their parishes, and the identity between their reports and the aggregate of the individual returns from such parishes. It may be said that this was accidental, but if the result of the accident be valuable as a test, I could easily do the same thing here and there again. If it was one year done here, and another year there, and if the result was such as to satisfy Government of the *bona fides* of the farmer, and that their returns of acreage were substantially correct, it would to a certain extent, serve as that test of accuracy which Mr. Caird thinks is wanting. There was another test of accuracy; in some instances the enumerator of a district required me, to enable him to estimate the crops, to send him, not what the acreage of this man was, or that man, for I would not have done that—those were confidential statements to me—but what the general acreage of the crops over a district or in a parish was. In such cases any glaring error necessarily attracted his attention, or that of the member of committee for that parish. Many trivial errors were discovered, which led to a great deal of correspondence on my part, with a view to trace and put them right; but the character of the errors was such as to satisfy the enumerators and myself, that there had been no intention to deceive. That was another check. Mr. Caird was asked by a noble lord, whether his views as to the want of accuracy in the Scotch returns were based upon the fact of inaccuracy, or only upon an opinion that there might be inaccuracy. Mr. Caird stated, that in his own district there were some slight inaccuracies; of course they must have been very slight, because he being my enumerator in that district, they were not communicated to me, and I have not heard of them till the present moment. There is another test, which, as a farmer, Mr. Caird must admit exists; those schedules show the rotation of a farm, and every person who knows anything about farming, and gets accustomed to reading the schedules, will see at once where there is a material misstatement. If there should be 150 acres of Barley in the return, and there are only 15 or 50, it will speak for itself, and lead to correspondence in order to trace the error: this was the case repeatedly last year. It may be asked, moreover, what is the object which a farmer has to deceive in making his return of acreage. In preparing an estimate, the parties may have an interest in falsifying the estimate but I put great faith in the honesty of the farmers in Scotland; some of them may refuse to give information, but I have the most perfect confidence in their honesty and *bona fides* when they do give it; and as it was only the acreage which was asked from them, a fact any one could ascertain, and as the individual returns of acreage were not to be published, but only the acreage of a large district of parishes, if the farmer put as much confidence in my honesty as I did in his, he had no object in deliberately misstating his acreage, and I do not believe it was done. So much for the test of accuracy; but I will go a little further, and say, if there is no test of accuracy in the scheme which has been worked out in Scotland, I want to know where it is in that which Mr. Caird would substitute for it. I did not exactly gather whether Mr. Caird meant to apply the machinery to Scotland that he spoke of in the first part of his evidence as to England, for, there, there is no test of accuracy. If the general scheme which he proposed for England, particularly in reference to the estimates of produce, were to be proposed for Scotland, I would object to it on the ground, *inter alia*, that there is no test of accuracy. It appears to me to be a fallacious scheme; he starts on an assumed basis which does not exist, and that contains no test of accuracy whatever. The basis of Mr. Caird's scheme for estimating produce is the average yield of ordinary years for each farm: I am perfectly confident of this, whatever means may exist for establishing this basis in England, there are no such means in Scotland. In Scotland if they would give it you they could not, they have not the means. It may be that after statistics have been in operation for some years, and the attention of farmers has been directed to the subject of averages, they might be able to give it, but in the mean time they could not individually give you that which is the foundation of Mr. Caird's scheme, an accurate average of each crop for the last five years. I will prove that in this way: I thought it was exceedingly desirable last year to be able to give some indication how far the result of the harvest of 1854 might be above or below an average; I did not attempt to get each farmer to say what was his average produce over a series of ordinary years, that would at once have been going into the inquisition which Mr. Caird would like to avoid; but I said to the enumerators and committees, try and find out for me generally, in a rough way, how far the crop of 1854 is above or below the crop of an ordinary year. Even in that general way, in a considerable number of districts in Scotland the enumerator and his committee, although men appointed to the office on account of their skill and professional knowledge, were unable to give me any such report. And I may mention that in one of the two districts of Wigtonshire, Mr. Caird's own county, I failed in obtaining such information. Further, as I understand it, the rest of Mr. Caird's scheme, he proposes, having got this ordinary average, to determine how far the average of the current year is above or below the ordinary one, by applying to it the mean of the weather. I understand he takes the average of ordinary years, and according to what the weather has been, he determines how far this year is above or below that ordinary average. Mr. CAIRD.—I may be allowed to say, perhaps, that I only take the weather as a very important element. Mr. MAXWELL.—The weather is an important element, but it is a very difficult element to judge of. We have no meteorological observations in Scotland, and we have no means of establishing what the weather has been, and, besides that, the mean weather may have been very excellent, but an unfortunate thunder shower at a critical time may have done a very great deal of harm. I look upon Mr. Caird's own superior intelligence and knowledge of these matters as having rather run away with him upon this subject, and that he expects farmers in general to be able to do all he can do himself. My general objection to Mr. Caird's scheme is that it is an estimate upon an estimate; his acreage is a fact I admit, but he has an estimate upon an estimate in this way: he has to estimate the average produce of ordinary years; that average must be necessarily an estimate, and then there is an estimate of the weather to be brought to bear upon the first, in order to get at the produce for the year. So that he gets at the produce of the year by means of two estimates, both of which, I think, would be apt to be fallacious.

JAMES CAIRD, ESQ., *further examined.*—Having heard the evidence of the last witness, have you any wish to explain any portion of your former evidence? Yes; with regard to Scotland, I think the objection Mr. Maxwell takes that the schedule I suggest would be regarded as a tax-paper, does not in the least degree hold, inasmuch as it is a tax-paper for county rates, and the rates in Scotland are almost entirely paid by the landlords. The farmers or occupiers have scarcely any interest in those valuation returns, and would make no objection to them. I think that is a sufficient answer to Mr. Maxwell's objection that my proposal of employing the county valuators would connect the statistic returns with taxation. With regard to the impossibility which Mr. Maxwell says there is in ascertaining the averages, and the instances which he has adduced from Scotland, in which his inquiry on this point was not answered, I beg to state that the distinction is very obvious. If you ask a man, as he did, to tell you the average produce of a hundred different farms in half-a-dozen different parishes, he may very probably say, I cannot tell you what it is, but if you ask him to tell you the average for his own farm, he will have no difficulty whatever in doing so. I never found any difficulty of that kind in my inquiries in England. Mr. Maxwell seems to think that farmers do not know that, even in their own case; but I beg to ask how a man could hire land at all, if he did not ascertain its quality by its relative produce to other land. It is because 1 acre yields so many bushels more than another that it brings a higher rent. The first point a man would inform himself on would be, "What is the average produce of this land naturally?" He would be ignorant of his business if he did not know what the average produce was of the farm which he held. In reference to the objection which Mr. Maxwell took, that the plan I proposed would occupy so many months, that could be obviated at once by employing more collectors; if 200 collectors do it in three months, a certain proportion more would do it in two months; you do not alter the total amount of the expenses, but only the number of the people who are for a proportionally shorter time employed. His objection to leaving schedules for a lengthened period does not hold in my case, as I do not propose to have any schedules. Mr. Maxwell seemed to say that there was some test at present in Scotland, and that I ought to know that, from having acted on his staff in my own county. I may say that I felt it my duty (being in the county when he visited it for the purpose of explaining the matter to the farmers) to do everything in my power to assist the Government in this inquiry. Having gone to the meeting which Mr. Maxwell has referred to, I acted as chairman, and assisted him in explaining and enforcing his views; and the gentlemen then present insisted that I should myself act, which I consented to do with great pleasure. But I told Mr. Maxwell then, and still maintain, that he has no test of accuracy. The whole of the returns were sent direct to Edinburgh; they were never sent back to us, and we never had any means of testing their accuracy. Mr. Maxwell seems to misapprehend my plan, when he describes it as an estimate upon an estimate. It is an estimate on a fact; an estimate of produce on an ascertained acreage, which is all that can be got by any plan whatever. I wish to say that I do not in the least degree desire to appear in antagonism to Mr. Maxwell: on the contrary, I think he deserves very great credit for the spirit in which his system, such as it was, has been carried out in Scotland.

ON FATTENING POULTRY.

(*Continued from p.* 620.)

CHAPTER I.—THE PRINCIPLES OF FEEDING.

SECTION II.—*Examination of the Substances used in Fattening Poultry.*

Supposing the principles above-stated be correct—and both theory and practice tend to prove their perfect truthfulness—it is obvious that the value of any substance used as a food for fattening animals can only be ascertained by a reference to the relative quantity of warmth-giving, flesh-forming, and fat-forming materials it contains; and such an examination will give us a true index of its money value, and enable us to ascertain how far the practice of feeders has been based upon right principles.

OATS AND OATMEAL.—Oats or oatmeal are perhaps more largely employed than any other grain in fattening poultry; and in this case the experience of feeders strikingly corresponds with the results afforded by scientific examination. Oatmeal contains, in every 100 lbs., 6 lbs. of fat or oil, 18 lbs. of flesh-forming,

and 63 lbs. of starchy materials; Oats contain the same quantity of fat in every 100 lbs.; but in consequence of the large proportion of husk, the quantity of flesh-forming and starchy substances is lessened to 15 lbs. of the former and 47 lbs. of the latter; thus Oats are not as valuable for fattening purposes as oatmeal—especially as, from the presence of the husk, and their undivided state, they are not so rapidly digested.

Wheat and Bran, Middlings, &c.—Wheat, in its entire state, contains only one-half the fatty materials of Oats, and hence it is not usually employed in fattening; the fat of Wheat resides almost entirely in the outer portions, which, when removed, constitute bran, pollard, and middlings—the latter, or finest bran, has been remarked by Prof. J. Johnston as being almost similar in its composition to oatmeal, being much richer in both fat and flesh-forming foods than the inner parts of the grain. Its value in fattening pigs has been long known; and the writer can speak from long experience that it is equally efficacious in fattening poultry. It contains 6 lbs. of fat, 18 lbs. of flesh-forming, and about 53 lbs. of warmth-giving food in every 100 lbs.

Barley and Barley-Meal.—Barley is not advantageous as a fattening food, as its per centage of fat is very low, being not more than 2 lbs. in every 100 lbs.

Indian Corn.—Indian Corn is remarkable for the large quantity of oil contained in yellow varieties—nearly 8 lbs. in every 100 lbs. Its capability of supplying flesh is not so great as that of oatmeal, hence it is not well adapted for laying hens, which it renders too fat; but this peculiarity fits it remarkably for fattening poultry, for which purpose it is largely employed in the United States.

Rice.—Rice is one of the least advantageous foods either for fattening or supplying flesh; it contains only a trace of fatty materials, and less than half the quantity of flesh-forming food contained in Oats.

Peas and Beans.—All the varieties of Pulse contain a much larger proportion of flesh-forming or nitrogenous substances than any grain—in fact, about 25 per cent., or double the quantity contained in Wheat; whilst the proportion of fat is not more than 2 in the 100. This composition admirably fits them for the support of the animals undergoing much muscular exertion; given to fattening animals, they are apt to harden the fibre, as in the well known case of Bean-fed bacon; and the elaborate experiments of Mr. Lawes in pig and sheep-feeding prove most distinctly that the increase in weight of a fatting animal is dependent on the carbonaceous, and not on the nitrogenous constituents of its food.

Milk.—Milk is a most advantageous addition to the food of poultry, as it contains 3 lbs. of fat (butter), and nearly 5 lbs. of warmth-giving (sugar of milk), and 4 lbs. of flesh-forming food (curd), in every 100 lbs. Skimmed milk, or butter milk, from having had the fat removed, are by no means so advantageous.

Animal Fat.—If any pure fat is given to fatting fowls, it is evident, from what has been previously stated, that it should be of as solid a character as possible, for as it is assimilated without much change it is evident that the firm character of the fatted poultry is much increased by it. The evil effect of Linseed-cake upon geese has already been alluded to, arising from the liquid condition of the oil contained in it; the best addition to the food of poultry consists, therefore, of the hardest and cheapest variety of common fat, namely, mutton suet, or what is equally good, the paring of the loins, which are at present sold to the tallow melter.

Cooking Food.—One other circumstance remains to be considered in this section, namely the alteration effected in food by cooking. The influence of heat is chiefly exerted, in the case of vegetable foods, on the starch which constitutes so large a portion of all grain: this in its natural state consists of small granules, which are (as in the well-known case of Arrowroot, a very pure variety of starch), insoluble in cold water, from the circumstance that each is coated with a firm membrane; when heated to a degree somewhat short of boiling water, this membrane cracks, and the interior gummy portion of each granule dissolves in the water and thickens it. There is no doubt but that starch, thus altered, is more readily and rapidly digested than in its insoluble state; hence the advantage of cooked food for fattening pigs, and the desirability of employing boiling water to scald the meal used in fattening poultry.

It may perhaps lead to easier understanding of the relative value of the different kinds of food, if their constituents are stated in a tabular form, it being borne in mind that such statements are merely approximations to the truth, as the composition of grain varies with the character of the season and the soil.

Table showing the composition of the substances employed in fattening poultry.

Every 100 lbs. of	Fat or Oil.	Flesh-forming Food.	Warmth-giving Food.	Mineral Substances.	Husk or Fibre.	Water.
Oats contains	6	15	47	2	20	9½
Oatmeal	6	18	63	2	2	9
Wheat	3	12	70	2	1	12
Middlings (fine bran)	6	18	53	5	4	14
Barley	2	11	60	2	14	11
Indian Corn	8	11	65	1	5	10
Rice	A trace.	7	80	A trace.	—	10
Beans and Peas ...	2	25	48	2	8	15
Milk	3	4½	5	¾	—	87

(*To be continued.*)

LOIS-WEEDON.

A spirited essay of the Lois-Weedon practice was made last year by Robert Calwell, Esq., of Belvedere, in the county of Down, to the extent of 14 acres, all the operations having been performed in the most careful manner (a still more extensive one, amounting to 29 acres, is carrying on this year). The balance sheet of this experiment has been laid before a meeting of the Chemico-Agricultural Society of Belfast, and is as follows:—

Cost of 14 a. 0 r. 36 p. of drilled Wheat.

	£	s.	d.
4½ cwt. of Wheat sown, finished 19th Nov. 1853 ...	£3	2s.	3d.
Marking out, 16s.; drilling, 1l. 7s. 6d.	2	5	6
Rolling, 6s.; covering with rakes, 8s.	0	14	0
Digging, one spade deep (a spade deep is probably a foot), 14s. per half acre	9	19	2
Forking, 10s. per acre, 31st March, 1854	7	0	0
Forking and weeding between drills of Wheat ...	6	15	6
Horse-hoeing between drills, 6th May	0	5	2
Scarifying the fallowed intervals, 10th June ...	1	16	0
Breaking clods, 8th May	0	10	6
Hand-weeding and wheeling off weeds	14	12	7
All cost previous to reaping	46	18	8
Scarifying the fallowed intervals after stooks were removed, 2d till 14th October	3	16	0
Forking and taking off stones and weeds from fallowed intervals, to have all clean and fine for drilling	7	13	0
Interest on cost of implements	1	12	0
All cost one year	59	19	8

Leaving ground well prepared for drilling.

Produce bad, only 5 tons 17 cwt. on 14 acres; Wheat bad quality, heads 1 inch longer than same Wheat broadcast on Potato ground, stooked as thick on ground as broadcast, but being worked too late among, roots were loosened, half of heads consequently did not fill; the pickles of those that did fill well were very large. Crops left 1l. 2s. for rent per acre, straw left for harvesting and threshing expenses.

Mr. Calwell thus ascribes the defective crop to the late working of the soil and consequent loosening of the roots. It is very possible in this he is correct. It is probable from the sum charged for forking, 10s. an acre, which, after the digging, ought to have been a light and inexpensive operation, that the forking was deep, which for a spring operation I should think wrong; it may also have been, and very likely was, carried too near the plants: the cost of the operation would also indicate this. He was also too late in sowing.

Let us now compare with Mr. Calwell's essay Mr. Smith's first year's experiment on his four-acre field. He says, under date of November, 1850—"I entered upon the field last month (October); I then simply ploughed the field an inch deeper than it had ever been ploughed before; cleaned and levelled it; and so, without further preparation, got in my Wheat. I have just sent in my spadesmen to trench the fallow intervals two shallow spits deep for the succeeding crop, and, without any misgivings, await the result. November, 1851.—I am now enabled to give the result of my experiment on the four-acre field of Wheat, on which I entered in October, 1850:—

	£	s.	d.
Paid for ploughing (6s., the half portion of each of the 4 acres)	£1	4	0
Harrowing, levelling, and cleaning the foul stubble (10s. do.)...	2	0	0
Pressing the channels for the seed (1s.)	0	4	0
Dropping the seed in the channels by hand (5s.) ...	1	0	0
Four pecks and one gallon of seed (5s. per bushel)...	0	5	7½
Rolling (6d.)	0	2	0
Hoeing between the rows (3s.), scarifying the intervals (3s.), bird keeping (4s.)...	2	0	0
Reaping (9s.), carrying to barn and unloading (6s.)	3	0	0
Threshing and winnowing 20½ qrs. (at 2s. 11½d.) ...	3	0	2
Rates and taxes (4s. 8d.), and interest on 20l. for outlay, implements, &c.	1	18	8
Total outlay	14	14	6
20½ quarters of clean Wheat (exclusive of tails) ...	35	17	6
8 tons of straw (40s.)	16	0	0
	£57	17	6

It is here seen that Mr. Smith very correctly makes no charge against this crop for double digging or other operations having report to the succeeding crop, and Mr. Calwell should have followed this rule; he would then, notwithstanding the short-coming of the crop, have had a much heavier balance on the profit side, though still too light. As applicable to the general preparation and to the ensuing crop, we may deduct from the expenses of this crop the following items:—

	£	s.	d.
Marking out	£0	16	0
Digging one spade deep (this we are to suppose refers to the intervals, which is then a preparation or fallowing for the ensuing crop)	9	19	2
Forking at 10s. per acre (this appears to have been applied to the intervals, as the next article does to the rows)	7	0	0
Hand-weeding and wheeling off weeds, as already a charge of 6l. 15s. 6d. has been made for forking and weeding between the drills, and as much of this weeding must be to the benefit of future crops, there may fairly be deducted from this item	10	0	0
Scarifying the fallowed intervals after stooks were removed	3	16	0
Forking and taking off stones and weeds from fallowed intervals...	7	13	0
	39	4	2
Deduct from this the amount, which, according to Mr. Smith, was expended in ploughing, harrowing, levelling, and cleaning the foul stubble at 16s. per acre, and which is not charged by Mr. Calwell	11	4	0
	28	0	2

or 2l. an acre, which added to the 1l. 2s. 0d. which by Mr. Calwell's estimate he has for rent, would give him 3l. 2s. 0d. for rent, &c.

The correctness of this view may be questioned, as it may be said the existing crop has derived benefit from these workings of the intervals; but I have not made any deductions from the more superficial operations in them, to which alone we can with certainty attribute beneficial results to the growing crop: any benefit from the deep working and bringing up of crude material to the surface to the growing crop is very problematical—indeed, I think it cannot admit of question that the throwing on the surface of this crude material is injurious to the growing crop, although highly productive of future fertility; and I am disposed to think that properly these expenses should not even be charged *in toto* to the succeeding crop, inasmuch as their beneficial effects are not exhausted by it, but a long future fertility is induced by them to the soil.

However valuable Mr. Smith's plan may be as proving the possibility of producing, without manure or much previous preparation, a crop of Wheat on exhausted land in England, I do not consider it in the same degree applicable to Ireland. We all know both from the slovenly tillage of Ireland, the moisture of the climate, and the mildness of the winters, that the soil here is far more redolent of weeds than it is in England. We have evidence of this, if it were wanted, in these two accounts before us; for, while Mr. Smith has only expended 10s. an acre in harrowing and cleaning his stubble, and has had to incur no future expense for weeding, Mr. Calwell has expended over 2l. an acre in works connected with weeding after the crop was in the ground, and we know not how much before. In instituting this plan, then, in Ireland, I think it would be advisable to commence with some ordinary fallow crop that would leave the land in its usual semi-clean state; or with a spring cereal crop, Wheat if you please.

It is rather curious that making these deductions from Mr. Calwell's account, and charging it with the harvesting and threshing, his costs come within a shilling of Mr. Smith's; for while Mr. Smith's is 3l. 13s. 10d. an acre, Mr. Calwell's is about 3l. 14s. 10d. *J. M. Goodiff.*

DEFINITION OF QUALITY IN WOOL.

The points to be treated, as respects the quality of wools, were thus defined by the Jurors of the Great Exhibition:—"The fineness and elasticity of the fibre; the degrees of imbrication of the scaled surface of the fibre as shown by the microscope; the quantity of fibre developed in a given space of the fleece; the comparative freedom of the fleece from extraneous matters; and the skill and care employed in preparatory processes, such, for example, as that termed 'scouring' the fleece, upon which depends its liability, or otherwise, to mat at the bottom of the staple."

The qualities most valuable in regard to the fleece are thus pointed out by a colonial correspondent of great experience and judgment:—1. Fineness. 2. Fullness. 3. Freeness. 4. Soundness. 5. Length. 6. Softness.

1. Fineness of the fibre of the wool can be judged of by practice when a lock of it is laid on the cuff of a coat of a dark colour. A deficiency in this quality will show itself by an abrupt falling off in fineness either in the neck or breech of the animal, or in both. The difference in fineness between these parts and the rest of the fleece should be so gradual as to be almost imperceptible. The "settler" cannot exert himself too much to breed "close up," as it is called (*i.e.* to make the whole fleece as nearly as possible equal throughout), otherwise the character of his flock as "good breed" will never be established, and the wool will invariably prove bad in the manufacture. No hair must be anywhere visible on the animal, especially under the forelegs.

2. Fulness means the closeness with which the staples or locks of wool grow together on the skin. Upon opening the wool of a sheep possessing this quality in perfection, only a thin line of skin, as fine as a pencil stroke, will appear round each staple, but if deficient, a space almost bare. This is a point in which the Australian Sheep are generally deficient, and of course the weight of the fleece suffers most materially. Some of the German sheep have great rolls or puckers of skin under their necks und other parts, which give them a singular appearance, but the extent of wool-bearing surface is thereby increased.

3. Freeness means that the separate staples or locks of wool, and also the separate fibres of each staple, are distinct, and by no means entangled together, or what is called "smushy," like cotton wool. A deficiency in this quality shows itself most plainly along the ridge of the back. In a well-bred sheep the wool, on being opened, should fall apart under the hands as clear and broken as the leaves of a book. A want of knowledge of this quality has caused infinite mischief in Australia, from people having mistaken an absence of freeness for fullness or closeness of growth, which we have already explained.

4. Soundness or strength of fibre is a quality in which New Zealand wool, like its native flax, is said to be pre-eminent. Along the ridge of the back there is a sort of division between the wool of each side. Tenderness, *i.e.*, deficiency in soundness, invariably shows itself there. Take out a staple from this part, and give it a strong steady pull, holding one end in each hand. If this proves sound, depend upon it that the whole fleece is so too. This is an indispensable quality in a combing wool, such as New Zealand is fitted to produce, as the process of combing tries the soundness especially. It is one also in which the Australian wool is liable to be deficient, arising from a check to the growth of the wool from the sheep having been half-starved by drought, an affliction to which those countries are so often liable. For though

the wool begins to grow again as soon as the sheep recovers his flesh, there is always a weak place in that year's clip at the point where the growth recommenced, by which it is materially damaged for combing purposes at least.

5. Length of fibre must be carefully regulated by the nature of the pasture and climate; for any, the least, excess will cause a proportionate deficiency in soundness, by which the wool will be depreciated for clothing, and rendered utterly useless for combing. If the length of the wool be too great for the nature of the country, it will be known by the twisting of the wool into hard bands, like pieces of twine, which break almost like rotten thread. It is an error as mischievous as the short cottony wool, and cannot be too carefully avoided. To judge of the length of the staple in a fleece, the best part to examine is the division along the ridge of the back, as it is there usually somewhat shorter than in other parts.

6. Softness sufficiently explains itself. A want of this quality is most conspicuous between the points of the shoulders and up the neck.

There is an oily matter natural to the wool of merino sheep, an excess or deficiency of which is equally objectionable, but there seems to be no definite term to express the different kinds of oil, yolk, or gum, as they are alternately called. Probably those sheep should be chosen whose fleeces abound in what may be termed transparent oil within the fleece, which, flowing to the end of the staple, there forms a yolk or gum, which by combining with dust, gives the surface of the wool a dark look. There can be no doubt that this yolk preserves the fleece from "dead ends," and the deleterious effects of stormy weather, that it greatly facilitates the growth of the wool, and much increases its strength, softness, and elasticity. Manufacturers, I believe, will be found to prefer a fleece well supplied with the yolk, after it has been thoroughly washed, to a dry fleece with "dead ends," as they acknowledge that the wool from oily sheep is manufactured with much less waste, is easier worked, and will make handsomer and more lasting cloth than the wool of sheep quite destitute of oil. But there is another kind of gummy matter, quite different in its appearance and effects from the above. This may be observed in yellow, thick, pitchy particles within the fleece, and does not circulate freely to the end of the wool, consequently the fleece has a light-coloured surface, with "dead ends," and as the wool cannot be freed from this thick adhesive gum by a common cold-water wash, such fleeces will show a larger per centage of shrinkage in cleansing than any others.

The German fleeces are much fuller of yolk than the spout-washed Australian wool; on this account a considerable allowance of weight must be made when comparing the weight of the former with that of the best conditioned flocks of Australia.

The weight of the fleece obtained from various kinds (both the maximum and the average), is a matter highly desirable to be known.

We have a great number of breeds in Great Britain, from the Shetland, yielding only about 1½ lbs. of fine cottony wool, and various short and long woolled sheep, ranging from 2 to 10 lbs. the fleece, but there are other breeds scattered over the globe, of the peculiar characteristics of which we know little.

It is impossible for a stranger to conceive the extreme care and attention paid to the production of fine wool in Germany, where immense flocks are reared for their wool alone, kept during the greater part of the year in large barns, and so carefully tended, that neither dew nor rain is allowed to fall upon them. In the King of Saxony's flock, wethers are kept to the age of nine or ten years, solely for the 2 lbs. of wool which they annually yield. If subjected to a varying temperature or checked perspiration, a knot is formed in the staple, which can be seen under a very strong magnifying power, and which very materially deteriorates from the value the Germans attach to the article. Next to equality, fineness of texture is the great desideratum, and a beautiful machine has been invented by Mr. Jeppe, of Rostock, for the admeasurement of the thickness of the wool, and the proof of its strength, which unites the accurate workmanship and delicacy of watchwork. By this instrument 100 hairs of each fleece, selected from nine different portions of the body, forming an average of fineness, are subjected to a given pressure, which is registered on a very minute index. The result of one experiment was, that an Austrian fleece had been produced, of which 12 hairs only equally in thickness one Leicester!

In the Museum at Stutgard are said to be samples of every wool in the known world, comprising those even of our most recently-established colonies, carefully washed, weighed, and sorted, with such descriptive remarks appended as are necessary to illustrate the subject.

So important is the proper selection of breeding animals considered in Germany, that the best flockmasters there do not trust to their own judgment, or that of their shepherds, but employ persons called "sheep classifiers," who make it their special business to attend to this part of the management of several flocks, and thus to preserve, or, if possible, to improve the best qualities of both parents in the lambs.

The ordinary flocks in Saxony produce very fine wool, but much less in quantity than those of the improved breed; the first yielding from 2 to 2¼ lbs., worth from 2*s.* 6*d.* to 3*s.* 6*d.* per lb., whilst the flocks of M. Gadegast, and a few others, yield from 2½ to 3¾ lbs., worth from 3*s.* 6*d.* to 4*s.* 4*d.* per lb. Thus whilst the yield of an ordinary sheep of the country would be worth on an average 6*s.* per annum, the yield of an improved sheep would be as much as 10*s.* a year. This large difference in the produce of each sheep in a flock of some thousands would of course amount to something well worth the extra care and expense.

There are flocks of the Negretti breed in Mecklenburgh and Pomerania of undoubted blood which average 4 lbs. per fleece, worth 3*s.* 6*d.* per lb., and many rams are to be found yielding from 8 to 10 lbs. of washed wool. This weight is also often reached in the Cape Colony and in America.

The Merino race ought as much as possible to be kept pure in France; and the flesh of the French breed of sheep would be improved for food by a cross with the English breed.

M. de Lavergne, a recent French writer, from careful inquiries, estimates the number of sheep in France and the United Kingdom severally at 35 millions, but while the English sheep are supported upon 77 million acres, those of France live upon 132 millions. Scotland, in spite of all her endeavours, can maintain only about 5,000,000 sheep, and Ireland, which from its pasture ought to rival England, reckons at most only 2,000,000, upon 200,000,000 acres.

Estimating the value of our flocks, we shall find:—

35,000,000 sheep at, say 25*s.* average, worth ...	£43,750,000
The fleece, at a low average of 4 lbs., say at 10*d.* the pound	5,833,333
	49,583,333

The average return of an English sheep farm is fully six times greater than a French one. *P. L. Simmonds, in the Journal of the Society of Arts.*

Home Correspondence.

Crops in Ireland.—Contrary to our expectations I am sorry to say that, from what has been threshed out, and from the handling of the sheaves, a great short-coming in the yield of our Oats is apprehended in this neighbourhood. The Potato crop still increases in promise, as the tubers are very large, indeed larger than ordinary, and as well tasted as previous to the disease—there could not be a finer crop of them; as yet they do not, I am speaking of the general crop, average more than four or five diseased ones in a stone weight, yet the disease is evidently progressing, and the early kinds, which have been reserved in the ground for seed, show many diseased tubers, perhaps as many as a fifth or sixth of them. The singular change in the appearance of the disease is everywhere observed, that of the stems not showing those blotches they have ever done before; the haulm of the earlier kinds, and in some instances of the later, wither and die away without an appearance of blotch, and, where this is the case many diseased ones are found. The stems of our late kinds, which is here confined to Scotch downs, are everywhere green, the leaves alone are withered, and we may, therefore, expect them still to improve in size and ripeness. It seems, too, that the bogs have suffered this year in some cases more than the uplands, and there are instances in which the clays are safer than the gravels. Altogether it seems a most whimsical disorder, and as fanciful as a fine lady, for it is never two years the same; it is quite a Will-o'-the-Wisp to our poor peasantry. When it first made its appearance, at least when it first struck so sensibly upon us as to be remarked, in 1845, the Potatoes were dug and housed before we knew anything of it, but they were no sooner so than destruction began and progressed with a rapidity that soon left little more sound ones than barely sufficed for the next year's seeding. In 1846 it so varied its time of attack that none but the early planted escaped an all but total destruction, and such as did were of course unripe and very small; they were also without flavour, indeed not eatable by any but those to whom a Potato in name and form was still a Potato. In 1847 the disease came on so late that the withering of the stems was taken for a ripening, and people flattered themselves that the enemy had retired from the field. In 1848 they were disappointed by its again early appearance, and so it has continued to play upon us with an alternate early and late attack every year, the years of odd numbers showing itself late, and the years of even numbers early. The Potato has, however, every year improved in its keeping quality, and, with ordinary care, the rot indoors in the winter has been very trifling. The attack, too, to ordinary observation appears lighter every year; but this, I rather fear, is more apparent than real, and is, I think, more owing to the discovery of new sorts that, from some mysterious cause, are able to resist the disease, or its effects at least, on the tuber, for the old kinds wherever grown seem still to suffer as much as ever while in a growing state, and the early Potatoes are very liable to it when left in the ground to the time of its attack, depending in some degree on localities. The White Rocks, which I do not know, and the Scotch downs, the crop of the country for a great distance round this, from a peculiar vitality, are able to maintain the greenness of their stems for a month or six weeks after their leaves are withered, and their tubers suffer certainly much less than any other kind, but they have a peculiar property of throwing off their tubers to a very great distance from the plant, the tuber underground string or stem being frequently a foot and a half long; I am disposed to think that much of the safety of the tuber may depend on this circumstance, as the antiseptic property of clay may intercept and absorb the vitiated juices on their so long passage to the tubers. As far as I have remarked the tubers of the close clustered kinds of Potatoes suffer more from disease than those of the kinds in which they are more spread out. I think the regular alternate early and late appearance of the disease deserves more notice than it has yet attained; if it does not tend to elucidate the subject, it might be of practical use both in regulating the period and manner of planting, and indicating the propriety of introducing a stolen crop, especially in the years of early attack; the plants in these years are so withered by the end of July as to leave such a crop in the full possession of the ground. I would suggest the planting of alternate rows of Potatoes and Drumhead Cabbage, and where, as in Ireland, the Potato is a main chance, and, more especially, where a Potato similar in habit to the Scotch down is grown, that the drill be planted with a double row of sets, as they are apt to send out their tubers in single drills into the spaces between them. I have found such double drills with other kinds of Potatoes very productive. Say then, take a double drill one foot asunder with an interval of 3 or 4 feet, in which plant a row of Cabbage. *J. M. Goodiff, Scrably County, Cavan.*

Smut in Wheat.—Our attention was first drawn to the cause of smut in Wheat, arising from thick sowing, three years ago. A neighbouring farmer permitted us to thin a rod of his Wheat by way of experiment, in the month of March, which was sown at 2½ bushels per acre. Three-fourths was taken out, but it did not answer the purpose for which we intended it, viz., it did not branch satisfactorily, as some have from similar proceedings when performed early in autumn. It did not tiller more than the rest, but was prominent for its dwarfness throughout the summer, and did not lodge as the other, nor hasten to ripen by a week or fortnight. It taught us one other important lesson, however, which we have not forgotten, and now desire to make known—that not one smutty ear could be detected in the whole group, whilst on the main breadth, at least 20 black ones might have been gathered at any part, without moving a foot. The variety was rough chaffed white, which appears more subject to smut than any other. *Hardy and Son, Seedgrowers, Maldon, Essex.*

Beans for Horses.—Oats with me are a very poor crop, and they are scarce in the district. Beans are plentiful with me. I wish to feed my horses on the latter, but there is considered to be a danger in using Beans till they are hardened in the stack—say till Christmas. Would boiling or steaming obviate this? And are boiled Beans for horses in hard work equal to bruised Beans. *S.* [Will any one who has had experience of Beans soaked in water previous to use as horse food give it to our correspondent?]

Thin Seeding.—No wonder that your correspondent at the Newmarket Union obtained 131 heads from 1 grain of Wheat, containing 5700 grains, by transplanting the spires. We believe it quite possible to obtain double or treble such a quantity by a similar proceeding, provided it was sown in the month of June instead of September, by repeating the transplanting process from the spires or offsets in a nursery bed during summer, and finally in October allowing ample space for all the plants. But this is only a weak argument in favour of thin seeding, as it cannot be practically followed up as advantageous to farmers. Our practice of thin seeding, we contend, may be practically and profitably carried out on a large scale with no inconvenience. Frequently have we obtained upwards of 80 ears, and from 4000 to 8000 fold from single grains and isolated plants, by giving them ample space to perform their natural capabilities without the trouble of propagating or transplanting the spires and offsets. How it is that your correspondent manages to make Wheat germinate at 5 years old we cannot understand, as we ourselves have failed to get any to germinate at all when it was 3 or 4 years old. *Hardy & Son.*

Miscellaneous.

Well made Hay.—I have always held the doctrine that for hay to be nourishing it must retain the sap. Just as a Radish for instance was only good when fresh gathered, but became dry and fibrous afterwards, so was it with hay, which when cut too late, instead of being sweet to the taste, became thick, woody, and fibrous, both less agreeable to the palates of cattle, and less nourishing to them. If hay was mown just before it was ripe, they would get less weight but more nourishment. If any person wished to sell hay merely, he might care more for the weight of it and less for the welfare of the cattle eating it, though even then he might be no real gainer, since parties buying his hay, when they found it inferior to other hay, would not give so much for it, so that he would not get so good a price in the end. It was better to make the hay good, and get a good name for it. As an analogous instance of the benefits of cutting hay when in a greenish state, I may mention that when the Tobacco growers wish that leaf to have a particularly fine flavour they put it together in a wet state and let it ferment. So it is with hay; if allowed to remain till it is dead before cutting it, it cannot sweat. There was a way in some parts of putting hay into what was called lap-cock. Before night the hay was taken up, and turned over into these lap-cocks, which were made up very light, something like a lady's muff, for the wind to blow through. The lap-cock system answered very well, and did a deal of good. In the Halifax neighbourhood they never let the hay alone from the time it was cut till it

was stacked; spreading it out, turning it before noon, and putting it into foot-cock before night. Then as to the weather they must make the best they could of it. I remember to have heard of an old farmer calling to consult Dr. Herschell, the astronomer, about the best time to cut his hay, when the doctor pointed out to him a field of hay spoiled by the wet, belonging to himself, as a proof he knew no more about it than any one else. To try to get any flavour from hay, or anything without sap, was like trying to milk a barren cow. There was another thing to be considered in making hay—namely, never to spread more out in the morning than could be got together again before night, as it would be exposed to injury from dews, which were as injurious as rain. If they were to squeeze the sap out of the green stalks of Grass they would find on evaporation a crystallisation of saccharine matter formed. Take for instance any crop of grain, such as Oats, and mow them, and let them remain till they were ripe; they would not find anything like the nutriment in the dead as in the wet green stalk. The same rule would hold good in respect to hay. *Mr. Briggs, Chairman of the Wakefield Farmers' Club.*

Calendar of Operations.

SEPTEMBER.

West Sussex: *Sept.* 20.—Since our last report we have been able to finish harvest, and in the very best order. We have never had an easier one to manage; any of the operations could be commenced in the morning and continued through the day without alteration: there was hardly a possibility of getting wrong. Now threshing has begun, and in our sight we see three steam engines at work threshing and winnowing from 90 to 110 sacks a day each, which ought to supply our market pretty well, and it is wanted, for Chichester market has not been so scantily supplied for many years as it was the last week or two. We hear various reports respecting the yield, but on the whole it appears to be better than was expected, and will, no doubt, bear out our assertion that it would be quite an average. Barley does not turn out so well, and the sample is inferior. Potatoes, though much diseased, can be called a good crop, for setting aside the bad, there is a heavy crop left, and we hear again of a sack per rod, which is said to be the produce in the good old times. They are selling, when dug, at 10*s.* per sack of 2 cwt. Swedes are a little affected with mildew, but generally are a good crop; the later sown Turnips are not so good, the weather has been too dry for them. The young Clover is strong in many places and may suffer during the winter frost, if not eat down a little before that time. Trifolium and Rye has been got in in good order, but will not be up until we get rain. If ever the autumn clearing of stubbles is to succeed it must this year, for our most stubborn clay falls to pieces in working. Grass has got rather short, but our dependence on it will soon get less. *G. S.*

Wester Ross, *September* 17.—Better harvest weather than we have this year been favoured with we have never had, and never can have; and a continuation of such weather for other ten days would enable the farmers in this neighbourhood to have the year's produce of grain snug in the stack-yard. On this farm harvest operations were commenced on the 24th ult. On that day little was done, as rain began to fall about breakfast-time, and it continued wet throughout the day. On the 25th cutting was resumed, and without any further interruption was completed on the 7th inst. As all our hands were occupied with cutting, binding, &c., there was none carted home until the 8th, and on the 14th the whole crop was in the stack-yard in good condition. In 12 days five scythemen cut down 80 Scotch acres, and on the 18th work-day from the commencement 55 stacks were found in the stack-yard. Scythemen had 3*s.*; binders, 2*s.* 3*d.*; and women 1*s.* 6*d.* per day, without victuals. The actual outlay, exclusive of work done by half-year servants, was 18*l.* 10*s.* It would be well to know the cost of cutting a similar number of acres with a cutting machine; there certainly is not room for much saving. The bulk of straw is under an average, and is greatly less than last year. Here there is not such a deficiency as is generally complained of, and yet we are short of last year's bulk by some eight stacks. We will not have a corresponding deficiency of grain however. The stacks bid fair to thresh well, and the grain filled and ripened so equally that we will scarcely have any dressings at all. Although the weather has been dry and wonderfully favourable for harvest work, the Turnips have suffered very little from drought. Ere the harvest commenced there was abundance of rain, and with dew at night they have made wonderful progress, and will be a full crop. There is a good demand for them to be eaten off with sheep at last year's prices, which were greatly higher than had been given for many years. We may now say that we have escaped the Potato disease for a year, and a more abundant crop, or Potatoes of finer quality could scarcely be desired. The disease did show itself in all our fields, but its progress was so slow, and its form so mitigated, that the stems are not yet wholly blackened, and the tubers, so far as I have seen, have escaped untouched.

Notices to Correspondents.

Bailiff: *A Subscriber.* A person really deserving the character you give him will be worth 100*l.* a year. Many claiming such a character may be had for from 30*l.* to 40*l.* and board and lodging, or 1*l.* to 1*l.* 5*s.* a week without.

Chalk: *Sub.* It may be applied on your clay land meadows before winter with good effect. Apply 50 yards an acre, broken down as much as possible, in November.

Horse Hoe: Busby's horse hoe *without* the barrow would be too heavy for "a pony of 13 hands, strong, and active;" or it would be quite within its power according to the stiffness and state of tilth of the land. In the case of a well managed crop we should think your horse would manage it.

Malt Mills: *S C.* It appears that the Inland Revenue Office have directed "That where brewers now have or use stones, steel mills, or any other contrivance than metal rollers, with plain or smooth surfaces for crushing their malt, they may be immediately required to remove such machinery from their premises, and discontinue the use of the same; and that when brewers receive their malt in a ground state, the officers endeavour to ascertain the construction of the mill used for the purpose; and, if they cannot obtain correct information on the subject samples of the ground malt be sent to the Board." This has, therefore, given an impulse to the manufacture of steel crushing mills. Any agricultural machine-maker will supply them. We perceive by the *Liverpool Mercury* that a high character was given at the agricultural show at St. Helen's, Lancashire, the other day, to those manufactured by Messrs. Richmond & Co., Salford.

Marquis of Tweeddale's Implements: *A Landed Proprietor.* If you apply to Messrs. Scoular, of Haddington, they will doubtless supply you, or tell you where to apply for them.

Tiney's Success: *Correspondents.* General Arbuthnot has not enabled the publication of his address, and of course we cannot give it. If he is disposed to part with seed he will doubtless advertise it.

WARNER'S SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)
Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l.* 3*s.*
Manufactured by
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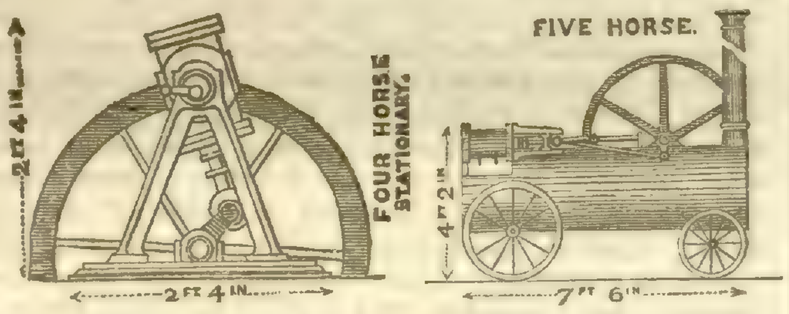
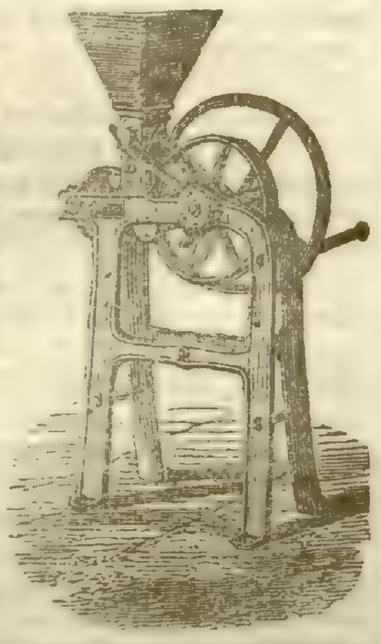
GALVANISED IRON TUB GARDEN ENGINE,
With Warner's Registered Spreader,
is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.
Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

TO AGRICULTURISTS AND OTHERS.



SIMPSON AND BARNES, Openshaw, near Manchester, beg to call the attention of parties requiring power to their PORTABLE and STATIONARY STEAM-ENGINES, from one-horse power and upwards, having the boiler and engine attached. They require no foundation, are simple and cheap, and are sent from the works ready to start when they arrive at their destination.

OAT-CRUSHING AND BEAN-SPLITTING MILL
(Turner's No. 5).



This Mill is recommended to the use of every person keeping a Horse, as superior for efficiency, durability, and ease in working to any manufactured. Two bshls. of crushed corn afford more nourishment both to old and young horses than three bushels of uncrushed!

Price £5 15*s.* 6*d.*

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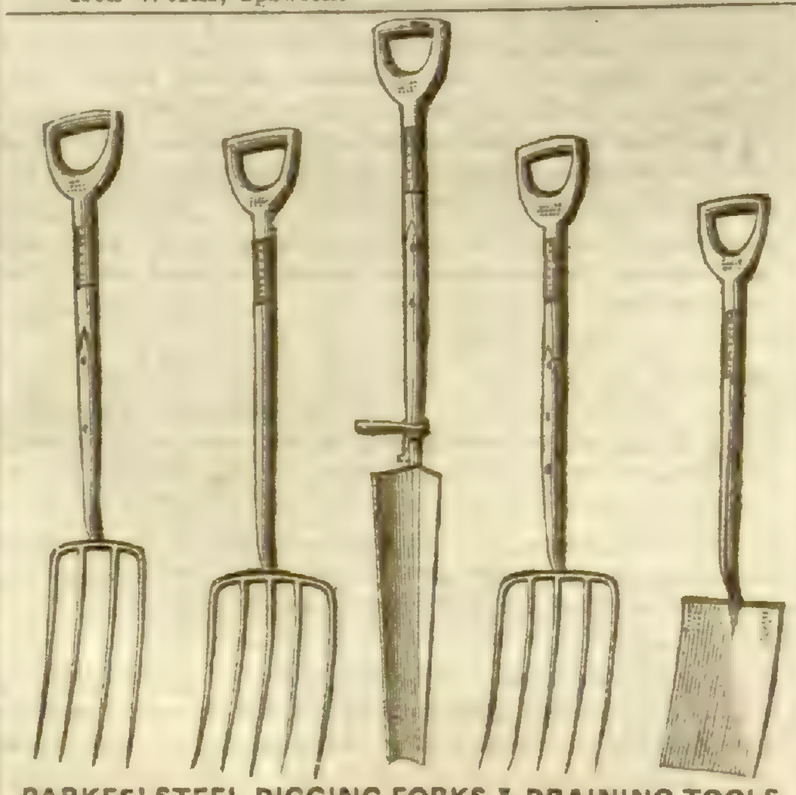

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MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.
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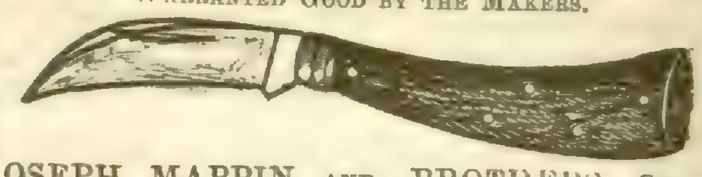
MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
Warranted Good by the Makers.

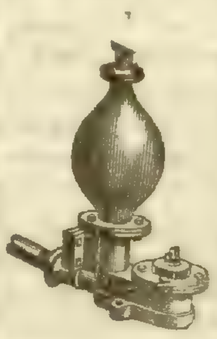


JOSEPH MAPPIN and BROTHERS, Queen's Cutlery Works, Sheffield; and 37, Moorgate Street, London.
Drawings forwarded by post.

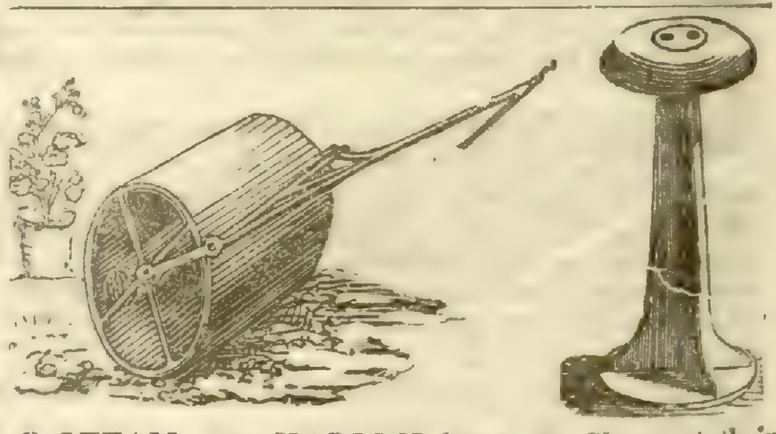
LIST OF GARDEN ORNAMENTS MANUFACTURED IN
AUSTIN'S ARTIFICIAL STONE, at Nos. 1 to 4, Keppel Row, New Road, Regent's Park, London.

21 varieties of Vases and Tazzas, at prices varying from 15*s.* to 50*l.*
94 Statues and small Figures.
38 figures of Animals.
17 „ of Birds.
16 Baskets of suitable Pedestals; prices from 12*s* to 30*l.* Some of these are beautiful ornaments for lawns.
12 different patterns of Flower Boxes for Windows, &c.
Garden Seats.
15 Sun-dial Pedestals.
16 Shells for either Water or Rock Plants; the largest size is 12 feet diameter.
Pedestals, square, circular, and octagonal, of almost every size. N.B. These are always perforated, to allow drainage from a vase.
43 Groups of Figures, single Figures, or Architectural Flowers, designed for centre ornaments of fountains.
Ornamental Copings to Ground Basins of Fountains, from 37 feet diameter to any smaller size.

FOUNTAINS.
Austin & Seeley having erected 218 of these works in various parts of the kingdom since the year 1836, may be presumed to have more experience than any other persons engaged in such work. Their collection now comprises about 200 designs, some of which are of the highest class; and they are now paying special attention to this department of the business, in the expectation that the local water works in course of erection will facilitate the supply of *jets d'eau.* The prices range from 10*l.* to 400*l.*



THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.
PARSEY'S PATENT REVOLVING PUMP lifts three times the quantity of water with the same labour, than any other Pump.
Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.
Fountains of every description erected; Rockwork, Grottoes, &c.
Hose Pipe of every kind for watering Gardens.
W. F. Roe (late Freeman Roe), Hydraulic Engineer, 70, Strand, London.



COTTAM AND HALLEN have on Show, at their Repository, No. 2, Winsley Street, Oxford Street, London, a great variety of the following articles for the Garden, &c., at very low prices, viz.:—Garden Rollers, Cast-Iron Rickstands, Garden Engines, Mowing Machines, Garden Chairs, Superior Garden Tools of all kinds, Garden Vases and Pedestals in great variety, and a large assortment of Horticultural and Agricultural Implements.
Ornamental Wire Flower Stands, Pot Trainers, Rose Tree Guards, Flower Bordering, and every description of Wire Work, both plain and ornamental.
Hand Glass Frames, Cast and Wrought Iron Flower Stakes, Garden Arches, &c.
Strong Iron Hurdles, and best Wire for Strained Wire Fencing.
Hothouses, Conservatories, &c., made upon the most improved principle, either of Iron, or of Iron and Wood combined, which can be fixed complete, with Hot Water Apparatus, in any part of the Kingdom. Show Rooms at the Manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

SLATE WORKS, ISLEWORTH, MIDDLESEX.
EDWARD BECK Manufactures in Slate a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.
Priced Lists of Plant Tubs and Boxes forwarded on application.

HOSE PIPING.
WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe.
Manufactured only by Waithman & Co., Bentham, Lancaster.
No. 1 Quality, Inches in Diameter and Price Per Yard:—½, 9*d.*; ¾, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d.*; 1½, 1*s.* 5*d.*; 1¾, 1*s.* 7*d.*; 2, 1*s.* 9*d.*; 2¼, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*
Super Extra Stout Quality:—2, 2*s.*; 2¼, 2*s.* 3*d.*; 2½, 2*s.* 6*d.*; 2¾, 2*s.* 9*d.*; 3, 3*s.*
No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9*d.*; 1¼, 10*d.* 1½, 11*d.*; 2, 1*s.*; 2¼, 1*s.* 3*d.*; 2½, 1*s.* 6*d.*
The Hose is Burnettised at an extra charge of 3*d.* per yard.
Union Joints, Branch Pipes, and Jets are also supplied.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the nobility, gentry, and clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.
Lists of colours, prices, together with a copy of the testimonials, will be sent on application to Walter Carson & Son, 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.—In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12s. 0d.
7 „ 5, — 7½ „ 5½ }	0 14 0
8 „ 6, — 8½ „ 6½ }	
9 „ 7, — 9½ „ 7½, 10 by 6 }	0 16 0
10 „ 7, 10 by 8 }	

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18s. per 100 feet. If cut to order not exceeding 40 inches long.
16 oz. from 2½d. to 3½d. | 21 oz. from 3½d. to 4½d.
26 oz. from 5½d. to 7½d.

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½d. per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	£1 17s. 6d. per case of	50
5/16 „	2 1 3 „	60
⅜ „	1 17 6 „	60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21s. per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London. REDUCED TARIFF OF AGRICULTURAL AND HORTICULTURAL GLASS.

STRONG HORTICULTURAL SHEET, from 2d.; and HARTLEY'S PATENT ROUGH PLATE, from 4½d. per foot.

PERFORATED GLASS for Ventilating Dairies, Stables, &c., from 1s. 6d. per foot. German-shaped Milk-pans, 21s. per dozen; Hely's Test Churns, 5s. each; Waring's Butter Slabs, 10s.; Glass Fern Shades and Stands, from 3s.; Bee-glasses, from 6d.; Cucumber Tubes, from 1s.; Propagating Glasses, from 3½d. to 7s. each; Flower Labels, 7s. per 100; Aquariums, complete, 10s. each; and every other description of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass, British and Foreign.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,

87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by	4 in. and	6 in. by	4½ in.	...	...	12s.	0d.
6½ „	4½ „	7 „	5	...	...	12	6
7½ „	5½ „	8 „	6	...	...	13	0
8½ „	6½ „	9 „	7	...	...	13	6
9½ „	7½ „	10 „	8	...	...	13	6
10½ „	8½ „	11 „	9	...	...	14	0
12 „	9 „	13 „	9	...	...	14	0
10 „	10 „	10½ „	10½	...	...	14	0
11 „	10 „	11½ „	10½	...	...	14	0
11 „	11 „	11½ „	11½	...	...	14	0
12 „	11 „	12½ „	11½	...	...	14	0
13 „	11 „	13½ „	11½	...	...	14	0
13 „	12 „	13½ „	12½	...	...	16	0
13½ „	13½ „	14½ „	13½	...	...	16	0
15½ „	13½ ...	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.
Ditto, not exceeding 1 foot ... 2½ „
Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application. Established more than 100 years.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 6d. per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

WATERPROOF PATHS. BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to SAYNOR & COOKE for their superiority of material and workmanship. Established 1738.

NO CHARGE FOR STAMPING at LOCKWOOD'S, 75, New Bond Street. Good cream-laid Note-paper, five quires for 9d.; Thick ditto, five quires, 1s.; Albert and Queen's sizes, five quires for 6d., 9d., and 1s.; Note-paper made from Straw, 2s. 6d. per ream; Envelopes, 4d. to 1s. 6d. per hundred; Foolscap paper, 7s. 6d. per ream; Copybooks 2s. 6d. per dozen. Card Plate engraved, 2s. 6d.; 100 Cards printed, 2s. 6d. Wedding orders promptly executed. A large variety of Writing and Dressing Cases, Envelope Boxes, Blotting Books, Inkstands.—Copy address, LOCKWOOD'S, 75, New Bond Street. Country orders for 20s. sent carriage free. LOCKWOOD'S celebrated Nugget (Gilt) Pen, 1 doz. post free for 13 stamps.

TOURISTS, TRAVELLERS, AND OTHERS,

EXPOSED TO THE SCORCHING RAYS OF THE SUN, AND HEATED PARTICLES OF DUST, WILL FIND

ROWLAND'S KALYDOR a most refreshing preparation for the Complexion, dispelling the cloud of languor and relaxation, allaying all heat and irritability, and immediately affording the pleasing sensation attending restored elasticity and healthful state of the skin. Freckles, Tan, Spots, Pimples, Flushes, and Discoloration fly before its application, and give place to delicate clearness, with the glow of beauty and of bloom. In cases of sunburn or stings of insects, its virtues have long been acknowledged. Price 4s. 6d. and 8s. 6d. per bottle.

ROWLAND'S MACASSAR OIL, a delightfully fragrant and transparent preparation, and as an invigorator and purifier beyond all precedent.

ROWLAND'S ODONTO, OR PEARL DENTIFRICE, a White Powder, compounded of the rarest and most fragrant exotics. It bestows on the teeth a pearl-like whiteness, frees them from Tartar, and imparts to the Gums a healthy firmness, and to the breath a grateful sweetness and purity.

Sold by A. ROWLAND & SONS, 20, Hatton Garden, London; and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.?—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 physicians, for promoting a fine healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2s., or sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London. Mrs. CARTER writes, "My head, which was bald, is now covered with new hair." Mrs. REEVE—"My hair is gaining strength and thickness." Sergeant CRAVEN.——"Through using it I have an excellent Moustache." Mr. YATES—"The young man has now a good pair of whiskers. I want two packets for other customers."

METCALFE AND CO.'S NEW PATTERN TOOTH BRUSH, PENETRATING HAIR BRUSHES, AND SMYRNA SPONGES.—The Tooth Brush performs the highly-important office of searching thoroughly into the divisions and cleansing in the most extraordinary manner—hairs never come loose. Peculiarly penetrating Hair Brushes, with durable unbleached Russian bristles, which will not soften like common hair, and immense stock of genuine unbleached Smyrna Sponge, with every description of British and Foreign Perfumery, at METCALFE, BINGLEY, & Co.'s only Establishment, 130 B and 131, Oxford Street, second and third doors west from Holles Street.

CAUTION.—Beware of the word "from" Metcalfe's, adopted by some houses. Metcalfe's Alkaline Tooth Powder, 2s. per box.

A CLEAR COMPLEXION,

GODFREY'S EXTRACT OF ELDER FLOWERS is strongly recommended for softening, beautifying, and preserving the skin, and giving it a blooming and charming appearance, being at once a fragrant Perfume and delightful Cosmetic. It completely removes tan, sun-burn, redness, &c., and by its balsamic and healing qualities renders the skin soft, and free from dryness, scurf, &c.; clears it from every humour, pimple, or eruption; and by continuing its use only a short time the skin becomes and continues soft and smooth, and the complexion clear and beautiful. In the process of shaving it is invaluable, as it annihilates every pimple and all roughness, and affords great comfort if applied to the face during cold easterly winds.—Sold in Bottles, price 2s. 9d., with directions for using it, by all Medicine Vendors and Perfumers.

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired gentleman having cured himself of Deafness, Defect of Sight, and General Debility, after suffering upwards of 25 years, thinks it his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address Rev. J. JOHNSTONE, No. 1, Park Terrace, Heavitree, Exeter, Devonshire.

DEBILITY AND NERVOUSNESS.—Encouragement to those in despair, and suffering from debility, spermatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, by E. J. ROBERTS (late Army), Surgeon, 9, North Terrace, Moor Edge, Newcastle-on-Tyne.

CURE OF COUGH AND RESTORATION OF VOICE BY DR. LOCOCK'S PULMONIC WAFERS.—"7, Alicia Street, Sculcoats, Hull. Sir,—Having been cured of a most obstinate hoarseness and cough by means of Dr. LOCOCK'S Wafers, and having spent pounds in seeking relief, but all to no purpose, I scarcely know how to express my gratitude for the surprising and sudden change they have wrought upon me.

"To Mr. Reinhardt, chemist, Market Place. J. MEMELL."

Dr. LOCOCK'S Wafers give instant relief, and a rapid cure of asthma, coughs, &c. They have a pleasant taste.—Price 1s. 1½d., 2s. 9d., and 11s. per box. Sold by all Druggists. Beware of counterfeits.

HOLLOWAY'S PILLS EXTRAORDINARY IN THE CURE OF DROPSY.—Sarah James, living with Mrs. Wilders, of Oldham Road, Manchester, had become of such a size from Dropsy as to be a burthen to herself; every usual treatment was used but without effect. In this sad state she tried HOLLOWAY'S Pills, and by them alone the water was entirely removed from her system, and an effectual cure perfected. The Pills were lately tried on two dropsical patients discharged as incurable from a London Hospital, and both were cured by this famous medicine.—Sold by all Medicine Vendors throughout the world; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and H. HOODS, Malta.

SISAL CIGARS, SISAL CIGARS, SISAL CIGARS!

GOODRICH'S CIGAR, TOBACCO, AND SNUFF STORES (Established 1780), 416, Oxford Street, nearly opposite Hanway Street. A Box, containing 14 fine Sisal Cigars for 1s. 9d.; post free for 27 stamps. None are genuine unless signed "H. N. GOODRICH."

TO BE LET, CHERINGTON WOODSIDE FARM, in the parish of Warkworth, Northumberland; tithe free, and entered to at May-day, 1856, containing about 566 acres, of which 90 acres are in old Grass. The tillage land is of sound good quality, and the old Grass is very valuable fattening pasture. A large portion of the farm has been thorough drained under Government grant. The Farm is within two miles of the Addington Station. Mr. Thos. Brown, of Whitefield House, near Acklington, will show the farm with a plan.—Further particulars may be had by application to GEORGE A. GREY, Esq., Millfield, Northumberland, by whom offers will be received till 12th Nov.

FLORIST'S BUSINESS.

TO BE SOLD, the NURSERY GROUND, GREENHOUSES, &c., of the late Mr. HENRY GROOM, at Clapham Rise, Surrey, in consequence of his death, and the GOODWILL of the well-established BUSINESS to be disposed of. The Premises (exclusive of a strip of land held rent free, subject to six months' notice) comprise 3¼ acres, and are held at the low yearly rent of 80l. for an unexpired term of 36 years from Michaelmas, 1855. The House adjoining, late in the occupation of Mr. Groom, is not comprised in the lease, but may be rented. The Tulips and other Bulbs and Roots not in the Ground will be sold by auction on the premises in October next, the particulars of which are in preparation, and due notice will be given of the time of sale.—The Premises may be viewed on application, and further information obtained of Messrs. PROTHEROE & MORRIS, American Nursery, Leytonstone, Essex; and of Messrs. BARNES & BERNARD, Solicitors, 2, Great Winchester Street, London.

TO NURSERYMEN, AND OTHERS.

TO BE SOLD, and may be entered upon immediately, a NURSERY and SEED BUSINESS, in a large and populous town in the West of England, having been established upwards of 70 years.—For particulars and all information, apply to X. Z., Office of this Paper; or to Mr. LOWE, Upper Clapton Nursery; Mr. A. HENDERSON, Nursery, Pine-apple Place, Edgeware Road; also to J. A. HENDERSON, Esq., 64, Hamilton Terrace, St. John's Wood, London.—Sept. 22.

TO NURSERYMEN AND FLORISTS.

TO BE SOLD, three miles from Oxford Street, situated in the main road, a respectable and convenient DWELLING HOUSE, containing six rooms, washhouse, and stabling; half an acre of good Land, with a small Greenhouse, suitable for a show-house, situated in an improving neighbourhood for jobbing. Would suit a young beginner well. Terms moderate.—For further particulars inquire of Mr. WHITE, Wheatsheaf Tavern, New Road, Shepherd's Bush.

CYGNETS.

TO BE SOLD, either together or separately, six remarkably fine CYGNETS. Price per pair, 2l.; for the whole brood, 5l.—Apply to Messrs. SUTTON & SONS, Market Place, Reading.

NURSERY STOCK.

H. BIGLAND AND CO. beg to state that the LEASE of their NURSERY having now expired, they have concluded to offer the remainder of their STOCK (consisting of Evergreens, Fruit, and Forest Trees, Greenhouses, &c.) by Auction this autumn; the precise time will be named in a future Advertisement.

Britannia Nursery, Whalley Range, Manchester.

Sales by Auction.

THE LIVE STOCK, FARM, AND GARDEN IMPLEMENTS AT EALING PARK.

MR. J. C. STEVENS will sell by Auction at the Farmyard, Ealing Park (5 minutes' walk from the Brentford Station, South Western Railway) on THURSDAY, Sept. 27th, at 1 o'clock precisely, the LIVE STOCK, comprising six handsome Milch Cows, two Heifers, three Calves, two Farm Horses, three Sows and eight Store Pigs, 400 head of Poultry and Coops, with the Farm and Garden Implements, comprising Rick Cloth and Poles, Iron Horse Roller, two Garden Rollers, Garden Frames, Chaff Boxes, a 54 Round Ladder, Water Barrows and Tubs, Water Cart, Plant Van, 700 feet of Boarding, useful Wood and Iron Birdcages, and sundry old stores.—May be viewed on the day prior and morning of Sale, and Catalogues had on the premises, and of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

GRANGE ROAD, BERMONDSEY.

To NOBLEMEN, GENTLEMEN, AND PINE GROWERS.

MR. W. T. ATTWOOD will Sell by Auction, on the premises, without the least reserve, the extensive stock of healthy PINE PLANTS, principally Queens, together with the various Ranges of Graperies and Forcing Pits, also the whole of Hot-Water Apparatus, comprising about 1500 feet of pipe and three large Boilers. The above property is in good condition, and offers a valuable opportunity to persons requiring Pine Plants and Forcing Houses. Due notice of the sale will be given in the course of a few weeks.

HACKNEY.

To GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Messrs. Brown & Taylor to sell by auction, without reserve, on the premises, Hackney Nursery, Dalston Lane, Middlesex, on THURSDAY, October 11th, 1855, at 11 o'clock, the whole of the Nursery Stock, comprising Ornamental Fruit and Forest Trees, Evergreens and Deciduous Shrubs; also the Greenhouse Plants, consisting of Camellias, Azalea Indica, Acacias, Cytisus, Myrtles, Deutzia gracilis, Forsythias, &c.; together with two Greenhouses, Pits, Two and Three Light Boxes, a quantity of Hot-water Pipe, Boilers, Wheelbarrows, capital Nest Seed Drawers, Counter, Garden Tools, and sundry effects.—May be viewed prior to the sale; Catalogues may be had on the premises, of the principal Seedsmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

CLARENDON NURSERIES, CAMBERWELL.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Joseph Fryer to submit to public competition on the above premises, on the 8th, 9th, and 10th days of October, at 11 o'clock each day, a portion of his extensive Nursery Stock, consisting of fine Standard and Dwarf Trained and Untrained Apple, Pear, Plum, Cherry, Peach, Nectarine, Apricot, Fig, Raspberry, Gooseberry, Currant, &c.; 2000 Mulberries, the finest stock in the trade, 4 to 10 ft.; 3000 Limes, 6 to 10 ft.; 4000 Lilacs of all sorts, 3 to 10 ft.; 2000 Evergreen Oaks, 2 to 5 ft.; 4000 Evergreen Privet, 3 to 6 ft.; also large quantities of Scarlet, White, and other Rhododendrons, Azaleas, Andromedas, Magnolias, and other varieties of American Plants; Garryas, Glycines, Clematis, Passion Flowers, Bignonias, Virginian Creepers, Ivies, Box, Laurels, Althæas, fine large Elms, Lombardy and Balsam Poplars, Acacias, Scarlet Thorns, fine strong Seakale, &c. &c.—May be viewed prior to the sale, and Catalogues may be had on the premises, of the principal Seedsmen, and of the Auctioneers, American Nurseries, Leytonstone, Essex.

On the 29th September will be published, in handsome Folio, price 6s., Part VII. of

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No. 39.—1855.] SATURDAY, SEPTEMBER 29. { Price Fivepence. Stamped Edition, 6*d*.

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ERRATUM—In the advertisement of Cheltenham Flood inserted last week, for Mr. W. Tavey, King's Road, Chelsea, read Mr. W. Pavey, 1*l*. 1*s*.

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NEW PLANT LIST.

JOHN and CHARLES LEE'S CATALOGUE OF STOVE AND GREENHOUSE PLANTS for the present Autumn is just published, and may be had, post free, on application.—Nursery and Seed Establishment, Hammersmith, near London.

"A LIST OF PLANTS," including RARE and HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS and CLIMBERS, GREENHOUSE PLANTS, ERICAS, EPACRIS, CAMELLIAS, GERANIUMS, CARNATIONS, PICOTEES and PINKS, HOLLYHOCKS, PHLOXES, CHRYSANTHEMUMS, HARDY HERBACEOUS PLANTS, &c.

Cultivated and Sold by Youell and Co., Royal Nursery, Yarmouth, Norfolk, is now ready, and will be forwarded on receipt of two postage stamps.

ROSE CATALOGUE, ETC.

H. LANE and SON'S CATALOGUE of ROSES, TREES and SHRUBS, and FRUIT, will be ready the 1st of October, and will be sent as usual to their customers. Parties intending to purchase can have them on application to the Nurseries, Great Berkhamstead, Herts. Also Catalogues of Azaleas, Stove and Greenhouse, and Herbaceous Plants.

FRUIT TREES IN POTS.

H. LANE and SON have the pleasure of announcing that their very extensive collection of FRUITS IN POTS are now ready for sending out, well set with bloom-buds, consisting of Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, &c., and are quite worthy the attention of those who take a delight in this particular branch of horticulture.
The Nurseries, Great Berkhamstead, Berks.

FINE FRINGED CHINESE PRIMROSE.

J. and J. FRASER beg to offer some excellent Seed of the above, saved from plants which obtained the award of the Horticultural Society last winter, in packets at 2*s*. 6*d*. each. A remittance in stamps is requested from unknown correspondents.—Lea Bridge Road, Sept. 29.

VINES FOR FRUITING IN POTS.

MESSRS. J. and J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to announce that they have a very choice selection of the best sorts of VINES from eyes grown in 12 and 15-inch pots, Price 5*s*. and 7*s*. 6*d* each.
N.B. Strong Vines for planting out, 3*s*. 6*d*. each.—Sept. 29.

TO AMATEURS IN CONIFERÆ.

MR. BARRON, of Elvaston Castle, will send out in a few days his Seedling Plants of PICEA NOBILIS. They are three years old, very strong for their age, with splendid roots, never having been in pots. Largest size, 63*s*. (very few of this size remain unsold); next size, 42*s*. A remittance or reference from unknown correspondents ordering after this date.

TO THE SEED TRADE.

GEORGE TABER, of Ravenhill, Essex, begs to inform the Trade that his growing crops of Seeds are now open to inspection. All Turnip Seeds grown from sound transplanted roots. Lists sent on application.—Sept. 29.

DOUBLE ROMAN and PAPER WHITE NARCISSUS, 4*s*. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. Corbett's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

BARRATT'S MAGNUM BONUM has this year fully sustained its high character as one of the finest flavoured STRAWBERRIES known, and may now be had at 20*s*. per 100, or 3*s*. per doz.—Catalogues containing all the leading varieties of the day may be obtained from William Barratt, St. John's Nurseries, Wakefield.

NURSERY STOCK.

H. BIGLAND and CO. beg to state that the LEASE of their NURSERY having now expired, they have concluded to offer the remainder of their STOCK (consisting of Evergreens, Fruit, and Forest Trees, Greenhouses, &c.) by Auction this autumn; the precise time will be named in a future Advertisement.
Britannia Nursery, Whalley Range Manchester.

DUTCH FLOWERING BULBS.

JAMES CARTER and CO.'s CATALOGUE OF DUTCH AND CAPE BULBS, the most comprehensive and select published, will be forwarded *free of charge* and *post paid*, upon application to address at foot. *The Bulbs are as usual of first-rate quality.*
James Carter & Co., 238, High Holborn, London.

R. PARKER begs to inform his friends and patrons that his PRICED CATALOGUE of DUTCH BULBS is now ready, and will be forwarded post free upon application.
Paradise Nursery, Hornsey Road, Holloway.

IMPORTED DUTCH BULBS.

JAMES GRAHAM begs to announce that his priced Catalogue of DUTCH BULBS is now ready, and can be had free on application.—Seed and Horticultural Establishment Northgate, Chichester (late Silverlock and Son.)—Sept. 29.

WILLIAM CUTBUSH and SON beg to acquaint their patrons and friends that their ANNUAL CATALOGUE of DUTCH BULBS can be had, postage free, on application. The superior quality of their roots is well known, but as a further guarantee they obtained the Awards at the Horticultural Society's Rooms, Regent Street, last spring.
Highgate Nurseries, near London.

DUTCH HYACINTHS AND OTHER BULBS.

J. and J. FRASER beg to announce that they have received their annual importation of HYACINTHS and other FLOWER ROOTS, of which a descriptive Catalogue may be had by enclosing one postage stamp. This Catalogue contains some instructions for the successful cultivation of the various roots.—Lea Bridge Road, Sept. 29.

DUTCH FLOWER ROOTS.

PETER LAWSON and SON, Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland, respectfully intimate that they are now ready to execute orders for HYACINTH ROOTS, &c., &c., of the finest kinds and in excellent condition Catalogues may be had, free, on application.
27, Great George Street, Westminster.—Sept. 29.

IMPORTED DUTCH BULBS.

EVAN PAUL begs to inform his patrons and friends that he has received his first importation of the above, which have arrived in first-rate condition, early orders for which are respectfully solicited. Catalogues forwarded postage free on application.—The Nurseries, Derby, Sept. 29.

DUTCH BULBOUS ROOTS.

MARTIN and SON have much pleasure in informing their friends that they have received in good condition their annual importation of the above, which are particularly fine, and trust to be favoured with early orders.—Catalogues may be had and also of their Nursery Stock for two stamps.—Nursery and Seed Establishment, Cottingham (1788); Hull Branch, Junction Street.

HYACINTHS AND OTHER IMPORTED BULBS.

DAWE, COTTRELL, and BENHAM (Successors to Frederick Warner), Wholesale Seedsmen, have just received their annual importation of DUTCH and other BULBS in very fine condition. Catalogues on application.
3, Laurence Pountney Lane, and 36, Moorgate Street, London.
Established 1720 at 28, Cornhill.

GUERNSEY and BELLADONNA LILIES may now be had of Dawe, Cottrell, & Benham, 3, Laurence Pountney Lane, and 36, Moorgate Street, London.

FINE BLOOMING BULBS.

GUERNSEY and BELLADONNA LILIES, 4*s*. per doz.—Price to the Trade upon application to B. Page & Co., Oxford Street, Southampton.

IMPORTED DUTCH FLOWER ROOTS.

T. F. WINSTANLEY begs to announce that his Priced Catalogue of Dutch Bulbs for the present season will shortly be ready, and can be had free on application. It contains a list of all the newest and leading sorts in cultivation, including Hyacinths, Narcissus, Jonquils, Amaryllis, Early Single and Double Tulips, Crocus, &c., all of which have been grown by one of the first growers in Holland, and can be relied upon as being good sound Bulbs, and true to name.
28, Market Place, Manchester.

DUTCH BULBS AND FLOWER ROOTS.

THOMAS JACKSON and SON respectfully inform their patrons and the public that they have received in the finest condition their annual consignment of Bulbs and Roots, and that they are of the largest size and very finest quality. Good Double Hyacinths 4*s*. per dozen: mixed Polyanthus Narcissus, 3*s*. per dozen; Double Roman Narcissus, 4*s*. per dozen. Their Priced List of Bulbs, &c., and also their General Priced Catalogue of Stove, Orchidaceous, Greenhouse Plants, Ornamental Shrubs and Trees, and Herbaceous Plants may be obtained on application.—Nurseries, Kingston, Surrey.

CHOICE HYACINTHS, NARCISSUS, TULIPS, CROCUS, ETC. ETC.

JAMES CHARTRES and CO., Importers of Dutch Flower Roots, Seedsmen, &c., beg to announce that their unrivalled Stock of the above have arrived in splendid condition; the Roots are remarkably large and handsome.

J. C. & Co. earnestly solicit early orders to insure the finest Roots. A Catalogue may be had on application.

74, King William Street, City, and York Nursery, Hanger Lane, Stamford Hill, London.—Sept. 29.

SUPERIOR LETTUCE SEED.

WILLIAM TOOGOOD has now ready to offer to his friends his superior BROWN COS LETTUCE SEED, which he can recommend to be the best hardy winter Lettuce in cultivation. Per packet, 1*s*., free by post.
Westergate Nursery, Arundel.

W. TOWNSEND has now ready to send out GERANIUM CYDONIA CARMINEA—for description see Advertisement, 4th August; has been exhibited at the National Society, 15th June and 26th August, and obtained a Certificate. Plants 5*s*., 7*s*. 6*d*., and 10*s*. 6*d*. each: one over to every three ordered in the trade. Post-office orders payable at Bayswater.—Notting Hill.

VIOLETS.

R. SHACKELL begs to offer strong Plants of his superior Violet Russian Superb, at 4*s.* per dozen; strong plants of the Neapolitan Violet, now fit for potting, at 4*s.* per dozen; Double Perpetual Tree Violet, at 4*s.* per dozen; single sweet winter blooming White Violet, at 4*s.* per dozen; Double White do., 4*s.* per dozen; old Russian Violet, 10*s.* per 100 plants. hamper and package included for all orders above 10*s.*

R. S. would be happy to enter into arrangements with any retail Florist for supplying Bouquets of Violet blooms after the 1st of October until the 1st of March, provided the weather permit, at 5*s.* per 100. Bouquets almost to any extent.

Robert Shackell, Locksbrook Nursery, Bath.

GRAPE VINES FROM EYES IN POTS.

LUCOMBE, PINCE, and CO. beg respectfully to call attention to their remarkably fine stock of Grape Vines, raised from eyes, in pots, in a bearing state.

L., P., & Co. having two years ago erected a Vinery 90 feet long for the especial purpose of proving every good Vine in cultivation, are enabled to say that the Plants sent out by them are true to name.

LUCOMBE, PINCE, and CO.,
EXETER NURSERY,
EXETER.
Established 1720.

BASS AND BROWN'S
NEW AUTUMN CATALOGUES,

Comprising a considerable portion of descriptive and useful information, will be sent free by post complete for three penny stamps, and will be supplied gratis to our customers as usual. The articles will be found very select, and the best in cultivation.

NO. I. CATALOGUE CONTAINS:

BULBS & FLOWER ROOTS, comprising collections of the finest and most interesting bulbs in cultivation. The greenhouse varieties are distinguished from the hardy, and the colours and months of flowering are specified. A scale is also appended, giving the months best suited for planting.

HARDY HERBACEOUS PLANTS, with descriptions of heights, colours, and months of flowering, and embracing also our superb collections of Potentillas, Phlox, Penstemons, &c.

HOLLYHOCKS, the finest sorts, with full descriptions.

HELIANTHEMUMS, or Dwarf Rock Cistus, in 24 beautiful varieties.

SELECT and POPULAR TREES and SHRUBS, containing choice Collections of Coniferæ, Sikkim, and other Rhododendrons.

HARDY ORNAMENTAL CLIMBERS.

SELECT ROSES, with descriptions, and instructions for culture of each class.

FRUITS of the choicest sorts with select lists of each kind.

RHUBARB, Seakale, Asparagus, &c.

NO. II. CATALOGUE CONTAINS:

GERANIUMS, in divisions of Show, Fancy, French, Horseshoe Leaf, Scarlet, and other bedding varieties.

CINERARIAS, choicest varieties.

FUCHSIAS, best new of 1854.

AZALEA INDICA, including several beautiful new Continental and other varieties.

STOVE and GREENHOUSE PLANTS, &c. &c.

NEW SHOW GERANIUMS OF LAST SEASON.

The following, comprising the best of those sent out last season, of which we have cultivated a large stock, are unusually strong and well established, and now ready. The Collection of 18 for 60*s.*, or any 12 for 48*s.* Our selection of 12 varieties for 36*s.*

	5*s.* 0*d.*		5*s.* 0*d.*		5*s.* 0*d.*
Dobson's Conqueror		Foster's Phaeton		Fuller's Gem of the West	
" Silenus	5 0	Hoyle's Serena	5 0	Foquett's Petruchio	3 6
" Laura	5 0	" Lord Raglan	3 6	Story's Fair Ellen	5 0
" Lydia	3 6	" Topsy	3 6	Turner's Pandora	5 0
" Commander-in-Chief	3 6	" Wonderful	5 0	" King of Portugal	5 0
Lowe's Calliope	3 6	" Queen Eleanor	3 6	Hocken's Una	3 6

For varieties of previous years see Catalogue. Fine selections, 9*s.* to 18*s.* per dozen. Purchaser's selections, 12*s.* to 21*s.* per doz.

IMPORTED DUTCH HYACINTHS.

Our Dutch Roots have arrived in very fine condition. We beg to offer the following, of our own selection, in fine assortments, with printed instructions for their culture:—

50 Hyacinths in 50 choice sorts	30*s.*	Choice varieties, per dozen	6*s.*, 9*s.* & 15*s.*
25 ditto 25 ditto	16*s.*	Separate colours without name, per dozen	3*s.*

If required for Forcing we particularly recommend early planting. For our extensive Collection of Bulbs see Catalogue.

☞ *Goods Carriage Free (not under 20s.) to all the London Termini and free to all stations on the London and Norwich Line, viâ Colchester. Extra Plants gratis with orders of 40s. and upwards.*

BASS & BROWN, Seed & Horticultural Establishment, Sudbury, Suffolk.

HYACINTHS.

MESSRS. E. G. HENDERSON & SON

BEG to announce that they have now received their noted collection of HYACINTHS in excellent condition. They also beg to state, that having been for nearly 50 years the largest and most successful cultivators of this highly popular Flower in the vicinity of London, they can with confidence recommend the varieties named in their Catalogue as being the most suitable for pot or glass culture, and every way worthy the attention of Amateurs, &c.

Catalogues can be had on application, and for the assistance of those persons unacquainted with the culture of the Hyacinth, printed instructions will be given gratis with each order they are kindly favoured with.

CUCUMBER—HENDERSON'S "NAPOLEON III."

E. G. H. & Son have great pleasure in informing those who are fond of a really good Cucumber that they have succeeded in obtaining the stock of the above variety. It is one of the best for Winter culture and early forcing; is a free bearer and perfect in its form, possessing, indeed, all those qualifications of a good Cucumber which the most fastidious could desire. In packets, containing two seeds, 3*s.* each; ditto ditto, four seeds, 5*s.* 6*d.* each.

FLOWER SEEDS FOR AUTUMNAL SOWING.

Collections containing 12 distinct varieties, with printed instructions, 3*s.* 6*d.* each, postage free; ditto, 24, 6*s.*; 36, 8*s.* 6*d.*; 48, 10*s.* 6*d.*

CALCEOLARIA, CINERARIA, AND PRIMULA,

Saved from the choicest varieties, may be had in packets at 2*s.* 6*d.* and 5*s.* each; the finest quality of Calceolaria is only offered at 5*s.*; second quality, 2*s.* 6*d.* The finest fimbriated Primula in the country, 2*s.* 6*d.*

NEW PLANTS.

In the possession of E. G. Henderson & Son, and will be sent out for the first time in October. Full Descriptions of the following may be seen in the New Autumn Catalogue, just published.

SHOW GERANIUMS.

EXCELSIOR (Henderson's) | LA BELLE ALLIANCE (Foquet) | PURPLE KING (Foquet) | MIDNIGHT (Foquet)

FANCY GERANIUMS.

AMPHITRITE (Henderson's)
DUKE OF CAMBRIDGE (Henderson's)
GIOVANNA (Henderson's)
LA STELLA (Henderson's)
MOONLIGHT (Henderson's)
REINE DU BAL (Henderson's)
ROSY-LIP (Henderson's)
QUEEN OF THE FETE (Henderson's)
SWEET LUCY (Henderson's)
TITANIA (Henderson's)

CINERARIAS.

ADMIRAL LYONS (Henderson's).—Large full-sized flower, white, with purplish violet edging, dark dice, fine form. 10*s.* 6*d.*

FUCHSIAS.

BANKS' FAVORITE. 10*s.* 6*d.* | PRINCE OF WALES. 10*s.* 6*d.*

RHODODENDRONS.

The following magnificent new species, collected from the Bhotan Mountains, by Thomas J. Booth, Esq., are now, for the first time, offered for sale.

Boothi, | Hookeri, | Calophyllum, | Kendricki, | Eximium, | Windsori Leucanthum.

For full descriptions, with prices of the above splendid varieties, see Spring Catalogue, page 85.

GYNERIUM ARGENTEUM (The Pampas Grass).

E. G. H. and Son having in their possession the largest stock in the country of this noble ornamental Grass, will supply healthy plants in October at 2*s.* 6*d.* each or 25*s.* per dozen.

N.B.—Price to the Trade per 50 or 100 can be obtained on application.

GLOXINIA ERECTA.

Messrs. E. G. Henderson & Son have great pleasure in announcing that they have a very large stock of this new class, and most showy upright flowering Gloxinias. They are the most abundant flowerers, containing among them some of the most lively contrasts of colours imaginable. The Collection includes the new varieties sent out this season. Price 5*s.* and 7*s.* 6*d.* each, or 42*s.* and 60*s.* per dozen.

The following can be supplied in fine plants for flowering next season:—

CAMELLIAS and ORANGES, at 30*s.* and 42*s.* per dozen. | AZALEAS, ERICA, EPACRIS, and APHELEXIS, at 12*s.*, 18*s.* to 42*s.* per dozen.

N.B. Price to the Trade per 100 or 1000 can be had on application.

The Spring Catalogue or General List of Plants will be forwarded post free on application; and a beautiful Coloured Plate of NINE NEW FLOWERS *will be sent on receipt of* 12 *postage stamps.*

Wellington Nursery, St. John's Wood.

FISHER, HOLMES, and CO. beg to offer the following, all of which are good healthy Plants.

Abelia uniflora, each 9*d.* to 1*s.* 0*d.*		Escallonia pterocladon	5*s.* 0*d.*
Azalea amœna	1 0	Eugenia Ugni	1*s.* 6*d.* to 2 6
" Stanleyana	1 6	Fuschia, Florence Nightingale	1 6
" Symmetry	1 6	" Lady of the Lake	1 6
The following are from 1*s.* to 1*s.* 6*d.* each:—		" Climax	1*s.* to 1 6
Azalea Frosti		" Empress Eugenie	1 6
" aurantia superb		" violæflora pleno	1
" lateritia pulchra		" Dominiana	1 6
" Apollo		Henfreya scandens	1 6
" white		Hexacentris mysorensis	1 6
" " double		Hoya bella	1 6
" fulgens		Hydrangea japonica variegata	1*s.* to 2 6
" Duke of Wellington		Ixora coccinea	1 6
" optima		" javanica	1 6
" extrani		" salicifolia	2 6
" decora		Impatiens Jerdoniæ	1*s.* 6*d.* to 2 6
" amabilis		Lycopodium umbrosum	0 9
" Hebe.		" inæqualifolia	1 6
Æschynanthus speciosus, fine plants	1 6	" Poeppigiana	1 6
" splendidus, do.	1 6	" viticulosa	0 9
Acacia verticillata	1 0	" apothecum	1 6
Agapanthus umbellatus, fol. var.	1 6	" formosum	1 6
Begonia Prestoniensis, fine plants	1 0	" cæsium arboreum	1 6
Boronia Drummondi	2 6	Mandevillea suaveolens	1 6
Burchellia capensis	1*s.* to 1 6	Maranta alba lineata	2 6
Caladium bicolor superba	1*s.* 6*d.* to 2 6	Mitruria coccinea	0 9
Clerodendron splendens	1 6	Mussænda frondosa	1 6
Cyrtoceras reflexum	2 6	Pentas rosea	1 6
Dipladenia crassinoda	1 6	Pimelea Hendersoni	2 6
Desmodium gyrans	1 6	" spectabilis	2 6
Eranthemum leuconervum	1 0	Swansonia Lessertifolia	2 6
Erythrina crista-galli	1*s.* to 1 6	Statice Halfordi, fine plants	1*s.* 6*d.* to 2 6
		" sinuata	0 9
		Veronica variegata	1 0

Remittances respectfully requested from unknown correspondents.—Handsworth Nursery, Sheffield, Sept. 29.

WILLIAM YOUNG begs to call the attention of Noblemen, Gentlemen, Public Companies, and Planters in general to his extensive stock of CHOICE CONIFERÆ, HARDY EVERGREENS, ORNAMENTAL TREES, AMERICAN PLANTS, &c., which are this season particularly fine, and having been well prepared for removal, he can confidently recommend them to transplant with perfect safety.

W. Y. invites persons about to plant to inspect his stock, which is standing over 50 acres of ground, in which will be found all kinds of plants adapted to every description of ornamental planting. It consists of HARDY CONIFERÆ, containing some of the finest specimen plants ever offered.

	Feet high.
Abies Douglasi	6 to 8 by 5 to 6
" "	8 to 10 by 7 to 8
" "	10 to 12 by 8 to 9
" Menziesi	4½ to 5
" nigra, Black Spruce	4½ to 5
" alba, White Spruce	6 to 8
" canadensis, Hemlock Spruce	6 to 8 by 7
Pinus austriaca	6 to 8
" "	8 to 10
" Cembra	5½ to 6
" "	7 to 8
" excelsa	8 to 10
" insignis	2½ to 3
" "	3 to 4
Picea Pinsapo	5 to 6 by 6
" nobilis } very handsome	
" Nordmanniana } very handsome	
Araucaria imbricata	2½ by 2½
do. do.	3 by 3
do. do.	4 by 4
do. do., very handsome	6 to 8
Cryptomeria japonica	3 to 4
Cedar of Lebanon	3½ to 4
" "	5 to 6
" "	7 to 8 by 6
" "	10 to 12 by 8
" Deodara	4½ to 5
" "	6 to 8
" "	9 to 10
" "	10 to 12
(The Cedars of Lebanon and Deodara are particularly handsome and well furnished.)	
Thuja orientalis, Chinese Arbor-vitæ	5 to 6
" " "	7 to 8

	Feet high
Thuja Weareana, Siberian	5 to 6
" "	7 to 8
Chinese Juniper	4½ to 5
" "	5 to 6
Upright "	4 to 5
" "	6 to 7
Taxodium sempervirens	6 to 8
" "	10 to 12
Irish Yew	4½ to 5
" "	6 to 7

A LARGE QUANTITY OF FINE EVERGREENS.

Green Hollies	4 to 6
" "	6 to 7 by 4
" "	8 to 10 by 6 to 7
Evergreen Oak	3½ to 4
" "	4½ to 5
" "	6 to 8 by 4 to 5
Spruce and Silver Firs	6 to 8
" "	10 to 12
Weymouth Pine	8 to 10
Yews	3½ to 4
"	4½ to 5
"	5 to 6
Quercus oxoniensis—New Leucombe Oak	6 to 7
" "	8 to 10

AMERICAN PLANTS.

Azaleas, fine named sorts
Rhododendron ponticum (good for cover).
Do. all the new and best varieties.
Kalmias, Andromeda, Ledums, &c. &c.

STANDARD ROSES, of all the best varieties.

FRUIT TREES, ORNAMENTAL DECIDUOUS TREES, for Parks or Avenues, from 10 to 12 feet.

FOREST TREES, for Copse Planting, from 2 to 4 feet.

Prices given on application.

A Catalogue is now ready, and may be had for two postage stamps.

The Nurseries are two miles from Godalming Station, South-Western Railway, where conveyances can always be obtained.

Milford Nurseries, near Godalming, Surrey.

JOHN WESTWOOD will be prepared on and after the 10th of October next to send out good well-rooted plants of the following novelties, at the very low prices undermentioned, viz.—

VERBENA "MRS. HALFORD."—The finest white yet raised; no other will be grown wherever it is introduced. Having had plants in his possession before any other florist, J. W. is now on hand many thousands, and is therefore enabled to offer them at 9*s.* per dozen, or 3*l.* per 100.

PETUNIA "MARQUISE DE LA FERTE."—A decided improvement on Shrubland Rose, and must entirely supersede it. The highest praise has been awarded this flower in the *Gardeners' Chronicle*, "The Cottage Gardener," and by all who have seen it. 8*s.* per dozen, or 2*l.* 15*s.* per 100.

All the White Corolla'd and other FUCHSIAS of 1855, by Chauviere, Epps, Henderson & Co., Lucombe & Co., and Smith, at 10*s.* per dozen.

The last new VERBENAS sent out by Chauviere, Smith, Turner, &c., many of which (especially those raised in France) are superior to the older varieties. 8*s.* per doz., or 2*l.* 15*s.* per 100.

Seedling Herbaceous CALCEOLARIAS from plants of a rare quality (superior to any exhibited during the past season), carefully impregnated by the Rev. E. Trimmer, who has latterly been remarkably successful with this flower. Best selection, 8*s.* per dozen, or 2*l.* 15*s.* per 100; 2d selection, 5*s.* per dozen, or 1*l.* 15*s.* per 100.

Seedling CINERARIAS from all the best named varieties, 4*s.* per dozen, or 1*l.* 10*s.* per 100.

Fimbriated PRIMULA SINENSIS, raised from plants inferior to none in the trade, of last year. 5*s.* per doz., or 1*l.* 15*s.* per 100.

J. W. has also for immediate sale Vines from Eyes of the best and leading sorts, at 24*s.* per dozen. And the true old Carnation Clove, at 5*s.* per dozen, or 1*l.* 18*s.* per 100.

The carriage will be paid to London; and where an order exceeds 2*l.* additional plants will be given in, and the hamper and package not charged for.

The Floral Nursery, Acton Road, Turnham Green

NEW STRAWBERRIES AT REDUCED PRICES.

GROWN AND OFFERED FOR SALE BY

WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.—The following splendid varieties have been well proved this season and given complete satisfaction, viz., Sir Harry (Underhill's), 100 plants, 4*l.*; 40, 1*l.* 18*s.*; and 20, 1*l.*; or 12*s.* 6*d.* per dozen. Omar Pacha (Ward's), 1*l.* per 100; 12*s.* per 50; 7*s.* per 25. Scarlet Nonpareil (Patterson's), 2*l.* per 100; 1*l.* per 50; 12*s.* per 25. Sir Charles Napier (Smith's), 1*l.* per 100; 12*s.* per 50; 7*s.* per 25. Admiral Dundas (Myatt's), 1*l.* per 100; 12*s.* per 50*s.*; 7*s.* per 25. Nicholson's Ajax, Ruby, Captain Cook and Fill-Basket, 6*s.* per 100; Ingram's Prince of Wales, Nimrod, Eliza (Rivers's), Surprise (Myatt's), and Bicton Pine, a large white one, 6*s.* per 100; British Queen, Black Prince, Eleanor (Myatt's), Old Pine, Trollope's Victoria. Goliah (Kitley's), Keens' Seedling, Old Roseberry, all at 4*s.* per 100: Crystal Palace, a very large and late variety, 10*s.* per 100. Post-office Orders payable at Yarm are expected with all orders. The plants will be securely packed and forwarded to any part of the kingdom.

MYATT'S ADMIRAL DUNDAS STRAWBERRY.—Strong plants packed and delivered free in London, 25*s.* per 100. Also MYATT'S British Queen, Cinquefolia, Globe, Eliza, Mammoth, 3*s.* 6*d.* per 100; Keens' Seedling, Hooper's Seedling, Black Prince, Bicton Pine, 3*s.* 6*d.* per 100.

MYATT'S BRITISH QUEEN.—In reply to several correspondents, and in confirmation of the private answers I gave last summer, I beg leave to state that the only Strawberry bearing the name of "British Queen" is MYATT'S, and when Mr. Beach, in his advertisement says "his true British Queen," he is obviously in error, and arrogates to himself the credit due to my late father, Mr. JOSEPH MYATT, who was the originator of the variety in question.—W. MYATT, Manor Farm, Deptford.—Sept. 29.

TO BE SOLD, a bargain, a fine lot of Specimen and other CAMELLIAS, beautifully set with bloom buds; several collections of choice show and fancy GERANIUMS of the most approved varieties; sets of all the NEW FUCHSIAS, with white corollas, &c.; about 700 VARIEGATED GERANIUMS, comprising Mountain of Light, Flower of the Day, and Osborn's Brilliant; and a quantity of large STOCK PLANTS of sorts, claiming the attention of all who are about to furnish or propagate. Also a large BOILER nearly new, capable of heating a spacious House, and a small ditto suitable for a range of Pits, &c.—The above may be seen, and the prices had by applying to JOHN SLIPPER, Villa Nursery, Camden Town.

RHODODENDRONS.

JOHN WATERER begs to announce that he is now prepared to execute orders for his two New Hardy Hybrid Rhododendrons, in good established plants, at 42*s.* each.

Rhododendron JOHN WATERER, colour glowing carmine, large truss, fine foliage, and a most abundant bloomer, in perfection about the 15th June.

Ditto, MRS. JOHN WATERER, a bright rosy crimson, fine conical truss, a very free blooming kind, in flower about 15th of June.

To the admirers of this justly noble class of Plants, JOHN WATERER has the pleasure of recommending the above as being the greatest acquisitions yet offered. They combine in a marked degree the necessary requisites for really first-rate hardy crimson varieties, viz., imposing colours, abundant bloomers, extreme hardiness, and flower at a time when they are not liable to be injured by spring frosts.

The American Nursery, Bagshot, Surrey, Sept. 29.

THE IMPROVED BROWICK RED AND OTHER SEED WHEAT.

WILLIAM BARNES, in returning thanks to his customers for SEED CORN, begs to offer this season the following sorts, which have been procured from the finest and best varieties, regardless of expense in the purchase and cost in the cultivation—viz., Improved Browick Red, Spalding's Red, Old Red or Lammas Wheat, White Chaff Red, and Bristol mixed with White, all of which he will warrant *true and clean.*

Mr. B. can recommend the Improved Browick Red with much confidence as being one of the greatest acquisitions in Red Wheat, for light or black land, yet offered to the farmer. In this locality (Deeping Fen) it was less injured by frosts and mildew than other Reds, and was pronounced by all who inspected it whilst standing over several acres to be unrivalled by any in the district.—For further particulars, address WILLIAM BARNES, the Elms Farm, near Spalding, Lincolnshire.

THE PAMPAS GRASS,

"GYNERIUM ARGENTEUM."

LUCOMBE, PINCE, AND Co. having now for sale the finest stock of flowering plants in this country of the above, are enabled to offer their well established plants to bloom this autumn at the following prices:—

Fine specimens with two flower stems ...	21*s.* 0*d.* each.
Ditto with one ditto	10*s.* 6*d.* "
Smaller plants to bloom next year	7*s.* 6*d.* "

L., P., & Co. have also healthy seedlings at 30*s.* per dozen, which will be ready in October, which, however, they deem it right to say will most probably not bloom for two years. To such parties as wish at once to see the plant in its beauty, L., P., & Co. would strongly recommend the larger sizes, as they are much better and cheaper.

Few plants are more ornamental than this Gigantic Grass, the leaves (which are more than 7 feet in length, curving gracefully outwards) grow in large tussocks, thereby producing a very fine effect, and from the midst of these numerous flower stems arise to the height of from 6 to 8 feet, surmounted by elegant panicles of inflorescence nearly 3 feet long, resembling beautiful waving plumes of silvery feathers. It is perfectly hardy, and is also easy of cultivation. A grand specimen of this noble plant is now in the Exeter Nursery, pushing up nearly twenty large flower stems and numerous small ones, and will continue to be an object of great attraction for a considerable time.

EXETER NURSERY, EXETER.
ESTABLISHED 1720.

CUCUMBER SEEDS FOR WINTER SOWING.—The three best and most certain varieties ever sent out, and such as are sure to give satisfaction for winter growing. General Canrobert, fine black spine, length 15 inches, 2*s.* 6*d.* per packet. Lord Kenyon's Favourite, length 12 inches, very handsome, free setter, and most prolific bearer, 2*s.* 6*d.* per packet. Gordon's White Spine, length 20 inches; this has proved to be the best long winter variety now in cultivation, 1*s.* 6*d.* per packet.

DIGITALIS, OR FOX-GLOVE SEED.

This beautiful hardy biennial has been so much improved within the last two or three years by continual hybridising, that the brilliancy of the colours, the numerous varieties into which it has sported, and the dwarfness of the plants, will cause it when once known to be planted in the largest and smallest of flower gardens, round the borders of shrubberies, and for making beds in large pleasure grounds where brilliancy and effect is required. They will grow well on rock-work or sloping banks, where numerous other varieties of plants will not thrive at all. The seed should be sown now in pans or boxes, and planted out early next spring; by so doing they will bloom well next season.

Sold in packets at 1*s.* 6*d.*, or double packets at 2*s.* 6*d.* Every order must be accompanied by Penny Postage Stamps, or Post Office Order payable to

EDWARD TILEY, NURSERYMAN, SEEDSMAN, & FLORIST,
14, Abbey Churchyard, Bath, Somerset.

NEW PANSIES.

DICKSON AND CO. are now prepared to offer the following NEW PANSIES, 5*s.* each, viz.:—

ADMIRAL NAPIER, yellow and rich maroon.
CYRUS, rich deep gold and crimson maroon.
INDIAN CHIEF, rich deep purple self.
MISS NIGHTINGALE, white and deep purple.
PRINCESS, white and bluish purple.
RUBENS, yellow and fine rosy purple.

Usual discount to the trade.

Waterloo Place, Edinburgh, September 29.

ROSES.

S. PONSFORD, NURSERYMAN, SEEDSMAN, AND FLORIST, begs to say that his fine collection of ROSES is now in the beauty of the Autumn blooming, open to visitors every day (Sunday excepted). The Stock comprises everything good and useful. To Gentlemen anticipating planting in the coming season, S. P. can offer his general Nursery Stock with perfect confidence, not only containing everything in general demand, but unusually good in condition, and as low in price as any honest tradesman can render. New ground work executed to any extent.

Loughborough Park Nursery, Cold Harbour Lane, Brixton.

N.B.—A Descriptive Catalogue forwarded on the receipt of two postage stamps.

GEORGE JACKMAN begs to state his PRICED CATALOGUE of choice CONIFERA, HARDY EVERGREENS and ORNAMENTAL TREES, which are well grown, and constantly removed; also Roses, Standard, Dwarf, and dwarf-trained Fruit Trees, and Forest Trees, can be had on application by enclosing one Postage Stamp.

G. J. respectfully invites persons planting to pay a visit to his extensive nursery, one and a half mile from Woking Station, South Western Railway, where all trains stop, and conveyances can be had.—Woking Nursery, Woking, Surrey.

E. R. GREENUS, from his PROXIMITY to the Watford Station (London and North-Western Railway), begs to say that he can execute all orders with the UTMOST DESPATCH. His Stock (being FINE this season) of FRUIT TREES, Trained and Untrained; STANDARD and DWARF ROSES of the best sorts; well grown FLOWERING SHRUBS, EVERGREENS, FOREST TREES, AMERICAN PLANTS, and NURSERY STOCK in general, all which, from FREQUENT TRANSPLANTING, can be removed with perfect safety and success. Carriage paid to London on all orders above 2*l.* Garden and Agricultural Seeds supplied.—Railway Nurseries, Watford and Rickmansworth.

DUTCH HYACINTHS for Blooming in the Drawing-room, Parlour, &c., through the winter months.—We, the undersigned, beg respectfully to intimate we have imported from the best growers in Holland a very superior and large Assortment of Choice DOUBLE and SINGLE HYACINTHS, suitable for immediate cultivation, and which we can warrant as being first-rate kinds, and sure to give satisfaction.

The best Hyacinths, to bloom in water, per doz. ...	8*s.* 0*d.*
Very good varieties, ditto ditto, per doz....	6 0
Best mixed Crocuses, for pots or borders, per 100 ...	1 6
Polyanthus Narcissus, for pots, very fragrant, per doz.	3 0
Van Thol Tulips (these will bloom in pots by Christmas, if planted now), per doz	1 0

With every other kind of Choice Dutch Bulbs, a Catalogue of which will be forwarded on application (free).

CLARKE & COMPANY, Wholesale and Retail SEEDSMEN and FLORISTS, 86, High Street, Borough, London, about 30 doors from the London Bridge Railway Termini.

N.B.—A Choice Parcel of Guernsey Lilies, just coming into flower, 6*d.* each.

MAGNIFICENT SPECIMENS OF CONIFERÆ.

LUCOMBE, PINCE, AND CO. respectfully call attention to their very superior specimens of the above, which are worthy of the notice of all who are engaged in ornamental planting, their growth and shape being perfect, and their roots all that can be desired, so that where immediate striking effect, combined with perfect safety of removal to any distance is required, these large symmetrically grown and well managed plants can with confidence be recommended.

Abies Douglasi	Pinus insignis
" orientalis	" Cembra
" Menziesi	" austriaca
" canadensis	" muricata
Araucaria imbricata	" tuberculata
Biota glauca	" Montezumæ
" japonica	" Benthamiana
Cedrus Lebani	" excelsa
" Deodara	Picea Nordmanniana
Cupressus macrocarpa	" nobilis
" Goveniana	" Pinsapo
" Uhdeana	Thuja orientalis
Juniperus excelsa	" occidentalis
" recurva	" tartarica
Libocedrus chilensis	" filiformis,

&c. &c. &c.

Sizes, prices, and all particulars may be had on application to

LUCOMBE, PINCE, AND CO.,
EXETER NURSERY,
EXETER.
ESTABLISHED 1720.

F. GODWIN begs to offer the following PLANTS:—

	s.	d.		s.	d.
Abelia uniflora	1	0	Hexacentris mysorensis...	1	0
Azalea amœna	1	0	Hoya campanulata ...	1	0
" Beauté de l'Europe...	1	6	" picta	3	6
" Perryana	1	0	Hydrangea japonica variegata	1	0
" Symmetry	1	0	Impatiens Jerdoniæ ...	1	6
" Trotteriana	1	0	Ixora coccinea	1	6
Begonia Prestoniensis superba	1	6	" crocata	1	6
Coleus Blumei	0	6	" floribunda	3	6
Chironia glutinosa ...	1	0	" javanica	1	6
Clianthus magnificus ...	1	6	Jasminum grandiflorum fl.-pl.	1	0
Erythrina crista-galli ...	1	0	Pentas rosea	1	0
Escallonia pterocladon ...	3	6	Pleroma elegans	1	6
Eugenia Ugni	1	6	Saxe-Gothæa conspicua, 1*s.* to	3	6
Fuchsias, all the new sorts, each ... 1*s.* to	1	6	Siphocampylus Ne Plus Ultra	1	0
Gloxinia Duke of Wellington	1	0	Sonerilla margaritacea ...	7	6
" Eugénie	1	0	Stephanotis floribunda ...	1	0
" Figaro	1	0	Tremandra verticillata ...	1	0
" Léonie Van Houtte .	1	0	Vallota purpurea	1	0
" Wilsoni	1	0	Veronica variegata ...	0	9
with others, at 9*s.* per doz.			Vinca alba	1	0
Henfreya scandens ...	1	0	" rosea...	1	0
Hexacentris lutea... ...	1	0			

Also strong plants of the following CHRYSANTHEMUMS, which are the best of last year:—Annie Henderson, Arigenia, Augustine Mie, Aurore Boreale, Bob, Brilliant, Comte Achille Vigier, Docteur Bois Duval, Eclipse, Hermine, Le Prophète, Louis Delaborde, Madame Passy, Marguerite de Valois, Marguerite de Wildemer, Pluie d'Or, Prince Jerome, Requiqui, Turris Eburnea, Zebra, at 8*s.* per doz., or the collection for 10*s.*

F. G.'s priced Catalogue of Dutch Bulbous roots is now ready, and may be had free on application. Remittances expected from unknown correspondents.

Broadfield Nurseries, Sheffield, Sept. 29.

AZALEAS AND ERICAS.

W. J. EPPS has much pleasure in offering the following fine, bushy, well-grown plants, and of the choicest and best varieties, in large 48 and 32-size pots.

AZALEAS 18*s.* per dozen; 5*l.* per 100.
ERICAS 12*s.* and 18*s.* per dozen; 4*l.* and 5*l.* per 100.

These will make very pretty specimens for the ensuing season; all orders to be accompanied with a remittance from unknown correspondents.—Maidstone, Sept. 29.

NEW PELARGONIUMS.

GEORGE SMITH has a fine Stock of the following first class PELARGONIUMS in strong Plants, at from 30*s.* to 40*s.* per dozen, according to the sizes of Plants, hamper included with Plants to compensate for carriage:—(Forster's), Jessica, Phaeton, Seraskier; (Hoyle's), Hubert, Lord Raglan, Omar Pasha, Serena, Topsy, Wonderful, Yerda, Zoe; (Beck's), Conqueror, Dido, Fidelia, Laura, Lydia, Silenus; (Turner's), Grand Sultan, Pandora; (Forquett's) Petruchio; (Story's), Fair Ellen, Snowflake; (Horken) Una; (Cant's) Vespa; (Dobson's), Commander-in-Chief; (Fuller's) Gem of the West. With a choice assortment of show and fancy kinds. A descriptive Catalogue on application. Unknown correspondents forwarding a remittance with their orders will be liberally dealt with. Post-office orders payable at Islington.

Tollington Nursery, Hornsey Road, Islington, London.

VEREA CRENATA (*Syn.* KALANCHOE VARIANS), —THE LEAF OF LIFE *Nat. Ord.* CRASSULACEÆ.—A small importation has lately been made of the leaves of this interesting botanical curiosity, which matures plants in the serrations of its leaves.—Leaves on sale at 2*s.* 6*d.* each, post free, at GEORGE ROBERTS, 32, Moorgate Street, London, where a drawing of the plant in flower may be seen. Further described in reply to letters.

CATTELL'S EARLY BARNES CABBAGE; DO. DO. RELIANCE; ALSO PARAGON, IMPERIAL, KING, NONPAREIL, ETC.

JOHN CATTELL has now ready Bedded Plants of the above, at 5*s.* 6*d.* per 1000. No charge for crates, baskets, or packing. Packages of 5000 or more are delivered to London and to the Edenbridge Station of the South-Eastern Railway carriage free. A remittance or reference to accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

NEW STRAWBERRY.

KITLEY'S CAROLINA SUPERBA, not surpassed in flavour, habit, and productiveness by any Strawberry extant, at the low price of 2*l.* per 100, 9*s.* per doz., free by post, to be had of Messrs. GARRAWAY, MAYES, & Co., Bristol, agents for the west of England and South Wales, or of any respectable nurseryman. For a full description, testimonials, &c., see this Paper, April 14, 1855.

JAMES KITLEY, Lyncombe Vale Nursery, Bath.

AGRICULTURAL SEEDS, ETC.

PETER LAWSON AND SON, SEEDSMEN AND NURSERYMEN TO HER MAJESTY THE QUEEN, and THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND, are now supplying the following seeds of the best quality:—

Italian Rye-Grass, Foreign seed	Dwarf Essex Rape
Crimson Clover (Trifolium incarnatum)	Winter Tares
Alsike Clover (Trifolium hybridum)	Natural Grass Seeds, for Pastures and Lawns, &c. &c. &c.

27, Great George Street, Westminster.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 29, 1855.

ST. JAMES'S PARK is to be destroyed; if we are to believe some of our contemporaries who are in distress at the dearth of good subjects of complaint. Those beautiful grounds are to be desecrated, the rights of the people are to be violated, and the poor are to be ousted from their verdant patrimony, and deprived of their holiday recreation, in order to gratify the bad taste, or to satisfy the greediness of some of the hangers-on about public offices. This would be indeed a grievance if it were true: and an unlimited amount of popular capital might, we have no doubt, be raised upon the strength of it.

But is it true? Does all the clamour about desecration, and violated rights, and official wrong-headedness or something worse, stand upon any sort of foundation? Certainly not; that we undertake to affirm of our own knowledge.

It seems that the Home Secretary is of opinion that it would be a great public convenience if a way for carriages and foot passengers could be carried in a direct line from St. James's Street to Westminster, so as to escape the long circuit by Whitehall on the one hand, and by Pimlico on the other, and to relieve the crowded thoroughfares of some portion of their excessive traffic. Can we doubt that this would be an immense public convenience? if any one does, we beg he will find his way from Bond Street to the Houses of Parliament, and then compare the distance as the streets now run with what it would be if the proposed way were made.

But no such way can be made without crossing St. James's Park and the beautiful piece of water there. And herein lies the offence. To cut St. James's Park in two by a dirty road, and thus to reduce one beautiful garden to a couple of unconnected ugly spaces; to throw a hideous bridge across the only ornamental piece of water in our metropolitan parks; to show such a total disregard of public convenience; and to rob the lower classes of such an enormous piece of ground as the road would occupy is a design of unparalleled official despotism. Such, we believe, is the essential part of the allegations made upon this occasion.

We have, however, wholly failed to discover the inconveniences which are painted of such portentous dimensions. We are unable to understand why, in order to make the way proposed, the Park should be cut in two as is pretended, or the beauty of the

water be destroyed, or the recreation of the public be interfered with. One would think that the intention of Government was to construct a massive military road, paved with granite and traversed by incessant artillery waggons; or to form a causeway over which stone was to be conveyed on its way from Paddington for the construction of the new bridge at Westminster and the Houses of Parliament. On the contrary, the bridge is to be of the lightest design, to be used merely by foot passengers, horsemen and carriages; and instead of cutting the Park in two it will consist of arches thrown over the greensward, as the bridge itself will be over the water. So that as free a communication as now exists will be maintained between the two sides; nor will any real space now available by the public be lost, for the roadway itself, while on the level, will stand in the place of so much shrubbery, which must always be protected ground.

With respect to the badness of the effect to be produced by the intended alteration, much will of course depend upon the design for the bridge, concerning which there is at present no public information. It is however an admitted principle in landscape gardening that the effect of water is greatly improved whenever it is spanned by a bridge.

"There is one class of buildings," says Sir Uvedale Price, "of a very distinct character from any of those already mentioned, which by no means deserves to remain unnoticed—that of bridges. In every style of scenery they are objects of the most interesting kind; whether we consider their great and obvious utility, and the almost intrinsic beauty of their forms, or their connection with the most pleasing scenes in nature, and the charms which they add to water, and receive from it in return."—And again: "The situation of a bridge most commonly confers on it such distinction that it wants no ornaments to mark it, and to detach it from other objects; then the arches themselves form such grand and beautiful openings, that they require no artificial breaks or embellishments to disguise or adorn them, for their natural arrangement is as simple and beautiful as their form; whereas, in some of the necessary apertures in other buildings, such as the windows in houses, there is nothing of intrinsic beauty or grandeur; and in their arrangement the architect is frequently embarrassed how to make beauty accord with convenience."

Such were the opinions of one of the greatest landscape gardeners, and we are not prepared to believe that St. James's Park will offer an exception to what Price regarded as a universal rule. On the contrary, looking at the water itself, and the place where it is proposed to span it with a bridge, we are persuaded that when the alteration is made the most vehement of those who now oppose it will feel that he was in the wrong.

It is rightly urged that the Parks are places set apart for public recreation and public convenience. In the present instance the former can, in no degree whatever, be interfered with; on the contrary, if beautifying a place of public resort renders it more enjoyable, the pleasure of the frequenters will have been consulted, not neglected. As to convenience, one of its first conditions in a great city is freedom of communication; and it is impossible to say with any justice, that the public interest is neglected by forming a roadway between two of the most crowded districts of this huge metropolis. If the way in question does nothing for Belgravia, it does everything for Brookes' and White's, the line from St. James's Palace to the Regent's Park and the great region of Marylebone. So far from objecting to roads formed through the Parks we hope to see more; one for instance from Charing Cross through Spring Gardens, and another from Tyburnia towards Kensington Gore. They are of urgent necessity and it is a strange perversion of language to hold that the public is wronged by measures in which nothing is so much consulted as public convenience.

Let the Board of Works persevere; the recent outcry will have died away before a sod is turned; and if not let them recollect that "public opinion" is not exclusively represented by the ready writers of a few popular newspapers.

There is no satisfying some people. Their vanity is inordinate; and praise they regard as scanty courtesy unless it is carried beyond all truth and moderation. It is not enough to say "you have done well and been useful;" they expect to be told that their merit transcends that of all men, and to be regarded as benefactors of the human race. A notable example of this has just occurred at the meeting of the British Association at Glasgow. Mr. N. B. Ward, after whom the well-known Wardian case has been named, has laid his sorrows before that learned body. He conceives himself ill treated by the Editor of the *Gardeners' Chronicle* because the results of his wonderful discovery that a Fern-seed will grow in a glass bottle is not placed on the same level as the inferences to which the fall of an Apple once led. That we should not have recognised a second Newton in Mr. N. B. Ward is a grave offence.

Accordingly the learned gentleman has complained to the British Association, as we have already said. He assured his hearers that "the statements of the editor of the *Gardeners' Chronicle* were unphilosophical and *untrue*"; meaning, as he tells us in a private letter of apology for the use of such language, that he only questioned the accuracy of our conclusions, and not of our statements. One of the statements to which he referred was, as we understand him, that plants will not *grow* in a Wardian case; and he remarks that it does not appear that we "have instituted a single experiment to test the value of that hypothesis." We should wonder if we had. It was not necessary to prove experimentally the soundness of an opinion we never expressed.

The article which has so grievously disturbed the equanimity of our worthy friend is we presume one published in our volume for 1854. p. 252. In this occur the following sentences:—"rightly used and correctly understood it is an excellent adjunct to horticulture."——"when properly constructed the Wardian case answers perfectly as a means of transplanting plants to great distances."——"It has also its value in places where the air is filled with floating soot or dust; or where it is naturally too dry for vegetation, as sitting-rooms. There the lives of certain kinds of plants may be maintained *for long periods of time* with the appearance of health; shade-loving races such as Ferns and Mosses *will even thrive there;* and others, like dry Crocuses and Hyacinths, *which have been previously made ready by the usual processes,* may be led *to blossom in perfection for a season,* or in some instances for more."

Does the learned gentleman mean to say that these statements are "unphilosophical and untrue"? We know them to be true, and we should have thought them laudatory enough for any moderate appetite. Nor can we see in what respect the testimonials produced by Mr. Ward himself in favour of his invention go beyond our own.

If he means to say that we are wrong in condemning Wardian cases as places where *good cultivation* is to be carried on, then we have merely to repeat the observations formerly made at pages 252 and 317 of our volume for 1854, and more recently in the Theory and Practice of Horticulture. We then objected to the principle on which these contrivances are constructed, and we appeal, in support of that opinion, to every gardener who has tried them rationally. Mr. Ward is much mistaken in supposing that we say this in the absence of experimental proof. We might point to the common notoriety of the case if it were necessary. But it so happens that we have used Wardian boxes for years experimentally both in London and the country, in the exact form proposed by their author as well as in a modified state; and the result is invariably consistent with everything that is said in the preceding quotations and with all that was further urged in the two articles to which we have also referred.

We can easily believe that gentlemen whose gardening is limited to a glass box in a London window may be proud of the success they achieve. We have no doubt that Dr. Alfred Smee has made Stanhopeas and other Orchids blossom in such a place, and that Dr. Young, of Kennington, has grown Ferns in them and also "kept other plants alive," although he finds, as he honestly admits, that their "utility is still in its infancy." But this is not gardening any more than growing Wheat in a flower-pot is farming; nor are either Mr. Ward or his witnesses gardeners. They are gentlemen who amuse themselves with a very agreeable and interesting toy, whether it really be "a Wardian," properly so called, or merely a portable greenhouse, as is frequently the case.

Upon this point we must again observe that a "Wardian," properly so called, is a close box with glass sides; and that when it is opened and shut from day to day, it has no more right to the name than a common greenhouse. If the former is not what Mr. Ward claims credit for, then he cannot claim it at all. He started from glass bottles containing moist earth and *carefully closed* with a lid or with oiled silk; and such must continue to be the condition of his case, be its materials or its magnitude what they may.

We should not have again referred to this subject, had we no other object than to defend ourselves from a feeble attack, which must have amused more than edified the Botanical section. But in reality, one of the greatest of Horticultural questions is involved in the discussion; and if we were to acquiesce in the justice of Mr. Ward's opinions, we should be helping to throw back the art of gardening to what it was in the days of the Arrons and Andersons. All modern experience shows that healthy vegetation, productiveness, brilliancy of colour, and richness of flower among plants is in direct proportion to the free circulation of air at a fitting temperature, and in a due state of humidity. Mr. Ward thinks the reverse to be true, and that plants like to find themselves permanently in "quiet media;" that is to say, in places where plants "spindle" and "fog off," and "blight" and "mildew," to use our homely horticultural language. When he can find a gardener of experience to support such a view it will be time enough for us to examine it more formally. Till then we must continue to warn those who would cultivate plants well to beware of Wardian cases. Where plants are to be grown under difficulties, as in sitting-rooms, or sooty neighbourhoods, they may be advantageously employed, as we have never hesitated to assert; but even there the less the true Wardian principle is observed the better for their inmates.

New Plants.

— 145. Abies Kæmpferi.

At p. 255 of our volume for 1854 we gave an account of this fine tree; we are now enabled by the kindness of Mr. Glendinning, of the Chiswick Nursery, who possesses a small number of plants, to add the following sketch of its appearance, reduced from a Chinese drawing sent home by Mr. Fortune. The

figure of a man at the foot of the trunk will show what the size was of the specimen seen by Mr. Fortune's draughtsman.

—VEGETABLE PATHOLOGY.—No. LXXXIX.

366. Carcinodes.—(*Canker.*)—In the last number a peculiar case of canker in Apple trees was described; there is, however, another far more common and with the exception perhaps of the woolly aphis by which it is often accompanied, the most formidable malady to which they are subject. Some varieties, as the Golden Pippin, are so easily affected, that they are very difficult of cultivation, and indeed will not succeed at all except in favourable localities. The original evil consists in some constitutional depravity, which becomes manifest at once whenever there is any pressure of outward circumstances.

367. I have now before me some dead branches of a Golden Pippin, which in the living portions is still strong enough to bear very fine fruit, though the tree is evidently fast approaching the end of its existence. The fruit appears on two kinds of branches, equally fertile, the one tall spiry twigs which have grown with great rapidity, the other stunted more or less divaricate branchlets, whose progress has been extremely slow. Both are equally affected by canker, though not, to the outward eye at least, exactly in the same way; the free growing branches apparently perishing downwards and casting their thin bark, while the others perish first at the base, in consequence of which the parts above are deprived of nutriment and fail. On closer inspection, however, the difference is only apparent, for even the smooth twigs will be found to have scattered spots at which decay has taken place involving the superior organs. If a cankered

branch be examined as soon as the mischief is visible, a vertical section through the pith will generally reveal the point from whence decay has commenced, which is usually some bud, and most frequently a flower-bud. The flowers in the first instance may not have set, possibly from some innate weakness in the bud, without any external cause; or some of the circumstances which usually produce sterility, whether in an earlier or later stage of growth, before or after impregnation, may have operated, but the effect is the same. The footstalks may separate from their point of attachment leaving the bud, which was already in a weak condition, in a state unfit for further vegetation and the development of one or more axillary buds in order to the formation of a new fruit bud, or the young fruit may still remain, withering on its matrix, which has not vitality enough to throw it off. Either the matrix itself immediately, or the dry fruit remaining *in situ*, decomposes as the season advances, the morbid matter is carried down to the tissue surrounding the pith, and if the branch has strength enough to resist the infecting matter, though the bud itself decays to the base, it is soon covered over with fresh layers of wood, and no permanent injury is caused; if, on the contrary, the constitution be weak and the vitality low, the woody tissue perishes all round, and soon involves the bark which covers it, so that both are incapable of transmitting the nutritive fluids, and the branch which was just before apparently free from diseases perishes as if by a flash of lightning. The bark immediately in contact with the diseased wood soon perishes and often disappears, while that of the upper portion which perished merely from the cutting off of its supplies of sap affords a fit nidus for fungi, which soon complete the destruction, and sometimes bear that blame which belongs to totally different circumstances. All this may be complicated with the woolly aphis and such cases of canker as that described in our last article, so that the tree in every part presents a gnarled and warty aspect. Many varieties of Pear are equally subject to canker, and the phenomena in their case are nearly the same, except perhaps that the cankered spot is more apt to be gouty.

368. Where there is a great weakness of constitution it is obviously very difficult to contend against such circumstances. Something, however, may be done by very careful inspection of trees, and the removal of every spur which does not appear healthy. The bark will often close rapidly over a clean section, where it would be made unhealthy by the contact of a decaying twig, and though the tissue of the wood may be slightly affected, if the source of infection be removed, the surrounding tissues may remain healthy and the tree be preserved.

369. Gumming is in many cases merely a form of canker, the exudation of the gum aggravating the condition, and making the wound extremely difficult to heal. *M. J. B.*

PROPOSED NEW ROAD THROUGH ST. JAMES'S PARK.

As your paper has ever been the organ of plain, useful sense, uncontaminated by personal malice or party feuds, I hope you will not object to insert a few lines from an impartial observer on the uproar recently raised against the proposed new road through St. James's Park. For myself I am neither an inhabitant of Belgravia nor St. James's. It is nothing to me whether Westminster or Lambeth, Mayfair or Marylebone are accommodated; but "fair play" is the motto of an Englishman, and therefore it is well to look at the source whence all this clatter proceeds. "Oh!" says Mr. Johnson to Mr. Smith, "It is the public voice. The public is aggrieved, the public will have its own way—the *Times* says so." Let us try to examine, for one moment, what is "the *Times*." "Is it a man?" "No. It's many men." "What! the men that make the public?" "By no means—the public knows nothing about them." "Who are they?" "Nobody knows." "Why do they write articles about the public?" "Because they are well paid." "Who pays them?" "Nobody knows." "Why do they not put their names to their articles?" "Because if they did, nobody would believe they were the confidants of the public—and the public, which is to be played upon, would not respond." Now, this late cannonade is something like a pop-gun loaded with peas discharged at a timorous female in the dark. The nerves are so tremulous that the understanding goes for nothing; she believes that each cold pea is a red-hot bullet; and not only that murder is intended, but that it is actually committed, and that she is bleeding to death! The *Times* loads pop-guns, rightly judging that it can frighten the public, and make it believe that St. James's Park is already nearly destroyed, that "by reason plain" the public health is gone, and that its destruction has been perpetrated in cold blood by the Chief Commissioner of Works. Has the public forgotten who that individual is? Has it forgotten that this is the very man who was President of the Board of Health—the very man who risked his life this very time 12 months for the preservation of this same public?—the man to whom we are indebted for the enormous reforms which his colossal mind and wonderful powers of application have brought to bear, and carried through the House of Commons this very year? This same public, to which the *Times* is apparently so much attached, heard very little through its columns last September of the then President of the Board of Health when he went into the infested regions of London, to see, to console, support, and direct this said "public," while 60 or 80 corpses lay dead in one place, and the survivors were nearly paralysed by terror and grief. What said the *Times* then? Neither cannons nor pop-guns were loaded for its beloved public; and had the President of the Board of Health (the M.P. for Marylebone) depended on its pages for encouragement, very little, indeed, would he have done for the benefit of that public who lay dying and dead around him! The arrestation of the cholera, and the present exemption from the pestilence may be considered much owing to that same man's ability and indefatigable exertions to make effectual laws, to carry out measures for its arrestation and future prevention or mitigation. The public would do well to look to antecedents, and then judge whether the *Times* or the present Chief Commissioner of Works has proved the most faithful friend and trustworthy guide on former occasions. The *Times* has truly distinguished itself by abuse of Lord Raglan till he died, and then it changed its opinion; also by similar uncomplimentary predictions against the present Ministry, till one day when Sebastopol was taken! Now new excitement is wanted—new grievances must be manufactured at any price to keep the people amused till Parliament meets—and what can be so sweet an employment as to pull the present Chief Commissioner of Works to pieces, because he does not belong to the "sleeping family" of some of his predecessors, who happen to be special favourites with a minority of persons in printing offices. It is greatly to be desired that the much-quoted public of the *Times* would examine the style of writing of recent attacks in that paper, as they appear to be all variations played by the same hand; whether articles or letters, the motive seems to be very foreign to the apparent subject, while the variations run wide of the original theme. It is much to be regreted that the individuals who have so carefully performed in the same style (which cannot fairly be considered that of "modern improvement") should be so modest as not to record their names, which, if as yet unknown to fame, might henceforward become celebrated for logic and for eloquence; and it is hoped that in the next editions future variations to the tune of "Dear public, what will become of thee?" will be signed by some one of the many Jacks, or victorious holders-on, whose talents find such liberal encouragement in the *Times*, and whose leisure hours assist in this dull interval to fill up vacuums in the *Daily News* and the *Sun*.

I hope you will not consider that these few words upon the real value of such sort of *attacks* are misplaced in the *Gardeners' Chronicle*; it is my sincere wish that the valued public (not the "public" of the *Times* but the reality claiming that name) may be permitted by that literary luminary to make use of its own memory and understanding. *John Field, Rose Cottage, Fulham.*

NOTES ON TRANSPLANTING.—No. IV.

In planting to a limited extent, as in removing a few favourite or valuable specimens, many resources are available to ensure success, which could hardly be employed largely. Thus should the weather be dry after planting, the branches may be occasionally syringed or protected from the action of the sun by a screen of canvas or mats, or better still both the syringe and the covering may be used together. The practice of syringing newly-planted shrubs cannot be too much praised, many a valuable plant has been preserved by it. If the leaves and succulent shoots of plants give off a large amount of water by evaporation, they also take in a good deal by absorption. The leaves, branches, and stems of a new-planted tree or shrub, should, if possible, and especially if removed in spring, be kept moist till the production of new roots renders such assistance unnecessary.

When it is determined a year or two beforehand to remove a large plant which it is worth while to ease, it is a good practice to cut a trench at a distance from the stem proportionate to its size, severing all the roots and filling in the trench with a light mould, in which rotten leaves form a large portion. This favours the production of fibrous roots, and enables the plant to be removed with a fair chance of success. If the plant is very large and its roots extend a long distance from the stem, the operation of root cutting had better be extended to two seasons, cutting half in each. If all are cut through at once the check would probably be too great, and endanger the life of the individual. Many large rough shrubs may be safely transplanted so as to be very useful afterwards, by cutting off all their branches, pollarding them in fact, and taking them up with as much root as can be conveniently secured without attempting to secure a ball. Such will generally succeed, and make luxuriant growths the second if not the first season after planting. Where appearance is of no consequence for a year or so this mode of planting may be very usefully employed.

In reading what I have so far written, it seems to me that enough has not been said on the importance of draining as a preliminary to planting where the soil is a retentive one, and the subsoil unfavourable for the passage of water. As example is said to be better than precept, I will give one illustration of the position. The inferences to be drawn from it will be of more practical value than anything I can urge by way of theory in the absence of some such illustration. An estate which had long been in the possession of a gentleman who cared little for improvement, fell into other hands, and extensive alterations were immediately commenced. Near the mansion were several large shrubberies, or what had been intended for shrubberies, which, as I learned from a person who had long resided on the estate, had existed for several years, but in consequence of the poor, stiff, wet soil, the plants would not flourish; nevertheless the vacancies from deaths had been made good every year, with the hope that some would at last succeed. The appearance of the then existing shrubs and trees was sad indeed. The trees were of the ordinary deciduous kinds; the shrubs common and Portugal Laurels, with here and there a Holly or an Arbutus. Very few had made any growth since they were planted; the Evergreens wore a yellow sickly hue; the deciduous trees were covered with Lichens, a great portion of their branches were dead or dying, and, as I before observed, this state of things had existed for some years. In the course of the alterations these plantations were swept away, a few of the shrubs being retained to be planted again subsequently. The grounds, prior to a new arrangement, were thoroughly drained, and spaces for the shrubberies deeply trenched. Many of these embraced portions of the ground where the old shrubberies had been, and in planting the new ones some of the shrubs which had been retained were placed in nearly their old positions. The sequel may be imagined. The draining and preparation of the soil acted like enchantment. The first season the plants merely established themselves, much growth could hardly be expected; but in the succeeding year the value of the treatment they had received became apparent enough. Dark green foliage and strong healthy shoots were everywhere conspicuous; and what a dozen years of previous labour had failed to produce, was obtained by well directed expense in two years. Before the ground was prepared under the new proprietor, rain which fell in the autumn and winter collected in pools on the surface, and did not disappear till it was evaporated in the spring. The roots of the plants were in water six months out of the twelve. Death was of course the rule; few trees beside a Willow or an Alder could exist there for any time. Thorough draining with subsequent cultivation of the soil, however, changed the whole aspect of the grounds, and rendered the soil as healthy and as well suited for the growth of all ordinary trees as could be desired.

There is one other important matter in reference to planting which I must not pass over—I allude to what is called cheap plants, or in other words when, from an idea that he is procuring a bargain, a gentleman purchases a quantity of coarse-rooted stunted plants considerably below the fair market price demanded for good ones, and cheats himself into the belief that he has made a bargain. The amount paid for these so-called bargains is generally so much money thrown away. The failures are so numerous that the greater part of the plants have to be made good in the following year—both time and money are thrown away, and the work has to be done over again. To speak somewhat paradoxically, but nevertheless truly, cheap plants are in nine cases out of ten very dear ones. The same expense for labour in the planting is incurred, and all attendant charges, with the exception of the actual purchase money, are the same for good as for bad plants. And the difference between the price of a good article and a bad one is in reality very small, and bears no sort of proportion to the importance of the results involved. But there is a talismanic charm about the word cheapness, and we are all more or less affected by it, which too often, like a veritable Will-o'-the-Wisp, is a delusion and a snare. If you have a shrubbery to plant and intend purchasing the materials for it, determine to give a fair market price, and insist upon being supplied with the best article of the kinds you require. Give your order to a respectable tradesman on these conditions, and you will have no reason to complain. But bear in mind what has been said before about the treatment of the plants when you get them.

There are, especially in the neighbourhood of London, frequent sales by auction of nursery stock. They are held for the express purpose of clearing off quantities of inferior plants such as nurserymen are glad to get rid of at any price. Nevertheless purchasers are always found, and it is not till a few months afterwards that they are fully awake to the almost worthlessness of the goods purchased. For those who chiefly patronise these sales are but little acquainted with plants, and are induced to become purchasers mainly in consequence of the apparent cheapness of the lots. These sales are a fertile source of disappointment in planting, and those who may contemplate attending them to make purchases, will do well to be wary, or still better avoid them altogether; and, in fact, unless they have a good knowledge of plants themselves, or can take the advice of some one who has, will be much the gainers by rigorously avoiding what are called "bargains" in plants under any circumstances.

To recapitulate, plant in the autumn if possible, and always prepare the ground well beforehand. If compelled to carry on the work in spring, great care will always be required; and unless the weather is very moist, and other circumstances favourable, the month of March should be avoided altogether. In limited operations great license may be taken with established rules; and in those of great extent, local or peculiar circumstances may warrant a wide deviation from the dictates of general principles.

In conclusion, a word or two on planting by contract. Do not choose an estimate solely because it is a low one Recollect that any nurseryman can supply plants of the

same kinds at a variety of prices, and that if you insist upon having your work done at a cheap rate, you must not expect to receive the best plants either in quality or sorts. It is one thing to have your beds filled with stunted shrubs and deformed trees, and these of the commonest sorts too; and another to get healthy and luxuriant plants of the best kinds for the purposes required, and which will be every day growing into beauty and usefulness. A few pounds more or less in the original cost will decide in favour of either. *George W. Lovell, Landscape Gardener, Bagshot.*

Home Correspondence.

Professor Henslow's Horticultural Show at Hitcham, Suffolk, Sept. 19.—This interesting rural fête, the second of the season, was favoured by a lovely day, and was rendered unusually gay and animated by the many coloured decorations of the flags of all nations which floated over the happy scene of mingled pleasure and instruction. Over the front door of the rectory were the words "Seed time and harvest fulfilling God's word," in letters formed of Laurel leaves and flowers, most appropriately reminding the visitor of the gratitude due to the great Giver of all for the bounty of the season. Under the array of flags waving over the lawn were two tents, in the larger of which the specimens of allotment produce were set out, and their excellence proved how great a benefit a quarter of an acre well cultivated may become to a poor man. The smaller tent had inscribed on it in letters formed of snail shells, surrounded by muscle shells, "Marquee Museum." In it was an instructive collection of various objects —animal, vegetable and mineral, and miscellaneous. In the part allotted to the animal kingdom were an armadillo, a hedgehog, a porcupine, the skull of a tiger, and Patterson's zoological diagrams, besides birds, reptiles, molluscs, and insects. The principal vegetable specimens were limited to Gutta-percha, including a drawing of the tree, and illustrations of the modes of preparing the Gum-resin in all its actual forms. These included blocks as imported, sliced, teased, kneaded, rolled into sheets and tissue, cut into strips, moulded, tubed, applied to electric-wire coating, and manufactured into various articles. Amongt the mineral matters the most attractive were 22 dozen fossil whales' ear bones from the so-called coprolite pits of Suffolk, thousands of which have been found within the last 10 years. In the list of miscellanies were antiquities, Russian trophies from the Crimea, manufactures, and models. The cottagers and the ladies and gentlemen present mingled together in this museum, where the Professor most agreeably and plainly explained to all inquirers whatever was desired. About 3 o'clock he ascended a rostrum decorated with evergreens and flowers, to deliver what he called "lecturets" on the objects in the Marquee Museum, dilating on Wheat and one of its diseases, bunt, the remedy for which was good dressing, and explaining the discovery, nature, and application to the arts of Gutta-percha. The lecturets concluded, he commenced the allotment report, and announced the prizes. The three first prize-men and one first prize-woman had framed testimonials for superior allotment cultivation. Their names and nature of the prizes were surrounded by painted wreaths of flowers, and would become the perpetual ornament of their cottage walls. After this came the school report and distribution of prize certificates, connected with excellent advice both to parents and children. Alluding to the teachers he observed, "there is a way of doing all this earnestly, and yet with pleasure both to child and instructor if the teacher has his soul in the work, and feels that it is a work for God." England has at this time many such teachers of all classes. Tea "in the social and orderly manner approved at Hitcham" followed, and the winners of prizes drank success in the cheering beverage to the Society. Then followed "God save the Queen; and may the valour of her gallant Army and Navy be soon crowned with a complete success;" "Good night, and good bye till, if it please God, we reassemble another year for a like friendly competition." Prizes were given to the children for wild flower nosegays as well as cultivated flowers, but all children who competed were required to bring a ticket for regularity and good conduct either at the day or Sunday school. There are drawbacks to everything, and those on the present occasion were some reports of wilful mischief as yet undiscovered done in the allotments, to which the Professor most properly adverted; but with these exceptions the happiness of all seemed as bright as the sunny day which they enjoyed. It would be well for the whole of our rural districts if such meetings became more and more multiplied; and though it is not every one that can expect a Professor Henslow, yet the knowledge and influence of the clergy might create most useful auxiliaries to their higher objects in gatherings conducted like those at Hitcham. The lecturets were instructive to all, and the rich and poor seemed equally interested; and it was impossible not to notice with pleasure the respectful manners of the one class, and the kindness of the other. We trust the worthy Professor may be spared to see his good example largely imitated, and that the teachers of religion will become more and more impressed with the certainty that the truths of Nature well defined are capable of being made most effective auxiliaries to those of revelation. *S.*

Dioscorea Batatas.—Having purchased four roots of this newly introduced esculent in spring, and seeing there was likely to be some discussion respecting its merits, I became anxious to know the state of my plants. I have now examined two of them, and have come to the same conclusion as "Quercus," viz., that until this Yam gets a fair trial it is wrong to say anything against it. For my part, considering the smallness of the roots (about the size of Peas), and the precariousness of the present season in being so little free of frost, I am pretty well satisfied with my success. I have hopes that another season with larger roots to start with, and with produce bearing the same proportion to sets as this season, the return will be reasonable, for it is generally acknowledged in Potato growing that a strong bud or set from a large tuber gives a better return in weight than a small set or a little Potato planted whole. Of this I am certain, that few would expect much from sets not larger than Peas, as was the case with most Dioscorea roots this spring. On receiving mine in January I put them into 3-inch pots, and when the weather became mild in May I planted three of them out in a prepared piece of ground; they were then a few inches high, and I protected them a little at night for a short time. On the 20th of June they were killed with frost to the ground, when they had to push fresh shoots, and this retarded their progress considerably. On taking up one of them it had made a root 5 inches long, club shaped, and weighing about 1 oz. At the time I planted out the three roots I put the fourth one into a large No. 1 pot, and kept it in a small forcing pit through the summer, where it grew very rapidly. The root now weighs 5¾ ozs.; it is somewhat distorted, owing to its downward passage being interrupted by the pot, at the bottom of which the roots were obliged to cross each other. The tops were fully 6 feet long, and the plants produced about 60 such tubers as were sent out in spring. After making about 100 cuttings from the tops, I tried a cow with the remainder, which she readily consumed. *R. Farquhar, Pynie Castle, Aberdeenshire.*

The People's Park at Sunderland.—There must surely be some mistake about the statement (Newspaper p. 262) wherein this park is described as being unsurpassed by any public park in England. I have visited Sunderland, and can find no public park there worthy of the name. There is a portion of ground which is called Boyldon Hill, about 6 acres in extent, which has been a quarry for the use of the town, and about 3 acres exist in front of the quarry. The rubbish heaps have been grassed over and walks formed (from plans drawn by the town engineer) which display in my opinion neither taste nor judgment as far as landscape gardening is concerned. A few small beds are placed by the side of the outer walk, so as to form a belt in which there are a few annuals. This belt is planted thickly with Poplars of different kinds, and a few are distributed about the lawn, the whole reminding one of the Willow beds by the edge of the Trent more than of a public park. It is stated that these grounds have been laid out by Mr. Smith from Chatsworth. Permit me to ask if Mr. Smith is a gardener there? If so, the unrivalled beauty of that princely establishment seems to have given him no correct idea of the kind of taste and judgment required in laying out grounds. Judging from the police reports in Sunderland it would appear that some of the inhabitants considered the grounds as laid out by Mr. Smith only fit to tether their donkeys on; let us hope, however, that this opinion is entertained only by the few, and that the majority of the good folks of Sunderland think differently. *J. S.*

Garden Sports.—I told you some years ago about a Currant bush that would almost make a fit companion to the Gooseberry bush near Glasgow. I received it more than 20 years ago for that variety of Currant called Champagne, something between a red and a white; but instead of bearing one variety it bears three, in different parts of the bush, namely, a red, a white, and a Champagne. The bush is still in a healthy state, and kept up its character to the present season. *Peter Mackenzie, West Plean, Stirling.*

Zinc Weathercocks.—Will any of your correspondents who understand these things be so kind as to inform me if a zinc weathercock, and other ornamental work, on the point of a high tower on the sea coast will be less liable to attract lightning than if made of iron, and also whether painting it would make it more safe; also, if copper bell-wires attract lightning less than iron ones—the mass of bell-wires now placed under the floors of houses seems to be more dangerous than the old mode of fixing them? Any information on this subject would be very acceptable to *One who is Building a House by the Sea Side. Sept.* 25.

Transplanting Machines.— Which is the Best?— I cannot afford time, neither do I undertake, to notice every scribbler on the vexatious and, as yet, little understood subject of removing large trees successfully; however, your correspondent, "T. C., Tadcaster," demands from me a few cursory remarks. He says (*Gard. Chron.*, Sept. 8, p. 598)—"The Rt. Hon. E. Strutt's machine, at Kingston Hall, is somewhat similar to Mr. Barron's, but considerably improved, which the nature and circumstances of the work required; at the same time it is but justice to Mr. Barron to say that to him belongs the merit of the invention of the original." I have yet to learn what authority or proof "T. C." can give for his assertion that this machine is a "considerable improvement" upon mine. As "T. C." apparently wishes to do me justice in this affair, I am bound to do him justice in supposing that he has not had all the facts of the case brought before him; I therefore beg respectfully to draw his attention to what follows:— After many years' constant practical experience in transplanting trees, and constructing and improving machinery for the purpose, the Right Hon. E. Strutt, of Kingston Hall, applied to me, through Mr. Mackay (the gentleman who afterwards conducted the planting operations at Kingston Hall), for a drawing of my large machine; I then gave him permission to take any dimensions he wished from my machine, which was then almost daily passing through Derby. This was done by Mr. Cowlishaw, the person who built the Kingston machine. At that time neither Mr. Cowlishaw nor Mr. Mackay professed any knowledge of the undertaking. Mr. Cowlishaw, who was a good workman, adopted some trifling alterations in trussing the beams, &c., but without in the least affecting the principle of my machine. After this a second machine upon the same principle, but smaller, was built for the Rt. Hon. E. Strutt, which Mr. Mackay likes better than the large one; and last year I was indebted to the Hon. and worthy gentleman for the use of this machine for several months when all my machines were fully employed. One which I built in 1853, upon a different and much improved principle, was used with the machine from Kingston Hall, and it was with difficulty that the workmen could be got to use the one from Kingston when the other was to be got, as a tree could be loaded and unloaded much easier, and in half the time, with my No. 3 machine. This year (1855) I have built another, which is an improvement upon the one built in 1853; so that in reality the machines stand in efficacy and merit in the following order. No. 1, my original machine, which was built more than 24 years ago, was the one which Mr. Cowlishaw professes to improve upon; and yet it removed larger trees, from a greater distance, and many more of them, than were ever removed by the largest one at Kingston Hall, and they can be seen here in a healthy state. Nos. 2 and 3, the Kingston machines. No. 4, my largest machine, more powerful than No. 1, and improved in construction, still without any of Mr. Cowlishaw's "improvements." No. 5, built in 1853; No. 6, built in 1855: these are quite different from any of the others, and the last is the best. But to the point; to compare any of the machines now mentioned with one another, or to compare what has been done at Kingston Hall with what has been done at Elvaston Castle and some other places, is just as absurd as to compare Mr. Barron with himself; every honest man at all conversant with the matter knows that my system only has been adopted at both places. *William Barron.*

Draining and the Sugar Cane in Jamaica.—I should be obliged by the opinion of any correspondent on the following point. The thermometer here, Jamaica, in the sun is about 120° Fah.; the soil about 6 inches on heavy clay, generally. We are subject to droughts, when the fields are full of rents you may step into; and to continued heavy rain, which I presume must injure the roots, as the land becomes so swampy and boggy. Our cultivation is Sugar Cane and common Grass, in beds of 12 and 16 feet, with trenches a foot wide. If this land were drained, should it be feared the soil would become so dry, in dry weather of perhaps a month or two, that the root of the Cane might perish from heat in the soil or lack of moisture? The drains would be of broken stone, covered with clay I suppose necessary, and say 3 feet deep. There is sufficient fall. *John Salmon, Jun., Goshen, St. Elizabeth, Jamaica.*

Horticulture in the Hebrides.—The following is a small notification of progress in our art here (Stornaway Castle, Island of Lewis), which may serve to show what can be done in this bleak corner of the kingdom. A society having been formed several years past in Stornaway, under the auspices of Sir James and Lady Matheson, to encourage the delightful pursuit of rearing fruits and flowers in this storm-beaten island, I had the gratification of seeing a most creditable display of vegetables and flowers at our two shows this year, the first being in July, and the second in September; at the last, which was held at the Castle, the grounds and beautiful flower gardens were thrown open to the public. The Geraniums, Fuchsias, Roses, Carnations, Myrtles, and Bouquets, &c., might have gained prizes in the genial south; and as to the vegetables I never saw better. *J. C., Stornaway.*

The Stanwick Nectarine.—I have sent some Stanwick Nectarines for your opinion as to flavour, &c., by consent of my employers, who are not now at home to require them. The tree was had from Messrs. Veitch & Son, three years ago, to plant on the open wall; but learning it was a sort not likely to do out of doors, it was taken up again the following autumn, cut close back and potted the next season, and grown under glass, where it made a fine growth. This year it fruited in a late vinery, in the place of two Vines that were removed; it flowered freely and set a large quantity of fruit, which I thinned out to about five dozen; but during the process of stoning, rather better than half the quantity of fruit shrivelled and dropped off, leaving after all a good crop of Nectarines that are all likely to ripen without a cracked fruit. No fire heat was applied till the Vines were in flower, consequently the fruit was a large size before any assistance was given beyond what the glass afforded. *Geo. Hood, Gardener, Mamhead Park, Exeter, Devon.* [These were very fine, without a speck or crack. Three of them weighed 13½ ounces. The flavour was excellent, though hardly so rich as it sometimes is; the flesh tender and full of juice.]

Hardy Eucalyptus.—The Eucalyptus from which the accompanying bits were cut, has stood since the beginning of summer against a south wall in this not quite tropical climate. The growing of it is one (and, I dare say, the rashest) of a good many little experiments

which I have been making for a couple of seasons on the hardiness of exotic shrubs and trees. I have no flowers to show, but if the leaves and branchlets are enough for identification, I should be much obliged by learning the specific name. The plant came from an Edinburgh nursery, labelled "Eucalyptus glauca." *W. S., East of Fifeshire, Sept.* 24. [The plant is Eucalyptus cordata, a Van Diemen's Land species. The fact recorded by our correspondent is extremely interesting. He should try Eucalpytus coccifera, which stood the last winter near London against a wall unprotected, without sustaining any injury.]

Foreign Correspondence.

The Délices d'Automne Strawberry.—The following letter concerning this variety has been received by Messrs. Low & Co.:—"As we had no plants left of the Délices d'Automne Strawberry, we endeavoured to procure a hundred with flowers and fruits to send to you; but to our astonishment they were only old plants which are again commencing to bear fruit; their flowers are very large, about 1½ inch in diameter. It was only on the 2d November, 1854, that we first saw the Strawberry, and it had then a remarkably fine appearance. From that time till the 29th of the same month, we ourselves saw all the old plants in the open ground bearing from three to ten scapes, with fruit such as we sent you on the 5th November. The raiser, and some amateurs of this town assured us that from the month of September this Strawberry produced fruits in abundance until the frosts set in. Now we find, that at the time we write, there are, it is true, some scapes with flowers and fruits, but not in abundance as we had been led to believe. The plants are, however, coming into bearing, but it will be a fortnight before they will be in the state which they ought to have been in the course of the present month. Another important circumstance of which we have just been informed is, that it is necessary to cut off the runners in order to induce the plants to bear sooner; and as the raiser has allowed them to run, in order to have a greater number of plants, the production of fruit has consequently been retarded. The plants do not bear before they are two years old. It appears, moreover, that runners of the British Queen had, last autumn, got amongst those of the Délices d'Automne, and very probably you have some of the British Queen amongst those sent to you. In short, if we had known beforehand all these disagreeable matters, and also that the young plants of the Délices d'Automne would not bear fruit before they were two years old, we would not have taken it in hand; and still less would we have recommended it to you. In a fortnight we will send you, gratis, 100 plants in a bearing state, for the satisfaction of your customers. From this date we cease to recommend this Strawberry as really bearing a second crop in September, as we had been assured, and we shall no longer continue to sell it. What pains us most is that you have purchased a large quantity of plants on our recommendation, and that you receive complaints from your customers respecting them. But we will indemnify you, as you will expect." *L. Jacob Makoy & Co., Liége, Sept.* 19.

Societies.

BRITISH ASSOCIATION AT GLASGOW.

Section D.—Zoology and Botany.—*On Vivaria.*—Mr. N. B. Ward commenced his paper by explaining his reasons for appearing a third time before the British Association; these reasons being—1st, the misapprehensions of the public respecting the growth of plants in closed cases; and 2d, the statements of the editor of the *Gardeners' Chronicle*, which statements Mr. Ward proceeded to show were unphilosophical and untrue; and 3d, to give a plain history of the origin of the Vivaria, which arose out of the experiments on the growth of plants, the success of both depending upon the fulfilment of the natural conditions both of the plants and animals. As it was possible that many of the audience might not have heard of these cases or their applications, Mr. Ward then went on to detail the accidental commencement of his inquiries, and to point out, by reference to his writings, his entire conviction, that to command Nature we must obey her laws. The opinions of the learned editor were then considered: these opinions being chiefly that plants could not grow in the closed cases, in consequence of the stillness of the atmosphere, which did not allow superfluous moisture to be carried off, and that in them one mode of death was only superseded by another; that the plants died of dropsy, instead of perishing by thirst; and the conclusion at which the learned Doctor arrived was, that the Wardian cases, although he allowed they had their value as a means of transporting plants, yet as a means of their growth they were utterly valueless; that they could only be considered in the light of *tripe de roche* to a starving person; and that the time would come when people would wonder at the delusion which led them to believe that plants *could grow* in a Wardian case. To rebut those opinions, Mr. Ward exhibited specimens of plants growing in quiet and disturbed media, observing that the amount of moisture was always at the command of the experimenter, and that it was quite as easy to destroy plants by thirst in a closed case as to kill them by redundance of moisture. It does not appear from Dr. Lindley's Paper that he had instituted a single experiment to test the valueof his hypothesis. Mr. Ward then proceeded to consider the facts of the case as proved by innumerable experiments—the first great experiment being at the instigation of the British Association, who appointed a committee, consisting of Drs. Daubeney, Dalton, and Mr. Yates, to investigate the correctness of Mr. Ward's views and statements. A closed house was built in the Mechanic's Yard at Liverpool in 1837—was filled with 80 exotic plants, which passed the winter without injury, and several of them had flowered and ripened seed. Numerous other instances were adduced, the results being invariably that, where the natural conditions of the plants could be strictly fulfilled as regarded heat, light, moisture, and periods of rest, the quiet condition of the atmosphere, so far from being an injury, was of great service, enabling them to bear variations of temperature which would be injurious to them in their natural situations, and in some cases to attain an unwonted luxuriance. The complete success of the plan in the conveyance of plants to and from distant countries was next adverted to, there not being a single civilised spot on the surface of the earth which had not benefited by their introduction. Twenty-thousand Tea plants had been introduced into the Himalayan Mountains, and several hundred plants of Cinchona into the forests of Java. Mr. Ward referred to communications he had received detailing experiments, from which we extract the following:—Dr. Alfred Smee had favoured Mr. Ward with an interesting statement of his experience in cultivating plants in the Wardian case. The advantagesof such cultivation he stated as follows:—"Plants in a Wardian case grow, ripen, and decay without being touched with wet or rain. From this cause the leaves present an unsullied freshness; for dust never incrusts them, wet never damages them, nor does the blasting easterly wind ever wither them. Such advantages give the closed case much claim to our attention; and we have only to avail ourselves of its capabilities to obtain that which may gladden the eye by its beauty." Dr. S. had cultivated Stanhopeas, Oncidias, and other orchidaceous plants, as well as Passion-flowers, Ferns, &c. "I am satisfied (he added) that in every situation where the light of heaven shines, some plant may be cultivated in closed cases, and therefore I hope that every year they may become more extensively used." Dr. J. D. Young, Kennington, wrote—"Its advantages, in my mind, are so great, its extension to practical purposes so numerous, that I am inclined to say its utility is still in its infancy. You know how I have struggled for many years, under difficulties of almost an insurmountable kind, to keep alive some of our most delicate plants, surrounded by smoke emanating from gas-works, a pottery, &c. And yet I find they flourish. I have closed cases in which the Trichomanes and the Hymenophyllum have for years grown without any change of soil." The same writer expatiated on the pleasures and advantages of the invention. The Vivaria in the Regent's Park originated as follows:—Mr. Ward stated that Priestly was the first to discover the counterbalancing action of plants and animals upon each other in water as well as in the atmosphere; that these experiments were followed up by others, and mentioned by Brande in one of the early editions of his Chemistry; and that the use of the Limnæus in removing decaying portions of vegetable matter was pointed out by Jeffrey in the Transactions of the Linnæan Society for 1830, who calls these animals "the scavengers of the waters," and likewise in the journal of the Microscopical Society for Sept., 1841. With the knowledge of these facts, Mr. Ward, being well convinced of the application of the same principle applied to animals as well as to plants, filled a large earthen vessel, holding about 20 gallons of water, with fish, plants, &c., &c., in the year 1841, in his Fernhouse, in Wellclose Square, with the view of determining whether the volume of air surrounding this miniature pool would be sufficient for the well-being of the new occupants. In this pool they lived and flourished for years, the water never being changed, but retaining its purity in consequence of the conditions above alluded to. Very shortly, however, after the commencement of Mr. Ward's experiments, Mr. Bowerbank pursued the same plan in a large glass jar; and it was this jar which gave Mr. Mitchell the idea of the Vivaria in the Regent's Park, and to him the sight-seeing public are under the greatest obligations. Mr. Ward then directed attention to some most interesting original observations by Mr. Thynne, which the late ever-to-be-lamented Edward Forbes had intended to publish, but which he allowed to Mr. Ward the privilege of using in a lecture by Dr. Stephen Ward at the Royal Institution. Mr. Ward then proceeded to urge upon the members of the British Association the necessity of prosecuting their inquiries among the higher members of the animal kingdom, as he felt well assured that the same principle was applicable to the entire animal kingdom—even to man, "the great master of all." Mr. Ward had stated, in his work published in 1842, his idea that, by a combination of the growth of plants and by chemical agency, any required atmosphere might be obtained for remedial purposes, and proceeded to explain the method by which Payeine purified the atmosphere in his submarine vessel. He concluded by some observations on the all-important subject of the fulfilment of the laws of God, and the wretchedness and misery consequent on their infringement. *Communicated by the Author.*

Notices of Books.

Since our last we have received two more of the Messrs. Black's useful little *guide books*—one for *Devonshire* and *Cornwall*, the other for the *island of Skye*. The latter, which we much prefer, is furnished with valuable information concerning the geology of the Cuchullin Hills and of Loch Staffin, the first by Prof. James Forbes, the second by the late Edward Forbes. Of these dissertations the last is, we believe, now printed for the first time.

We have also before us the second edition of *Mr. Frederick Currey's* excellent translation of *Schacht on the Microscope* (Highley, 5*s.*) This work was favourably noticed by us on a former occasion (1853, p. 726); we have now to announce that many very useful additions have been made to the present edition, in part by the translator and in part by the author himself. Now that fine microscopes are becoming cheap, and accessible to all educated persons, works of this kind increase greatly in value; for the young observer, placed by himself, with the best instrument in the world, will see little, and that not very correctly, in the absence of such practical instructions as Schacht supplies.

Page's valuable little *Introductory Textbook to Geology* (Blackwood's, 1*s.* 6*d.*) has reached a second edition.

Garden Memoranda.

C. Loddiges, Esq., Hackney.—Our readers, like ourselves, must see with regret the announcement in our advertising columns that Mr. Loddiges is about to part with his Orchids, of which we need not say he has a most extensive and valuable collection, the gathering together of which has occupied the greater part of the last half century. The announcement must be looked upon with regret in two ways—first, because the present state of Mr. Loddiges' health will not permit him to stay sufficiently long in his houses to enjoy the beauty of his plants, as he has been accustomed to do, and which we understand is the only reason for his parting with them; and, secondly, because it is just possible that this magnificent collection, which it has taken so many years of activity and trouble to bring together, may be lost to the country for ever; for we understand that offers to transfer it to the continent have already been made to Mr. Loddiges. Let us hope, however, that some spirited individual may see the advantage of still retaining it, entire as it is, in England.

In inspecting this collection the other day we found that it contains some 1200 species, numbers of which have not yet bloomed in this country, and therefore their names have never been determined. Conspicuous among rarities was a Dendrobium in the way of speciosum from the north coast of New Holland, but said to be very different from that species; also Dendrobium bigibbum, a kind with rose-coloured flowers, and many others.

In a lean-to house 150 feet in length we remarked fine masses of Lycaste Skinneri; also plants of Cattleya Loddigesi in bloom; various Oncids, among which O. bicallosum and Cavendishi were conspicuous; Odontoglossum grande showing flower, and two fine plants of Lælia superbiens. Of these Lælias, one has flowered this summer, the other is now showing for bloom. They were both growing near an open tank, the evaporation from which Mr. Loddiges finds beneficial to their health. This house has always been kept very cool, a fact which will be apparent when we state that as yet no fire heat has been applied to it this autumn, and even in winter the temperature is seldom above 50°. Yet under this treatment, and frequent bedewings overhead in the summer and autumn evenings, the plants are maintained in excellent health. In a warmer span-roofed house were some fine specimens on blocks of the handsome Brazilian Sophronitis grandiflora; and in the show-house we noticed Oncidium purpuratum, a pretty species intermediate between Lanceanum and luridum, but possessed of gayer colours than the latter; this was beautifully in flower, as was also Oncidium Barkeri, a sweet smelling kind with a large yellow lip. Cattleya Harrisoniæ and bicolor were likewise in bloom here, as was also the charming little C. marginata and others. Associated with these were some extremely handsome Ferns, especially Mertensia flabellata and Gleichenia scandens. The latter is about 4 feet in height, beautifully furnished with leaves, and is altogether perhaps one of the best plants of the kind in the country.

In a span-roofed house leading out of the show-house were some fine specimens of Vandas, including Batemanni, violacea, suavis, tricolor, with its many varieties, and others. We also noticed here a large plant of the black-lipped Cœlogyne pandurata, the true Phalænopsis amabilis, which is now getting scarce in collections, P. grandiflora having become more fashionable, and many kinds of Dendrobes and Aerides. Among the latter was pointed out to us a variety of quinquevulnera named superbum, which is said to be larger and darker than the species. Of other conspicuous plants, one of the most remarkable was the white flowered Indian Cymbidium eburneum. This was a magnificent specimen, which will soon be in blossom, 8 flower spikes fast approaching that condition. To attempt, however, to direct attention to even the best plants in this collection would be a tedious task; it may therefore be sufficient to say that, in regard to all of them, a marked improvement has taken place since they have been brought from the old houses in the nursery (no vestige of which now remains) and placed in their

present situations. A new plan which Mr. Loddiges has adopted of supplying moisture has doubtless added much to their improved condition, and may therefore be worthy of notice. It is as follows:—in the centre of one of the principal houses is a raised bed, the whole top of which is an open tank lined with lead, so as to hold water in summer, and with inclination sufficient to allow it to be drawn off in winter. Over this water the larger and finer specimen plants are arranged, the baskets in which they are growing being elevated a little above the water on wooden legs which stand on the bottom of the tank. By this arrangement it will be seen that the plants are always in the midst of a congenial and moist atmosphere, and that the greater the heat is the larger is the amount of evaporation, and that in winter when it is not wanted it can be entirely withdrawn.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Those who are under the necessity of wintering valuable specimens of New Holland and other hard-wooded greenhouse stock in this house should regulate the temperature, &c., so as to render it as suitable for these as possible, and a good stock of the most suitable things for flowering in a low temperature must be provided for winter blooming. This is no easy matter, however, as almost all plants require to be kept somewhat warmer while in bloom than is suitable for greenhouse hard-wooded stock during their season of rest, and it is anything but desirable to have to winter the latter in a house that has to be kept gay with flowering plants; for in this case, there is a constant temptation, if not an absolute necessity, to keep the atmosphere warmer than is suitable for these. But where there is no better accommodation for wintering specimen plants of hard-wooded things than the show-house, then a good stock of Camellias, Epacrises, Winter-blooming Heaths, Cytisus, Daphne indica, Acacias, &c., should be provided for winter flowering, which if properly prepared bloom profusely in a cool house and require no more artificial heat than may be necessary to keep the temperature at about 40°, and prevent the flowers being injured by damp. And with a good stock of these and other things which bloom in winter without much artificial heat it is just possible to keep the house tolerably gay and to winter valuable specimens of hard-wooded stock in it without greatly injuring them; but to attempt to winter large well grown specimens of New Holland and Cape plants in a house where the temperature, &c., is regulated for a miscellaneous collection of plants in bloom is sure to speedily ruin the specimens. Keep greenhouse stock which has been placed under glass cool and airy, and avoid crowding, especially in the case of things which are in a growing state, but everything must be allowed sufficient space, so that the foliage, &c., may be fairly exposed to light and air, and rather than be under the necessity of huddling specimens too thickly together some of the least valuable should be thrown away. Look sharply after mildew upon Heaths, as this pest is sometimes very troublesome upon plants that have been growing freely in a shady situation in the open air, and are in a rather soft state when taken in doors, and apply sulphur freely on the first appearance of the enemy. Also see that everything is clear of insects. Take advantage of leisure hours to get Azaleas which have made their season's growth nicely tied, as also anything else requiring training, and endeavour to keep everything as trim and neat as possible, in order to compensate, as far as possible, for the paucity of flower among hard-wooded plants at this season. Cold Pits.—Plants which have made their season's growth should be freely exposed to sun and air on every favourable opportunity, in order to get the wood well ripened. But such things as are still in free growth should be encouraged by every possible means while fine weather continues, keeping them rather close, guarding them carefully from cold winds, and giving a liberal supply of water at the root. If anything requires more pot room get such shifted as early as convenient, keeping the atmosphere rather close, and watering very cautiously for some time afterwards until the roots get hold of the fresh soil.

FORCING DEPARTMENT.

Pineries.—Attend to last week's directions, and endeavour to afford plants on which the fruit is ripening a warm rather dry atmosphere with a moderate circulation of fresh air on bright days, and whenever this can be done without lowering the temperature too much; also keep young stock growing as freely as may be consistent with securing stocky plants, giving them a liberal supply of manure water at the root, and maintaining a moist atmosphere. Be as sparing of fire-heat, however, as circumstances will permit, shutting up early on the afternoons of bright days, but give air rather freely in the early part of the day, which will assist in preventing weakly growth, and after this season the syringe must not be used too freely, even on young growing stock, and where the atmosphere can be kept moist at pleasure by means of tanks, &c., syringing might almost be discontinued for the season; at all events avoid syringing so heavily as to cause water to lodge in the hearts of the plants, which tends to blanch and weaken the foliage. Look over young stock growing in pots, and shift any requiring more pot-room without delay, so that it may get rooted into the fresh soil before winter; and see to having the balls moist at the time of shifting, for neglect of this is a frequent cause of young stock fruiting prematurely. Vineries.—Vines that are to be forced very early, provided the wood is well ripened, and the leaves mostly off, should be pruned and dressed, keeping the house as cool as possible, in order to prevent bleeding; for it is difficult to get Vines sufficiently dormant at this season that bleeding will not occur to some extent after pruning. And so injurious is this in weakening the Vines that where there is any danger of its occurring to any serious extent pruning should be deferred until the Vines seem to be fairly at rest. It will also be advisable to cover the outside border of the early house with something that will throw off wet in order to keep the roots as dry as possible while the Vines are at rest, and secure having the border in a dry healthy state when forcing is commenced; but this need not be done until there is some appearance of wet. The weather is extremely favourable for getting late Grapes ripened, and these should be assisted with a moderate amount of fire heat, in order to get them coloured while bright weather continues, and the sun has some power. Figs.—The second crop of these will now be getting over, and every possible attention should be given to the ripening of the wood, keeping the young shoots thin and closely tied in, so as to expose them fully to light and air. Also keep the atmosphere rather dry; and the borders can hardly be kept too dry after the fruit is gathered. Any over luxuriant shoots should be stopped, or cut out altogether where they can be spared, and trees that incline to be of a gross habit should be severely root-pruned as soon as this can be done, without risk of injuring next crop; for unless short-jointed firm wood can be obtained an abundant crop of fruit need hardly be expected. Melons.—Unless where these are particularly wanted late in autumn, they should be pushed on as rapidly as possible; for besides being very uncertain late in autumn, fruit ripened after damp cloudy weather has set in is seldom good for much. Maintain a brisk steady bottom heat, keeping the atmosphere rather warm also. Keep the Vines clear of laterals, remove decaying leaves immediately they are perceived, and use every means to keep the foliage clear of red spider and in a healthy state.

FLOWER GARDEN AND SHRUBBERIES.

The season is now so far advanced that frost may occur any night while the wind is northerly, and any scarce plants which it may be desirable to secure before they are injured should be taken up and potted at once, or carefully covered when there is the least cause to suspect frost. See to securing a good stock of cuttings of the variegated Geraniums before the plants are injured by frost, for although these root more freely in spring than at present, such varieties as Golden Chain and Mountain of Light grow so slowly that spring-rooted cuttings make but very poor plants by turning-out time, hence it is desirable to gain size, if at the expense of the loss of a few cuttings. And we do not believe all that has been said in a contemporary about the difficulty of rooting Golden Chain in autumn, for we have experienced no particular difficulty in rooting it at this season; but we may be fortunate as regards convenience, which is simply a flue running underground in the open air; this we cover with a suitable depth of soil, and protect the cuttings by hand-glasses. That cuttings taken from plants growing in the open ground are liable to damp in a moist warm place is well known, and the variegated Geraniums are perhaps more so than most things; but persons who can command a gentle bottom-heat without keeping the atmosphere warm and moist will experience no difficulty in rooting them now. The old plants of these are, however, well worth wintering wherever room can be found for them, for these go much farther at planting-out time, and cover the beds sooner with foliage and flower than either autumn or spring rooted cuttings; hence they should be carefully guarded from frost until the beauty of the garden is destroyed, when they should be taken up, potted, and stored away for the winter in a cool dry house. Continue to put in cuttings of Hollyhocks, as these can be obtained until there is an ample stock of rooted plants, and do not allow those that were rooted early in the season to suffer for the want of pot room. Cut off the flower stems of herbaceous plants as soon as they become shabby, and endeavour to prolong the beauty of Phloxes, &c., by keeping them well supplied with water at the root. Also keep the beds and everything about the flower garden and grounds trim and orderly.

HARDY FRUIT AND KITCHEN GARDEN.

Look over choice Pears and Apples at short intervals, and gather such of the fruit as may be found to readily part from the tree. Espalier and dwarf standards, or indeed any kind of fruit trees which exhibit more tendency to produce useless wood than such as is likely to furnish fruit, should be root pruned as early as convenient in the autumn, cutting out any useless shoots at the same time, in order to expose the wood expected to bear fruit as freely as possible to light and air, so as to get it ripened. Provision should be made for protecting a quantity of French Beans from frost should this occur, and Cauliflowers should be looked over frequently, turning down a few leaves over the hearts, for these are readily spoiled by frost. Get a lot of brown Dutch or Bath Cos Lettuce planted where they can be protected by frames for spring use; attend to the earthing up of Celery that is likely to be wanted for use soon, keeping it closely soiled up, so as to get it well blanched. Keep the late crop of this well supplied with manure water while growing weather continues. Get Onions dried, and stored.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Sept. 27, 1855, as observed at the Horticultural Gardens.

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain
Friday 21	10	30.256	30.242	74	45	59.5	64	59½	S.W.	.10
Satur. 22	11	30.274	30.237	75	41	58.0	61	59½	E.	.00
Sunday 23	12	30.250	30.229	76	50	65.5	63	59½	E.	.00
Mon.. 24	13	30.436	30.413	65	42	53.5	61	59½	N.E.	.10
Tues. 25	○	30.430	30.305	60	27	46.0	60	59	E.	.00
Wed. 26	15	30.217	30.091	61	26	43.5	60	58½	E.	.00
Thurs. 27	16	29.972	29.752	74	51	62.5	60	58½	S.W.	.01
Average		30.126	30.118	70.0	41.0	55.5	61.7	58.1		.01

Sept. 21—Foggy; very fine throughout.
— 22—Foggy; very fine; clear at night.
— 23—Fine; cloudy; clear and fine at night.
— 24—Cloudy; brisk north-east wind; clear and cold.
— 25—Fine; cloudy; clear and frosty at night.
— 26—Slight haze; fine, with very dry air; frosty.
— 27—Foggy; very fine; overcast; slight shower.

Mean temperature of the week 1·5th deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 29 years, for the ensuing week, ending Oct. 6, 1855.

Sept. and Oct.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 30	64.0	42.8	53.4	17	0.58 in.	3	2	3	1	5	7	7	1
Mon. 1	63.2	45.5	54.3	16	0.53	2	3	2	2	6	8	4	2
Tues. 2	63.6	43.1	53.3	16	0.48	2	4	1	—	6	8	4	4
Wed. 3	62.7	42.6	52.7	14	1.01	2	3	1	1	8	8	4	2
Thu. 4	63.1	42.8	52.9	14	1.06	—	5	2	—	6	13	3	1
Frid. 5	62.7	41.0	51.8	13	0.57	4	3	2	1	6	6	6	1
Satur. 6	60.8	42.3	51.6	16	0.78	1	3	3	3	3	9	5	2

The highest temperature during the above period occurred on the 5th, 1834—therm. 80 deg.; and the lowest on the 2d, 1853—therm. 27 deg.

Notices to Correspondents.

American Seeds: *Tuamensis.* They are raised exactly like other tree seeds. Sow them in the spring in beds of light earth, the small seeds just scratched into the ground, the larger ones an inch deep. At the end of the year the seedlings should be taken up and lined out, that is to say planted in lines a foot apart, and 6 inches from plant to plant. Less space will do if you are badly off for room.

Bananas: *D N.* In their own country they are always dried by mere exposure to the sun. Here, where the sun is so powerless, some other process would be requisite. Would not drying in a brick oven after the bread is withdrawn answer equally well? We should expect so.

Begonia fuchsioides: *A Balfi.* Certainly not a greenhouse plant, properly so called. But it is very difficult to say what are the precise limits between a greenhouse and a stove.

Concrete: *A Sub.* Use fresh burnt lime and add as much of it and water as will just make the gravel hold together. The gravel should be washed clean.

Insects: *W B.* Your caterpillar, which had gone into chrysalis in the box before it reached us, appears to be that of the Elephant Hawk moth, Sphinx Elpenor.—*M M D.* Your Pear leaves are attacked by the slimy larvæ of the black-winged saw fly, Blennocampa æthiops. Dust the leaves with powdered lime, or syringe with lime water.—*G M.* See the last answer. This appears to have been a year very favourable to the development of the larvæ of various injurious kinds of saw-flies.—*J J.* See the preceding answers. *W.*

Mountain Ash: *Malvern.* Gather the berries when ripe. Mix them with pit sand, and form the mixture into a cone in any out-of-the-way place for the winter. In March rub the berries to pieces with the hands, and sow in a bed of light soil, covered about half an inch deep. If your quantity is too small for this, then put the sand and berries into a garden pot, in any out-house for the winter.

Mulberry Tree: *J B.* Pare the great wound carefully till all ragged parts are removed, and then leave it to its fate. Do it in winter. Plaister, &c., are unnecessary; it will not decay, provided the wound slopes enough to throw off rain.

Names of Fruits: *G.* 1, Beurré d'Aremberg; 3, Winter Bon Chrétien, and certainly quite unfit for your climate; 5, probably Beauty of Kent; 6, 10, Downton; 7, Yellow Ingestrie; 9, Mank's Codlin; 12, perhaps Passe Colmar in a very immature state.—*Semper Vivo.* 1, Beurré Diel; 2, Napoléon; 3, Ne Plus Meuris; 4, Marie Louise; 5, Passe Colmar; 6, Easter Beurré.—*Received. J H.*

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Sir C. L.* Your Cactus-looking plant, which has flowered so prettily, is the *Phyllocactus anguliger* found by Hartweg in 1846, inhabiting the trees of an Oak forest near Matanejo, in West Mexico, and distributed by the Horticultural Society. It is figured in Paxton's "Flower Garden," vol. i., pl. 34, from a plant which flowered in the garden of the Society at Chiswick in 1850. *B.—H Sharp and W M.* It is the Clover dodder, Cuscuta trifolii, a most destructive parasite.—*A Z.* Spiranthes autumnalis has been called Ophrys spiralis, and Neottia spiralis.—*B H C.* Spiranthes autumnalis.—*B H L.* Atriplex patula.—*Semper vivo.* 1, Juanulloa parasitica; 2, Lycopodium denticulatum; 3, Polypodium piloselloides.—*J F.* Oncidium incurvum.

Orchard Houses: *A Sub.* We do not conceive that a lean-to would answer the purpose well. The object in this kind of house is to have all the air that can possibly be procured; and a lean-to will hardly supply that.

Private Growers: *H B.* We have no more to say. You must form your own opinion. Very small circumstances modify conclusions. Mr. Beck was for years a shower in the nurseryman's class; but surely Major Foquett was an amateur.

Preserved Ginger: *T H.* asks for the best mode of preserving Ginger in its green state. Hers when taken from the stove, always turns black.

Root-pruning: *Mr. H B Mont Rose.* They were over-pruned in 1852, have never recovered, and now have been called upon to nourish a heavier crop than the most vigorous trees could support. What will become of your calves if you put a dozen to one cow?

Roses: *J M.* Your Rose, which is apparently one of the Tea-scented kinds, is evidently too tender for your climate. It requires more warmth to enable it to open its buds than your locality affords.‡

St. Ignatius's Beans: *G W L.* These are nearly the same in their property as Nux vomica, and are produced by the Strychnos Ignatii. In small quantities, in skilful hands, Nux vomica is employed advantageously in paralysis, impotence, and various affections of the nervous system. But caution must be observed in using it. St. Ignatius's Beans probably produce such effects as are described in the pamphlet.

White Nectarine: *P P.* Various causes may be assigned for White Nectarines cracking, and the stone decaying, before the fruit is ripe. Perhaps the best remedy for the evil would be mulching the roots early in summer and keeping it on until the fruit has reached maturity.

Misc.: *Tuamensis.* Will you favour us with your address.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*

Office, 69, King William Street, City, London.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE LONDON MANURE COMPANY'S NITRO-PHOSPHATE OR WHEAT MANURE FOR AUTUMN SOWING.—This Manure, composed of blood, animal matter, and dissolved bones with silicates, is most strongly recommended to the notice of Agriculturists. It contains from 7 to 8 per cent. of nitrogen, in a form yielding ammonia by slow decomposition, and is therefore particularly adapted for Wheat. The quantity required is 2 to 3 cwt. per acre drilled in with the seed. Price, per ton, 7*l.* 10*s.* in London.

PERUVIAN GUANO, FISHERY SALT, and every other MANURE on best terms, strictly warranted.

40, Bridge Street, Blackfriars. E. PURSER, Sec.

GUANO.—To be Sold, at the Brokers' Offices, Adelaide Buildings, Chapel Street, Liverpool, on FRIDAY, October 12, at 2 o'clock, about 4000 Tons of UPPER PERUVIAN GUANO, being direct importations from San Felipe by the following vessels:—The Utopia, Anna, Mirzapore, Envelope, Curraghmore, and Catherine.—For Catalogues and further particulars apply to the importers, Messrs. W. & J. Ravenscroft & Co.; or to the Brokers, GRIFFITHS, SONS, & PALETHORPE, Liverpool.

BLOOD MANURE FOR WHEAT.

THE PATENT NITRO-PHOSPHATE or BLOOD MANURE COMPANY.

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The Directors of the above Company (many of whom are eminent agriculturists), beg to call the attention of their friends and the agricultural community to their Patent Blood Manure, which is composed of Bones dissolved with sulphuric acid, to which is added about 1500 lbs. of pure Blood to every ton of the Manure, carefully dried and prepared for the drill or hand sowing. Being rich in Nitrogen and other necessary ingredients, it is especially adapted for the Wheat Crop, and has been used with the greatest success in all parts of England.

It is a very remarkable fact that the analysis of Blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists; it contains all the elements which plants require, and when properly prepared and applied, will become the essence of vegetable as well as of animal life.

The highly fertilising properties of Blood has been commented upon by Professor WAY, and others, and the success of the Blood Manure for Wheat Crops has been fully proved upon all soils, by the practical experience of numerous agriculturists, a few of whom are the following:—

Sir Archibald M'Donald, of Woolmer Lodge, Liphook, says: "The Wheat manure I purchased of you has answered its purpose admirably."

Jonas Webb, Esq., Babraham, Cambridgeshire.—"Your Wheat manure I tried by the side of guano, and if anything it had the advantage, as the quality from it is superior."

Mr. Baker, Steward to His Grace the Duke of Bedford, Park Farm, Woburn, Bedfordshire.—"I used your manure upon a piece of poor land after Peas, and have grown an excellent crop of Wheat."

Mr. Benjamin Goulton, Gedney Marsh, Long Sutton, Lincolnshire.—"I drilled your manure at the rate of 2½ cwt. per acre, along with the Wheat over 30 acres, and although the field is the poorest land I have on my farm, the crop ranked amongst the best I have. I do not know how I can recommend it better than by saying I shall use it much more extensively this season."

Mr. Walter Murton, East Stour, Ashford, Kent.—"I sowed your Wheat manure last autumn, and the consequent increase in the crop both of corn and straw has convinced me of its great utility."

Mr. H. Steed, Nonington, near Wingham, Kent.—"I used Odams' Patent Manure for Wheat last November, and never have I used any artificial manure with such benefit."

Mr. Frederick Robinson, Southery, near Downham Market, Suffolk.—"I last autumn used 2 cwt. of your manure per acre on a piece of fen land; it came up very strong in plant, assumed a most healthy appearance during the winter, and has produced me one of the finest crops I ever grew."

Extract from the *Agricultural Gazette*, 7th April, 1855.—"The Nitro-Phosphate Company throw blood and bones together, and add sulphuric acid, thereby manufacturing a manure, which, as it contains soluble phosphate along with nitrogenous matter, is as nearly perfect, whether for roots or corn, as anything can ordinarily be."

Extract from the *Mark Lane Express*, of January, 1854.—"Amongst the new things which appeared this year for the first time was Odams' Patent Blood Manure; and it is this addition to our fertilisers which falls to our province to review. Blood has long been acknowledged one of the most enriching of all our manures, a proposition the soundness of which has been proved by innumerable experiments. Now that the startling fact has reached the ears of the agricultural public that Peru will be exhausted of Guano in a few years, surely the prospects of an everlasting supply at home will be accepted with some degree of national satisfaction, more especially since the latter is superior to the former in quality."

The Public are cautioned against spurious imitations; as security to the purchaser every Bag is marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

OFFICES, 109, FENCHURCH STREET.

Price 7*l.* 10*s.* per ton, free at any Railway or Wharf in London.

DIRECTIONS FOR USE.—From 2 to 4 cwt. per acre, according to the condition of the soil. It may either be drilled in with the seed or sown broadcast; if the latter it should be well harrowed in.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessors, &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected; Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the Plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard Westminster.

CAUTION.

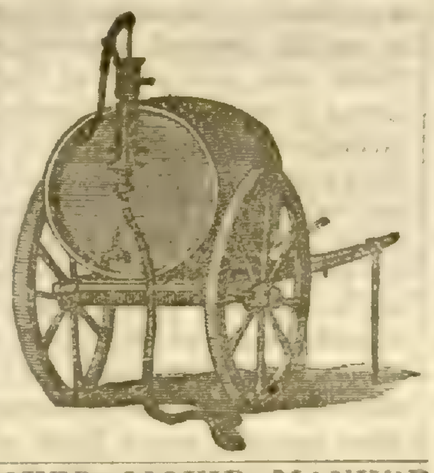
PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

ECONOMY OF FERMENTATION.

BUSHE'S PATENT ROOT GRATER, manufactured by FOWLER AND FRY, Temple Gate, Bristol, entirely supersedes the necessity of Cooking Turnips, Mangold, and other Roots; it effects a saving of 30 to 40 per cent. of the Roots, besides that of fuel. Price 3*l.* 10*s.* Printed testimonials and directions may be obtained gratis by applying to FOWLER & FRY, Bristol, Licensed Makers of CORNE'S Patent Chaff Cutters and General Agricultural Implement Makers and Dealers. The Root Grater may also be seen in the Agricultural Department of the Crystal Palace, Sydenham.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP,



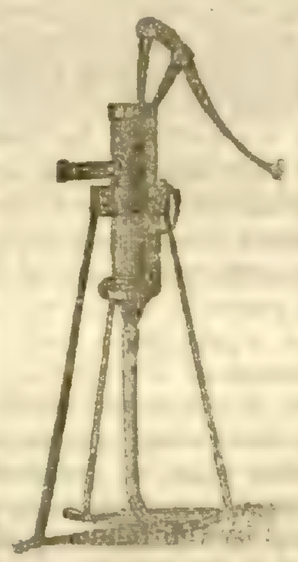
with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 6*d.* per foot.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel	Length of Barrel, under nose.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1	12	0
2½ „	long 3 „ 3 „	gutta percha,	1	15	0
3 „	ditto 3 „ 6 „	or cast iron	2	12	0
3½ „	ditto 3 „ 6 „	flanged pipe,	2	18	0
4 „	ditto 3 „ 6 „	as required.	3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto ditto	ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

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Students are admitted after the summer and winter vacations, also in April and October. The annual fees for boarders vary from 45 to 80 guineas, according to age and other circumstances. The fee for out-students is 40*l.* per annum. The College course of lectures and practical instruction is complete in one twelvemonth, although a longer course is recommended. There is a department for general as well as for agricultural purposes. Prospectuses and information can be had on application to the Principal.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

DRAINAGE OF LAND.

MR. HUMBERT, of Watford, Herts, a practical Surveyor and Land-Agent of more than 15 years' standing, offers his services to Gentlemen about to drain Land and Bogs. He will undertake to set out and superintend himself the execution of the work at a charge of 5*s.* per acre, and the expenses incurred in his travelling; or he will contract to complete it in a specified manner to the satisfaction of the Inclosure Commissioners at a fixed price per acre. Mr. Humbert has drained strong stony land in the most careful and complete manner, with 1¾ inch pipes, and proper mains, the drains being 4 feet deep and 30 feet apart, at 4*l.* per acre and under, and he can give reference to his employers in that and in other instances.

Watford, Herts, Sept. 29

SMITHFIELD CLUB, 1855.—FAT CATTLE SHOW.—The ANNUAL CHRISTMAS SHOW of FAT CATTLE, SHEEP, and PIGS, will take place on the 11th, 12th, 13th, and 14th of December, 1855, at the Carriage Bazaar, King Street, Portman Square, when nearly 800*l.* will be awarded in Prizes and Medals.

The printed forms of Certificates, properly filled up, must be returned to the Honorary Secretary on or before SATURDAY, November 10th. Prize Sheets and the necessary printed forms of Certificates are now ready, and can be obtained on application to B. T. BRANDRETH GIBBS, Honorary Secretary, Corner of Half-moon Street, Piccadilly, London.

All communications on the Club's business should bear the words "Smithfield Club" on the outside.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 29, 1855.

THE correspondence on REAPING MACHINES which our own and other agricultural papers have published during the past few weeks has been excited by the remark of a cotemporary in reference to the official report of the trials at Leigh Court last month. That report described the trial then conducted as "memorable in its immediate effects, and in the future results to which it will doubtless lead:" and the rejoinder of our cotemporary was that seeing the awards of the Society's prize had been every year to a different machine, the only result to which this last award could lead would be to throw discredit on the system of adjudication whose results had been so variable. The prize was awarded to Messrs. GARRETT in 1852 for HUSSEY's reaper; to Mr. CROSSKILL in 1853 for BELL's reaper; to Messrs. DRAY in 1854 for HUSSEY's reaper; and now to Messrs. BURGESS and KEY for M'CORMICK's reaper. Of course the successful competitors are anxious to maintain the character of the trial which has ended in their favour, and the *North British Agriculturist* gets well scolded by them for its criticism. We believe with them that the competition at Leigh Court was as real, as well contested, and as carefully superintended as any trial to which these machines have been yet subjected; and we believe that its result may be safely taken as a guide by purchasers of reapers; but we could have wished that the praise which is most probably its due had come from another pen than that of its official reporter. If ever doubts shall arise as to the trustworthiness of the Society's decisions, it will be on those occasions to which reporters for the public press are not invited. Our national agricultural societies will serve their purpose and their own interests more effectually by more cordially accepting the assistance, and admitting the usefulness and ability of the public press. Those who conducted the trials at Abbot's Leigh ought to have invited the attendance of reporters from every agricultural periodical in the country; agricultural readers would have been better pleased to hear the closeness of the contest borne witness to by indifferent specta-

tors. No doubt the gentlemen engaged in this adjudication may feel angrily surprised at the criticism which their earnest, able, and singleminded services encounter—they may rest assured, however, that it is just in proportion as their services count frank and full publicity that they will be either valuable or valued: their value depends on the public confidence reposed in them, which is never so readily accorded to a merely official report, however honestly it may have been prepared; and no other report, so far as we know, exists of the trials at Abbot's Leigh.

We believe that the English Agricultural Society will better attain its end when it shall require entire and immediate publicity for all such proceedings, whether of its council or any other of its office-bearers, as under present arrangements are intended for publication ultimately but only through the official channel. The lectures and discussions at its weekly meetings ought to be open to public reporters as well as to official ones—the interests of the annual Journal, which it is said would be compromised by this, ought to be as nothing in comparison with the interests of English agriculture which would be served. Our remarks cannot be taken as casting any doubt upon the ability and trustworthiness of the official reports of the Society: it is in the nature of things that exclusiveness begets want of confidence, and integrity and ability cannot hinder it.

To return to the reapers, we only add that probably the safest inference to be drawn from the varying decisions of the Society's judges is, that the differences in the merits of these machines are not so very great, and that when well managed any of them will make satisfactory work under favourable circumstances.

Having previously referred to the qualifications of a steam cultivator for light lands and friable loams, we will now consider the requirements of heavy clays, as indicated by the present methods of culture. The soils of the London clay, plastic clay, Weald clay, gault clay, Oxford clay, blue lias, the clays of the oolite and coal formations, chalk marl, and drift, are more or less stiff, adhesive, retentive of moisture, and intractable when either wet or dry—in the former state working up into soap or mortar, sticking to and rolling before the plough; in the latter condition hardening into cracked and fissured brick almost impenetrable by the ploughshare. Whilst two horses are sufficient for the tillage of 50 or 60 acres of friable soil, the same force is calculated to work only 25 acres of strong clay; not only because 3 or 4 horses are needed to pull a plough, but because a great amount of horse-power must be kept throughout the year in order to accomplish the whole cultivation during the few days in which the land is properly workable. The mechanical treatment of heavy land—rich in the mineral constituents of all crops—forms therefore the great point in its management; hence the wide scope for steam power upon the clays, and the possibility of its one day inaugurating a new agriculture upon them, transforming their tantalising fertility into garden-like productiveness.

Without saying anything at present about a better process than ploughing for turning the soil, we observe that the mere *gain in time* by substituting steam for horse power for performing the present tillage, would be of wonderful advantage to the clay farmer. Clay farming has continually the sort of hurry and fretting anxiety of hay-making in unsettled weather; but the trouble and cost entailed by adverse seasons would be little felt had we ample means for ploughing and cultivating our capricious and obstinate soil within the limited periods in which it is in fit order. Now, steam-power yoked to a plough or other implement (providing it worked efficiently), would supply this means. As a steam-horse never wearies, he will work many hours per day longer than an animal; the plough might thus be kept going "from morn to noon, from noon to dewy eve," and by a system of relays for the men accompanying it, might start with the first glimmer of dawn, and cease only when night darkened upon the field. But there is a still more important consideration; a farmer now keeps a full complement of horses through the entire year for only a few weeks' effective work—accomplishing then by a *coup de main* an amount of labour which a much smaller force could effect by every-day instalments. A steam-engine, however, has the advantage of not consuming food (as horses do), when resting between such spasmodic efforts of tillage; so that the same annual outlay of money at present required for horses would maintain a far more powerful engine than can be worked at the same daily expense as the horses. In other words, the farmer can not only afford to employ an engine, the daily expense of which (when at work) for fuel, oil, attendance, wear and tear, and interest of first cost, amounts to as great a sum as the food, attendance, deterioration, and interest of first cost of the horses; but he can afford to lay out *much more than this* upon an engine, because of its non-expensiveness when at rest. With a machine, therefore, able to do more work in a given time, and also to work more hours per day than his present horse-teams, the farmer would be in a great measure independent of flooding rains and hardening drought, yet without any greater expenditure of capital than he now annually incurs.

Inventors would confer an invaluable benefit upon the clay farmer by producing some engine capable of imitating (with improvements) the work of the plough, at the same working cost; only let them remember that the point of *expedition* is so important that the farmer can better afford to employ extra *power* than to spend longer *time* in obtaining superiority in the style of operation.

Upon clay land, the grubber or cultivator does not divide dominion with the plough, which, besides breaking up leas and stubbles, has to stir the summer fallow, turning it at least four, or at most eight times—first going very deep with immense labour, afterwards more shallow. Frequent heavy harrowings keep the ground moving; but always carefully preserve its rough cloddy condition. In some parts of Scotland, however, with a moister climate, the roller, harrow, and cultivator make the land fine at a certain period of the summer, so that root-weeds may be cleared off. Of course the cultivator, harrow, roller, and clod-crusher are used in preparing a tilth for all seedings.

The main requirement, then, is for an economical substitute for the plough; that is, *a powerful machine that can turn over the soil deeply and thoroughly without poaching and kneading it.* In the next place, there must be *a stirring implement almost as strong*, in order to perform the repeated division and exposure of rough fallow, together with all varieties of comminuting tillage pursued upon the farm; while the latter machine should be capable of working as *a subsoiler*, and the former as *a trenching tool*—these being some of the greatest necessities in the melioration of heavy land.

For thus operating upon the clays, the idea of a *travelling* steam-engine seems utterly preposterous: *lightness* being an indispensable condition of improved tilling machinery for such soil; while the necessarily rugged and precipitous surface of a fallow appears to be an impracticable road for a ponderous locomotive. Unless a motive power, incomparably lighter than a steam-engine, can be employed, the implements, heavy enough in themselves, should be actuated *by traction from a stationary engine*—which may be shifted from time to time upon a portable or perpetual tramway.

From this and previous articles it will be seen that we regard *two forms of digging or cultivating machine*, adapted to one engine, as sufficient either upon clays, loams, or light lands respectively; alike upon all soils, only differing in detail according to the nature of the material with which they have to deal. Upon light soils, too, we are prepared to continue the plough, modified to suit steam-power.

Our conclusions are based upon the present system of cultivation: whether or not a new order of tillage can be introduced by new mechanical inventions, we leave for future consideration. *I. A. C.*

ON FATTENING POULTRY.

(*Continued from p. 636.*)

Chapter II.—The Practice of Fattening.

Section I.—*Selection of Breed.*

In fattening poultry for the large markets, no success can be expected unless suitable varieties are selected; in fowls, as in other domesticated animals, some varieties are much more readily disposed to fatten than others, and one breed may be characterised by the tendency to accumulate fat internally, and another externally.

To those who have had extensive experience in the different breeds, there can be no question as to the best variety for table purposes. The coloured Dorking surpasses in this respect all other kinds; its superiority consisting in the large size it attains at an early age, in its short legs and compact form, in the fineness of its bones, and the small quantity of offal, in the quantity of flesh upon the breast, in the extreme whiteness and delicacy of the meat, and the readiness with which it fattens. The large Surrey fowls, which are only to be distinguished from the Dorking by the absence of the fifth toe, are equally valuable for table purposes.

The white Dorking, as at present known, is not to be strongly recommended, as it is evidently a distinct variety from the coloured; the size, carriage, and general form of the birds being dis-similar. The only drawback to the superiority of the Dorking consists in the delicacy of the breed when a chicken; this on heavy clay land or in damp situations is a serious evil. Under such circumstances many persons of great experience recommend crossing the breed, by having a large Malay or Cochin cock with Dorking hens, or a Dorking cock with Cochin or Malay hens; care being taken not to rear any of the cross-breed chickens for stock, but to fatten them all for the table. By this means greater hardihood and large size may be obtained; but the writer has never succeeded in rearing such chicken with the plump breasts and short limbs of the pure bred Dorking.

Should it be deemed desirable to cross the Dorkings for the purpose of producing a hardier fowl, such a plan as the following seems to offer the best chance of success, being based upon the fact, that in cross-breeding the pullets usually resemble the mother, and the cockerels the father:—Early in the year, so as to obtain a brood in May, put two or three large Dorking hens with a short-legged compact Cochin cock, either of the common buff or of the grey variety known as Brahma Pootras. From the chicken select those pullets possessing in the greatest degree the Dorking character—viz., having fine bone, short white legs, and compact body, square on the limbs—and in the following season mate these with a good Dorking cock. The progeny thus obtained from them will be three-fourths Dorking, and if care is taken in the selection, will show very little trace of Cochin blood; whilst the size and constitutional hardihood of the breed would be much improved by the infusion of new blood from the hardiest of races. One caution, however, would be requisite;—if these birds were allowed to breed amongst themselves, they would occasionally throw back to the Cochin; it would be therefore necessary to mate the pullets again with a Dorking cock, and, as in all cases of breeding for size and strength, great care must be taken to avoid breeding closely, viz., from birds related to each other.

Cochins, although of great weight, cannot be recommended as a profitable market fowl; their small breasts, yellow skin and fat, game-like flavour, coarseness of bone, and length of limb, being much against them; and it is almost impossible to render them fat upon the breast, as they have an unusual tendency to accumulate fat internally. It should be remembered that unless a fowl has naturally a full chest, it is impossible to put flesh or muscle on it by fatting; for there is this distinction between the flesh of quadrupeds and that of birds, that in the former the flesh can be increased in size by the intermixture of fat between the fibres, which gives rise to the marbled appearance seen in prime beef. This, however, cannot be done in the case of birds, their muscles being always destitute of fat which is deposited under the skin or in the interior of the body only.

Section II.—*Breeding.*

In rearing fowls for the market, the early treatment of chickens is of the highest importance; they should be warmly sheltered and housed, and moreover fed most liberally at very short intervals. If a chick receives a check in its growth at an early age, it never afterwards attains a large size, as the bony frame becomes set, and a stunted growth is the inevitable result.

With good and abundant feeding, and the advantage of a free run, in favourable weather Dorkings will become fit for the purpose of fattening at the age of three to four months in summer, and four to five or six in winter. In order to be in the highest perfection, fowls must be killed before they have arrived at their full development: the male birds should be taken when the sickle feathers of the tail begin to show, or, as the country women say, "when their tails begin to turn;" and the females, whilst still pullets—viz., before they have laid.

Section III.—*House, Coops, &c.*

The house in which poultry are fattened should be free from draughts of cold air, and kept at a moderately warm and uniform temperature; the roof, therefore, if of tiles, should be thickly lined with straw. Quietude being so especially desirable, it should be so situated as not to be accessible to those fowls at liberty, and it should be partially darkened, if possible. It is also important in the highest degree that it should be perfectly dry, as it is scarcely necessary to add that a fowl suffering from cold and inflammation is not likely to fatten.

The fatting coops should be 2 feet 6 or 8 inches high in front, and about 2 feet deep, with a boarded roof sloping backwards; the back and ends should be closed, and the bottom made of flat bars with rounded edges, 2 inches wide at the top, and narrower beneath, so as to prevent the dung sticking to the sides. These bars should run from end to end of the coop (not from back to front), and they should be 2 inches apart on the upper sides. The front of the coop should consist of rounded bars, 3 inches apart, and two rods connected together below, and sliding through holes made in the roof, will be found more secure than a door. Before the front should run a ledge to support the feeding troughs, which are best made by joining two pieces of wood at a right angle, and securing the ends by letting them into grooves in stout end pieces.

The fatting coops should stand on legs, to raise them a convenient height from the ground, so that the dung may be removed daily; the most scrupulous cleanliness must be observed, otherwise disease will be produced. The coops, therefore, should be frequently lime-washed with freshly slaked lime and water, and then thoroughly dried before a fresh batch of fowls are introduced. In cold weather the front should be covered up with matting, or some other warm material, at night.

The length of the coop must depend on the number of fowls that it is required to contain; but it is never advisable to place more than ten or a dozen together: and if strange fowls are put up, care must be taken that they agree well together, as otherwise the constant excitement would prevent their fatting.

It occasionally happens that fowls are infested with lice to such a degree that they become irritable, and refuse to fatten; in these cases, a little flour of brimstone dusted under the feathers before cooping them immediately expels the vermin.

(To be continued.)

THE PRIZE REAPING MACHINES.

WE have just observed in the *Mark Lane Express* of the 17th inst. an extract from a Scotch paper depreciating the value of our improvements in M'Cormick's Reaper, and questioning the decision of the Royal Agricultural Society in awarding to us the first prize at the recent trial at Abbot's Leigh. The best reply we think we can make is to produce the evidence of well-known practical farmers who have used our reapers this harvest, and we leave it to the public to decide between that and the remarks of perhaps a wholly unqualified critic. *Burgess & Key*, 103, *Newgate Street.*

"Princes Gate Farm, Havering Bower, Essex, Aug. 18, 1855.

"Gentlemen,—In reply to your inquiry, I am happy to inform you the reaper has very far exceeded my most sanguine expectation, particularly in the clean and correct mode of its cutting, gathering, and delivering, leaving the swarth in a most perfect form, very far better than could be done by the best workman I have ever seen.

"I commenced on 14 acres of Oats, and we cut them down at the rate of 1¼ acres per hour. I have this day cut down 11 acres of Wheat, commencing at 9 a.m. and finishing at 20 minutes to 5 o'clock; my horses travelled at the rate of 2½ miles per hour, and it was not harder work than their usual ploughing. The machine seems very simple, and not liable to derangement, nothing up to this time having caused us one minute's delay; we have not removed the knife or sharpened it, and from examination of the work, I am surprised to find it seems but little the worse for wear. I have 70 acres yet to cut, and I think it certain to finish the whole. Allow me to congratulate you on your spiral delivery—the motion is simple and effective, and without it, I consider the machine would be of but little use to agriculture. I think I have now answered your various inquiries, but I shall be happy to give you further information, as I proceed with the harvest, and you are quite at liberty to refer any gentleman to me you may think proper, to see it in operation during this harvest. Wishing you the success you so fully deserve, I remain, gentlemen, your obedient,

"Messrs. Burgess and Key. (Signed) COLLINSON HALL."

"Stanford le Hope.

"Dear Sir,—In reply to your inquiry respecting your self-delivery screw reaper supplied to Mr. Eve, I have cut about 30 acres of Wheat with it, but have not had an opportunity to ascertain the quantity of acres it will cut per day until this morning, when I went into a 6-acre field at 11 o'clock, and finished it by half-past 3 o'clock, which was a little more than 1¼ acres per hour. I may mention that I never changed the sickle, also that some of my best men said that they could not lay it so well with the scythe.—Yours truly,

"J. ROBERTSON,

"Messrs. Burgess & Key." "Bailiff for Mr. Eve."

And since then the following has been received from Mr. Hall:—

"Princes Gate Farm, Havering Bower, August 26, 1855.

Gentlemen,—I reply to yours of yesterday, I have continued reaping with your machine about 7 acres per day, that being about the quantity we could get tied up and trussed, but now, having more hands, we shall cut 10 acres per day for the next two days, which will finish my Wheat. All my friends and neighbours are truly astonished with the regularity of the work, and I am pleased to say we have not had one delay from anything breaking. You can refer any one to me; I can only say that the principle is admirable, and will in a very short time relieve the harvest field from its heaviest implement, the scythe. My men at first were much unsettled at the introduction of such an innovator on human toil, but they will soon view it in the proper spirit, and like the steam threshing machine, kind friends where they anticipated enemies.—I remain, gentlemen,

"Your obedient servant, COLLINSON HALL."

"Lazenby, Redcar, Sept. 21, 1855.

"Gentlemen,—Having had Messrs. Burgess and Key's Reaping Machine at work on my farm for several days and operating upon a variety of crops, I have much pleasure in expressing my entire satisfaction with its performances. I have cut autumn and spring sown Wheat varying from 32 to 40 bushels per acre, some much lodged, and Oats a very heavy crop, and so much laid and twisted in parts that I thought it utterly impossible for any machine to cut them at all. One pair of horses worked the machine easily day after day; they have to travel no faster than the ordinary ploughing pace, and a boy of 15 managed them without any difficulty. The machine is so constructed that there is very little wear and tear going on; it delivers the cut corn in a beautiful swathe laid so straight and lightly on the ground that the sheaves are quickly gathered up, the stubble is evenly cut and left particularly clean. I found that the machine will cut in the manner described from 1¼ to 1½ acres per hour; it is always cutting its full width, viz., 5 feet 8 inches. I have had great experience in reaping by machinery, and I can honestly say that Messrs. Burgess and Key's machine is on the whole by far the most perfect and satisfactory implement I have seen. (Signed) THOMAS PARRINGTON."

WARMTH CONFERRED BY DRAINAGE.*

A SERIES of six thermometers were placed in the soil, in different fields, at the depth of eighteen inches, and their indications were observed and compared, at stated hours of the day, by a qualified person, with thermometers placed in the air above ground; and as the observations were made in fields similarly situated, and over a series of years, they may fairly be compared together. The reason why the thermometers were placed as deep as 18 inches was, that at that depth they were found not to be sensibly affected by the changes of temperature in the atmosphere.

Observations were first made to ascertain the temperature of the ground in its natural state, in order to compare it with that of the same ground after being thorough-drained, and after being both thorough-drained and subsoil-trench-ploughed. The observations for each month of the year, for reasons formerly given, are classed into vegetating and non-vegetating periods, such periods being in unison with the state of the crops when growing, and with the state of the soil when in fallow. The temperature of the routine of the year by the month tells nothing in regard to its state in the period of vegetation. The thermometer in 1849 indicated the mean temperature of the ground of a field at Yester Mains, in its natural, wet, undrained state, as follows:—

Vegetating Season.	Mean.
March	36
April	40
May	48
June	54
July	55
August	56
September	59
October	35
Mean of the vegetating season	46°.75

Non-vegetating Season.	Mean.
November	34°
December	34
January	32
February	34
Mean of the non-vegetating season	33°.5
Mean of both seasons	42°.33

The mean temperature of the soil of another field at Yester Mains, after being thorough-drained, was as follows, in 1849:—

Vegetating Season.	Mean.
March	37
April	38
May	47
June	53
July	54
August	46
September	54
October	37
Mean of the vegetating season	45°.75

Non-vegetating Season.	Mean.
November	37
December	36
January	32
February	38
Mean of the non-vegetating season	35°.75
Mean of both seasons	42°.42

Here, in the same season, 1849, the temperature after thorough draining was one degree lower than in the undrained field in summer. Contrary as such a result may be to expectation, it may perhaps be accounted for from the circumstance of the difference of temperature being observed in different fields at the same time. It is quite possible for thorough draining to affect different sorts of subsoils, in a short time, to a different degree, as regards temperature. Had the thorough drained field been left to the effects of thorough draining alone for more than twelve months, it is probable that its temperature would have been higher than 45°.75 in the summer. This conjecture is corroborated by another field, where the temperature of the soil in summer was 45°.4, and where the thorough draining and subsoil-trench-ploughing were effected in the same summer. The thorough draining was executed in May and June, the subsoil-trench-ploughing in August and September, and Wheat was sown in October. The operations were thus hastened to improve the land as quickly as possible.

But another circumstance may have affected the summer temperature of the two fields first referred to, one being in bare fallow, the other in Grass in 1849. It is possible that the temperature of the subsoil may be differently affected by the state of the surface-soil, when it is covered with a crop or when it is in bare earth.

If we turn our attention to the temperature in winter, we observe quite another and more favourable result. The temperature in that season, in the same time, had risen no less than 2°.25. The mean of both seasons was rather higher after thorough draining. The advantage of a higher temperature in winter is of more importance in keeping the soil warm for vegetation than in summer.

The remarkable celerity with which thorough draining may affect the temperature of the surface soil was observed at Broadwoodside, in one instance, where a thermometer was placed 1 foot under the surface, on the crown of a ridge 18 feet wide, before a drain was cut on each side. The temperature observed was 48°; and after a drain had been cut to the ordinary depth on each side, in the open furrow of the ridge, the temperature rose to 49°.5—that is, 1½ degree in the course of six hours. The mean temperature observed after the soil had been thorough drained and subsoil-trench-ploughed in the first field mentioned above, was as follows, in 1850:—

Vegetating season.	Mean.
March	37°
April	39
May	42
June	54
July	59
August	54
September	55
October	50
Mean of the vegetating season	45°.75

Non-vegetating season.	Mean.
November	44°
December	39
January	32
February	36
Mean of the non-vegetating season	37°.75
Mean of both seasons	45°.08

Thus, in comparing the mean temperatures of the vegetating season, before and after thorough draining and subsoil-trench-ploughing the same subsoil, the advantage is 2° in favour of the deep-stirred subsoil; and in the non-vegetating season the advantage is as great as 4°.25. The higher temperature in the winter, let it be repeated, is the greater advantage, as it tends to equalise the temperature of both seasons; and equalisation of temperature in summer and winter is a decided characteristic of an improved climate. The mean temperature throughout the year was raised 2°.75 by thorough draining and subsoil-trench-ploughing. On comparing the relating effects of thorough draining with thorough draining and subsoil-trench-ploughing, on the temperature of the subsoil, it appears that thorough draining makes it warmer in winter to the extent of 2°.25; whereas the conjoined operations warm it 4°.25—that is, they nearly double the heat; and in summer the temperature is not raised at all by thorough draining, for the reasons given on a former page; while the addition of subsoil-trench-ploughing raises it 2°. It is thus seen to what extent subsoil-trench-ploughing confers benefit on the subsoil in raising its temperature both in summer and winter; and the joint operations warm the subsoil to a greater degree in winter than in summer, because of the superior influence of subsoil-trench-ploughing in completely pulverising the subsoil.

Thorough-drained and subsoil-trench-ploughed land is more quickly lowered in temperature by a fall of rain than undrained; but immediately on the rain ceasing, the temperature rises again as quickly in the drained soil, whereas it remains low for a long time in the undrained. On a series of nine thermometers placed in the soil 1 inch lower than the other, a considerable difference in the temperature was observed, in April 1850, on two thermometers; one placed 1 inch under the surface indicating 55°—the other, 4 inches, indicating only 49°. Below 4 inches the temperature of the atmosphere is found to have a very slow effect on the temperature of the soil. Thorough draining and subsoil-trench-ploughing first affects sandy soil and subsoil, then gravelly, then weak clay, and, last of all, adhesive clay. On all these subsoils the conjoint operations of thorough draining and subsoil-trench-ploughing have the same permanently beneficial effects.

The degree of warmth imparted to the subsoil by subsoil-trench-ploughing, small as it may seem to be, has the effect of melting the snow upon the surface soil in a short time, whereas thorough draining has not that effect. A striking instance of this difference was observed in a field, upon the one side of which, to the extent of 2 acres of Grass, which had been thorough drained but not subsoil-trench-ploughed, the snow lay every year; whereas upon the rest of the field, which had been both thorough drained and subsoil-trench-ploughed, it lay a comparatively short time. The very furrow which bounded the two conditions of the soil marked the line sharply between the snow and the bare surface. It may prove interesting to give the temperature of the soil of a south border of the kitchen garden at Yester in a high state of cultivation, as indicated by a thermometer placed 18 inches under the surface in 1849, as a means of comparing the temperatures of soils placed in an inclosed field of a farm, and within the walls of a garden.

Vegetating Season.	Mean.
March	42°
April	43
May	51
June	58
July	62
August	62
September	59
October	50
Mean of the vegetating season	53°.37

Non-vegetating Season.	Mean.
November	46°
December	41
January	43
February	53
Mean of the non-vegetating season	45°.75
Mean of both seasons	50°.83

The soil in the border was thus comparatively warmer in winter than in summer, as was found in the fields. On comparing the temperature of the soil in the fields, in the best condition, with that of the border in the same year in the vegetating season, the border has the advantage by 4°.62; but in the non-vegetating season it has the advantage to the remarkable extent of 8°; while, during both seasons, it has the advantage by 5°.75. A higher temperature of 8° in the subsoil in winter is equivalent to the influence of a very superior climate on the functions of plants, where it would support their life in the garden, while they would die in the fields. As it is the object of agriculture to approach as near as possible to horticulture in the treatment of plants, it thus appears that farming has yet much to do to place plants in the same favourable condition as does gardening. *Yester Deep Land Culture.*

* "Yester Deep Land Culture," by H. Stephens. Blackwood and Sons, Edinburgh.

Home Correspondence.

Steam Engines.—Permit me to call the attention of those who have steam engines to a volume entitled "C. W. Williams on the Combustion of Coal and the Prevention of Smoke," published by John Weale, High Holborn. I have derived so much practical benefit from its perusal, that I think it an agricultural duty thus to notice it. The author has long been managing director of the City of Dublin Steam Packet Company, and although the book is so modest in its title, it may really be called a profound theoretical and practical corrector of the enormous errors that most of us are committing in the manufacture of our boilers and the setting out of our flues, flame beds, and furnaces. I have re-arranged, at a trifling cost, the setting of my boiler according to figure 29 at page 66 of Mr. Williams's book, and have forthwith got a great increase of power, with economy of fuel and absence of smoke. The questions raised and proved in Mr.

Williams's book are of vast general importance to every department of steam power, substituting great and trustworthy principles for an ever-varying and costly experimentalism. I, for one, feel that we owe to this gentleman a great debt of thankfulness. One is no longer at the mercy of chance or caprice in this matter, and it is no longer difficult to account for cracked or broken boiler plates, damaged tubes and explosive accidents. The mere question of the circulation of the fluids inside the boiler suggests a host of improvements and reflections, and I can easily comprehend now why the vertical boiler attached to Romaine's digging machine lost its water by priming. We have been threshing for two days with an iron drum 3 feet 6 inches wide, having eight beaters, and making 1200 revolutions per minute. The quantity of water evaporated is fully 60 gallons per hour, or 10-horse power; the quantity of coal consumed 7½ cwt. in 12 hours, or 7 lbs. coal per horse per hour. Pressure of steam 50 lbs. per inch. I think that our Royal Agricultural Society should adopt a fairer mode of trying engines than is now practised. They are tried with Welch or anthracite coal, which is never used by farmers. If tried with bituminous coal instead of 4 or 5 lbs. per horse per hour 10 lbs. per horse per hour would be a nearer calculation, as shown on the farm. Our implement makers would do well to adopt Mr. Williams's suggestion, and admit air above the fuel by holes in the furnace door or by other means. I may trouble you in another communication with some remarks on the threshing machine. *J. J. Mechi, Tiptree Hall, Sept.* 24.

Steam Cultivator. — The difficulties which present themselves in constructing a locomotive steam plough, to do the ordinary work of the implement now in use, appear so numerous as almost to justify the expression impossible, when applied to the common tillage of a farm by such an invention. With our present knowledge of the means of generating steam, the machine, having to carry its own fuel and water, must be necessarily strong and cumbrous, quite unfit then to travel over stubble, or Grass land, to break it up, which is only the first process in cultivation; should this be overcome, the operation of pulverising would be hopeless. Four horses attached to a heavy harrow make indifferent work on a stiff soil after rain. If the weight of each animal is detrimental, what would be the result of many tons endeavouring to crawl over the fresh turned surface?—probably an entire failure, requiring the assistance of men and horses to extricate the mammoth plough from its immovable position. The bad state of farm roads is an important consideration when a constant change from field to field would be requisite; also the number of horses to move the engine, which when not occupied in this work would be idle, and might be better employed in subsoiling than gazing in wonder at a monster vainly trying to supersede their legitimate labour. The construction of a steam-cultivator may employ the ingenuity of our mechanists, and bring out hidden talent, but it is extremely doubtful as to a steam machine ever trotting over arable land, till some plan is discovered to enable the engineer to reduce its enormous weight and make it more manageable. To put a limit to the power of machinery would be absurd; or to suppose that a substitute may not yet be discovered for steam, better adapted to agricultural purposes, would be ridiculous, but until such a thing comes to pass, the tillage of the land had better be left to men and horses, with good ploughs, long forks, &c. *Falcon.*—— Is "I. A. C." to fail in making his "bold announcement" good? If so, it is only but fair to inform those of your readers who may be interested, but who like himself may not be able to comprehend the facts of the case, that your correspondent labours under a serious mistake when he says that Fisken's plough lessens "the strain upon the anchorages," for whatever may be the resistance on the plough side of the pulley, the power on the opposite must balance it. That power may be increased at a sacrifice of time and speed by any of the mechanical powers applicable; by pulley tackle, for example, "I. A. C." may run off at the gallop with the spare end of the rope, still the balance over the fulcrum must be sustained. Again, he is a very sober critic if he thinks that reaction can ever urge forward Usher's plough. A glance at facts will soon show this to be impossible, for the moment his ploughs enter the soil the unploughed land before them prevents their advance. In short, rotatory action and continuous progression is a mistake which "I. A. C." does not appear to see. In conclusion I am afraid your talented correspondent will find logic one thing and agricultural mechanics another. *W. B., London, Sept* 18.

Cobby's Clodcrusher.—It would appear by your notification of the clodcrusher which I sent you for insertion in the *Gardeners' Chronicle and Agricultural Gazette*, on the 20th ult., were it not contradicted, that it so resembles Mr. Crosskill's as not to require the assistance of drawings to show that there is no distinctive merit in my plan, whereas if you will be kind enough to compare drawings (annexed) of Mr. Crosskill's with mine, the difference must soon be seen—his discs are of two sizes, one being 3 inches larger than the other, and placed in centres one above the other. I ask, how can the large one effectually cleanse the small one, or *vice versâ?* My discs are of equal diameter, and the centres thereof placed horizontal must give a very different result. To you it appears the discs in my plan rise and fall, and the axle revolves; this is wrong, all the discs are on the soil at the same time, and travel at one speed, the axle is an ordinary one, and it does not revolve. I doubt not you will see that I am right in calling your attention to the error committed, and if the subject to you be worth correcting, such an acknowledgment would oblige. *Henry Cobby, 10, Walker Street, Hull.*

Reaping Machines.—Our farming friends may now safely give up the scythe, the sickle, and the bagging hook, except in a few cases of closely laid crops. For three years I have used Hussey's reaper (made by Garrett & Son); and although great improvements have since been made, it is economical in time and money as compared with manual labour. I completed a very heavy harvest on the 7th September, with my regular labourers only, and might have done so earlier, but wanted my horses for ploughing, so that the men had to cut 11 acres by hand. The early harvesting has enabled me to scarify all my Bean and corn stubbles and plough my land for Tares, although I only keep five horses on 170 acres, all arable. I will give my agricultural friends a hint how to render the reaping machines most acceptable to the labourers. In my case I let 9 acres (nearly all Wheat) to each man to cut, cart, and stack within the month for 5*l.* 5*s.* (about 11*s.* 6*d.* per acre). I then lent them the reaper, and during the whole harvest I have never heard a complaint of a bolt, screw, or nut being out of order, whereas, under other circumstances it never gave satisfaction. Practically six men could scarcely bind out of its way; indeed, had we cut the full width, it would have required eight binders, which I could not spare. Six binders can always bind as much as 12 to 14 reapers could cut, therefore the machine with three horses and three men did as much cutting as 12 to 14 reapers. My land is in 7 feet stetches with intermediate furrows, therefore not so favourable to the machine as level land. The time is fast coming when even little farmers will avail of abundant machinery. It was grievous to see a week or ten days' time lost in harvest by my neighbours as compared with myself, and yet in addition to this precious time a greater cost of money expenditure. The difference of centralised buildings, ready access, and the use of Hannam's carts instead of waggons, are agricultural economies that are gradually forcing themselves on the farmers' minds. I wish some of my agricultural friends would believe that I farm at less cost per quarter than they do; it would be a great help to their pockets. It is quite painful to see how much the harvest is delayed in many districts of this and other counties by undrained land, great hedge rows, timber trees, and worthless pollards, to say nothing of the superabundance of weediness, and absence of the horse hoe. Surely landlord and tenant must consider corn worth growing at present prices. *J. J. Mechi, Tiptree Hall, Sept.* 24.

Agricultural Statistics.—Give a corner of your Paper to an English farmer to enable him to exhibit his ideas on a subject in which the farmer is deeply interested—agricultural statistics. I have just laid down your Paper of the 24th inst. after perusing the evidence on that subject of Messrs. Maxwell and Caird, brother Scots probably, yet how unlike. The former evidently a man clearly comprehending all the difficulties with which he has to grapple, and exhibiting that comprehension in his clear and logical address.—To beget a confidence in the returns they must be made for small districts, by local resident agents, and must be spontaneous. Mr. Caird's short and pleasant method of compulsion would, in England at least, be ineffective. One man may lead a horse to the water, but 20 cannot make him drink. The farmers as a body are not apt at letters and figures, and therefore voluntary, and consequently satisfactory returns, must await that good time coming when the agricultural world shall come to a much greater extent than the present under the influence of the schoolmaster. In England, where so much of the land is held by yearly tenants, we have the additional difficulty arising from the frequent change of tenants. Again, how often does it happen that land after being sown is, for a variety of reasons, elemental or otherwise, ploughed and resown. My neighbours are now ploughing up portions of their Turnips. This would frequently happen after Mr. Caird's acreage returns were made, and with other causes which might be enumerated would, especially with unwilling hands, produce so much confusion and uncertainty, that the returns would be of little value. It is, however, evident that at present Mr. Maxwell's plan is beyond all comparison the more feasible. How difficult is it for the grower of a crop of corn himself to make anything like a correct return in time to be useful? In the most competent and willing hands and under the most favourable circumstances it could only be made approximative. How then is a stranger during a hasty visit to be more successful? *W. R. Carter, Pickhurst Green, Bromley, Kent, Sept.* 26.

[Mr. Carter must excuse our having cancelled that portion of his letter in which he has merely made a personal attack on one of whom it is obvious he knows very little indeed.]

Farmers' Clubs.

Padiham.—*The Peculiarities of English Agriculture.*—At the anniversary meeting of the Agricultural Society, Sir J. P. Kay Shuttleworth made the following remarks in proposing the health of "the Lord Lieutenant and Magistrates of the County," — The Lord Lieutenant and the majority of the magistrates of this county are great landowners, and as such they have great social duties to perform. In connection with associations such as the one which is assembled here to-night, they have duties of a nature deeply interesting to the members of such societies; and I think that associations of this character may be made chiefly useful, if we each, according to our ability, contribute that to the common stock of information which our opportunities best fit us to impart. My own acquaintance with agriculture is necessarily of a very limited nature. It is confined to those general improvements which are necessarily the function of the proprietor, such as the general drainage of estates, the improvement of farm buildings, and the introduction of those permanent means of advancement in the culture of the land, such as the means of storing liquid manure, and so on, which are properly the duties of a proprietor. I have also felt it my duty, as I know it has been the custom of some of the gentlemen who surround this table, to make myself well acquainted with those improvements in science which affect the progress of agriculture. I mean such knowledge as is conveyed by books. And there is in one direction an opportunity, which I have possessed of late years, owing to the necessity of foreign travel for the restoration of my health; for I have been enabled to bestow much time and a good deal of minute attention on a comparison of the systems of foreign agriculture with that of British. What occurs to me, therefore, in relation to that which is the object of our meeting to-night, and that which I may say calls upon me to speak as a duty as a magistrate and a proprietor in this county, is that which I can best do in connection with the objects of this meeting—that I should, in some very brief and general terms, without at all descending into minute and fatiguing statistics, give you a slight sketch of what appears to me to be the great features of contrast between foreign and British agriculture. Now, I am very happy to say, at the outset, that in many most important respects the agriculture of England has made, especially in the present century, an enormous advance over that of our foreign neighbours. That advance has been owing to the application of some very simple principles in the breeding of cattle and in the culture of the land, and to these I will endeavour to direct your attention, because I think we may learn even from our past successes, and from having a clear idea of what are the principles of progress that we have hitherto pursued, and which have given us a great advantage over our neighbours, in what directions our efforts may best in future be turned. In the first place, anybody who travels abroad will be greatly struck with the vast difference which exists in the breeds of cattle in the various countries of Europe. It is very common throughout the whole of Europe to employ the cattle to an immense extent for purposes of labour. Almost all the farm work is performed by oxen, and likewise a very large quantity of the carriage of the continent is performed by oxen, and not, as in this country, by horses. Even in the case of a gentleman's carriage, abroad, when it comes to the bottom of a very steep hill the relays at the bottom of the hill are not relays of horses generally but of a long team of oxen, which drag the carriage to the top of the hill at a very slow pace. Now there is one very great consequence of that which your own show to day will at once make you aware of—that it has been the great object in the breeding of cattle abroad to give great prominence to bone and strength, the means of labour, in preference to that which constitutes the great object of breeding in England, the smallness of bone, the early delicacy and precocity of the animal, the roundness of form, the bulk; and instead of great capacity of labour, such bulk as is a great hindrance even to locomotion. Now the way in which this great change in the character of the breeds of cattle in England during the last 80 or 90 years has been produced, has been by the principle of selection. Mr. Bakewell, with respect to the Leicester breed; the Elmans, with respect to the Southdown breed; and Mr. Collins, with respect to the Cheviot breed, have produced an immense change, for example, in the sheep of this country. They have produced sheep with great rotundity of form, with exceedingly small bone, with great weight, but with very small powers of locomotion; and the same principle has been applied to cattle, the short-horns, the Hereford breed, and the Ayrshire breed being all characterised by the same qualities of smallness of bone, the great bulk of carcase, and the large amount of meat that they will yield. In England, likewise, in reference to sheep, we have thought much more of the production of meat than wool; whereas in France and a large part of the continent, agriculturists have paid much more attention to the production of wool than of meat; and one of the consequences has been that, even in England, seeing that we have preferred the production of meat to that of wool, the carcase of the sheep has been much larger, and therefore the fleece has been much larger, and in England the value of the fleece has been on the average as great as in France, whilst the value of the meat in England is double the value of that in France. The breeds of sheep and cattle produced in England have not, as I said before, been calculated for endurance of labour, as they are on the continent; and, consequently, they have had little bone, but they have been also breeds of great delicacy. The principle of selection has been precocity of growth, the breeds of sheep and cattle, with one exception, arriving at their maturity in two years, and they are ready for the butcher at the end of two years; whereas the breeds of cattle in France and on the Continent generally are kept for many years for purposes of labour after they have arrived at the greatest growth. Therefore the whole consumption upon the farm for the maintenance of these cattle is simply expended in labour, and it was evidently a false economy which led the French

to suppose that, whilst they were having the advantage of the cattle for labour, they were also getting some advantage of them in meat; for after two years, with an animal properly selected for the purpose, there is no increase in bulk, and it is better to kill the animals. Now these principles, which are very simple—the principles of the selections of the breeds of cattle in England, are connected also with another very great change in England—that is, with the introduction of the rotation of crops; with the limitation of the extent of land applied to the purposes of growing corn; with the application of richer manures; with the keeping upon the land of the largest amount of stock, and therefore with the production of the largest possible amount of corn from the land. On the contrary, in France, and over almost the whole of the Continent, the plan of fallows still remains, the land is to a very great extent, very generally, much richer than that of England; there is a much larger extent of arable land, and it is land generally of a much more friable nature; and the climate in every respect better adapted to the success of agricultural operations, yet, owing to the introduction of the system of rotation of crops, to the keeping of a very large amount of stock upon the farm for the production of meat, and the application of these manures to a limited extent of arable land, the amount of corn produced on the same extent of land in England, as compared with the majority of countries on the Continent, is at least double, and in many cases treble, so that the much smaller extent of land produces the same quantity of corn. Now, the whole of these several operations singularly hang together. They are links of a chain of proceedings which can scarcely be dissociated, and it would be extremely difficult, I have often thought, for a French proprietor, in some remote part of France, to change the system upon which they are now proceeding, to introduce horses instead of cattle, and to feed his stock simply for the meat market. Even since they have introduced railways into France it would be very difficult for him to do it; and we certainly owe a very large amount of our success, at least of the rapidity with which we have introduced this system in this country, to the fact that we have markets so near at hand, that we have such a dense population; that we have such a little distance to carry our milk and butter especially, and that to a very large extent the farms of England can be dairy farms, and, where not so, can with such ease and advantage be meat farms. It would be more difficult to bring about this system in France; but so strongly are the thinking men of France convinced now of the great advantages of the system we pursue, that in the course of years I have no doubt whatever we shall see the English system rapidly introduced more and more over a great part of the Continent. You perceive that we have valued our cattle chiefly on account of the milk and the meat they produced, and we have discarded that which is the least valuable portion of the contribution that the animal can make to the wealth of the country, and that is its labour, in respect to cattle which are fed upon farms, and we have valued less the fleece of the sheep than we have the meat, and the result is that the whole moneyed produce of the farms in England, on the good farms, is nearly fourfold that of the same extent of land, even of better land in France. I connect these facts very much with the toast I have the honour to propose to you, and for this reason, that I think a very large part of the success of the agriculture of England has been owing to the good feeling which has subsisted between the proprietors and tenantry of the whole of England, to the extent to which the gentry of England have lived among their tenantry, and been ready to associate with them in such meetings as the present, and their readiness to pay close personal attention to the improvement of their estates; of which we had such noble examples as Mr. Coke of Norfolk, the late Lord Leicester, the present Duke of Bedford, and many others whose names I might enumerate as examples of a class of proprietors who have spent their time, fortunes, and talents which would have made them probably statesmen of the highest order, on the improvement of their estates and the welfare of their tenantry. I believe these results are to a very great extent owing to the attention the gentry have paid to the improvement of their estates, and likewise to the energy, skill, and enterprise of such men as Mr. Bakewell, the Elmans, and others, who have especially devoted themselves to the improvement of the different breeds of cattle in this country, and the introduction of right principles of culture. In connection with the toast, therefore, I think I am not introducing a subject foreign to the purposes of this meeting if I chiefly associate it with those duties which such gentlemen as the lord lieutenants and magistrates of counties have to perform upon their estates, in making great permanent improvements and in also cultivating right sentiments and proper associations for their tenantry. I do not think that sentiment, which is, I am afraid, somewhat gaining in this country, is a correct one, that the relations of landlord and tenant should be strictly confined to the mere terms of a bargain—that they should be reduced to the mere principle of self-interest. I do think that those associations which keep the tenantry connected through generations with a particular estate, which maintain sentiments of respect to the family to which that estate belongs, and confidence in the proprietor, are a happy part of our English constitution, and one of those features which we look in vain for abroad. One thing that strikes one's eye abroad very much is the extent to which the labour of women is introduced upon the land. That is owing to a very great number of circumstances which complicate the state of society abroad. You know that almost all the foreign countries have a system of conscription, or something equivalent to it, by which men are taken at a very early age to the army, where they acquire the habits of soldiers; and as they are taken early off the land, during their absence the women are obliged to labour on the land; and it is also owing to this subdivision of properties that the family has no chance of making a living out of the land unless the services of each member of the family, even the women, are given to its cultivation. The consequence is, that at the age of 45, or even at 40, the women are haggard, worn out with constant labour in the hot sun, from early morn to late at night, in the most laborious operations on the land. There is scarcely any kind of farm labour which they do not regularly perform; they hoe, they dibble, they weed; they even trench the soil, they load carts, and drive them; and from morning to night such labour as this forms their habitual occupation almost all over the continent of Europe. I think it is a very great advantage indeed to this country that that form of labour for women is rather the exception than the rule, and that even in the agricultural counties it is chiefly in harvest time, and to a certain extent in weeding and hoeing, but rather as the exception than the rule, that female labour is employed upon the land. There are a great many other features, as you will readily believe, of contrast between the English and foreign systems of agriculture, but I will not further intrude on your time than to say, that the result of several years of observation has been to congratulate myself—and I am very happy indeed to find my opinions and convictions are supported by the most recent labours of political economists, and of men of high science who have visited this and other countries—that the system of English agriculture is one which not only contributes in a much larger degree to the wealth of the nation than that of foreign countries, but that it also contributes in a much higher degree to social contentment, to the maintenance of healthy relations between tenants and proprietors, and to that happy constitution of society which makes, as I think, and as I trust foreign countries will also believe, the condition of England one to be envied by the rest of Europe.

Miscellaneous.

The late Professor J. W. F. Johnston.—It is with extreme regret that we announce the death of this great agricultural chemist. It is to the late Professor Johnston, more than any other man, that the acquaintance of English agriculturists with the scientific relations of their art is due. His contributions both to scientific and to popular literature have fed and fostered, and to a large extent created, that public interest in agriculture as a science, the earlier excitement of which was due to the pen of Baron Liebig. And it will be generally admitted that it is from his works, rather than from those of any other writer, that the agriculturist can most safely draw the lessons and the explanations which theory offers for his consideration. The following paragraph is taken from the columns of a cotemporary:—"The scientific productions of this gentleman have secured him an extensive reputation. On the continent and in America his works are as highly appreciated as at home. His attention was especially devoted to the cause of scientific agriculture; and, perhaps, no individual in this country has done more to substitute a system of enlightened cultivation for one of mere routine farming. His talents, however, were too versatile to expend themselves in one department of exertion. Among his other productions we may mention his "Notes on North America" and his "Chemistry of Common Life." The latter work is fresh in the memory of the public. It has shown what deep philosophy may exist in the plainest things, and that the humblest details of life abound in marvels, if there is only the "seeing eye" to detect, and the searching intellect to explore them. Independently of his writings, Professor Johnston was a remarkable man. He furnished another inspiriting example of the successes which energy and industry can always achieve. A more resolute and indefatigable individual has rarely lived. His death will be no small loss. His illness was somewhat brief. After spending the summer on the continent, he had scarcely set foot in England when he discovered from certain fatal symptoms that his lungs were affected, and, resigning himself to his lot with Christian submissiveness, he expired on the 18th inst. in the full vigour of his intellect." *Leeds Mercury.*

Notices to Correspondents.

CORRUGATED IRON OR ZINC ROOFING: *A known Correspondent* asks if any of our subscribers have had experience of these materials as coverings for farm buildings; and also what is the relative cost as regards their construction and the construction of similar ranges of buildings with tile roofs.

OATS: *J B Baker.* They are particularly liable to smut, more so than Barley, and very much more so than Wheat, as that seed is washed before sowing with a pickle, which destroys the germ from which the disease springs.

POND MUD: *S E.* The weather will not destroy its goodness, which does not depend verymuch on its volatile ingredients. It is better to let it drain, and then use the half-dried stuff in compost with farm-yard manure.

TURNIP CUTTERS: *Cor.* The prize man at Carlisle was Mr. Samuelson for Gardner's cutter.

WINTER BEANS: *C Clifton.* Broadshare the Wheat stubble, harrow it well, and burn the weeds. Plough the land then tolerably deeply, and harrow and burn weeds again; then cart on about 20 yards of dung per acre, spread, and plough and harrow, and then drill your Beans (2 bushels of the small winter Beans per acre) in rows 2 feet apart. Dung or guano are better than dissolved bones.

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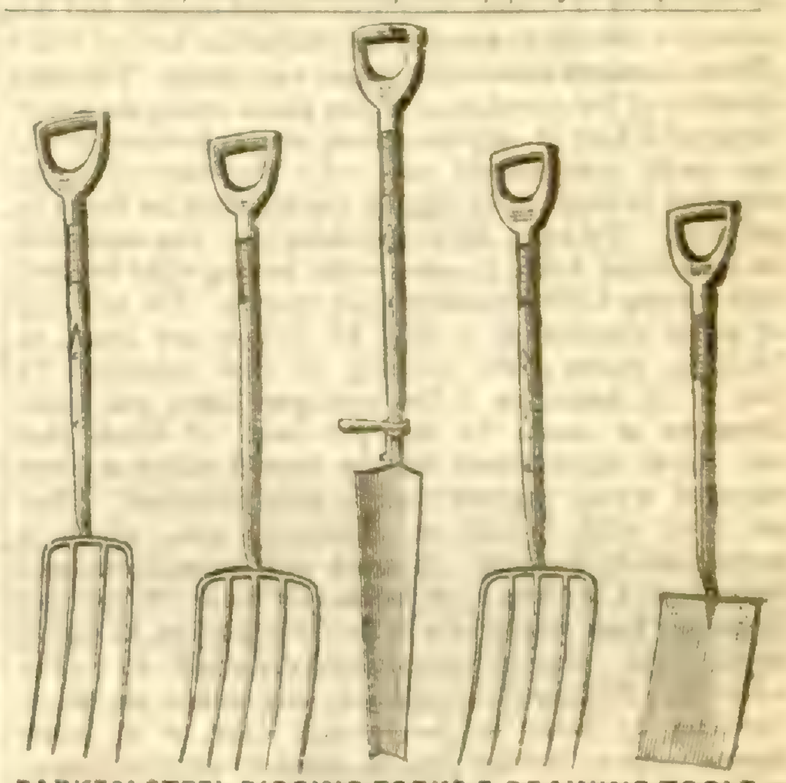

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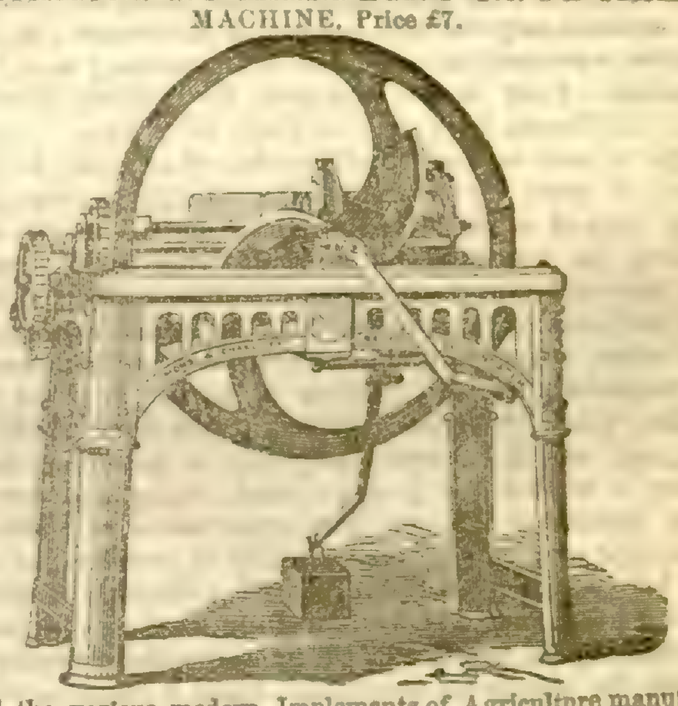

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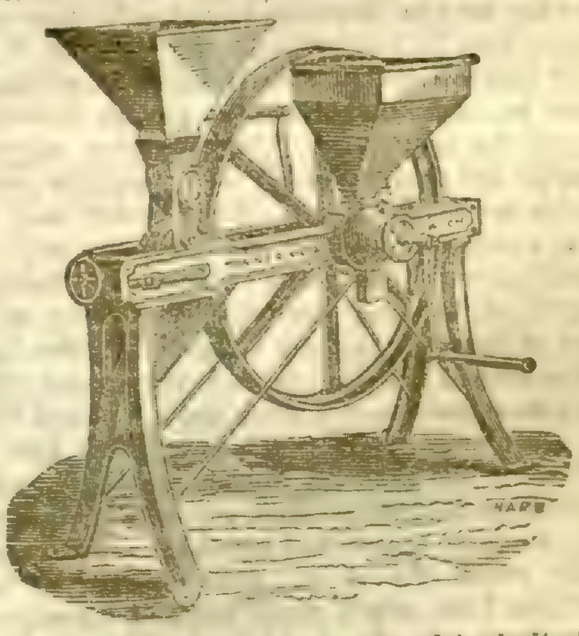

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Extract from The Cottage Gardener, *August 28th.*

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9½ "	7½	"	10	"	8	...	...	13	6
10½ "	8½	"	11	"	9	...	...	14	0
12 "	9	"	13	"	9	...	...	14	0
10 "	10	"	10½	"	10½	...	...	14	0
11 "	10	"	11½	"	10½	...	...	14	0
11 "	11	"	11½	"	11½	...	...	14	0
12 "	11	"	12½	"	11½	...	...	14	0
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13 "	12	"	13½	"	12½	...	...	16	0
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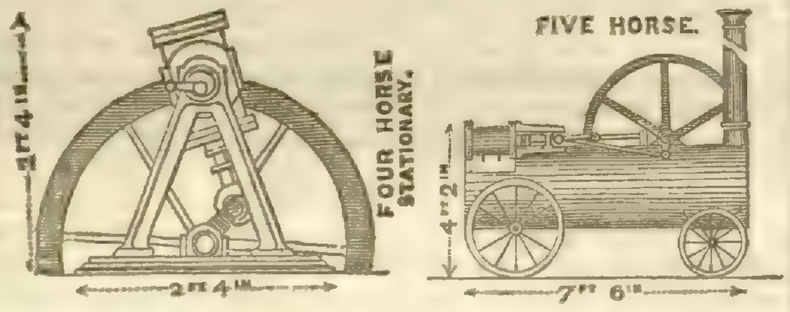

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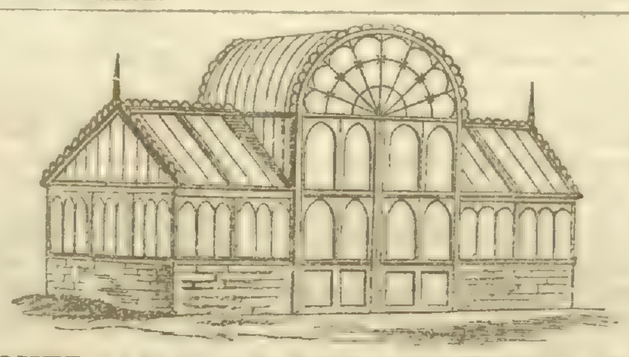

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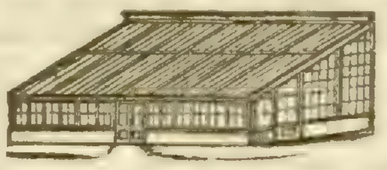
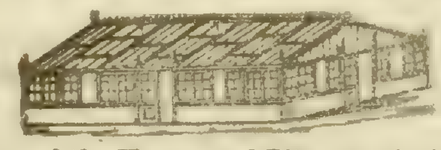
JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.

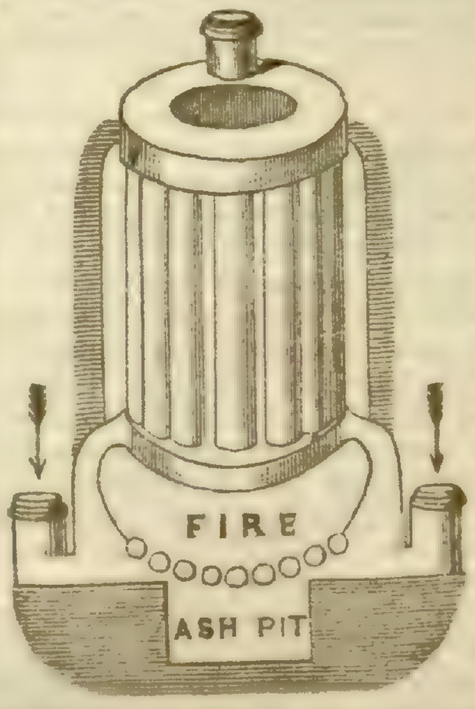


Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to John Weeks & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

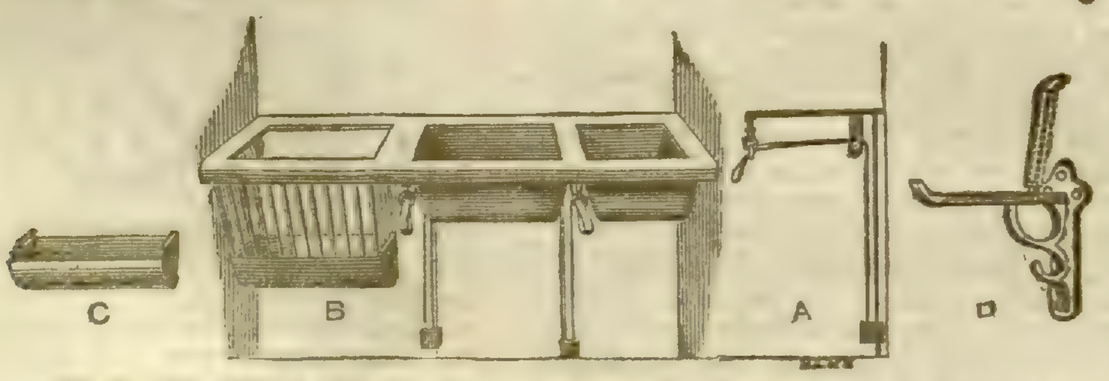
JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.



The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft., and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the late severe winter it only cost us 3*s.* per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *one of our Boilers*, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

John Weeks & Co., King's Road, Chelsea, London.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.



COTTAM AND HALLEN

HAVE made important additions to their original Invention of PATENT ENAMELLED MANGER RACK AND WATER TROUGH AT ONE FIXTURE, the main features of which are shown in the above engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

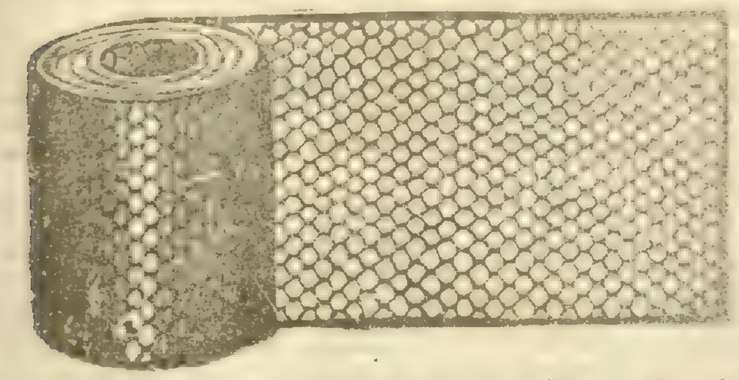
COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—Descriptive Catalogues and Estimates on application.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY, WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

GALVANISED WIRE GAME NETTING, 6*d.* PER YARD, 2 FEET WIDE.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	6*d.* per yd.	4½*d.* per yd.
2-inch " strong, do.	8 "	6 "
2-inch " intermediate, do.	9½ "	7½ "
2-inch " extra strong, do.	11 "	9 "
1⅝-inch " 24 inches wide	7 "	5½ "
1⅝-inch " strong, do.	9 "	7 "
1⅝-inch " intermediate, do.	11 "	9 "
1⅝-inch " extra strong, do.	13 "	11 "

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 10*d.* per yard; Galvanised Sparrow-proof Netting for Pheasantries, 3*d.* per square foot.

Illustrated Catalogues and Patterns forwarded by post. Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

LIGHT, CHEAP, and DURABLE ROOFING.—CROGGON'S PATENT ASPHALTE ROOFING FELT is perfectly impervious to rain, snow, and frost, and has been tested by a long and extensive experience in all climates. Saves half the timber required for slates. Can be laid on with great facility by farm servants or unpractised persons. Price 1*d.* per square foot. CROGGON'S Patent Non-conducting Felt, for covering steam boilers and pipes, saves 25 per cent of fuel. Samples and testimonials sent by post, on application to CROGGON & Co., 2, Dowgate Hill, London, who also supply ship-sheathing felt and inodorous felt, for damp walls, and lining iron houses, and roofs generally, to equalise the temperature.

SOUND AND WHITE TEETH are not only indispensably requisite to a pleasing exterior in both sexes, but they are peculiarly appreciated through life as a blessing highly conducive to the purposes of health and longevity. Among the various preparations offered for the purpose,

ROWLAND'S ODONTO, or PEARL DENTIFRICE,

stands unrivalled in its capability of embellishing, purifying, and preserving the teeth to the latest period of life. Prepared from Oriental herbs with unusual care, transmitted to this country at great expense, this unique compound will be found to eradicate all tartar and concretions, and impart a pearl-like whiteness to the enamelled surface, remove spots of incipient decay, render the gums firm and red, fix the teeth firmly in their sockets and, from its aromatic influence impart sweetness and purity to the breath. Price 2*s.* 9*d.* per box. Caution.—The words "Rowlands' Odonto" are on the label, and "A. ROWLAND & SONS, 20, Hatton Garden," engraved on the Government stamp affixed on each box. Sold by them, and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.?—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 physicians, for promoting a fine healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2*s.*, or sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London. Mrs. CARTER writes, "My head, which was bald, is now covered with new hair." Mrs. REEVE—"My hair is gaining strength and thickness." Sergeant CRAVEN.—"Through using it I have an excellent Moustache." Mr. YATES—"The young man has now a good pair of whiskers. I want two packets for other customers."

ASTROLOGY.—Persons residing in London or elsewhere can send their Address, Christian and Surname, and Age, in a letter containing 13 postage stamps, to Professor MELVILLE, Princes Road, Lambeth, London (the only Acrostic Astrologer in the universe), and they will receive as soon as possible, special poems on their names, in which their Destinies will be revealed.

DEBILITY AND NERVOUSNESS.—Encouragement to those in despair, and suffering from debility, spermatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, by E. J. ROBERTS (late Army), Surgeon, 9, North Terrace, Moor Edge, Newcastle-on-Tyne.

COLDS, COUGHS, ASTHMA, INFLUENZA, and DISEASES of the CHEST and LUNGS, arise chiefly from alternations of Temperature. Painful and troublesome as these diseases are, they may be speedily and effectually removed by the judicious use of

SPENCER'S PULMONIC ELIXIR.

SPENCER'S PULMONIC ELIXIR is admirably adapted to promote expectoration, ease the breathing, loosen the phlegm, abate fever, and allay the tickling sensation which occasions the cough, without tightening the chest; and for all temporary and local affections—such as wheezing, irritation of the throat, palpitation of the heart, hoarseness of the voice, influenza, &c.—it affords immediate relief. While in more chronic disorders, as periodical coughs or inveterate asthma, it is equally valuable in its effects, although, of course, a longer perseverance in the use of the article is required.

*** Ask for SPENCER'S PULMONIC ELIXIR.

Prepared only by T. Roberts & Co., Crane Court, Fleet Street, London; and sold wholesale and retail by E. Edwards, 67, St. Paul's Churchyard; Barclay & Sons, 95, Farringdon Street; Sutton & Co., 10, Bow Churchyard; Hannay & Co., 63, and Sangar, 150, Oxford Street, London; and by all respectable Chemists and Medicine Vendors in the Kingdom. In bottles at 1*s.* 1½*d.* and 2*s.* 9*d.* each. *** The bottles at 2*s.* 9*d.* contain nearly as much as three small ones.

BASS'S EAST INDIA PALE ALE, BASS'S MILD BURTON ALE, and BARCLAY'S PORTER and STOUT, in 18-gallon Casks. Bottles, Half-Bottles, and Imperial Pints.—BERRY, BROTHERS, & Co., 3, St. James's Street, London.

SISAL CIGARS, SISAL CIGARS, SISAL CIGARS!

GOODRICH'S CIGAR, TOBACCO, AND SNUFF STORES (Established 1780), 416, Oxford Street, nearly opposite Hanway Street. A Box, containing 14 fine Sisal Cigars for 1*s.* 9*d.*; post free for 27 stamps. None are genuine unless signed "H. N. GOODRICH."

FRENCH MODERATOR LAMPS.—A very large and superior stock now on sale at DEANE, DRAY, AND CO.'S (Opening to the Monument), London Bridge.
Established A.D. 1700.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work-boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed. Superior Hair and other Toilet Brushes.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City.
Circulars free by post.

FENDERS, STOVES, AND FIRE-IRONS.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW ROOMS, 39, Oxford Street (corner of Newman Street), Nos. 1, 2, and 3, Newman Street, and 4 and 5, Perry's Place. They are the largest in the world, and contain such an assortment of FENDERS, STOVES, RANGES, FIRE-IRONS, and GENERAL IRONMONGERY as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with bronzed ornaments and two sets of bars, 2*l.* 14*s.* to 5*l.* 10*s.*; ditto, with ormolu ornaments and two sets of bars, 5*l.* 10*s.* to 12*l.* 12*s.*; Bronzed Fenders complete, with standards, from 7*s.* to 3*l.*; Steel Fenders from 2*l.* 15*s.* to 6*l.*; ditto, with rich ormolu ornaments, from 2*l.* 15*s.* to 7*l.* 7*s.*; Fire-irons from 1*s.* 9*d.* the set to 4*l.* 4*s.* Sylvester and all other Patent Stoves, with radiating hearth plates. All which he is enabled to sell at these very reduced charges,

1st,—From the frequency and extent of his purchases; and,
2dly,—From those purchases being made exclusively for cash.

THE PERFECT SUBSTITUTE FOR SILVER.—The real NICKEL SILVER, introduced 20 years ago by WILLIAM S. BURTON, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle Pattern.	Thread or Brunswick Pattern.	King's Pattern.
Tea Spoons, per dozen	18*s.*	26*s.*	32*s.*
Dessert Forks "	30*s.*	40*s.*	46*s.*
Dessert Spoons "	30*s.*	42*s.*	48*s.*
Table Forks "	40*s.*	56*s.*	64*s.*
Table Spoons "	40*s.*	58*s.*	66*s.*

Tea and Coffee Sets, Waiters, Candlesticks, &c., at proportionate prices. All kinds of re-plating done by the patent process.

CHEMICALLY PURE NICKEL NOT PLATED.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, full size, per doz.	12*s.*	28*s.*	30*s.*
Dessert ditto and ditto ... ... "	10*s.*	21*s.*	25*s.*
Tea ditto ... ... "	5*s.*	11*s.*	12*s.*

CUTLERY WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on sale at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales. 3½-inch ivory-handled table knives, with high shoulders, 11*s.* per dozen; desserts to match, 10*s.*; if to balance, 1*s.* per dozen extra; carvers, 4*s.* per pair; larger sizes, from 19*s.* to 26*s.* per dozen; extra fine, ivory, 32*s.*; if with silver ferrules, 37*s.* to 50*s.*; white bone table knives, 7*s.* 6*d.* per dozen; desserts, 5*s.* 6*d.*; carvers, 2*s.* 3*d.* per pair; black horn table knives, 7*s.* 4*d.* per dozen; desserts, 6*s.*; carvers, 2*s.* 6*d.*; black wood-handled table knives and forks, 6*s.* per dozen; table steels, from 1*s.* each. The largest stock in existence of plated dessert knives and forks, in cases and otherwise, and of the new plated fish carvers. Also a large assortment of Razors, Penknives, Scissors, &c., of the best quality.

WILLIAM S. BURTON has TEN LARGE SHOW ROOMS, devoted to the show of GENERAL FURNISHING IRONMONGERY (including Cutlery, Nickel Silver, Plated and Japanned Wares, Iron and Brass Bedsteads and Bedding), so arranged and classified that purchasers may easily and at once make their selections.

Catalogues, with engravings, sent (per post) free. The money returned for every article not approved of.

No. 39, Oxford Street (corner of Newman Street); 1, 2, and 3, Newman Street; and 4 & 5, Perry's Place.

TO NURSERYMEN AND OTHERS.

IPSWICH CEMETERY.—The BURIAL BOARD for the BOROUGH OF IPSWICH are prepared to receive TENDERS for PLANTING to be done in their Cemetery during the present autumn. Forms of Specification with Schedules, and quantities may be obtained on payment of 5*s.* for each copy, on application at the Offices of the Board, in the Woodbridge Road, Ipswich, and at the office of Mr. DAVIDSON, Landscape Gardener, 36, Great Russell Street, Bedford Square, London.—Ipswich, September 29.

TO NURSERYMEN AND FLORISTS.

TO BE LET, three miles from Oxford Street, situated in the main road, a respectable and convenient DWELLING HOUSE, containing six rooms, washhouse, and stabling; half an acre of good Land, with a small Greenhouse, suitable for a show-house, situated in an improving neighbourhood for jobbing. Would suit a young beginner well. Terms moderate.—For further particulars inquire of Mr. WHITE, Wheatsheaf Tavern, New Road, Shepherd's Bush.

FLORIST'S BUSINESS.

TO BE SOLD, the NURSERY GROUND, GREENHOUSES, &c., of the late Mr. HENRY GROOM, at Clapham Rise, Surrey, in consequence of his death, and the GOODWILL of the well-established BUSINESS to be disposed of. The Premises (exclusive of a strip of land held rent free, subject to six months' notice) comprise 3¼ acres, and are held at the low yearly rent of 80*l.* for an unexpired term of 36 years from Michaelmas, 1855. The House adjoining, late in the occupation of Mr. Groom, is not comprised in the lease, but may be rented. The Tulips and other Bulbs and Roots not in the Ground will be sold by auction on the premises in October next, the particulars of which are in preparation, and due notice will be given of the time of sale. The Premises may be viewed on application, and further information obtained of Messrs. PROTHEROE & MORRIS, American Nursery, Leytonstone, Essex; and of Messrs. BARNES & BERNARD, Solicitors, 2, Great Winchester Street, London.

TO BE LET, A NURSERY AND SEED BUSINESS.—JOHN YOUNG begs to say that he is desirous of treating with a Tenant for his Nursery Ground, which he is at present occupying himself, and which offers an eligible opportunity to any one wishing to enter on the business. The stock is light, and the quantity of land may be made to suit the convenience of the Tenant.—For further particulars apply to JOHN YOUNG, Elm Cottage, Taunton.

CARDIGANSHIRE.

TO BE LET, and entered upon immediately, a highly improvable FARM of about 280 acres of Arable, Meadow, and Pasture Land, with an excellent newly built Dwelling House fit for the occupation of a family of respectability. The Estate is called Wstrws, and situate at Capel Cynon, about seven miles from Newcastle Emlyn and the same distance from the thriving port of New Quay. It is well watered, having a brook running through it, and slopes for the most part towards the south. In addition to an excellent Dwelling House just about finished, there is a Cottage and Garden (let at 3*l.* 10*s.* a-year), and the fair tolls of Capel Cynon Fair, held twice a year, are received by the tenant, worth from 5*l.* to 10*l.* annually. The property offers great advantages to an experimental farmer with capital and application. Rent, in its present state, 100*l.* per annum; the proprietor would make further permanent improvements to suit a tenant on having a moderate return for the outlay. The Dwelling House contains on the ground floor two excellent Sitting Rooms 18 feet by 14 each, Study, Kitchen, and Offices, with Six Bedrooms over, and all conveniences for a respectable family. A long lease would be granted to an approved tenant, and more land might be obtained on moderate terms, with the right to shoot over about 800 acres. The neighbourhood is good, the Tivy side and Bwnwydd hounds meet in the neighbourhood very frequently. It is expected that the estate will be greatly increased in value on the extension of the railway from Carmarthen to Llandysil and Cardigan, for which an act has been obtained. The present lessee John Price Hutton, Esq., Glanyrafon, near Llandysil, Cardiganshire, will show the property on an appointment being made with him; and for further particulars apply to Thomas Davies, Esq., Solicitor, Cardigan; or Messrs. Henderson, Howard, and Wilcocks, Solicitors, 50, Broad Street, Bristol.

SHORT-HORNED BULLS.

TO BE SOLD, at Esholt Hall, near Leeds, three 1-year-old and one 3-year-old BULLS, all of pure Short-horn breed, the property of W. R. C. STANSFIELD, Esq.—For Pedigrees and particulars apply to JAMES M'KELVIE, Esholt Hall.

Sales by Auction.

STOVE AND GREENHOUSE PLANTS.

MR. J. C. STEVENS will sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, Oct. 9th, at 1 o'clock precisely, a Collection of STOVE and GREENHOUSE PLANTS, including many fine specimens and some choice Camellias and Azaleas, well set with bloom, and a few Orchids.—May be viewed on the day prior, and catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

ORANGE ROAD, BERMONDSEY.

To NOBLEMEN, GENTLEMEN, AND PINE GROWERS.

MR. W. T. ATTWOOD will Sell by Auction, on the premises, without the least reserve, the extensive stock of healthy PINE PLANTS, principally Queens, together with the various Ranges of Graperies and Forcing Pits, also the whole of Hot-Water Apparatus, comprising about 1500 feet of pipe and three large Boilers. The above property is in good condition, and offers a valuable opportunity to persons requiring Pine Plants and Forcing Houses. The sale will take place about the end of October.

GREAT SALE OF NURSERY STOCK, AT THE NURSERIES, COVENTRY.

BROWN AND SON have received instructions from Mr. Ogden, who is clearing about five acres of ground, to Sell by Auction, on MONDAY, the 8th of October next, and following days, at 11 o'clock, about 200,000 TREES and SHRUBS; comprising a general assortment of Weeping Trees, fine large Evergreens, Ornamental, Flowering, Forest, and Fruit Trees. A large Collection of GREENHOUSE and STOVE PLANTS, consisting of Camellias, Ericas, Azaleas, &c. &c.—Catalogues may be had on application upon the Premises, and of the Auctioneers, or will be sent by post on application.

FULHAM.

LOCKHART'S ANNUAL SALE OF BULBS AND FLOWER ROOTS.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the premises, Parson's Green Lane, Fulham, on MONDAY, October 15th, at 11 o'clock, without reserve, a costly and extensive collection of BULBS and FLOWER ROOTS, being about 50,000 in number, and consisting of all the approved Hardy and Ornamental varieties of Hyacinths, Early and Late Tulips, Crocus, Narcissus, Anemonies, &c., in good condition; also 4000 Sir Charles Napier Ranunculus, the finest variety yet raised; with a collection of Herbaceous Plants, and sundries.—May be viewed three days prior to the sale; Catalogues had, 6*d.* each, returnable to purchasers, of the principal Seedmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

HACKNEY.

To GENTLEMEN, NURSERYMEN AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Messrs. Brown and Taylor to Sell by Auction, without reserve, on the premises, Hackney Nursery, Dalston Lane, Middlesex, on THURSDAY, October 11, at 12 o'clock precisely (in consequence of the number of lots), the whole of the NURSERY STOCK: comprising Ornamental, Fruit, and Forest Trees; Evergreens and Deciduous Shrubs; also the Greenhouse Plants consisting of large specimen Camellias, Azalea indica, well set with bloom buds, Acacias, Cytissus, Myrtles, Deutzia gracilis, Forsythias, &c.; together with two Greenhouses, Pits, two and three Light Boxes, a quantity of Hot-Water Pipe, Boilers, Wheelbarrows, 200 feet Stove Shelvings, capital Nest Seed Drawers, Counter, Garden Tools, and sundry effects.—May be viewed prior to the sale; Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

CLARENDON NURSERIES, CAMBERWELL.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Joseph Fryer to submit to public competition on the above premises, on the 8th, 9th, and 10th days of October, at 11 o'clock each day, a portion of his extensive Nursery Stock, consisting of fine Standard and Dwarf Trained and Untrained Apple, Pear, Plum, Cherry, Peach, Nectarine, Apricot, Fig, Raspberry, Gooseberry, Currant, &c.; 2000 Mulberries, the finest stock in the trade, 4 to 10 ft.; 3000 Limes, 6 to 10 ft.; 4000 Lilacs of all sorts, 3 to 10 ft.; 2000 Evergreen Oaks, 2 to 5 ft., 4000 Evergreen Privet, 3 to 6 ft.; also large quantities of Scarlet, White, and other Rhododendrons, Azaleas, Andromedas, Magnolias, and other varieties of American Plants; Garryas, Glycines, Clematis, Passion Flowers, Bignonias, Virginian Creepers, Ivies, Box, Laurels, Althæas, fine large Elms, Lombardy and Balsam Poplars, Acacias, Scarlet Thorns, fine strong Seakale, &c. &c.—May be viewed prior to the sale, and Catalogues may be had on the premises, of the principal Seedsmen, and of the Auctioneers, American Nurseries, Leytonstone, Essex.

This day is published, in handsome Folio, price 6s., Part VII. of

THE FERNS OF GREAT BRITAIN,

NATURE-PRINTED (LIFE SIZE).

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THE FERNS OF GREAT BRITAIN: Illustrated by JOHN E. SOWERBY. The Descriptions, Synonyms, &c., by Charles Johnson, Esq. In One Vol. cloth boards, containing 49 Plates, full coloured, 27s.; partly coloured, 14s.

JOHN E. SOWERBY, 3, Mead Place, Lambeth.

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THE LONDON QUARTERLY REVIEW, No. IX., price 6s., for OCTOBER, contains—

I. BUNSEN'S EGYPT.
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 40.—1855.] SATURDAY, OCTOBER 6. {Price Fivepence. Stamped Edition, 6*d*.

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THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Notice is hereby given that an Election of THREE PENSIONERS on the Funds of this Institution will take place in JANUARY next. All persons desirous of becoming Candidates are requested to send in their certificates and testimonials to the Committee on or before THURSDAY the 8th day of NOVEMBER next, after which time they will not be received.—By order of the Committee,

E. R. Cutler, Sec.

October 6, 1855. 14, Tavistock Row, Covent Garden.

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THOMAS JACKSON and SON respectfully inform their patrons and the public that they have received in the finest condition their annual consignment of Bulbs and Roots, and that they are of the largest size and very finest quality. Good Double Hyacinths 4*s*. per dozen; mixed Polyanthus Narcissus, 3*s*. per dozen; Double Roman Narcissus, 4*s*. per dozen. Their Priced List of Bulbs, &c., and also their General Priced Catalogue of Stove, Orchidaceous, Greenhouse Plants, Ornamental Shrubs and Trees, and Herbaceous Plants may be obtained on application.—Nurseries, Kingston, Surrey.

IMPORTED DUTCH FLOWER ROOTS.

T. F. WINSTANLEY, Seedsman and Florist, begs to inform his patrons and friends that he has received direct, from one of the first growers in Holland, his first annual importation of the above, comprising Hyacinths, Narcissus, Early and Late Tulips, Jonquils, Iris, Crocus, Gladiolus, Anemones, Ranunculus, &c. &c. All are unusually fine and well ripened. Descriptive Priced Catalogues of which can be had on application.—28, Market Place, Manchester.

CHOICE CALCEOLARIA SEED.

LUCOMBE, PINCE, and CO. have now ready for sending out Seeds of their very superior CALCEOLARIA, saved with great care from all the newest and choicest varieties, which if sowed now will flower finely next summer.

The great satisfaction which their Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.

Packets sealed and warranted by them, at 2*s*. 6*d*., free by post.
EXETER NURSERY, EXETER.
Established 1720.

CHOICE HYACINTHS, NARCISSUS, TULIPS, CROCUS, ETC. ETC.

JAMES CHARTRES and CO., Importers of Dutch Flower Roots, Seedsmen, &c., beg to announce that their unrivalled Stock of the above have arrived in splendid condition; the Roots are remarkably large and handsome.

J. C. & Co. earnestly solicit early orders to insure the finest Roots. A Catalogue may be had on application.

74, King William Street, City, and York Nursery, Hanger Lane, Stamford Hill, London.—Oct. 6.

NURSERY STOCK.

H. BIGLAND and CO. beg to state that the LEASE of their NURSERY having now expired, they have concluded to offer the remainder of their STOCK (consisting of Evergreens, Fruit, and Forest Trees, Greenhouses, &c.) by Auction this autumn; the precise time will be named in a future Advertisement.
Britannia Nursery, Whalley Range, Manchester.

NEW CATALOGUES.

WILLIAM WOOD and SON'S New Catalogue of ROSES for 1855 and 1856; also their New Supplementary List of GENERAL NURSERY STOCK will be ready for distribution on and after the 1st of October.

W. W. & Son will forward copies as usual to all their customers, and to other correspondents gratis on application.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ROSE CATALOGUE.

J. and J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to announce that their New CATALOGUE of ROSES for 1855 and 1856 is now ready, and may be had on application.

E. P. FRANCIS' New DESCRIPTIVE CATALOGUE of ROSES will be ready for distribution on and after October 13th, and will be forwarded gratis on application.
Rose Nurseries, Hertford.

ROSE CATALOGUE, ETC.

H. LANE and SON'S CATALOGUES of ROSES, TREES and SHRUBS, and FRUIT, are now ready, and will be sent as usual to their customers. Also Catalogues of Azaleas, Stove and Greenhouse, and Herbaceous Plants.
The Nurseries, Great Berkhamstead, Herts.

ROSES.

T. RIVERS'S ANNUAL DESCRIPTIVE CATALOGUE OF ROSES is now ready for delivery, and will be sent post-free, on application; it is so arranged as to be a complete guide for the Amateur.

The DESCRIPTIVE CATALOGUE OF FRUITS is now at Press.—Nurseries, Sawbridgeworth, Herts.

NEW PLANT LIST.

JOHN and CHARLES LEE'S CATALOGUE OF STOVE AND GREENHOUSE PLANTS for the present Autumn is just published, and may be had, post free, on application.—Nursery and Seed Establishment, Hammersmith, near London.

LOUIS VAN HOUTTE'S CATALOGUE for this season and next spring is to be had at Mr. R. Silberrad's, 5, Harp Lane, Great Tower Street, London. Sent free on application.—Ghent, Belgium, Oct. 6.

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to inform Amateurs and the Trade that he has just published a new PRICED CATALOGUE OF PLANTS, containing many Continental novelties and other useful plants.

May be obtained on application of his Agent, Mr. R. Silberrad, 5, Harp Lane, Tower Street, London.

AMERICAN PLANTS.

JOHN WATERER'S CATALOGUE OF RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.

☞ The Catalogue describes the colours of the Rhododendrons.
The American Nursery, Bagshot, Surrey.—Oct. 6.

NEW STRAWBERRY.

KITLEY'S CAROLINA SUPERBA, not surpassed in flavour, habit, and productiveness by any Strawberry extant, at the low price of 2*l*. per 100, 9*s*. per doz., free by post, to be had of Messrs. Garraway, Mayes, & Co., Bristol, agents for the west of England and South Wales, or of any respectable nurseryman. For a full description, testimonials, &c., see this Paper, April 14, 1855.
James Kitley, Lyncombe Vale Nursery, Bath.

TO AMATEURS IN CONIFERÆ.

MR. BARRON, of Elvaston Castle, will send out in a few days his Seedling Plants of PICEA NOBILIS. They are three years old, very strong for their age, with splendid roots, never having been in pots. Largest size, 63*s*. (very few of this size remain unsold); next size, 42*s*. A remittance or reference from unknown correspondents ordering after this date.

W. TOWNSEND has now ready to send out GERANIUM CYDONIA CARMINEA—for description see Advertisement, 4th August; has been exhibited at the National Society, 15th June and 26th August, and obtained a Certificate. Plants 5*s*., 7*s*. 6*d*., and 10*s*. 6*d*. each; one over to every three ordered in the trade. Post-office orders payable at Bayswater.—Notting Hill.

AGRICULTURAL SEEDS, ETC.

PETER LAWSON and SON, Seedsmen and Nurserymen to Her Majesty the Queen, and The Highland and Agricultural Society of Scotland, are now supplying the following seeds of the best quality:—

Italian Rye-Grass, Foreign seed	Dwarf Essex Rape
Crimson Clover (Trifolium incarnatum)	Winter Tares
Alsike Clover (Trifolium hybridum)	Natural Grass Seeds, for Pastures and Lawns, &c. &c. &c.

27, Great George Street, Westminster.

HARDY HEATHS.

WATERER and GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

SELECTED SEED WHEAT.

ABRAHAM HARDY and SON, Seed-Growers, Maldon, Essex, beg to offer their celebrated PROLIFIC RED, at 15*s*. Also Rough Chaffed, or Satin Wheat, of superior quality, at 12*s*. 6*d*. per bushel. New bag, 1*s*.; sack, 2*s*. Remittances must accompany orders. Prices of selected earliest Potatoes in variety on application.

GEORGE TABER, of Ravenhill, Essex, begs to inform the Trade that his growing crops of Seeds are now open to inspection. All Turnip Seeds grown from sound transplanted roots. Lists sent on application.—Oct. 6.

DOUBLE ROMAN and PAPER WHITE NARCISSUS, 4*s*. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. Cobbett's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place London.

MAGNIFICENT SPECIMENS OF CONIFERÆ.

LUCOMBE, PINCE, AND CO. respectfully call attention to their very superior specimens of the above, which are worthy of the notice of all who are engaged in ornamental planting, their growth and shape being perfect, and their roots all that can be desired, so that where immediate striking effect, combined with perfect safety of removal to any distance is required, these large symmetrically grown and well managed plants can with confidence be recommended.

Abies Douglasi	Pinus insignis
„ orientalis	„ Cembra
„ Menziesi	„ austriaca
„ canadensis	„ muricata
Araucaria imbricata	„ tuberculata
Biota glauca	„ Montezumæ
„ japonica	„ Benthamiana
Cedrus Lebani	„ excelsa
„ Deodara	Picea Nordmanniana
Cupressus macrocarpa	„ nobilis
„ Goveniana	„ Pinsapo
„ Uhdeana	Thuja orientalis
Juniperus excelsa	„ occidentalis
„ recurva	„ tartarica
Libocedrus chilensis	„ filiformis,

&c. &c. &c.

Sizes, prices, and all particulars may be had on application to

LUCOMBE, PINCE, AND CO.,
EXETER NURSERY,
EXETER.
ESTABLISHED 1720.

JOHN WESTWOOD will be prepared on and after the 10th of October next to send out good well-rooted plants of the following novelties, at the very low prices undernamed, viz.—

VERBENA "MRS. HALFORD."—The finest white yet raised; no other will be grown wherever it is introduced. Having had plants in his possession before any other florist, J. W. has now on hand many thousands, and is therefore enabled to offer them at 9*s.* per dozen, or 3*l.* per 100.

PETUNIA "MARQUISE DE LA FERTE."—A decided improvement on Shrubland Rose, and must entirely supersede it. The highest praise has been awarded this flower in the *Gardeners' Chronicle*, "The Cottage Gardener," and by all who have seen it. 8*s.* per dozen, or 2*l.* 15*s.* per 100.

All the White Corolla'd and other FUCHSIAS of 1855, let out by Chauviere, Epps, Henderson & Co., Lucombe & Co., and Smith, at 10*s.* per dozen.

The last new VERBENAS sent out by Chauviere, Smith, Turner, &c., many of which (especially those raised in France) are superior to the older varieties. 8*s.* per doz., or 2*l.* 15*s.* per 100.

Seedling Herbaceous CALCEOLARIAS from plants of first-rate quality (superior to any exhibited during the past season), carefully impregnated by the Rev. E. Trimmer, who has hitherto been remarkably successful with this flower. Best selection, 8*s.* per dozen, or 2*l.* 15*s.* per 100; 2d selection, 5*s.* per dozen, or 1*l.* 15*s.* per 100.

Seedling CINERARIAS from all the best named varieties, 4*s.* per dozen, or 1*l.* 10*s.* per 100.

Fimbriated PRIMULA SINENSIS, raised from plants inferior to none in the trade, of last year. 5*s.* per doz., or 1*l.* 15*s.* per 100.

J. W. has also for immediate sale Vines from Eyes of the best and leading sorts, at 24*s.* per dozen. And the true old Crimson Clove, at 5*s.* per dozen, or 1*l.* 18*s.* per 100.

The carriage will be paid to London; and where an order exceeds 2*l.* additional plants will be given in, and the hamper and package not charged for.

The Floral Nursery, Acton Road, Turnham Green.

CATTELL'S EARLY BARNES CABBAGE; DO. DO. RELIANCE; ALSO PARAGON, IMPERIAL, KING, NONPAREIL, ETC.

JOHN CATTELL has now ready Bedded Plants of the above, at 5*s.* 6*d.* per 1000. No charge for crates, baskets, or packing. Packages of 5000 or more are delivered to London and to the Edenbridge Station of the South-Eastern Railway carriage free. A remittance or reference to accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

WILLIAM YOUNG begs to call the attention of Noblemen, Gentlemen, Public Companies, and Planters in general to his extensive stock of CHOICE CONIFERÆ, HARDY EVERGREENS, ORNAMENTAL TREES, AMERICAN PLANTS, &c., which are this season particularly fine, and having been well prepared for removal, he can confidently recommend them to transplant with perfect safety.

W. Y. invites persons about to plant to inspect his stock, which is standing over 50 acres of ground, in which will be found all kinds of plants adapted to every description of ornamental planting. It consists of HARDY CONIFERÆ, containing some of the finest specimen plants ever offered.

	Feet high.
Abies Douglasi	6 to 8 by 5 to 6
„ „	8 to 10 by 7 to 8
„ „	10 to 12 by 8 to 9
„ Menziesi	4½ to 5
„ nigra, Black Spruce	4½ to 5
„ alba, White Spruce	6 to 8
„ canadensis, Hemlock Spruce ...	6 to 8 by 7
Pinus austriaca ...	6 to 8
„ „	8 to 10
„ Cembra	5½ to 6
„ „	7 to 8
„ excelsa	8 to 10
„ insignis	2½ to 3
„ „	3 to 4
Picea Pinsapo ...	5 to 6 by 6
„ nobilis } very handsome	
„ Nordmanniana } very handsome	
Araucaria imbricata .	2½ by 2½
do. do.	3 by 3
do. do.	4 by 4
do. do., very handsome	6 to 8
Cryptomeria japonica ...	3 to 4
Cedar of Lebanon ...	3½ to 4
„ „ ...	5 to 6
„ „	7 to 8 by 6
„ „	10 to 12 by 8
„ Deodara ...	4½ to 5
„ „	6 to 8
„ „	9 to 10
„ „	10 to 12

(The Cedars of Lebanon and Deodara are particularly handsome and well furnished.)

	Feet high.
Thuja orientalis, Chinese Arbor-vitæ	5 to 6
„ „ „ ...	7 to 8
Thuja Weareana, Siberian	5 to 6
„ „	7 to 8
Chinese Juniper ...	4½ to 5
„ „	5 to 6
Upright „	4 to 5
„ „	6 to 7
Taxodium sempervirens	6 to 8
„ „	10 to 12
Irish Yew	4½ to 5
„ „	6 to 7

A LARGE QUANTITY OF FINE EVERGREENS.

Green Hollies	4 to 6
„ „ ...	6 to 7 by 4
„ „	8 to 10 by 6 to 7
Evergreen Oak	3½ to 4
„ „	4½ to 5
„ „	6 to 8 by 4 to 5
Spruce and Silver Firs	6 to 8
„ „	10 to 12
Weymouth Pine ...	8 to 10
Yews	3½ to 4
„	4½ to 5
„	5½ to 6
Quercus oxoniensis— New Leucombe Oak...	6 to 7
„ „ ...	8 to 10

AMERICAN PLANTS.

Azaleas, fine named sorts
Rhododendron ponticum (good for cover).
Do. all the new and best vars.
Kalmias, Andromeda, Ledums, &c. &c.

STANDARD ROSES, of all the best varieties.
FRUIT TREES, ORNAMENTAL DECIDUOUS TREES, for Parks or Avenues, from 10 to 12 feet.
FOREST TREES, for Copse Planting, from 2 to 4 feet.
Prices given on application.

A Catalogue is now ready, and may be had for two postage stamps.

The Nurseries are two miles from Godalming Station, South-Western Railway, where conveyances can always be obtained.

Milford Nurseries, near Godalming, Surrey.

F. GODWIN begs to offer the following PLANTS:—

	s. d.
Abelia uniflora	1 0
Azalea amœna	1 0
„ Beauté de l'Europe...	1 6
„ Perryana	1 0
„ Symmetry	1 0
„ Trotteriana	1 0
Begonia Prestoniensis superba	1 6
Coleus Blumei	0 6
Chironia glutinosa ...	1 0
Clianthus magnificus ...	1 6
Erythrina crista-galli ...	1 0
Escallonia pterocladon ...	3 6
Eugenia Ugni	1 6
Fuchsias, all the new sorts, each ...	1*s.* to 1 6
Gloxinia Duke of Wellington	1 0
„ Eugénie	1 0
„ Figaro	1 0
„ Léonie Van Houtte .	1 0
„ Wilsoni	1 0
with others, at 9*s.* per doz.	
Henfreya scandens ...	1 0
Hexacentris lutea... ...	1 0
Hexacentris mysorensis...	1 0
Hoya campanulata ...	1 0
„ picta	3 6
Hydrangea japonica variegata	1 0
Impatiens Jerdoniæ ...	1 6
Ixora coccinea	1 6
„ crocata	1 6
„ floribunda	3 6
„ javanica	1 6
Jasminum grandiflorum fl.-pl.	1 0
Pentas rosea	1 0
Pleroma elegans	1 6
Saxe-Gothæa conspicua,	1*s.* to 3 6
Siphocampylus Ne Plus Ultra	1 0
Sonerilla margaritacea ...	7 6
Stephanotis floribunda ...	1 0
Tremandra verticillata ...	1 0
Vallota purpurea	1 0
Veronica variegata ...	0 9
Vinca alba	1 0
„ rosea...	1 0

Also strong plants of the following CHRYSANTHEMUMS, which are the best of last year:—Annie Henderson, Arigenia, Augustine Mie, Aurore Boreale, Bob, Brilliant, Comte Achille Vigier, Docteur Bois Duval, Eclipse, Hermine, Le Prophète, Louis Delaborde, Madame Passy, Marguerite de Valois, Marguerite de Wildemer, Pluie d'Or, Prince Jerome, Requiqui, Turris Eburnea, Zebra, at 8*s.* per doz., or the collection for 10*s.*

F. G.'s priced Catalogue of Dutch Bulbous roots is now ready, and may be had free on application. Remittances expected from unknown correspondents.

Broadfield Nurseries, Sheffield, Oct. 6.

THE CRYSTAL PALACE FLOWER BASKETS and HANGING GARDENS, made to the original Sydenham Pattern, and a variety of other new and elegant designs for the Conservatory, Verandah, Drawing Room, Boudoirs, &c., by W. RICHARDS, Imperial Wire Works, 370, Oxford Street, London, nearly opposite the Princess's Theatre; and at the Crystal Palace.

A large stock on view from 3*s.* 6*d.* upwards. Flower Stands, Trainers, Game and Garden Fencing, and Wire Work of every description. Conservatories and Aviaries fitted up in superior style. Window Blinds of all sorts.

370, Oxford Street; and Garden Entrance, Crystal Palace, Sydenham.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to SAYNOR & COOKE for their superiority of material and workmanship. Established 1738.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe.

Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

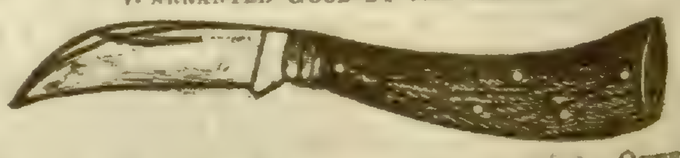
No. 1 QUALITY, INCHES IN DIAMETER AND PRICE PER YARD:—½, 9*d.*; ¾, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d.*; 1½, 1*s.* 5*d.*; 1¾, 1*s.* 7*d.*; 2, 1*s.* 9*d.*; 2¼, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

SUPER EXTRA STOUT QUALITY:—2, 2*s.*; 2¼, 2*s.* 3*d.*; 2½, 2*s.* 6*d.*; 2¾, 2*s.* 9*d.*; 3, 3*s.*

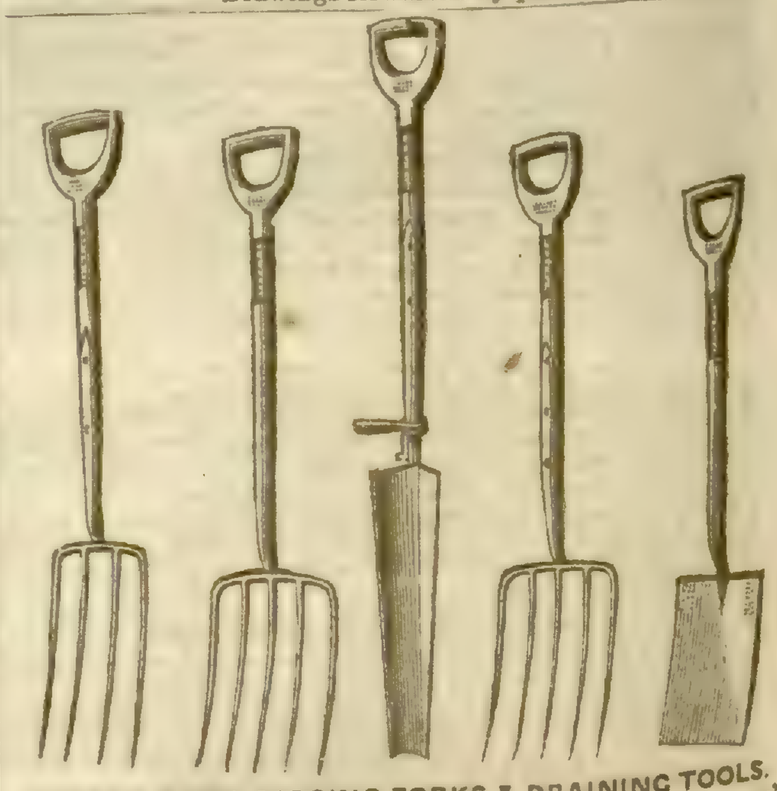
No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9*d.*; 1¼, 10*d.* 1½, 11*d.*; 2, 1*s.*; 2¼, 1*s.* 3*d.*; 2½, 1*s.* 6*d.*

The Hose is Burnettised at an extra charge of 3*d.* per yard. Union Joints, Branch Pipes, and Jets are also supplied.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
WARRANTED GOOD BY THE MAKERS.



JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

103, Newgate Street, London.

HYACINTHS.

MESSRS. E. G. HENDERSON & SON

BEG to announce that they have now received their noted collection of HYACINTHS in excellent condition. They also beg to state, that having been for nearly 50 years the largest and most successful cultivators of this highly popular Flower in the vicinity of London, they can with confidence recommend the varieties named in their Catalogue as being the most suitable for pot or glass culture, and every way worthy the attention of Amateurs, &c.

Catalogues can be had on application, and for the assistance of those persons unacquainted with the culture of the Hyacinth, printed instructions will be given gratis with each order they are kindly favoured with.

CUCUMBER—HENDERSON'S "NAPOLEON III."

E. G. H. & SON have great pleasure in informing those who are fond of a really good Cucumber that they have succeeded in obtaining the stock of the above variety. It is one of the best for Winter culture and early forcing; is a free bearer and perfect in its form, possessing, indeed, all those qualifications of a good Cucumber which the most fastidious could desire. In packets, containing two seeds, 3*s.* each; ditto ditto, four seeds, 5*s.* 6*d.* each.

FLOWER SEEDS FOR AUTUMNAL SOWING.

Collections containing 12 distinct varieties, with printed instructions, 3*s.* 6*d.* each, postage free; ditto, 24, 6*s.*; 36, 8*s.* 6*d.*; 48, 10*s.* 6*d.*

CALCEOLARIA, CINERARIA, AND PRIMULA,

Saved from the choicest varieties, may be had in packets at 2*s.* 6*d.* and 5*s.* each; the finest quality of CALCEOLARIA is only offered at 5*s.*; second quality, 2*s.* 6*d.* The finest fimbriated Primula in the country, 2*s.* 6*d.*

NEW PLANTS.

In the possession of E. G. Henderson & Son, and will be sent out for the first time in October. Full Descriptions of the following may be seen in the New Autumn Catalogue, just published.

SHOW GERANIUMS.

EXCELSIOR (HENDERSON'S) | LA BELLE ALLIANCE (FOQUET) | PURPLE KING (FOQUET) | MIDNIGHT (FOQUET)

FANCY GERANIUMS.

AMPHITRITE (HENDERSON'S)
DUKE OF CAMBRIDGE (HENDERSON'S)
GIOVANNA (HENDERSON'S)
LA STELLA (HENDERSON'S)
MOONLIGHT (HENDERSON'S)
REINE DU BAL (HENDERSON'S)
ROSY-LIP (HENDERSON'S)
QUEEN OF THE FETE (HENDERSON'S)
SWEET LUCY (HENDERSON'S)
TITANIA (HENDERSON'S)

CINERARIAS.

ADMIRAL LYONS (HENDERSON'S).—Large full-sized flower, white, with purplish violet edging, dark dice, fine form. 10*s.* 6*d.*

FUCHSIAS.

BANKS' FAVORITE. 10*s.* 6*d.* | PRINCE OF WALES. 10*s.* 6*d.*

RHODODENDRONS.

The following magnificent new species, collected from the Bhotan Mountains, by Thomas J. Booth, Esq., are now, for the first time, offered for sale.

BOOTHI, | HOOKERI, | CALOPHYLLUM, | KENDRICKI, | EXIMIUM, | WINDSORI LEUCANTHUM.

For full descriptions, with prices of the above splendid varieties, see Spring Catalogue, page 85.

GYNERIUM ARGENTEUM (THE PAMPAS GRASS).

E. G. H. and SON having in their possession the largest stock in the country of this noble ornamental Grass, will supply healthy plants in October at 2*s.* 6*d.* each or 25*s.* per dozen.

N.B.—Price to the Trade per 50 or 100 can be obtained on application.

GLOXINIA ERECTA.

Messrs. E. G. HENDERSON & SON have great pleasure in announcing that they have a very large stock of this new class, and most showy upright flowering Gloxinias. They are the most abundant flowerers, containing among them some of the most lively contrasts of colours imaginable. The Collection includes the new varieties sent out this season. Price 5*s.* and 7*s.* 6*d.* each, or 42*s.* and 60*s.* per dozen.

The following can be supplied in fine plants for flowering next season:—

CAMELLIAS AND ORANGES, at 30*s.* and 42*s.* per dozen. | AZALEAS, ERICA, EPACRIS, and APHELEXIS, at 12*s.*, 18*s.* to 42*s.* per dozen.

N.B. Price to the Trade per 100 or 1000 can be had on application.

The Spring Catalogue or General List of Plants will be forwarded post free on application; and a beautiful Coloured Plate of NINE NEW FLOWERS *will be sent on receipt of* 12 *postage stamps.*

Wellington Nursery, St. John's Wood.

NEW SEEDS.—GROWTH OF 1855.

WILLIAM E. RENDLE AND Co., SEED MERCHANTS, Plymouth, are now harvesting in fine condition their General Collection of Agricultural and Garden Seeds for the coming season.

In order to give increased facilities for conducting their Seed Business, they are now considerably enlarging their offices and warehouses, which, when completed, will enable them to attend to all orders with promptness and despatch.

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth. Established 1786.

E. R. GREENUS, from his PROXIMITY to the Watford Station (London and North-Western Railway), begs to say that he can execute all orders with the UTMOST DESPATCH. His Stock (being FINE this season) of FRUIT TREES, Trained and Untrained; STANDARD and DWARF ROSES of the best sorts; well grown FLOWERING SHRUBS, EVERGREENS, FOREST TREES, AMERICAN PLANTS, and NURSERY STOCK in general, all which, from FREQUENT TRANSPLANTING, can be removed with perfect safety and success. Carriage paid to London on all orders above 2*l*. Garden and Agricultural Seeds supplied.—Railway Nurseries, Watford and Rickmansworth.

TO BE SOLD, a bargain, a fine lot of Specimen and other CAMELLIAS, beautifully set with bloom buds; several collections of choice show and fancy GERANIUMS of the most approved varieties; sets of all the NEW FUCHSIAS, with white corollas, &c.; about 700 VARIEGATED GERANIUMS, comprising Mountain of Light, Flower of the Day, and Osborn's Brilliant; and a quantity of large STOCK PLANTS of sorts, claiming the attention of all who are about to furnish or propagate. Also a large BOILER nearly new, capable of heating a spacious House, and a small ditto suitable for a range of Pits, &c.—The above may be seen, and the prices had by applying to JOHN SLIPPER, Villa Nursery, Camden Town.

CHOICE HOLLYHOCK, SWEET WILLIAM, AND ANTIRRHINUM SEED.—IN SEALED PACKETS.

JOHN CHATER AND SON have well-ripened Hollyhock Seed, saved from the best sorts in cultivation, in packets of 200 seeds, 1*s*. 6*d*.; 400, 2*s*. 6*d*. Improved Sweet William Seed, saved with great care from varieties with smooth-edged petals, 600 seeds, 1*s*.; 1000, 1*s*. 6*d*. Antirrhinum, 6*d*. per packet. Also plants of Double Crimson Rockets, 4*s*. 6*d*. per dozen; 32*s*. per 100. Double Major White, 2*s*. 6*d*. per dozen; 18*s*. per 100. A large collection of Hollyhock plants, including the best sorts out. Catalogues on application at the Nurseries, Haverhill.

N.B.—The Seeds can be supplied by Mr. DENYER, Gracechurch Street, or Mr. HOOPER, Centre Avenue, Covent Garden, London.

NEW PELARGONIUMS.

GEORGE SMITH has a fine Stock of the following first class PELARGONIUMS in strong Plants, at from 30*s*. to 40*s*. per dozen, according to the sizes of Plants, hamper included with Plants to compensate for carriage:—(Forster's), Jessica, Phaeton, Seraskier; (Hoyle's), Hubert, Lord Raglan, Omar Pasha, Serena, Topsy, Wonderful, Yerda, Zoe; (Beck's), Conqueror, Dido, Fidelia, Laura, Lydia, Silenus; (Turner's), Grand Sultan, Pandora; (Forquett's) Petruchio; (Story's), Fair Ellen, Snowflake; (Horken) Una; (Cant's) Vespa; (Dobson's), Commander-in-Chief; (Fuller's) Gem of the West. With a choice assortment of show and fancy kinds. A descriptive Catalogue on application. Unknown correspondents forwarding a remittance with their orders will be liberally dealt with. Post-office orders payable at Islington.

Tollington Nursery, Hornsey Road, Islington, London.

THE IMPROVED BROWICK RED AND OTHER SEED WHEAT.

WILLIAM BARNES, in returning thanks to his customers for SEED CORN, begs to offer this season the following sorts, which have been procured from the finest and best varieties, regardless of expense in the purchase and cost in the cultivation—viz., Improved Browick Red, Spalding's Red, Old Red or Lammas Wheat, White Chaff Red, and Bristol mixed with White, all of which he will warrant *true and clean*.

Mr. B. can recommend the Improved Browick Red with much confidence as being one of the greatest acquisitions in Red Wheat, for light or black land, yet offered to the farmer. In this locality (Deeping Fen) it was less injured by frosts and mildew than other Reds, and was pronounced by all who inspected it whilst standing over several acres to be unrivalled by any in the district.—For further particulars, address WILLIAM BARNES, the Elms Farm, near Spalding, Lincolnshire.

WATERER'S AMERICAN PLANTS.—A new DESCRIPTIVE CATALOGUE is now published of the celebrated Collection of hardy Scarlet and other Rhododendrons, as exhibited by JOHN WATERER at the Royal Botanic Gardens, Regent's Park; it will be found to contain a few practical observations on their successful management, and will be forwarded on application by enclosing two stamps for postage. Apart from its enumeration of the most popular American Plants in cultivation, a List of choice Coniferæ will be seen, embracing the latest importations of this fine and hardy tribe of Plants.

J. W. has now the pleasure to offer in large quantities, and of all heights, the following selection of CONIFERS, with the remark that they are all now growing in the open ground, are bushy and handsome as can be desired, and have been transplanted each succeeding spring, whereby no risk can be encountered in their removal from the nursery:—Araucaria imbricata, Cryptomeria japonica; Pinus Douglasi, Cembra, excelsa, Lambertiana, insignis, Jefferyana, Beardsleyi, tuberculata, &c.; Cedrus Deodara, Lebanon, and Africana; Wellingtonia gigantea, Cupressus, Juniperus, Taxus, Thuja, &c.

☞ The attention of gentlemen, public companies, and others engaged in planting, is especially directed to the foregoing; indeed, all intending planters would be well repaid by a visit to inspect our stock, as much may be seen which of necessity cannot be given within the limits of an advertisement.

The Nursery is easily reached by railway, being near the Farnborough Station, South-Western Railway, and Blackwater on the South-Eastern Railway.

The American Nursery, Bagshot, Surrey.

CUCUMBER SEEDS FOR WINTER SOWING.—The three best and most certain varieties ever sent out, and such as are sure to give satisfaction for winter growing. General Canrobert, fine black spine, length 15 inches, 2*s*. 6*d*. per packet. Lo Kenyon's Favourite, length 12 inches, very handsome, free setter, and most prolific bearer, 2*s*. 6*d*. per packet. Gordon's White Spine, length 20 inches; this has proved to be the best long winter variety now in cultivation, 1*s*. 6*d*. per packet.

DIGITALIS, OR FOX-GLOVE SEED.

This beautiful hardy biennial has been so much improved within the last two or three years by continual hybridising, that the brilliancy of the colours, the numerous varieties into which it has sported, and the dwarfness of the plants, will cause it when once known to be planted in the largest and smallest of flower gardens, round the borders of shrubberies, and for making beds in large pleasure grounds where brilliancy and effect is required. They will grow well on rock-work or sloping banks, where numerous other varieties of plants will not thrive at all. The seed should be sown now in pans or boxes, and planted out early next spring; by so doing they will bloom well next season.

Sold in packets at 1*s*. 6*d*., or double packets at 2*s*. 6*d*. Every order must be accompanied by Penny Postage Stamps, or Post Office Order payable to

EDWARD TILEY, NURSERYMAN, SEEDSMAN, & FLORIST, 14, Abbey Churchyard Bath, Somerset.

AMERICAN PLANTS.

WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.

Knap Hill Nursery, Woking, Surrey.

FRUIT TREES IN POTS.

H. LANE AND SON have the pleasure of announcing that their very extensive collection of FRUITS IN POTS are now ready for sending out, well set with bloom-buds, consisting of Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, &c., and are quite worthy the attention of those who take a delight in this particular branch of horticulture.

The Nurseries, Great Berkhamstead, Herts.

PELARGONIUMS NOW READY FOR SENDING OUT.

J. DOBSON AND SON beg to offer the following varieties, which have proved themselves to be first-rate; the plants are very fine, and cannot fail to please any purchaser. The following 12 for 63*s*., hamper, package, and carriage to London, free:—Ambassador, Conqueror (Beck's), Carlos, Empress, Gem of the West, Governor General, Laura, Leah, Phaeton, Topsy, Vulcan, Wonderful.—Woodlands Nursery, Isleworth.

VEREA CRENATA (*Syn.* KALANCHOE VARIANS), —THE LEAF OF LIFE—*Nat. Ord.* CRASSULACEÆ.—A small importation has lately been made of the leaves of this interesting botanical curiosity, which matures plants in the serrations of its leaves.—Leaves on sale at 2*s*. 6*d*. each, post free, at GEORGE ROBERTS, 32, Moorgate Street, London, where a drawing of the plant in flower may be seen. Further described in reply to letters.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, will be happy to forward his Autumn Catalogue, containing priced and descriptive lists of the following choice and popular flowers, for one postage stamp:

Auriculas	Pinks	Phloxes
Alpines	Pansies	Belgian Daisies
Carnations	Polyanthuses	Show Gooseberries
Picotees	Primroses	Currants, &c. &c.

A few packets of very choice Pansy Seed, at 1*s*. & 2*s*. per pckt.

RARE BRITISH FERNS.

JAMES BACKHOUSE AND SON can now offer nice Plants of the rare PSEUD-ATHYRIUM FLEXILE, from the Clova Mountains, Forfarshire, discovered by themselves in 1852, at ... ... 21*s*. 0*d*. each

PSEUD-ATHYRIUM (Polypodium) ALPESTRE	5	0	„
WOODSIA ILVENSIS,* 5*s*. each, extra strong	7	6	„
LASTRÆA RIGIDA	2	6	„
CYSTOPTERIS DICKIEANA	3	6	„
POLYSTICHUM LONCHITIS	3	6	„
CYSTOPTERIS MONTANA	10	6	„
Ditto ditto a few extra strong	21	0	„

*Though a British species, the roots offered are Norwegian.

York Nurseries, Oct 6.

TO GRAPE GROWERS.

EAGLE AND HENDERSON have much pleasure in calling the attention of Grape Growers to the following collection of Strong VINES in pots, from eyes, viz.:—

Barbarossa, Black	Gibraltar	Musque Chasselas
Black Prince	Hamburgh, Black	Nice White
Burgundy, Miller's	„ Champion	Prolific
Bourat Blanche	„ Millhill	Sweet Water, Grove[nd
Constantia, Black	„ Victoria	„ Royal
Cambridge Botanic Garden	Josling's St. Albans	„ White
Damascus, Black	Lombardy, Black	Syrian
Esperione	La Cœur	Southfield, Black
Frontignan, Black	Muscat of Alexandria, Black	Seedling, Whitehill
„ Blue	„ „ White	„ Lady Doune's
„ Grizzly	„ Canon Hall	„ Abercairney
„ White	Muscadine, Royal	Tokay, Charlesworth
Golden Drop	„ White	Tripoli
		Turner's Black

From 3*s*. 6*d*. to 5*s*. each.—Usual discount to the trade.

Shrub Bank Nurseries, Leith Walk, Edinburgh, October 6.

GRAPE VINES FROM EYES IN POTS.

LUCOMBE, PINCE, AND CO. beg respectfully to call attention to their remarkably fine stock of Grape Vines, raised from eyes in pots, in a bearing state.

L., P., & Co. having two years ago erected a Vinery 90 feet long for the especial purpose of proving every good Vine in cultivation, are enabled to say that the Plants sent out by them are true to name.

LUCOMBE, PINCE, AND CO.,
EXETER NURSERY,
EXETER.
ESTABLISHED 1720.

THE PAMPAS GRASS,
"GYNERIUM ARGENTEUM."

LUCOMBE, PINCE, AND Co. having now for sale the finest stock of flowering plants in this country of the above, are enabled to offer their well established plants to bloom this autumn at the following prices:—

Fine specimens with two flower stems ...	21*s*. 0*d*. each.
Ditto with one ditto	10*s*. 6*d*. „
Smaller plants to bloom next year	7*s*. 6*d*. „

L., P., & Co. have also healthy seedlings at 30*s*. per dozen, which will be ready in October, which, however, they deem it right to say will most probably not bloom for two years. To such parties as wish at once to see the plant in its beauty, L., P., & Co. would strongly recommend the larger sizes, as they are much better and cheaper.

Few plants are more ornamental than this Gigantic Grass, the leaves (which are more than 7 feet in length, curving gracefully outwards) grow in large tussocks, thereby producing a very fine effect, and from the midst of these numerous flower stems arise to the height of from 6 to 8 feet, surmounted by elegant panicles of inflorescence nearly 3 feet long, resembling beautiful waving plumes of silvery feathers. It is perfectly hardy, and is also easy of cultivation. A grand specimen of this noble plant is now in the Exeter Nursery, pushing up nearly twenty large flower stems and numerous small ones, and will continue to be an object of great attraction for a considerable time.

EXETER NURSERY, EXETER.
ESTABLISHED 1720.

NEW STRAWBERRIES AT REDUCED PRICES,
GROWN AND OFFERED FOR SALE BY

WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.—The following splendid varieties have been well proved this season and given complete satisfaction, viz., Sir Harry (Underhill's), 100 plants, 4*l*.; 40, 1*l*. 18*s*.; and 20, 1*l*.; or 12*s*. 6*d*. per dozen. Omar Pacha (Ward's), 1*l*. per 100; 12*s*. per 50; 7*s*. per 25. Scarlet Nonpareil (Patterson's). 2*l*. per 100; 1*l*. per 50; 12*s*. per 25. Sir Charles Napier (Smith's), 1*l*. per 100; 12*s*. per 50; 7*s*. per 25. Admiral Dundas (Myatt's), 1*l*. per 100; 12*s*. per 50*s*.; 7*s*. per 25. Nicholson's Ajax, Ruby, Captain Cook and Fill-Basket, 6*s*. per 100; Ingram's Prince of Wales, Nimrod, Eliza (Rivers's), Surprise (Myatt's), and Bicton Pine, a large white one, 6*s*. per 100; British Queen, Black Prince, Eleanor (Myatt's), Old Pine, Trollope's Victoria, Goliah (Kitley's), Keens' Seedling, Old Roseberry, all at 4*s*. per 100; Crystal Palace, a very large and late variety, 10*s*. per 100. Post-office Orders payable at Yarm are expected with all orders. The plants will be securely packed and forwarded to any part of the kingdom.

Plants kept in frames for spring planting.

SUTTON'S IMPROVED ITALIAN RYE GRASS.

SUTTON AND SONS, SEED GROWERS, Reading, are now harvesting their crop of Seed of this superior variety of Italian Rye Grass, and are also importing a supply of fresh Lombardy Seed. As the demand appears likely to be great, Messrs. SUTTON respectfully recommend their friends who intend to sow these articles next season, to favour them with their orders early, in case the stock should prove short.

N.B. SUTTON & SONS *do not appoint Agents for the sale of their Seeds; but they deliver them carriage free by Rail to most parts of the United Kingdom.*

GEORGE JACKMAN begs to state his PRICED CATALOGUE of choice CONIFERA, HARDY EVERGREENS and ORNAMENTAL TREES, which are well grown, and constantly removed; also Roses, Standard, Dwarf, and dwarf-trained Fruit Trees, and Forest Trees, can be had on application by enclosing one Postage Stamp.

G. J. respectfully invites persons planting to pay a visit to his extensive nursery, one and a half mile from Woking Station, South Western Railway, where all trains stop, and conveyances can be had.—Woking Nursery, Woking, Surrey.

RHODODENDRONS.

JOHN WATERER begs to announce that he is now prepared to execute orders for his two New Hardy Hybrid Rhododendrons, in good established plants, at 42*s*. each.

Rhododendron JOHN WATERER, colour glowing carmine, large truss, fine foliage, and a most abundant bloomer, in perfection about the 15th June.

Ditto, MRS. JOHN WATERER, a bright rosy crimson, fine conical truss, a very free blooming kind, in flower about 15th of June.

To the admirers of this justly noble class of Plants, JOHN WATERER has the pleasure of recommending the above as being the greatest acquisitions yet offered. They combine in a marked degree the necessary requisites for really first-rate hardy crimson varieties, viz., imposing colours, abundant bloomers, extreme hardiness, and flower at a time when they are not liable to be injured by spring frosts.

The American Nursery, Bagshot, Surrey, Oct. 6.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 6, 1855.

ONE of our acquaintances, a Mr. JAEL, is a lover of fresh FIGS, and having a garden was ambitious of growing them for himself. But his garden was in a cold bottom, and its soil was heavy clay. He had no greenhouse, or wall, and his gardener had not been instructed at Arundel, or Chatsworth, or Trentham. When he mentioned his wish to grow Figs in such a place with such means, his gardening acquaintance smiled at his simplicity; what! grow Figs in clay in such a wet cold place, with no shelter and no professional help! it was chimerical. The old Fig trees were pointed out in neighbouring gardens, where walls and shelter and skill were provided in abundance, and he was advised to take warning by them; for even they scarcely ever ripened a Fig worth eating.

It must be owned that the proposed experiment was not encouraged by his neighbours' experience. But Mr. JAEL had already found out that in gardening as in other pursuits what can't be done in one way may be effected in another, and he concluded that if soil, situation, climate, and all the conditions usually thought necessary for Fig growing were denied to him, he might somehow or other find their equivalents. And so he set about his work.

In March, 1854, he dug a hole on the south side of a ditch, and filled the hole with lime rubbish, burnt clay, the ashes of rubbish heaps, and rotten leaves. The hole was about 2 feet deep, 4 feet wide, and its bottom might be a couple of feet above the water in the ditch. In this place he planted, in May, a Fig tree about 9 inches high.

The plant grew well all through the summer, and, if permitted, would have been 4 or 5 feet high by autumn. But our experimentalist wanted a little plant, not a big one, and he was looking for Figs not leaves; so he applied to his Fig tree the stopping dodge. As fast as 5 or 6 leaves made their appearance, the shoot to which they belonged was pinched back to 3 or 4; and all through the summer every new shoot, of which plenty came, was served in the same way. By October the Fig tree had been so cramped and stunted that it was not above 2 feet high, and on most of its little branches were little balls no bigger than a Marrowfat Pea. These were Figs in embryo; in ten or eleven months more they would be full grown, ripe, and fit to eat. So far, then, all had gone well. The tree had done all that the most unreasonable gardener could have expected from it. But what was to become of it and its little ones during the winter? You'll see, said the neighbours, that all your young ones will perish of cold, and most likely their mother too.

We have already said that Mr. JAEL had no greenhouse, or wall, or shelter, to which he could trust his pet Fig. But he had a few shillings to spare, and with them he bought a load of peat turves. Now peat turves are of all things the most useful to gardeners. Neither rain nor frost will go through them easily, they form the best walls in the world, and when the walls are pulled down they become the most valuable of all the sorts of earth a gardener wants. So with these turves the Fig tree was enclosed on all sides, till the walls were higher than its head; and then it was left till the leaves looked as if they were ready to come off. In the mean-

while the walls had kept away the worst weather and dried the ground a little. As the leaves dropped they were taken away, and to get the ground drier still against winter an old wooden shutter that happened to be at hand, was laid over the top like a sloping roof, resting on the peat walls.

At last came unmistakeable signs that winter was at hand, and as soon as this was certain the inside of the walls was stuffed with old straw that had been used for packing—so that the Fig tree with its naked branches was snugly tucked up in a warm bed for the winter. The shutter was then fastened down and covered over with a layer or two more of peat turves.

There it lay all the winter; and a cold one it was; but the ground was dry, and the walls were dry, and the roof was pretty water-tight, and the Fig tree felt none of the storms that beat against its house.

December, January, February, passed away; and with them the most dangerous frost. It was in the middle of March that the turves were taken off the shutter, and the shutter lifted up, and a peep had among the straw. There lay the branches as fresh and green as in October, and there were the little Figs, on which Mr. Jael's hopes had dwelt so long, all as round and plump as ever, but no bigger than before. So he carefully drew the straw around them again, and put on the shutter, but left the turves upon the ground. And every fine dry day the shutter was lifted up, to be replaced at night, till there was a little sign of the Fig tree wishing to grow. Then out came all the straw. In a few days more the front wall of the turf-house was taken down; in another week or two the west wall, and by the end of May nothing was left of the winter shelter except the north wall, which served to keep away cold winds all the summer.

And what was the fate of the little tree? The experienced said, when they saw it, that it was all very well so far, but that the tiny Figs preserved with so much trouble would fall off, and that Mr. Jael would have his work to do again, for as to Figs ripening in such a place it was not to be thought of. Well! this was partly true. Some of the little Figs, the oldest of them, did fall off; but not many. The others held fast, and became rounder and rounder, and longer and longer, and browner and browner, till at last by the end of September, in 15 or 16 months from the beginning of the attempt, Mr. Jael had gathered a dozen capitally ripened Figs, and he expects to have two or three more.

The only observation which his neighbours made when they saw what happened was, well it is very odd; we never could get our Figs to do any good; indeed in the grand garden of Mr. Spencer, hard by Mr. Jael's bit of ground, not a Fig will ripen this year, though the walls are 12 feet high.

This example may serve to show those who have bad soil, bad situation, bad climate, and no glass-houses, that even then something may be done in a garden, if principles are understood and men have only a very little ingenuity to assist them in applying them. There are other things which our friend Jael could tell us about, if he were encouraged; but he is a diffident man, and not fond of having his name in everybody's mouth.

The last subject to which we for the present propose to advert, in connection with Botanical Gardens, are Arboreta. In those now attached to a great many botanical gardens, the most prominent defects are overcrowding, indiscriminate admission without selection, and want of arrangement. If we consider that, generally speaking, a tree will not show its true character till, having attained a considerable size, it is capable of bearing fruit, we must see how necessary it is to give it space enough for that purpose. It is true that the whole ground usually allotted to the arboretum will, if so planted, admit no more than a very small proportion of the trees which might be procured; but if this small portion is well selected and well grown, it will give the student a great deal of information on the habits, mode of growth, and general physiology of trees and means of comparison with their herbaceous allies which he can never obtain from the mass of drawn up half-dead starvelings—mere sticks with labels to them, which may be seen crowded together in many arboreta, often not more than 2 or 3 feet apart. Selection, *vice* collection, is here more important even than in the herbaceous garden. Twenty or 30 real trees of as many different genera are surely better than any number of wiry saplings which never flower, and half of which are but slight varieties of each other, or mere individual aberrations. Sometimes, it is true, the arboretum may be spread over such a wide extent of pleasure ground that almost all hardy trees may be planted without interfering with each other; but even then, in a botanical collection, there is little use in planting any but good species or well marked varieties, which can be distinctly recognised and named. The wilderness of Cratæguses, Elms, Lime trees, &c., in some arboreta is as hopeless and useless as that of the Asters and Stachyses in the herbaceous ground. There are certain classes also of specimens of trees which, however commonly planted, we would reject from any botanical arboretum: such are in the first place the so-called varieties with variegated, crisped or cut leaves, weeping branches, &c., which are mere individual constitutional peculiarities, and belong to horticulture, not to botany; and in the next place trees too tender for the climate, which may live on for years, but, in their constant struggle for mere existence, never can represent their species.

The arrangement of the trees in the arboretum is a more difficult question than that of the herbaceous collection. If planted in regular rows they occupy an immense space, which cannot be made ornamental. Scattering them indiscriminately about the pleasure ground interferes with the studying them in succession, or the readily finding them for comparison. When grouped in clumps science is sacrificed for show, without making them really ornamental. In those gardens where the two objects really appear to be well combined, the trees forming the botanical collection are planted at stated distances in a fixed order along the walks and paths of the pleasure ground; the shrubberies and clumps necessary for breaking the lines and fulfilling the general plan of the garden being made up of really ornamental shrubs and horticultural varieties quite independent of the scientific collection.

As trees are too large for those of one group to be all seen at once, their labels will require the addition of the natural order to which they belong.

In plant houses, overcrowding without selection is still more conspicuous than in the other departments. There are few where the plants do not injure each other by too close packing, still fewer where the collection would not be much improved by throwing away a considerable number. Plants which have been early pot-bound, and contracted an unhealthy, stunted, unnatural growth; wiredrawn lanky specimens almost bare of flowers or leaves; tropical trees which can be of no interest until they have far outgrown the houses they are kept in; if such were discarded, space, time, and means would be economised for the maintenance in health and vigour of a small but instructive selection. If it be true that advantage should be taken of every corner of a space which has cost so much money, it is no less certain that that space is as essential for quality as for quantity.

The arrangement of the plants in the houses is often conducted on better principles, and with more taste, in some of the German and Russian than in any other gardens. When grouped according to their natural affinities, with such modifications only as are required by size and mode of culture, it is astonishing how pleasing an effect is produced; and the larger the collection and the more extensive the houses, the more satisfactory are the results of such an arrangement. The same principles may be beneficially applied in the grouping the greenhouse plants in the ornamental ground in summer, as stated in Prof. Hoffmann's report already referred to (see p. 404).

The labelling of plants in houses needs no further details, as we can only repeat that in this as in every other department open to the public for the purposes of science, it is most essential that the labelling should be universal, conspicuous, and, above all, correct. *G. B.*

NEW GARDEN FERNS.—No. IV.

8. Phlebodium inæquale, T. M. in Herb. (Polypodium triseriale, of gardens.)

Fronds ample, pinnate, membranaceo-herbaceous; pinnæ lanceolate slightly glaucous, the lower ones stalked, the upper sessile and adnate, all unequal at the base; sori large round, uniserial near the costa; rhizome clothed with oppressed ovate acuminate scales; fronds annual articulated.

We are indebted for our knowledge of this fine Fern to Mr. Henderson, gardener to the Earl Fitzwilliam at Wentworth. The fronds are large, drooping, pale green, three or four feet or more in length, pinnate, oblong-ovate; the lower pinnæ in a fine frond from Wentworth now before us being about 10 inches long and 1½ inch broad, the upper ones 6 inches long and 1¼ inch broad, and the terminal one of the same length and breadth. The lower pinnæ are lanceolate, attenuated at the apex, as well as narrowed at the base, where they are unequally developed, the lamina on the anterior side being continued down the petiole beyond that on the posterior side; the pinnæ about half-way up are sessile; the upper ones are adnato-decurrent; and the terminal one is usually but not always somewhat lobed and unequal at the base. The margin of the pinnæ is crenulate. The sori are large, round, situated in a single series near the midrib; sometimes seated on the apex of a veinlet within a costal areole, which is a characteristic of Goniophlebium; sometimes on a veinlet exterior to the costal areole; sometimes at the point where two or more veins unite, which is the normal condition of Phlebodium. It is consequently an osculating species between the genera Goniophlebium and Phlebodium. It is a free growing showy warm greenhouse species, and is remarkable for its deciduous character, the fronds being all cast off in winter and renewed in spring. The stipes is smooth and pale green. The rhizome, which is as thick as one's thumb, and grows in a branching tufted manner, is covered with ovate acuminate oppressed scales. The general aspect of the plant is that of Phlebodium aureum, but it differs essentially in the annual fronds, and in their truly pinnate character. It appears to be a native of Guatemala, and to have been imported some years since by Messrs. Loddiges.

9. Adiantum cultratum, J. Smith MS.; Hook. Sp. Fil. i. 34. (A. pentadactylon of gardens, not of Langsdorff and Fischer.)

Fronds glabrous, tripartitely bipinnate; pinnules cordately rhomboid-oblong, lobed on the upper margin and apex, entire on the deorsely falcate lower margin; sori small, narrow, linear-oblong, on the apices of the lobes; stipes brownish ebony-coloured; fronds adherent.

This is a very fine and ornamental species of Adiantum, requiring stove culture. The fronds are glabrous, dull green, with an olive tint, 1½ foot to 2 feet high, and tripartitely bipinnate, that is bipinnate, with the lower pair of pinnæ two-parted. The pinnules are somewhat cordately rhomboid-oblong, the upper margin and the more or less attenuated apex being lobed with serrated lobes, and the lower margin recurvate. The sori are small, narrow, linear-oblong, occupying the apices of the lobes, and chiefly produced on the upper margin. The

stipes and rachis are dark chesnut-coloured when young, becoming blackish when mature; at first scaly throughout, with narrow deciduous scales. The fronds are adherent to a creeping rhizome. The species was introduced from Belgium under the name of A. pentadactylon, which belongs to a lobed form of A. trapeziforme. From the latter, to which it is allied, this differs in being a more slender plant, and in having narrower deorsely falcate pinnules scarcely at all glaucous beneath, and smaller linear-oblong sori; it is, morever, wanting altogether in that delicate tint of green which in A. trapeziforme contrasts so strikingly with the ebony-coloured stipes. Nevertheless, it is a handsome species, desirable for cultivation.

10. Gymnogramma lanata, Klotzsch MS.; A. Braun in App. Gen. et Sp. nov. Hort. Reg. Bot. Berol. coluntur, 1854.

Fronds ovate-lanceolate, bipinnate below, pinnato-pinnatifid above, the apex lengthened pinnatifid; pinnæ sessile narrow-lanceolate; pinnules oblong, the lower ones more distant contracted at the base, the upper confluent; blunt, the lowest lobulate or subpinnatifid at the base, unequally toothed, the margins somewhat reflexed; upper surface glabrous, lower densely woolly; stipes and rachis covered with dense pale cinnamon-coloured woolly hairs.

This is a very remarkable and distinct looking Fern. It was gathered in Veragua by M. Warszewicz, in 1850, and was first raised from spores in the garden of M. Mathieu, of Berlin, whence it has been dispersed.

A fine specimen was several times exhibited during the past summer by Mr. Fletcher, gardener to Dr. Young, of Kennington. It has a short erect caudex, producing a moderate number of soft herbaceous fronds,

which have their stalks clothed with a pale cinnamon-coloured wool, and their under surface densely covered with whitish woolly hairs, the upper surface being smooth. Along with the woolly hairs at the base of the stipes are a few darker coloured criniform ones. The sori are borne over the whole under surface, and consist of lines of spore-cases following the course of the forked free veins. It is, therefore, a genuine Gymnogramma, although very unlike those familiar in gardens. In our specimen from Dr. Young's plant, the stipes is about 9 inches long, the leafy part of the frond nearly 18 inches; the longest pinnæ about 5 inches long; and the pinnules an inch. Several of the basal pinnules of all the lower pinnæ are cut into roundish lobes on the margin. It is a very desirable and ornamental stove evergreen Fern.

11. Acrophorus hispidus, T. Moore, Proc. Lin. Soc., 1854, 285. Davallia hispida, Heward Herb. D. Novæ-Zelandiæ, Colenso, Tasm. Journ. of Nat. Science; Hooker, Species Filicum, t. 51. B.

Fronds ovate acuminate, tripinnate, rigidly membranaceous; pinnæ stipitate linear oblong acuminate; pinnules obliquely pyramidato-lanceolate with pinnatifid tips; secondary ones lanceolate, deeply pinnatifid, the segments ovate acute falcate, or obovate, with one or two teeth, or sometimes entire; sori numerous on the lateral teeth of the lobes; indusium a broadly ovate scale, affixed across its base; caudex slender creeping hairy; stipes and rachides fuscous, the base of the stipes and axils of the primary pinnæ furnished with copious ferruginous hairs.

This plant has been referred to that group of Davallia to which the name of Leucostegia has been given. It differs from Davallia in not having the sori enclosed by a tubular involucre, but covered by a flat scale affixed only across the base, and is therefore, in our view, rather akin to Cystopteris than to Davallia. This group of Leucostegia we unite with Acrophorus, the differences between them being unimportant. It forms a very elegant greenhouse evergreen Fern, growing

up from the widely creeping rhizome, with a frond of variable size; in some cases two feet high including the stipes, which is about half the length; and sometimes, according to Dr. Hooker, not more than three inches high. Both the stipes and rachis are deep shining brown. The fronds are amongst the most beautifully and finely divided of their race, and are extremely elegant, lively green, loaded with fructifications, which are usually placed on the small teeth or lobes of the ultimate divisions. This species was imported a short time since by Mr. R. Kennedy, from New Zealand, where it had been originally found by Mr. A. Cunningham. We have to thank Mr. Kennedy for fresh fructified fronds, which produce sori, whilst of a much smaller size than that to which the species attains in its native country.

12. Lomaria discolor, Willdenow, Sp Pl. v., 293. Onoclea, Swartz. Hemionitis, Schkuhr. t. 6. Osmunda, Forster.

Fronds tufted, pinnate; the barren narrow lanceolate with alternate sessile oblong acutish horizontal subserrulate pinna, pallid beneath; the fertile linear-lanceolate, with linear obtuse horizontal pinnæ, dilated often leafy at the base; indusium ciliately toothed.

This species was introduced from New Zealand by Mr. Kennedy, and has produced its fructification in the collection of Dr. Young, of Kennington. The barren fronds spread from an erect caudex, and are narrow lance-shaped, with crowded horizontal oblong acutish pinnules, dark green above and paler beneath; they are from 1 to 1½ feet long. The fertile grow taller and erect; they are of narrower outline, and have blunt linear horizontal pinnæ, dilated at the base, these dilated bases in the lower pinnæ being usually devoid of spore cases. It is a handsome evergreen greenhouse Fern. *T. M.*

CULTIVATION OF HYACINTHS IN GLASSES.

Fill the glasses with rain or river water so as just to touch the bulb; place them in a dark cellar or closet for about a fortnight, which will encourage the growth of the roots, after which they should be brought to the light, and kept as near the window as possible. If allowed to remain on the mantelpiece or other warm place away from the light, the flowers will be drawn up prematurely, and thus prevent the full development of their colour and size. The water should be changed once a fortnight, or oftener if it becomes foul, and the bulb cleansed each time. Some kinds are apt to produce offshoots at the sides of the bulb; these should be removed with a budding or penknife; but when two stems rise from the centre, they should be both allowed to bloom. The single Hyacinths generally are the most suitable for blooming in water, but there are some double varieties which thrive equally well. When overblown they should be stripped of the faded blossoms, and planted in the open garden in a dry situation.

On Blooming Bulbs in Pots.—Hyacinths, Narcissus, Jonquils, Tulips, &c., should be planted with the upper point of the bulb just above the soil. When planted, the pots should be plunged under ashes, sawdust, or tan, until the leaves begin to grow, when they should be gradually exposed to light and heat. The pots should be deep and well drained. Any good potting mould will suit bulbs, and they will thus bloom much finer than in water. They should be planted in October or November, the earlier the better. Hyacinths for beds or borders in the open ground should be planted at the same time, and about 3 inches below the surface.

Sorts most worthy of Cultivation.—There is no advantage gained by purchasing high priced sorts of Hyacinths—as there are plenty of the old kinds of every shade of colour equally good in quality, and which, being grown in large quantities by the Dutch florists, may be obtained at moderate prices. The undermentioned are all fine, and by no means expensive:—

Double Red or Various Shades.

Bouquet Tendre	Marie Louise
Groot Voorst	Rose Mignonne
Rouge pourpre et noir	Comte de Bentinck
Acteur	Comtesse de la Coste
Bouquet Royale	Panorama
Hugo Grotius	Peruque Royale

Single Red.

Charlotte Marianne	Mars
Herstelde Vrede	Princess Elizabeth
Diebitz Sabalskansky	Talma
Acteur	

Double White.

Anna Maria	Sphæra Mundi
La Tour d'Auvergne	Sultan Achmet
A-la-mode	Miss Kitty
Pyrene	Cœur noir
Virgo	

Single White.

Grande Vainqueur	Hannah Moore
Voltaire	Premier Noble

Double Blue.

Alfred le Grand	Kroon van India, dark
Mignonne de Dryfhout, dark	Globe Terrestre, light
A-la-mode, striped	Prince of Saxe Weimar
Lord Wellington, dark	Rudolphus, dark
Bouquet Pourpre, very dark	Blocksberg, dark
Pasquin, light	

Single Blue.

Prince Albert, nearly black	Orondatus, sky-blue
Nimrod, light	Le plus noir, black [eye
Baronne de Tuyll, very dark	Emicus, dark blue with white
Porcelaine Sceptre, light	L'Ami du Cœur, purple

Yellow.

Couleur de Jonquille, single	Ophir, double
Bouquet d'Orange, double	L'Or Vegetable, double

Sutton and Sons, Reading.

VEGETABLE PATHOLOGY.—No. XC.

370. Carcinodes (*Canker*). Ash Canker.—One of the most conspicuous cases of canker, and one of the most purely constitutional, is that which occasionally occurs in the common Ash. In soils where the Ash flourishes most, and where it produces the best timber, a few individuals will appear scattered amongst the others without any apparent reason, which in every stage of growth are cankered and deformed. These trees are the favourite resort of woodpeckers and other insectivorous birds, from the abundance of the larvæ by which they are inhabited, though the insects have no share in the production of the disease, however they may aggravate it. In its first stage there is no appearance whatever of insects in the diseased spots, but afterwards when the wood is exposed and partially decayed, the Goat moth and other insects which live on wood find them a convenient place for the deposit of their eggs, or at least the young larvæ recognise in them an easy point of entrance. Accordingly if a diseased truncheon be split in two, more than one kind of larva may frequently be found beneath the spots, though the history of the development from an early stage of growth shows that the insects are a consequence and not the cause of the spots.

371. I have found no trace of the disease on shoots of less than three years old. The first indication consists in a few scattered specks on the smooth bark, sometimes coincident with an imperfectly developed bud, but more frequently entirely indifferent as to position. According to the time which has elapsed from their formation, these penetrate more or less deeply into the bark, sometimes exhibiting a number of scattered diseased specks within its substance, but more frequently presenting a mass of dead bark cells without any intervening living tissue. The spots soon become confluent, and the whole structure perishes down to the wood, which of course ceases to be formed beneath the diseased tissues. The year following the growth proceeds in the remainder of the twig, which thickens where the healthy bark is still attacked, though the disease spreads at the margin, while the wood itself begins to decay. The same process is repeated year after year till the whole bark perishes, and the parts above the spot which is now gouty and deformed ultimately die. The process of decay is more or less speedy, according to the vigour of the tree or the size of the patches, which are at first attached; but from the first attack, if the branch is small, half a dozen years or even less are quite sufficient to induce complete decay, and this sometimes without the agency of insects. When larger branches or the trunk itself are attacked the process is slower, and the cankered spots ultimately attain a very large size. The more usual case presents a crater-like cavity, the sides of which show the annual growth of the bark, each layer slightly exceeding that of the previous year. In more aggravated cases the wood is exposed for many inches, in consequence of which a slow decay takes place, with very partial attempts at the living edge to remedy the evil by covering the diseased patch. In a section before me such an attempt has, however, been made twice, and six or seven new rings have thus been deposited, without however any effectual cure, as the new bark soon becomes diseased, and the layers beneath it require a fresh deposit to shield them from the weather. In the same patch, however, there is a distinct crater in the wood, surrounded by an annular margin due to a growth some six years or more before, on the whole of which the bark is completely destroyed, while the bottom of the cavity exhibits a slow process of decay, by means of which the evil is penetrating every moment more deeply into the solid wood. In fruit trees there may be some object in preserving life, as healthy, or at least the living portions of the tree, may be productive of good and useful fruit; but in the present instance, where timber alone is the object, the produce can be fit for nothing but firewood, and the growth is so slow, that even for this purpose the ground might be occupied to far greater profit. The moment trees are observed to be thus affected they should be cut down at once, as they exhaust the soil no less than healthy trees, and there is not a shadow of a excuse for maintaining them to the manifest loss both of the occupier and landlord.

TRADE MEMORANDA.

Who is Mr. Robert Hancock, of 35, Lower Brook Street, Manchester, who refers to "Mr. J. G. Waite, Seedsman, High Holborn, London?"

And who is Mr. Robert Dickens, 10, Falstaff Yard, Market Place, Manchester?

Home Correspondence.

New or Little Known Plums.—If we had always such a season as the present the proving of new fruits would be a much easier thing than it is generally found to be. The last five or six years have been such bad fruit years, that many persons like myself have no doubt seen reason to change their opinions of fruits, in many cases formed from seeing and tasting a few isolated specimens (perhaps grown on a wall or in an orchard house); now they have trees loaded with fruit grown more naturally. At the same time I have no doubt that the flavour of many varieties has been much injured by the extraordinary dry season, making them taste of the wood and depriving them of the fine juice they would have had if there had been more moisture in the ground. As it may be interesting to your readers, I will give you an account of the varieties which have fruited here, and if others will do the same much information might be elicited not only with regard to the quality of different new and little known fruits, but their adaptation or otherwise to different situations might with certainty be determined. To commence with Plums: my father, in addition to planting large numbers of (Shropshire) Damsons and other Plums, such as White Magnum Bonum, &c., known to bear as standards, planted a few of every variety he possessed at the time to prove them. Many of these, as well as all Cherries which proved unprofitable, were cut down; of those remaining two of the Precoce de Tours were the first ripe; this is usually a bad bearer here, though a nice purple Plum, not large, but good, and as an early variety valuable, though not profitable. Jaune Hâtive, a small yellow Plum, pretty, but almost without flavour, generally bears well; this season it was loaded to excess. White Magnum Bonum very full, generally bears well; the same may be said of the old red Orleans, many of which broke down with the weight of fruit. Greengage a very heavy crop. Gisborne's much resembles White Magnum Bonum, but rather smaller, almost always bears heavily. Our Golden Drop, here generally very full, is only first-rate on a wall, where it is still one of the best; this year it is loaded, but in wet seasons does not ripen well. We seldom see the beautiful, but tasteless fruit of the scarlet Mirabilum; though covered like a sheet with its beautiful blossoms, it is too early, and is for years together cut off by spring frosts; as an ornamental tree it is worth planting. Sharpe's Emperor, a large coarse red Plum, is not even profitable, and ought not to be cultivated, as it is so inferior in every respect to Victoria, a yellowish red Plum, a good kitchen fruit, large as a Magnum Bonum, and the heaviest bearer I have seen. The Winesour is a bad bearer here, and most of our trees were cut down, as also were the Red Magnum Bonum, a really bad Plum. The Caledonian is here large and handsome on a wall; its enormous reddish purple fruit is very striking, but it is a coarse variety. The new variety Columbia is also very large, and similar in colour, but one of the worst we have proved, being coarse and without flavour. The Dove Bank, which has fruited here for the first time, is very like the Caledonian, which has generally been sold for it, but in many respects is very different; unlike that strong growing variety it makes short wood, is a little more purple in colour and of first-rate flavour, from a wall; we have not proved it on standards. Some large trees of Washington, which seldom bear at all (as

the bloom is very tender), have been well worth seeing, being fuller of their large yellow Plums than I ever saw any Plum tree before; but here though handsome they are very second-rate in flavour. The Overall, a new variety with very long footstalks, is a large dark red fruit not yet ripe, the trees are loaded, and it appears likely to be a profitable kitchen variety. Bluker's Scarlet, also a good kitchen sort, though a great bearer, has this season almost missed setting. Jefferson appears a great bearer; it is a medium-sized handsome yellow Plum, just ripe; from a standard it is good but not first-rate; from a wall excellent—in fact one of the best, and only beaten in flavour by the Reine Claude family, of which the old Greengage is the type. What is called Bluker's Yellow Gage is no more like the Greengage than is our Golden Drop in appearance; it is like Jefferson—in fact, may be mistaken for it till tasted, when it will be found greatly inferior; it is a great bearer on a standard. Reine Claude de Bavay is a late Greengage, quite equal to the old variety in every respect, and about a fortnight later; this year it is bearing heavily. Reine Claude Violette, a purple Gage, is one of the finest plums grown—I have often thought superior to its parent. Purple Favourite is not a favourite here; it is quite second-rate in every respect. Rivers's Early Favourite was a very full crop; a nice, rather small, dark purple variety of the Prune de Tours family. Howell's Early resembles Purple Favourite, but is, I think, a little worse. Smith's Orleans from the wall is one of the finest Plums in colour grown, being nearly black and of good size; its quality is very similar to the old variety. Chapman's Prince of Wales is also of the Orleans family, a profitable good red Plum. *J. R. Pearson, the Nurseries, Chilwell, near Nottingham.* [We hope we have read our correspondent's very difficult handwriting correctly.]

Potato Disease.—So much has already been said and written on this subject that I fear what I am now about to record will be little regarded. A remedy for the disease may, however, be accidentally discovered, and as this is purely so it may be found useful. This year I planted on my farm seven different sorts of Potatoes, on light gravelly soil. The Shaws proved the most affected, all partially so, but there was evidently a marked improvement in the produce of former years. Some of the Shaws, however, accidentally got mixed in the setting with the Flukes, generally a late sound useful Potato, and in taking up the few straggling Shaws interspersed with them, I remarked that they were little if at all affected, and this was the more surprising, as my men were taking up the Shaws the same day, and had remarked how much worse they were than the others I had planted. The Flukes had flowered well, and had a large quantity of Potato Apples; the Shaws also flowered and crabbed equally well with the Flukes. I want your assistance now to tell me the reason why the Shaws planted accidentally with the Flukes were so much better than when planted by themselves; I fancy the pollen of the one had mixed with the stamina of the other, and had given some constitutional vigour to the Shaw, which it had lost and did not then possess in itself. The same kind of care is required I imagine in the vegetable kingdom in propagating as is carefully studied in the animal world. If my idea is correct I shall be glad to hear it from you, as I have made up my mind that it would be better to mix the sorts of Potatoes judiciously in the planting, and sort them afterwards; when taken up you will, I maintain, have a sounder and better crop than when planted separately in the ordinary manner. *William Wilson, High Park, Oxenholme, Kendal.* [We do not profess to explain our correspondent's fact. But we can assure him that his pollen theory won't hold water. Pollen can't act immediately; its effect can only be seen in the produce of the seeds affected by it.]

Zinc Weathercocks (see p. 646).—Zinc and copper are both much better conductors than iron; and so far, *cæteris paribus*, more attractive of lightning, though in practice I do not think much difference has been found; nor can much protection be expected from paint. But why not, to make sure, set up a conductor, and carry all the lightning away from the bell-wires directly into the sea by turning out the foot of the conductor, or if too far for that, by aid of a stout iron waterpipe? A pointed conductor, well connected at bottom, will sometimes even prevent lightning by drawing off the electricity from the cloud gradually and silently, and the point may be carried up alongside the stem of the weathercock. *J. Prideaux, Oct. 3.*

Galvanised Wire Trellissing is used here in the conservatory for training climbers upon, and without any ill effect on the plants. I flatter myself, indeed, that it would be difficult to find a house of climbers in greater luxuriance and beauty. So confident do I feel in its adaptibility for training purposes, that a vinery 50 feet long, lately erected, has been fitted with it for training the Vines upon. I have no doubt that such of your correspondents as have not found this wire to answer have mistaken the cause of failure. *H. Howlett, Haverland Hall.*

Lifting Plants from the open ground for Potting.—At this season many plants will be lifted from the open ground for the purpose of being protected in pots through the winter, as well as for flowering in autumn. I allude more particularly to such things as Chrysanthemums and Salvias, which are well known to make the best plants when grown in the open ground, and potted up in autumn. Some recommend giving such things a good watering before lifting them, but this I do not agree with; on the contrary, I let them get as dry as the state of the weather will permit, for then I consider that the sap vessels are comparatively empty, and on the plant being freely watered when placed in its new quarters the thirsty foliage will speedily begin to demand from the roots fresh supplies, which the latter must derive from the moist soil, consequently the whole vital principle will immediately be set in motion. On the other hand, if the plant is fed and gorged with sap before it is removed, there is no necessity created for an immediate circulation of the fluids; as a matter of course, therefore, stagnation of the plant and sourness of the soil are the inevitable consequence. When the foliage is fully charged with sap before removal it must necessarily part with a portion of its moisture before it requires more, so that one or other of the following evils will most likely occur, viz., either the foliage must flag before the roots can be called into action to replace the loss, or if the leaves are kept up by means of sprinkling and moisture in the atmosphere, the roots must remain dormant, and the beauty of the foliage will in either case be seriously impaired. If my theory be correct, therefore, the plan I advocate will be found the safest. *H. H.*

Fluctuations of Temperature.—The morning of Thursday, the 27th ult., was fair and calm, with the wind N.N.W., a direction in which it continued till noon, when it veered round to full N., accompanied by clouds floating slowly to the eastward, and the sun pouring down intense rays of heat, raising a thermometer on a N.W. aspect to 93°; about 3 P.M. the temperature began slowly to decrease, the wind remained in the same quarter, but the clouds indicated symptoms of a change. The night was fine and clear; at 10 P.M. the thermometer indicated 33½°, with every appearance of a change. The following morning the radiating thermometer stood at 26°, vegetation was stripped of its summer beauty, bedding and other tender plants appearing as if parboiled, and half-hardy plants sustained considerable injury, the day following being excessively hot. Now, as I hear of no tidings so disastrous as these from corresponding counties, I am led to believe that the great fluctuation of temperature mentioned above was owing to this place being in a valley surrounded (except to the northward) by huge hills, on which, however, such tender plants as the Heliotrope, Dahlia, &c., are still clothed in summer verdure, although not more than a mile distant. In short, the difference of vegetation on low grounds and the hill tops is very remarkable. *J. R. T., Gardener to G. S. Winkle, Esq., Hucclecote Gardens, near Gloucester.*

People's Park, Sunderland.—Permit me to express my astonishment at the remarks made by your correspondent "J. S." on the 29th ult., regarding this park. Being a native of Sunderland, though at present a resident in the far north, I had heard and read with much pleasure glowing accounts of the beauty of the people's park, but until I came to Sunderland I was much at a loss to conceive how a quarry hole could be converted into a park. A park, however, there is, and permit me to say, and I say it without exaggeration but not without observation, a park unsurpassed by any place of the kind in England. Who Mr. Smith, the gentleman laying out these grounds is, or what are his antecedents I know not, nor do I care to inquire, but I am sure that every unprejudiced person at all acquainted with the place a few years ago, and looking at what it now is, and that at a trifling cost, must pronounce it a perfect marvel reflecting great credit upon the skill and taste of all concerned. Your correspondent "J. S." is certainly in error when he informs you that 3 acres only have been laid out as a park. The fact is there are not less than 15 acres so laid out, and planted with a very choice collection of forest and ornamental trees, and laid out, as far as my judgment is concerned, in the most approved style of landscape gardening. The rubbish heaps grassed over, about which "J. S." writes, are graceful and artistically formed mounds intersected by wide and well gravelled walks, exceedingly pleasing to the eye, suggestive of seclusion, and affording more ample space for exercise than could by any other conceivable means have been obtained. In my estimate of this delightful retreat I am not alone. The inhabitants of the town generally, and also of the neighbouring towns, are loud in their praise, and justly proud of its beauty. I have heard, how far true I cannot say, that some parties are dissatisfied because it is not the product of native skill. If "J. S." is one of these parties, and is seeking to vent his spleen by damaging Mr. Smith he is morally, to say nothing about intellect, vastly more degraded than the poor donkey referred to. However that may be, I am glad to inform you that as there was only one ass tethered so, as far as my information goes, there is only one who will speak of the Sunderland people's park as "J. S." has done. *Medicus.*

Night Flowering Wheats.—While reading Huc's "Empire Chinois," I met with the passage subjoined, which I have translated literally. Is the night flowering of some Wheat plants a fact?—perhaps some of your readers may know and be able to furnish information on the subject. It is a new idea to me. The following is the paragraph alluded to:—"The spirit of observation with which the Chinese are endowed in the highest degree has led them to make a curious remark on the Wheat plant, and one, which in their opinion, is of the greatest importance in agriculture. One of our Christian converts asked us one day if, in France, the species of Wheat which flowered during the night were very numerous. The question was puzzling enough, and we candidly confessed to our questioner that, not being agriculturists, we knew nothing of the number of species of Wheat which flowered during the night; that we had never heard a similar phenomenon spoken of, and that, probably, the cultivators in our country would be themselves much astonished by a similar question. 'Why, no,' cried he, 'your cultivators would not be astonished; they must necessarily know that, otherwise how could they occupy themselves successfully in agricultural labours. Do they sow their fields by chance, without taking any account of the sun and the moon?' We were obliged to confess for the second time our profound ignorance in these matters. Thereupon, our neophyte began to develope to us the most singular of theories on the flowering of the Wheat plant. He told us that the numerous species of Wheats were divided under two great heads—the one whose blossoming began always and invariably during the night, and the other which could flower only with the day. The choice of soil, the time of sowing, and the kind of culture varied according to the species; and he maintained that, for want of knowing these two classifications and conforming to the rules prescribed for each of them, people exposed themselves to the liability of bad harvests. We cannot say to what point one may give credit to this singular observation of the Chinese." ("L'Empire Chinois," par M. Huc, 2me edition, 2nde tome, pp. 361-2.) *A. R. C.* [This story is quite worthy of the gossiping Monsieur Huc.]

What is Cockneyfied?—The judicious remarks on this subject, quoted in your Paper of the 15th September, made me ask myself this question. A vase, a statue, a fountain, or sun-dial, are not necessarily so—can be rarely accused of making a garden look so abroad, but almost invariably make one look so in England, and of course in America. I would describe cockneyism as a feeling for the beautiful of a mind untaught in seeking for it. Thus a statue on rockwork (which may even be seen in Naples) is a case in point; the statue and rocks are beautiful apart, and in their several places, but never can be whilst together, a ruin rising out of a shaven lawn is another case, a smooth-sided canal twisting like a torrent another. Our money-seeking race are taught to make that their study, and not the beautiful; therefore we make money and execrable patterns for design and lose many customers to our manufactures thereby. *Somerset.*

Transplanting at Midsummer.—Permit me to offer a few words in reply to the observations of "An Old Woodman," made on this subject. As he does not endeavour by argument to combat my assertions, and is not going to say that my success was otherwise than is stated by me, I need not occupy space in discussing that point, although I see I might derive considerable support in the matter from your correspondent "G. W. L.," whose letter, No. 3 I think, bears directly upon the subject, both practically and physiologically. The "Old Woodman" says, that no doubt I will find, as he has done, after 40 years' experience, that October and November are the best months for planting. Now, I have discovered, not "in five years," but from time, locality, and circumstances, such as fell but to the share of few men, that October and November are months only "second best" for planting in. Let any one try a thousand or two of Portugal Laurels, Evergreen Oaks, Arbutuses, Hollies, and upright Cypresses in November and June, let the weather be what it may, and then tell us the result; and I will stake my reputation on the success of the midsummer moving, let the weather be ever so hot. Now, I would not be so self-confident were not my experiences founded on years of observation, and I may say on millions of plants, "from the Cedar of Lebanon to the Hyssop that springeth out of the wall. The "Old Woodman," possibly just roused from his lair, "Old Routine," naturally feels disturbed at my statement, which he calls an advertisement; if the writings of other contributors, however, are to be stigmatised as "An Old Woodman" has done mine, an end must soon come to all open and fair discussion on any subject. The following note addressed to me from the Rev. John Cox, of Misterton, will serve to show what success attended some planting done for him by me in summer. He says—"The Holly you had moved for me, May 31st, has lived, and appears to be doing well. It is about 15 feet high and 20 feet in circumference, and had never been moved before. The large Portugal Laurels sent by you on the 11th of June have grown satisfactorily. The Holly when removed did not appear to be well rooted." *John Scott, Crewkerne, Somerset.*

Délices d'Automne Strawberry.—I entirely concur in Mr. Cuthill's excellent remarks on the general cultivation of Strawberries; but I consider his observations inapplicable in the present case. The garden here is in the southern part of the county of Nottingham, in the vale of Belvoir, which is probably one of the driest districts of the midland counties. The soil is of the most tenacious and stubborn character, on the lias formation, but extremely fertile when properly cultivated, producing Strawberries for size, quality, and quantity, equal if not superior to those of most other gardens. As regards the Délices d'Automne it has not experienced any of the disadvantages Mr. C. suggests. It should be borne in mind that I only received the plants last December from Belgium; consequently they were not in the least affected by the autumn of this country, which, however, was one of the driest ever known. The Délices d'Automne being a hybrid from a species of Alpine without runners (*sans coulans*), I expected to see fruit on the early runners of the same year, and which I had taken all pains to encourage. I was therefore rather unfavourably impressed when I saw them run so

freely and vigorously. I could take up at least 50 or 60 well-rooted plants from each original one turned out. I hope the subject will be properly sifted. I scarcely know of any introduction of late years which would have been more acceptable to my employers than this Strawberry. You will therefore judge of my disappointment. *Samuel Bradby, Elton, near Nottingham.*——I am obliged by the notice you have taken of my communication respecting the Délices d' Automne. Shall I be trespassing upon the columns of your Paper if I ask you to make the inquiry, not how many have been disappointed like myself in believing the assertions made concerning it, but whether any one single purchaser has been successful with it, and can announce to the public that he can exhibit now, and shall be able to do so next month, fruit corresponding with what the original advertisement led people to anticipate? I think this will be the fairest and best way of testing the truth of the statements which they made. *Henry Manton, Sleaford.*——I received last autumn 50 plants of the above-named Strawberry which I planted out late in spring in a favourable situation; they were small, but some of them bore fruit in summer of good quality; for some time past I have not been able to understand why such a difference in the appearance of the plants existed, for the greater part of the plants ceased to grow about the middle of last month, but 10 out of the 50 with large glossy dark green leaves have continued to grow, are still in full growth, and two plants out of the 10 have given and are now giving fine fruit of excellent flavour. I now find from the letter of Mr. Makoy, p. 647 (I received my plants from him), that runners of the British Queen Strawberry "got amongst" those of the true sort, and that consequently 40 of my plants out of 50 are of that well-known variety, and that my autumnal Strawberry affair is what is called a "Flemish account" or a "Flemish bargain." I know Mr. Makoy to be, in common with some other Belgian nurserymen, a most honourable man of business; but so much cannot be said of the person who sold him the Strawberries. Is it likely that Mr. Myatt, having a new seedling Strawberry under cultivation, plants of which he was selling at 2*s.* 6*d.* each (the price at which plants of Délices d' Automne were sold), would suffer an old sort, worth one halfpenny each, or 4*s.* per 100, to "get amongst" them? I think not. That Mr. Makoy has been imposed upon there is no doubt; and that he ought to have exercised more care in making his purchase is equally apparent. He has only one duty to perform—he must publish the name of the impostor, so that he may be avoided. *T. R.*

Plant Growing in Mines—The Great Wheal Tor United Mines, some of the most extensive in the county of Cornwall, are situated near Helston, and have connected with them some of the finest steam machinery in the world. A huge 100-inch cylinder engine pumps the water from the main shaft; a new 85-inch cylinder has just been set to work, and there are several other engines in the mines connected with the different operations of procuring and dressing the ores. A novel feature is about to be introduced in connection with these mines. It is believed that the steady and sustained heat of the engine-houses may render them favourable for stove plants; and I understand that the spirited managers of the mines, Messrs. Crease, have sent to the Lea Bridge nurseries for a number of Orchidaceous and other specimens, on the arrival of which trials will be made to ascertain what plants are more peculiarly suited to the engine-house atmosphere. The managers also intend to establish Cottage Gardening Societies in the neighbourhood, for the benefit of the mining and cottage population. About 900 persons are now employed in these extensive mines, which have every prospect of great success. *

Societies.

Entomological, *September 3d.*—J. Curtis, Esq., F.L.S., President, in the chair. Donations to the library from the Royal Society, the Society of Arts, the Entomological Society of Stettin, Messieurs Chevrolat, Guerin-Meneville, Jekel, &c., were announced, as well as 20 species of nocturnal Lepidoptera, new to the Society's collection, presented by Mr. F. Bond. Mr. Lubbock exhibited a number of galls of different kinds growing on Oaks in Kent; Mr. Foxcroft, a number of species of Staphylinidæ, together with Lamia textor and Apamea conigera, from Scotland; Mr. Douglas, specimens of a new Elachista, reared from mines in the leaves of Chenopodium vulgare, Lithocolletes comparella, bred from the leaves of the Poplar since the last meeting of the Society, thus proving that there two broods in the year in the species of this genus, the first having appeared in April; also the very rare Gelechia maculiferella, taken on the windows of his own residence, at Lee, in Kent. Mr. Waring exhibited some remarkable varieties of several species of Geometridæ, recently captured. Mr. Westwood gave a notice of three memoirs, recently published by Dr. Burmeister, 1st, a memoir on the veins of the wings of the Coleoptera, as affording excellent characters for classification; 2d, a monograph on the Mutillæ of South America, of which family a considerable number had been captured by the author during his residence in South America; and 3d, a synopsis of the insects and other objects of natural history represented by Madame Merian in her great work on Surinam, with an identification of the species of which the modern names were given. The president and Mr. A. H. Haliday gave an account of a recent tour in Belgium and Western Germany. At Liege they had visited M. Lacordaire, whose third volume on the Coleoptera is in the press, as well as M. Candeze, who is engaged on a monograph on the Elateridæ. At Aix they had visited M. Foerster, whose collection of minute Hymenoptera is extremely rich and interesting, and at Crefeld they had seen the collections of M. Von Bruck, rich in Coleoptera, and of M. Winnertz, whose memoirs on the minute Diptera have so much enriched the bibliography of that order, and who had invented a very simple microscopic camera obscura for drawing the veins of the wings and other transparent parts.

Garden Memoranda.

Messrs. Veitch's Nursery, King's Road, Chelsea.—This establishment, so interesting at all seasons, is scarcely less so now than in the height of summer, when flowering plants are plentiful. The different houses have just been put in order for the winter, and in doing this their inmates have been so tastefully and skilfully arranged that, although, as a matter of course, few plants are in blossom, their want is scarcely felt. Well-grown specimens, remarkable for fine foliage or elegance of habit, have been liberally introduced among the ordinary in-door occupants both in stoves and greenhouses, and with the best results, the effect produced being at once varied and striking. In a new span-roofed stove, 55 feet in length, and 19 feet in width, which has lately been put up, this is especially remarkable—so much so, indeed, that amateurs, and even the most experienced gardeners, might profit by an inspection of it, exemplifying as it does so well how much may be effected in the way of keeping up a large amount of gaiety, even during the dullest months of winter, by judicious arrangement alone, and the proper disposition among ordinary subjects of variegated and other plants with handsome leaves. Among the latter we remarked various Theophrastas, of which one of the most striking was imperialis, a kind with foliage quite 2 feet in length, and 8 inches broad at its widest part; Cinchona nobilis, a handsome species; a Sanseviera with upright leaves mottled with white; Browneas of different kinds. Gastonia palmata, Aralias, Ficus Leopoldi, Bilbergia gigantea, Brassaciopsis speciosa, Crotons, the charming Cissus discolor, and others, while the red aspect of the different Dracænas gave to the whole life and beauty. Such are some of the materials, which, intermixed with common stove plants, have served to set this house off to unusual advantage. Plants of variegated Pine Apple, which are now being brought forward in tan pits, are also, we understand, soon to be added to the above, which will, doubtless, still further tend to improve the general effect. Among climbers trained along the roof of this stove was a new species of Antigonum sent to Messrs. Veitch from Guatemala by Mr. Skinner. It is a very rapid growing plant, and its flowers are said to be extremely handsome.

The house in which the stove plants were wont to be kept has been altered so as to be suitable for the growth and exhibition of Pitcher plants, of which we need not say Mr. Veitch has the finest collection in Europe. The top of the centre bed has been converted into an open tank, over which the plants are set on inverted pots. The water in this tank is warmed by an iron pipe which has been galvanised to keep it from rusting, and the air of the house is also heated by hot-water pipes. The side shelves are slate; but in a damp house like this they have always a cold, wet, comfortless appearance; to improve this Mr. Veitch has put a neat white painted wooden curb along their edges, and sprinkled a little brown river sand over their tops below the plants, and since that has been done the general aspect of the whole house has been astonishingly altered for the better. It is intended to grow Pitcher plants up the rafters, so that when that has been done sufficiently long to have the roof well furnished with Pitchers, the appearance they will make must be excellent, and this will doubtless become one of the most interesting houses in the place.

The collection of Orchids is in the best possible condition; but, as may be expected at this season, few of them are in flower. One house is filled entirely with Vandas, Saccolabiums, Aerides, white Butterfly plants, and an Angræcum or two; while another is wholly devoted to Cattleyas; and a third to Dendrobiums, Odontoglossums, Oncidiums, &c. Among the few plants now in flower we observed the rare Phalænopsis rosea, Cattleya Harrisoniæ, Miltonia Moreliana, with lilac and deep violet-coloured blossoms measuring quite 4 inches in length; and the true Epidendrum vitellinum majus, with a flower-spike fully 2 feet long, and having on it when we saw it 20 glorious deep rich orange-coloured blossoms.

The arrangement of the show house at the time of our visit was not completed; but we understand it is to be ornamented with some very fine standard Orange trees which have been brought from the Continent for the purpose, as well as with smaller plants in the shape of standards of Jasmines, which are now in flower and deliciously fragrant; Myrtle-leaved Orange trees loaded with fruit, Dracæna indivisa, Norfolk Island Pines, the hardier kinds of Palms, and other fine-leaved plants, which are found to be so useful in the decoration of such houses in winter. The centre of the conservatory at the end of this house is being filled with Camellias; its side wings have recently been heated with hot water and separated from the central part by folding glass doors. In one of the portions thus partitioned off were some remarkable tree and other Ferns, the most striking being perhaps Dicksonia squarrosa and Angiopteris evecta, the latter a noble specimen, nearly filling the whole centre of the place with its handsome spreading leaves. The other wing is occupied by Palms. The centre beds in both compartments have been margined with vitrified masses of brick, which, when over-run with small Ferns and Lycopods, which have been placed on them, will have an interesting appearance.

The main walk down the middle of the nursery has been well drained and gravelled, and flagstones have been laid down its centre as far as the aquarium, or where the traffic is greatest. In front of this water house are two square beds, each containing good specimens of the Pampas Grass, together with Yuccas, and handsome standard Bays, whose tops could not measure less than 5 feet through, and with stems at least 4 feet high. These are indeed noble trees of their kind. Along the sides of the middle walk specimen Conifers have been planted, and behind them beds containing stock of the different varieties. One thing in regard to these specimen Conifers must be said, viz., that although planted out they are in tubs; but the sides and bottoms of the latter are not close, but put together so as to allow roots to pass freely between the staves into the border. This prevents that cramping and corkscrew form which roots confined in pots often take, and which has been justly so much complained of, while it has the advantage of permitting the trees to be moved, packed and sent any distance without danger of the ball being broken. When finally placed in the pit in which they are to be replanted all that has to be done is merely to undo and remove the iron hoops at top and bottom, which were intended for the time to hold the tub together; the wood, if thought fit, may be left in the ground where it will soon rot.

A new pit is being built for young stock of New Holland plants, of which there is a fine collection here, and since our last visit the new orchard-houses at the Brompton Road end of the nursery have been completed, and the trees in them have this year borne capital crops of fruit. With the exception of that on the Stanwick Nectarine, which is not yet ripe, verifying the assertion that it is a very late sort, most of the other fruits have been gathered. Outside of these houses, in the open air, was a large assortment of fruit trees in pots of all kinds, and in excellent condition for this kind of gardening. A new house has also been erected here for the growth of Vines in pots. Its centre bed is filled with tan, and its atmosphere heated by 3-inch hot-water pipes. Under these circumstances Vines grow amazingly fast. Immense quantities of them struck from eyes this spring are 9 feet in height, and well ripened to the very top.

Among rarities, in addition to Wellingtonia, of which three lights of a pit were filled with nice plants, we observed a fine specimen of Eugenia Ugni in fruit, the latter very plentiful and just beginning to colour; Rhododendron californicum, Eurybia alpina, a hardy evergreen shrub; Escallonia pterocladon, Philesia buxifolia, Desfontainia spinosa, a hardy shrub, with fine Holly-like leaves; Laurus aromatica, a greenhouse plant, with fragrant foliage; Abies bracteata and amabilis, Libocedrus decurrens, Thujopsis borealis, and quantities of young plants of Pinus Benthamiana, seeds of which were sent home by Mr. Lobb.

We may add, that in the open grounds until within the last few days the great feature has been China Asters, beds of which have produced flowers measuring at least 4 inches across, and with scarcely a semi-double one among them. These were the French "Pæony-flowered" varieties, which are now so much esteemed.

FLORICULTURE.

Treatment of Cinerarias.—Common as these plants are, yet few manage them well. We too often see tall drawn-up plants, instead of dwarf bushes. Propagation is easily effected by dividing the young offsets from the old plants, and potting into small sized pots; but cuttings are preferable, which should be put in about the end of June, and placed in a cold frame; or, select seed from the best varieties, sow early in the spring, in wide-mouthed pots or pans, and place them where they may receive a gentle bottom heat; and when the seeds have germinated, and the rough leaves are making their appearance, move them carefully into small sized pots, also continue them in a gentle heat, until the weather will permit them to be removed to a frame. Let their position be close to the glass—kept shaded and free from air for a few days; after which give a little air, gradually increasing it until they become comparatively hardened, so that, after a short period, air may be given without engendering any disorder in the plants. Water should be applied moderately, just enough to keep them moist. Never by any means allow them to become thoroughly dry, for the insufficiency of water is the sole cause of that destructive fungus called mildew, which gradually increases, until the plants get into an unhealthy state, and become next to useless. Then how important it is to be on the watch for this insidious foe; for prevention is better than cure, and it is much easier to expel the disease on its first approach than when it has been permitted to ruin the plant. Three things have come under my observation, as regards excluding this encroaching fungus. First, by admitting a free circulation of air, which should be regularly attended to every day, shutting it off at

night. Secondly, as before stated, by attending carefully to the watering. Thirdly, by removing the dead foliage from them, which is also a harbour for green-fly. By adopting the above treatment I have successfully kept this destructive parasite in check. If green-fly appears, with which they are very apt to be infested, fumigate with tobacco. The plants should now require a shift into a larger sized pot, and let the following compost be used: turfy peat, fibry loam, leaf-mould, decomposed cow-dung, and drift-sand, equal parts of each, beaten roughly together, mixing in a little silver sand. Prepare a 6-inch sized pot, with a good drainage, over which place a thin layer of turfy peat, to prevent the soil from intermixing with the sherds. Repot, and again place them in the frame. Water moderately, and the admittance of a good current of air will also have a good effect on them. Let all possible care be taken not to have the roots coiled and cramped by their coming in contact with the side of the pot, which is generally the case after subsisting in the same pot too long. Then, as soon as the roots are penetrating through the soil, let the plants be again repotted into a larger sized pot, using the aforesaid admixture, and be replaced in the same position as before described, keeping them thoroughly clear from aphides by occasionally fumigating. By this time they will have made great progress, and become good sized plants, and those which will not be likely to be overgrown by such a stimulant may have occasional waterings with liquid manure. Cow-dung is the best manure to use, as by it the flowers are made brighter in colour. About the end of October potting should be proceeded with, taking care to pot them into the same soil as that described. A change of soil at this period is highly prejudicial. Six or eight-inch pots should be devoted to the largest plants; and soil rougher than that formerly described. Place them in a greenhouse, close to the glass; thus they will be prevented from being drawn up too weakly. They may be also grown in a frame during the winter, if there is a flue or hot-water apparatus, to prevent the frost from injuring them. Between this and the time of flowering let all means be taken to insure a vigorous growth, carefully tying out, so that the plants may assume a neat and compact form. About the end of February they will have expanded their flowers; then the varieties of colour, long continuance in bloom, and the splendid show which will be formed by them, in the greenhouse or conservatory, at this period of the year when there is little else in bloom, will amply repay the grower for the care which has been bestowed upon them, and any person, by practising the above, may calculate on success. As soon as the bloom begins to decay, and the leaves are turning yellow, less water must be applied. Remove them into a frame, or, if not convenient, out of doors will suit them. As the plants are of an herbaceous habit, they require a period of rest. Some persons prefer growing them entirely in a pit, with a command of heat, which should only be used in case of frost, removing them to the conservatory, or greenhouse, when in bloom. Tie the side shoots out, and give the plants plenty of room. This, with cleanliness, will make them grow in any soil. *G.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—In cases where there are many stove plants in this house it will be necessary, in the event of the weather becoming cold and damp, to use a little fire heat; but be as sparing of this as circumstances will allow, particularly if there are other things in the house likely to be injured by being kept too warm. And in this case it will be advisable to dispense with stove plants, even at the expense of rendering the house somewhat bare of flowers, rather than to keep them here and run the risk of injuring other things on their account. Be careful not to over water things brought from the stove, and also to use water at a temperature of 70° or 80° for these; as watering plants with cold water that has just been brought from a warm house injures the young tender roots, shortens the duration of the blossoms, and often ruins the plant. Use weak manure water for Salvia splendens, so as to preserve the plants in a vigorous state, and keep them blooming as long as possible. Give air freely on fine days, and thin out the twiners on the roof, wherever this can be done with propriety, so as to expose the plants to all the light possible. Give attention to securing a plentiful succession of things for maintaining the gaiety of the house during winter.

FORCING DEPARTMENT.

Pineries.—Plants swelling their fruit should be assisted with a brisk temperature, say from 65° to 75° at night, regulating this according to the state of the external temperature, keeping the house rather close on sunny days and allowing the thermometer to rise to 80° or 85° before giving air freely. Also endeavour to proportion the moisture to the temperature, for a high dry temperature is not favourable to the swelling of the fruit, and there is no chance of getting well swelled heavy fruit without plenty of warmth and moisture. Maintain a steady bottom-heat of about 85°, and use every care to keep the soil in a healthy state as to moisture. When watering is necessary, use clear manure-water, and give sufficient to moisten the whole of the soil, and avoid frequent dribblings, for when this system of watering is practised it is nearly impossible to keep the under soil where the principal roots should be in a healthy state. Use the syringe very sparingly, and only to dew the plants, as heavy syringing after this season is apt to keep the surface soil so moist as to render it difficult to judge as to when water should be given. Any young stock growing in pots which may require re-potting should be seen to at once so as to allow of getting them established in their fresh pots, while they can be kept moderately warm. See that the balls are in a proper state as to moisture before re-potting, as neglect of this is a frequent cause of young plants fruiting prematurely. Keep moist and rather warm for a time after shifting, so as to encourage the formation of fresh roots. Vineries.—Should wet weather set in we would advise covering the border of the early house with dry stable litter, fern, or whatever can be obtained most conveniently that will answer the purpose of keeping the border dry. Nothing answers better for this purpose than clean straw, provided the border slopes from the front of the house, and in this case it is easily thatched so as to throw off the wet entirely. But straw is too valuable in most parts of the country to be used for this purpose, and wooden shutters would be found cheaper in the end; nevertheless, where straw can be obtained, it will be found to answer the purpose perfectly. It will also be advisable to cover the borders of houses in which it is intended to keep ripe Grapes for any length of time, so as to prevent the soil getting saturated about the roots. Look over ripe Grapes frequently, particularly in damp weather, cutting out any tainted berries immediately they are perceived, and keep the atmosphere as dry as possible, using gentle fires when necessary with a free circulation of air; but a warm temperature is nearly as injurious as damp, therefore use no more fire-heat than may be absolutely necessary. Let no pot plants requiring watering remain in houses where the Grapes are ripe and expected to hang for any length of time.

FLOWER GARDEN AND SHRUBBERIES.

Unless where alterations are in hand the principal work in this department for the present will be mowing and clearing up of leaves, &c.; and if anything like neatness is to be maintained, this will require daily attention: also see to getting gravel walks thoroughly cleared of weeds and Moss, &c., and roll them frequently when wet, to keep the surface hard and smooth. Continue to afford young stock in pits and frames the most careful attention, and endeavour to get it well rooted and strong without keeping so close or warm as to render it sappy and liable to fog and damp off on the first approach of winterly weather, as is the case with stock got up in heat late in autumn, and then stored away in cold pits for the winter. Therefore admit air freely to all plants that are sufficiently rooted to bear it without flagging. Newly potted-off things should, however, be placed on a gentle bottom heat which will impart a little warmth to the soil and encourage the formation of roots, but sufficient air should be given to prevent anything like weakly growth. Cuttings of Calceolarias, Scarlet Geraniums, &c., may still be put in where the stock is deficient. Scarlet Geraniums will root almost anywhere, but Calceolarias are not quite so accommodating, as cuttings taken from plants in the open ground are very liable to damp off in heat; these, will be found to do very well, however, in a close pit or frame where there is the means of applying a little warmth when necessary to dispel damp. See to securing as many cuttings as possible of any scarce plants which it may be desirable to increase while there is a fair chance of rooting them, and also be prepared to protect scarlet Geraniums and other things which it may be intended to take up and winter, for we may expect frost any time after this season, and if such things can be protected so as to prevent the foliage and young wood being much injured, they are much more easily wintered. Attend to former directions, and lose no time in getting preparations made for the removal of large trees and shrubs, as both the season and the weather are now very favourable for this kind of work; and ground intended to be planted with young stuff from the nursery cannot be turned up too soon.

HARDY FRUIT AND KITCHEN GARDEN.

Look over fruit remaining out of doors frequently, and gather it as it becomes fit, as if left to get over ripe it will be liable to be blown down and bruised should high winds occur; also examine that stored in the fruit room frequently, as there will occasionally be a few decaying fruit found for a few weeks after housing, and these should be removed as soon as they can be perceived. Keep the fruit room cool and airy, in order to allow of the escape of the moisture given off by the fruit, which is considerable for a few weeks at first. Examine Plums, or any other fruit protected by covering occasionally, to see that they are not spoiling. Where it is intended to make any fresh plantation of fruit trees this season, the ground should be prepared at the earliest convenience, and any fresh soil to be used for planting should be thoroughly exposed to the action of the weather so as to have it in a mellow state when wanted for use. If not already done clean and dress Strawberry plantations, clearing away all useless runners, giving a good dressing of manure where necessary, but be careful to select that which is thoroughly decayed, and which can be covered without the necessity of digging deep or injuring the roots. The principal crop of Celery should now be kept rather closely earthed up, using quick lime and soot freely to destroy slugs, and if these are troublesome go over the lines every morning for several successive days, and apply quick lime or pick up the pests.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Oct. 4, 1855, as observed at the Horticultural Gardens.

Sept. and Oct.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain.
Friday 28	17	29.669	29.416	72	56	64.0	59	58	S.W.	.32
Satur. 29	18	30.024	29.538	73	55	64.0	59	58	S.E.	.18
Sunday 30	19	29.505	29.423	68	47	57.5	59	55	S.E.	.10
Mon. 1	20	29.529	29.496	64	40	52.0	58	58	S.W.	.02
Tues. 2	[illegible]	29.641	29.564	66	40	53.0	57½	57½	W.	.12
Wed. 3	22	29.707	29.517	62	50	56.0	57	57	S.	.36
Thurs. 4	23	29.569	29.28[illegible]	68	47	57.5	57	57	S.W.	.70
Average		29.634	29.407	67.6	47.8	57.7	58.1	57.6		1.77

Sept. 28—Overcast; cloudy; rain at night.
— 29—Cloudy; fine; rain.
— 30—Hazy; cloudy; rain.
Oct. 1—Fine; showery; fine at night.
— 2—Foggy; cloudy; hazy; rain.
— 3—Dense fog; rain throughout.
— 4—Densely clouded; excessively heavy showers, with thunder and lightning in the afternoon.

Mean temperature of the week 4 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Oct. 13, 1855.

Oct.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 7	61.8	42.8	52.3	12	0.58 in.	1	4	2	2	4	12	3	1
Mon. 8	60.2	42.0	51.1	13	0.63	1	4	3	3	4	6	6	2
Tues. 9	59.7	43.1	51.4	16	0.52	—	5	1	1	5	11	5	1
Wed. 10	61.3	42.8	52.0	14	0.68	2	2	3	—	7	[illegible]	4	3
Thu. 11	62.0	42.8	52.4	13	0.[illegible]4	2	4	2	2	4	8	4	3
Frid. 12	59.8	42.0	50.9	15	1.10	4	4	2	—	5	5	7	2
Satur. 13	59.6	42.3	51.0	14	0.33	4	4	4	—	6	5	4	2

The highest temperature during the above period occurred on the 13th, 1845—therm. 76 deg.; and the lowest on the 12th, 1850—therm. 27 deg.

Notices to Correspondents.

Fruits for Naming. Received *W K*, *Mary*, *S B*, *W C G R*, *W*, and *A Sub.*

Gooseberry Apple: *E T.* This variety is of a yellowish colour when ripe, of large size, and excellent quality as a kitchen fruit. It becomes fit for use in November, and will continue sound and good for months. It is therefore evident that what you purchased under the above name could not have been the true sort.

Hautbois Strawberries: *D H* says—"I have this year had some remarkably fine and vigorous plants of this Strawberry; the bloom was beautiful, and in great quantity, but it all turned black in the eye, and I had not one Strawberry from at least 40 plants. Is there any remedy for this? Being very fond of the Hautbois Strawberry, I am anxious to have them if possible, and I cannot account for the disappointment I have received.—[This variety is what botanists call polygamous, some plants bearing flowers with stamens and pistils combined, others having stamens only. The latter, being male, are of course barren. The male plants are very apt to overrun and displace the others. They should be weeded out, and the perfect ones only saved. The "Prolific Hautbois" is nearly free from this great defect.]

Insects: *S B.* The insects on the Pear shoots are the mussel scale, Coccus conchiformis, very difficult to eradicate, and of which the history, transformations, breeding time, &c., are still unknown. We know nothing more serviceable than scrubbing the bark with a stiff brush, and washing it with hot water.—*A Young Beginner.* We found no insects on your Cineraria leaves, which are blotched as though sucked by thrips or aphis. Try renewed fumigations and subsequent syringing with fresh water.—*E K.* The caterpillars sent are those of the common large white Cabbage butterfly. Those which are transformed into a lot of little yellow cocoons are attacked by the parasitic Ichneumon glomeratus, of which these little cases are the cocoons.—*A Sub.* The insect is the devil's coach-horse, Staphylinus olens. Its jaws are very sharp and able to inflict a smart bite, instilling a little salivary secretion into the wound, which caused the redness in question. Its ordinary food is worms.—*J G.* The maggots found in the tubers of your Potatoes are the young larvæ of the common cockchafer.—*J T A.* Your moth is the common silver Y moth (Plusia gamma). The caterpillar feeds on most plants; it is pale gray with whitish and yellow lines down the sides and back. The moth is very rapid in its flight, and loves the sunshine. *W.*

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*D Y S.* Phytolacea decandra.—*Beta.* It is impossible to make anything of a flower so crushed and withered. It looks like a lump of Eucharidium concinnum.—*Daniel Lovelock.* Impatiens Noli tangere.—*R Champenoune.* Your fungus is Scleroderma vulgare, Fr. The subterranean form has been mistaken for a truffle. *M. J. B.*—*Bella.* Asplenium viride. *S.*—*Diss.* Both are Quercus pedunculata undoubtedly.

Pickling Capsicums: *Sub.* Put them in wide-mouthed bottles, add a little salt, and fill your bottles with vinegar.

St. James's Park: The correspondents who have favoured us with their communications upon this subject will find the question revived very shortly.

Seedling Pines: *A Forester.* It is impossible to say why your Pines have shanked off. Probably they have been kept too damp. The seedlings belong to the valuable Abies Pinsapo.

Stephanotis: *W W.* The fruit is acrid and poisonous.

To Keep Cattle from Damaging Trees: *Sub.* We are unacquainted with any material which rubbed on the trees will efficiently prevent deer and cattle from injuring a plantation from which you have lately taken away the fence, and at the same time do no harm to the trees. Coal-tar, besides being injurious to the bark, is very unsightly, and when dry becomes altogether useless as a preventive against the ravages of cattle. *B.*

Tomato Sauce: *Sub.* Put the Tomatoes, when perfectly ripe, into an earthen jar, and set it into an oven, when the bread is drawn, till they are quite soft; then separate the skins from the pulp, and boil the latter with a few Capsicums, a few Cloves, a little salt and ginger; stir it well in boiling to let the thin part evaporate; bottle it for use. Be careful in boiling it that the saucepan does not spoil the colour.

Vines: *A G.* It is impossible to say what caused the cane of your Vine to split. Such a circumstance occurs under very different conditions; usually on account of the want of power in the buds of the cane to consume the sap impelled into them. Mr. Rivers' work is published by Longman & Co.

Walls: *J H.* There is nothing so good as common black paint for blackening walls. But why blacken them at all? Fruit has not been found to ripen better on black walls than those of ordinary colour.

Misc: Full price will be given for No. 7, 1847, and 27, 1851.—*F Wailes.* The law compels us to stamp the Paper in front.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

THE FOLLOWING MANURES are manufactured at Mr. Lawes' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*

Office, 69, King William Street, City, London.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE LONDON MANURE COMPANY'S NITRO-PHOSPHATE OR WHEAT MANURE FOR AUTUMN SOWING.—This Manure, composed of blood, animal matter, and dissolved bones with silicates, is most strongly recommended to the notice of Agriculturists. It contains from 7 to 8 per cent. of nitrogen, in a form yielding ammonia by slow decomposition, and is therefore particularly adapted for Wheat. The quantity required is 2 to 3 cwt. per acre drilled in with the seed. Price, per ton, 7*l.* 10*s.* in London.

PERUVIAN GUANO, FISHERY SALT, and every other MANURE on best terms, strictly warranted.

40, Bridge Street, Blackfriars. E. Purser, Sec.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. Nesbit, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

BLOOD MANURE FOR WHEAT.

THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY.

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MANUFACTORY, PLAISTOW MARSHES, ESSEX.

The Directors of the above Company (many of whom are eminent agriculturists), beg to call the attention of their friends and the agricultural community to their Patent Blood Manure, which is composed of Bones dissolved with sulphuric acid, to which is added about 1500 lbs. of pure Blood to every ton of the Manure, carefully dried and prepared for the drill or hand sowing. Being rich in Nitrogen and other necessary ingredients, it is especially adapted for the Wheat Crop, and has been used with the greatest success in all parts of England.

It is a very remarkable fact that the analysis of Blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists; it contains all the elements which plants require, and when properly prepared and applied, will become the essence of vegetable as well as of animal life.

The highly fertilising properties of Blood has been commented upon by Professor Way, and others, and the success of the Blood Manure for Wheat Crops has been fully proved upon all soils, by the practical experience of numerous agriculturists, a few of whom are the following:—

Sir Archibald M'Donald, of Woolmer Lodge, Liphook, says: "The Wheat manure I purchased of you has answered its purpose admirably."

Jonas Webb, Esq., Babraham, Cambridgeshire.—"Your Wheat manure I tried by the side of guano, and if anything it had the advantage, as the quality from it is superior."

Mr. Baker, Steward to His Grace the Duke of Bedford, Park Farm, Woburn, Bedfordshire.—"I used your manure upon a piece of poor land after Peas, and have grown an excellent crop of Wheat."

Mr. Benjamin Goulton, Gedney Marsh, Long Sutton, Lincolnshire.—"I drilled your manure at the rate of 2½ cwt. per acre, along with the Wheat over 30 acres, and although the field is the poorest land I have on my farm, the crop ranked amongst the best I have. I do not know how I can recommend it better than by saying I shall use it much more extensively this season."

Mr. Walter Murton, East Stour, Ashford, Kent.—"I sowed your Wheat manure last autumn, and the consequent increase in the crop both of corn and straw has convinced me of its great utility."

Mr. H. Steed, Nonington, near Wingham, Kent.—"I used Odams' Patent Manure for Wheat last November, and never have I used any artificial manure with such benefit."

Mr. Frederick Robinson, Southery, near Downham Market, Suffolk.—"I last autumn used 2 cwt. of your manure per acre on a piece of fen land; it came up very strong in plant, assumed a most healthy appearance during the winter, and has produced me one of the finest crops I ever grew."

Extract from the *Agricultural Gazette*, 7th April, 1855.—"The Nitro-Phosphate Company throw blood and bones together, and add sulphuric acid, thereby manufacturing a manure, which, as it contains soluble phosphate along with nitrogenous matter, is as nearly perfect, whether for roots or corn, as anything can ordinarily be."

Extract from the *Mark Lane Express*, of January, 1854.—"Amongst the new things which appeared this year for the first time was Odams' Patent Blood Manure; and it is this addition to our fertilisers which falls to our province to review. Blood has long been acknowledged one of the most enriching of all our manures, a proposition the soundness of which has been proved by innumerable experiments. Now that the startling fact has reached the ears of the agricultural public that Peru will be exhausted of Guano in a few years, surely the prospects of an everlasting supply at home will be accepted with some degree of national satisfaction, more especially since the latter is superior to the former in quality."

The Public are cautioned against spurious imitations; as security to the purchaser every Bag is marked "Odams' Patent Blood Manure," and sold only by the authorised Agents of the Company.

OFFICES, 109, FENCHURCH STREET.

Price 7*l.* 10*s.* per ton, free at any Railway or Wharf in London.

Directions for Use.—From 2 to 4 cwt. per acre, according to the condition of the soil. It may either be drilled in with the seed or sown broadcast; if the latter it should be well harrowed in

SMITHFIELD CLUB, 1855.—FAT CATTLE SHOW.—The ANNUAL CHRISTMAS SHOW of FAT CATTLE, SHEEP, and PIGS, will take place on the 11th, 12th, 13th, and 14th of December, 1855, at the Carriage Bazaar, King Street, Portman Square, when nearly 800*l.* will be awarded in Prizes and Medals.

The printed forms of Certificates, properly filled up, must be returned to the Honorary Secretary on or before SATURDAY, November 10th. Prize Sheets and the necessary printed forms of Certificates are now ready, and can be obtained on application to B. T. Brandreth Gibbs, Honorary Secretary, Corner of Half-moon Street, Piccadilly, London.

All communications on the Club's business should bear the words "Smithfield Club" on the outside.

HIGHLAND AND AGRICULTURAL SOCIETY. —EDINBURGH VETERINARY COLLEGE.—The Committee of the Highland and Agricultural Society of Scotland, appointed to superintend the Veterinary College, hereby intimate that the SESSION will commence on WEDNESDAY, November 7th, at 2 o'clock.

The Course of Study includes the following Classes:—

1. Zoiatrics, Veterinary Medicine and Surgery Professor Dick.
2. Zootomy, Veterinary Anatomy & Physiology Mr. Barlow.
3. Chemistry ... ... Dr. Lindley Kemp.
4. Veterinary Materia Medica and Pharmacy Dr. Lindley Kemp.
   Anatomical Demonstrations ... ... Mr. Barlow.

By Order of the Committee,

Edinburgh, Oct. 6. Jn. Hall Maxwell.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.

Principal—J. C. Nesbit, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

DRAINAGE OF LAND, BOGS, ETC.

MR. HUMBERT, of Watford, Herts, supported by unquestionable references and testimonials, offers his services to proprietors about to execute works of drainage, which he will undertake personally to lay out and superintend, and to supply the forms and attendances necessary to obtain the certificate of the Inclosure Commissioners at a fixed price per acre. Mr. Humbert (having been more than 15 years established in business as a Surveyor and Land Agent) has found that wet heavy soils can be usually carefully and thoroughly drained, with pipes 4 feet deep, and upwards, at from 4*l.* to 5*l.* per acre, inclusive of every expense.

LAND DRAINAGE.

MR. THOMAS SCOTT, Land Agent and Valuer, 5, Charing Cross, London, is prepared to undertake the Planning and Execution of LAND DRAINAGE in large or small quantities, by Contract or on Commission. He has now at work around London steady and well-organised "gangs," under competent Foremen and Pipe-layers.

Mr. Scott is at present carrying out extensive Drainage Works on Crown Lands, which he will be happy to show to Gentlemen desirous of seeing them. Communications addressed to him, as above, will be immediately attended to.—Oct. 6.

THE CONSERVATIVE LAND SOCIETY. FOURTH YEAR.—The third financial year being ended, a favourable opportunity is presented to persons desirous of investing capital or savings at the opening of the fourth year, whether as investors for the sake of drawing half-yearly the guaranteed 5 per cent. interest per annum payable on completed shares and uncompleted shares, upon which a year's subscription and upwards have been paid, and of receiving whatever bonus may be annually declared, or whether as allottees for the purpose of acquiring building land to secure lucrative ground rents. The taking of land is quite optional. No risk and no responsibility. Monthly payments 8*s.* per share. For prospectuses apply to

Charles Lewis Gruneisen, Secretary.

33, Norfolk Street, Strand, London.—Oct. 6.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the nobility, gentry, and clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of colours, prices, together with a copy of the testimonials, will be sent on application to Walter Carson & Son, 9, Great Winchester Street, Old Broad Street, Royal Exchange, London No Agents. All orders are particularly requested to be sent direct.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of Elisha Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. White & Brothers, Milbank Street, Westminster.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. Burgess & Key, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. Francis Parkes & Co.

FIRST PRIZE REAPING MACHINE.
NOTICE.

MESSRS. BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 80*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—Burgess & Key, 103, Newgate Street; and 52, Little Britain, London.

DO YOU BRUISE YOUR OATS YET!—One bushel of Oats when Crushed will make two. Great saving OAT BRUISERS, Chaff-cutters, Ploughs, Threshing Machines Flour Mill Carts, Corn Dressing do., Horse and Steam Machinery put up, &c. Book on Feeding, 1*s.*

M. Wedlake, 118, Fenchurch Street, London.

The Agricultural Gazette.

SATURDAY, OCTOBER 6, 1855.

Mr. Northcote has published in the current number of the *Philosophical Magazine* a useful paper on the Function of Salt in Agriculture, to which we beg the attention of our readers. In reference to the alleged power of salt to fix ammonia, it has been understood that the sum of the affinities of muriatic acid for soda and of carbonic acid for ammonia, by which on the mixture of common salt and carbonate of ammonia these substances are enabled to retain the characters which respectively distinguish them, is so nearly equal to the sum of the affinities of carbonic acid for soda, and of muriatic acid for ammonia, by which these salts would decompose each other, that it depends on other circumstances capable of influencing the intensity of chemical affinity, whether these salts shall retain their original characters or assume those proper to carbonate of soda and muriate of ammoniate, into which, on mutual decomposition, they resolve. Such a mutual decomposition would furnish in carbonate of soda a salt more caustic than either of the original substances, and in muriate of ammonia a fixed salt in place of the volatile carbonate of that alkali. It is, therefore, greatly to be desired, in an agricultural point of view, that so cheap a mode of fixing this volatile part of manures should be available—and it is the near balance of the affinities on which such a method depends that the great variety of experience which has been published on salt as a fixer of ammonia depends.

The paper by Mr. Northcote relates his own experience on this subject in the laboratory, and that of other chemists. It appears that M. Barral "exposed to the air for 15 days equal weights of guano, and of guano previously mixed with half its weight of salt: the amount of nitrogen in each being determined at the end of that time, he found that the pure guano had lost 11.6 per cent. of its nitrogen, whilst that mixed with salt had lost only 5 per cent."

This is one of the instances indicating the retaining power of the soda salt over the volatile alkali, and a number of experiments by Mr. Northcote strikingly confirm this inference, correcting, however, the views which have been hitherto held on the subject by attributing the power in question in a great measure to the sulphate of lime present in the common salt of commerce, and showing that this power is not permanently exercised, but that the ammonia there collected is again gradually liberated. This, however, is by no means fatal to the agricultural value of this function of common salt, and Mr. Northcote's results may therefore be considered of great agricultural value. They are as follows:—

"That agricultural salt is a most energetic absorbent of ammonia, both in virtue of its chloride of sodium and of its soluble lime-salt, and that the proportion of the latter especially most powerfully affects its action; but that at the same time its agency does not seem to be altogether a permanent one; it will collect the ammonia, but it is questionable whether it can retain it for any great length of time, because in the very decompositions which happen in order to render the ammonia more stable, salts are formed which have a direct tendency to liberate ammonia from its more fixed combinations. It may, however, retain it quite long enough for agricultural purposes: if the young plants are there ready to

receive it, its state of gradual liberation may be for them the most advantageous possible; and to this conclusion all experiments on the large scale appear most obviously to tend. It is described as an excellent check to the too forcing power of guano; and from M. Barral's experiment we see that it either prevents the too rapid eremacausis of the latter, or stores up the ammonia as it is formed. As a manure for growing crops, all experience and all theoretical considerations therefore show it to be the most valuable; but when employed to mix with manure heaps which have to stand for considerable periods of time, theory would pronounce, as practice has in many cases done, that its power of retaining ammonia under those circumstances is at the best doubtful."

Draining, subsoiling, liming, burning, and the application of light earths and vegetable manures, perform wonders in transforming heavy clay into more porous and friable mould; yet, when all these means of amelioration, chemical and mechanical, shall have been everywhere persevered in, our present dead-fallow districts will still remain by comparison the "strong lands" of the kingdom—demanding great judgment and more than average labour in their tillage management. Chemically the clays are inexhaustibly rich: their physical properties, however, have prevented us from fully developing this fertility; and when we have tried every process for improving their texture, there will still be the problem *how to effect a thorough revolution in their mechanical treatment.*

"Britons" may "venerate the plough," but every observant cultivator of heavy soil can read counts of indictment against it; employing it only until a more perfect implement is supplied him. No one will say that *dragging horizontally* is essentially the right motion for *raising and turning* the soil, and that a tool originally devised for scratching the surface is specially adapted for inverting a deep staple. The screw-wedge implement, improved to the highest pitch of excellence, is (on stiff clays) only a make-shift expedient for applying animal power to an operation which only manual digging has ever yet done well. The plough only *partially inverts*—leaving unburied vegetation peeping from the furrow seams; it only half cuts and divides the soil—leaving slices of such size and continuity as to harden into unmanageable slags requiring weeks for their proper reduction. In effecting this imperfect tillage, it exerts *a detrimental action upon the subsoil,* by the pressure of its cleaving share, and the hard polishing of its sliding sole; and the horse's hoofs also pound and knead both surface and subsoil. Then the principle of twisting up a tough furrow-slice with a screw blade mould-board, and still more of sledging the whole weight of the implement, involves *an enormous amount of friction;* so that a third part of the draught is engaged in simply conveying the plough towards its work. Yet the avoidance of friction is one of the main points in a machine for tilling an adhesive clagging substance like clay. No modification of a drawn plough is therefore likely to be successful. Slight improvements alone are possible while the implement remains fundamentally wrong.

We may here advert to two ways in which the imperfect work of the plough has been sought to be obviated. In Jethro Tull's day, the ploughs cut in all strong land (as they do now) a thick furrow-slice in one whole piece, or but slightly broken; cross-ploughing did not thoroughly divide and overturn the furrows of the first ploughing, but drove them up into heaps, with their surfaces lying in various postures, so that the turf not turned undermost continued to grow vigorously, still matting the slice together with its roots. Heavy drags with huge iron tines in them were next employed to tumble and partially break the great pieces of furrows, but it required months to reduce them to a moderate fineness. Seeing that all this arose from the undue size and solidity of the first furrows, Tull contrived a plough with four coulters, which cut the slice to a great depth into four parts, each of about 2½ inches thickness, and these in turning over broke and fell into many smaller pieces. With this implement, followed by the common plough, &c., he could resolve stubborn ground into a fine seed bed in much less time than by any other means.

Upwards of 30 years ago, Mr. Brown, of Kinwarton, near Alcester, attached a couple of pulverising knives behind the mould-board of a plough, which, projecting horizontally into the furrow-slice, cut and crumbled it, so that on stiff adhesive soil the work had the appearance of that of the spade. This severing and disintegrating of each furrow-slice immediately after it is raised by the mould-board, and before it is pressed into a compact mass by a succeeding one, and so left to dry and harden in a whole piece, is analogous to the manipulations of the gardener, who bruises and pulverises each spadeful of earth as he throws it up from the trench. The knives add about 15 per cent. to the draught of the plough, but they produce a sufficiently fine tilth for the reception of seed, with very little after-use of the harrow—thus mainly avoiding the great injury of trampling and poaching. A full description of this invention is contained in the Royal Agricultural Society's Journal, vol. iii., 1842. Mr. Brown informs us that he still continues to use these knives when preparing land for seed, although they are not required for fallow ploughing.

Both these examples point out the right direction for improvements in tillage machinery: we must discard the longitudinal motion and wedge action of the plough, and *cut up the soil into considerably finer detail.* We *have* an implement answering these conditions, but unfortunately it cannot be worked by either horses or steam, and to employ manual labour for the purpose is thought too expensive, and otherwise impossible for large farms—we mean the *spade.*

If any inventor can construct an efficient revolving digger or forker strong enough to grapple effectually with tenacious clay, to be drawn by wire-ropes from a fixed steam-engine—or, still better, if a very light motive-power can be discovered and made to traverse our fields—we shall then possess the principal part of the machinery of which we are in search. But a few words more upon this subject on a future occasion. *I. A. C.*

THE SUFFOLK HORSE.

The death of the late Mr. Thomas Catlin, of Butley Abbey, occasioned the disposal of his valuable collection of cart horses. At the beginning of the present century the pure Suffolk horse was almost extinct. The late Lord Huntingfield and the late Sir Robert Harland were about the first men in high station who appreciated the value of the breed, and to what at that time was considered the enormous prices which they paid for colts and fillies of undoubted purity may be ascribed the impulse given to our agriculturists not to neglect any longer the development of the fine qualities characteristic of the race—strength of limb, compactness of mould, lightness of carriage, and soundness of constitution. Fortunately, Mr. Thomas Smith, of Parham, possessed an entire horse of unmixed blood, which became the progenitor of all the splendid animals that have since made the breed so renowned. The celebrity of the Suffolk horse, however, beyond the limits of the county, is in a great measure due to the exertions of Mr. Catlin. For a long period of years he had, in common with other gentlemen, devoted much care to the improvement of the stock, but he was one of the first, if not the very first, who boldly challenged comparison with other breeds at the meetings of the Royal Agricultural Society, and this brought it into the repute which it now enjoys throughout England and on the Continent. The high price of 300 guineas for which Boxer, an entire horse, was sold a few years ago to the Duke of Manchester, the high price of 100 guineas for which a foal was recently sold to the King of Hanover, and the numerous prizes gained by the Royal Duke and other horses at both national and provincial meetings, were so many laurels that placed Mr. Catlin in a position of which the whole county of Suffolk was justly proud.

The sale took place on Wednesday, and was conducted by Messrs. Cana & Cook, of Woodbridge. The attendance at one period was between 4000 and 5000 persons. The first lot put up was—Diamond, 3 years, by Duke, dam by Catlin's Old Boxer, in foal to Sultan; gained the first prize at the East Suffolk Agricultural Society's meeting, Ipswich, 1855; the prize as a 2-year old at the Saxmundham meeting, 1854, and was highly commended at the meeting of the Royal Agricultural Society held at Lincoln. The biddings commenced at 60 guineas, from which they made a jump to 100 guineas, next to 125 guineas, and then advanced 5 guineas each bid, until 180 guineas was reached, for which sum the mare was knocked down to Mr. Arthur Crisp. Lot 2, Doughty, 3 years, sire Duke, in foal to Sultan, awarded the first prize at the East Suffolk Agricultural meeting held at Ipswich, 1853, was put up at 60 guineas, and purchased by Sir Edward Gooch, Bart., M.P., at 95 guineas. Lot 3, Darby, 3 years, sire Duke, in foal to Sultan, was sold for 100 guineas to a Mr. Patterson. Lot 4, Depper, in foal to Duke, fell to Mr. Fisher Hobbs at 90 guineas. The remainder of the working horses and mares in foal realised prices below these, as will be seen by reference to the catalogue below, the amounts ranging from 24 guineas for lot 37, Proctor, 10 years, a gelding, to 80 guineas for lot 12, Diamond, 3 years, sire Benham's horse, in foal to Sultan. The 38 animals placed in this class produced a total of 2137*l.* 16*s.*, an average of 56*l.* 5*s.* each.

The first stallion offered—Duke, is described in the catalogue as the best cart stallion in England, 16½ hands high, 9 years old. The following prizes have been awarded to Duke:—In 1848, the first prizes as the best 2-year-old, at the meetings of the East Suffolk and the West Suffolk agricultural meetings; in 1849, the first prizes as the best 3-year-old, at the East and West Suffolk meetings; in 1851, the first prize at the meeting of the Royal Agricultural Society at Windsor; in 1852, and again in 1854, the first prize at the East Suffolk meetings. The auctioneer said the fame of Duke was so well known that it was useless to attempt to say anything about him—he might as well read the history of the great man whose name had been given to the horse! his fame was known all over England and on a great part of the Continent. "Royal Duke" passed into the hands of Mr. Fisher Hobbs, at the price of 255 guineas. The seven lots in the stallion class produced an aggregate of 824*l.* 5*s.*, or an average of 117*l.* 15*s.* each.

The entries in the class of entire yearling colts were six in number. They realised a total of 384*l.* 6*s.*, or an average of 64*l.* 1*s.* each. The next class of animals offered for sale was the brood mares with foals by their side, and here again the choicest lots commanded high prices. The aggregate realised by the 12 mares was 814*l.* 16*s.*, an average of 67*l.* 18*s.* each; and the aggregate realised by the 12 foals was 437*l.* 17*s.*, or an average of 36*l.* 9*s.* 9*d.* each.

In the class of bay teams there were 12 lots, which sold for 511*l.* 7*s.*, an average of 42*l.* 12*s.* each. Five three-year-old fillies and geldings sold for 265*l.* 13*s.*, an average of 53*l.* 3*s.* each. Of the two-year-old fillies lot 94, by Duke, own sister to lot 1 (obtained the first prize at the meeting of the East Suffolk Agricultural Association held at Saxmundham, 1854), was put up at 50 guineas, and after a spirited competition, fell to Mr. Wolton, at 125 guineas. Five two-year-old colts sold for 162*l.* 15*s.*, an average of 32*l.* 11*s.* each; and 10 one-year-old fillies and colts produced exactly the same average, being disposed of at a total of 325*l.* 10*s.* The remainder of the sale consisted of nag horses, colts, and ponies, which call for no especial notice. For the assistance of those of our readers who may feel interested in preserving a record of this remarkable sale, we append a classified summary of the results:—

		Total.	Average.
38	Working horses and mares ...	£2137 16*s.*	£56 5*s.* 2*d.*
7	Stallions	824 5	117 15 0
6	Entire yearling colts	384 6	64 1 0
12	Brood mares	814 16	67 18 0
12	Foals at Foot	437 17	36 9 9
12	Bay mares and geldings	511 7	42 12 3
5	3-year-old-fillies and geldings ...	265 13	53 3 0
7	2-year-old fillies	392 14	56 2 0
5	2-year-old colts	162 15	32 11 0
10	1-year-old fillies and colts ...	325 10	32 11 0
114	Total	£6256 19	

Average all round, £54 17*s.* 8*d.*

Abridged from the Suffolk Chronicle.

EXPERIENCES IN LAND DRAINAGE.

XXVIII. The result of my drainage operations on all descriptions of land has been perfectly satisfactory.—The drainage adopted is on a parallel system.—The prevailing depth of the drains is 4½ feet—I have made no difference in my mode of draining between arable and Grass land.—The direction of the minor drains is with the fall. I have not followed the furrows where the land is in ridges.—The pipes used have been 1½-inch for minor, from 3 to 6 and in some cases 8 inches for mains. No collars or socket-pipes used.—Giving air at places to either main or minor drains has not been found necessary.—No particular number of acres are drained into one outlet, but the size of the main-drain pipes is increased accordingly towards the outlet.—The subsoil is weald clay, in most cases intermixed with iron sandstone.—The mean height of the land drained above the sea level is a little over 200 feet.—The average depth of rainfall in this neighbourhood for the last ten years has been a little over 29 inches. *From Sir J. V. Shelley, Maresfield Park, Sussex.*

XXIX.—My drainage operations on all descriptions of land have been highly satisfactory.—I have adopted a parallel system.—The prevailing depth of the drains has been 4 feet for branches, mains 4½ or 5 feet, occasionally more, as the level requires.—No difference made in draining between arable and Grass land.—The direction of the minor drains has been generally with the fall, and generally following the furrows, which is found to answer best.—The pipes used have been 2-inch for minor, 4 and 5, occasionally 6 for mains. Not often used collars.—No benefit by giving air at places to either main or minor drains. All closed are preferred.—As to the average number of acres discharging at the one outlet, most fields have only one outlet.—The soil and subsoil is various, clay, moist soil, gravel, limestone bottom, &c.—The geological formation is chiefly sandstone, occasionally mountain limestone, millstone grit, &c. The mean height of the land drained above the sea level is between 600 and 700 feet. *Replies from Rev. J. Witham, Lartington Hall, Barnard Castle.*

XXX.—Drainage operations on all descriptions of land have been satisfactory.—The system adopted is parallel.—The prevailing depth of the drains is 3 to 5 and 6 feet.—No difference in the mode of draining between arable and Grass land.—Have followed the furrows where the land is in ridges.—The pipes used for minor and for main drains have been 1¼-inch for minor and 3-inch main; no collars or sockets.—I have never tried giving air at places to either main or minor drains.—The average number of acres discharging at the one outlet is 4 to 6 acres.—The soil and subsoil are clay and loam, and clay with gravelly veins at places.—The geological formation London clay and plastic clay.—The average depth of rainfall in this neighbourhood is 16 to 18 inches.[?]—I have drained extensively for the last eight years, both in Essex and Suffolk. I am of opinion that 3 feet is the best depth for heavy land with clay subsoil, where there is no bottom water. I usually drain 3 feet deep and 18 to 21 feet apart. I do not mean to say that 4 feet deep and 18 feet apart would not be efficacious; I think it would, but I do not think it would be better, and the expense is too great; decidedly 3 feet and 6 yards apart is better than 4 feet and 8 yards

apart. I know instances of deep drains at long distances apart on clay lands, with a small quantity of chalk in them, not running at all after the first year or two. On the other hand, if your subsoil is anything else but pure clay, or intermixed with any veins of gravel or stone, you cannot drain too deep. I have laid the wettest fields perfectly dry by drains 5½ feet deep and 60 feet apart. *S. B. Ruggles Brice, Spains Hall.*

XXXI.—The result of my drainage operations has been more satisfactory upon porous subsoils than on strong soils.—The drainage adopted is parallel.—Its prevailing depth 3 feet strong clay; 4 feet porous soils.—No difference in the mode of draining between arable and Grass land.—As to the direction of drains, I have always followed the course of the furrows distant 20 and 24 feet apart.—I have used for minor 2 and 2½-inch pipes, and for main drains 4 and 5 inch—no collars or sockets.—I have found benefit by giving air at places to the drains.—The number of acres discharging at the one outlet averages eight acres.—The soil a deep loam, part strong, but greatest portion porous—average 1 yard in 20.—The mean height of the land drained above the sea level is 200 feet.—I have nearly drained 1000 acres of the land that I occupy, and have in many instances nearly lost the first crop after the draining; but coming the second time over I find great benefit, the land being much lighter enables me to work it sooner in the spring; and the manures act with more certainty, particularly the artificials, when used on the green crops. *From Mr. Stephenson, of Throckley.*

XXXII.—The result of my drainage is perfectly satisfactory.—The drainage is made on a parallel system.—The depth of drains, minor 4 feet, main 4 feet 6 ins.—No difference made between arable and Grass land.—Direction of minor drains with the fall. No attention paid to furrows where land was in ridges.—Size of pipes for minor drains, 2 inches; and the main, from 3 to 4 inches. No collars or sockets used, the land being too strong.—Never tried giving air to the drains.—The average number of acres discharging at the several outlets varies from 5 to 15 acres.—The soil chiefly gravelly, and subsoil clay intermixed with sand. Geological formation chiefly grit or sandstone.—No means of ascertaining the height of land drained above the level of the sea.—Cannot state what average depth of rainfall is here. *From Captain Harcourt.*

XXXIII.—So far as my experience goes, drainage has been perfectly satisfactory.—The drainage adopted has been parallel always, and generally diagonally across ridge and furrow.—The prevailing depth of the drains has been from 3 to 5 feet, according to circumstances.—I have made no difference in draining between arable and Grass land.—The direction of the drains has been always with the natural fall of the land.—I have used 2-inch pipes for the small drains, and from 3 to 6 inches for the outfalls. No collars or socket pipes.—I have found benefit by giving air at places to either main or minor drains.—10 or 12 acres discharge at one outlet.—The soil is loamy clay, and clay subsoil, with sand occasionally.—The geological formation is red sandstone.—The height of the land drained is very little above the level of the sea. *Thomas Parrington, Lazenby, Redcar.*

XXXIV.—The result of our drainage operations on all descriptions of land has been satisfactory in every case during the last half dozen years (formerly we only drained about 18 inches, but have taken up these and put them in deeper, and where not done, it will have to be).—The drainage is parallel.—The prevailing depth of the drains is from 2½ to 4 feet; never less than 3 feet if I can get the fall, and never more than 4 feet unless it be through rushy ground.—I have made no difference in the mode of draining between arable and Grass land, but not much Grass drained; what has been done was where, from the abundance and luxuriance of aquatic plants, it was highly necessary; in one instance, 10 years ago, a 12 acre field was only drained 2 feet deep; in three or four years Rushes and Sedges disappeared, and it is now a beautiful pasture field.—The drains have been taken across the fall, and where the land is in ridges, across the ridges and furrows.—2-inch horse-shoe pipes principally; main drains, 3½ to 4 inches; no collars; no sockets.—About 7 acres discharge at each outlet.—The soil is warp upon clay; and warp upon moor.—The mean height of the land drained in this neighbourhood and Howdenshire is 4 feet below high water mark, all the county. *From J. Wells, Esq., Booth Ferry, Goole.*

XXXV.—The result of my drainage operations on all descriptions of land has been satisfactory.—I have adopted a parallel system.—The prevailing depth of the drains is 4 feet.—I have made no difference in my mode of draining between arable and Grass land.—The drains have been with the fall of the land, and crossing the furrows where necessary to correspond with the fall to lead more land to the outlet.—I have used 2-inch pipes for minor drains; for main drains they have varied much from 3 to 9 inches. Collars only used where the drains are unsound at the bottom.—I have not tried giving air at places to either main or minor drains to any extent.—The average number of acres discharging at one outlet varies from 20 to 100 acres.—The soil and subsoil are strong loam soil. Subsoil variable; part retentive clay, part sand, gravel, and marl.—The geological formation is red sandstone at various depths, but in all cases below the bottom of the drains.—The mean height of the land drained above the sea level has been about 600 to 700 feet. *From the Right Hon. the Earl Powys, Powys Castle.*

ON SOME POINTS CONNECTED WITH AGRICULTURAL CHEMISTRY.

By J. B. Lawes, F.R.S., and Dr. J. H. Gilbert, F.C.S.

British Association, Glasgow, *September* 17, 1855. Section B.—The authors explained that their subject was necessarily somewhat controversial, for Baron Liebig had recently published a criticism on their experiments and opinions which had been circulated very freely in England, France, Germany, and America. And, from the well merited reputation of that distinguished chemist, his statements and opinions had been echoed almost unexamined by numerous writers, both in the technical and general press. To those statements and opinions, therefore, the authors now proposed to address themselves. They would first call attention, however, to the unfairness of an article on the question at issue in a recent number of the Journal of the Highland Society;* as by so doing they would be naturally led to a proper definition of the subject before them. They explained that it was agriculture, not normal vegetation—that is, the growth of plants under cultivation, and not their growth in circumstances under which every element necessary for their development had to be specially provided. In other words they pre-supposed, as the preliminary conditions of their inquiry, a soil under ordinary cultivation and an atmosphere, each yielding their quota to the result. Indeed Baron Liebig had defined the province of agricultural chemistry to be that of producing more corn, and more meat, and not simply corn and meat, which had been produced for centuries without her aid.

Looking at the subject in this point of view, the authors maintained as a fundamental fact that the composition of agricultural vegetable produce was no direct guide in the choice of manure for the various crops grown in rotation, that which was required being simply the resultant deficit for the artificial production of that margin of produce which distinguished agriculture as practised in this country from natural vegetation, or, from produce obtained for the purposes of export without any return to the land by home manures.

Those of their experiments which had been passed under criticism by Baron Liebig were taken, with others by their side, to illustrate the conclusions to which the authors had arrived. They first brought a summary of the results of their experiments on the growth of Wheat by different chemical manures during many consecutive years; and they maintained that inasmuch as by means of such manures they could raise the produce by from 10 to 20 bushels per acre over the unmanured produce, and indeed far exceed the result obtained by the annual supply of farm-yard manure; that this being the case, the objection of Baron Liebig that their soil was naturally so rich as to be unfit for experiment must be considered to be entirely without foundation. They then illustrated by tables and diagrams of results, by reference to which Baron Liebig had endeavoured to prove the contrary, 1. "That the mineral constituents of Wheat cannot by themselves increase the fertility of land;" and 2. "That the produce in grain and straw is rather proportioned to the supply of ammonia." So far as it went, they fully accepted the above definition of their conclusions as given by Baron Liebig—subject of course to the qualifications which their own papers would indicate. But they utterly repudiated that definition when understood in the manner assumed by Baron Liebig when summing up, and giving his verdict on their opinions at the conclusion of his treatise. They next showed by reference to tables that nitrogenous manures, whether applied in the form of ammoniacal salts, nitrate of soda, or Rape-cake, had a great effect in the increase of produce of Barley also, the next in importance of the cereal grains.

Turning to Turnips, the type of the root crops grown in alternation with the cereals, they submitted that Baron Liebig's statement that phosphates were the only manures which they had found to increase the growth of the Turnip, was directly contrary to the whole tenor of their papers on the subject; in which they had maintained the absolute necessity of matters yielding both assimilable carbon and nitrogen within the soil, for the production of a full amount of the crop in question. They did maintain, however, that phosphoric or phosphatic manures had an action on the development of the underground fibrous feeders of the plant, and consequently on its rapid growth and development, which could not be accounted for by the mere supposition of supplying the actual constituents of the crop to be grown and removed from the land. They illustrated that in their experiments they had the very circumstances provided which had been demanded by Baron Liebig as necessary for the support of their conclusions; and thus it was proved that even where there existed in the land a residue of phosphates from previous manuring, more than would be contained in many heavy crops, still an annual additional supply gave annually a considerable increase of produce. They further pointed out that Baron Liebig had endeavoured to substantiate his objections by comparisons which they showed to be quite inadmissible; whilst one main argument he had founded upon a mere misprint, which reference to the succeeding tables would at once have explained. His argument on the point in question was, therefore, simply reversed.

They next illustrated by a collective table the action of manures on some of the most important crops of rotation, including Wheat and Barley as cereals; Turnips as a root crop, and Beans and Clover as leguminous crops. From this table it appeared, that whilst mineral manures alone had little or no effect in increasing the produce of Wheat and Barley grown respectively in succession, nitrogenous manures on the other hand yielded most striking results. And here attention was called to the fact, that these manures had a similar effect in raising the produce of corn after the exhaustion of corn cropping on the farm of the Earl of Leicester, at Holkham, of which the surface soil was thin and light, but with a subsoil of excellent marl; and also at the farm of the Duke of Bedford, at Woburn, on a soil and subsoil naturally of the poorest possible description. And they further maintained that these results of direct experiment on different soils were perfectly in accordance with the general experience of practical farming all over the country, as to what was the predominant characteristic of corn exhaustion. In the experiments quoted mineral manures were, however, of course found to give a further increment of increase when the nitrogenous manure employed was in excessive quantity.

With Turnips again, superphosphate of lime had given an average increase during a series of years of more than seven tons of the bulb; the addition of alkalies to this had even diminished the amount of increase. Ammonia salts alone, on the other hand, had only given a few hundredweights of increase, instead of more than as many tons by the phosphatic manure. The mixture of both mineral and ammoniacal manures had, however, given a better produce still; though not equal to that which would have been obtained had there been also a liberal supply of carbonaceous organic matter within the soil. Turning to Beans and Clover, nitrogenous manures which had been so beneficial to the cereals, and phosphates which had been so much so to the Turnips, had here comparatively little effect. The constituent of manure which acted in the most characteristic manner with these leguminous crops was the alkali potass; which, when used as a direct manure to soil of a similar description had comparatively little effect in the increase of growth of the cereals or Turnips. In these remarkable facts, though the experiments cited were by no means to be taken as examples of manuring, the authors considered there was afforded an interesting clue to the principles involved in manuring, fallow, and the rotation of crops.

(*To be concluded in our next.*)

* Professor Anderson, on the part of the Highland Society, repudiated its responsibility for the article in question; and Mr. Robert Russell, of Kilwhiss, also disclaimed all connection with its authorship.

ON FATTENING POULTRY.

(*Concluded from p.* 651.)

Chapter II.—The Practice of Feeding.

Section IV.—*Food.*

The food usually selected for fattening poultry is oatmeal mixed either with scalding milk or water; the cause of the superiority of this meal over that of Barley has already been stated. Cooped fowls should be supplied with fresh food three times daily—namely, at daybreak, or as soon after as possible, at midday, and again at roosting time; as much as they can eat should be given on each occasion, but no more than can be devoured before the next meal: should any be left, it should be removed and given to the other fowls, as, if kept, it is apt to become sour, when the birds will not eat it freely. The troughs for the soft meat should be scalded out daily, which can only be done conveniently by having a supply of spare ones.

In addition to soft food, a supply of fresh clean water must be constantly present, and a little gravel must be given daily, otherwise the grinding action of the gizzard, which is necessary to the due digestion of the food, does not go on satisfactorily; the supply of a little green food will be found very advantageous to health; a little sliced Cabbage, or some Turnip tops, or a green turf to peck occasionally, being all that is required.

A variation in the diet will be found very conducive to an increased appetite, and therefore the occasional substitution of a feed of boiled Barley for the slaked oatmeal is desirable. Some feeders have a division in their troughs, or still better a small extra trough, which always contains some grains for the fowls to peck at.

Should the birds be required very fat, some mutton suet or trimmings of the loins may be chopped up and scalded with the meal, or they may be boiled in the milk or water preparatory to its being poured over the food, and the fat of fowls so fatted will be found exceedingly firm.

An objection to this mode of fatting will probably be made—namely, that it is expensive owing to the cost of the oatmeal. In the yard of the writer this objection has been removed by the partial substitution of fine middlings for oatmeal. The plan adopted is to bake the middlings dry, and when made as hot as possible without burning cold water is added, so as to make the whole a crumbly mass. When it is borne in mind that the constituents of fine middlings are nearly the same as those of oatmeal, its value as a fattening food must be admitted; and the writer, from long experience, can speak very decidedly as to its utility when used in conjunction with oatmeal.

In the course of about a fortnight to three weeks at the utmost, a fowl will have attained under this system of feeding the highest degree of fatness of which it is capable, and it must then be killed; for if the attempt be made to keep it any longer in that state, it becomes diseased from an inflammatory action being established, which renders the flesh hard and even unwholesome.

When the fowls have arrived at a state fit for killing they should be kept for 12 hours without food or water, in order that the intestines may be as empty as possible, otherwise the bird turns green and useless in a short time; this is readily managed by killing the bird before feeding time in the morning.

The writer has never found it requisite to have recourse to the unnatural practice of cramming; but as a description of the process may be supposed to be essential to an essay on fattening fowls, an account is inserted.

In cramming, the usual plan is to mix the oatmeal rather solid with milk or water, and to roll it into small sausage-shaped masses, the size of the finger, and about 2 inches long; half a dozen of these are taken, and having been dipped in some liquid, as milk, are placed one after the other in the back part of the mouth of the fowl, when the beak is closed, and the mass gently assisted down the throat by the latter being stroked by the hand before a second is inserted.

The birds are crammed in this way two or three times a day, care being taken to ascertain, by gentle handling, that the last meal has passed through the crop; should this not be the case, more is not given, but some lukewarm water is poured into the mouth to loosen the hardened mass, and prevent the bird becoming crop-bound, an evil which would render it useless for the table.

The fattened Dorkings prepared for the London market by the plans above described are frequently termed capons, but incorrectly, as the operation of caponising has not been performed on them; in fact, it is not required if the birds are cooped before they arrive at maturity; and the extremely severe nature of the operation in fowls, as compared with the corresponding one on quadrupeds, renders it attended with so much risk and loss, that it is very seldom practised in this country.

In conclusion, a few words may be said respecting fattening the other varieties of domestic poultry.

Turkeys.—If well fed, scarcely require any fattening process. Should, however, it be deemed requisite, they may be confined within a moderate range, and liberally supplied with meal and milk, with occasional green food, as recommended for fowls. Barley meal is usually employed, but its inferiority to oatmeal has already been insisted on.

Geese.—Geese are also, if well kept, usually in sufficiently good condition for killing. Should it be required to fatten them, several together should be confined in a comfortable shed, kept very clean by the daily removal of the soiled litter, and they may be fed for a fortnight on Oats thrown into a pan of water; and should they be required still fatter, an additional ten days' feeding on scalded meal or middlings and meal will be found all that is requisite; a little green food and gravel being given at the same time.

When geese are killed very young, they are usually termed green geese; and for this purpose it will be found more desirable to restrict them from the water than to allow them free access to it, as they fatten more readily, and attain a larger size at their early age.

Ducks.—Ducks, from being not at all particular in their diet, require to be confined to clean food some days before they are killed. If they are shut up in a shed, or confined in a small enclosure, and liberally fed with whole Oats in water, and meal slaked, they will be found in a fortnight to have become sufficiently fat for all useful purposes. It is not essential that they should have water to swim in during fattening—in fact, such exercise rather lessens than tends to increase the accumulation of fat.

The early ducklings that realise such high prices in the London markets are of the Aylesbury variety, distinguished by their great size, white plumage, and large pale flesh-coloured bills. If fed with an unlimited supply of Oats placed in a vessel of water, and not allowed much room to swim, the old birds will lay freely in winter; when the eggs should be hatched under hens, and the ducklings liberally fed with slaked Oatmeal and fine middlings, and afterwards with Oats in water. Under this treatment they may be made ready for the table in less than two months, and yield a very remunerative return. Ducklings invariably grow much more rapidly if kept from swimming than if allowed free access to a pond or river. *W. B. Tegetmeier's Prize Essay in the Yorkshire Agricultural Society's Journal.*

Home Correspondence.

Everlasting Pea as a Farm Crop.—Having seen in the *Gardeners' Chronicle* (No. 36, Sept. 8) what appears to me an important letter by Mr. Marshall, Ely, headed "Everlasting Pea," I beg to say that I have tried it as food for cattle, horses, sheep, and pigs, all of which "ate it with a good gusto" on more than one occasion. One fact may suffice for the present as to its importance. On coming to reside here last May, I found in the garden, growing round an old stunted Cherry tree, a fine plant of this variety, and seeing the rapid progress it had made, and feeling the want of early provender, I cultivated it more than ordinarily as regards weeding, only with the view of getting it to bear seed to propagate from. It was then coming beautifully into blossom, which it continued to do as it clambered up the tree till the 8th of August, but producing no seed pods. I then cut it down, and ascertained the roots had occupied one square yard, in the centre of which stood the old Cherry tree, whose stem occupied at least a square of 15 by 15 inches. On weighing the produce, I found it to exceed 30 tons the statute or nearly 50 tons the Irish acre, without making any deduction for the space occupied by the stem of the Cherry tree. It is now one month and two days since it was cut, during which it has made shoots in some cases over 21 inches long. I mean to cut it again in another month, when I will remove both the tree and the plant. The latter I mean to propagate in lines, leaving the plants 3 feet apart every way to admit of better cultivation and manuring when required; and as the plant is one which requires support, I mean to insert beside each young one a pole 6 feet long, branched from bottom to top as supporters, and should the final result be of benefit to the public, they shall have it. In the meantime I may add from my own experience, there are many of our perennial, commonly called "herbaceous plants," used for decorating our flower borders, pleasure grounds, and parterres, that would be highly prized by the rent-paying farmer, if he but knew their true value, which it is the business, I had almost said the duty, of the more intelligent gardener to make known. *Edward Carroll, Cranemore House, Clonegal.*

Growth of Grain.—To ascertain the progress made in the filling of Wheat, I gathered from the same field for five successive weeks some ears of corn, and when quite dry, having selected the most perfect grains from each sample, found—

100 grains, gathered Aug.	5, weighed					
76 "	"	"	12	"	24	per cent. weekly increase
59 "	"	"	19	"	17	" "
54 "	"	"	26	"	5	" "
52 "	"	Sept.	1	"	2	" "

Thos. C. Brown, Cirencester.

Agricultural Statistics.—Mr. Caird, in his evidence given in a late Number, insists on the necessity of having some means of checking the accuracy of the returns made by the persons employed in the collection of agricultural statistics. This necessity is very evident. The value of the statistics depends on their accuracy, and their accuracy can only be ascertained by the application of some test. The plan of collecting agricultural statistics now carried out in Scotland under the auspices of Mr. Hall Maxwell confessedly affords only incidental opportunities of checking the returns. It has, however, worked so well as to render any change, such as the substitution of Mr. Caird's plan, undesirable. By the addition of an efficient check it would be rendered complete. Such a check would require to be both co-extensive with the survey and independent of it; and the one I am about to propose appears to me to fulfil all the conditions required. Every year a change of occupancy takes place over a considerable area in every district over the country. In the great majority of cases when a farm passes from an "outgoing" to an "incoming" tenant, the growing crops are valued, *i. e.*, their produce is estimated by men of skill. These valuations are as near the truth as possible, and we have this pledge of their accuracy that the payment of large sums of money depends on them. A small fee paid for every certified copy of such a valuation delivered to some of the county officials would ensure returns of all the valuations made in every county. These returns would show both the distribution of the crops and the average produce over a certain portion of each county. Whether such average coincided exactly with the true average of the whole crop would depend in some measure on the extent of the area over which the valuation extended, which would vary from year to year, but the individual farms being as it were taken at random, would afford a pretty fair average sample of every county. The valuations are generally made on the eve of harvest, and as the compilation of the returns would not involve much labour the averages deduced from them might be published before or shortly after the conclusion of the harvest. The plan proposed might be carried into execution at a trifling expense, and it would be valuable as affording an independent estimate which would act as a check on the annual "stock taking" of the crops of the country, which we may now look forward to with some degree of confidence. *B. D. T., Sept.* 28.

Smutty Wheat.—I should be very glad of your advice in the management of a crop of Wheat badly infected with smut. A large portion of the ears although looking well at first sight are filled with a black powder of a fetid odour, and when it is threshed this dirties and fouls the sample so that it appears of the colour of Coffee on the barn floor. I have tried washing it, and this seems to clean it if it could be dried effectually on a large scale. I should like to know what is the best course for me to pursue, so that I may sustain as little loss as possible. It was steeped in the ordinary way in urine and dusted with lime, but I think the urine was hardly stale enough. I may mention that a neighbour had a field sown with his own seed infected, while a field sown with seed from another farm was free of the disease. Any information in your Paper will oblige. *A. H. F. C.* [Millers get rid of it by a machine which beats and crushes the smutty grains and blows them out.]

Societies.

Tipperary.—At the annual dinner of this Society, the following remarks were made by Lord Stanley on the advantages of agricultural societies to those who were members:—He had been going about the farmers for the last few days, and he found that many were not aware of the extent, scope, or what might be expected from the exertions of the Society; but he was certain they would soon perceive the beneficial effects of its operations. In England the effects of such operations, which had increased there greatly within the last few years, had given a decided impetus to agricultural science, and the improvement consequently was universal. Take an isolated case—a farmer well to do remained at home, content with what he had, and heedless as to how the world went on, unaware that there was any farm superior to his own, or any system of agriculture better than that which he and his neighbours had acted on. Not so with the farmer who had become acquainted with what was passing beyond the limits in which he resided—who knew what had been done to improve the soil, to improve cattle, to advance farming in every particular. The last-mentioned farmer, actuated by that principle of human nature which will not permit the mind to rest where superiority is seen to exist, without an endeavour to emulate or excel, must endeavour to improve; with eyes and ears open, he returns to farm with a determination to do what he can to make his farm as good as that of which he has heard, or which he may have seen; he finds that he has not been so very improving as he had imagined, and he sets about remedying defects of which he had no knowledge before. He would not speak from imagination or from fancy—he would tell what he had seen and what they had seen, not only within the last few days, but years ago. They enjoyed an unparalleled climate and a soil the most abundant in the world. They had seen fields and farms divided 8, 9, 10, 12 yards from side to side, with fences which were not only wasting all the land that might be used profitably, but a nursery for all those weeds which overran the fields, and for those blazing flowers of red weed which they knew so well and which appeared like an overgrown crop in some localities. He had seen the farm-yard so well planned that all the refuse and manure of the yard and the pig-stye drained into it, thus not only wasting the manure which might be placed so profitably to account, but poisoning that water which might be a source of health and cleanliness to himself and to his family. He had seen whole families living in rags and in want on a miserable patch of land which was not sufficient to afford them sustenance for three months in the year; and they lived on that wretched patch in that misery and destitution, because they preferred this "dignity" of occupying land to the labour of earning a livelihood from others who could afford them employment. He did not talk of introducing costly and cumbrous machinery at weighty expenses, such as they had in England. It would be difficult at any time to introduce machinery of that kind—their farms were too small for it—and they would continue, he believed, always too limited for the employment of such machinery as that to which he referred. There were evils to be remedied, but they were not of a nature that could not be easily removed by the application of that common sense which was so natural to the Irish people. It was a calumny to say, as some had said, that the peasantry of Ireland were naturally idle; he did not believe that—he repelled the calumny. Who was it that made the railway? Who was it that dug the canal? Who was it that did all the hard work that was done in England? Who that cleared the new lands of America and removed the forests? Who did all these things? In nine cases out of ten, he was prepared to answer, it was the Irish peasant. Who had improved every country in the world but his own? If he went back to causes for this state of things, he could, he repeated, find them—but in stating them he should say something that would not be agreeable to all, or practically useful at the present moment. He believed that much of the misery they had to deplore was caused, not by one class, but by all classes, and that all were equally in fault. He would say, let bye-gones be bye-gones. He believed that a new era had opened for Ireland, and that they would now consult their own duties by taking immediate advantage of the advent.

Reviews.

Little Millie and her Four Places. By Margaret M. Brewster. Hamilton, Adams, and Co.

This is a story book addressed to servant girls—intended professedly for their benefit, though after reading it we should have judged it adapted rather for the correction of their mistresses. We believe there are few who rightly understand the minds of the poorer classes whom they attempt to teach. In order to give those below us a lift forwards we must place ourselves on their level; and though many kindly disposed people seek their society with this view they fail, it would seem, to get real insight into their prejudices, difficulties, and trials. There is many a cottage home where all is mismanagement, and most of its experience misery, because those who ought to guide the house with discretion know not how to make it better and happier. But when their richer neighbours have gone to visit them their circumstances have been looked upon with unaccustomed eyes, and it has not been seen where aid was really wanted, or how cottagers may be essentially and permanently benefited by opportunities of helping themselves. We are glad, however, to see this little volume from the pen of Miss Brewster. It addresses an introductory chapter to girls at school, and is no doubt intended in all benevolence to benefit this class, for which school teaching has hitherto proved very inadequate. Something more like practical and bodily experience seems needed besides book learning, and this Miss Brewster undoubtedly sees; but she has evidently made her book too like a novel, and we fancy she would see less refinement of sentiment in the generality of servant girls than she gives us in the fancy character of "little

Millie." She will often, indeed, find in everyday life sound sense and steadfastness of purpose, though very uncultivated and needing more than romance for education; but while we cannot too highly value the deep Christian feeling which Miss Brewster makes most truthfully the basis of all solid good in character, we confess we think her book shows too much experience in the construction of a sentimental love tale to be very useful in the matter-of-fact business of educating servant girls.

Miscellaneous.

Food Markets, Prussia.—In the meantime a nearer danger is recognised in the high price of provisions, for no rebellion is so bad as the rebellion of the stomach. Three years of inundations and wet, with harvests below the average, have exhausted the stocks of grain in hand all over the country; epidemics and sickness of various kinds have reduced the number of labouring hands that might house and thresh the present harvest; so that the corn that really has been garnered in this year comes but sparingly to market; what was not housed some weeks back is now laid by heavy rains, and will probably be lost. All import from the Black Sea and from Russia is entirely at an end. To meet this emergency the Government has wisely suspended, for the third year, the import duties on corn, and has made arrangements for the supply of the army by large purchases in the United States, which are understood to amount to 5,000,000 thalers. Thus the prices in the home market will not be run up by having Government entering it as a buyer. In the meantime every other product of the land, whether direct or indirect, has attained a price that drives housekeepers distracted and leaves poor people very hungry. In addition to bread, fodder of all sorts, meat, butter, and oil (Rape oil), which is here a considerable article of expense, seeing that no candles or other succedaneum are burnt, make living very difficult. Rents have risen also, but, of course, from widely different causes. This is the subject which excites the most attention here just now, to the exclusion of Sebastopol, and, still more easily, of the elections. As, according to Mr. Cobden, Prussia is the brain of Germany, and all the world knows that Berlin is the metropolis of intelligence, Athens on the Spree, it may not be uninteresting to learn what steps are taken to procure a supply of cheap meat for the capital. In the case of cattle imported, so heavy a duty is laid upon them per head—one forming so large a proportion of the entire value of the beast at the frontier—that few persons are to be found adventurous enough to import; and add to the above that on those parts of the frontier where the cheapest cattle are to be had a three weeks' quarantine is imposed, for fear they should bring in with them a murrain. When the duty has been paid and the quarantine undergone, and the expenses of transport up to the capital defrayed, an *octroi* at the gates of the city must be paid of so much per head equally for lean and fat, large or small beasts. Such cattle breeders as can choose another market naturally avoid Berlin, rather than risk this further outlay, which practically puts them into the power of the buyer, as compelling them to sell rather than drive their cattle back and lose the *octroi*. The authorities who levy this impost would willingly show some indulgence, but the butchers here, who possess more cunning than capital, and are hardly more numerous now than they were a century back, refuse to deal for any cattle on which the charges have not been previously paid, so as to have the whip hand of the seller. The supply of meat is thus made scanty, bad, and dear, for the guild and trade corporation institutions with which the liberty movement of 1848 has blessed us enable the butchers to prevent any due increase of their own numbers in proportion to the increased population; thus they can prevent journeymen from becoming masters, and they can prevent masters from taking more than a certain small number of assistants and apprentices; they can prevent any capitalist from entering the business by their law that no one shall be master who has not served his time, &c. In the meantime the Berliners have to pay three times as much for their meat as their friends who live 10 miles off on a line of railway. *Times.*

The Cheese Manufacture.—Mr. White, of Warrington, writes to the *Times* as follows:—Thousands, I doubt not, are ignorant of the fact that the cheese they eat (and much of the butter also, especially in winter) is artificially coloured; others probably know that colouring is employed, but fancy that it is necessary, or that it improves the flavour. Now I wish to inform the first of these parties that all cheese that has not the appearance in colour of milk or cream is coloured; and both that the colouring matter is not only useless but very objectionable. Before entering further into the discussion of this subject I will quote from my own account of Cheshire cheese making, which appears in the Royal Agricultural Society's Journal for 1845, the description there given of what cheese-colouring is—

"This ingredient is, or should be, annatto (or annotto), the produce of the bixa orellana of Linnæus. It is, I believe, chiefly imported from the West India islands, and used for dyeing. The colouring commonly used in cheese-making is prepared by manufacturers in this country for the purpose. It gives the cheese that amber appearance which is unfortunately required in order to please or deceive the eye of the London consumer. For Manchester and Liverpool markets and for home consumption the Cheshire farmer rarely uses it in his cheesemaking, as it is well known it does not improve, but, if an inferior article is bought, and especially if much be used, it may deteriorate the flavour very much. Those who wish to be enlightened on this subject would do well to read the 'Essay on Cheese Colouring,' written by Mr. Whitley, of Stretton, published by Mr. Ridgway, in which it is clearly proved that the greatest bulk of the cheese-colouring used in this country is only an imitation of annatto, but sold by that name, and consisting of such ingredients as turmeric powder, potash, and soft-soap or train oil, well mixed to form a mass, along with a little real Spanish annatto."

Now, in the first place, I would ask, are our London friends or any others willing to have such compounds as these administered to them, although only in homœopathic doses, for I can assure them it is entirely their own fault that they are so administered? The dairymaids will gladly give up infusing this nauseous compound into their cheeses whenever the London cheese-factors ask them to do so; and I doubt not the factors will as willingly give up buying coloured cheeses whenever their customers (the consumers), are content to give up eating them. Even admitting that the colouring matter is a genuine preparation from annatto, it is a most disagreeable, not to say disgusting, thing, both to the smell and taste, and has the further objection of being an expensive article, the retail price being now 7*s.* 6*d.* per lb. It is estimated that 1 lb. is sufficient for colouring a ton of cheese, but I have no doubt in many dairies much more than this proportion is used. In Gloucestershire the estimate formerly was 1 lb. for half a ton of cheese. As it is not improbable but that more than 6000 tons of coloured cheese are made in Cheshire at least 6000 lbs. of colouring matter is required, and will cost 2250*l.* This amount is no doubt trifling when compared with the value of the cheese, but the absurdity of the thing is that it is so much money indirectly paid by the consumers in London and elsewhere, and imposed upon themselves, in order that they may have the gratification of eating an adulterated article. I beg to add that I am in no way interested either in the cheese trade or in the manufacture of cheese, beyond my connection with estates in Cheshire as a land-agent, and I believe the opinions I have expressed are those held in common with many respectable agriculturists in Cheshire and in other counties. *Henry White, Warrington, Sept.* 17.

Calendar of Operations.

OCTOBER.

Cheshire, *Oct.* 2.—After more than seven weeks of as fine harvest weather as can well be remembered, the corn and second crops of Clover, with but few exceptions, have been secured in the best possible condition, and the gloomy anticipations of sprouted corn, arising from the fact of the crops generally having been laid to an almost unprecedented extent, have long been dispersed. The Wheat crop, however, as was predicted early in July, will prove deficient in yield, as will Barley also, but the fullness of the crops may in some measure make up for it, although we can hardly expect an average yield per acre, which after all is the true test of the crops. Oats appear to have been the best crop of the three, and we hear of Beans being very productive where they are drilled and the intervals kept clean by scarifying, hoeing, &c. The rain within the last few days has greatly improved the appearance of Mangold Wurzel and Turnips, and also the pastures, and there is now every prospect of the two former being tolerably fair crops. Winter Potatoes, which are now being raised, appear to have less disease than for many years past, and the crop generally is more abundant than it has been of late years, and the quality too is excellent; perhaps the foregoing remarks will apply more strictly to the driest and best Potato soils, as occasionally we do hear serious complaints of the disease in some localities. The teams are now busily engaged in preparing the Oat lea or other ground for Wheat, and on the strong clay land Wheat sowing is about commencing. Store pigs are very scarce and dear, owing, it is supposed, to the severity of the late spring, which destroyed many of the young litters. The "pleuro-pneumonia" is not so prevalent as last year, but we are grieved to say it still lingers in some localities to an almost ruinous extent to the dairy farmers. *W. P.*

Hexham, *October* 2.—The weather has been all that could be wished for securing the crops, which in this district are now very generally under "thack and rape." Notwithstanding the favourable weather, the harvest has been, owing to the unequal ripening of the corn, a long one—rather over a month. There has been an occasional shower, but no rain to do damage since harvest commenced, and both Turnips and pastures are suffering very much in consequence. The heavy frost rime of the 7th ult. completely destroyed the Potato shaws, but as they were generally ripe or nearly so we hope the roots have escaped hurt, and we are still free of blight. Since finishing the carrying of our crop we have been "skimming" our fallows, using for that purpose our ordinary ploughs with a very wide feather on the share, taking a furrow of about 2 inches deep, and 10 or 12 broad. After harrowing and gathering the Couch Grass the usual winter furrow will be given. The day labourers and boys have been engaged in completing the thatching and "shaving" the stacks, which last operation we find to pay, especially with mown corn, where you have necessarily more heads in the bottoms of the sheaves. Your Wester Ross correspondent seems to have a decided advantage over his southern brethren, and, at the rate he mentions, reaping machines would be of little use to him; we would be inclined to infer from the quantity cut—an acre and two-thirds per day for each scythe—that the crop has not been heavy. With the exception of two fields our crop is by no means a bulky one, yet even our piece men did not cut nearly so much, and the cutting, binding, and stooking cost us 11*s.* 2*d.* per acre on an average. One field cost us 15*s.*, but it was much laid, and about 70 full stooks per acre. Wages have ranged from 17*s.* to 21*s.* per week, with food for men; and from 10*s.* to 14*s.* without food for women.

Notices to Correspondents.

Lime: *J G.* We should apply over the Clover stubble 40 bushels an acre of lime, and if it could have been made into a compost with any vegetable refuse for some weeks before the application to the land, so much the better. The quantity recommended ought of course to depend on the period of the last application of the kind, which we do not know.

M.-General Arbuthnot's Wheat: *To Correspondents.* Having received numerous applications from gentlemen requesting to know if they can be supplied with seed Wheat of the sort called Tiney's Success, M.-General Arbuthnot begs to refer them to his bailiff, Woodford House, Thrapston.

Peat for Kilns: *A Y* asks for information, founded on experience, as to the utility of wood or peat as a substitute for coal in the burning of lime or drainage tiles, particularising the proportions of each to produce a given heat. The articles "Bricks" and "Tiles" in "Blackie's Cyclopedia" give information on the general subject of burning these articles.

Wild Parsnip: *Liverpool.* We do not know how to obtain the seed of this plant in any quantity, unless it be by offering a reward to the school children in your neighbourhood for ripe heads of seed.

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Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ „ long	3 „ 3 „		1	15	0
3 „ ditto	3 „ 6 „		2	12	0
3½ „ ditto	3 „ 6 „		2	18	0
4 „ ditto	3 „ 6 „		3	5	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	12	0
2½ in. long	ditto	ditto ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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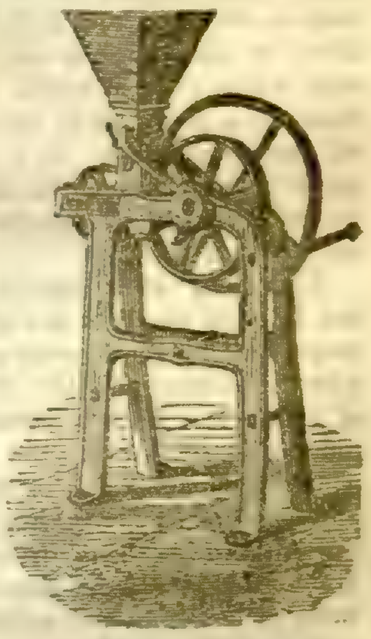

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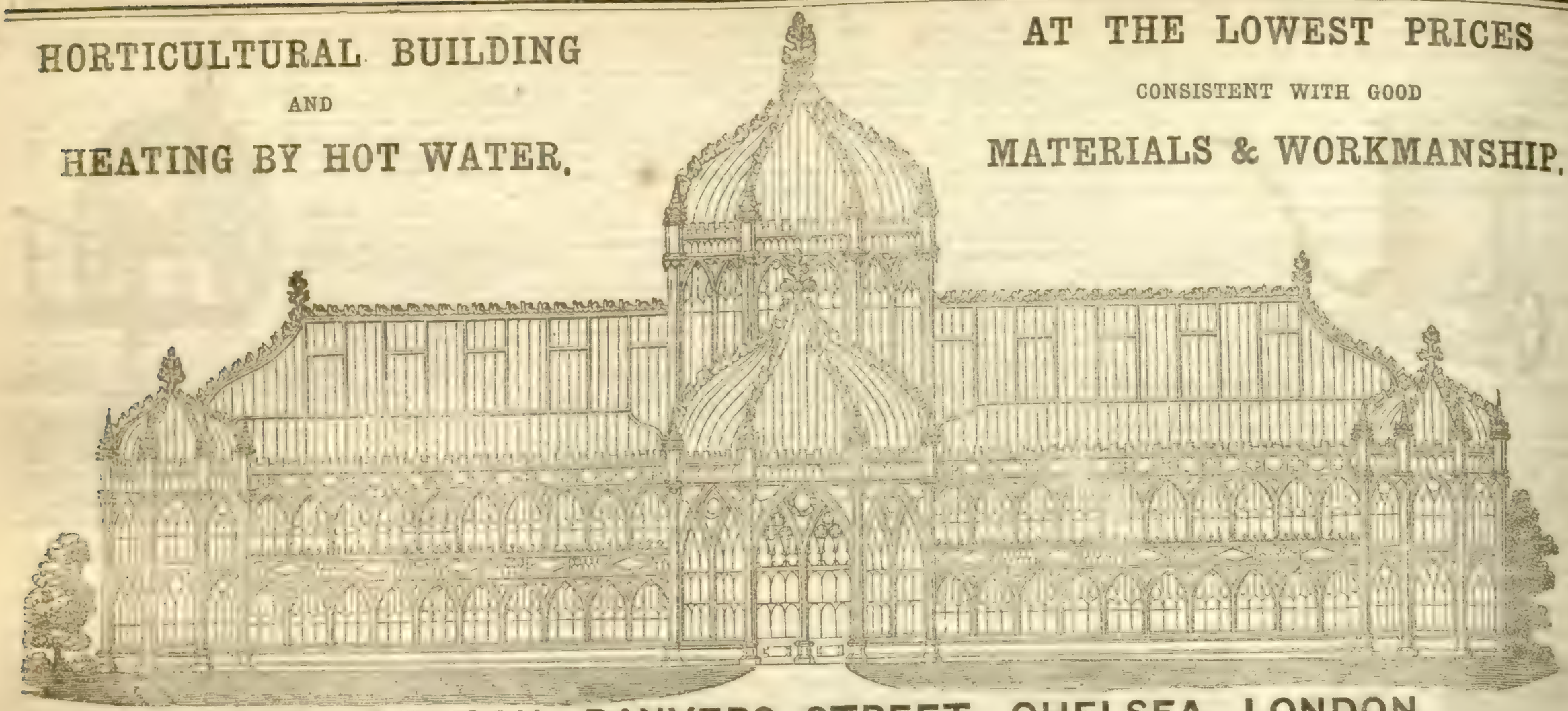

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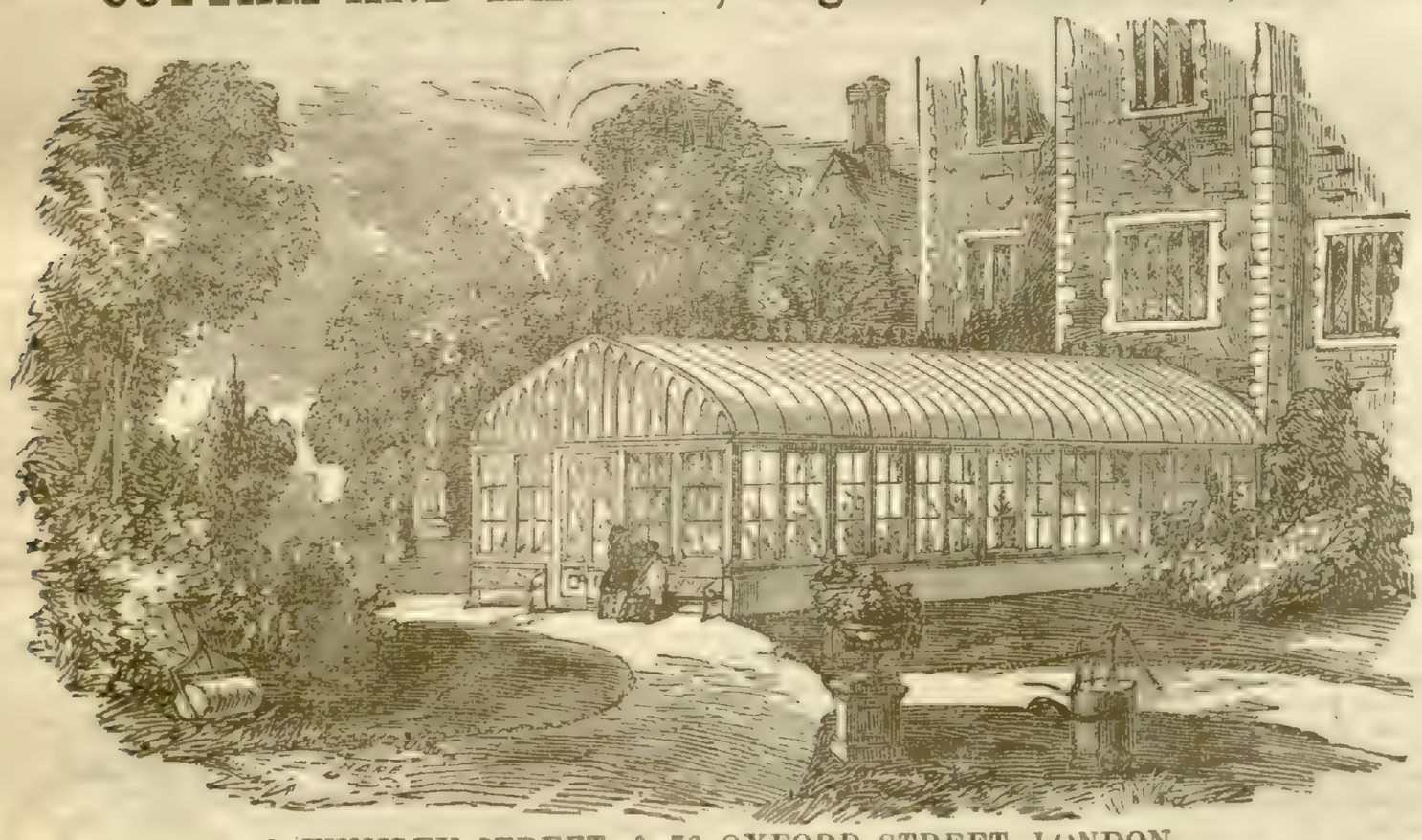

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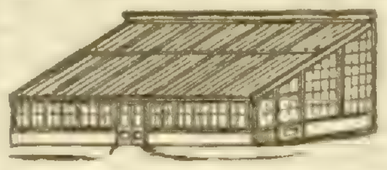
HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



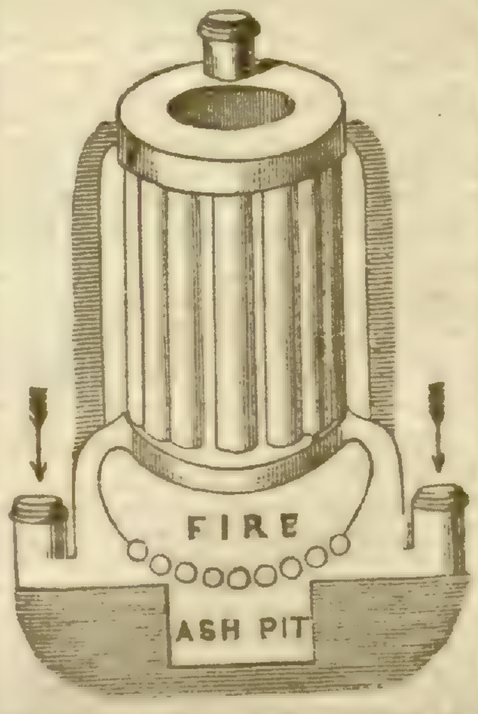
The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3s. 3d. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.



The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft. and exposing to the atmosphere upwards of 16 000 superficial feet of glass. During the late severe winter it only cost us 3s. per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *one of our Boilers*, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

JOHN WEEKS & Co., King's Road, Chelsea, London.

HOW TO KILL RATS, MICE, AND MOLES BY HUNDREDS.—A method will be forwarded with instructions for 30 postage stamps, which will destroy the above vermin quickly and without trouble. 1000 Acres may be cleared for a few shillings.—Gilbert Dyson, Hoo, Rochester.

WARNER'S SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)

Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump, is at a distance from the garden. May be obtained of any Ironmonger in town or country for 3*l.* 3*s.*

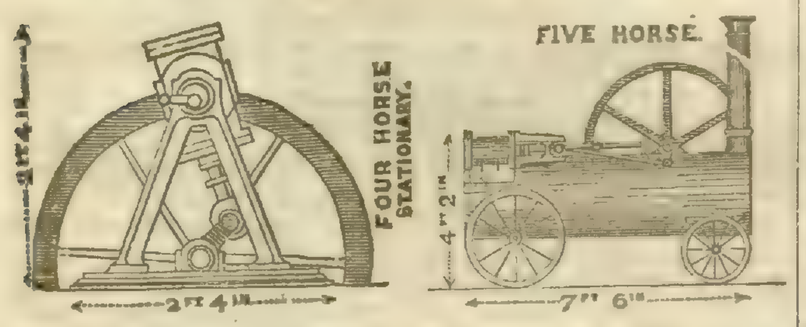
Manufactured by
John Warner & Sons, 8, Crescent, Jewin Street, London.

JOHN WARNER AND SONS,
Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
With Warner's Registered Spreader,

is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

TO AGRICULTURISTS AND OTHERS.



SIMPSON and BARNES, Openshaw, near Manchester, beg to call the attention of parties requiring power to their PORTABLE and STATIONARY STEAM-ENGINES, from one-horse power and upwards, having the boiler and engine attached. They require no foundation, are simple and cheap, and are sent from the works ready to start when they arrive at their destination.

TO NURSERYMEN, FLORISTS, AND OTHERS.

TO BE SOLD, the LEASE of GROUND, near town, with Greenhouses, Pits, &c., well stocked with Plants. Rent 10*l.* per annum.—Apply to Mrs. Preston, Florist, Kilburn; or to Mr. Goddard, 14, Great Portland Street, Cavendish Square.

CANNES, SOUTH OF FRANCE, ON THE SHORES OF THE MEDITERRANEAN.

TO BE SOLD, the CHATEAU St. GEORGES, at Cannes, one of the most delightful marine residences in Europe, with its elegant and appropriate furniture, all in perfect order, and fit for the immediate reception of any nobleman's or gentleman's family. The chateau is in the Palladian style of architecture, fitted up with every English comfort, and in a beautifully warm and dry climate, where sea-bathing may be continued all the year with the greatest convenience. The gardens on the south side of the chateau slope down to the sea, with doors opening on to the beach. On the north side the property is bounded by the grand route from Paris to Nice, from which latter town it is distant about 20 miles south-west. The chateau is only a few minutes from the seat of Lord Brougham, and about one mile west from the town of Cannes, from which port there are steamboats weekly to and from Marseilles, and four diligences to and fro daily between Paris, Marseilles, and Nice. The chateau is on an elevated terrace, rising up from the orange garden, and within 200 yards of the seashore. It was originally built by the late Lieutenant-General Sir Herbert Taylor, but has since received considerable additions and embellishments. The terrace floor, occupying the south front, consists of splendid double drawing-rooms, library, dining and breakfast rooms, all *en suite*, and opening on to a Doric colonnade of hewn stone, and descending by steps to a beautiful gravelled terrace, 250 feet long, facing the "blue Mediterranean." From the drawing-room floor a splendid marble staircase leads to a first and second floor of elegant bedrooms, of which there are on the two floors nine to the south front, two to the east, and six to the north, besides six servants' rooms in the attics. Excellent porter's lodge at the entrance, poultry houses, six-stalled stables, large coach-houses, and splendid flower and kitchen gardens, and a great variety of shady and ornamental walks amongst the natural woods of Cork trees, Fir, Myrtle, Arbutus, and maritime stone Pines; and amongst the gigantic rocks are growing the Cactus, flowering Aloe, and other tropical plants in their natural state, the great variety of level and cultivation giving the idea of a much larger extent of ground. The whole is enclosed with walls, but not obstructing the fine view of the magnificent scenery around, and forms a parallelogram containing about 30,200 square yards, or about 7 English acres. The remarkable salubrity of the climate of Cannes, where winter is unknown, and the magnificence of the coast and finely wooded mountain scenery around, render it one of the most delightful places in Europe for invalids; and its easy approach from England by the opening of the Mediterranean Railway direct to Marseilles, places a climate superior to Naples within 48 to 50 hours of London, viz., 13 hours London to Paris, and 20 hours thence to Marseilles, from whence to Cannes is 11 hours per steamboat, or posting 14 hours, or per diligence 17 to 18. The electric telegraph is laid along the grand route, past the lodge gates on the north side of the property. The new English church will be opened (D.V.) in the course of next month.

For further particulars, apply to Messrs. Green, Estate Agents and Auctioneers, 28, Old Bond Street, London.

FLORIST'S BUSINESS.

TO BE SOLD, the NURSERY GROUND, GREENHOUSES, &c., of the late Mr Henry Groom, at Clapham Rise, Surrey, in consequence of his death, and the GOODWILL of the well-established BUSINESS to be disposed of. The Premises (exclusive of a strip of land held rent free, subject to six months' notice) comprise 3¼ acres, and are held at the low yearly rent of 80*l.* for an unexpired term of 36 years from Michaelmas, 1855. The House adjoining, late in the occupation of Mr. Groom, is not comprised in the lease, but may be rented. The Premises may be viewed on application, and further information obtained of Messrs. Protheroe & Morris, American Nursery, Leytonstone, Essex; and of Messrs. Barnes & Bernard, Solicitors, 2, Great Winchester Street, London.

TO BE LET, A NURSERY AND SEED BUSINESS—John Young begs to say that he is desirous of treating with a Tenant for his Nursery Ground, which he is at present occupying himself, and which offers an eligible opportunity to any one wishing to enter on the business. The stock is light, and the quantity of land may be made to suit the convenience of the Tenant.—For further particulars apply to John Young, Elm Cottage, Taunton.

TO BE LET, CHEVINGTON WOODSIDE FARM, in the parish of Warkworth, Northumberland; tithe free, and entered to at May-day, 1856, containing about 566 acres, of which 90 acres are in old Grass. The tillage land is of sound good quality, and the old Grass is very valuable fattening pasture. A large portion of the farm has been thorough drained under Government grant. The Farm is within two miles of the Addington Station. Mr. Thos. Brown, of Whitefield House, near Acklington, will show the farm with a plan.—Further particulars may be had by application to George A. Grey, Esq., Millfield, Northumberland, by whom offers will be received till 12th Nov.

CARDIGANSHIRE.

TO BE LET, and entered upon immediately, a highly improvable FARM of about 280 acres of Arable, Meadow, and Pasture Land, with an excellent newly-built Dwelling House fit for the occupation of a family of respectability. The Estate is called Wstrws, and situate at Capel Cynon, about seven miles from Newcastle Emlyn and the same distance from the thriving port of New Quay. It is well watered, having a brook running through it, and slopes for the most part towards the south. In addition to an excellent Dwelling House just about finished, there is a Cottage and Garden (let at 3*l.* 10*s.* a-year), and the fair tolls of Capel Cynon Fair, held twice a year, are received by the tenant, worth from 5*l.* to 10*l.* annually. The property offers great advantages to an experimental farmer with capital and application. Rent, in its present state, 100*l.* per annum; the proprietor would make further permanent improvements to suit a tenant on having a moderate return for the outlay. The Dwelling House contains on the ground floor two excellent Sitting Rooms 18 feet by 14 each, Study, Kitchen, and Offices, with Six Bedrooms over, and all conveniences for a respectable family. A long lease would be granted to an approved tenant, and more land might be obtained on moderate terms, with the right to shoot over about 800 acres. The neighbourhood is good, the Tivy side and Bwnwydd hounds meet in the neighbourhood very frequently. It is expected that the estate will be greatly increased in value on the extension of the railway from Carmarthen to Llandysil and Cardigan, for which an act has been obtained. The present lessee John Price Hilton, Esq., Glanyrafon, near Llandysil, Cardiganshire, will show the property on an appointment being made with him; and for further particulars apply to Thomas Davies, Esq., Solicitor, Cardigan; or Messrs. Henderson, Howard, and Wilcocks, Solicitors, 50, Broad Street, Bristol.

Sales by Auction.

DUTCH BULBS, STANDARD AND OTHER ROSES, ETC.

MR. HASLAM will Sell as above, at the Auction Mart, London, on THURSDAY and FRIDAY next, Oct. 11 and 12.—Catalogues to be had at the Mart.

ORCHIDS—AN IMPORTATION FROM THE BRAZILS.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 16th inst., an Importation of fine Plants in excellent condition of Lilia purpurata, Cattleya lobata, Leopoldi, Mossiæ, crispa superba, granulosa, violacea, &c., and an unknown species of Galeandra.—May be viewed on the morning of sale, and Catalogues had.

STOVE AND GREENHOUSE PLANTS.

MR. J. C. STEVENS will sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, Oct. 9th, at 1 o'clock precisely, a Collection of STOVE and GREENHOUSE PLANTS, including many fine specimens and some choice Camellias and Azaleas, well set with bloom, and a few Orchids.—May be viewed on the day prior, and catalogues had of Mr J. C. Stevens, 38, King Street, Covent Garden.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.
Rose Cottage Nursery, Retford, Wilts.

MESSRS. F. WHITE and SON will sell by Auction, on TUESDAY, 9th October, on the above premises, in consequence of the ground having been sold, F. Pennington's stock of early prolific RHUBARB ROOTS, the same with which he has supplied the Manchester and Sheffield markets in the early part of the season for several years, comprising 10,000 strong healthy roots of Linnæus, together with a Nursery Stock, consisting of Forest, Fruit, Ornamental, Evergreen, and Deciduous Shrubs, with a quantity of Quick Privet, &c.; one 32 Light Pit.

CHOICE TULIPS.

MR. ALEXANDER has been instructed by Mr. Willison, of the Rose Nursery, Whitby, to offer for sale by Auction, at the Mart near the Bank of England, on WEDNESDAY, Oct. 24, at 12 o'clock, his unrivalled SEEDLING TULIPS, comprising feathered breaks of the following first-rate varieties, viz., Gem, Juliet, Eva, Queen, King, Mr. J. F. Wood, Mr. Sanderson, Sir J. Paxton, Exquisite, (Purity, and Yellow Model Selfs). Any comment upon these unrivalled flowers would be superfluous.—Catalogues may be had at the Mart, and also of Messrs. Dawe, Cottrell, & Benham, Seedsmen, Moorgate Street; White Swan, West Ham; Mulberry Tree, Bromley; Mr. Willison, as above, and of the Auctioneer, Shacklewell and Leyton, who will execute any commissions for country growers.

MR. HUMBERT will Sell by Auction the following STOCK, on FRIDAY, October 19th, at 12 for 1 o'clock, at Harwood's Farm, Watford, Herts, by direction of the Earl of Essex, 375 pure South Down Ewes and Tegs, being the whole of the celebrated flock of the Earl of Essex, also 50 Fat and Store Pigs of the best breeds, 26 Ayrshire and Short-horn Heifers and Steers, 10 Calves, 4 black Ponies, under 12 hands, which have been driven together, and 100 loads of prime Hay; also the well-known Flock reared by his lordship with so much solicitude during the past 10 years, and now disposed of solely because he intends to adopt another system of farming.—May be viewed by applying to Mr. Swanston, at Harwood's Farm, of whom Catalogues may be had; also at the Salisbury Arms, Hertford; the Peahen, St. Alban's; Red Lion, Barnet; King's Arms, Hemel Hempstead; King's Arms, Berkhamps'ead; George Inn, Bishop Stortford; Chandos Arms, Edgware; White Horse Inn, Uxbridge; and free by post of Mr. Humbert, Land Agent and Surveyor, Watford.

GRANGE ROAD, BERMONDSEY.
To Noblemen, Gentlemen, and Pine Growers.

MR. W. T. ATTWOOD will Sell by Auction, on the premises, without the least reserve, the extensive stock of healthy PINE PLANTS, principally Queens, together with the various Ranges of Graperies and Forcing Pits, also the whole of Hot-Water Apparatus, comprising about 1590 feet of pipe and three large Boilers. The above property is in good condition, and offers a valuable opportunity to persons requiring Pine Plants and Forcing Houses. The sale will take place about the end of October.

NURSERY STOCK.
To Noblemen, Gentlemen, Contractors, and Others.

MESSRS. PROTHEROE and MORRIS will Sell by Auction, on the Premises, Albion Road, Stoke Newington, on MONDAY, October 22d, and following day, at 11 o'clock each day, fine Ornamental Trees, Evergreens, and Shrubs, consisting of Aucubas, Hollies, Box, Laurels, Arborvitæ, Limes, Poplars, Lilacs, Weeping Ash, Purple Beech, Scarlet Chesnuts, Evergreen Privets; Rhododendrons, Azaleas, and other American Plants; choice Fruit Trees, including Apples, Pears, Plums, Cherries, Peaches, Apricots, Grape Vines, &c.; Standard Dwarf and Climbing Roses, and a large assortment of Hardy Climbers in Pots; choice Cinerarias, Chrysanthemums, &c.—Catalogues may be had on the Premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone, Essex.

FULHAM.
Lockhart's Annual Sale of Bulbs and Flower Roots.
TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE and MORRIS will Sell by Auction, on the premises, Parson's Green Lane, Fulham, on MONDAY, October 15th, at 11 o'clock, without reserve, a costly and extensive collection of BULBS and FLOWER ROOTS, being about 50,000 in number, and consisting of all the approved Hardy and Ornamental varieties of Hyacinths, Early and Late Tulips, Crocus, Narcissus, Anemones, &c., in good condition; also 4000 Sir Charles Napier Ranunculus, the finest variety yet raised; with a collection of Herbaceous Plants, and sundries.—May be viewed three days prior to the sale; Catalogues had, 6*d.* each, returnable to purchasers, of the principal Seedmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

CLAPHAM RISE.
To Noblemen, Gentlemen, Florists, and Others.

MESSRS. PROTHEROE and MORRIS will Sell by Auction, on the Premises, Clapham Rise, near London, on MONDAY, October 29, and following days, at 11 o'clock each day (by order of the executors of the late Mr. Henry Groom), the whole of the extensive, costly, and unrivalled collection of TULIPS, Offsets, and Breeders, which include the most rare and approved varieties in cultivation, and choice Seedlings not in the possession of any other grower, being the study of 40 years of the deceased's life, whose judgment and taste was universally admitted. Also Dutch and other Bulbs, consisting of the finest Double and Single Hyacinths, Narcissus Crocus, Jonquils, Gladiolus, &c., with a rich assortment of Ranunculuses, Anemones, &c. May be viewed prior to the sale.—Catalogues may be obtained 1*s.* each, returnable to purchasers, of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

HACKNEY.
To Gentlemen, Nurserymen, and Others.

MESSRS. PROTHEROE and MORRIS are directed by Messrs. Brown and Taylor to Sell by Auction, without reserve, on the premises, Hackney Nursery, Dalston Lane, Middlesex, on THURSDAY, the 11th of October, and following day, at 11 o'clock each day precisely (in consequence of the number of lots), the whole of the NURSERY STOCK; comprising Ornamental, Fruit, and Forest Trees, Evergreens and Deciduous Shrubs: also the Greenhouse Plants consisting of large specimen Camellias, Azalea indica, well set with bloom buds, Acacias, Cytissus, Myrtles, Deutzia gracilis, Forsythias, &c.; together with two Greenhouses, Pits, two and three Light Boxes, a quantity of Hot-Water Pipe Boilers, Wheelbarrows, 200 feet Stove Shelvings, capital Nest Seed Drawers, Counter, Garden Tools, and sundry effects.—May be viewed prior to the sale; Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

CLARENDON NURSERIES, CAMBERWELL.

MESSRS. PROTHEROE and MORRIS are instructed by Mr. Joseph Fryer to submit to public competition on the above premises, on the 8th, 9th, and 10th days of October, at 11 o'clock each day, a portion of his extensive Nursery Stock, consisting of fine Standard and Dwarf Trained and Untrained Apple, Pear, Plum, Cherry, Peach, Nectarine, Apricot, Fig, Raspberry, Gooseberry, Currant, &c.; 2000 Mulberries, the finest stock in the trade, 4 to 10 ft.; 3000 Limes, 6 to 10 ft.; 4000 Lilacs of all sorts, 3 to 10 ft.; 2000 Evergreen Oaks, 2 to 5 ft.; 4000 Evergreen Privet, 3 to 6 ft.; also large quantities of Scarlet, White, and other Rhododendrons, Azaleas, Andromedas, Magnolias, and other varieties of American Plants; Garryas, Glycines, Clematis, Passion Flowers, Bignonias, Virginian Creepers, Ivies, Box, Laurels, Althæas, fine large Elms, Lombardy and Balsam Poplars, Acacias, Scarlet Thorns, fine strong Seakale, &c. &c.—May be viewed prior to the sale, and Catalogues may be had on the premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone, Essex.

IMPORTANT STOCK SALE AT BARWAY, SOHAM, CAMBRIDGESHIRE.

MR. C. M. BIDWELL is instructed by Jno. Rayner Hovelly, Esq., who quits his occupation at Michaelmas, to Sell by Auction, on the premises, on WEDNESDAY, October 10, at 11 o'clock, without the least reserve, his carefully selected Herd of 40 improved SHORT-HORNS, comprising Cows, Heifers, Bulls, and Calves: valuable Flock of 400 SHEEP, viz., 290 half-bred Shearling Wethers, in good condition, 90 Two-shear Cheviot Wethers, and 18 prime Lambs; 10 excellent working CART-HORSES, 3 FOALS, and 5 NAGS. Also, all the valuable AGRICULTURAL IMPLEMENTS, consisting of a very complete portable Steam-engine by Hornsby, with Threshing Apparatus, Machines for Grinding, Crushing, and Dressing, an excellent Reaping Machine, improved for heavy crops, Manure and Corn Drill, with patent steerage, Garrett's patent Horse-hoe, Crosskill's Broad-wheeled and other Carts, Market Cart, new Dog Cart for a Cob, Iron and Wood Rolls, Richmond's Steaming Apparatus, Corn's Chaff-cutting Machine, Biddell's patent Wrought-iron Scarifier, Phillip's Turnip Cutter, Bean Mill, Ransome's Iron and Butterworth's Fen Ploughs, Harrows, Horse Harness, Iron and Wood Hurdles, 4 Iron Stack Stands, Double-action Churn, Glass Milk Pans, and numerous other effects. Barway is Three Miles on the Cambridge side of Ely, and a Special Train will convey Passengers from the Ely Station immediately after the arrival of the 10h. 47m. a.m. train, and set them down opposite the Farm, returning at 6h. 3m. p.m.

The Auctioneer begs to call the particular attention of Agriculturists to this sale, as a rare opportunity for parties wanting good stock and first-rate implements. The Shorthorns are well bred, many of them with good pedigrees, and great attention has been paid to their milking properties. The Horses are young and excellent workers. The Farming Implements made with modern improvements, and in good order. Refreshments will be provided on the Farm during the Sale on the Norfolk plan.—Catalogues may be had at the Lion Hotel, Cambridge; White Hart Hotel, Newmarket; Crown, Soham; Angel, Peterborough, and C. M. Bidwell, Land Agent, Ely and Cambridge, who will forward some by post on application.

NEW WORK BY MR. CHARLES DICKENS.

Uniform with "Bleak House," "David Copperfield," &c. &c.

On the 30th of November will be published the First Monthly Part, price One Shilling, of

A NEW WORK OF FICTION. By Charles Dickens. With Illustrations by Hablot K. Browne. To be completed in Twenty Monthly Parts.

London: Bradbury & Evans, 11, Bouverie Street.

CHEAP EDITION OF PENDENNIS.

This day is published, in small 8vo (uniform with "Vanity Fair"), price Seven Shillings,

THE HISTORY OF PENDENNIS: His Fortunes and Misfortunes—His Friends and His Greatest Enemy. By W. M. Thackeray.

Bradbury & Evans, 11, Bouverie Street.

This day, with 179 Illustrations, 7s.,

FIRST LINES IN CHEMISTRY: A Manual for Students. By Albert J. Bernays, Ph.D., F.C.S., Lecturer on Chemistry at the Medical School of St. Mary's Hospital; Author of "Household Chemistry."

London: John W. Parker & Son, West Strand.

Now ready,

THE FERNS OF GREAT BRITAIN: Illustrated by John E. Sowerby. The Descriptions, Synonyms, &c., by Charles Johnson, Esq. In One Vol. cloth boards, containing 49 Plates, full coloured, 27s.; partly coloured, 14s.

John E. Sowerby, 3, Mead Place, Lambeth.

On the 1st November, Part I. of

THE FERN ALLIES; A Supplement to "The Ferns of Great Britain." Illustrated by John E. Sowerby. Descriptions by C. Johnson, Esq. To be completed in about Six Parts. Full coloured at 3s., partly coloured at 1s. 6d per Part.

John E. Sowerby, 3, Mead Place, Lambeth.

EDWARDS'S NATIONAL GARDEN ALMANACK: Horticultural Trade Directory and Florists' Diary for 1856, will be published in December, as heretofore.

All Communications must be promptly addressed to Wace Cottage, Holloway, Middlesex.

CURE FOR THE GREEN FLY.—See

THE PELARGONIUM AND ITS CULTIVATION. By John Dobson, Woodlands Nursery, Isleworth. Price 6d., or post free from the Author, 8d.

London: Hamilton, Adams, & Co.; and all Booksellers.

Just Published,

ARTHUR HENDERSON AND CO.'S CATALOGUE. No. I., containing Orchideæ, Exotic, Greenhouse, and Hardy Ferns, Select Stove Plants, including Aquatic, Variegated-leaved Plants, and Plants suitable for suspending in the Stove and Orchideæ House, Greenhouse Plants, Indian Azaleas, Camellias, Ericas, Herbaceous and Alpine Plants, which may be had on application to them at Pine-apple Place, Edgware Road.

JOURNAL D' AGRICULTURE PRATIQUE, fondé en 1837, par le Docteur Bixio; publié sous la direction de M. J. A. Barral, Ancien élève et repetiteur de Chimie à l' Ecole Polytechnique.

This important publication is published on the 5th and 20th of each month, and is the official journal on this subject. It contains a vast number of Woodcuts representing Agricultural Instruments, Cattle, and is of the greatest interest to all persons connected with Farming.

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The Year's Subscription	0 15 0
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A specimen page, with the opinions of the religious press respecting this remarkable work, will be forwarded on application by letter pre-paid.

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Charles Edward Mudie, 510, New Oxford Street, London; and 76, Cross Street, Manchester.

MORTON'S NEW FARMER'S ALMANAC.

Early in November will be Published,

A NEW FARMER'S ALMANAC. Price 1s. By John C. Morton, Editor of the "Agricultural Gazette," the "Cyclopedia of Agriculture," &c.

Along with the usual contents of an Almanac, it will include:—1. Monthly directions for the operations of the Farm and Garden. 2. Short notices of the past year's Agricultural novelties and progress. 3. Such an Index to current Agricultural Literature as will direct the student to sources of information on the principal Agricultural topics. 4. A list of the more important of those well-established facts in Farm experience, which may serve as trustworthy data in Agricultural Estimates and Calculations. 5. Short references to the treatment proper under the more common Diseases to which Farm Stock are liable. 6. A series of Instructions and Receipts in many particulars of Household, Garden, Field, and Dairy Management. 7. A guide to the more important of our Fairs and Markets, with information as to times and places where the different kinds and breeds of Stock may be best obtained. 8. An index to the Meetings, Office-bearers, and objects of our principal Agricultural Societies and Farmers' Clubs.

The object throughout will be, by good arrangement and close packing, to furnish as much Agricultural information of practical usefulness as can be issued by the printer and the publisher for 1s.

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ON NERVOUS EXCITEMENT AND DEPRESSION: Their True Causes and Remedies. By Dr. Maddock, formerly Physician to the Malling Asylum.

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ON NERVOUSNESS, DEBILITY, AND EXHAUSTION.

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THE EDINBURGH REVIEW, No. CCVIII., will be published on SATURDAY next.

Contents:—

I. MEMOIRS OF KING JOSEPH.
II. POLITICAL DISTURBANCES IN CHINA.
III. THE EDUCATIONAL CENSUS.
IV. THE COURT OF OUDE.
V. PARAGRAPH BIBLES.
VI. THE PLURALITY OF WORLDS.
VII. THE NEWSPAPER PRESS.
VIII. TENNYSON'S MAUD.
IX. TRANSCAUCASIA.
X. THE FATHERS OF NEW ENGLAND.
XI. THE RESULTS OF THE CAMPAIGN.

London: Longman, Brown, Green, & Longmans.

Just published, price 6s., No. IV. of The

EDINBURGH NEW PHILOSOPHICAL JOURNAL. NEW SERIES.

Contents.—1. Professor Harkness on the Geology of the Dingle Promontory—2. Dr. Cobbold on a Malformed Trout—3. Dr. Daubeny on the Influence of the Lower Organisms in the Production of Epidemic Diseases—4. Professors Harkness and Blyth on the Cleavage of the Devonians in the south-west of Ireland—5. Dr. Cobbold on a new Species of Trematode Worm—6. Astronomical Contradictions and Geological Inferences respecting a Plurality of Worlds—7. Mr. R. Davidson on some New Compounds of Furfurine—8. Mr. J. Galletly on a New Glucoside existing in the Petals of the Wallflower—9. Dr. Davy on Tropical Plants—10. T. H. Rowney on the Composition of Two Mineral Substances employed as Pigments—11. M. G. D'Endegeest's Sketches of Operations executed in the Drainage of the Lake of Haarlem—12. C. G. Williams on some of the Basic Constituents of Coal Naphtha—13. Biographical Sketch of the late George Johnston of Berwick—14. Professor Goodsir on the Present State of Organic Electricity—15. A. Murray on Electric Fishes — Reviews — Proceedings of Societies and Scientific Intelligence.

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12 „	9 „	13 „	9 ...	...	14 0
10 „	10 „	10½ „	10½ ...	...	14 0
11 „	10 „	11½ „	10½ ...	...	14 0
11 „	11 „	11½ „	11½ ...	...	14 0
12 „	11 „	12½ „	11½ ...	...	14 0
13 „	11 „	13½ „	11½ ...	...	14 0
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¼ of an inch thick	£1 17s. 6d.	per case of	50
3/16 „	2 1 3	„	60
⅛ „	1 17 6	„	60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21s. per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, October 6, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 41.—1855.] SATURDAY, OCTOBER 13. { Price Fivepence. Stamped Edition, 6*d*.

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SCOTTISH ARBORICULTURAL SOCIETY.—The Second Annual General Meeting will be held in the Institution Rooms, 6, York Place, Edinburgh, on WEDNESDAY, November 14, at 1 o'clock, p.m., when Papers will be read, Candidates will be balloted for, Office Bearers will be elected for the ensuing year, and Prizes will be adjudicated for the Essays sent in competition.

James Brown, Esq., President, in the Chair.

James Alexander, Secretary.

1, Waterloo Place, Edinburgh, Oct. 13.

TO NURSERYMEN, GARDENERS, AND OTHERS.

BURNLEY NEW CEMETERY.—The Burnley Improvement Commissioners desire to receive TENDERS for the Supply and Planting of young TREES and SHRUBS in the Burnley New Cemetery. The kinds required, with the probable quantities, and any other information, may be had on application to Mr. Brierley, Surveyor to the Commissioners. Tenders must be sent in on or before the 26th inst.—By Order,

Shaw & Sutcliffe,

Burnley, Oct. 13. Law Clerks to the Commissioners.

ROGERS'S SEED DEPÔT AND GARDENERS' REGISTRY OFFICE, Clock House, Chelsea.

Empress of the French Cucumber, Burning Bush, Rose-flowered Balsam, Globular Aster; China, Silver, and American Hardy Melons; Winter Vegetable Marrow and Chelsea Cabbage, the hardiest, best, and latest Cabbage in cultivation. Seed of all supplied.

GEORGE BUBB begs to inform his friends and the public generally, that circumstances have occurred which induce him again to resume his former business as Nurseryman, Seedsman, and Florist, and he takes this opportunity again to solicit the favours of those who so kindly patronised him on former occasions.—Exotic Nursery, Gloucester.

TULIPS.

CHARLES TURNER having a surplus Stock of many very fine varieties, he is enable to offer an Extra Fine Mixture of good flowering Roots, at 30*s*. per 100. The usual discount to the trade.—Royal Nursery, Slough.

PINE PLANTS.

MR. J. LESSELLS has about 200 clean, healthy, fruiting, and succession Plants, principally Queens.—Apply at the Gardens, Foremark Hall, Derby.

TO THE TRADE.

JOHN GRIGOR AND CO. beg to request Nurserymen requiring strong 1-year Seedling Larch, 2-year Seedling True Native Highland Pine, &c., to apply to the Nurseries, Forres, N. B.

STATICE HALFORDI.

JOSEPH MORGAN has 300 healthy plants of different sizes, obtained immediately from the original stock. Also a large stock of strong flowering roots of GLADIOLUS BRENCHLEYENSIS and other choice varieties. Prices on application. A liberal discount to the trade.

Torbay Nurseries, Torquay, Devonshire.

OSAGE ORANGE (MACLURA AURANTIACA).

MESSRS. MORRISON AND SON have to offer about 50,000 Plants (5 to 6 inches high) of this fine new Hedge Plant (see *Gardeners' Chronicle*, May 13, 1854), price 10*s*. per 100. Price to the trade on application. Railways to all parts of the kingdom.—Nurseries, Mountcoffer, Banff, N.B.

SPANISH CHESTNUTS.

TO BE SOLD, about 200,000 Strong SPANISH CHESTNUTS, from 2 to 4 feet. Price sent on application to Waterer and Godfrey, Knap Hill, Woking, Surrey.

TO NURSERYMEN AND OTHERS.

TO BE SOLD, about 1500 strong plants of PHLOXES, named, of best varieties, up to 1854; also about 200 yards of BOX EDGING, 9 years old, superior quality.—Address, A. Y., Office of this Paper.

WANTED, a Quantity of good SEEDLING HORNBEAM, SLOE THORN, &c.—State price, &c., to Mr. Tremble, Nurseryman, Penrith, Cumberland.

BROWICK RED WHEAT, warranted a true Stock and perfectly clean, grown upon new land, may be had of Mr. T. Baker, Bury Farm, Stapleford, Cambridgeshire, price 10*s*. per bushel. All orders to be accompanied with a Post-office order.

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ABRAHAM HARDY AND SON, Seed-Growers, Maldon, Essex, beg to offer their celebrated PROLIFIC RED, at 15*s*. Also Rough Chaffed, or Satin Wheat, of superior quality, at 12*s*. 6*d*. per bushel. New bag, 1*s*.; sack, 2*s*. Remittances must accompany orders. Prices of selected earliest Potatoes in variety on application.

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CAMELLIAS.

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Fine selections at 6*s*., 9*s*., and 12*s*. per dozen.

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Picotees	Primroses	Currants, &c. &c.

A few packets of very choice Pansy Seed, at 1*s*. & 2*s*. per pckt.

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THE BEST SEED IN THE WORLD, saved as recommended in Glenny's "Garden Almanack" from the best Blooms of the best Varieties. Balsams, six classes, 37 stamps: mixed, 13 stamps. Geranium and Pink, 30 stamps: Hollyhock and Dahlia, 13 stamps; Quilled Aster and large flowering Stocks, 7 stamps. Sealed packets only.—G. Glenny, Fulham. The trade supplied.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s*. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. Cobbett's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place London.

W. TOWNSEND has now ready to send out GERANIUM CYDONIA CARMINEA—for description see Advertisement, 4th August; has been exhibited at the National Society, 15th June and 26th August, and obtained a Certificate. Plants 5*s*., 7*s*. 6*d*., and 10*s*. 6*d*. each; one over to every three ordered in the trade. Post-office orders payable at Bayswater.—Notting Hill.

HARDY HEATHS.

WATERER AND GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to inform Amateurs and the Trade that he has just published a new PRICED CATALOGUE OF PLANTS, containing many Continental novelties and other useful plants.

May be obtained on application of his Agent, Mr. R. Silberrad, 5, Harp Lane, Tower Street, London.

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J. AND J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to announce that their New CATALOGUE of ROSES for 1855 and 1856 is now ready, and may be had on application.

ROSE CATALOGUE.

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Piltdown Nurseries, Maresfield, Sussex, Oct. 13.

ROSE CATALOGUE, ETC.

H. LANE AND SON'S CATALOGUES of ROSES, TREES and SHRUBS, and FRUIT, are now ready, and will be sent as usual to their customers. Also Catalogues of Azaleas, Stove and Greenhouse, and Herbaceous Plants.

The Nurseries, Great Berkhamstead, Herts.

E. P. FRANCIS' New DESCRIPTIVE CATALOGUE of ROSES is now ready for distribution, and will be forwarded gratis on application.

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WILLIAM WOOD AND SON'S New Catalogue of ROSES for 1855 and 1856, as well as their New Supplementary List of GENERAL NURSERY STOCK is now ready for distribution.

W. W. & Son will forward copies as usual to all their customers, and to other correspondents gratis on application.

Woodlands Nursery, Maresfield near Uckfield, Sussex.

NEW PLANT LIST.

JOHN AND CHARLES LI[illegible]S CATALOGUE OF STOVE AND GREENHOU[illegible] PLANTS for the present Autumn is just published, and may be [illegible]d, post free, on application.—Nursery and Seed Establishment, [illegible]mmersmith, near London.

AMERICAN PLANTS.

JOHN WATERER'S CATALOGUE OF RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.

☞ The Catalogue describes the colours of the Rhododendrons.

The American Nursery, Bagshot, Surrey.—Oct. 13.

AMERICAN PLANTS.

WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.

Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his descriptive Catalogue of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES, is now ready, and may be had by enclosing two postage stamps.—American Nursery, Windlesham, near Bagshot, Surrey, 7 miles from Staines, Windsor branch, South Western Railway, where conveyances may be had.

DUTCH FLOWERING BULBS.

JAMES CARTER AND CO.'s CATALOGUE OF DUTCH AND CAPE BULBS, the most comprehensive and select published, will be forwarded *free of charge* and *post paid*, upon application to address at foot. *The Bulbs are as usual of first-rate quality.*

James Carter & Co., 238, High Holborn, London.

R. PARKER begs to inform his friends and patrons that his PRICED CATALOGUE of DUTCH BULBS is now ready, and will be forwarded post free upon application.

Paradise Nursery, Hornsey Road, Holloway.

WILLIAM DENYER begs to offer DUTCH BULBS of superior quality and low in price, as the following choice collection will testify, for 20*s*., package included.

12 Choice Hyacinths, named	12 named early Tulips
12 Double Tournesol Tulips	12 best double Anemones
12 Choice Gladiolus	12 named English Iris
12 Polyanthus Narcissus	12 Jonquils
100 Dutch Crocuses, all colours	50 Snowdrops.

With every other kind of Flower roots equally moderate in price. Descriptive and priced Catalogues forwarded on application.

Wm. Denyer, Seedsman and Florist, 82, Gracechurch Street.

DUTCH FLOWER ROOTS.

PETER LAWSON AND SON, Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland, respectfully intimate that they are now ready to execute orders for HYACINTH ROOTS, &c., &c., of the finest kinds and in excellent condition. Catalogues may be had, free, on application.

27, Great George Street, Westminster.—Oct. 13.

IMPORTED DUTCH BULBS.

EVAN PAUL begs to inform his patrons and friends that he has received his first importation of the above, which have arrived in first-rate condition, early orders for which are respectfully solicited. Catalogues forwarded postage free on application.—The Nurseries, Derby, Oct. 13.

DUTCH BULBOUS ROOTS.

MARTIN AND SON have much pleasure in informing their friends that they have received in good condition their annual importation of the above, which are particularly fine, and trust to be favoured with early orders.—Catalogues may be had and also of their Nursery Stock for two stamps.—Nursery and Seed Establishment, Cottingham (1788); Hull Branch, Junction Street.

IMPORTED DUTCH FLOWER ROOTS.

T. F. WINSTANLEY, Seedsman and Florist, begs to inform his patrons and friends that he has received direct, from one of the first growers in Holland, his first annual importation of the above, comprising Hyacinths, Narcissus, Early and Late Tulips, Jonquils, Iris, Crocus, Gladiolus, Anemones, Ranunculus, &c. &c. All are unusually fine and well ripened. Descriptive Priced Catalogues can be had on application.—28, Market Place, Manchester.

NEW ROSES.

M. DUCHER, Rue du Vivier Guillotiere, Lyons, France, offers the following NEW ROSES:—

MARSHAL PELISSIER—Hybrid Perpetual, very strong growth; flowers very large and very highly perfumed; petals bright red on the edge, and very pale beneath. This plant deserves a place in the best collections.

GENERAL SIMPSON—Hybrid Perpetual, very strong growth, and flowers abundantly; flowers medium size, very full and well-shaped; bright red carmine—superb plant.

MARCHIONESS OF MURAT—Strong growth, flowers large, full, and very well-shaped; very beautiful blush and very agreeable perfume. Somewhat resembles Duchess of Sutherland.

Each Plant 15 francs, or 12*s.*; to be delivered on the 1st November next.

EARLY FLOWERS.

ADAPTED FOR BLOOMING IN-DOORS, AND IN THE BORDERS IN WINTER AND EARLY SPRING.

CLARKE AND CO., SEEDSMEN and FLORISTS, 86, High Street, Borough, about 30 doors from London Bridge Railway Terminus, beg respectfully to intimate to the nobility, gentry, and the public that they have imported a Stock of DUTCH and other FLOWER BULBS, of the finest possible quality, and take the liberty of offering the following assortment for 10*s.*, viz.:—Half a dozen best Hyacinths for glasses, half a dozen good Hyacinths for pots, 50 Crocuses (four separate colours), 50 large double Snowdrops, half a dozen double Van Thol Tulips, half a dozen early Van Thol Tulips, one dozen double white Sweet-scented Narcissus, half a dozen double Jonquils, one dozen winter Aconites, 12 splendid mixed Tulips, one dozen beautiful mixed double Anemones.

BASS AND BROWN'S
NEW AUTUMN CATALOGUES,

Comprising a considerable portion of descriptive and useful information, will be sent free by post complete for three penny stamps, and will be supplied gratis to our customers as usual. The articles will be found very select, and the best in cultivation.

NO. I. CATALOGUE CONTAINS:

BULBS & FLOWER ROOTS, comprising collections of the finest and most interesting bulbs in cultivation. The greenhouse varieties are distinguished from the hardy, and the colours and months of flowering are specified. A scale is also appended, giving the months best suited for planting.

HARDY HERBACEOUS PLANTS, with descriptions of heights, colours, and months of flowering, and embracing also our superb collections of Potentillas, Phlox, Penstemons, &c.

HOLLYHOCKS, the finest sorts, with full descriptions.

HELIANTHEMUMS, or Dwarf Rock Cistus, in 24 beautiful varieties.

SELECT and POPULAR TREES and SHRUBS, containing choice Collections of Coniferæ, Sikkim, and other Rhododendrons.

HARDY ORNAMENTAL CLIMBERS.

SELECT ROSES, with descriptions, and instructions for culture of each class.

FRUITS of the choicest sorts with select lists of each kind.

RHUBARB, Seakale, Asparagus, &c.

NO. II. CATALOGUE CONTAINS:

GERANIUMS, in divisions of Show, Fancy, French, Horseshoe Leaf, Scarlet, and other bedding varieties.

CINERARIAS, choicest varieties.

FUCHSIAS, best new of 1854.

AZALEA INDICA, including several beautiful new Continental and other varieties.

STOVE and GREENHOUSE PLANTS, &c. &c.

NEW SHOW GERANIUMS OF LAST SEASON.

The following, comprising the best of those sent out last season, of which we have cultivated a large stock, are unusually strong and well established, and now ready. The Collection of 18 for 60*s.*, or any 12 for 48*s.* Our selection of 12 varieties for 36*s.*

	5*s.* 0*d.*		5*s.* 0*d.*		5*s.* 0*d.*
Dobson's Conqueror	5 0	Foster's Phaeton	5 0	Fuller's Gem of the West	3 6
" Silenus	5 0	Hoyle's Serena	5 0	Foquett's Petruchio	5 0
" Laura	5 0	" Lord Raglan	3 6	Story's Fair Ellen	5 0
" Lydia	3 6	" Topsy	3 6	Turner's Pandora	5 0
" Commander-in-Chief	3 6	" Wonderful	5 0	" King of Portugal	5 0
Lowe's Calliope	3 6	" Queen Eleanor	3 6	Hocken's Una	3 6

For varieties of previous years see Catalogue. Fine selections, 9*s.* to 18*s.* per dozen. Purchaser's selections, 12*s.* to 21*s.* per doz.

IMPORTED DUTCH HYACINTHS.

Our Dutch Roots have arrived in very fine condition. We beg to offer the following, of our own selection, in fine assortments, with printed instructions for their culture:—

50 Hyacinths in 50 choice sorts	30*s.*	Choice varieties, per dozen	6*s.*, 9*s.* & 15*s.*
25 ditto 25 ditto	16*s.*	Separate colours without name, per dozen	3*s.*

If required for Forcing we particularly recommend early planting. For our extensive Collection of Bulbs see Catalogue.

☞ *Goods Carriage Free (not under 20s.) to all the London Termini and free to all stations on the London and Norwich Line, viâ Colchester. Extra Plants gratis with orders of 40s. and upwards.*

BASS & BROWN, Seed & Horticultural Establishment, Sudbury, Suffolk.

HYACINTHS.

MESSRS. E. G. HENDERSON & SON

BEG to announce that they have now received their noted collection of HYACINTHS in excellent condition. They also beg to state, that having been for nearly 50 years the largest and most successful cultivators of this highly popular Flower in the vicinity of London, they can with confidence recommend the varieties named in their Catalogue as being the most suitable for pot or glass culture, and every way worthy the attention of Amateurs, &c.

Catalogues can be had on application, and for the assistance of those persons unacquainted with the culture of the Hyacinth, printed instructions will be given gratis with each order they are kindly favoured with.

CUCUMBER—HENDERSON'S "NAPOLEON III."

E. G. H. & Son have great pleasure in informing those who are fond of a really good Cucumber that they have succeeded in obtaining the stock of the above variety. It is one of the best for Winter culture and early forcing; is a free bearer and perfect in its form, possessing, indeed, all those qualifications of a good Cucumber which the most fastidious could desire. In packets, containing two seeds, 3*s.* each; ditto ditto, four seeds, 5*s.* 6*d.* each.

FLOWER SEEDS FOR AUTUMNAL SOWING.

Collections containing 12 distinct varieties, with printed instructions, 3*s.* 6*d.* each, postage free; ditto, 24, 6*s.*; 36, 8*s.* 6*d.*; 48, 10*s.* 6*d.*

CALCEOLARIA, CINERARIA, AND PRIMULA,

Saved from the choicest varieties, may be had in packets at 2*s.* 6*d.* and 5*s.* each; the finest quality of Calceolaria is only offered at 5*s.*; second quality, 2*s.* 6*d.* The finest fimbriated Primula in the country, 2*s.* 6*d.*

NEW PLANTS.

In the possession of E. G. Henderson & Son, and will be sent out for the first time in October. Full Descriptions of the following may be seen in the New Autumn Catalogue, just published.

SHOW GERANIUMS.

EXCELSIOR (Henderson's) | LA BELLE ALLIANCE (Foquet) | PURPLE KING (Foquet) | MIDNIGHT (Foquet)

FANCY GERANIUMS.

AMPHITRITE (Henderson's)
DUKE OF CAMBRIDGE (Henderson's)
GIOVANNA (Henderson's)
LA STELLA (Henderson's)
MOONLIGHT (Henderson's)
REINE DU BAL (Henderson's)
ROSY-LIP (Henderson's)
QUEEN OF THE FETE (Henderson's)
SWEET LUCY (Henderson's)
TITANIA (Henderson's)

CINERARIAS.

ADMIRAL LYONS (Henderson's).—Large full-sized flower, white, with purplish violet edging, dark dice, fine form. 10*s.* 6*d.*

FUCHSIAS.

BANKS' FAVORITE. 10*s.* 6*d.* | PRINCE OF WALES. 10*s.* 6*d.*

RHODODENDRONS.

The following magnificent new species, collected from the Bhotan Mountains, by Thomas J. Booth, Esq., are now, for the first time, offered for sale.

Boothi, | Hookeri, | Calophyllum, | Kendricki, | Eximium, | Windsori Leucanthum.

For full descriptions, with prices of the above splendid varieties, see Spring Catalogue, page 85.

GYNERIUM ARGENTEUM (The Pampas Grass).

E. G. H. and Son having in their possession the largest stock in the country of this noble ornamental Grass, will supply healthy plants in October at 2*s.* 6*d.* each or 25*s.* per dozen.

N.B.—Price to the Trade per 50 or 100 can be obtained on application.

GLOXINIA ERECTA.

Messrs. E. G. Henderson & Son have great pleasure in announcing that they have a very large stock of this new class, and most showy upright flowering Gloxinias. They are the most abundant flowerers, containing among them some of the most lively contrasts of colours imaginable. The Collection includes the new varieties sent out this season. Price 5*s.* and 7*s.* 6*d.* each, or 42*s.* and 60*s.* per dozen.

The following can be supplied in fine plants for flowering next season:—

CAMELLIAS AND ORANGES, at 30*s.* and 42*s.* per dozen. | AZALEAS, ERICA, EPACRIS, and APHELEXIS, at 12*s.*, 18*s.* to 42*s.* per dozen.

N.B. Price to the Trade per 100 or 1000 can be had on application.

☞ *The Spring Catalogue or General List of Plants will be forwarded post free on application; and a beautiful Coloured Plate of* NINE NEW FLOWERS *will be sent on receipt of* 12 *postage stamps.*

Wellington Nursery, St. John's Wood.

SPLENDID HYACINTHS, ETC. (IMPORTED).

JAMES CHARTRES AND CO. can strongly recommend their 20*s.* Collections of the above, which have always given such general satisfaction. 12 splendid named Hyacinths for pots or glasses; 12 do. do for Borders; 6 Polyanthus Narcis.; 12 Pheasant-eyed do.; 6 splendid Early Tulips for pots; 12 do. Late do. for Borders; 100 Crocus, sorts; 12 fine Iris; 6 Snowflakes; 6 Double Jonquils; 25 Double Snowdrops. A general and priced Catalogue on application.—Seed Warehouse, 74, King William Street, City, London.

THE PAMPAS GRASS, "Gynerium Argenteum."

LUCOMBE, PINCE, AND Co. having now for sale the finest stock of flowering plants in this country of the above, are enabled to offer their well established plants to bloom this autumn at the following prices:—

Fine specimens with two flower stems ...	21*s.* 0*d.* each.
Ditto with one ditto	10*s.* 6*d.* "
Smaller plants to bloom next year	7*s.* 6*d.* "

L., P., & Co. have also healthy seedlings at 30*s.* per dozen, which will be ready in October, which, however, they deem it right to say will most probably not bloom for two years. To such parties as wish at once to see the plant in its beauty, L., P., & Co. would strongly recommend the larger sizes, as they are much better and cheaper.

Few plants are more ornamental than this Gigantic Grass, the leaves (which are more than 7 feet in length, curving gracefully outwards) grow in large tussocks, thereby producing a very fine effect, and from the midst of these numerous flower stems arise to the height of from 6 to 8 feet, surmounted by elegant panicles of inflorescence nearly 3 feet long, resembling beautiful waving plumes of silvery feathers. It is perfectly hardy, and is also easy of cultivation. A grand specimen of this noble plant is now in the Exeter Nursery, pushing up nearly twenty large flower stems and numerous small ones, and will continue to be an object of great attraction for a considerable time.

EXETER NURSERY, EXETER.
Established 1720.

MAGNIFICENT SPECIMENS OF CONIFERÆ.

LUCOMBE, PINCE, AND CO. respectfully call attention to their very superior specimens of the above, which are worthy of the notice of all who are engaged in ornamental planting, their growth and shape being perfect, and their roots all that can be desired, so that where immediate striking effect, combined with perfect safety of removal to any distance is required, these large symmetrically grown and well managed plants can with confidence be recommended.

Abies Douglasi	Pinus insignis
" orientalis	" Cembra
" Menziesi	" austriaca
" canadensis	" muricata
Araucaria imbricata	" tuberculata
Biota glauca	" Montezumæ
" japonica	" Benthamiana
Cedrus Lebani	" excelsa
" Deodara	Picea Nordmanniana
Cupressus macrocarpa	" nobilis
" Goveniana	" Pinsapo
" Uhdeana	Thuja orientalis
Juniperus excelsa	" occidentalis
" recurva	" tartarica
Libocedrus chilensis	" filiformis,

&c. &c. &c.

Sizes, prices, and all particulars may be had on application to

LUCOMBE, PINCE, AND CO.,
EXETER NURSERY,
EXETER.
Established 1720.

WILLIAM YOUNG begs to call the attention of Noblemen, Gentlemen, Public Companies, and Planters in general to his extensive stock of CHOICE CONIFERÆ, HARDY EVERGREENS, ORNAMENTAL TREES, AMERICAN PLANTS, &c., which are this season particularly fine, and having been well prepared for removal, he can confidently recommend them to transplant with perfect safety.

W. Y. invites persons about to plant to inspect his stock, which is standing over 50 acres of ground, in which will be found all kinds of plants adapted to every description of ornamental planting. It consists of HARDY CONIFERÆ, containing some of the finest specimen plants ever offered.

	Feet high.
Abies Douglasi	6 to 8 by 5 to 6
" "	8 to 10 by 7 to 8
" "	10 to 12 by 8 to 9
" Menziesi	4½ to 5
" nigra, Black Spruce	4½ to 5
" alba, White Spruce	6 to 8
" canadensis, Hemlock Spruce	6 to 8 by 7
Pinus austriaca	6 to 8
" "	8 to 10
" Cembra	5½ to 6
" "	7 to 8
" excelsa	8 to 10
" insignis	2½ to 3
" "	3 to 4
Picea Pinsapo	5 to 6 by 6
" nobilis } very handsome	
" Nordmanniana } very handsome	
Araucaria imbricata	2½ by 2½
do. do.	3 by 3
do. do.	4 by 4
do. do., very handsome	6 to 8
Cryptomeria japonica	3 to 4
Cedar of Lebanon	3½ to 4
" "	5 to 6
" "	7 to 8 by 6
" "	10 to 12 by 8
" Deodara	4½ to 5
" "	6 to 8
" "	9 to 10
" "	10 to 12
(The Cedars of Lebanon and Deodara are particularly handsome and well furnished.)	
Thuja orientalis, Chinese Arbor-vitæ	5 to 6
" " "	7 to 8

	Feet high.
Thuja Weareana, Siberian	5 to 6
" "	7 to 8
Chinese Juniper	4½ to 5
" "	5 to 6
Upright "	4 to 5
" "	6 to 7
Taxodium sempervirens	6 to 8
" "	10 to 12
Irish Yew	4½ to 5
" "	6 to 7

A LARGE QUANTITY OF FINE EVERGREENS.

Green Hollies	4 to 6
" "	6 to 7 by 4
" "	8 to 10 by 6 to 7
Evergreen Oak	3½ to 4
" "	4½ to 5
" "	6 to 8 by 4 to 5
Spruce and Silver Firs	6 to 8
" "	10 to 12
Weymouth Pine	8 to 10
Yews	3½ to 4
"	4½ to 5
"	5½ to 6
Quercus oxoniensis—New Leucombe Oak	6 to 7
" "	8 to 10

AMERICAN PLANTS.

Azaleas, fine named sorts
Rhododendron ponticum (good for cover).
Do. all the new and best vars.
Kalmias, Andromeda, Ledums, &c. &c.

STANDARD ROSES, of all the best varieties.
FRUIT TREES, ORNAMENTAL DECIDUOUS TREES, for Parks or Avenues, from 10 to 12 feet.
FOREST TREES, for Copse Planting, from 2 to 4 feet.
Prices given on application.

A Catalogue is now ready, and may be had for two postage stamps. The Nurseries are two miles from Godalming Station, South-Western Railway, where conveyances can always be obtained.

Milford Nurseries, near Godalming, Surrey.

POULTRY, RABBIT, SHEEP & CAT FENCING. HARE OR RABBIT NETS, ON CORDS, for Covert Shooting, 12 mesh over, 4 feet wide, 2*d.* per yard; 18 mesh over, 6 feet wide, 3*d.* per yard; 24 mesh over, 8 feet, 4*d.* per yard; each edge corded, ½*d.* per yard extra. Extra stout do., 18 mesh wide, 4*d.* per yard, suitable for Poultry Fencing. Square mesh Cricketing Net, fix its full width and length, made of stout cord, 3*d.* to 4 per square yard; this is the best article made for Fencing against Fowls, Cats, &c.; at W. Cullingford's, 1, Edmund Terrace, Ball's Pond Road, London.

VINES FOR FRUITING IN POTS.

MESSRS. J. AND J. FRASER, NURSERYMEN, Lea Bridge Road, Essex, beg to announce that they have a very choice selection of the best sorts of VINES from eyes grown in 12 and 15-inch pots, Price 5*s.* and 7*s.* 6*d* each.

N.B. Strong Vines for planting out, 3*s.* 6*d.* each.—Oct. 13.

FRUIT TREES IN POTS.

HLANE AND SON have the pleasure of announcing that their very extensive collection of FRUITS IN POTS are now ready for sending out, well set with bloom-buds, consisting of Peaches, Nectarines, Apricots, Cherries, Plums, Pears, Apples, &c., and are quite worthy the attention of those who take a delight in this particular branch of horticulture.

The Nurseries, Great Berkhamstead, Herts.

CHOICE CALCEOLARIA SEED.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior CALCEOLARIA, saved with great care from all the newest and choicest varieties, which if sowed now will flower finely next summer.

The great satisfaction which their Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.

Packets sealed and warranted by them, at 2*s.* 6*d.*, free by post.

EXETER NURSERY, EXETER.
ESTABLISHED 1720.

GEORGE JACKMAN begs to state his PRICED CATALOGUE of choice CONIFERA, HARDY EVERGREENS and ORNAMENTAL TREES, which are well grown, and constantly removed; also Roses, Standard, Dwarf, and dwarf-trained Fruit Trees, and Forest Trees, can be had on application by enclosing one Postage Stamp.

G. J. respectfully invites persons planting to pay a visit to his extensive nursery, one and a half mile from Woking Station, South Western Railway, where all trains stop, and conveyances can be had.—Woking Nursery, Woking, Surrey.

TO PLANTERS.

JOHN SCOTT, of the Merriott Nurseries, Crewkerne, Somerset, has for Sale large and fine specimens of EVERGREENS, &c., at the lowest prices. The following are fine bushy plants, from 3 to 6 and 7 feet high, and from 6 to 16 feet in circumference:—Deodars, Cedars of Lebanon, Red Cedars, Arbor-vitæ, upright Cypress, Silver Fir, Evergreen Oak, Portugal Laurel, Arbutus, &c., in large numbers. Also all the leading Deciduous Trees from 6 to 16 feet high, all moved last May, and are now finely rooted; Forest Trees, many hundred thousands ready for planting; with fine Standard and Dwarf-trained Fruit Trees, of all the best and leading kinds, at very moderate prices. Gentlemen requiring large numbers will find the above well worthy of attention. Prices and signs sent to any application.—Oct. 13

CHARLES SCHOFIELD (late J. SCHOFIELD & SON), SEEDSMAN and FLORIST, begs to invite the attention of Florists to his large and superb Stock of CARNATIONS, PICOTEES, PANSIES, PINKS, HOLLYHOCKS, &c., which he now offers at greatly reduced prices of the best quality. A Catalogue, descriptive of the above Flowers, is now ready, and will be sent on application.

PANSY SEED, in Packets, selected with the greatest care, from the best Show Flowers, 2*s.* 6*d.* each.

Also a few Packets of Extra-fine CALCEOLARIA SEED, 2*s.* 6*d.* each.

The finest HOLLYHOCK SEED, 1*s.* per Packet.

Knowsthorpe, near Leeds, Yorkshire.

NEW STRAWBERRIES AT REDUCED PRICES,
GROWN AND OFFERED FOR SALE BY

WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.—The following splendid varieties have been well proved this season and given complete satisfaction, viz., Sir Harry (Underhill's), 100 plants, 4*l.*; 40, 1*l.* 18*s.*; and 20, 1*l.*; or 12*s.* 6*d.* per dozen. Omar Pacha (Ward's), 1*l.* per 100; 12*s.* per 50; 7*s.* per 25. Scarlet Nonpareil (Patterson's), 2*l.* per 100; 1*l.* per 50; 12*s.* per 25. Sir Charles Napier (Smith's), 1*l.* per 100; 12*s.* per 50; 7*s.* per 25. Admiral Dundas (Myatt's), 1*l.* per 100; 12*s.* per 50*s.*; 7*s.* per 25. Nicholson's Ajax, Ruby, Captain Cook and Fill-Basket, 6*s.* per 100; Ingram's Prince of Wales, Nimrod, Eliza (Rivers's), Surprise (Myatt's), and Bicton Pine, a large white one, 6*s.* per 100; British Queen, Black Prince, Eleanor (Myatt's), Old Pine, Trollope's Victoria. Goliah (Kitley's), Keens' Seedling, Old Roseberry, all at 4*s.* per 100; Crystal Palace, a very large and late variety, 10*s.* per 100. Post-office Orders payable at Yarm are expected with all orders. The plants will be securely packed and forwarded to any part of the kingdom.

Plants kept in frames for spring planting.

FRUIT TREES.

THOMAS RIVERS begs to submit to the Public the following synopsis of his Fruit Tree Culture, which is this season more than usually complete and extensive.

APPLES, on Crab Stocks.—Standards for orchards, dwarfs, and dwarfs trained for espaliers.

APPLES, on Paradise Stocks, for gardens.—Pyramids, dwarf bushes, dwarfs trained for espaliers, and dwarf bushes in pots.

APRICOTS.—Standards, standards trained, half standards in pots, dwarfs, dwarf bushes for potting, dwarfs trained for walls, and dwarfs in a fruiting state in pots for orchard houses.

CHERRIES, on black Cherry Stocks.—Standards, standards trained, dwarfs, and dwarfs trained.

CHERRIES, on the Mahaleb Stock.—Dwarf bushes for potting and culture as bushes, dwarfs trained for walls, and dwarf bushes in pots.

CURRANTS.—Dwarf bushes, including some new and fine [varieties.

FIGS, in pots, in a bearing state.

GOOSEBERRIES.—Small, high-flavoured, old sorts, and all the large new Lancashire varieties.

GRAPES for Vineries, from eyes, in pots.—Strong plants, two and three years old; ditto, in pots, dwarf bushes for orchard houses; ditto, hardy sorts from the open ground for walls.

MEDLARS.—Standards and dwarfs.

MULBERRIES.—Standards and dwarfs trained for walls.

NECTARINES AND PEACHES.—Standards, standards trained, half standards in pots, dwarfs, dwarfs trained, and dwarfs in a fruiting state in pots for orchard houses.

NUTS AND FILBERTS.—Dwarf bushes, and standards 4 feet high grafted on the Hazel Nut.

PEARS, on Pear Stocks.—Standards, standards trained, dwarfs, dwarfs trained for espaliers and walls; pyramids six years old, twice or thrice removed, in a bearing state; these are adapted for gravelly and chalky soils unfavourable to pyramids on the Quince Stock.

PEARS, on Quince Stocks.—Standards trained for walls, pyramids, pyramids root-pruned, in a bearing state; dwarf bushes in a bearing state, for potting, or for culture as bushes; dwarf bushes in pots, in a bearing state, for orchard houses.

PLUMS.—Standards, standards trained, dwarfs, dwarf bushes for potting or for garden culture, dwarfs trained for espaliers and walls, dwarf bushes in pots for orchard houses, and pyramidal trees in a bearing state.

QUINCES.—Standards of the common Quince, and pyramids of the large Portugal Quince.

RASPBERRIES.—Canes of the finest varieties.

STRAWBERRIES.—Runners of the finest varieties.

WALNUTS.—Standards and dwarfs for gardens of the Dwarf Prolific Walnut.

The descriptive Catalogue of Fruits, which is so arranged as to point out to those commencing Fruit Culture the most select varieties, will be ready for delivery in a few days.

Nurseries, Sawbridgeworth, Herts, Oct. 13.

RHODODENDRONS.

JOHN WATERER begs to announce that he is now prepared to execute orders for his two New Hardy Hybrid Rhododendrons, in good established plants, at 42*s.* each.

Rhododendron JOHN WATERER, colour glowing carmine, large truss, fine foliage, and a most abundant bloomer, in perfection about the 15th June.

Ditto, MRS. JOHN WATERER, a bright rosy crimson, fine conical truss, a very free blooming kind, in flower about 15th of June.

To the admirers of this justly noble class of Plants, JOHN WATERER has the pleasure of recommending the above as being the greatest acquisitions yet offered. They combine in a marked degree the necessary requisites for really first-rate hardy crimson varieties, viz., imposing colours, abundant bloomers, extreme hardiness, and flower at a time when they are not liable to be injured by spring frosts.

The American Nursery, Bagshot, Surrey, Oct. 13.

WATERER'S AMERICAN PLANTS.—A new DESCRIPTIVE CATALOGUE is now published of the celebrated Collection of hardy Scarlet and other Rhododendrons, as exhibited by JOHN WATERER at the Royal Botanic Gardens, Regent's Park; it will be found to contain a few practical observations on their successful management, and will be forwarded on application by enclosing two stamps for postage. Apart from its enumeration of the most popular American Plants in cultivation, a List of choice Coniferæ will be seen, embracing the latest importations of this fine and hardy tribe of Plants.

J. W. has now the pleasure to offer in large quantities, and of all heights, the following selection of CONIFERS, with the remark that they are all now growing in the open ground, are bushy and handsome as can be desired, and have been transplanted each succeeding spring, whereby no risk can be encountered in their removal from the nursery:—Araucaria imbricata, Cryptomeria japonica; Pinus Douglasi, Cembra, excelsa, Lambertiana, insignis, Jefferyana, Beardsleyi, tuberculata, &c.; Cedrus Deodara, Lebanon, and Africana; Wellingtonia gigantea, Cupressus, Juniperus, Taxus, Thuja, &c.

☞ The attention of gentlemen, public companies, and others engaged in planting, is especially directed to the foregoing; indeed, all intending planters would be well repaid by a visit to inspect our stock, as much may be seen which of necessity cannot be given within the limits of an advertisement.

The Nursery is easily reached by railway, being near the Farnborough Station, South-Western Railway, and Blackwater on t e South-Eastern Railway.

The American Nursery, Bagshot, Surrey.

RARE AND NEW FERNS.

R. KENNEDY having at present a good assortment of the more choice species of FERNS would especially recommend the following selection:—

Acrophorus hispida	Lomaria Magellanica
Cheilanthes Alabamaensis	Nephrolepis Davalliöides
" vestita	Nothochlæna nivea
Cassebeera farinosa	Platycerium grande
Gymnogramma lanata	Drynaria coronans
" pulchella	Trichomanes Andrewsi
" dealbata	Davallia tenuifolia
" chrysophylla	Woodsia hyperborea
" tomentosa	

Prices and General Catalogue forwarded on application.

Bedford Conservatory, Covent Garden, Oct. 13.

MYATT'S ADMIRAL DUNDAS STRAWBERRY.—Strong plants packed and delivered free in London, 25*s.* per 100. Also MYATT'S British Queen, Cinquefolia, Globe, Eliza, Mammoth, 3*s.* 6*d.* per 100; Keens' Seedling, Hooper's Seedling, Black Prince, Bicton Pine, 3*s.* 6*d.* per 100.

MYATT'S BRITISH QUEEN.—In reply to several correspondents, and in confirmation of the private answers I gave last summer, I beg leave to state that the only Strawberry bearing the name of "British Queen" is MYATT'S, and when Mr. Beach, in his advertisement says "his true British Queen," he is obviously in error, and arrogates to himself the credit due to my late father, Mr. JOSEPH MYATT, who was the originator of the variety in question.—W. MYATT, Manor Farm, Deptford.—Oct. 13.

CHARLES TURNER begs to offer the following NEW PLANTS, which will be sent out this autumn for the first time:—

NEW CARNATIONS.	Per pair—*s.*	*d.*
Omer Pacha (Puxley), scarlet bizarre, very fine	10	6
Silistria (Puxley), scarlet bizarre, large and fine	7	6
Tenby Rival (Puxley), crimson bizarre, very fine	7	6
John Gair (Puxley), crimson bizarre, very fine	7	6
General Simpson (Puxley), crimson bizarre, very fine ...	7	6
Morgan May (Puxley), P. P. B., very fine	7	6
Sir Colin Campbell (Puxley), P. P. B....	5	0
Orion (Puxley), scarlet flake	5	0
Warrior (Puxley), crimson bizarre	5	0
Lord Cardigan (Puxley), crimson bizarre	5	0
NEW PICOTEES.		
Sultana (Turner), medium red edge, extra fine large smooth petal	10	6
Dr. Pitman (Turner), heavy red edge, pure white, with very solid red edge, without spot or bar, extra fine ...	10	6
Mrs. Drake (Turner), heavy scarlet edge, full size, large petal, and colour solid on the eye, extra fine. Figured in the "Florist," for September, 1855	10	6
Eugenia (Turner), light red edge, very large, an extra fine variety	10	6
Mrs. Lochner (Turner), heavy red edge, great substance, and very solid and bright, very fine	10	6
Mrs. Dodwell (Turner), very fine heavy red edge, with very large petal, rather thin, fine	7	6
Mrs. Pitman (Turner), heavy scarlet edge, very large, and a great improvement on Green's Queen	7	6
Mrs. Gair (Turner), light rose edge, large and fine ...	7	6
Mrs. Aitken (Turner), medium purple edge, full flower large and fine	7	6
Bessie (Turner), medium purple edge, extra fine	7	6
Chancellor (Headley), heavy red edge, fine	5	0
Lady Eleanor Cathcart (Turner), heavy scarlet edge, very bright, fine	5	0
NEW PINKS.		
Mrs. Stevens (Looker), purple edge, extra fine	5	0
Mrs. Norman (Norman), purple edge, very smooth. This very fine variety was raised by Dr. Norman, of Colchester, the raiser of Colchester Cardinal and other fine varieties, and has obtained first class certificates at the principal London exhibitions	5	0
Lady Grenville (Turner) red edge, fine petal, extra fine ...	5	0
Peter Young (Turner), red edge, large and very fine. Received a first class certificate at the National Floricultural Society	5	0
Great Criterion (Maclean), rosy purple edge, very large petal, smooth, too thin for southern growers, but suitable for northern growth	3	6
Star (Westbrook), red, very bright, and of fine quality, but rather small. Received a certificate at the Royal Botanic Society	3	6

NEW GERANIUMS AND NEW FANCY DITTO.

See Geranium Catalogue just published.

Royal Nursery, Slough.

GRAPE VINES FROM EYES IN POTS.

LUCOMBE, PINCE, AND CO. beg respectfully to call attention to their remarkably fine stock of Grape Vines, raised from eyes in pots, in a bearing state.

L., P., & Co. having two years ago erected a Vinery 90 feet long for the especial purpose of proving every good Vine in cultivation, are enabled to say that the Plants sent out by them are true to name.

LUCOMBE, PINCE, AND CO.,
EXETER NURSERY,
EXETER.
ESTABLISHED 1720

THE EXETER NURSERY, EXETER.

LUCOMBE, PINCE, AND Co. respectfully beg leave to inform the Public that their Nursery is this season abundantly furnished with a fine healthy Stock of all the best varieties of

HARDY ORNAMENTAL TREES AND SHRUBS,
HARDY EVERGREENS, CONIFERÆ,
FRUIT TREES, FOREST TREES,
RHODODENDRONS,
&c., &c., &c.

Their stock of every description of Nursery produce is so good as well as extensive that they are enabled to offer advantageous terms to Purchasers, for particulars of which apply as above.

THE BEST TWELVE HYACINTHS FOR POTS OR GLASSES.

(*Parcels if not less than 20s. value, carriage free.*)

The best 12 HYACINTHS imported (by name) ...		9*s.*	0*d.*
Double do. for open ground, mixed ...	per doz.	4	0
CROCUSES, many sorts mixed, ...	per 1000	12	6
TULIPS, fine mixed, early for pots or borders,	per 100	6	0
ANEMONES, fine double mixed	per 100	5	0

And all other BULBOUS FLOWER ROOTS at low prices, as per Catalogue just published.

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

SUTTON'S IMPROVED ITALIAN RYE GRASS.

SUTTON AND SONS, SEED GROWERS, Reading, are now harvesting their crop of Seed of this superior variety of Italian Rye Grass, and are also importing a supply of fresh Lombardy Seed. As the demand appears likely to be great, Messrs. SUTTON respectfully recommend their friends who intend to sow these articles next season, to favour them with their orders early, in case the stock should prove short.

N.B. SUTTON & SONS *do not appoint Agents for the sale of their Seeds; but they deliver them carriage free by Rail to most parts of the United Kingdom.*

CATTELL'S EARLY BARNES CABBAGE; DO. DO. RELIANCE; ALSO PARAGON, IMPERIAL, KING, NONPAREIL, ETC.

JOHN CATTELL has now ready Bedded Plants of the above, at 5*s.* 6*d.* per 1000. No charge for crates, baskets, or packing. Packages of 5000 or more are delivered to London and to the Edenbridge Station of the South-Eastern Railway carriage free. A remittance or reference to accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

AGRICULTURAL SEEDS, ETC.

PETER LAWSON AND SON, SEEDSMEN AND NURSERYMEN TO HER MAJESTY THE QUEEN, and THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND, are now supplying the following seeds of the best quality:—

Italian Rye-Grass, Foreign seed	Dwarf Essex Rape
Crimson Clover (Trifolium incarnatum)	Winter Tares
Alsike Clover (Trifolium hybridum)	Natural Grass Seeds, for Pastures and Lawns, &c. &c. &c.

27, Great George Street, Westminster.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 13, 1855.

THE outcry against bridging over the water in ST. JAMES'S PARK has died away. JACOB OMNIUM no longer swaggers in the *Times;* and Sir JOHN SHELLEY'S Westminster constituents, having discovered that the proposed roadway will be useful to everybody and an injury to no one, have wisely abandoned their opposition to the measure. They seem indeed to have suddenly remembered that the proposal is after all not so much to form a new way to Westminster as to restore an old one, the closing of which, ugly as it was, some two-and-thirty years ago, was one of the most distasteful and despotic acts of the Government of King George the Fourth. Nevertheless, it seems desirable to revert once more to the subject, for the purpose of explaining more fully than has hitherto been done, what Sir BENJAMIN HALL'S plan really is.

The proposed road is for foot passengers and carriages only, not for heavy traffic. It passes out of the west end of Pall Mall into the Park, nearly opposite St. James's Street, and terminates at the Broadway in Westminster, crossing the park and water upon arches, in the manner represented in the accompanying sketch. In order to bring it from Pall Mall the ugly German Chapel next Marlborough House is to be removed, which will also enable Stable Yard to be enlarged, and will give more room for carriages attending levees and drawing-rooms. At the Westminster end the road passes into Queen Square through an old house or two and finally reaches the space in front of the Abbey, joining Victoria Street.

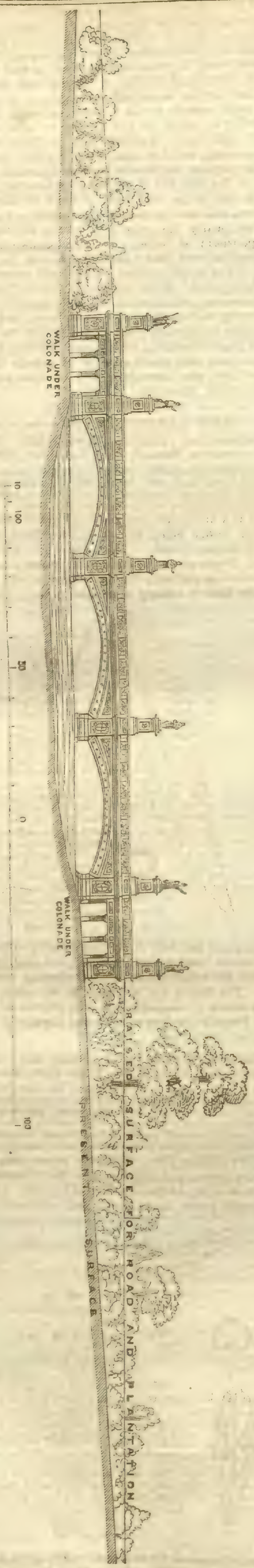
Such is the line of communication which has been so much objected to in a few quarters. It is, we think, impossible to devise one of more importance to the west end of London and to the inhabitants of Westminster, who, if they understand their own interests, will be its most strenuous advocates. It is true that it does nothing for Belgravia; but we entertain no doubt that if the inhabitants of that great quarter can persuade Lord FITZ-HARDINGE to surrender the lease of his house by Spring Gardens, the present Government would be prepared to lend

a favourable ear to any proposal for opening another road into the Strand through Charing Cross, and for thus connecting Belgravia with the city.

With regard to the proposed bridge itself, small as the scale necessarily is on which we are obliged to represent it, there can scarcely be two opinions as to the charming effect which it will produce when executed. It crosses the water upon three beautiful cast-iron bronze-coloured arches, gracefully decorated with statuary, and enriched lamp-posts.* At either end it is connected with the Mall by passing over a colonnade in harmony with the bridge and affording ample communication between the two sides of the Park, exactly where the present walk passes by the margin of the water. On the one hand the Horse Guards will be seen in the distance beneath the arches; on the other will be had a view of Buckingham Palace. The whole will be a structure worthy of the good taste and architectural reputation of Mr. Pennithorne.

Nor will the roadway take anything appreciable from the present park, for it is carried through the masses of bushes, which now extend nearly from the Mall to the water, and which will hereafter to a great extent mask the roadway till it reaches the colonnades. We may also add that the direction of the road is such that only one tree of the least importance will have to be removed.

If we have at all succeeded in making the proposed measure intelligible, we confidently believe that the good sense of the public will put an end to all further cavilling on the subject, and that the sanction of Sir Benjamin Hall's plan will be one of the earliest as well as most popular acts of the next session of Parliament.



We are continually called upon to give our opinion on some particular disease, and to suggest a remedy, without a particle of information as to previous treatment, or any intimation of the conditions under which the diseased plants have grown. Such is the case at the present moment with specimens of Gladioli which formed part of a large bed, consisting of various varieties, all of which seem to have been affected almost indiscriminately by some disease which has caused a total failure. The tubers have either rotted off suddenly at the base when the stem and leaves were apparently healthy, or the whole plant has gradually withered. In either case it should seem that the affection is precisely the same; that of the organs above the roots it is the base of the tuber from whence the roots are given off which is affected; and that the leaves, stem, &c., above the tuber perish only in consequence of the proper supply of nutriment being cut off below, or the little which passes vitiated by decomposed matter.

Now if the roots themselves are examined, their condition will be found such as to make it very probable that the evil has commenced there, and that the base, which consists principally of a complicated mass of vascular tissue, has perished in consequence of some malady affecting, in the first place, their extreme branchlets. The roots consist of a cortical stratum of irregular cells succeeded by ligneous cells, and then by a large cylinder of vascular tissue composed of scalariform reticulated and spiral vessels threaded by large ducts. The first indication of disease consists in a discoloration of some of the vessels, especially those which have a real spiral thread. Other vessels, however, are affected, and after a time they are either completely clogged up by brown matter, or they contain scattered brown granules very distinct, tolerably regular in outline, and larger than those which attracted so much attention in the first speculations on the origin of the Potato murrain. If a root is cut through in this state a black spot appears in the centre, confined to the vascular portion. Matters, however, do not remain in this condition. Fungous threads soon appear in the cavities of the vessels running up the walls or passing from tube to tube, the consequence of which is that the whole portion affected by them decays, and the root is often found to have lost the whole or the greater part of its vascular apparatus by mere decomposition, whether induced immediately by disease or by the action of the fungus, so as to present a hollow cylinder. Under such conditions it is easy to understand that the base of the tuber could not long remain healthy.

Now without an opportunity of inspecting the locality it is perhaps rash to suggest a cause, but as vegetation appears to have gone on well up to a certain point, though it has evidently been checked after a time from the small size of the new tubers, and there is no reason to believe that the disease is due to fungous matter, while the upper portions should seem to have perished simply from the abstraction of the proper supplies, we must look for some external cause, and this may very possibly have been some accidental drought, which has affected the spongelets and thus in process of time induced decomposition and ultimately given rise to fungal mycelium. These Gladioli dive deeply into the earth for moisture, and if a proper supply has failed below during the excessive drought of the past summer, while the more superficial fibres have rapidly absorbed that which has been applied frequently to the surface, it is very possible that an unhealthy condition may have been induced, which has ultimately affected the base of the tuber, and in consequence the vitality of the whole plant. We are convinced that in many a case where the Melon and Cucumber diseases are accused of being the authors of failure, the prime cause of evil has been slight superficial watering, while the deeper roots have been seated in a dry and often a burning soil. In many a case complete drought is less injurious than a mere sprinkling, which, if repeated frequently, renders the plant only more impatient of drought, while the supply is quite insufficient for its wants. It is very possible that in the case of the Gladioli we may be wrong, though we feel sure that the cause has been external, whatever it may have been, and that which we have mentioned is capable of producing such an effect, and accords with our own experience in similar cases; but our remarks will not be useless if they check the practice of frequent but scanty watering. It is very true that Melons will not bear much drenching, at least in our climate, though the continental practice is very different from our own; but it is equally certain that they cannot thrive when the subsoil is void of moisture, and a great bottom-heat is applied. If the spongelets are once affected, or the smaller fibres decay, there will always be danger of decomposition in the larger roots, and this will generally be aggravated by fungi, and according as the decomposition assumes a moister or a drier form will be the rapidity of the affection.

In the case before us it may be added that the mycelium is probably that of Cladosporium herbarum, the most common of all fungi, and which is breaking through the plant in every direction. *M. J. B.*

* These are not represented on the accompanying elevation. They are tastefully connected with the statues.

VEGETABLE PATHOLOGY.—No. XCI.

372. Caries (*Decay*).—True canker may be complicated by the presence of gum, resin, or watery fluid, and its real nature in consequence masked or entirely concealed. Every case, however, in which the more firm or solid portions of a tree are subjected to decomposition is not due to canker. Fungi or insects may have in the first place led to mischief, and a decay of the older parts ensued. In the natural course of things, however, where everything has been perfectly healthy, the organism will not live for ever. As a new layer of bark and wood, and consequently a new set of buds is added every year, life may be prolonged indefinitely in the direction of the circumference, but the older internal portions which have long since performed their functions gradually lose their vitality and become subject to chemical decomposition even where no external agents or accidents favour the process. They acquire in consequence a darker hue, assume the characters of ulmates and humates, and finally the central portions become soft, lose their adhesion and form a friable powdery mass. The decayed matter acts as a putrefactive ferment on the neighbouring tissues, and sometimes becomes moist from the absorption of sap; and the process goes on till some portion of the tree gives way in consequence of the wood becoming too thin or brittle to support the weight of leaves and fruit, and thus moisture is introduced from without or an exit is formed for the decayed matter. The tree finally becomes hollow, and in favourable circumstances the outer portions are still renewed, and sometimes the external fissure is obliterated by the projection of the new structures on either side, and matters proceed till a new cycle of phenomena has run its course and leads to the same result. Decay is, however, seldom dependent simply on the natural course of decomposition. Even where there is no external injury the inmost tissues are soon threaded with the mycelium of parasitic fungi, which aid materially in the decomposition of the firmest structures. The fungus itself soon makes its appearance in various situations according to different specific circumstances, and the agency of the outward elements rapidly aggravates the evil. Under the most complicated circumstances, however, it is astonishing how many years a hollow trunk will resist, producing every year as good and abundant fruit as if the tree were perfectly sound. To take the Apple tree as a familiar instance, whose wood does not in general resist decay so long as many forest trees. No sooner do the internal tissues begin to lose their vitality than they are attacked by the spawn of Polyporus hispidus or other fungi. If the fungus makes its appearance on one side only, decay may be confined to that side, and after a series of years the wood gives way; no more fungi are produced, and the tree becomes hollow; and in this condition, with proper care to exclude the weather, it may continue fruitful for years. In the Oak, on the contrary, the fungus more generally appears at the base and the decay proceeds upwards. In every case, however, where it is desired to preserve a tree either for use or ornament, the great point is to remove the decayed matter as completely as pos-

sible, and then to exclude the action of the outward air and rain. The circumstances of the case will best indicate what is the most proper course to pursue; sometimes where the cavity is small, it may be filled with some cement which will exclude moisture, or it may be closed with a plate of metal; or as a temporary remedy, where it is hoped that the fractured surface may soon be grown over, paint or varnish or some other anti-corrosive application may be used. Judicious measures will often be attended by success, and I could now point out a tree which was carefully tended more than 40 years ago, though then in a very dilapidated state, which is still at this present time in a fruitful condition, and may remain so many years longer. It does not, however, always follow that it is best to cover the cavity. Every one knows how slow the process of decay is in certain cases, where the cavity is subjected to a free current of air, while there is no lodgement of wet, and in some cases, as in the Elm, the surest remedy consists in some external outlet for the decomposed matter. *M. J. B.*

PROTECTING MATERIALS.

My foreman, who is a very intelligent man, prognosticates another hard winter; he says that severe winters always occur in groups of three or four together; therefore we are to have one or two more hard winters. He is as confident in this opinion as though he had the gift of prophecy, and really looking to my own experience, I am half afraid there is some truth in the matter, which makes me shrug up my shoulders rather ominously, for besides the crops here in the open ground being sadly thinned last winter, I had a considerable quantity of glass structures at work, forcing early Grapes, &c., and I do not want another winter season for trouble, anxiety, and coal bills, like the last. It has set me thinking upon what every one of any experience feels to be, if not *the* great want, at least a great want of the gardening craft, an effective material for and method of covering up and protecting pits, frames, hothouses, &c. How often have I in a sharp frosty night when the thermometer outside the forcing-house indicated 15° or 20° of frost, and in the house 60° or 65° (and a roaring fire to keep it there, too), stood and imagined I saw the whole of the glass covered with an effective protecting material, so that one might see all covered up warm, with a moderate slow-burning fire, and retire to rest feeling assured that all would be safe till the morning, come what weather there might. One great evil in many of our forcing-houses is a deficiency of piping; all forcing structures should be so heated that there should be no necessity to work the apparatus so hard; the great *desideratum*, however, is not the putting so much fire heat in, but to prevent so much going out; some effective protection is very much wanted for cold pits for wintering the numberless half-hardy plants in.

I have often thought that the forcing of early vegetables, Lettuces, Radishes, Carrots, Turnips, Potatoes, &c., might be carried on on a much larger scale than it is at present, for the large supply which we have from the Continent, being readily sold at high prices, proves that there would be an extensive sale for such articles if they could be sold at a moderate price. I imagine that they could be grown almost, if not quite as well, under an opaque covering as under glass, for nine times out of 10, when the weather is not frosty, all coverings are best off, and when it is frosty the plants do not want light; if a glass frame, which now costs 12*s.*, could be supplanted by one costing 2*s.* or 3*s.*, a great point would be gained.

Now what have we in the shape of protecting materials? Bast mats, I suppose, are as old as any, but every one knows that one is of very little use against a sharp frost. Two mats are not sufficient, and when they get frozen they are very awkward and difficult to put on or take off; besides two mats thick costs too much, as they will not last more than one season. Some use two mats with a layer of hay or straw between them fastened in with twine, so that they look like a mattress, and this is a very effective covering when dry, but when wet and frozen it is the worst of all.

Straw mats are a very cheap and good article, but they do not last long, and they lack one essential point of a good protection, viz. they are not waterproof. They freeze on, and when wet are heavy and soon rot. Reed mats are more durable, but when saturated with water they are very heavy, and in many places they cost more than many might imagine. I am of opinion that no material will be found suitable for general use that is not waterproof. I need say little about loose straw; it is a very effective covering when the weather is calm; but a cutting east wind in half an hour often blows it all off where it is wanted, and carries it where it will take all the next day to clear it up again. There can be no question, I think, that all these articles are very defective, and with them I must class Frigi Domo; to say that it is a perfect non-conductor and keeps a fixed temperature where it is applied, is quite a mistake. Those who have tried it have decided that as a protective material it is about equal to a single mat.

Canvas made waterproof is employed by a few, but its expense is against its general use: when kept some distance from the glass, so as to have a body of confined air beneath it, it is a most effective covering; but it has some serious drawbacks; it is very awkward to put on or take off unless it is on rollers; and even then, when most wanted, viz. during alternate frosts and thaw, sometimes you cannot roll it up; at other times you cannot get it down. I conceive it must be at times very troublesome; but I confess that I do not speak of it from experience. It is a mistake to think that a protecting material must be flexible. There will always be a difficulty in using it when most wanted in bad weather, and all waterproof textiles, if strong, cost too much. For this purpose some stiff substance, if it could be made light enough would, I think, be much the best, the facility in taking off and putting on being so much greater and surer. Asphalte felt, no doubt, makes a good covering, and I wonder it has not been more used for that purpose; but its cost has been against it—not the price of the felt, but it requires a frame with several bars to fix it on, and then it must be coated with tar, lime, and sand, so that by the time it is finished, it has cost nearly the price of a wooden shutter, which perhaps would be better. Wooden shutters are very effective, but very dear; 6*s.*, 8*s.*, and even 10*s.* in some places for a single shutter will always prevent them from being used. What we want is a cheap light waterproof covering, which could be easily applied. I have been trying various things for some time, and think I have made an advance; but I should like to see this matter freely discussed, for perhaps necessity has given birth to some idea which may be of benefit to us all. Let us hope that something will be done before this winter sets in. *Economy.*

NEW GARDEN FERNS.—No. V.

13. Nephrodium venustum, Heward MS. Aspidium — venustum, Heward, Mag. Nat. Hist., 1838.

Fronds glabrous lanceolate, pinnato-pinnatifid; pinnæ alternate, narrow linear lanceolate, sessile, or, the lower very shortly stalked; segments roundish oblong-obtuse subfalcate; sori submarginal; rachis stellato-tomentose in front.

This is a handsome free growing Fern of considerable size, the fronds being from 2 to 3 feet long, and from 7 to 10 inches broad. They are quite smooth and shining, bright green, pinnate; the lower pinnæ short, and somewhat stalked; the upper ones sessile, tapering from the base to a sharp elongated point. The pinnæ

are cut about half-way down into bluntly-oblong somewhat falcate lobes, which are entire, and slightly ciliated. The sori are submarginal, often becoming confluent in lines. The fronds are adherent to an erect rhizome. It is a native of Jamaica, and was introduced in 1852, to the Botanic Gardens of Kew and Glasnevin. It is an evergreen stove Fern.

14. Lastrea pilosissima, J. Smith MS. Aspidium pilosissimum, G. Don MS., Herb. Hort. Soc. Lond.

Fronds ternate, deltoid or pentangular; the lower branches tripinnate, trapezio-triangular, the posterior pinnæ thrice as long as the anterior ones; apex elongated; pinnules obliquely oblong-ovate, deeply pinnatifid, with oblong or obovate entire or sinuately notched segments; sori small scattered; rachis and costa hairy above, pubescent beneath; stipes hairy.

A very distinct plant, requiring stove heat, a native of Sierra Leone, and introduced to the Chelsea Botanic Garden in 1851, by the late Mr. Whitfield. The fronds are grayish green, herbaceous, and extremely liable to

become blackened by exposure; they grow a foot and a half or 2 feet high, and are three-branched, deltoid, or rather five-angled in consequence of the excessive development of the two divergent basal posterior pinnules. The composition of the central portion, which is equal sided, is similar to that of the posterior or more highly developed side of the branches; these parts are tripinnate in fully developed fronds, the ultimate pinnules being rather bluntly ovate or oblong ovate, and often oblique or unequal sided, deeply pinnatifid, the lobes oblong or obovate, entire or sinuately notched along their margin. The termination of both central and lateral branches is caudate. The sori are terminal on the veins, rather small, scattered over the whole frond, few on each segment. The stipes is densely covered with spreading white hairs, sparingly intermixed with long black hair-like scales; the rachis and costa are hairy above, pubescent beneath; and the upper surface of the frond is furnished with rigid divaricate hairs, which occur also beneath along the veins. This species seems closely related to the Aspidium subquinquefidum of Palisot de Beauvais, but is much more compound. *T. M.*

Home Correspondence.

Method of Cultivating Potatoes Free from Disease.—Use a pretty fair allowance of stable or yard dung, well incorporated previously with as much common refuse salt as will not prove destructive to the vegetation of the plants. Deposit this along the drills that have been opened for the reception of the sets, and place these (moderate sized whole tubers are the best) therein in the usual way on the top of the manure. Then throw over each set a spadeful of wood ashes, and afterwards fill up the drills with the earth that has been raised on either side in forming them. The salt thus supplied not only yields chlorine to the plants (of which there exists a large per centage in their composition, as found from analysis), but effectually prevents worms, slugs, &c., from lodging in the dung, as they would otherwise do; and the wood ashes afford an ample provision of potash, as well as tend to keep the soil dry and porous about them, all the other substances requisite for their food being contained in adequate proportion in the dung. I have never found this system of cultivation fail in averting the disease, as it causes the plants to grow in a most healthy robust state; and it has, moreover, invariably improved the quality, both in mealiness and flavour, and augmented the quantity of the produce of the crop in no small degree beyond what I have ever obtained in using dung alone. Whether the plants are at once able to assimilate to their requirements the chlorine and potash so administered I am not competent to determine, but there appears to me to be no doubt that these adjuncts become available to them in some way or other during their advancement in growth from the application of salt and wood ashes, very different from what is produced when the same substances are supplied to them, either in a simple or compound form, derived through the agency of the chemist, thus demonstrating that in the feeding of plants Nature possesses a talisman congenial to their appetite, and conducing to preserve them in a healthy condition, unattainable by art. As to the Potato being a nitrogenous or non-nitrogenous plant, or how far the state of the atmosphere may exercise an influence in occasioning the blight, I shall leave to others to decide, and with regard to the nostrums that are advertised to produce such wonderful effects, all I have to say is that I have fairly tested, I believe, most of these at a considerable expense, without deriving any benefit whatever, that I could perceive, in remedying the evil. The culture I have recommended for adoption, as stated above, is the result of my own experience; but whether it will turn out equally successful in all cases where it may be practised, of course, I cannot take upon myself to guarantee. As, however, its trials will not be attended with much expense, any of your readers who may be inclined to follow the plan are quite welcome to do so, for I have no intention to take out a patent for the recipe, nor any interest in retaining the secret, if so it may be called, my sole motive in addressing you on the subject arising from a desire to prove serviceable to them. For the benefit of those who may experience a difficulty in procuring wood ashes, I should imagine the manure dealers would find it to their advantage to keep a supply of that commodity for sale in store, in the event of its becoming extensively employed. *P. W., South Wales, Oct. 9.*

Gigantic Cockspur Thorn.—I have just returned from Devonshire, where I noted down the measurements of a specimen of the Cratægus Crus-galli that I now forward to you. It grows on its own stock, and measures in its smallest circumference (close to the ground) 6 feet 8 inches. At the height of 5 feet, and just below the lowest branches, the girth is 7 feet 6 inches. The circumference of its spread is 44 yards, and would be more but for the browsing of cattle and the encroachments of other trees. The maximum semi-diameter of its spread is 29 feet. It flowers and fruits freely, and is now covered with the latter. The blossom somewhat resembles that of the Pear, and the berries are six or eight in a cluster, and of the size of Cherries. The flower is white, the fruit red. There is no specimen of the kind in Kensington gardens, but I am told that there is a small one in those at St. James's Park. *J. F., Parthenon Club.*

Monstrous Cabbage Leaf.—I have sent you a Cabbage leaf, on whose midrib are numbers of small leaflets which grow larger and longer every day; in fact they progress much more rapidly than the leaf itself, and the plant shows no disposition to Cabbage. You will observe that the leaflets also have growths of a similar kind upon them. *Bolehope Fell.* [This is a curious, but not very

unusual condition of the Cabbage. It is one of the proofs that leaves *can* grow like branches.]

Stockwood Golden Hamburgh Grape.—Being about to plant a vinery I am anxious to procure the best Grapes, and have referred to the different periodicals on the subject. Amongst other remarks I found one in the "Cottage Gardener" for July 24th, on the new white Grape Stockwood Golden Hamburgh, which is said to be a seedling from Black Hamburgh, hybridised by "White" Sweet Water, and no doubt very excellent, but stated to be second to the Frontignan. On the 14th August I find words to the following effect:—"We cannot speak too highly of this Grape, which is without doubt the best of all except the Muscats." On Sept. 4th we have a full description of it in a leading article, in which the writer gives the preference to the Muscats only. Am I to understand that it is now found to be superior to the Frontignan? Is it not a curious circumstance that the Golden Hamburgh is an oval berry when neither of its parents are so? I should without at all doubting the merits of the Grape be inclined to think there is some mistake about its parentage. I have seen a white Grape in this neighbourhood raised evidently from the Black Hamburgh, which has all the characteristics of its parents except colour, which is a bright amber; form, size, flavour, habit, all correspond. The raiser has received letters from some of the leading horticulturists, who have seen it and all pronounce it good, and say that it is equal to the Golden Hamburgh, but quite distinct from it. Do you not think that this will be a great acquisition also? Will some of your correspondents favour me with the names of six or eight Grapes they particularly recommend? *C. Reid, Perry Bar, near Birmingham.* [We have always understood that the Golden Hamburgh was a pure seedling, not hybridized. We should say that too little is as yet known about it to justify very positive assertions. When we saw it we thought it an excellent variety; but we have only seen it once.]

Specific Gravity of Different Bodies.—It is interesting to read the reports of the British Association held at Glasgow this season, but there are some assertions connected with gardening which, if collected and made known, would perhaps puzzle some of the philosophers to understand them, but coming from the cultivators of Cabbages, of course they would be little esteemed. Water, we are told, is generally the substance employed for ascertaining the precise weight of any body, which is a very curious branch of the science of hydrostatics. The reason why any body floats in water is that, taking bulk for bulk, it will be found lighter. This relative weight in bodies is called their specific gravity, and water is always taken as the standard for the specific gravity of all bodies. If a body when thrown into water displaces a column of that liquid greater than its own bulk, it will immediately ascend to the top and float upon the surface, with as much of its bulk below as corresponds exactly with the quantity of water displaced; on the contrary, if it displaces a body of water less than itself it will sink to the bottom. It is on this account that a piece of marble will sink and a piece of cork will swim. In hydrostatic calculations, water, as the standard from which the respective gravities of other bodies are taken, is reckoned as unity or 1, 100, 1000, &c.; a cubical foot of it weighs 1000 ounces avoirdupois. Taking water at 1000, cork will be about 240, and the comparative weight of sand will be about 2590, and it is a common thing for cork to float and sand to sink. Yet I find in some of my operations that sand will rise through water and float upon the surface like cork. *P. Mackenzie, West Plean, Stirling.*

Effect of Overfumigating Vines with Sulphur.—A friend of mine erected a vinery about three or four years ago, and planted young Vines in it; they grew exceedingly well until last year, when the gardener having some plants with vermin on them in the same house, gave the whole a severe fumigating with sulphur, using by mistake twice as much sulphur as he ought to have done. The leaves all dropped off the Vines immediately, and the fruit which was then fully grown ripened badly. Since that time the wood is puny, and the fruit is small and poor in quality. Will you say if that overdose of sulphur was sufficient to cause this bad condition in the Vines? and if so, is the evil likely to continue much longer? The border for these Vines is 12 feet wide, and is raised rather high towards the house. The gardener says that the border is too narrow, and too high; is he right? Any suggestion to clear up this business and to effect a remedy will be thankfully received. *Roaldus.* [If, as we infer from your statement, your gardener *burnt* sulphur and so killed the foliage of your Vines, he ought to have known that such mischief would happen. You had better cut the Vines hard back in the winter. We see nothing the matter with the border.]

Grafting or Budding Walnut Trees.—Are Walnut trees ever grafted or budded? and if so, when is the best time for so doing? Several gardeners have been asked the question, but none of those asked had any idea or had ever heard of such a thing. It is well known that the tree raised from the Walnut seed does not produce a nut like the seed sown; for instance, a nice flavoured small nut sown produced a large half-filled French Walnut kind, with inferior flavour to the seed, and *vice versâ.* I should be obliged by any information on the subject. *A Constant Reader.* [Walnuts may be both budded and grafted, by taking proper precautions; especially by performing the operation after growth has well commenced. Full details are given in the Theory and Practice of Horticulture, p. 338.]

Grafting Embryos.—Your article on this subject at p. 627 has led me to try the experiment. I am not sure, however, that I fully understood your meaning, as I find some difficulties which I cannot satisfactorily explain. My experiments were made on the kernels of Peaches and Nectarines, and on the seeds of the common Nasturtium and Tropæolum canariense, the two former and the two latter being respectively grafted together. I found it impossible, by merely skinning the kernels, to place the surfaces in sufficient contact to bear the tying together, as they are rounded and very slippery, and you did not, I believe, in your remarks say anything about cutting or paring them down, so as to make the surfaces fit each other, which appears to be the only likely way of performing the operation neatly. If they are to be cut, in what direction is it to be done? The cotyledons of a Peach or Nectarine when separated in the kernel somewhat overlap each other at their inner edges, and in whatever direction they can be cut would be so injured as to destroy the form of the future leaf. But supposing that two or more were cut to fit each other, and could be made to grow together in the embryo, I cannot see that it would produce any effect on the future plant if the axes of the cotyledons remained free, as the roots and stems of the grafted cotyledons would then grow from those points independently of each other. The only plan of forming them into one plant appears to be by grafting the embryos at the axes of the cotyledons. Supposing this to be practicable each side of the graft would represent half of the diameter of the root and stem of the young plant; and the thing to be proved by the experiment is, I suppose, whether the leaves afterwards developed during growth will gradually lose their identity and produce a similar effect on the buds they may nourish, so as to give rise to a fruit of a twofold character. How such an effect can be produced any more by this plan than by the ordinary method of grafting does not appear very plain, as in both cases the wood alone is acted upon. Should not the operation be performed on the blossoms of the trees? for if that is practicable I can understand that the object might be attained. [No.] Let us trust that you will favour us with further information on the subject. *Gamma.* [We think the embryos must be pared down. You cannot graft wood itself by mere contact. But the mode of carrying out this operation is precisely that which must be made the subject of the proposed experiment.]

Sulphured Hops.—The fault does not wholly lie with Hops. Maltsters are well known to use sulphur in drying off malt to give it a brighter colour, such malt bearing a much higher price. *A Constant Reader.*

Vine Borders.—I shall be glad of advice under the following circumstances. I am making a new kitchen garden, and am now forming the borders in front of a greenhouse for Vines, from hints which I have taken from your Journal. In page 205, 1847, dead lime rubbish is recommended to form a portion of the composition. My nurseryman says that nothing is so poisonous to the roots of trees as that is. Is this so? I am about to pull down a building upwards of 100 years old, and shall have plenty of dead lime rubbish, if it is desirable to use it. The border will be 11 feet wide and 2½ feet deep, on a substratum of broken pieces of stone 1 foot deep, passing from the house to a drain; I propose to cover the stones with a thin coat of old lime rubbish, well beat down, to prevent the roots of the Vine from penetrating through the stones to the subsoil, which is not good. The site of the ground being on the slope of a hill, and the position of the greenhouse in other respects making it desirable to have it below the surface of the ground, the top of the Vine border will be only 6 inches below the sill of the front lights. My gardener says that will be an advantage. Is it so? In page 683, 1847, plaisterers' rubbish is again recommended, and materials from the tan-yard. The latter are now sold here for 14*l.* a ton, which is rather too expensive. I have a quantity of old must, the refuse of the Apple, which has been converted into cider; it has been lying for some years in a heap till it has become black and decayed. Is there any value in this? I am told that it is worthless as manure; would it be injurious to the garden mould if mixed with it? There is a new manure advertised under the name of nitrophosphate, a blood manure; would not this be good to mix up with the composition for the Vine borders, and in what proportion, though the price is rather high? *H. W., October* 8. [Lime rubbish, and especially plasterers' rubbish, is an excellent material for Vine borders. Tanners' refuse is also good: but not at all necessary. Bones crushed, and rotten dung—not too much of the latter—do as well. It is advantageous to have the border sloping well away from the front wall—*only* because it is thus kept warmer and drier. Decayed must is like decayed leaves or rotten wood; you cannot call it a manure. With the action of nitrophosphate we are unacquainted. Have any of our readers used it?]

Treatment of Orchids.—It has been repeatedly stated in your columns that Orchids do not require so high and moist a temperature as we generally find them grown in by some of our best cultivators. It is true that our Orchid growers are for the most part very successful both in cultivating and flowering their plants. But still the cost, trouble, and expense of the Orchid-house too often exceeds the gratification derived from it, besides which the great amount of heat and moisture maintained frequently deters those for whose pleasure the plants are cultivated from entering the house to examine or admire them. That the plants require a somewhat high temperature I allow, but that they must be cooped up in a close and very moist house I cannot believe. On the contrary such a practice appears to be unnecessary, and I am convinced that under contrary treatment the plants will succeed equally well. This summer several plants of Cymbidium aloifolium, Cattleyas Mossiæ and granulosa, Dendrobium nobile, Vanda Roxburghi, and others, were removed from the end of a very hot pit in the early part of the summer (in consequence of repairs, &c.), and placed in a greenhouse, the average temperature of which seldom exceeded that of the open air. The top of this house, which was on the ridge and furrow system, fell off at the back into a kind of recess or room immediately below a couple of chambers which formed part of a dwelling-house, and which effectually prevented the rays of the sun from scorching the plants within it. Now this recess, or part of the house, which was of some considerable size (45 feet by 15), and which contained several Orange and other trees, was selected as a repository for the outcast Orchids, which were either hung on the branches of the Orange trees or, as was the case with those in pots, placed on a pavement of white sandstone, and therefore were in a colder position than those suspended on the branches above them. Now under these conditions the plants grew and flowered far better than they did the preceding year in a hothouse whose temperature seldom fell below 75°, and sometimes reached 100°. Now to-day, by way of experiment, I placed immediately below a flower spike of Stanhopea tigrina a thermometer, so as to be enabled to ascertain the exact temperature in which the plant was blooming. This I found to be exactly 66°, and it frequently fell at night to 45° or 50°, so that I am now convinced that some of our most beautiful Orchids will bloom freely if placed in a tolerably shaded situation at the temperature I have mentioned. Of course I am not speaking of the more tender and valuable species. The plants above referred to were seldom watered during the time they were in the greenhouse, and the ventilators and doors were kept constantly open, so that there was nothing to impede a free current of fresh air from circulating among the plants. One of the latter (Dendrobium nobile), which was placed on the pavement, sent out shoots fully a foot long, and I never remember having observed a plant of this description looking more healthy or flourishing. It, however, did not flower as the Cattleyas, Stanhopeas, &c., did, it having, as I am told, not been in the habit of flowering for the last year or two; in the cool temperature of the greenhouse, however, I believe from its appearance that it would soon do so. To be able to observe these curious and beautiful productions during the heat of summer in a cool and shady greenhouse or conservatory, more especially when suspended from the larger trees and shrubs, or placed on stands amid them, is indeed a treat compared with the risk which some persons sustain from entering the close and humid houses in which we generally find them confined, and I trust that the hints here thrown out may be the means of making it more generally known that numbers of these fragrant and beautiful plants will flower and flourish during part of the year in any ordinary greenhouse or conservatory, without any of those extreme applications of heat or vapour generally afforded them. *Strathfieldsaye.*

Societies.

Entomological, *October* 1.—J. Curtis, Esq., F.L.S., President, in the chair. An extensive series of donations to the library was announced as having been received from the Natural History Societies of Belgium, Moscow, the Society of Arts, Messrs. Hewitson, Zuchold, Newman, &c. Mr. F. Smith exhibited an extensive series of rare Coleoptera, especially rich in Curculionidæ collected by himself during the past month at Deal, and Mr. Dawson a number of specimens of the hitherto unique Harpalus cordatus, from the same locality. A box of insects from Perthshire was also shown by Mr. Foxcroft. Mr. F. Bond exhibited the rare moth Heliophobus hispidus, from the Isle of Portland; Mr. Newman a specimen of Kirby's Xylocopa iricolor, a large imported species of bee, taken at Dulwich; and Mr. Power a specimen of Dinodes Maillei, a native of Turkey and Greece, which had been taken by Mr. A. Adams at Gurnard Bay, in Moss, near the western extremity of the Isle of Wight, also Elaphrus lapponicus. Mr. Stainton exhibited a new Lithocolletes, reared from the leaves of Vicia Sepium, and Mr. Curtis a gigantic scorpion from Sierra Leone. Mr. Westwood stated that he had received information from Mr. Mitchell of the destruction of a considerable quantity of Turnips by the attacks of aphides, which in their turn were devoured by the larvæ of Syrphideous flies. Mr. Curtis stated that he had been informed that the crops of red Cabbage near Cranford had suffered materially from the attacks of aphides. Mr. Westwood stated that he had observed that the past summer had been very propitious for the propagation of obnoxious species of sawflies; the Rose sawfly, the slimy larva of the Pear and Plum tree-leaves, and the Gooseberry sawfly had been superabundant. Mr. Lubbock stated that the nigger caterpillar of the Turnip had also appeared in large numbers in Kent. Mr. F. Smith stated that he had captured the fly Elachiptera brevipennis in the act of depositing its eggs in the body of a living Nabis subaptera. Mr. Douglas communicated a note on Elateridæ preying upon aphides. A note was read by Mr. Atkinson on several species of Indian butterflies, and one by Mr. Newman on the manufacture of hats impervious to wet,

from the silken texture obtained from Saturnia spini by the process invented by Herr Pretsch, of Vienna. Mr. Douglas mentioned the capture of the rare Licinus depressus and Tarus axiliaris, near Croydon. A letter from Mr. Bowring was read, giving an account of his entomological captures during his visit to Siam in company with his father, Sir J. Bowring; and Mr. Westwood communicated a paper on the Australian species of Pselaphidæ, in the collection of the late A. Melly, Esq.

British Pomological, *October* 1*st*. — Mr. Robert Hogg in the chair. Amongst other fruits exhibited were samples of the Oldenburgh Nectarine, from Messrs. Veitch and Son, of Exeter; this is a good melting and richly flavoured white-fleshed freestone variety, quite equal to any in cultivation, and from its condition so late in the season (from Devonshire) leads us to suppose it may be an acquisition. Some specimens of the Stanwick were exhibited from the same nursery, exceedingly fine and well grown, but devoid of flavour. The Red Nectarine Peach, of which samples were sent, is a bitter kernel Syrian variety; they were past their best, but gave evidence of the value of the variety. *From an Occasional Correspondent.*

Notices of Books.

Books for the Country—The Kitchen Garden. By E. S. Delamer. Routledge & Co. Small 8vo, pp. 184.

This little work contains information that may prove useful to the class of readers for whom it is intended. It has good remarks on the situation, plan, and mode of cropping a kitchen garden, but when the author comes to treat of gardening tools, it does not appear to us that he has had much practical experience in their use. "The English spade is a good implement, but it is too broad in the iron, and too short in the shaft for many soils and many workers. Women and boys can dig with greater ease, and even grown men can get over their work more quickly, digging at the same time to an equal or a greater depth, with the French spade, which somewhat resembles the implement used by the Lincolnshire marshmen to excavate their drains and ditches. The iron is 10 or 11 inches long, and 5 or 6 broad at the most, being narrower at the bottom than at the top. The shaft is five or six and thirty inches long, including the handle at the top, which is simply a cross piece of 3 inches. The long leverage of handle and the narrowness of the blade allow it to be used with less resistance from the soil, which at the same time is more finely divided than it would with a broader iron." Now, we differ from the author in nearly all these statements. In the first place, 10 or 11 inches of blade is too short for kitchen garden digging; and 5 or 6 inches too narrow except perhaps for such adhesive subsoils as the Lincolnshire marshmen have to excavate; tender soil would mostly fall off before it could be turned over, and no soil but what is friable is fit for a kitchen garden. For ordinary work a shaft of 36 inches is too long. Let any one practice, by himself, with such a long handled spade till he considers himself quite expert in its use; then let him try alongside one who can use a good English spade, such as one of Lyndon's patent, and the superiority of the latter implement will soon be apparent. To dig with ease the handle of a spade must be grasped with one hand, whilst in lifting the other should grasp the shaft at a distance of little more than the breadth of the man's shoulders from the other hand; farther apart, the power becomes diminished, both as regards lifting up and pressing down. A long handle may, however, be grasped at the proper distance between the hands; but then the weight of the soil on the spade would have double the leverage that it would on the common short-handled implement. In short, the English spade has properties which no other form can possess, as far as regards adaptation for digging kitchen garden ground.

The instructions for the sowing, planting, and general cultivation of crops are in accordance with those usually given by good authors. Some botanical names require correction, such as Leontodon tarexicum (taraxacum), Saturcia (Satureja); and among the names in a list of Pears, we find Beurré Capriomont, Muirford Egg, Beurré Rose, instead of Beurré de Capiaumont, Moorfowl Egg, and Beurré Bosc. The sorts recommended are, however, of more importance than these apparently typographical errors. The Bon Chrétien d'Été, and several others should not have been included in a list of those for ordinary cultivation.

The above, however, are exceptions to the general merit of the work, which "merely professes to act as a truthful and serviceable guide to aid beginners on their horticultural journey." A useful calendar is appended.

Garden Memoranda.

Mr. Salter's Versailles Nursery, Hammersmith.—Several things now in flower in this nursery deserve attention. In the first place, Mr. Salter has a good collection of the different kinds of Scarlet Geraniums, many of them novelties just imported from the Continent. Among the more striking of these and other little known kinds grown here were Hamelins, a rosy salmon sort with a broad white border and horseshoe-marked leaves; Louis Chaix, a pinkish salmon with a small white eye; Criterion, also pinkish salmon, with broadly marked horseshoe leaves; and Christianum, a small dwarf-growing kind of the same colour. Among white-flowered varieties of the scarlet class, Blushing Bride, a kind with horseshoe-marked leaves, is certainly one of the best. It is a considerable improvement on Boule de Neige, its flowers being larger and better shaped than those of that variety, and quite as good a white. Of clear pink kinds with a white eye we need scarcely say that Lady Holmesdale is still a favourite. Triomphe de Mont Rouge, a white, delicately suffused with pink, is also extremely pretty, and well deserving a place in every collection. Of kinds with scarlet flowers, Charles Sternaux is one of the most brilliant, without horseshoe on the foliage; Warnford Pet is also a large bold scarlet; Bishopstow, scarlet, is less robust, and, being brilliant in colour as well as compact in growth, looks as if it would be a good kind for bedding purposes. Beauté Meldoise, apparently a strong grower, has flowers of more than ordinary size and brilliancy. Variegated Geraniums are also plentiful here, and among them were some finely scented sorts.

Among other things we noticed some of the new Fuchsias with white corollas, both single and double; the plants, however, were so young, and had so few flowers on them that no opinion could be formed of their merits further than that they appeared to be free growers, and looked as if something good might be made of them. Of Sedum Sieboldi we observed some fine plants under glass, and when well grown as these were, nothing in a common way could possibly look handsomer. For placing in vases in halls, or for covering and rounding off as it were sharp corners of shelves, few plants are better adapted than this Sedum, and it is so hardy that it will live out of doors; but when placed there, except it is protected in some way, slugs are apt to eat and disfigure it. Of plants in suspended baskets a variegated variety of Vinca major had a fine appearance, its branches drooping several feet below the bottom of the basket. Several other common plants, including even the little trailing Linaria cymbalaria, are also grown here as "hangers," and skilfully used many other plants of this kind might be employed with great advantage in the decoration of our greenhouses, and would cost nothing beyond the trouble of collecting them. A variegated variety of Arundo Donax was growing under glass here, and a very handsome plant it is, its leaves being beautifully striped with white; along with it were also variegated Veronicas, Polemoniums, Neriums, Fuchsias, Coltsfoot, and other plants with fine foliage. We also noticed here an orange-flowered seedling Tropæolum, in the way of Caroline, named Brilliant, which may prove useful on account of the brightness of its colour. We likewise remarked plants of the Pampas Grass growing under glass in pots. Mr. Salter has found that when planted deep and kept in doors, they make plenty of roots, and may be divided into separate plants with every certainty of succeeding; but that dividing plants grown out of doors does not always answer, on account of their roots being coarser and more destitute of fibres.

Of novelties among Dahlias, of which a good collection is grown, may be named Inimitable, a salmon and buff kind striped with red; Alfred Salter, a large bold scarlet kind; Le Phantasque, a crimson tipped with white, the latter very clear and distinct; Kaiserin v. Oesterreich, a purplish lilac tipped with white; Richard Wagner, a dark claret tipped with white; Imperatrice Eugenie, a purplish violet broadly tipped with white and very showy; Madame Alfred Perignon, of a bronzy lilac shade tipped with white; Cornellius, a blush tipped with rose; Gold border, a German flower of a warm orange brown colour edged with yellow, and were it not for its "hard eye," very pretty; Gurnerbraut, white tipped with cherry, a small and attractive flower for bouquets, for which we believe it is much employed on the Continent; and Duchesse de Brabant, a rich golden orange kind which can scarcely fail to become a favourite. These comprise some of the best of the new Continental kinds, of which there is annually an abundance.

Chrysanthemums promise to bloom well here this year, and, as we understand they are to be planted out under glass in beds so as to form a kind of winter garden, they will doubtless have a fine appearance. In the open ground the yellow and white varieties of Chrysanthemum frutescens were in bloom, and showy beds they make, more especially the white sort, which flowers most profusely and is very compact in growth. These if lifted and potted before the frost injures them, bloom well all winter in the greenhouse, and at a time when flowers are most wanted. Of the yellow kind, Mr. Salter has a handsome double variety, very bright and clear in colour. In the open border here, we noticed a fine mass of Funkia grandiflora in bloom. The pure white flowers of this plant being sweet-scented are said to be much used on the Continent for wedding bouquets when Orange flowers or Tuberose cannot be had.

Fruit has here, as elsewhere, been most abundant this year, and some of the Apples more especially have been unusually large. One of a sort called the Giant, a large green cooking Apple, weighed 1 lb. 1 oz. Peaches and Nectarines on open walls have succeeded well, with the exception of the Stanwick, which did not ripen perfectly; a few gathered hard and green, however, very much improved in this respect after they had been indoors for a time, but still their flavour was not near equal to what it should have been.

Dioscorea Batatas, turned out on a border here, would seem to confirm what has been said about it, viz., that our climate is too cold for it. Out of a hundred planted, scarcely a dozen are now alive, and these are less in size than when they were put out. Of Holcus saccharatus we noticed several large plants in the open border luxuriant and healthy.

FLORICULTURE.

Dahlia and Hollyhock Competition.—At the great exhibition of these flowers, open to the United Kingdom, which was lately held in Edinburgh, in connection with the Caledonian Horticultural Society's show, the following premiums were awarded:—*Dahlias.*—For the best 24 blooms, produced by nurserymen. The 1st prize was gained by Messrs. Downie and Laird, for the following sorts, viz.:—Pre-eminent, Rachel, John Keynes, Immortal, Mr. Seldon, Duke of Wellington, Fanny Keynes, Plantagenet, Beauty of Slough, Bob, Miss Caroline, Sir F. Bathurst, Edmund Foster, Mrs. Ferguson, Ruby Queen, Malvina, Admiral Dundas, Lady Folkestone, Annie, Empress, Frederick Jerome, Port Royal, and Sir C. Napier. The 2d prize was awarded to Messrs. J. & R. Thyne, of Glasgow, for Robert Bruce, King, Lady Folkestone, Edmund Foster, Triumphant, Sir F. Bathurst, Lady Bathurst, Shylock, Rose of England, Yellow Standard, Plantagenet, Primrose Perfection, Glory, Lilac King, Sir C. Napier, Amazon, Edward Harrison, General Canrobert, Negro, Duke of Wellington, Queen of Whites, General Faucher, Empress, and John Keynes. The 3d prize was awarded to Mr. Handasyde, of Musselburgh, whose blooms were Robert Bruce, George Glenny, Agincourt, Fanny Keynes, Mr. Seldon, John Keynes, Lady Folkestone, Bob, Beauty of Slough, Sir R. Whittington, Rachel Rawlings, Edward Harrison, Lady Bathurst, Reine des Matins, Lord Bath, Primrose Perfection, Caractacus, Port Royal, Rosea elegans, Gem of the Grove, Rose Unique, Sir C. Napier, Empress, and Beeswing. For the best 12 blooms produced by practical gardeners and amateurs. The 1st prize was gained by Mr. Henderson, gr. to C. K. Sievwright, Esq., Cargilfield, who produced the following sorts:—George Glenny, Robert Bruce, Beauty of Slough, Bob, Sir F. Bathurst, Lilac King, Plantagenet, Rachel Rawlings, Annie, Amazon, Mrs. Ferguson, and Sir R. Whittington. The second prize was awarded to Mr. Oswald, Murthy Castle, for Fanny Keynes, King, George Glenny, John Keynes, Sir F. Bathurst, Miss Susan Sainsbury, Mr. Seldon, Duke of Wellington, Miss Caroline, Lady Bathurst, Abbe-Von, and King of Yellows: the stand which stood third in order of merit was disqualified from want of the proper declaration. The third prize was therefore awarded to Mr. Walker, gr. to J. Mood, Esq., Rosehall, for Robert Bruce, King of Yellows, Plantagenet, Lilac King, Bob, Annie Salter, Nil Desperandum, Rachel Rawlings, Mr. Seldon, Amazon, John Keynes, and George Glenny. For the best six blooms produced by practical gardeners and amateurs, not growing more than 40 plants. The first prize was gained by Mr. Henderson, with Rachel Rawlings, George Glenny, Plantagenet, Beauty of Slough, Lilac King, and Sir F. Bathurst. The second premium was awarded to Mr. Berry, gr. to R. Newton, Esq., Newington, for Beauty of Slough, John Keynes, Queen of Lilacs, Edmund Foster, Sir F. Bathurst, and Duke of Wellington. For the best 12 blooms of Fancy Dahlias, produced by nurserymen, the prize was awarded to Messrs. Downie & Laird, for Triomphe de Roubaix, Jonas, Miss Ward, Princess Charlotte, Topsy, Comet, Emperor de Maroc, Baron Alderson, Kossuth, Pigeon, Unanimity, and Phaeton. For the best six Fancy Dahlias produced by practical gardeners or amateurs, the prize was awarded to Mr. Walker, for Topsy, Duchess of Kent, Glorie de Kain, Wonderful, Emperor de Maroc, and Kossuth. *Hollyhocks.*—For the best and most distinct 11 spikes produced by nurserymen, the prize was awarded to Mr. Chater, Saffron Walden, for the following sorts, most of them seedlings, and those marked with an asterisk being particularly fine:—President, Cream, *Lilac Queen, *Golden Sceptre (orange), *Queen of Buffs, Prince Albert, Mont Blanc, Hon. Mrs. Ashley, Fairy, *Queen Victoria (light fawn), and Pourpre de Tyre. The 2d prize was awarded to Messrs. Ballantyne & Sons, Dalkeith, for Emperor, Agricola, Glory of Cheshunt, Beauty of Cheshunt, Rosy Circle, Felicia, Unique, Pourpre de Tyre, Souvenir, Hon. Mrs. Ashley, and Lizzy—the three last being particularly fine. The 3d prize was assigned to Messrs. Downie and Laird, whose best spikes were Beauty of Cheshunt, Duchess of Sutherland, and Mrs. Ashley. For the best and most distinct nine spikes produced by practical gardeners or amateurs, the 1st prize was gained by Mr. Pow, gr. to A. Berwick, Esq., of Norton, with Watford Surprise, Beauty of Cheshunt, Pourpre de Tyre, Hon. Mrs. Ashley, Lizzy, Solfaterre, Beauty of Beechwood, Unique, and Yellow Model. The 2d premium was awarded to Mr. Cossar, Kingsmeadows, for Prince of Orange, Walden Gem, Sulphur Queen, Beauty of Tweeddale, Agricola, Eva, Beauty of Cheshunt, Pourpre de Tyre, and Shaded Model. The 3d prize was assigned to Mr. Laing, gr. to the Earl of Rosslyn, whose kinds were Mrs. Ashley, Agricola, Yellow Model, Emperor, Lizzy, Joan of Arc, Beauty of Cheshunt, Emily, and Miss Ashley. For the best and most distinct 5 spikes produced by practical gardeners and amateurs, not growing more than 30 plants, the 1st prize was gained by Mr. Henderson, with Unique, Emily, Beauty of Cheshunt, Mrs. Ashley, and Joan of Arc. The 2d prize was awarded to Mr. Melville, gr. to A. Blair, Esq., Beechwood, for Souvenir, Pourpre de Tyre, Mrs. Ashley, Mrs. Forster, and Emperor. The prize for the best spike in the exhibition was gained by Mr. Chater with Queen of Buffs. The award of One Guinea and a Half offered by Mr. Bircham for the best 7 spikes of sorts and seedlings sent out by him, was awarded to Mr. Pender, Moredun, for the following sorts, viz.,—Golden Nugget, Pourpre de Tyre, Hedenham Rival, Yellow Model, Jenny Lind, Solfaterre, and Meteor. The prize of One Guinea and a Half offered by Mr. Charter, for the best 7 spikes of sorts let out by him, was awarded to Mr. Blackwood, Peebles, for Rosea grandiflora, Safranot, Souvenir, Sulphur Queen, Rosy Circle, Lilac Model, and Eva.

Miscellaneous.

On the supposed Influence of the Papaw on Meat.—It is commonly believed, both in the East and West Indies, that this tree has the property of rendering tender meat of any kind that is brought near it. In Ceylon the opinion is that the effect is secured merely by suspending the meat beneath the foliage of the tree during the night. In Barbadoes greater reliance is placed in wrapping the meat in its leaves for a few hours with a portion of the young fruit. The trials I had made afforded negative results, tending to prove that the effect on the meat was owing to other and incidental circumstances, rather than to any special power possessed by the plant. I shall mention one in illustration. Of two fowls killed at the same time one was wrapped in the leaves of the Papaw by my cook in the most approved manner, not neglecting the introduction of a piece of the young fruit; the other was similarly treated, substituting the leaves and fruit of the Squasse (*Cucurbita Pepo*, Linn.). Both roasted were found equally tender. Other trials, using the leaves of other plants, gave like results. The juice of the leaf, to which by some the supposed effect on the meat is attributed, appeared, as well as I could judge, to possess very little activity. It is milky, almost insipid, or only in the slightest degree acrid, and only after many hours promotes fermentation, and that in a very slight degree when added to a solution of sugar in water. The incidental circumstances alluded to, whether the suspending

of the meat under the leaves of a succulent plant exhaling moisture, or the wrapping it in the same, may be sufficient to account for the softening effect on the meat at a temperature such as that of Ceylon or the West Indies, so favourable to rapid change, that change on which tenderness in meat depends, without reference to any occult virtue in the plant. *Dr. Davy in the Edin. New Philosophical Journal.*

Radishes (Raphanus sativus) find in the South and East climates much more genial to their constitution than with us, and the roots acquire a large size, red, white or black (although we have never seen any of those yard-long black Radishes mentioned as having been exhibited at Moscow), but the flavour is seldom so mild and delicate as in our gardens. Both the long and the Turnip-rooted were known to the ancient Romans, and Professor Targioni, reading in botanical works that Raphanus sativus is a native of China, appears somewhat puzzled to imagine in what remote times it could have been imported from thence to Rome. The fact is, there are no more wild succulent-rooted Radishes in China than elsewhere, and any one who observes with an unprejudiced eye the varieties of shapes assumed by the pod of the R. raphanistrum on the shores of the Mediterranean, can scarcely fail to come to the conclusion, that he sees in that species the wild prototype of our garden Radish. *Journal of the Horticultural Society*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c. — We must now be expecting cold nights and occasionally damp cloudy weather, and if there are any plants here likely to be injured by a rather low temperature they should be removed to better quarters at once if they are expected to be of any farther service. Should the weather necessitate the use of fire-heat be as sparing of this as possible, using it merely when absolutely necessary to prevent injury from damp, and to maintain a temperature between 40° and 45°. Where it can be done it will be advisable to water in the morning, so as to allow of having the floors, &c., dry before night, as there will now be considerable danger from excess of moisture in the atmosphere at night, particularly where Camellias and other things easily injured by damp are in bloom. Chrysanthemums will now be in a forward state, and such as have their buds prominent should be got under glass, and if it is desirable to have them in bloom as soon as possible they may safely be placed where a little artificial warmth can be afforded them; but see that they are placed near the glass and well supplied with manure water, and give air very freely, as anything like confinement soon ruins these. Indeed the whole stock of these should now be placed where it can be covered at night in case of frost, for although they will bear more frost than most things, it is not good policy to leave them to the mercy of the weather after this season, unless in favoured localities; but it will be better to place them in skeleton frames or any sheltered situation where they can be covered in case of need, than to huddle them too thickly together under glass, or to put them under the shade of Vines. See that tree Violets are perfectly free from their enemy red spider, for if the foliage is allowed to get disfigured at this season the plants will be unsightly for some time. Greenhouse.—See that Epacrises and other winter blooming things are placed in a light part of the house, where they will be fully exposed to the sun, so as to get the wood well ripened, and ensure their blooming freely. Examine Heaths and anything else subject to mildew frequently, and apply sulphur immediately the pest can be perceived. Water must be very carefully applied at this season, especially in the case of large specimens, for there is much more danger in overwatering now than when the weather is warmer and the plants more active. therefore look over the plants frequently, and never water until it is necessary. Any of the late growing Heaths which may be in want of more pot room may still be shifted, but do not expose them to cold winds and water very carefully afterwards, for the roots cannot be expected to progress very rapidly at this season. Get everything requiring it nicely tied as soon as possible, so as to give the plants a neat appearance, and render the house as interesting as possible, in the absence of any grand display of bloom.

FLOWER GARDEN AND SHRUBBERIES.

Where alterations are in hand concentrate all the strength that can be commanded upon this work, and get the removal of large Evergreens, &c., effected as soon as circumstances will admit, for the most favourable season for this work will soon be past. And now that the weather is showery not a day should be unnecessarily lost in getting whatever large plants it may be intended to remove this season into their fresh places, as if transplanted at once there will be a chance of the plants forming a few fresh roots before winter, therefore see to getting this kind of work forward as rapidly as possible. The scarcer varieties of variegated Geraniums should not be risked in the beds too long, but had better be taken up and potted immediately the weather becomes threatening for unless they can be covered at night in the event of frost, and even then they are hardly likely to be of any service in the flower garden much longer this season, and as it is a work of time to get up a good stock of these, they should not be risked out too late where it can be avoided. After potting it will be a good plan to place them on a gentle bottom-heat in a pit or house where the atmosphere can be kept sufficiently dry to prevent injuring the foliage; here they will soon get hold of the soil, and may then be stored away for the winter in a cool, dry house. Any of the beds which have become shabby, and that are to be planted with bulbs or anything else for spring flowering, should be cleared at once and replanted. Keep the grass short and frequently rolled, so as to prevent the growth of Moss, and keep the surface hard and smooth. Also roll gravel walks frequently in damp weather, so as to render them hard and smooth.

FORCING DEPARTMENT.

Pineries.—If the bottom heat is obtained partly from tan and partly from pipes under the bed, as is frequently the case where the pot system of culture is practised, care must be observed not to get it too strong, of which there will be some danger, owing to the increased amount of fire heat that will be necessary after this season. Provided there is the means of stopping the circulation in the pipes under the bed, as there always should be, the temperature will be very easily regulated, but where the one set of pipes cannot be worked without the other the bottom heat must be frequently examined, especially where fresh tan has lately been added, and if found to be getting too strong the pots should be slightly raised, drawing the tan from about them. Any excess of bottom heat is very injurious to Pines at any season, and would be particularly so now when the injured roots would not be so speedily replaced by new ones, as would be the case in spring or summer when the plants are growing more vigorously, and no care that may be necessary to secure a steady bottom-heat of about 80° or 85° should be spared. Give air rather freely on bright days to plants ripening their fruit, and also to young stock in a growing state, and do not keep the latter so warm as to induce anything like weakly growth, or long thin foliage; but regulate the temperature according to the amount of light and the state of the plants. Where the temperature is maintained by means of dung linings, the plants must be kept very close to the glass and rather dry at the root, admitting air as freely as can be done without lowering the temperature too much, for there will be nothing gained by growing plants at this season as freely as it is possible to do in dung heat. Success in Pine growing is to some extent dependent upon having a supply of suitable soil, and fortunately this is not difficult to obtain in most neighbourhoods; but the best turf is greatly injured by being cut and carted in a wet state, therefore see to getting a good stock laid in before the ground gets saturated with wet. Vineries.—Attend to last week's directions as to protecting the borders from heavy rains, and whatever it may be purposed to do in this way should not be put off until the ground gets saturated with wet. Keep houses in which the fruit is ripe dry and cool, using gentle fires with a little air when the weather is damp, and also on cold nights. Be very sparing, however, in the use of fire heat after the Grapes are fairly ripe, as most varieties soon shrivel if kept too warm after they are ripe; but where the fruit is not yet ripe use brisk fires with a free circulation of air. Keep Vines in pots, where the object is to ripen the wood, rather dry at the root, with a rather warm dry atmosphere, and expose them to all the light possible; and where the wood is properly ripened get the plants pruned and remove them to a cool situation, but if out of doors see that the roots are protected from too much wet or frost. Young Vines planted this season that have made a fair amount of growth should be kept rather warm with a dry atmosphere, divesting them of all useless laterals, so as to get the canes thoroughly ripened, but such as may not be considered sufficiently strong, and are growing freely, may be encouraged with a moderately warm moist atmosphere for some time longer; but it must not be forgotten that small well ripened canes will break more strongly next season than large gross ill ripened ones. Peaches.—Keep as cool and dry as possible where the wood is ripe, and draw up the sashes at night when there is any appearance of rain, so as to prevent the inside borders getting saturated with wet. Also do what little pruning may be necessary as soon as the leaves are fairly off, and get the paint, &c., washed, and the house thoroughly cleaned, after which it may be used for sheltering plants where room is scarce; but be careful not to introduce anything that is infested with black thrips, for if this pest once gets into a house it is not easily got rid of. If any of the trees have to be replaced this should be done at once.

HARDY FRUIT AND KITCHEN GARDEN.

Attend to what fruit remains out of doors, looking over it frequently, and gathering it as it becomes fit, so as to prevent its being blown down and bruised by high winds. Keep the fruit-room cool and airy, and examine the fruit frequently and pick out any that are found to be decaying. Use every possible means to get the wood of Peach and Nectarine trees well ripened, and where the walls are flued a little fire heat should be applied until the leaves begin to fall freely. Also, if the trees are too thick of young wood every shoot that will not be wanted at nailing time should be cut out, so as to expose those left to all the light possible. Attend to former directions as to root pruning, and where this is required get it done at once. Root pruning, however, is not of much service where the subsoil is such that the roots can strike down into it, and where such is the case it will be better to lift overluxuriant trees and concrete the bottom of the border, as cutting the horizontal roots, although it might check the gross habit for a season, would not induce a fruitful habit. Clear off all crops that are done with, and get the ground manured and ridged up for the winter; also see that weeds are destroyed among growing crops, taking advantage of dry days for this work, and get every corner thoroughly cleaned, for the weather may soon be less favourable for this sort of work. Keep Celery rather closely earthed up, in order to prevent the plants getting injured by frost.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Oct. 11, 1855, as observed at the Horticultural Gardens.

Oct.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain.
Friday	5	24	29.351	29.331	56	50	53.0	57	57	S.W.	[illegible]
Satur.	6	25	29.351	29.282	65	50	57.5	57	57	S.	.11
Sunday	7	26	29.370	29.251	64	39	51.5	57	57	S	.13
Mon..	8	27	29.516	29.467	67	36	51.5	59	57½	S.W.	.09
Tues.	9	28	29.512	29.488	62	41	51.5	58	57	W.	[illegible]
Wed.	10	29	29.786	29.678	58	39	48.5	57	57	N.W.	[illegible]
Thurs.	11	30	29.697	29.573	61	52	56.5	55	56	S.W.	[illegible]
Average			29.516	29.438	61.8	43.8	52.8	57.1	56.9		1.25

Oct. 5—Fine; heavy showers; much rain at night.
— 6—Fine; very fine; cloudy.
— 7—Cloudy; fine; foggy at night.
— 8—Slight rain; very fine throughout; foggy at night.
— 9—Foggy; very fine; cloudy.
— 10—Fine; cloudy at night.
— 11—Rain; showery and rather boisterous; rain at night.
Mean temperature of the week 1 deg above the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 29 years, for the ensuing week, ending Oct. 20, 1855.

Oct.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday	14	59.0	41.3	50.2	14	0.50 in.	1	4	2	1	8	3	5	5
Mon.	15	57.6	40.3	49.0	13	1.04	2	2	3	1	7	4	4	6
Tues.	16	58.1	40.2	49.1	12	0.52	—	4	5	1	3	5	8	3
Wed.	17	57.8	41.4	49.6	10	0.31	1	2	5	—	2	8	7	4
Thu.	18	57.8	41.8	49.8	14	0.85	2	3	1	1	4	5	11	2
Frid.	19	59.1	39.8	49.5	13	0.61	1	2	3	3	3	5	5	4
Satur.	20	59.1	40.3	49.7	14	0.34	1	3	—	3	5	6	8	3

The highest temperature during the above period occurred on the 24th, 1845—therm. 76 deg.; and the lowest on the 19th, 1843, and 20th, 1842—therm. 22 deg.

Notices to Correspondents.

Acre: *D. Bowman.* Any book of Arithmetic will give you the information. An English acre consists of 4840 square yards.

Adulteration of Food: *P D.* The report to which you allude was confined to Chicory and Coffee. It was prepared for the use of the Excise officers and the Board of Excise, and has not been published.

Diseases: *G F.* It is a fungus called Æcidium laceratum, one of the most mischievous of all parasites. The White Thorn, the Pear, and the Service are most especially subject to its attacks, which occasionally destroy them. There is no known remedy. We should cut off the parts attacked and burn them. The seeds of the fungus are supposed to be taken up from the soil by the roots of the trees that are attacked.

Fruit Borders: *Inquirer.* We do not consider cropping fruit-tree borders with Strawberries a proof of good gardening—quite the contrary. Indeed many gardeners are against cropping them at all, but this we think is carrying the thing to the opposite extreme, as it is very rare that borders can be dispensed with. Provided they are well manured, Lettuces and similar dwarf crops may be grown without injury to the fruit trees, but in no case should vegetables of any description be sown or planted nearer than 4 feet from the stem. *B.*

Fruit Trees: *W C.* You will do well to select the six sorts of Pears you propose, for they are known to be good. The merits of the twelve others you mention have not been sufficiently ascertained in this country. ‖

Glass: *Henry.* The proper lap is always understood to equal the thickness of the glass and no more.

Insects: *R M.* We suppose (although your description is far too vague) that the caterpillars on your Cauliflowers are those of the large garden white butterfly. Hand-picking is the best remedy; a child will clear a bed in a couple of hours—*T L.* Your caterpillar is the common hop-dog, or larva of Bombyx (Dasychira) pudibunda.—*C F.* The grubs in your pasture are not those of the daddy-longlegs. They are the young larvæ of the common cockchafer. As they appear to be numerous, it would be well to turn up the infested spots and pick out the grubs; rolling the part will not be effectual. *W.*

Names of Fruits: *W G R.* Your Pear is the Marie Louise.—*Clapham, W.* 1, Beurré Diel; 2, 8, Passe Colmar; 3, 6, Marie Louise; 4, Glout Morceau; 5, Beurré de Capiaumont; 9, the Apple is Fearn's Pippin.—*W K.* 45 and 47 are of the Doyenné kind; probably both are the Doyenné blanc; 46 is an old French Pear, the Mansuette.‖

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*B H C.* See p. 648. Your initials were misread. It happened that two persons with the same initials received answers; but you were supposed to be *B H L.* You will find your answer at the place indicated. The plant is in a very succulent condition, and approaches A. angustifolia, although we believe it to be really referable to A. patula.—*F M C.* A Euonymus and apparently E. atropurpureus.—*E Y W.* Erica cinerea and Luzula sylvatica.

Nectarines: *Mary.* Your seedling proved very good; it much resembles the Violette Hâtive.‖

Plums: *E Pierce.* Your "seedling" is excellent; it may bear comparison with the Royale Hâtive or with the Purple Gage.‖

Pyroligneous Acid: *An Old Subscriber* will be much obliged to any of our correspondents who will state their opinion as to the distance from a dwelling-house in the country at which a manufacture of pyroligneous acid may be carried on without endangering the health or comfort of the family residing in that dwelling house.

Roses: *J W.* We are still of opinion that your Rose is a very tender kind, and that your climate is too cold for it. The only remedy therefore is replacing it with a hardier sort.‡

Rose Stocks: *M D.* Doubtless there is risk in removing Briar stocks, the buds of which have not begun to grow, because it is probable that the removal will give the stock a check, the result of which will certainly be to cause it to cast its bud. But if you can remove the stock without doing any thing to its roots to cause the spring growth to be checked, then the risk falls to 0.

Seeds: *Sub.* Vegetable and flower seeds imported from the continent are exempt from duty.‡

Misc: *J H.* Your seedling is very glossy and pretty, but of no merit. ‖

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

THE FOLLOWING MANURES are manufactured at Mr. Lawes' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 69, King William Street, City, London.

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MR. HUMBERT, of Watford, Herts, supported by unquestionable references and testimonials, offers his services to proprietors about to execute works of drainage, which he will undertake personally to lay out and superintend, and to supply the forms and attendances necessary to obtain the certificate of the Inclosure Commissioners at a fixed price per acre. Mr. Humbert (having been more than 15 years established in business as a Surveyor and Land Agent) has found that wet heavy soils can be usually carefully and thoroughly drained, with pipes 4 feet deep, and upwards, at from 4*l.* to 5*l.* per acre, inclusive of every expense.

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Mr. Scott is at present carrying out extensive Drainage Works on Crown Lands, which he will be happy to show to Gentlemen desirous of seeing them. Communications addressed to him, as above, will be immediately attended to.—Oct. 13.

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Empowered to execute Drainage, Road-making, and other Land Improvements, and to Erect Farm Buildings upon Estates under Settlement, Mortgage, or otherwise; or Church property, and without investigation of Title to charge the whole outlay and expenses upon the Estate, to be repaid by instalments spread over any period determined by Landowners within the limits of 50 years for Drainage and Roads, and 31 years for Farm Buildings.

Landowners may arrange with the Company for the execution of the works by their own agents, with the use of their own or the Company's Capital. William Clifford, Sec.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c, are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected; Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the Plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable William Napier, Managing Director, 2, Old Palace Yard Westminster.

SMITHFIELD CLUB, 1855.—FAT CATTLE SHOW.—The ANNUAL CHRISTMAS SHOW of FAT CATTLE, SHEEP, and PIGS, will take place on the 11th, 12th, 13th, and 14th of December, 1855, at the Carriage Bazaar, King Street, Portman Square, when nearly 800*l.* will be awarded in Prizes and Medals.

The printed forms of Certificates, properly filled up, must be returned to the Honorary Secretary on or before SATURDAY, November 10th. Prize Sheets and the necessary printed forms of Certificates are now ready, and can be obtained on application to B. T. Brandreth Gibbs, Honorary Secretary, Corner of Half-moon Street, Piccadilly, London.

All communications on the Club's business should bear the words "Smithfield Club" on the outside.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1855.—The Seventh Great Annual Exhibition of CATTLE, SHEEP, PIGS, and DOMESTIC POULTRY, will be held in Bingley Hall, Birmingham, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, the 11th, 12th, 13th, and 14th of December next, when PRIZES will be awarded as follows:—

	£	s.	d.
CATTLE.—Including Two Extra Prizes of 20*l.* each and Two Gold Medals or other pieces of Plate of the value of 20*l.* each, for the best Ox or Steer, and the best Cow or Heifer	340	0	0
SHEEP.—First Prizes of 10*l.*, and Second Prizes of 5*l.*, for Leicesters, Long-Woolled Sheep not being Leicesters, South or other Down Sheep, Shropshire, and other Black or Grey-faced Short-Woolled Sheep—10 classes	150	0	0
PIGS.—Including Prizes for Pens of Breeding Pigs of a large and small breed	69	0	0
ROOTS.—Including a Silver Cup, value Five Guineas, for the best Collection of four different varieties	27	6	0
POULTRY.—Including Nine Silver Cups, of the value of Ten Guineas each, for the best Pen of Pencilled Hamburgh, Spangled Hamburgh, Polish, Spanish, Dorking, Cochin China, Game and Gold, or Silver Bantams; and for the best four Pens of Pigeons, to be exhibited, especially for this prize	451	10	0
	£1037	16	0

Exclusive of Silver Medals to the Breeders of Cattle, Sheep, and Pigs, and Prizes in the Extra Classes and for Cottagers' Poultry.

Mr. Ottley has also offered a Gold Medal, of the value of Ten Guineas, as an extra prize, for the best Pen of Polish Fowl of any colour, to be selected from the several classes for this variety.

Prize Lists, Certificates of Entry, and any further information may be obtained from the Secretary. The Entries close on Saturday, Nov. 10. John Morgan, Jun., Sec.

Offices—38, Bennett's Hill, Birmingham.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.

Principal—J. C. Nesbit, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

PRUNING.

THE GRECIAN PRUNING SAWS are universally acknowledged to be the best for every description of Pruning. They cut faster and cleaner than any other, and do not bend or break. Price 2*s.* 6*d.*, 3*s.*, and 3*s.* 6*d.* each.

Thomas Hill, late W. Coleman, Cutler, 4, Haymarket, London.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe.

Manufactured only by Waithman & Co., Bentham, Lancaster.

No. 1 Quality, Inches in Diameter and Price Per Yard:—½, 9*d.*; ¾, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d*; 1½, 1*s.* 5*d.*; 1¾, 1*s.* 7*d.*; 2, 1*s.* 9*d.*; 2¼, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

Super Extra Stout Quality:—2, 2*s.*; 2¼, 2*s.* 3*d.*; 2½, 2*s.* 6*d.*; 2¾, 2*s.* 9*d.*; 3, 3*s.*

No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9*d.*; 1¼, 10*d.* 1½, 11*d.*; 2, 1*s.*; 2¼, 1*s.* 3*d.*; 2½, 1*s.* 6*d.*

The Hose is Burnettised at an extra charge of 3*d.* per yard.

Union Joints, Branch Pipes, and Jets are also supplied.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of Elisha Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

LIGHT, CHEAP, and DURABLE ROOFING.—CROGGON'S PATENT ASPHALTE ROOFING FELT is perfectly impervious to rain, snow, and frost, and has been tested by a long and extensive experience in all climates. Saves half the timber required for slates. Can be laid on with great facility by farm servants or unpractised persons. Price 1*d.* per square foot. Croggon's Patent Non-conducting Felt, for covering steam boilers and pipes, saves 25 per cent of fuel. Samples and testimonials sent by post, on application to Croggon & Co., 2, Dowgate Hill, London, who also supply ship-sheathing felt and inodorous felt, for damp walls, and lining iron houses, and roofs generally, to equalise the temperature.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. White & Brothers, Millbank Street, Westminster.

FIRST PRIZE REAPING MACHINE.
NOTICE.

MESSRS. BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—Burgess & Key, 103, Newgate Street; and 52, Little Britain, London.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. Burgess & Key, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. Francis Parkes & Co.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to Saynor & Cooke for their superiority of material and workmanship. Established 1738.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the nobility, gentry, and clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of colours, prices, together with a copy of the testimonials, will be sent on application to Walter Carson & Son, 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

The Agricultural Gazette.

SATURDAY, OCTOBER 13, 1855.

In a former paper on Irrigation we just glanced at some of the requisites for the due performance of the process, the principal of which were—1st, A command of water which could be readily directed, not *upon*—as is generally supposed, like flooding from a swollen river—but *through* every part of the field; 2dly, A slow and steady drainage off the meadow, so that in no part should the water ever stagnate.

Now without entering at any length into the consideration of the best means by which the first end can be secured, it may be remarked that economy of space occupied by the water conduits is a very important matter, not only as a saving of land. In a country like ours where water rights are so important, and water indeed by no means a constant quantity, the large and deep feeders too often used are exceedingly objectionable, inasmuch as they too frequently defeat their own intention, as in dry seasons a whole series of meadows are unvisited by water just in the time of their greatest need of this element, awaiting the filling up of deep canals, until which they must remain inactive, the water becoming meanwhile injured by stagnation. It must not be considered that irrigated meadows may be good without drainage; a perfect drainage should be secured, where it is not insured by the structure of the substratum, by as perfect a system as would be pursued in ordinary good cultivation. Indeed, a water meadow should in a few days after the water has ceased flowing on to it be as dry as ordinary well-conditioned pasture, not only in parts but as a whole, and any slight deviation from this rule should at once be rectified by the overseer of the works, or as he is called in the Gloucestershire vernacular, the "drowner." It is his duty to attend to any imperfections arising from want of fresh conduits, obstruction to the older ones, and the like; and should he neglect his duty, or if from various causes, either the newness of the works or the inaptitude of the ground for carrying them out, bad results should arise, these will at once make themselves known to the experienced eye, and more especially during the summer, as the

herbage in its varying quantity and quality in different parts of the field will, by the abundance of one form of plant here, and the scantiness of another there, point out not only extremes of good and bad quality, but every degree of it, for where the herbage may be made up of 30 different species of plants, each one with peculiar idiosyncracies, the fact of any of these monopolising a certain space, and the proportions in which they mix become as important when the species themselves are studied, as, in the estimation of society, is an analysis of the habits of its different members.

If we contrast a survey of a good irrigated meadow in mowing Grass with a bad one, we shall at once see the significance of the foregoing remarks. A meadow in good condition will contain abundance of such Grasses as are of known nutritive quality—"sweet Grass;" and though the botanist may detect here and there a stray specimen of an opposite description, yet these usually look as sickly and unhealthy as do the better kinds in bad soil and circumstances; for it must ever be borne in mind that Grasses like other plants, if designed for poor soil, do as badly in richer ones as do those that require good land in that of a poorer quality. If, therefore, we see a field of Grass the bulk of which is composed, pretty evenly mixed, of—

Lolium perenne, Rye-grass
Poa pratensis, Smooth-stalked meadow Grass
Festuca pratensis, Meadow Fescue
" " *var. loliacea*, Spiked Meadow Fescue
" *duriuscula*, Hard Fescue
Dactylis glomerata, Cock's-foot
Agrostis stolonifera, Creeping Bent

we may from these judge the irrigation process to be properly carried out.

On the other hand, when we observe either over the whole field or in patches here and there bad kinds, "sour Grasses," to be the rule, and good specimens in a starving state the exception, we may be quite sure that the meadow, either as a whole or in part, is in an imperfect state. And the Grasses which best point this out are the following:—

Aira cæspitosa, Hassock Grass
Poa trivialis, Rough-stalked Meadow Grass.

These with the different species of Sedge (Carex), indicate a want of drainage.

Avena pratensis, Meadow Oat Grass
Briza media.

These point out a poor clayey subsoil, a "hungry clay."

Holcus lanatus
Arrhenatherum avenaceum, Oat-like Grass
Bromus mollis (its varieties), Soft Brome Grass,

at once lead to the inference of a poor soil not of a stiff description.

From the foregoing remarks, then, it would appear that irrigated meadows vary much in quality, which variation, though it depends greatly on the land is perhaps but little due to the water, but is principally owing to the perfection of the irrigating processes and to the subsequent management, and therefore the following epitome of the method of using an irrigated meadow, on the borders of which we lived for some time, and the observation of which gave us great pleasure, is added as an illustration of the use and value of irrigated meadows. For this we are indebted to the kindness of Robert Anderson, Esq., agent to the Earl Bathurst.

"In the field of about 9 acres we begin flooding in the early part of October, and continue it perhaps once a week, or as often as we can get water, till the end of March. The meadow is then kept dry for sheep, which are put upon it about the middle of April, namely, 300 ewes and their lambs. These sheep are folded at *night*, upon Italian Rye-grass, on the farm about half a mile from the meadow; they continue this course for about five weeks; after they have left, we flood the meadow once or so again if the water will admit, and save it up for mowing. The hay crop averages from 25 to 30 cwt. to the acre.

"Immediately after the hay is carted off we flood again if possible, so as to get a good lattermath for the fattening oxen, ten of which graze it from about the beginning to the end of August. In about a week or 10 days afterwards 100 ewes with the ram are put in, and it keeps them about three weeks. This brings it to October, when the same course is recommenced.

"The labour is about 10*s.* an acre, including the repair of hatches. Our meadows are all now in hand, but when they were let the rent was 5*l.* an acre. It may be well to add that, not having the command of water, flooding cannot always be used to the desired extent."

This description of the management of a single irrigated meadow is sufficient to show us the value of the system, for it not only affords early keep for the ewes and lambs in a district proverbially late, but year after year yields a good crop of hay whilst the un-irrigated meadows in the same district will scarcely afford a ton of hay to the acre every other year, and for this they must be shut up very early in the spring.

PROFITS OF AGRICULTURE.

The increased profits to be made by high farming must be little understood, seeing how small is the portion of the land in cultivation that is being benefited in this way. The feeling is far too general that artificials do not pay, and in this term are comprehended all purchased food and manures, high feeding, hoeing, and extra cultivation. The Leicester Agricultural Society has for several years been enabled by the liberality of Mr. Packe, the county member of Parliament, to offer three prizes, in classes, to the tenants of the three best cultivated farms within 15 miles of Leicester, viz., 30*l.* to the tenant of over 200 acres, 15*l.* of from 120 to 200 acres, and 10*l.* of from 80 to 120 acres. This year there were thirteen farms entered, and seeing how successful is the farming that has been brought to my notice in acting as the judge to award the prizes, and how much of this success must be attributed to the high farming, I am induced to give some details of the cultivation, dressing, cropping, and working of the three farms to which the prizes have been awarded.

The first prize is awarded to Mr. J. N. Gimson, of Ibstock, Ashby de la Zouch, occupying 252 acres, of which 104 acres are in permanent Grass, and 148 are arable. The cropping the last year was as follows, viz.:—

Wheat after Oats	22 acres.
Oats after seeds	29 "
Barley after Turnips	28 "
Peas, early, followed by Turnips	12 "
Tares followed by Turnips	5 "
Seeds, mixed	28 "
Ditto, laid down permanent	12 "
Swedes after fallow	12 "
	148
Turnips after Peas and Tares	17

The enriching food and dressing bought, viz.:—

Cake	Tons 7
Malt dust	" 2 2
Linseed	Bush. 8
Lime	Tons 17½

The stock kept, viz.:—

Beasts, stall	30
Ditto, fatted	40
Sheep, ewes	100
Ditto, lambs	126
Ditto, rams	2
Ditto, fatted	80
Horses, working	6
Ditto, others	3
Pigs	15

The system has been to drill the Wheat, Peas, and root crops, and to both hand and horse hoe them. On the weaker land to take one white and one green crop alternately, viz., Oats, Swedes, Barley, and seeds, the seeds being mown for fodder and then broken up for Turnips, having a dressing of bones or guano, and the Turnips being eaten off with sheep, having a little cake. On the deeper soiled, to take Wheat after Oats, giving the Oat stubble a good dressing of lime and bones. The whole of the beasts were wintered in yards and sheds. Twenty-two were fatted in sheds on Swedes, Linseed, Rape-cake, Barley, and Oatmeal, with hay and straw cut and whole, the chaff being moistened with boiled Linseed. These were sold fat the 12th of May. Eighteen were fed in open yards and sheds on Swedes, Barley-meal, Rape-cake, hay and straw, until put on Grass, when they continued to have Barley-meal. These were sold fat the 26th June. The store beasts were kept in winter on straw and Swedes, with some hay and straw chaff mixed with a small quantity of malt, dust, and Rape-cake.

The second prize is awarded to Mr. Ralph Arnold, of Shackerstone, occupying 185 acres, of which 106 are in permanent Grass and 79 acres are arable. His cropping the last year was as follows, viz.:—

Wheat after Peas, Beans, and Oats	12 acres.
Oats after two years lea	9 "
Barley after Turnips	20 "
Seeds, one year lea	13 "
Ditto, two ditto	9 "
Swedes	10½ "
Turnips	4 "
Cabbage	1 "
Potatoes	½ "
	79

The enriching food and dressing bought, viz.:—

Cake	Tons 3
Manure	Loads 25
Guano	Tons ½
Lime	" 30

The stock kept, viz.:—

Milch cows	28
Beasts	10
Ditto yearlings	3
Calves	3
Sheep	108
Lambs	75
Horses, working	4
Pigs	—

The system has been to drill the Wheat and roots, to hand-hoe and weed the drilled corn, and to both horse and hand-hoe the roots. Nearly the whole of the straw consumed by the stock is cut and given mixed with hay, Turnips, ground Oats, Peas and oil-cake; a few beasts are fattened in the winter upon cut Swedes and oil-cake; the lambs are fed upon Turnips with malt dust and a few Peas; the manure is made by the beasts being kept in sheds in winter.

The third prize is awarded to Mr. Barnaby Pickering of Sharnford, occupying 80 acres, of which 42 acres are in permanent Grass, and 38 acres are arable. His cropping the last year was as follows, viz.:—

Wheat after Oats	5 acres
" after lea of 1 year	4 "
Oats after lea of 2 years	4 "
" after Turnips	3 "
Barley after Turnips	4 "
Peas early following Turnips	2 "
Seeds early following 1 year lea	6 "
" early following 2 years lea	4 "
" grazed till June, and then broken up for Turnips	4 "
Turnips after fallow	2 "
	38 "
" after seeds broken up in June	4 "
" after early Peas	2 "

The enriching food and dressing bought, viz., town manure and guano to the amount of 20*l.* The stock kept, viz.:—

Milch cows	16
Stirks	4
Calves	4
Bull	1
Ewes	30
Lambs	30
Pigs	—
Working horses	3

The system has been to drill the Wheat, Barley, Peas, and roots; to hand-hoe the drilled corn, and to both hand and horse-hoe the Peas and roots. He annually fattens about 30 teggs, and from 20 to 30 ewes, part raised and part purchased, and sometimes to feed; two or three cows in stalls upon hay and Turnips, with a little corn or cake. The manure made on the farm is from wintering the cattle in yards, and giving them the produce of the farm with a little corn and oil-cake.

On each of these farms some extent of draining has been done by the tenants at their own cost (in two instances only were the pipes found them), and there was a general evidence of attention to maintaining the premises and fences in good condition. The land was very clean, and all the crops were very large and without any failure, and the returns both of stock and corn with reference to the extent of the farms will be seen to considerably exceed what is usual. The land is considered to be naturally very good, and is proportionately high rented, but to what extent its superior fertility may be owing to the cultivation and high feeding it receives it is impossible to say, but contrasting the superior treatment it has received for ages to that which is generally given, one need not attribute great natural fertility to it to account for the larger returns. By many their land is thought to be too poor to warrant such outlay, and by others not to call for it, and it is to the attention of these that I particularly recommend these details.

I may take this opportunity of saying a word or two in favour of such prizes as these: they not only excite individual exertion with a view to gaining a prize, but they create a spirit of rivalry and draw attention to the best cultivated farms in the district, and in so doing offer examples to others to copy from. *Hewitt Davis*, 3, *Frederick's Place, Old Jewry, London, Oct.* 1, 1855.

ON SOME POINTS CONNECTED WITH AGRICULTURAL CHEMISTRY.

By J. B. Lawes, F.R.S., & Dr. J. H. Gilbert, F.C.S.

(*Concluded from p.* 667).

They next called attention to the analysis of three actual rotations, the course in each case being Turnips, Barley, Clover, Wheat. In one instance the rotation commencing without manure, in the second with superphosphate of lime alone, and in the third with a mixed and pretty full manuring. It appeared that in each case the Clover grown between the Barley and the Wheat (the intervention of which instead of the immediate succession of the Wheat would greatly increase the produce of the latter) removed from the land very much more of phosphoric acid, of potass, of lime, and of magnesia—in fact of every important mineral constituent except silica—than either the preceding Barley or the succeeding Wheat. Hence it was maintained that the effect of this leguminous crop in rotation as a preparation for Wheat could not be, according to the theory of Baron Liebig, to increase the available supply of, or to conserve within the soil, the important mineral constituents of the crop. Unless indeed in the case of silica, which however Baron Liebig had himself maintained would never be wanting in sufficient quantity in any soil, provided there were a sufficiency of available alkalies present. Taking these facts, together with those indicating the most important manuring for the cereals, as well as with others relating to the composition and known circumstances of growth of the leguminous crops, it could only be concluded that the Clover had accumulated from the atmosphere within the soil a supply of available nitrogen to a great extent exhausted by the growth of the previous cereal—Barley, and so essential for the succeeding cereal—Wheat.

Finally, attention was called to the fact, that but a comparatively small proportion of the nitrogen supplied in manure for the growth of the cereals was recovered in the increase produced. They showed by a table that the loss of nitrogen was greater or less according to the amount of it supplied in manure, and to the conditions favourable or otherwise as to mineral supply, character of the season, &c. Under the most favourable supplied conditions—that is with a full supply of minerals and a limited supply of nitrogen, they had only recovered in the increase about half the nitrogen contained in the manure; but when nitrogen was supplied in quantity

sufficient to yield a full crop for any given season, they had obtained little more than one-third of the supplied nitrogen in the increase: and inasmuch as when the amount of nitrogen employed was not very great, the one-half or two-thirds which was not recovered in the increase obtained in the year of the application of the manure, had little or no effect on the next crop, it could not be supposed that the bulk of this excess of nitrogen still remained within the soil. It was worthy of remark that vegetable physiologists had frequently observed the evolution of nitrogen from the leaves of plants during their growth, beyond that which was due to the atmosphere with which they had been supplied. But as it had not yet been satisfactorily demonstrated that the cereals gave off more nitrogen in this way than the leguminous crops of rotation, further experiment was needed before the loss in question, and consequently the varying characters in this respect of the different plants in rotation could with full confidence be explained by reference to the functional action in question. The only explanation which had been suggested as special to the cereals was that proposed by Mr. Way—viz., that the silica required by these plants is taken up as a silicate of which ammonia is a base, and that this alkali or its constituents is evolved upon the fixation of the silica within the plant. It was, however, to say the least, not very favourable to this view, that the authors had found that water containing salts of ammonia dissolved less silica than pure water when percolated through a given bulk of soil. It must be admitted, however, that although the explanation of this loss of nitrogen with the cereals might require further investigation, which the authors had hoped to devote to it; yet, as in the case of other crops they had recovered in a series of years a much larger proportion of the supplied nitrogen, they considered that the loss in question could not be wholly due either to drainage of soluble or the evaporation of volatile compounds of nitrogen. But, that the fact of a considerable loss in the production of a full crop of the cereal grains must be looked upon as an important and fundamental item in studying the *rationale* of agricultural practices.

Upon the whole, they concluded:—

1. That the manure indicated by the resultant requirements of British agriculture has no direct connection with the composition of the mineral substances collectively found in the ashes of the produce grown on, or exported from the farm—and that the direct mineral manures which are required, are not advantageously applied for the direct reproduction of the exportable corn; but should be used for the green or fallow crops, the office of which it is to collect from the atmosphere, or to conserve on the farm, nitrogen for the increased growth of the saleable cereal grains.

2. That the nitrogen required to be provided within the soil for this purpose is far greater than that contained in the increase of produce obtained by it.

3. That the effects of fallow in increasing the growth of the saleable cereal grains (so far as they are chemical), are not measurable by the amount of the additional mineral food of plants liberated thereby, these being under ordinary cultivation in excess of the assimilable nitrogen existing in, or condensed within the soil in the same period of time, the amount of which latter, therefore—the available nitrogen—is the measure of the increased produce of corn, which will be obtained.

4. That the beneficial effects of rotation in increasing the production of saleable produce (so far as they are chemical), are not dependent on the fact of one plant taking from the soil more of the different mineral constituents than another, but on the property of the so-called green or fallow crops bringing on or conserving upon the farm more nitrogen than is yielded to them in manure, whilst the crops to which they are subservient are both largely exported from the farm, and yield in their increase considerably less of nitrogen than is given to them in manure.

5. In a word, that in the existing condition of British agriculture a full production of the saleable cereal grains, with at the same time other exportable produce, is only attained, whether by manures, fallow, or rotation, by an accumulation of available nitrogen (normally an atmospheric constituent) within the soil itself.

A lengthened discussion followed the reading of the paper, in which Baron Liebig, the Marquis of Tweeddale, Professor Anderson, Dr. Daubeny, and Mr. Russell, took part, after which Dr. Gilbert replied.

LANDLORD AND TENANT.

[The following letter is addressed to — Gale, Esq., in reference to the address on this subject delivered by him at a meeting last year of the Botley Farmers' Club.]

For a number of years my mind has been made up that the first thing necessary to good farming is a proper agreement betwixt landlord and tenant. In the *Gardeners' Chronicle* of the 14th of February, and again on the 5th of May last, I read with much pleasure the extracts of your address delivered to the Botley Farmers' Club, and with what you suggested at those meetings I agree on many points, and now venture to submit my humble ideas on the subject. As it is now taken up by so high an advocate, I do hope much good will result from your labours.

I believe such an agreement can be framed as will produce good farming, security to the landlord, and keep him and his tenants out of litigation. This can be done by the presentation of a proper agreement by the landlord or his agent at the time he wishes to let a farm. I will confine my remarks to the circumstances of the farm I now occupy, 387 acres of arable, 58 acres of Grass land, the tillage land to be farmed on the four course system, Grass land not to be broken up without a special agreement, or subject to a penalty. If more is required by the landlord to be laid down to permanent Grass, a compensation to be made or longer tenure granted—this is my agreement.

Where the farm requires only a moderate outlay for improvements, a term of 21 years I consider a fair base; but where there is a large outlay required, and that to be done at the tenant's expense, an additional term ought to be allowed in proportion to the extent of the improvement required, where it is practicable.

In this neighbourhood it would, I think, be necessary to alter the day of quittance of the homestead, and one or two pieces of Grass land, from the 25th of March to the first of May, in order to give time to more fully consume the green crops, fodder, and dispose of fat stock, shutting up the young Clover on 1st November, and all the Grass land, except the one or two fields to be given up on the 25th March.

The letting agreement should require all off-going tenants, after the harvest of the last year of their tenantry, to plough, scuffle, or work by broad-share all land required for Turnips or other green crops, to do all winter ploughing, put the fences in good repair at a proper time of year, plough and sow all the spring corn, supply all kinds of seed at his own expense, prepare the Turnip land, get manure out for Turnips and other green crops, have roads, gates, and stoops[?] left in good repair, the landlord supplying stoops and sawn timber for gates, the whole of the Grass land, tillage land, house, and buildings to be given up to the new tenant, and the expenses of the outgoing tenant to cease on the 1st May.

It shall be imperatively the duty of the new tenant to conduct the management of the farm from the time of his entry to the end of the harvest upon the rules of good husbandry. And as a compensation for all this work that has been done by the off-going tenant, and what is called a tenant right and custom of the country, I propose to introduce into the letting agreement an arbitration clause, each of the tenants to choose an arbitrator, they an umpire; the three gentlemen shall go over the farm in some of the first ten days in May, value hay, straw, and manure at a consuming price, the work done, and the condition of the farm to the first of May, by the off-going tenant, it being strictly his duty not to neglect the proper time of planting Potatoes, sowing Mangolds, if in his district it is customary to sow them before the 1st of May; take down their remarks in a book, and sign the same.

At the second meeting, after the corn is shot, the arbitrators shall with great care inspect the evidence taken in the book, examine the Potatoes, Mangolds, and Turnips, fix a value for seed, manure, and all labour that has been expended on all the green crop land, from the last harvest up to the 1st of May, fix a value on the corn crops. The whole amount to be divided in three parts, and in every case shall each tenant be entitled to one-third of the valuation, and according to the good or bad farming of the off-going tenant in his last year, shall the arbitrators have the power to divide, as they think proper, all or any portion of the undivided one-third, to each or either of the late or present tenant.

In the event of either of the tenants being dissatisfied with the award, I would give them a right of a final appeal; let the dissenting party or parties, within four days after the award has been given in, give notice in writing to the arbitrators of his or their dissent, when the arbitrators shall request a magistrate not living within 12 miles of the farm in question to send two respectable farmers that have occupied land of similar quality, or land that they have worked on the four-course system, as arbitrators, and with the three proceed to view the condition of the farm, taking as evidence the contents of the May book signed at the first meeting by the three arbitrators, and agree upon an amount of valuation.

The five arbitrators shall be the final jury, to give to each, or to one only, the whole or any part of the undivided one-third portion of valuation that each tenant by this agreement is entitled to.

The expenditure on roads, fences, and gates not to be valued, and if found in bad condition an amount to be fixed sufficient to put them in fair tenantable repair, and deduct that amount from the sum that shall by this arbitrators' agreement be awarded to the off-going tenant or his or her representatives. And as a compensation to the arbitrators, 10*l.* each shall be paid to either three or five, whichever may have been employed, by the two tenants in proportion to the amount each one shall be awarded. The incoming tenant at the 10th of May shall pay to the outgoing tenant a sum of money to be fixed by the arbitrators, an amount equal to what they suppose he has spent on the farm, from the conclusion of his harvest the previous year to the 1st of May, the balance by two equal instalments, the one on the 1st of October, the second and equal last part to be paid on the 1st of December in the year of his entry.

Hoping from this you will work out something that will be of benefit to the labourer, the tenant, and secure to the landlord his rent by good farming. *J. C. Etches, Harly Thorn Stone, Staffordshire, Oct. 3.*

Home Correspondence.

Fisken's Plough.—Your captious and rather unintelligible correspondent "W. B., London," charges me with "a serious mistake" for saying that "Fisken's plough lessens the strain upon the anchorages." Strictly speaking, I never said anything of the sort. In an article in the *Agricultural Gazette*, No. 34, I endeavoured to show how Mr. Fisken has succeeded in "lessening the strain," or (in more correct phrase), in working with a less strain upon the anchors than any one else has ever worked with. If I have "failed in making good my bold announcement," it is not because I am "unable to comprehend the facts of the case," but because in studying conciseness of expression, I may have failed to give a clear description of Fisken's invention. As to "re-action" urging forward Usher's plough, and "rotatory action and continuous progression" being a mistake, I can only say that, although I may not have employed the term "re-action" in its strict sense, yet that the machine certainly propels itself forward without any further power than is exerted in thrusting the tools into and through the ground. Has "W. B." travelled by a steam-boat? Well: Usher's rotary plough is like a paddle-wheel acting upon land, stirring up the soil, and by so doing, causing the carriage which supports it to move forward. *I. A. C.*

Beans for Horses.—There can be no danger in using new Beans not hardened in the stack; kiln-drying would enable them to be crushed; 4 bushels of Beans uncrushed will nearly increase to 6 bushels when crushed; and crushed Beans—say half a peck to three-quarters per day, soaked in water and given with cut hay, will keep a horse in excellent condition, will be equal to a peck or more of Oats, but boiled Beans will beat the whole for the nutriment furnished to the horse. The grooms of entire horses are very fond of giving a feed of boiled Beans with malt after a long journey. It is their prime feed; also flour of Wheat mixed with water (5 or 6 lbs.), and drank like milk by the horse, will make them hog fat in a short time, although the Wheat itself whole would half-kill them, and causing them to shed their hoofs from inflammation attacking the sensible lamina of the foot. In fact, a translation of the disease, produced in the animal's stomach, to the feet, and which in an instance that came under my own observation in a mare of my own was the saving of the mare's life. The hoofs were reproduced after a lapse of 6 or 8 months, but the mare never recovered her former good plight. Boiled Beans are excellent food for a horse that has tender or irritable bowels and liable to purging when put to work. *A Constant Reader.*

The Sunflower.—I have read some remarks in your Paper of last week relative to the Everlasting Pea, and I should be glad to see the attention of your correspondents directed to the Sunflower, which appears to me to deserve more notice than it receives. Johnson, in his "Cottage Gardeners' Dictionary," has the following: "The Sunflower is now much cultivated for its oil, and as a food for cattle and poultry. One acre will produce 50 gallons of oil, and 1500 lbs. of oilcake. The stalks when burnt for alkali give 10 cwt. of potash. Now, in these days, when Linseed and oil-cake are so enormously advanced, might not the Sun-flower come in as a substitute? In Hungary it is grown as a regular crop; it is easy of cultivation, and thrives in our climate. I have now some plants before my window bearing each eight or ten flower heads, and some of the heads containing above 200 grains. *Tonbridgiensis.*

Suggestions for Agricultural Statistics.—1. The report of the Lords' committee is in favour of employing the Poor-law Board for their collection, but we see no sound reason for troubling the Poor-law officials, as, if the returns are made compulsory there would be no occasion to trouble the guardians of the union. Nor is it desirable that the relieving officer of the union should be diverted from his ordinary duties, which as a general result give him full employment. For instance, in the Hemel Hempsted Union, comprised of five large parishes, with an area of 25,000 acres, the relieving officer has weekly to call upon 200 different poor persons to distribute relief, living in widely separated parishes. 2. We are of opinion that the collection of the returns should be made by the local officers of each parish, either through the collector of the poor rates, or by the collector of assessed taxes, who is not the assessor of taxes but a permanent parish officer, who is in the habit of sending out schedules to every occupier of land. The Board of Trade to have the option of either one or the other of such officials. 4. We consider it highly desirable that the returns shall be re-delivered by the occupier at the residence of the collector, on or before the expiration of the 14 days allowed for their completion after the 21st of October, as he would in many instances, when calling for them, find the occupiers from home, and some of the schedules not filled up, which might lead to disputes. The schedules may be filled up when deemed desirable by the occupier, and addressed to the county inspector, having the name of the occupier written on the outside when returned to the collector. 4. The employment of the relieving officer of the union, even if re-delivering of the schedules was enacted, would cause great inconvenience to the majority of the occupiers, four-fifths of whom live many miles from the residence of the relieving officer, as the union is 10 miles in length and 8 broad, and contains about 250 occupiers. 5. The county of Herts contains 12 unions, and the employment of the clerks of the union would not be required to classify the schedules if they were sent to a county inspector, to be appointed by the Board of Trade, whose required salary need not be in excess of the proposed payment to the union clerks; and a further important question arises as to who shall authorise legal proceed-

ings against defaulters. Our opinion is, the county inspector would be the better authority, and the services of the clerks of the union be altogether dispensed with. 6. The penalty for non or defective returns should vary from 40*s.* to 5*l.*, according to the extent of occupation, or the nature of the offence, whether from wilfulness or negligence. We suggest that the parish collectors be paid 1*s.* for each return, by the overseers of the poor, on receiving a certificate from the county inspector, and all penalties for defective or non returns should be paid to them, who would thus have an interest in the defaulters being fined. The payment of the parish collector in small parishes would only amount to a few shillings, and in the largest parishes seldom exceed 2*l.* or 3*l.*, which in many instances would be amply covered by the penalties enforced. 7. We are of opinion there would be no necessity to employ professional agents to make up returns for wilful defaulters, as their extent would have little effect on the aggregate returns of the county, and there can be no doubt that when a few penalties have been enforced there would not be many defaulters after the first year. 8. With the view of enabling the inspector to enter the names of all occupiers in his books previous to the receipt of the returns themselves early in November, the parish officer or collector should on the 10th of June in each year send to the inspector a list of the occupiers, taken from the rate books, with the extent of their occupations, regularly numbered, which the inspector could then enter into his books, and forward the required number of schedules for each parish on or before the 21st of October. 9. The Lords' committee recommend the filling up the returns and their delivery, as regards the acreage, by the 15th of July—but that would require another return in October, to obtain the probable yield and quality of the crops of grain and Potatoes on the 21st of October. 10. The results of the late harvests have clearly shown the necessity of deferring the returns to the 21st of October, as the failure of the Wheat crop from mildew and defective yield was not apparent until after it was reaped, in the last week in August and September; nor can the extent of such deficiency be fully ascertained till a portion of the crop is threshed out, which will have taken place by the 21st of October, to a greater or less extent, by every occupier for sale in the market or for seed. 11. The failure of the Potato crop was not apparent this year until the middle of September, but the extent of the disease will be known by the 21st of October. 12. We think it desirable that the returns should, in the first instance, be confined to occupations of 5 acres of arable and 10 acres of pasture land and upwards. The Board of Trade might at a future period extend them to lower occupations if deemed desirable. 13. Where the counties are large they might be divided, and more than one inspector of the county appointed. Each inspector should not have to superintend more than 3000 returns, for the sake of their early classification in the month of November. 14. By the above suggestions the Board of Trade would have the sole direction of obtaining the required returns, without the necessity of depending on the Poor-law Board, or diverting the Poor-law officials from their customary duties, and likewise avoiding the expenses of their employment. *Samuel Sandars, Hemel Hempsted, Oct.* 2.

Steam Engines, Feed Pumps, &c.—I will venture to say that there are very few persons who use horizontal high pressure engines that have not been occasionally troubled with their feed pumps; especially, as in my case, where the pump rod is attached to the cross-head of the piston rod, and moves with great rapidity. For several years I was thus annoyed, constantly breaking the joints; although I consulted engineers, I was assured the only remedy was to drive more slowly, by attaching it to the eccentric. At length I determined on having an air vessel and loaded escape valve in immediate proximity to the plunger, so as to compensate for the *vis inertiæ* of the water. Since I have done this I have had no trouble whatever, the escape valve lifting slightly as occasion requires. I find no difficulty in pumping into my boiler water kept at near the boiling point by the waste steam, the distance from the feed pump to the boiler being about 13 feet. I generally work at a pressure of 70 lbs. I found by experience in pumping liquefied manure, that water is more incompressible than cast-iron, and that unless an elastic medium or escape is interposed between it and the plunger, a destructive concussion and hydraulic pressure ensue. As my boiler has a steam dome nearly 4 feet high (well encased by clay and Poplar laths to prevent radiation), I find that I can keep it nearly filled with water without priming, thus giving me a more ample heating surface and abundance of steam. Vulcanised India-rubber rings are best for packing the water gauge glasses, and the same material in sheets answers admirably for flange and other joints. It is necessary to change the rings round the gauge glasses occasionally, for when they become hard and inelastic the glasses break, being unable to expand. For cold water joints a piece of gutta percha softened by heat makes a tight joint. Possibly my experience may be useful to the uninitiated. Steam at 70 lbs. to 100 lbs. per inch is very subtle and insidious, and requires very much more careful joints than low pressure steam. The same remark applies in degree to water at very high pressures. I would strongly recommend every one to have a glass water-gauge, that the engine-driver may always see the water level; a mercurial pressure-gauge is essentially necessary, or Bourdon's steam-gauge. The ordinary spring gauges, unless the lever is accurately adjusted, are most deceptive. In my case, when the steam blew off at 60 per spring guage, I found by the mercurial guage we had been working for two years at 120 lbs. per inch. Fortunately my boiler was a very good one, and of small diameter (42 inches), a most important consideration, seeing that the total pressure on the boiler is in proportion to its circumference. High pressure steam is economical; I know a farmer who works at 200 lbs. per inch. On some of our railways they work at 140. The question of expanding steam by heat (as explained in a pamphlet by Mr. Frost, of New York) is gradually gaining ground, and will become general hereafter. If heat so quickly expands steam, it should warn us against exposing our cylinders and steam pipes to a low temperature. Where coke can be used I would strongly recommend Barran's cup surface boiler, made by Messrs. Hughes, New Cross. They evaporate 10 lbs. of water for 1 lb. of coke; and one of 12-horse power, at Messrs. Collinge's patent axle factory, has consumed on an average 7 cwt. of coke per day during the last six months. *J. J. Mechi, Tiptree.*

Particulars of Hardy & Son's Experimental Prolific Red Wheat Crop, Maldon, Essex.—2 acres, 3 roods, 6 perches, sown on twelve various plans in October, as follows, with only 1 bushel and 5 pints of seed, 1855:—

No.	Contents.			Produce of corn.				Equal to per acre.				Produce of straw.	Equal to per acre.			Observations.
	a.	r.	p.	bsh.	pks.	qts.	pts.	bsh.	pks.	qts.	pts.	lbs.	tons.	cwt.	lbs	
1	0	1	26	12	1	6	1	30	0	4	1	1682	1	2	98	3 stetches sown broadcast at 2 pecks per acre; could not be well cleaned.
**2	0	2	23	24	3	4	0	38	2	4	0	2922	2	0	59	4 stetches, sown in drills, 4 rows on a stetch, 2 ft. apart, with 4 feet furrows; at 1 peck per acre.
*3	1	0	32	39	1	6	0	32	3	4	0	4295	1	11	107	8 stetches, sown in drills, 4 rows on a stetch, 2 on each side the 4 ft. furrows, at 1 peck per acre, with 4 ft. spaces in the middle for one row of Potatoes; Potato produce 50 bushels per acre, early and sound.
4	0	0	23	6	0	7	0	43	1	0	0	708	2	4	0	1 stetch sown in 8 rows, drilled at 1 peck per acre, with 4 feet furrows.
**5	0	1	22	17	3	4	0	46	0	4	0	2214	2	11	17	3 stetches, dibbled at half peck per acre, and reduced to 6 pints by thinning to single plants, with 4 feet furrows, and 8 rows on a stetch.

* Plans best recommended.

6	1 rod of four kinds, sown in spring, at end of February, in equal quantities, 1 foot apart square, or about 6 pints per acre. Produce 19 pints, equal to 47 bushels 2 pecks per acre. Straw 30 lbs., equal to 2 tons, 2 cwt., 96 lbs. per acre.—*Note.*—This did best, and did not blight so much; but is considered quite an exception, and not a rule to act upon.
7.	3 rods transplanted in spring 1 foot apart. Thin sample, and a partial failure, not being transplanted in October. Produce 21 quarts, equal to only 35 bushels per acre. Straw 68 lbs., equal to 1 ton, 12 cwt.
8.	3 yards each of two kinds, planted between another full crop. Produce of each 3 yards 2½ pints, equal to 63 bushels and 1 pint, or 7 qrs., 7 bsh., and 1 pint per acre.
9.	17 plants on 1 yard, 1854, not surrounded by other crops. Produce 466 ears, or 1 quart, equal to 18 qrs. 7 bshs. 1 peck per acre!
10.	1 yard on the very same spot 1855, planted without stirring the soil, the same minute the crop of 1854 was cut. Produce estimated as good as last year! Both specimens are reserved (9 & 10) for public inspection and criticism.
1 peck of seed per acre. 11.	2 yards of Oats; produce 3 pints, equal to 14 qrs. 1 bushel, 1 peck, 6 quarts per acre, blighted.
12.	3 yards of Peruvian Barley; produce 2 quarts, equal to 12 quarters, 4 bushels, 3 pecks, 2 quarts per acre, blighted.
13.	3 yards of common Barley; produce exactly the same as the 3 yards of Peruvian, blighted.

All was more or less blighted, as other people's of 1855, and much devoured or destroyed by sparrows, being near the town; estimated by all observers at least one-twentieth of the entire crop. *Hardy and Son, Seed-growers, Maldon, Essex.*

Farmers' Clubs.

Bakewell.—At the annual meeting of this society held last week, the health of Mr. Hudson, Secretary to the Agricultural Society of England, was given by Lord Denman. Mr. Hudson, in responding, said he felt deeply affected at the kind manner in which his health had been proposed and drunk. Fifty years had now elapsed since he first drew his breath in that lovely valley of the Derbyshire Wye, in which the ancient Saxon town of Bakewell was situated, in that vale "in whose bosom the bright waters meet;" and after the long course of his busy life, he again once more found himself, with indescribable pleasure, among the scenes of his youth, and in the society of his early friends. As the Secretary of the Royal Agricultural Society of England, he begged also to thank them for the honour they had done him in connecting his name with that patriotic body. Every farmers' club, he thought, and every agricultural association throughout the kingdom, must naturally feel a deep interest in the success of the Royal Agricultural Society of England; for it was the result of their own practical experience, and the independent representative of their own practical interests: it was an institution established by the united co-operation of the land-owners and the land-occupiers of England; not for their own individual and immediate interests, but for the promotion of improvement in every branch of husbandry, for the increase of our national resources, and for the common interest and good of our country. It was not an academy of dictation to farmers, affecting to instruct them in the management of their affairs by the promulgation of abstract dogmas or the recommendation of new theories; but it was the focus of a great system, collecting from remote sources the scattered rays of practical experience, and again diffusing them with increased intensity and effect through every region of the agricultural world; or the powerful heart, which maintained in vigour the circulation of the life-blood through the several organs of the agricultural body. It had been established, not by a Parliamentary grant, but by the voluntary contributions of many thousands of the most distinguished friends of agriculture in this country; and its recommendations had never, he believed, been made, unless founded on the most careful scrutiny of their practical tendency, and the economy of their application. One of the great results of the Royal Agricultural Society has been the revival of old agricultural bodies, and the establishment of new ones. Among these, none were, he believed, capable of supplying facts of more direct practical value than the farmers' clubs throughout the country, which in their very formation evinced that desire for improvement which was to be derived from association and discussion. Of these clubs, none could have for him personally a greater interest than the farmers' club of his native town, at whose annual meeting he had then the gratification of being present; and he witnessed with real pleasure and pride the spirit with which its objects were being carried out, and the striking results which it had already obtained. His heart's best wish was that it might continue to prosper, and that, as the Secretary of the Royal Agricultural Society of England, he might be favoured by it with many future results of its operations; and have many opportunities, in his official capacity, of receiving and carrying out from time to time the wishes of its members on any point connected with their operations or discussions; and as among the members of the club he might number so many of his old friends, he begged to assure them with how much delight he would at all times receive their communications. (Mr. Hudson resumed his seat amid loud and long-continued cheering).—Mr. J. H. Baker proposed the health of Sir Joseph Paxton, their vice-president. Sir Joseph Paxton, on rising to respond, was loudly cheered. He said—I assure you on this occasion I feel the reception you have given me so much that I cannot give adequate utterance to what I would wish to say. It is true I have been amongst you 30 years next May, and though a much larger portion of my time has been spent elsewhere, I consider myself as much a Derbyshire man as any man at this table. I came among you in a very much more humble capacity than I now hold. I came full of health, full of life, and full of vigour from the south, and I thought, perhaps, as every young man thinks, that I knew almost everything, as I had been in a good school, and had had opportunities of seeing all that had been done for the improvement of my profession. I should tell you that my father was a farmer, and that in early life I was brought up in the farm-yard. I am essentially then a Farmers' Club man. But I took to other occupations, and through perseverance and determination, I became successful, and had the good fortune to be selected to come to Chatsworth. I was rather conceited at this; I don't mean conceited in myself, but in the system of cultivation I had learned; but when I came to Chatsworth I soon found the cold bleak hills of Derbyshire different to the climate of the south, and this soon brought me to the study of what to do to get out of this difficulty. When first the Duke of Devonshire engaged me, and he engaged me himself, he told me Derbyshire was a beautiful county but not a very fertile one—that at Chatsworth they never had any flowers and very little fruit; but in a few years we contrived to have flowers and fruit in great abundance. I became a farmer when first I came to Chatsworth, and never made so much money at one time as I did out of a cow I bought. I happened to be going to Chesterfield, and I saw a good cow in a field, and went direct to the owner of the farm, and purchased the animal for 15*l.* out of the field, and sent it direct home. I kept an account of that cow's produce for four years, and it paid me an average of 30*l.* a year. I was not here in time to see the stock to-day, but I believe I am the breeder of the bull which has taken the first prize. I have always taken an interest in practical agriculture in a national point of view, and have looked at these institutions as the best means of imparting instruction to the farmer. The Highland Society of Scotland had the same sort of meetings as the Royal Society of England, which was founded on the principles of the Highland Society. The Royal Society of England was a most excellent institution, and deserved not only the patronage of the gentlemen of England but also the patronage of the farmers, because it has the valuable quality referred to by the worthy secretary, of not being dogmatical upon farmers or

other parties. They had once a North Derbyshire Agricultural Society, which held its meetings once at Chesterfield and once at Bakewell; but, generally speaking, Mr. Swaffield and some few other high farmers sent stock bred at a great expense, so that the tenant farmers could not compete with them. These farmers' clubs, therefore, gave advantages which the other society did not, because they knew that the stock exhibited was the production of their neighbours. Some farmers were disheartened, and said such a person is too successful to compete with. But that is not the way to deal with the question; their aim should be, go home and do likewise; and don't be afraid of the competition of Mr. Furniss, Mr. Jepson, and other farmers. With respect to North Derbyshire, a man may be farming down in the valley, on the hill, on limestone, gritstone, or his land may be badly drained, and he may have to contend with other difficulties; and therefore in looking at those farmers' clubs, you must have reference very much to the position in which a man has cultivated his stock for exhibition. As far as agriculture goes, it is quite impossible for a district 20 miles off to know how things should be treated here. One of the judges, Mr. Dickin, gave you good advice, but he happens to live in the neighbourhood of Mansfield, where the climate is warm; but let me tell him that if he brings his early sowings here, he will find they will rot in the ground. The great principle to look at in agriculture is this: from nothing nothing comes. If you attend to the land here, and sow the crops upon it at a period suitable to the climate, these crops will be perfection of their kind; but if you sow them at an unsuitable period there will be no crops. All plants of a similar structure to corn require a given temperature in order to come to perfection; and it is whether you get very much below or above it that your success depends, because with corn grown at a lower temperature than its nature requires, the seed becomes husky and the corn of little value. The farmers in this county have improved more than in any other, and they deserve great praise for their exertions. They are satisfied that they must rest on their own energies, and work out their own salvation in farming, and not depend upon the legislature for anything. They have fought through bad times like men. What I have told you about plants applies equally to cattle. You cannot keep cattle too warm, and the great secret of feeding is to go gradually on improving every pound of flesh until you give it into the hands of the butcher. I am always ready and most desirous to assist, as all the agents of the Duke of Devonshire are, to give improved facilities to farmers; but the error which most farmers fall into is, as Lord Ashburton said, "Men learn a great deal but they don't learn common things." He frequently saw farmers leave their cattle too much exposed; whereas by the use of a little thatch, which might be made at a small expense, they might keep them warm, and this precaution would repay them five-fold.

Miscellaneous.

Agricultural Education.—I am desirous of taking high ground for the farmer in all that relates to the future progress of his art. He must, in fact, not only continue as hitherto to be a sound and careful observer, but must be prepared to advance with his art—to become yet more accurate and precise in his observations, and to take advantage of all those aids which the sciences and the mechanical arts are presenting to him. That he has done so to a large extent is manifest to all who watch the progress of events; and among our practical farmers I could point to many who have mastered the details of the sciences now applied to agriculture, and that, too, at a time of life when the adoption of new ideas and pursuits foreign to our previous habits is no light task. Still anything of this sort must be confined to a few, and we must look to the rising generation of farmers for carrying out these matters. And it will be at once admitted that this must be effected by the introduction of a systematic agricultural education. Nowadays we require a systematic professional education, such as the other professions enjoy. The time was when the lawyer and the physician obtained their knowledge as they best might; but as these professions advanced, the necessity for something more became manifested, and they gradually obtained a systematic education. Agriculture is now in the transition stage from a purely empirical to a philosophical art, and it is necessary to introduce a regular professional education, of which botany, chemistry, and land-surveying, and perhaps other branches, should form part. As far as my own science (chemistry) is concerned, the evil consequences of the want of a knowledge of it are constantly presenting themselves in a very forcible manner. A very remarkable instance of this occurred to me some time since. I analysed a manure professing to be manufactured by a particular process, which it is unnecessary to explain; and, calculating from the amount of its valuable matters, I fixed its price at 1*l.* 5*s.* per ton—in doing which, my estimation was based on the regular market prices of these substances, so that it was possible for any person, by mixing salts of ammonia, &c., to produce a manure of equal value for that price. Some time after I met the individual for whom the analysis was made, and he informed me that he had shown it to an extensive dealer in manures, who had said that he had no doubt it was quite correct, but that he could himself afford to give for the manure a much higher price than I had fixed, because he knew that in the present state of the market he could sell it for 4*l.* or 5*l.* per ton. Here, then, was a person prepared to speculate on the ignorance of the farmer, by inducing him to pay for this substance nearly three times its actual value. It is scarcely possible to adduce a more striking illustration of the risks to which the farmer is laid open by the want of chemical information. But besides communicating a knowledge of these and similar facts, a scientific agricultural education confers another very important benefit. Agriculture is an art depending for its cultivation upon habits of close observation. One man cultivates his farm better than another, and we say that the good farmer has more experience; but we rarely advert to the fact that there is a great difference in the rapidity with which different men acquire their experience, and that he who possesses the best powers of observation does so most speedily. Now it is the peculiar merit of the sciences that they develop the faculty of observation, which our ordinary education neglects. They prepare us to watch for facts and phenomena of the most varied description, enable us to estimate their value, and to trace their relation to one another. But as matters at present stand, a man entering upon such a profession as agriculture has generally his own powers of observation to educate, and he wastes, in acquiring what he might have better learnt before, much time which might be more usefully and sometimes more profitably bestowed in other ways. *From Professor Anderson's Address to the Highland Society of Scotland on Promoting the Future Progress of Agriculture.*

Calendar of Operations.

OCTOBER.

Border of the Fens, *Oct.* 8.—The harvest has this year been very late notwithstanding the unexampled fine weather we have had, but it may now be said to be everywhere finished, and a considerable portion of the corn already threshed; the result of the harvest is much as was predicted; the good loams and heavy land yield well, the light and fen lands are unusually deficient, so as to make our estimate of the Wheat crop in Lincolnshire, Cambridgeshire, Hunts, and a part of Norfolk, considerably below an average. We do not hear of labourers being anywhere scarce during harvest, but a higher range of wages has prevailed, and we believe will prevail; no reaping or mowing was done under 8*s.* an acre, and the more general prices were above 10*s.*, even so high in some instances as 16*s.* to 18*s.* Labourers by the day had 4*s.* and two quarts of beer per day, for the month or five weeks, during which harvest occupation continued. Some very seasonable showers have fallen during the past week which have much refreshed the pastures, washed the lice and mildew from Turnips, and made the land in better order for ploughing; and now commences our second harvest of roots; Potatoes promise to be fine and abundant; Carrots are also a good crop, and the Mangolds have improved greatly. We observe that "autumn culture," though confined by the lateness of the season to a smaller space of time, is yet extending in practice. Bentall's implement sells by dozens, and every horse is bespoke for the accumulated work of cleaning land and preparing for seed. Tares have been in great demand at 12*s.* and 13*s.* per bushel, but as more are brought into the market the price has receded to 10*s.* and 11*s.* Seed Wheat was offered at our market last Saturday at 80*s.* to 84*s.* per quarter. Union contract for bread, 8*d.* the 4 lb. loaf; Potatoes from 6*s.* to 8*s.* per sack of 16 stones; root crops are sufficiently plentiful to supply food for stock during the winter, but the scarcity of hay and comparative shortness of straw will require great care and foresight to provide enough food for the possible chances of a severe winter and a late spring; the fen farmer is not in an enviable position, as while "the prosperity of agriculture" is becoming almost a reproach from the privations of large families, owing to high prices, he must suffer in silence all the evils incident to failing crops, for he will be taunted with proverbial grumbling if he dares to ask how much profit he will derive from a dear loaf when his crop will scarcely pay for cutting, as many a tenant round Ely will not bring to market more than two or three sacks per acre; the same in Deeping Fen and other large districts, which in ordinary years yield three or four times more the amount of corn than they will be able to sell this year. The highland farmer will, however, this year add to his capital considerably, and perhaps no class partake more largely of this increase of income than the implement maker; ploughs, rollers, chaff and Turnip cutters, scarifiers, threshing and dressing machines, and all other established favourites sell surprisingly. The next evidence of increasing wealth is the greater attention given to farm buildings; then artificial manures, in which there is an enormous amount of roguery going on; and lastly the labourers are decidedly advancing, in being able (excepting where there are very large families), to obtain better food, better lodging and clothing, and altogether better treatment than formerly. I also observed them to be more inquisitive about any improvement in management, and that new implements and subjects of general and rational interest seem to engage their attention. This amelioration of the condition of the agricultural labourer will be some mitigation of the disadvantage of high prices, and we hope they will everywhere produce this result, as we venture to urge that such an advance in the intelligence of the agricultural community will cause the soil and resources of the country to be devoted to the production of food more steadily and with corresponding certainty. *J. W., Peterborough.*

Notices to Correspondents.

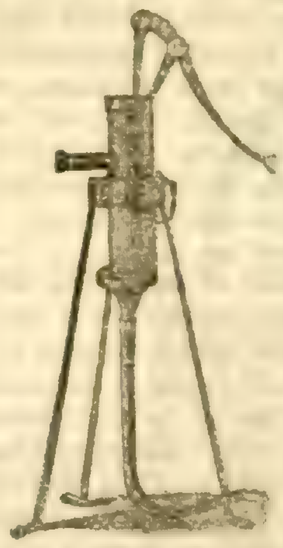
Agricultural Statistics: *Mr. Carter.* We gather from your letter that, in order to resist the erroneous teaching of any public man, it is your opinion that the simplest and most compendious method is to attack him personally, arguing the worthlessness of any superstructure he may raise from the weak foundation on which, as regards public character, you may be able to prove that it rests. But this is precisely that style of argument which we are anxious to exclude from our columns. You say that when the farmer, pushed too hard by his enemy, turns at bay and attempts to reply to the attacks upon him, he cannot be heard, and so you prefer this other way of examining the foundation on which the reputation of his "enemy" rests. But we will promise that your replies to any attacks which you may be able to specify *shall* have a hearing, and therefore you need not adopt the personal style of attack which you complain of our excluding. Be this as it may, however, we cannot be induced by any charge of unfairness to publish such passages as were cancelled in the letter sent to us the other week.

Landowning and Cultivation: *Guy.* We should, of course, prefer farming our own land; but under existing circumstances no doubt a given capital is more productive of income when wholly invested in cultivation than if nine-tenths of it were spent in the purchase of the land cultivated.

Pig-feeding: *J. Cowley.* There is an advantage in scalding the Barley-meal before it is given to pigs, and roots of all kinds are better steamed or boiled.

The Hop: *W C M* asks for the indications existing now of the character of next year's crop.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Sons, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ „	long 3 „ 3 „		1	15	0
3 „	ditto 3 „ 6 „		2	12	0
3½ „	ditto 3 „ 6 „		2	18	0
4 „	ditto 3 „ 6 „		3	5	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
2½ in.	long ditto	ditto ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

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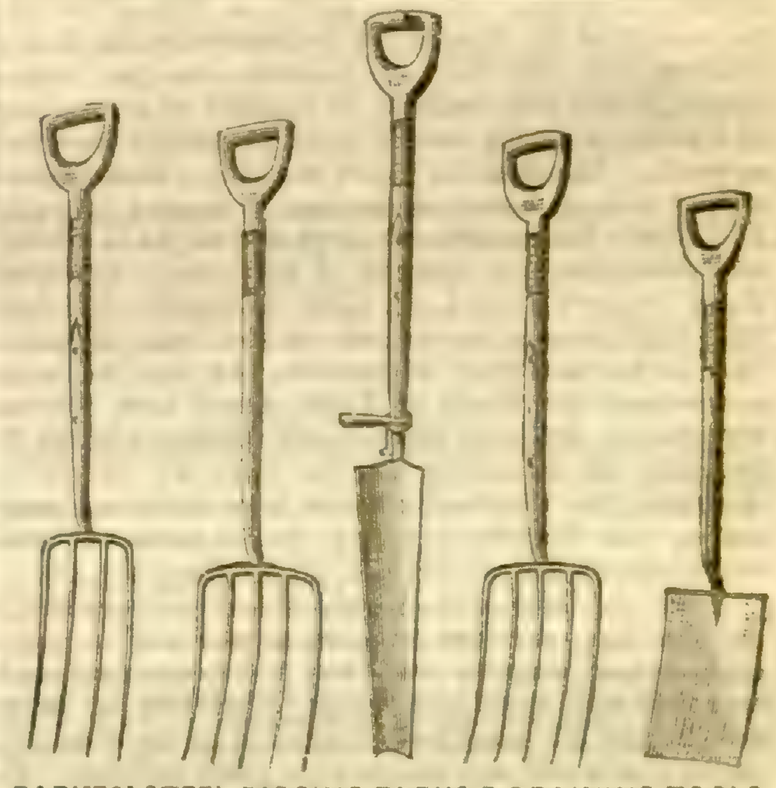

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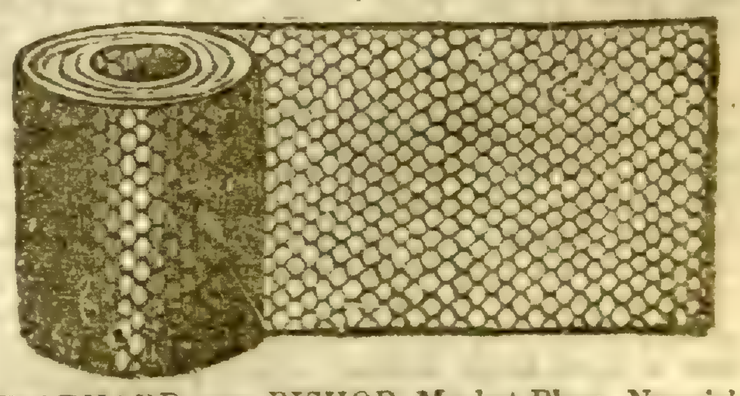
MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers, members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps. 103, Newgate Street, London.

GALVANISED WIRE GAME NETTING, 6*d.* per Yard, 2 Feet Wide.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	6*d.* per yd.	4½*d.* per yd.
2-inch „ strong, do.	8 „	6 „
2-inch „ intermediate, do.	9½ „	7½ „
2-inch „ extra strong, do.	11 „	9 „
1⅝-inch „ 24 inches wide	7 „	5½ „
1⅝-inch „ strong, do.	9 „	7 „
1⅝-inch „ intermediate, do.	11 „	9 „
1⅝-inch „ extra strong, do.	13 „	11 „

All the above kinds can be made of any width (under 5 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 10*d.* per yard; Galvanised Sparrow-proof Netting for Pheasantries, 3*d.* per square foot.

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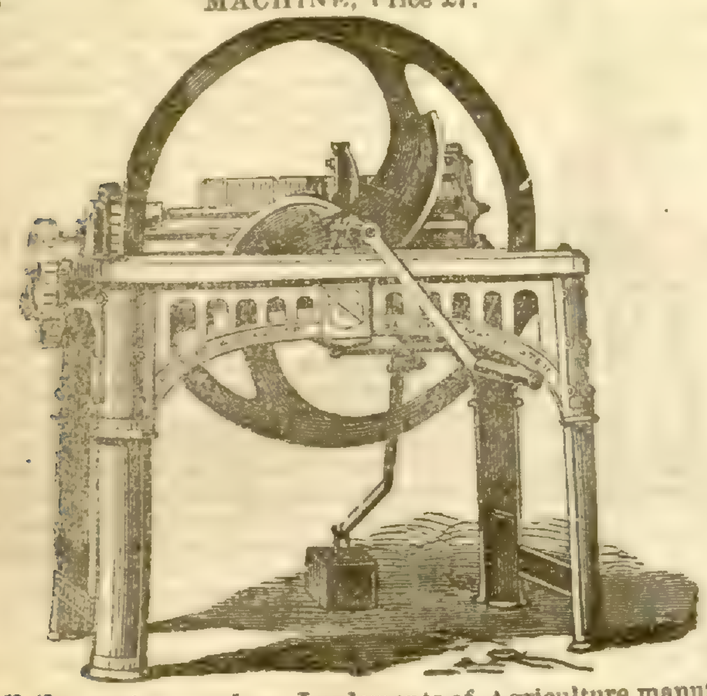
ROYAL AGRICULTURAL SOCIETY OF ENGLAND.
MEETING AT CARLISLE, JULY, 1855.
First Prize Awarded to

RICHMOND and CHANDLER'S No. 3 B CHAFF MACHINE, Price £7.



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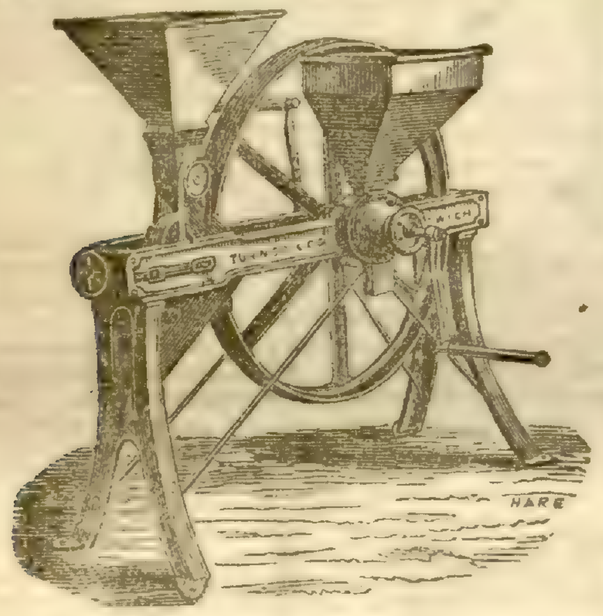
The Prize for the best LINSEED and CORN CRUSHER was awarded to E. R. & F. Turner, St. Peter's Iron Works, Ipswich.



E. R. & F. Turner invite the attention of Agriculturists and others to the following machines of their manufacture:—

ROLLER MILLS for Crushing Linseed, Oats, Barley, Malt, &c., of various sizes, with or without Bean-mill combined. The numerous prizes awarded these Mills by the Royal and other agricultural societies, render comment on their merits unnecessary.

PATENT COMBINED GRINDING and CRUSHING MILL for reducing Barley, &c., to a fine and soft meal, and crushing Oats, Linseed, &c., is strongly recommended for the variety of purposes to which it is applicable, and for its perfect and economic working. Price 25*l*.

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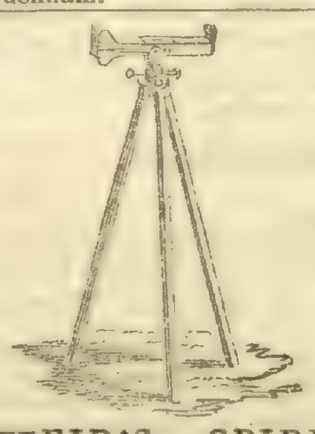
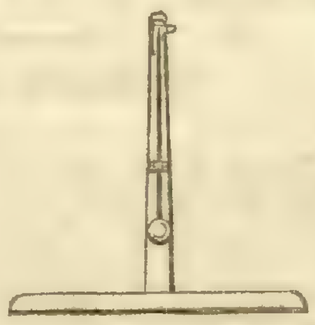
370, Oxford Street; and Garden Entrance, Crystal Palace, Sydenham.



WEIR'S SPIRIT DRAINING LEVEL.
Price 30*s*.; Case, 1*s*.
Requires no graduated staff or computation. Any labourer can use them.



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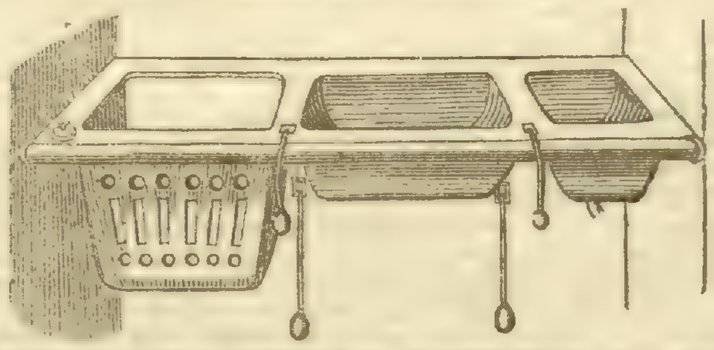

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HORTICULTURE IN ALL ITS BRANCHES.

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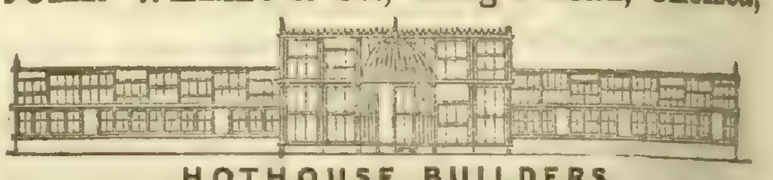

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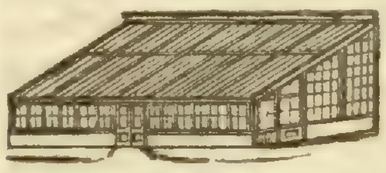
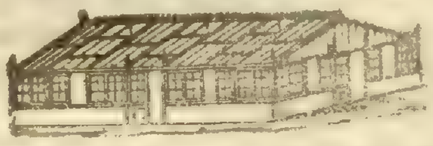


The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.

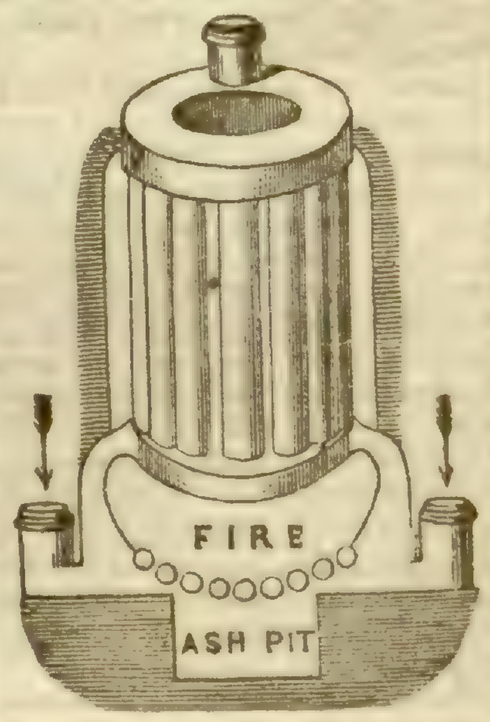


Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s*. 8*d*. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to John Weeks & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.



The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft. and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the late severe winter it only cost us 3*s*. per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *one of our Boilers*, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

John Weeks & Co., King's Road, Chelsea, London.

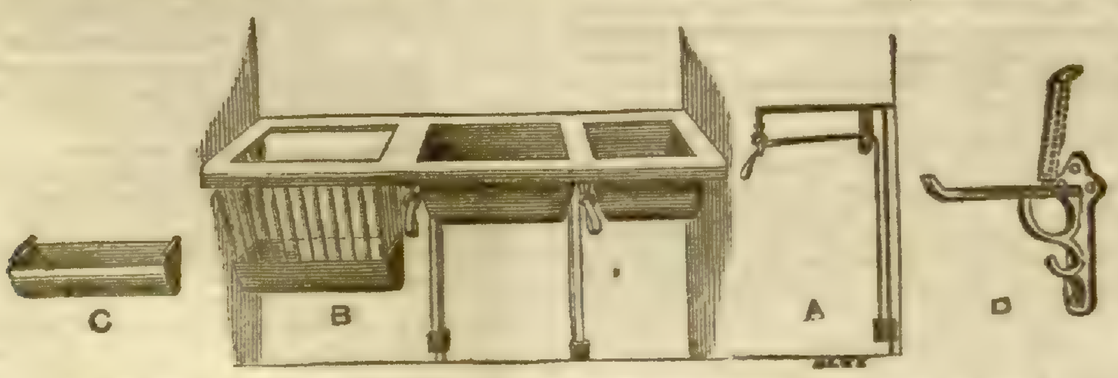
212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the strongest, best, and cheapest safeguards extant.

Milner's Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City.

Circulars free by post.

ONE THOUSAND BEDSTEADS TO CHOOSE FROM.—HEAL and SON have just erected extensive Premises, which enable them to keep upwards of 1000 Bedsteads in stock, 150 of which are fixed for inspection, comprising every variety of Brass, Wood, and Iron, with Chints and Damask Furnitures complete. Their new Warerooms also contain an assortment of BED-ROOM FURNITURE, which comprises every requisite, from the plainest japanned deal for servants' rooms, to the newest and most tasteful designs in mahogany and other woods. The whole warranted of the soundest and best manufacture. HEAL and SON'S ILLUSTRATED CATALOGUE of BEDSTEADS and PRICED LIST of BEDDING sent free by post.—HEAL and SON, 196, Tottenham Court Road.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.



COTTAM AND HALLEN

HAVE made important additions to their original Invention of PATENT ENAMELLED MANGER RACK AND WATER TROUGH AT ONE FIXTURE, the main features of which are shown in the above engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—Descriptive Catalogues and Estimates on application.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,

87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included. — Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in. ...	...	12*s.* 0*d.*
6½	"	4½	"	7	"	5	...	...	12 6
7½	"	5½	"	8	"	6	...	...	13 0
8½	"	6½	"	9	"	7	...	...	13 6
9½	"	7½	"	10	"	8	...	...	13 6
10½	"	8½	"	11	"	9	...	...	14 0
12	"	9	"	13	"	9	...	...	14 0
10	"	10	"	10½	"	10½	...	...	14 0
11	"	10	"	11½	"	10½	...	...	14 0
11	"	11	"	11½	"	11½	...	...	14 0
12	"	11	"	12½	"	11½	...	...	14 0
13	"	11	"	13½	"	11½	...	...	14 0
13	"	12	"	13½	"	12½	...	...	16 0
13½	"	13½	"	14½	"	13½	...	...	16 0
15½	"	13½	...	...	...	...	...	...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash :—

SHEET SQUARES.—In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12*s.*	0*d.*
7 " 5, — 7½ " 5½ } 8 " 6, — 8½ " 6½ }	0 14	0
9 " 7, — 9½ " 7½, 10 by 6 } 10 " 7, 10 by 8 }	0 16	0

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18*s.* per 100 feet. If cut to order not exceeding 40 inches long.

16 oz. from 2½*d.* to 3½*d.* | 21 oz. from 3½*d.* to 4½*d.*
26 oz. from 5½*d.* to 7½*d.*

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½*d.* per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	£1 17*s.* 6*d.*	per case of	50
3/16 "	2 1 3	"	60
⅛ "	1 17 6	"	60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London. REDUCED TARIFF OF AGRICULTURAL AND HORTICULTURAL GLASS.

STRONG HORTICULTURAL SHEET, from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot.

PERFORATED GLASS for Ventilating Dairies, Stables, &c., from 1*s.* 6*d.* per foot. German-shaped Milk-pans, 21*s.* per dozen; Hely's Test Churns, 5*s.* each; Waring's Butter Slabs, 10*s.*; Glass Fern Shades and Stands, from 3*s.*; Bee-glasses, from 6*d.*; Cucumber Tubes, from 1*s.*; Propagating Glasses, from 3½*d.* to 7*s.* each; Flower Labels, 7*s.* per 100; Aquariums, complete, 10*s.* each; and every other description of Agricultural, Horticultural, Architectural, Domestic, Scientific, and Ornamental Glass, British and Foreign.—Catalogues free.

METCALFE, BINGLEY, AND CO.'S OATMEAL and CAMPHOR SOAP, in tablets (registered Nov. 3, 1854). Price 6*d.* each. This soap will be found the purest and most perfect winter soap ever introduced to the public. It preserves the hands from chapping, and renders the skin soft and agreeable.—Sold wholesale and retail by the inventors and sole manufacturers, METCALFE, BINGLEY, & Co., Brushmakers and Perfumers to H.R.H. Prince Albert, 130B and 131, Oxford Street.

CAUTION.—To prevent fraud, each tablet bears the registered mark and the names and address of the inventors, as above.

METCALFE'S ALKALINE TOOTH POWDER, 2*s.* per box.—The above may be obtained of most respectable Chemists, Perfumers, &c.

COLDS, COUGHS, ASTHMA, INFLUENZA, and DISEASES of the CHEST and LUNGS, arise chiefly from alternations of Temperature. Painful and troublesome as these diseases are, they may be speedily and effectually removed by the judicious use of

SPENCER'S PULMONIC ELIXIR.

SPENCER'S PULMONIC ELIXIR is admirably adapted to promote expectoration, ease the breathing, loosen the phlegm, abate fever, and allay the tickling sensation which occasions the cough, without tightening the chest; and for all temporary and local affections—such as wheezing, irritation of the throat, palpitation of the heart, hoarseness of the voice, influenza, &c.—it affords immediate relief. While in more chronic disorders, as periodical coughs or inveterate asthma, it is equally valuable in its effects, although, of course, a longer perseverance in the use of the article is required.

*** Ask for SPENCER'S PULMONIC ELIXIR.

Prepared only by T. Roberts & Co., Crane Court, Fleet Street, London; and sold wholesale and retail by E. Edwards, 67, St. Paul's Churchyard; Barclay & Sons, 95, Farringdon Street; Sutton & Co., 10, Bow Churchyard; Hannay & Co., 63, and Sangar, 150, Oxford Street, London; and by all respectable Chemists and Medicine Vendors in the Kingdom. In bottles at 1*s.* 1½*d.* and 2*s.* 9*d.* each. *** The bottles at 2*s.* 9*d.* contain nearly as much as three small ones.

FENDERS, STOVES, AND FIRE-IRONS.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW ROOMS, 39, Oxford Street, (corner of Newman Street), Nos. 1, 2, and 3, Newman Street, and 4 and 5, Perry's Place. They are the largest in the world, and contain such an assortment of FENDERS, STOVES, RANGES, FIRE-IRONS, and GENERAL IRONMONGERY as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright stoves, with bronzed ornaments and two sets of bars, 2*l.* 14*s.* to 5*l.* 10*s.*; ditto, with ormolu ornaments and two sets of bars, 5*l.* 10*s.* to 12*l.* 12*s.*; Bronzed Fenders complete, with standards, from 7*s.* to 3*l.*; Steel Fenders, from 2*l.* 15*s.* to 6*l.*; ditto, with rich ormolu ornaments, from 2*l.* 15*s.* to 7*l.* 7*s.*; Fire-irons from 1*s.* 9*d.* the set to 4*l.* 4*s.* Sylvester and all other Patent Stoves, with radiating hearth plates. All which he is enabled to sell at these very reduced charges.

1st,—From the frequency and extent of his purchases; and
2dly,—From those purchases being made exclusively for cash.

GAS CHANDELIERS AND BRACKETS.—The increased and increasing use of gas in private houses has induced WILLIAM S. BURTON to collect from the various manufacturers all that is new and choice in Brackets, Pendants, and Chandeliers, adapted to offices, passages, and dwelling-rooms, as well as to have some designed expressly for him; these are ON SHOW over his SIXTEEN LARGE ROOMS, and present, for novelty, variety, and purity of taste, an unequalled assortment. They are marked in plain figures, at prices proportionate with those which have tended to make his Establishment the largest and most remarkable in the kingdom, viz., from 12*s.* 6*d* (two light) to 16*l.* 16*s.*

LAMPS OF ALL SORTS AND PATTERNS.—The largest, as well as the choicest, assortment in existence of FRENCH and ENGLISH MODERATEUR, PALMER'S, CAMPHINE, ARGAND, SOLAR and other LAMPS, with all the latest improvements, and of the newest and most recherché patterns, in ormolu, Bohemian and plain glass, is at WILLIAM S. BURTON'S, and they are arranged in one large room, so that patterns, sizes, and sorts can be instantly selected.

Real French Colza Oil, 5*s.* 9*d.* per gallon.
Palmer's Candles, 9*d.*, 9½*d.*, and 10*d.* per lb.

WILLIAM S. BURTON has SIXTEEN LARGE SHOW ROOMS devoted to the show of GENERAL FURNISHING IRONMONGERY (including Cutlery, Nickel Silver, Plated and Japanned Wares, Iron and Brass Bedsteads and Bedding), so arranged and classified that purchasers may easily and at once make their selections.

Catalogues, with engravings, sent (per post) free. The money returned for every article not approved of.

No. 39, Oxford Street (corner of Newman Street); 1, 2, and 3, Newman Street; and 4 & 5, Perry's Place.

SOUND AND WHITE TEETH are not only indispensably requisite to a pleasing exterior in both sexes, but they are peculiarly appreciated through life as a blessing highly conducive to the purposes of health and longevity. Among the various preparations offered for the purpose,

ROWLAND'S ODONTO, or PEARL DENTIFRICE,

stands unrivalled in its capability of embellishing, purifying, and preserving the teeth to the latest period of life. Prepared from Oriental herbs with unusual care, transmitted to this country at great expense, this unique compound will be found to eradicate all tartar and concretions, and impart a pearl-like whiteness to the enamelled surface, remove spots of incipient decay, render the gums firm and red, fix the teeth firmly in their sockets and, from its aromatic influence impart sweetness and purity to the breath. Price 2*s.* 9*d.* per box. Caution.—The words "Rowlands' Odonto" are on the label, and "A. ROWLAND & SONS, 20, Hatton Garden," engraved on the Government stamp affixed on each box. Sold by them, and by Chemists and Perfumers.

TO BE LET, A NURSERY AND SEED BUSINESS.—JOHN YOUNG begs to say that he is desirous of treating with a Tenant for his Nursery Ground, which he is at present occupying himself, and which offers an eligible opportunity to any one wishing to enter on the business. The stock is light, and the quantity of land may be made to suit the convenience of the Tenant.—For further particulars apply to JOHN YOUNG, Elm Cottage, Taunton.

TO AMATEUR FARMERS.—BELMORE HOUSE.

TO BE LET, unfurnished, for a term of years, containing three best living rooms and eight bed rooms, with offices, &c., convenient and complete stable for seven horses, with good garden and orchard. Forty acres in a ring fence to be let with it or without. Belmore is six miles from Bishopstoke Station on the South-Western Railway, in the centre of the Hambledon Hunt, and within easy distance of the H. H. and Horsley hounds.—For particulars, apply to Messrs. ATTWOOD and BIGDEN, the Close, Salisbury.

SHORT-HORNED BULLS.

TO BE SOLD, at Esholt Hall, near Leeds, three 1-year-old and one 3-year-old BULLS, all of pure Short-horn breed, the property of W. R. C. STANSFIELD, Esq.—For Pedigrees and particulars apply to JAMES M'KELVIE, Esholt Hall.

TO BE SOLD, Three fine CYGNETS; price 3*l.* 3*s.*—Apply to Mr. BROOKS, 24, Old Cavendish Street, London.

Sales by Auction.

ORCHIDS.—THREE IMPORTATIONS FROM THE BRAZILS, THE AMAZONS AND LA GUAYRA.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 16th inst., fine Plants, in excellent condition, of Lælia purpurata, Cattleya lobata, Leopoldi Mossiæ, crispa superba, granulosa, violacea, and an unknown species of Galeandra, &c.—May be viewed on the morning of sale, and Catalogues had.

ORCHIDS—ESTABLISHED PLANTS.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, October 23, at 1 o'clock precisely, a Collection of ORCHIDS in fine health. Amongst them will be found the following choice sorts, viz.:—

Aerides maculosum major	Lælia purpurata
" quinquevulnerum	Phalænopsis grandiflora [bum
Cattleya elegans	Saccolabium guttatum super-
" labiata	" premorsum
" Quindos	" retusum
Cypripedium barbatum grandiflorum	Trichopilia suavis
	Vanda suavis (Veitch's)
Dendrobium anosmum	&c. &c. &c.

May be viewed on the morning of sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

ROSE COTTAGE NURSERY, RETFORD, NOTTS.

MESSRS. TOMLINSON AND SON will Sell by Auction on MONDAY and TUESDAY, the 22d and 23d of October, at 12 o'clock each day, on the premises, in consequence of the ground being sold, the whole of F. Pennington's Stock of LINNEUS RHUBARB consisting of 10,000 strong, healthy Stools, the same with which he has supplied the Manchester, Sheffield, and other markets for several years, in the early part of the season; together with a NURSERY STOCK, consisting of Forest, Fruit Trees, Evergreen, Ornamental, and Deciduous Shrubs.

THAMES BANK, PIMLICO.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Joseph Robinson to submit to public competition, on the above premises, without the least reserve, a very choice and select Collection of Fancy and other varieties of Pelargoniums, also a collection of Pompone Chrysanthemums, about sixty neat specimens, a few Azaleas, also a fine collection of Dahlias, three small Greenhouses, and a light Spring Van. J. R. assures purchasers that every plant will be correctly named and labelled. The day fixed for sale will be stated in a future advertisement.

WANDSWORTH ROAD.

MESSRS. PROTHEROE AND MORRIS have been instructed by Messrs. Chandler & Sons to Sell by Auction, on the premises in the Wandsworth Road, early next month, a collection of the following EVERGREENS, &c., comprising five Variegated and Green Hollies, from 2 to 8 feet high; Chinese Arbor-vitæ, 2 to 8 feet; Laurels, large Box, Scarlet Arbutus, very handsome; crimson and other Rhododendrons, well set with flower buds; yellow Azaleas, large Lilacs, Chrysanthemums, Daphne hybrida, Escallonia, &c., &c.; also dwarf Apples and Pears adapted for potting, Gooseberries, Currants, with a variety of other Trees. This Sale presents an excellent opportunity for gentlemen and others now planting. An announcement of the days of sale will shortly be made, and Catalogues prepared.—American Nursery, Leytonstone, Essex.—Oct. 13.

FULHAM.

LOCKHART'S ANNUAL SALE OF BULBS AND FLOWER ROOTS.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the premises, Parson's Green Lane, Fulham, on MONDAY, October 15th, at 11 o'clock, without reserve, a costly and extensive collection of BULBS and FLOWER ROOTS, being about 50,000 in number, and consisting of all the approved Hardy and Ornamental varieties of Hyacinths, Early and Late Tulips, Crocus, Narcissus, Anemonies, &c., in good condition; also 4000 Sir Charles Napier Ranunculus, the finest variety yet raised; with a collection of Herbaceous Plants, and sundries.—May be viewed three days prior to the sale; Catalogues had, 6*d.* each, returnable to purchasers, of the principal Seedmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

NURSERY STOCK.

TO NOBLEMEN, GENTLEMEN, CONTRACTORS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the Premises, Albion Road, Stoke Newington, on MONDAY, October 22d, and following day, at 11 o'clock each day, fine Ornamental Trees, Evergreens, and Shrubs, consisting of Aucubas, Hollies, Box, Laurels, Arborvitæs, Limes, Poplars, Lilacs, Weeping Ash, Purple Beech, Scarlet Chesnuts, Evergreen Privets; Rhododendrons, Azaleas, and other American Plants; choice Fruit Trees, including Apples, Pears, Plums, Cherries, Peaches, Apricots, Grape Vines, &c.; Standard Dwarf and Climbing Roses, and a large assortment of Hardy Climbers in Pots; choice Cinerarias, Chrysanthemums, &c.—Catalogues may be had on the Premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone, Essex.

CLAPHAM RISE.

TO NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the Premises, Clapham Rise, near London, on MONDAY, October 29, and following day, at 11 o'clock each day (by order of the executors of the late Mr. Henry Groom) the whole of the extensive, costly, and unrivalled collection of TULIPS, Offsets, and Breeders, which include the most rare and approved varieties in cultivation, and choice Seedlings not in the possession of any other grower, being the study of 40 years of the deceased's life, whose judgment and taste was universally admitted. Also Dutch and other Bulbs, consisting of the finest Double and Single Hyacinths, Narcissus, Crocus, Early Double and Single Tulips, Jonquils, a rich assortment of Ranunculuses, Gladiolus, Anemones, &c., with 1500 Lilium lancifolium in great variety, Japonicum, &c. May be viewed prior to the sale.—Catalogues may be obtained 1*s* each, returnable to purchasers, of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

GRANGE ROAD, BERMONDSEY.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND PINE GROWERS.

MR. WILLIAM T. ATWOOD will Sell by Auction, on the Premises without reserve, by direction of B. Drew, Esq., on FRIDAY, the 26th October, at 11 o'clock, the extensive STOCK of PINE PLANTS, the various Ranges of Graperies and Forcing Pits; the Hot-water Apparatus, comprising about 1500 feet of pipe, and three large Boilers. The above property is in good condition, and offers a valuable opportunity to persons requiring Pine Plants and Forcing Houses.—Catalogues to be had of B. Drew, Esq., Bermondsey Street; W. T. ATWOOD, Auctioneer and Land Agent, Mortlake, Surrey; and the Inns in Covent Garden.

CHOICE TULIPS.

MR. ALEXANDER has been instructed by Mr. WILLISON, of the Rose Nursery, Whitby, to offer for sale by Auction, at the Mart near the Bank of England, on WEDNESDAY, Oct. 24, at 12 o'clock, his unrivalled SEEDLING TULIPS, comprising feathered breaks of the following first-rate varieties, viz., Gem, Juliet, Eva, Queen, King, Mr. J. F. Wood, Mr. Sanderson, Sir J. Paxton, Exquisite, (Purity, and Yellow Model Selfs). Any comment upon these unrivalled flowers would be superfluous.—Catalogues may be had at the Mart, and also of Messrs. DAWE, COTTRELL, & BENHAM, Seedsmen, Moorgate Street; White Swan, West Ham; Mulberry Tree, Bromley; Mr. WILLISON, as above, and of the Auctioneer, Shacklewell and Leyton, who will execute any commissions for country growers.

NURSERY STOCK.—WHALLEY RANGE, MANCHESTER.

MR. CAPES begs to state that he has received instructions from Messrs. H. Bigland & Co., in consequence of the expiration of their lease, and the grounds having to be given up, to Sell by Auction, on WEDNESDAY and THURSDAY, November 7th and 8th, at 10 o'clock each morning, the entire of the remainder of their STOCK of Evergreens, Fruit and Forest Trees, two Greenhouses, Dutch Pit, and other Effects, at the Britannia Nursery, Whalley Range, near Manchester, further particulars of which will appear in future announcements and in Catalogues, which will be ready a week prior to the sale.—22, Princess Street, Manchester.

MR. HUMBERT will Sell by Auction the following STOCK, on FRIDAY, October 19th, at 12 for 1 o'clock, at Harwood's Farm, Watford, Herts, by direction of the Earl of Essex, 375 pure South Down Ewes and Tegs, being the whole of the celebrated flock of the Earl of Essex, also 50 Fat and Store Pigs of the best breeds, 26 Ayrshire and Short-horn Heifers and Steers, 10 Calves, 4 black Ponies, under 12 hands, which have been driven together, and 100 loads of prime Hay; also the well-known Flock reared by his lordship with so much solicitude during the past 10 years, and now disposed of solely because he intends to adopt another system of farming.—May be viewed by applying to Mr. SWANSTON, at Harwood's Farm, of whom Catalogues may be had; also at the Salisbury Arms, Hertford; the Peahen, St. Alban's; Red Lion, Barnet; King's Arms, Hemel Hempstead; King's Arms, Berkhampstead; George Inn, Bishop Stortford; Chandos Arms, Edgware; White Horse Inn, Uxbridge; and free by post of Mr. HUMBERT, Land Agent and Surveyor, Watford.

NEW SERIAL WORK BY MR. CHARLES DICKENS.

Uniform with "Dombey and Son," "David Copperfield," "Bleak House," &c. &c.

On the 30th of November will be published, to be completed in Twenty Monthly Parts, price One Shilling each, the First Monthly Part of a New Work of Fiction, called

LITTLE DORRIT. By Charles Dickens. With Illustrations by Hablot K. Browne.

Bradbury & Evans, 11, Bouverie Street.

CHEAP EDITION OF PENDENNIS.

This day is published, in small 8vo (uniform with "Vanity Fair"), price Seven Shillings,

THE HISTORY OF PENDENNIS: His Fortunes and Misfortunes—His Friends and His Greatest Enemy. By W. M. Thackeray.

Bradbury & Evans, 11, Bouverie Street.

COLLECTED WORKS OF THE AUTHOR OF "VANITY FAIR," "THE NEWCOMES," ETC.

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No. 42.—1855.] SATURDAY, OCTOBER 20. { Price Fivepence. Stamped Edition, 6*d*.

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WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.

Knap Hill Nursery, Woking, Surrey.

GEORGE JACKMAN begs to state his PRICED CATALOGUE of choice CONIFERA, HARDY EVERGREENS and ORNAMENTAL TREES, which are well grown, and constantly removed; also Roses, Standard, Dwarf, and dwarf-trained Fruit Trees, and Forest Trees, can be had on application by enclosing one Postage Stamp.

G. J. respectfully invites persons planting to pay a visit to his extensive nursery, one and a half mile from Woking Station, South Western Railway, where all trains stop, and conveyances can be had.—Woking Nursery, Woking, Surrey.

DUTCH FLOWERING BULBS.

JAMES CARTER AND CO.'s CATALOGUE OF DUTCH AND CAPE BULBS, the most comprehensive and select published, will be forwarded *free of charge* and *post paid*, upon application to address at foot. *The Bulbs are as usual of first-rate quality.*

James Carter & Co., 238, High Holborn, London.

R. PARKER begs to inform his friends and patrons that his PRICED CATALOGUE of DUTCH BULBS is now ready, and will be forwarded post free upon application.

Paradise Nursery, Hornsey Road, Holloway.

DUTCH FLOWER ROOTS.

PETER LAWSON AND SON, Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland, respectfully intimate that they are now ready to execute orders for HYACINTH ROOTS, &c., &c., of the finest kinds and in excellent condition. Catalogues may be had, free, on application.

27, Great George Street, Westminster.—Oct. 20.

IMPORTED DUTCH BULBS.

EVAN PAUL begs to inform his patrons and friends that he has received his first importation of the above, which have arrived in first-rate condition, early orders for which are respectfully solicited. Catalogues forwarded postage free on application.—The Nurseries, Derby, Oct. 20.

IMPORTED DUTCH FLOWER ROOTS.

T. F. WINSTANLEY, Seedsman and Florist, begs to inform his patrons and friends that he has received direct, from one of the first growers in Holland, his first annual importation of the above, comprising Hyacinths, Narcissus, Early and Late Tulips, Jonquils, Iris, Crocus, Gladiolus, Anemones, Ranunculus, &c. &c. All are unusually fine and well ripened. Descriptive Priced Catalogues can be had on application.—28, Market Place, Manchester.

JUST HARVESTED.

SUTTON AND SONS, Seed Growers, Reading, *have now harvested some fine seed of* TRUE EARLY SHORT-HORN CARROT, MUSTARD, CRESS, LETTUCE, EARLY PEAS, *and other Seeds for early sowing.*

AGRICULTURAL SEEDS, ETC.

PETER LAWSON AND SON, Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland, are now supplying the following seeds of the best quality:—

Italian Rye-Grass, Foreign seed	Dwarf Essex Rape
Crimson Clover (Trifolium incarnatum)	Winter Tares
Alsike Clover (Trifolium hybridum)	Natural Grass Seeds, for Pastures and Lawns, &c. &c. &c.

27, Great George Street, Westminster.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, will be happy to forward his Autumn Catalogue, containing priced and descriptive lists of the following choice and popular flowers, for one postage stamp:

Auriculas	Pinks	Phloxes
Alpines	Pansies	Belgian Daisies
Carnations	Polyanthuses	Show Gooseberries
Picotees	Primroses	Currants, &c. &c.

A few packets of very choice Pansy Seed, at 1*s*. & 2*s*. per pckt.

DUTCH BULBS OF SUPERIOR QUALITY AT LOW PRICES.

Anemones, early flowering, brilliant colours	5*s*. per 100.
Hyacinths, Dutch mixed, all colours	21*s*. per 100.
" " named, separate colours	6*s*. per doz.
Narciss, mixed	1*s*. "
Tulips, Dutch, mixed, early sorts	6*s*. per 100.
Crocus, Dutch, mixed, all colours	10*s*. per 1000.
Iris, mixed, all colours	5*s*. per 100.

The above, with every other kind of Flower Roots, equally moderate in price, may be had of William Denyer, Seedsman and Florist, 82, Gracechurch Street, London.

Descriptive and priced Catalogues forwarded on application.

FRUIT TREES IN POTS.

JOHN AND CHARLES LEE have the finest stock of the above ever yet offered, consisting of—

PEACHES	APRICOTS	CHERRIES
NECTARINES	PLUMS	APPLES

and PEARS

All warranted to bear good crops the first season.

Nursery and Seed Establishment, Hammersmith.

AZALEA INDICA LEEANA.

JOHN AND CHARLES LEE are now prepared to send out this fine Seedling, which for habit of growth and substance of petal, combined with perfect shape and purity, is decidedly the best white Azalea yet out. It has gained Certificates wherever exhibited. Price 21*s*.: a few extra strong plants at 42*s*.—Nursery and Seed Establishment, Hammersmith.

SPLENDID HYACINTHS, ETC. (IMPORTED).

JAMES CHARTRES AND CO. can strongly recommend their 20*s*. Collections of the above, which have always given such general satisfaction. 12 splendid named Hyacinths for pots or glasses; 12 do. do for Borders; 6 Polyanthus Narcis.; 12 Pheasant-eyed do.; 6 splendid Early Tulips for pots; 12 do. Late do. for Borders; 100 Crocus, sorts; 12 fine Iris; 6 Snowflakes; 6 Double Jonquils; 25 Double Snowdrops. A general and priced Catalogue on application.—Seed Warehouse, 74, King William Street, City, London.

CAMELLIAS.

CHANDLER AND SONS, Nurserymen, Wandsworth Road, beg to inform their friends and customers that their CAMELLIAS are finely set with flower buds this season. They are now sending out good bushy plants from 30*s*. and upwards per dozen. The best CHRYSANTHEMUMS, 12*s*. per dozen.

NEW CHRYSANTHEMUMS.

JOHN SALTER begs to announce that his Seedling Pompone CHRYSANTHEMUM "SCARLET GEM" is now in flower, and will be found far superior to everything in its class for brilliancy of colour, form, and habit. Orders now taken for plants to be sent out in spring at 7*s*. 6*d*. each. His general collection will be in bloom early in November.

Versailles Nursery, near Hammersmith Turnpike.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s*. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. Cobbett's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

CATTELL'S EARLY BARNES CABBAGE; DO. DO. RELIANCE; Also PARAGON, IMPERIAL, KING, NONPAREIL, ETC.

JOHN CATTELL has now ready Bedded Plants of the above, at 5*s*. 6*d*. per 1000. No charge for crates, baskets, or packing. Packages of 5000 or more are delivered to London and to the Edenbridge Station of the South-Eastern Railway carriage free. A remittance or reference to accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

SELECTED SEED WHEAT.

ABRAHAM HARDY AND SON, Seed-Growers, Maldon, Essex, beg to offer their celebrated PROLIFIC RED, at 15*s*. Also Rough Chaffed, or Satin Wheat, of superior quality, at 12*s*. 6*d*. per bushel. New bag, 1*s*.; sack, 2*s*. Remittances must accompany orders. Prices of selected earliest Potatoes in variety on application.

W. NICOL, Gardener, Roslyn House, Hampstead, begs to offer the whole Stock, in one lot, of his incomparable PEA "Omer Pacha." For terms and quantity inquire as above.

W. N. begs to assert that it is both the earliest and latest Pea in cultivation, a most superb bearer, and unequalled in flavour, and may justly be termed the acme of perfection.

Should the whole stock not be disposed of in one lot by Thursday next, the 25th inst., W. N. will send it out in sealed pints at 3*s*., and sealed quarts at 5*s*.

SUTTON'S IMPROVED ITALIAN RYE GRASS.

SUTTON AND SONS, SEED GROWERS, Reading, are now harvesting their crop of Seed of this superior variety of Italian Rye Grass, and are also importing a supply of fresh Lombardy Seed. As the demand appears likely to be great, Messrs. SUTTON respectfully recommend their friends who intend to sow these articles next season, to favour them with their orders early, in case the stock should prove short.

N.B. SUTTON & SONS *do not appoint Agents for the sale of their Seeds; but they deliver them carriage free by Rail to most parts of the United Kingdom.*

W. TOWNSEND has now ready to send out GERANIUM CYDONIA CARMINEA—for description see Advertisement, 4th August; has been exhibited at the National Society, 15th June and 26th August, and obtained a Certificate. Plants 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each; one over to every three ordered in the trade. Post-office orders payable at Bayswater.—Notting Hill.

THE BEST SEED IN THE WORLD, saved as recommended in GLENNY'S "Garden Almanack" from the BEST BLOOMS of the BEST VARIETIES. Balsams, six classes, 37 stamps; mixed, 13 stamps. Geranium and Pink, 30 stamps; Hollyhock and Dahlia, 13 stamps; Quilled Aster and large flowering Stocks, 7 stamps. Sealed packets only.—G. GLENNY, Fulham. The trade supplied.

RARE AND NEW FERNS.

R. KENNEDY having at present a good assortment of the more choice species of FERNS would especially recommend the following selection:—

Acrophorus hispida	Gymnogramma tomentosa
Adiantum pentadactylon	Hemionitis cordata
Asplenium Belangeri	Lomaria bicolor
Blechnum lanceolatum	" Magellanica
Cheilanthes Alabamaensis	Nephrolepis Davalliöides
" vestita	Nothochlæna nivea
Cassebeera farinosa	Platycerium grande
Gleichenia speluncea	Platyloma Browni
" microphilla	Polypodium alpestre
Gymnogramma lanata	Drynaria coronans
" pulchella	Trichomanes Andrewsi
" dealbata	Davallia tenuifolia
" chrysophylla	Woodsia hyperborea

Prices and General Catalogue forwarded on application.

Bedford Conservatory, Covent Garden, Oct. 20.

MAGNIFICENT SPECIMENS OF CONIFERÆ.

LUCOMBE, PINCE, AND CO. respectfully call attention to their very superior specimens of the above, which are worthy of the notice of all who are engaged in ornamental planting, their growth and shape being perfect, and their roots all that can be desired, so that where immediate striking effect, combined with perfect safety of removal to any distance is required, these large symmetrically grown and well managed plants can with confidence be recommended.

Abies Douglasi	Pinus insignis
" orientalis	" Cembra
" Menziesi	" austriaca
" canadensis	" muricata
Araucaria imbricata	" tuberculata
Biota glauca	" Montezumæ
" japonica	" Benthamiana
Cedrus Lebani	" excelsa
" Deodara	Picea Nordmanniana
Cupressus macrocarpa	" nobilis
" Goveniana	" Pinsapo
" Uhdeana	Thuja orientalis
Juniperus excelsa	" occidentalis
" recurva	" tartarica
Libocedrus chilensis	" filiformis,

&c. &c. &c.

Sizes, prices, and all particulars may be had on application to

LUCOMBE, PINCE, AND CO.,
EXETER NURSERY,
EXETER.
ESTABLISHED 1720.

WILLIAM YOUNG begs to call the attention of Noblemen, Gentlemen, Public Companies, and Planters in general to his extensive stock of CHOICE CONIFERÆ, HARDY EVERGREENS, ORNAMENTAL TREES, AMERICAN PLANTS, &c., which are this season particularly fine, and having been well prepared for removal, he can confidently recommend them to transplant with perfect safety.

W. Y. invites persons about to plant to inspect his stock, which is standing over 50 acres of ground, in which will be found all kinds of plants adapted to every description of ornamental planting. It consists of HARDY CONIFERÆ, containing some of the finest specimen plants ever offered.

	Feet high.
Abies Douglasi	6 to 8 by 5 to 6
" "	8 to 10 by 7 to 8
" "	10 to 12 by 8 to 9
" Menziesi	4½ to 5
" nigra, Black Spruce	4½ to 5
" alba, White Spruce	6 to 8
" canadensis, Hemlock Spruce ...	6 to 8 by 7
Pinus austriaca ...	6 to 8
" "	8 to 10
" Cembra	5½ to 6
" "	7 to 8
" excelsa	8 to 10
" insignis	2½ to 3
" "	3 to 4
Picea Pinsapo ...	5 to 6 by 6
" nobilis }	very
" Nordmanniana }	handsome
Araucaria imbricata .	2½ by 2½
do. do.	3 by 3
do. do.	4 by 4
do. do., very handsome	6 to 8
Cryptomeria japonica ...	3 to 4
Cedar of Lebanon ...	3½ to 4
" " ...	5 to 6
" "	7 to 8 by 6
" "	10 to 12 by 8
" Deodara ...	4½ to 5
" "	6 to 8
" "	9 to 10
" "	10 to 12

(The Cedars of Lebanon and Deodara are particularly handsome and well furnished.)

	Feet high.
Thuja orientalis, Chinese Arbor-vitæ	5 to 6
" " " ...	7 to 8
Thuja Weareana, Siberian	5 to 6
" "	7 to 8
Chinese Juniper ...	4½ to 5
" "	5 to 6
Upright "	4 to 5
" "	6 to 7
Taxodium sempervirens	6 to 8
" "	10 to 12
Irish Yew	4½ to 5
" "	6 to 7

A LARGE QUANTITY OF FINE EVERGREENS.

Green Hollies	4 to 6
" " ...	6 to 7 by 4
" "	8 to 10 by 6 to 7
Evergreen Oak	3½ to 4
" "	4½ to 5
" "	6 to 8 by 4 to 5
Spruce and Silver Firs	6 to 8
" "	10 to 12
Weymouth Pine ...	8 to 10
Yews	3½ to 4
"	4½ to 5
"	5½ to 6
Quercus oxoniensis—New Leucombe Oak...	6 to 7
" " ...	8 to 10

AMERICAN PLANTS.

Azaleas, fine named sorts
Rhododendron ponticum (good for cover).
Do. all the new and best vars.
Kalmias, Andromeda, Ledums, &c. &c.

STANDARD ROSES, of all the best varieties.
FRUIT TREES, ORNAMENTAL DECIDUOUS TREES, for Parks or Avenues, from 10 to 12 feet.
FOREST TREES, for Copse Planting, from 2 to 4 feet.
Prices given on application.

A Catalogue is now ready, and may be had for two postage stamps.

The Nurseries are two miles from Godalming Station, South-Western Railway, where conveyances can always be obtained.

Milford Nurseries, near Godalming, Surrey.

BLACK BARBAROSSA VINES IN POTS

JOHN A. WATSON has now to offer a fine lot of this excellent sort, which for keeping through the winter is by far the best in cultivation. Also a large stock of the following kinds all warranted true to name:—

Muscat	Black Prince
Charlesworth Tokay	Welbeck Tripoli
Dutch Sweetwater	Black Frontignan
Black Hamburgh	Grizzly Frontignan.
Mill Hall Hamburgh	

The above collection packed and sent to any station in London for 2*l.* 2*s.*—Vine Gardens, Ealing, Middlesex.

HARDY FERNS.

WILLIAM HUSSEY begs to offer the undernamed Collection of FERNS for 14*s.*, package included, viz.:—

Adiantum capillus Veneris	Ceterach officinarum	Polystichum aculeatum
Allosorus crispus	Cystopteris fragilis	Do. angulare
Asplenium viride	Hymenophyllum Wilsoni	Osmunda regalis
" trichomanes	Do. Tunbridgense	Polypodium vulgare
" adiantum nigrum	Lastrea cristata	" dryopteris
Athyrium filix-femina	" spinulosa	" phagopteris
Blechnum boreale	" dilatata	" calcareum
Botrychium lunaria	" Thelypteris	Scolopendrum officinarum

Horticultural Gardens, Norwich.

CAREY TYSO, FLORIST, Wallingford, Berks, begs to offer—

	s.	d.		£	s.	d.
Ranunculuses, 100 splendid named sorts ...	40	0	to	4	0	0
" 25 superb seedlings ditto				1	10	0
" 100 Fine mixtures	8	0	to	1	0	0
Double Anemones, 50 fine named sort's ...	10	6	to	0	13	0
Carnations and Picotees, per dozen pairs ...	18	0	to	1	10	0

C. T. has a quantity of named Tulips, of fine quality, which he is offering at unusually low prices.—Treatise on the Ranunculus, post free, 8*d.*; ditto on Anemone, 4*d.* General Catalogue sent gratis, for one stamp for postage.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 12*s.* per ton, 1*s.* 6*d.* per bushel, or 16*s.* per ton, delivered to the London Wharfs or Railways, or within a circuit of five miles. Sacks 2*s.* each. Kentish and other Peats and Loam of excellent quality.

KENNARD BROTHERS, Swan Place, Old Kent Road.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

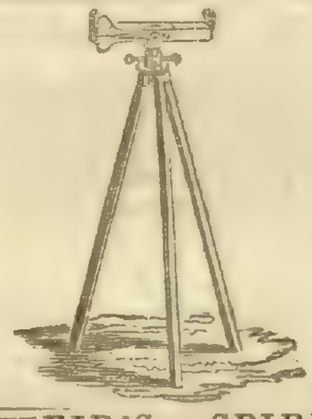
THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

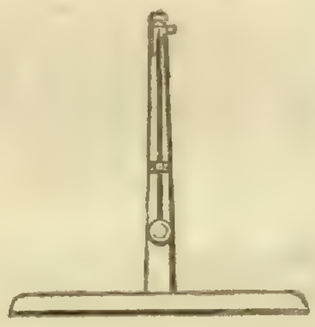
Fountains of every description erected; Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.



WEIR'S SPIRIT DRAINING LEVEL.
Price 30*s.*; Case, 1*s.*
Requires no graduated staff or computation. Any labourer can use them.



WEIR'S PENDULUM WORKMAN'S LEVEL, for use in the Drain. Price 15*s.*
Terms cash.
Illustrated Catalogues sent post free.

EDWARD WEIR, 2, Fitzroy Terrace, and 16, Bath Place, New Road, near Fitzroy Square, London.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MEETING AT CARLISLE, JULY, 1855.
FIRST PRIZE AWARDED TO

RICHMOND AND CHANDLER'S No. 3 B CHAFF MACHINE, Price £7.

All the various modern Implements of Agriculture manufactured on the most scientific and improved principles, suitable for home use and exportation.—Address, RICHMOND & CHANDLER, Salford, Manchester; and 32, South John Street, Liverpool.

☞ CATALOGUES GRATIS.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.—In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12*s.*	0*d.*
7 " 5, — 7½ " 5½ } 8 " 6, — 8½ " 6½ }	0 14	0
9 " 7, — 9½ " 7½, 10 by 6 } 10 " 7, 10 by 8 }	0 16	0

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18*s.* per 100 feet. If cut to order not exceeding 40 inches long.
16 oz. from 2½*d.* to 3½*d.* | 21 oz. from 3½*d.* to 4½*d.*
26 oz. from 5½*d.* to 7½*d.*

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½*d.* per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	£1 17*s.* 6*d.*	per case of 50
3/16 "	2 1 3	" 60
⅛ "	1 17 6	" 60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,

87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in.	by	4 in.	and	6 in.	by	4½ in. ...	... 12*s.*	0*d.*
6½	"	4½	"	7	"	5 ...	... 12	6
7½	"	5½	"	8	"	6 ...	... 13	0
8½	"	6½	"	9	"	7 ...	... 13	6
9½	"	7½	"	10	"	8 ...	... 13	6
10½	"	8½	"	11	"	9 ...	... 14	0
12	"	9	"	13	"	9 ...	... 14	0
10	"	10	"	10½	"	10½ ...	... 14	0
11	"	10	"	11½	"	10½ ...	... 14	0
11	"	11	"	11½	"	11½ ...	... 14	0
12	"	11	"	12½	"	11½ ...	... 14	0
13	"	11	"	13½	"	11½ ...	... 14	0
13	"	12	"	13½	"	12½ ...	... 16	0
13½	"	13½	"	14½	"	13½ ...	... 16	0
15½	"	13½	...	...	...	...	... 16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

THE CRYSTAL PALACE FLOWER BASKETS and HANGING GARDENS, made to the original Sydenham Pattern, and a variety of other new and elegant designs for the Conservatory, Verandah, Drawing Room, Boudoir, &c., by W. RICHARDS, Imperial Wire Works, 370, Oxford Street, London, nearly opposite the Princess's Theatre; and at the Crystal Palace.

A large stock on view from 3*s.* 6*d.* upwards. Flower Stands, Trainers, Game and Garden Fencing, and Wire Work of every description. Conservatories and Aviaries fitted up in superior style. Window Blinds of all sorts.

370, Oxford Street; and Garden Entrance, Crystal Palace, Sydenham.

ECONOMY OF FERMENTATION.

BUSHE'S PATENT ROOT GRATER, manufactured by FOWLER AND FRY, Temple Gate, Bristol, entirely supersedes the necessity of Cooking Turnips, Mangold, and other Roots; it effects a saving of 30 to 40 per cent. of the Roots, besides that of fuel. Price 3*l.* 10*s.* Printed testimonials and directions may be obtained gratis by applying to FOWLER & FRY, Bristol, Licensed Makers of CORNE'S Patent Chaff Cutters and General Agricultural Implement Makers and Dealers. The Root Grater may also be seen in the Agricultural Department of the Crystal Palace, Sydenham.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to SAYNOR & COOKE for their superiority of material and workmanship. Established 1738.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the nobility, gentry, and clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of colours, prices, together with a copy of the testimonials, will be sent on application to WALTER CARSON & SON, 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

GRAPE VINES FROM EYES IN POTS.

LUCOMBE, PINCE, AND CO. beg respectfully to call attention to their remarkably fine stock of Grape Vines, raised from eyes in pots, in a bearing state.

L., P., & Co. having two years ago erected a Vinery 90 feet long for the especial purpose of proving every good Vine in cultivation, are enabled to say that the Plants sent out by them are true to name.

LUCOMBE, PINCE, AND CO.,
EXETER NURSERY,
EXETER.
ESTABLISHED 1720

THE PAMPAS GRASS,
"GYNERIUM ARGENTEUM."

LUCOMBE, PINCE, AND Co. having now for sale the finest stock of flowering plants in this country of the above, are enabled to offer their well established plants to bloom this autumn at the following prices:—

Fine specimens with two flower stems ...	21*s.* 0*d.* each.
Ditto with one ditto	10*s.* 6*d.* „
Smaller plants to bloom next year	7*s.* 6*d.* „

L., P., & Co. have also healthy seedlings at 30*s.* per dozen, which will be ready in October, which, however, they deem it right to say will most probably not bloom for two years. To such parties as wish at once to see the plant in its beauty, L., P., & Co. would strongly recommend the larger sizes, as they are much better and cheaper.

Few plants are more ornamental than this Gigantic Grass, the leaves (which are more than 7 feet in length, curving gracefully outwards) grow in large tussocks, thereby producing a very fine effect, and from the midst of these numerous flower stems arise to the height of from 6 to 8 feet, surmounted by elegant panicles of inflorescence nearly 3 feet long, resembling beautiful waving plumes of silvery feathers. It is perfectly hardy, and is also easy of cultivation. A grand specimen of this noble plant is now in the Exeter Nursery, pushing up nearly twenty large flower stems and numerous small ones, and will continue to be an object of great attraction for a considerable time.

EXETER NURSERY, EXETER.
ESTABLISHED 1720.

TO PLANTERS.

JOHN SCOTT, of the Merriott Nurseries, Crewkerne, Somerset, has for Sale large and fine specimens of EVERGREENS, &c., at the lowest prices. The following are fine bushy plants, from 3 to 6 and 7 feet high, and from 6 to 16 feet in circumference:—Deodars, Cedars of Lebanon, Red Cedars, Arbor-vitæ, upright Cypress, Silver Fir, Evergreen Oak, Portugal Laurel, Arbutus, &c., in large numbers. Also all the leading Deciduous Trees from 6 to 16 feet high, all moved last May, and are now finely rooted; Forest Trees, many hundred thousands ready for planting; with fine Standard and Dwarf-trained Fruit Trees, of all the best and leading kinds, at very moderate prices. Gentlemen requiring large numbers will find the above well worthy of attention. Prices and signs sent to any application.—Oct. 20.

NEW ROSES.

M. DUCHER, Rue du Vivier Guillotiere, Lyons, France, offers the following NEW ROSES:—

MARSHAL PELISSIER—Hybrid Perpetual, very strong growth; flowers very large and very highly perfumed; petals bright red on the edge, and very pale beneath. This plant deserves a place in the best collections.

GENERAL SIMPSON—Hybrid Perpetual, very strong growth, and flowers abundantly; flowers medium size, very full and well-shaped; bright red carmine—superb plant.

MARCHIONESS OF MURAT—Strong growth, flowers large, full, and very well-shaped; very beautiful blush and very agreeable perfume. Somewhat resembles Duchess of Sutherland.

Each Plant 15 francs, or 12*s.*; to be delivered on the 1st November next.

A NEW SEEDLING APPLE FROM THE RIBSTON PIPPIN.

STEPHEN SHILLING begs to offer to gentlemen and the trade Trees of his entirely new Apple named OMER PACHA, it being a first-rate hardy grower, strong compact habit, early and productive bearer. Fruit excellent flavour (dessert), ripe in November, keeps until May. Respectable testimonials given from those who have tasted the fruit. Strong plants supplied at 5*s.* 6*d.* each, or 60*s.* per dozen. The usual discount to the trade where one dozen or more are taken. Early application is requested as the stock is limited; all orders carefully and promptly attended to. Fruit of the above can be seen at the office of the *Gardeners' Chronicle*, the British Pomological Societies' Rooms, 20, Bedford Street, Covent Garden, Messrs. Nutting & Son, 46, Cheapside, Messrs. Sutton & Sons, Reading, and at the
North Warnborough Nursery, near Odiham, Hants.

MESSRS. E. G. HENDERSON AND SON beg to announce that they have now received their noted collection of HYACINTHS in excellent condition, and for the assistance of those persons unacquainted with the culture of the Hyacinth, printed instructions will be given gratis with each order they are kindly favoured with, Catalogues of which, together with their Plant and Seed Lists, will be forwarded post free on application.

CUCUMBER HENDERSON'S NAPOLEON III., in packets, 3*s.* and 5*s.* 6*d* each.

CALCEOLARIA, CINERARIA, and PRIMULA SEED of first quality, 2*s.* 6*d.* and 5*s.* per packet.

FUCHSIAS.—Banks' Favourite, 10*s.* 6*d.*; Prince of Wales, 10*s.* 6*d.*

NEW RHODODENDRONS.—Boothi, Hookeri, Calophyllum, Kendricki, Eximium Windsori Leucanthum.

GYNERIUM ARGENTEUM (PAMPAS GRASS).—E. G. H. & Son having in their possession the largest stock in the country of this noble ornamental Grass, can supply free healthy seedling plants, which are superior to any other at 2*s.* 6*d.* each, 25*s.* per dozen, or 7*l.* 10*s.* per 100.

Wellington Nursery, St. John's Wood.

WATERER'S AMERICAN PLANTS.—A new DESCRIPTIVE CATALOGUE is now published of the celebrated Collection of hardy Scarlet and other Rhododendrons, as exhibited by JOHN WATERER at the Royal Botanic Gardens, Regent's Park; it will be found to contain a few practical observations on their successful management, and will be forwarded on application by enclosing two stamps for postage. Apart from its enumeration of the most popular American Plants in cultivation, a List of choice Coniferæ will be seen, embracing the latest importations of this fine and hardy tribe of Plants.

J. W. has now the pleasure to offer in large quantities, and of all heights, the following selection of CONIFERS, with the remark that they are all now growing in the open ground, are bushy and handsome as can be desired, and have been transplanted each succeeding spring, whereby no risk can be encountered in their removal from the nursery:—Araucaria imbricata, Cryptomeria japonica; Pinus Douglasi, Cembra, excelsa, Lambertiana, insignis, Jefferyana, Beardsleyi, tuberculata, &c.; Cedrus Deodara, Lebanon, and Africana; Wellingtonia gigantea, Cupressus, Juniperus, Taxus, Thuja, &c.

☞ The attention of gentlemen, public companies, and others engaged in planting, is especially directed to the foregoing; indeed, all intending planters would be well repaid by a visit to inspect our stock, as much may be seen which of necessity cannot be given within the limits of an advertisement.

The Nursery is easily reached by railway, being near the Farnborough Station, South-Western Railway, and Blackwater on the South-Eastern Railway.

The American Nursery, Bagshot, Surrey.

AZALEA INDICA.

JOHN AND CHARLES LEE beg to offer good Plants of the most select kinds of AZALEA INDICA, well set with buds, at 18*s.*, 30*s.*, and 42*s.* per dozen.

Nursery and Seed Establishment, Hammersmith.

NEW VARIEGATED GERANIUM—MRS. LENNOX.

JOHN AND CHARLES LEE are now sending out this novelty, which is a decided improvement on The Mountain of Light. It is of much more vigorous growth than that variety, the margin of the foliage is of a purer white, and in other respects it possesses the same good qualities. Price 7*s.* 6*d.*

Nursery and Seed Establishment, Hammersmith.

NEW CUCUMBER—"HIMALAYA."

CHARLES TURNER has purchased the Stock of Seed of this splendid Cucumber, that was so much admired at the Crystal Palace Exhibition in June last, and which also received Certificates at the Horticultural Society's Show at Gore House, and at the Royal South London Society's Show. It grows from 24 to 30 inches in length, is of very handsome shape, black spine, and an excellent bearer. Packets containing three Seeds, 2*s.* 6*d.* per packet.—Royal Nursery, Slough.

CHARLES SCHOFIELD (late J. SCHOFIELD & SON), SEEDSMAN and FLORIST, begs to invite the attention of Florists to his large and superb Stock of CARNATIONS, PICOTEES, PANSIES, PINKS, HOLLYHOCKS, &c., which he now offers at greatly reduced prices of the best quality. A Catalogue, descriptive of the above Flowers, is now ready, and will be sent on application.

PANSY SEED, in Packets, selected with the greatest care, from the best Show Flowers, 2*s.* 6*d.* each.

Also a few Packets of Extra-fine CALCEOLARIA SEED, 2*s.* 6*d.* each.

The finest HOLLYHOCK SEED, 1*s.* per Packet.

Knowsthorpe, near Leeds, Yorkshire.

THE BEST TWELVE HYACINTHS FOR POTS OR GLASSES.

(*Parcels if not less than 20s. value, carriage free.*)

The best 12 HYACINTHS imported (by name) ...		9*s.*	0*d.*
Double do. for open ground, mixed ...	per doz.	4	0
CROCUSES, many sorts mixed, ...	per 1000	12	6
TULIPS, fine mixed, early for pots or borders,	per 100	6	0
ANEMONES, fine double mixed	per 100	5	0

And all other BULBOUS FLOWER ROOTS at low prices, as per Catalogue just published.

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 20, 1855.

WE learn from the *Sydney Herald* of May 17 that a Society has been established in New South Wales for the IMPROVEMENT OF HORTICULTURE IN THE COLONY. Sir WILLIAM DENISON has taken it under his patronage, which looks well, and, if we can judge from the report of the proceedings at the inaugural meeting, it promises to be supported satisfactorily. On that occasion an excellent address was delivered by Sir CHARLES NICHOLSON, one of the Vice Presidents, which deserves to be given at greater length than our space will permit. We must, however, find room for some extracts.

After explaining the objects for which the Society was instituted, he proceeded to the following effect:—

"It can require little to be said in commendation of objects alike fraught with the greatest practical utility, and connected with some of our purest and happiest associations. In many of its departments, horticulture may be said to be of exclusively English origin, and to have been carried by our countrymen to a degree of perfection which it has not elsewhere attained. England is unrivalled for her park scenery, for that endless variety of landscape which results from the combination of the natural with the artificial, and for happily blending trees and shrubs, and flowers and natural weeds, in doing which art appears to borrow all that nature can bestow, and nature herself to be indebted for some of her most enchanting aspects. A beautiful garden is perhaps the most perfect creation of man's skill, and affords materials for some of the most refined of the enjoyments of which his nature is susceptible. The lot has been assigned to us by Providence of occupying a new land, and converting it into a civilised abode. In the execution of this task our first and foremost obligation has been to look to utilitarian objects only, and to disregard anything unconnected with immediate gains or practical ends. Such a spirit has, however, been too prevalent, and it is impossible to travel through our adopted land without lamenting the all but entire absence of those graceful and pleasing embellishments which characterise every rural dwelling in England. Our miserable wooden and bark-covered huts are seldom furnished with a garden, or it is enclosed by an unsightly and dilapidated fence, and its contents seldom extend beyond a few Pumpkins and Peaches. The domains of our gentry exhibit too generally an entire absence of taste in their disposition, with the same character of dilapidation and want of care that characterises the more humble abode of the labouring man. How rarely do we here see the trim garden of the English cottager, full of sweet-scented and beautiful flowers—objects of care and solicitude, and mixed up and twining themselves even with the affections of the whole household. No cold and unsympathising spirit, actuated by motives of mere gain, influences the English cotter in his desire to embellish his humble home. The spirit which animates the poor man pervades all classes. The nobleman delights in his parks, and cherishes the old ancestral trees which for ages have been the pride of his district. *If Englishmen love their homes, it is because their homes are beautiful;* and because the universal sentiment leads every one to embellish his home or dwelling, however humble, with the mute but eloquent witnesses of our earnest participation in some of the noblest and yet gentlest sympathies of our nature. *Absence of such an all-pervading taste in this colony is, I am convinced, productive of much social mischief.* The casual occupant of a rude cottage is linked to it by no associations connected with labour bestowed upon its embellishments. The children have set no flowers, nor has he ever reposed beneath the shade of the tree he planted. And what is the result of this state of things? *It is true that abundance in the way of food may exist; but that abundance is but too often associated with dirt, discomfort, and squalor.* Even those from whom better things might be expected exhibit an indifference and an apathy scarcely less blameworthy. It seems to be the too general tendency of men to live in this country with the predominant desire of quitting it—as mere wayfarers, and not as the permanent dwellers in the land. It is an established and well grounded fact that not only does much of the social comfort and happiness of a community depend upon the formation of a taste for, and an appreciation of natural beauty, but such a taste and appreciation have ever a moral significance scarcely less important. A perception of, and relish for, that which is beautiful in the works of creation, can hardly fail to be accompanied with holier aspirations, directed to the Great Author of all that is good as well as beautiful in nature. Sordid, and debasing, and profane habits are not likely to find an abiding-place in the breast of that man who is capable of enjoying nature in her simplest and most attractive forms. It is with the hope that this Society may in some measure counteract a state of things so much to be regretted, that I gladly join its ranks. It is our privilege and our good fortune to occupy a country far from being destitute of the elements of natural beauty; it is one affording materials and a capacity for embellishment, merely requiring the judicious hand of taste. Many of our indigenous forests may, with a little care, and by an eye able to appreciate the picturesque, be made to assume the character of the most highly ornamented English parks. With a climate of more than Ausonian softness, there are none of the vegetable productions of Europe that cannot be acclimatised, from the Oak of England to the Olive of classic Greece; and there is no reason why we should not reproduce on our shores a Windsor forest, the groves of Cintra, or the woods of a Subiaco. To aid in the realisation of some such results is, I apprehend, the province of this Society."

We were not prepared for such a description of the social state of the great Australian Colony, and it must be owned that if the picture drawn by Sir CHARLES NICHOLSON is anything like the condition of New South Wales, it stands wofully in need of all the humanizing effects which so refined a pursuit as that of gardening can impart. Let us hope, however, that there was a little pardonable exaggeration in the recital of the social circumstances which rendered the establishment of the new Society so desirable. At least we imagine that we discern evidence of such a feeling in the speech of Mr. SYLVESTER, who followed Sir CHARLES NICHOLSON. This gentleman drew a most deplorable picture of the state of rural affairs near Sydney. After pointing out in language which might be almost called eloquent, how horticulture is the mother of art—if art be worth cultivating at all—he proceeded to say, "at this remote end of the world we, like our first parents, are placed in a garden, to dress and to keep it, and I would ask what as yet we have done in any way to fulfil our mission? Have not we, in neglect of all the great capabilities of this land, fed too long on what ought to us to have been forbidden fruits? Have we not with a sordid selfishness lavished our time and means in idle and exotic luxuries, instead of manfully making this country that which it ought to be—the habitable home of millions? Have we now in Sydney any complete collection of the natural Grasses of the country of which we are accustomed to boast so much?—of the fruits which are, or might be made available for human food, or of the plants and herbs of which the chemist may avail himself in his researches? There is no institution in this colony connected with horticulture, which in any way promotes that which was the great design of horticulture, the virtue, the happiness, and the comfort of mankind. I do not mean for one moment to reflect upon any existing institutions, governmental or otherwise, further than to declare them inefficient,

and insufficient for the present wants of the colony. Some may say that a governmental institution may be made sufficient for all purposes I have mentioned; but I reply that such an institution has two great objections. It is at once *too* exclusive and *too* popular; too exclusive in its management for anything like instruction for the people; too popular in its application to be adapted to anything more than purposes of amusement. At present we have done nothing—positively nothing with *our* garden, for the help and maintenance of the nations around us. The bread we eat, the fruit we partake of, the liquors we drink, are derived exclusively from the produce of foreign countries. An indigenous grain of corn is never baked; an indigenous Grape is never pressed; an indigenous wool is never worn in this country. We partake of all the blessings derived from these processes more largely than most nations. Why should we not contribute to them in our turn? Is it high and noble and honourable, to allow our country to be declared a desert? It is too bad to be forced to confess that not a crumb has civilised Australia placed upon the table of the world—that her gold is her only treasure; and that her beautiful mountains and valleys have no other boon for the great family of man. I am convinced you will not longer allow this state of things to continue, but by your support, your constant attendance at our monthly meetings, and our annual exhibitions, make the society an institution worthy of the colony itself, and the great and enterprising nation it sprung from."

Such assertions from the mouth of a speaker addressing a great meeting of the gentry of Sydney have much astonished us. We had heard of the vineyard of a Busby and the Fig and Raisin grounds of a Mitchell; we had seen the glorious corn of Adelaide, and the Australian wools unsurpassable for quality; we had even drank the luscious wines of a MacArthur, with a firm belief that at Camden he had laid the foundations of a great wine trade with Asia, an opinion confirmed by the high position assigned to them in the Paris Exhibition. But we now see that we have been in a state of delusion in this matter, for Mr. Sylvester declares that there is no corn, no fruit, no wine in that land which is not borrowed from the stranger; not a grain of corn is baked, nor a Grape pressed, nor a wool-pack converted into clothing. All comes from abroad. We cannot but suspect such statements to be very highly coloured.

It is true that another speaker dwelt upon the same subject in a similar strain.

"In a country like this," said Mr. Shepherd, "where not one-tenth of our pastoral population has the means of procuring vegetable diet, and where even an Irishman considers himself a lucky fellow if he can get Potatoes for his Christmas dinner, and where flour has to be carted over hundreds of miles of bad roads, the necessity for some amelioration must be apparent. But what has been the attempt to procure plants or fruits suitable for these localities, where we constantly hear the remark—'Oh, it's no use attempting to garden or farm here; we have often tried, but the hot winds settle everything.' In the colony of New South Wales alone there are probably over 100 millions of acres of land, every 10 of which are, on an average, required to furnish food equal to the support of one ox, and yet no attempt has been made to find herbs or Grasses, either indigenous or exotic, which would withstand our hot winds and our periodical dry seasons, and which, by being spread over our vast plains and forests, would prevent those visitations from starving to death thousands and tens of thousands of our cattle. We, professing to be a civilised people, have occupied this vast "island continent" for upwards of half a century. Are we justified in keeping it when we have done so little to improve the condition of its original owners (in fact we have rendered their condition worse than it was before), or so little besides adding a few bales of wool, a few nuggets of gold, and a few casks of tallow? Let us bestir ourselves and remove this reproach from us, by inquiring into the capabilities of the thousand and one species of Grasses, and herbs, fruit, roots, and timbers. We owe this not only to ourselves, but to the world at large. For all that we cultivate we are indebted to foreign countries; can we find nothing to give in return? Unless we use our best exertions with a view to accomplish something like these results, we forfeit the only tenure by which we can justly hold the land, and the Russian serfs would have as much right to it as we have."

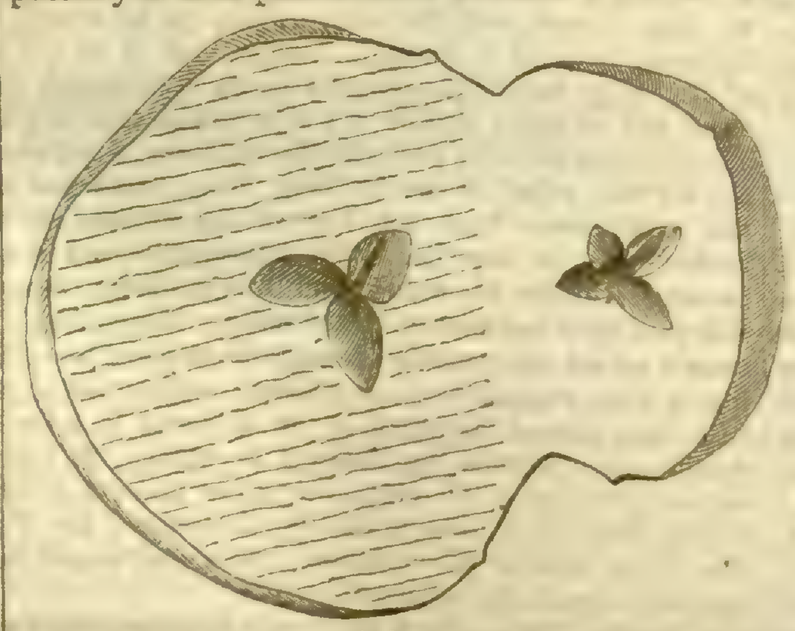
To such a confirmation of his predecessor's remarks we could add nothing but an expression of commiseration for the unhappy fate of the men whose gold is their sole possession, if we really believed the declamation used on this occasion. But we hope better things of the past as well as the future of New South Wales. In the meanwhile we have no doubt there is plenty of room for improvement; and we hope the new society will succeed in its endeavours to bring it about.

It will have been seen by a communication in our last Number (p. 678), that experimentalists are puzzled to understand how it is possible to make two embryos grow together by grafting. It seems to be considered impracticable so to unite the seeds of an Orange and a Lemon as to blend them into one single plant from the very beginning of their growth. Undoubtedly the operation is attended by some difficulty. Skill and a sound knowledge of the nature and structure of seeds are demanded of those who would perform it. For that reason, indeed, it was that we offered a valuable reward to the first who should succeed. Had it been a mere puzzle which could be solved by some lucky accident, we should have consigned it to the limbo of rebuses, charades, and similar puerilities. But knowledge and the power of applying it were demanded, and for this reason it appeared to be an excellent subject for experiment; certainly not merely for the sake of a trifacial Orange, which might be easily obtained in Alexandria.

We have already stated, in reply to an inquirer, that it would probably facilitate the operation if the surfaces to be united are pared down, just as is done when common grafts are united. But we are by no means sure that this is indispensable. On the contrary, many facts indicate that mere contact will produce the necessary union. No one can be ignorant that Cucumbers often come as twins; so do Nectarines; and we have now before us a pair of Coe's Golden Drop Plums completely united for about half their length. In all such cases no removal of the surface of the parts took place where they joined. They united in consequence of being firmly pressed together when very young, and in the early stage of growth while the tissues were young, tender, and forming fast.

A similar example is presented by the monstrous Apple of which a figure is annexed. In this instance two Apple flowers, accidentally brought into close

contact in the earliest state of the bud, being kept firmly in contact as they advanced in growth, ended by becoming half incorporated; notwithstanding which they finally became a twin fruit, consisting of two very unequal halves. In the smaller only four cells of the seed were formed, in the larger but three. In other respects the structure was complete; but each was furnished with a pair of elevated lines on the side next the line of junction, as shown in the figure. The nature of these lines is unknown to us. What is particularly deserving of attention here is that the hairy surface of the young Apple flower offered no obstacle to the junction in question; possibly it took place before the hairs had formed.



Such being the case it becomes a question whether in grafting seeds it is at all necessary that the embryos should themselves unite. It may be indeed conceived that the firm, solid, highly carbonized, and scarcely azotized tissue of which such an embryo as that of the Orange consists, would from its very nature be unlikely to form an adhesion; just indeed as grafters find that old wood is very difficult to operate upon. It is by the young tissue, when first growing, soft, tender, succulent and rich in azotized matter that junctions are effected. Is it not then highly probable that if embryos are to be grafted on each other the union must take place between the surfaces of the young radicle and the tender lengthening stem when first born? We think so. And upon that supposition it may be a question whether the operation now under discussion may not be most easily and certainly performed by allowing the embryos to enter upon the early stage of germination before they are finally tied together.

Suppose that a couple of Orange pips were allowed to grow just long enough to be handled, and then had, in each case, one of the cotyledons removed so that the nascent stems could be secured to each other with collodion, or a film of India-rubber, or some such elastic matter. We only throw this out as a suggestion.

VEGETABLE PATHOLOGY.—No. XCII.

373. Caries (*Decay*).—If decay is occasionally rapid in plants where the older tissues are not capable, in consequence of their thickened walls, of containing or conveying much fluid, though when their vitality is once depressed they may absorb into their substance a sufficient quantity of moisture to enable chemical decomposition to run its course, much more may we expect rapid destruction where every cell is gorged with juice, and the condition of the atmosphere is such as to prevent a sufficiently rapid interchange and evaporation of the fluid received from the roots. Accordingly, under certain circumstances, decay takes place in many of our succulent vegetables, independently in the first instance of any aggravating cause, and in many cases from mere constitutional weakness without any external agent. And in such cases it is generally observed that the first part which suffers is either some vessel or large duct, the walls of which lose their colour, exhibiting various shades of brown up to black, and are frequently studded with minutely granular matter, which consists of some combination of ulmic or humic acid, and which occasionally is so abundant as to block up the passage. It was once thought, indeed, that this matter was some condition of certain minute parasitic fungi; but this notion is at the present time completely laid aside. Such tissues when young are doubtless extremely active, but it is very doubtful whether, for the most part, after their full formation, they continue to carry fluid, or are more than mere air-ducts similar in function, so far as vegetable and animal structures admit of comparison, to the tracheæ of insects. Their vitality, which was at first extremely active, becomes by degrees depressed, and the walls are therefore subject to be affected by such causes as promote decomposition. In decaying vegetables, consequently, the first thing which constantly strikes the observer is the dark colour of such tissues, rendered frequently more remarkable by the contrast of the cells, still in a natural state, by which they are surrounded. If a favourable condition of outward circumstances takes place, the evil may proceed no further, especially if it is not sufficiently extensive to suppress to any great extent the proper performance of the functions of such tissues. If, however, no alleviation of outward conditions takes place, it is evident that in no way can the taint be more rapidly communicated than by these vessels, which thread every part of the plant. The presence, then, of such darkened ducts or vessels in tissues, though undoubtedly indicative that disease has existed, does not so certainly prove that rapid destruction will take place. For such diseased cavities may exist without ever affecting the neighbouring tissues, and in woody stems they may continue in the same condition for years. This circumstance is the more worthy of consideration because appearances of this kind have been brought forward in support of particular views as regards the Vine mildew, and if not properly estimated might lead to the destruction of many a tree which might be fruitful for generations, should the original cause of evil be removed. It was found, for instance, in Portugal that in the trees which had been much affected by mildew many of the ducts were completely gorged, or at least deeply stained with brown matter. Now this is no uncommon consequence of the presence of fungi on plants, depressing their vitality and acting consequently on those tissues most easily affected. It is notoriously the case in the diseased tubers of Potatoes, the roots of Turnips, and other like instances. It does not follow, however, that the decay will extend further, and we have seen sections of such Vines in which in spite of a few blackened ducts the whole of the surrounding tissues were beautifully clear, without the slightest discoloration. Doubtless if the disease should prove persistent, such stems may in the end become seriously affected, but so long as the appearance is confined to the ducts of the more internal rings there is no great danger. If, however, disease commences in such tissues while they are yet young and filled with fluid, and in the act of multiplication, or where they serve as reservoirs of nutritive matter as in certain leguminous plants, insomuch that every grain of starch or other granular matter, whether nitrogenous or otherwise, or even the oil-globules them-

selves, are impregnated with brown matter acting as a putrefactive ferment, the evil spreads so rapidly that every cell is involved, and no subsequent change of circumstances will materially check its progress. *M. J. B.*

MR. UNDERHILL ON STRAWBERRY GROWING.

My mode of cultivation is to fix on a piece of ground entirely free from shade; about the beginning of July, I commence preparing it by manuring it thoroughly, and if the soil be light I add some marl, as most Strawberries are fond of a stiff loamy soil, and it tends to throw them into bearing instead of leaf. When the ground is dug and the plants are ready tread the soil hard and well where they are to be planted. Choose runners with short roots, indeed, th se that have scarcely tasted the soil are preferable, as they more readily shoot into the ground, and there is nothing afterwards to check their progress. Though care should be taken to plant them a little below the surface, pressing the soil firmly to the roots, yet the heart must not be covered with earth; if the weather be not rainy they will require water, and if they could also be protected from the heat of the sun for a few days it would be all the better. The second, third, or fourth runners, or even runners from either of them, will bear fruit as well as the first runner, though many consider the latter as the only one that will bear. The great object is early planting, so as to get your plants well and deeply rooted before the frost sets in, otherwise the frost by raising the soil would raise the plants with it; then comes a thaw, the soil sinks and leaves the plants worse than freshly transplanted, nay almost out of the ground; again, by early planting you obtain the finest and largest fruit the first year, and the greatest crop the second. Then directly root up your plants, on no account keep them a third year, for after having gathered two good crops from your plants their strength and vigour must necessarily be exhausted, and no more fine fruit can be obtained from them; indeed for size and quality an annual cultivation is best.

Strawberry beds should always be kept entirely free from weeds, and the roots as distinct as when first planted out. In the autumn, when you have taken sufficient runners for your new plantations, clear the old roots of all the remaining runners together with the old straw which has been laid under the fruit, but the leaves of the plants are not to be taken off. When the beds are cleaned in the spring, some rotten manure should be spread over the surface from which great advantage will arise, as the rain will wash the goodness of the manure to the fibrous roots, or you may give some weak liquid manure. Guano is certainly one of the best, but this must be used sparingly; perhaps few persons will be found who will apply it with a sufficiently light hand. April is the best time for removing the old leaves off the plants, for if cleared earlier in the spring, a severe frost, which sometimes occurs in March, cuts off the tender shooting leaves, which otherwise would be sheltered and protected by them.

Strawberry beds must never be dug or forked amongst, for by doing so you destroy a number of fibrous roots, which the plant requires to mature fine fruit, and the soil is also so disturbed that in the fruiting season the hot sun more easily penetrates it, to the great injury of the fruit, for the roots should be kept cool. As a convincing and certain proof of the injury sustained by forking or digging amongst the plants, let me call the attention of my readers to what they must have often observed, though perhaps ignorant of the cause, that however well and abundantly their plants have blossomed in the spring, in the summer, to their surprise and disappointment, they have scarcely produced any fruit.

The method practised by many persons of putting the mowings of the Grass plots round their plants should be avoided as decidedly bad, for if rain should fall however slightly, or even with the natural dampness of the earth, the Grass will mould and taint the berry, and it is better to have the fruit damaged by grit than spoiled by the unpalatable flavour of mould; even the very name of the plant suggests the use of the straw. The proper distance for planting the best and largest sorts is 2 feet each way.

Frogs and toads should be encouraged, for they seek the beds for shade, and feed upon snails, blackbats, and other insects that so frequently disfigure and destroy the finest of the fruit. If a Strawberry grower will observe a frog or toad gape (without doing so himself), he will be convinced at once, by the formation of the reptile's mouth, that it was not formed by nature to injure or subsist on fruit, for more harmless and useful creatures do not exist in a garden. *From Mr. Underhill's Pamphlet on the Cultivation of the Strawberry.*

Home Correspondence.

Dioscorea Batatas.—I have sent a tuber of this Yam for your inspection. I have seen several statements in your columns respecting it, all tending to throw obstacles in the way of those who might next year try the root as an esculent. The paragraph by Mr. Cramb, (p. 517, No. 31), seems, however, to have more sound judgment in it than those of others who have written upon the subject this autumn. On the 3d of March I received one tuber the size of a small garden Pea, which I planted in a pot, and placed in a cold frame, which only had the glass put on in the evening. In this situation it remained until the 12th of May, when the young shoots began to make their appearance. I still kept it in the cold frame until the shoots were about an inch in length, and, as near as I can recollect, the time of planting out was the first week in June. I dug up about 1 square yard of ground on a south border, and mixed in a little rotten leaf-mould; the plant was protected with a hand-glass raised upon bricks for about three weeks; this was all the protection it has received. The frost last night blackened the tops, and I resolved to-day to see how far my misfortune with this tuber agreed with the statements I had already read, when to my astonishment I found that I had broken the root, which in length far surpassed my expectation: the top was about 1 yard in length, and was eagerly consumed by a bull. This statement I think will be sufficient to show that great progress has been made with very slight protection; and I have no doubt that next year I shall be able to present my employer (Lord Waterpark) with a dish of Dioscorea (raised from this one root) in the room of Potatoes. *George Povey, Doveridge Hall, Derby.* [The tuber which accompanied this statement weighed 2 ozs., and measured 13 inches in length and 3½ inches in circumference at the thickest part]——I have had more success than Mr. Salter (see p. 679) with this Yam. I got 30 small tubers of it in spring, the size of Marrowfat Peas, four of which I planted in 5-inch pots in the beginning of March, but without any bottom-heat. When they were a few inches high they were planted out in the open border the first week in May, and two days afterwards they were frosted down, for during all the time of their being out they never had the slightest protection. We have had severe frosts for some nights past, and I have lifted them to-day, when the sizes of the tubers were found to be as follows:—The 1st plant had a tuber 4½ inches long and 1 inch in diameter; the 2d ditto produced one 5¼ inches long and 1 inch in diameter; the 3d was 9 inches long and ⅞ of an inch in diameter; and the 4th was 11 inches long and 1 inch in diameter. Now I am of opinion that a Potato tuber the size of a Marrowfat Pea would not have yielded much more than these Dioscoreas, and looking at the above results I do not entirely despair of success with this plant, although my belief is that it will not succeed in very cold situations. Jedburgh, however, a midland town on the borders of Scotland is not a warm place. *Wm. Deans, Anna Nurseries, Jedburgh, N.B., Oct.* 17.

Orchard Houses.—I congratulate the Horticultural Society on the success of its orchard-house. Allow me, however, to ask the following questions:—1. How were the Plums as to quality? In my orchard-house I find them more or less acid, even when dead ripe. The only exception is Jefferson, which is always sweet both at stone and rind; but even this is inferior in flavour to the same variety out of doors. As to Greengages, I have never had a specimen so luscious as may often be gathered from a wall. 2. Were the Peach trees syringed when the fruit was ripening? This year I left off syringing at that period, in order to improve the flavour of the fruit, but was immediately eaten up with red spider, and compelled to recommence. From observation I am convinced that (*cæteris paribus*) the larger the house the greater the success. A large house has currents of air within itself; besides, in small lean-to houses, there is a sad deficiency of light, from the sides being boarded. It is only in the centre where plants really thrive. For the back, the best plant I find to be the Fig; the best sort the brown Turkey. If a few extra plants are kept in a dark place until the spring is somewhat advanced, then plunged in the open ground under a N. W. wall, (with a canvas covering till May), and brought into the orchard-house after the Figs there have fruited, a second crop may be had in succession from the same space, and the house made to do double duty; as to a second crop from the same plants, I have sometimes had a few, very late and worthless. Late Plums, which were flowered in the orchard-house, turned out and plunged, and replaced in the middle of September, ripen of course under more favourable circumstances than out of doors. I have now a tree of St. Martin's Quetche thus ripening. One great blessing of the orchard-house is that Peaches are not troubled with the green fly, though I cannot say so much for Strawberries. Ought purple Gage Plums to ripen perfectly on a standard near London, but on ground 200 feet above sea level? [Yes.] *S. B.* [No fruit could be of finer quality than that ripened in the Orchard House of the Horticultural Society. The Peach trees were syringed to the *last.*]

Lightning Conductors.—Your correspondent, "who is building a house by the sea," need not apprehend that his high tower will be more likely to be struck by lightning because a metallic weathercock is on the top of it. High buildings are more liable to be struck than those less elevated, and it is a wise precaution to place a continuous metallic path for the lightning from above the highest point of the building down some feet into the earth away from the foot of the tower. If the building lies at any time in the lightning's track it will be sure to follow the metal, and if it be large enough, will pass by it harmlessly to the earth. Excepting that metals afford the readiest passage to electricity—offering it least resistance in its course—it does not appear that they attract lightning so as to bring it where it would not otherwise be inclined to come. A copper wire of given size will convey a larger amount of electricity than one of iron of the like diameter; but if the size of the wire or rod be ample, one metal would form as good a conductor as another. *W.*

Columbia Plum.—At p. 661*c* your correspondent says of this Plum, "it is the worst we have proved, being coarse, and without flavour." In Mr. Rivers's catalogue of fruits I find the same Plum, reported to be "rich and sugary." As we look upon Mr. Rivers as an authority in these matters perhaps he will let us know whether this Columbia and the other American Plums have not turned out as well as was expected. It is not very pleasant to plant a fruit tree, and when it comes into bearing to find the fruit fit for nothing. *A. R.*

Cucumber Growing.—At p. 549 of your paper for August 26th, 1854, 82 very fine Cucumbers are stated to have been obtained from four plants of Evans's Conqueror. This may be very well; but from a last year's plant of Sutton's Berkshire Champion growing in a small two-light pit, 8 feet by 9 feet, the plant occupying but one light, I have cut from May 4 of this year 112 feet of fine fruit, and there are six growing on the plant at the present time that measure 11 feet 2 inches in length. The pit is heated by dung linings only. I cut two fruit the latter end of March from the same plant which measured upwards of 3 feet in length. *Thos. Pollington, Gardener to Wm. Hervey, Esq., Bradwell Grove.*

People's Park, Sunderland.—In your Number for Sept. 26, "J. S." criticises this park unfavourably. "Medicus," (Oct. 6,) comes to the rescue; and as I conceive "J. S." to be in the right, and he has not replied in your Number for last week, I may perhaps be allowed to offer my opinion in the matter. In the first place, it is not a park; the name park gives an idea of some extent, and of a carriage drive at least, but of neither of these can it boast; nor is it a garden. In June it contained one bed of Dahlias; it is in fact a piece of ground which was formerly an old quarry, laid out without taste or judgment; the rubbish heaps are rounded, smoothed, and grassed over to a nicety; the walks are carried along the lowest levels and intersect each other in all directions; beds of nondescript outline are formed here and there. They are similar in size to those generally occupied with bedding stuff, and are planted with Poplars at from 1 to 2 feet apart—such is the people's park at Sunderland. By the account of "Medicus," the inhabitants are, however, satisfied with it; be that as it may, I can only say that they deserve something better, if I may judge from a hasty visit which I paid it one beautiful evening in June, when I was delighted to see crowds of both young and old enjoying themselves so rationally in the pure air of that locality. I understand that 7000*l.* have been already collected for a proposed Crystal Palace; why not expend it on a park worthy of the name? This would be of more real benefit to the inhabitants than a useless and expensive toy. *Hortulanus.*

Stockwood Golden Hamburgh Grape.—I have sent you a small bunch of this Grape for your third opinion of its flavour, although it is now, as you will find, much past its best, while at the July exhibition it was hardly ripe enough. It was in fine condition in August last, but owing to being kept so long this hot autumn its juice has become considerably diminished, leaving the skin thicker than it should be; for when used in season it is a thin skinned variety. I have observed Mr. Reid's remarks in your last week's Number, page 678, and I would ask why does not the person spoken of by Mr. R. exhibit his Grape? I showed the first maiden bunch of mine at the October meeting of the Horticultural Society in 1853, when it was awarded a Certificate of Merit, and the Vice-Secretary spoke favourably of it at that time. Last year it was not shown at all; this season I have exhibited it three times—1st, at the Chiswick July Show, where a large Silver Medal was awarded it; 2d, at the meeting of the Pomological Society, on the 2d of September, when it was highly approved of by all present; and, 3d, at the Caledonian Horticultural Society's Show at Edinburgh, where it received a First Class Certificate, and a very flattering letter on its merits, signed Dr. Balfour. *M. Busby, Stockwood Park, Luton, Beds.* [The Grapes were rich dull cane colour; oval, fleshy, and although not having either a Muscat or Frontignan flavour, deserved all that can have been said in favour of their quality.]

Foreign Correspondence.

Naples, Sept. 6, 1855.—I am now staying in the midst of a wine country, and am therefore in a position to speak of the prospects of the year's vintage, at least in the neighbourhood of Naples. Alas! nothing can be more discouraging; for, instead of luxuriant bunches of luscious grapes, we have nothing around us but foliage which crumbles in the hand, and beads of ashes. It is difficult for a people to whom wine is a luxury to understand the full extent of the distress which is entailed upon this country by the failure of the grapes; but what the Potato disease was to the Irish may the Vine disease be regarded in reference to the Neapolitans. The produce was their meat and drink; their medicine in illness and their comfort in sorrow. With a bunch of grapes and a slice of bread a man formerly made his "merendia," and with a caraffa of wine would undergo as long a fast as your Yankee with a "chew of tobacco." All this, however, is now at an end, and the masses are reduced to lemonades, or to bad spirit—to acid stomachs and tempers, and headaches. As I have paid particular attention to the malady and its remedies, and watched their progress and operation up to the present moment, my observations may be of interest to your readers. I send them, therefore, for what they are worth. Early in the spring our hopes of a good vintage were raised very high — every one was to have "a pocket-full of money and a cellar-full of wine." The trees looked healthier and were throwing out long vigorous branches, so that some almost

thought it necessary to look about them and make ready their casks. About the end of May or June, however, matters put on a different face, and people thought that they had been too sanguine. At all events a half crop might be expected. The fact is that the hot sirocco winds which prevailed about that time began to powder the leaves, which rolled up as if shrinking from the deadly touch, whilst the branches showed an increase of the plague spot. Now was the season of remedies, and the "Giornale delle Due Sicilie," so silent on other matters, was full of quotations from foreign journals recording certain and only cures. Some said that the Vine might be saved by laying it on the ground instead of supporting it by poles; others that the Grapes, as soon as the flowering was over, should be washed with a mixture of sulphur, earth, and water, or with glue much diluted, or that they should be powdered with flowers of sulphur, whilst many contented themselves with the priestly benediction which had been given at Easter. I have tried or seen each one of these remedies, and am therefore in a position to give you something like a correct opinion of the results. They proceeded almost all, as you will perceive, on the supposition that the cause of the malady was external and atmospherical. Especially was this the case in the glue remedy, which was the first I tried. For some time my Grapes looked green and appeared to grow; encased as they were, my hope was that the atmospherical deposit in whatever it consisted could no longer touch the Grape, but as the season advanced the fruit hardened, one side became tainted, and then it burst, and it was a question of time when it would become like a lump of charcoal. Another remedy I tried was that of sulphur, earth, and water, in a mixture of which I dipped every bunch of Grapes; it had been tried in Lombardy and was attended with immense success; not so however in this neighbourhood, though I must confess that whether the result of accident or not, the Vines which were treated in this way were not so utterly ruined as the others. In every bunch there is here and there one of a natural colour, though I do not consider the result sufficiently decided to found any assertion upon. Many are most sanguine as to the advantages of laying the Vines down upon the ground, which is rather a precaution than a remedy, and it cannot be denied that those trees have for a much longer time resisted the malady. Their fruit had kept its colour till the season was far advanced, and had increased in size, though even these had at length succumbed to the universal enemy, and in our knowledge either of the disease or its remedies we are now pretty nearly where we were at this time last year. "*Le vuol' la mano di Dio,*" says the inert Italian; a sentiment which every one is ready to adopt though in another sense, for man seems to know little or nothing on the subject. We are now in the middle of what, from habit, we call our vintage, and a sad sight do the vineyards present. Large pendant bunches all split down the middle, and looking as ashy and blank as Dead Sea fruit. Still they are plucked and pressed, or rather washed, in order to give to water the flavour of the Grape. It is better than nothing—it awakens a reminiscence of the past. In one word, the ruin will be better understood when I say that in a vineyard which four years since produced 10 pipes of wine, this year only 2 barrels are made, and my fortune is attributed to the special interposition of the Madonna della grazie. The consequence is misery to all classes—the peasantry have little work, or what work they have is not paid for; the "colono" cannot make up his rent, and his produce is seized, or his furniture, in part payment; the proprietor in many cases is reduced to beggary, and compelled to sell or mortgage his land to pay the land-tax—this is exacted to the uttermost farthing, blood must be drawn from the very flints; but the overgrown army must be supported, and the legions of *employés* and spies must be paid, though at the expense of suffering thousands. *H. W.*

Sablons, near Moret sur Loing, Seine et Marne, Oct. 12.—Possessing as an amateur grower upwards of 140 sorts of Strawberries I was naturally desirous to try the new "Délices d'Automne." After having in vain endeavoured to obtain plants in Belgium, the nurserymen there declaring that their stock had been disposed of in England, I succeeded in procuring for myself in November, through the kindness of Messrs. Henderson, of St. John's Wood, three plants, which were immediately planted in pots and taken great care of during winter. In April last Mr. Makoy, of Liége, sent me a dozen more and I must confess remarkably healthy runners, with bold crowns, promising consequently a fair crop. Part of them were planted in the open ground and part in pots under glass; but, alas, *not one* of either of the three plants received from London, or of the 12 received from Liége, has produced fruit! One plant in the open ground showed two or three flowers, which, however, did not set. Disappointed, however, as I was, I did not lose courage, but continued my experiments on the plants kept under glass, and which I had a certain right to expect would compensate me in autumn, the more so as they were not allowed to produce a single runner. They had previously been shaken out of their pots and largely supplied with manure-water, but I am sorry to say that they do not give the slightest sign of flowers, whilst several other new sorts—namely, Underhill's beautiful Sir Harry, and Ward's Omar Pacha, yielded a good second crop in September, in spite of their having a considerable number of runners still adherent to them. I may add, too, that neither the plants of Sir Harry nor those of Omar Pacha were by far so strong as the Délices d'Automne, and that the two first named had produced a splendid crop in spring. I now leave it to the public to judge of my surprise in noticing in Messrs. Makoy's autumnal catalogue which I received a short time ago, the Délices d'Automne continued to be advertised as "Perpétuel des Alpes!" *Ferd. Gloede.*

Societies.

Caledonian Horticultural, *Sept.* 8.—In the Fruit competition, the following premiums were awarded, viz.:—Silver Medal, to Mr. Campbell, gr. to J. Johnston, Esq., for Catherine and Royal George Peaches; 2d, Mr. Addison, Gosford, for Noblesse and Red Magdalen. Nectarines: 1st, Mr. Halliday, gr., Scone Palace, with Pitmaston, Orange, and Duc de Tello. Muscat Grapes: 1st, Mr. Stewart, gr., Dalhousie; 2d, Mr. Reid, Ballindean; and 3d, Mr. Strachan, Jardine Hall. Black Hamburgh Grapes: 1st, Mr. Wilson, Leith Walk; 2d, Mr. Blair, Mavisbank; and 3d, Mr. Addison. Frontignan Grapes: 1st, Mr. Lockhart, Arniston, for Grizzly; and 2d, Mr. Addison, for White Frontignan. Highest flavoured Bunch of Grapes: 1st, Mr. Blair, with Chasselas Musquè; 2d, Mr. Johnston, Amisfield, with the same variety. Pine Apple: 1st, Mr. Halliday, Scone Palace, for a Lemon Queen, weighing 5 lbs. and a quarter. Apricots: 1st, Mr. Addison, with Moorpark; 2d, Mr. Edwards, Balbirnie. Plums: 1st, Mr. Edwards, with Goliath, Victoria, and Jefferson; 2d, Mr. Mackie, with Victoria. Highest flavoured Melon: 1st, Mr. Smith, gr. to W. L. Paterson, Esq., with Beechwood; 2d, Mr. Mossman, Thurston, with Bromham Hall Green fleshed. Jargonelle Pears: 1st, Mr. Mitchell, Ravelston; 2d, Mr. Lockhart, Arniston. Gooseberries: 1st, Mr. Smith, Cunnoquhie, with Red Warrington; 2d, Mr. Lockhart, with Hedgehog. The Silver Medal offered by Messrs. P. Lawson & Son, for the 12 best specimens of Lawson's Golden Gage Plum, was gained by Mr. Allison, of Pittencrieff, Dunfermline. Two stands of Hollyhock blooms, placed in competition for the prize of one guinea, offered by Messrs. Downie & Laird, were determined to be equal in merit. The prize was therefore equally divided between Mr. Fowlis, of Woodhouselee, and Mr. Cossar, Kingsmeadows. Mr. Fowlis's stand contained Amandine, Miss Ashley, Pourpre de Tyre, Hon. Mrs. Ashley, Ajax, Isaac Walton, Joan of Arc, Beauty of Beechwood, Felicia, Unique, Criterion, Walden Gem, William Hume, Princess Alice, Rosy Circle, Mont Blanc, Souvenir, and Eugenie. Mr. Cossar had Marquis of Tweeddale, Eugénie, Agricola, Lady Dalrymple, Lady Charlotte Neville, Pourpre de Tyre, Solfaterre, Eva, White Globe, Omer Pasha, Beauty of Tweeddale, Sir David Wedderburn, Lizzy, Prince of Orange, Rosy Circle, Fairy Queen, Shaded Model, and Lord Jocelyn. The prize of one guinea, offered by Messrs. J. Dickson & Sons, for the best 18 Roses, brought two competitors, and was gained by Mr. Pender, Moredun, with the following kinds, viz.:—Camellia, Panaché, Duchess of Sutherland, Phœnix, La Meldose, Charles Raybaud, Safranot, Dr. Arnal, Julia Menout, Old Cabbage, Vicomtesse Decazes, Alexandrine Bechmetoff, Pierre de St. Cyr, La Carnosa, Henry Plantier, Géant des Batailles, Vulcan, Faustine, and Fulgorie. The prize of one guinea, offered by Messrs. Dickson & Co. for the best three Japan Lilies, was awarded to Mr. Lockhart, for Lilium lancifolium album and punctatum. The prize of two guineas, offered by Messrs. P. Lawson & Son to gardeners for the best collection of dissections of the cereal grains, was awarded to Mr. Anderson, Oxenford Castle. In addition to articles for competition, a number of productions were placed on the tables for exhibition only. Dr. Paterson, Leith, sent fine plants of Cissus discolor; J. Renny, jun., Esq., a flowering plant of Yucca gloriosa; Mrs. Fraser, a Myrtle-leaved Orange, with numerous ripe fruit; Asters and Marigolds were shown by Mr. Halley, Mr. Edmond, and Mr. Gemmell, Mr. Melville, Dalmeny Park, sent bunches of the Champion Black Hamburgh Grape; Mr. Mossman, Thurston, a Melon raised from seeds found among the late Dr. Mackenzie's papers received from the Crimea, of small size but good quality; Mr. Thomson, Elton Pine Strawberries. From the nurseries of Messrs. J. Dickson & Sons, were Dahlias, Hollyhocks, and Asters; from Mr. Handasyde, Dahlias; from Mr. Stark, Asters, Marigolds, &c.; from Mr. Tough, a large Hydrangea, bearing 33 heads of flowers; from Mr. Dickson a seedling Dahlia; from Messrs. Sang & Son, Kirkaldy, Asters; from Mr. Chater, Saffron Walden, blooms of seedling Hollyhocks—Empress, Criterion, Fearless, Alpha, and Superb. From the Society's own collection were several fruit trees in pots, particularly a Morello Cherry, bearing 15 dozen well-ripened fruit, and a Pear tree with 43 good sized Pears on it, grown in an orchard house.

Notices of Books.

The Phasis of Matter. By T. L. Kemp, M.D. 2 vols. small 8vo. Longmans; with a geological map and numerous woodcuts.

Dr. Kemp is of opinion that our introductions to chemistry, however admirable they may be, are not what is required by those who merely study the science as a part of general education; and that they are better suited to professional men than to those who like himself only attend to chemistry in common with physiology and other sciences. To use his own words, "chemistry has now become of such importance, that every educated man, to be such, must have a general knowledge of it; and there are a great number of professions and trades, of which medicine, farming, calico printing, or brewing may be instanced at random, which can only be satisfactorily conducted, and be reasonably expected to be improved, by means of chemistry. To supply this numerous class with a manual of chemistry, having a moderate bulk and price, has been my object in writing the following sheets." He is also of opinion that the reason that so very many students of chemistry, certainly the majority, break down in despair long ere they have mastered the subject sufficiently, is partly owing to its being treated so much as abstract matter by itself, and so little in common with the general philosophy of matter.

The volumes before us are intended to illustrate these views, and to offer the reader a system of chemistry adapted to the wants of the general scholar and man of the world. The author commences with the chemistry of the laboratory in its relation to inorganic matter; and thence proceeds to that of the crust of the earth or of geology, treating among other things of British geological formations, which are illustrated by a good map. The next subject is the chemistry of organic matter, which is logically followed by that of life, or of animal and vegetable physiology; and the chemistry of the arts closes the circle.

As far as we can judge, the author has executed his task conscientiously and well. Although it can only be regarded as ancillary to more elaborate treatises, it will be doubtless found extremely useful with that limitation—perhaps the more useful because of it. The style is perspicuous, and considerable tact is shown in distinguishing where to enter into details, and where to cut them short.

As an example of the manner in which the author treats his subject, we may select a part of his remarks upon the sap of plants:—

"The constitution and reaction of the sap of plants are subjects regarding which there is great difficulty and obscurity. Still we are now able to have clearer ideas regarding them than was possible a few years ago. Perhaps the best plan of obtaining a notion regarding them is to consider what takes place in a particular plant, say an Apple tree; and we will suppose that this Apple tree is in the midst of summer, and that (although practically this is absurd) it has flowers, unripe Apples, and ripe Apples upon it.

"The greater part of the wood, bark, and vessels of the Apple tree is composed of cellulose (carbon and water), some albuminous principles (nitrogen, carbon, oxygen, hydrogen, potassa, soda, phosphorus, &c.), and a little oil (carbon, oxygen, hydrogen); the bark also contains chlorophyll (a non-nitrogenous matter); the flowers contain cellulose and wax; the partially ripened fruits malic acid, starch or dextrine, and some albuminous matter; and the ripened fruits, besides the acid and albumen, possess sugar; lastly, upon a crack in the bark there will likely be a little gum.

"We will further suppose that for the last 20 hours the nutritive functions of the plant have been exercised with great activity, that the tree has increased in size, that new cellulose and albuminous matter have been deposited in its structure, new chlorophyll in its bark, that new flowers have been produced, that some of the flowers have passed into unripe fruit, and that some unripe fruits have become sweet, and also that a little more gum has been secreted. All this implies the addition to the tree of a great deal of carbon, nitrogen, oxygen, hydrogen, potassa, soda, phosphorus, &c., all of which have been obtained from the sap. We will last of all suppose (although this is never literally the case) that during this 20 hours the sap has received no additions to it, and has therefore become much diminished in quantity.

"The manner in which the Apple tree would proceed is pretty nearly as follows:—The extremities of the rootlets have no epidermis, and can absorb the soluble parts of the soil; but, in all probability, the manner in which they effect this is by secreting cells, which take up the matter of the soil; and it is likely that fresh cells are developed from germs, until the one most in advance comes into contact with the particular elements which the sap requires, in order to restore it to its perfect state. At least this appears to be the only manner in which the selecting power of the rootlets (which power certainly exists) can be explained. The cells having acquired what is needed, are taken into the sap at the extremity of the root.

"The substances thus taken into the sap, along with water, are probably apocrenate of ammonia, nitrate of ammonia, carbonic acid, the product of the conversion of humic acid into apocrenic, and (but in very small quantities) silicates, sulphates, phosphates of potassa, soda, magnesia, lime, and oxide of iron, and chlorides of potassium, sodium, and magnesium.

"Whenever these salts, however, enter the sap, the chemical affinities fall into utter abeyance, and new compounds are formed. The apocrenic acid (and the carbonic, along with some water) furnishes dextrine, which is the base of sap, and the nitric acid and the ammonia form albuminous compounds, to which the potassa, sulphur, &c., attach themselves. Of the manner in which the elements of the soil so arrange themselves as to form the compounds of the sap, an explanation cannot, perhaps, in the present state of our existing knowledge, be given. It may, however, be said, that it is a vital one, and not one of chemistry. Chemical affinity is that tendency to motions of different elements when placed near together, and when not under the influence

of life. Vital affinity entirely supersedes this affinity, and produces new motions of her own, one of the results of which is new products and new compounds.

"The sap of our supposititious Apple tree thus recruited begins to ascend the trunk until it reaches the leaves; it passes along the vessels, probably also from cell to cell, but most abundantly through the alburnum. A portion of its water is exhaled through the bark, but when it arrives at the leaves a still greater quantity of water is cast off, and also at the surface of the Apples. Another very important change takes place at the leaves, and a large quantity of carbonic acid is taken into the sap from the atmosphere, and oxygen is evolved. This last phenomenon will be considered in Chap. III., on Respiration. The sap, now in a state of full perfection, then flows to all parts of the tree; to the bulk of it the dextrine supplies its cellulose, and its albumen the albuminous principles. The dextrine yields chlorophyll to the leaf, wax to the flower, malic acid to the immature Apple, sugar and albumen to the ripe ones, and at a crack in the bark the dextrine is converted into gum. The probable manner in which these transformations take place will fall to be considered in the Chapter on Nutrition. Lastly, the exhausted sap descends the tree to be recruited by fresh supplies at the root.

"That the above account of the course of the sap and of its supplies is the correct one is certain. That apocrenate of ammonia and saline substances are taken from the soil by vegetables in ordinary cropping, is now by British chemists nearly unanimously believed. The farmer is continually adding them to his soil, and yet his soil does not increase in quantity. Nay, sometimes when he manages unskilfully and overcrops, he abstracts these so rapidly, that there is not enough of them left to supply the sap of a full crop, and his land becomes 'out of heart.' Then while we see that the sap acquires the apocrenate of ammonia, &c., from the soil, we see the vegetable increase in cellulose, albumen, sugar, acids, &c. (all substances that contain the same elements as the apocrenate of ammonia and the like); although we cannot understand how it comes about, that in the organism they are arranged differently; and, further, there is no other source from which the plants can derive these principles that form their bulk save from those indicated. Then, that the leaves take carbonic acid from the atmosphere, give out oxygen, and also water, and that the sap ascends and descends in the manner described, are all easily demonstrated by actual experiments, all of which will be found described at length in books upon botany.

"In order that the sap may circulate in plants, both heat and light in considerable intensity must be present. When both these influences are acting strongly, as in spring and summer, the circulation of the sap is performed with great force and vigour. If, for example, a Vine (in spring) be cut across, and a piece of bladder tied over the stump, the bladder soon becomes tightly distended by the ascending sap, and ultimately bursts.

"The causes of the flow of the sap belong to physiology, and in a work of this kind can only be hinted at. Organic structures have a peculiar power of contractility upon being touched by various agents or stimulants. Thus, as we shall immediately see, the hollow muscle called the heart of the higher animals when blood enters it contracts, and by force of that contraction propels the blood. Nothing like a heart exists in any vegetable; but in the highest or vascular plants, such as our Apple tree, the vessels *may* contract upon their contents and assist in propelling the sap. But their influence in this manner is probably extremely slight, and the movements of the sap in the higher plants is nearly, as in the lower it is entirely, dependent upon vital affinities and attractions that exist between the sap and the various structures of the plant through which it flows. Just as the apocrenate of ammonia, whenever it enters the sap, loses its chemical properties and becomes converted into dextrine and albumen, so this dextrine and albumen is not obedient to the ordinary laws of gravitation, and flows in directions altogether different from those which it would do were it mere dead matter."

In a similar manner the circulation of the blood in animals is treated of.

We content ourselves with one more extract on the subject of Brewing:—

"This process essentially consists in converting the starch of malt into sugar, and then in converting this sugar, and also the sugar that already exists in malt, into alcohol. The latter of these changes is effected by the catalytic action of modified gluten or yeast, as it is commonly called; and the former by the diastase. In practice it is necessary not to apply too high a temperature, for fear of converting the starch into dextrine.

"The first step in the process is to get a solution of sugar. To do this the malt is ground, and successive quantities of water of a temperature of from 157° to 160° are poured upon it; and the lower temperatures ought to be begun with first. By so acting the sugar is obtained in solution, and then the starch and diastase are procured; and the reason that a higher temperature than 160° is to be avoided, is the fear of converting the starch not into sugar, but into dextrine.

"These processes of infusing the malts are technically called mashings, and various mechanical contrivances are arranged in the mash tub which do not here concern us.

"When as much sugar as possible has been obtained by the mashing, the saccharine solution, or wort as it is called, is boiled for a considerable time; three purposes being served by the boiling; 1. The solution is concentrated, a quantity of water being driven off in vapour; 2. A great portion of the albuminous matter is coagulated, and hence the chance of the beer afterwards running on to the acetous fermentation diminished; and, 3. What little starch there is left is converted into dextrine, and a purer solution of sugar obtained.

"For a long time past it has been usual to add Hops during this boiling process. The common opinion is that they prevent the beer from running on into the acetous fermentation; but this is probably quite without foundation, for beer was made in the country which kept well enough hundreds of years before Hops were introduced. The real action of the Hops is probably to communicate a bitter and aromatic flavour.

"It is found in practice that the best beer is made when the time that elapses between the boiling and the addition of the yeast to excite fermentation is least. The reason of this probably is, that when the period is long, some of the saccharine and albuminous proximate principles begin to react upon one another. The cooling is generally effected by means of evaporation, and for this purpose the boiled wort is spread out into shallow coolers, so as to expose as large a surface as possible to the air. As March and October are the two months during which in general evaporation goes on more rapidly than even in colder weather, March and October-made beer have long been famous.

"The reason that the wort must be cooled before the yeast that is intended to act catalytically is added, is that yeast is destroyed by a temperature much above 85°. A temperature of about 60° seems in general to be preferred. The yeast is then mixed with a quantity of wort, and this mixture next carefully stirred among the whole wort. The structure of yeast is seen in *fig.* 140. It consists of little, apparently vegetable, cells filled with albuminous matter taken from previous malt, and which in the process of fermentation throw out new cells that fill themselves with albuminous matter contained in the present malt, and at the same time catalytically resolve the sugar into alcohol and carbonic acid, the latter of which passes off as gas.

"The fermentation lasts for some days. The greater quantity of the newly formed yeast rises to the surface, and has a very light appearance, owing to its being permeated with globules of carbonic acid gas. Another portion, however, falls to the bottom of the vessel in which the process is conducted. The fermentation is known to be finished by testing the specific gravity of the fluid, and on the small scale by observing that carbonic acid is no longer given off. When this is the case, the yeast is skimmed off, the beer removed from the bottom yeast, and any albuminous matter that may still remain among the beer removed by means of isinglass. The beer is then ready to be barrelled.

"It is obvious that any saccharine matter, or any starchy, if diastase be present, is capable of being converted into beer, as sugar, Potatoes, raw grain, or a mixture of any such with malt.

"Wine-making in no respects differs in principle from beer-making. The sugar is contained in the ripe juice of the grape, and the ferment in the gluten of the skin. The ferment of Apple also in cider-making is the albuminous principles contained in the Apple.

Garden Memoranda.

Mr. Turner's Royal Nursery, Slough.—Since we last visited this establishment considerable improvements have been effected. Three new houses are now in course of erection, each of which is 49 feet in length, and 11 feet in width. These are for the accommodation of soft-wooded plants, for which they appear to be admirably adapted, being low, well ventilated at the top, and with walks up the centre. One boiler placed at the end of the centre house is to heat the three. Two other houses have also been considerably lengthened and several new ranges of pits and frames erected. In forming new frames Mr. Turner takes great care to secure a dry bottom for them, which is so essential to the well doing of plants in winter. In constructing them the soil is excavated to the depth of 15 or 18 inches, not only within the walls, but to a distance of 2 or 3 feet beyond them, and this space is filled up with coarse gravel, at the same time taking care that the bed of the frame is still above the level of the surrounding ground. This is a precaution that cannot be too strongly insisted on, as more plants are killed in winter from the effects of damp than from frost, and it is surprising how great an amount of frost many plants will endure that are supposed to be somewhat tender when they are kept dry and free from damp.

We observed that in one instance a branch pipe (with stop-cock) from the boiler of one of the houses also heated a range of frames in which Cinerarias and other plants are here wintered and grown in that manner which otherwise would require the temperature of a greenhouse. Three ranges of frames, consisting of 96 lights, are now occupied with Carnations and Picotees in small pots, Mr. Turner being a most extensive grower of these plants, having bloomed this season about 2000 pots of them. Pelargoniums are also largely cultivated here, seven houses being devoted to their growth; the specimen house is now filled with fine plants in their blooming pots. Pelargoniums, both young plants for sale and specimens, are encouraged to make as much young wood as possible early in autumn, in order that the plants may ripen it early in spring instead of having to make it then, and by this means an early and vigorous bloom is insured. Not only in the Pelargonium houses, but in all the others we noticed that spacious tanks were constructed underneath the stages, into which all the rain-water falling on the roofs is conveyed by means of gutters and pipes, so that during winter a constant supply of soft water is always at hand, and that too of a temperature nearly similar to that of the house itself. The houses throughout are in excellent condition, most of the glass being quite new, three houses having been reglazed this summer, as well as several ranges of frames, a fact which shows the importance attached to good glass in an establishment like this, where first-class cultivation is the object aimed at. In addition to the collections of large flowered and fancy varieties of Pelargonium, variegated kinds are largely grown in this nursery, and among them we particularly noticed a new variety named Alma, which may be regarded as a considerable improvement on Flower of the Day, having better foliage and bright scarlet flowers. Shrubby Calceolarias are also grown here, and among them a row of Purity was in full bloom; as a bedding variety this is doubtless one of the best, and plants struck during the previous summer are evidently the most desirable for this purpose; in some cases it would be better, however, to plunge the plants in their pots, so as to prevent an exuberance of growth, and thus ensure an earlier bloom. Mr. Turner intends cultivating this class of plants somewhat largely for conservatory decoration, as he considers them more ornamental than the herbaceous varieties, and they remain longer in bloom. Chrysanthemums, which are grown here in pots as well as in the open ground, will soon be in full flower. Cinerarias have just received a shift, and are in vigorous health. The latter, as we have already observed, are wintered in dry frames, heated by hot-water pipes, led along just inside their front walls.

Of Verbenas we observed some still in good condition. Wonderful, a rich plum coloured variety, with a large white centre, was very fine, as was also Tyrian Prince, which appears to be the best purple for bedding. Loveliness, a bright rosy pink kind, is likewise an excellent bedding variety, and Blue Bonnet is the best of its colour for beds we have yet seen. Glory of France has handsome flowers, which are also remarkable for fine shape.

Dahlias were past their best, the heavy rains and cold nights we have lately had having greatly impaired their beauty. Among seedling varieties we noticed Miss Burdett Coutts, a useful shaded buff and violet flower; Lollipop, pale buff; Bessie and Yellow Beauty, two fine varieties of different shades of colour; and Grand Sultan and Tyrian Prince, two good and dissimilar dark kinds.

Pinks, we need scarcely say, are grown here in great quantities, and the plants in the blooming beds are very strong. The beds are elevated fully 9 inches above the paths, so as to avoid a superabundance of moisture in winter. This plan, we observed, is also practised in the case of Pansy beds, and it is doubtless one of great utility, tending, as it must do, to prevent the plants from damping off.

It may be worthy of mention that in one of the new houses already adverted to the side shelves were formed of cross bars of wood covered with slates, over which was placed a layer of cement and coarse sand. On this again was laid another layer of Portland cement. Shelves constructed in this manner have been found to be not only very durable, but to add greatly to the neat appearance of the house. The pathways are also to be formed of Portland cement.

FLORICULTURE.

National Floricultural Society.—With the meeting of October 4th the season, as far as florists' flowers are concerned, may be said to have virtually closed, as few more seedlings may now be expected to be exhibited this year. The success which has attended the society's efforts was perhaps most apparent at the meeting of Sept. 20th, when no less than 39 varieties of seedling Dahlias were exhibited, from three to nine blooms of each variety being staged, but it is only fair to state that the whole of the meetings during the season have been very satisfactory. On the 20th Sept., cut specimens of variegated Geraniums were exhibited by Mr. Kinghorn; of these the best was General Pelissier, a variety in the way of Commander-in-Chief, but very much better, and as a bedding plant, a valuable acquisition. Of the following seedling Dahlias, it was decided that they maintained the character previously given to them when they obtained certificates, viz.:—Enchantress (Alexander) a striped fancy variety; Bessie, a full-sized yellow: Lollipop, a very constant and fine fawn-coloured variety; Miss Burdett Coutts, shaded salmon, and very constant; Mrs. Wheeler, a first-rate crimson scarlet; and Reginald, primrose, slightly tipped with purple. A First Class Certificate was awarded to Mr. Keynes for Orange Perfection, a shaded orange flower of beautiful outline and smooth petal. Mr. Turner received a Certificate of Merit for Duchess of Wellington, soft creamy French white, very double, full, and of good outline and close high centre. This is a novel flower, and a great acquisition. Six blooms each were shown of the above two flowers. Mr. Turner also received a Certificate of Merit for Grand Sultan, dark maroon, approaching to black, a desirable kind. Mr. Rawlings received a Certificate of Merit for Chameleon, yellow, occasionally tinged on the edges of the petals, and a full-sized flower. Mr. Wheeler, of Warminster, sent Eclipse, a medium-sized dark purple flower, having a close high centre; and Lady Raglan, a buff kind, but as shown, too much open in the petal. Colonel Eyres, of Thurlston, Surrey, sent three blooms of a light purple, a very round high-centred flower, with small stout petals, but rather small. The 1st prize for 12 Dahlias was awarded to Mr. Turner, for Robert Bruce, Yellow Beauty, Pre-eminent, Empress, Lord Bath, Sir C. Napier, Rachel Rawlings, Espartero, Lollipop, Bessie, Miss Spears, and Annie; 2d, Mr. Keynes, with Pre-eminent, Duchess of Kent, Lord Bath, Goldsmith, Duetche, Rachel Rawlings, Robert Bruce, Essex Triumph, Salvator Rosa, Triumphant, Annie, and Ruby Queen. Both these stands consisted of flowers fine in quality. Six Fancy Dahlias: 1st, Mr. Turner, with Empereur de Maroc, Triomphe de Roubaix, Gloire de Kain, Admiration, Flora M'Ivor, and Baron Alderson; 2d, Mr. Keynes, with Baron Alderson, Triomphe de Roubaix, Gloire de Kain, Elizabeth, Nancy, and Pigeon; 3d, Mr. Robinson. A stand of six splendid blooms

of that very fine Dahlia Pre-eminent was exhibited by the raiser, the Rev. C. Fellowes, of Shotesham Rectory, near Norwich.

Oct. 4th.—Mr. Dean in the chair. Messrs. Veitch & Son received a Certificate of Merit for a new Fuchsia, named Pendulina. It looked as if it would make a good late blooming conservatory kind, and as it flowers well in a dwarf state, it will form a pretty pot plant. It has long slender flowers, of a peculiar rose shade. A Certificate was also awarded to Mr. Turner for Dahlia Col. Windham, deep rose, with a small bronze tip. It is a full deep flower. The same award was also made to Turner's Tyrian Prince. The same exhibitor likewise sent several blooms each of Seedling Dahlias shown on former occasions which have taken certificates, namely, Bessie, Lollipop, Miss Burdett Coutts, Duchess of Wellington, Yellow Beauty, Shaded Model, and Grand Sultan. Mr. Shrimpton, of Thame, Oxon, sent a light Verbena, of large size, but not otherwise remarkable.

Dahlia and Hollyhock Exhibition at Edinburgh.—In our report of this show last week it was omitted to be stated that Mr. Bircham, of Hedenham, obtained Certificates of Merit for seedling Hollyhocks Miss Nightingale, a pale lemon variety, and Mrs. Oakes, a light buff kind, which produces a large and close spike. Mr. Turner, of Slough, also sent from three to twelve blooms each of six fine seedling Dahlias, viz.:—Bessie, Lollipop, Tyrian Prince, and Yellow Beauty, to all of which First Class Certificates were given; and a Certificate of Merit was awarded t Lord Palmerston. Mr. Turner also exhibited blooms of Miss Burdett Coutts, a useful and distinct flower. A Certificate of Merit was awarded to a seedling Hollyhock named Rubens, exhibited by Mr. Laing, of Dysart.

Miscellaneous.

The Cherry.—We fully concur with Prof. Targioni in his conviction that the wild Cherry (Prunus cerasus), common in the woods of Italy and other parts of Europe and Asia, is the mother plant of all the kinds of that fruit now in cultivation, in opposition to many modern botanists, who follow De Candolle in distinguishing four species, Cerasus avium, C. duracina, C. Juliana, and C. caproniana, or even go far beyond him in their multiplication. The species is also evidently indigenous, notwithstanding Pliny's statement that there were no Cherries in Italy before the victory obtained over Mithridates by Lucullus, who was the first to bring Cherries to Rome in the year of Rome 680, and that within 120 years after that, they were spread over the empire as far as Britain. This statement gave rise to the tale that Cherries originally came from Cerasunte, now Zefano, and were therefore called Cerasus by the Latins. Lucullus may, however, have first imported the cultivated varieties, which the Romans may not have recognised as identical with the wild Cherry. In Greece, Cherries were certainly known long before his time, for Diphilus Siphnius, according to Athenæus, mentions them under the Government of Lysimachus, one of the Dukes of Alexander the Great. Among he numerous varieties of Cherries of modern days, Pliny records only eight, of which the Juliana, according to Matthioli and Micheli, is the acquaiola of modern Italy, and the Ceciliana, according to Micheli and Gallesio, is the visciolona, believed to have been brought from Arabia into Spain, and thence to Rome. The varieties known in modern Tuscany are chiefly due to the exertions of the Grand Dukes of the Medici family. Micheli, in the catalogue already quoted, enumerates 47 sorts, and Castello has figured 93. The double-flowering variety was first introduced into the gardens of Florence, by Giuseppe Benincasa Fiammingo, curator, under Francis I. of Medicis, of the Botanic Garden then called delle Stalle, afterwards dei Semplici. The Cherry-tree, especially of the Bigarreau variety, grows to a very large size; one is recorded on the shores of the gulf of Nicomedia, of which the circumference of the trunk was 4½ braccie (about 9 feet), and Prof. Targioni himself had one cut down in his own podere, which was beginning to decay, and had a trunk of 8 feet in circumference. *Journal of Horticultural Society.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Now that the out-door display is much faded, every effort should be made to render this and all the other plant-houses as attractive as possible, and perhaps nothing tends more to effect this than orderly arrangement, and keeping everything perfectly clean and neat; and if cleanliness and order are properly attended to, they will do much towards compensating for any deficiency of fine specimens in flower, and will greatly enhance the appearance of such things as may be in bloom. There is no good reason, however, why there should be anything like a scarcity of plants in flower at present, for although we cannot command as fine a display now as earlier in the season, there is plenty of showy things which may be had in bloom at this season, and with sufficient accommodation, &c., it is easy to have this house well furnished with showy plants in bloom. Where Camellias were grown in heat early in the season these will be now coming into flower plentifully, and will be invaluable at present when but few first-rate hard-wooded plants are in bloom, and these if allowed a fair period of rest after setting their buds may be forced at almost any season, but unless there is a large stock they should not be drawn upon too largely, until the Chrysanthemums are over. The sweet Indian Daphne is also easily had in bloom at this season, and tree Carnations, which when well done are very showy plants, may be had in great perfection, and these should be grown rather largely if for their fragrance only, and they are also exceedingly useful where there is a demand for cut flowers. To these, add the gay Salvia splendens, and Gesnera zebrina.

FORCING DEPARTMENT.

Pineries.—Use sufficient fire-heat to allow of admitting a little fresh air when the weather is moderately warm, and maintain a moist state of the atmosphere, but avoid heavy syringings or letting condensed moisture fall into the hearts of the plants, which sometimes happens when the atmosphere is kept very moist and is very injurious to the plants. The plants expected to show fruit shortly after Christmas should be allowed to get rather dry at the root, keeping the atmosphere also rather dry where this can be done without injury to other portions of the stock, in order to get its growth thoroughly matured; for unless this is attended to there will be no certainty of getting them to fruit at that season; and indeed the general stock of plants intended for fruiting next spring, if sufficiently strong, should now be kept rather cool and dry. But where the plants are not considered sufficiently strong, they may be safely kept growing for some time longer, with the exception of such as may be intended to furnish ripe fruit early in May. Vineries.—Make sure that the wood of young Vines is thoroughly ripe before throwing the house open or occupying it with plants that would interfere with the proper treatment of the Vines, and until the wood is properly ripened use brisk fires with a moderate circulation of air, for there will be no chance of getting them to break strongly next spring unless the wood is well ripened, and this cannot be effected after this season without fire-heat. And what with plant growing for indoor decoration, and wintering bedding-out stuff, both of which is carried to a greater extent about many places than there is proper accommodation for; there is often some difficulty in finding room for plants at this season, and these are in many cases placed in Vineries, &c., and the Vines very improperly treated. Where employers are agreeable to make Vines a secondary consideration to plants this may be all very well; but where this is not the case nothing should be allowed in Vineries which would at all interfere with the proper treatment of the Vines. Get the Vines pruned where the wood is thoroughly ripe, and the house cleaned, well washing the paint, &c., when the house may be used for storing Geraniums lifted out of the flower garden, or any other plants which merely require to be protected from frost; but see that everything is perfectly clear of insects before bringing it here.

LOWER GARDEN AND SHRUBBERIES.

What with falling leaves and the tiresome diligence of the worms, much labour is necessary to keep lawns, &c., clean and neat at this season. There is, however, no help for it but a diligent use of the broom and roller. Continue to mow as frequently as may be necessary to keep the Grass short, for much time is lost in clearing up leaves when the Grass is allowed to get long; also keep the surface hard and smooth by frequent rollings with a heavy roller. This is a capital season for laying down turf, aad where levelling may be necessary, or any other alterations involving taking up and relaying any breadth of turf, this should be attended to as soon as possible, for besides that there will be no trouble with turf laid now in the event of dry weather setting in early next spring, such work can be done more economically now and with much more comfort to the workmen than after cold winterly weather sets in. Nothing adds more to the comfort of a garden in winter than hard dry walks, and where these incline to be soft and greasy, a thin sprinkling of clean rather rough gravel, put on when the walks are wet and well rolled in, will be found to greatly improve them, and this at a very trifling cost. Keep the surface hard by frequent rollings, which will cause the water to run off to the edges, instead of draining through the gravel, as is the case when the surface is allowed to become soft and spongey. Continue to clear the beds of their summer occupants, as these become shabby, and replant them with spring flowering things. But where the soil wants renewing this should be done before putting in the spring flowering things, for it is generally a busy season when these are removed, and nothing should be left to be done then which can be done now. Plants which it may be desirable to lift and winter for use next season again, cannot be safely left out any longer, except where they can be covered in the event of a sharp frost occurring suddenly. And specimen Fuchsias, Geraniums, &c., should be got into safe quarters immediately frost is apprehended.

HARDY FRUIT AND KITCHEN GARDEN.

Examine the stock of fruit in the fruit room as frequently as circumstances will allow, and remove any infected with decay at once, and keep the room cool and dry. Where it is intended to plant any quantity of fruit trees this season the preparation of the ground, &c., should be proceeded with as expeditiously as possible while it is in good working order. And too much attention can hardly be bestowed on the preparation of ground intended to be planted with fruit trees. Be particularly careful to secure perfect drainage, for a well-drained soil is essential to fruitfulness in all kinds of fruit trees, and it is worth while to secure this even at a considerable expense. Where the natural soil is not of a good quality for the kind of trees to be planted, this should be partly removed, replacing it with some good fresh turfy loam. Avoid the use of rich stimulating manures, which do more harm than good. Carrots, Parsnips, Beet, &c., should be lifted when the ground is in good order, and stored for winter use in a dry cool place; stack them in sand to preserve them from shrivelling, &c. Spring Broccoli that may be growing very rank should be laid down with the heads to the north, which will check the over-luxuriant growth, and afford a better chance of its standing a severe winter. In the event of sharp weather being apprehended, a quantity of the most forward Lettuce should be placed under glass, and Cauliflowers that are heading should also be removed to where they can be protected from frost.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Oct. 18, 1855, as observed at the Horticultural Gardens.

Oct.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind.	Rain.
Friday 12	1	29.644	29.590	62	37	49.5	57	56	S.W.	.53
Satur. 13	2	29.649	29.585	60	39	49.5	56½	55½	W.	.01
Sunday 14	3	29.602	29.448	58	31	44.5	56	55	N.W.	.01
Mon.. 15	4	29.597	29.412	59	32	45.5	56	55	S.	.09
Tues. 16	5	29.733	29.703	58	38	48.0	55	55	S.W.	.56
Wed. 17	6	29.811	29.705	60	38	49.0	55	55	N.E.	.10
Thurs. 18	7	30.012	29.863	64	41	52.5	55	55	W.	.00
Average .		29.711	29.615	60.1	36.6	48.3	55.8	55.2		1.10

Oct. 12—Overcast; rain; cloudy; boisterous with rain.
— 13—Clear and fine; very fine; slight rain.
— 14—Foggy; cloudy; fine at night.
— 15—Dense fog; very fine in forenoon; rain at night.
— 16—Clear and fine; very fine; heavy rain.
— 17—Rain and fog; hazy; foggy at night.
— 18—Overcast; fine throughout.

Mean temperature of the week 1½ deg below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Oct. 27, 1855.

Oct.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 21	58.4	40.3	49.3	12	0.64 in.	2	3	2	3	5	5	8	1
Mon. 22	58.4	44.2	51.3	18	0.66	1	—	4	1	6	10	5	2
Tues. 23	57.8	40.8	49.3	17	0.56	3	1	—	3	4	9	8	1
Wed. 24	56.0	40.1	48.0	15	0.88	2	2	1	—	8	10	4	2
Thu. 25	55.2	34.6	44.9	14	0.72	4	3	4	3	4	4	4	3
Frid. 26	54.7	37.6	46.2	11	0.52	5	3	2	1	6	6	4	2
Satur. 27	54.7	40.1	47.4	22	0.92	3	4	2	—	5	4	7	4

The highest temperature during the above period occurred on the 21st, 1839—therm. 73 deg.; and the lowest on the 21st, 1842—therm. 20 deg.

Notices to Correspondents.

Australian Seeds: *Novice.* Sow them next spring in a shallow pan filled with light soil, and place them in a frame or pit on a gentle bottom heat. When strong enough pot them off. Seeds of the Pampas Grass may be treated like the above, but as soon as the weather has become sufficiently warm next summer they should be planted out in the open border.‡

Diseases: *H M G* (Cork). The affection on the Grapes you have sent resembles that figured at p. 676, 1854, and may possibly be a state of the same thing. No fungus is, however, at present formed in the spots, nor is there any mycelium. The central cells are quite gorged with brown matter, and the walls of the outer cells are much discoloured. It is impossible to say what is the cause of the malady, nor can we suggest any remedy. As one variety of Vine alone is affected you should direct especial attention to the conditions under which it is placed, and to the state of the roots. Perhaps the guano you have administered may be in fault. *M. J. B.*

Gas Stoves: *G O L.* These have been made by applying a jet of gas to a vessel containing water, which is thus made to circulate through pipes in the usual way. But it is found in practice so difficult to prevent the gas deteriorating the atmophere of the plant house, that we know no one who now employs such stoves.

Gigantic Balsams: *A Traveller* must authenticate his statements by repeating them with the addition of his name and address. We cannot accept statements as facts upon the faith of unknown correspondents.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*J G.* The fragments you have sent *may* belong to Madaria corymbosa.—*M C.* Pteris serrulata. *S.*—*Hythe.* Æschynanthus grandiflorus.—*L.* Francoa ramosa; but there is, as so constantly happens in gardens, a mistake about its origin. It is from Chile, not China; and was introduced long before Mr. Fortune went to China. The Francoa appendiculata with rosy blossoms is much handsomer. It wants a cool greenhouse in winter, and plenty of warmth, air, and water in summer.

Names of Fruits: *O Y.* The Sanguinole Pear.—*Sempervive.* 1, Beurré Diel; 2, Napoleon; 3, Ne Plus Meuris; 4, Marie Louise; 5, Passe Colmar; 6, Easter Beurré.—*Constant Reader.* 1, 3, Manks' Codlin; 2, Devonshire Buckland; 4, Round Winter Nonsuch.—*T W B.* Not the Beurré d'Amanlis, but a remarkably fine specimen of the Doyenné Blanc.—*S B.* The Jersey Gratioli which you sent, grown at 200 feet above the level of the sea, was certainly not so sweet as it is generally in a good climate and season. It had a slight acidity; but notwithstanding we found it possessed a rich flavour.—*J. C. Reigate.* Pears:—1, Flemish Beauty; 2, Beurré Diel; 3, St. Germain; 4, Beurré Rance; 5, Beurré de Capiaumont; 6, Aston Town; 7, Marie Louise. Apples:—1, Reinette du Canada; 2, Hollandbury; 3, Fearn's Pippin; 4, Blenheim Pippin; 6, Scarlet Nonpareil; 7, Beauty of Kent; 9, Reinette du Canada; 10, Lamb Abbey Pearmain; 11, Norfolk Beaufin.—*Anon.* 1, Roman Apricot; 2 and 3, Gallande Peach; 4, Kirk's Plum; 5, Grosse Mignonne Peach; 6, Jefferson Plum.—*J C.* Unknown; handsome, but worthless. A 1, Manks' Codlin; A 2, Hawthornden; A 4, Round Winter Nonsuch.—*R B.* 1, Chaumontel: 5, Napoleon; 7, Thompson's; 8, Beurré de Capiaumont. The others in their present state are indeterminable.—*L C D.* 4, Hawthornden. The others were imperfect, and therefore not in a fit state to be named.—*A B.* Pears:—2, Brown Beurré; 3, Doyenné Blanc; 4, Bishop's Thumb; 5, Glou Morceau; 6, Crassane; 7, Old Colmar; 8, Glou Morceau; 9, Chaumontel; 10, Louise Bonne of Jersey; 11, Comte de Lamy; 12, Chaumontel; 16, Marie Louise. Apples:—1, Carlisle Codlin; 2, Manks' Codlin; 3, White Colville; 6, Sam Young; 7, like Christie's Pippin; 8, Margil; 9, Carlisle Codlin; 10, Dutch Mignonne; 12, Old Nonpareil; 14, Ribston Pippin. The numbers attached to these fruits were so indistinct as in some instances to be scarcely legible. The specimens not named were indeterminable.‖

Orchard Houses: *Sub.* The span-roofed form is doubtless by far the best.‡

Stanwick Nectarines: *J J.* Your specimens, which you state were ripened in the open air with the assistance of a light placed before the tree for the last six weeks, were small and worthless.‡

The Durmast Oak: *Diss.* We confess our inability to answer your question. It was formerly believed, and that belief was strengthened by the statements of the late Mr. Atkinson, that the Durmast Oak was Q. sessiliflora. But more recent inquiries throw some doubt upon the point. As to the Durmast Oaks sold some years since at Southampton, they proved to be invariably the common Q. pedunculata, as we happen to know from having purchased a lot of young plants. We very much wish some correspondent residing in the New Forest would send us twigs in leaf of what is now understood to be the Durmast.

Worms: *Alpha.* The best remedy for these is lime water, which is made by pouring water over fresh-burnt lime, allowing the latter to settle to the bottom, and then using the water in a clear state.‡

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
Wm. Inglis Carne, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. Lawes' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 69, King William Street, City, London.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE LONDON MANURE COMPANY'S NITROPHOSPHATE OR WHEAT MANURE FOR AUTUMN SOWING.—This Manure, composed of blood, animal matter, and dissolved bones with silicates, is most strongly recommended to the notice of Agriculturists. It contains from 7 to 8 per cent. of nitrogen, in a form yielding ammonia by slow decomposition, and is therefore particularly adapted for Wheat. The quantity required is 2 to 3 cwt. per acre drilled in with the seed. Price, per ton, 7*l.* 10*s.* in London.

PERUVIAN GUANO, FISHERY SALT, and every other MANURE on best terms, strictly warranted.
40, Bridge Street, Blackfriars. E. Purser, Sec.

SEWAGE CHARCOAL MANURE.—This highly fertilising Manure, which is Peat Charcoal completely saturated with London Sewage, will be found most efficient for every species of crop; more especially for Peas, Beans, Turnips, Mangold Wurzel, and other root crops. It will produce a greater return for the outlay than Guano or any other Manure at an equivalent value: it also possesses the property of retaining its fertilising power longer than any other Manures now in use. It may be obtained at the SEWAGE MANURE WORKS, Stanley Bridge, Fulham, at 4*l.* per ton, and in quantities less than half a ton, at 5*s.* per cwt., for ready money only; and in quantities not less than a ton, will be delivered at the London Termini of the Railroads free of charge for cartage. No charge for sacks.

It may also be had from Messrs. G. Gibbs & Co., 26, Down Street, Piccadilly, Agricultural Seedsmen, Agents for London, and from all the other Agents of the Company.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. Nesbit, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

DRAINING BY STEAM POWER.

JOHN FOWLER is prepared to undertake Contracts for DRAINING LAND by his PATENT STEAM PLOUGH, at prices varying, according to depth and distance, from 3*l.* to 5*l.* 10*s.* per acre, inclusive of tiles, main drains, and all other expenses. Contracts executed with great rapidity, and tiles manufactured on the spot, where suitable clay exists.—Temple Gate, Bristol.

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Incorporated by Special Act of Parliament.
Offices, 52, Parliament Street, London.
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Empowered to execute Drainage, Road-making, and other Land Improvements, and to Erect Farm Buildings upon Estates under Settlement, Mortgage, or otherwise; or Church property, and without investigation of Title to charge the whole outlay and expenses upon the Estate, to be repaid by instalments spread over any period determined by Landowners within the limits of 50 years for Drainage and Roads, and 31 years for Farm Buildings.

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The Company will afford equal facilities to Landowners for the execution of works of improvement either by their own Agents or by means of the Company's staff.
William Clifford, Sec.

SMITHFIELD CLUB, 1855.—FAT CATTLE SHOW.—The ANNUAL CHRISTMAS SHOW of FAT CATTLE, SHEEP, and PIGS, will take place on the 11th, 12th, 13th, and 14th of December, 1855, at the Carriage Bazaar, King Street, Portman Square, when nearly 800*l.* will be awarded in Prizes and Medals.

The printed forms of Certificates, properly filled up, must be returned to the Honorary Secretary on or before SATURDAY, November 10th. Prize Sheets and the necessary printed forms of Certificates are now ready, and can be obtained on application to B. T. Brandreth Gibbs, Honorary Secretary, Corner of Half-moon Street, Piccadilly, London.

All communications on the Club's business should bear the words "Smithfield Club" on the outside.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1855.—The Seventh Great Annual Exhibition of CATTLE, SHEEP, PIGS, and DOMESTIC POULTRY, will be held in Bingley Hall, Birmingham, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, the 11th, 12th, 13th, and 14th of December next, when PRIZES will be awarded as follows:—

	£	s.	d.
CATTLE.—Including Two Extra Prizes of 20*l.* each and Two Gold Medals or other pieces of Plate of the value of 20*l.* each, for the best Ox or Steer, and the best Cow or Heifer	340	0	0
SHEEP.—First Prizes of 10*l.*, and Second Prizes of 5*l.*, for Leicesters, Long-Woolled Sheep not being Leicesters, South or other Down Sheep, Shropshire, and other Black or Grey-faced Short-Woolled Sheep—10 classes	150	0	0
PIGS.—Including Prizes for Pens of Breeding Pigs of a large and small breed	69	0	0
ROOTS.—Including a Silver Cup, value Five Guineas, for the best Collection of four different varieties	27	6	0
POULTRY.—Including Nine Silver Cups, of the value of Ten Guineas each, for the best Pen of Pencilled Hamburgh, Spangled Hamburgh, Polish, Spanish, Dorking, Cochin China, Game and Gold, or Silver Bantams; and for the best four Pens of Pigeons, to be exhibited, especially for this prize	451	10	0
	£1037	16	0

Exclusive of Silver Medals to the Breeders of Cattle, Sheep, and Pigs, and Prizes in the Extra Classes and for Cottagers' Poultry.

Mr. Ottley has also offered a Gold Medal, of the value of Ten Guineas, as an extra prize, for the best Pen of Polish Fowl of any colour, to be selected from the several classes for this variety.

Prize Lists, Certificates of Entry, and any further information may be obtained from the Secretary. The Entries close on Saturday, Nov. 10. John Morgan, Jun., Sec.
Offices—38, Bennett's Hill, Birmingham.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.
Principal—J. C. Nesbit, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. Burgess & Key, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. Francis Parkes & Co.

FIRST PRIZE REAPING MACHINE.
NOTICE.

MESSRS. BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—Burgess & Key, 103, Newgate Street; and 52, Little Britain, London.

The Agricultural Gazette.

SATURDAY, OCTOBER 20, 1855.

Messrs. Hardy & Son having sown 2 acres and 3 roods of land in 12 different ways and reaped the produce, have published their experience, and some of their plots (Nos. 9 and 10, one square yard each!) being specially "reserved for public criticism," we are the more willing to give our opinion of their experiment. It is shortly this—that it is simply absurd to reason agriculturally upon the produce of square yards. You may draw physiological conclusions from single plants with confidence—the examination of a single seed and observation of its germination, growth, and produce will teach the botanist—it will even teach the farmer *qualitatively* many a useful lesson, but *quantitatively* none. He may learn generally the nature of the circumstances favourable to the vigour of the plant in each stage of its growth; but he cannot learn from an individual plant in a border the produce he may expect from 50,000 of them in a field. This would be as likely to mislead as the attempt to calculate an expenditure per annum from the outlay during any selected hour of the 8766 that make the year.

It appears that off a single square yard of ground Messrs. Hardy have obtained one quart of Wheat. Now, there are 4840 square yards in an acre, and there are 32 quarts in a bushel, and this yield is accordingly announced as an acreable produce of 18 quarters. It is no such thing—it is a yield of 1 quart from a certain square yard of land, and that is all that can be said of it. That yard may have been an ordinary arable soil, but its produce depends not only on what it was but also on where it was. Placed in an open border with air and sunshine freely playing on it, and soil around unoccupied, in which its roots might spread, a plot of Wheat would yield very differently from what it would if surrounded by a growing crop and by the land engaged in growing it.

What Messrs. Hardy's plot of land may be, or under what circumstances its produce may have been obtained we do not know, but we must not give these gentlemen credit for superhuman power which alone can accurately read in any case of growth all the causes which have influenced it; and, failing that ability, no one can expect to reproduce in his experience the 50,000 similar plots which would yield 180 quarters of Wheat from off the area of a 10-acre field. The fact of course is, as every person knows—that just as he cannot bring to bear on every square yard of an acre the fertilising influences which, selecting any single yard, he may apply, so he cannot reap from that collection of square yards which makes a field the produce which by horticulture and the "rule of three" Messrs. Hardy would teach us that he can.

What the force of just those influences, which the farmer cannot wield (although the gardener may), must be, may be gathered from the result of No. 10 on Mr. Hardy's list. Here was a square yard replanted on its harvest day with the seed which had been "that minute" gathered from it. What sort of result would the agriculturist obtain from a practice of this kind! And yet the produce of the garden plot thus treated is stated to be "good." It was so owing to that air, and sun, and *cultivation*, which an isolated yard of ground may receive, but which on many an arable farm it is impossible with profit to give the million of them that many an arable farmer grows.

No doubt the inference is perfectly sound that air, and sun, and cultivation are very fertilising things; but how much of each can be profitably secured for every plant upon a farm, and how much the average produce of the farm can be thus increased, are questions that Messrs. Hardy's experiments do not enable them to answer. Let them keep to the actual produce of their plots in their statements, and if those plots are acres then, and then alone inform us of an acreable produce. It has been abundantly proved how largely individual plants improve by the individual attention of the cultivator, and by larger room for growth than in field culture they generally receive—what we now want is the experience of *the farmer* as to the influence of such costly things upon the balance-sheet. That a greater amount of both carefulness and room than is common yet, is profitable, is plain from the gradually diminishing quantity of seed that farmers sow per acre. We believe that 4 or 5 pecks of Wheat per acre are in many cases a sufficient seeding, and that the 8 and 10 which still are common may in every case be considerably reduced. The present is the season when such considerations as Messrs. Hardy have attempted to enforce should receive attention, and this we bespeak for them notwithstanding the extravagance of which those are guilty who speak of 18 quarters per acre as a result proved possible by garden cultivation.

The mischievous effects of the plough (which we are at present compelled to make shift with) upon clay lands, have been long ago graphically described by "C. W. H.," and admitted, we suppose, by all candid agricultural thinkers. With what implement, then, are we to arm the steam-engine, when asking it to cultivate our obstinate but fertile fields? Looking at the wonderful success of spade husbandry in raising garden produce from strong land, bearing in mind the actual results of the Lois-Weedon deep digging, and not forgetting the extensive use of spade trenching and forking by our celebrated Flemish neighbours, we cannot hesitate to say, let us closely imitate *the spade* by our new tillage machinery. From a *practical* point of view, judging by the best modes of tillage now known, we have inferred (in previous papers) that the clay lands require a digging machine able to invert and cultivate a staple at least 1 foot deep, leaving the surface in rough clods; or, when preparing a seed-bed, raking, harrowing, or crushing the upturned earth for a few inches in depth. In other words, a steam cultivator should *trench almost as well as a spade*, and have power to *comminute the surface ad libitum*.

From a *theoretical* point of view, however, the subject presents a somewhat different aspect. Setting aside all considerations of cleansing from root-weeds and burying surface vegetation, chemistry says, "expose your land as much and as deeply as possible to the action of air and rain-water, in order to prepare for plants the dormant stores of nutriment abounding within it." It is the business of agriculture to discover the best method of doing this.

Temperature, electrical agency, absorption, evaporation, &c., are influences which the farmer may control and regulate in the soil by means of cultivation; and these, with the chemical operations just mentioned, may be said to be combined in one general process of Aeration.

Now, as rain-water and air in a certain degree naturally find their way down through the soil, the most obvious means of facilitating their admission is to open the ground with cavities and crevices, and provide against any stagnation that might check the inflow from above. Drainage, subsoiling, and all stirring tillage operate in this way. But atmospheric action in the cells and recesses of the soil cannot be so free, powerful, and incessantly renewed as upon the open, uncovered surface: therefore it is clearly expedient to raise the hidden portions of the soil from time to time, and expose them in clods or smaller particles to the wind, rain, and other atmospheric influences. Of course such an inversion of the staple accomplishes other beneficial effects,—as, for instance, relieving and replacing the upper portion of soil which has sustained most vegetation in crop and weeds; and again, bringing up many valuable substances that have been washed downward by the descending currents of rain-water.

Inversion (thus shown to be necessary) we can perform only in preparatory tillage: *opening, stir-*

ring, or subdividing can be practised both in preparing land for a crop, and also while the crop is growing—as by the hand or horse-hoe.

The next inquiry is, *to what extent shall we pulverise* in order to secure the greatest atmospheric action? A soil to be completely aerated *must* be finely comminuted. But how; mechanically or by natural agencies? Nature will break the largest clods for us if we only give her time: "the first shower of rain bursts the sun-and-air-baked clod, and it falls exposed in the natural cleavage." If, unwilling to wait this time, we cut and crush up our rough clay fallow by machinery, the same rain which would have left its coarse clods finely powdered, will now cause it to agglutinate and close up. We cannot successfully violate the scientific method of "assisting nature," unless we are prepared to repudiate her assistance altogether: and this we cannot do in cultivation until we substitute artificial heat and light for sunshine, irrigate in lieu of intercepted rain-fall, and breathe air, carbonic acid, and ammonia, through the soil by injecting steam-pumps. A valued correspondent, who has well studied and expounded the properties of a clay soil, thus elucidates the mystery—"You are aware of the practice of sportsmen of late years, having their gunpowder in *large grains*. Why? because the freer admission of air among large granules causes the whole to ignite in the barrel, and also prevents consolidation by the ramrod. For 'ramrod' read 'cohesive attraction and gravitation,' and the philosophy of clods is made manifest."

A machine for *rasping or grating the soil into powder is not specially adapted, therefore, for aerating such an obstinate cohesive material as clay;* though it might be expeditious in making a shallow seed-bed upon ground which has previously undergone the slow process of atmospheric fertilisation, just as we find the "clod-crusher" useful at certain times. And a further reason may be given. The above writer says, "It is the property of atmospheric air to lose its active qualities, when it is, so to speak, cut up into detail. The natural retention of animal warmth by *fur* coverings is a familiar, and perhaps the best illustration of this." By subdividing a clay soil we enormously increase the extent of superficies upon which the air might operate; but in proportion as we do so, we reduce the ability of the atmosphere to act upon it. Instead of locking up the air in no matter how many myriads of minute cells, we ought to be continually *changing it* for fresh supplies; currents of air charged, as it were, with active ingredients, should play through the soil, constantly replacing that which has been sucked of its virtues. If we could *incessantly* stir and commingle a finely granulated staple, as deeply as the aeration is needed, perhaps the case would be different. A starch-maker, wishing to bring every atom of his raw material into contact with a chemical solution, grinds it to a powder, and then agitates and churns it in the solution for hours. In subjecting fine earth to the action of a subtle fluid like air, we can imitate this process—but only when the work is shallow, and therefore readily manipulated—as, in horse-hoeing. To rouse and beat-up a foot depth of soil sufficiently often would require a most extravagant expenditure of labour. The only remaining course is, to cut our clay ground the full depth we choose, to go into *pieces of moderate size*, which will leave interspaces for the free circulation of air, and can be easily crumbled by the action of the weather. As the self-acting disintegration proceeds, the entire mass will become gradually aerated—mechanical assistance being given in the form of frequent rough stirrings.

Fine pulveration of the surface would bar the descent of air currents to the recesses of the subsoil; and however thoroughly it might fertilise the shallow surface stratum (which alone it is in our power to till so constantly), it must only be practised when the underlying portion of the staple has already received sufficient "fallowing" or aeration—in other words, we should keep the land rough until the crop is to be sown; we may then pulverise for a seed-bed, and afterwards hoe whilst the crop is growing.

Theory, then, leads us to the same practical conclusion as does observation of our actual methods of tillage: that is, we arrive at the same kind of implement described as the *desideratum* in the beginning of this article. *I. A. C.*

OILCAKE FROM COTTON SEED.

Thinking that it may possibly be of some use to the agricultural public, I beg to inclose you the analysis of a piece of oilcake made from Cotton seed, which has (in a small quantity only) been manufactured and imported into this country by a gentleman of the name of Barber, residing at Poulton Hall, in Cheshire. I received the piece of cake with the information that he had imported only sufficient to try its feeding effects on about 20 head of cattle, which by its means were rapidly and economically brought to a fit state for the butcher. I thought that I could do no better than immediately to forward it to Professor Way for analysis, at the same time requesting his opinion as to its value in comparison with oilcake. You will perceive that the result is highly in favour of the new cake; and I hope that it may be the means of reducing in the market the now, to the farmer, unprofitable price of Linseed-cake, which it would be very likely to do, as many thousands of tons might be produced in the United States of America alone; and I am given to understand that Mr. Barber believes that it can be supplied to the farmer at (at least) from 2*l.* to 3*l.* less cost than Linseed-cake.

I would beg to suggest that out of compliment to Mr. Barber, as the introducer of so valuable an article of food for cattle, that it should be called "Barber's Cake," which would in the market be a convenient distinction between it and that hitherto commonly known under the name of "oilcake." Mr. Barber has already been spirited enough to establish machinery in America for the manufacture of it, and I believe that his great desire is to render its introduction of as much benefit as possible to his country. The paper alluded to by Professor Way is to be found in the Journal of the Royal Agricultural Society, Vol. X., part 2. *T. G. A. Parkyns, Ruddington Manor, near Nottingham, October* 16. The following is Professor Way's letter and analysis:—

"15, Welbeck Street, Oct. 12, 1855.

"Sir Thomas,—I have made a careful analysis of the sample of cake which reached me on the 3d inst. In order that you may have the means of comparing it with other kinds of cake, I have enclosed a paper published by myself some few years ago, of which I beg your acceptance. With a full proportion of albuminous constituents, the sample of cake now analysed contains nearly twice as much oil as foreign or English Linseed and Rape cake, and I think it should therefore be superior to them in feeding and fattening properties. Experience, however, alone can decide this point. The proportion of water (moisture) is also small, which is in favour of the cake's keeping without injury. Unless, therefore, it should be distasteful to animals, I should form a high opinion of its value.—I am, Sir Thomas, your obedient servant, "J. Thomas Way.

"Sir Thomas Parkyns, Bart."

Sample of Oilcake received from Sir Thomas Parkyns, October 3, 1855.

Moisture	6.58
Oil and fatty matters	19.40
Albuminous matters (containing 4.46 nitrogen)	28.31
Woody fibre	10.64
Starch, gum, sugar, &c.	26.98
Mineral matter or "ash"	8.09
	100.00

The mineral matter consists of—

Lime	0.34
Magnesia	0.84
Phosphoric acid	2.62
Silica	2.27
Potash and soda	2.02
	8.09

(Signed) J. Thomas Way, Oct. 12, 1855.

IRISH FARMING.

As oases in deserts there are certainly bright spots in Irish farming, but unfortunately they are all but limited to the few wealthy and resident proprietors, and perhaps not more numerous rich and intelligent tillers of the land, for as examples these are very ineffectual, it is their wealth that does it; but, taking it as a whole, the tillage economy of the country is execrable, the great good that a great evil was to effectuate is still *in nubibus*. A cart to stop a gap is a common thing enough in Ireland, but this is still capable of improvement—"I'll make up no gaps—I'll hang no gates—I won't even put a bush in them; why should I? I keep a wretched child out in all weather to herd my wretched cattle, and you may do the same, or be sued for trespass if yours walk through my gaps, which like the old fellow I leave as temptations in their way." Why, in a small Grass field, containing less than an acre I find five gaps level with the base of the fence, on the road side; on another farm the whole road fence is one continued gap. Why, I have seen a farmer, a knowing man as he thinks himself, certainly a cunning one, holding about 100 acres of land, herding a single hog on a headland, and his son, 18 or 20 years of age, herding 6 or 8 swine on the roadside. He has one gate, value 2*s.* 6*d.*, on his whole farm; he has something over a quarter of an acre of Turnips and no other green crop, save the everlasting Potato and a quarter of an acre of Cabbage plants to plant out on the edges of his Potato ridges and for the market. He does not think Vetches a paying crop; would not the same area in Oats be worth more? Cannot comprehend making manure out of them, or that intervening between two white crops would make up any shortcoming at market. Winter Vetches, never heard of them. Sells much of his hay, feeds his milch cows with straw, and has through the winter perhaps a gallon or two of milk a day from his whole dairy stock of seven or eight cows.

Or let us take one of a better class, holding perhaps 200 acres of land; he is, however, more of a grazier and dairyman, therefore his ground is not deteriorated by repeated croppings. He perhaps grows 10 or a dozen acres of Turnips, most of them, however, for the market, and for the months of November, December, January, and February feeds all his stock exclusively with straw, March and April with hay, turns out to Grass on 1st of May, his milch cows some score or so dry through the winter; "cattle fed solely on straw and hay in the winter thrive better on the summer Grass than those which have had Turnips or other green feeding." No Clover, no Italian Rye-grass, no Vetches. Of course he grows a reasonable share of Potatoes, but he applies to them in ridges, and to his Turnips in drills, indiscriminately reduced or unreduced yard-manure in large quantities, uses no artificials, rather despises them; yet with this manure, without oilcake or even green feeding to enrich the dung-heap, solely made up of straw thrown in abundance under them and passed through his cattle, he obtains very heavy and fine crops. He is held a good farmer, and is a money-making man, for he is a shrewd one.

The grazier I do not meddle with; he is a fat, comfortable, well fed, and most knowing fellow. Yorkshire could not beat him. The smaller farmers—that is, those holding under 100 acres—as they fall lower in the scale of means also generally sink lower in their economy until you come to the 5th, 6th, or 8th succession of Oat crop, the last crop being superseded by one of weeds, which are left for three or four years for the benefit of the miserable cows and ponies that the possessor may happen to have. Of course subsoiling and draining are in every case out of the question, although no land in the world wants it more or would better repay the cost. The tenant, though with a lease almost interminable, will not do it, and then the landlord, even when so disposed, has little temptation to it, for the tenant would not give him one penny more rent for it on account of his outlay.

Still there is one redeeming point in the Irish farmer—he is a man of taste; not more does nature abhor a vacuum than he does a straight line, except in making a short cut to save time, which he loses tenfold the next moment with the first idle fellow he meets; he has the most acute sense of the beauty of curves, and nothing will persuade him to draw a straight furrow; he ploughs and digs his Potato ridges, which guide all future tillage, in all manner of twists without any other discoverable reason than this love of the beautiful, for even does the side of the field at which he commences happen from some accident to be in a straight line and his first ridge or two be directed by it, he cannot bring himself to stick to this ugly way, but gradually serpentines into the more beautiful if not most grotesque waves. Occasionally too will be seen a small field sown with Clover and hay seed, and even here his taste is shown, for they lie in alternate stripes, waved of course, which gives a very pretty variety to what would else carry too much sameness. *J. M. Goodiff, Granard, Oct.* 3.

ON BURNING CLAY AS A MANURE.

I am glad to see by the leading article in the *Agricultural Gazette* of Sept. 15, that you are endeavouring to call attention to the subject of burning clay as a manure. There is a certain description of land which has had amongst farmers for time immemorial a bad name. I allude to the poor stiff clays which we find dotted about the country, and for which nobody has a good word to spare, except, perhaps, an occasional interjection of pity for the poor unfortunate occupier. The value of this description of land has not advanced at all in proportion to that of the lighter soils in the kingdom, and is proverbially occupied by the poorest class of tenants. I have known many instances where such land has been gradually let for a lower and lower rent till it has become a matter of difficulty to find an occupier. I have myself had such a case to deal with, and if this meets the eye of the owner of any such land, let him take comfort from what I am about to write, and adopt the same means, and I do not fear for the result.

The farm I allude to was given up by a tenant who had succeeded his father on an estate where the greatest security to a good tenant has always prevailed, and where the tenancies remain in the same family for generations; the rent of this farm had been lowered repeatedly to suit the decreasing means of the occupier, and stood at last at 10*s.* per acre! This may sound absurd when I say the farm is in sight of, and not more than 8 miles distant from a large manufacturing town of 100,000 inhabitants; and yet the soil was reduced, and so proverbial for sterility had this unfortunate farm become that no one would take it at that rent, and the owner had it thrown on his hands when agricultural prospects looked the darkest, and the enviable task of farming it and bringing it round devolved on me. And many a joke did my brother farmers have at my expense, the whole subject seeming to afford them intense amusement, and the joke against me throughout the miserable wet seasons of 1852 and 1853, during which most trying times I was engaged in burning clay extensively; but so wet was the land that I could not apply it without making each field a complete mortar heap, and rendering it unfit to sow the seed upon. The first two years the miserable crops yielded about as follows:—

2 quarters of Wheat per acre,
1 quarter of Barley per acre,
1 quarter of Beans per acre,
Less than 3 quarters of Oats per acre.

The straw was like needles, and barely sufficed to maintain the 10 horses required to work the farm, so that I could not keep any stock in the winter, having nothing to feed them upon, and consequently could not make any manure.

In 1853, directly after harvest, I laid on my burnt clay, and by great exertion succeeded in applying about 10,000 cubic yards upon rather more than 100 acres of land. The result was extraordinary. I have no hesitation in estimating the straw at four times the quantity formerly produced, and I increased the insurance on the corn from 300*l.* to 700*l.* I succeeded in producing 10 acres of excellent Turnips, the whole of which were drawn off and eaten in the fold-yard, in which I kept 24 head of horned cattle, all of which had Turnips and

straw *ad libitum* up to the 8th June last. I need hardly say they made me a famous manure heap.

Finding the burnt clay so effective I have now applied altogether about 17,500 cubic yards with the best results. I have 15 acres of the finest Turnips in the neighbourhood, the insurance on the corn has been raised from 700*l.* to 1200*l.*, and I can show a very good rick-yard, and the quality of the grain will be excellent. Moreover, I shall be able to keep more stock, and make more manure than last year, and I have little fear but that the farm may be made self-supporting. The farm has been thoroughly drained, but to the burnt clay I attribute the rapid improvement that has taken place.

It will be hardly necessary to add that the joke formerly so very funny and amusing has entirely subsided, and that those who were the loudest in their laughter, and the most witty in their remarks, have now the least to say upon the subject, and console themselves by saying that money will do anything. The cost has been as follows :—

1 cubic yard of clay, measured after burning ...	6*d.*
Filling, spreading, and applying	2
Fuel, &c.	1
Cost of 1 cubic yard applied	9*d.*

100 cubic yards per acre, or even 80, are a good dressing, and I have no hesitation in saying that 4*l.* per acre (which is about the amount mine has cost, including everything but the horse labour) will produce an improvement on strong clay land, superior to anything else that can be had for the money, and will certainly pay in the first Wheat crop at present prices ; and as to the durability of the improvement I can distinctly see it after three crops, which is as far back as I have the opportunity of noticing. I inclose my name and address, and I shall be happy to afford any further information, or to name the locality to any one desirous of seeing the result of the extensive application of burnt clay. *B.*

QUALITIES OF WOOL IN GREAT BRITAIN.

[The following is a *resumé* of the information on the characteristics of the different breeds of sheep in this country, given by Professor Wilson in the "Journal of the English Agricultural Society."]

Lincoln.—This may be considered the standard of the coarse deep-grown wools for combing purposes, and the wool possesses a bright silky appearance of staple, which renders it peculiarly adapted for "lustre" goods, in imitation of alpacas and mohair fabrics, and has thus enhanced its value of late years. The present value of Lincolnshire wethers is about 12½*d.* per lb. ; of hogs, 13*d.* per lb.

Leicester.—This old and much-valued breed for combing purposes is rather finer in hair than Lincolnshire wool, but does not possess generally so soft and silky a staple, and hence it is not at present so valuable where those qualities are requisite. The present value of Leicester wethers is 12*d.* per lb. ; hogs, 12½*d.* to 13*d.* per lb.

Cotswold.—A deep-grown breed ; the wool similar in quality to Leicester, of a deep and rather harsh character, not suitable for lustre goods. The present value of wethers is 12*d.* per lb. ; hogs, 12½*d.* to 13*d.* per lb.

Romney Marsh.—Soft rich wool, finer in quality than the Leicester. It has been much exported to France, and seems well adapted to the use of the French manufactures. In Kent the lambs are generally shorn, therefore there are very few hogs. The present value of the Kent fleeces is about 13*d.* per lb.

Devons—South Hams.—A deep stapled breed of wool, grown in the country from which it derives its name. It is the custom of the farmers in Devon not to wash the sheep before shearing them, and the wool being thus in the yolk or grease, is not so marketable as other kinds, which are washed ; it is, therefore, usually subjected to the process of combing before before being sent to market, and comes in the form of "tops." A double advantage is accomplished by this ; the wool is sent in marketable form, and the noils and short wool, separated in the process of sorting and combing, are sold to the Devonshire manufacturers, who use them. If the wool were washed and shorn in the same way as in other districts, it would be readily saleable. Price about 9*d.* per lb. in the grease.

Bamborough.—Of the Leicester character, from the coast district of North Northumberland. A rich good combing wool, of tolerably fine quality ; very much resembles the Leicester, though with more lustre. The present value of wethers is about 12½*d.* per lb. ; hogs, 13½*d.* per lb.

Bampton.—A breed peculiar to Somerset and Devon ; deep grown, good average combing wool, of similar kind to the Leicester breed. The present value of hogs is about 13*d.* per lb. ; wethers, 12½*d.* per lb.

South Down.—Small haired wool ; the tegs and longer wethers used for combing purposes, and the shorter for the manufacture of flannel and other light woollen goods. There is considerable difference in this wool, from the different localities, both as to quality and softness. The present value of ewes and wethers is 13*d.* to 13½*d.* per lb. ; tegs, 13½*d.* to 14*d.* per lb.

Hampshire Down.—A short wool, very similar to South Down in general character ; staple rather longer, and hardly so fine. The present value of ewes and wethers is 13*d.* per lb. ; tegs, 13½*d.* per lb.

Norfolk Down.—The Down wool grown in Norfolk is generally soft in its nature, but usually full of blue sand, which reduces its value. Some of the best and cleanest is very rich and beautiful wool. The present value of ewes and wethers is 12½*d.* per lb. of sandy, 13½*d.* per lb. of clean ; tegs, 13½*d.* to 14*d.* per lb.

Shropshire Downs.—Generally longer in the staple, and with more lustre than the other Down wools. The fleeces vary considerably, according to the original proportion of short-woolled or long-woolled blood crossed with the breed. The present value of wethers, &c., is 13*d.* to 13½*d.* per lb. ; tegs, 13½*d.* to 14*d.* per lb.

Dorset.—Rather longer in the staple and not quite so fine as the Downs, but for combing purposes quite as valuable ; clean, white, soft wool. In this country the lambs are generally shorn. The present value of Dorset fleeces, 13*d.* per lb. ; of lambs' wool, 16*d.* to 18*d.* per lb.

Ryeland.—An old breed, almost extinct, very fine and short ; formerly used for clothing purposes. The present value about 13½*d.* per lb.

Merino.—Some years ago there were many flocks of this breed kept in Hants and the adjoining counties : when fine wools were first used for combing purposes this wool realised very high prices, but after the introduction of Saxony and Australian wool for combing, these wools were to be bought much cheaper than the Merino, and it became little used. Merino wool generally came to market much heavier, and not so well washed, as Down wool. It was also much more wasty than Saxony or Australian. The present value, say wethers, 14*d.* per lb. ; of hogs, 15*d.* per lb. ; but almost unknown in the market.

Dartmoor.—From the Dartmoor Hills in Devon. Deep-grown combing wool, but coarser and not so well bred as the South-down. Generally shorn in the grease. Value in the grease about 9*d.* per lb.

Exmoor.—A long-stapled wool of moderate quality ; that produced by the polled sheep is usually heavier in the fleece, of a finer description. The present value of wethers about 12*d.* per lb. ; of hogs, 12½*d.*

Radnor and Welsh Mountain.—A moderate combing wool, somewhat coarse in quality and kempy. The present value of wethers, 12½*d.* per lb. ; of tegs, 13½*d.* per lb.

Cheviots.—This is a small haired wool of medium length, suitable for worsted and woollen purposes. It is a soft, rich wool, and is liked by the manufacturers. In those districts where the sheep are smeared the value of the wool is considerably reduced. The present value of ewes and wethers, 12½*d.* to 13*d.* per lb. ; of hogs, 13½*d.* to 14*d.* per lb.

Black-faced Highland.—The kind of sheep kept upon the mountains and hills in the Highlands of Scotland ; very coarse, and generally depreciated in value by the composition with which the sheep are heavily smeared ; used for carpets, rugs, and low woollen purposes. The present value, 8*d.* to 9*d.* per lb.

Herdwick.—Peculiar to the mountainous districts of the counties of Westmoreland and Cumberland. The wool is used for making low woollen goods, rugs, &c. Present value about 8*d.* to 9*d.* per lb.

Shetland Wool.—Small wool grown in the Shetland Isles, and used chiefly by the natives for clothing, and occasionally for hosiery purposes. The present value about 8*d.* to 9*d.* per lb.

CROSSES OF BREEDS.

Leicester and South-downs.—Generally grown in the Leicester district, and formerly much more valuable than Leicester wool. Since the introduction of cotton warps, reduced in comparative value. The present value of ewes and wethers, 12½*d.* per lb. ; of hogs, 13*d.* to 13½*d.* per lb.

Leicester and Shropshire-downs.—A breed of the Shropshire district ; longer and more valuable than the Down ; good combing wool. The present value of hogs about 14*d.* per lb. ; of wethers, 13*d.* per lb.

Leicester and Highland.—From the Scotch district ; suitable for low combing purposes, and more valuable than the pure Highland wool. The present value of ewes and wethers, 9*d.* to 10*d.* per lb. ; of hogs, 10*d.* to 11*d.* per lb.

Leicester and Bampton.—A cross of two breeds, the wool of which is of very similar kind. The present value of hogs, 12½*d.* to 13*d.* per lb. ; of wethers, 12*d.* to 12½*d.* per lb.

Leicester and Norfolk-down.—A very excellent wool, soft and rich ; used for worsted purposes. The present value of ewes and wethers, 12½*d.* per lb. ; of hogs, 13½*d.* per lb.

Cotswold and South-down.—A breed of the Cotswold district, suitable for worsted purposes, more valuable than the pure Cotswold breed. The present value of ewes and wethers, 12½*d.* per lb. ; of hogs, 13½*d.* per lb.

Cotswold and Hampshire-down.—Same as Cotswold and South-down.

Cotswold and Shropshire-down.—A breed of the Shropshire district by which greater length is obtained than from the Shropshire-downs alone. Used for worsted purposes. The present value of ewes and wethers, 12*d.* to 12½*d.* per lb. ; of hogs, 13½*d.* per lb.

Lincoln and South-down.—A breed in Lincolnshire finer than the Lincoln wool and more valuable ; used for worsted purposes. The present value of ewes and wethers, 12½*d.* to 13*d.* per lb. ; of hogs, 13½*d.* to 14*d.* per lb.

Lincoln and Exmoor.—The produce of two deep-grown breeds ; suitable for combing. The present value of hogs, about 12½*d.* per lb. ; of wethers, 12*d.* per lb.

Cheviot and South-down.—A breed in Scotland which produces a finer wool than the Cheviots ; suitable for finer worsted and woollen fabrics. The present value of ewes and wethers, 12½*d.* to 13½*d.* per lb. ; of hogs, about 14*d.* per lb.

Highland and South-down.—A good combing wool, longer in the staple than pure Down ; suitable for clothing purposes. The present value 13*d.* to 14*d.* per lb.

Dorset and South-down.—A breed of Dorsets ; are of equal length with the Dorset and much finer ; a soft rich wool, suitable for finer worsted purposes. The lambs are shorn in this district. The present value of Down and Dorset fleeces, 13*d.* to 13½*d.* per lb. ; of lambs, about 18*d.* to 20*d.* per lb.

Merino and Romney Marsh.—The fleece representing this cross-breed is a very beautiful one ; an excellent combing fleece ; fine, soft, clean, rich wool. When warps were made of worsted would have realised a very high value. The present value of hogs about 15*d.* per lb. ; of wethers, 14*d.* to 14½*d.* per lb.

Home Correspondence.

Warmth Conferred by Drainage.—I once ventured to assert that I did not believe there was much difference in the temperature of drained and undrained soil. I was met at once with great names, and the authority of Papers in the Royal Agricultural Journal ; I contented myself with saying that I believed it could not be proved either by theory or practice, and that any difference was rather due to the presence of water in the soil than to evaporation, as generally supposed. An examination of the tables published in your paper of the 1st of October shows that in the hottest months, June, July, and August, when there is most evaporation, the temperature is highest in the undrained soils. When a soil is filled with water as in undrained clays, the surface water is no doubt evaporated ; after the water table, or water level, has sunk say 4 inches in the soil, the evaporation will not extend to that depth. The surface will give off its water, and this will be replaced by the action of capillary attraction, so that the water table or level is reduced not by the direct action of evaporation, but by capillary attraction, rendered active by evaporation from the surface, therefore evaporation cannot affect the temperature below 4 inches, if so much. It must also be remembered that clays, after all free water is abstracted by draining, will hold in suspension one-fourth of their weight, and one-third of their bulk ; if this was not so vegetation would soon be at a stand-still. *James C. Clutterbuck.*

Perennial Weeds.—In localities where perennial weeds exist to an alarming extent, whose vigour is increased rather than diminished by passing the plough over them, merely taking off their heads, it is astonishing that farmers do not use the long steel fork to assist in cleansing at least a portion of their holding annually. On a farm of 200 acres of arable land it would not be practicable for a farmer of ordinary means to employ a sufficient number of men to go over the whole of the farm in this way ; but he might with great benefit to himself set apart every year a certain number of the worst acres to be stirred with the long steel fork. Those in ordinary use, made of iron, are valueless for such an operation. It is false economy to half till land in order to save expense. The outlay is great at first in thorough cultivation, but once carried out moderate attention and exertion will keep the land in a creditable and profitable state, very nearly doubling the produce. No man can afford to grow two crops —one of weeds and another of grain—if he pays a fair rent to his landlord ; as well might he hope to fatten two bacon pigs on food barely sufficient to provide a couple of sides for winter consumption. It is not necessary to enter deeply into the scientific part of agriculture to obtain remunerative produce from ordinary land ; common sense and observation will enable a man to avoid the rocks and shoals of theory, and bring into practice useful improvements. The principal feature in a well-managed farm is labour of all descriptions judiciously applied, and plenty of it ; the labourers must be liberally paid, and the horses in good condition. There is no economy in working animals only fit for the dogs, and screwing wages to the lowest point ; these will serve you better when treated like neighbours, and horses will perform twice the work if properly cared for. It is melancholy to look at the unfortunate quadrupeds dragging their wearied bodies along the road, and the waggon following very reluctantly. These poor beasts eat as much as strong animals, that is if they can obtain it, do one third of the work, and are in reality one of the "penny wise and pound foolish" bargains short-sighted people make. People complain of their crops, and yet expect Potatoes to grow on land hard and stiff in the subsoil, the surface having been moved about six inches, the space between the rows being overrun with Couch Grass, Cat's-Tail, &c. All land is improved by exposure to the air, and none more so than tenacious clays. Plant food obtained from the atmosphere is most valuable, which may be proved by forking between alternate rows of vegetables or Wheat ; the difference in growth will be perceptible in a few days, the experiment will repay the gardener or farmer, and speak more forcibly for itself than can be done on paper. Under a vigilant eye labour on the farm is never thrown away, though it may appear superfluous to the idle and ignorant ;—indirect brings in its wake direct gain. *Falcon.*

Small Farms.—The legislature have for a long while reduced the stamps upon leases, and it would be a blessing if the landed proprietors would but lease out to a poor man an acre or two of land at a cheap rate. See how many embarked in the land scheme of F. O'Connor, M.P., and how many are now paying enormously for a 40*s.* freehold. I look upon an acre of land upon lease making a man independent, and not dependent. There is one acre of land lost in every 25 acres by hedges and ditches, which only harbour insects and vermin : besides

which many have orchards which often yield fruit but once in two years; and woodland might be cleared and let out in small quantities upon lease. But I assure you, although the legislature have reduced the stamps upon leases—and where the rent is not 5*l.* the stamp is only 6*d.*—a poor man cannot get an acre or two upon lease. I believe many thousands now engaged in 40*s.* freeholds will before 10 or 12 years find the deeds in mortgage when wanted similar to F. O'Connor's case; and simply renting a plot of land upon lease would prevent many having anything to do with 40*s.* freeholds: besides which, I do consider, looking at these words in Genesis—"God made male and female, and gave them the earth for their inheritance," that while these words are manifest that it was ordained that man should have the earth, it is a shame that we should have a New Forest of 92,656 acres, and Dartmoor 200,000. Why should not land be leased in small quantities, for I say again one acre of land to a poor man is a great good to get? *Charles Paul*, 3, *Albert Grove, Peckham.* P.S. To give a man his acre or two (upon lease) you make him independent instead of dependent, and there is a wide difference between these words, and if you could but get land leased at an equitable rate it would be a blessing to mankind, and you would prevent many emigrating; a man may get an acre of land in America for 5*s.*, in this country he cannot for 70*l.* an acre.

Function of Salt in Agriculture.—In your article on this subject the power of salt to fix ammonia is in a great measure attributed to the presence of sulphate of lime in the salt, if I understood you rightly. It is, therefore, a matter of some importance to know the sort of salt which contains sulphate of lime, in the proportion most likely to retain the ammonia in guano for the longest period. A dealer in salt advised a farming relative of his never to be persuaded to buy refuse or agricultural salt because of its low price, for it was infallibly the dearest in the end, but to buy the pure salt although he paid much higher for it. I have used tons of salt, oil, or fishery salt—best salt—and this refuse salt; and although I do not feel competent to pronounce a judgment on their relative values, I have decided to purchase the best salt, if I buy any more for field purposes, rather than either of the others. It may be, however, that pure salt contains the least sulphate of lime. This would be an argument against using it with guano; but what salt to apply together with guano, instead of the pure salt, is a point which I do not think settled. Can any description, known to contain the requisite quantity of sulphate of lime, be got in any particular quarter? In the siftings of Stafford coal ashes, I read in an extract from the Royal Agricultural Society's Journal there is 2.44 per cent. of sulphate of lime. If 1 cwt. of guano were mixed with 10 cwt. of these siftings there would be about ¼ cwt. of sulphate of lime therein to operate upon the guano, if in such an admixture this be a thing possible. *Allerton, Oct.* 14.

Potato Haulm.—In a table of the comparative value of different kinds of fodder published by M. Antoine, at Nancy, 300 lbs. weight of Potato haulm is given as equal in value to 100 lbs. of the best upland meadow hay. Potato haulm stands very nearly as high as Carrots, and superior to a slight extent to Swedish Turnips and Mangold Wurzel, and very much superior to Cabbage and Beet leaves, and to common Turnips. The Norwegian farmers, who never perhaps thought of the theory which we might build on the relative value of Potato haulm to other fodder, are said to collect their Potato leaves, and to lay them on frames or fences, or any other places where they may be dried with facility; when dried they are kept for making cooked mashes for milch cows. A good handful of them is put in a vessel for each cow, and hot water poured over it; it is then left to stand covered until next day, when the leaves and juice are given to the cows. It is said that they yield much milk on this meal. I only met with this scrap about Norway the other day, and it may be new to some of your readers, who, like myself, have hitherto thought only of the value of the Potatoes themselves, and have left the haulm on the field. The analysis of Potato haulm would lead us to think it of some value, but I know not what constituent renders it so good as the Norwegians seem to find it to be for milch cows. One half of the ash is made up of lime, chloride of potassium, and potash. Leaving Potato haulm to be ventilated in your columns, if it be not too inconsiderable a matter for the operation, I wish success to the man who gives his milch cows the first Norwegian mess of it *à la mode. Allerton, Oct.* 13.

Fisken's Plough.—Anxious, on a former occasion, to expose "I. A. C." as little as possible, and the shortcomings of the invention in question because capable of great improvement, it appears we have failed in convincing him of his (we repeat) serious mistake. The facts of the case which he ought to have laid before your readers are briefly these. Mr. Fisken's rigger steam plough (not Mr. Fisken himself, as somewhat learnedly but unwittingly insisted upon) is a compound of two old failures, the one patented in 1812 (No. 3632) by the Messrs. W. Chapman, of Durham, and E. W. Chapman, of Wallsend, Northumberland; and the other in 1833 (No. 6351), by Mr. J. Saxton, of London; and instead of "lessening the strain," or "working with a less strain upon the (its?) anchors than any one else has ever worked with," as unfortunately repeated last week, it does the very reverse, the strain being greater by the additional strain upon them in working the driving rope and rigger (or driving ropes and riggers according to the combination) "plus" the increase of rigger traction friction not so easily estimated. It is with some reluctance we go back with him to his "bold announcement" and its startling proof—"one's little finger at the long end of a lever," but when he himself admits that "the driving rope is running 20 miles per hour when the plough carriage is going only two," we may be allowed to ask: how can this difference be obtained without an increase of strain upon the anchors? The fact is, he commits suicide when he acknowledges that "the strain upon the rope is thus only 1-11th of the whole draught of the implement," for, granting this to be correct, if the long end of the lever balances the short—the "little finger" a "ton weight," then "the anchorage at the far side of the field" has to sustain "a drag" equal to twice the draught of the implement, "plus" twice "one eleventh," "plus" rigger-friction, or something more than double what he rather dogmatically teaches. With regard to steam ploughs sailing in our fields—Lincoln Fens, for example—the idea is so very refreshing now that we have no telegraph news from Sebastopol, that we hope the readers of the *Agricultural Gazette* will allow us to enjoy it a little, as questions of this kind can always be safely left in the hands of experience. If the continuous "feed" of a straw-cutter acts retardingly against the knife, like a brake on the wheel of a railway carriage—how can it be otherwise with the continuous progression of Usher's rotary ploughs against the unploughed land? *W. B.*

Steam Engines.—Mr. Mechi has sent us the following memorandum, which should have been appended to his last week's paper on this subject:—I find that without the air-vessel the escape-valve rises more or less at every stroke, and there is some jarring: with the air-vessel there is scarcely ever a rising of the valve, all is easy and tranquil, whereas without either valve or air-vessel, there was everywhere resistance, jarring, and straining. It is easy to understand that the confined elastic air receives the shock of the pump rod, and during the return of the latter gently pushes forward the water to the boiler. We should, with such an arrangement, rarely hear of any difficulty in supplying steam boilers with water.

Farmers' Clubs.

Killucan.—*Stall Feeding.*—The following is a portion of a paper on this subject, read by Mr. Harkness, at a meeting of the Killucan Farmers' Club:—A friend, who settled in the west of Ireland in the winter of 1852, fed 30 cattle in the winter 1853-4, for six months, giving them the first four months three feeds of Turnip daily 50 lbs. each, and for two months two feeds of 50 lbs. each with grain and oil-cake, at the rate of 40*s.* per head.

The cattle were sold in the Dublin Smithfield market at an average of 27*l.* 10*s.*		£825 0 0
Deduct.		
The Ballinasloe price of cattle when laid in	£450	
Extra food, cake, &c., at 40*s.* a-head ...	60	
Attendance and interest of money	30	
		£540 0 0
		£285 0 0

Setting the dung and extra food passed as excrement against the straw, these 30 cattle thus paid all extra food, and 11*l.* each to pay for Turnips and profit. The rent of Turnip field at 19*s.* per statute acre, and the fair proportion of manure and tillage chargeable against the Turnip crop, amounting in all say to 5*l.*, would leave the handsome clear profit of 6*l.* a head for feeding each beast, or assuming 25 tons of crop per statute acre, and 2½ cattle kept for six months on such a quantity of Turnip, the crop would thus pay at the rate of 15*l.* per acre for feeding. In 1854-5 the same friend fed a larger lot of cattle, and gave various kinds and quantities of food. His cattle getting cut straw, cooked with 4 lbs. of oil-cake and 2 lbs. of Barley-meal with decreased Turnip, not exceeding 112 lbs., have altogether progressed more rapidly than the cattle fed by any other method, making in some cases at the rate of 3 stone per week for three months. The details of the last trial we will get and publish. We find another case reported in the Royal Agricultural Society's Journal, that of Mr. Milne, of Clobemon, Ferns.

The 25 cattle fed by him from January to May 1853, sold for	£335 17 0
Cost price, interest of money, and extra food ...	219 19 0
	£115 18 0

This sum is left to pay for the Turnip, or 4*l.* 12*s.* 6*d.* per beast, which at the rate of 2½ animals to a statute acre of Turnip would be 12*l.* odd per statute acre, the straw being paid by the unappropriated food going for the manure. The following instance of cattle feeding we have from a Northumberland friend, of tried experience, Mr. Stephenson, Fourstones, near Hexham, Northumberland. We sent him a copy of our queries, and the following communications he gave in reply:—"I may not be able to answer all your queries satisfactorily, but if the following short remarks be worthy your attention, you are welcome to them. Having a hill farm along with my home one, I am enabled to breed all the stock I feed, which places me in a different position to a man who has to face the market to buy his lean cattle. My general system of feeding fat cattle is from home grown produce—viz., three feeds of cut Swedes of 40 lbs., more or less, according to the size of the animal, and 4 lbs. of compound each per day, with an unlimited quantity of uncut straw. The compound is made from crushed Linseed, with Bean, Pea, or Barley meal, and is cooked in a pot made for that purpose. I put 20 head of cattle, short-horns and half-breds, to feed the first week in November 1854; the fair market value for which would be 13*l.* each. I have sold 11 of the number, after feeding them 11 weeks, at 18*l.* each; the remainder, I have no doubt, will do as well, as they are a fair average of the lot. I have now put a second lot to feeding; 16 half-breds, 1 year and 7 months old, which I expect will be fat by the month of June. I fed a lot of the same kind of animals last year, 4 of which I sold at 1 year and 10 months old in Newcastle market, on the 18th of April, at 15*l.* 3*s.* each. I am a decided advocate for early maturity in cattle feeding. Quick returns is what we ought to aim at. I presume that your subject is intended to prove that Mr. Mechi is wrong in his assertions that fat cattle do not pay for the food they consume. I have no hesitation in saying that the stall-feeding of cattle does pay. If we look at the crops of Swedes which Mr. Mechi is stated to grow, from 12 to 15 tons per acre (the results of high farming), we need hardly wonder at his failure in feeding fat stock. I can grow from 25 to 30 tons per acre with good farming. High farming is one thing, and good farming is another. I have no opinion of the former as a system for a man to adopt who has his living to make by farming, but I am a warm advocate for the latter. I will back the balance sheet of the good farmer against the balance sheet of the high farmer for any amount. I agree in one remark made by Mr. Mechi—that farming is notoriously a slow business; but it would be much slower if it was not for the benefits derived from the feeding of fat cattle and sheep. Further, Sir, in answer to your inquiries as to the cost per ton of my last year's Swedes, I think the following will be near the mark:—

Rent of land per acre	£2 0 0
20 square yards of home made manure, 3*s.*	3 0 0
Preparing land, ploughing, grubbing, harrowing, hoeing Turnips, &c.	2 10 0
	£7 10 0

"I estimate the crop at fully 25 tons per acre, which will give 6*s.* the cost price per ton. The compound, with the present prices of grain, will be 1*d.* per lb. If you compare this with the statement already sent you, you will find the cost per head per week as follows:—

60 stone of Turnips	£0 2 3
2 stone of compound	0 2 4
	£0 4 7

"I have used this compound for some years, and believe its feeding properties to be superior to either Linseed cake or meal given in a dry state. I never give hay to feeding cattle, believing that it is a kind of food for which they never pay. Neither have I made any charge for straw or attendance, which cannot amount to a great deal per head. I will be paid in the manure made." Mr. Stephenson's report is very much to the point. We have also before us a most distinct report upon stall-feeding from Mr. Campbell, the intelligent agricultural manager of Sir Charles Coote, Bart., of Ballyfinn. We had the satisfaction of examining a large farm of Sir Charles, which has been reclaimed within the last eight or nine years from a waste deer forest, under the judicious, economic, and efficient management of Mr. Campbell. In addition to his excellent drainage and general improvement of the ground, we were highly gratified with his machinery and conveniences for cutting Turnips, straw, Furze, crushing bones for manure, and all kinds of grain and Pulse to be cooked by steam or hot water in large vats. Mr. Campbell remarks:—"I may observe that on such a farm, inferiorly situated, or far from the manure market, I consider stall-feeding stock indispensable, and without which the necessary stamina could not be supplied profitably during a desired rotation of the crops." Again he says—"As to profit we do not complain, if we secure on an average 20*s.* per month per head in cash. We frequently do more, but we consider this sum but a small portion of the profits of stall-feeding, as proved in effect on our cereals during the rotation." *Journal of the Agricultural Improvement Society of Ireland.*

Winchcomb.—On Wednesday last this association held its annual meeting. The forenoon was spent in awarding and distributing the various prizes at the disposal of the association, and the members and others afterwards dined together in the evening. Mr. E. Holland, M.P., occupied the chair, and stated, in the course of the entertainment, that since the formation of the Society, 16 years ago, as many as 597 premiums had been distributed by it to deserving persons for skill and good conduct, and the amount subscribed in money to pay those premiums was no less than 1198*l.* The Earl of Ellenborough spoke in the course of the evening. He said: I think it very desirable that there should be one occasion in the course of a year in which gentlemen who possess property, and those who are their tenants and cultivate their property, and the labourers also, especially those distinguished by good conduct, should meet at the same board on terms of perfect equality. I rejoice to hear that the subscribers to this Society are not diminished in number, but I wish that we met here on these occasions in greater numbers; and I do hope that those gentlemen who are here to-day will on future occasions endeavour to induce their friends to accompany them, so that we may have a full and proper representation of the property, tenantry, and labour of the union. And, gentlemen, Mr. Holland has very justly observed on the character of this institution. It is idle to suppose that the small reward which it is possible for us to give to an individual can really be a remuneration to him for in some cases some 36 years of good conduct. The thing is impossible. At the same time, the higher prizes are not in themselves quite insignificant. They will pay a man's rent for a year, which, in a certain degree, is an object to any man in

any situation. But the object of this institution is to show honour to good conduct. It is not the pecuniary reward—it is the acknowledgment publicly given to a man that he, in his station of life, has conducted himself with thorough respectability, and deserves the respect and honour of those by whom he is surrounded. That is what we tell them. We give them a card which shows this, and any one who goes into their cottages can see that this is our opinion of them. Why, you hear of soldiers fighting formerly for 1*s.*, and now for 1*s.* 6*d.* a day. They are not fighting for that alone. It is not that which induces them to risk their lives for their country. It is the hope of honour—the reward they expect for distinguished conduct in the field under the fire of the enemy—that is their reward. They know that wherever they go in after life, wherever they go before men—and still more before women—it procures for them general respect. Why, the medal which they receive is not worth half-a-crown. Do they ever attach a money value to it? It is the honour of the thing that they regard, and it is that honour which leads them to distinguish themselves in the presence of the enemy, to obtain glory for themselves and their country, and the advancement of public interests. And, as far as we can in our humble way, as agriculturists, we endeavour to promote the same feeling among labourers, by giving them the highest mark we can bestow of our respect and consideration. For myself, it is the greatest pleasure to see these most respectable persons approach this table and receive that which we can bestow; and I know it is to the employers a subject of the greatest gratification to be enabled to produce them at this table, and show how well they have been served. I am delighted to see the union between master and servant which is exhibited when these men come forward to receive their prizes. I know the master takes as much pleasure in it as the person who receives the prize. It is true that these establishments do not, because they cannot, exist in a manufacturing districts. Is that to be stated against or as a reason why we should not persevere in what we have begun? Quite the contrary. If there is any merit in it, the merit is ours, in having distinguished ourselves above the manufacturing classes, who have not established these institutions. But in point of fact, the servants of the manufacturer are situated so differently—the numbers are so enormous that is impossible to distinguish individuals; and in such districts societies like this would be almost totally inapplicable.

Farm Memoranda.

Deutsch Kreutz, near Odenburg, in Hungary.—After I had seen Baron von Haynau, and settled our business at Vienna, I was introduced to Mr. Haswell, the intelligent and talented manager of the railway-engine and carriage manufactory at Vienna: he is a native of Glasgow, which may be proud of her son. These are the second largest works of the kind on the Continent, and are second to none in arrangement and discipline. Mr. Haswell kindly introduced me to Mr. Smallbones, of Deutsch Kreutz, near Odenburg, in Hungary, consulting agent to Prince Esterhazy, under whom he occupies an extensive farm, which is a model of what can be done by English ingenuity, industry, and perseverance. Mr. Smallbones is highly thought of in Hungary by both rich and poor. By invitation I went down from Vienna to visit his farm in Hungary, which gave me much gratification, convincing me that the views I had taken of the productive powers of the soil of that ill-cultivated country were sound and correct. Mr. Smallbones' farm is upwards of 1200 acres English, all in tillage; he has likewise extensive rights of pasturage upon the neighbouring plains. The country all around Odenburg is slightly hilly, with mountains in the distance. The soil is a naturally fertile light loam, but, through the wretched system of farming practised, its productive powers had been much reduced; however, the example and success of Mr. Smallbones must ultimately do great good. Mr. Smallbones grows about 450 acres of Wheat, 150 of Barley, 150 of Maize, which he cuts green for fattening bullocks and feeding his farming horses and oxen; 150 acres of Tares, which are partly eaten in the houses by the fattening cattle and teams, the rest is eaten on the land by sheep, which have a liberal allowance of corn or cake at the same time; this crop is immediately followed by a crop of Turnips. He has also 150 acres of Mangold Wurzel, and 150 of Clover, with about 50 acres of Lucerne. I believe his rotation runs thus:—Wheat after Clover, Tares followed by Turnips, Barley, Indian Corn sown thick for soiling cattle, working oxen, and horses, Wheat, Mangold Wurzel, Wheat, Clover. The soil, like the surrounding country, is naturally good, but when it came into his occupation was in a poverty-stricken state; he set to work, however, with the full determination of showing what could be done in the way of improvement. Mr. Smallbones came over to England and took out a stock of the machinery and implements best adapted for the country and his system of farming. He is now getting his farm into excellent condition; although he has only had it a few years, his crops on all those fields that have been fallowed with roots are excellent, notwithstanding the season has been an unusually dry one, which has greatly reduced the usual bulk of straw, but the ears (on the land in good condition) were beautifully filled with fully-developed grain. When I was there he was having his Clover mown for hay; it was the heaviest and longest crop of Clover it has ever been my lot to see; above a yard high, and as thick as it could grow; and to see above a score mowers hard at work on 140 acres of such a crop, was one of the finest agricultural sights that could be witnessed. Mr. Smallbones has arranged his farm in rotation as near 150 acres each as the form of the land will permit; but has adopted the clever plan of making four fields as nearly as possible 75 acres each close to the homestead, and four of the same size at the greatest distance, one of each being cropped together, while in the middle distance the fields are the full size of 150 acres; thus he makes the distance, for the manure and other haulage to be done, the same one year as another, which is of great importance. The house is a splendid edifice, and the farm-buildings are of the best description and conveniently built. He had upwards of 100 head of large Hungarian cattle up feeding upon Tares; they were to be finished upon Indian Corn or Maize cut green, which is very fattening food. He had also 30 working oxen, 30 horses, and a large flock of sheep, which are folded on the same land 48 hours, eating mown tares and cake or corn mixed with a little chaff. Directly the sheep are off, the land is ploughed, pulverised, manured, and sown with Turnips; thus the field is got over as fast as the Tares are consumed. Part of the crop was up, the drills showing well, and proving by their straightness that the drill had been guided by a good workman; indeed, I saw Garrett's drill and horse-hoe, both, managed by Hungarian ploughmen as well as I have ever seen them in England. They were using the horse-hoe among the Mangold Wurzel the second time before thinning, which operation was also being performed in a most satisfactory way. It was gratifying to see the efficiency and expedition exercised by these poor ill used people when properly treated. Mr. Smallbones' farming is first rate; he drills his roots 16 inches apart and his grain 10 inches, and horse-hoes the whole. Well ordered economy is the rule of his establishment. He has several German, Austrian, and Hungarian gentlemen's sons learning the art of agriculture with him. I may state that he finds that the proper way of making oxen work is by pushing their forehead against a padded board, to the ends of which the traces are attached, as is the universal system throughout nearly all the continental nations. The oxen so worked are in no way injured for the butcher; they can also travel faster, chewing their cud at the same time, and can work longer hours without being overtired. He also finds that the plough in general use is much better than ours for moving and pulverising the soil; and that the rude waggons of the country are as economical as our more powerful and highly finished ones made in England, from their only weighing half the weight of ours. Weight is of paramount importance where the roads are generally mere tracks across the country; also, where produce has to be drawn a great distance to market, the proportion of power consumed in drawing the carriage to and fro is of vast importance, therefore this people adopt as a rule, in which he agrees with them, and so do I, that the carriage should never exceed one-fifth the gross weight of the load. These are, I believe, the only implements in which the continental nations excel us. After I left Mr. Smallbones I observed that the farming was much better near his farm, and that it gradually declined as we got further from him; there was, however, occasionally to be seen amongst the large owners one who was taking example by him, and had imported some of our best implements, such as Hornsby's drills, Garrett's horse-hoes, and Crosskill's clod-crushers, and was also draining his land and enclosing it in proper fields for rotation husbandry. This I have little doubt will soon become the rule in place of the exception as at present; for when we see a people taking up the example thus shown them, and unprejudicedly adopting it as far as their means will permit, it argues well for their advancement, especially when that example is such as will lead them to wealth and prosperity. Mr. Smallbones is now beginning to breed Hungarian cattle, with the view of improving them to the utmost. He has also been making great improvement in his flock of sheep by careful and judicious selection of his male and female animals; he is of opinion that the best way to get first-rate stock is to improve the native breeds by proper selection, treatment, and feeding, in which opinion there is much sound judgment and sense. *Mr. Love, in Journal of the Agricultural Society of England.*

Miscellaneous.

Experiments with Wheat.—Mr. Pawlett, of Biggleswade, has for many years been in the habit of comparing the productiveness of different kinds of Wheat. The following is his experience for the past season, as published in the columns of *Bell's Messenger*:—Having for the last few years given an account of the various trials which I had made on the productive properties of different varieties of Wheat, I again offer to the notice of your readers a statement of my experiments for the present season. Experiment No. 1.—The three following sorts of white Wheat were drilled separately (October 12), on lands which had previously borne a good crop of White Clover, at the rate of about seven pecks of seed per acre, at 8-inch intervals. The result I found as follows:—

No.	Quantity per acre. Bsh.	Pk.	Gal.	Value per qr. s.	Value per acre £	s.	d.
1. American, white	44	1	1	86	23	17	0
2. Grace's, white	52	2	0	85	27	17	9
3. Imperial, white	47	3	0	86	25	13	4

Experiment No. 2.—The following sorts of Wheat were drilled at 8-inch intervals (October 17, 1854), on a different part of the farm to those named in Experiment No. 1, on land in a high state of cultivation, and only 6 pecks of seed per acre was allowed. They were all put in on lands contiguous, and produced the following result:—

No.	Quantity per acre. Bsh.	Pk.	Gal.	Value per qr. s.	Value per acre £	s.	d.
1. Improved Browick, red	50	1	0	79	24	15	10
2. Uxbridge, white	47	0	1	86	25	6	7
3. Grace's, white	52	2	0	85	27	17	9
4. Imperial, white	47	0	1	86	25	6	7
5. Grace's, white, as No. 3	52	1	0	85	27	15	2
6. American, white	45	3	1	86	24	13	8
7. Brown straw, white	43	2	0	85	23	2	3

Experiment No. 3.—On the same day as the above experiment No. 2, and on the same sort of land, the following varieties of Wheat were drilled, also with 7 pecks of seed per acre, in rows at 8 inches asunder, on lands adjoining. Result:—

No.	Quantity per acre. Bsh.	Pk.	Gal.	Value per qr. s.	Value per acre £	s.	d.
1. Spalding, red	47	3	0	79	23	11	7
2. Albert, red	46	0	1	79	22	15	5
3. Improved Browick, red	50	2	0	79	24	18	4
4. Lammas, red	47	1	1	80	23	13	9
5. Prima Donna, red	42	3	1	78	20	18	0

An advertisement appeared in *Bell's Messenger* last autumn of a new variety of Wheat, called the Ne Plus Ultra, and being as usual anxious to prove a new sort, I procured 2 bushels of it only, as the price was rather high, it having cost me, including carriage, 2*l.* 9*s.* This sort was drilled by the side of the improved Browick in the middle of October, 1854, on a good piece of land, at 8-inch intervals as usual, and at the rate of about 7 pecks of seed per acre. Both sorts came up and planted well, but the Browick was ripe and fit to cut a fortnight before the Ne Plus Ultra. The weather, however, having continued fine, both sorts were harvested in excellent order. The result, when threshed, was as under:—

No.	Quantity per acre. Bsh.	Pk.	Gal.	Value per qr. s.	Value per acre £	s.	d
1. Ne Plus Ultra	47	0	0	68	19	19	6
2. Improved Browick	45	1	0	78	22	1	2

The quality of the Ne Plus Ultra Wheat was very coarse, and I think not worth so much, at the present value of Wheat, to the miller by 10*s.* per quarter as the general runs of Red Wheat. I believe that I should have some difficulty in disposing of it at the reduced price which I have given above. It may be remarked that I do not give the weight per acre of the different kinds of Wheat. My practice is, when I dress up, to weigh the whole quantity grown on each plot of land (and not measure it), then reduce it into bushels per acre of 63 lbs. each net, which is, I consider, the fairest and best way. By referring to the statements I have given, it will be seen that it is necessary to cultivate the most productive sorts of Wheat. By attending to this, and farming on a very excellent soil, accounts for the large produce of Wheat which I have again this year. *T. E. Pawlett, Beeston, Biggleswade.* [Mr. Pawlett has the credit of having for many years given attention to the selection of sorts of seed Wheat, and some of those named in the above list have retained their character for a considerable period. The Browick red appears to have proved itself for some time past a productive sort. Red Wheats have furnished several varieties lately of excellence, while new sorts of white have been rarer.]

Calendar of Operations.

OCTOBER.

Berwickshire Merse Farm, *Oct.* 13.—The great bulk of our harvest was finished three weeks ago, with the exception of some late Wheat which we carried a week later. One peculiarity has been noticed in this season, that there has been less difference than usual between the early and the late districts; thus our Lothian neighbours were engaged at the same time as we in securing their spring Wheat and Beans, though their low sea coast makes their climate a fortnight earlier in general. Beans are not a regular crop with us, as they seldom ripen properly unless allowed to stand till a precarious period of the season. The weather of August was unusually rainy, but it cleared up opportunely for our commencement, and after the 25th we lost half a day only, and finished harvest, with the before-mentioned exceptions, in four weeks from that day. Though the weather is now soft and showery, all the rain that has fallen has not penetrated to any depth, and our water-mills have as yet done very little work, consequently we have little idea as to how the straw will yield. If we may judge from the little we have done, and from the talk of our neighbours who have steam power, the results indicate about an average quantity of grain, but a very decided inferiority both of quality and condition. The latter defect will disappear through the winter, but with it will also disappear a large bulk of grain, which will reduce the crop to considerably below an average yield of well conditioned grain. The following table will show the condition as indicated by the weights of this crop as compared with last year's at the same period:—

	1854 lbs.	1855 lbs.
Wheat per bushel	63	60 to 61
Barley ditto	56	53 to 54
Oats ditto	43	40

The young Grass was scarcely visible at reaping, having been nearly choked by the laid state of the corn; but it is now pretty well planted, although not so regular as last year, and affords a good bite for the lambs (hogs). The Turnip crop has suffered severely from finger and toe on some farms, even to the extent of total failure, where drainage or lime are wanting. But on all

our break, which has been newly limed, there is not a diseased root. One or two instances of failure on recently dressed land are found, on investigation, to arise from the wet condition of the lime when applied. The first result of this failure, which showed itself just before harvest, was the depreciation of lean sheep to the extent of 5*s.* a head. Cattle were not similarly affected, perhaps because farmers must have beasts to put down their straw, and therefore any diminution of stock must come off the sheep. Fat sheep have been on Turnips three weeks, and improve rapidly; the hogs we hope will require few before the 1st of November, for Turnips are not too plentiful, and command high prices. Good steers (about half-fat) are thriving capitally on Turnips laid down on a lea field, and will not be housed so long as this mild weather continues. Our Turnips were threatened with an attack of mildew after the long drought of harvest, but the timely advent of showery weather has set at rest all fears on that score; the roots are sound, but not yet ready for storing. *J. T.*

South Devon, *October* 8.—The heavy rains we have had for some days past are proving most beneficial to the growth of the root crops, which were in a completely stagnant state, and in many cases past recovery; in short, it is much to be feared that, generally speaking, the remedy is come too late, and a preponderance of leaves over roots will be the result. The Potato crop is now being secured, and forms at present an important item in field operations: that the crop will be a very inferior one there can be but little doubt; we do not, however, hear as much of the disease as one would expect—the fact of its being no longer a novelty being probably the reason. The Apple crop is beginning to claim its share of attention, and women may now be seen collecting the early fallen fruit into heaps prior to pounding; the crop is a very partial one, and, generally speaking, may be considered below a half bearing. The accounts of the late harvest are far from satisfactory, both as to yield and quality—more particularly the Barley crop: and we fear good malting samples will be scarce. Our supplies of fat cattle are getting more abundant, and cause a reduction of prices. Store cattle are not in demand, the doubtful state of the root crops having rendered buyers cautious; this has been particularly felt at the numerous sales by auction of cattle during the past month. Our prices at present may be quoted as follows:—Fat beef, 60*s.* per cwt.; mutton, 6*d.* per lb.; old Wheat, 80*s.* per qr.; new Wheat, 76*s.* per qr.; Barley, 40*s.* per qr.; Oats, 24*s.* per qr.; wool, 8½*d.* per lb.; and Potatoes, 7*s.* per bag of 140 lbs.

West Sussex, *Oct.* 16.—Since our last report we have had some heavy rains, which came in good time to soften the lea ground for the plough, and now it turns up well; but the heavy wet lands must be let alone for a little time. Often impatience does mischief in them that a whole year will not rectify. There is not much Wheat sown yet, but all are on the look out so soon as the harrows can go: and here let us notice the method of preparing the seed Wheat, as that has been much discussed in your Paper this year. The plan I adopt is one for which I was indebted to your columns some 10 years ago, and which I may surely conclude to be perfect, for I have not seen one smutty ear after it all that time. But for the preventive:—Take three quarters of a lb. of blue vitriol, and dissolve it in about two gallons of cold water, or if you want to sow the Wheat at once, rather less water will do; take then a sack of Wheat and lay it upon any smooth floor where it can be taken up again, then sprinkle the solution over it with a bundle of straw tied tightly up (a water-pot will do it best, but it will not last one season, as the vitriol soon corrodes it through, as I have found): let the master do this, and have an assistant to turn it over quickly at least three times, the solution being all used with the second turning; then by the time the Wheat is taken up and carried to the field in some empty manure bags, it will be ready to sow by hand or drill. It will be found that two gallons of cold water will not dissolve all the vitriol, but I use a little hot water with it if convenient, or else put 1 lb. vitriol to the sack, reckoning that one quarter of it will not dissolve, so that it stands by till next time; of course, any quantity may be done at once, using the same proportions, and 1 lb. to the sack will do no harm. We cannot report very favourably of the Turnip crop; the rains came too late for them, and the late ones will be very small, and in some places they are very much eaten by the caterpillar. The gardens are almost stripped of vegetation, and the case seems worse further westward. There has been a good deal of Wheat threshed out, but still our market is not over supplied. We have had to pay dearer for our sheep this year by 4*s.* or 6*s.* a head, and the price of mutton must continue high before we can do well by them. Last year we had the market very favourable both ways. Cattle are dear, both fat and lean. The fat are not of first-rate quality; the high prices bring them into market before they are hardly fit. *G. S.*

Notices to Correspondents.

Giant Sainfoin: *E C.* It is to be sown and treated just as the common kind. April is a proper seed-time. More next week.

The Black Ant: *A Correspondent* asks for an effectual means of ridding the African or black ant from premises which have been long infested with them.

Pig Food: *Suffolk.* It will not be profitable to buy Potatoes for pig food at 6*s.* a sack. Pigs should receive mashed up with whatever steamed food is given to them from 4 to 8 lbs. of Barley meal each day, according to their size and consequent appetite.

To Salt or Pickle Bacon: *Forres.* As soon as the bacon comes from the butcher's hands it should have a covering of salt, dried and rolled to a fine powder, well rubbed in with the hand to every part, using the finger to fill every hole and joint, as it is most important that the meat should take the salt when quite fresh. In 12 hours all the brine and damp salt not absorbed should be scraped off the bacon and removed from the vessel, and dry salt added again as much as needed to cover it as before and well rubbed in. This process should be repeated every 12 hours for three days, when saltpetre should be added, getting off previously all the damp salt and brine as before, and applying the saltpetre as the common salt, adding a handful of the latter. A quarter of a pound of saltpetre to a side of bacon weighing 70 lbs. is sufficient; then mix 1 lb. of coarse brown sugar and 1 lb. of treacle, and pour over the saltpetre on the bacon, adding a little more common salt daily for three days, which serves to make the pickle keep well, and the whole liquor should be laded with a teacup over the bacon as often as convenient, four times a day for the first two weeks after it was first put to the bacon, and then never less than twice a day for the remainder of the time needed for its pickling, which is four weeks, or longer if larger bacon; and then it should be sent to the drying-house and smoked over wood fire. ——Tegetmeier's essay has not been published in a separate form that we are aware of.

Turnip Grating. We should be glad of information on this subject from any person who has had experience. A Correspondent writes to us as follows:—"In this part of the country hay is very scarce, and cattle must be fed more than ever with straw and chaff; it is, therefore, a great object to know how to make them most economically palatable and nutritious. I think, therefore, it would confer a benefit on the public if some of your correspondents would give the results of their experience in answer to questions of the following sort:—What implements or vessels are required for producing the fermented food? What time must be ordinarily allowed for the fermentation? (In frost?) May it be given in unlimited quantity? What points require particularly to be attended to? What particular benefit may be expected from the practice? I should be glad also to know whether it would be practicable and advantageous to convey the fermented food from the homestead to feed animals in a yard a short distance off, or to give it to sheep folded on outlying land.

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III. MR. THACKERAY AND THE NEWCOMES.
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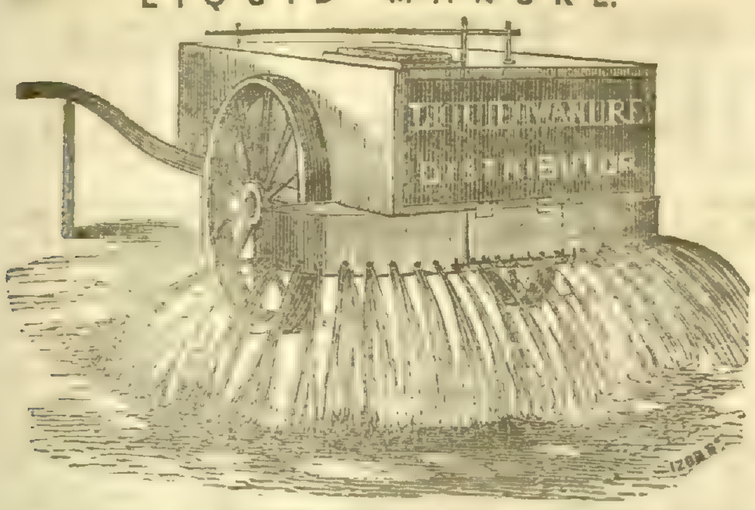

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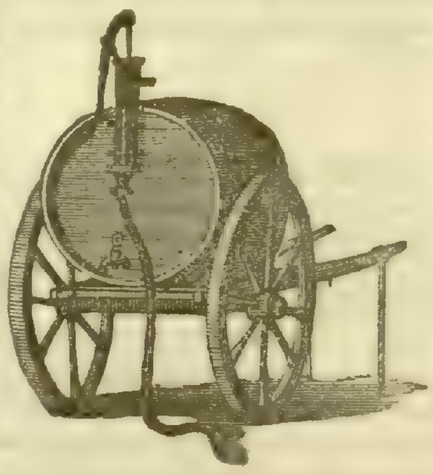

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„ Quindos	„ retusum
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NURSERY STOCK.
To NOBLEMEN, GENTLEMEN, CONTRACTORS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the Premises, Albion Road, Stoke Newington, on MONDAY, October 22d, and following day, at 11 o'clock each day, fine Ornamental Trees, Evergreens, and Shrubs, consisting of Aucubas, Hollies, Box, Laurels, Arborvitæs, Limes, Poplars, Lilacs, Weeping Ash, Purple Beech, Scarlet Chesnuts, Evergreen Privets; Rhododendrons, Azaleas, and other American Plants; choice Fruit Trees, including Apples, Pears, Plums, Cherries, Peaches, Apricots, Grape Vines, &c.; Standard Dwarf and Climbing Roses, and a large assortment of Hardy Climbers in Pots; choice Cinerarias, Chrysanthemums, &c.—Catalogues may be had on the Premises, of the principal Seedsmen, and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will sell by Auction, at the Mart, Bartholomew Lane, on WEDNESDAY, Oct. 24, at 12 o'clock, a first-class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Snowdrops, Ranunculuses, Gladiolus, &c.; also a selected assortment of fine Standard and Dwarf Roses, including Hybrids, Bourbons, Chinas, Noisettes, &c., and American Plants, comprising Hybrid Rhododendrons, Ghent and other Azaleas, Kalmias, Andromeda floribunda, beautifully furnished with bloom buds, &c.—May be viewed the morning of Sale. Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

WANDSWORTH ROAD.

MESSRS. PROTHEROE AND MORRIS have been instructed by Messrs. Chandler & Sons to Sell by Auction, on the premises in the Wandsworth Road, early next month, a collection of the following ORNAMENTAL TREES, EVERGREENS, and SHRUBS, comprising Laburnums, Almonds, Poplars, Lilacs, Evergreen Privets, Variegated and Green Hollies, from 2 to 8 feet high; Arbor-vitæ, from 2 to 8 feet; Laurels, large Box, Scarlet Arbutus, very handsome; crimson and other Rhododendrons, well set with flower buds; yellow Azaleas, Kalmias, Daphne hybrida, Escallonia, Veronicas, &c., &c.; also dwarf Apples and Pears well adapted for potting, Gooseberries, Currants, and Vines, Chrysanthemums, Passion flowers, Myrtles, &c., &c. This Sale is worthy the attention of Planters, as everything is in fine condition and will move well. An announcement of the days of sale will shortly be made, and Catalogues prepared.

UPPER GRANGE ROAD, BERMONDSEY.
To NOBLEMEN, GENTLEMEN, NURSERYMEN, AND PINE GROWERS.

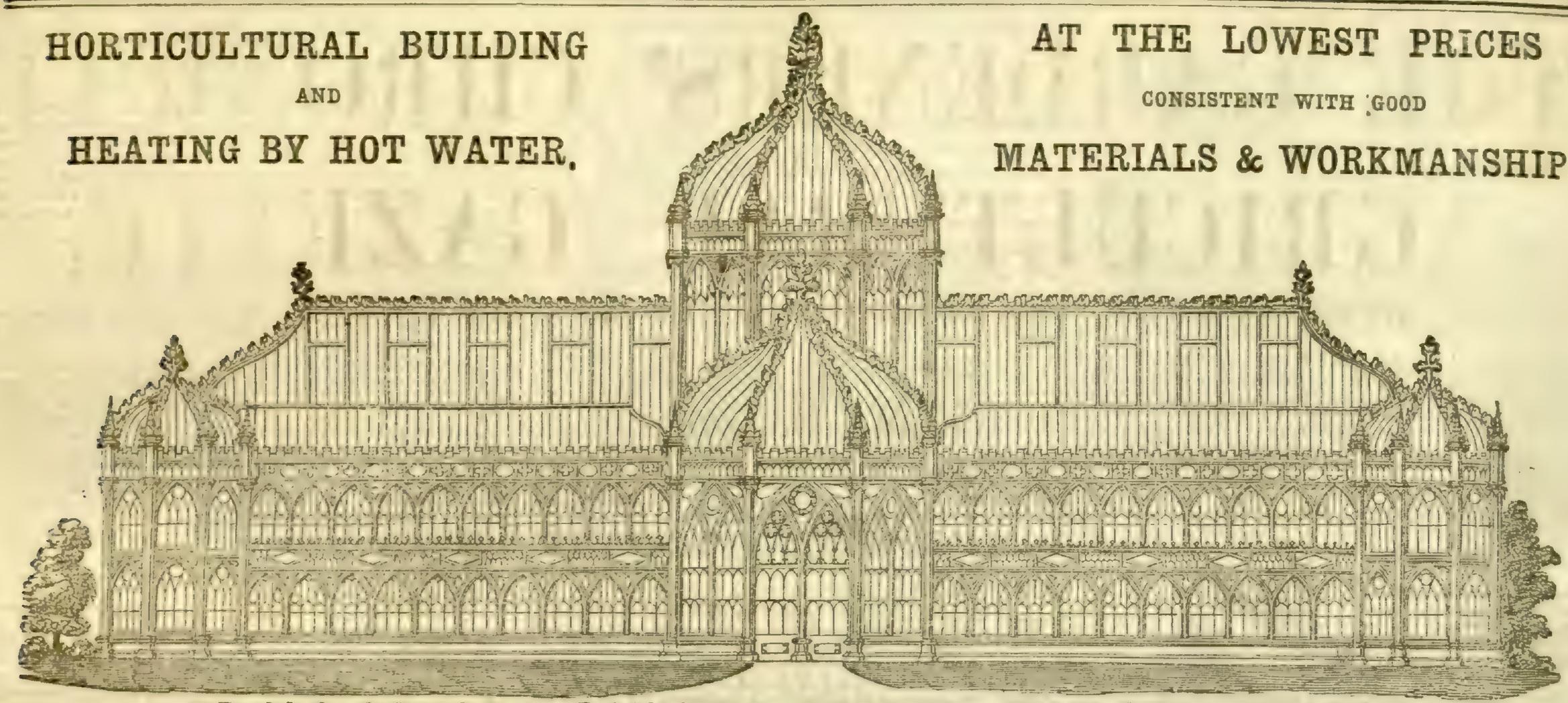
MR. WILLIAM T. ATWOOD will Sell by Auction, on the Premises without reserve, by direction of B. Drew, Esq., on FRIDAY, the 26th October, at 11 o'clock, the extensive STOCK of PINE PLANTS, the various Ranges of Graperies and Forcing Pits; the Hot-water Apparatus, comprising about 1500 feet of pipe, and three large Boilers. The above property is in good condition, and offers a valuable opportunity to persons requiring Pine Plants and Forcing Houses.—Catalogues to be had of B. DREW, Esq., Bermondsey Street; W. T. ATWOOD, Auctioneer and Land Agent, Mortlake, Surrey; and the Inns in Covent Garden.

NURSERY STOCK.—WHALLEY RANGE, MANCHESTER.

MR. CAPES begs to state that he has received instructions from Messrs. H. Bigland & Co., in consequence of the expiration of their lease, and the grounds having to be given up, to Sell by Auction, on WEDNESDAY and THURSDAY, November 7th and 8th, at 10 o'clock each morning, the entire of the remainder of their STOCK of Evergreens, Fruit and Forest Trees, two Greenhouses, Dutch Pit, and other Effects, at the Britannia Nursery, Whalley Range, near Manchester, further particulars of which will appear in future announcements and in Catalogues, which will be ready a week prior to the sale.—22, Princess Street, Manchester.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER.

AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

COTTAM AND HALLEN, Engineers, Founders, &c.

2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

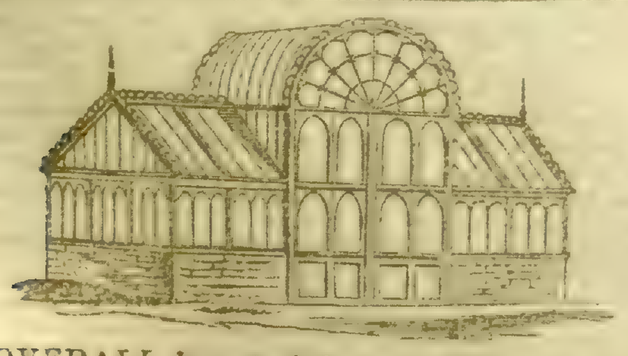
EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description, by Hot Water.—Prices and Estimates furnished upon application.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the frame work, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1s. 3d. per foot super. Hundreds of references can be given, and Printed Price Lists sent.



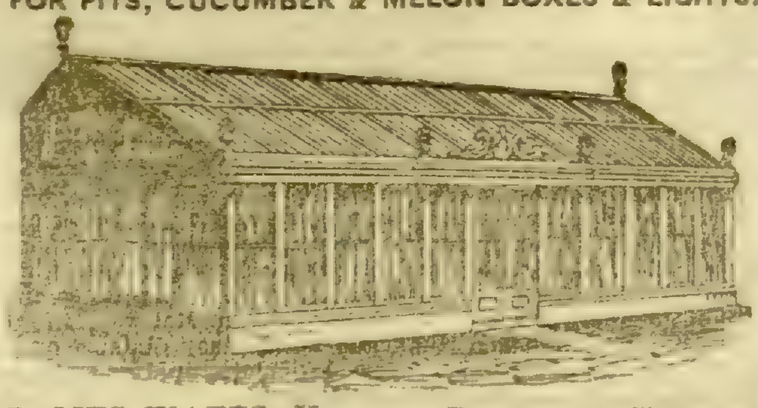
J. OVERALL begs to inform the Nobility, Gentry, Nurserymen, and others requiring Horticultural Buildings, Lights, and Frames, that by intrusting their orders to him, they may depend upon first-class workmanship and good materials at the most economical prices.

J. OVERALL, Horticultural Builder, 16, Shacklewell Lane, near Kingsland, London.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY, WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

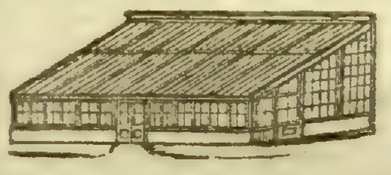
Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



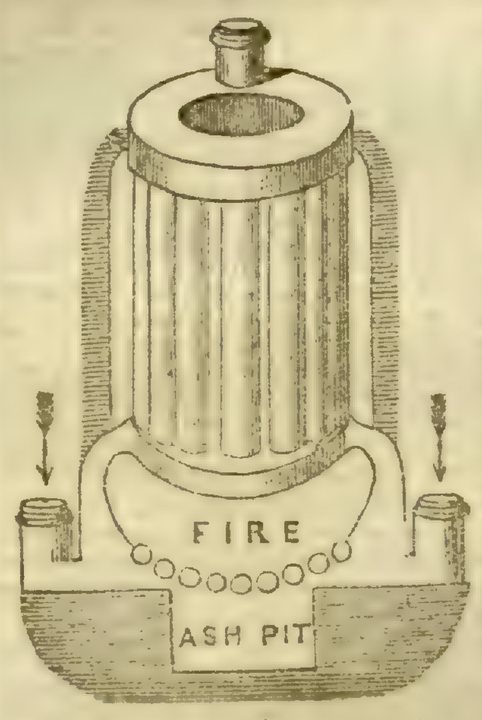
The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3s. 8d. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.



The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft. and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the late severe winter it only cost us 3s. per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *one of our Boilers*, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

JOHN WEEKS & Co., King's Road, Chelsea, London.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, October 20, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 43.—1855.] SATURDAY, OCTOBER 27. {Price Fivepence. Stamped Edition, 6d.

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HORTICULTURAL SOCIETY OF LONDON.—The AUTUMN MEETING will take place at the Society's House, 21, Regent Street, on TUESDAY, November 20th, from 12 to 4, P.M. The Chair will be taken at 2 P.M.

BRITISH POMOLOGICAL SOCIETY.—An Extraordinary Meeting of the British Pomological Society will be held at the Rooms, 20, Bedford Street, Covent Garden, on MONDAY, the 5th of November, to compare and determine the merits and qualities of Fruits, for the election of Members, and for general business.

It is hoped that all who take an interest in the cultivation of FRUITS and FRUIT TREES will forward to the meeting specimens of such varieties as they can obtain, correctly named, and otherwise assist in promoting the objects of the Society.

Persons desirous of becoming Members are requested to make application to the Secretary on or before the day of meeting. Members are elected at all the Meetings of the Society; and 10s. entrance fee, with 10s. annual subscription, constitute membership.—ROBERT HOGG, Secretary.

CAMELLIAS.

CHANDLER AND SONS, NURSERYMEN, Wandsworth Road, beg to inform their friends and customers that their CAMELLIAS are finely set with flower buds this season. They are sending out bushy plants from 30s. and upwards per dozen.

CHRYSANTHEMUMS.

CHANDLER AND SONS, NURSERYMEN, Wandsworth Road, have a large collection of the above now coming into flower. Good flowering Plants from 6s. to 12s. per dozen.

CHRYSANTHEMUMS.

F. AND A. SMITH have a large Stock of Pompone and large flowered varieties of the above now in bloom, which they offer on moderate terms. The plants are in 48-inch pots, bushy and dwarf, and well flowered, and will be found well adapted for purposes of decoration. Prices on application.—Dulwich, Surrey.

CHRYSANTHEMUMS.

WOOD AND INGRAM beg to offer fine flowering plants, covered with healthy foliage to the bottom, of good sorts, both Pompone and large flowering varieties, at from 6s. to 9s. per dozen.—Nurseries, Huntingdon.

AZALEA INDICA LEEANA.

JOHN AND CHARLES LEE are now prepared to send out this fine Seedling, which for habit of growth and substance of petal, combined with perfect shape and purity, is decidedly the best white Azalea yet out. It has gained Certificates wherever exhibited. Price 21s.; a few extra strong plants at 42s.—Nursery and Seed Establishment, Hammersmith.

NEW VARIEGATED GERANIUM—MRS. LENNOX.

JOHN AND CHARLES LEE are now sending out this novelty, which is a decided improvement on The Mountain of Light. It is of much more vigorous growth than that variety, the margin of the foliage is of a purer white, and in other respects it possesses the same good qualities. Price 7s. 6d.
Nursery and Seed Establishment, Hammersmith.

RASPBERRY CANES.

TO BE SOLD, about 900 (more or less) of Fine CANES, at a low figure.—Address to G. P. E., care of Mr. Brown, Bootmaker, near the Railway, Shoreditch.

SPANISH CHESNUTS.

TO BE SOLD, about 200,000 Strong SPANISH CHESNUTS, from 2 to 4 feet. Price sent on application to WATERER and GODFREY, Knap Hill, Woking, Surrey.

TO FLORICULTURISTS.

TO BE SOLD, 13 first-rate CAMELLIA PLANTS, in excellent condition, and covered with buds. They are to be sold on account of being too large for the Proprietor's present accommodation. They stand from 4 to 6 feet high. Price for the whole, 15l.

To the above may be added 12 beautiful AZALEA PLANTS, all superior varieties; price seven guineas. Decidedly bargains. Also nine fine DAPHNE PLANTS.—For particulars apply to MR. JOHN KEYNES, Florist, &c., Castle Street Nursery, Salisbury.

TO SEEDSMEN AND OTHERS.

TO BE SOLD, for cash on delivery, 200 Bushels of SKIRVING'S SWEDE, raised from selected and Transplanted Bulbs, warranted neat and genuine, and of the growth of 1855. Also for sale on the same terms, a few cwts. of MANGOLD WURZEL and CARROT SEED, of sorts, just harvested.—For price, &c., apply to Mr. WILLIAM TAYLOR, Nashenden Farm, Rochester, Kent.

RHUBARB.

TO BE SOLD, 3000 Roots of VICTORIA ALBERT AND LINNÆUS RHUBARB in splendid condition, price 50s. per 100, or 20l. per 1000, including package.—Address, Mr. WILLIAM HARNETT, The Cottage, New Cross, Kent: adjoining the Brighton and Croydon Railway Station. Post-office orders to be made payable at London.

ROSE CATALOGUE.

J. AND J. FRASER, NURSERYMEN, Lea Bridge Road, Essex, beg to announce that their New CATALOGUE of ROSES for 1855 and 1856 is now ready, and may be had on application.

ROSE CATALOGUE.

JAMES MITCHELL begs to announce that his New CATALOGUE of ROSES is now ready, and will be forwarded on application.
Piltdown Nurseries, Maresfield, Sussex.—Oct. 27.

E. P. FRANCIS' New DESCRIPTIVE CATALOGUE of ROSES is now ready for distribution, and will be forwarded gratis on application.—Rose Nurseries, Hertford.

ROSES.

T. RIVERS'S ANNUAL DESCRIPTIVE CATALOGUE OF ROSES is now ready for delivery, and will be sent post-free on application; it is so arranged as to be a complete guide for the Amateur.

The DESCRIPTIVE CATALOGUE OF FRUITS is now at Press.—Nurseries, Sawbridgeworth, Herts.

FRUIT TREES.

T. RIVERS'S DESCRIPTIVE CATALOGUE of FRUITS is now Ready for delivery, and will be sent post free. Applications enclosing six stamps (which will be returned to those who order Trees) will be promptly attended to; it contains 28 pages, has been compiled with much care, and is so arranged as to be a useful guide to the purchaser of Fruit Trees.
Nurseries, Sawbridgeworth, Herts.

ROSES, HOLLYHOCKS, ETC.

A. PAUL AND SON'S PRICED DESCRIPTIVE CATALOGUES of ROSES and HOLLYHOCKS are now ready, and may be had post free on application.

A fine stock of CONIFERÆ, ORNAMENTAL TREES and SHRUBS, FRUIT TREES, &c. Prices furnished on application.
Nurseries, Cheshunt, Herts, Oct. 27.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had by enclosing two postage stamps.

American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor Branch, South Western Railway, where conveyances may be had.

AMERICAN PLANTS.

JOHN WATERER'S CATALOGUE OF RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.

☞ The Catalogue describes the colours of the Rhododendrons.
The American Nursery, Bagshot, Surrey.—Oct. 27.

AMERICAN PLANTS.

WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.
Knap Hill Nursery, Woking, Surrey.

N. GAINES begs to announce his PRICED CATALOGUE for the ensuing season is now published, containing Show and Fancy Pelargoniums, Azaleas, Camellias, Fuchsias, Chrysanthemums, Verbenas, Ericas, Epacris, Ferns, Stove, and Greenhouse Plants, &c., and will be sent free on application.
The Nursery, Surrey Lane, Battersea.

BASS AND BROWN'S new AUTUMN CATALOGUE, comprising a considerable portion of descriptive and useful information for purchasers, will be sent free by post for three penny stamps, or gratis to their customers, who may not have received them.
Seed and Horticultural Establishment, Sudbury, Suffolk.

DUTCH FLOWERING BULBS.

JAMES CARTER AND CO.'S CATALOGUE OF DUTCH AND CAPE BULBS, the most comprehensive and select published, will be forwarded *free of charge* and *post paid*, upon application to address at foot. *The Bulbs are as usual of first-rate quality.*
JAMES CARTER & Co., 238, High Holborn, London.

R. PARKER begs to inform his friends and patrons that his PRICED CATALOGUE of DUTCH BULBS is now ready, and will be forwarded post free upon application.
Paradise Nursery, Hornsey Road, Holloway.

DUTCH BULBS OF SUPERIOR QUALITY AT LOW PRICES.

Anemones, early flowering, brilliant colours	5s. per 100.
Hyacinths, Dutch mixed, all colours	21s. per 100.
" " named, separate colours	6s. per doz.
Narciss, mixed	1s. "
Tulips, Dutch, mixed, early sorts	6s. per 100.
Crocus, Dutch, mixed, all colours	10s. per 1000.
Iris, mixed, all colours	5s. per 100.

The above, with every other kind of Flower Roots, equally moderate in price, may be had of WILLIAM DENYER, Seedsman and Florist, 82, Gracechurch Street, London.
Descriptive and priced Catalogues forwarded on application.

IMPORTED DUTCH BULBS.

EVAN PAUL begs to inform his patrons and friends that he has received his first importation of the above, which have arrived in first-rate condition, early orders for which are respectfully solicited. Catalogues forwarded postage free on application.—The Nurseries, Derby, Oct. 27.

DUTCH FLOWER ROOTS.

PETER LAWSON AND SON, SEEDSMEN AND NURSERYMEN TO HER MAJESTY THE QUEEN, and to the Highland and Agricultural Society of Scotland, respectfully intimate that they are now ready to execute orders for HYACINTH ROOTS, &c., &c., of the finest kinds and in excellent condition. Catalogues may be had, free, on application.
27, Great George Street, Westminster.—Oct. 27.

AZALEA INDICA.

JOHN AND CHARLES LEE beg to offer good Plants of the most select kinds of AZALEA INDICA, well set with buds, at 18s., 30s., and 42s. per dozen.
Nursery and Seed Establishment, Hammersmith.

FRUIT TREES IN POTS.

JOHN AND CHARLES LEE have the finest stock of the above ever yet offered, consisting of—

PEACHES	APRICOTS	CHERRIES
NECTARINES	PLUMS	APPLES

and PEARS.

All warranted to bear good crops the first season.
Nursery and Seed Establishment, Hammersmith.

VINES FROM EYES.

JOHN AND CHARLES LEE beg to offer a very superior stock of all the leading kinds of VINES, both for planting out and for fruiting in pots.
Nursery and Seed Establishment, Hammersmith.

VINES FOR FRUITING IN POTS.

MESSRS. J. AND J. FRASER, NURSERYMEN, Lea Bridge Road, Essex, beg to announce that they have a very choice selection of the best sorts of VINES from eyes grown in 12 and 15-inch pots, Price 5s. and 7s. 6d. each.
N.B. Strong Vines for planting out, 3s. 6d. each.—Oct. 27.

GOOD PINES WANTED,
From 2 lbs. to 4 lbs. each.

Forward immediately to GEORGE TAYLOR, Jun., Fruit Salesman, St. John's Market, Liverpool.

AGRICULTURAL SEEDS, ETC.

PETER LAWSON AND SON, SEEDSMEN AND NURSERYMEN TO HER MAJESTY THE QUEEN, and to the HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND, are now supplying the following seeds of the best quality:—

Italian Rye-Grass, Foreign seed	Dwarf Essex Rape
Crimson Clover (Trifolium incarnatum)	Winter Tares
Alsike Clover (Trifolium hybridum)	Natural Grass Seeds, for Pastures and Lawns, &c. &c. &c.

27, Great George Street, Westminster.

W. TOWNSEND has now ready to send out GERANIUM CYDONIA CARMINEA—for description see Advertisement, 4th August; has been exhibited at the National Society, 15th June and 26th August, and obtained a Certificate. Plants 5s., 7s. 6d., and 10s. 6d. each; one over to every three ordered in the trade. Post-office orders payable at Bayswater.—Notting Hill.

STATICE HALFORDI.

JOSEPH MORGAN has 300 healthy plants of different sizes, obtained immediately from the original stock. Also a large stock of strong flowering roots of GLADIOLUS BRENCHLEYENSIS and other choice varieties. Prices on application. A liberal discount to the trade.
Torbay Nurseries, Torquay, Devonshire.

HARDY HEATHS.

WATERER AND GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

OSAGE ORANGE (MACLURA AURANTIACA).

MESSRS. MORRISON AND SON have to offer about 50,000 Plants (5 to 6 inches high) of this fine new Hedge Plant (see *Gardeners' Chronicle*, May 13, 1854), price 10s. per 100. Price to the trade on application. Railways to all parts of the kingdom.—Nurseries, Mountcoffer, Banff, N.B.

MELON (ORION), The Crystal Palace Favourite.
CUCUMBER (Standard), unrivalled for forcing or natural growth,
PRIMULAS—Two new colours, scarlet and purple.
HOLLYHOCKS—From 24 best varieties.
PANSIES—From Hine's exhibition bed.

The above celebrated articles are saved from perfect specimens, and will be sent out at reasonable prices, by THOMAS WILD, of Ipswich.

PAYNE'S DEFIANCE RED WHEAT, warranted a true Stock and perfectly clean, grown upon new land, may be had of Mr. T. BAKER, Bury Farm, Stapleford, Cambridgeshire, price 10s. per bushel. All orders to be accompanied with a Post-office order.

SEED POTATOES.—Fluke Kidneys, 4s. per bushel of 56 lbs.; 7l. per ton; Lapstone Kidneys, 5s. Early Shortop Ashleaf Kidneys, 6s. per bushel of 56 lbs.; sacks, 6d. per bushel extra. All orders must be accompanied by a remittance.—Apply to HUMPHREY CHAMBERLAIN, Kempsey, near Worcester.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4s. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. COBBETT'S Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

CHOICE CINERARIAS.

WILLIAM HUSSEY begs to offer the undernamed collection for 14s., package included, viz.:—Mrs. Beecher Stowe, Polyanthiflora, Rosy Morn, Nonsuch, Rosalind, Lady Paxton, Prima Donna, Georgiana, Mrs. Sidney Herbert, Charles Dickens, David Copperfield, Queen of Beauties, Kate Kearney, Agnes Wakefield, Conspicua, Charlotte, Delicata, Loveliness, Pauline, Prince Arthur, Marianne, Adela Villaris.
Horticultural Gardens, Ipswich.

CABBAGE—SUPERIOR SORTS.

JOHN CATTELL has still a large supply of fine Bedded Plants of the above at 5s. 6d. per 1000; also Red Cabbage bedded, at 1s. per 100; and Cauliflower ditto, Early and Late, at 1s. 6d. per 100. Orders to the amount of 1l. are delivered carriage free to London, and to the Edenbridge Station, South-Eastern Railway. No charge for crates, baskets, or packing. A remittance or reference to accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

SPLENDID HYACINTHS, ETC. (IMPORTED).

JAMES CHARTRES AND CO. can strongly recommend their 20s. Collections of the above, which have always given such general satisfaction. 12 splendid named Hyacinths for pots or glasses; 12 do do for Borders; 6 Polyanthus Narcis.; 12 Pheasant-eyed do.; 6 splendid Early Tulips for pots; 12 do. Late do. for Borders; 100 Crocus, sorts; 12 fine Iris; 6 Snowflakes; 6 Double Jonquils; 25 Double Snowdrops. A general and priced Catalogue on application.—Seed Warehouse, 74, King William Street, City, London.

MESSRS. TRANSON FORTEAU AND SONS, Nurserymen, Orleans, France, offer this year to Nurserymen, Fruit Growers, &c., the following list of Fruit Plants for Grafting.

SEEDLINGS, 1 year old.	Per 1000.
ALMOND—Amygdalus communis	17s.
COMMON CHERRY—Cerasus avium	12s.
WALNUT—Juglans regia	17s.
PEACH—Amygdalus Persica	17s.
PEAR—Pyrus communis	12s.
APPLE—Malus vulgare	11s.
PLUM—Prunus St. Julien (good for grafting Peaches)	20s.
MAHALEB—Prunus	7s.
" " 2 years' old	9s.

All these Plants are very fine.

WATERER'S AMERICAN PLANTS.—A new DESCRIPTIVE CATALOGUE is now published of the celebrated Collection of hardy Scarlet and other Rhododendrons, as exhibited by JOHN WATERER at the Royal Botanic Gardens, Regent's Park: it will be found to contain a few practical observations on their successful management, and will be forwarded on application by enclosing two stamps for postage. Apart from its enumeration of the most popular American Plants in cultivation, a List of choice Coniferæ will be seen, embracing the latest importations of this fine and hardy tribe of Plants.

J. W. has now the pleasure to offer in large quantities, and of all heights, the following selection of CONIFERS, with the remark that they are all now growing in the open ground, are bushy and handsome as can be desired, and have been transplanted each succeeding spring, whereby no risk can be encountered in their removal from the nursery:—Araucaria imbricata, Cryptomeria japonica; Pinus Douglasi, Cembra, excelsa, Lambertiana, insignis, Jefferyana, Beardsleyi, tuberculata, &c.; Cedrus Deodara, Lebanon, and Africana; Wellingtonia gigantea, Cupressus, Juniperus, Taxus, Thuja, &c.

☞ The attention of gentlemen, public companies, and others engaged in planting, is especially directed to the foregoing; indeed, all intending planters would be well repaid by a visit to inspect our stock, as much may be seen which of necessity cannot be given within the limits of an advertisement.

The Nursery is easily reached by railway, being near the Farnborough Station, South-Western Railway, and Blackwater on the South-Eastern Railway.

The American Nursery, Bagshot, Surrey.

HOW TO KILL RATS, MICE, AND MOLES BY HUNDREDS.—A method will be forwarded with instructions for 30 postage stamps, which will destroy the above vermin quickly and without trouble. 1000 Acres may be cleared for a few shillings.—GILBERT DYSON, Hoo, Rochester.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included. — Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in. ...	...	12s. 0d.
6½	"	4½	"	7	"	5	...	...	12 6
7½	"	5½	"	8	"	6	...	...	13 0
8½	"	6½	"	9	"	7	...	...	13 6
9½	"	7½	"	10	"	8	...	...	13 6
10½	"	8½	"	11	"	9	...	...	14 0
12	"	9	"	13	"	9	...	...	14 0
10	"	10	"	10½	"	10½	...	...	14 0
11	"	10	"	11½	"	10½	...	...	14 0
11	"	11	"	11½	"	11½	...	...	14 0
12	"	11	"	12½	"	11½	...	...	14 0
13	"	11	"	13½	"	11½	...	...	14 0
13	"	12	"	13½	"	12½	...	...	16 0
13½	"	13½	"	14½	"	13½	...	...	16 0
15½	"	13½	...	...	...	...	...	...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.—In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12s. 0d.
7 " 5, — 7½ " 5½ }	0 14 0
8 " 6, — 8½ " 6½ }	
9 " 7, — 9½ " 7½, 10 by 6 }	0 16 0
10 " 7, 10 by 8 }	

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18s. per 100 feet. If cut to order not exceeding 40 inches long.
16 oz. from 2½d. to 3½d. | 21 oz. from 3½d. to 4½d.
26 oz. from 5½d. to 7½d.

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½d. per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand.

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	£1 17s. 6d.	per case of	50
⅜ "	2 1 3	"	60
½ "	1 17 6	"	60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21s. per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps: Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY, WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.
KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

LANDSCAPE GARDENING, combining all the modern improvements in the CONSTRUCTION, BUILDING, HEATING, and VENTILATING HOT HOUSES, CONSERVATORIES, PINE PITS, and every other kind of Garden structure, by a practical Gardener and Horticultural Builder of 25 years' experience as Head Gardener to his Grace the late Duke of Northumberland, at Syon House, and her Majesty's Royal Gardens, Windsor, Kew, &c.—Designs and Estimates furnished for Garden embellishments on application to J. W. THOMSON, F.L.H.S., Garden Architect, Exotic Nursery, King Street, Hammersmith.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.

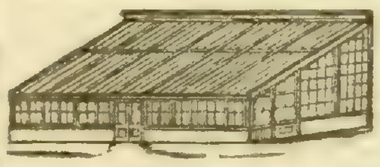
These Patent Horticultural Buildings are superior to all others, wood being used for the frame work, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1s. 3d. per foot super. Hundreds of references can be given, and Printed Price Lists sent.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



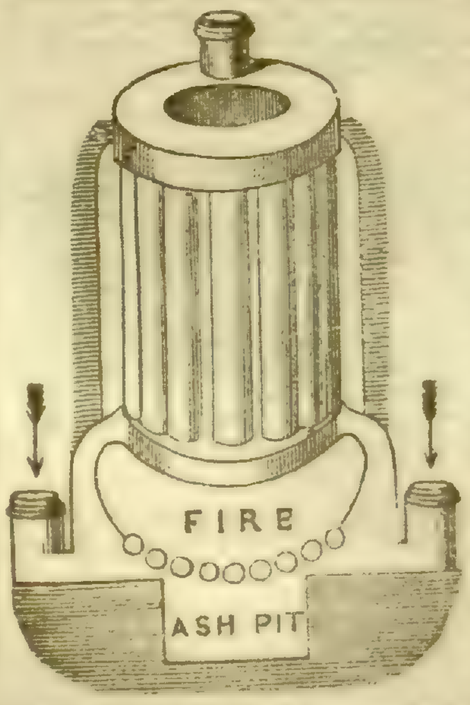
The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3s. 8d. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.



The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft. and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the late severe winter it only cost us 3s. per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *one of our Boilers*, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

JOHN WEEKS & Co., King's Road, Chelsea, London.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to SAYNOR & COOKE for their superiority of material and workmanship. Established 1738.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the nobility, gentry, and clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of colours, prices, together with a copy of the testimonials, will be sent on application to WALTER CARSON & SON, 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

FIRST PRIZE REAPING MACHINE.
NOTICE.

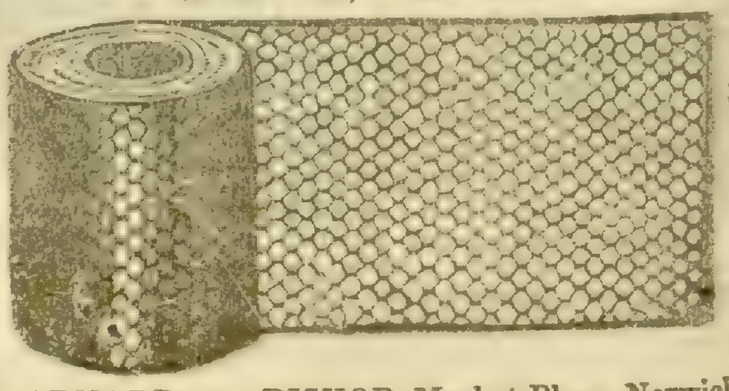
MESSRS. BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30l. was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.

TRANSPARENT SHEETING, a Substitute for Garden Mats, 1s. per yard, nearly 2 yards wide strong Canvas do., 1s. per square yard. Waterproof Capes (to protect a Man from wet while stooping down), 3s. each. Second-hand Policemens' Capes, 18s. and 24s. per dozen. Horses' Loin Cloths, Waterdecks for Crimea Horses—viz., a Tarpauling Body Suit lined with stout Woollen Rug, 16s. each Waggon and Cart Covers, &c.—R. RICHARDSON, 21, Tonbridge Place, New Road.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES consist of MATTING, DOOR MATS, MATTRESSES, HASSOCKS, BRUSHES, &c., and are distinguished by superiority and excellence of workmanship, combined with moderate charges. Catalogues, containing prices and every particular, free by post.—T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

LIGHT, CHEAP, and DURABLE ROOFING.—CROGGON'S PATENT ASPHALTE ROOFING FELT is perfectly impervious to rain, snow, and frost, and has been tested by a long and extensive experience in all climates. Saves half the timber required for slates. Can be laid on with great facility by farm servants or unpractised persons. Price 1d. per square foot. CROGGON'S Patent Non-conducting Felt, for covering steam boilers and pipes, saves 25 per cent of fuel. Samples and testimonials sent by post, on application to CROGGON & Co., 2, Dowgate Hill, London, who also supply ship-sheathing felt and inodorous felt, for damp walls, and lining iron houses, and roofs generally, to equalise the temperature.

GALVANISED WIRE GAME NETTING,
6d. PER YARD, 2 FEET WIDE.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	6d. per yd.	4½d. per yd.
2-inch " strong, do.	8 "	6 "
2-inch " intermediate, do.	9½ "	7½ "
2-inch " extra strong, do.	11 "	9 "
1⅝-inch " 24 inches wide	7 "	5½ "
1⅝-inch " strong, do.	9 "	7 "
1⅝-inch " intermediate, do.	11 "	9 "
1⅝-inch " extra strong, do.	13 "	11 "

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 10d. per yard; Galvanised Sparrow-proof Netting for Pheasantries, 3d. per square foot.

Illustrated Catalogues and Patterns forwarded by post. Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

NEW ROSES.

WILLIAM WOOD AND SON have again much pleasure in recommending their beautiful Seedling Rose, the Perpetual DUCHESS OF NORFOLK; the colour is a very rich vivid crimson, the underside of the petals shaded with lively pink, giving the flowers an exquisite shell-like appearance.

Price for Standards, or Dwarfs, 3*s.* 6*d.* each.

Williams' Evergreen Climbing Rose, 1*s.* 6*d.* each—This Rose is a seedling from the Ayrshire Splendens fertilised with the Yellow Tea Rose; its flowers are creamy white, deliciously sweet-scented.

N.B. The New Rose Catalogue and Supplement may be had on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

TRAINED FRUIT TREES.

WILLIAM WOOD AND SON have much pleasure in recommending their very extensive and superior stock of Dwarf two-years-trained PEACHES, NECTARINES, and APRICOTS, which they feel assured cannot be excelled. The trees are remarkably healthy, and furnished with well ripened shoots; they will be supplied at 60*s.* per dozen.

Pyramidal Pears on Quince stocks, per doz.	...	24*s.* 0*d.*
Pyramidal Plums, extra fine do.	...	20 0
Pyramidal Apples, do. do.	...	16 0

Catalogues forwarded on application. Extra plants presented with each order, to compensate for distant carriage.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

NEW STRAWBERRIES AT REDUCED PRICES,
GROWN AND OFFERED FOR SALE BY

WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.—The following splendid varieties have been well proved this season and given complete satisfaction, viz., Sir Harry (Underhill's), 100 plants, 4*l.*; 40, 1*l.* 18*s.*; and 20, 1*l.*; or 12*s.* 6*d.* per dozen. Omar Pacha (Ward's), 1*l.* per 100; 12*s.* per 50; 7*s.* per 25. Scarlet Nonpareil (Patterson's), 2*l.* per 100; 1*l.* per 50; 12*s.* per 25. Sir Charles Napier (Smith's), 1*l.* per 100; 12*s.* per 50; 7*s.* per 25. Admiral Dundas (Myatt's), 1*l.* per 100; 12*s.* per 50*s.*; 7*s.* per 25. Nicholson's Ajax, Ruby, Captain Cook and Fill-Basket, 6*s.* per 100; Ingram's Prince of Wales, Nimrod, Eliza (Rivers's), Surprise (Myatt's), and Bicton Pine, a large white one, 6*s.* per 100; British Queen, Black Prince, Eleanor (Myatt's), Old Pine, Trollope's Victoria. Goliah (Kitley's), Keens' Seedling, Old Roseberry, all at 4*s.* per 100; Crystal Palace, a very large and late variety, 10*s.* per 100. Post-office Orders payable at Yarm are expected with all orders. The plants will be securely packed and forwarded to any part of the kingdom.

Plants kept in frames for spring planting.

GEORGE JACKMAN begs to state his PRICED CATALOGUE of choice CONIFERA, HARDY EVERGREENS and ORNAMENTAL TREES, which are well grown, and constantly removed, also Roses, Standard, Dwarf, and dwarf-trained Fruit Trees, and Forest Trees, can be had on application by enclosing one Postage Stamp.

G. J. respectfully invites persons planting to pay a visit to his extensive nursery, one and a half mile from Woking Station, South Western Railway, where all trains stop, and conveyances can be had.—Woking Nursery, Woking, Surrey.

PLANTING SEASON.

JOHN CATTELL respectfully invites an inspection of his extensive Stock of Fruit, Forest, and Ornamental Trees and Shrubs, American Plants, &c., &c., consisting of the most esteemed varieties of each kind of Fruit Trees in standards and dwarfs, trained and untrained. Also the best varieties of Gooseberries, Currants, Raspberries, Strawberries, Filberts, Spanish or Kentish Cob Nuts, &c. A general collection of Evergreen and Deciduous Trees and Shrubs, Coniferæ, &c.

The American Plants are particularly well grown, containing selections of the richest and most distinct varieties of Ghent and other Azaleas, Sikkim, Hybrid Scarlet, and other Rhododendrons. The Andromeda floribunda and Kalmia latifolia are remarkably fine. Roses are also extensively and well grown; the collection contains all the newest and most select of the older varieties. Priced Catalogues of the various descriptions of stock are now ready, and may be had on application.

NEW PORTUGAL LAUREL.
CERASUS LUSITANICUS MYRTIFOLIUS.

JOHN CATTELL has much pleasure in informing his patrons and the public that after the 1st of November he will be prepared to send out plants of this very desirable new hardy Evergreen; the habit of growth is quite upright, like a Bay, and the whole plant is densely covered with beautiful shining leaves. As a single specimen it is quite distinct from any other hardy evergreen.

Strong Plants, 3 years old, 7*s.* 6*l.* each	80*s.* per doz.
Do. do., 2 years do., 5*s.* each	50*s.* per doz.
A few extra strong Plants	10*s.* 6*d.* each.

Nurseries, Westerham, Kent, Oct. 27.

TO PLANTERS.

J. SCOTT, Merriott, Crewkerne, Somerset, offers the following:—Deodara Cedars, from 3 to 8 feet, by 6 to 16 round, at 3*s.* 6*d.* to 30*s.* each; Cedar of Lebanon, same size and price; African Cedar, 2 to 3 feet, 3*s.* 6*d.* each; Red Cedar, 3 to 6 feet, 18*s.* to 30*s.* per dozen; Cedar of Goa, 18 inches, 1*s.* 6*d.* each; White Cedar, 5 feet, 3*s.* 6*d.* each; Cryptomeria japonica, 4 to 10 feet, very fine, 2*s.* 6*d.* to 15*s.* each; Taxodium sempervirens, 4 to 10 feet, 2*s* 6*d.* to 10*s.* 6*d.* each; Cupressus macrocarpa, 2½ to 5 feet, 2*s.* 6*l.* to 5*s.* each; C. Govineana, 2 to 3 feet, 3*s.* 6*d.* each; C. funebris, 1 to 3 feet, 1*s.* 6*d.* to 3*s.* 6*d.* each; Thuja pendula, 3 feet, 5*s.* to 7*s.* 6*d.* each; T. aurea, 1 foot high, 3 feet round, 3*s.* 6*d.* each; Juniperus chinensis, 4 feet, fine, 5*s.* each; J. squamata, 5 feet, 5*s.* each; J. excelsa, 3 feet, 7*s.* 6*d.* each; J. tetragona, 18 inches, 2*s.* 6*d.* each; Irish Yews, 4 to 7 feet, fine, 3*s.* 6*d.* to 10*s.* 6*d.* each; Taxus adpressa, 2 to 3 feet, 5*s.* to 7*s.* 6*d.* each; Siberian Arbor-vitæ, 3 to 6 feet, 1*s.* 6*d.* to 3*s.* 6*d.* each; Pinus excelsa, 2 to 7 feet, 1*s.* 6*d* to 7*s.* 6*l.* each; P. insignis, 2 to 5 feet; 2*s.* 6*l.* to 7*s.* 6*d.* each; Standard Portugal Laurels, 4 to 6 feet stems, 3*s.* 6*d.* to 7*s.* 6*d.* each. Apricots, Peaches, and Nectarines, drop trained, 42*s.* per dozen; Pears and Plums, do., 24*s* per dozen; Pears, Plums, and Cherries, dwarf Pyramids, 18*s.* per dozen. These Fruit Trees are all healthy and young, including every Fruit worth growing. 150 sorts, large and Pompone Chrysanthemums, in 6-inch pots, at 6*s.* per dozen.—Oct. 27.

HARDY FERNS.

WILLIAM HUSSEY begs to offer the undernamed Collection of FERNS for 14*s.*, package included, viz.:—

Adiantum capillus Veneris	Ceterach officinarum	Polystichum aculeatum
Allosorus crispus	Cystopteris fragilis	Do. angulare
Asplenium viride	Hymenophyllum Wilsoni	Osmunda regalis
„ trichomanes	Do. Tunbridgense	Polypodium vulgare
„ adiantum nigrum	Lastrea cristata	„ dryopteris
Athyrium filix-femina	„ spinulosa	„ phagopteris
Blechnum boreale	„ dilatata	„ calcareum
Botrichium lunaria	„ Thelypteris	Scolopendrum officinarum

Horticultural Gardens, Norwich.

MYATT'S ADMIRAL DUNDAS STRAWBERRY.—Strong plants packed and delivered free in London, 25*s.* per 100. Also MYATT'S British Queen, Cinquefolia, Globe, Eliza, Mammoth, 3*s.* 6*d.* per 100; Keens' Seedling, Hooper's Seedling, Black Prince, Bicton Pine, 3*s.* 6*d.* per 100.

MYATT'S BRITISH QUEEN.—In reply to several correspondents, and in confirmation of the private answers I gave last summer, I beg leave to state that the only Strawberry bearing the name of "British Queen" is MYATT'S, and when Mr. Beach, in his advertisement says "his true British Queen," he is obviously in error, and arrogates to himself the credit due to my late father, Mr. JOSEPH MYATT, who was the originator of the variety in question.—W. MYATT, Manor Farm, Deptford.—Oct. 27.

THE HEAVIEST LANCASHIRE SHOW GOOSEBERRIES
(NAMED).

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now prepared to supply strong three and four years old Plants of the above at 6*s.* per dozen, package, &c., included.

THE FLUKE KIDNEY POTATO (TRUE).

Catalogues containing Lists of Gooseberries, Carnations, Picotees, Pinks, Pansies, &c., on application, enclosing a postage stamp. Post-office Orders to be made payable at Middleton, Lancashire.

A NEW SEEDLING APPLE FROM THE RIBSTON PIPPIN.

STEPHEN SHILLING begs to offer to gentlemen and the trade Trees of his entirely new Apple named OMER PACHA, it being a first-rate hardy grower, strong compact habit, early and productive bearer. Fruit excellent flavour (dessert), ripe in November, keeps until May. Respectable testimonials given from those who have tasted the fruit. Strong plants supplied at 5*s.* 6*d.* each, or 60*s.* per dozen. The usual discount to the trade where one dozen or more are taken. Early application is requested as the stock is limited; all orders carefully and promptly attended to. Fruit of the above can be seen at the office of the *Gardeners' Chronicle*, the British Pomological Societies' Rooms, 20, Bedford Street, Covent Garden, Messrs. Nutting & Son, 46, Cheapside, Messrs. Sutton & Sons, Reading, Mr. C. Turner, Royal Nursery, Slough, and at the North Warnborough Nursery, near Odiham, Hants.

MESSRS. E. G. HENDERSON AND SON beg to announce that they have now received their noted collection of HYACINTHS in excellent condition, and for the assistance of those persons unacquainted with the culture of the Hyacinth, printed instructions will be given gratis with each order they are kindly favoured with, Catalogues of which, together with their Plant and Seed Lists, will be forwarded post free on application.

CUCUMBER HENDERSON'S NAPOLEON III., in packets, 3*s.* and 5*s.* 6*d* each.

CALCEOLARIA, CINERARIA, and PRIMULA SEED of first quality, 2*s.* 6*d.* and 5*s.* per packet.

FUCHSIAS.—Banks' Favourite, 10*s.* 6*d.*; Prince of Wales, 10*s.* 6*d.*

NEW RHODODENDRONS.—Boothi, Hookeri, Calophyllum, Kendricki, Eximium Windsori Leucanthum.

GYNERIUM ARGENTEUM (PAMPAS GRASS).—E. G. H. & SON having in their possession the largest stock in the country of this noble ornamental Grass, can supply free healthy seedling plants, which are superior to any other at 2*s.* 6*d.* each, 25*s.* per dozen, or 7*l.* 10*s.* per 100.

Wellington Nursery, St. John's Wood.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, which they will forward to any part.

	s.	*d.*
25 Azaleas, new hardy Belgian varieties, one of a sort, by name, on their own roots	20	0
25 Azaleas, American varieties, do. do.	16	0
Hardy Heaths, Ledums, and Kalmias, per dozen ...	6	0
25 Hardy American Plants, one of a sort, by name ...	10	6
12 Rhododendrons, including scarlet, white, and rose ...	12	0
Fine hardy scarlet Rhododendrons, 1 to 2 feet, per dozen	15	0
New yellow Rhododendrons, in pots, each .. 3*s.* 6*d.* to	5	6
Cedar of Lebanon, 2 to 3 feet, well grown, per doz., 12*s.* to	18	0
Cedrus Deodara, and other choice Coniferæ (see List).		
6 Fine hardy Magnolias, one of a sort	10	6
50 Dwarf Roses, two of a sort, on own roots	15	0
Standard and half Standard Roses, superb sorts, per dozen ... ... 15*s.* to	18	0
Fine Climbing Roses, per dozen	6	0
Greenhouse Azaleas, best new vars., per dozen .. 12*s.* to	18	0
Camellias, fine double white, &c., with five to eight buds, per dozen .. .. 30*s.* to	40	0
50 Choice Greenhouse Plants, one of a sort	45	0
12 Orchidea Plants, one of a sort, fine species	40	0
Fine Pampas Grass, each, 3*s.* 6*d.*; or, per dozen ...	30	0
Hyacinths, Crocus, Tulips, and Dutch Bulbs of all kinds.		

FRUIT TREES.

Fine standard and dwarf-trained Apricots, Peaches, Nectarines, Pears, Plums, and Cherries, 3*s.* each, or, per dozen	30	0
Fine Apples, Figs, Medlars, Quinces, and Walnuts, each	2	0
Fine Gooseberries, Currants, and Raspberries, per doz.	3	0
Filberts, new, thin shelled, and red skinned, per dozen	4	0
Strong Vines from eyes, and layers in pots, per dozen...	18	0
Peaches, Nectarines, Apricots, and Cherries, grown for pot culture, per dozen	18	0

A large stock of fine Transplanted Scotch, Larch, and Spruce Firs, also Evergreen Shrubs of all kinds.

Albion Nursery, Stoke Newington, London, Oct. 27.

THE EXETER NURSERY, EXETER.

LUCOMBE, PINCE, AND CO. respectfully beg leave to inform the Public that their Nursery is this season abundantly furnished with a fine healthy Stock of all the best varieties of

HARDY ORNAMENTAL TREES AND SHRUBS,
HARDY EVERGREENS, CONIFERÆ,
FRUIT TREES, FOREST TREES,
RHODODENDRONS,
&c., &c., &c.

Their stock of every description of Nursery produce is so good as well as extensive that they are enabled to offer advantageous terms to Purchasers, for particulars of which apply as above.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 27, 1855.

In the Revue Horticole for October we find an interesting account of the VEGETATION of ASIA MINOR, by M. BALANSA, a botanical traveller, already advantageously known by his excellent collections made in Spain. It appears that this gentleman has been dispatched from Paris for the purpose of exploring the range of Mount Taurus, and collecting there whatever may be valuable in horticulture or botany.

His letter is dated from Mersina, or Mersyn, a place a little to the west of the Bay of Skanderoon, which, although having only an open roadstead, has a good anchorage, and is rising into importance as the chief port of Karamania. The place is said to derive its name from the Myrtle bushes which abound in its neighbourhood; but is not of much botanical interest. It was after a residence of some weeks at a Turkish village called Bouloukli, on the side of some limestone hills not rising above 1200 feet high, that M. BALANSA found himself in a condition to give some account of the finer vegetation of the country. In the neighbourhood of this place he for the first time met with a grove of wild Cypresses, and to his surprise found them all of the spreading sort; not an upright one among them. Whence he concludes that the upright Cypress is a mere variety, bearing the same relation to the spreading Cypress as the Black Italian Poplar to common black Poplar (*Populus nigra*); and we would add as the Irish Yew bears to the common Yew, the Swedish Juniper to the common Juniper, or the fastigiate Oak to the common pedunculate species. M. BALANSA describes the wild Cypresses as looking at a distance like Spruce Firs.

Among other plants forming the vegetation of this district are the wild Grape vine, which occurs on the borders of every stream. The Fig tree is also common in the damp mountain villages; and in a forest of *Abies cilicica*, three thousand three hundred feet above the sea, pell-mell with *Arbutus Andrachne* and other woody plants of the hot region, he met with magnificent specimens of the Sweet Bay. "How does it happen," asks M. BALANSA, "that this tree which is sometimes frozen on the plains of the south of France is produced in this place in so alpine a station? Perhaps it is owing to the dryness of the atmosphere, the absence of violent winds from this part of Cilicia, and the shelter afforded by the gigantic trunks of *Abies cilicica*, among which it grows."

It is at the distance of five leagues north of Mersyn that *Abies cilicica* first appears. Its lower limit would seem to be 700 or 800 yards, though specimens are found 300 or 400 yards lower down at the bottom of a land-locked valley running east and west. The middle-sized specimens were about as tall as the *Pinus Laricio* growing in the Jardin des Plantes of Paris.

Another Mersyn plant is *Juniperus drupacea*. It occurs near the top of a chain of mountains 800 yards high on the north-west of the town, where it grows in company with *Pistacia Terebinthus*, *Pinus Halepensis*, Phillyreas, Phœnician Junipers, and Judas trees, all species belonging to the warm littoral range. This *Juniperus drupacea* grows however much higher up the mountains along with *Abies cilicica*. Upon this subject M. BALANSA remarks that since the Cypress which is hardy in the north of France is naturally associated with *Juniperus drupacea* it is probable that the latter, which is a more mountainous plant, would prove equally suitable to our climate. The plant itself is described as a very pretty little diœcious tree with the habit of a Spruce Fir. The pulpy fruit is not eaten raw by the Turks, but they make a preserve of it, of which they are very fond.

In addition to *Abies cilicica* and *Juniperus drupacea*, these Caramanian mountains produce a Pine which, although possibly a variety of *P. halepensis* is nevertheless very distinct in habit, colour, and magnitude. It forms forests all over the slaty slopes of Alla-Dagh, to the exclusion of every other tree. What is very curious, these trees seem to be all of the same age, and are separated at such regular distances "that one would say they

CHOICE BULBS AT LOW PRICES.

	Per dozen—*s.*	*d.*
JONQUILS, sweet double	2	6
HYACINTHS, by name	9	0
„ mixed for beds	4	0
NARCISSUS for Pots	3	6
„ for open ground	1	6
EARLY TULIPS for Pots	1	0
GLADIOLUS, fine mixed	2	6
	Each	
LILIUM LANCIFOLIUM ALBUM	1	6
„ RUBRUM, fine spotted	3	6
FRESH MUSHROOM SPAWN ... ... Per bushel	6	0

	Per 100—*s.*	*d.*
TULIPS, choice mixed	7	0
ANEMONES, double, 5*s.*, single	4	0
RANUNCULUSES, fine mixed	3	6
CROCUSES, separate colours	1	6
SNOWDROPS, double or single	2	0

NEW SEEDS.

SUTTON'S EARLY CHAMPION PEA, the forwardest known ... ... Per quart	1	0
DANIEL O'ROURKE .. .. „	1	6
FRENCH SHORT HORN CARROT ... Per ounce	0	6
BECK'S SUPERB EARLY RADISH ... „	0	4
BERKSHIRE CHAMPION CUCUMBER ... Per packet	1	6

AND EVERY OTHER APPROVED KIND OF FLOWER ROOTS AND SEEDS CARRIAGE FREE.

SUTTON AND SONS, SEED-GROWERS, READING.

A Reference (or Remittance) is requested from unknown Correspondents.

had started up some day at the touch of an enchanter's wand."

Cyclamen cilicium of Boissier also grows here in plenty, and a good store of roots is announced as having been collected. This is a charming little Alpine plant, with flowers resembling those of *Cöum*, but not much bigger than Violets. Its leaves are at present unknown.

M. Balansa in conclusion announces that he is about to start for the village of Gulet-Boghaz, the summer residence of the merchants of Tarsus and Adana, where he expects a rich harvest of Alpine plants. We heartily wish him good speed.

In the last number of the Edinburgh New Philosophical Journal, a scientific periodical conducted with great ability, there is a very interesting paper by Professor Goodsir, on the present state of our knowledge of the Electrical Phenomena observable in Plants. A subject of this kind is too remote from practical application, as far as has yet been ascertained, to be allowed much space in our columns; nevertheless it is so curious that we venture to draw up from Mr. Goodsir's narrative a slight sketch of what has been hitherto done, which will we doubt not prove interesting to many of our readers. It is now, we believe, more than 20 years since Donné, a skilful French experimentalist, directed his attention to the water plants called *Charads*, the movements observable in which had been supposed to be caused by electrical action. Dutrochet and Becquerel examined the same phenomena, and from time to time a variety of other desultory inquiries have been prosecuted. Among others our countryman, Mr. Thwaites, now in charge of the Government Botanic Garden in Ceylon, satisfied himself that the very fabric of a plant, its cells, and tubes, and vessels, was due to the action of electrical currents among mucous matter.

The facts collected by Mr. Goodsir present something more tangible than speculation. For although, as he remarks, the researches themselves are not yet sufficiently advanced to admit of a satisfactory analysis, and electrical effects are so complex that it is unsafe to draw any conclusion regarding the part which electricity takes in the organic functions, nevertheless certain facts have now been positively ascertained, although there remains much difficulty in determining whether certain currents, indicated by the instrument, are primary or derived; and also in ascertaining how far the observed currents are produced by unavoidable injury of texture, and consequent mixture of fluids.

The general arrangement of the parts of a plant, and the functions they perform, indicate the probable direction of the resulting electrical disturbances. The differences in the constitution of the ascending and descending portions of the axis, and of their transverse segments, naturally indicate the existence of longitudinal currents; while the structural and functional differences between the central and superficial portions of the axis point to transverse or radiating lines of force. Accordingly, all observations indicate currents in the longitudinal and transverse direction, in roots, tubers, stems, leaves, flowers, and fruits.

In considering *the electrical reactions of the plant, soil, and atmosphere*, it is found that the soil is in a constant negative, while the air when calm and free from clouds is in a positive electric condition.

According to Pouillet, plants in the later stages of germination, after they have protruded from the soil, exhibit by the condenser an excess of negative electricity. The explanation he gives is that the action of the oxygen of the air on the starch of the seed, during its conversion, gives an excess of positive electricity to the air, and of negative electricity to the plant and soil.

But according to M. Becquerel the electrical relations of the plant to the soil and air are reversed after germination is completed. If the electrodes of the galvanometer are inserted, the one into the stem or branch, or passed through a number of leaves laid together, but still adherent—the other into the soil—the former will exhibit an excess of negative, the latter of positive electricity, in proportion to the humidity of the soil and the succulence of the plant.

It may, therefore, be presumed that in the act of vegetation, after germination is accomplished, the ascending sap, which communicates by means of the root with the soil, conveys to it continuously the excess of positive electricity which it has acquired during its course upwards in its reactions more particularly with the descending sap; while the latter furnishes to the air, by exhalation, its excess of negative electricity.

As regards *longitudinal electrical currents in the Dicotyledons* Becquerel states that if the electrodes of the galvanometer be inserted transversely into the parenchyma of the bark, the one a certain distance above the other, or if one be inserted between the bark and wood, and the other be passed through a number of leaves, superimposed and still adherent, the needle will indicate a current passing from below upwards through the parenchyma, the upper electrode indicating positive, the lower negative electricity. The same observer also finds a descending current passing from the stem through the roots into the earth, which therefore becomes positive around the plant. Wartmann states that in the roots, the stem, the branches, the petioles, and peduncles, there exist a central descending current, and a peripheral ascending one, which he denominates axial currents; and that the galvanometer indicates currents from every part of the plant, aerial or subterranean, to the soil, which is thus positive in relation to the plant.

A variety of experiments show that electrical *currents pass from within outwards, and from without inwards in the horizontal section of Dicotyledons.* According to Becquerel, if one electrode be inserted into the pith of a young Poplar and the other into one of the woody layers, or into the bark, a current from without inwards is indicated, the electrode in the pith being positive, that in the wood or bark negative. On removing a piece of bark, and applying the electrodes to its opposite surfaces, the current becomes very intense. The piece of bark thus forms a voltaic couple, of which the exterior is positive, and the interior, covered by cambium, negative.

It would appear then that from the pith to the cambium the woody layers are less and less positive in relation to the pith; whilst from the cambium to the cuticle, the parenchymatous layers are more positive, or at least comport themselves as such in the production of derived currents. This inversion of the electrical effects corresponds with the relative position of the cellular texture in the bark and wood. In the bark it is on the exterior; in the wood, in the interior; in both it is positive.

Wartmann states that "in uniting by the galvanometer the layers of the stem where the liber and cambium touch one another (and where many botanists admit a passage of descending juices), either with the most central parts (the pith or the perfect wood), or with the parts more exterior (the young bark), a lateral current will be found tending from these layers to the neighbouring organs."

It would appear, therefore, that currents pass from the contiguous surfaces of the bark and wood of the dicotyledonous plant outwards towards the cuticle, and inwards to the pith.

As to *currents in leaves* the observations of both Becquerel and Wartmann lead to the conclusion that currents set from the cambium to the parenchyma of the leaf; while at the same time it is negative in relation to the pith and wood of the branch and stem, the leaves behaving as the green part of the parenchyma of the bark; that is to say, the sap which circulates in their tissues is negative in relation to the wood, pith, and soil, and positive in relation to the cambium.

This centripetal current is referable to the central or descending axial current of the plant; while the centrifugal belongs to the superficial transverse system, or that between the inner and outer aspects of the bark.

That *the electrical condition of the flower* must be energetic is to be inferred from its rapid growth. The remarkable elevation of temperature which occurs during the development of this organ, and the important chemico-vital actions which take place in it, should certainly excite corresponding electrical phenomena. Nevertheless, almost nothing is known on the subject. The only observations are by the Italian observer Zantedeschi, who found that at the period of flowering in the Tulip, Jonquil, and Anemone a descending current occurs, and in an Azalea, an Amaryllis, a Lily, and various species of Opuntia, a current passing from the stamen to the pistil.

The *electrical condition of the fruit* has been as little investigated. Donné found that in the Apple and Pear a current would appear to pass from the stalk towards the eye; whilst in the Peach and Apricot the current passes in the contrary direction. Mr. Goodsir remarks that it might be well to determine how far these opposite directions may be referable to structural differences in the two fruits examined: whether in the monocarpous form, the Peach, the current be not referable to the centripetal current of the leaf; and whether in the Apple form (the fleshy mass of which is not a development of the carpellary leaf, but of the cortical layer of the receptacle, and of the end of the peduncle) it is not due to the same causes which produce the general superficial, or cortical axial current in the plant.

An important question connected with these observations is whether *the currents are derived from currents which actually exist in the plant, or are produced by the insertion of the electrodes?* M. Becquerel expresses himself very cautiously on this point. He, however, admits that the two necessary conditions for the production of primary currents exist in the plant. The first is, that two liquids capable of acting chemically on one another should be arranged so as to do so gradually and continuously. The other is the intervention of a conducting substance to complete the circuit. Upon the whole this observer seems inclined to admit the two axial currents, and the horizontal system in the stem and branches of dicotyledons.

Wartmann admits that the tearing of the tissues during the insertion of the electrodes produces at first a considerable deflection of the needle, but adds that this action speedily ceases, when there remains a more feeble current, which must be due to the normal electrical action of the parts. He thinks that vegetable currents probably form closed circuits; that the extremities of the root fibres on the one hand, and the terminations of the leaves on the other, establish a continuity between the ascending peripheral and descending central current; while the similarity in the electrical condition of the exterior of the bark and the interior of the wood probably depends on the medullary rays.

As a general conclusion to be drawn from such facts as have been now described, Mr. Goodsir thinks it can only be stated generally that the disturbance of electric equilibrium in the textures and organs of the plant is due to the chemical action which plays so important a part in the organic processes — at its surface, as during transpiration, respiration proper, and the fixation of carbon—and in its interior, during the reaction of its ascending and descending sap, with the substances contained in the cells of its various structures. No precise statement can be made at present regarding the arrangements by means of which electrical currents are produced in the plant. The researches of Becquerel have proved indeed that a current is produced when two liquids of acid and alkaline reactions respectively, and separated from one another by a porous substance, are connected either by a fluid or solid conductor, and it is evident that similar physical and chemical conditions exist in innumerable forms in the organisation of vegetables. "It is, however, impossible in the present phase of the subject to define them with greater precision."

NEW GARDEN FERNS.—No. VI.

15. Lastrea recedens, J. Smith, MS. Polypodium recedens, J. Sm., En. Fil. Phil., Hook. Journ. Bot. iii. 394. Lastrea elegans, of gardens.

Fronds pentangular, densely pubescent, glandulose, tripinnate; pinnules linear-oblong, acute, decurrent, deeply pinnatifid, with short dentate segments; sori submarginal; stipes adherent to a creeping rhizome.

This very elegant Fern is a native of Ceylon and the Philippine Isles; the cultivated plant was sent from the former place, by the late Dr. Gardner, to Kew. Its fronds which have a longish stipes, scaly at the base, grow a foot and a half or two feet high, and are of a light green colour, densely covered with short hairs intermixed with glands. The outline is pentangular, the two

posterior basal pinnules being considerably enlarged; the secondary pinnules are oblong, or linear oblong acute; they are pinnatifid, with short toothed segments. The sori form a line around the margin of these segments, where they are produced abundantly. The rhizome is creeping, and the fronds are lateral and adherent to it, and grow up erect, with the leafy portion spreading. It is a free-growing evergreen stove Fern.

16. Drynaria Fortuni, T. Moore, Genera and Species of Cultivated Ferns, ined.

Fronds simple, lanceolate attenuate, subcoriaceous, somewhat undulated, smooth, punctulate with transparent dots; sori on the upper part of the frond, uniserial near the costa; stipes articulated with a creeping scaly rhizome.

An elegant simple-fronded evergreen species, with the appearance of a slightly undulated narrow Scolopendrium. The fronds are a foot or more in length, narrow strap-shaped lanceolate, attenuated both at the base and

apex, bright green, entire or subsinuate and slightly wavy, smooth, punctulate with transparent dots which indicate the apices of the free included veinlets. The fronds taper below into the sparingly scaly stipes, which is lateral and articulated on a slender creeping rhizome. The sori form a single row of round dots near the costa on the upper part of the frond. This Fern was sent to us some years since by Mr. Henderson, of Wentworth. It is, no doubt, a native of China, agreeing as it does with specimens (No. 18) collected by Mr. Fortune during his second journey in that country. It succeeds very well in a greenhouse, and equally well in the stove.

17. Davallia tenuifolia, Swartz, Synopsis Filicum, — 133, 350; Hooker, Sp. Fil. i., 186.

Fronds erect or arching, ovate-lanceolate, elongate, smooth, subcoriaceous, bi- or tripinnate, with the rachis compressed or winged; ultimate segments crowded, linear, wedge-shaped, truncate, bifid or slightly erose; sori terminal across the truncated apices of the segments, short oblong, single or in pairs.

This plant, common in all dried collections, and there rather remarkable for its stiffness combined with elegant cutting, is in the cultivated state one of the most graceful of Ferns, its long finely divided fronds assuming the pendent position which best displays the elegant manner in which it is divided. The colour is a bright cheerful green, and the fronds grow 2 feet long; their pinnæ are ovate-lanceolate, twice cut into distinct divisions, and the second of these

again deeply separated into wedge-shaped segments; the entire frond is made up of a multitude of these narrow wedge-shaped segments, which have a truncated apex, across which, at the back, the short transversely oblong sori are borne; these apices are in general slightly notched. When present the sori are seated within little hollow cup-shaped involucres at the points of the segments. This very ornamental Fern was introduced from Java by the Messrs. Rollissons in 1851, and is still rare in gardens. It is an evergreen species requiring stove heat. *T. M.*

HORTICULTURAL SOCIETY OF LONDON.

The following circular has just been issued by the Council:—

21, Regent Street, *October* 23.

In the annual report made by the Council at the last anniversary, the attention of the Fellows was directed to the very serious fact that, during the previous three years, the income of the Society had been unequal to its expenditure, and that as much as 1250*l.* had been added to the debt during the year 1854-5. At the same time a hope was expressed that the causes which brought about so large a deficiency would prove temporary.

The Council have now, however, with very great regret, to report that this hope has proved fallacious, and that the debt will have been found to be again considerably increased before the close of the present year, if the present establishments of the Society are maintained in their integrity.

It has been annually shown by the printed reports that the principal source of income, since the year 1833, from which the garden has been maintained, was the Exhibitions there, the net produce of which was as much as 3024*l.* in the year 1844. This fund has been gradually diminishing. In 1853 it was 1715*l.*, in 1854 only 455*l.*, and in the present year, instead of yielding any increase, the exhibitions have been productive of a loss estimated at about 300*l.*

After giving this subject the best consideration in their power, and consulting Fellows upon whose judgment they are disposed to rely, the Council have arrived at the conclusion that the garden exhibitions will not be profitable in future. The distance of the situation from the metropolis deters visitors from repairing to Chiswick as formerly, when no similar meetings were held in places of more ready access. Nor can it be doubted, that the proximity of the great Government garden at Kew, accessible as it is by railway and water, and with whose attractions it is hopeless to contend, annually renders the Society's garden of greatly diminished interest. Under these circumstances the Council have no alternative but to reduce the latter establishment within very narrow limits, if not to relinquish it altogether; and, at the same time, to realise some at least of the valuable property accumulated there towards liquidating the debts of the Corporation.

The history of the Society clearly shows that it was in its most flourishing state in the year 1821, at which time its operations were confined to the encouragement of horticulture by rewards, and the publication of its transactions, to exhibitions in London, to the distribution of seeds, &c., obtained from its correspondents, and to the maintenance of a small and unexpensive garden. The subsequent enlargement of the Society's undertakings, successful as they have been for a time, have ultimately proved beyond its resources; but the Council hope, and confidently expect, that by reverting to the system of 1821 the Society may be restored to its former prosperity; and by restricting themselves to the encouragement of its original objects, its utility and popularity may be maintained undiminished.

The Council are now engaged in a careful consideration of the manner in which these great changes can be best effected, as well as of the alterations which may be consequently necessary in the rate of subscription of the Fellows. Immediately after their plans shall have been matured, they will be submitted to the sanction of a general meeting. In the meantime, in order not to lose the present season, the Council have ordered an immediate sale of stove plants—the continued cultivation of which even through the ensuing winter would cause a needless increase to the Society's debt—and of some other portions of the Corporation property, such as herbaria, &c., which can be disposed of without detriment to the efficiency of the Society.

Signed by order of the Council,

John Lindley, *Vice Secretary.*

It will be seen by an announcement in another column that this decision is about to be carried into immediate effect, and that the 7th of November will witness the sale of some of the finest plants in Europe.

VEGETABLE PATHOLOGY.—No. XCIII.

374. Caries (*Decay*).—Though the vascular tissue is peculiarly subject to that incipient decomposition of its lining membrane, or even of the walls themselves, which under aggravating conditions leads to general decay, the cellular tissue is sometimes affected in a similar manner, while the vessels are wholly or nearly intact. One of the most curious instances is that affection of Apples, especially of Ribstone Pippins, though not confined to that variety, for I have observed and studied it in the Golden Reinette, Golden Harvey, and some other kinds, which is commonly attributed to the attack of worms, insomuch that they are called worm eaten, and in some cases present on a section an appearance not unlike that of an Oak Apple. I have, however, frequently hunted, with high and low microscopic powers, for some insect growth without ever being able to find a trace of any parasite; nor is there the slightest indication of mycelium. The affected fruit is generally slightly mottled in the first stages of the disease with pale brown, depressed, irregular, uneven spots; but these are not always very manifest, and many of the diseased specks are quite independent of the cuticle. In a later stage the surface assumes a darker hue, and exhibits evident symptoms of approaching decay, and the affection is then scarcely distinguishable externally from that form of common rottenness to which the name of tacked is vulgarly given. A section exhibits a multitude of little reddish brown patches, some of them penetrating deeply into the substance of the fruit, and of a paler or deeper tint, according to the degree in which the individual cells are detached from each other. A common lens exhibits little masses of loose discoloured tissue with darker lines, which are due to the commissures of diseased cells, and are not, as might at first be supposed, minute vessels. Higher powers bring no marked phenomena to light. The cells, in consequence of their shrunk and withered condition, are traversed by abundant folds, which must be carefully distinguished from fungal threads; the walls themselves are here and there deeply discoloured, the endochrome partakes of the same brown ulmic tinge, but there are still numerous starch globes which betray no discoloration, and assume a beautiful violet tinge on the application of iodine. The cells which border on the patches are on the contrary as healthy as if not a single cell were affected. The resemblance of such a section to that of a Potato under the influence of the Potato-murrain is very striking, but I can vouch for the fact that the disease was known long before that of the Potatoes ever made its appearance in England. The malady seems to be essentially constitutional, being much more common in some varieties than others, but it is certainly more frequent in ungenial seasons, characterised by much wet and little sunshine.

375. This affection it should be observed is totally distinct from ordinary cases of decay, which depend upon a variety of causes, as external injuries and the consequent admission of the spores of parasitic fungi, or from the attacks of such fungi as Spilocæa, which lift up the cuticle and admit the weather to the exposed tissues beneath. It is distinct too from all cases of bletting, which takes place occasionally in Apples and other fruits which are not in general subject to the affection. Like so many other similar maladies it commences simultaneously at a number of points, without, however, our being able to ascertain why those should be more unable to resist disease than others. It is, too, perfectly distinct from a peculiar form of decay in which the fruit becomes gradually hard and of a deep brown or black tint, without any lesion of the outward surface. In such cases I have sometimes found a minute black parasite, and an extensive deposit of dark-coloured fungal cells beneath the cuticle. I do not, however, consider the fungus as necessarily connected with the decay, but rather as an aftergrowth when decomposition has already taken place. *M. J. B.*

SUBTERRANEAN IRRIGATION.

Permit me to furnish you with a short account of a lecture which was delivered on Monday last in the Town Hall of Reading, by Mr. Wilkins, relative to his peculiar system of subsoil irrigation, which promises, or rather has already produced, such astonishing results.

A part of the produce of his experimental garden at Caversham was exhibited. The lecturer, apparently a confident and energetic man, elucidated in an able manner the many advantages to be derived from his peculiar system of cultivation; and indeed his discourse was not based on theory alone, for a comparison between his crops and others grown in the ordinary manner was most surprising and conclusive. I need not however enumerate the many and extraordinary examples (as there exhibited) of the superiority of his productions compared with those cultivated in the usual manner, as this will no doubt be more fully dwelt upon by more competent men, suffice it to say that all the articles exhibited (which had been previously taken from the garden in the presence of both scientific and practical men) were doubly and in several cases trebly superior to those produced by the ordinary system of cultivation.

I cannot omit mentioning, however, one example in the shape of a single Potato which had been grown the previous year on this system, and which being planted this season on the same plan produced the astonishing number of 101 Potatoes weighing 24 lbs., all of them perfectly free from disease or the slightest symptom of deterioration. Now this is a truly interesting fact, for if we reflect on the subject, as the lecturer stated, we will find that seven such roots of Potatoes would fill an ordinary sack. Mr. Wilkins dwelt at some length on this circumstance, it being his opinion that Potatoes grown on this system are not only doubly productive, but that they contain a far greater proportion of vegetable and reproductive matter than those cultivated in the ordinary manner, and the theory is certainly borne out in the case of the single Potato grown in the experimental garden above alluded to.

This solitary instance of extraordinary fecundity is, however, scarcely sufficient to convince us that we may rely with confidence upon a repetition of the like abundance (although Mr. Wilkins is very sanguine in the matter) from a crop of these Potatoes in the coming year. I hope however that his anticipations on this important subject may be realised. His explanations were attentively listened to by a very respectable audience, and the lecturer, together with his productions, met with frequent and well merited rounds of applause.

He also exhibited some elegant patterns of candelabra and vases for the cultivation of choice plants either in the parlour or drawing-room, adapted for holding liquid manure, without the slightest smell or inconvenience arising therefrom.

The lecturer also purposed to form a fund with the proceeds of his system to educate orphans of soldiers killed in the present war! Altogether he seems actuated by no pecuniary consideration, but appears to be prompted solely by a spirit of philanthropy to interest himself in the welfare of his countrymen.

That immense advantages may be derived from his particular mode of culture no one who has seen his produce can possibly doubt; let me therefore conclude by wishing him success, and in the hope that he may live to see the full realisation of his projects, let me bid him "Go on and prosper." *J. H. C., Strathfieldsaye.*

Home Correspondence.

Management of Roses in Beds.—Mr. Rivers in his new catalogue now before me recommends dwarf Roses forming beds or groups to be transplanted and highly manured annually, and after some experience I am convinced that this is the only method by which free growth and an abundant bloom can be maintained. It is deplorable to observe how soon and how certainly Roses (unless under very favourable circumstances) deteriorate when left to themselves or to the culture generally bestowed on them, and to remark how unlike the beauteous objects first planted a few years of neglect makes them. Now the remedy for this great evil being so simple and within the reach of all, surely we may expect to see it generally adopted, and for the guidance of those about to adopt such treatment, I may repeat that no renewal of the soil or change of site is necessary, but that careful taking up, well manuring, and careful replanting at this the proper season is all that is requisite. Plants neglected and that have been stationary for a number of years may experience some check on such transplanting, but when it becomes annual the very reverse is the case, and increased luxuriance the invariable result. Where pegging down the shoots, so as to cover the entire bed or borders, is practised (and an admirable practice it is) this treatment will not apply, but 2 or 3 inches of good rotten manure over the entire bed in autumn will answer the same purpose for many years. *J. M., Folkestone.*

Dioscorea Batatas.—Our gardener has managed to grow larger specimens of this Yam than either of your correspondents, who detailed their experiences in your Paper of Saturday last; but now he does not know

whether to take them up or leave them through the winter where they are, giving them the protection of a frame. Will you kindly inform him how to proceed? *A Novice.* [Take them up and keep them in dry river sand.]

Transplanting Machines.—Your paper of the 8th ult. contained an article on this subject from "T. C., Tadcaster." From a perusal of this article as well as of that from Mr. Barron (see p. 646), I am induced to offer a few remarks, omitting at the same time the statements of both which do not bear directly upon the question at issue. Mr. Barron says "Mr. Cowlishaw, who built the Kingston machine, adopted some trifling alteration in trussing the beams," &c. Here there is evidently some little mystery which a discerning public will infer to be the improvements alluded to by "T. C." Some other machines have since been built by Mr. Barron; two of these are quite different from any of the former ones; but the last, No. 6, is the best. Hence it appears that in the early experiments Mr. Barron, though he fully established the excellence of his invention, by no means hit upon the best mode of applying it. This fact alone serves to prove that there were defects in the original machine; and, in my view of the matter, on these defects the alleged improvements must have been founded. It is, however, evident that Mr. B.'s machine, with its recent improvements, is of equal merit with any other now in use; but, at the same time, permit me to remark that (his) Mr. Barron's manner of bearing since this subject came under notice is that of one who would seem to say—"I am here alone, and besides me there is none other." The effect of this manner of expression will be to shake people's confidence in his better judgment. *J. R., Berkshire.*

Australian Passiflora.—Pray inform me whether the fruit of this plant is eatable. In Portugal they preserve the fruit of a species of Passion flower, which is much liked; in the language of the country they call it maracuja. *A Novice.* [We do not think it is eatable, although it does smell like Melons. It is however very handsome.]

The Papaw (see p. 679).—I am glad to see in your Paper an account of experiments respecting the supposed influence of the Papaw on meat. I used often to hear it asserted in the West Indies that meat hung up in the tree became tender in a shorter time than it otherwise would have done, but do not remember having met any one who had tried it sufficiently carefully. I think that there is evidence to induce one to suppose that the mere process of decomposition of animal or vegetable matter has a tendency to promote the growth of adjoining plants independently of the influence of their component parts as manures. May not the growth of a vigorous vegetable, on the other hand, have a tendency to promote decomposition in the dead animal or vegetable matter near it? I wish also to ask for some information respecting a very ornamental plant, which I have not lately seen, and should be glad to procure. I used to know it by the name of Fumaria scandens, but I do not know where the name came from. It was a biennial climber, in habit not much unlike the British Corydalis claviculata, but the leaves and whole plant larger, and the flowers very much larger and of a very pale fawn colour. *C. W. Strickland, Hildenley.* [This plant is now called Adlumia cirrhosa; and is a native of the United States.]

Large Gourds.—Has any correspondent seen a Gourd of the following dimensions—viz., 5 feet 10 inches round, weight 124 lbs., as grown at the gardens of H. S. Thompson, Esq., Kirby Hall, near York? *J. M.* [This is not at all remarkable. On the 6th Nov., 1827, a specimen was exhibited by Mr. Cresswell weighing 136 lbs.; on the 6th Dec., 1831, another was produced by the Rev. H. Wise, of Leamington, weighing 153 lbs.; and on the 21st Oct., 1834, the then gardener of Lord Rodney showed one weighing 212 lbs., and measuring 8 feet in circumference.]

Shell Rain in the Isle of Wight.—Will you kindly favour me with some information respecting the history of the inclosed, which fell in countless numbers during a thunderstorm which passed over Osborne a few days ago. *C. Winchester, Osborne.* [It is a little landshell, called Zua lubrica, common under stones and among Moss all over the north of Europe. The shower which fell at Osborne must have been carried by some violent storm. Can any correspondent suggest where the Zua can have been found by the storm in sufficient quantity?]

The Mis-called Cholera Flies.—It may be remembered that this time last year I took occasion to combat the prevalent opinion that swarms of Aphides, which had been observed in various places in the early part of the autumn were the precursors and even the originators of the cholera. I find that during the present autumn—although it has pleased the Almighty to avert from us this dreadful scourge—yet the Aphides have been pursuing their ordinary habits, immense swarms of them having been recorded in the local journals as having appeared in various parts of Gloucestershire. This I trust will be considered as completely justifying and confirming my previous remarks, so that we shall hear no more of cholera flies. *J. O. Westwood.*

Trenching and Grubbing up an Old Shrubbery.—An old shrubbery here having been much neglected from want of timely thinning, weeding, &c., it is proposed to root out all except a tree or shrub here and there, and to trench the ground in order to prepare it for planting again with a selection of the recently introduced trees and shrubs. It will therefore oblige me if any of your correspondents would kindly instruct me as to the depth the ground should be trenched, and at how much per square yard the work should be done, including of course the stubbing up of the old shrubs, chiefly Lilacs and common Laurels. *Colo.*

Seedlings from the Fluke Potatoes.—I have sent you leaves and flowers of seedling Fluke Potatoes, more as a novelty at this season, than that any good inferences may be drawn from them, but as you may not have seen anything like them so late from the open air for these last 10 years, it may serve to encourage the hope that the period is not far distant when the Potato will grow and ripen as it was wont to do. Seed having been saved from the above-named sort last autumn, the haulm of which remained green upwards of three months after the disease was first seen in the gardens here, the seed was sown in heat early in spring, and the young plants were turned out early in May on a wall border. They are still growing, having withstood the disease with the exception of a few spots, which made their appearance on the 9th of August; but for the last six weeks the plants have been growing clean and healthy, and have every appearance of yielding a large crop, as some of the stems exceed 5 feet in length. I have some hope that the seedlings may prove even hardier than their parent, and better adapted for resisting the evil. Besides the other good qualities the Fluke possesses, I think it the best to raise seedlings from. *J. Webster, Gordon Castle, Fochabers.* [The leaves and flowers in question, though a little bruised from travelling, exhibited every appearance of freshness and vigorous health.]

Cucumber growing.—At p. 693 of last week's Paper, "T. P." says that he has cut from one plant of Sutton's Berkshire Champion Cucumber, 112 feet of fine fruit. Allow me to state that from four plants of Massey's Hybrid Cucumber there have been cut this season 300 fine fruit, measuring on an average 14 inches in length each. The above is the earliest and most prolific Cucumber I have seen in cultivation. *J. M., Kirby Hall, near York.*

Vine Mildew.—Having a late Vinery (with a flower garden in front of it) which is used for storing plants in during winter and late in spring, I was much troubled for five years with mildew, but this I kept under by means of constant applications of sulphur. I then gave air by the front sashes, as well as by the top ones. For the last three seasons I have never given any air by the front sashes till the Grapes were colouring, and I have not seen a spot of mildew. I have a good crop of well coloured fruit at the present time. It occurred to me that by giving front air, the wind passing over the flowers, such as Verbenas, &c., and then entering the house by the front sashes, spread destruction on every side, for since I have not given front air from the time the Vines are in leaf till the Grapes are colouring, I have not, as I have stated, seen a spot of mildew. *James Shrimpton, Gardener to A. J. Doxat, Esq., Putney Heath, Surrey.*

People's Park, Sunderland.—Permit me to furnish you with a plan of this so-called park, which has been stated to be unsurpassed by any in England. It lies about half a mile from Sunderland; and the road to Stockton-on-Tees, which passes through it, divides it into nearly equal parts. On the west side, which comprises about 6 acres, no trees or shrubs have been planted, nor yet walks formed, but it has been partly levelled and grassed over preparatory to Mr. Smith's operations in laying it out. The east side contains 6½ acres (the back and front of quarry), of which 4½ acres only are laid out; and in front of the quarry they were planted with Poplars of sorts, Elm, Ash, Alder, a few Scarlet Thorns, Ribes, and Lilacs, &c. Now, where are the 15 acres laid out? and let me ask, What is there about this park to make it rank with any public grounds in England? The errors committed in laying it out, and the bad judgment exhibited in planting it are so glaring, that I leave it to you to say whether "J. S." or "Medicus" are nearest akin to the long-eared gentleman which was tethered in the park. When it is known that this park has cost upwards of 2000*l.* in its formation, it will at once be evident to a discerning public that more money than judgment has been displayed in the grounds. With respect to Mr. Smith, I know him not; and in justice to Mr. Lawson, a gardener in Sunderland, who has been set down as the writer of my former statement, allow me to assert that he is perfectly innocent of the charge. *J. S.* [We have received the plan alluded to in this communication. The ground seems to be extremely irregular and uneven, which renders it impossible to form a correct opinion of the taste or want of taste displayed by the landscape gardener of the corporation, especially as the plan itself is not accompanied by any scale, nor drawn so as to give sections of the surface. Judging from the slight evidence before us, we should suppose that the walks are very well traced, that the clumps are ugly, and that the plants selected might have been better chosen].——"Fortunatus" says this is not a park, nor yet a garden, because in June it only contained one bed of Dahlias. An economical old lady might equally object that it was not a garden because it did not contain Cabbages. We are told the walks are carried along the lowest levels. Some of them are, but I wonder what sort of a level that is from which the town, harbour, and miles of sea and country can be seen. Already there is more than one such walk, and when the south side of the hill is laid out a finer and more extended sea and land view cannot be had in the north. With regard to the laying out of the walks, the formation of the mounds, &c., it is sufficient in reply to state that the Government inspector, — Ranger, Esq., on officially surveying the grounds, highly approved of all that had been done, and complimented the parties concerned upon their judgment and taste. If "Fortunatus," or "J. S.," instead of a hasty evening visit would spend some hours in it daily as I did, they would find that the "Poplars" include Arbutus, Evergreen Oaks, Laurustinus, Hollies, common Laurel, Portugal Laurel, Yews, Rhododendrons, Azaleas, &c., &c. In conclusion I would remind "J. S." and "Fortunatus" that shrubberies and parks are not like market gardens, which may be laid out and perfected in a season; years are sometimes required to perfect and bring out their beauties. How improper then from a mere flying visit to a place only in process of formation to speak of it in the manner they have done. I know not who your correspondents are, but I strongly suspect that their legitimate sphere is the kitchen garden; here they might be much more at home and much better able to criticise than on a piece of landscape gardening. *Medicus.*

Notices of Books.

Eight Years' Wanderings in Ceylon. By S. W. Baker, Esq. Longman. 8vo, pp. 423, with lithotints and woodcuts.

It appears that Mr. Baker is resident in Ceylon, and that his remarks express the opinions of one capable of forming a correct judgment both of what that fine island is able to produce, and of the wisdom of the measures of the British Government in developing its resources. On neither does he pronounce a favourable judgment. The acts of the government are represented to be feeble and injudicious, and the land is said to be anything rather than the mine of riches which some have reported it to be.

"The appearance of the latter," says the author, "has deceived everyone, especially the black soil of the patina, which my bailiff on his first arrival declared to be excellent. Lord Torrington, who is well known as an agriculturist, was equally deceived. He was very confident in the opinion that 'it only required draining to enable it to produce anything.' The real fact is that it is far inferior to the forest land, and will not pay for the working. Nevertheless, it is my decided opinion that the generality of the forest land at Newera Ellia and the vicinity is superior to that in other parts of Ceylon. There are necessarily rich lots every now and then in such a large extent as the surface of the low country; but these lots usually lie on the banks of rivers which have been subjected to inundations, and they are not fair samples of Ceylon soil. A river's bank or a valley's bottom must be tolerably good even in the poorest country. The great proof of the general poverty of Ceylon is shown in the failure of every agricultural experiment in which a rich soil is required. Cinnamon thrives; but why? It delights in a soil of quartz sand, in which nothing else will grow. Cocoa-nut trees flourish for the same reason; sea air, a sandy soil, and a dry subsoil are all that the Cocoa-nut requires. On the other hand, those tropical productions which require a strong soil invariably prove failures, and Sugar, Cotton, Indigo, Hemp, and Tobacco, cannot possibly be cultivated with success. Even on the alluvial soil upon the banks of rivers, sugar does not pay the proprietor. The only sugar estate in the island that can keep its head above water, is the Peredenia estate, within four miles of Kandy. This, again, lies upon the bank of the Mahawelli river, and it has also the advantage of a home market for its produce, as it supplies the interior of Ceylon at the rate of 23*s.* per cwt. upon the spot. Any person who thoroughly understands the practical cultivation of the Sugar-cane can tell the quality of sugar that will be produced by an examination of the soil. I am thoroughly convinced that no soil in Ceylon will produce a sample of fine straw-coloured, dry, bright, large crystallised sugar. The finest sample ever produced of Ceylon sugar is a dull grey, and always moist; requiring a very large proportion of lime in the manufacture, without which it could neither be cleansed nor crystallised. The Sugar-cane, to produce fine sugar, requires a rich, stiff, and very dry soil. In Ceylon there is no such thing as a stiff soil existing. The alluvial soil upon the banks of rivers is adapted for the growth of Cotton and Tobacco, but not for the Sugar-cane. In such light and moist alluvial soil the latter will grow to a great size, and will yield a large quantity of juice in which the saccharometer may stand well; but the degree of strength indicated will proceed from an immense proportion of mucilage, which will give much trouble in the cleansing during boiling; and the sugar produced must be wanting in dryness and fine colour. There are several rivers in Ceylon whose banks would produce good Cotton and Tobacco, especially those in the districts of Hambantotte and Batticaloa; such as the 'Wallawé,' the 'Yallé river,' the 'Koombookanaar,' &c.; but even here the good soil is very limited, lying on either bank for only a quarter of a mile in width. In addition to this, the unhealthiness of the climate is so great that I am convinced that no European constitution could withstand it. Even the natives are decimated at certain seasons by the most virulent fevers and dysentery."

"In fact, nothing will permanently succeed in Ceylon soil without abundance of manure, with the exception of Cinnamon and Cocoa-nuts. Even the native gardens will not produce a tolerable sample of the common sweet Potato without manure, a positive proof of the general poverty of the soil."

"Can any man, when describing the 'fertility' of Ceylon, be aware that newly cleared forest-land will only produce one crop of the miserable grain called korrakan? Can he understand why the greater portion of Ceylon is covered by dense thorny jungles? It is simply this, that the land is so desperately poor, that it will only produce one crop, and thus an immense acreage is required for the support of a few inhabitants; thus, from ages past up to the present time, the natives have been continually felling fresh forest and deserting the last clearing, which has accordingly grown into a dense thorny jungle, forming what are termed the 'Chénars' of Ceylon. So fully aware are the natives of the impossibility of getting more than one crop out of the land, that they plant all that they require at the same time. Thus may be seen in a field of korrakan (a small grain), Indian Corn, Millet, and Pumpkins, all growing together, and harvested as they respectively become ripe."

This is by no means encouraging to an emigrant. And then Mr. Baker goes on to say that the attention of the Colonial Government is wholly absorbed by Coffee cultivation, to the total neglect of Rice, the great staple of the island.

"Nevertheless, the great capabilities of Ceylon for the cultivation of this all important 'staff of life' are entirely neglected by the government. The tanks which afforded a supply of water for millions in former ages now lie idle and out of repair; the pelican sails in solitude upon their waters, and the crocodile basks upon their shores; the thousands of acres which formerly produced Rice for a dense population, are now matted over by a thorny and impenetrable jungle. The wild buffalo descendant from the ancient stock which tilled the ground of a great nation, now roams through barren forests, which in olden times was a soil glistening with fertility. The ruins of the mighty cities tower high above the trees, sad monuments of desolation, where all was once flourishing, and where thousands dwelt within their walls. All are passed away; and in the wreck of past ages we trace the great resources of the country which produced sufficient food to support millions; while for the present comparatively small population, Ceylon is dependant upon imports."

"These tanks are of various extent, and extremely numerous throughout Ceylon. The largest are those of Minneria, Kandellai, Padavellkiellom, and the Giant's Tank. These are from 15 to 25 miles in circumference; but in former times, when the sluices were in repair and the volume of water at its full height, they must have been much larger."

"In this manner was the greater portion of Ceylon kept in the highest state of cultivation. From the north to the south, the island was thickly peopled, and the only portions which then remained in the hands of nature were those which are now seen in the state of primeval forest. Well may Ceylon in those times have deserved the name of the 'Paradise of the East.' The beauties which nature has showered upon the land were heightened by cultivation; the forest-capped mountains rose from a waving sea of green; the valleys teemed with wealth; no thorny jungles gave a barren cast to the interminable prospect, but the golden tints of ripening crops spread to the horizon. Temples stood upon the hill-tops; cities were studded over the land, their lofty Dagobas and palaces reflected on the glassy surface of the lakes, from which their millions of inhabitants derived their food, their wealth, and their very life. The remains of these cities sufficiently attest the former amount of population, and the comparative civilisation which existed at that remote era among the progenitors of the present degraded race of barbarians. The ruins of 'Anaradupoora,' which cover 256 square miles of ground, are all that remain of the noble city which stood within its walls in a square of sixteen miles. Some idea of the amount of population may be arrived at, when we consider the present density of inhabitants in all Indian houses and towns. Millions must, therefore, have streamed from the gates of a city, to which our modern London was comparatively a village."

To the Coffee cultivation a chapter is devoted which will well repay perusal. It is, however, by no means the easy pursuit which some have imagined it to be, and which many have found terribly the reverse, as the ruin which some years since spread like a pestilence among the planters too plainly evinced. Nevertheless Mr. Baker reports that—

"There is no longer any doubt that a Coffee estate in a good situation in Ceylon will pay a large interest for the capital invested, and will ultimately enrich the proprietor, provided that he has his own capital to work his estate, that he gives his own personal superintendence, and that he understands the management. These are the usual conditions of success in most affairs; but a Coffee estate is not unfrequently abused for not paying—when it is worked with borrowed capital at a high rate of interest under questionable superintendence.

But he adds:—

"A rapid fortune can never be made by working a Coffee estate. Years of patient industry and toil, chequered by many disappointments, may eventually reward the proprietor; but it will be at a time of life when a long residence in the tropics will have given him a distaste for the chilly atmosphere of old England; his early friends will have been scattered abroad, and he will meet few faces to welcome him on his native shores. What cold is so severe as a cold reception?—no thermometer can mark the degree. No fortune, however large, can compensate for the loss of home, and friends, and early associations. This feeling is peculiarly strong throughout the British nation. You cannot convince an English settler that he will be abroad for an indefinite number of years; the idea would be equivalent to transportation: he consoles himself with the hope that something will turn up to alter the apparent certainty of his exile; and in this hope, with his mind ever fixed upon his return, he does nothing for posterity in the colony. He rarely even plants a fruit-tree, hoping that his stay will not allow him to gather from it. This accounts for the poverty of the gardens and enclosures around the houses of the English inhabitants, and the general dearth of any fruits worth eating. How different is the appearance of French colonies, and how different are the feelings of the settler! The word 'adieu' once spoken, he sighs an eternal farewell to the shores of 'La belle France,' and, with the natural light-heartedness of the nation, he settles cheerfully in a colony as his adopted country. He lays out his grounds with taste, and plants groves of exquisite fruit-trees, whose produce will, he hopes, be tasted by his children and grandchildren. Accordingly, in a French colony there is a tropical beauty in the cultivated trees and flowers, which is seldom seen in our own possessions. The fruits are brought to perfection, as there is the same care taken in pruning and grafting the finest kinds as in gardens in England."

It must be confessed that this is not complimentary to our countrymen. But we must pause; to return to these pleasant pages hereafter. We have only space to add that the reader who merely seeks for a few hours' amusement will find Mr. Baker's book full of entertaining anecdotes concerning the people, the hunting, the shooting, and all the out of door pursuits of beautiful Taprobane; while he who is seeking for an emigrant's home in a tropical island will gather a rich harvest of sterling information concerning the farming, the mining, and other industrial occupations of the island.

Garden Memoranda.

Messrs. Paul's Nursery, Cheshunt.—In addition to an extensive collection of Roses which this nursery is well known to contain, on visiting it the other day we noticed several other things to which attention may perhaps be usefully directed. In the herbaceous borders five or six varieties of Aster were literally masses of flower, rendering them almost as gay now as in the height of summer. A. multiflorus, a kind with Heath-like foliage and small white flowers, was especially conspicuous, and there were some blue sorts equally valuable for autumn decoration. Requiring as these plants do, so little care or labour in their culture, it is surprising that they are not more cultivated than they are. Anemone japonica and its paler-coloured hybrids are also plants that flower very showily at this season. A blue Sage, which we saw here, called Salvia Lilleana, might likewise be added with advantage to the winter garden. It is a hardy Continental kind, which is as yet but little known. Nor in looking for autumn flowering plants should Oxalis floribunda be forgotten, for it will keep in bloom from July up to Christmas; and where there is a little shelter what can be gayer at this season than O. Bowei, whose round bright rosy blossoms are as large as a shilling, and produced in such abundance as to be striking and effective even at a distance? This variety is however not so hardy as floribunda, and succeeds best on a warm dry border by the side of a wall. Tagetes lucida, with golden yellow flowers, is also a useful plant at this time of year, and to the above must likewise be added different sorts of Phloxes, some one or other of which is in flower almost every month in the season. With the above and Delphiniums, among which the beautiful D. Hendersoni is now in full beauty, a garden might be kept tolerably gay and cheerful at a time when otherwise there would be little to interest. The variegated variety of Arundo Donax is also a pretty plant well worth growing. It is, however, we fear scarcely hardy enough to stand our winters.

Of glass houses—of which there are several here, each devoted to one class of plants—a long span-roofed one was wholly filled with Hollyhocks in pots. These were some of the finer kinds, which are taken up from the open ground about the beginning of October. They are grown all winter under glass, and by spring they are sufficiently forward to supply a crop of cuttings before they are planted out again. Among these were the following first-class varieties, viz., Beauty of Cheshunt, light rosy red—one of the finest; Blushing Bride, delicate blush, spike handsome and compact; Charles Barron Improved, salmon pink; Darius, orange buff, large and showy; Diana, rosy peach edged with carmine, shape perfect; Glory of Cheshunt, clear yellow, spike large and handsome; Honourable Mrs. Ashley, peach shaded with lilac, one of the finest; Lizzy Improved, clear peach, similar in style to the last, but more brilliant; Lord Jocelyn, crimson and very fine; Louis Napoleon, silvery blush, veined with purple, and though not a show flower very effective; Magician, cherry, with dark maroon base; Memnon, beautiful light crimson, spike large and fine; Miss Ashley, light fawn, and handsome in shape; Narcissus, clear yellow; Queen Eleanor, bright rosy peach with silvery edges, quite new and distinct; Rosy Morn, bright rose; Solfaterre, lemon coloured, and good in form: Souvenir, purplish rose; Swansdown, white, edged with lake; and White Globe, pure white, large and compact. Several of the above have been raised from seed by the Messrs. Paul, who have been very successful in producing new and good varieties of Hollyhocks. The finer kinds are largely propagated here by eyes, which are taken off in summer and planted in a pit under glass in light sandy soil placed over a gentle bottom heat.

Of Rose blooms still in perfection many handsome bouquets might yet be gathered. Of old varieties still in flower were Hybrid Perpetual:—Baronne Prevost, Duchess of Sutherland of similar colour, but apparently a finer late flower; the glorious Géant des Batailles, and Mrs. Elliott, large rosy purple. Bourbon:—Dupetit Thouars, crimson; Justine, rose and prettily cupped; and Paul's Prince Albert, purplish crimson and a profuse late bloomer; China:—Mrs. Bosanquet, a fine late kind and President d'Obeque, cherry rose. Tea-scented:—Adam, fine large salmon rose; Safranot, buff with an Apricot coloured centre; Vicomtesse Decazes, yellow tinted with copper; and Narcisse, pale yellow, and a free bloomer. Noisette:—Caroline Marniesse, a creamy-white, which flowers in clusters; and Ophirie, copper-coloured, distinct and nearly evergreen.

Of newer kinds in bloom, there were Hybrid Perpetual:—Triomphe de Paris, dark velvety crimson; Duchesse d'Orleans, lilac blush, a large, full, and well-shaped flower; General Castellane, brilliant crimson, and a profuse late bloomer of somewhat dwarf habit; Prince Leon, bright crimson, large and full; Chipetouzikoff, dark red, and good in shape; Docteur Juillard, rosy purple, shaded with carmine; Souvenir de Madame Lise, brilliant red, shaded with blackish crimson, a profuse late flowerer, and dwarf in habit; Madame de Cambacères, rosy carmine; Madame Philip, blush, pink edged with rose, and a fine bold flower; Madame Fremion, beautiful light rosy crimson; and General Jacqueminot, brilliant red, very rich and velvety.

The following new kinds we did not see in flower, but they are reported to be good. Moss:—Baronne de Wassenaër, a bright red which flowers in clusters; Clemence Beaugrand, pink; Comtesse Doria, crimson; Felicité Bohain, bright rose; Gloire de Mousseux, blush, very large; and Vaudael, dark purple with lilac edges. Perpetual Moss:—Madame Edouard Ory, rosy carmine; and Salet, rose with blush edges. Hybrid Perpetual:—Alphonse de Lamartine, delicate rose; Baron Laray, carmine; Empereur Napoleon, brilliant in colour, but not first-rate in shape; Julie de Guinnoiseau, blush, globular; Lord Raglan, scarlet crimson edged with violet; Madame Masson, reddish crimson, which changes to violet; Madame Martel, white, tinted with rose; Melanie Leroy, rose; and Panaché d'Orleans, flesh colour, striped with rose and purple.

Young Roses, we need scarcely say, are annually raised here in great quantities, and most of them are struck in the open air under hand-glasses. When large enough to occupy 5-inch pots, they are plunged in open tan beds, where they remain all the summer till about this time, when the most tender of them are moved under glass.

The plants intended for exhibition are also plunged in the open ground, and are moved in-doors about the 1st of November, when those selected to be shown in May are pruned. Those for the June exhibition are cut in a month later. By plunging them out of doors till about this time the wood, if the autumn is favourable, gets thoroughly well ripened, and when that is the case a good bloom next season may almost with certainty be relied on.

A portion of this nursery is devoted to the growth of hardy ornamental trees, of which Messrs. Paul state that they have a collection of nearly 800 different species and varieties, including Conifers, and Evergreen and deciduous shrubs. These are planted in what is called "the arboretum;" they are not arranged according to their botanical affinities; but different forms and tints are placed in juxtaposition with the view of producing pictorial effect. Among Conifers we remarked a good plant of Libocedrus chilensis, which was very little injured here last winter; a handsome compact variety of Red Cedar, some 10 feet in height; Abies Pinsapo, 9 feet high and nearly as much through at the base; a Deodar, 25 feet in height; Abies nobilis, a blue looking kind called A. alba glauca, together with numerous Junipers and Cypresses. A variegated variety of Red Cedar was growing both out of doors and under glass; it is said to be hardy, and if so it will doubtless prove an acquisition, as it is reported to grow very freely, and its variegations are much whiter than those of the variegated Chamæcyparis. Among other variegated trees and shrubs were good specimens of the following, viz.:—Gold-edged Weeping Ash and Elm; Aucuba-leaved Ash and Bird Cherry: together with variegated Snowberry, Philadelphus, and Spanish Chesnut, &c.

Of weeping trees the gold-leaved Weeping Privet, the Kilmarnock Weeping Willow, with black wood and foliage as large as that of an Apple tree; the gold barked weeping Ash; and the weeping Sophora japonica with dense dark massive foliage, were perhaps the most remarkable.

When speaking of variegated evergreens, we forgot to mention the silver-leaved Phillyrea, which is one of the most beautiful of wall plants, but not sufficiently hardy to stand our winters without such protection. We also remarked that scattered here and there among the evergreens hardy climbing plants were introduced and trained to stakes about 7 feet in height, and when in bloom doubtless with good effect.

Of Deodars we observed an amazing quantity, varying from 2 feet to 8 feet in height, and most beautiful

they were both in form and colour. The deep loamy soil of this nursery appears to be just what is wanted to have them in perfection.

Fruit trees are also largely cultivated here; but these we had not time to inspect.

FLORICULTURE.

Tulips.—Examine the bulbs, and if not previously done, let them now be arranged for planting, making the alterations and improvements noted down in the Tulip book during the blooming time; this should be done immediately the bulbs are taken up, while the changes intended to be made are fresh on the mind. New varieties should be procured at once, and then re-arrange them. The bed should now be got ready for planting. If the soil has been only in use one year, and the bulbs did well in it, there is no advantage to be derived from changing it, for they will do well in the same soil (if it is good) for two or three successive years; all that is required is, to remove about 3 inches from the surface, laying it in a ridge by the sides of the bed; then fork over the mould left in the bed, laying that also in a high ridge for a week or ten days. If the soil requires changing, it need not be removed; take about 10 inches off the top, then put about 6 inches of two-year-old rotted turf and loam and road grit, well mixed together (three-fourths loam and one-fourth grit), on the soil left in the bed; fork it well over two or three times, turning some of that left with the mould just added, so as to mix it well, and lay it up in a high ridge; two or three days before planting, rake it down, laying it 2 inches higher in the middle than the sides. In planting, place a small quantity of river-sand on the spot the bulb is to occupy, and put as much sand on the bulb itself as will just cover it; then carefully put the mould on the bed, covering the bulbs 4½ inches deep in the centre, and 3 inches on the outsides; protect the bed at once, by placing small-sized iron hoops over it, rising about 6 inches from the surface, and run some small string diagonally from each hoop. About the second or third week in October is the best time for planting in general, but it is not yet too late. Choose dry weather if possible for the operation. As a rule the best plan is to begin planting whenever the bulbs push forth their green spear, and the fibres swell at the bottom of the bulb; for the longer they are kept out of the ground when this is the case the greater injury they will sustain.

Miscellaneous.

On the Juice of the Star Apple.—The juice of this luscious fruit (Chrysophyllum Cainito) has, I have found, the property of coagulating on exposure to the air very like coagulable lymph. I have a note of one trial only. After dividing the fruit with a knife (the knife was much blackened, chiefly, it would appear, by the cortical part), the inner mucilaginous portion with the seeds was scooped out, well mixed with about an equal bulk of water, and pressed through a coarse linen cloth. What was thus obtained was semifluid (its coagulation had commenced), of a creamy appearance, and uniform consistence. Under the microscope it appeared to be composed chiefly of exceedingly minute granules, the largest not exceeding the $\frac{1}{10000}$ of an inch in diameter, which were rendered brown by tincture of iodine, with the exception of a very few that were tinged blue. After two hours a pretty firm coagulum had formed with the separation of a transparent fluid, and so great was the contraction as to be equal to about one third of the diameter of the containing vessel, a circular glass one; and so coherent and firm was the coagulum itself, that it admitted of being lifted out without breaking or change of form. On the following day the coagulum was found still more contracted, and in all its dimensions. The transparent fluid surrounding the coagulum was sweet. It was not rendered turbid by nitric acid. In a few days it began to ferment, and in a few more it became acid. The contraction of the coagulum continued increasing during several days. After about a fortnight it softened, became pultaceous, and emitted an offensive smell not unlike that of chyme as met with in the cadaver. Under the microscope, as before, it exhibited a granular texture, without the admixture of any fibres. *Dr. Davy in the Edin. New Philosophical Journal.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Whatever watering may be necessary here should be done early in the day so as to allow of getting the superfluous moisture dispelled before night, for there is much more danger from damp among plants in flower at this season than from a rather low temperature, and on cold dull cloudy days it will be advisable to use a little fire-heat with air during the day so as to secure a moderately dry state of the atmosphere before night. Use fire-heat very sparingly, however, and only where it may be necessary to prevent injury from damp, or to prevent the temperature falling below 40°, or where things are brought from warmer houses it will hardly be safe to allow the night temperature to average below 45°, but in houses containing a mixed collection of plants there is more danger to be apprehended from a high night temperature than by keeping it somewhat lower than may be suitable for some of the inmates.

FORCING DEPARTMENT.

Pineries.—Plants swelling their fruit must be assisted with a warm moist atmosphere, for it is difficult to get Pines to swell properly after this season under any circumstances, and unless the atmosphere can be kept warm and moist they will make but little progress. Therefore use sufficient fire-heat to secure a night temperature of at least from 65° to 70°, and 75° by day allowing it to rise considerably with sunshine, and admit a little fresh air during the day when the weather is mild, using sufficient fire-heat to allow of doing this without lowering the temperature, and if there is the means of admitting fresh air so as to bring it into contact with the pipes on its entrance into the house, a little may be admitted with advantage in all states of the weather, and in the case of houses which have to be kept warm in winter there should always be some contrivance for admitting fresh air under or against the heating apparatus so that it may get warmed before coming into contact with the plants, and with proper arrangement a moderate supply may be admitted constantly without requiring any extra amount of fuel to keep up the temperature. Also endeavour to secure a steady bottom-heat of about 85°, and endeavour to keep the soil about the roots in a properly moist state, giving clear, rather strong, manure-water when necessary; but if the atmosphere is kept properly moist the soil will not require much water for some time. It is very difficult however to get Queen Pines to swell properly after this season, and any plants of this variety showing now should, unless in cases where ripe Pines of any size or quality will be valuable early next spring, be kept cool and dry as soon as they have done flowering, until the middle or end of January, and then be afforded a brisk moist temperature; and treated in this way, we have often found them to swell off exceedingly well, and where ripe Pines in winter are in demand Cayennes, Black Jamaica, and Montserrats should be grown to furnish the supply from November to April, for those not only swell better in winter than Queens, and the larger sorts of blacks, but are also less liable to be hard and inferior in quality. Fruit approaching maturity must also be kept warm, but the atmosphere should be kept rather dry, admitting fresh air freely on every fovourable opportunity, for anything like moderately well-flavoured fruit will not be obtained at this season without a liberal use of fire-heat. If any of the young stock in pots appear to want shifting examine these at once, and shift such as are found to be at all pot-bound, for young plants if kept short of pot room through the winter will be apt to start into fruit instead of growth in spring. But in repotting at this season be careful to have the balls and soil to be used in a healthy state as to moisture, and place the soil where it will get warmed before using it, so as to avoid checking the roots.

FLOWER GARDEN AND SHRUBBERIES.

The season is now so far advanced that it will be very unsafe to trust such things as large plants of Scarlet Geraniums, Fuchsias, &c., which it may be intended to winter for use next season to the mercy of the weather any longer, and these should be taken up and placed in safe quarters without loss of time. Plants, however, which are still in good condition, and which can be covered at night when there is reason to apprehend frost may be left for some time longer. It will also be advisable to get the whole stock of variegated Geraniums into their winter quarters at once, for the hardiest of these will not bear much frost without the foliage and young wood being injured, and where the plants have to be wintered in situations which are not very suitable for them they should be taken up before they are at all injured by frost, as they will be much more liable to damp and die back in winter if the wood is at all injured by frost. Unless where there is a sufficient stock of these they should not be cut back, as is usually done with the old Scarlets, but should be kept over the winter just as they are lifted from the beds, and cut back early in spring after starting them into growth, when the cuttings will root very freely in heat, and in the case of "Flower of the Day," or other free growers, will make useful sized plants by turning out time, and even the strongest growers of these do not cover a bed very quickly unless planted thick, and the plants should therefore be wintered in as large a state as the accommodation will permit. The autumn rooted stock of Verbenas, &c., must be well attended to, keeping them perfectly clear of greenfly, and exposing them freely to the air on every favourable opportunity, so as to prevent anything like growth after this season, and keep the plants hard, in which state they will be much less liable to fog and die off under a week or two's confinement in winter than if they were kept in a growing soft state until overtaken by severe weather. Things which are not sufficiently established must, however, be treated somewhat more kindly, for there is but little chance of carrying such things over a severe winter unless they are at least well rooted, and these might with advantage be placed upon a gentle bottom-heat to encourage the roots, but do not keep the atmosphere close and moist, for growth should not be encouraged after this season.

HARDY FRUIT AND KITCHEN GARDEN.

Any fruits remaining on the trees should be gathered at once, for there will be little gained by allowing them to hang longer on the trees, while there will be some danger of their being blown down and bruised. Keep the fruit-room cool and airy, but Pears approaching maturity will be improved in flavour by removal to a warm dry room a few days before they are wanted for use, particularly such as are not fully ripe. Proceed with the planting of young trees, and root-pruning, or lifting such as require this attention, and take care after disturbing the roots to secure the trees well against wind, so as to prevent their being rocked about and the roots injured, and do this before there is any chance of their being blown down. If not already done take advantage of dry days, when the ground is in working order, to take up and store Carrots, Beet, Parsnips, &c., and stack them in sand in a cool place where they will be conveniently got at when wanted for use.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Oct. 25, 1855, as observed at the Horticultural Gardens.

Oct.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain
Friday 19	8	30.134	30.015	61	39	51.0	56	55	S.W.	.00
Satur. 20	9	30.177	30.133	61	50	55.5	56	55	S.W.	.01
Sunday 21	10	30.169	30.084	62	45	53.5	56	54½	S.W.	.01
Mon. 22	11	30.184	30.045	66	46	56.0	56	55	S.W.	.00
Tues. 23	12	29.966	29.841	61	40	51.5	56	55	S.W.	.00
Wed. 24	13	30.052	29.901	55	33	44.0	55½	55½	W.	.00
Thurs. 25	☾	29.961	29.545	55	50	52.5	54	54	S.W.	.33
Average.		30.092	29.941	60.4	43.3	51.8	55.5	54.8		0.3

Oct. 19—Light clouds and fine throughout.
— 20—Fine; cloudy; fine.
— 21—Fine; cloudy; slight rain at night.
— 22—Foggy; very fine; cloudy.
— 23—Foggy; uniformly overcast; cloudy.
— 24—Fine; clear; fine at night.
— 25—Uniformly overcast; cloudy and boisterous; rain; exceedingly boisterous at night.
Mean temperature of the week 3 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 29 years, for the ensuing week, ending Nov. 3, 1855.

Oct. and Nov.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 28	54.1	37.1	45.6	15	1.06 in.	—	5	2	—	6	8	3	5
Mon. 29	53.7	35.0	44.4	13	0.42	3	3	3	1	6	10	1	2
Tues. 30	55.0	39.0	47.0	13	0.58	3	5	1	3	3	12	1	1
Wed. 31	53.9	38.8	46.4	16	0.88	2	1	4	1	4	6	8	3
Thu. 1	55.1	39.0	47.0	16	0.38	—	2	5	3	3	10	2	4
Frid. 2	54.6	39.1	46.9	12	0.61	2	1	7	1	5	7	6	—
Satur 3	53.4	37.6	45.5	14	0.82	3	3	5	2	3	6	5	2

The highest temperature during the above period occurred on the 29th and 30th, 1833, and 31st, 1854—therm. 67 deg.; and the lowest on the 3d, 1845—therm. 20 deg.

Notices to Correspondents.

Insects: *T G.* It appears to us preferable to allow the rooks to hunt for the grubs which you have sent (which are the *young* larvæ of the common May-bug, Melolontha vulgaris) rather than to let the latter go on growing, as they will do for at least a couple of years, during which time they will of course quite destroy the Grass which would shoot up again. After the rooks had taken their departure, it will be worth your while to employ children next summer to catch and destroy the May-bugs.—*Rochford.* The little yellow oval masses are not eggs. They are the silken cocoons spun by the larvæ of small parasitic Ichneumon flies (Microgaster glomeratus), which have lived within the bodies of the Cabbage caterpillar.—*A G.* We suppose the grubs which eat the roots of your turf are the larvæ of the May-bug (Melolontha vulgaris). The dead patches should be turned up and the grubs collected. Fowls and ducks will find them out.—*Old Sub.* Dust your Pear and Plum leaves with powdered lime, which will destroy the slimy grub of the Tenthredo Æthiops. *W.*

Lotteries: *Hortus.* We believe the schemes you mention to be just like other gambling transactions. Had we not, during the last war, grand *British* lotteries?

Names of Fruits: *J Newton.* 1, Golden Russet; 2 and 12, Brabant Bellefleur; 3, Dutch Mignonne; 4, Northern Greening; 6, Fall Pippin; 7, Gravenstein; 9, Hall Door, probably; 10, Sam Young; 11, Flat Nonpareil; 13, Nonsuch; 15, Early Nonpareil; 17, Scarlet Nonpareil; 18, 19, 21, Hawthornden; 22, De Neige; 23, Screveton Golden Pippin; 24, Pennington's Seedling; 25, Cockle Pippin; 27, Cornish Gilliflower; 28, Easter Pippin; 30, Adam's Pearmain; 36, Calville Blanche d'Hiver; 37, Sturmer Pippin; 38, Blenheim Pippin. Pears:—2, Passe Colmar; 3, Beurré de Capiaumont; 4, Winter Nelis; 5, Napoléon; 6, Marie Louise; 7, 9, 12, Beurré Rance; 8, Swan's Egg; 10, worthless; 14, Black Worcester; 15, Beurré Diel. —*J E H.* 5, Tulip Apple; 7, Pigeon; 9, Early Nonpareil; 11, Beauty of Kent, but a small specimen; 15, apparently the London Pippin.—*P W J.* The Pear is the Chaumontel. The Apples cannot be at present identified.—*R M* 1, Aston Town; 2, Autumn Bergamot; 3, apparently Ambrosia; 5, Bishop's Thumb; 6, Dovenné Blanc; 7, Swan's Egg; 8, Urbaniste.—*W R.* 1, Beurré Rance; 3, Catillac; 4, Beurré Diel; 5, Louise Bonne (of Jersey); 6, 7, Vicar of Winkfield; 9, probably Figue de Naples; 10, Beurré Bosc; 11, Ross Nonpareil; 12, Minchall Crab.—*Dalla.* 1, Wyken Pippin; 2, King of the Pippins; 3, Golden Reinette; 4, Lamb Abbey Pearmain; 5, Hawthornden; 6, Downton; 7, (?) Court of Wick; 11, 16, Ribstone Pippin; 15, Bedfordshire Foundling; 17, Dutch Mignonne; 19, 20, Franklin's Golden Pippin. Pears: 1, Van Mons Leon le Clerc; 2, Glou Morceau; 3, with the exposed side deep red is the Spanish Bon Chrétien.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Theta.* The "Ipomœa" is Argyreia speciosa from the East Indies. The ugly Orchid is Acampe papillosa.—*W F.* The true Service Tree is Pyrus domestica. What they have sold you for it is a totally different plant, Pyrus americana, the American Mountain Ash.

Poplars: *An Old Pupil.* We cannot imagine these to be ever as profitable to the planter as Larch, and certainly not in exposed places. Their favourite habitation is low damp alluvial land. See Agricultural side

Primroses: *A M P.* Taken up now and packed in stiff clay in a wooden close box, the roots will travel safely for four months. If you wish for seed it must be sought in the woods. It is not, we believe, a trade article.

Sunflower: *An Old Pupil.* If you have no machine you had better treat your Sunflower stalks like Hemp, steeping or retting them until the pulp is rotten, then bleaching them by exposure to air, and afterwards scutching them in the usual way. We suppose this to be the readiest means of separating the fibre from the stalks of the Sunflower. Can any one favour our correspondent with better advice? He would be much obliged.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

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1. The English Language.
2. The Geography and History of the British Empire.
3. Practical Mathematics.

The Examination will be held at Easter, 1856. The names of Candidates must be sent on or before January 1, 1856, to the Secretary of the Bath and West of England Society, Poulteney Street, Bath; or to the Rev. J. S. Brereton, West Buckland, South Molton, of whom further information may be obtained.

The Rev. G. Martin, Chancellor of the Diocese, and Sir Stafford Northcote, Bart., M.P., have kindly undertaken to conduct the Examination.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.
Principal—J. C. Nesbit, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

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MR. HUMBERT, of Watford, Herts, supported by unquestionable references and testimonials, offers his services to proprietors about to execute works of drainage, which he will undertake personally to lay out and superintend, and to supply the forms and attendances necessary to obtain the certificate of the Inclosure Commissioners where such is required, at a charge of 5*s.* per acre and his travelling expenses; or he will contract to perform the whole work to the satisfaction of the Commissioners at a fixed price per acre.

Mr. Humbert (having been more than 15 years established in business as a Surveyor and Land Agent) has found that wet heavy soils can be usually, carefully, and thoroughly drained, with pipes 4 feet deep, at 4*l.* per acre and upwards, inclusive of every expense.

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MR. BAILEY DENTON, Engineer to the General Land Drainage Company, offers the following publications, which may be had by post (stamps being sent with the order) of W. P. Metchim, 20, Parliament Street, London.

1. LAND DRAINAGE AND DRAINAGE SYSTEMS. Second issue (1855), price 3*s.*
"The best practical treatise we have yet seen." *Agricultural Gazette.*—"A very able treatise." *Mark Lane Express.*

2. TABLES OF COST OF LABOUR AND MATERIALS. Price 1*s.* 6*d.* For the Pocket.

3. RELIEF OR SURFACE MODELLING, as Suggestive of Drainage and the Profitable Use of Drainage Waters. Second Edition (1850), price 3*s.* 6*d.* Medals R. A. S. E., 1840, and Exhibition, 1851, were awarded for this method of Modelling.

GENERAL DRAINAGE AND THE DISTRIBUTION OF WATERS. A Paper reprinted from the "Westminster Review" (1842). Price 2*s.* 6*d.*

Also, THE DRAINER'S A LEVEL FOR THE USE OF WORKMEN. Price 30*s.*

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BUSHE'S PATENT ROOT GRATER, manufactured by FOWLER AND FRY, Temple Gate, Bristol, entirely supersedes the necessity of Cooking Turnips, Mangold, and other Roots; it effects a saving of 30 to 40 per cent. of the Roots, besides that of fuel. Price 3*l.* 10*s.* Printed testimonials and directions may be obtained gratis by applying to Fowler & Fry, Bristol, Licensed Makers of Corne's Patent Chaff Cutters and General Agricultural Implement Makers and Dealers. The Root Grater may also be seen in the Agricultural Department of the Crystal Palace, Sydenham.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

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THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

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Manufacturers of the Cement, J. B. White & Brothers, Milbank Street Westminster.

SMITHFIELD CLUB, 1855.—FAT CATTLE SHOW.—The ANNUAL CHRISTMAS SHOW of FAT CATTLE, SHEEP, and PIGS, will take place on the 11th, 12th, 13th, and 14th of December, 1855, at the Carriage Bazaar, King Street, Portman Square, when nearly 800*l.* will be awarded in Prizes and Medals.

The printed forms of Certificates, properly filled up, must be returned to the Honorary Secretary on or before SATURDAY, November 10th. Prize Sheets and the necessary printed forms of Certificates are now ready, and can be obtained on application to B. T. Brandreth Gibbs, Honorary Secretary,
Corner of Half-moon Street, Piccadilly, London.

All communications on the Club's business should bear the words "Smithfield Club" on the outside.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1855.—The Seventh Great Annual Exhibition of CATTLE, SHEEP, PIGS, and DOMESTIC POULTRY, will be held in Bingley Hall, Birmingham, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, the 11th, 12th, 13th, and 14th of December next, when PRIZES will be awarded as follows:—

	£	s.	d.
CATTLE.—Including Two Extra Prizes of 20*l.* each and Two Gold Medals or other pieces of Plate of the value of 20*l.* each, for the best Ox or Steer, and the best Cow or Heifer	340	0	0
SHEEP.—First Prizes of 10*l.*, and Second Prizes of 5*l.*, for Leicesters, Long-Woolled Sheep not being Leicesters, South or other Down Sheep, Shropshire, and other Black or Grey-faced Short-Woolled Sheep—10 classes	150	0	0
PIGS.—Including Prizes for Pens of Breeding Pigs of a large and small breed	60	0	0
ROOTS.—Including a Silver Cup, value Five Guineas, for the best Collection of four different varieties	27	6	0
POULTRY.—Including Nine Silver Cups, of the value of Ten Guineas each, for the best Pen of Pencilled Hamburgh, Spangled Hamburgh, Polish, Spanish, Dorking, Cochin China, Game and Gold, or Silver Bantams; and for the best four Pens of Pigeons, to be exhibited, especially for this prize	451	10	0
	£1037	16	0

Exclusive of Silver Medals to the Breeders of Cattle, Sheep, and Pigs, and Prizes in the Extra Classes and for Cottagers' Poultry.

Mr. Ottley has also offered a Gold Medal, of the value of Ten Guineas, as an extra prize, for the best Pen of Polish Fowl of any colour, to be selected from the several classes for this variety.

Prize Lists, Certificates of Entry, and any further information may be obtained from the Secretary. The Entries close on Saturday, Nov. 10. John Morgan, Jun., Sec.
Offices—38, Bennett's Hill, Birmingham.

The Agricultural Gazette.

SATURDAY, OCTOBER 27, 1855.

As this is the season for trimming hedges, we may be permitted to call attention to some facts and observations connected with living fences.

It is an admitted principle that of all plants suitable for fences in the various circumstances in which these are required the Whitethorn (*Cratægus oxyacantha*) is the best adapted for farming purposes, as it bears clipping better than any other species of shrub, branches abundantly afterwards, and besides offers a formidable barrier in the thorns with which the plant is so plentifully armed. If, therefore, this plant be admitted to be the *best* for our purpose—and its universal cultivation is evidence that it is so—it follows that any admixture of other species must be injurious to the fence, and indeed would thus assume the nature of weeds; and yet it seems remarkable that there is scarcely a fence wherever we go but has become much injured by the presence of many species of plants which, so far from being of benefit, are so injurious as in time to lead to the destruction of the fence as an efficient protection against the exit or intrusion of cattle.

The following list of plants will afford us examples of such injurious species, which we shall comment upon under the subjoined heads:—

1. *Herbs which smother the hedge by reason of their climbing habit.*
   Bryonia dioica, White Briony
   Tamus communis, Black Briony
   Convolvulus sepium, Hedge Bindweed
   Lathyrus sylvestris, Hedge Sweet Pea.
2. *Trees or Shrubs devoid of thorns, which leave no protection when the hedge is bare of leaves.*
   Acer campestre, Maple
   Cornus sanguinea, Dogwood
   Euonymus europæus, Spindle tree
   Sambucus nigra, Elder
   Viburnum Lantana, common Guelder Rose
   " *Opulus*, Mealy ditto
   Ligustrum vulgare, Privet
   Corylus Avellana, Hazel Nut.
   All forest trees.
3. *Trees or Shrubs which though thorny are yet, by difference of growth and habit, inferior to the Whitethorn as a protection.*
   Berberis vulgaris, Berberry
   Pyrus torminalis, Wild Service tree
   Prunus spinosa, Blackthorn
   Rhamnus catharticus, Buckthorn.
4. *Shrubs bearing prickles, but not uniform in growth and uncertain in duration.*
   Rubus, Blackberry—all the species
   Rosa, Dog-rose, Hedge Briar—all the species.

1. The first forms here tabulated would scarcely have been mentioned only that they differ greatly from mere hedgerow weeds, by which the young fence or *quickens* are too often so seriously injured

when in the hands of a slovenly farmer; with regard to which, however, we may just remark upon the folly of planting hedges if they be not cared for, as neglect of weeding for the first few years of growth is so injurious that the fence seldom recovers it, and can never afterwards be a hedge of first-rate character.

The plants of our list, however, are such as gain strength with the advance in height of the hedge in which they occur, most of their class possessing strong underground perennial *rhizomes*, underground stems, which like those of the Black Briony increase from year to year, each season sending up an increase of stronger shoots; and there twisting about in the hedge in every direction, though they make the hedge look thick by reason of their large and thickly placed leaves, yet when these fall off they invariably leave a weakness in the growth of the fence, the Whitethorn with its small leaves having been completely smothered and its wood not being allowed to harden on account of the shutting out of air and light by the broad-leaved intruder. The Bindweed is injurious in the same way, its twining habit like the hug of a false friend only embraces to destroy, and this is the most difficult to eradicate, as while the bine entwines the branches of the fence the rhizome is no less active in spreading among the roots, so that a whole hedgerow quickly becomes smothered with this weed. However in all this group of plants we may prevent present mischief by cropping the branches as they appear, a treatment to which their roots must ultimately succumb, as indeed no part of a plant can increase if its leaves, *the plant lung*, be but prevented growing.

Closely allied to the foregoing in their effects are the Honeysuckle (*Lonicera Periclymenum*), and the Bitter Sweet Nightshade (*Solanum dulcamara*). In these, however, the stems are more or less perennial, but they possess no armature; their older branches are constantly decaying, so that they are useless as a fence, while they prevent the due growth of the hedge in which they have established themselves.

2. Our second group, though presenting species which are seldom viewed in the light of intruders, and indeed are too often encouraged in our hedgerows, yet if carefully examined will show us that weak places in living fences are mainly due to their presence. Let us examine the Elder by way of example: here we have a tree sending up a complete thicket of straight shoots; if our hedges be kept neat this soft-wooded quick growing plant soon overtops it, and presents an unsightly appearance. Its leaves are large and early deciduous, so that they effectually prevent the growth of any other species with it, whilst its own shoots become caney, branchless, and liable to decay; thus affording no protection in themselves, they are cut away in the laying of the hedge, leaving a gap which can never be adequately filled up, and which, whatever expedient be adopted, will ever present a weak place in the fence.

Indeed, all the shrubs in this division, and all the trees which from stooling out after being cut down in hedgerows assume the character of shrubs are injurious from their smothering effects, and from being deficient in those requisites so well combined in the Whitethorn: and where any of them have established themselves, there either is or will be at some future period a weakness in the fence, more or less serious, according to the habit of growth of each individual intruding and the general want of care in the fence management.

3. Though the shrubs in the third list would at first sight appear from their possession of Thorns to be liable to only slight objection, yet it must be borne in mind that the *Pyrus torminalis* and *Rhamnus catharticus* do not present this armature on their young shoots; this they have in their older tree state, in which they would be of no use for fences from presenting boles and not lateral branches in stooling out, and these being cut down, the consequent shoots act much like those in the list preceding. Shrubs of the character of the *Berberis vulgaris* and *Prunus spinosa*, though presenting thorns in the young state, are yet objectionable from the want of the following requisites: they send up straight reedy shoots on being cut down, these are little liable to branch out laterally, so that their hedge is never a close and thick one; and besides, they have neither of them the capabilities for laying or the power of endurance under constant cropping and trimming, which processes, though they would ultimately destroy shrubs of this character, only make the Whitethorn hedge more tidy in its appearance, and more efficient as a fence.

4. The individuals in the fourth list, though of only two genera, are so numerous in species, and so universal in all hedgerows, that they have become important for good or evil; an examination of the method of growth of the two generic forms, while it will present us with some interesting differences, will at the same time afford us examples of enemies, which are not the less so because they appear to be armed in our favour. The wood of the different species of Blackberry, like that of their congener the Raspberry, is biennial; and hence, while the shoots of the previous year are bringing forth their flowers and fruit, new or barren shoots are either preparing by *stolons* from the ground or from the bending down of the flexile branches, and rooting in the soil like the *scions* of the Strawberry. The Blackberry bears a great quantity of large leaves, and insinuates itself by its flexile arms amongst the Whitethorn, acting to the detriment of the hedge in the following methods, which we view as so many counts of indictment against it.

a. It covers up, and therefore smothers and impedes the growth of the hedge.
b. Its dead branches leave their places by dying out.
c. It stools out in advance of the fence, thus being unsightly in making it broad and straggling, and too frequently indeed encroaching upon the field crop itself.

The Roses, though more perennial in habit, completely take possession of their place of growth, presenting in youth an almost impenetrable thicket, but as they get older the old stocks present smooth straight sticks only branching towards the top. These plants stool underground, and thus from sending up shoots in every direction become a spreading evil in advance of, as well as in the run of the hedgerow, thus causing an increase of trouble and expense in keeping it in order.

Here, then, we may sum up these remarks by observing that from a long and attentive examination of the habits of growth of plants usually found in hedges, we are fully convinced that the Whitethorn is the best adapted for a living fence; we therefore view all other species as interlopers and enemies which, from various causes, prevent the due and vigorous growth of our favourite and friend to the ultimate production of gaps and weak places, which give rise to the thrusting in of bits of dead Thorn to stop up holes, or the safer though equally unsightly expedient of post and rail.

From these observations, therefore, our conclusion should be to view all plants in merely farm hedges other than the Whitethorn as weeds, and to root them out in as early a stage of their growth as possible, as otherwise little can be done than cutting them down, and then it is in their stooling out and creating thick bushes that they are most objectionable. If forest trees be permitted in hedgerows it should be with the intention of training them up for timber, in which case low lateral branching should be prevented, but these, notwithstanding every precaution, necessarily produce weak places in growing, and when ultimately cut down completely ruin the fence; but in this case, as the fence will, by reason of age, naturally have passed its best period, it would not unfrequently be better to attempt its renewal than to keep working year after year at the patchy old scrubs one sometimes sees encumbering the ground.

SCHOOLS FOR LABOURERS.

My subject is the policy of agricultural instruction in our common country schools. This is of course to be defended by the same argument as that which justifies technical or professional education of any other kind. The possibility of it is limited by the humble means within reach of the teachers of such schools, and by the early age at which the labour of children in the field becomes valuable enough to induce their parents to remove them. It is the latter point—the possibility of conveying agricultural instruction in these schools, the means at the command of the teachers, the methods they might employ, the extent to which mere language is capable of conveying agricultural truth that is the most likely to provoke discussion. But on the former part of the subject, including the advantages derivable from instruction so given, I wish to add a few words to what has been already said on the advantage of what may be called a professional education for agricultural labourers.

In the first place, then, the policy of the agricultural instruction of children in country districts of course rests upon the advantages of intelligence in agricultural labourers as in all other working men, both to themselves and to their employers. Boys who are to be carpenters and mechanics should be taught drawing, and their lessons in it, in arithmetic, and so on should have special reference to the handicraft or art by which they are to earn a maintenance. No one will deny this, neither therefore can it be denied that those who are to be employed in the fields, whether as ploughmen, cattlemen, or shepherds, should receive special instruction on those subjects in connection with which *their* livelihoods are to be earned. It is true that in the few instances in which I have known this better education given, boys have availed themselves of it to work themselves up out of the agricultural labourer class altogether—and this is not at all an undesirable result—certainly not to themselves nor to those in that class whom they leave behind them; but when the means which they have used shall be in general operation, the result will be—not an abandonment here and there of the class on whom those means have been brought to bear, but a general elevation of the whole in intelligence and merit—so that labouring men will no longer be a hindrance, as they often at present are, to the progress of agricultural improvement. As the thing at present is I have no hesitation in saying that at whatever age you take them agricultural labourers very often prove this hindrance in the experience of the enterprising agriculturist who may wish to introduce a novelty in practice, or to test the experience of others in his profession. Take them as boys, and nine farmers out of ten will tell you that in the first year or so after they leave school or home they are much more plague than profit; and though I would not quote as just the opinion of the farmer who said that for every boy upon his farm a man was needed to look after him; yet of boys not so looked after the opinion of another farmer may be safely taken—that while one boy was no doubt a boy, two boys were but half a boy, and three were ne'er a boy at all. This, however, is true of them only during the first year or two of service, when the *farmer* has to do the work of education for them *imperfectly*, much of which, I contend, might have been better done by the teacher in the school. Then, again, take them as men—and what farmer does not know the difference between intelligence and stupidity in his working men?—I heard Mr. Bullock Webster, an agricultural engineer of some eminence, state the other day that having to employ some hundreds of agricultural labourers in different parts of the country, he found large numbers of them almost useless to him on account of their ignorance. I do not suppose that ignorance often reaches the length of utter uselessness upon a farm, but I am quite sure that the successful progress of a farmer is very often limited by the ignorance of his men. I am quite sure that before that superiority of intelligence which makes one man a better farmer than another can fully show itself upon a farm, it very often has to spend itself for years in educational influence upon the men who are there employed. The same man who has farmed successfully in Scotland, and is known there as a good agriculturist, comes south and fails—because of our climate, it is said, and because of our English clays, neither of which will yield to Scottish management; yes, but often and in great degree because he has not the same machinery here that he could command there: and I do not refer to his implements, but to his men. The more intelligent labourers whose services he could procure in Scotland are as it were self-acting tools;—they need but to be "set" correctly at the beginning, and will go through their work correctly to the end. Exchange them for careless uneducated and ignorant men—some of whom, I am sorry to say, I have known and employed—and you could not be sure either that your instructions were understood at first or would be attended to longer than your personal superintendence was continued.

And I look for another advantage ultimately accruing to farmers as the result of agricultural instruction given to the children of the labourer, beside that of being no longer restrained and limited by the inefficiency and ignorance of their working men. There is an immense amount of ignorance in this country still amongst the occupiers of land themselves—no doubt among the small occupiers, but therefore unfortunately among the many. It is not ten years ago since I was told by a corn-factor, in large business in one of the largest corn markets in the west of England, that more corn was sold to him by men who put a cross opposite their names than by those who signed a receipt in full.

I do not believe that that could be said of any market now; but if any proof be needed of the ignorance which still prevails, the success of fraudulent manure dealers would amply furnish it. Societies and periodicals have attacked that trade continually, but in vain; for its customers are men who do not read, and publishers and writers therefore work in vain;—the teacher is the man before whom it must ultimately fall: and agricultural ignorance in the middle class, while attacked in the van by such institutions as the Royal Agricultural College at Cirencester, and in the main body, I hope, by schools urged on by Lord Ebrington's scheme of district examinations under the superintendence of the Society of Arts, will be all the more effectually routed if also attacked in the rear and from below by the efficient agricultural education of the labouring class. The policy, then, of agricultural instruction to the children of agricultural labourers is demonstrable from the obvious tendencies of things as well as from the personal experience both of labourers and farmers. That some among the latter both admit it and desire it is proved by the handbill which is before me, in which the East of Berwickshire Farmers' Club offer certain prizes for the encouragement of agricultural instruction in the parish school of the district. The offer is I suppose almost unique of its kind, and I therefore add it:—

Eyemouth, Feb. 12, 1850.

Prizes for Agricultural Instruction in Schools, offered by the East of Berwickshire Farmers' Club.

With the view of encouraging boys, before leaving school, to acquire some general knowledge of the principles of scientific agriculture, the committee will expend a sum not exceeding 6*l.*, to be applied in the purchase of books, medals, or chemical apparatus, to be presented to any schoolmaster who has been successful in teaching the principles of agricultural chemistry, and to the boys in his school who have shown proficiency in that branch of instruction, during the course of the ensuing spring and summer of 1850. *Conditions.*—1. The boys must have been

taught from Johnston's "Catechism of Agricultural Chemistry,"* or any other approved elementary treatise. 2. The above premium will be awarded only after such an examination as may enable the committee of superintendence to judge of the success of the schoolmaster, and the proficiency of the boys. 3. Any schoolmaster who is desirous of obtaining for his school the above premium, will intimate to the secretary of the club at what time it would be convenient for his school that the examination should take place, the said notice being given not less than one month previously. Thos. Bowhill, Secretary.

It seems to me, then, that the only objections which can be offered to the policy of attempting the agricultural instruction of children in our country schools must come from those who deny its possibility. And that happily has been proved by cases of success which have already been detailed in the columns of this Journal. *John C. Morton.*

COST OF HORSE LABOUR ON ARABLE FARMS.

[The following remarks include the substance of one of the chapters in Mr. Stephens's instructive little volume on the Deep Cultivation of the Yester Farm.]

At Yester Mains, containing 504 imperial acres, eight pairs of horses and eight ploughmen have been usually employed. Besides performing the customary labours of the fields, they have to bring coals from the coal-hill for the mansion-house and garden, draw wood to the saw-mill, stones and gravel to the roads and drives, hay, corn, and straw to the riding stables, cart vegetable matter from Danskine to the land or elsewhere, and perform a number of jobs about the ground. A cattleman and two assistant boys are required to look after about 70 head of oxen and cows, and a number of pigs. One man and eight boys and girls are employed in the various manual operations of the farm—such as assisting in the making of the Potato and Turnip land; singling and hoeing the Turnips; pulling them, rooting, and shawing and filling them into carts; making meadow hay; reaping at harvest; attending on the threshing-machine; raking dead leaves about the grounds, and doing many other jobs. Two labourers are also employed to feed the threshing-machine, stack the straw, cut gaw-furrows in the fields, pile up Turnips in store, and other similar works about the farm.

On Broadwoodside, containing 228 imperial acres, three pairs of horses and three ploughmen are employed. Besides the ordinary farm-work, they drive coals from the coal-hill for the use of the mansion-house and garden, gravel to the drives, vegetable matter from Danskine for the land, and wood for fences. There are four women-workers, who besides doing the manual labour required in the fields, attend the threshing-mill and corn-barn. A labourer feeds in to the threshing-mill, fills dung, and does other sundry jobs. A boy attends to the cattle, including cows.

On Danskine, containing 235 imperial acres, three pairs of horses and an odd one are employed, and three ploughmen and a lad to work the odd horse. The ploughmen of this farm have little else to do than work the farm work, which includes the driving of the vegetable matter to the land. Three women-workers perform the manual labours of the fields, and attend the threshing-machine and corn-barn; a labourer jobs at any work on the farm; and a boy attends the cattle and cows.

The wages of the grieves, ploughmen, labourers, and field-workers of these farms are regulated by the rate of the county. The grieves and ploughmen receive a comfortable house and good garden, with the keep of a cow for the year. The labourers' wages vary according to the demand. The women-workers receive 5*s.* a week. The grieves have all been ploughmen on the farms which they now superintend. One of the present grieves has been 30 years in the Marquis's service, the other two several years. They were all promoted to the grieveship for their skill, character, and conduct as ploughmen. To those who wish to adopt the Yester deep land-culture, difficulties will at first arise in the use of the implements and the guidance of two pairs of horses together; but one of the many results at Yester indicate that intelligent and true-working grieves, ploughmen, and horses, will soon accommodate themselves to the work, and learn to evade every difficulty.

A single glance will suffice to inform any farmer that on none of the farms is a greater strength maintained than what is usually required to work their respective quantities of land. On Yester Mains are eight pairs of horses to work 504 imperial acres—that is, 63 acres to each pair—which is quite enough on any farm on which the five-course shift is practised on friable loam, and too much where the farm consists principally of strong clay. Each pair of horses must have a ploughman to take charge of and work them. Eight field-workers and a superintending grieve are not too many for a farm of 500 acres. Over and above the ordinary labours of a farm, the men and horses and field-workers have jobs to do that are not common on a farm, such as raking and leading off dry leaves from extensive grounds, leading wood to and from the saw-mill, leading straw, hay, and corn to the riding stables, which are always extensive in a nobleman's establishment, and driving coals for the use of the mansion-house and garden, which amount to a large number of loads in the course of the year. One cattleman at least is required to take charge of the cattle in winter, and a large private dairy belonging to the mansion house; and where these are numerous, as they are at Yester Mains, two assistant boys are also required for the better attending to their welfare. A shepherd is required where a breeding flock is kept on a farm. A labourer is also required to keep the fences and ditches in order, and to do many other smaller jobs which are too frequently neglected to be done by tenants. Now, it cannot with truth be said that a larger working establishment is maintained on the farm of Yester Mains than what is requisite on farms of similar extent in the occupation of tenants. Any argument founded on the "force of money," cannot therefore be applicable to the extent and kind of work that has been done on this farm up to the present time; for every tenant, occupying a similar extent of farm, would require the same strength to conduct it in the ordinary way that an improving farm is conducted, without reckoning on the extra labour bestowed upon the subsoil-trench-ploughing. Two pairs of horses out of the eight are to be reduced for the future on this farm; and were it not for the heavy extra cartage which the horses here have to perform for the house and garden, five pairs would be sufficient to do all the farm work.

Each pair of horses work 76 acres on Broadwoodside farm, which is a sufficient quantity of land for any pair of horses to work. The number of labourers of all kinds is not greater than the size of the farm warrants. The jobs, extrinsic to the labour of the farm, are undertaken by the ploughmen of this farm in common with those of Yester Mains.

On Danskine farm 67 acres are allotted to each pair of horses, assisted by an odd horse. From the hilly nature of the surface of this farm, that extent of land is quite enough for the horses. The ploughmen are chiefly confined to what is done on the farm, the driving of the vegetable matter to the land being their chief extra labour. The labourers are not too numerous for a farm of 235 acres.

* Copies of this treatise, with strong binding for schools, may be obtained, at the reduced price of 7*d.*, by applying to the secretary of the club.

EXPERIENCES IN LAND DRAINAGE.

XXXVI.—Drainage operations on all descriptions of land have been satisfactory.—I have generally adopted a parallel system.—The prevailing depth of the drains has been from 3 to 4 feet on clay soils, according to circumstances.—I have made no difference in my mode of draining between arable and Grass lands, except where the land is flat, the drains have been put rather wider apart.—The drains have been generally with the fall. We have followed the furrows where the land is in ridges, in most cases having found better results than from cross draining.—The pipes used have been 2-inch pipes for minor, and 4-inch pipes for main drains. Collars have lately been discontinued, they not being considered necessary at the depth adopted.—The average number of acres discharging at the several outlets has been, generally speaking, about 10 acres.—The soil and subsoil are various. The above observations generally apply to heavy clay land with clay subsoil.—The geological formation is the lias. *From his Grace the Duke of Rutland.*

XXXVII.—The result of my drainage operations on all descriptions of land has not been satisfactory. On the strongest lands I think my drains too near, they are 12 yards apart.—The drainage adopted has been generally parallel.—None less than 4 feet deep.—I have made no difference in draining between arable and Grass land.—The direction of the drains is with the steepest fall. I have not followed the furrows except where they are very steep.—The pipes used have been 1 in. and 1½ in., always with collars. Main drain 3 to 4 inches.—The average number of acres discharging at the several outlets is various, according to the sloping of the ground.—The soil is generally strong clay.—The mean height of the land drained above the sea level is about 300 to 350 feet. *From W. Evans, Esq., M.P., Allestree Hall.*

XXXVIII. The result of my land draining is satisfactory on all descriptions of land.—It is a parallel system.—From 3 feet to 6 feet deep.—The drains are at wider intervals on the Grass lands.—We have followed the fall of the land.—Two-inch diameter circular pipes have been used for minor drains, from 3 to 6-inch ditto for main drains. No collars or socket pipes. Soil or turf is found to answer better than collars or socket pipes round the joints. In going through quicksands we take the drain half a foot below the level, and fill to the level with sound loam or clay.—I have found great benefit by using air pipes or tanks in the fences.—About six acres on the average go to each outlet. 320 acres drained. Two outlets of open drainage.—Soil light loam. Subsoil clay and soil mixed on the red sandstone series.—About 7 feet above the level of the sea, with a rain fall on the average of 18 inches. *From Rev. R. Brook, Gateforth House, Yorkshire.*

XXXIX.—The result of drainage operations on all descriptions of land has been satisfactory.—The drainage adopted is the parallel system.—The prevailing depth from 3 to 12 feet deep.—No difference in draining between arable and Grass land.—The direction of the minor drains with the fall, in all cases, sometimes in the furrows, but generally otherwise.—Two-inch pipes for minor drains, and from 3 to 8 inches for main drains.—No benefit by giving air at places to either main or minor drains.—The average number of acres discharging at the several outlets about eight.—The soil and subsoil, loam with both gravel, sand, and a clay subsoil.—The geological formation, red sandstone. *From Sir S. Crompton, Bart., Woodend, Thirsk, Yorkshire.*

XL.—The result of my drainage operations on all descriptions of land is satisfactory.—The drainage is parallel, with one or two exceptions of "herringbone."—The prevailing depth is 4 feet.—In arable land we drain generally 8 yards apart; in Grass we have not placed our drains so near, nor so regularly.—The direction is with the fall. In some instances, where the furrows are 8 yards or so apart, and the ridges high, we follow the furrows.—The pipes used for minor drains are principally 2 inch, with 3 or 4 inch outfalls. We occasionally use collars with 1½ inch pipes on sand land.—Five or 6 acres discharge at each outlet.—The soil, sand or loam, some clay, some warp; subsoil, clay.—The geological formation is alluvial deposit.—The rainfall on the east coast of Yorkshire averages 24 inches. At Barlow, Drax, Camblesforth, &c., where the above remarks principally apply to, it will not average so much, I think. *J. Maister, Beverley.*

XLI.—The system is parallel, 30 inches deep.—As to direction, the furrows have been followed where the land is in ridges.—Bushes have been used for minor drains, and 1½-inch pipes for main.—The average number of acres discharging at the several outlets is from 2 to 6.—The soil and subsoil are sandy loam and clay over a chalk.—About 200 feet above the sea. *From Lionel Ames, Esq., The Hyde, St. Albans, Herts.*

XLII.—I have within the last three years drained upwards of 1200 acres of land in Herts and Bedfordshire of various soils, and the result has been highly satisfactory in all cases.—I have in almost all cases adopted a parallel system.—The depth varies from 3 feet 6 inches to 5 feet; the average about 4 feet.—I have made no difference in draining between arable and Grass land, except that perhaps the drains on the Grass land are at somewhat greater distance.—The direction of the drains is with the fall. I have followed the furrows where the ridges are high and the furrows low, on account of the expense.—I have used for minor drains 1½-inch pipes and collars in gravelly soil, and 2 inch pipes in stiff soil, and from 3 to 6-inch pipes for main drains, and in some cases 8 inches.—The average number of acres discharging at the several outlets varies. The average is 7 or 8 acres.—The soil and subsoil is various, but chiefly strong clay or clay and gravel mixed with veins of sand. *John Hawkins, Hitchin, Nov. 25.*

XLIII.—My land draining has been perfectly satisfactory.—I have made parallel drains, and according to the fall of the ground, from 3 feet 6 inches to 4 feet.—No difference has been made between arable and pasture land.—As to the direction of the drains, the furrows have not been attended to.—In furrow drains 2-inch pipes have been used, and in mains, 4, 5, 6, and sometimes 8-inch pipes have been required. No collars or socket pipes used.—No aperture for air has been ever left.—Average size of the fields is about 16 acres, each having its own outfall, some into larger mains with an 8-inch pipe.—A sandy clay; some parts a pure sand, and others a stiff clay.—Stratums of limestone prevail throughout. *T. W. Craster, Craster Hall.*

XLIV.—The result of my drainage operations on all descriptions of land has been very satisfactory.—The drainage adopted is parallel.—The depth about 4 feet and from 27 to 30 feet apart.—The distance between drains in Grass is 6 feet greater.—The direction of the minor drains is with the fall, without regard to ridges.—For minor drains I have used 1¾-inch pipes, and for mains from 2½ to 5 inches. No collars.—The average number of acres discharging at the several outlets is 9 or 10.—The soil and subsoil generally stiff blue clay and stony.—The geological formation magnesian lime, and red sand rock.—The mean height of the land above the sea level is 250 feet, more or less.—The average depth of rainfall is about 28 inches. *From Sir William Lawson, Bart., Brough Hall.*

XLV.—My land draining has been most satisfactory, and more particularly so when followed up by proper cultivation.—A parallel system entirely has been adopted.—From 4 to 5 feet.—The Grass land is drained wider apart and deeper, generally from 40 to 60 feet apart, and 5 feet deep; tillage 30 feet apart.—Always with the fall, and without respect to furrows.—Two-inch pipes have been used for minor drains, and from 3 to 6-inch pipes for mains, without collars or sockets.—Not exceeding 5 acres, 3-inch outlets; not above 9 acres, 4 inches; and above 9 acres, 6-inch outlets.—Soil varies from strong loam to tough clay; subsoil clay very hard, and mixed with stones. *From the Hon. G. F. H. Russell.*

XLVI.—My drainage operations have been perfectly satisfactory on all descriptions of land.—I adopted the parallel system.—The prevailing depth of ordinary drains is 4 feet, but in some cases 5 feet.—I have placed the drains a greater distance apart in the Grass lands.—The drains are placed in the direction of the greatest fall. Where the old ridges were very much raised and where there was any fear of the land not being laid perfectly level I have followed the furrows.—I have used 2½-inch cylindrical pipes for minor drains, and 4-inch and 6-inch do. for mains.—I consider direct openings into any drain very objectionable, consequently I have not made any places to give air.—The average number of acres discharging at an outfall may be stated at 15 acres.—The soil is heavy and very tenacious and the subsoil a particularly retentive clay. The minor drains are placed from 21 to 25 feet apart in tillage lands, and from 25 to 30 feet in Grass lands.—The geological formation is the usual Northumberland coal formation, being white sandstone, shale, clay, &c.—Height above the level of the sea ranges from 300 to 500 feet. *Mary Le Bell, Higham.*

XLVII.—My drainage operations on all descriptions of land have been satisfactory.—I have adopted a parallel system.—Four feet 6 inches.—Placing the drains wider apart on Grass land.—The minor drains are placed in the line of the greatest fall.—Two and a half-inch round pipes for minor drains, and 4 and 6-inch

do. for mains.—The average number of acres discharging at the several outlets is about 10.—The soil and subsoil very variable.—The geological formation is Northumberland coal formation.—The mean height of the land drained above the sea level is 500 feet. *From Sir W. C. Trevelyan, Bart., Wallington, Northumberland.*

XLVIII.—The result of drainage operations on all descriptions of land has been satisfactory.—The drainage is parallel.—The prevailing depth of the drains is 4 feet; main drains, 5 feet.—I have made no difference in the mode of draining between arable and Grass land.—The direction of the minor drains is with the fall; where the furrows have been very much curved I have drained across them, but generally I have kept in the furrow.—I have used 2-inch pipes and 5-inch pipes; no collars.—The soil and subsoil are a sandy clay, over the coal measures.—The height above the sea is considerable, but the land here grows good Wheat, which it ceases to do a little higher. *Major W. Cadogan, Brinkburn Priory.*

Home Correspondence.

Perennial Pea.—I observed in a late Number some inquiries as to the value of the Perennial Pea for cattle food, and remember that I asked you the same question some years ago. I should be glad of your opinion as to another plant, the blue Lupin; being perennial, very early, and producing much seed, and growing luxuriantly in poor borders of the garden, I conceive it would answer both as green food and for seed. I have seen in Italy large fields of the white Lupin used as fodder, and the seed would surely give oil (a high priced article at present) and cake might be made from the refuse. Would not the Horse Chesnuts also be available for oil and cake? In Germany they are bruised and given to sheep. In this country they appear to be quite neglected, although the deer eat them. I cannot help thinking that the Jerusalem Artichoke is also undervalued. It produces abundantly without trouble or manure, and contains more sugar than Potatoes, and more nourishment, and the numerous stalks might be used as thatch, &c., and perhaps for paper. *W. B., of R——.*

Mangold Wurzel as Food for Pigs.—Some short time since I noticed in your *Gazette* inquiries on this subject. I have much pleasure in adding my testimony to their good qualities as pig food during the late spring and summer months. I have this summer fed six pigs almost entirely on Mangold Wurzel, and they have done remarkably well. I last Thursday (Sept. 27) exhibited some roots at our horticultural show, the growth of 1844, perfectly hard and sound. I fed the pigs up to the middle of August with them. Orange Jelly Turnips sown in April or early in May will then come in. Your correspondent should grate these with Bushe's Turnip grater; let them ferment in a tub two or three days, and he will find his pigs thrive well and cheaply, especially if he mixes meal or bran with the fermented Turnips. The Turnips when fermented are quite hot and a perfect pulp; Bushe's Turnip grater is an invaluable addition to the farmer's implements. Cattle will thrive on anything in the shape of cut chaff if mixed with fermented Turnips—no small object with such a hay season as the last! *S. P., Machynlleth.*

Irrigation.—My irrigation being now perfect, without check or hindrance of any kind, I consider it an agricultural duty to allude to the difficulties, and show how they have been overcome. Smell from the tank: although domed over with trap doors, the effluvia was inconvenient at 100 yards distant. The introduction of a jet of waste steam cooks the smell as it rises. The steam must be introduced above the liquid, not into it. Steam is a wonderful purifier. A constant jet of air pumped through a gutta percha tube into the liquid, causes a constant boiling up of the solid and liquid, so that they are both drawn into the suction. This air tube is generally near to the suction bulb, thus counteracting the tendency to solidification around the bulb, which would otherwise take place. The suction pipe and the air pipe must all be of gutta percha, so as to be easily pulled up, shaken or examined. I began with iron pipes in the tank, but found them useless because they could not be lifted or examined. The bulb at the end of the suction pipe should be at least 3 feet long and 2 feet diameter, with about 200 holes of 1 inch diameter, so as to admit a gradual easy entrance for the manure. On the top of the tank you will have a winch or well rope attached to the suction bulb. An occasional shake or examination of the bulb will be useful. This may be done without stopping the pumps. If you have much solid matter in the tank, and only use it occasionally, the liquid will become sufficiently dense to float the whole mass several feet thick. In order to intermix and distribute this mass, a jet from the pumps will cut it to pieces and mix it with the fluid. A weighty collar should be placed round the nozzle of the air pipe to keep it down in the liquid. So much for the tank. I have before stated that it is of 30 feet diameter and 30 feet deep to the top of the dome—circular of course. The part in the ground is of 4½-inch brickwork, the dome of 9-inch work. The cost about 80*l.*; when drawn down it drains the adjoining soil in wet weather. Pump valves: Nothing will plague you so much as these if you neglect to keep them perfectly true and level on their seats. It is absolutely necessary to have spare valves, and have them turned true every now and then, otherwise you will draw air instead of liquid. Of course your plunger barrels must be carefully packed with greased rope. A very large air vessel is indispensable, not less (for such pumps as mine) than the size of a 20-gallon cask. I have three in immediate connection with the pumps. If you are deficient in air vessel you will break your machinery, and you must have in addition escape valves close to the pumps; otherwise when there is a stoppage on the fields you will break your machinery by hydraulic pressure. If your pump barrels are too large in proportion to your subterranean pipes, you will come to a dead lock, break machinery, or waste power. There is a proper proportion and velocity that cannot be violated with impunity. Again, long lengths of small gutta percha tubing impede the transmission of fluids. I never use now smaller tubing than 2-inch, and this is inflexible unless you insert at intervals corrugated joints. The jet alone causes much resistance, and if taken off the engine at once increases its speed. Mr. Telfer uses no jet, and gets no fountain. This may answer well on his sandy soil, but on our hard and cracking clay such a system does not answer for obvious reasons. Of course in standing crops of roots, &c., a fountain or shower of at least 40 to 50 feet is imperative. Working a double set of 1½-inch hose with two jets greatly eases the engine. My two pumps are of 20-inch stroke, 5½ inches diameter, and make from 20 to 30 strokes per minute, discharging from 70 to 100 gallons per minute. *J. J. Mechi.*

Wool.—I have been much pleased by reading a paper in the Royal Agricultural Journal on wool by Prof. Wilson, and have drawn up from it the accompanying table; the weight of fleece, however, of the South and Hampshire Down is not in the essay—perhaps you can supply the omission. *A. H. F. C.*

Breed.	Weight of Sheep.	Weight of Fleece	Price of Wool per lb.	
			Wethers.	Hogs.
Long Wools:—				
Lincoln	1 yr., 80 to 100 lbs.	8 to 10 lbs.	12½*d.*	13*d.*
New Leicester	2 yrs., 120 to 150 lbs.	7 lbs.	12*d.*	12½*d.* to 13*d.*
Cotswolds	2 yrs., 120 to 150 lbs.	7 to 8 lbs.	12*d.*	12½*d.* to 13*d.*
Romney Marsh... ...	2 to 3 yrs., 120 to 150 lbs.	8 lbs.	13*d.*	.....
Exmoor	4 to 5 yrs., 60 to 75 lbs.	4 to 5 lbs.	12*d.*	12½*d.*
Black faced	3 to 4 yrs., 60 to 65 lbs.	3 lbs.	8*d.* to 9*d.*	.....
Devon S. hams	2 yrs., 100 to 120 lbs.	9 lbs.	9*d.* unwashed	.....
Baupton	2 yrs., 120 to 150 lbs.	7 lbs.	12½*d.*	.....
Herdwick	4 to 5 yrs., 40 to 50 lbs.	3 to 4 lbs.	8*d.* to 9*d.*	13*d.*
Intermediate Wool:				
Dorset	2 yrs., 80 to 100 lbs.	6 lbs.	13*d.*	.....
Cheviot	3 yrs., 70 to 80 lbs.	5 lbs.	12½*d.* to 13*d.*	13½*d.* to 14*d.*
Welsh	4 to 5 yrs., 30 to 40 lbs.	1 to 1½ lb.	12½*d.*	13½*d.*
Short Wool:—				
South Down	2 yrs., 100 to 120 lbs.	...	13*d.* to 13½*d.*	13½*d.* to 14*d.*
Hampshire Down ...	1 yr., 80 to 100 lbs.	7 lbs.	13*d.*	13½*d.*
Shropshire Down ...	2 to 3 yrs., 50 to 75 lbs.	4 lbs.	13*d.* to 13½*d.*	13½*d.* to 14*d.*
Ryeland	2 yrs., 110 to 120 lbs.	6 to 8 lbs.	13½*d.*	.....
Merino	.....	1½ lb.	14*d.*	15*d.*
Shetland			8*d.* to 9*d.*	.....

—*From R. A. Journal, Vol.* 16, *p.* 222, *&c.*

Produce of Wheat.—The fine autumn weather we have had lately has enabled the small farmers on the high lands adjoining the moors to secure their corn as sound as their brother agriculturists had done in the more favoured districts, and harvest may now be fairly said to be ended. I stated long ago in your columns that I was satisfied the yield of Wheat on most lands would be short, and the sample inferior. The new Wheat brought to market has fully borne out this opinion, but I am sincerely glad to have to add that the whole crop may be considered as perfectly sound, and this is a very great advantage, especially to the poor who have to consume the inferior corn; and had the harvest proved unsound, and prices high as at present, they would no doubt have eaten much that was unfit for human food. I have threshed two lots of new Wheat; the first grew on 16 acres of strong clay land. There were on the whole 16 acres 7780 sheaves, or 648 stooks of 12 sheaves each. The result was—marketable corn, 270 bushels; part of the crop where lodged and kept separate, being inferior corn, 42; backends or tail corn, 39; total, 351 bushels, or nearly 22 bushels per acre. The second lot was grown on 6 acres, and it had 3933 sheaves or 327½ stooks of 12 sheaves. It gave 179 bushels, and the backends or tail corn were very little inferior to the best corn. This field had therefore very nearly 30 bushels per acre; it was a beautiful crop, most of it standing, and in good years would have certainly yielded 40 bushels per acre. The Wheat in both these lots was red, straw white, and in the first quantity the good corn weighed 61 lbs., and in the second 62 lbs. per bushel. I have recently been over a great deal of land in Yorkshire and the midland counties, and although there is here and there a splendid field of Turnips to be seen, I do not consider on the whole that we have more than half an ordinary crop of Turnips in these counties. *Roaldus.*

Farmers' Clubs.

Witham.—The ploughing match took place on the farm of Mr. Wm. Hutley, and a more than local interest was imparted to the competition by the offer of a prize of 5*l.* by Mr. Bentall, ironfounder, of Heybridge, open to the ploughmen of Essex. There were 45 competitors. It was awarded to George Mynard, in the employ of Mr. Aldham, of Ulting. The winner appropriately used Bentall's plough. At the annual dinner, the Chairman said they were under great obligations to Mr. Mechi for the good he had done to agriculture by working away at all kinds of improvements, as he had done at Tiptree Hall. There could be no doubt that it had been a great benefit to agriculture, whatever the result had been to Mr. Mechi himself, and he begged to propose that gentleman's good health.—Mr. Mechi acknowledged the toast, and also thanked the chairman for his commiseration. He had no hope that agriculturists generally would ever believe that he was farming at a profit, and he doubted if many of them would admit, after they were convinced, that drainage, irrigation, steam-power, and many other things, which involved a large amount of capital were really essential to profit. He did not expect these things to be generally admitted in this generation. As far as his own farming was concerned he felt that "Othello's occupation" was almost gone. When he sowed the first guano in that neighbourhood people smiled and said it was a mere peppering the soil and could do no good: now he constantly met his neighbours' waggons with it. (Hear, hear.) His steam-engine again was considered most ridiculous; but now steam-engines were as common as Blackberries. Formerly there was a strong belief in this locality that deep cultivation was injurious; but there had been a great change in that respect also, though he was not satisfied that the prejudice was altogether done away with. It was impossible to read the reports from different districts and not see the improved tone of the agricultural mind in this respect, and that those things which he (Mr. Mechi) did years ago, and about which their Chairman had such serious doubts on the score of profit, were now being carried into practice. It was time something should be done to remove from the agriculturists of the country the disgrace of not being able to feed their own population, when they had millions of acres not half farmed. He must exempt the farmers of this neighbourhood, who took a high rank as practical agriculturists; but the country generally could not be judged of by the neighbourhood of Witham. It was impossible to travel from one end of the kingdom to the other without seeing that bad farming was the rule, and high or good farming the exception; and therefore he felt that the application of the stimulus of censure was imperatively called for, until a more satisfactory state of things should be brought about. He agreed in what had been said as to the great usefulness of this Society in regard to the labourers. The improvement of their cottages was a most important question; and he thought they might lay great blame upon the state of the law. When the temptation to landed proprietors to get rid of cottages from their estates, in order, he might say, to impose the population upon an adjoining parish, should be done away with by enlarging the area of settlement, he believed a most beneficial effect would be produced. Already that had been partially the case. It was very easy to come to sound conclusions upon the subject; every 100 acres of land required stabling for four horses, and ought to have accommodation for at least four labourers; but the demand caused by the increase of population and the non-building of cottages often led sordid men to divide what would otherwise be good dwellings, and so forced families into most indecent limits. The existing state of things enabled men to do that; but if there was a sufficiency of proper cottages the inducement would be done away with. The question affected all: and it was very desirable that upon these occasions public opinion should be brought to bear upon it: the more moral the labouring population were the better it would be for employers and society generally; and there could be no doubt that the system of over-crowding produced disease, which often entailed a heavy charge upon the poor-rates. In conclusion, he begged to assure Mr. Bullock that he was now reaping a very good return for his improvements. This year he could not help making a good profit, and he was satisfied that it cost many of his neighbours a higher rate to produce corn than himself, simply because their landlords had omitted to make those improvements which few practical men would now deny to be remunerative. Who would dispute that the interest upon drainage was more than paid in a crop? (Hear.) And in the same way good buildings, steam-engines, and improved implements were all remunerative. Then there was putting in a proper quantity of seed, which was a very important point, because not only was there a large quantity of corn wasted by being sown in excess, but the injury to the crop was more than equal to the rent. He often asked how they knew they were sowing the proper quantity, and whether they had ever tried less? Many said they had never done so, and did not want to try it; and it was this pig-headedness on the part of agriculturists which he wished to remove; as he was satisfied unless they tested the proper quantity of seed upon particular soils, and the powers of the manures they applied, it was impossible to arrive at any sound conclusion. He felt perfectly comfortable about his own improvements, and he hoped his neighbours would cease to feel for him so much as they had done. (Laughter.) He believed the pity was often mutual, and that he pitied others as much as they pitied him; but time melted everything down, and the next generation would not differ so widely upon these subjects as it had been his lot to do with many of his brother farmers. (Hear and applause.)

Mr. Cox said Mr. Mechi claimed the credit of convincing them that draining was profitable; but Mr. Hutley himself, and many other farmers in the neighbourhood, were satisfied of that, and had drained their land before Mr. Mechi came into the neighbourhood. (Hear and cheers.) Mr. Mechi: Would not Mr. Cox admit that the great bulk of the heavy land of Essex was undrained? Mr. Cox did not know that he would. Mr. Mechi: Taking the south side of the county—from Witham to Tiptree, and from thence to the sea, was there any drainage worth mentioning? Mr. Cox said it was such a cold uncomfortable part of the country that he very seldom visited it. Mr. Mechi said the question was too important to be evaded. There were tens of thousands of acres of land in Essex which were not drained because the occupiers did not believe it would pay. Take 10 miles round Witham, would they find the heavy lands generally drained? Several gentlemen said they believed they were; and Mr. Gooday said he was farming land which his father drained 30 years ago. Mr. Jonathan Hutley said he had cut land ditches in his Dengey Hundred land, and they did not draw a foot on each side. Chalk took off the water a great deal better than drains. Mr. Mechi hoped when they got statistics of the agriculture of the country the extent of drainage on the different soils would be specified, and that would settle the question whether the heavy lands were drained. The Chairman proposed the healths of Mr. Dixon and Mr. Thedam, as gentlemen who had generally favoured them with the results of experiments in farming. (Cheers.)

Mr. Dixon wished first to advert to the question of drainage, because, although he believed Mr. Mechi was correct in saying that on the strong cohesive clays in the south of the county very little drainage had been done, he believed the reason to be this: the farmers of that district had methods of getting the water off without drainage; and as they could grow as large a crop as on any of the drained clays in the county, they doubted if the extra benefit from drainage would compensate the cost. With regard to the prejudices of the agricultural mind, no doubt most men thought themselves pretty well at the top of the tree—(laughter)—but that applied to other callings as much as to farming. With regard to his own land (without pretending to say the system was one of universal application), he had found the burning of clays and deep cultivation very successful. The benefit of getting the lower soil uppermost he believed to be that the solid bottom undisturbed by the plough had for ages received the subsidence of manures and fertilising properties of the soil, and a different implement to the plough was required to bring them up—either the spade or fork. This year he had cultivated 18 inches deep, and with 9 inches of the bottom soil to the top, at a cost of 4*l.* per acre; it was planted with Potatoes, no manure having been used but 1½ cwt. of Guano and 1½ cwt. of salt. Upon 5 acres three men had been engaged nearly three weeks, and they took up on the average from 150 to 180 bushels per day, and of that quantity there were only about 9 bushels small or diseased. The total crop averaged 3 bushels to the rod and 480 bushels to the acre. The kinds grown were the Fluke and the Scotch Down: the latter, from not knowing their habit, he planted too thick, or he had no doubt the crop would have been still heavier: as it was he got 12 tons per acre.

Mr. Mechi, reverting to the question of drainage, asked Mr. Hutley if he did not hold several hundred acres of heavy land, which was undrained?—Mr. Hutley said he did, and he should like to thresh his crop out against Mr. Mechi's and give him a quarter in (Laughter).—Mr. Thedam said he had made no experiments this year; but he was surprised to hear thin seeding brought up again, which he supposed was settled two years ago, when many farmers suffered in their crops from that cause. Where the land was good he thought 4 pecks per acre sufficient; and 6 pecks ample; but there were uncertainties of season to be considered. With regard to burning, it might be beneficial upon some soils, but he had known instances where a considerable expense was incurred in the process, and the land injured by it. He had tried it himself, and believed he "burnt his fingers." Upon land like Mr. Dixon's it appeared to be efficacious; but the facts he mentioned showed that there was no rule without an exception. Statistics had been mentioned, and very likely an accurate account of the crops, &c., might be a good thing for consumers, but he did not believe it would be so good for the farmers. For instance, if the average produce of the country was 16,000,000 of quarters, and the consumption 18,000,000, if there was a very plentiful year, and the merchants had the means of knowing that the yield had been equal to the latter quantity, it would put an end to all speculation, and the farmer must suffer from that fact being known. (Hear, hear.) He had been very much surprised this season at there being so little corn at Mark Lane? Mr. Mechi: Because the farmers don't want money. Mr. Thedam believed there had been more Wheat threshed since harvest than in any of the last 20 years; but the local demand was such that it was not taken to London. The Chairman proposed "the health of Mr. Hutley," and alluded to the first-rate character of his farming. Mr. Hutley expressed the interest he took in the Society, and its benefit to the farmer by encouraging good workmen. With regard to what Mr. Mechi had said about guano, he believed he used more guano before Mr. Mechi began farming than he (Mr. Mechi) had done since. (Laughter.) He should like to go into other matters, but his health would not allow him. Mr. Mechi would be glad if Mr. Hutley could mention dates. He (Mr. Mechi) used guano when it was 20*l.* a ton, and, with all respect for his friend, he thought he had made a little mistake.

Golspie, Inverness: *Sheep Farming.*—Mr. Loch said: It is not a great many years ago, at any rate it must be within the memory of many living men, that the sheep farmers on the border counties, hitherto pre-eminent in their line, heard for the first time with some surprise that, through the skill and enterprise of a few energetic men, a remote region in the north, amidst its brown mountains, and notwithstanding its uncertain climate, was found capable of rearing a class of sheep fitted to dispute the palm with those reared on their own green hills; and that the sheep of Sutherland, in spite of these difficulties and disadvantages which thus attended their culture, speedily acquired a pre-eminence that gave them the preference in every market-place throughout the country. Happily this pre-eminence still continue—Sutherland sheep and Sutherland farmers still retain, as they deserve, the reputation which was acquired by the labour of their predecessors; nor has anything yet been done by them to endanger it. But let us for a moment consider whether there are not discoverable some symptoms that may, if not taken in time, have a tendency to endanger our future possession of the first rank. For example, let me ask whether the same zeal and earnestness prevails now as formerly in supporting the periodical exhibitions of sheep, by means of which those engaged in their culture are enabled to compare the results of their own efforts with those of their neighbours, to interchange ideas, and adopt improvements? During the period of progress that existed in Sutherland in the early part of the century, or at any rate during a large portion of it, men made it their business to encourage these exhibitions, which contributed to such beneficial results; but is that the case now? It is certainly the case that the only sheep show at which I have been present since coming to the county—that at Lairg—was a very indifferent one, indifferent not only in point of the numbers exhibited, but in their quality; and it was peculiarly mortifying that the two first prizes were won by sheep bred in the south and imported into the county. It has been my business to inquire of others whether these impressions of mine were well founded, and I regret to say they have been confirmed by those best able to judge. Two reasons have been given me for the change. One was given me by the gentlemen themselves who declined to exhibit, and it was this, that they objected to certain regulations under which sheep were admitted for exhibition which permitted their owners to make them up so as to conceal their defects by means of rough clipping; that they did not choose to place their sheep clipped honestly in competition with others-thus fraudulently made up; they also objected to artificial feeding. The other reason assigned was certainly not given me by the gentlemen who declined to exhibit, for it was to this effect, that these gentlemen having gained or inherited a certain reputation for the excellence of their stock, were afraid to place it in jeopardy by running the risk of being surpassed by the sheep of rival exhibitors, and that for this reason they kept their sheep at home. Now, it seems to me that both these reasons are fallacious. I will confess that when the first reason was originally named to me by a gentleman of great experience, it weighed with me very considerably, and I thought that he did right to abstain from a contest that seemed so unfair. A little consideration, however, induced me to take another view. It seems to me that if the judges appointed on these occasions understand their business, they will be able to distinguish between what is fictitious and what is real, and will be able to tell whether the sheep submitted to their inspection are made up or not, and that they will decide accordingly. For my own part, I can only say, that were I a judge, and to find a sheep appearing in this way under false colours, a prejudice would be more or less created on my mind against him, and I should feel inclined on that ground alone to set him on one side. But, surely, without reference to a feeling of this sort, good judges will always have it in their power to do justice to the true merits of the animals on which they have to pronounce an opinion; and thus, I think, the first reason affords no good ground for withholding stock from these exhibitions. As regards the second, if it really exists as a reason by which gentlemen are deterred from exhibiting, there can be no difficulty in condemning it, for surely a motive of this sort, if permitted to operate extensively, would sow the seed of certain decay in the high position which the sheep stock of Sutherland now deservedly occupies. What could be more fatal to the continuance of this excellence than that the sheep farmers should take pains to avoid subjecting their sheep to comparison with others, lest they should discover that having been once superior they were so no longer? Why, the very object and intent of these shows is to discover whether any change of this sort is going on. Who can be interested in learning the deterioration of a flock so much as the owner of that flock? He should seek for this knowledge, if the fact be so, and not shrink from it. How else is he to maintain his place, and how can we be sure that the county will maintain its place, if its principal sheep farmers, content to rely on a reputation already established, are deterred by the fear of possibly losing it, from submitting their flocks to frequent comparison with others? They should bear in mind that in human affairs it is frequently more difficult, and demands more constant exertion and care to maintain a position than in the first instance to acquire it—and that this is now their case, surrounded as they are by active and energetic rivalry. I believe, as I said before, that the sheep farming of this county still deserves, as much as it has ever done, the high reputation awarded to it—and that that against which I have ventured to caution you is as yet but a symptom, which we are in ample time to correct.

Knighton.—*On Preserving the Turnip Crop.*—Mr. Smythies read a paper on this subject, from which the following is an extract:—Every one that has grown a good crop of Turnips is fully aware that it can only be done at considerable cost; it must surely, then, be very false economy to grudge a small outlay to preserve it for consumption in the best possible condition. If you cut a Turnip through that has been well stored, and compare it with one that has been exposed to all the changes of temperature of a long winter, you must be convinced of the superior feeding qualities of the former, even supposing the latter be not wholly rotten and useless. In a hard winter like the last, the loss caused in this way by the frost is almost incalculable. Not only do Turnips exposed to the frost become rotten, but they are bad food for stock whilst they are frozen, and they cannot even be taken up during a frost without great waste and loss. Besides the injury to the Turnips caused by exposure to the weather, I have no doubt the land is robbed a good deal by letting them stay undrawn so long. I think, therefore, that it will be the truest economy on all farms to secure a sufficient quantity of Turnips to carry us through the greater part of the winter and the whole of the spring. On the generality of soils in this district I think it is best to take half the crops to the yards, for consumption by the cattle, and leave half to be eaten on the field by the sheep. Those for storing should be pulled when the land is tolerably dry, so that the soil may be shaken from them without much application of the knife, which should only be applied to remove the small roots and the tops, which latter should be cut off an inch from the bulb. I have found it the best plan to take every alternate eight rows, putting four rows into one on either side, which leaves a convenient space for the passage of a cart between them. There are various methods of storing Turnips for fold-yard consumption, but I believe the best plan is to place two rows of five-barred hurdles at such a distance apart that a cart will just back up between them, wind them well with straw, and fill level with the top, and cover them with sufficient straw to secure them from the frost. Those left in the field may be thrown together into convenient heaps and covered with soil, in which way they will keep quite fresh to a late period in the spring. In consuming Turnips, whether by cattle or sheep, care should be taken that they are ripe before they are used, as I am sure that when given in an unripe state they are as unpalatable and unwholesome to animals as unripe fruit is to ourselves. In giving them to cattle they ought to be cut into such slices as will not choke them, and given in quantities varying according to the age of the beast, and the purpose for which he is designed. When given to feeding beasts they are generally used in too large quantities, acting injuriously on them by over stimulating their kidneys; 70 or 80 lbs. a day, in conjunction with straw and a little flour, will be found ample for most.

Miscellaneous.

The Return of the Irish Flax Crop for the present year, as prepared by order of Government, has just been completed, and shows a very considerable decrease in the breadth of land devoted to this important produce. The return is as follows:—

Return in statute acres of the extent of Flax in Ireland in 1855 compiled by desire of his Excellency the Lord Lieutenant, in anticipation of the general tillage return:—

Counties.	1854.	1855.	Decrease.
	Acres.	Acres.	Acres.
Antrim ...	8924	6740	2184
Armagh ...	16,295	9446	6849
Carlow ...	32	81	...
Cavan ...	8842	6021	2821
Clare ...	909	902	7
Cork, F. R. ...	2595	1982	613
Cork, W. R. ...	729	422	307
Donegal ...	26,061	15,780	10,281
Down ...	19,895	11,131	8764
Dublin ...	5	...	5
Fermanagh ...	3480	2007	1473
Galway ...	785	544	241
Kerry ...	673	651	22
Kildare ...	6	8	...
Kilkenny ...	54	44	10
King's ...	214	259	...
Leitrim ...	1022	718	304
Limerick ...	316	244	72
Londonderry ...	17,230	11,760	5470
Longford ...	592	264	328
Louth ...	694	191	503
Mayo ...	999	701	298
Meath ...	481	253	228
Monaghan ...	16,222	11,809	4403
Queen's ...	11	7	4
Roscommon ...	430	382	48
Sligo ...	493	377	116
Tipperary, N. R. ...	108	61	47
Tipperary, S. R. ...	91	42	49
Tyrone ...	22,453	13,288	9165
Waterford ...	31	43	...
Westmeath ...	260	201	59
Wexford ...	466	822	...
Wicklow ...	5	1	4

Total in statute acres—In 1854, 151,403; in 1855, 97,192.
Total decrease in statute acres, 54,211.

Total extent of Flax grown in Ireland in the following years:—1850, 91,040 acres; 1851, 140,536 acres; 1852, 137,008 acres; 1853, 174,579 acres; 1854, 151,403 acres; 1855, 97,192 acres.

Cultivation of Sand-hills.—At the late meeting of the British Association, the Rev. Dr. Paterson, of Glasgow, read a paper "On the Cultivation of Sea Sand, or Sand-hills." The writer assumes that in Britain there are many hundred thousands of acres of sea sand, driven into heaps by the wind, and absolutely useless. Being on the level of the sea, such deserts enjoy the best of climate, but continue hopelessly barren, on account of the hitherto unconquerable difficulties of dealing with the subject. The shifting nature of the mass from the action of winds—very like the driving of snow—renders every effort abortive, and soon obliterates what the hand of industry had wrought. Should these difficulties, however, at a moderate cost, be overcome, the encouragement is immense—say a million of acres turned into Clover and waving corn, instead of waves of desert sand. The writer has seen a small sheltered corner reclaimed which yielded 10*l.* per acre of annual rent; and the soil was originally no better, and in fact no other, than that of the common sand-hills. The method proposed is first to have a command of water raised from the sea, or from the nearest river or brook, and

ready for distribution, after the manner already in use for the application of liquid manure to a farm. In the latter case, the cost of the apparatus is profitably incurred, when the object is only the applying of manure; in the former the application would be, in the first instance, to the creation of the soil; whilst it would still remain for the purpose of manuring as occasion might require. Having thus a command of sea or river water, all the obstacles to an easy and cheap cultivation are immediately overcome. Let navvies be employed to level the breadth of a ridge or two running in the direction of the most prevailing wind; and let their work be instantly followed by a copious irrigation. On the warm wet sand, which the winds in that state will not stir, spread plenty of guano, or bone dust, and sow Clover, with a few grains of Barley, and Perennial Rye-grass, and in a few days there will be a beautiful verdure, leaving to the owner the choice of sheep grazing or cutting with the scythe. Speaking of a ridge-breadth formed like a road, it is only meant that such is a beginning; and that the levelling and sowing keep pace; and evident it is that neither extent nor exposure on such a plan can prove any hindrance; though it may be expedient on account of the freaks of the wind, to leave it, for a little time, a narrow space to play upon, between the unlevelled brow of the desert and the new sown ridge, taking care that that narrow space itself be duly watered. Where irrigation from the sea is found most convenient, there will be also the advantage of a saline manure; and it is observed that sheep are always exceedingly fond of Grass that has been showered by marine spray, or washed by the tide. It is needless to speak of enclosures which will be proper where the waste regions are large, as doubtless Thorns will grow, especially the Sea-thorn, where Grass and corn can be made to thrive. And it need not be observed that the planting of hedges should be at the first, when they would get their share both of the guano and irrigation. After the hedges are well grown, the surface consolidated, and the soil has acquired some admixture of vegetable mould, the plough may be thought of, but till then it will be as wise to let well alone. For aught that the writer can see, there is no reason to fear the perfect and economical success of the methods now suggested; and it is earnestly to be hoped that some noble spirited proprietor, such as the Earl of Eglinton, who is not a little interested, will try the experient.

Calendar of Operations.

OCTOBER.

Wester Ross: *October* 22.—The harvest having been early finished a great deal of our autumn labour has been already accomplished; although the ground has been uncommonly dry, the greater part of the green crop lot on many farms has had its winter furrow; leas have been seed-furrowed for Wheat; a large proportion of the Potato crop has been uplifted, and some farmers have been in such haste to have them out of the ground, that they waited neither for the ripening of the Potatoes nor for the cooling of the atmosphere, and the result has been that whole pits have heated, and undergone decomposition. Although the proportion of diseased Potatoes is small, the number is still increasing, and as there is risk in keeping them over the winter, the earliest opportunity will be taken advantage of for getting rid of such a peculiarly precarious crop. A more abundant return, or Potatoes of finer quality, we have never had. Our Turnips are not so heavy generally as we anticipated a few weeks ago. The continued drought brought on mildew, and, although we have had of late abundant showers, they have not attained maturity. Individual Turnips, however, have been taken notice of in different parts of the country as having reached an extraordinary size, and amongst the largest of these were two grown on this farm, one weighing 15 lbs. 3 oz. and the other 16½ lbs., without the shaws; they were both of the Pomeranian kind. Leas and stubbles are now quite bare, and we are necessitated to supply the stock somewhat earlier than usual from our Turnip field. Our last Muir of Ord market was one of the dullest and cheapest we have had for years. An unprecedentedly large number was exhibited, and many hundreds went off unsold. The better kinds, however, such as good crosses and fat cattle, fetched fair prices. The scanty supply of straw forced many to exhibit stock for sale, which in other circumstances would have remained at home. There is a good demand for Turnips to be eaten off by sheep, and a good crop will fetch some 5*l.* or 6*l.* an acre. We cannot say much as yet about the yield of our grain, as very little has been threshed out. Wheat and Barley are spoken of as yielding well, and of good quality. Oats are deficient both in quantity and quality, and the straw is miserably short. Labour is abundant, and wages are high; and, although provisions of all sorts are uncommonly dear, the cry of complaint is seldom heard.

Notices to Correspondents.

Bacon: *Ignoramus.* You cannot put too much salt. Read the recipe in last week's Paper. Keep the bacon in a cool dry place in a bin with layers of malt dust; or, when well dried, you may put it in a bag with dry Oatmeal, and hang it on the kitchen wall.

Cambridge Roller: *R H.* We have no doubt it will do very well for your Clover.

Chemistry: *J B.* You cannot teach yourself the art of chemical analysis so as to execute the same with accuracy. You require practice under the eye of an experienced analyst.

Draining: *An Old Pupil.* We do not know your circumstances. The answer would depend a good deal on whether you need any one to direct and superintend the process. If you do, you had better take his advice.

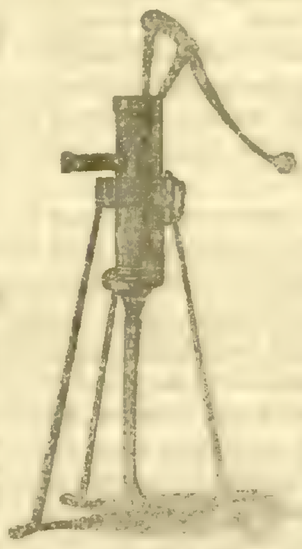
Giant Sainfoin: *Cor.* Sow about 4 bushels of the rough seed, *i.e.* the seed unshelled, per acre in April. You may drill it across the Barley if the field is clean.

Moles: *Sub.* They must be extirpated by the trap.

Water Meadow: *Q Q.* The rule is to water night and day for a week, and then let the land thoroughly dry for about three days: but this rule cannot be rigidly adhered to. In some seasons so long a flooding would cause a scum to arise, owing to a partial rotting of the vegetation, and if in that state frost were to occur it would kill the Grass.

Wheat: *R H.* If you could deposit the seed about 1 inch under the surface it would be "well" covered. The dibble should set the seed at about 3 inch intervals, or less in the rows. There would be no advantage in dibbling on raised ridgelets.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Sons, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
2½ „ long	3 „ 3 „		1	15	0
3 „ ditto	3 „ 6 „		2	12	0
3½ „ ditto	3 „ 6 „		2	18	0
4 „ ditto	3 „ 6 „		3	5	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	12	0
2½ in. long	ditto	ditto ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

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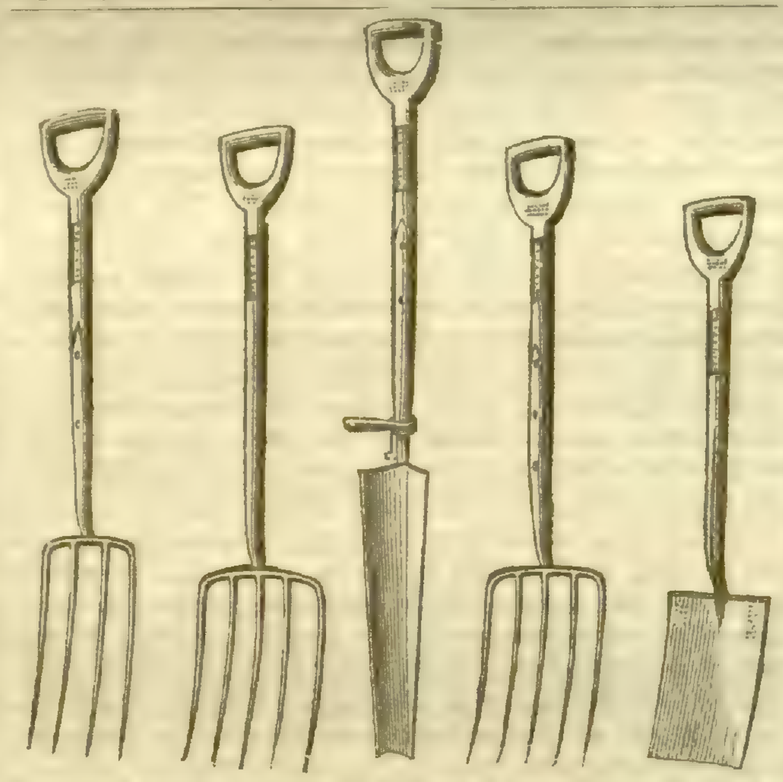


PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps. 103, Newgate Street, London.

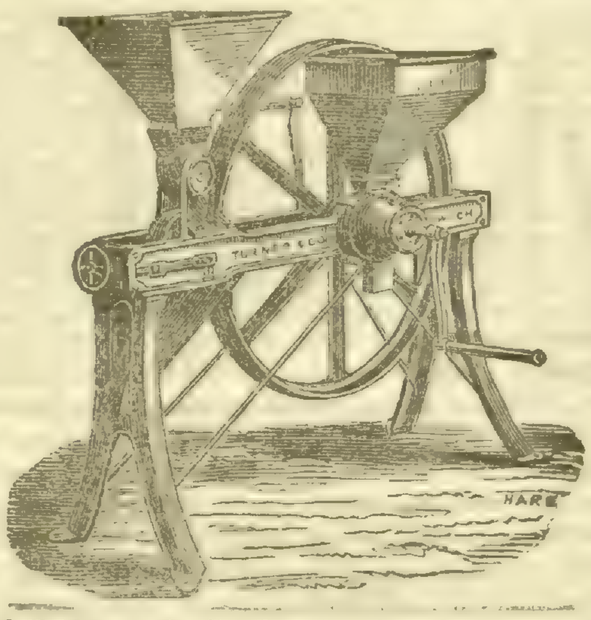
BALUSTRADING FOR GARDEN TERRACES, executed in Austin's Artificial Stone, by J. Seeley (late Austin and Seeley), Nos. 1 to 4, Keppel Row, New Road.

This work is of the same constitution as Portland Stone, and after a winter's exposure is hardly distinguishable from that material: it has been extensively used in Scotland for 20 years.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

AT THE NORWICH, GLOUCESTER, LINCOLN and CARLISLE SHOWS,

The Prize for the best LINSEED and CORN CRUSHER was awarded to E. R. & F. Turner, St. Peter's Iron Works, Ipswich.



E. R. & F. Turner invite the attention of Agriculturists and others to the following machines of their manufacture:—

ROLLER MILLS for Crushing Linseed, Oats, Barley, Malt, &c., of various sizes, with or without Bean-mill combined. The numerous prizes awarded these Mills by the Royal and other agricultural societies, render comment on their merits unnecessary.

PATENT COMBINED GRINDING and CRUSHING MILL for reducing Barley, &c., to a fine and soft meal, and crushing Oats, Linseed, &c., is strongly recommended for the variety of purposes to which it is applicable, and for its perfect and economic working. Price 25*l.*

CHAFF CUTTERS, for horse or steam power, cutting three lengths, with facility for changing the length of the cut almost momentarily, and other valuable improvements.

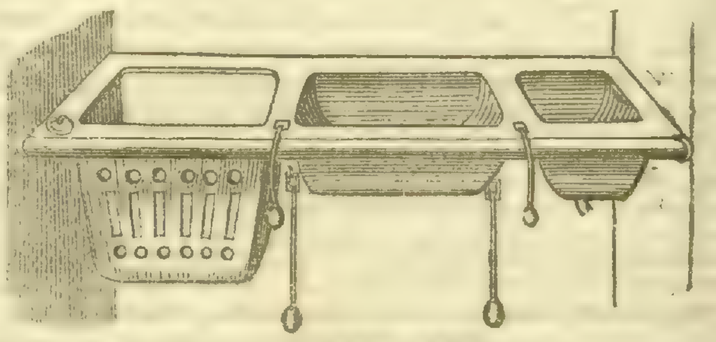
OILCAKE BREAKERS, made entirely of iron, with case-hardened teeth suitable for all descriptions of cake. Price 3*l.* 10*s.*

FIXED STEAM-ENGINES, on the horizontal direct acting principle. Long experience and attention to the practical working of steam-engines of every variety, have enabled the manufacturers to offer these Engines as inferior to none—either for efficiency, economy, or durability—and at prices which will be found comparatively low.

Superior Portable Steam-Engines and Threshing Machines, Horse-Power Threshing Machines, Circular Saw Tables, One Horse Carts, and various other Implements, are also manufactured at the above Works.

Illustrated Price Lists sent free on application.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



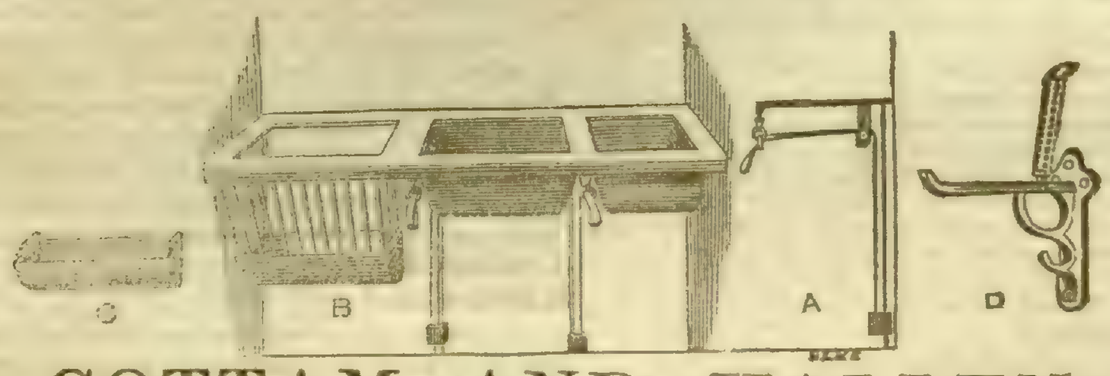
THIS IS THE ORIGINAL PATENT for important improvements in Stable Fittings, including a method surpassing all others for conveying the straps and halter-weights to the back of the fitting to prevent the horse being cast in the stall. Stable Fittings of every description, plain, enamelled, or galvanised. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, &c.

MANUFACTURER OF KITE'S PATENT NOISELESS CAST IRON SMOKE-CURING CHIMNEY CAPS (200 on Buckingham Palace.)—The merits of this invention are proved by practical experiments daily at the Crystal Palace, in the south-west gallery.

Price Lists and Illustrations sent on receipt of two postage stamps.

James Barton, Iron Founder, &c., 370, Oxford Street, a few doors east of the Pantheon.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.



COTTAM AND HALLEN

HAVE made important additions to their original Invention of PATENT ENAMELLED MANGER RACK AND WATER TROUGH AT ONE FIXTURE, the main features of which are shown in the above engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

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A large stock on view from 3*s.* 6*d.* upwards. Flower Stands, Trainers, Game and Garden Fencing, and Wire Work of every description. Conservatories and Aviaries fitted up in superior style. Window Blinds of all sorts.

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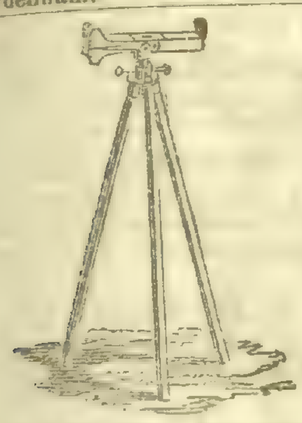

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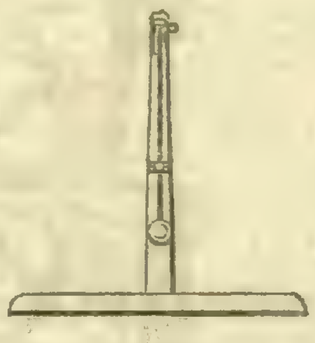
Requires no graduated staff or computation. Any labourer can use them.



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LIGHT BROWN COD LIVER OIL.

TESTIMONIAL from DR. LETHEBY,
Professor of Chemistry and Toxicology in the Medical College of the London Hospital, Medical Officer of Health to the City of London, Chemical Referee to the Corporation of London, &c. &c. &c.

"I have frequently had occasion to analyse the Cod Liver Oil which is sold at your establishment. I mean that variety which is prepared for medicinal use in the Loffoden Isles, Norway, and sent into commerce with the sanction of Dr. DE JONGH, of the Hague.

"In all cases I have found it possessing the same set of properties, among which the presence of cholaic compounds and of iodine in a state of organic combination are the most remarkable; in fact, the Oil corresponds in all its characters with that named 'Huile brune,' and described as the best variety in the masterly treatise of Dr. DE JONGH.

"IT IS, I BELIEVE, UNIVERSALLY ACKNOWLEDGED THAT THIS DESCRIPTION OF OIL HAS GREAT THERAPEUTICAL POWER; AND, FROM MY INVESTIGATIONS, I HAVE NO DOUBT OF ITS BEING A PURE AND UNADULTERATED ARTICLE.

"College Laboratory, London Hospital, Sept. 24, 1855."

Sold ONLY in bottles, capsuled and labelled with Dr. DE JONGH's Signature, WITHOUT WHICH NONE ARE GENUINE, by ANSAR, HARFORD, & CO., 77, STRAND, London, Dr. DE JONGH's sole Consignees; and by most respectable Chemists in town and country.

Half-pints (10 oz.), 2*s.* 6*d.*; Pints (20 oz.), 4*s.* 9*d.*; Quarts 40 oz.), 9*s.*: IMPERIAL MEASURE.

THE BEST FOOD FOR CHILDREN, INVALIDS, AND OTHERS.

ROBINSON'S PATENT BARLEY, for making superior BARLEY WATER in 15 minutes, has not only obtained the patronage of her Majesty and the Royal Family, but has become of general use to every class of the community, and is acknowledged to stand unrivalled as an eminently pure, nutritious, and light food for Infants and Invalids; much approved for making a delicious Custard Pudding, and excellent for thickening Broths or Soups.

ROBINSON'S PATENT GROATS, for more than 30 years have been held in constant and increasing public estimation as the purest farinæ of the Oat, and as the best and most valuable preparation for making a pure and delicate GRUEL, which forms a light and nutritious supper for the aged, is a popular recipe for colds and influenza, is of general use in the sick chamber, and, alternately with the Patent Barley, is an excellent food for Infants and Children.

Prepared only by the Patentees, ROBINSON, BELLVILLE, & Co., Purveyors to the Queen, 64, Red Lion Street, Holborn, London. Sold by all respectable Grocers, Druggists, and others in Town and Country, in packets of 6*d.* and 1*s.*; and Family Canisters, at 2*s.*, 5*s.*, and 10*s.* each.

HOLLOWAY'S OINTMENT AND PILLS EXCELLENT REMEDIES FOR ABSCESSES.—Mr. Wm. Alsop, of the sloop Wesley, informed Mr. Reinhardt, Druggist, Hull, that a child of his had a dreadful abscess on the thigh, and that the medical men gave him no hopes of the child's life. Mr. Reinhardt then recommended him to use Holloway's Ointment; he did so, and the abscess soon healed, and the little patient is now as well and as strong as any child can be, entirely through the virtues of the Ointment, which are beyond all praise.—Sold by all Medicine Venders throughout the world; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and H. HOODS, Malta.

COLDS, COUGHS, ASTHMA, INFLUENZA, and DISEASES of the CHEST and LUNGS, arise chiefly from alternations of Temperature. Painful and troublesome as these diseases are, they may be speedily and effectually removed by the judicious use of

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SPENCER'S PULMONIC ELIXIR is admirably adapted to promote expectoration, ease the breathing, loosen the phlegm, abate fever, and allay the tickling sensation which occasions the cough, without tightening the chest; and for all temporary and local affections—such as wheezing, irritation of the throat, palpitation of the heart, hoarseness of the voice, influenza, &c.—it affords immediate relief. While in more chronic disorders, as periodical coughs or inveterate asthma, it is equally valuable in its effects, although, of course, a longer perseverance in the use of the article is required.

*** Ask for SPENCER'S PULMONIC ELIXIR.

Prepared only by T. Roberts & Co., Crane Court, Fleet Street, London; and sold wholesale and retail by E. Edwards, 67, St. Paul's Churchyard; Barclay & Sons, 95, Farringdon Street; Sutton & Co., 10, Bow Churchyard; Hannay & Co., 63, and Sangar, 150, Oxford Street, London; and by all respectable Chemists and Medicine Vendors in the Kingdom. In bottles at 1*s.* 1½*d.* and 2*s.* 9*d.* each. *** The bottles at 2*s.* 9*d.* contain nearly as much as three small ones.

HEAL AND SON'S EIDER DOWN QUILTS; also GOOSE DOWN QUILTS, from 8*s.* 6*d.* to 24*s.* LIST of PRICES and SIZES sent free by Post.—196, Tottenham Court Road.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

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SOUND AND WHITE TEETH are not only indispensably requisite to a pleasing exterior in both sexes, but they are peculiarly appreciated through life as a blessing highly conducive to the purposes of health and longevity. Among the various preparations offered for the purpose,

ROWLAND'S ODONTO, or PEARL DENTIFRICE,

stands unrivalled in its capability of embellishing, purifying, and preserving the teeth to the latest period of life. Prepared from Oriental herbs with unusual care, transmitted to this country at great expense, this unique compound will be found to eradicate all tartar and concretions, and impart a pearl-like whiteness to the enamelled surface, remove spots of incipient decay, render the gums firm and red, fix the teeth firmly in their sockets and, from its aromatic influence impart sweetness and purity to the breath. Price 2*s.* 9*d.* per box. Caution.—The words "Rowlands' Odonto" are on the label, and "A. ROWLAND & SONS, 20, Hatton Garden," engraved on the Government stamp affixed on each box. Sold by them, and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.?—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair from whatever cause, strengthen it, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 physicians, for promoting a fine healthy head of hair, and averting baldness. Sold by all Chemists, price 2*s.*, or sent free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London. Mrs. CARTER writes, "My head, which was bald, is now covered with new hair." Mrs. REEVE—"My hair is gaining strength and thickness." Sergeant CRAVEN—"Through using it I have an excellent moustache." Mr. YATES—"The young man has now a good pair of whiskers. I want two packets for other customers."

FENDERS, STOVES, AND FIRE-IRONS.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW ROOMS. They contain such an assortment of FENDERS, STOVES, RANGES, FIRE-IRONS, and GENERAL IRONMONGERY as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright stoves, with bronzed ornaments and two sets of bars, 2*l.* 14*s* to 5*l.* 10*s.*; ditto, with ormolu ornaments and two sets of bars, 5*l.* 10*s.* to 12*l.* 12*s.*; Bronzed Fenders complete, with standards, from 7*s.* to 3*l.*; Steel Fenders, from 2*l.* 15*s.* to 6*l.*; ditto, with rich ormolu ornaments, from 2*l.* 15*s.* to 7*l.* 7*s.*; Fire-irons from 1*s* 9*d.* the set to 4*l.* 4*s.* Sylvester and all other Patent Stoves, with radiating hearth plates. All which he is enabled to sell at these very reduced charges.

1st,—From the frequency and extent of his purchases: and
2dly,—From those purchases being made exclusively for cash.

GAS CHANDELIERS AND BRACKETS.—The increased and increasing use of gas in private houses has induced WILLIAM S. BURTON to collect from the various manufacturers all that is new and choice in Brackets, Pendants, and Chandeliers, adapted to offices, passages, and dwelling-rooms, as well as to have some designed expressly for him; these are ON SHOW over his SIXTEEN LARGE ROOMS, and present, for novelty, variety, and purity of taste, an unequalled assortment. They are marked in plain figures, at prices proportionate with those which have tended to make his Establishment the largest and most remarkable in the kingdom, viz., from 12*s.* 6*d.* (two light) to 16*l.* 16*s.*

LAMPS OF ALL SORTS AND PATTERNS.—WILLIAM S. BURTON invites attention to his season's SHOW of LAMPS. It embraces the Moderateur (the best Parisian specimens of which have been carefully culled), Argand, Solar, Camphine, Palmer's Magnum, and other lamps for candles; and comprises an assortment which, considered either as to extent, price, or pattern, is perfectly unrivalled.

Pure Colza Oil, 5*s.* 6*d.* per gallon.
Palmer's Candles, 9*d.*, 9½*d.*, and 10*d.* per lb.
Patent Camphine, 3*s.* 10*d.* per gallon.

The alterations and additions to these very extensive premises (already by far the largest in Europe), which have occupied the whole year, are now nearly completed. They are of such a character that the entire of EIGHT HOUSES is now devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated, and Japanned Wares, Iron and Brass Bedsteads and Bedding), arranged in Sixteen Large Show Rooms, so as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

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NEW ZEALAND.—For WELLINGTON direct, CANTERBURY, and OTAGO, one of the most magnificent magnificent ships afloat, the new, fast-sailing, British Frigate WESTMINSTER, A1 for 13 years, 790 o.m., 731 n.m., 1200 tons burden, JOHN WESTGARTH, Commander, loading in the East India Docks, to be despatched 25th November, calling at Plymouth to embark Passengers. This superb vessel, built expressly for the passenger trade and just launched at Stockton, from the beauty of her lines and the exquisite symmetry of her proportions, is expected to make the passage out in 80 days. Her spacious and elegant poop is upwards of 50 feet in length, and the rare and choice compartments offer every comfort and convenience to ladies and families proceeding to the Colony. An experienced Surgeon will proceed in the vessel.—FREDERICK YOUNG & Co., New Zealand Colonists' Rooms, 74, Cornhill.

TO NURSERYMEN, FLORISTS, AND OTHERS.

TO BE SOLD or LET, a very eligible piece of GARDEN GROUND, at Kilburn, with three Greenhouses, with Shelves, Hot-water apparatus, Pipes, and Stoves, &c.; also two excellent Brick Pits, with 100 Lights and Frames, and 300 dozen Flowerpots and Plants; held for a term of 10 years unexpired, at 10*l.* a-year.—For particulars apply to Mr. GODDARD Bookseller, 14, Great Portland Street; or to Mrs. PRESTON, Florist, Kilburn.

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TO BE SOLD, in consequence of the ill-health of proprietor, a capital BUSINESS in the above line, with a first-rate connexion, and of 17 years' standing. The Premises, which are convenient and well situated, will be sold together with the Business One-half of the purchase money may remain on security of the premises.—For particulars apply to Mr. LENDON, Nurseryman, &c., Wellington, Somerset.

TO BE SOLD, the GOODWILL of a London Retail SEED BUSINESS.—Apply to Messrs. NOBLE, COOPER, & BOLTON, Seed Merchants, 152, Fleet Street, London

WANTED, a convenient HOUSE, about Six or Eight Rooms, with from 1 to 1½ Acres of Ground, situated in a spot where plants will thrive.—Address, E. M., 4, Stockwell Common, Clapham Road, London.

Sales by Auction.

ORCHIDS AND OTHER STOVE PLANTS
AT THE HORTICULTURAL SOCIETY'S GARDENS AT CHISWICK.

MR. J. C. STEVENS is directed by the Council of the Horticultural Society to Sell by Auction at the Gardens, Chiswick, on WEDNESDAY, 7th November, and following day, at 1 o'clock precisely, various VALUABLE ORCHIDS and other STOVE PLANTS, among which are specimens of unrivalled magnificence, such as Lælia superbiens, Dendrobium speciosum, Phalænopsis amabilis, Tree and other Ferns, &c.—May be viewed by Catalogues (1*s.* each, returnable to purchasers) to be had of Mr. J. C. STEVENS, 38, King Street, Covent Garden. Note.—Purchasers will be allowed 14 clear days to remove their Lots, during which time the Plants will remain in the Houses if required.

CAMELLIAS, ETC., FROM A CELEBRATED BELGIAN GROWER.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, the 30th inst., at 1 o'clock precisely, 600 CAMELLIAS well set with bloom, 1 to 3 feet; 1000 GLADIOLUS GANDAVENSIS, 400 Chilian ALSTRŒMERIAS, 200 LILIUM LANCIFOLIUM RUBRUM (true), &c.—May be viewed on the morning of sale, and Catalogues had.

MONTHLY POULTRY SALE.

MR. J. C. STEVENS will sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, the 6th of November, at 12 o'clock precisely, a selection of First Class POULTRY, including some extraordinary Spanish Chickens from the yard of Jno. Fletcher, Esq.; Dorkings from the Rev. F. Thursby, J. Rider, Esq., and other celebrated breeders; Buff and Partridge Cochins, Hamburghs, and some well-bred Pigeons and Rabbits.—May be viewed on the morning of sale, and Catalogues had by inclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

DUTCH BULBS, STANDARD AND OTHER ROSES, ETC.

MR. HASLAM will Sell at the Auction Mart, on TUESDAY and WEDNESDAY, Oct. 30th and 31st, as above, consisting of most of the newest and best Perpetual Roses, warranted true to name.

THAMES BANK, PIMLICO.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Joseph Robinson to submit to public competition, on the above premises, on WEDNESDAY, Oct. 31, at 11 for 12 o'clock, without the least reserve, a very choice and select Collection of Fancy and other varieties of Pelargoniums, also a collection of Pompone Chrysanthemums, about sixty neat specimens, a few Azaleas, also a fine collection of Dahlias, three Greenhouses, and a light Spring Van. J. R. assures purchasers that every plant will be correctly named and labelled.—Catalogues had 6*d.* each, returnable to purchasers, of the Auctioneers, American Nursery, Leytonstone, Essex, and of Mr. J. ROBINSON, 2, Glasgow Terrace, Thames Bank, Pimlico.

CLAPHAM RISE.
To NOBLEMEN, GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the Premises, Clapham Rise, near London, on MONDAY, October 29, and following day, at 11 o'clock each day (by order of the executors of the late Mr. Henry Groom) the whole of the extensive, costly, and unrivalled collection of TULIPS, Offsets, and Breeders, which include the most rare and approved varieties in cultivation, and choice Seedlings not in the possession of any other grower, being the study of 40 years of the deceased's life, whose judgment and taste was universally admitted. Also Dutch and other Bulbs, consisting of the finest Double and Single Hyacinths, Narcissus, Crocus, Early Double and Single Tulips, Jonquils, a rich assortment of Ranunculuses, Gladiolus, Anemones, &c., with 1500 Lilium lancifolium in great variety, Japonicum, &c. May be viewed prior to the sale.—Catalogues may be obtained 1*s.* each, returnable to purchasers, of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

WANDSWORTH ROAD.

MESSRS. PROTHEROE AND MORRIS have been instructed by Messrs. Chandler & Sons to Sell by Auction, on the premises in the Wandsworth Road, early next month, a collection of the following ORNAMENTAL TREES, EVERGREENS, and SHRUBS, comprising Laburnums, Almonds, Poplars, Lilacs, Evergreen Privets, Variegated and Green Hollies, from 2 to 8 feet high; Arbor-vitæ, from 2 to 8 feet; Laurels, large Box, Scarlet Arbutus, very handsome; crimson and other Rhododendrons, well set with flower buds; yellow Azaleas, Kalmias, Daphne hybrida, Escallonia, Veronicas, &c., &c.; also dwarf Apples and Pears well adapted for potting, Gooseberries, Currants, and Vines, Chrysanthemums, Passion flowers, Myrtles, &c., &c. This Sale is worthy the attention of Planters, as everything is in fine condition and will move well. An announcement of the days of sale will shortly be made, and Catalogues prepared.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on FRIDAY, November 2d, at 12 o'clock, a first-class collection of Dutch Bulbs, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Snowdrops, Ranunculuses, Gladiolus, &c. Also a selected assortment of fine Standard and Dwarf Roses, including Hybrids, Bourbons, Chinas, Noisettes, &c.; and American Plants comprising Hybrid Rhododendrons, Ghent and other Azaleas, Kalmias, Andromeda floribunda, beautifully furnished with bloom buds, &c.—On view the morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

NURSERY STOCK.—WHALLEY RANGE, MANCHESTER.

MR. CAPES begs to state that he has received instructions from Messrs. H. Bigland & Co., in consequence of the expiration of their lease, and the grounds having to be given up, to Sell by Auction, on WEDNESDAY and THURSDAY, November 7th and 8th, and the following day if required, at 10 o'clock each morning, the entire of the remainder of their STOCK of Evergreens, Fruit and Forest Trees, two Greenhouses, Dutch Pit, and other Effects, at the Britannia Nursery, Whalley Range, near Manchester. Catalogues will be ready a week prior to the sale.—22, Princess Street, Manchester.

FOUR HUNDRED FINE ASH TREES; ALSO SIXTY OAK AND SEVENTY ALDERS.

MM. HUMBERT will sell by Auction, by direction of the Earl of Essex, at the Rose and Crown Inn, Watford, on WEDNESDAY, the 14th of November, at 2 o'clock, 400 ASH TREES of remarkably fine growth and of large dimensions; also 60 fine OAK, 70 ALDERS, some ELMS and others, all standing at Cassiobury, close to good roads, the Grand Junction Canal, and the North-Western Railway.—May be viewed ten days before the sale, and Catalogues may be had at the Inns in the neighbourhood, and free by post of Mr. HUMBERT, Land Agent and Surveyor, Watford, Herts.

On the 31st October will be published, in handsome Folio, price 6s., Part VIII. of

THE FERNS OF GREAT BRITAIN,

NATURE-PRINTED (LIFE SIZE).

Parts I. to VII. are always on sale.

BRADBURY & EVANS, 11, BOUVERIE STREET.

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On the 31st October will be published (uniform with the Cheap Editions of "Vanity Fair" and "Pendennis") price 6s., Vol. I. of

MISCELLANIES. By W. M. Thackeray. Prose and Verse; Stories, Essays, and Sketches, Satirical, Burlesque, and Sentimental.

The Collection will be completed in Four Volumes. The first will include: THE BALLADS:—THE BOOK OF SNOBS:—THE TREMENDOUS ADVENTURES OF MAJOR GAHAGAN:—THE FATAL BOOTS:—and COX'S DIARY; each of which will, for the convenience of Railway Readers, &c., be published separately.

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400 Illustrations. 8vo. Price 5s. 6d. half bound.

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THE ELEMENTS OF BOTANY. Structural and Physiological. With a Glossary of Technical Terms, and numerous Illustrations. 12s. cloth.

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The first two Parts of The Elements of Botany, comprising Structural and Physiological Botany, and a Glossary of Technical Terms, are published in one octavo volume, price 12s.

These three parts form a complete manual of Botany for Medical and other Students who have made themselves acquainted with the author's "School Botany."

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THE NAUTICAL ALMANACK and ASTRONOMICAL EPHEMERIS for 1859. With a Supplement, containing Ephemerides of Ceres, Pallas, Juno, and Vesta; and approximate ones of the newly discovered Planets for 1856.

John Murray, Albemarle Street, Publisher to the Admiralty

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III. MR. THACKERAY AND THE NEWCOMES.
IV. THE CALDWELL PAPERS.
V. THE CHARITIES AND POOR OF LONDON.
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BEING A TRANSLATION OF THE GENERAL PART OF THIBAUT'S SYSTEM DES PANDEKTEN RECHTS

WITH NOTES AND ILLUSTRATIONS

By NATHANIEL LINDLEY, of the Middle Temple, Esq., Barrister-at-Law.

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All Communications must be promptly addressed to Wace Cottage, Holloway, Middlesex.

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Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, October 27, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 44.—1855.] SATURDAY, NOVEMBER 3. {Price Fivepence. Stamped Edition, 6d.

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HORTICULTURAL SOCIETY OF LONDON.—The AUTUMN MEETING will take place at the Society's House, 21, Regent Street, on TUESDAY, November 20th, from 12 to 4 P.M. The Chair will be taken at 2 P.M.

BRITISH POMOLOGICAL SOCIETY.—An Extraordinary Meeting of the British Pomological Society will be held at the Rooms, 20, Bedford Street, Covent Garden, on MONDAY, the 5th of November, to compare and determine the merits and qualities of Fruits, for the election of Members, and for general business. The Chair will be taken at 1 o'clock.

It is hoped that all who take an interest in the cultivation of FRUITS and FRUIT TREES will forward to the meeting specimens of such varieties as they can obtain, correctly named, and otherwise assist in promoting the objects of the Society.

Persons desirous of becoming Members are requested to make application to the Secretary on or before the day of meeting. Members are elected at all the Meetings of the Society; and 10s. entrance fee, with 10s. annual subscription, constitute membership.—Robert Hogg, Secretary.

STOKE NEWINGTON CHRYSANTHEMUM SOCIETY.—The Ninth Annual Exhibition of this Society will be held at the Manor Rooms, Church Street, Stoke Newington, on WEDNESDAY, November 14. Doors open at 12 o'clock. Admission from 12 to 4, 1s.; after 4 o'clock, 6d.

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WAITE'S DANIEL O'ROURKE PEAS.—The best Early Pea in cultivation can be supplied in any quantity and price had on application to J. G. Waite, Seed Merchant, 181, High Holborn, London.

TO THE TRADE.

ISAAC DAVIES can supply the following New GERANIUMS at reduced prices:—Fair Ellen, Phaeton, Pandora, Petruchio, Serena, Topsy, Grand Sultan, and Cloth of Silver.—Larkfield Nursery, Wavertree, Liverpool.

EDWARD P. FRANCIS offers to the Trade strong MANETTI STOCKS, well established in big 60 pots for Grafting. Price on application. Rose Lists forwarded as usual.

Rose Nurseries, Hertford.

AZALEA INDICA.

JOHN AND CHARLES LEE beg to offer good Plants of the most select kinds of AZALEA INDICA, well set with buds, at 18s., 30s., and 42s. per dozen.

Nursery and Seed Establishment, Hammersmith.

AZALEA INDICA LEEANA.

JOHN AND CHARLES LEE are now prepared to send out this fine Seedling, which for habit of growth and substance of petal, combined with perfect shape and purity, is decidedly the best white Azalea yet out. It has gained Certificates wherever exhibited. Price 21s.; a few extra strong plants at 42s.—Nursery and Seed Establishment, Hammersmith.

NEW VARIEGATED GERANIUM—MRS. LENNOX.

JOHN AND CHARLES LEE are now sending out this novelty, which is a decided improvement on The Mountain of Light. It is of much more vigorous growth than that variety, the margin of the foliage is of a purer white, and in other respects it possesses the same good qualities. Price 7s. 6d.

Nursery and Seed Establishment, Hammersmith.

FRUIT TREES IN POTS.

JOHN AND CHARLES LEE have the finest stock of the above ever yet offered, consisting of—

PEACHES	APRICOTS	CHERRIES
NECTARINES	PLUMS	APPLES

and PEARS

All warranted to bear good crops the first season.

Nursery and Seed Establishment, Hammersmith.

AGRICULTURAL SEEDS, ETC.

PETER LAWSON AND SON, Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland, are supplying the following seeds of the best quality:—

Italian Rye-Grass, Foreign seed	Dwarf Essex Rape
Crimson Clover (Trifolium incarnatum)	Winter Tares
Alsike Clover (Trifolium hybridum)	Natural Grass Seeds, for Pastures and Lawns, &c. &c. &c.

27, Great George Street, Westminster.

CABBAGE—SUPERIOR SORTS.

JOHN CATTELL has still a large supply of fine Bedded Plants of the above at 5s. 6d. per 1000; also Red Cabbage bedded, at 1s. per 100; and Cauliflower ditto, Early and Late, at 1s. 6d. per 100. Orders to the amount of 1l. are delivered carriage free to London, and to the Edenbridge Station, South-Eastern Railway. No charge for crates, baskets, or packing. A remittance or reference to accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

MESSRS. E. G. HENDERSON AND SON beg to announce that they have now received their noted collection of HYACINTHS in excellent condition, and for the assistance of those persons unacquainted with the culture of the Hyacinth, printed instructions will be given gratis with each order they are kindly favoured with, Catalogues of which, together with their Plant and Seed Lists, will be forwarded post free on application.

CUCUMBER HENDERSON'S NAPOLEON III., in packets, 3*s.* and 5*s.* 6*d* each.

CALCEOLARIA, CINERARIA, and PRIMULA SEED of first quality, 2*s.* 6*d.* and 5*s.* per packet.

FUCHSIAS.—Banks' Favourite, 10*s.* 6*d.*; Prince of Wales, 10*s.* 6*d.*

NEW RHODODENDRONS.—Boothi, Hookeri, Calophyllum, Kendricki, Eximium Windsori Leucanthum.

GYNERIUM ARGENTEUM (PAMPAS GRASS).—E. G. H. & SON having in their possession the largest stock in the country of this noble ornamental Grass, can supply free healthy seedling plants, which are superior to any other at 2*s.* 6*d.* each, 25*s.* per dozen, or 7*l.* 10*s.* per 100.

Wellington Nursery, St. John's Wood.

THE TRUE LANCASHIRE SHOW GOOSEBERRIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, can now supply 24 strong plants for 12*s.*, or 12 plants for 7*s.*, of the below-named GOOSEBERRIES, which are of fine flavour. Weights taken from the Gooseberry Grower's Register of 1855, viz.:

	dwts.	grs.		dwts.	grs.
London	30	5	Lady Leicester	22	16
Thumper	26	18	Random Green	22	15
Wonderful	26	14	Pilot	22	14
Conquering Hero ...	23	19	Railway	22	10
Slaughterman	23	13	Queen of Trumps ...	22	0
Catherina...	23	12	Gunner	21	22
Freedom	23	10	Roaring Lion	21	21
Companion	23	6	Lion's Provider	21	6
Leader	23	0	Goldfinder	21	1
Drill	23	0	Turnout	20	5
Napoleon	22	22	Broomgirl	20	0
Overall	22	22	Coppice Lass	19	10

Post Office Orders to be made payable at Middleton, Lancashire. Catalogues on application.

WATERER AND GODFREY respectfully invite the attention of parties engaged in Planting to their fine Stock of the following HARDY ORNAMENTAL TREES, &c.

Araucaria imbricata, 2, 3, 4, 5, 6, 7, and 8 feet high, in quantities, all stocky well grown plants; the larger sizes especially it would be difficult to match.

Cedrus Deodara, 1½, 2, 3, 4, and 5 feet, by the thousand; do. a fine lot of larger, 6, 7, and 8 feet; do. some magnificent Trees, 10 to 15 feet. These are all in a famous condition for Transplanting, having been annually removed.

Cedars of Lebanon, 3, 4, 5, and 6 feet; do. a few splendid Trees, 10 and 12 feet.

Cedars Rio Virginian, 5 to 8 feet.

Cedars, variegated white, 2, 3, and 4 feet, one of the handsomest variegated plants we know. We had a large stock. It is extensively planted at Elvaston Castle.

Cryptomeria japonica, fine plants, 4 to 7 feet.

Cupressus macrocarpa or Lambertiana, 3, 4, 5, 6, 7, and 8 feet. Nothing can be handsomer than some of the specimens of this fine hardy plant.

Juniper, Chinese, 2, 3, 4, and 5 feet; a fine lot of large plants, 6 to 8 feet.

Do. Irish, upright, 3, 4, 5, and 6 feet; do. larger, up to 8 and 10 feet. Our stock of the two last mentioned Junipers we believe to be quite unequalled, the Irish especially; the larger sizes are under perfect columns.

Do. recurva, 3, 4, 5, up to 8 feet.

Do. hispanica or thurifera, 2, 3, and 4 feet.

Abies Douglasi, 2, 3, and 4 feet. A fine lot of large and very handsome plants, 7, 8, 10, and 12 feet.

Picea nobilis, several hundreds of nice plants, 1½ to 2 feet, well grown, and with good lead. None are grafted. A few taller specimens up to 6 feet.

Do. Nordmanniana, a large quantity of remarkably handsome plants, 1½, 2, 3, and 4 feet. Nothing can exceed the vigour of these plants, and all from seed.

Do. Pinsapo, magnificent plants, 4 to 7 feet high, in perfect health.

Pinus insignis, 1½ to 3 feet; a few good specimens up to 7 feet.
" Lambertiana, from seed, 4, 5, and 6 feet.
" Cembra, 3, 4, 5, up to 10 feet.
" Montezumæ, fine plants, 4 and 5 feet.
" macrocarpa, 2 and 3 feet, from seed.

Weeping Larch, clean, stems good, heads 7 feet high.

The following 10 varieties form a very singular group. They are of dwarf habits; the well known Abies Clanbraziliana may be taken as the type of the whole. We believe our collection to be quite unique, and, we may add, most interesting.

Pinus strobus pumila (the dwarf Weymouth).
" sylvestris pumila (the dwarf Scotch).

Abies Clanbraziliana	Abies pumila	All dwarf varieties of the Spruce Fir.
" compacta	" diffusa	
" pygmæa	" Gregori	

Picea pectinata pygmæa (the dwarf Silver Fir), Hudsoni.

Yew, common English, 3, 4, 5, 6, and 7 feet, in large quantities.

Do. upright, Irish, 4, 5, 6, and 7 feet; some splendid plants, 8 to 12 feet.

Do. Dovaston or Weeping, a great many fine plants, worked on straight stems, 7, 8, and 10 feet high, with good heads.

Do. adpressa, 2 and 3 feet.

Do. do., worked on common Yew, as standards.

Do. gold striped, 1½ to 2 feet, by the thousand.

Do. do., a splendid lot of plants, 4 to 6 feet.

Do. do., worked as standards on the common Yew, 8 to 10 ft. high.

Do. do., worked on Irish Yews, 6, 7, and 8 feet high.

Do. elegantissima, or new gold striped; a large quantity, 1½ to 2½ feet, and also worked as standards on the common and Irish Yews. We may safely assert our stock of Golden Yews is unsurpassed.

Do. yellow berried (true), very beautiful when in fruit as we have it, 1½ to 3 feet.

Libocedrus chilensis, 2 to 3 feet, very handsome and bushy.

Thuja Wareana, fine bushes, 3, 4, 5, 6, and 8 feet. This is one of the most useful, and, at the same time, ornamental hardy plants we possess.

Do. American, for hedges, doubtless the very best, 4, 5, and 6 feet.

Do. aurea, or Golden Arbor-vitæ. This plant originated at this Nursery; it has now, as it deserves, become a universal favourite. Our stock of it enables us to offer a choice of many hundred fine specimens, from 1½ to 3 and 4 feet high, and as much through—in fact, perfect globes.

Wellingtonia gigantea, a few of the finest plants in the country, being near 1½ feet high, and as much wide.

Hollies variegated, by the thousand, 2, 3, and 4 feet high. Some splendid Plants, 10 to 15 feet high.

We may here remark with reference to the large specimens alluded to in this Advertisement that every one of them is in a condition to transplant, and travel any distance with perfect safety. They have one and all been annually removed in our Nursery, and in soliciting a personal inspection of our stock, we believe we are justified in stating it offers a choice which is to be found in but few establishments of its kind in this country.

The Nursery may be reached in 40 minutes by Train from the Waterloo Station: and the South Western Railway Company having a Branch on to the North Western, enables us to send plants to all parts, in trucks throughout, without packing and other extensive additions.

Knap Hill Nursery, Woking, Surrey.

W. NICOL, GARDENER, Rossyln House, Hampstead, begs to inform the public that he has arranged to send out his incomparable early Pea "OMER PACHA," through the eminent house of William Clark, Seedsman, &c., 25, Bishopsgate Street Within, the price of which will be, quarts, 5*s.*; pints, 3*s.*; prepaid either by postage stamps or otherwise. As the stock is very limited early application to Mr. CLARK would be advisable. W. N. begs to assert that the above Pea far surpasses in all good qualities every other in cultivation.

BERNARD SAUNDERS, NURSERYMAN and FLORIST, Cæsarean Nurseries, Jersey, respectfully informs Amateurs and Florists that he has a good Stock of Yellow and White-ground PICOTEES to offer for sale this season, at 2*s.* 6*d.* per pair, orders for which will be thankfully received and promptly executed. Also a small quantity of well ripened Seed of the PHORMIUM TENAX or NEW ZEALAND FLAX, at 2*s.* 6*d.* per packet of 60 Seeds.

BALUSTRADING FOR GARDEN TERRACES, executed in Austin's Artificial Stone, by J. SEELEY (late Austin and Seeley), Nos. 1 to 4, Keppel Row, New Road.

This work is of the same constitution as Portland Stone, and after a winter's exposure is hardly distinguishable from that material: it has been extensively used in Scotland for 20 years.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY, WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to SAYNOR & COOKE for their superiority of material and workmanship. Established 1738.

THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

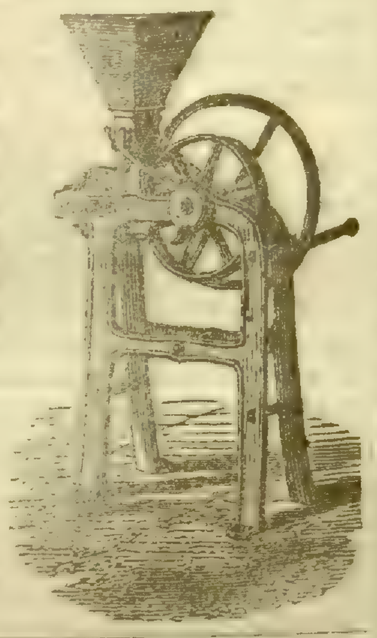
Hose Pipe of every kind for watering Gardens.

W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.

DO YOU BRUISE YOUR OATS YET?—One bushel of Oats when Crushed will make two. Great saving OAT BRUISERS, Chaff-cutters, Ploughs, Threshing Machines Flour Mill Carts, Corn Dressing do., Horse and Steam Machinery put up, &c. Book on Feeding, 1*s.*

M. WEDLAKE, 118, Fenchurch Street, London.

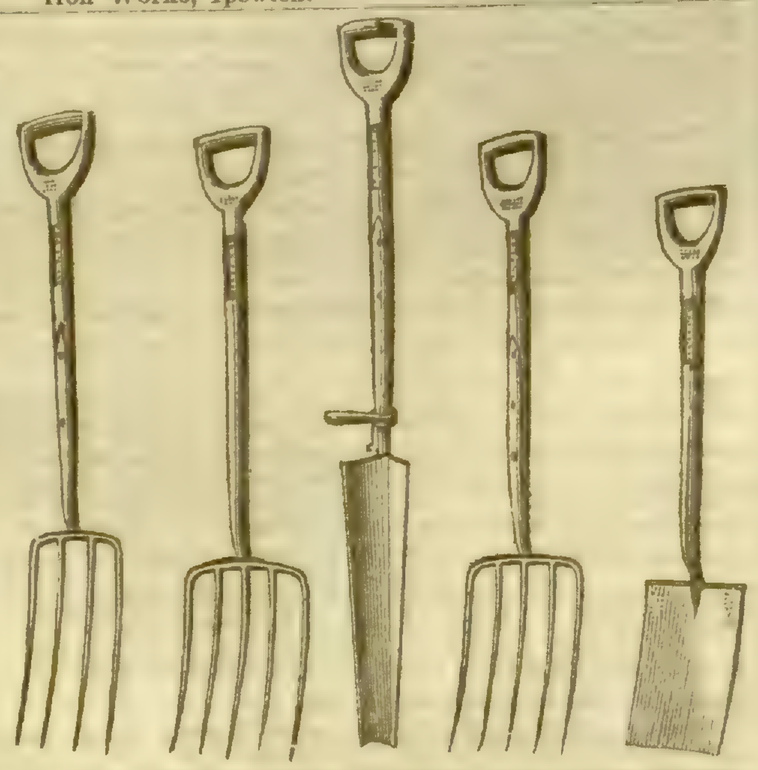
OAT-CRUSHING AND BEAN-SPLITTING MILL (TURNER'S No. 5).



This Mill is recommended to the use of every person keeping a Horse, as superior for efficiency, durability, and ease in working to any manufactured. Two bshls. of crushed corn afford more nourishment both to old and young horses than three bushels of uncrushed!

Price £5 15*s.* 6*d.*

Made and Sold by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

103, Newgate Street, London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.—In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12*s.* 0*d.*
7 " 5, — 7½ " 5½ }	0 14 0
8 " 6, — 8½ " 6½ }	
9 " 7, — 9½ " 7½, 10 by 6 }	0 16 0
10 " 7, 10 by 8 }	

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18*s.* per 100 feet. If cut to order not exceeding 40 inches long.

16 oz. from 2½*d.* to 3½*d.* | 21 oz. from 3½*d.* to 4½*d.*
26 oz. from 5½*d.* to 7½*d.*

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½*d.* per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	£1 17*s.* 6*d.* per case of	50
3/16 "	2 1 3 "	60
⅛ "	1 17 6 "	60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12*s.* 6*d.*; above, 16*s.* 8*d.* per box. FOREIGN SHEET, in 200 feet cases, 34*s.* per case.

PERFORATED VENTILATING GLASS from 1*s.* 6*d.* per foot. TILES and SLATES from 6*d.* each. MILK PANS, 21*s.* per dozen. HELY'S HAND CHURN, 5*s.* 6*d.*; WARING'S BUTTER SLABS, 10*s.* each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7*s.* per 100, and the New Aquarium, 10*s.* each.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in.	12*s.* 0*d.*
6½	"	4½	"	7	"	5	... ...	12 6
7½	"	5½	"	8	"	6	... ...	13 0
8½	"	6½	"	9	"	7	... ...	13 6
9½	"	7½	"	10	"	8	... ...	13 6
10½	"	8½	"	11	"	9	... ...	14 0
12	"	9	"	13	"	9	... ...	14 0
10	"	10	"	10½	"	10½	... ...	14 0
11	"	10	"	11½	"	10½	... ...	14 0
11	"	11	"	11½	"	11½	... ...	14 0
12	"	11	"	12½	"	11½	... ...	14 0
13	"	11	"	13½	"	11½	... ...	14 0
13	"	12	"	13½	"	12½	... ...	16 0
13½	"	13½	"	14½	"	13½	... ...	16 0
15½	"	13½	...	...	...	...	... ...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.		Inches.		Per foot.		Per 100 feet.
	Under 6	by 4	at	1½*d.*	is	£0 12 6
From 6 by 4	" 7	" 5	"	2*d.*	"	0 16 8
7 " 5	" 8	" 6	"	2½*d.*	"	0 18 9
8 " 6	" 10	" 8	"	2½*d.*	"	1 0 10
10 " 8	" 12	" 9	"	2¾*d.*	"	1 2 11

Larger sizes, not exceeding 40 inches long.

16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. " 3½*d.* to 5*d.* " " "
26 oz. " 3¾*d.* to 7½*d.* " " "

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to JAMES HETLEY & Co., 35, Soho Square, London.

TO FLORISTS AND OTHERS.

J. JONES, IRON MERCHANT, has always a great variety of CYLINDRICAL and SADDLE BOILERS in stock, also Fire and Furnace Bars, Supply Cisterns, Double Doors and Frames, Furnace Grates, Soot Doors, Hot-water Pipes, Elbows, Tees, Syphons, Throttle Valves, Stop Cocks, Flange and Socket Elbows, &c.; also Trough Pipes.—Drawings and Prices of the above, or estimates given for the work fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London near the Southwark Iron Bridge.

ECONOMY OF FERMENTATION.

BUSHE'S PATENT ROOT GRATER, manufactured by FOWLER AND FRY, Temple Gate, Bristol, entirely supersedes the necessity of Cooking Turnips, Mangold, and other Roots; it effects a saving of 30 to 40 per cent. of the Roots, besides that of fuel. Price 3*l.* 10*s.* Printed testimonials and directions may be obtained gratis by applying to FOWLER & FRY, Bristol, Licensed Makers of CORNE'S Patent Chaff Cutters and General Agricultural Implement Makers and Dealers. The Root Grater may also be seen in the Agricultural Department of the Crystal Palace, Sydenham.

NEW ROSES.

WILLIAM WOOD AND SON have again much pleasure in recommending their beautiful Seedling Rose, the Perpetual DUCHESS OF NORFOLK; the colour is a very rich vivid crimson, the underside of the petals shaded with lively pink, giving the flowers an exquisite shell-like appearance.

Price for Standards, or Dwarfs, 3*s.* 6*d.* each.

Williams' Evergreen Climbing Rose, 1*s.* 6*d.* each—This Rose is a seedling from the Ayrshire Splendens fertilised with the Yellow Tea Rose; its flowers are creamy white, deliciously sweet-scented.

N.B. The New Rose Catalogue and Supplement may be had on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

TRAINED FRUIT TREES.

WILLIAM WOOD AND SON have much pleasure in recommending their very extensive and superior stock of Dwarf two-years-trained PEACHES, NECTARINES, and APRICOTS, which they feel assured cannot be excelled. The trees are remarkably healthy, and furnished with well ripened shoots; they will be supplied at 60*s.* per dozen.

Pyramidal Pears on Quince stocks, per doz.	...	24*s.* 0*d.*
Pyramidal Plums, extra fine do.	...	20 0
Pyramidal Apples, do. do.	...	16 0

Catalogues forwarded on application. Extra plants presented with each order, to compensate for distant carriage.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ROSE CATALOGUE, ETC.

MESSRS. LANE AND SON, NURSERIES, Great Berkhampstead, Herts, beg to inform their patrons that the undermentioned descriptive CATALOGUES may now be had. General Rose, Tree and Shrub, and Fruit; also of Azalea Indica, Camellia, Hollyhocks, &c.

The Hardy Rhododendrons are fine; the Araucaria imbricata, Cedrus Deodora, the Pinus, with all other Evergreen and Deciduous Plants, are remarkably healthy, forming fine specimens, giving immediate effect, and well worthy the attention of Planters.

A NEW SEEDLING APPLE FROM THE RIBSTON PIPPIN.

STEPHEN SHILLING begs to offer to gentlemen and the trade Trees of his entirely new Apple named OMER PACHA, it being a first-rate hardy grower, strong compact habit, early and productive bearer. Fruit excellent flavour (dessert), ripe in November, keeps until May. Respectable testimonials given from those who have tasted the fruit. Strong plants supplied at 5*s.* 6*d.* each, or 60*s.* per dozen. The usual discount to the trade where one dozen or more are taken. Early application is requested as the stock is limited; all orders carefully and promptly attended to. Fruit of the above can be seen at the office of the *Gardeners' Chronicle*, the British Pomological Societies' Rooms, 20, Bedford Street, Covent Garden, Messrs. Nutting & Son, 46, Cheapside, Messrs. Sutton & Sons, Reading, Mr. C. Turner, Royal Nursery, Slough, and at the North Warnborough Nursery, near Odiham, Hants.

NEW PHLOX, PANSIES, & PENTSTEMONS.

DOWNIE AND LAIRD, NURSERYMEN & SEEDSMEN, 17, South Frederick Street, Edinburgh, beg to intimate that they are now sending out their new Phlox Countess of Home, figured in Turner's "Florist" of December last; it has been awarded First Class Certificates at the Royal South London Floricultural Society on August 30, and the National Floricultural Society on Sept. 6, and is unquestionably one of the finest Phloxes yet raised; white, with distinct dark crimson centre, form perfect, grows to the height of 2 feet. Price 5*s.* each, or to the trade, 30*s.* per dozen, and may be had of the principal nurserymen in England or Scotland.

D. & L. are also prepared to send out the following new Pansies and Pentstemons, which they warrant to be first-class flowers. Pansies: Annalla (D. & L.), glossy black self, pure white brow, large, and of extra fine form, 5*s.* each; Jeannie, (D. & L.), dark self of the richest texture and finest form, with a circle of blue round the eye, first-rate show flower, 5*s.* each; Mrs. Dundas (D. & L.), cream and deep purple blotch, large and fine form, 3*s.* 6*d.* each. Pentstemon M'Nabiana, ruby scarlet, grows to the height of 2 feet, stem strong and erect, free bloomer, 5*s.* each; Pentstemon purpurea magnifica, large purplish blue with a white throat, grows to the height of 2½ feet, free bloomer, 5*s.* each. The above two beautiful varieties are in the way of Purpurea hybrida, but quite distinct in colour, and will be found a great acquisition.

PLANTING SEASON.

JOHN CATTELL respectfully invites an inspection of his extensive Stock of Fruit, Forest, and Ornamental Trees and Shrubs, American Plants, &c., &c., consisting of the most esteemed varieties of each kind of Fruit Trees in standards and dwarfs, trained and untrained. Also the best varieties of Gooseberries, Currants, Raspberries, Strawberries, Filberts, Spanish or Kentish Cob Nuts, &c. A general collection of Evergreen and Deciduous Trees and Shrubs, Coniferæ, &c.

The American Plants are particularly well grown, containing selections of the richest and most distinct varieties of Ghent and other Azaleas, Sikkim, Hybrid Scarlet, and other Rhododendrons. The Andromeda floribunda and Kalmia latifolia are remarkably fine. Roses are also extensively and well grown; the collection contains all the newest and most select of the older varieties. Priced Catalogues of the various descriptions of stock are now ready, and may be had on application.

NEW PORTUGAL LAUREL.

CERASUS LUSITANICUS MYRTIFOLIUS.

JOHN CATTELL has much pleasure in informing his patrons and the public that after the 1st of November he will be prepared to send out plants of this very desirable new hardy Evergreen; the habit of growth is quite upright, like a Bay, and the whole plant is densely covered with beautiful shining leaves. As a single specimen it is quite distinct from any other hardy evergreen.

Strong Plants, 3 years old, 7*s.* 6*d.* each	80*s.* per doz.
Do. do., 2 years do., 5*s.* each	50*s.* per doz.
A few extra strong Plants	10*s.* 6*d.* each.

Nurseries, Westerham, Kent.—Nov. 3.

WATERER'S AMERICAN PLANTS.—A new DESCRIPTIVE CATALOGUE is now published of the celebrated Collection of hardy Scarlet and other Rhododendrons, as exhibited by JOHN WATERER at the Royal Botanic Gardens, Regent's Park; it will be found to contain a few practical observations on their successful management, and will be forwarded on application by enclosing two stamps for postage. Apart from its enumeration of the most popular American Plants in cultivation, a List of choice Coniferæ will be seen, embracing the latest importations of this fine and hardy tribe of Plants.

J. W. has now the pleasure to offer in large quantities, and of all heights, the following selection of CONIFERS, with the remark that they are all now growing in the open ground, are bushy and handsome as can be desired, and have been transplanted each succeeding spring, whereby no risk can be encountered in their removal from the nursery:—Araucaria imbricata, Cryptomeria japonica; Pinus Douglasi, Cembra, excelsa, Lambertiana, insignis, Jefferyana, Beardslevi, tuberculata, &c.; Cedrus Deodara, Lebanon, and Africana; Wellingtonia gigantea, Cupressus, Juniperus, Taxus, Thuja, &c.

☞ The attention of gentlemen, public companies, and others engaged in planting, is especially directed to the foregoing; indeed, all intending planters would be well repaid by a visit to inspect our stock, as much may be seen which of necessity cannot be given within the limits of an advertisement.

The Nursery is easily reached by railway, being near the Farnborough Station, South-Western Railway, and Blackwater on the South-Eastern Railway.

The American Nursery, Bagshot, Surrey.

FRUIT TREES IN POTS.

H. LANE AND SON offer the following Fruit Trees in Pots, well set with bloom buds, consisting of Apples, Apricots, Currants, Figs, Gooseberries, Nectarines, Peaches, Pears, Plums. Also a fine assortment of the finest Vines from eyes, and Strawberries for forcing; dwarf-trained Cherries, Nectarines, Peaches, Pears, Plums; standard-trained Apricots, Nectarines, Peaches, Pears; pyramidal Apples and Pears; standard Apples, Cherries, Pears, Plums; also Currants, Gooseberries, &c.—The Nurseries, Great Berkhampstead.

WHEAT FOR WINTER SEEDING.

WILLIAM BARNES invites the attention of his patrons and friends to that well-known and much esteemed species called the OLD LAMMAS or Winter Wheat, and which he warrants the true original without admixture of any sort, and perfectly clean. This Wheat has been grown by himself on light black soil, and the character of it remains permanent, having no tendency to degenerate or liability to disease. It may be sown on the coldest description of clay and heavy land, and as late as the last week in December with the almost certain prospect of affording a good return.—For further particulars, address WILLIAM BARNES, the Elms Farm, Spalding, Lincolnshire.

J. R. AND A. PEARSON, Chilwell Nurseries, near Nottingham, beg to offer the following:—

Collections of first-rate CARNATIONS and PICOTEES, 12*s.* per dozen pairs.

The finest summer ROSES, show varieties, 21*s.* to 42*s.* per 100, own roots.

PERPETUAL ROSES, grafted on short stems, one foot in height, 12*s.* per dozen.

RHODODENDRONS, the finest in the country, 30*s.* per dozen varieties, all hardy.

AZALEAS, a selection of the best hardy kinds, from both the Continent and the best English growers, 24*s.* per dozen, all own roots. ROCK PLANTS, 6*s.* per dozen.

NEW HARDY PLANTS.

A. VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer the following New HARDY PLANTS:

RHODODENDRON MADAME WAGNER (hardy) ...	15*s.* 0*d.*
" PRINCE CAMILLE DE ROHAN (hardy) ...	7 6
WEIGELIA MIDDENDORFI.—N.B This splendid Weigelia has been sold already *twice* under wrong names. The one I offer here is *warranted the true species.* Good Plants each	12 0

A. VERSCHAFFELT begs to inform Amateurs and the Trade that he has just published a new PLANT LIST, containing the English and Continental Novelties.

His Catalogue may be obtained on application of his Agent, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 3, 1855.

IT is hardly possible to exaggerate the importance, as regards the successful cultivation of exotic plants, of correct notions as to the immense varieties of CLIMATE which exist in tropical countries, even in contiguous provinces, and of the causes on which those differences depend. The cultivator, indeed, is for the most part well aware that a totally different vegetation occurs at great heights, from that which is found on the lower portions of the same mountains, where it approximates to or is identical with that of the plains. He knows, too, that in different latitudes the heights at which alpine forms commence is different, and he is prepared to a certain extent to make the necessary allowance. When, however, the information he receives is limited to an indication of the particular province from whence an individual species may come, he is quite at a loss, and can only act upon general notions of the temperature required by plants from a certain quarter of the world. Suppose, for instance, India be the country in question, the commonly received notion of the climate is confined to great heat at one time of the year and a deluge of rain at another, though independent of the particular height above the level of the sea at which any district may be situated there are infinite varieties of climate, ranging from perfect drought to a rain-fall of which we can form no conception, and that accompanied by very different hygrometric conditions of the atmosphere. A range of hills if high enough will condense the greater portion of the moisture brought by gales from the sea, so as to impede its further progress except where there may be depressions in the chain low enough to admit of the passage of any considerable quantity of air, insomuch that while on one side the rain-fall may be counted by hundreds of inches, that on the other will be reckoned by time, and under certain conditions the most arid districts may be separated by a few miles only from one remarkable for humidity. The truth, however, is that such local details are scarcely to be met with except by wading through a vast variety of books, which are quite beyond the general range of the cultivator.

It was therefore with much pleasure that we perused the introduction to the first volume of HOOKER and THOMSON's *Flora Indica*,* a work which should be in the hands of every intelligent cultivator, in which the climate of the whole of India taking it in a very wide sense, so as to extend from Affghanistan to the Malayan Peninsula, is discussed with an amount of detail and intelligence which is not anywhere surpassed, and which reminds one of the most lucid expositions of HUMBOLDT. Nor are these the only merits of the volume. The geographical details themselves and the map illustrative of them, together with the explanation of the author's notions of the general formation of the vast Himalayan range—principles which may be applied with profit to correct the crude notions of geographers in other countries—afford at once general conceptions of a vast territory which could scarcely be formed before, and a starting point from whence important improvements will we have no doubt arise hereafter.

In a merely strict botanical point of view the work is calculated to be of infinite service. The extensive travels of the authors themselves through India, and the vast mass of materials which has passed through their hands, has enabled them to give an account of the geographical distribution of the plants of India and their connection with European, African, Siberian, and Australian forms which would have been absolutely impossible to any previous writers on the subject, and has a most important bearing on many geological arguments. The loose notions, again, which prevail on the limits of species, and the reckless way in which multitudes of useless names are daily inflicted on science, from imperfect materials, or from an inability to perceive that differences do not necessarily indicate distinctions, is matter of regret to every intelligent naturalist. The authors have in consequence not only enunciated their opinions on the subject in a manner not to be misunderstood, while they have exposed by pertinent instances the prevailing evil to which we have just referred, but have put their views in practice in the specification of the 15 natural orders which are comprised in the remainder of the volume. The mode in which these are treated is a model which may well be adopted by future botanists, embracing not simply the correct definition and limitation of species, but discussions of the greatest interest with regard to structure and affinities. The general observations, for instance, on Menispermads and Nymphæads will be read with advantage by the most practised botanists, and will be found highly suggestive. The anomalous structure of the stem in either order is discussed with a fullness and intelligence which make one regret that the portion of the Flora which have come under the authors' hands is at present so small. The vexed question of the affinities of the Water Lilies is decided in favour of their being true members of the great division of Exogens, on a full consideration of their structural peculiarities; and it may be added as a corroboration of their views that the germination of Limnanthemum as observed by GRIESBACH is almost identical with that of Nymphæa.

It is very unfortunate that the East India Company was not induced at the suggestion of the British Association to promote this work, either by a liberal pecuniary grant or a large subscription. The completion of it in its present form, all important as it is to the interests of India as well as of science in general, is scarcely possible with mere private resources. Their promise to take its merits into consideration on its completion would scarcely have been made if they had been really aware of the difficulties which lay before the authors. We still, however, hope now that the first volume is brought under their notice, they will reconsider the question, and insure if possible the continuation of a work which is admirably begun, and would reflect honour upon their patronage.

OF the value of LIQUID MANURE to crops in a growing state no one can entertain a doubt, but the best mode of applying it is a subject open to discussion. The usual practice, we need not say, is to water the surface of the ground with it among the plants it is intended to benefit; but this is objectionable in more ways than one. In the first place a portion of it when thus applied is wasted in evaporation under the influence of a powerful sun, and from being used where it affords no nutriment to the crops; and, in the second place, besides its being unsightly on the surface of the soil, which it bakes and hardens, and renders impervious to air, it is alleged to be injurious to health from the noxious odours which arise from it, more especially during the hot weather of summer, when its application is of most importance. This last objection was that which caused our great market gardeners to give up the use of London sewage in the Fulham fields, and to employ clean water in its place.

Mr. WILKINS of Walworth, however, has recently patented a plan for distributing liquid manure, which seems to obviate these objections, and from the glowing accounts of this system and its results, furnished by one of our correspondents last week, (see p. 709) we have been induced to visit that gentleman's experimental garden at Reading, where

* *Flora Indica; being a systematic account of the Plants of British India, together with observations on the structure and affinities of their natural orders and genera.* By J. D. Hooker, M.D., F.R.S., and Thomas Thomson, M.D., F.L.S. Vol. 1, 8vo., pp. 285. Pamplin. With Maps.

the plan is being carried out, in order to judge for ourselves.

The ground in question lies close to the railway station, and is certainly well worth inspection. Mr. Wilkins's mode of applying liquid manure is to give it to the roots of plants under ground instead of using it on the surface. He prepares his manure in a covered tank similar to a tanner's bark liquor pit of a size proportioned to the quantity required. This tank has a false bottom, placed at from 1 to 2 feet from the bottom of the tank, and pierced with numerous small holes. Into this tank is thrown a quantity of solid manure, such as road sweepings, dung from stables and cow houses, and all refuse animal and vegetable matters. The tank is then filled up with water which, in passing through the manure, gets impregnated with its qualities; this liquid descends through the perforated false bottom, and thus, as it were, strained and cleared, is pumped up into a tank on a higher level, to give it a fall into a pipe which conveys it to the beds in which the crops operated upon are growing.

The ground on which this experiment has been tried is laid out in beds 3 feet in width, and divided into equal lengths by a walk, on one side of which the beds are irrigated on Mr. Wilkins's principle, while on the other they are not. The different crops may therefore be compared with facility. The beds, on what is called "the new system," are prepared as follows:—The earth is dug out to the depth of about 2 feet. In this excavation a water-tight bottom is formed of bricks, with sides of the same from 4 to 6 inches high, to prevent the liquid from running over until the earth has absorbed it. Upon this bottom is put one row of half-drain tiles, running the whole length of the beds—loose and not jointed. At the end of each bed an admission-pipe for the liquid slopes from the surface to the end of each row of drain-pipes just mentioned, and at the other end of the bed is an upright round earthenware pipe, to indicate at what height the liquid stands in the bottom of the bed. When it is found to be 4 inches in depth the supply is cut off. The bottom being formed as just described, the soil is filled in as before and proceeded with as in ordinary gardening. It has been contrived by means of one gutta percha or common gas-pipe, with arms to each bed, and furnished with a stop-cock to shut the liquid off or allow it to flow as may be required, to manure the whole of the beds at once. The liquid passes along their entire length, and rising through the small spaces between the drain-pipes feeds the plants; the bottom being watertight none of it is permitted to run to waste, and by means of a cock or plug at the end of each series of pipes the supply may be drawn off when desired. This is the arrangement in the model garden at Reading.

That this system of applying manure is productive of extraordinary results no one who has seen Mr. Wilkins's crops will for a moment doubt. But how, let us inquire, could it be otherwise? The plants are supplied with an abundance of food in a condition best fitted for their wants, and where they can most readily avail themselves of it, viz., at the tips of their roots. Besides, during the hottest weather and times of drought, they have always a supply of moisture, which keeps them growing while other crops not so favourably situated are either perishing from want of water, or are at least comparatively inactive. Under such circumstances can it be wondered at that the manured beds have yielded, as all of them have done, more than double the produce of similar beds planted with the same crops; but managed in the ordinary way. Celery, now to be seen in the ground, is much larger and finer than that not treated on Mr. Wilkins's plan, and beautiful Potatoes have this year been produced in sand, poor earth, and sawdust alone, all reported to have been quite free from disease. One tuber planted in pure sand has produced 94 Potatoes, while two sets in the same material under the old system only furnished 77 Potatoes. One plant of Ash-leaved Kidney in sawdust has yielded 26 tubers, weighing altogether 3½ lbs., while a plant in the same material, but irrigated with manure, has produced 101 Potatoes, weighing in all 24 lbs. One red Mangold Wurzel, under the new system, weighed 14 lbs. 14 oz., and measured 23 inches in length, and the same round, while the same description of root, under the old system, only weighed 5 lbs. 10 oz., and measured 13 inches in length, and 19 inches in circumference. So likewise with Carrots; under the new plan one weighed 1 lb., while the best from a bed under ordinary culture weighed only 7 oz. Swedes and Kohl Rabi have also nearly doubled their usual size, as also have Hemp and Flax. Lucerne and Italian Rye-grass have afforded five cuttings in the season, while that to which no liquid manure was given only yielded two cuttings. Hops, both cuttings and yearlings, are bearing a full crop from top to bottom, while the same kind of plants without manure have not made half the growth, and have no Hops on them at all. Of two Vine cuttings, both planted at the same time, one in a manured bed, the other not, the one fed with the liquid is about 15 inches high, while that which had no such encouragement is scarcely 4 inches in height—and the same holds good in regard to other crops.

Mr. Wilkins, in short, professes to show how the produce of light land, be it ever so poor, can by his plan be very greatly increased, and that in certain instances, not only may two crops be grown where only one has before been produced; but that good crops may be obtained from soils that had previously been considered all but worthless. It will be seen that the experiments above recorded, as far as they go, bear out this statement provided the outlay is, as Mr. Wilkins asserts, one to be not only covered by the produce, but actually productive of profit.

We understand that a company is being formed to give the system a fair trial. That wonderful crops might be grown by it we are certain; but its cost appears to us to be against its general adoption. Bricks for bottoming the beds are dear, we doubt if it would even pay to employ a cheap concrete on a large scale for the purpose, to say nothing of other objections to which we may advert hereafter. In the meanwhile the subject deserves the attention of those who have the means of putting it into practice.

We may add that although Mr. Wilkins's process is patented yet that he gives ample encouragement to the poor allotment holder and cottager to employ it; for he states that either of these renting a cottage and garden at not more than five guineas per annum, may use the patent for their gardens at 1*d.* a-year.

Why do Pears and Apples crack, and put on the appearance of rifted bark? That question we shall endeavour to answer in the following memorandum. People little suspect that this ruin to their crops is one more example of the enormous injury inflicted upon plants by parasitical fungi.

Both Pears and Apples are extremely subject to be attacked by a parasitic fungus, which produces black unsightly spots upon the fruit, rendering them almost unsaleable, and ultimately inducing decay from the rupture of the cuticle, and the consequent exposure of the subjacent tissues. The fungus is known under the name of *Spilocæa Pomi*, but we may observe that it has no pretensions to rank as a distinct genus, and is in fact a mere form of the *Helminthosporium Pyrorum* which is often so abundant on the leaves of Pears in autumn, and is so destructive to the young shoots. Specimens of Pears so affected have just been forwarded to us by the Marquis of Huntly, with a view to the suggestion of some remedy, and we think that the identity just mentioned indicates the probability of its yielding, like other cases of mould, to the application of sulphur. In order, however, that this may be effectual, the intelligent cultivator must anxiously watch for the first indications of the disease, which commences sometimes very shortly after the fruit is set. There is the greater necessity moreover for an early application, because the fungus is very insidious in its attacks, and on the fruit at least, is in the first instance developed beneath the true cuticle, insomuch that if it is to be arrested effectually the evil must be attacked before the first spores are perfected.

The beneficial effects of the application of sulphur in this case are at present doubtful, because it does not necessarily follow that inasmuch as sulphur acts destructively on white moulds it should have the same results with those dark coloured species which have very different affinities. It is, however, worth a trial, and the evil is so destructive, that we doubt not that it will be put to proof next year. With proper precautions and intelligence on the part of the cultivator we have little doubt as to the result.

It may be useful to add a few words to this notice relative to the fungus itself. We have just said that the *Spilocæa* is identical with the *Helminthosporium*. But it appears further, from the observations of M. Desmazières, that it is nothing more than the *Cladosporium dendriticum*, Waller., and that when it grows on the leaves of Service or Apple, it becomes the *Actinonema Cratægi*, P. & A. *Pomi*, Lév. Other synonyms might yet be added, and amongst them that of *Phlyctidium Cratægi*, Waller. This is a specimen of what the cryptogamic botanist has to contend with every day, and is but a sample of the state of botany in other branches. There is, however, a hope of better things before us. The leading cryptogamists are every day exerting themselves to eliminate the host of false species with which they are oppressed, and we shall be greatly disappointed if the example of Dr. Hooker and Dr. Thomson in their "Flora Indica," does not lead to a complete reformation amongst phænogamists. *M. J. B.*

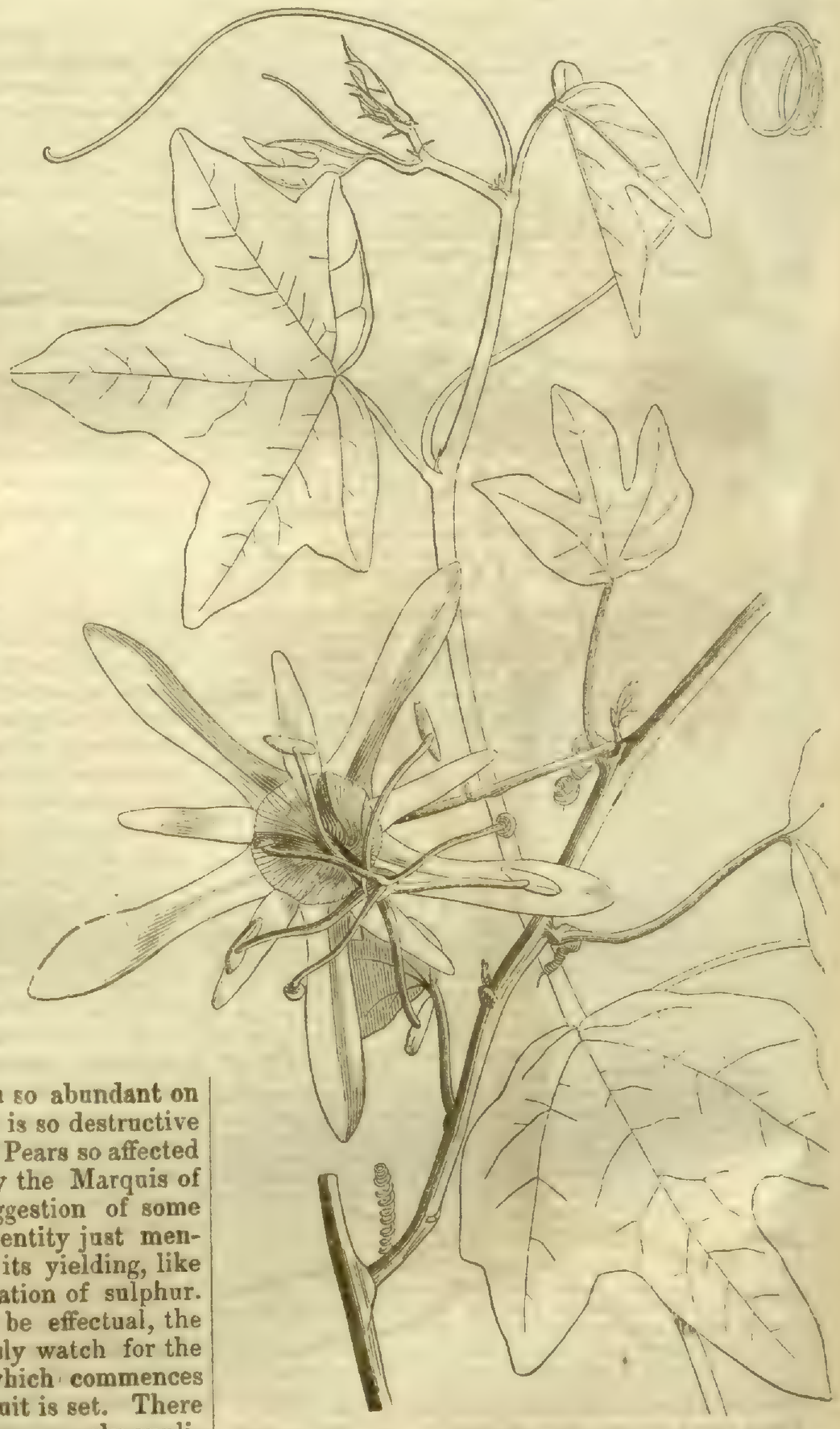
Erratum.—In p. 707, col. *c*, for "Black Italian Poplar" read Lombardy Poplar.

New Plants.

146. Passiflora cinnabarina.

P. *cinnabarina*; (Disemma) foliis trilobis palmatisque tenuibus lobis ovatis, petiolis eglandulosis, coronâ exteriore quam interior plicata densa villosa multò longiore.

This very pretty species was discovered in New Holland by Lieut.-Colonel Sir Thomas Mitchell, the distinguished Australian traveller, who gave seeds of it to the Horticultural Society. As it has been extensively distributed from the Chiswick Garden some account of it will be useful. It is a graceful bright green climber, with thin half transparent leaves, which are mostly 3-lobed, but occasionally palmate, and having slender



stalks entirely destitute of glands. The flowers grow singly on weak wiry stalks, and are of a dull red colour except the coronet which consists of yellow threads converging into a cone and concealing a second coronet which is plaited, thick, and shaggy. The fruits are like yellow Plums, have a distinct perfume like that of a ripe Melon, and form a very beautiful appearance while hanging in profusion from branches trained over the rafters of a greenhouse, which is all the shelter it requires.

VEGETABLE PATHOLOGY.—No. XCIV.

376. Hypertrophia* (*Excessive development*).—The main end of vegetable life is the securing the production of perfect seed for the propagation of the species, or of some other subsidiary mode of increase by buds, bulbs, &c., where the production of good seed is difficult of accomplishment. These latter formations are in many cases perfectly normal, and cannot be considered in the light of morbid phenomena. But besides these more immediate provisions for vegetable growth, deposits of nutritive matter are laid up in the common tissues, or in more or less modified organs, sometimes years before

* From ὑπερ excess, and τροφη nutriment.

they may be wanted for actual use, either to carry on the growth of the plant more vigorously after a season of rest, or to insure such a stock of active vitality at some future period as may be necessary to the profuse production of fruit, which in due season is usual in many trees. Such deposits take place in different parts both of herbaceous and ligneous plants, and under certain circumstances the growth of these is promoted by the cultivator to effect certain ends which are more profitable to him than if the plant went through the usual series of processes, without any deviation from the normal course. It is rare moreover that one organ can be nourished excessively without deterioration or suppression of some neighbouring organ, and in consequence such plants may never produce perfect seed at all, or only in small quantities. It is to this tendency to lay up nutriment for future use in particular organs to which the cultivator has had recourse in the production of so many of the valuable productions with which our gardens and orchards are stored; and though doubtless such plants are, in a certain sense, in a diseased condition, they answer his purposes so well that his object is rather to cherish the disease than to suppress it.

377. Hypertrophy is not, however, always harmless. It may arise from more causes than one, though in general it is essentially constitutional. Perfect fruit is for the most part produced only where the several organs of which the flower is composed maintain their normal proportion to each other. This may and does differ in different plants. The petals may be suppressed in consequence of the unusually great development of the sepals; or a large portion of the stamens may pro-

duce no anthers, and so on of other cases. Still if the usual proportions are maintained, the proper quantity of pollen grains and ovules will be perfected, and impregnation will take place, ending in the production of good and abundant seed. But if any organ undergoes a degree of development foreign to the particular species, the others will suffer, and the result will be abortive. Every organ is in turn liable to hypertrophy from purely constitutional causes; and even after impregnation has taken place, parts of the ovule may be so highly developed as to prevent entirely the perfection of the embryo. The multiplication of the various organs, and the accompanying hypertrophy in double flowers afford familiar instances, as does the swelling of the upper part of the funiculus in Gourds and other Cucurbits, which is sometimes so excessive as to form a sort of false arillus.

378. Hypertrophy is sometimes however of a more general character, affecting the whole plant, and producing distortion or a total change of habit and character. This often arises from the irritation produced by fungal growths or insects, and will be treated of when we come to the consideration of the effects produced by parasites. It may exist however without the presence of any parasite, and be as strange as regards the forms which the several organs assume. One of the most curious with which we are acquainted is the Pelargonium figured in the *Gardeners' Chronicle*, 1850, p. 579, and reproduced in the shape of the annexed cut.

It first made its appearance in the gardens of the Horticultural Society of London. The stem was swollen and made only imperfect attempts at the formation of leaves. As these swellings increased it was found that the cellular matter of the stem was excessively developed, assuming on the surface a warty or tuberculate appearance; that the warts were of a great variety of sizes, all tapering to a sharp point, some divided into two plano-convex parts, and a few supported by minute stunted leaves. The plants were feeble in their growth, made little progress, and gradually lost their leaves. Both cuttings and old plants were attacked. By degrees the fleshy masses rotted off, but the plants remained unhealthy during the rest of the summer. It does not appear that these excrescences were true galls, though the plants where they did not perish ultimately recovered to a great extent their normal condition.* *M. J. B.*

MEMORANDA

Intended to show some instances in which the agency of man has been brought into play in the production of plants, of insects, of birds, and also on a more extended scale, on localities and on climates; and to show that however these effects may appear permanent, they originate in taking advantage of those laws to which the Almighty Power has subjected all alike—plants, insects, animals, localities, climates, and man himself.

FIRST—OF PLANTS.

1. When quartered in Canterbury prior to 1812 the following fact was pointed out to me as occurring on chalk. Wherever the Grasses had gained the ascendancy over the White Clover, the farmer had only to broadcast with coal ashes to restore to the Clover the superiority it had lost, and that this superiority continued about three years when the Grasses over-topped the Clover, which shrunk into insignificance.

This effect appears to be principally due first, to the form of the plants: *a*, The leaf of the Clover, is broad; *b*, The leaf of the Grass, is narrow. They both act as condensers of moisture, with which they supply the centre *c*, the seat of life.

Wherever the Clover can spread itself and can gather moisture in sufficient quantities for its supply, its broad leaf outspans the narrow leaf of the Grasses, but as soon as the Clover has an insufficient supply of moisture then the narrow leaf of the Grasses overtops and extends beyond it, and as before said, the Clover sinks into insignificance. Secondly. This influence is due also to the hygrometical quality of the coal ash. This substance absorbs much of that moisture in rainy or damp weather, which is too great for the action of the leaves, and thus acts as a reservoir, which retains moisture, about the centre of both plants. The comparative superiority of the two shows plainly in which the supply has been deficient. The result proves that that deficiency is made up. Thirdly. Some portion is due, probably, to the mechanical effect of the coal ash, by rendering the surface soil better fitted for the expansion of the roots of the Clover; and, fourthly, something is due to the chemical decomposition of the coal ash; but the two last are not of consequence in this instance where the object is to show that the farmer in Kent, on chalk, can at his pleasure influence the production and the reproduction of white Clover. In this case the Clover sinks into comparative insignificance, but—it remains—it exists.

2. I was quartered at Christ Church, Hampshire, in 1815. The barracks are situated on a small plain, a deposit from the sea, where the surface soil rests upon sand, but is so superficial as only to admit of a ridge (?) of 4 inches. It so happened that the first crop of a stranger was on the ground; this man laughed at the caution of the natives, and set his share at least 6 inches deep. The result was a most abundant crop of that noisome stinking weed Charlock. So vigorous was it, that there was scarcely a trace of Turnips, of which the ordinary quantity of seed had been sown. The farmers (the natives as he called them) said, that he had turned up the seeds of this most noisome weed which they had overcome by dint of weeding, and this in spite of their warning. Here the Charlock was only buried, and awaited its day.

3. In the seaboard parts of Virginia, U. S., N. America, there is a vast tract of sand, nearly on a level with the sea. It is the region of the mist; scarcely any kind of tree is found to exist here except the Yellow Pine, which fairly luxuriates, and is the lord of the ascendant. Here, as elsewhere, the Pine tree is the child of the mist; here, as elsewhere, it stretches up its arms to catch the dews of heaven; and here the Yellow Pine avails itself of the peculiar state of the district under the influence of the Gulf stream to riot both as to multitude and dimensions. But as the country becomes more elevated, and is, or has been, covered by the Yellow Pine, the following facts occur. When from any cause the Yellow Pine is removed, a species of Pine, resembling the Scotch Fir, replaces it; if these are cut down they are replaced by the White Cedar, and should the Cedar be removed Hickories, Oaks of many kinds, Chesnuts, &c., in all at least 20 different species, spring up. All trace of the original Yellow Pine is lost, to a superficial inquiry, and the whole natural productions appear changed. Such is the change produced by the plough and the axe in the hands of man; but neither the Yellow Pine nor the Scotch Fir nor the White Cedar are destroyed, but each, in turn, has been the tyrant of its day, and each in its turn has sunk into insignificance as the situation has become more suitable to others, and less favourable to itself.

4. Instances occur daily of the production of new plants in localities by turning up deep cuttings on railroads, &c.; but the instance which occurred on the return of Col. Fitzclarence (afterwards Lord Munster) from Judæa, by way of Egypt, will suffice for this division of the subject. In this instance he brought home a bulbous root which was found in the hand of a mummy. The mummy was proved to have rested in its tomb upwards of 2000 years. After his arrival in England the bulb grew, but whether it came to perfection I know not. It is sufficient that the vital power existed, after having been arrested, and suspended for at least 2000 years, and that it was called into activity by the accidental circumstance of having been taken from its place of repose by a man, and having been exposed to treatment calculated to arouse suspended vitality. To sum up, we have here vitality which had been suspended for 2000 years in the plant restored by the agency of man. We have the Yellow Pine made to give place to the Scotch Fir, the White Cedar, the Hickory, &c., in succession by the plough and the axe of man. We have the Charlock brought into activity by the wilful stupidity of man, and we have the White Clover made to alternate with the Grasses at the will of man. *C.*

(*To be continued.*)

* I raised this year from seed a very curious Pelargonium, with extremely laciniated crisp and variegated leaves, and a compact dwarf habit. The constitution, however, was so weak that I was unable to preserve it longer than the beginning of the present month, October.

MR. PHILLPOTTS' ORCHID-HOUSE AND PITS.

The extract from the "Journal of the Horticultural Society," given in the *Gardeners' Chronicle* of July 21, page 485, relative to the mode of heating adopted at Porthgwidden, near Truro, will be most acceptable to many readers who are interested in such matters, and being accompanied with plans and sections, it cannot fail to be extremely useful to those who may contemplate, or are engaged in, the erection of buildings of a similar description. Mr. Phillpotts has for many years devoted much of his time to horticultural pursuits, and is acknowledged to be one of the best informed on the subject in Cornwall. His Orchid-house and pits, although on a small scale, are very complete, and admirably suited for the purposes to which they are applied. I have seen them repeatedly, and on all occasions the plants they contained were in the most perfect state of health and beauty, affording evidence not to be mistaken both of good management and successful cultivation.

In the construction of the house and pits Mr. Phillpotts lays no claim to anything more than what he states to be "a practical rather than a scientific adaptation of the plans of others, avoiding their mistakes." The Heywood House pit, which gave him the first idea of his own range, would appear to be a modification of the pit designed by Mr. Glendinning, and published in the *Gardeners' Chronicle* of 1844. The Orchid-house is span-roofed, but, in my opinion, is rather too narrow. The principals are secured at the top by iron work after the manner of the Banksia and Acacia houses at Kew, of which an account, with plans and sections, will be found in the *Gardeners' Chronicle* of Feb. 1, 1845. In several instances I have observed the same mode of securing the principals of a span-roof adopted, and with the best effect, as it gives to a house of this description a light and neat appearance, and renders it more suitable for the general purposes of cultivation than a lean-to house on the old plan.

Perhaps one of the best things about the erections at Porthgwidden is the excellent manner in which they are treated by means of hot-water pipes, with open troughs and cisterns. The form and arrangement of these are well deserving of attention, and if adopted by others cannot fail to answer, provided due care is taken that the power of the apparatus and amount of heating surface are in proportion to the cubic contents of air required to be heated to a certain temperature. It must not be supposed, however, that the command of a powerful supply of heat and moisture is all that is necessary to insure success in cultivation, for after everything has been done in this way that may be deemed necessary, it will be found that there is still another point of as much importance as the above to which the attention of the cultivator must be particularly directed. I allude, of course, to the introduction of a proper system of ventilation, which is so essential to the health of plants, and, when overlooked, is in most cases one of the principal causes to which failure is to be attributed.

The importance of air in motion to plants has been often adverted to in the *Gardeners' Chronicle*, but the best mode of creating a circulation, and effecting this desirable object, has yet to be ascertained. Mr. Phillpotts would appear to have well considered the matter, and has made ample provision for the escape of the heated air along the ridge of his Orchid-house, as well as for the admission of an abundant supply of fresh air by ventilators in the front and back walls. The great secret of his success, however, will be found to lie in the air chamber, with several drains leading from it, and opening into the pits, &c., by means of which a supply of fresh air, either dry or charged with vapour, can be admitted at all times, and so regulated as never

to produce a draught likely to affect any plants that may be exposed to it. Although this is only a modification of one of the principal features which characterised the Polmaise system of heating, still I think the way in which it has been applied is worthy of especial notice, and may be viewed as a step in the right direction towards solving the difficult problem regarding aëration that has so long occupied the attention of some of our very best gardeners.

The plan of having ventilators along the ridge of the house, in the manner represented in the large sketch, with openings at the back, and a wide coping to protect the roller blind in front, is the same as was adopted by Mr. Booth at Carclew, in 1846, when reconstructing a stove for Sir Charles Lemon, Bart. The only difference, as Mr. Booth informs me, consists in the ventilators at Carclew being hung a little above the centre, and having each a small piece of lead let into the wood, so as to prevent them from opening unless when required for the purpose of giving air.

The roller blind has been long in use for the covering of hot-houses, and I believe was first successfully applied as a shade to some pits at Syon in 1828, by Mr. Forrest, when gardener to the late Duke of Northumberland. An account, accompanied with a sketch to show the mode of fixing this sort of blind, will be found in Loudon's "Gardeners' Magazine," vol. v., page 510.

Although it would appear from what has been stated that there is really little novelty in the construction and arrangement of the Orchid-house and pits at Porthgwidden, I trust it will not be inferred that they are on this account devoid of interest. So far from this being the case, they are, in my opinion, worthy of being regarded as models of their kind, in which some of the chief improvements in the heating and ventilating of horticultural buildings, up to 1850, have been introduced with considerable skill and complete success, and our acknowledgments are due to Mr. Phillpotts for having made the public acquainted with his plans, and the result of his experience. *C. Truro.*

DESTRUCTION OF MUSTARD SEED CROPS.

From a communication which we have received from Professor Henslow it appears that the little blue beetle Phædon Betulæ, has again this autumn renewed its attacks upon the Mustard seed crops in the Fen districts near Ely. In the early part of the autumn of 1854 they were so numerous that hundreds of thousands might be collected in a few minutes by shaking the stems of the white Mustard over a newspaper, as stated in the Proceedings of the Entomological Society on the 4th Sept. (p. 24); they entirely devoured the leaves and barked the stems and coshes, or seed-vessels, the seed thereby becoming lean and of inferior quality. In the present month of October we learn from a letter from Mr. Henry Balls that they are equally prevalent in the Fen districts, and that they have attacked all green crops, especially Mustard and Garlick, the former being devoured to the very stalks, and in many places in the district they have cleared 50 acres, and then passed to the next field, being Cole seed, making a path in their progress. A plan for arresting these ravages had been tried by laying straw between the two fields and then setting it on fire to windward. They now (middle of October) appear to have taken to their winter quarters in crevices of gate-posts and other similar situations. They have not been noticed in their preparatory states; this is a point which appears to us to require especial investigation on the spot, where we apprehend the larvæ will be found feeding upon the leaves of allied species of hedge-row plants. *J. O. Westwood.*

Home Correspondence.

American Plums.—We are indebted to the Americans for some really valuable Plums. Among them the Jefferson holds the first rank; ripening just after the Green Gage, and being quite equal to it in flavour and far superior in beauty, it cannot be too highly eulogised. I had some fine fruit in pyramids this season, which, owing to the fine weather in September, slightly shrivelled on the trees, and became of a deep golden colour, blotched with red; they were full of delicious juice; I thought them superior even to the Green Gage. Denniston's Superb, ripening 8 or 10 days before the Green Gage, is also a valuable Plum; this year the fruit were particularly fine from pyramids; Huling's Superb is also a very large and very rich Plum; the Autumn Gage, an oval medium-sized yellow Plum, is very valuable, as it hangs well on the tree till after the middle of October. Blecker's Scarlet is a useful kitchen Plum, remarkable for its hardiness and productiveness. Smith's Orleans, an oval reddish purple Plum, has not proved quite equal to its reputation in America. Columbia is a large, round, and very handsome Plum, rich and sugary but rather dry, and ripening with a crowd of other sorts, is not so valuable as the first-named varieties. I may here mention that Plums in Nottinghamshire, north of Trent, rarely attain their full size and flavour; the climate seems too cool and moist for them, for if large-sized fruit are obtained from trees against walls, flavour is sacrificed. Corse's Nota Bene, an oval purple Plum of medium size, is I think a Canadian Plum, from Montreal; this is an enormous bearer, withstanding our spring frosts well, and ripening early in August. Plums are becoming most valuable fruit, for owing to several new varieties the dessert and the kitchen can be supplied from the end of July till nearly the end of October. *T. Rivers.*

Danger attending Transplanting Trees at Midsummer.—I am surprised that Mr. Scott should pronounce in such a dogmatical tone "midsummer" to be the best time for transplanting trees and shrubs, "and October and November" to be only "second best" for that purpose. I, however, by no means wish to say that Mr. Scott has been unsuccessful in his operations. By securing good balls to his plants, having but a short distance to convey them, perhaps a week's dull weather after planting, or deluging them with water, and screening them from the scorching rays of the sun;—by a fortunate concurrence of these circumstances, I say, Mr. Scott's practice may have terminated in success. But is he not upholding a system—or, at least, trying to do so—contrary to the laws of nature, as I will now endeavour to show? Mr. Scott will surely agree with me when I state that plants are in a more active state of growth at midsummer than in autumn; that, owing to perspiration from the foliage, the roots have more to do at midsummer than in autumn; and that, consequently, the less roots are disturbed at that season the better—and it is almost impossible to lift a plant of any size without injuring its roots to a greater or less extent. As roots, therefore, are the principal feeders of the leaves, what can be expected but failure when they are mutilated and exposed to air while the plant is in luxuriant growth? Besides, the atmosphere is much drier and hotter at midsummer than in autumn, and hence there is a greater amount of evaporation going on, and, as I have already stated, a more abundant supply of sap required of the roots. How, therefore, can this be furnished when the roots are rendered in a great measure inactive?—which must be the case for some time after transplanting. I trust that these facts, without entering into further detail in the matter, will suffice to show the danger attendant upon the system Mr. Scott so positively asserts to be the best. If Mr. S. will only adopt the two months he condemns—"October and November"—and include September, he will find them far better adapted both theoretically and practically for the purpose of transplantation than the season he recommends. *W. A. Blithfield.* [We, at least, are no advocates of Mr. Scott's views.]

Artificially Frosted Glass.—Many are practically cognisant of instances where this kind of glass is used as a means of shading, so as partially to intercept the sun's rays; but the advocates of the practice must be blind, or they would see at once the ill effects of which it is productive. When used for such structures as vineries, pineries, and houses devoted to hard-wooded plants, every cultivator endeavours to prevent a prostration of the faculties of his plant when in a growing tender state by intercepting intense sunshine, at the same time admitting as much light as possible; but when such plants have completed their growth, their manifestations alone will teach us how indispensable is a due amount of this agent to the ripening of their wood; and how is this to be accomplished beneath frosted glass? The appearances of the Vines and plants grown under such disadvantageous circumstances will afford ocular demonstration of the evil. The wood will be long-jointed, sappy, and watery, the leaves will have long slender petioles, and lamina of meagre size etiolated and pallid, thus deteriorating them until they become so constitutionally impaired as to be valueless in all their growing, flowering, and other properties, even if exposed to a clearer medium and more favourable circumstances hereafter. With such unfavourable demonstrations and impracticabilities attending this mode of shading, why not resort to a more expeditious, easier, and cheaper method, which will possess greater advantages and incur less risks than the mode in question? *J. R. T., gr. to G. S. Wintle, Esq., Hucclesate Gardens, near Gloucester.*

Orchard Houses.—Being about to erect an orchard house, induced by the favourable accounts which have been given of their success, I think it probable that some of your readers may be able to give information which would be of advantage to myself and others in like circumstances. In a lean-to house of small size, erected by an amateur in my neighbourhood, the plants, though having fully the distance between them recommended by Mr. Rivers, appeared too crowded, and those in front were pressing up against the glass. It struck me that the house ought to be wider and higher than Mr. Rivers originally recommended, and that a span-roof would possess great advantages. The opinion of any of your readers who may have experience on the following points will therefore be a favour: viz., most suitable height, width, and form of house generally, and, as applicable to my own case, whether it is indispensable that a span-roofed house should stand south and north, as it cuts up my garden very much to place it otherwise than south-east and north-west, or south-west and north-east. *A Ten Years' Subscriber.*

Salix Babylonica var. annularis.—I am not aware that the origin of this variety of Weeping Willow is precisely known. My earliest recollection of it is that my father gave 15*s.* for a plant in a pot 6 inches high. It was kept in the greenhouse a year or two, and finally proved to be as hardy as the species. So late as the publication of Loudon's "Arboretum" it is not known where it sprang from; but if its origin is buried in obscurity, a curious return to its nature has convinced me that it is but an accidental sport—perhaps of one shoot that has been perpetuated. About 25 years ago I planted in our nursery a tree by the road-side to attract notice; for 20 years it showed no sign of change, but a single shoot in the following year grew more vigorously than the rest, and produced the leaves in their usual form. This shoot has continued to ramify, and every twig from it shows the original character, whilst every other part retains its curled character of leaf and shortened and condensed ramification. *William Masters, Exotic Nursery, Canterbury.*

Double-flowered Peach.—I send you a fruit grown in my garden on a standard double-blossomed Peach. I am led to suppose that its fruiting is rather an unusual occurrence. The Peach in question fell off on Saturday last. *A., Dulwich Common, Oct.* 30. [The double-flowered Peach, being only semi-double, will occasionally produce fruit, but it rarely ripens, and when it does has no value.]

Yew Berries.—I do not remember to have ever seen a more abundant crop of these than there is this autumn. Observing that the birds eat them greedily, I occasionally eat a few and find them sweet and grateful as the purest honey. Allow me to ask whether they may be made into jelly, and eaten in that form with impunity. *Rusticus.* [Take care you don't kill yourself. The pulp is harmless, no doubt—but the kernel is a dangerous poison.]

Poplars and Varieties of Larch.—In reply to "An Old Pupil," you state that Poplars can never be so profitable as Larch in dry exposed places. Generally speaking this may be the case, but still there are exceptions, and an extreme one presents itself in the spot from which I write. It is subject to great droughts, and as much exposed as most parts of the kingdom (as those who witnessed the gale of Friday last can testify); yet the Black Italian, the best, and to my fancy by far the nicest looking of Poplars, surpasses all trees by its extraordinary growth, and that in exposures where the Larch positively requires shelter: without which in the course of most seasons its beautiful green is browned and its tender shoots destroyed by the severity of the gales, and an atmosphere saturated with salt; consequently in such localities, particularly where shelter is the object, the Poplar will be found the more suitable of the two. While speaking of Larches allow me to express my regret that the many beautiful and striking varieties which exist of this tree should be confounded in a common name. No doubt to most people a Larch is a Larch, and there ends the matter; but observers cannot help seeing how widely the forms of many differ from the stiff compact pyramidal habit which characterises the race, more especially those recently raised, and demand a place for elegance of habit among Deodars and Cedars of Lebanon. For profit or Hop poles probably the common sorts may be preferable, but when they are to form part of park scenery, surely a little trouble in selecting them would be well bestowed; many of their habits are greatly changed and only fully developed by age, still the tendency to do so is observable even in the nursery, and quite perceptible before they have arrived at an age fit to plant out. It is probable that many of the venerable specimens which now command our admiration might not literally produce "seed after their kind." Nevertheless much might be done to furnish varieties for ornamental purposes, and I have no doubt that any attention paid to the subject would meet with reward. *J. M., Folkstone, Oct.* 27. [Our correspondent has mistaken the question. The Lombardy Poplar was the tree inquired about, not the Black Italian, which makes a great difference.]

Wireworms and Fruit.—I have often been struck by the amount of mischief done to various crops in a short time by wireworms, and cannot conceive how so small a creature can find its food, growing, as it does, a good distance apart, with such certainty. If a field affected by them be carefully examined it will be found that the soil in many instances is not so full of the insects as a person would imagine from seeing the amount of injury done, and it is necessary to believe that they have rather the power of selecting and finding the food they like best, than that they travel along eating anything suitable lying in their path. I have been led to make these remarks from observing their good taste in the selection of fruit. Almost all the lower animals which eat fruit appear to like best those varieties valued by man. I have often remarked this in the case of sheep and game, the latter particularly; for whilst the cooking Apples lie almost unmolested under the trees, Ribstone Pippins, Malsters, Wykin Pippins, &c., are almost always spoilt before the morning. I hardly think, however, that the wireworm would be expected to be so nice in its choice, but so it is: I have observed many baking Apples just attacked and left, whilst a good eating variety has been full of the worms. From a Bess Pool Apple I extracted 24 fine fat fellows (many of them contained from 6 to 12), whilst from a nearly ripe Comte de Lamy Pear I took out the almost incredible number of 37. I should state that all our orchards are carefully gathered every few days, so that I have no reason to believe these fruits had lain long on the Grass. *T. R. Pearson, Chilwell.*

Shell Rain in the Isle of Wight (*see p.* 710).—I earnestly hope that "C." of Winchester will give some more particulars regarding the fall of shells at Osborne. Were any of the shells living? Over how wide an area did they fall? During how long a time are they believed to have fallen? At what hour and on what day? Did only one kind of shell fall? I hope "C." will forgive me for suggesting to him how very desirable it is that so extraordinary and very interesting a fact should be authenticated by the narrator's name. It is really almost a duty towards the science of natural history to do so. Were the Zua identified by any good conchologist?—this seems to me an important point. *C. D., Down.* [The Zua was very obligingly identified by Dr. Baird

of the British Museum. Our correspondent's name is C. Winchester; he is the intelligent foreman in the Royal Gardens at Osborne, and will, we hope, furnish the additional information asked for.]

Cucumber Growing (see p. 710).—I was much surprised to see the account of my hybrid Cucumber in your Paper of last week, which account was communicated totally without my cognizance. I feel it an imperative duty to say that the party has exceeded the bounds of truth, both as regards the quantity of fruit cut, and the average length. I am not acquainted either with the merits or demerits of Mr. Sutton's Cucumber. *R. Massey, Kirby Hall, Oct.* 19.

Management of Roses in Beds (*see p.* 709).—Permit me to ask Mr. "J. M.," of Folkstone, whether he would recommend Roses in beds to be manured in autumn or in spring—say in November or in March, and why he would so recommend it. I do not ask for any other than real information, being by no means actuated by a spirit of criticism. *Devon.*

Cuphea platycentra.—My employer has succeeded in raising standards of this beautiful plant, 4 feet high, with large heads, which are at this time loaded with fine foliage and flowers. This has been effected by beginning with them when they are cuttings, keeping all lateral shoots stopped, and the leader of each tied to a neat stake, shifting the plants into larger pots as soon as they required it, and using a rich compost. Treated as standards they show to better advantage their small but beautiful flowers, and afford a pleasing variety during the summer months in shrubberies and flower borders, where they should be plunged in their pots for convenience in lifting and housing them at the approach of frost. They should be liberally watered in dry weather, using for them occasionally a little liquid manure. *R. Gilbert, Abbey Wood, Bexley Heath.*

Atmosphere of Hothouses.—Having occasion to refer to your reprint of my description of the plant-houses erected by me at this place (in your number of July 21st), I find that you have perpetuated a mistake, which, if I had been aware that you were about to honour me with a republication, I would have begged to rectify. The passage to which I refer runs thus—"the air of plant-houses of this description should be in direct proportion to the light, the moisture, and to the heat." It should have been "the temperature of the air should be in direct proportion to the light, and the moisture to the heat." This is a rule which I consider most important, for I have observed that a moist atmosphere, at a low temperature, in the winter, is most dangerous to plants; indeed, on one occasion, when by accident my open troughs were left uncovered in the winter, with a temperature of 62°, several Orchids suffered, and some died. This, I believe, would not have happened in summer; and if I am right in my belief, I can only account for the difference by supposing that, in summer, the light, which is the main source of vitality, being more intense, the plants are in a more vigorous state and better able to resist any unfavourable condition of the atmosphere. I think, too, that humidity at a low temperature degenerates into what we call "damp," and I suspect that some otherwise fine Orchids which I saw at Chiswick this summer, had suffered in their health and appearance from some such treatment during the last winter. Whether the light has any effect on the quality of the air, I leave others to decide; my impression is that it has. The subject is an interesting one in connection with the all-important question of ventilation, and the public, and plant growers in particular, might be much benefited by seeing it discussed by yourself or some of your scientific correspondents. *T. Phillpotts, Porthgwidden, Truro.*

FLORICULTURE.

The Ranunculus.—In Mr. Atkinson's (of Worcester) catalogue of Dutch bulbs just received we find the following useful remarks on the culture of this flower, which he states were originally intended for our columns. "What can be gayer," he observes, "than a bed of well-grown Ranunculuses? Their fine forms, richness, and diversity of colours claim for them universal admiration; and yet, singular as it may appear, with all their attractions, they are not half so extensively grown as they deserve to be. If lovers of floral beauty, however, were once to pay a visit to the magnificent collections of Messrs. Tyso, Lightbody, and others, when these are in the height of their bloom, I feel satisfied that they would never rest contented until they had a bed in their own grounds to view at their pleasure. I am aware that the Ranunculus has been termed by many a shy and uncertain flower, which, in fact, it is if planted without trouble or care, and afterwards left to chance, but under skilful cultivation it will be found to blossom most profusely. The only difficulty is in getting up the tubers at the proper time, when sufficiently ripe, and preserving them as plump as possible until planting time. A few brief remarks as to the best mode of culture may not be out of place. The situation for the beds, which are best prepared in autumn, should be a moist cool place, where they will only be subjected to a few hours' morning sun, bearing in mind that a moist subsoil is required in order to ensure successful cultivation. The place being selected, remove the old soil to the depth of nearly 2 feet and 4 feet in width; sods cut from a rich old loamy pasture to the depth of 3 or 4 inches, and about 16 inches wide, should then be laid at the bottom, to form the foundation of the bed, treading them firmly down. The remainder should be filled up with the same compost collected a few months previously, and turned several times before using it. To this may be added a portion of well decayed cow-dung and leaves, and if the loam is rather stiff, a portion of sand may be introduced. This should also be pressed firmly down, and the whole may remain in that condition till planting time; the beds should be little above the level of the surrounding ground, and in order to give them a neat appearance they should be edged round with slate. Fork the soil over lightly previous to planting, but not exceeding 2 inches in depth. Planting should never be deferred after the middle of February, and the roots will be benefited by being placed in the light a few days before they are put into the bed. Embrace the first opportunity of a fine day to rake the beds and get them perfectly level and marked neatly out previous to planting, in order that the roots may be put in at equal distances; they should be placed about 5 inches apart and 6 inches asunder row from row. It is better to give them a little extra room at all times than to overcrowd them. If the collection is small they may be dibbled in with the finger, carefully set with the prongs downwards, and covered over about 1½ inch deep; but if the collection is extensive, drills should be drawn at equal distances across the beds, placing the roots at the bottom of them, and covering them with the loose soil; as soon as the plants appear above ground, which will be about April, the surface soil should be carefully and firmly pressed round about the roots, and if the weather should set in very hot in May, the beds should be carefully watered, in order to prevent the soil from cracking; old tan placed over them at this stage of growth will also be found very beneficial. In order to prolong their blooming season a temporary shading should be erected over them, just sufficient to protect them from the hot sun and rain, but the beds should nevertheless be kept in a moist state. Wireworms often attack the roots, and therefore they must be guarded against. As soon as the foliage has begun to decay protect the beds from wet, or the roots may be excited to grow again, which would be very injurious to them. The most essential point connected with their cultivation is, as I before observed, taking up the roots and properly storing them away. They should be lifted as soon as the foliage has turned quite yellow, and stored away in a dry airy situation, drying them as gradually as possible, in order to keep them plump. When sufficiently dry they may be placed in drawers, in order that they may be easily looked over, still bearing in mind that a cool but dry atmosphere is the only means of preserving them in a sound state." New varieties are raised from seed, which may be sown now or in January, in beds furnished with frames and glasses; it should be strewed thickly on the surface of the prepared soil, and then covered with a sprinkling of mould, not exceeding the eighth of an inch in thickness; the plants usually appear in about a month, they should be regularly watered and air admitted day and night, except in severe frosts, when it will be necessary to protect them. The Turban varieties make splendid early beds, and should be extensively planted by all lovers of floral beauty—they are very cheap, so that no florist need be without them. The properties of a good Ranunculus are a strong straight stem, from 8 inches to a foot in height, supporting a large well-shaped blossom at least 2 inches in diameter, and forming two-thirds of a ball; the petals should be thick, smooth on the edges, and gently cupped; the colour (whatever it may be) should be dense; if an edged flower, the edging should be perfect, and the marking uniform on every petal—striped or speckled flowers on the edges are termed imperfect ones.

Miscellaneous.

The Form of Aquarium which, after upwards of five years' experience and observation on the natural habits of the various animated tenants, I have now adopted, consists in a four-sided vessel having the back gradually sloping upwards from the bottom at an angle of 45° to 50°, and the consequently extended top sloping slightly downwards, and resting on the upper part of the back. The bottom, therefore, becomes necessarily narrow. The front for the purposes of observation, and the top for the admission of light, are to be of glass; the back, ends, and bottom being constructed of slate; the whole fixed in a stout framework. The advantages of this arrangement are:—1st. That it allows of a most extended view of the whole interior of the aquarium. 2d. That it enables the occupants to resort to water of any depth they may desire, or even to ascend the sloping back and emerge from the water. 3d. It admits of a much larger surface of water being exposed to the action of the light; and, 4th. The sloping top allows the water which condenses on the glass, from the effect of radiation, to trickle off and return to the aquarium without first resting on the zinc or iron frame-work. I need hardly mention that the sloping back is to be covered with light rock-work extending to a short distance above the water-line. *Warington in Annals of Natural History.*

Orange Trees.—The collection of Orange trees belonging to the Luxembourg is one of the most remarkable of any of the public gardens in France, both from the number and age of the trees. Orange trees, it is known, attain a vast age. In the Orangery at Versailles is one known under the three names of "Grand Connétable," "François I.," and "Grand Bourbon," which is more than 400 years old. It comes from some pippins of a tree of bitter Oranges planted in a pot at the commencement of the 15th century by Eleanora of Castile, wife of Charles III., King of Navarre. The trees which sprang from them were preserved in the same case up to 1499, at Pampeluna; they afterwards passed into different hands as rare and precious objects, and then became the property of the Constable de Bourbon, who placed them in his château de Chantelle, in the Bourbonnais. The property of the constable having been confiscated in 1522, the Orange trees were sent to decorate the Palace of Fontainebleau, which François I. had caused to be restored and enlarged. When Louis XIV. had terminated Versailles, and built its magnificent Orangery, he gave orders that all the Orange trees existing in the royal residences should be conveyed to it; this was in 1684, and the Orange trees of Pampeluna, which were among those thus removed, were then two and a half centuries old. The "Grand Constable," the most remarkable of them, is, notwithstanding its great age, still perfectly vigorous. *Galignani.*

Favourite Flowers.—Every flower is a favourite with somebody, though everybody does not fix his affections on the same identical favourite. As in matters matrimonial, every Jack finds his Jill (*chacun trouve sa chacune*); so, in floral attachments every object of attraction bewitches its own special object whom its influence attracts. Rousseau had his Periwinkle, Girofalo, the painter, his Gilliflower, whence he derives his pictorial name. Linnæus fell into a rapture of adoration the first time he beheld the golden blossoms of the Furze; while Burns worshipped with fond devotion that wee modest crimson-tipped flower, the Daisy. The late King and Queen of Otaheite wore Sunflowers in their bosoms on drawing-room days. There are memorial flowers; the Flos Adonis, or Pheasants' Eye, sprang from the blood that fell from Adonis's thigh when the savage boar inflicted the death-wound; the Hyacinth rose to perpetuate the perishing beauty of another comely stripling. The Vergiss-mein-nicht, or Forget-me-not, is a modern remembrancer of lovers' vows. There are dynastic flowers; the Lily of the Bourbons, the Violet of the Bonapartes, and the Broom-twig, the Planta genista, or Plante des Genets, of our own vanished Plantagenets. There are national flowers; the touch-me-not Thistle of Scotland, the delicate Wood-sorrel or Shamrock of Ireland, the blood-stained Roses (both white and red) of England, the perfumed Rose of the orientals, the Water-lilies of India, the Tuberose of Italy, to which might be added the Geraniums of the Cape, the Cactuses of America, the Lilies of Guernsey, the double Pomegranates of Morocco, the Scarlet Quince and a hundred other beauties of Japan, the Chrysanthemum and a thousand more charmers from China, the Gentian of the Alps, and the blushing crab-blossom of Siberia. . . . . So, pray, which are your favourite flowers—the Lily of the Valley, the Dandelion, or the Daffydowndilly, which comes before the swallow dares to come, and meets the winds of March with beauty? I will candidly tell you which are mine. As Cowslip, the dairymaid, when pressed to patronise a bird (after the fashion of Venus, Juno, and Minerva, who selected doves, peacocks, and owls respectively), answered, "Well, I should like a nice roast duck;" in like manner, if you put me to the question about my flowers, I must confess that I have a weakness for Caper buds whenever there is a talk of boiled legs of mutton; for Borage and Nasturtium flowers to crown a salad; for Cowslips and cream while the cuckoo singeth; for a dish of cooked Artichokes whenever they are to be had (I cannot even yet manage them raw *à la poivrade*); for Camomile fomentations when seized with the face-ache; for Marigold broth when I want to bring out the measles or the scarlet fever; for Elder-flower water to strengthen and cleanse the few scant hairs that remain on my cranium; for a glass of Clary wine as an exhilarator and anti-lachrymatic; for a tisane of Violets and Lime-tree blossoms when the doctor prescribes a cooling dilutent; for decoction of Rose leaves when he says I am feverish; for the dried bouquet, which I treasure flattened between the leaves of a certain folio volume; and for the pretty little pot-flower (never mind what genus and species it belongs to) which Mary Jane presented on my birthday. *Dickens's "Household Words."*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Attend to the last week's directions as to guarding against damp, giving air freely when the state of the weather admits, and use fire heat only when it is indispensable, and then as sparingly as may consist with safety. It will probably be necessary to subject many plants to gentle forcing in order to secure a constant succession of bloom for furnishing this house, for few plants will make much progress at this season unless encouraged with a temperature considerably warmer than would be required to preserve them in health. But where forcing must be resorted to, use foresight, and endeavour to avoid having to subject the plants to a very high temperature, which is very injurious to many things; and the flowers cannot be expected to last so long as if they were developed in a temperature more suitable to the habit of the plant. Take advantage of unfavourable weather for out-doors work to get the foliage of Camellias, Orange trees, &c., thoroughly cleaned, for it is hardly less essential to the health of such things that their foliage be kept clean and in a fit state to perform its functions than

that their roots be kept in a healthy active state. It is a somewhat tedious operation to wash the leaves of a large specimen singly by hand, but fortunately this is seldom necessary, as most plants may be cleaned at this season when the foliage is not in a tender state, by laying them on their sides and well washing them with water at about 140°, or even 166°; throwing the water against them with considerable force from the engine will not injure the matured foliage of hard-wooded plants. Any neglected specimens that may be badly infested with scale may require to be gone over with a brush for the purpose of removing the scale, as warm water will not be sufficient to clear plants of this pest. But the most expeditious and satisfactory method which we have tried of cleaning plants of scale, or whatever else they may be infested with, is to well moisten the foliage, &c., with the composition recommended in Williams's "Orchid Grower's Manual" (see page 21), laying the plant in a damp place, and allowing a few hours for the composition to take effect, and then well washing the plant with warm water from the engine, which we generally find sufficient. In the case of dense specimens, however, it will be necessary to look over the inner branches, against which the water cannot be thrown with any force; but this will not occupy much time, as a mere wipe with a sponge will be sufficient to remove scale or filth. Had Mr. Veitch, from whom Mr. Williams states he received the receipt, advertised this composition in the same determined manner Messrs. Page & Co. have done theirs, he would have done gardeners a real service, and would doubtless have made a good thing of it. But we would not recommend using this mixture upon trees which cannot be laid on their side without adopting some precaution to prevent its reaching the roots; this may be easily done, however, by placing something round the stem to absorb it and prevent its reaching the soil. GREENHOUSE.—Look over the plants here frequently, and examine things very closely that are liable to suffer from mildew and damp, such as Leschenaultias, Boronias, &c, for a short neglect will sometimes result in the disfigurement of a promising plant. The Boronias, Leschenaultias, Gompholobiums, &c., are very impatient of exposure to cold drying winds, and if these must be wintered in the same house with the hardier kinds of greenhouse plants, they should occupy a part of the house where they will not be exposed to cold draughts; but air must be admitted by the top sashes freely on fine days. Also exercise the greatest caution in the application of water, especially in the case of tender-rooted things which have not well matured their season's growth, for if the balls of these get saturated the roots will be checked and the specimens greatly injured. Therefore, never water until the ball is so dry that it cannot safely be withheld longer, and then give enough to moisten the whole of the ball, whether large or small. Young specimens of Azaleas, which have been growing in heat, had better be removed to a cool-house for a few months, which will cause them to start away more freely in spring. Keep Cinerarias and other soft-wooded stock clear of green fly, and endeavour to secure stocky plants by affording them sufficient pot-room, and admitting fresh air freely whenever the weather permits. Cinerarias are rather liable to be attacked by mildew at this season, and if this enemy makes its appearance apply sulphur immediately it is perceived.

FORCING DEPARTMENT.

PINERIES.—Where the bottom-heat is obtained from fermenting materials it is generally found to decline very rapidly on the occurrence of dull cloudy weather, and any necessary addition of tan, or whatever else is used should be made directly it is wanted, so as to secure a steady temperature of about 85° for the roots. In adding fresh fermenting matter at this season it will be worth being at some trouble to have it in a rather dry state, for when used very wet it is apt to chill the roots at first, and when fermentation commences the heat often becomes so strong that the plants must be raised. VINERIES.—Ripe Grapes will require to be frequently looked over, cutting out any decaying berries; and if the bunches have not been well thined, the inside berries must be carefully examined in the event of damp weather, otherwise the bunches will be very liable to get disfigured. Avoid, if possible, having pot plants requiring watering in houses where the fruit is expected to hang for any time, and where any plants must be kept under the Vines they should be watered in the morning, using a little fire-heat with air to get the atmosphere dry before night. Gentle fires will be necessary here when the weather is damp, but use no more than may be necessary to keep the atmosphere in motion, for too much warmth is nearly as injurious as damp. Vines that are pruned, and being rested previous to being started shortly, should be kept cool, keeping the house open, and if there is any cause to fear that the wounds will not be properly dried up during the time that the Vines can be allowed to rest, give them a coat of rather thick white lead which will effectually prevent bleeding. If not already done, get the border covered with something to keep it from getting saturated with wet, for it is of the greatest importance to have the border in a dry kind state when the Vines are started and especially when this is early in winter. Where new borders have to be made this season, attend to providing the necessary material for the purpose in time to allow of having it in good condition by the time it may be wanted for use, and where young Vines have to be procured from the nursery, these should be looked out as soon as possible, and before the stock has been too often picked over.

FLOWER GARDEN AND SHRUBBERIES.

Those who purpose making additions to their collection of Roses should do so at once, as there will be a better chance of obtaining good plants now than after the nursery stock has been repeatedly picked. And the present season is also very favourable for planting all but tender sorts, which had better be kept under glass until next May; but these should be procured at once, and if they can be placed in a gentle heat through the winter, they will grow freely, and furnish cuttings which will root just as freely as a Verbena. In preparing ground for Roses let it be trenched at least 2 feet deep, and well incorporate a very heavy dressing of manure with the soil to the full depth. It is hardly possible to make the mould too rich for any kind of Rose, particularly the autumn-blooming kinds, and 4 or 6 inches of good rotten farm-yard dung will not be too much where the soil is naturally rather light and poor. Large headed standards that have done blooming for the season should be cut back pretty freely, to lessen the chance of their being injured by heavy gales of wind. Continue to clear the beds of their summer occupants as these become unsightly, and after trenching or doing whatever can be done to save time at next planting out season get them furnished for the spring. Also look over the herbaceous borders, and make any projected alterations there, taking up and dividing any of the coarse growing plants that may be inclined to encroach too much upon their neighbours. The modern system of gardening is fast driving this class of plants out of cultivation; but many of them are really beautiful, and if they were more largely grown our gardens would not have that naked appearance in spring which is too often seen. Sweep and roll Grass frequently, and keep gravel walks hard and smooth by frequent rollings.

HARDY FRUIT AND KITCHEN GARDEN.

Let there be no lack of attention in the fruit-room at present, for fruit requires more care during the first few weeks after gathering than all the season afterwards. Give just sufficient air to carry off damp, but nothing more, as allowing dry winds to blow over the fruit would only cause shrivelling. Strawberries for early forcing should be placed where they can be protected from drenching rains—a cold frame or pit, where either can be spared, would be the best situation for them; but the lights should not be put on save in case of rain and frost. And, indeed, the whole stock in pots for forcing would be benefited by being placed where they could be guarded from heavy rains. We may now expect sharp frosts at any time, and all necessary preparations should be made at once, such as having a good stock of covering for the most forward Lettuce, Endive, &c. Cauliflower in head, if not wanted for use, may be pulled up and hung in a cool shed, where it will keep good for weeks, and will be out of the way of injury from frost, unless this should be very severe. The late crops of Celery should now be earthed up rather closely, making the ridges as narrow at the top as can conveniently be done, and nicely finishing the sides with the back of the spade so as to prevent, as far as possible, the soil about the plants getting saturated with wet. The soil about the early crops, or that fit for use, should also be made to throw off the wet as much as possible, pressing it firm about the tops of the plants, and making the top of the ridge narrow and smooth. Of course Celery will not be earthed up after this season when the plants are wet, neither should it be done when the soil is wet, if this can be avoided. Mixing plenty of quick lime with the soil about the plants will, we think, be found of considerable use in preventing their rotting in winter, and it will also save them from being disfigured by slugs. The Asparagus haulm may now be cleared off, cleaning the ground, and giving a good dressing of rotten manure; and in the case of young plants which are only very lightly covered, the manure might be mixed with a quantity of leaf soil, applying a good solid coat 2 or 3 inches thick if the manure and leaf soil can be spared.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Nov. 1, 1855, as observed at the Horticultural Gardens.

Oct. and Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain.
Friday 26	15	29.202	29.121	56	31	43.5	54	54	S.W.	.28
Satur. 27	16	29.699	29.344	54	26	40.0	54	54	S.W.	.00
Sunday 28	17	29.714	29.655	53	40	46.5	52½	53	N.	.03
Mon. 29	18	29.523	29.210	52	46	49.0	52½	52½	N.E.	.63
Tues. 30	19	29.217	29.083	53	46	49.5	52	51	N.E.	.98
Wed. 31	20	29.523	29.300	47	34	40.5	52	50	N.	.22
Thurs. 1	☾	29.701	29.667	44	27	35.5	52	49	N.	.00
Average		29.504	29.344	51.3	35.7	43.5	52.7	53.3		2.14

Oct. 26—Very boisterous; overcast; heavy rain in forenoon; fine at night.
— 27—Fine; very fine; cloudy; frosty at night.
— 28—Very clear; fine; overcast.
— 29—Drizzly; heavy and constant rain.
— 30—Constant rain throughout.
— 31—Cold rain with brisk north wind.
Nov. 1—Low clouds, with clear intervals; clear and frosty at night.
Mean temperature of the week .4 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 29 years, for the ensuing week, ending Nov. 10, 1855.

Nov.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 4	51.0	37.0	44.0	15	0.44 in.	2	3	5	2	5	5	5	2
Mon. 5	52.9	38.8	45.8	14	0.23	1	2	2	2	6	10	4	2
Tues. 6	53.2	38.7	46.0	13	0.76	2	1	2	4	4	10	3	4
Wed. 7	52.4	38.2	45.3	16	1.02	1	2	2	3	4	10	4	3
Thu. 8	51.2	35.7	43.4	14	0.58	1	3	1	2	2	10	6	4
Frid. 9	50.7	35.7	43.2	11	0.23	2	1	3	2	4	9	3	5
Satur. 10	51.1	36.5	43.8	17	0.67	2	3	1	4	5	8	2	4

The highest temperature during the above period occurred on the 5th, 1852, and 6th, 1834—therm. 63 deg.; and the lowest on the 9th, 1854—therm. 18 deg.

Notices to Correspondents.

APPLES: *S A P.* Your seedling Apple No. 1 is middle sized, handsome, well coloured, and of tolerably good flavour, but the flesh is too dry; 2 is not good; 3, absolutely bad; 4, indifferent; 5, small, with brisk flavour but not rich. The Pear is small, roundish, with tender but coarse grained flesh, and a sweetish flavour resembling that of the Bezi de la Motte.‡

BOOKS: *Constant Reader.* Cobbett's English Gardener (6s.); Neill's Fruit, Flower, and Kitchen Garden; The Manse Garden, a little Scotch manual; or perhaps Mawe and Abercrombie's Gardening. We cannot give you prices, because publishers will not mark them on the volumes they issue.

DURMAST OAK: *J P*, and others. Your information is extremely useful. If other correspondents having a personal knowledge of Quercus sessiliflora and pedunculata, and of their timber, would be so good as also send us their experience, a difficult question of the highest national importance would be finally set at rest.

INSECTS: *C N R.* Water the roots of your Picotees and Carnations with tobacco-water or an infusion of quassia, to destroy the aphides clustering round them.—*W F S.* The gall sent is distinct from the common Oak Apple, which is very much larger, with numerous cells; it is more like the gall figured in the *Gardeners' Chronicle* on the 24th March in the present year, but is distinct from it. *W.*

LEAD: *Ten Years.* We do not know whether sea water will act on leaden pipes. We should have thought that the sulphate of magnesia, which is so abundant in such water, would have protected the surface of the lead. Perhaps you have had an iron or copper screw soldered into the lead; in that case an electrical action would be set up, and the water would become contaminated.

MIGNONETTE: *B C.* Tree Mignonette is obtained by selecting and potting a vigorous young plant, the flowers of which are to be pinched off as often as they appear during the first season. It must be repotted as occasion may require; the lower shoots must be removed in autumn, and the plant must be kept during winter in a room or greenhouse above the freezing point. The second season it may be treated in a similar manner; and the next year it may be allowed to bloom, which, with care, it will continue to do for several years.‡

NAMES OF FRUITS: *Z.* 2, Autumn Bergamot; 3, Glou Morceau; 4, Duchesse d'Angoulême; 5, Comte de Lamy; 7, Easter Beurré; 8, Beurré Diel; 9, Beurré Bosc; 10, 11, Doyenné Blanc; 14, Aston Town.—*J S Wath.* Apples, 1, Turk's Cap; 2, Kirke's Lord Nelson; 3, resembles the Brabant Ballefleur; 4, Large Hunthouse; 6, Worthless; 7, Nonsuch; 8, Beurré de Capiaumont; 9, Beurré Rance; 10, Glou Morceau. The seedling Apple has a brisk acidity, and appears to be a good keeper; it is too unripe to judge of its merits at present.—*E B H.* 1, 10, Napoléon; 2, Marie Louise; 3, Ne Plus Meuris; 4, Seckel; 5, 6, 14, 16, Passe Colmar; 8, Doyenné Blanc; 9, 18, Glou Morceau; 11, Catillac; 12, St. Germain; 15, Beurré Diel; 17, Winter Nelis.—*R A.* 1, Napoléon; 2, Marie Louise; 3, Crassane; 4, Brown Beurré; 5, Seckel; 7, Blenheim Pippin; 8, Waltham Abbey Seedling.—*W F.* 3, Golden Horny; 5, Pearson's Plate; 6, Hughes' Golden Pippin; 7, 10, Dutch Mignonne; 8, Paradise Pippin; 9, New Rock Pippin; 11, Court of Wick; 12, Seckel Pear.—*Ioatæ.* 19, Bergamotte Cadette; 23, Doyenné Blanc; 25, Althorp Crassane, Marie Louise, and Easter Beurré are correct; the one named Orange Bergamot is decayed, but undoubtedly false.—*Henry B.* 2, Brabant Bellefleur; 5, Dumelow's Seedling; 6, Pearson's Plate; 8, London Pippin; 10, Downton; 11, Easter Beurré; 12, Ne Plus Meuris; 13, Beurré de Capiaumont; 15, Hughes' Golden Pippin; 16, Borsdorffer; 18, Hormead Pearmain; 19, Sturmer Pippin.—*S C.* 1, Winter Nelis; 2, Passe Colmar; 3, Louise Bonne (of Jersey); 4, Beurré Bosc; 5, appears to be the Althorp Crassane; 6, Beurré Diel.—*J C W.* 1, Winter Nelis; 2, Seckel; 3, Old Colmar.—*H Bellew.* 1, Uvedale's St. Germain; 2, Chaumontel; 3, Swan's Egg; 6, Kerry Pippin; 7, Margil; 8, Ribston Pippin; 9, 10, Gausel's Bergamot; 13, Bezi Vaet; 15, Ne Plus Meuris. With regard to the quality of No. 1, it is a baking Pear, and is only good for that purpose.—*Clapham, W.* 7, Jean de Witte; 9, Passe Colmar.—*R S, Tuam.* 2, Passe Colmar; 3, 12, Beurré Rance; 4, 11, Marie Louise; 5, 8, Glou Morceau; 6, 10, Doyenné Blanc; 9, 15, Beurré Diel; 13, Napoléon; 16, Autumn Bergamot; 18, Uvedale's St. Germain.‖

NAMES OF PLANTS: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Eben.* Of your Oaks, No. 1 is Qu. pedunculata; 2 and 3 are Q. sessiliflora. As the specimens come apparently from large trees, you will probably be able to give us some certain information respecting the difference in their timber, for which we shall be much obliged to you.—*Tilehurst.* It looks like a morsel of some form of Chrysanthemum grandiflorum. Had you told us whether it is annual or shrubby and hardy or tender we should have been able to form a more exact opinion.—*R M D.* It is either a Cedar of Lebanon or a Deodar. It is impossible to say which without seeing the trees.—*T. Gaines.* Acacia lophantha.—*J H O.* 1, Adiantum hispidulum; 2, A. tenerum; 3, A. cuneatum; 4, Nephrodium molle. *S.*—*A C.* It is Polystichum angulare. *S.*—*O S.* Both are Lastrea spinulosa. *S.*—*F P.* 1, Doodia caudata; 2, Platyloma rotundifolium. *S. M W.* Celtis australis, the Nettle tree.—*G W.* It looks like a morsel of Achyranthes aspera, a tropical weed; but it is impossible to be certain without seeing the flowers.—*X., Cheshire.* It is only Quercus pedunculata. Surely Q. sessiliflora does grow in your county. Would you inquire and let us know what the timber merchants say to its timber—that is to say if they distinguish it.—*Julius.* Senecio Cineraria; *alias* Cineraria maritima.

RHUBARB: *Amateur.* If you have no means of getting earthenware Rhubarb pots, make a few upright boxes about 15 inches square and 2 feet high, open at both ends. Place these over the crowns of such plants as you intend to force, and then form little beds of dung and leaves round them, keeping the dung on the outside and the leaves next the boxes. Raise the beds a little higher than the boxes, whose tops should be covered with the dung; but before that is done, a piece of slate or wood should be put over the top of the box to keep out the dung and throw off wet. A stick pushed into the beds and left there will tell, on being drawn out and felt, whether they are too hot or too cold. By the above plan you may always calculate on having Rhubarb from a month to six weeks earlier than you would have it from the open ground.‡

THE TAMARISK: *B H.* The only species which thrives away from the sea is Tamarix gallica, which is quite at home in inland places. A specimen in heavy damp clay is now in sight of our windows a few miles from London, and forms one of the prettiest ornaments of a not very unadorned garden. *Tamarix germanica*, the kind with blue leaves and pale green shoots, is not worth growing in inland places.

TRANSPLANTING FERNS: *W G.* will be obliged by some of our correspondents informing him what is the proper method for transplanting the common Fern successfully.

TRENCHING: *Lumbricus* states, in reply to "Colo's" request (see page 710), that he should carefully trench the ground over to the depth of 2 feet, and that the work should be performed at 1*d.* per yard.

*** A few correspondents who are this week unanswered will receive replies next week.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
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It may also be had from Messrs. G. GIBBS & Co., 26, Down Street, Piccadilly, Agricultural Seedsmen, Agents for London, and from all the other Agents of the Company.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

DRAINING BY STEAM POWER.

JOHN FOWLER is prepared to undertake Contracts for DRAINING LAND by his PATENT STEAM PLOUGH, at prices varying, according to depth and distance, from 3*l.* to 5*l.* 10*s.* per acre, inclusive of tiles, main drains, and all other expenses. Contracts executed with great rapidity, and tiles manufactured on the spot, where suitable clay exists.—Temple Gate, Bristol.

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MR. J. JOHNSON, DRAINAGE ENGINEER, is desirous to undertake the Drainage of Land by Contract or Commission. Temporary Tileries erected in any part of England, and Drain Pipes manufactured at moderate prices. Every description of Drainage Tools.—Abingdon Street, Westminster.

DRAINAGE OF LAND, BOGS, ETC.

MR. HUMBERT, of Watford, Herts, supported by unquestionable references and testimonials, offers his services to proprietors about to execute works of drainage, which he will undertake personally to lay out and superintend, and to supply the forms and attendances necessary to obtain the certificate of the Inclosure Commissioners where such is required, at a charge of 5*s.* per acre and his travelling expenses; or he will contract to perform the whole work to the satisfaction of the Commissioners at a fixed price per acre.

Mr. HUMBERT (having been more than 15 years established in business as a Surveyor and Land Agent) has found that wet heavy soils can be usually, carefully, and thoroughly drained, with pipes 4 feet deep, at 4*l.* per acre and upwards, inclusive of every expense.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
INCORPORATED BY SPECIAL ACT OF PARLIAMENT.
Offices, 52, Parliament Street, London.
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BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

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LORD EBRINGTON'S PRIZE FOR THE SONS AND RELATIVES OF YEOMEN AND FARMERS IN THE COUNTY OF DEVON.—A Prize of 20*l.* is offered by Lord EBRINGTON to any person of the above description, between the ages of 18 and 23, who (bringing with him the required Certificate of competent Scriptural knowledge), shall pass the best Examination in

1. The English Language.
2. The Geography and History of the British Empire.
3. Practical Mathematics.

The Examination will be held at Easter, 1856. The names of Candidates must be sent on or before January 1, 1856, to the Secretary of the Bath and West of England Society, Poulteney Street, Bath; or to the Rev. J. S. BRERETON, West Buckland, South Molton, of whom further information may be obtained.

The Rev. G. MARTIN, Chancellor of the Diocese, and Sir STAFFORD NORTHCOTE, Bart., M.P., have kindly undertaken to conduct the Examination.

SMITHFIELD CLUB, 1855.—FAT CATTLE SHOW.—The ANNUAL CHRISTMAS SHOW of FAT CATTLE, SHEEP, and PIGS, will take place on the 11th, 12th, 13th, and 14th of December, 1855, at the Carriage Bazaar, King Street, Portman Square, when nearly 800*l.* will be awarded in Prizes and Medals.

The printed forms of Certificates, properly filled up, must be returned to the Honorary Secretary on or before SATURDAY, November 10th. Prize Sheets and the necessary printed forms of Certificates are now ready, and can be obtained on application to B. T. BRANDRETH GIBBS, Honorary Secretary, Corner of Half-moon Street, Piccadilly, London.

All communications on the Club's business should bear the words "Smithfield Club" on the outside.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1855.—The Seventh Great Annual Exhibition of CATTLE, SHEEP, PIGS, and DOMESTIC POULTRY, will be held in Bingley Hall, Birmingham, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, the 11th, 12th, 13th, and 14th of December next, when PRIZES will be awarded as follows:—

	£	s.	d.
CATTLE.—Including Two Extra Prizes of 20*l.* each and Two Gold Medals or other pieces of Plate of the value of 20*l.* each, for the best Ox or Steer, and the best Cow or Heifer	340	0	0
SHEEP.—First Prizes of 10*l.*, and Second Prizes of 5*l.*, for Leicesters, Long-Woolled Sheep not being Leicesters, South or other Down Sheep, Shropshire, and other Black or Grey-faced Short-Woolled Sheep—10 classes	150	0	0
PIGS.—Including Prizes for Pens of Breeding Pigs of a large and small breed	69	0	0
ROOTS.—Including a Silver Cup, value Five Guineas, for the best Collection of four different varieties	27	6	0
POULTRY.—Including Nine Silver Cups, of the value of Ten Guineas each, for the best Pen of Pencilled Hamburgh, Spangled Hamburgh, Polish, Spanish, Dorking, Cochin China, Game and Gold, or Silver Bantams; and for the best four Pens of Pigeons, to be exhibited, especially for this prize	451	10	0
	£1037	16	0

Exclusive of Silver Medals to the Breeders of Cattle, Sheep, and Pigs, and Prizes in the Extra Classes and for Cottagers' Poultry.

Mr. Ottley has also offered a Gold Medal, of the value of Ten Guineas, as an extra prize, for the best Pen of Polish Fowl of any colour, to be selected from the several classes for this variety.

Prize Lists, Certificates of Entry, and any further information may be obtained from the Secretary. The Entries close on Saturday, Nov. 10. JOHN MORGAN, Jun., Sec.

Offices—38, Bennett's Hill, Birmingham.

WARNER'S $4\frac{1}{2}$-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with $1\frac{1}{4}$ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50*s.*

$1\frac{1}{2}$-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

$1\frac{1}{4}$ Gutta Percha Suction, 1*s.* 6*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
$2\frac{1}{4}$ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	12	0
$2\frac{1}{2}$ „	long 3 „ 3 „		1	15	0
3 „	ditto 3 „ 6 „		2	12	0
$3\frac{1}{4}$ „	ditto 3 „ 6 „		2	18	0
4 „	ditto 3 „ 6 „		3	5	0
$2\frac{1}{2}$ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	12	0
$2\frac{1}{2}$ in.	long ditto	ditto ditto	2	15	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

FIRST PRIZE REAPING MACHINE.
NOTICE.

MESSRS. BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from $1\frac{1}{4}$ to $1\frac{1}{2}$ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.

The Agricultural Gazette.

SATURDAY, NOVEMBER 3, 1855.

WE beg the attention of our readers to the fact already advertised in our columns, that the Smithfield Club and the Birmingham Association both hold their annual show of fat cattle, &c., during the week ending December 15; that printed forms of certificates, properly filled up, must be returned to the secretaries, in the former case B. T. BRANDRETH GIBBS, Esq., Half-Moon Street, Piccadilly; and in the latter, J. MORGAN, jun., Esq., 38, Bennett's Hill, Birmingham, on or before November 10. Applications for these printed forms should at once be made.

TURNIPS, as we find them in common cultivation, may very readily be referred to two distinct types: one with white flesh, generally mentioned as "the Turnip;" another with yellow flesh, which goes under the name of "Swede." These two forms present very many varieties and distinct characteristics, which are more or less permanent, having reference to the season and manner of growth, form, size, colour, and substance; and when any of these characters are obtained with tolerable permanency, the individuals in which they occur may be called varieties, or in common vernacular "sorts."

Now, in order to understand the nature of these sorts, it will be necessary to premise that the two types of Turnip just mentioned are derived from two species of wild plants belonging to the same genus as the Cabbage, as thus:—

The common Turnip, *Brassica Rapa;*
The Swedish Turnip, *Brassica campestris;*

to which may be added Rape or Coleseed, *Brassica napus.*

These three plants, which are described as distinct species by botanists, are yet not without evidence of being themselves varieties; for, as remarked in HOOKER and ARNOTT'S "English Flora," 6th edition, p. 40, "although these three are readily distinguished in cultivation by their radical leaves alone, there are strong grounds for considering *all to be varieties*, as they scarcely differ in other respects."

But further, there appears no good reason for separating Brassica from Sinapis, as will be seen from the following analyses of the two genera. In the work above cited, Dr. ARNOTT, indeed, ventures the remark that "*the distinction between the two genera is purely artificial.*"

Analyses of genera:—

1st. *Brassica.*—Pod two-valved (with a sterile or one, or several seeded beak). Seeds in a single row. Calyx erect.	2d. *Sinapis.*—Pod two-valved (with a sterile or one, or several seeded beak). Seeds in a single row. Calyx patent.

Here then we see that the common and Swedish Turnips are derivatives from two wild plants, which if of distinct species are yet so nearly allied as to be capable of hybridising, and hence we may have hybrids (varieties) produced from (among others) the following sources.

1st. Hybrids from the union of species with species.
2d. Hybrids from variety with variety.
3d. Hybrids from varieties with species.

These admixtures acting and re-acting upon one another will account for the great number of sorts of Turnips which have been propagated up to the present time, as well as for others which may from time to time be produced.

Technical, therefore, as this introduction to our subject may at first seem, it still opens up to us the

following important practical subject for our inquiry and consideration, namely: If all our sorts of Turnips are derivatives, how are they to be kept up in purity and efficiency?

The stock farmer, in the case of a breed of cattle, would answer:—Look carefully to the blood of the creatures from which you breed, and do not breed from animals of an inferior kind, and in all cases choose the most perfect forms and most healthy subjects.

Now, if we can be brought to consider that the principles are the same in the propagation of pure varieties of plants as in pure breeds of cattle, a great difficulty in the production of seeds of a good quality and true to their sort will be removed. As these, therefore, are objects which may in either case be attained by attention to simple rules, the three following are offered as of primary importance in the case of Turnips:—

1st. *Never grow seed from a stock that has been repeated on the same farm.*

2d. *When determined to seed any sort, always choose your subjects.*

3d. *The patch to be seeded should always be as far as possible removed from others of the same family.*

1st. If we view different sorts of Turnips as derivatives from a wild stock, their peculiarities having been induced by the operation of circumstances very different from those to which their wild parents were subject, we shall at once see that the moment we allow our subjects to revert to the conditions of a nomadic life, they may be expected to become wild to a greater or less extent, and thus it is that continually sowing own-grown seed leads to that deformity of root which has been previously described in these columns as finger and toe, but besides this, as we have repeatedly proved from experiment, each year leads to a wilder habit of growth, with an increasing tendency to *running*, and what is termed *sporting*, and going off into varieties. What the continuance for a series of years of using own-grown seeds from the same stock may effect, we are unable to say, but in as far as experiments at present support our view, we should not be surprised to find at the end of seven or eight years not only that every trace of the original sort had been lost, but that several varieties of the genus Brassica, and even Sinapis, all of annual tendency, would be the result. The branching of the roots is the first step in this downward tendency, the loss of the bulb and consequent running to seed or annual habit the next: these we have seen brought about in the third generation of own-grown seed, and we may expect that a descent so rapid at first is at least as rapidly maintained.

2d. That a choice of subjects for propagating seed is desirable for the maintenance of purity, any one may satisfy himself of by looking over even the best crops. What crop of Turnips is free from double crowns, large and straggling foliage, distorted roots, and generally unhealthy individuals, to say nothing of "sports," or hybrids of hybrids? Careful choice, therefore, should be made of examples for seeding, and that not from one but several examinations, at different periods during their growth. We have seen patches of Turnips left for seed where they have grown, and every plant which could add its quota to the bulk—whether healthy or unsound, sport or otherwise—was made to do so. Here the seed was very faulty, and the same seed grown on the same spot the following season resulted in disease to a greater or less extent of the whole crop.

3d. The different varieties of Turnips are hybrids. It follows, from their number and great variation, that this plant has a peculiar facility of producing sorts; some of them, indeed, have been brought about by artificial, *i. e.* intentional hybridising; others by choosing as seeding plants varieties which have been hybridised accidentally. The process is exceedingly simple, both naturally and artificially. This will be easily made apparent from an experiment which we have still going on in our experimental plots. Thus, in the summer of the year 1854 we planted a patch of Rape by the side of some seeding Turnips, and another patch with Rape intermixed with the Turnips, so that they might flower at the same time; the patches were each 5 yards square, and managed as follows:—When fecundation, which was allowed to proceed without assistance, was finished, the whole of the Rape was carefully removed, so as to prevent the possibility of any Rape seeding with the Turnips, the Turnip seed was collected in due course, and two 5-yard plots sown with it during the present summer. The resulting crop, which is just now in vigorous growth, consists of malformed and diminutive Turnips, scarcely one being of normal shape, presenting either double crowns or forked roots, and with these, which are themselves anything but true to sort, are intermixed several plants an apocryphal Rape, with a few of the true Rape aspect. Here, then, appears good evidence of hybridisation from contact of two plants of the same genus, purposely planted in proximity; and besides this, we see in the degenerate Turnips the result of using own-grown seed in the same soil; the marked effects in this instance of the past year leading us to expect a still further decline on repeating the experiment. If then we are right in considering the admixture of Rape in the instance quoted to be the result of hybridisation—and there seems little reason to doubt it when we know what we can do upon trial, and moreover when we can constantly see its effects in *sports* of every kind—it follows as a necessity that Turnips for seed should not only be chosen of good sort but should be kept, in seeding, as far removed from all sources of contamination as possible; and hence that the choosing a plot of ground at the corner of a field for the production of Turnip seeds of different sorts is not good in practice. We have seen Swedes, Red Turnips, and White Turnips, placed for seed side by side, and though it is impossible to watch the result of these cases, yet the quantity of impure seed there is in the market, and indeed the almost total impossibility of obtaining a true sort, is hence, to a considerable extent, accounted for.

In concluding this part of our subject we wish it to be understood that there are other causes in operation which greatly affect seed growing, such as climate, soil, and general management; and indeed the latter is an important consideration, as after all the growth of good seed requires as much care and attention to details as the production of good stock, and the cause of so many failures in the quantity and quality of our crops is to be found in the often combined efforts of ignorance and dishonesty in our seed growers and seed merchants, though we have yet to learn why the exercise of skill, energy, and straightforwardness in the one case should not be as successful as it would be important in the other.

STEAM CULTIVATION.

In my last (p. 620) I proposed that the farmer should subdivide a field into allotments, for the purpose of enabling him to substitute steam for horse-power in cultivation—that these allotments should each contain one half acre, or not more than an acre, and that the content of such plots should be inscribed within the area of a "circle;" since this particular figure would enable us to fulfil the all important condition of "time" in operating. It now remains to me to explain what kind of machine, and what combination or arrangement of powers will be required to operate on arable land, when inscribed in such circular figure. A machine to be capable of executing any of the customary operations of tillage, by the circular method proposed, over half an acre of land, must be nearly 84 feet in length. Now the first impression affecting the mind of the farmer on reading this will not arise, probably, so much from the fact that this machine will be longer than any he has been accustomed to use, as from an idea how expensive will be the mechanism or interior works required to fill up this machine so as to render it capable of executing the usual processes—such as tilling or grinding up the soil, sowing seeds, hoeing weeds, harrowing or compressing light lands, &c. He will naturally say—"If an 8-feet drill now costs me 20*l.*, what will one of 80 feet cost?" and so on through the whole series of tillage instruments required. I beg him at once to dismiss all fear from his mind, since I am not going to propose he shall continue to pursue any such expensive arrangements as are now in vogue to attain his ends in the field.

The reference to this question of economy in contrivance brings me to the consideration of that point which I only alluded to in my last letter—viz., if the English farmer desires to introduce and profitably apply that economical power steam in the place of the living horse, he must in a measure return to that simplicity of operating in the field from which he is fast departing. I will here state that in the course of my investigation on this subject of steam cultivation (when pursued some years back with closer application than I can now devote to it), I elicited the following important deduction, viz.:—That you cannot with profit employ an expensive permanent mechanic agent on a cheap temporary operation. Now, I beg to call the farmer's and mechanist's particular attention to this axiom; since it is the law by which I work, and the key to all my propositions in this matter of the farmer's field practice. It is through the possession of that deduction or axiom I can write with confidence; by the aid of that axiom I can tread in a right path, whilst the agricultural mechanist having no such rule or guide is liable to great error in the nature of the mechanism he constructs for the farmer's use. I will briefly illustrate by examples what I mean by my axiom of "You cannot, with certain profit, employ a permanent mechanism on an operation temporary in its nature." I employ illustration, because I think the best way to become acquainted with a thing is to view it in respect to things which have relation to or similarity with it. Let us take first a railway locomotive. Now, this is an expensive permanent piece of mechanism, invented to convey passengers, &c., between towns, which is only a cheap temporary operation. Since it has been discovered that if a locomotive were to travel but once or twice a day between London and Greenwich it would be unprofitable; or if it had to travel but twice a week between London and Birmingham it would not pay; or even if such a permanent piece of mechanism ran every hour between London and Greenwich for one month, and was then put aside in a shed for six months—it would not pay. Why is this?—simply because the important axiom I have offered to your notice would be infringed; that is, the nature of the machine employed (which is permanent) not agreeing with the nature of the requirement, which is temporary. Let us now apply the same axiom to certain agricultural examples. We will take, first, reaping machines: now it will happen that whenever the farmer's chief produce shall fall to a natural price these machines must fail, because we have in them a permanent mechanism, invented to perform an operation which is temporary, viz, reaping; for nine months in the year these unphilosophical machines will be rusting in a shed, and the money they have cost lost to the farmer and his country; the same with the hay-tedding machine—here we have a permanent mechanism invented for a temporary operation, and what is the result?—for ten months in the year this mechanism will be rusting and profitless. Again, we have had permanent mechanism invented to perform the very temporary operation of dibbling!—and even a liquid manure machine (unless it be convertible to other purposes) cannot maintain its ground, when prices fall. Why is this sure to occur? Because all these inventions offend the mechanical axiom I have propounded, viz.: That you cannot employ permanent mechanism to perform a temporary operation, unless the mechanism employed be so inexpensive in proportion to the benefit derived, or the price paid for the article produced be very high. But I may sum up my views on the point in this form, viz.: That mechanism being expensive and permanent in its nature must be continually employed all the year round. Now, no farmer will deny that the most striking characteristic of his field operations, is, that they are temporary. Hence every true inventor would say, "Then so must the mechanism be;" and proceed to construct accordingly. I shall follow such a course, leaving it quite open to the agricultural mechanist to put his permanent mechanism in the place of my temporary contrivances if he shall think it advisable or judicious, after hearing my arguments.

We will now proceed to invent a machine and combine its mechanism. We will lay bare the whole process of invention required to fashion a tillage machine, which shall not only perform one, but nearly all the customary operations of the field. It will be recollected, that when we sought to discover the "method" whereby the versatile powers of steam could be applied with its usual efficiency in the field, we had to interrogate nature; we have now to search out the particular mechanism or means through whose use we can till land, sow seeds, hoe weeds, irrigate growing, cut or collect matured crops, &c.; to obtain the necessary information on this point we must leave nature, and apply direct to common sense and past experience. Our case is this, viz., we have half an acre of land to cultivate in two and a half minutes of time—we are supposed to have decided that it shall be cultivated on the circular method: and in consequence that it will require a machine of nearly 84 feet in length, extending from a fixed point; and acting like a moveable radius. The point now to be elucidated is, how shall we fill, or fit up the whole length of the machine with mechanism adapted to execute all the known labours of tillage, and also capable of doing the work in an effective manner? Now, an inventor must first obtain the right elements or materials necessary for his purpose, before he can combine them; hence he would proceed thus—he would ask, 1st, What is the characteristic of the operations connected with tillage? Answer—They are temporary, only lasting for a short time. Then, he would say, So must my mechanism be. 2dly, Are they varying or unvarying? Answer—Ever-varying. Then so must my mechanism be capable of continual variation—first for one purpose, then for another.

He would now proceed to ask, What is the object sought for by the farmer in the field? The answer would be, To produce a thing of life, called a plant; in fact, to manufacture a real living object, from a real live seed and soil. Upon discerning the result of this interrogation, a new and unexpected light would break in upon his mind, and he would see that it was no longer a dead material (as in other arts) he had to work upon; or a dead object to be manufactured, but a real thing of life; it was no longer like dead hay in the barn he had to assail by mechanical contrivances; it was no longer dead and dried straw he had to deal with, like the steam-thresher in a farm-yard, but real living objects to be manufactured. This was the main problem he had before him! At first the inventor will seem lost for information. If by putting a handful of Turnip seeds in at one end of a box, and then by turning a few ingeniously contrived cast-iron wheels acting upon pinions, &c., he had to grind out 5 tons of full-grown Turnips, the thing would seem simple enough and in strict accordance with his experience, because he would then have only to comply with approved rules and analogy, and they would carry him through; but he finds directly he leaves the manufacture of the dead *matériel* in the barn, and enters the field, he is brought into contact with the manufacture of life in the form of a vegetable. He finds the homestead and the field are two totally distinct departments, and the object of each

is totally different from the other. So he says, "In the barn or homestead I observe the object is the manufacture of a dead material; and the essential element to ensure success here is cast-iron undoubtedly—but this is the field wherein the chief object is to manufacture a living material;" he continues, "it is of no use attempting to invent a machine, be it expensive or otherwise, unless I obtain for it the essential element to ensure success in the manufacture I am about to fashion it for; of what use will it be making a thing and puffing it into ephemeral existence by stating it will do all that is needed, when after a brief trial it will die a natural death, and be no more heard of." So he asks himself this commonplace question—"What is the essential element to ensure success in the rearing or production of life, for I must have it?" And he finds the answer is—"*Attention, unremitting attention.*" When he says "Can I obtain this from cast-iron materials in chief? No—for who ever heard of infants (which is 'life') being reared by cast-iron nurses, or of fine plants being produced by cast-iron gardeners?" Again he asks, "Then from whence can I obtain this element 'attention,' so essential to ensure success in plant production, which is the business for which I am about to construct a machine?" The answer he obtains is only from the "head and hand of man." Here he seems in what the Americans call a "fix." He sees, he knows cast-iron mechanism is, and has been the chief and appropriate thing for the barn, but that the "attention" of man is the chief thing for the field. Now, this position is awkward, because he knows full well nearly everybody thinks there is no limit to mechanism; that to start an idea in these latter days in opposition, as that mechanism may have a boundary and a limit, and be out of place in any one branch of an art or manufacture, even though that manufacture be one of "life" itself, would be rank heresy and schism; to undertake to define where mechanism begins and "man" ends, or man begins and mechanism ends, is a dangerous and difficult task. However, knowing the "terms" of invention, he perseveres in eliciting the conditions of composition absolutely required to form a tillage machine cheap, yet substantial and suitable to the usual requirements of the farmer in the field. And he succeeds in this way; he says, "So I must have 'man' in the field, because I require his 'attention' all the year round;" but there are certain preparatory but temporary operations, which are purely mechanical, which must be executed by mechanism and be performed by the ordinary rules of mechanics; so he asks this question—"Hence, how can I obtain mechanical command over a man, so as to cause him to become, for the short time I may require him, strictly a piece of mechanism?" He finds the answer to this is, "By taking him off his legs,"—by moving him, instead of allowing him to move himself over arable land! Now I call your particular attention to this. Here the inventor obtains the essential element to ensure success in plant production, viz., attention; and also discovers the method whereby he can acquire the necessary control or command over it, so as to make it serve as a piece of temporary mechanism in the composition of a machine for executing tillage.

Having found that man, the labourer, is the most valuable piece of mechanism a farmer can have in the field department of his business, he proceeds to discover how he can apply him to perform the mechanical and temporary operation of tillage. He says, "There are only two things absolutely necessary in field mechanism, viz., leverage and steerage. By using the fixed point (point d'appui) with my machine I obviate the necessity of studying 'steerage' altogether; hence the only thing to provide for is 'leverage;' that is, to use something which shall be capable of elevating or depressing a lever, having tillage mechanism at its extremity." This he finds the ordinary skill of man is fully equal to; the only precaution required being this, viz., that you carry him instead of allowing him to carry himself. By putting him in the gallery 84 feet long, he finds he can readily fulfil this condition, and that one man can manage a great length of tillage mechanism. So by using a man, an inventor at once obtains a cheap and plentiful species of "mechanism" ready made to his hands, to fill up an apparently long machine. Consider yourselves, what is there in tillage practice so elaborate or so difficult which the ordinary skill of man cannot encounter and accomplish; that man who can point pins or drill the eyes through a handful of needles with such speed and dexterity that the unaccustomed eye cannot follow him in his work—what is there in field operations which he cannot do, provided you supply him with certain necessary artificial means, and endow his hands and legs with the required artificial power? Literally nothing, as you will discover when I come to analyse and pass in review the operations of the field, and place them before your eyes and minds in their real "native" simplicity. Modern improvers (well-meaning, no doubt), have tried hard and long to throw the cloak of elaboration upon that branch of the farmer's art, which is simplicity itself; but the best commentary on their past attempts is, that not one single expensive elaborate attempt has ever succeeded, been profitable, held its ground, or been imitated by others. By results we judge the correctness of proceedings, and we can all of us emphatically say, that in all our observation or experience we never yet saw an elaborate experiment or an elaborate mechanism succeed in the field. Hence what is the inference? Why, that intricacy and elaboration are out of place; and that "simplicity" is the very soul of that department of the farmer's practice which is carried on in the field. Simple as Nature is the farmer's art, and we must assist that simplicity, not seek to supersede it. *Charles Burcham, London.*

MR. CAIRD'S ESTIMATE OF THE HARVEST.

[The following is portion of a letter addressed to the *Times* on this subject by Mr. Caird.]

THE English Wheat crop of 1854 proved one of the best on record. It appeared a large crop at harvest, but it threshed out even better than it promised. The fineness of the harvest weather perfected a bountiful crop. This was followed by a continuance of the same propitious weather during seed-time, and, as Wheat was then selling at such a price as most farmers hardly expected to see again, every acre that could be got ready was sown with Wheat. So much for the autumn seed-time. When spring came one bushel of Wheat was worth two of Barley, and the advantage was plain enough of substituting the one crop for the other wherever practicable. Accordingly an unusually large breadth of spring Wheat was sown last season. If we suppose that only one-fourth of the usual breadth of Barley land was sown with Wheat, that, on the four course system, would add one-fourth to the average breadth of land under Wheat.

The weather during May and June was too cold for the Wheat crop, with late frosts, and at this period the crop suffered considerably, especially in the south. It was fully 14 days later than usual in coming into ear, in some places three weeks. But July was warm and forcing, and the weather on the whole was favourable while the crop was in bloom. Towards the end of the month the effect of blight made its appearance, and it then became manifest that the ear was partially defective. On the 4th of August harvest was commenced on the Sussex coast, by the 15th it was general over the south of England, and during the next six weeks the weather was everything that could be wished for the cutting and in-gathering of the crops throughout the kingdom. Within that time all the valuable Wheat crops were secured, and in excellent order.

The crop has now been tested in all parts of England, and, while the yield is found to fall considerably short of the great crop of last year, and in some particular districts, owing to special circumstances, is very defective; yet, on the whole it is believed to be nearly an average produce per acre over much beyond an average surface. The farmers' deliveries of Wheat in the various English markets during the first week of October for the last three years, as shown by the *Gazette*, are a pretty accurate indication of the correctness of this conclusion. For the week ending October 6 the Wheat delivered was—

1853.	1854.	1855.
95,494 qrs.	151,801 qrs.	155,921 qrs.

From these figures we should be almost justified in assuming that any defect in the yield is compensated by the increased breadth under crop.

I am inclined, however—and I think it will be a prudent calculation—to assume that the yield of the last Wheat crop is something below an average. We may take it at one-tenth, and then with the foregoing *data* we have the following results as the produce of 1855, viz.:—

	Qrs.
Average Wheat crop of the United Kingdom ...	13,500,000
To which add one-fourth for increased breadth sown in consequence of high prices, a favourable seed time, and a liberal use of guano ...	3,375,000
	16,875,000
Deduct one-tenth for defective yield of last crop	1,687,500
Total estimated Wheat crop of 1855 ...	15,187,500
Estimated annual consumption of the United Kingdom	18,000,000
Apparent deficiency to be supplied from abroad	2,812,500

which is little more than one-half of the average annual importation of the last five years.

But there are two important circumstances to be taken into account which will materially diminish this apparent deficiency—the lateness of the harvest and the economy of consumption caused by high prices. The harvest was three weeks later than usual, and we may thus save three weeks' consumption of the present crop. This saving, however, is not one on which it would be prudent to reckon, for in the same degree the stock of old corn in the country must have been diminished; and a greater margin than this will always be required on hand to meet unforeseen contingencies. But the economy of food caused by high prices is self-evident to every one, and, if we take it at one-tenth, there will remain little more than 1,000,000 quarters of Wheat and Flour, for which we shall be dependent on foreign supply.

There can be little doubt that the present range of prices will procure this supply from America and Egypt alone, even should the northern European ports be closed against us by the defective crops and high prices anticipated abroad.

Now, if these figures could be relied upon, there would be no further anxiety on the food question. I cannot, however, ask for them any greater dependence than may be given to the result of individual inquiry and observation and a pretty accurate knowledge of all the Wheat-growing districts of Great Britain. It will be obvious to those who have studied the question that the result of this estimate is mainly governed by the supposed increased breadth of land sown with Wheat last season.

If my estimate should prove accurate, the present price of Wheat is not likely to be maintained. But, if I have materially erred in this, the deficiency may prove very serious. Is this a question that should any longer be left to doubt and uncertainty? The evidence taken by the Lords' Committee on Agricultural Statistics last session conclusively proved the practicability of obtaining accurate returns of the acreage under each crop in the kingdom, which, if at present in operation, might have been published six weeks ago, and would at once have given certainty to the trade in corn, now fluctuating with every new rumour from week to week. The present average price of Wheat is exactly 20*s.* a-quarter higher than it was at this time last year! Each month's consumption is thus costing the country 1,500,000*l.* more than it did then; and yet successive Governments hesitate about an outlay of some 30,000*l.* to obtain accurate returns, which would calm public anxiety as to the supply of food, and would remove that uncertainty and apprehension which alarms public credit and paralyses trade. Of all the mistaken economies ever committed by a great nation there has never been one more delusive than to grudge the cost of ascertaining facts upon which the trade and welfare of the country are so much dependent. *James Caird, 6, Serjeant's Inn, Temple, Oct. 29.*

Home Correspondence.

Fisken's Plough.—By the way of satisfying "W. B.," and preventing the future misapprehension of other people, I will just re-state the facts of the case at issue. In Fisken's apparatus we have a wire rope laid along the ground and fastened to an anchor at each end of the field. This rope is passed one turn round a grooved barrel upon a travelling frame to which the ploughs are attached; so that when the barrel revolves, it winds its way along this stationary rope. The strain upon the rope—and therefore upon whichever anchor the windlass or ploughing machine may be approaching—is not greater than the draught of the machine. In order to actuate the barrel, an endless hemp rope, driven by a portable steam-engine, is passed round a pulley at each anchor (that is, at each end of the field), and this rope drives a rigger upon the travelling carriage, which rigger communicates motion to the barrel by means of a pinion and spur-wheel. As this light rope is mounted upon "horses," both the anchors bear a strain sufficient to hold up the double length of rope from touching the ground, to which must be added the drag arising from the friction of the rollers upon the "horses." The strain upon the anchor at the end of the field furthest from the engine is no greater than the draught of the travelling machine plus the slight strain due to the light driving rope as just explained. The strain upon the anchor nearest to the engine is greater; because, in addition to this, it has to bear (or rather, may have to bear) a strain equal to double the draught of the rope between the engine and the travelling windlass; the other pulley having to do only with the slack rope. The driving-rope having a velocity 11 times greater than that of the machine it propels, its "draught" is 11 times less; thus the anchor nearest to the engine has to sustain a total strain equal to the draught of the plough-carriage, plus two-elevenths of the same draught, plus the slight strain arising from the suspension of the driving rope and the friction of the small rollers upon which it rests; to which must be added an allowance for the friction of the wheelwork upon the travelling carriage. In other inventions, in which the ploughs are drawn bodily by an endless wire rope, itself travelling at the same pace as the ploughs, the pulley at the far end of the field has to resist a strain equal to double the draught of the implements plus that of the heavy rope, which moves with great friction over the ground. The above is a statement not of opinions but of facts, which neither "W. B." nor any one else can destroy, so that I maintain my assertion that Fisken's plough works with very little more strain upon the anchorages than is due to the simple draught of the implement. *I. A. C.*

Adulteration of Manures.—In the address of Dr. Anderson to the Scotch Agricultural Society is the following statement:—"A very remarkable instance of this occurred to me some time since. I analysed a manure professing to be manufactured by a particular process, which it is unnecessary to explain; and calculating from the amount of its valuable matters I fixed its price at 1*l.* 5*s.* per ton: in doing which my estimation was based on the regular market prices of these substances; so that it was possible for any person, by mixing salts of ammonia, &c., to produce a manure of equal value for that price. Some time after, I met the individual for whom the analysis was made, and he informed me that he had shown it to an extensive dealer in manures, who had said, that he had no doubt it was quite correct, but that he could himself afford to give for the manure a much higher price than I had fixed, because he knew that, in the present state of the market, he could sell it for 4*l.* or 5*l.* per ton. Here, then, was a person prepared to speculate on the ignorance of the farmer, by inducing him to pay, for this substance, nearly three times its actual value. It is scarcely possible to adduce a more striking illustration of the risk to which the farmer is laid open by the want of chemical information." If this is done to the keen and wealthy farmers of Scotland, what must be expected for small farmers, where agriculture is in arrear? It is a lamentable reflection that farmers, working early and late, should be preyed upon by a set of harpies, who thus swindle them out of

their profits. Small farmers cannot be expected to study chemistry, as Dr. Anderson recommends. But now there is an official chemist, Dr. Voelcker, of Cirencester College, appointed by the West of England Agricultural Society, who will examine their manures at a very reasonable rate, they may agree among themselves to have a few well averaged samples assayed yearly, to detect these swindlers, and drive them from the market. Not seller's samples, but drawn from different parts of their purchases, and well mixed, so as to form average samples of the whole. Let them reflect on being thus cheated of a bag of Wheat, or a ton of Turnips, per acre, year after year: and think how many assays this would pay for, and leave a good profit for ther own pockets, instead of going for articles nominally cheap, but really little worth. Nor is the farmer the only sufferer. The country needs all that can be produced from its soil; and whatever is thus hindered by falsified manures is a national injury. *I. Prideaux.*——I see that your correspondent from the Fens reports that now, as ever, an enormous amount of roguery is going on in the guano trade. I belong to an agricultural society held in a small out-of-the-way place, called Dolsdown. Among other benefits we hope to confer on the neighbourhood is the detection of adulteration in manures, carried out in the following manner:—A farmer requiring a load of guano or superphosphate selects a suitable trustworthy man as waggoner; he is provided with a small tin canister; when the waggon is loaded the driver requests the vendor to take a small quantity out of one of the bags, and in his presence to seal it up in the canister; this sample is sent to be analysed, and the chemist's report, be it good or bad, is read at the next meeting. I cannot but think that if this plan were carried out by the numerous influential societies held in all parts of the country, we should hear no more complaints of adulteration of manures. *Thomas Sibbald.*

Thin Seeding.—It is gratifying for us to know from your leading article that you bespeak attention to our remarks on sowing of corn. As to our experimental yards, and the inference you draw from them, we agree with you in most points—especially that a whole acre cannot be expected to produce as much proportionately as a single isolated yard; nor did we ever intend to convey such a conclusion, however differently the meaning of our statements may have been construed in this particular. The idea and practice, as we desire to convey it and to have it understood, differs but little from Mr. Smith's plan of Lois-Weedon—viz., planting only half the land continually in square yards or a yard wide, alternately fallowing and interlining other crops in the intervals, with this difference only—that we sow much less seed than Mr. Smith, and profess to obtain thereby considerably more produce. We only quote the productions possible to be obtained from extreme wide distances of planting, and small quantities of seed, with the view of proving the absurdity of sowing 20 times the quantity to obtain less. We beg also to observe that our single yards referred to were grown surrounded by other crops (French Beans), though not amidst other crops of corn. Also, that another yard side by side, treated alike in every respect, was sown with the same kind of seed at the rate of 3 bushels per acre, and produced only a quarter of a pint of inferior stuff, or little more than 2 quarters per acre. What then can be expected from a full crop equal to this all over the ground? We are now farmers of 100 acres and not gardeners, but have to rejoice that we were first gardeners; neither of them are mean occupations. Sir Joseph Paxton was once a gardener, and the junior of our establishment was once a partner with him in the Duke of Devonshire's garden at Chiswick. Let us but endeavour to follow his good example, and we doubt not of good results. *Hardy & Sons, Seed Growers, &c., Maldon, Essex.*

Drains with Brushwood.—Being about to drain some wet clay lands which lie very high and far away from good roads and at a long distance from a draining-pipe maker, and where the stone of the neighbourhood is so hard that it is very expensive to break up for draining purposes, but where underwood is abundant, I am anxious to inquire if any of your numerous correspondents have had any experience in draining with underwood of about 12 or 14 years growth, such as Blackthorns, Hazels, and Oak, &c. I remember the farmers using brushwood extensively for draining when I was a boy 30 years ago, but as I was moved far away from the neighbourhood when I was very young I have no means of knowing how it answered except in one instance, which I was told three years ago was still satisfactory. I was also lately informed of a party of workmen who in making a road through some fields in Herefordshire cut through some drains that had been made with brushwood—Willow—the branches of which were quite sound, but no persons in the parish remember the drains being made. Any information respecting the effects of using brushwood in drains would greatly oblige your subscriber. *H. B.*

Cattle Feeding.—I agree with Mr. Harkness, that at present prices bullocks will pay 6*s.* per ton for Turnips, having unlimited Oat straw gratis, and receiving a very small portion of extra food. Irish Turnip crops and English ditto are quite a different affair. With an Irish climate and soil, no doubt Turnips can be grown at 6*s.* per ton, and of a good succulent quality. But how stands the matter in our dry Wheat-growing English districts? I will venture to state, that taking the whole county of Essex (one million of acres), the Swede Turnip crop does not this year average nine tons per imperial acre. In fact, in many cases, the crops are an entire failure. The cost of the Swede crop will be certainly 20*s.* per ton this year, and on an average it is seldom less in Essex than 10*s.* to 11*s.* Let me not be misunderstood; I am a strong advocate for root cultivation, but I repeat what I have before said, that on an average of seasons and soils, the return for the Turnip crop is, independent of manure, much less than its cost. Your own large experience in this matter confirms my statement. The Mangold Wurzel and white Turnip are the more suitable crops for Essex. I have this year 28 tons of Mangold Wurzel per English acre, but if I can sell them in the spring at 16*s.* to 20*s.* per ton, I will certainly do so, and replace their exhaustion by guano, Rape cake, &c. I find that after Mangold Wurzel I can grow a large spring crop either of Oats or Barley, by a dressing of 2 cwt. of guano. In fact, this year I have over 64 bushels of Barley per acre after Mangold Wurzel without any dressing. It may be interesting to some of your readers to know that my crops of 1854 averaged Wheat, 39 bushels per acre imperial; Barley, 64 bushels; Oats, 88 bushels; Beans, 32 bushels. This year I have reason to believe they will be heavier. Generally speaking I dare not guano for my cereal crops. I mention these facts, as I see Mr. Harkness' correspondent implies that I farm high but badly. *J. J. Mechi.*

Dairy Production.—Referring to my communication on this subject in your number of August 11, in which I gave the result of a trial made of the produce of three ordinary milk cows for the week extending from June 26 to July 2, which may be taken as the period of maximum production in the year (the production then being found to be at the rate of 1*l.* 6*s.* 10*d.* per week for the three cows, or about 1*s.* 6*d.* per diem for each cow, the fresh milk being valued at 2*d.* per quart), I now give you below the result of a trial made with the milk of four cows for eight days in October, which may be considered as a period of medium production. The cows were fed with cut second-crop Clover, with, as before, a daily run in a Grass paddock with a supply of running water. It will be noticed that on the first and last days of the trial the milk of each cow was measured, and is stated, separately. On the 21st, which was Sunday, they were milked but twice, say at 9 a.m. and 6 p.m.; on the other days they were milked at 6 a.m., 1 p.m., and 8 p.m.

	Cow qts.	Morning quarts.	Noon quarts.	Evening quarts.	Total. quarts.
Oct. 17 ...	No. 1—3, " 2—2½, " 3—3, " 4—2½	11	—2, —1½, —2½, —2 } 8	—3, —1½, —3, —2 } 9½	—8, —5½, —8½, —6½ } 28½
" 18 ...	The four	10	8	8	26
" 19 ..	ditto	11	7½	7½	26
" 20 ...	ditto	10	8	8	26
" 21 ...	ditto	11		10	21
" 22 ..	ditto	11	8	9½	28½
" 23 ...	ditto	9	8	8½	25½
" 24 ...	No. 1—3, " 2—2, " 3—3, " 4—2½	10½	—2½, —1½, —2½, —2 } 9	—2½, —1½, —3, —2 } 9	—8½, —5, —8½, —6½ } 28½
	Total quarts				210

Which if sold fresh at 2*d.* per quart, would bring 1*l.* 15*s.*, being at the rate of 1*s.* 1*d.* per day production from each cow; but it was not so used, and our experience (as shown below) is similar to that which I chronicled in my last communication, viz., that milk may be as profitably disposed of by being converted into butter, &c., as by being sold fresh. This finding is contrary to the generally received opinion, and it may be of instruction to those who, acting on that opinion, put themselves to much trouble and expense to bring their milk fresh to market. It is true that the manipulation and sale of butter, &c., involves also labour and supervision, but not to the same extent as does the delivery of the milk in bulk.

Return from 210 quarts of milk as above:—

	£	s.	d.
Cream collected therefrom 25 quarts, which when churned gave 24 lbs. of butter (as salted) at 1*s.* ...	1	4	0
16 qts. of buttermilk, sold or used for household, 1*d.*	0	1	4
54 qts. skimmed milk ditto ditto 1*d.*	0	4	6
Remainder of milk made 29 lbs. curd, at 2½*d.*	0	6	0
	£1	15	10

Being 10*d.* more than the value in the shape of fresh milk. *S.*

Salt for Retention of Ammonia.—Your "Allerton" correspondent (p. 700) is, I suppose, aware that the excellence of used fishery salt as a manure depends not on its purity as chloride of sodium, but on its richness in oil and animal matter; and he is surely right in preferring this, to which he can add sulphate of lime (gypsum) in any proportion, to mere impure salt, with sulphate of lime in uncertain proportion; and fishery salt is good to mix with guano, equal parts, not merely to retain the ammonia, but to improve the quality of the products, as the guano increases their quantity. But it will not bear the cost of very distant carriage; its price should not be more than 25 per cent. above that of ordinary agricultural salt. And so of the ashes; the proportion of sulphate of lime may be increased with gypsum, but it does not act well dry; whether mixed with or contained in the ashes, they must be damped to retain the ammonia. *J. Prideaux.*

Drainage and the Improved Temperature of the Soil.—I have read, as every one engaged in draining would read, the statement of the experiments on the temperature of the soil at Yester Mains of land drained and land undrained, with considerable interest and some disappointment. But I am not disposed with Mr. Clutterbuck to accept those experiments as proof conclusive of the fallacy of the theory that "by drainage the temperature and therefore the climate of soils is elevated." My disappointment arises from the fact that as the statement does not go to confirm the theory it will be hastily accepted by many in the negative, although the attendant circumstances are most fairly described by Mr. Stephens. All should observe that the trial was not upon the same land before and after the operation of draining, and in the same condition of tillage and culture, but it was made in different fields differently cultivated. I have heard that Mr. Parkes has for some years past been carrying out a series of experiments on the temperature of soils before and after drainage, and the public will do well to defer their judgment until the results are published, as it is to be hoped they will shortly be. One very extraordinary circumstance has come to my knowledge, showing the activity of atmospheric influences in a drained soil. Drains have been observed to run after a discontinuance of that duty without any fall of rain on the surface, and upon referring to the barometer it has been found that the quicksilver had fallen very considerably whenever this has been the case. If this curious circumstance can be corroborated by careful investigation, how can Mr. Stephens assume that at 18 inches deep, in a drained soil, a thermometer is "not sensibly affected by the changes of temperature in the atmosphere?" While suggesting that agriculturists should suspend conviction on this point, I cannot help turning to what was reported to have been said at Witham the other day—that "the occupiers of undrained land doubted whether the extra benefit would compensate the cost of draining." Will any one assert that the increased produce resulting from drainage is not at least 1 bushel to every 24 bushels grown on undrained land? I hardly think there is a man who has fairly tried the question who will hesitate to affirm that the gain is very much more than a twenty-fourth. But it is not necessary to prove a greater increase than this to show that drainage must be profitable to the occupier. We will leave out of the question all reference to easier tillage and earlier growth, as involving too many words for the purpose. Drainage now is a landlord's operation. The tenant has only to do with the interest on the outlay, and if we accept 5*s.* per acre as representing that interest (the annual contribution of the tenant), it must be conceded that an increase of 1 bushel to every 24 bushels of corn and Pulse hitherto grown will more than pay it. With respect to open "land ditches" as a means of draining soils of a tenacious nature, it is notorious with all men practically acquainted with the subject that they fail altogether in that object. It is often observable that a clay subsoil at a given depth is wetter within a yard of an open ditch than within three times the distance of a sufficiently deep underdrain. *J. Bailey Denton, 52, Parliament Street.*

The New Forest.—Your correspondent Charles Paul in *Agricultural Gazette*, Oct. 20, states that "we have a New Forest of 92,656 acres," confounding the extent of forest with that of the land within the boundary, one-third of which consists of cultivated land, and includes towns, villages, and private property of all descriptions. Of the remaining 60,000, 6000 have always been enclosed for the protection of young timber, and this quantity is now, I believe, more than doubled, and over the remainder, whether consisting of woodland or heath, the neighbouring poor enjoy very extensive rights. Whatever may be thought of Mr. Charles Paul's plan, of which he may see plenty of examples within and around the New Forest, it is a pity that the above error should go forth. *S. B.*

Farmers' Clubs.

LOUGHBOROUGH: *Agricultural Statistics.*—At the meeting of this Association Mr. Packe, M.P., made the following remarks on the subject:—They all know that this which had been called their own hobby in matters of legislation, many people said was "dead." He would perhaps not go so far as that—but he would admit that it was "gone to grass." There had been sitting this session a committee of the House of Lords who had had a motion brought before them to "inquire into the best mode of obtaining accurate agricultural statistics in the United Kingdom, and to report thereon." The peers, composing that committee, seemed all to have entertained a similar opinion that it was settled that the collection of agricultural statistics would be for the interests of the country generally, and no evidence whatever had consequently been taken as to whether it would be right or wrong, injurious or inquisitorial into private affairs and interests; but they had jumped to the conclusion that the whole nation was in favour of it. Thus the committee rather laconically observed at the commencement of their report that the advantage of obtaining agricultural returns was so obvious "that this committee deems it scarcely necessary to dwell upon it." This done, the committee had recommended that power should be given by act of Parliament to enable the government to compel the occupiers of land to fill up schedules of returns! That has been the recommendation of the committee without the examination of any witnesses, social or political, or inquiring whether it would be agreeable to the agricultural interests generally that such statistics should be taken! They had passed a series of resolutions of which he might read a few most important, purporting that the collection of agricultural statistics was an object of national importance; that whilst many classes would be benefited by it, none would derive greater advantage from it than those connected with agriculture; and that this being the case, power should be accorded by act of Parliament

to compel the necessary returns to be made. There were to be two classes of returns :—1st, Returns of facts, and 2dly, estimates. In the facts would be returned the acreage of land, and an account of the extent of each crop that was grown. The estimates were to comprise returns of the crops harvested: and the first class of returns were to be required by the 1st July; the second between the 1st and 10th November in each year. As it was further supposed that the collection of agricultural statistics would be of general utility, the expense was to be defrayed out of the National Exchequer. Testing in another manner the opinion of those gentlemen who said they would be advantageous to all classes, he begged leave to say that last year 4000*l.* had been expended, from the estimates of the House of Commons, in obtaining through the poor-law machinery returns of this nature from different parts of the kingdom. They themselves knew something of this, having been one of the counties selected for that experiment. These counties were in number 10 or 10½, counting the West Riding of Yorkshire. They had been selected by the poor-law board, and as far as the returns went were curious instances of the feeling of the country. From the report which the committee had received from the poor-law inspectors, he should just read extracts. The reports from these 10 counties out of the 32 were strong indications of the feelings of the farmers throughout England upon the subject—although they would bear in mind that the matter had been only tried, and was merely an experiment in these 11 counties—or not so many—10½. The counties selected were Suffolk, Norfolk, Hampshire, Wiltshire, Leicestershire, Berkshire, Worcestershire, Brecknockshire, Shropshire, Derbyshire, and the West Riding of Yorkshire. How, then had the farmers received the poor-law inspectors in their endeavours to obtain these returns for the Board of Trade? In Norfolk and Suffolk the same poor-law inspector had reported that in several unions the co-operation of the guardians had been refused, and that hostility had proved itself to exist through the agency of market-place and a market-table discussion. This had been stated in documents presented to the House of Commons. In some of the unions, the document in question went on to say, success had been impeded by the unconquerable prejudices of occupiers, and large occupiers, whom it was impossible to reach—and if reached impossible to convince by argument. In Hampshire and Wiltshire, again, the experiment of collecting agricultural statistics in that district the inspector regretted to say had "failed." He attributed this to the refusal to report (so essential) of a numerous body of agriculturists, who had demurred on the grounds of the injurious tendency, insidious nature and mischievous character of the inquiry; and it was thought that the Government had an eye to taxation, or some other thing of the kind, injurious to the interests of the farmers. In their own county (Leicestershire), as the gentlemen he was addressing were well aware, the Loughborough Union had considerably resisted the inquiry; great resistance had been shown in another union; in Bilsden Union it had been found totally impossible to obtain any report at all. Mr. Ingram, the clerk to the Bilsden Union, had written to Mr. Weale, the inspector, in January, 1855, regretting to inform him that the Agricultural Statistics Committee had come to the conclusion that the serious difficulties and opposition thrown in their way rendered it impossible to complete the returns of last year. Several classifiers apprehended that the effect would be to place the guardians and ratepayers in antagonistic positions, were the law carried out. This was, therefore, the feeling in five counties. Now, in Berkshire it was found that there was a general and determined opposition to the adoption of the measure; and it having become desirable to hold a special meeting to meet objections and explain away difficulties, it was found to be in vain to attempt assembling the board of guardians on any day but that of their ordinary meetings, from their distrust of the inquisitorial objects, utility, and consequences of the proposed returns. In Worcestershire and Brecknockshire, the only counties where the measure had been tried, only seven out of 35 unions had complied. In Shropshire and Derbyshire, the prejudice that they would open an undue interference with private business had taken hold of the minds of many wealthy and respectable farmers. And what the inspector spoke of as most provoking was, that several of the committee had themselves refused to fill up the schedules! One favourable account had been obtained from what could hardly in any degree be called an agricultural county—the West Riding of Yorkshire. It was very well understood that the West Riding of Yorkshire was one vast hive of manufacturing industry; but greater unanimity had prevailed there in making these returns; and the same passages found in the reports of other counties were not seen in the reports relative to that county. He (Mr. Packe) should be the last person to wish to state anything in bitterness or hostility. But he had read nothing which had convinced him of the advantages of those agricultural statistics; and yet the farmers' concerns were to be laid open, as recommended in this report of committee. From a noble friend of his, whom everybody knew well in that county, and for whose zeal in agricultural matters he had the greatest possible admiration, he differed, in so far as when he ventured to say "it would do the farmer no harm," he (Mr. Packe) must reply, "it would do him no good." The farmer had been rather hardly dealt with of late years by the legislature; and it must be proved to him (Mr. Packe) not only that the measure in question would do the farmer no harm, but that it would do him some good. (Loud cheers.) Some parties thought it would be a beneficial measure. But at the taking of Kertch, in the Sea of Azoff, a great number of quarters of corn had been destroyed which it was said had cost the importers but 12s. a quarter; and there had no doubt been a great quantity destroyed which had only cost this price. Now, if an inquiry were established into what they were to get for their corn, what quantity was likely to come to market, &c., the greatest possible advantage would be given to the importer, and the buyer of corn would be ready for them. In consequence, it could not be said that it was a beneficial consideration for the farmer; but in order to see what it was likely he would be able to produce, this measure was proposed; and as to prices—look at present prices, and say whether it was probable they could do better, or even as well. (Laughter and cheers). Why meddle with them, then, and injure their concerns? When they were making their fortunes by farming, was it not provoking to have an inquiry made into what they had got? He would simply ask this: If there were a great many large shops of the metropolis which at a certain season of the year were compelled to sell at a reduced rate; and if the concerns of these houses were published, and returns made of all that their back shops contained stored away, because it would not sell, and if all this were done with a view that we might not know how to buy their goods, why, we should only want to know what they had got to sell, wait till they were forced to reduce their rates, and then become their customers. (Great cheering.) He would be glad to know where the distinction was betwixt the case of the shopkeeper and that of the farmer. Yet there were many opinions prevalent upon the subject, and he wished to take the course which was best and most beneficial for the agricultural interests. But as at present advised, with these documents before him, and knowing the opinions of the inspectors of ten counties, he felt obliged to say that he should have some difficulty in being able to acquiesce in this measure.

Crewkerne.—At the annual meeting of this society the Bishop of Bath and Wells enumerated some of the advantages of an allotment; among others, its affording a pleasing pursuit after the labours of the day, the delight which the cultivation of vegetables was sure to bring, and the result of the attachment to his allotment which the cottager generally felt, drawing him away, as it did, from injurious pursuits and immoral recreation, and giving him a stake in the country. A well-kept allotment was the index to the habits and tastes of its owner. The same feelings which prompted him to keep it clean and free from weeds would operate upon his domestic tastes; he would like also to see his cottage clean and cheerful, his children orderly and happy, and his pig, if he kept one, well looked after. He also treated his children, in a moral sense, on the same principles as he did his garden, knowing that if not trained to morality their minds would be choked with noxious weeds. He took care that they attended regularly at school and church, and that he never went himself to the beerhouse. The beerhouse was the bane of England. It was that which filled our workhouses and gaols, and brought to ruin those who haunted it. Even, to make the best of the beerhouse haunter, he was a cruelly selfish being, for he spent in his own indulgence the means which ought to go to the support of his own family; and, not content with this, he too often reeled home to maltreat the wife whom he had so solemnly sworn to protect, and the children so prone in after-life to follow his pernicious example. Some remarks had been made in the report upon the important subject of education. He, for one, was inclined to carry it out much further than by many was thought either necessary or prudent. The time was coming when machinery would be employed in agriculture to a much greater extent than now, and when, therefore, the labourers who worked it must obviously be intelligent and skilful. But what sort of preparation for such labour were the children of labourers but too generally undergoing? Why, while still a child, having learnt hardly anything whatever, a boy was generally taken from school just at the time when he might begin to profit by it, and put to keep birds from the corn. Some few years ago he had a friend, a clergyman in Hampshire, who was an enthusiast in education, and who made up his mind that he would do what he could to carry out his views. Accordingly, he built commodious school-rooms, engaged the best masters, and induced both the farmers and labourers to send him their sons, and to allow them to remain at school a much longer period than usual. He adapted his education to the wants of each class, so as to fit them for the relative positions which they would be called upon to fill—instructing the farmers' sons not only in the elementary subjects which were taught in common to both classes, but also, among other sciences, the important science of agricultural chemistry. In a few years he was surrounded by an intellectual population. But his object had not been effected without opposition. One farmer was particularly annoyed when he found it becoming more difficult and more expensive than formerly to get the birds frightened. But the Government, appreciating that clergyman's exertions, had rewarded him with the deanery of Hereford, and at a public meeting the other day he had had his health proposed by the very farmer who had formerly found so much fault with him, and who frankly admitted that he had seen his error, and that if it had cost him more to get his labour done he was amply repaid by the superior manner in which it was performed.

Reviews.

Bread for the People secured by the Skilful Cultivation and Efficient Supervision of Estates. By Layton Cooke, Land Agent and Surveyor. W. H. Dalton, Cockspur Street.

Mr. Cooke supposes that 48 bushels of Wheat are obtainable per acre in this country by "energy, skill, and capital," possessed "in the requisite degree;" and that if these qualities in other degrees produce respectively 32 and 16 bushels per acre, then of the land under cultivation it may be assumed that one-tenth is held under the first, three-tenths under the second, and six-tenths under the third supposed case. The whole will yield thus after the rate of 240 bushels per 10 acres, which is supposed to be the present average yield of the country. And then the following speculation is indulged in:—

"If a change in the cultivation should occur, to place the occupiers in the following position:—

Tenths.		Bushels.
3 in the first class of 48 bushels	=	144
4 in the second class of 32 "	=	128
3 in the third class of 16 "	=	48
		320

"The average produce would be increased to 32 bushels per acre, or 50 per cent. on the produce of the kingdom; and if the whole of the cultivated land were in the occupation of tenants of the first class, and was cultivated according to the most approved modes at present in practice, the increase would be 100 per cent. on the present average produce of the kingdom."

Of course any result deemed probable may be calculated on assumed data in this manner, and the method of attaining it may be represented in a variety of ways, most of them probably less plausible than the above. We do not think, however, that the advantages of energy, skill, and capital, are in any degree enforced by the representation of the results which on assumed data they may be shown to produce.

The history of a single instance such as that related by our correspondent "B," the other week, at page 698, is much more conclusive than any speculations as to possibilities on the wide scale of the whole country can be. Besides we are not willing to admit the data on which Mr. Cooke proceeds.

No one is more anxious than we are to impress the truth that produce depends on cultivation quite as much as it does on the original quality of the land; but we do not believe that six-tenths of the Wheat land of this country yield only 16 bushels per acre, nor do we believe that that degree of energy, skill, and capital which obtains 48 bushels per acre over one-tenth will be sufficient to obtain that quantity from all. The nine-tenths which, according to Mr. Cooke, yield less than this produce, do so on account of a natural disability of soil as well as on account of an unfortunate disability in their occupiers—and the former consideration is one which underlies and affects whatever amount of energy, capital, and skill may be brought to bear upon the land—so that over a naturally poor soil a greater effort must be made to produce the same result.

As a specimen of Mr. Cooke's speculations on this subject we extract the following passage from his pamphlet:—

"It has been suggested, that double the annual amount of produce might be obtained by adopting an improved mode of culture, and it is proposed to indicate the means by which a gradually increasing population might be provided for, from a territorial area, which admits of no extension.

	Millions.
Assuming the 46 millions of acres now under cultivation, and farmed according to the present management, to be equal to the population of 1841, namely	26
By bringing into cultivation 15 millions of acres capable of improvement into a state equal to that of the 46 millions of acres, the annual production would be increased one-third in quantity, and sufficient for an additional population of	8
By bringing 5 millions of acres of the inferior descriptions of Grass land into a state of cultivation equal to the average of land now available to that purpose, would provide for an additional population of	3
	37
Assuming the several descriptions of land capable of being cultivated to such a depth as would increase the produce one-half in quantity, the addition would be sufficient for the sustenance of a population of	18
	55
The extra cultivation of the land effected by reducing it to a more minutely granulated state, exposing a greater surface to the action of atmospheric influences, dew and rain, admitting of the manure being more intimately diffused throughout the soil, and affording greater facilities for the roots of plants to obtain nourishment, would tend to increase indefinitely the productiveness of the earth; but the additional amount of produce obtainable by these means are dependent upon the degree of pulverisation attained, which for the present pu pose is supposed to effect the production of food to the extent of 50 per cent. on the amount previously obtained, and consequently sufficient for a population of	27
Giving a gross quantity corresponding to a population of ... ... millions	82

"No inconsiderable additional amount of produce might be obtained by the general adoption of appliances familiar to the more intelligent cultivators of the present day, and this quantity would be capable of expansion as the science of agriculture shall be further developed.

"Much is also expected from geological, chemical, botanical, and mechanical discoveries, and from

numerous permanent improvements, such as the application of marl to light sandy soils, the application of chalk to heath lands found to be deficient in calcareous substances; by an effectual system of draining; by the general adoption of irrigation and warping, in all situations in which those important improvements may be severally applicable.

"Without presuming to hazard an opinion in respect to the actual extent of the benefit to be derived from economising manure, and turning to good account the immense quantity that is constantly running to waste; it is nevertheless believed to involve a question as to an addition of millions of stones of meat and millions of bushels of corn to the annual home supply.

"Nor is it attempted to estimate the loss sustained by reason of a vast extent of arable land being in small inclosures, surrounded by wide hedge rows and shaws; suffice it to say, that in some instances the waste has been found to exceed one-fourth of the whole, leaving barely three-fourths of the land in such instances applicable to the purposes of cultivation.

"The productive power of the land is susceptible of vast expansion, and the products are capable of being multiplied to an extent to which no one at the present time can assign a limit: we are, however, in a position to comprehend, and cannot fail to observe that agricultural improvements are universally and pre-eminently desirable; for by whichever party effected, they possess the peculiar merit of benefiting all who are interested in them—the consumers, by obtaining food at a reasonable price; the producers, by obtaining a proportionately larger amount of profit; and whenever an efficient supervision is adopted, an important prospective advantage is secured to the proprietor."

Miscellaneous.

Potato Digging Machine.—Mr. Hanson's patent Potato digging machine was tried on Thursday, at one o'clock, on a field belonging to Mr. Renwick, farmer, Maryhill. There was a large assemblage of agricultural gentlemen, landed proprietors, and engineers. The machine is of a simple yet peculiar construction, and is not of large dimensions. It runs on four wheels, two small ones at the muzzle, and two about the size of cart wheels on each side of the body of the machine. A sock, which tapers from a point to a plate about a foot and a half in breadth, is made to enter the drill at a depth below the deepest Potato roots. A series of grapes is made to revolve immediately above this sock, which effectually scatters the Potatoes above the soil, and separates the roots from the shaws. The axle of the wheels on which the machine is supported is so constructed that the wheel with the grapes is worked by it, and can be stopped on turning, or on other necessary occasions. A box is placed in the centre of the machine for containing the necessary implements for yoking, unyoking, and altering the machine. It was drawn on Thursday by two horses, and worked by two men; one of them drove the horses, while the other worked the machine. The weather was exceedingly fine, and the soil was in excellent condition for the experiment. A few minutes after one o'clock the horses were attached and the machine started. During the first round it was driven at great speed, but wrought beautifully. The roots were scattered clearly above the ground over a breadth of 2 yards. After two drills had been opened the horses were stopped for a few minutes, and the gentlemen who were on the ground having assembled around the machine, Mr. Hanson, the inventor, who was present, proceeded to explain the mode of operation. He said that he had a shaft which could be attached to it for the purpose of supporting a plate of zinc against which the Potatoes would be thrown, so that they would fall in a regular line, and not be too much scattered. We afterwards heard Mr. Hanson explain that the machine could lift Turnips at a distance of 6, 9, 12, or 18 inches by the attachment of hoes instead of grapes. He also stated in answer to a question put to him, that it could easily be made to throw the Potatoes to both sides, so that it might be made to lift a field without requiring to turn round a number of drills. Not a single root was cut or injured in the slightest degree, and none were left in the ground. The method of lifting Potatoes with the grape cannot at all be compared with it, and it works with about double the speed of the common plough, while it destroys none of the crop. *Scottish Daily News.*

Notices to Correspondents.

BONES AND ASH: *W J F.* You had better use fine bone-dust, unless you take a large quantity to lie together for a considerable time. We will publish a good recipe for you next week.

LIME: *Lime* is best applied in compost, but more especially in vegetable compost. However, you may add the road-dust to the heap without harm.

PIGS: *G J B.* We prefer the Berkshire. There are plenty of breeders of them near Cirencester, Farringdon, &c. You might apply to Mr. Howley, of Cirencester, or Mr. Moore, of Highworth, Berks. In fattening nothing will beat Barley-meal; a bushel a week for a 7 or 8 score pig along with steamed roots.

POULTRY: *J J.* In point of merit there is no difference in the two varieties of "Brahmah Pootra" fowls. They only differ in feather.

THE BEST MANURE: *W. Gerard.* "The best manure" is the farm-yard dung from well fed full-grown cattle, and the best way to apply it is—ploughed in now on a cleaned corn stubble.

WHEAT: *G J.* Fenton White is a good sort for land on which the Wheat is likely to be laid.

WHITE WHEAT, &c.: *Cookham.* We do not know where "Grace's White" is to be obtained.——"Mr. Porter, Southwark," used to make and sell corrugated iron roofing; we do not know whether that address will now help you. Slate and timber is, in our judgment, the cheapest roof in the long run.

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TO BE LET, A NURSERY AND SEED BUSINESS.—JOHN YOUNG begs to say that he is desirous of treating with a Tenant for his Nursery Ground, which he is at present occupying himself, and which offers an eligible opportunity to any one wishing to enter on the business. The Stock is light, and the quantity of Land may be made to suit the convenience of the Tenant.—For further particulars, apply to JOHN YOUNG, Elm Cottage, Taunton.

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Sales by Auction.

PREPARATORY NOTICE.—SALE OF NURSERY STOCK.

MESSRS. HIDE AND PATCHING, of Worthing, beg to announce that Mr. Hide has been instructed to Sell by Auction, in the month of November, the whole of the Nursery Stock growing in Head's well known Nursery Gardens at Worthing, Sussex, consisting of Choice Ornamental Evergreens, Deciduous, and Flowering Shrubs and Plants of every variety. The day of Sale will be shortly announced; Catalogues are in preparation, and when ready may be had of Messrs. HIDE & PATCHING, Worthing.

ORCHIDS AND OTHER STOVE PLANTS

AT THE HORTICULTURAL SOCIETY'S GARDENS AT CHISWICK.

MR. J. C. STEVENS is directed by the Council of the Horticultural Society to Sell by Auction at the Gardens, Chiswick, on WEDNESDAY, 7th November, and following day, at 1 o'clock precisely, various VALUABLE ORCHIDS and other STOVE PLANTS, among which are specimens of unrivalled magnificence, such as Lælia superbiens, Dendrobium speciosum, Phalænopsis amabilis, Tree and other Ferns, &c.—May be viewed by Catalogues (1*s.* each, returnable to purchasers) to be had of Mr. J. C. STEVENS, 38, King Street Covent Garden. Note.—Purchasers will be allowed 14 clear days to remove their Lots, during which time the Plants will remain in the Houses if required.

A CONSIGNMENT FROM MR. JEAN VERSCHAFFELT OF GHENT.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on MONDAY, 12th November, at 1 o'clock precisely, 1000 CAMELLIAS, well set with bloom, 500 Azalea Indica, 400 Rose Trees, 20 fine Standard Bays, 200 Kalmias, 200 Pear Trees, 200 hardy Azaleas, 400 Lorium lancifolium, and other Bulbs.—May be viewed on the morning of Sale, and Catalogues had.

ORCHIDS—IMPORTED AND ESTABLISHED.

MR. J. C. STEVENS will sell by Auction, at his Great Room, 38, King Street, Covent Garden, on WEDNESDAY, 14th November, at One o'clock precisely, an importation of ORCHIDS from Panama, including fine specimens of Oncidium ampliatum major, Trichopilia coccinea, Epidendrum bicornutum, a new Sobralia, &c. The established plants consist of Aerides affine, Maculosum major, Odontoglossum purpureum, virens, superba, Cattleya labiata, Cattleya [illegible], Cymbidium eburneum, Saccolabium guttatum and retusum, Trichopilia sp. new, Vanda Jenkinsoni and tricolor, &c. A small importation from Jamaica of Oncidium pulchellum, Brughtonia sanguinea, &c. &c.—May be viewed on the morning of Sale and Catalogues had.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY, November 8th, at 12 o'clock, a first-class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Snowdrops, Ranunculuses, Gladiolus, &c.; also a selected assortment of fine Standard and Dwarf Roses, including Hybrids, Bourbons, Chinas, Noisettes, &c.; and American Plants, comprising Hybrid Rhododendrons; Ghent and other Azaleas, Kalmias, Andromeda floribunda, beautifully furnished with bloom buds.—On view the morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

WANDSWORTH ROAD.

MESSRS. PROTHEROE AND MORRIS have been instructed by Messrs. Chandler & Sons to Sell by Auction, on the premises in the Wandsworth Road, on MONDAY, November 5th, 1855, and following day, at 11 o'clock each day, a collection of the following ORNAMENTAL TREES, SHRUBS, and EVERGREENS, comprising Laburnums, Almonds, Poplars, Lilacs, Evergreen Privets, Variegated and Green Hollies, from 2 to 8 feet high: Arbor-vitæ, Laurels, large Box, Scarlet Arbutus; very handsome crimson and other Rhododendrons, well set with flower buds: yellow Azaleas, Kalmias, Daphne hybrida, Escallonia, Veronicas, &c., &c.; also dwarf Apples and Pears well adapted for potting, Gooseberries, Currants, and Vines, Chrysanthemums, Passion flowers, Myrtles, &c., &c.—May be viewed prior to the Sale; Catalogues may be had on the premises, of the principal Seedsmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed to Sell by Auction, without reserve, on the premises opposite the Railway Station, Blackheath (the ground being required for building), on MONDAY, the 19th November, and following day, at 11 o'clock each day, the valuable NURSERY STOCK, consisting of Laurels, from 3 to 6 feet; fine Chinese Arbor-vitæ, 3 to 6 feet; handsome Deodars, 3 to 8 feet; large Fan and other Yews, 4 to 10 feet; Aucuba Berberis, variegated and green; Hollies, Laurestines, Sweet Bays, Lilacs, Mountain Ash; Standard and Trained Fruit Trees, Gooseberries and Currants; about 1500 yards of strong Box-edging, about 300 capital Camellias, well set with bloom; Rhododendrons, Azaleas, Standard and Dwarf Roses, Pinus, Cryptomerias, &c., &c.—May be viewed prior to the sale, and Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

NURSERY STOCK.—WHALLEY RANGE, MANCHESTER.

MR. CAPES begs to state that he has received instructions from Messrs. H. Bigland & Co., in consequence of the expiration of their lease, and the grounds having to be given up, to Sell by Auction, on WEDNESDAY and THURSDAY, November 7th and 8th, and the following day if required, at 10 o'clock each morning, the entire of the remainder of their STOCK of Evergreens, Fruit and Forest Trees, two Greenhouses, Dutch Pit, and other Effects, at the Britannia Nursery, Whalley Range, near Manchester. Catalogues will be ready a week prior to the sale.—22, Princess Street, Manchester.

MAIDENHEAD.

MR. J. WILLMER will Sell by Auction on the Premises, CHRISTIE'S Nursery, Maidenhead, on MONDAY, November 12, and two following days, at 12 o'clock each day, the whole of the Nursery Stock, comprising Taxodia sempervirens, Cryptomeria japonica, Juniperus Bedfordiana, Piptanthus Nepalensis, Cedrus deodora, Cedar of Lebanon, Pinus excelsa, Araucaria imbricata, Pinus Cembra, Laurels (Portugal), English and Irish Yews, striped and green Hollies, Chinese Arbor-vitæ, Red Cedar, Phillyrea, Standard and Dwarf Roses, Scotch Spruce and Larch, Fir Oaks, Limes, Birch, Acacia, Sycamore, Plane, Laburnum, Poplars, &c.; Seakale and Asparagus Plants; Standard and Dwarf Fruit Trees; Greenhouse Plants; Greenhouses, Pits, Lights, Garden Pots, &c.—May be viewed one week prior to the Sale, and Catalogues had (6*d.* each, returnable to purchasers) on the Premises, and of the Auctioneer, Sunbury, Middlesex.

SALE OF NURSERY STOCK, ORNAMENTAL TREES, EVERGREENS, IRISH YEWS, ETC.

MR. GEO. C. HYNDMAN has received instructions from Mr. WILLIAM CAMPBELL, who has purchased from the Executors of the late Mrs. M'Cullough her interest in Nurseryville, near Comber, in the county of Down, formerly the property of the late Mr. John Harvey, to Sell by Auction, without reserve, on TUESDAY, November 6th, at 11 o'clock, on the premises, a great extent of well-grown HEDGES, comprising Beech, Thorn, Evergreen, Privet, Portugal and Common Laurel, Arbor-vitæ, Box, and Yew; a large collection of IRISH YEWS, from 1 to 10 feet high; a variety of Azaleas, Fuchsias, Junipers, Rhododendrons, &c.; fine specimen plants of Variegated Holly, Arbutus, Rhododendron, Laurustinus, Scarlet Thorn, Double Cherry, Yew, Weeping Ash, Fern-leaved Beech, Magnolia, &c.; several fine Camellias, inured for some years to the open air; Camellias in pots, &c. The sale will be found worthy the attention of gentlemen laying out ornamental grounds, as the whole must be sold off, in order to clear the place for new arrangements, and the reception of fresh stock.—Belfast, Nov. 3.

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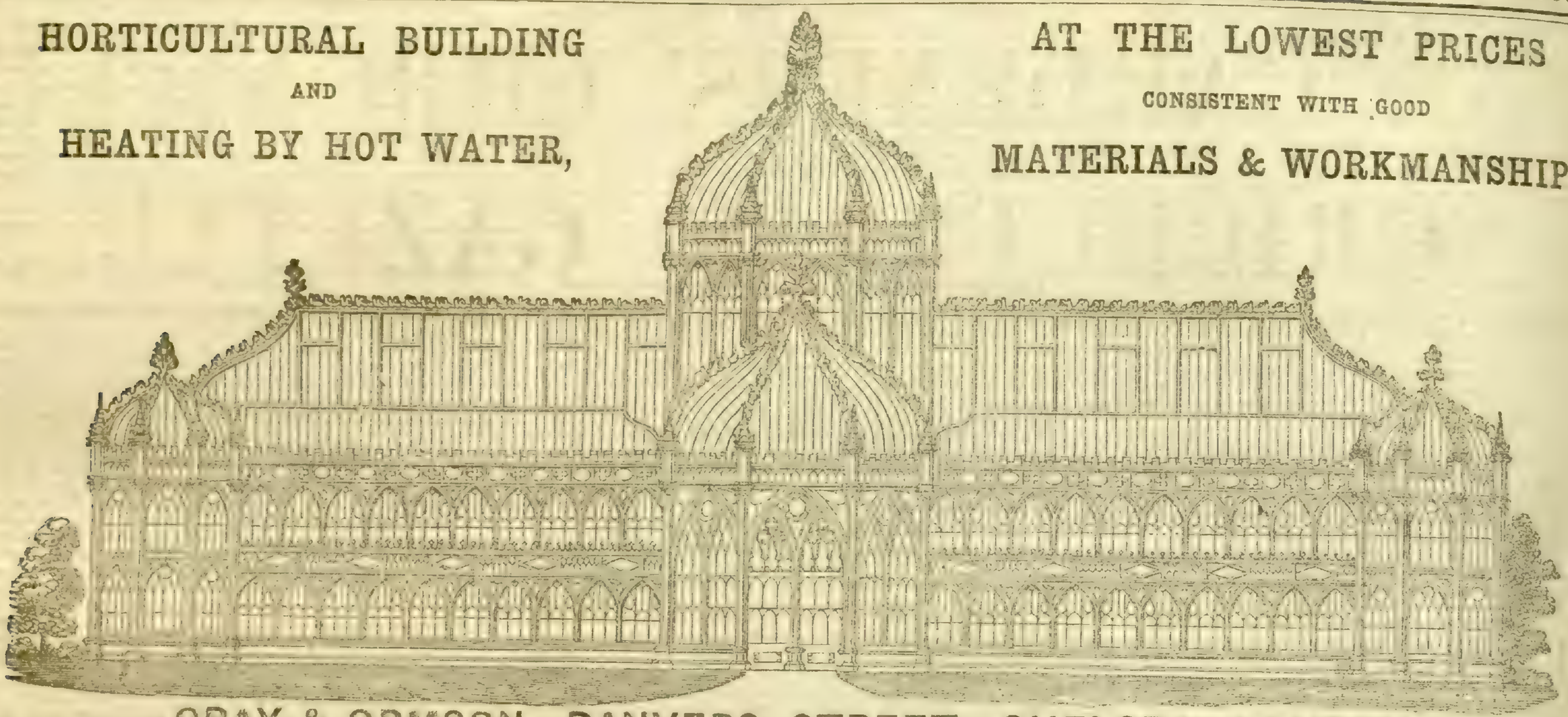

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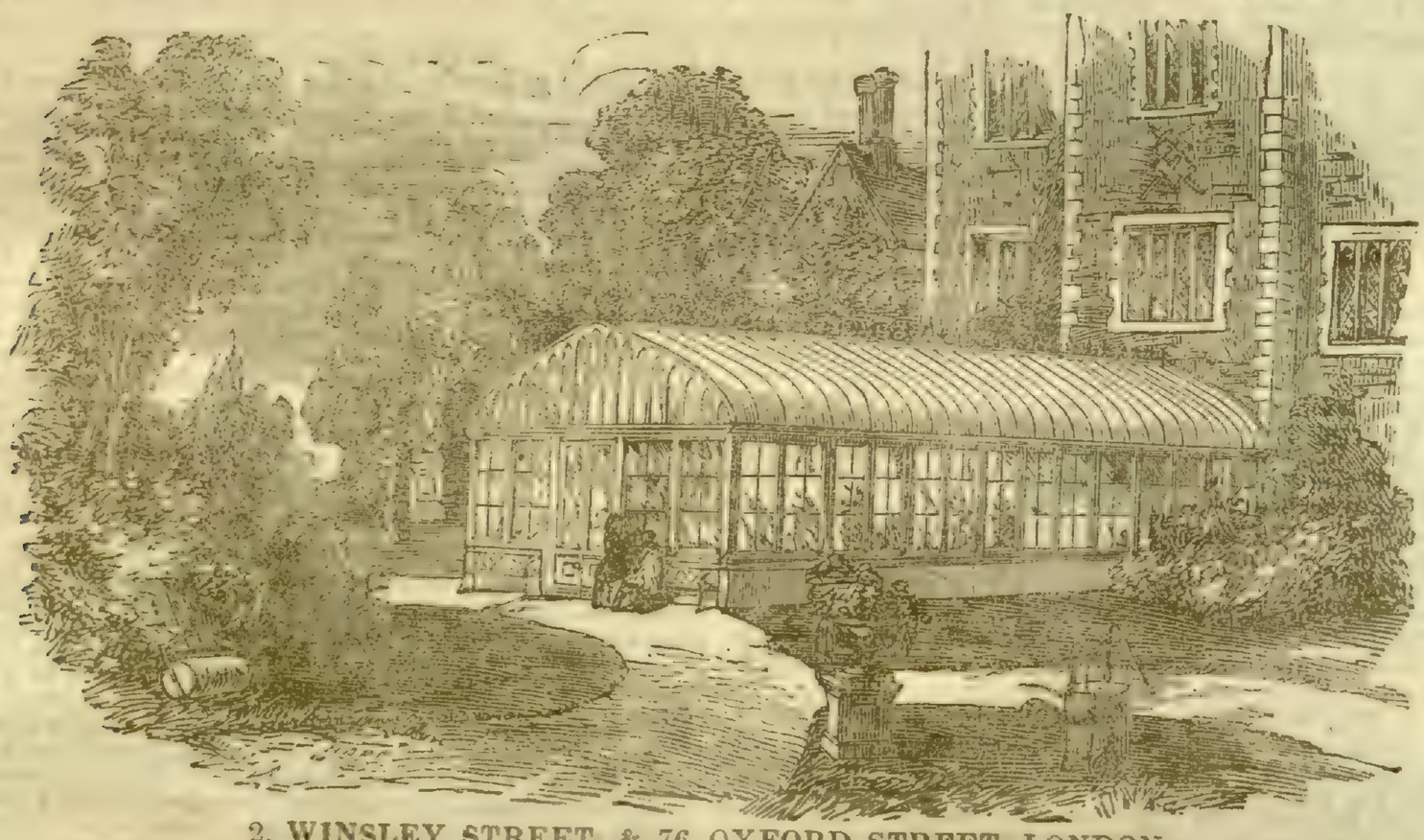

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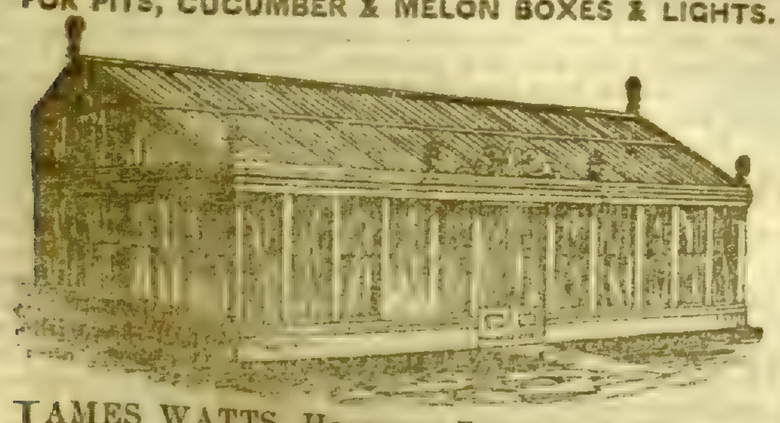
These Patent Horticultural Buildings are superior to all others, wood being used for the frame work, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

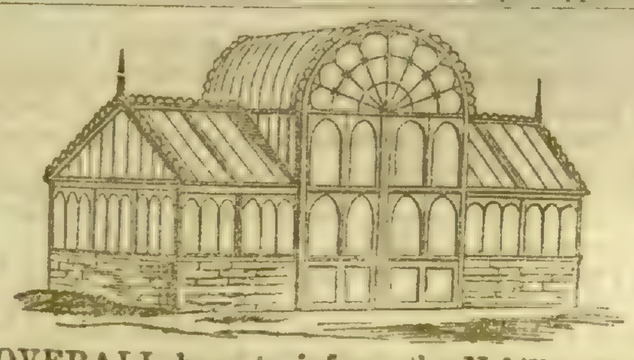
HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility Gentry, and the Trade, in most of the counties in England.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description, by Hot Water.—Prices and Estimates furnished upon application.



J. OVERALL begs to inform the Nobility, Gentry, Nurserymen, and others requiring Horticultural Buildings, Lights, and Frames, that by intrusting their orders to him, they may depend upon first-class workmanship and good materials at the most economical prices.

J. OVERALL, Horticultural Builder, 16, Shacklewell Lane, near Kingsland, London.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.

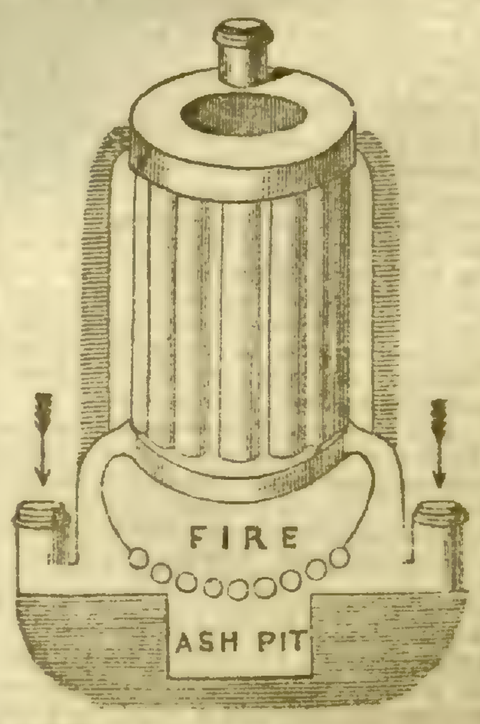
The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.

Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.



The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft. and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the late severe winter it only cost us 3*s.* per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *one of our Boilers*, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

JOHN WEEKS & Co., King's Road, Chelsea, London.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 2[illegible], Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, November 3, 1855.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 45.—1855.] SATURDAY, NOVEMBER 10. { Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The AUTUMN MEETING will take place at the Society's House, 21, Regent Street, on TUESDAY, November 20th, from 12 to 4 P.M. The Chair will be taken at 2 P.M.

SOUTH LONDON SOCIETY OF AMATEUR FLORISTS.—The CHRYSANTHEMUM EXHIBITION of the above Society will be held at the Horns Tavern, Kennington, on TUESDAY, the 20th, and WEDNESDAY, 21st November. Admission to Non-Members, from 2 till 7 o'clock on Tuesday, at 1*s*. each, and on Wednesday at 6*d*. each. An efficient Band will be in attendance. List of Prizes, and the Rules of the Society may be obtained from John Bushell,
Lower Kennington Lane. Hon. Secretary.

ELECTION OF PENSIONERS.

SCOTTISH GARDENERS' & LAND STEWARDS' ASSOCIATION.—Notice is hereby given, that the FIFTH ANNUAL MEETING for the ELECTION of TWO PENSIONERS, and on other Business, will be held at EDINBURGH, on WEDNESDAY, November 14th, the Chair to be taken at 7 o'clock, and the Ballot to close at 8 precisely. By order of the Board. J. H. Balfour, Chairman.
Committee Rooms, 6, York Place, Edinburgh.

RASPBERRIES.

R. LAING is now sending out his "PROLIFIC RASPBERRY." Being a strong grower, of good flavour, and an abundant bearer, it is worthy the attention of persons growing fruit for sale. See *Gardeners' Chronicle* of July 15th, 1854, p. 454. Price 2*l*. per 100, or 6*s*. per dozen.
R. Laing, Twickenham Nursery, Twickenham, Middlesex.

DAHLIA INCOMPARABLE (Ablill's).

THOMAS BARNES having purchased the surplus Stock of the above, which was but partially let out last spring, is enabled to offer fine roots at the following prices, viz., 5*s*., 7*s*. 6*d*., and 10*s*. 6*d*. each. Colour rich ruby crimson, of first-rate shape, shown in all T. B.'s stands, as also the raiser's.
T. B. has also a few roots of his splendid Dahlia MARION. Deep crimson, shaded, 10*s*. 6*d*. each, with all the leading varieties of other raisers.—Dane Croft Nurseries, Stowmarket.

EDWARD P. FRANCIS offers to the Trade strong MANETTI STOCKS, well established in big 60 pots for Grafting. Price on application. Rose Lists forwarded as usual.
Rose Nurseries, Hertford.

DOUBLE ROMAN and PAPER WHITE NARCISSUS, 4*s*. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. Cobbett's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

WANTED, good, strong, well rooted, and clean grown ENGLISH OAK, 3½ to 4½ feet.—Apply, stating quantity and lowest price, to Francis and Arthur Dixon & Sons, 106, Eastgate Street, Chester.

TO PINE GROWERS.
LIVERPOOL IS THE BEST MARKET.
FORWARD TO GEORGE TAYLOR, Jun.,
FRUIT SALESMAN,
The Grand Stand,
St. John's Market,
Liverpool.
Terms—Cash.

PINE PLANTS.

TO BE SOLD, at a very moderate Price, about 230 clean and healthy Fruiting and Succession PINE PLANTS, in good condition for removal, being the property of a Gentleman leaving his present residence.—For further particulars apply to Messrs. J. & J. Fraser, Nurserymen, Lea Bridge Road, Essex.

PINE PLANTS.

TO BE SOLD, very cheap, 400 RIPLEY and MOSCOW SUCCESSION QUEEN PINE PLANTS, thoroughly well rooted in 6 and 7-inch pots, and warranted perfectly clean.—Application respecting the same to be made to R. Glendinning, Chiswick Nursery, London.

SPANISH CHESNUTS.

TO BE SOLD, about 200,000 Strong SPANISH CHESNUTS, from 2 to 4 feet. Price sent on application to Waterer and Godfrey, Knap Hill, Woking, Surrey.

TO PLANTERS AND THE TRADE.

HAY, SANGSTER, and CO., will Sell the following cheap, as the ground must be cleared:—
Strong Standard Dwarf and Dwarf Trained PEARS,
Do. do. do. GREENGAGE and VICTORIA PLUMS,
Do. do. and half Trained MULBERRY,
Do. do. and Dwarf Trained CHERRIES,
PRINCE of WALES, PRINCE ALBERT, and VICTORIA RHUBARB,
Strong two years' SEAKALE and ASPARAGUS,
EVERGREEN OAKS, in pots, 3 to 5 feet.
18 and 19, Cumberland Place, Newington Butts, London.

NEW SEEDS, CROWTH OF 1855.

WILLIAM E. RENDLE and CO., Seed Merchants, Plymouth, *are now receiving their general Collection of Seeds from the Growers, and all the earliest varieties are now ready for delivery.*
William E. Rendle & Co., Seed Merchants, Plymouth.
Established 1786.

WEST OF ENGLAND HORTICULTURAL AND AGRICULTURAL SEED ESTABLISHMENT.—*The* Proprietors *have during the past summer considerably enlarged their Offices and Seed Warehouses at a considerable expense, so as to be enabled to execute all orders with regularity and dispatch.*
With increased exertion, redoubled energies, and more assistants, they hope to give the greatest satisfaction to all who honour them with commands.
William E. Rendle & Co., Seed Merchants, Plymouth.

SEEDS FOR EXPORTATION.

SUTTON and SONS *are now prepared to execute orders for exportation for New Seeds, growth of* 1855, *consisting of the most desirable sorts, properly packed to arrive in good condition. Free on board at London, Bristol, or Southampton.*
Sutton & Sons, Seed Growers, Reading.

THE BEST CUCUMBERS FOR FORCING.—
SUTTON'S BERKSHIRE CHAMPION, per pkt. 1*s*. 6*d*.
SIR COLIN CAMPBELL ... ... „ 1 6
LORD KENYON'S FAVOURITE ... „ 1 0
WARD'S IMPROVED SION HOUSE „ 1 0
Sutton & Sons, Seed Growers, Reading.

SECOND IMPORTATION.

FRESH IMPORTED BULBS *bloom much finer than those which have been long exposed to the air before planting.*
John Sutton & Sons, Reading, Berks, can supply fine BULBS, just imported, at low prices. See their Catalogue, which may be had, post free, in return for one penny stamp.

WAITE'S DANIEL O'ROURKE PEAS.—The best Early Pea in cultivation can be supplied in any quantity, and price had on application to J. G. Waite, Seed Merchant, 181, High Holborn, London.

DUTCH FLOWER ROOTS.

PETER LAWSON and SON, Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland, respectfully intimate that they are now ready to execute orders for HYACINTH ROOTS, &c., &c., of the finest kinds and in excellent condition. Catalogues may be had, free, on application.
27, Great George Street, Westminster.—Nov. 10.

R. PARKER begs to inform his friends and patrons that his PRICED CATALOGUE of DUTCH BULBS is now ready, and will be forwarded post free upon application.
Paradise Nursery, Hornsey Road, Holloway.

DUTCH FLOWERING BULBS.

JAMES CARTER and CO.'s CATALOGUE OF DUTCH AND CAPE BULBS, the most comprehensive and select published, will be forwarded *free of charge* and *post paid*, upon application to address at foot. *The Bulbs are as usual of first-rate quality.*
James Carter & Co., 238, High Holborn, London.

BASS and BROWN'S new AUTUMN CATALOGUE, comprising a considerable portion of descriptive and useful information for purchasers, will be sent free by post for three penny stamps, or gratis to their customers, who may not have received them.
Seed and Horticultural Establishment, Sudbury, Suffolk.

PLANTING SEASON.

WM. URQUHART and SONS respectfully intimate that their PRICED LIST OF FOREST TREES, SHRUBS, HERBACEOUS PLANTS, &c., may now be had on application.—Dundee, Nov. 10.

AMERICAN PLANTS.

JOHN WATERER'S CATALOGUE of RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.
☞ The Catalogue describes the colours of the Rhododendrons.
The American Nursery, Bagshot, Surrey.—Nov. 10.

AMERICAN PLANTS.

WATERER and GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.
Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor Branch, South Western Railway, where conveyances may be had.

GEORGE JACKMAN begs to state his PRICED CATALOGUE of choice CONIFERA, HARDY EVERGREENS and ORNAMENTAL TREES, which are well grown, and constantly removed, also Roses, Standard, Dwarf, and dwarf-trained Fruit Trees, and Forest Trees, can be had on application by enclosing one Postage Stamp.
G. J. respectfully invites persons planting to pay a visit to his extensive nursery, one and a half mile from Woking Station, South Western Railway, where all trains stop, and conveyances can be had.—Woking Nursery, Woking, Surrey.

SCARLET RHODODENDRONS.

J. and J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to offer fine bushy Plants of the above 2 to 3 feet high, in Pots, well set with Flower buds.—Price 10*s*. 6*d*. each.

VINES FOR FRUITING IN POTS.

MESSRS. J. and J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to announce that they have a very choice selection of the best sorts of VINES from eyes grown in 12 and 15-inch pots. Price 5*s*. and 7*s*. 6*d*. each.
N.B. Strong Vines for planting out, 3*s*. 6*d*. each.—Nov. 10.

ROSE CATALOGUE.

J. and J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to announce that their New CATALOGUE of ROSES for 1855 and 1856 is now ready, and may be had on application.

PEARS GRAFTED ON THE QUINCE AS PYRAMIDAL SHAPED TREES.

J. and J. FRASER beg to announce that their Priced List of the above is now published, and may be had post free on application.
J. & J. F. have sold a large number of these Trees for the last three years, and have received numerous letters from gentlemen in the country speaking in very high terms of their productiveness. They can therefore recommend them with greater confidence to the notice of their friends and the public in general.
Lea Bridge Road, Essex.

VINES FROM EYES.

JOHN and CHARLES LEE beg to offer a very superior stock of all the leading kinds of VINES, both for planting out and for fruiting in pots.
Nursery and Seed Establishment, Hammersmith.

AZALEA INDICA.

JOHN and CHARLES LEE beg to offer good Plants of the select kinds of AZALEA INDICA, well set with buds, at 30*s*., and 42*s*. per dozen.
Nursery and Seed Establishment, Hammersmith.

AZALEA INDICA LEEANA.

JOHN and CHARLES LEE are now prepared to send out this fine Seedling, which for habit of growth and substance of petal, combined with perfect shape and purity, is decidedly the best white Azalea yet out. It has gained Certificates wherever exhibited. Price 21*s*.; a few extra strong plants at 42*s*.—Nursery and Seed Establishment, Hammersmith.

NEW VARIEGATED GERANIUM—MRS. LENNOX.

JOHN and CHARLES LEE are now sending out this novelty, which is a decided improvement on The Mountain of Light. It is of much more vigorous growth than that variety, the margin of the foliage is of a purer white, and in other respects it possesses the same good qualities. Price 7*s*. 6*d*.
Nursery and Seed Establishment, Hammersmith.

FRUIT TREES IN POTS.

JOHN and CHARLES LEE have the finest stock of the above ever yet offered, consisting of—

PEACHES	APRICOTS	CHERRIES
NECTARINES	PLUMS	APPLES

and PEARS.
All warranted to bear good crops the first season.
Nursery and Seed Establishment, Hammersmith.

GOOD PINES WANTED,
From 2 lbs. to 4 lbs. each.
Forward immediately to George Taylor, Jun., Fruit Salesman, St. John's Market, Liverpool.

CHRYSANTHEMUMS.

WOOD and INGRAM beg to offer fine flowering plants, covered with healthy foliage to the bottom, of good sorts, both Pompone and large flowering varieties, at from 6*s*. to 9*s*. per dozen.—Nurseries, Huntingdon.

ROSES, HOLLYHOCKS, CONIFERS.
(Wholesale and Retail.)

A. PAUL and SON beg to inform their Patrons and the Trade generally, that owing to extended experience and improved systems of culture, their ROSES, HOLLYHOCKS, and CONIFEROUS PLANTS are this season unusually fine.
Nurseries, Cheshunt, Herts (13 miles N.E. of London).

SUPERB DWARF HYBRID PERPETUAL ROSES BUDDED ON SIX-INCH STEMS.

WILLIAM WOOD and SON respectfully solicit attention to their very extensive and splendid stock of the above. The plants are vigorous, and expressly suited for potting or forcing: they are also very eligible for grouping, consisting of all the leading kinds, and will be supplied at 12*s*. to 18*s*. per doz. Catalogues may be had on application.
N.B. A very liberal allowance to the Trade.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

HARDY HEATHS.

WATERER and GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

OSAGE ORANGE (MACLURA AURANTIACA).

MESSRS. MORRISON and SON have to offer about 50,000 Plants (5 to 6 inches high) of this fine new Hedge Plant (see *Gardeners' Chronicle*, May 13, 1854), price 10*s*. per 100. Price to the trade on application. Railways to all parts of the kingdom.—Nurseries, Mountcoffer, Banff, N.B.

THE FLUKE KIDNEY POTATO (TRUE).

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, can now supply the above at 4*s*. per bushel of 56 lbs., or 7*l*. per ton. Post-office orders to be made payable at Middleton, Lancashire.

SEED POTATOES.—Fluke Kidneys, 4*s*. per bushel of 56 lbs.; 7*l*. per ton; Lapstone Kidneys, 5*s*. Early Shortop Ashleaf Kidneys, 6*s*. per bushel of 56 lbs.; sacks, 6*d*. per bushel extra. All orders must be accompanied by a remittance.—Apply to Humphrey Chamberlain, Kempsey, near Worcester.

BERNARD SAUNDERS, NURSERYMAN and FLORIST, Cæsarean Nurseries, Jersey, respectfully informs Amateurs and Florists that he has a good Stock of Yellow and White-ground PICOTEES to offer for sale this season, at 2*s.* 6*d.* per pair, orders for which will be thankfully received and promptly executed. Also a small quantity of well ripened Seed of the PHORMIUM TENAX or NEW ZEALAND FLAX, at 2*s.* 6*d.* per packet of 60 Seeds.

PARKER'S RAGLAN POTATO.—This Seedling Potato has been raised by Mr. BENJAMIN PARKER, of Accrington, Lancashire, Gardener, and is distinguished by the name of the late Lord Raglan, as indicative of its sterling worth. Its shape is somewhat oblong, but its body of almost equal depth on every side. It has a skin of even thickness, not smooth, but like that of a fine Orange; is free from blotches, and can be peeled at one strip or cutting. There need be no waste in dressing this Potato for the table; besides which saving, its regular form and pure substance must soon make it welcome in every family. From an analysis by John Lightfoot, jun., Accrington, it appears to contain one sixth more farina than the old Fluke Potato, or rather above 15 per cent. more of that essential ingredient. Its chief virtue, however, is that of being ripe in July, so that it can thus be gathered before the usual period of the Potato blight. The Potato is quite sound, not an instance of decay having hitherto occurred. Mr. PARKER has devoted six years to the production of this Seedling Potato, which is pronounced by many agriculturists and chemists to surpass in properties of early culture and in excellence of quality any other species of Potato in the kingdom. Mr. PARKER offers the Potato from beds to save winter storage at 14*s.* per stone of 14 lbs., in canvas bags, to any order.

Address, Mr. BENJAMIN PARKER, Gardener, Accrington, Lancashire, with reference or remittance. Sole Agent, EDWARD TAYLOR, Seedsman, Lowerhouse, near Burnley.

We, the undersigned, confidently recommend Mr. PARKER'S Raglan Potato to public notice:—John Mercer, F.R.S., Chemist, Oakenshaw; John E. Lightfoot, Chemist, Accrington; Thomas Lightfoot, ditto; John Lightfoot, jun., ditto; Richard Taylor, Gardener to Le Gendre N. Starkie, Esq.; Huntroyd; Thomas Birtwell, Gardener to John Taylor, Esq., Morton Hall, near Whalley.

WATERER AND GODFREY respectfully invite the attention of parties engaged in Planting to their fine Stock of the following HARDY ORNAMENTAL TREES, &c.

Araucaria imbricata, 2, 3, 4, 5, 6, 7, and 8 feet high, in quantities, all stocky well grown plants; the larger sizes especially it would be difficult to match.

Cedrus Deodara, 1½, 2, 3, 4, and 5 feet, by the thousand; do. a fine lot of larger, 6, 7, and 8 feet; do. some magnificent Trees, 10 to 15 feet. These are all in a famous condition for Transplanting, having been annually removed.

Cedars of Lebanon, 3, 4, 5, and 6 feet; do. a few splendid Trees, 10 and 12 feet.

Cedars Rio Virginian, 5 to 8 feet.

Cedars, variegated white, 2, 3, and 4 feet, one of the handsomest variegated plants we know. We had a large stock. It is extensively planted at Elvaston Castle.

Cryptomeria japonica, fine plants, 4 to 7 feet.

Cupressus macrocarpa or Lambertiana, 3, 4, 5, 6, 7, and 8 feet. Nothing can be handsomer than some of the specimens of this fine hardy plant.

Juniper, Chinese, 2, 3, 4, and 5 feet; a fine lot of large plants, 6 to 8 feet.

Do. Irish, upright, 3, 4, 5, and 6 feet; do. larger, up to 8 and 10 feet. Our stock of the wo last mentioned Junipers we believe to be quite unequalled, the Irish especially; the larger sizes are under perfect columns.

Do. recurva, 3, 4, 5, up to 8 feet.

Do. hispanica or thurifera, 2, 3, and 4 feet.

Abies Douglasi, 2, 3, and 4 feet. A fine lot of large and very handsome plants, 7, 8, 10, and 12 feet.

Picea nobilis, several hundreds of nice plants, 1½ to 2 feet, well grown, and with good lead. None are grafted. A few taller specimens up to 6 feet.

Do. Nordmanniana, a large quantity of remarkably handsome plants, 1½, 2, 3, and 4 feet. Nothing can exceed the vigour of these plants, and all from seed.

Do. Pinsapo, magnificent plants, 4 to 7 feet high, in perfect health.

Pinus insignis, 1½ to 3 feet; a few good specimens up to 7 feet.
" Lambertiana, from seed, 4, 5, and 6 feet.
" Cembra, 3, 4, 5, up to 10 feet.
" Montezumæ, fine plants, 4 and 5 feet.
" macrocarpa, 2 and 3 feet, from seed.

Weeping Larch, clean, stems good, heads 7 feet high.

The following 10 varieties form a very singular group. They are of dwarf habits; the well known Abies Clanbraziliana may be taken as the type of the whole. We believe our collection to be quite unique, and, we may add, most interesting.

Pinus strobus pumila (the dwarf Weymouth).
" sylvestris pumila (the dwarf Scotch).

Abies Clanbraziliana	Abies pumila	All dwarf varieties of the Spruce Fir.
" compacta	" diffusa	
" pygmæa	" Gregori	

Picea pectinata pygmæa (the dwarf Silver Fir), Hudsoni.

Yew, common English, 3, 4, 5, 6, and 7 feet, in large quantities.

Do. upright, Irish, 4, 5, 6, and 7 feet; some splendid plants, 8 to 12 feet.

Do. Dovaston or Weeping, a great many fine plants, worked on straight stems, 7, 8, and 10 feet high, with good heads.

Do. adpressa, 2 and 3 feet.

Do. do., worked on common Yew, as standards.

Do. gold striped, 1½ to 2 feet, by the thousand.

Do. do., a splendid lot of plants, 4 to 6 feet.

Do. do., worked as standards on the common Yew. 8 to 10 ft. high.

Do. do., worked on Irish Yews, 6, 7, and 8 feet high.

Do. elegantissima, or new gold striped; a large quantity, 1½ to 2½ feet, and also worked as standards on the common and Irish Yews. We may safely assert our stock of Golden Yews is unsurpassed.

Do. yellow berried (true), very beautiful when in fruit as we have it, 1½ to 3 feet.

Libocedrus chilensis, 2 to 3 feet, very handsome and bushy.

Thuja Wareana, fine bushes, 3, 4, 5, 6, and 8 feet. This is one of the most useful, and, at the same time, ornamental hardy plants we possess.

Do. American, for hedges, doubtless the very best, 4, 5, and 6 feet.

Do. aurea, or Golden Arbor-vitæ. This plant originated at this Nursery; it has now, as it deserves, become a universal favourite. Our stock of it enables us to offer a choice of many hundred fine specimens, from 1½ to 3 and 4 feet high, and as much through—in fact, perfect globes.

Wellingtonia gigantea, a few of the finest plants in the country, being near 1½ feet high, and as much wide.

Hollies variegated, by the thousand, 2, 3, and 4 feet high. Some splendid Plants, 10 to 15 feet high.

We may here remark with reference to the large specimens alluded to in this Advertisement that every one of them is in a condition to transplant and travel any distance with perfect safety. They have one and all been annually removed in our Nursery, and in soliciting a personal inspection of our stock, we believe we are justified in stating it offers a choice which is to be found in but few establishments of its kind in this country.

The Nursery may be reached in 40 minutes by Train from the Waterloo Station; and the South Western Railway Company having a Branch on to the North Western, enables us to send plants to all parts, in trucks throughout, without packing and other extensive additions.

Knap Hill Nursery, Woking, Surrey.

SPLENDID HYACINTHS, ETC. (IMPORTED).

JAMES CHARTRES AND CO. can strongly recommend their 20*s.* Collections of the above, which have always given such general satisfaction. 12 splendid named Hyacinths for pots or glasses; 12 do. do. for Borders; 6 Polyanthus Narcis.; 12 Pheasant-eyed do.; 6 splendid Early Tulips for pots; 12 do. Late do. for Borders; 100 Crocus, sorts; 12 fine Iris; 6 Snowflakes; 6 Double Jonquils; 25 Double Snowdrops. A general and priced Catalogue on application.—Seed Warehouse, 74, King William Street, City, London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.—In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12*s.* 0*d.*
7 " 5, — 7½ " 5½ }	0 14 0
8 " 6, — 8½ " 6½ }	
9 " 7, — 9½ " 7½, 10 by 6 }	0 16 0
10 " 7, 10 by 8 }	

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18*s.* per 100 feet. If cut to order not exceeding 40 inches long.

16 oz. from 2½*d.* to 3½*d.* | 21 oz. from 3½*d.* to 4½*d.*
26 oz. from 5½*d.* to 7½*d.*

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½*d.* per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	£1 17*s.* 6*d.* per case of	50
3/16 "	2 1 3 "	60
⅛ "	1 17 6 "	60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12*s.* 6*d.*; above, 16*s.* 8*d.* per box. FOREIGN SHEET, in 200 feet cases, 34*s.* per case.

PERFORATED VENTILATING GLASS from 1*s.* 6*d.* per foot. TILES and SLATES from 6*d.* each. MILK PANS, 21*s.* per dozen. HELY'S HAND CHURN, 5*s.* 6*d.*; WARING'S BUTTER SLABS, 10*s.* each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7*s.* per 100, and the New Aquarium, 10*s.* each.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in. ...	...	12*s.* 0*d.*
6½	"	4½	"	7	"	5	...	...	12 6
7½	"	5½	"	8	"	6	...	...	13 0
8½	"	6½	"	9	"	7	...	...	13 6
9½	"	7½	"	10	"	8	...	...	13 6
10½	"	8½	"	11	"	9	...	...	14 0
12	"	9	"	13	"	9	...	...	14 0
10	"	10	"	10½	"	10½	...	...	14 0
11	"	10	"	11½	"	10½	...	...	14 0
11	"	11	"	11½	"	11½	...	...	14 0
12	"	11	"	12½	"	11½	...	...	14 0
13	"	11	"	13½	"	11½	...	...	14 0
13	"	12	"	13½	"	12½	...	...	16 0
13½	"	13½	"	14½	"	13½	...	...	16 0
15½	"	13½	...	...	...	...	...	...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City.

Circulars free by post.

BALUSTRADING FOR GARDEN TERRACES, executed in Austin's Artificial Stone, by J. SEELEY (late Austin and Seeley), Nos. 1 to 4, Keppel Row, New Road.

This work is of the same constitution as Portland Stone, and after a winter's exposure is hardly distinguishable from that material: it has been extensively used in Scotland for 20 years.

NETTING FOR SHEEP-FOLDS, MADE OF COCOA-NUT FIBRE, a material known to possess the most extraordinary durability when exposed to the alternations of weather. It will wear out several sets of tarred hemp netting, and is so light that a herdsman may with ease carry 200 yards of it. 3½ and 7-inch mesh, 6*d.* per yard. Sold in Nets of 50 and 100 yards long, 48 inches high, by the Manufacturer, W. CULLINGFORD, 1, Edmund Terrace, Ball's Pond Road, Islington, London.

POULTRY, RABBIT, AND SHEEP FENCING, HARE OR RABBIT NETS, ON CORDS, for Covert Shooting, 12 mesh over, 4 feet wide, 2*d.* per yard; 18 mesh over, 6 feet wide, 3*d.* per yard; 24 mesh over, 8 feet, 4*d.* per yard; each edge corded, ½*d.* per yard extra. Extra stout do., 18 mesh wide, 4*d.* per yard, suitable for Poultry Fencing. Square mesh Cricketing Net, fix its full width and length, made of stout cord, 3*d.* to 4*d.* per square yard; this is the best article made for Fencing against Fowls, Cats, &c., at W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond Road, London.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES consist of MATTING, DOOR MATS, MATTRESSES, HASSOCKS, BRUSHES, &c., and are distinguished by superiority and excellence of workmanship, combined with moderate charges. Catalogues, containing prices and every particular, free by post.—T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

LIGHT, CHEAP, and DURABLE ROOFING.—CROGGON'S PATENT ASPHALTE ROOFING FELT is perfectly impervious to rain, snow, and frost, and has been tested by a long and extensive experience in all climates. Saves half the timber required for slates. Can be laid on with great facility by farm servants or unpractised persons. Price 1*d.* per square foot. CROGGON'S Patent Non-conducting Felt, for covering steam boilers and pipes, saves 25 per cent of fuel. Samples and testimonials sent by post, on application to CROGGON & Co., 2, Dowgate Hill, London, who also supply ship-sheathing felt and inodorous felt, for damp walls, and lining iron houses, and roofs generally, to equalise the temperature.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
HURDLES for CATTLE, 6 feet long, 3 feet out of ground, 5 bars ... ... 5*s.* 3*d.* each.

TO FLORISTS AND OTHERS.

J. JONES, IRON MERCHANT, has always a great variety of CYLINDRICAL and SADDLE BOILERS in stock, also Fire and Furnace Bars, Supply Cisterns, Double Doors and Frames, Furnace Grates, Soot Doors, Hot-water Pipes, Elbows, Tees, Syphons, Throttle Valves, Stop Cocks, Flange and Socket Elbows, &c.; also Trough Pipes.—Drawings and Prices of the above, or estimates given for the work fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

IRON BUILDING AND ROOFING WORKS.
GAS STREET AND BERKELEY STREET, BIRMINGHAM.

JOHN HENDERSON PORTER, ENGINEER and CONTRACTOR, Patentee of a new system of constructing (cheaply and expeditiously, by ordinary labourers) Portable Buildings and Sheds—formed of ordinary planks or boards—peculiarly suitable for Farm purposes. A novel shed has recently been erected in the Agricultural Department of the Crystal Palace at Sydenham. Corrugated and Galvanised Iron Roofs and Roofing Plates, Eaves, Gutters, Rain-water Pipes, Tanks, Fences, &c.—London Office, 1, Riches Court, Lime Street.

FIRST PRIZE REAPING MACHINE.
NOTICE.

MESSRS. BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to SAYNOR & COOKE for their superiority of material and workmanship. Established 1738.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

NEW ROSES.

WILLIAM WOOD AND SON have again much pleasure in recommending their beautiful Seedling Rose, the Perpetual DUCHESS OF NORFOLK; the colour is a very rich vivid crimson, the underside of the petals shaded with lively pink, giving the flowers an exquisite shell-like appearance.

Price for Standards, or Dwarfs, 3*s.* 6*d.* each.

Williams' Evergreen Climbing Rose, 1*s.* 6*d.* each—This Rose is a seedling from the Ayrshire Splendens fertilised with the Yellow Tea Rose; its flowers are creamy white, deliciously sweet-scented.

N.B. The New Rose Catalogue and Supplement may be had on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

TRAINED FRUIT TREES.

WILLIAM WOOD AND SON have much pleasure in recommending their very extensive and superior stock of Dwarf two-years-trained PEACHES, NECTARINES, and APRICOTS, which they feel assured cannot be excelled. The trees are remarkably healthy, and furnished with well ripened shoots; they will be supplied at 60*s.* per dozen.

Pyramidal Pears on Quince stocks, per doz.	...	24*s.* 0*d.*
Pyramidal Plums, extra fine do.	...	20 0
Pyramidal Apples, do. do.	...	16 0

Catalogues forwarded on application. Extra plants presented with each order, to compensate for distant carriage.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

MYATT'S ADMIRAL DUNDAS STRAWBERRY.—Strong plants packed and delivered free in London, 25*s.* per 100. Also MYATT'S British Queen, Cinquefolia, Globe, Eliza, Mammoth, 3*s.* 6*d.* per 100; Keens' Seedling, Hooper's Seedling, Black Prince, Bicton Pine, 3*s.* 6*d.* per 100.

MYATT'S BRITISH QUEEN.—In reply to several correspondents, and in confirmation of the private answers I gave last summer, I beg leave to state that the only Strawberry bearing the name of "British Queen" is MYATT'S, and when Mr. Beach, in his advertisement says "his true British Queen," he is obviously in error, and arrogates to himself the credit due to my late father, Mr. JOSEPH MYATT, who was the originator of the variety in question.—W. MYATT, Manor Farm, Deptford.—Nov. 10.

GRAPE VINES FROM EYES.

R. GLENDINNING respectfully begs to offer an extensive collection of all the principal kinds of GRAPE VINES in pots extra strong, either for forcing in the pots or planting out.

PEACHES and NECTARINES, established in pots two and three years, full of blossom buds, and will doubtless produce fine crops the next season; also strong FIGS in pots.

A large and extensive assortment of trained Peaches, Nectarines, Apricots, Plums, Cherries, Pears, and Apples, in fine health.

R. G. would particularly direct attention to his very large collection of Pears for Pyramidal Training. They are from 5 to 7 feet high, and grown especially for the purpose, with abundance of short shoots. The Horticultural Society's nomenclature has been adopted with all the Fruit Trees; they may, therefore, be relied upon as correct.—Catalogues of the above and all other Nursery Stock may be had on application.

Chiswick Nursery, London.

MESSRS. E. G. HENDERSON AND SON beg to announce that they have now received their noted collection of HYACINTHS in excellent condition, and for the assistance of those persons unacquainted with the culture of the Hyacinth, printed instructions will be given gratis with each order they are kindly favoured with, Catalogues of which, together with their Plant and Seed Lists, will be forwarded post free on application.

CUCUMBER HENDERSON'S NAPOLEON III., in packets, 3*s.* and 5*s.* 6*d* each.

CALCEOLARIA, CINERARIA, and PRIMULA SEED of first quality, 2*s.* 6*d.* and 5*s.* per packet.

FUCHSIAS.—Banks' Favourite, 10*s.* 6*d.*; Prince of Wales, 10*s.* 6*d.*

NEW RHODODENDRONS.—Boothi, Hookeri, Calophyllum, Kendricki, Eximium Windsori Leucanthum.

GYNERIUM ARGENTEUM (PAMPAS GRASS).—E. G. H. & SON having in their possession the largest stock in the country of this noble ornamental Grass, can supply free healthy seedling plants, which are superior to any other at 2*s.* 6*d.* each, 25*s.* per dozen, or 7*l.* 10*s.* per 100.

Wellington Nursery, St. John's Wood.

TO PLANTERS.

J. SCOTT, Merriott, Crewkerne, Somerset, offers the following:—Deodara Cedars, from 3 to 8 feet, by 6 to 16 round, at 3*s.* 6*d.* to 30*s.* each; Cedar of Lebanon, same size and price; African Cedar, 2 to 3 feet, 3*s.* 6*d.* each; Red Cedar, 3 to 6 feet, 18*s.* to 30*s.* per dozen; Cedar of Goa, 18 inches, 1*s.* 6*d.* each; White Cedar, 5 feet, 3*s.* 6*d.* each; Cryptomeria japonica, 4 to 10 feet, very fine, 2*s.* 6*d.* to 15*s.* each; Taxodium sempervirens, 4 to 10 feet, 2*s.* 6*d.* to 10*s.* 6*d.* each; Cupressus macrocarpa, 2½ to 5 feet, 2*s.* 6*d.* to 5*s.* each; C. Govineana, 2 to 3 feet, 3*s.* 6*d.* each; C. funebris, 1 to 3 feet, 1*s.* 6*d.* to 3*s.* 6*d.* each; Thuja pendula, 3 feet, 5*s.* to 7*s.* 6*d.* each; T. aurea, 1 foot high, 3 feet round, 3*s.* 6*d.* each; Juniperus chinensis, 4 feet, fine, 5*s.* each; J. squamata, 5 feet, 5*s.* each; J. excelsa, 3 feet, 7*s.* 6*d.* each; J. tetragona, 18 inches, 2*s.* 6*d.* each; Irish Yews, 4 to 7 feet, fine, 3*s.* 6*d.* to 10*s.* 6*d.* each; Taxus adpressa, 2 to 3 feet, 5*s.* to 7*s.* 6*d.* each; Siberian Arbor-vitæ, 3 to 6 feet, 1*s.* 6*d.* to 3*s.* 6*d.* each; Pinus excelsa, 2 to 7 feet, 1*s.* 6*d.* to 7*s.* 6*d.* each; P. insignis, 2 to 5 feet; 2*s.* 6*d.* to 7*s.* 6*d.* each; Standard Portugal Laurels, 4 to 6 feet stems, 3*s.* 6*d.* to 7*s.* 6*d.* each. Apricots, Peaches, and Nectarines, drop trained, 42*s.* per dozen; Pears and Plums, do., 24*s.* per dozen; Pears, Plums, and Cherries, dwarf Pyramids, 18*s.* per dozen. These Fruit Trees are all healthy and young, including every Fruit worth growing. 150 sorts, large and Pompone Chrysanthemums, in 6-inch pots, at 6*s.* per dozen.—Nov. 10.

WATERER'S AMERICAN PLANTS.—A new DESCRIPTIVE CATALOGUE is now published of the celebrated Collection of hardy Scarlet and other Rhododendrons, as exhibited by JOHN WATERER at the Royal Botanic Gardens, Regent's Park; it will be found to contain a few practical observations on their successful management, and will be forwarded on application by enclosing two stamps for postage. Apart from its enumeration of the most popular American Plants in cultivation, a List of choice Conifers will be seen, embracing the latest importations of this fine and hardy tribe of Plants.

J. W. has now the pleasure to offer in large quantities, and of all heights, the following selection of CONIFERS, with the remark that they are all now growing in the open ground, are bushy and handsome as can be desired, and have been transplanted each succeeding spring, whereby no risk can be encountered in their removal from the nursery:—Araucaria imbricata, Cryptomeria japonica; Pinus Douglasi, Cembra, excelsa, Lambertiana, insignis, Jefferyana, Beardsleyi, tuberculata, &c.; Cedrus Deodara, Lebanon, and Africana; Wellingtonia gigantea, Cupressus, Juniperus, Taxus, Thuja, &c.

☞ The attention of gentlemen, public companies, and others engaged in planting, is especially directed to the foregoing; indeed, all intending planters would be well repaid by a visit to inspect our stock, as much may be seen which of necessity cannot be given within the limits of an advertisement.

The Nursery is easily reached by railway, being near the Farnborough Station, South-Western Railway, and Blackwater on the South-Eastern Railway.

The American Nursery, Bagshot, Surrey.

AGRICULTURAL SEEDS, ETC.

PETER LAWSON AND SON, SEEDSMEN AND NURSERYMEN TO HER MAJESTY THE QUEEN, and to the HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND, are supplying the following seeds of the best quality:—

Italian Rye-Grass, Foreign seed	Dwarf Essex Rape
Crimson Clover (Trifolium incarnatum)	Winter Tares
Alsike Clover (Trifolium hybridum)	Natural Grass Seeds, for Pastures and Lawns, &c. &c. &c.

27, Great George Street, Westminster.

THE TRUE LANCASHIRE SHOW GOOSEBERRIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, can now supply 24 strong plants for 12*s.*, or 12 plants for 7*s.*, of the below-named GOOSEBERRIES, which are of fine flavour. Weights taken from the Gooseberry Grower's Register of 1855, viz.:

	dwts.	grs.		dwts.	grs.
London	30	5	Lady Leicester	22	16
Thumper	26	18	Random Green	22	15
Wonderful	26	14	Pilot	22	14
Conquering Hero ...	23	19	Railway	22	10
Slaughterman	23	13	Queen of Trumps ...	22	0
Catherina...	23	12	Gunner	21	22
Freedom	23	10	Roaring Lion	21	21
Companion	23	6	Lion's Provider	21	6
Leader	23	0	Goldfinder	21	1
Drill	23	0	Turnout	20	5
Napoleon	22	22	Broomgirl	20	0
Overall	22	22	Coppice Lass	19	10

Post Office Orders to be made payable at Middleton, Lancashire. Catalogues on application.

NEW HARDY PLANTS.

A. VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer the following New HARDY PLANTS:

RHODODENDRON MADAME WAGNER (hardy) ... 15*s.* 0*d.*
" PRINCE CAMILLE DE ROHAN (hardy) ... 7 6
WEIGELIA MIDDENDORFI.—N.B. This splendid Weigelia has been sold already *twice* under wrong names. The one I offer here is *warranted the true species.* Good Plants each 12 0

A. VERSCHAFFELT begs to inform Amateurs and the Trade that he has just published a new PLANT LIST, containing the English and Continental Novelties.

His Catalogue may be obtained on application of his Agent, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London.

A NEW SEEDLING APPLE FROM THE RIBSTON PIPPIN.

STEPHEN SHILLING begs to offer to gentlemen and the trade Trees of his entirely new Apple named OMER PACHA, it being a first-rate hardy grower, strong compact habit, early and productive bearer. Fruit excellent flavour (dessert), ripe in November, keeps until May. Respectable testimonials given from those who have tasted the fruit. Strong plants supplied at 5*s.* 6*d.* each, or 60*s.* per dozen. The usual discount to the trade where one dozen or more are taken. Early application is requested as the stock is limited; all orders carefully and promptly attended to. Fruit of the above can be seen at the office of the *Gardeners' Chronicle*, the British Pomological Society's Rooms, 20, Bedford Street, Covent Garden, Messrs. Nutting & Son, 46, Cheapside, Messrs. Sutton & Sons, Reading, Mr. C. Turner, Royal Nursery, Slough, and at the North Warnborough Nursery, near Odiham, Hants.

NEW CHRYSANTHEMUMS.

JOHN SALTER begs to inform his friends that his unrivalled Collection of Chrysanthemums is now in bloom, including many seedlings, among which is ALFRED SALTER, the finest light flower in cultivation. A visit to the winter garden will amply repay those amateurs who may honour him with their patronage.—Versailles Nursery, William Street, near Hammersmith Turnpike.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 10, 1855.

THE degree of durability of the VITAL PRINCIPLE in seeds, revived by our correspondent "C," has again, as on former occasions, produced many remarks and inquiries from others. Let us, then, endeavour once more to put this very curious question in a clear light, with the aid of such additional illustration as the last few years have afforded.

That the tales told by credulous writers of seeds that have laid for centuries in such places as mummy-cases, should have met with disbelief on the part of the more sagacious part of the public, is no more than might have been expected from the unsatisfactory nature of the evidence upon which such statements usually rest. That they are in some cases indeed untrue is certain, and in others probable. But it is in the highest degree unphilosophical to refuse to examine what are called facts, merely because some can be shown to be false, or because some principle which they involve is incomprehensible to our limited understanding.

Three classes of statements have been adduced in support of the opinion that the vitality of seeds is inexhaustible; some absolutely false, some doubtful, others susceptible of what we regard as rigorous proof. Among those which we take to be absolutely false are some of the statements of Arabs and Egyptians, that seeds or bulbs, which have grown, were taken from the cases of mummies. No doubt the bulb mentioned by our correspondent "C" is one of them; another is the Pea called Grimstone's, which was proved in the garden of the Horticultural Society to be identical with the common "Branching Marrow Pea," (see p. 115, 1849); and to this may certainly be added all the stories told of Onions and Garlic still living at the expiration of hundreds of years. The principle of vitality so remarkable in seeds does not exist in bulbs in a durable form. To the doubtful class we must refer all mummy Wheat, the history of which was formerly given in our columns (p. 757, 1846): for although we do not regard the reasons for disbelieving its authenticity quite sound, nevertheless we may allow that some suspicion attaches to it.

After eliminating these cases there still remains a large body of evidence which cannot be contested, from which no other inference can be drawn than that, under peculiar circumstances, the animation of a seed may be suspended for an indefinite period, and then be revived if it is presented to the conditions upon which vegetable growth depends. In works upon Vegetable physiology many such instances are mentioned upon authority which no one disputes (See Lindl. Intr. Bot. II. 259, 4th ed.). Instead of repeating them we prefer on this occasion to rest our case upon evidence of a somewhat less hacknied kind. M. PÉPIN has lately proved experimentally that Coniferous seeds retain their vitality unimpaired for many years. He found that Pinus Pinea grew when 16 years old, Pinasters at the same age, and Scotch Firs when 13 years old. Now if it is conceded that the vitality of a seed may be suspended for 13 or 16 years, it is perfectly conceivable that it may also be suspended for 130 or 1300, or any other number of years. Nor is it allowable in an inquiry of this sort to insist upon the *quomodo* of suspended vitality being explained. Were we to disbelieve everything that cannot be explained our belief would be very circumscribed. The sudden appearance of Charlock all over railway cuttings and elsewhere, a perfectly well authenticated fact, is merely an example of the same nature as M. PÉPIN's Coniferous seeds; and Oaks and other plants which suddenly appear when the Pine forests of North America are cleared would seem to belong to the same class. But the most remarkable examples of which we have any knowledge are those of the Melrose sand pit, and of the Dorchester tumulus. It is recorded in the Annals of Natural History, vol. xiii. p. 89, that seeds taken from the bottom of a sandpit, from 50 to 60 feet above the level of the Tweed, and 25 feet below the surface, grew and produced Polygonum Convolvulus, Sorrel, and an Atriplex—we believe patula. How many years were required to bury these seeds 25 feet deep in sand at so high a level we leave our geological friends to determine. Mr. KEMP, who drew attention to this curious fact, dates the deposit long before the time of the Romans in Britain.

The Dorchester tumulus case is of much the same character. A Mr. MACLEAN having opened a barrow near Maiden Castle found a coffin containing the remains of a human body, coins of HADRIAN, &c.; and among them a quantity of dry turfy matter, which, from its position he regarded as the remains of the intestines. A portion of this turfy matter the writer of the present notice received from Mr. MACLEAN for the purpose of examination. He found in it a considerable number of Raspberry seeds, many dead, all much decayed superficially, but some with an appearance of life. Some of the latter were sown with every possible precaution against error. The season was mid-winter, the place a hothouse, and the gardener was perfectly ignorant of the history of the seeds entrusted to him. One or two grew and produced a common wild Raspberry plant, which is still alive in the Garden of the Horticultural Society. It is understood that Mr. PAGE, the nurseryman of Southampton, also saw the turfy matter alluded to, and recognised Raspberry seeds in it. We entertain the most entire conviction that this example is open to no reasonable doubt. It had, however, been objected to, upon grounds which we thought very insufficient, so long ago as the year 1836, and this led to some correspondence with Mr. MACLEAN, then alive, a copy of which we now, for the first time, publish without curtailment. We do this in the hope that it may finally set at rest a vexed question, for if, in one instance only, it can be demonstrated that a seed has retained its vitality 1000 years, all the other instances of similar longevity, concerning which rigorous proof is deficient, may, nevertheless, be judged of better by the mere aid of circumstantial evidence.

COPIES OF THE CORRESPONDENCE RESPECTING THE DORCHESTER RASPBERRY CASE.

"London, Aug. 9, 1836.

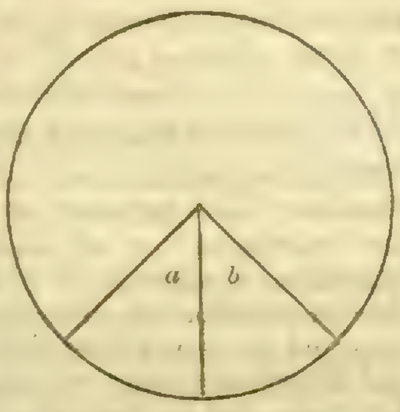
"Sir,—After some little trouble I have procured the address of the clergyman who I mentioned to be referred to, viz., Rev. C. Bristed, Winterborne, Monckton, Dorchester, Dorset. The farmer's name is Phelps, whose servant furnished me with one portion of the under-jaw with teeth found previously by him in the same barrow, and who will assist (if still there) Mr. Bristed in naming the two labourers, who I employed in discovering the other matters. You will cause Mr. Bristed to be particular in his inquiries of the man who gave me the Roman coin, and to whom I gave a portion of the stomach which he had taken home as a great curiosity, but on my discovering afterwards what it contained I returned on purpose to obtain it from him, fearing it should be laid aside or lost. I found this was the case; it could not be found, which on mentioning the circumstance the individual will call to his recollection. As to the seed *no* person could conjecture anything about it without an examination *and a curiosity*

which not one in a thousand would contemplate if they was and knew *what contained it.* R. MACLEAN."

"Dorchester, Feb. 23d, 1837.

"Sir,—That an apology is due to you from me, who have suffered your note of August 8th last to remain until the present time unanswered, is beyond question; but perhaps that apology may be found in my desire that the explanation you wish regarding the very interesting and extraordinary circumstances connected with the Raspberry seeds you have received from me should be given as fully as possible, and that explanation I therefore deferred until my annual visit to this part should have enabled me to make such enquiries and adduce such corroborative testimony as must place the matter beyond question. I am not surprised that doubts should have been entertained in regard to so extraordinary a circumstance as the vegetation of seeds after having been inhumed some 20 centuries or more, and hence I was naturally more desirous to produce satisfactory support of the statement.

"The account given by the two gentlemen who visited Monkton in June, 1833, is, I dare say, quite correct as far as regards their own labours. Indeed, the researches I made corroborate that account, having found in that part of the barrow previously opened the disturbed skeletons, and the fragments of the urn. But the interesting discovery I made was not at all connected with the part of the barrow opened by them. The portion excavated by them may be understood as the division marked (*a*) in the diagram. The labourers under my direction made a further excavation (*b*), and in this portion, that had not been before disturbed, we found a male skeleton, which afforded the interesting phenomena in question. Close to the pelvis were plainly observed the fæces that must have been contained in the colon, or large bowel, at the time of death, this indicating by the bowels being unexhausted that that death must have been one of violence, particularly from the circumstance of finding a large tusk of the wild boar near the sternum, showing it was worn as an ornament. These fæces were a hard compact mass, retaining perfectly the exact form and curvature of the bowels. Of these I carried away considerable portion, with the tusk of the wild boar, and other trifling remains discovered, and on closer examination in the evening I ascertained the fæces to be full of small seeds firmly imbedded in a hardened mass of digested matters. This agglutinated mass was brittle and mouldy, and the seeds might be extricated by friction and repeated washings. The seeds with which you were furnished were some of those so extricated. You also had a fragment of the fæces as discovered. Mr. Sydenham, of the *Dorset County Chronicle*, had a portion of the fæces from me the following day. He has extracted a few of the seeds, and has preserved the remainder in the form in which it was discovered. One of the labourers (Gould) also took a portion, and bears testimony as to the contents. That you should have been informed that no seeds were found is natural, inasmuch as at the time of the excavation the only appearance of the fæces was that of a hard agglutinated mass resembling a piece of mouldy decayed rope, it being the subsequent investigation only that brought the seeds to light. Out of a great number to whom I gave portions of the seeds none succeeded in producing plants with the exception of yourself and Mr. Page, of Southampton.



"I annex a certificate of the circumstance, signed by the labourers (in presence of two respectable gentlemen who have also signed their names), whom I have been so fortunate as to find still in the neighbourhood, and preserving a perfect recollection of the circumstances.

"I trust that this detail will suffice to remove all doubts as to this very interesting and singular fact.

"R. MACLEAN."

"We, the undersigned George Gould and James Bishop, labourers of the parish of Winterborne Monkton, near Dorchester, do hereby certify that in October, in the year 1834, we opened a barrow in the above parish, under the superintendence and direction of Mr. Maclean. That the barrow had been partially opened before (say about ¼). That in the parts so previously opened many human bones were found scattered about, with some remains of an urn and burnt ashes. That on our clearing this away we made a further excavation in a part of the barrow (immediately adjoining) not before touched; we found with other remains a human skeleton, by the side of the lower part of which the contents of the bowels were lying in a firm and compact serpentine form, resembling a piece of mouldy decayed rope. That the greater portion of these contents was taken by Mr. Maclean, and that I, George Gould, took also away a small portion, and afterwards found that it contained a great number of small seeds. In witness of the truth of this statement, we have hereunto set our hands, this 22d day of February, 1837.

"Witness to the signing: "GEORGE GOULD,
"John Sydenham, jun., The mark + of
"James Savage." "JAMES BISHOP."

"Fordington Vicarage, Aug. 21st, 1851.

"Dear Sir,—Mr. Maclean has been dead, I think, two or three years. I knew him, and should consider that he was accurate both in observation and in statement. He related the history of the Raspberry seeds to me within a twelvemonth of the time when the seeds began to germinate. "The Raspberry plants," he said, "are now several months old." There is no doubt that he opened a barrow near Maiden Castle and that he found in the usual position the skeleton of the man who was buried there. Nor is there any reasonable grounds to doubt that he found as he stated the lump which proved to be a mass of Raspberry seeds. He said nothing to me of his supposition that they were fossil seeds; nor of the depth at which they were found.

"HENRY MOULE."

WILL any cunning workman in metals, or carver in wood, or tracer of architectural, domestic, or personal decorations, cast his eye upon this faithful

portrait of a flower, and consider whether it does not suggest FORMS and PATTERNS now unthought of.

It is only a Fuchsia, but one of rare beauty and unusual proportions. For the opportunity of representing it we are indebted to Mrs. GERARD LEIGH, of Walton Rectory, near Liverpool, from whence we have received a wax model very skilfully executed after the original by Miss NEWTON. In its natural position it hung downwards, like any other Fuchsia, but we have reversed it, the better to show its form and proportions.

The calyx was a cup with 12 equi-distant furrows, and as many fleshy rays, each the exact counterpart of all the rest; the petals formed a ring of eight short leaves enfolding each other; and the stamens stood erect within them, in a ring of 20 stout threads clustering round a graceful curved central column (style), set with eight purple jewels at its very end (the stigma). All this apparatus stood upon a roundish base (ovary) extending downwards into a slender stalk (peduncle).

The calyx was white, the petals deep rose, the threads of the stamens white, their anther-heads crimson, the column white, the end deep purple, while the base or ovary and its stalk were green.

The order of the colours was therefore, beginning from below, GREEN, *white*, DARK ROSE, *white*, PURPLE, *white*, DEEP PURPLE. In every case the darker colours were separated and brought out by an intermediate space of white. Had the colours been otherwise contrasted the beauty of arrangement would have been impaired; as for instance, if the colours had been white, white, rose, rose, white, purple, white. But nature would not have produced such a succession of colours. And this may serve to show that those who wish to know how colours are to be contrasted should attentively observe their succession in nature, which always produces beautiful arrangements, although not of what to us seems equal beauty.

But this is not all which the flower before us should teach. It is needless to say that for the purposes of flat decoration what is termed conventional drawing is indispensable; that is to say, instead of representing natural objects as they really are ideas only are taken from them, perspective is abandoned, and the artist is confined to the arrangement of lines in beautiful patterns. Now it is impossible not to recognise in those designs which are pronounced the most beautiful by persons of refined taste, a very close approach to the forms of natural objects, and most especially to the numerical proportions which parts bear to each other. These numerical proportions are in fact invariable in plants, and it is this indeed which renders conventional representations, in which proportion is truly observed, so universally agreeable. The eye is accustomed to them wherever it turns in nature, and recognises, although no doubt unconsciously, the beautiful forms to which it is accustomed, even when they are reduced to a mere tracing upon a wall or a lady's dress. On the other hand it is offended when the rules which determine natural forms are neglected. That this is beginning to be very generally felt is, we think, indicated by the admiration with which the race of Ferns is now so largely received.

In flowers the rule is that all the parts shall be symmetrical; that is to say there is, as a rule, some fundamental number into which all the parts may be resolved, or in case of this law being departed from, then the symmetry is restored by a variety of simple, yet most beautiful contrivances, into the nature of which this is not the time to enter. The Fuchsia, in its unchanged state, belongs to the first or regular class of structures, its fundamental number being four. Thus its ovary contains four cells, its calyx has four divisions, its petals are four, its stamens eight, its stigma four-lobed. Its numerical proportions will therefore be $4+4+4+(4\times2)+4$. Upon examining our beautiful monster it will be found that the fundamental number four is still maintained, viz. $(4\times3)+(4\times2)+(4\times5)+(4\times2)$, notwithstanding all the disturbance which its structure has undergone.

Those who believe that truth is the foundation of all beauty, in the material as well as the moral world, will find that the example now before them is only one among myriads of facts to which they may refer in defence of the faith that is in them.

IT may be as well to observe that all the fruit exhibited at the meeting of the HORTICULTURAL SOCIETY, in Regent Street, on the 20th instant, must be fit for immediate use. Unripe fruit will be regarded as not being present.

New Plants.

147. OUVIRANDRA FENESTRALIS, *Poiret.*

THIS is one of the most curious plants that have been lately introduced. In the swamps of Madagascar there grows, beneath water seldom if ever below 70° Fahr. and most frequently 74° or 76°, a herb with delicate dull green leaves pierced with holes like coarse lace, and continually throwing out bubbles of air. The holes are arranged in long lines and are separated by cross bars, which divide off the whole leaf into a series of parallelograms. In fact the leaf is all veins, without the green web which in other cases connects them. The root is said to be eatable; the flowers to be pink and sweet scented, in forked spikes like those of *Aponogeton distachyon*, to which it is nearly related.

We recommend this to the attention of microscopists, who will find its structure worthy of a very attentive examination. It is understood that the entire stock of it has been transferred by the Rev. W. Ellis, of Hoddesdon, to whom Europe owes the possession of so great a curiosity, to Messrs. Veitch & Son, of the Exotic Nursery, King's Road, Chelsea. The former gentleman informs us that he found it succeed best in loam and vegetable mould, and sunk 5 or 6 inches under water, so as to allow the leaves, which are sometimes as much as a foot long, plenty of room to float. We should add that the water should not be lower than 75°; that it should be in part changed daily, which Mr. Gordon effects in the Horticultural Garden by pouring enough warm water into the tank to cause it to overflow; and we would further recommend the surface of the earth in which it grows to be paved with fragments of *white marble*, so as to enable the wonderful network of the leaves to be distinctly seen.

We cannot conceive a more beautiful ornament of a drawing-room in summer time than a large glass tank with the Ouvirandra floating in it.

Since the above was in type we have been favoured by Mr. Ellis with the following interesting statement:—

The natives of Madagascar describe the plant as growing on the margin of running streams. The root or rhizome is about the size of a man's thumb in thickness, and six or nine inches long after branching in different directions, like the roots of the Ginger or Turmeric; but in one continuous growth, not a succession of distinct formations attached at the termination of one and commencement of another. The root is composed of a white fleshy substance, apparently without large or tough fibres, and is brittle like a Radish. It is covered with a somewhat thick light brown skin, which does not exhibit fringed or fibrous edges when broken. The

plant is attached to the sides of the streams in which it grows by immense numbers of very long fine fibres, which penetrate and adhere firmly to the loam or clay of the banks. Entangled among these fibres were large quantities of decayed leaves and other vegetable substances, from which the plant probably derived a large portion of its nutriment. Mr. Ellis was told that it also grew in places which were dry at certain seasons of the year, that the leaves then died down, but the root buried in the mud retained its vitality, and when the water returned, fresh leaves burst forth. The natives spoke of the plant as tenacious of life, and said that wherever the earth around, even the smallest portion of it, remained moist, the plant would in that part put forth leaves when again supplied with sufficient water.

This plant is not only extremely curious, but valuable to the natives, who, at certain seasons of the year, gather it as an article of food, the fleshy root when cooked yielding a farinaceous and nutritive substance resembling the Yam. Hence its native name, *Ouviandrano*, literally water-Yam, or Yam of the water. *Ouvi* in the Malagasy and Polynesian languages signifying Yam, and *rano* in the former signifying water.

We are also enabled by Mr. Ellis to give the following extract from that gentleman's Madagascar Journal:—"But the great charm of this plant to an admirer of nature consists in the extreme delicacy of the texture of its almost transparent leaves, and their graceful manner of floating upon the water. When examined they appear to be composed of fine and even threads placed at equal distances, so as to resemble the most exact and delicate needlework. Many of the leaves exceed a foot in length; but as in growing they rise to the surface of the water, they may be seen of all sizes, down from this to the most minute, as when first emerging from the earth they appear of fairy-like dimensions, and thin as the finest gossamer. Although so transparent as to have obtained the name of Lace-plant, these leaves are surprisingly crisp and firm to the touch. When seen in the water they lie lightly one above another without confusion, and they are easily distinguishable as separate leaves, in consequence of the great variety of colour which they assume, from the dark olive of the older leaves through all the intermediate shades of a rich grass-green, and even of a pale and delicate yellow."

CUCUMBER DISEASE.

In the early part of the present year some remarks were offered by the Rev. M. J. Berkeley and other correspondents on this troublesome disease, and having had to contend against it myself from the day I entered my present situation to the present time, perhaps my experience on the subject may not be without interest to those who have been or may be similarly troubled. I may remark that the disease has been very prevalent in this county for some years past, both with Cucumbers and Melons. One of my neighbours, a first class cultivator, lost, in dung pits and frames, six crops of Melons in succession, and another showed me fruit nearly half grown, two-thirds of which were black, and looked just as if it had been parboiled. These also were grown on dung beds; in fact, as far as I have observed, the disease appears much more troublesome to cope with in dung beds than where the plants are grown in pots, or have their roots confined within a certain prescribed limit. I have not to complain of the loss of any fruit worth notice, which I attribute to not allowing the plants to overbear themselves at any time; but my plants have, first by flagging, then by specking, and lastly by dying round the margin of the leaves, without any direct or, to an ordinary observer, appreciable cause, worn at times an aspect, and given much more trouble than was by any means agreeable.

Mr. Berkeley, I perceive, inclines to the belief that the disease is constitutional, and hence has recommended particular caution to be observed in saving seed from healthy plants. The convictions of a gentleman who has devoted so much attention to vegetable diseases demand great respect, but my experience leads me to an opposite conclusion. I may remark that I have grown this season 25 varieties of Cucumbers, some from seed 12 years old, and others from seed from China, France, Germany, and several parts of England, Scotland, and Wales, and yet in every instance the plants have been more or less diseased. Some kinds of Melons I could not induce to grow at all, such as the Egyptian Green Flesh, Bromham Hall, Windsor Prize, Jones's Green Flesh, and several others of that class; but from the Trentham Hybrid, Hybrid Cashmere, Hoosainee, and Ispahan, I have cut fine handsome fruit, some weighing as much as 10 lbs. each, yet in all cases the plants were diseased. I have inquired of friends who gave me the seeds, but not one of them knew what the disease was—a strong fact I think against its being "constitutional."

For my own part, I feel more disposed to attribute it to improper soil, and perhaps in some instances it is increased in its virulence by the injudicious use of over-stimulating liquid manures. In this locality a really good loam for horticultural purposes is difficult to meet with, most of the soil being strongly impregnated with oxide of iron, and others with magnesian limestone; in fact, it is just the soil in which, for years past, I have found all soft-wooded plants the most subject to that troublesome gangrenous disease called "spot," and which has been like a pest among Calceolarias and Geraniums to the London nurserymen. Whether by the influence of the iron on magnesia any chemical change inimical to vegetable growth takes place I cannot say; but this I know, if manure-water rich in stable urine and soot is used, the disease is much increased, while lime-water, on the contrary, as effectually checks its virulence. Indeed lime-water has been my sheet-anchor, and, though those I have recommended it to have not succeeded so well as myself, still I think their want of success is more attributable to the difficulty of applying it in sufficient quantity to dung-beds or plants growing in open soil than to plants in pots. But to more practical details—

At the time I took the charge of this place two houses of Cucumbers for the winter supply were in a very bad state, indeed, so bad, that with the exception of two plants in one of the houses, I found it quite impossible to recover them. On making inquiries I found the disease had been troublesome for several years, and that the soil in which the plants were then planted had been used for Cucumbers several times before, merely having a little fresh compost added with each fresh lot of plants. I also found that the leaf-mould which it contained bore evidence of being formed partly from evergreen leaves and branches, as Laurel, Holly, &c.; and with the exception of mould from slowly decomposed Grass, I believe there is nothing more injurious to soft-wooded plants than leaf-mould from evergreen trees. Finding it, however, quite hopeless to expect anything from the old plants, I had one house cleared out, and the soil not being such bad looking stuff, I had it removed to an adjoining house for French Beans. About two-thirds of the bed were covered, the other portion having been previously filled with a different soil. The Beans were planted, being all from the same sowing, but I could not get those in the Cucumber soil into healthy growth. I had the mould removed from about the roots and replaced with fresh soil; then the plants progressed a little, but as soon as the roots got to the old soil they then came to a stand-still, and at last I was obliged to remove them altogether, and renew the bed with fresh soil. The plants in the other part of the bed grew as well as could be desired, and from that part of the bed renewed with fresh soil a magnificent crop was produced. Again, in re-arranging the Cucumber house for a fresh crop, a little of the best soil was mixed with dung and put in the bottom of the bed. Some plants were then turned out in prepared compost in bottomless pots (Seakale pots reversed); they progressed splendidly till they got into crop, and then the roots having penetrated into the old soil they gradually began to fail. Between the pots the bed was filled up with fresh loam for Melons; they also made very satisfactory progress, but as the roots got into the old soil they likewise showed a disease. Thirdly, in the second Cucumber house some of the bottomless pots, filled with prepared compost, were plunged in the old bed. The plants here grew with unusual vigour, but again the old soil was inimical to success, and as the roots got into it the plants decreased in health.

Thus I think, considering the fact that Cucumbers in the same soil had failed more than once before; that French Beans refused positively to grow at all in it; that where the soil was used as a mixture the plants became diseased; that where the roots of plants in pots, previously in rude health, got into it, they showed the disease immediately; and, finally, that seed from the same packets in other places produced plants as healthy as need be, I am justified in concluding that in my case the disease was attributable to the soil and to that only.

Some of the old plants which I found have, when taken up, showed the nasty excrescences on the roots as described by Mr. Berkeley from Mr. Bailey's (of Nuneham) specimens; but I have noticed nothing of the sort in the summer grown plants, neither have the leaves of my plants presented much of the want of chlorophyll, at least not until they had flagged several times and the leaves were beginning to turn yellow. At first I thought that the soil was deficient in nutriment, and hence I resorted to stimulating manures, especially soot-water or liquid manure, in which soot was the principal ingredient; but with badly diseased plants that certainly increased it. With fresh soil and half-decayed manure mixed with soot, I also found the plants much diseased. For the prevention of the disease I believe nothing is found so effective as pure well annealed turfy soil, intermixed with good leaf-mould and thoroughly decomposed old cow-dung, or the dung of a spent Mushroom bed; avoid soot and charcoal by all means, and prepare your manure-water from fresh cow-dung, to which a very small portion of common salt (1 ounce to 30 gallons) may be advantageously added, and clear the whole with a lump of lime before using it. I also fancy, though I have had no means of trying it, that superphosphate of lime would be beneficial; I have always found superphosphate one of the most useful concentrated manures—for Pines it is not to be equalled. As a further preventive, if I were growing Cucumbers in dung beds or pits I should put my plants in pots or boxes, and then I think, with a judicious use of lime water, and by growing the plants as hardy as possible something like ordinary success might be insured.

In conclusion, after growing as before stated 25 varieties of Cucumbers this season, including all the newest kinds, such as Ipswich Standard, Star of the West, General Canrobert, Sir Colin Campbell, Ne Plus Ultra, and many more, I am confirmed in an opinion expressed many years ago that these great Cucumbers are comparatively worthless, and that several of the short kinds—the true Syon House for instance—will produce in a given time a much greater length of serviceable fruit than any of the long kinds. Besides, they are fit to eat, and I cannot say that much for some of the long varieties. Ipswich Standard, though fine in form, is coarse in flavour; Star of the West, thick, soft, and watery; General Canrobert, ribby and uneatable: and Sir Colin, not much better. The best long kind which I have grown for length, quality, and crop, is "Floud's Long Hybrid," raised by Mr. Floud, gr. to R. Fothergill, Esq., Aberdare, South Wales. It bears very profusely, showing three and four fruit at almost every joint, and brings more good fruit to perfection at the same time than any long kind I ever cultivated. At the time Messrs. Rendle's fruit of Star of the West were noticed in the *Chronicle* I had fruit of Floud's Hybrid, the same length and not quite half the thickness; indeed I have had it upwards of 20 inches in length, and not more than an inch in diameter. For the regular daily supply of a family from year's-end to year's-end, and for superiority of flavour, I believe the true Syon House and Lord Kenyon's stand unsurpassed. I have two black spined varieties, capital bearers, and from which 20 feet of fruit have been cut at a time from a single plant (the same thing has been done scores of times with the variety of Syon House my father used to grow). One of them is rather short, rarely exceeding 10 inches in length, but the other averages about 1 foot, carries a beautiful bloom, and is as near perfection as need be for a gentleman's table, where flavour is of much more importance than almost fabulous length. Such at any rate is my hobby in relation to Cucumbers, but far be it from my wish to prevent others growing the long kinds if they think proper to do so. *W. P. Ayres, Whittlebury Lodge, Oct* 30.

THE RESUSCITATION OF SEEDS.

The Memoranda in the last Number of the *Gardeners' Chronicle*, communicated by your correspondent "C.," are interesting as connected with some important questions of geographical botany now under discussion. The phenomena mentioned of the sudden ascendancy acquired by Clover over Gramineæ in certain pastures, and of its being again overtopped by the Grasses after a few years, and the frequent substitution of one kind of tree for another after a forest has been cut down, are traced to their right causes. They depend on a principle recognised in the most recent works on the subject. Where several species of plants are crowded together, if, during the age or season when they are in full growth, circumstances of soil, situation, &c., are peculiarly suitable to one and less favourable to the others, that one will obtain the predominance, to the gradual diminution or even total extinction of the others. This principle acquires great practical importance, as treated by "C.," in the search after the best mode of treatment for the improvement of natural pastures, by the encouragement of good nutritive species and the expulsion of hurtful or unproductive plants. On a larger scale it may also be applied to the improvement of young forests.

The instance quoted of a bulb having vegetated after having lain for 2000 years in the hand of a mummy, is incapable of sufficient authentication to be made the subject of physiological argument. Such a fact would be too much in opposition to the results of universal experience of the limits of the vitality of bulbs, not to suggest the idea of one of the tricks played by the manufacturers of mummies or other impostors, always ready to make a profit of the credulity of travellers in Egypt as elsewhere.

The case of the Charlock quoted by "C." is one of the numerous instances of the sudden appearance of that weed under circumstances which seem unaccountable, except on the supposition that the seed was, as he says, buried in the ground awaiting its day. This is a very general belief adopted by many eminent physiologists; and yet it is only a supposition, hitherto unsupported by any convincing proof, and doubted by many who are aware how numerous and effective are the causes of destruction to which seeds buried in the ground, without immediately germinating, are exposed. As I certainly strongly partake of these doubts, my object in addressing you is to suggest some experiments which might tend to solve them on the one side or on the other.

If I understand your correspondent right, the Charlock seed on the spot he mentions has been completely got rid of in the surface soil to the depth of about 4 inches, but if the subsoil is turned up to the additional depth of 2 inches, it produces an abundant crop from seed supposed to be contained in it. This would be a peculiarly favourable opportunity for ascertaining whether the seed does in fact exist there. Suppose the 4 inches surface soil were carefully removed from a given space, say a square yard, another 2 inches of the subsoil taken up and carefully washed, then Charlock seeds ought to be there found. Some two or three seeds in that mass of soil might indeed be overlooked, but for every good seed there must, under those circumstances, be so many that have lost their germinating power, that they must present themselves in considerable numbers. If similar researches were repeated at different times in different localities, we should soon obtain important data positive or negative. The results of the few partial examinations I have this summer been enabled to make in cultivated lands have been all negative as far as they went.

Another very useful experiment as to the duration of vitality in buried seeds, would be artificially to bury seeds of Charlock or any other plant most strongly sus-

pected of turning up in the same manner—to bury them in large quantities at various depths in marked spots of ground, selecting fresh gathered fully ripe seeds, such as are naturally shed, and leaving them exposed to the various vicissitudes of drought or moisture, heat or cold, to which they would be naturally subject; and, after the first two or three years, to take up a portion every year and ascertain their state, to observe how many will have escaped the natural tendency in the moist earth to germinate or rot, as well as the ravages of insects or other causes of destruction.

As, however, the main fact, the sudden appearance of large quantities of Charlock or other plants on newly turned up soil, where none had been previously observed, cannot be denied, it may be asked if the seed had not long been lying buried in the ground, where could it have come from? It is, however, very seldom that all the facts which might afford a more plausible solution to this question are known. Charlock is a weed exceedingly common in cultivated lands all over the country, and often inadvertently sown with grain or other seed. Conspicuous as it is when in flower in considerable quantities, a few plants scattered about, especially when in seed, would attract no notice. A single plant may ripen 500 to 1000 good seeds. In ordinary cases, as the average quantity of Charlock in the country is about the same, year after year, 999 out of these thousand seeds, or their produce, must perish before coming to perfection. But if the soil is turned up at the moment the plant has shed its seed almost every one of the seeds may germinate, and the progeny of some half a dozen plants, unobserved the previous year, may cover an acre of ground. There are so many ways in which seeds are known to be rapidly dispersed over cultivated lands, that there is much to be disproved before we can be convinced of any extraordinary longevity in seeds, under circumstances which are known rather to promote germination or destruction than to preserve their dormant vitality. *G. B.*

MEMORANDA

Intended to show some instances in which the agency of man has been brought into play in the production of plants, of insects, of birds, and also on a more extended scale, on localities and on climates; and to show that however these effects may appear permanent, they originate in taking advantage of those laws to which the Almighty Power has subjected all alike—plants, insects, animals, localities, climates, and man himself.

(*Continued from p.* 725.)

SECONDLY, OF INSECTS.

1. Every one may see in a piece of decayed cheese two marked kinds of insects, the hopper and the mite, the hopper existing in the moist portions, the mite in the dry portions of the same cheese. Every one may, at his pleasure, produce and alternate this effect by making an incision, and thus confining a supply of moisture to a distant part of a cheese, and by keeping the cheese at a high temperature without a general supply of moisture. Here man plays with two kinds of insects in different stages of existence, the annular hopper and the more highly organised mite.

2. It is a well known fact, that if a small quantity of water be taken from a clear puddle below a bush, and be carefully placed in a clean phial, and, if the phial be well corked and be kept at a summer heat, although the water appear perfectly bright and pellucid to the human unaided eye, yet in course of two or three months a number of gnats, or mosquitoes, or midges, as the case may turn out, will make their appearance, will exist for a time, and die rapidly, in proportion as this period is more or less precocious, and the means of sustaining their life are wanting.

3. The following circumstance occurred in the spring of 1819 to 1820:—Bow Church stands in the midst of the turnpike road from London to Romford, &c. The churchyard is of very small extent, and had become so much raised above the high road on all sides, that it was decided to lower it, and to sell the earth. The earth was black rich mould, such as a farmer could broadcast. A farmer who bought it applied it to such purpose on a field of young Wheat, which just greened the ground. The field was in Layton, near Walwood House. At the time the mould was spread broadcast, the wind was so high that a considerable portion of it was carried over an adjoining field, which was in the occupancy of a different person. The genial weather and rains of spring came on—everywhere the crops looked well, when the Wheat over which the mould had been cast gradually disappeared. The astonished farmer proceeded to his field, and was surprised to find that not only his field but that of his neighbour were covered by bushels (the word of the farmer) of flat snails, of about the size of a sixpence, having a broad white band on their lower side. The farmer was dismayed. But the weather changed soon, to unusually dry. An extraordinary fœtor proceeded from the Wheat field, which led the farmer to examine it again, when he found all the snails were dead, and that the smell proceeded from them. Some of these shells were given to me in this state, and the donor added that they extended over at least 12 acres, and must have amounted to millions upon millions. The ultimate effect upon the Wheat was highly beneficial. I happened to be on a visit at Layton at the time; I examined the devoured Wheat, and found traces of the shells throughout; I put some by, but unfortunately was hurried away without making any memoranda. The shells were lost in my hurry, so that the circumstance rests only on a tenacious memory.*

* From a sketch communicated by our correspondent it would seem that this snail was some flat Helix in the way of *H. virgata*.

But the case is important as showing that the ova of the snail were accumulated in the dark places of the churchyard, where portions would have become food for some of the insect tribes; and a vast proportion would, like the mummy, have rested inert until the vital principle had been called into play. Removal, the being spread broadcast, and the genial showers and warmth of spring, called that principle into play, and produced a limited existence, which was put an end to suddenly by the want of that support which they had produced.

To sum up, here we have millions of snails brought into momentary existence by the ignorant activity of man. We have gnats, mosquitoes, and midges hurried into precocious existence by the curiosity of man; and here we have, in the hopper, the mite, and the cheese, the evidence of the power of man to play with and influence vitality in insects as suits his pleasure. *C.*

(*To be continued.*)

Home Correspondence.

Growing Pears in Paper Bags.—In the spring you published an account furnished by a French gentleman, to the effect that if Pears as soon as they were set were enclosed in paper bags, and allowed to remain in them until within three weeks of ripeness, they would not be gritty. Being fond of experiments I bagged one Pear on almost every tree. As, however, I grow no gritty variety except the Rousselet de Rheims, my garden is insufficient to test the truth of the asserted fact. But the bagged Rousselet did not seem freer from grit than its neighbours. As to such other varieties as have already ripened and are eaten, Marie Louise was neither improved nor injured, but in every other instance the flavour was deteriorated. I ought, however, to mention that in consequence of the number of blackbirds, I was obliged to put on gauze bags immediately on taking off the paper ones. But though the experiment has been so far unsatisfactory, it is not without useful results. I have a handsome pyramidal tree of Glou Morceau, which for years past has never borne a single good fruit. They are always blackened, speckled and cracky. This is owing, I believe, to the coldness of my situation. But the one bagged specimen has this year swollen into a most beautiful Pear, externally all one can desire. The same result has followed on an espalier Passe Colmar. Assuming that an ungenial climate is the cause of these defects in Pears, is it not possible that by bagging the tender sorts in the spring, and uncovering them after midsummer, we may combine external beauty with internal perfection and flavour?—at any rate some of your readers may like to try the experiment next year. *G. S.*

State of the Weather at Callton Mor, Argyleshire, during October, 1855:—

October.		Wind.	Temperature of the air. Max.	Min.	Mean.	Rain.
1	Clear; fine throughout	S.	62	49	55.5	...
2	Overcast; foggy	S.E.	64	49	56.5	...
3	Showery throughout	S.	57	47	52.	.26
4	Rain; fine; overcast	S.E.	57	46	51.5	.27
5	Rain; fine; thunderstorm	N.E.	55	35	40.1	.22
6	Boisterous; cold air; showery	S.E.	52	45	48.5	.08
7	Dull; showery throughout	S.W.	50	45	47.5	.16
8	Fine; cold air; fine	S.W.	56	41	48 5	...
9	Overcast; cold; clear	S.E.	52	41	46 5	...
10	Fine; cloudy; rain	N.W.	51	38	44.5	...
11	Showery throughout	N.W.	50	41	45.5	.38
12	Cloudy; showers; cold air	W.	49	39	44.	.28
13	Much rain	N.W.	48	38	43.	.58
14	Heavy showers throughout	S.W.	46	36	41.	.62
15	Rain; hail; fair at short intervals	S.E.	48	35	41.	1.29
16	Cloudy; fine; clear frosty air	N.	45	34	39.5	.06
17	Frosty; cloudy; fine	N.W.	45	29	37.	...
18	Showery; fine; showery [showers	N.W.	53	44	48.5	.11
19	Light showers; cloudy; heavy	W.	54	43	48 5	.31
20	Fine and showery throughout	W.	53	45	48.5	.53
21	Showery; fine; boisterous	N.W.	55	45	50.0	.46
22	Cloudy; fine; showery	N.W.	55	43	48.0	.07
23	Boisterous; showery at intervals	N.W.	48	39	43.5	.36
24	Very boisterous; hail; rain;	N.W.	42	35	38.5	.37
25	Rain; very rough; rain [stormy	W.	48	38	43.0	.92
26	Rain; sharp wind; frosty and clear	N.W.	46	36	41.0	...
27	Frost and clear; cold air; clear	N.	40	29	34.0	.28
28	Clear; stormy; frosty air	N.W.	38	28	33.1	...
29	Rain; cloudy; cold air	N.W.	42	33	48.	.46
30	Cold; cloudy; clear; boisterous	N.	45	37	41.	...
31	Fine; clear; fine	N.E.	43	34	38.5	...
						In. 8.3

—*J. Russell.*

British Oaks.—I rejoice to see by your remarks at p. 728 that there is some chance that your correspondents will, from their personal knowledge, enable you to solve the difficult question at issue between Q. pedunculata and Q. sessiliflora. On that account I the less regret that I trespassed upon you with the query which you answered at p. 696, which had I seen, as I since have, the editorial remark at the foot of the notice of "Rufus," 1844, p. 53 *c*, I should not have done. I have to thank you for much forbearance and courtesy in the answers to the questions with which I have from time to time troubled you, and to regret that I am unable to enrol myself among those correspondents who have a personal knowledge of the properties of the two species. I was driven to make inquiries by observing that the young British Oaks planted by my predecessor within the last 20 years promised not to grow into timber so fine as those planted at an earlier date. I then became aware of the existence of two species of British Oaks, but it was not till last autumn that I saw a growing tree of Q. sessiliflora, nor have I at this moment, except three small seedlings from the Horticultural Gardens, a single tree of Q. sessiliflora growing on my land. I observe in a communication, 1848, p. 135 *c*, that "Mr. Andrew Knight, who was well acquainted with the qualities of both varieties, always maintained that the timber of Q. pedunculata was the firmest and best of the two." Are you aware if Mr. Knight has left this opinion, and the reasons thereof, anywhere on record? In a leader 1842, p. 723, is the following excellent advice:—"A sickly sessile fruited tree will yield acorns producing seedlings with a much worse constitution than the general run of stalk-fruited Oaks; and so, also, a very vigorous Oak of the latter kind may bear acorns whose offspring will exceed in powers of growth the average specimens of the sessile fruited. Planters, then, should take the utmost care to ensure a supply of seedling Oaks from trees remarkable for their large size and healthy state." Should this advice have been seen and adopted by any nurseryman I much wish he would state in your columns where the parent Oak of the trees which he advertises may be seen or heard of. And I would suggest to noblemen and gentlemen, or their stewards, on whose estates any forest giants are yet to be found, that an advertisement in your journal, stating the size of the tree, and its locality, and that sealed bags containing warranted Acorns therefrom would be delivered at a railway station in London at per peck, would probably produce applications to exchange acorns for money, the effects of which would be visible in the country for centuries to come. Again, having more than once profited by the liberality of your correspondents, who now and then offer seeds or specimens of rare native plants to those who will send them stamped covers—and having thereby incurred debts of sundry days' work in harvest, some of which I have been enabled to pay by a system of exchange, while some are still due—I would suggest to such as may have access to a giant Oak that an offer of acorns would be apt to produce covers in abundance, and with them bags for containing the acorns, and postage stamps, if required to pay the cost of collection. I am myself determined that as soon as I am by any means enabled to plant Oaks that may be called the Sons of the Giant, I will no longer plant the nameless produce of a nurseryman's seed bed. Lastly, if you will have the kindness to look at the charter of the Royal Agricultural Society, which is printed in the appendix to one of their early volumes, which is probably within your reach but is not within mine at this moment, you will find, if I mistake not, that the growth of timber trees or of woods is one of the objects of encouragement for the Society, but I question whether, if you look through the 15 or 16 volumes of the Journal of the Society, you will find a single essay or treatise having the improvement of timber for its object, and certainly no prize has yet been recommended by the Journal Committee to be offered for any such object. *Diss.*

Yeast.—A few weeks ago I sent you an old receipt for making yeast. The following appeared in the *Times* of Oct. 22d; I have tried it, and can confirm "D. S. Y.'s" testimony as to its excellence:—"Monday morning boil 2 oz. of the best Hops in 4 quarts of water for half an hour, strain it, and let the liquor cool down to new milk warmth; then put in a small handful of salt and half a pound of brown sugar, beat up 1 lb. of the best flour, with some of the liquor, and then mix all well together. On Wednesday add 3 lbs. of Potatoes boiled, and then mashed, to stand till Thursday, then strain it and put it into bottles and it is ready for use. N.B. It must be stirred frequently while it is making, and kept near the fire. Before using shake the bottle well up. It will keep in a cool place for two months, and is best at the latter part of the time. The beauty of this yeast is that it ferments spontaneously, not requiring the aid of other yeast, and if care be taken to let it ferment well in the earthen bowl in which it is made, you may cork it up tight when bottled. I put mine into Seltzer-water bottles, and this quantity fills four. I have used it now for many months, and never had lighter bread than it affords without any failure." *M. N.*

Cucumber Growing (see p. 727).—Observing that Mr. Massey, of Kirby Hall, doubts my veracity respecting the Cucumbers I grew, I send you a statement of the quantity, together with the length and dates when cut, and I will vouch for the truth of it, the plant being a last year's cutting. *Thos. Pollington, Bradwell Grove.* [Our correspondent has sent a *daily* account of his cutting, which account tallies with his statement.]

Result of Applying Sulphur to Hops during the period of their Growth.—Here we have two things to consider; 1st, whether the sulphur can be used profitably; and secondly, whether Hops so grown can obtain an average market price. I am now in a position to answer both satisfactorily. Some time since you published a notice of mine on the state of two Hop grounds in close proximity, the one to the other, in the parish of Bapchild, Kent. In that article I ventured to predict the result, which, though not strictly borne out, was yet sufficiently approximate, as the following details will confirm. On the portion or garden where sulphur was used, at little more than 40*s.* per acre cost, the 6 acres produced 69 cwt., or at the rate of 13 cwt. 3 quarters 6 lbs. per acre; whereas the adjoining 3 acres, where the mould was equally rife, and no sulphur used, produced together only 12 cwt. or 4 cwt. per acre. This surely must convince the most sceptical. Now as to the effect of the factors' manifesto; these Hops were so clean and good that they obtained more than the average price of the neighbourhood. Does not this tell us that if we were careful to watch for and destroy this parasite,

we need not have as many acres of Hops in plant to produce the same quantity? Then so many more acres of land of the best quality would be free for Wheat or other crops. *W. Masters, Exotic Nursery, Canterbury.*

Luminous Lycopodium.—They have at Kew a most curious Lycopodium, lately come from Jamaica (not, I believe, sent on account of its property). It is a common looking species of the Helveticum group; green as others by day, but as evening comes on gradually appearing white to the eye—not pure white—but the sickly white of a bleached plant, distinguishable at once by this circumstance when it is too dark to see the form or outline. Mr. Smith detected this property, which can have nothing to do with the effect produced on the so-called Lycopodium cæsium by the rays of light making that plant iridescent, like shot-silk. *H. R.*

Double Blossomed Peach.—The fruiting of this Peach is by no means unusual. A tree of it in the gardens at Redleaf has this year produced upwards of eight dozen very fine fruit, which ripened perfectly, and were certainly very juicy and eatable, but not such as would please a connoisseur in such matters. *J. C.*

Vitality of Seeds.—Reading the memoranda of "C." on the appearance of different species of plants under different treatment of the ground, has brought to mind a singular instance of the appearance of Charlock on newly turned up soil which occurred to me many years ago. I was deepening a pond in an old pasture, but which was supplied by the drainage of adjoining arable land. The soil which I took out was chiefly strong yellow clay to the depth of perhaps 18 inches, and the bottom was laid uppermost. In the ensuing summer the hill of clay was covered with Charlock as thickly as Mustard sown for the table. In what manner could these seeds have been deposited at the depth of some inches below the bottom of the pond, and retained their vitality? I am aware that the springing up of this weed on the soil thrown out of the bottom of ditches is an everyday occurrence, but this instance appeared to me a very remarkable one. *J. G., Bury St. Edmunds.*

Subterranean Irrigation.—If Mr. Wilkins or any other person will look into M'Intosh's "Practical Gardener," for 1827 or 1828, I forget which, they will find this method of manuring recommended for the cultivation of Celery, and from that date I have followed it myself in various ways and with various liquids. I grew Grapes by it for six years at the late Archibald Corbett's, Esq., at Walthamstow, in 1842, and I made new Vine borders upon the same system at Thos. Moxon's, Esq., at Low Leyton, but I do not know whether that gentleman carried the plan out, as I left shortly after, and am now working a house on the same principle, which has been so worked for the last eight years. Now I cannot help thinking that these remarks, added to the evidence you have furnished, are sufficient to prove that this mode of manuring has little novelty about it, and that Mr. Wilkins has no right to tax the public for a system that is neither new nor his own. *Wm. Havers, Gardener, 29, Adelaide Road, Hampstead.*

——The Potato referred to in your account of my experiments whose produce was 101 Potatoes weighing 24 lbs. first originated in 1853, from one set grown on this new system, and then produced 9 lbs. In 1854 one Potato from the same stock on the same system yielded 15 lbs. This year, 1855, one set from the same stock on the same improved system in only 8 inches of earth produced the 101 Potatoes just mentioned. Another singular fact is that where I put solid manure or road sweepings (where the fly had rested), even under sand, I found the grub worm, but no grub where sand only and liquid manure were used. I have seen to-day some exceedingly good drain tiles for my purpose made of road sweepings, and the patentee says he will provide a cheap concrete for any extent of land, which will guarantee my system to answer. My flower arrangement I am sure you will be pleased with. I have flowers growing in schedaliers (qy. chandeliers) standards, and other contrivances, supplied with the most filthy liquid, but from which no offensive smell can be discovered even in a drawing-room. I intend to take up my Mangel Wurzel roots, &c., on Wednesday next, Nov. 14, at 10 minutes past one o'clock, P.M., and I hope that many of your readers and others will attend to see weight against weight, or the new and old systems compared. *Edward Wilkins, Experimental Gardens, Reading.*

Heywood House Pits.—Your Truro correspondent (see p. 725) is mistaken in supposing that the rearrangement of these pits originated from a design of Mr. Glendinning; the fact is, the alteration arose from continual vexation and disappointment, nor was I aware until I read "C.'s" communication that Mr. Glendinning had furnished a plan of the kind for the *Gardeners' Chronicle.* The pits under consideration, in their original state, were designed by Mr. Mills, given to me, and heated by Burbidge and Healy, and I can now say, after much experience, that the fundamental principles were violated, which precluded the possibility of the arrangement accomplishing a tithe part of what was affirmed it would effect; they were, in fact, perfectly useless for Cucumber cultivation during winter. After several alterations the diffusion of heat has been rendered more satisfactory, principally through the admission of external air at the lowest level, which produced circulation, and an increase of warmth. The improved plan has been published, and attracted the attention of Mr. Phillpotts, who was then just beginning his experiments, and I cannot but express the pleasure I feel in knowing that his success has been so complete. *A. Cramb, Gardener to the Right Hon. Earl Ducie, Tortworth Court, Gloucestershire.*

Management of Roses in Beds (see p. 727).—I have not at this moment an opportunity of referring to what I said respecting the autumn manuring of Roses; but as far as my recollection serves me I stated that careful transplanting and highly manuring at this—the proper season—are all that is requisite to produce or maintain an abundant bloom. As regards my reasons for recommending autumn for the purpose, one at least must be evident, as it is the only time when manure can be applied in that manner: another, and with me a powerful one, is that the plants then transplanted have already formed bundles of new strong healthy roots, which make the most of the nutriment placed within their reach. Where pegged down to cover the entire soil and topdressing—the only method of manuring available—I think the reasons for its autumn application become apparent. As a manure it must have time to reach and benefit the roots; as a mulching it does much to keep the soil kindly by preventing it from being bleached or sodden by the rains of winter, and as a protector it will greatly tend to keep the more tender sorts in good health, by sheltering the junction of the stock and Rose, and for this the 2 or 3 inches recommended will be ample, provided they have been budded or grafted (which suits some sorts better), as they assuredly ought to be, close to the ground; and, lastly, the said manure after conferring all these benefits will have become less unsightly as the season for appearances becomes of more importance. I may add that to insure success under any circumstances perfect drainage is indispensable; therefore if the beds are the usual pits dug out of gross or other consolidated ground, manuring in autumn or any other season may be dispensed with; this case being altogether hopeless, as the said pits or beds act as drainage to the surrounding surface; consequently during the rainy season they are little better adapted for the culture of permanent plants than so many ponds would be. *J. M., Folkestone.*

Shell Rain in the Isle of Wight.—In replying to the queries of "C. D" (see p. 726), I cannot perhaps do better than take them separately in the order in which they stand:—1. "Were any of the shells living?" Yes, many that came under my observation were alive. And it may be interesting to add, that a lady connected with the establishment at Osborne having collected a number of the shells, placed them upon a Cabbage leaf, over which she inverted a large tumbler glass; the tiny creatures soon gave unmistakable signs of their vitality by their voracity. 2. "Over how wide an area did they fall?" I cannot tell the exact space over which they fell. I may state, however, that it extended at least over 400 square yards of surface. 3. "During how long a time are they believed to have fallen?" To this question I can give no satisfactory answer. I was not on the spot at the time when they fell. Nor was I acquainted with so singular and interesting a fact as a shower of shells until my attention was drawn to it by Miss Skerrett, of her Majesty's household, some time after. Owing to what I gleaned from that lady I became concerned to know more about them, but the answers to my inquiries were so vague and unsatisfactory as to be of no particular value. 4. "At what hour and on what day?" I cannot learn from any source the hour they are supposed to have fallen. They were observed as early as 8 or 9 o'clock in the morning. The day, to the best of my recollection, was Oct. 1st—Monday; unfortunately I made no memorandum thereof. There had been very heavy storms flying about for several days. The storm, however, which in all probability took up, hurled forward, and so unceremoniously scattered the numerous little shells over the court-yard and along the pavement of the palace at Osborne, was doubtless the one which broke over here early in the morning of the above-named day, as early as 5 or 6 o'clock. 5. "Did only one kind of shell fall?" The specimens I have are all identical. A friend of mine, however, told me to-day there were two kinds of shells, of the truth of which I have had as yet no ocular demonstration. I am sorry I cannot give "C. D." more definite information regarding the shells at present;—I may learn something more respecting them when the Court returns to Osborne. The foregoing statements I hope will prove so far satisfactory to "C. D." as to induce him to venture a probability as to the locality in which the storm might have found them. If "C. D." would like a few of the little Zua shells, I shall be happy to forward some to his address, if sent. I have no living shells. *C. Winchester, Osborne.*

Societies.

British Pomological, *Nov.* 5.—W. Stephens, Esq., in the chair, succeeded by Mr. Osborn, of Fulham. The fruits brought together on this occasion consisted chiefly of Apples and Pears, of which there was a large display, a few Pine Apples, Grapes, and Plums. From the Royal Gardens at Frogmore was a collection of ripe Pears, which were sent to show what varieties are now in use there. Among them were fine specimens of Marie Louise, Beurré Diel, Glou Morceau, Knight's Monarch, very fine from a south wall, and quite ripe; Van Mons Leon le Clerc, well grown, but not very high flavoured; Beurré Bosc, B. Capiaumont, a variety which some call "a Pear for the people;" Comte de Lamy; Seckle large and highly coloured; the old Moor Fowl Egg, Brown Beurré, Bacon's Incomparable, Forelle or Trout Pear, Duchesse de Angoulême, and a small new Pear named "Saxton Seedling," which closely resembled the old Crassane in shape and colour. It had a white melting flesh, was very juicy, sweet, and sugary, and was altogether considered to be one of the best flavoured Pears exhibited. The above were nearly all from curved wire trellises, with which the borders along the sides of the principal walks at Frogmore are furnished. From the same garden also came 32 varieties of Seedling Apples, many of them very promising sorts. Among them were several fine-looking Golden Pippins, which, however, upon trial proved inferior to the old favourite Apple of that name. Some of them, however, might be worth growing on account of their reputed hardiness and free-bearing qualities, in both of which they were stated to have the advantage of the old Golden Pippin. No. 152 was much approved of; it is a small flat Apple, not unlike the Downton Nonpareil, with a pale yellow skin, thickly over-spread with thin flakes of soft russet and brown specks on the sunny side. Its flesh was fine-grained, breaking, sugary and rich, and the tree which produced this fruit is said to be hardy and very prolific. Shilling's Seedling, of which some specimens were present, was reported not to be so good as the Ribston. Examples were exhibited of Beurré Clairgeau, which proved better flavoured than the specimen of this handsome Pear furnished by Mr. Wells, of Redleaf, but still they were reported to be too flat and watery for this to rank as a first-class Pear. A well grown specimen of the Sabine Pear, a little known variety, was shown by Mr. Ingram, of Belvoir Castle, where it is reported to be a very useful kind. Mr. Rivers showed some Pears, among which were Laure de Glymes, a rather coarse sort, musky and not melting; Colmar Navez, stated by Dr. Van Mons to be one of the finest of all Pears, but, in this instance, watery and possessed of little richness; and a striped St. Germain from under glass; also a Pavie de Pompone, which in France is said to reach 1 lb. in weight, and to be good eaten in autumn with wine and sugar. From Mr. Ward, of Reading, came fine specimens of Louise Bonne of Jersey, Marie Louise, and other Pears, from pyramids in strong loam on a cold subsoil. Mr. Spencer produced handsome examples of Black Prince and smooth Cayenne Pine Apples, two very fine bunches of Muscat of Alexandria Grapes, and a seedling called the Bowood Muscat, apparently a very fine variety, which was said to be a free setter, but in this instance unripe, and therefore no correct opinion of its merits could be formed. Its berries are Pear-shaped, and remarkable for their size, and the bunches appeared to be shorter and wider in the shoulders than those of the common Muscat. From Mr. Turner, of Streatham, came an extremely handsome bunch of Black Barbarossa Grapes, weighing 4 lbs. 12½ oz. The berries were quite black and covered with a fine bloom. Mr. Taylor (from Mrs. Webber's), stated that he has had this Grape in perfection as late as the 28th of April, and that its true flavour is not acquired before the beginning of January. Its merits as a late Grape, therefore, require no comment. Of other fruits, chiefly Pears and Apples, collections of which were exhibited by Messrs. Paul, Whiting, De Jonghe, McEwen, Thoyts, Wintle, and Dr. Davies, we may have something to say hereafter, many of them not being at present in a state to admit of their true characters being correctly determined. Twelve new members were elected.

Notices of Books.

An Elementary Atlas of History and Geography from the commencement of the Christian Era to the present time. By the Rev. J. S. Brewer. The maps compiled by E. Weller, F.R.G.S. 8vo, Longmans.

This is a valuable addition to the materials now applicable to educational purposes, and one that was much needed. Not that it in any way supersedes Spruner's admirable *Atlas antiquus* on which it is founded, but it is better suited to young readers, and more convenient for purposes of study. It begins by representing the nations and limits of the Roman century in the fourth century, by a map copied from Spruner, and it proceeds to illustrate in fifteen other maps Roman Britain, the migration of the Barbarians, Saxon England, Europe in the 9th century, the 10th, the 12th, the 14th, 15th, 16th, 17th, and 18th centuries, during the French revolution, &c. &c.

The fault of the book is that it does not include Asia antiqua. We could also have wished for a better arrangement of colours in marking the limits of countries. Green and blue for instance should never be in contact, for they resemble each other too nearly even by daylight, and by candlelight are undistinguishable We should prefer in all cases HARD BLACK boundary lines to any possible combination of colour.

Stanford's Map of the Roads between Odessa, Nicholaieff, and Simferopol, (4*s.*), is a most welcome publication. Embracing, as it does, the present great scene of naval and military operations it is indispensable to those who would understand the movements of the troops and navy of the allies. It includes the whole of the Crimea west of the Tchatir Dagh mountain, namely Simpheropol, Eupatoria, Perekop, Aleshki, Kherson, Nicholaieff as far westward as Odessa, together with all the soundings along the whole coast line. To this are added plans of Odessa itself, and Nicholaieff on a large scale. The

map is excellently drawn, upon the scale of 7 miles to an inch, and has been compiled from materials of indisputable authenticity.

The Hand Place-book (Blackie & Co.) is a curiosity, but a useful one. In a volume 2½ inches wide, 3¾ long, and 1 inch thick it tells the reader the county, area, population of 15,000 places in Great Britain and Ireland, with a great deal more statistical information which it is very convenient to be able to refer to.

Garden Memoranda.

HORTICULTURAL SOCIETY.—*Sale of Orchids and other Plants*.—The following are among the more remarkable prices realised by Mr. Stevens on this occasion. Lot 150, Phalænopsis amabilis, the magnificent specimen which Mr. Fortune sent home from the Philippines, 63*l.* 5*s.* (Duke of Devonshire); Lot 300, Lælia superbiens, still attached to the block of wood on which it was found growing in the forests of Guatemala, and probably the finest specimen of a living Orchid in Europe, having 220 pseudo-bulbs, and being 17 feet in circumference, 36*l.* 15*s.* (— Fairrie, Esq., Liverpool); Lot 241, Dendrobium speciosum, a very fine plant, with 124 pseudo-bulbs, and measuring 4½ feet in diameter, 10*l.* (Duke of Devonshire); Lot 50, Trichopilia coccinea, Anæctochilus xanthophyllus, and Saccolabium guttatum, 19*l.*; Lot 53, an Aerides, 19*l.* 10*s.*; Lot 130, Vanda tricolor, a handsome specimen of a fine variety, 11*l.*; Lot 296, Lælia anceps, 10*l.*; Lot 230, Cattleya Skinneri, 9*l.*; Lot 236, Lycaste Skinneri, 8*l.* 10*s.*; Lot 240, Cælogyne cristata, 8*l.* 10*s.*; Lot 34, Cattleya maxima, 9*l.*; Lot 44, Angræcum eburneum, a very fine plant, 7*l.* 15*s.*; Lot 51, Aerides Roxburghi, the Ceylon variety, 5*l.*; Lot 86, Lælia anceps and Renanthera coccinea, 6*l.* 15*s.*; Lot 96, two unnamed Aerides, 4*l.* 10*s.*; Lot 101, Sophronitis cernua, 3*l.* 7*s.* 6*d.*; Lot 110, a very fine plant of the large flowered variety of Oncidium ampliatum, 4*l.* 10*s.*; Lot 129, the best variety of Oncidium guttatum, 4*l.* 10*s.*; Lot 176, Odontoglossum grande, and Dinema polybulbon, 4*l.* 5*s.*; Lot 191, Cattleya pallida, a fine specimen, 5*l.* 5*s.*; Lot 200, Lycaste aromatica and Trichopilia suavis, 5*l.*; Lot 203, Sobralia, a dwarf variety of S. macrantha, 3*l.* 5*s.*; Lot 210, Cattleya labiata atropurpurea, 4*l.* 15*s.*; Lot 214, Maxillaria rufescens and Lælia Perrini, 5*l.*; Lot 221, Masdevallia coccinea, most rare and beautiful, 6*l.*; Lot 249, Oncidium pulvinatum, and Blandy's variety of Dendrobium nobile, 4*l.*; Lot 251, the rare and magnificent Epidendrum myrianthum, 4*l.* 15*s.*; Lot 293, Oncidium Skinneri, a very fine plant, 4*l.*; Lot 19, Brasavola Digbyana, 3*l.*; Lot 30, Lælia acuminata, 3*l.* 10*s.*; Lot 90, L. erubescens, 2*l.* 12*s.* 6*d.*; Lot 49, Aerides odoratum, 2*l.* 12*s.*; Lot 116, Cattleya crispa, 2*l.* 15*s.*; Lot 144, Barkeria spectabilis and Skinneri, 2*l.*; Lot 223, Oncidium varicosum, 2*l.* 10*s.*; Lot 243, Dendrobium album and Miltonia Russelliana, 2*l.*; Lot 259, two unnamed Aerides Eria sp., Dendrobium ruscifolium, and Bolbophyllum, 2*l.* 8*s.*; Lot 260, Epidendrum coriifolium, very rare; Cælogyne fuliginosa and Oncidium bicallosum, 2*l.*; Lot 12, Phyllocactus anguliger, a fine specimen, 2*l.* 2*s.*; Lot 28, Delabechea australis, the rare Australian Bottle tree, and Antiaris toxicaria, the deadly Upas tree of Java, 3*l.*; Lot 212, Myristica moschata, the true Nutmeg tree, 2*l.* 12*s.* 6*d.*; Lot 218, the very rare yellow dwarf Jaffna Cocoa-nut, from Ceylon, 6*l.* 15*s.*; Lot 208, the green dwarf Jaffna Cocoa-nut, 6*l.*; Lot 148, Ceroxylon Andicola, the Wax Palm, 4*l.* 15*s.*; Lot 283, a magnificent specimen of the tree Fern, Cibotium Schiedeanum, 12*l.*; Lot 284, a small specimen of the same, 2*l.* 12*s.* 6*d.*; Lot 286, Araucaria Cooki, 5*l.* 15*s.*; Lot 288, A. Bidwilli, 5*l.* 15*s.*; Lot. 287, the rare Dammara ovata, 4*l.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Flowers have now become scarce out of doors, and will be more valued here in consequence; and every exertion should be used to keep this house well furnished during the winter months. It is not so important, however, at this season that only handsome well-grown specimens should be introduced, as it is when flowers are more abundant elsewhere, and almost any gay-looking plant, however common, will be very acceptable in winter. But the use of such things is only tolerable where accommodation is insufficient to grow a proper quantity of our best winter flowering plants, and where there is a necessity for resorting to the use of common things, every exertion should be used to secure neat, trim, well-flowered specimens. For as this class of plants is generally looked upon as being only valuable while in flower, it is a very common practice to bestow but little attention upon them in the way of staking, &c., before placing them in the conservatory. Let Japan Lilies that have done flowering be removed to where they can be kept dry; a cool vinery, where they will have plenty of light and air, will be a suitable place for them until the foliage decays, &c.; for, although these fine plants are hardy, and submit to almost any treatment, those who grow them in perfection are very careful to well ripen the bulbs in autumn.

FORCING DEPARTMENT.

PINERIES.—Plants swelling their fruit, and those in bloom should be assisted by a rather warm temperature, but excess of moisture in the atmosphere must be avoided at this dull season, particularly where the plants are in bloom, or the fruit approaching maturity. Use strong clean manure-water in a tepid state for plants swelling fruit, but do not get the soil too wet. The temperature for the growing stock should now be regulated very much by circumstances; keeping them growing gently where it can be done without drawing or weakening the foliage. Keep the soil about the roots in as equable a state as to moisture as possible, for letting the soil get too dry at this season often results in the plants showing fruit prematurely in spring, and the same is true with regard to the bottom-heat, which must also be carefully attended to, keeping it moderate but as regular as can possibly be done. VINERIES.—Where forcing is commenced about this time a rather higher and moister temperature will be necessary to induce the buds to start than would be the case at a more natural season. There is no better means of securing abundance of moisture and a gentle warmth than by placing a moderate quantity of stable manure on the inside border, and turning this, &c., as may be required; but where the forcing houses are visited by the family, and expected to be neat and orderly, this method is out of the question, and the syringe and whatever other means of a less objectionable character may be at command, must be used instead. The night temperature, to begin with, should range about 50° by fire-heat, raising it to 60° by day, or to 70° with the assistance of the sun. Also endeavour to secure a little warmth for the roots in the outside border, and if fermenting materials are used, watch these narrowly, and endeavour by timely additions and frequent turnings to secure a regular gentle warmth of 60° or 65° at a foot below the surface of the soil. And if fermenting materials are used, there will be a great saving of labour, &c., by thatching these with a good coat of something to throw off wet, and preserve them from the weather. If plants in pots or boxes are used for forcing at this season, they should be placed in a mild bottom-heat, so as to excite a healthy root action, which will cause them to break more freely and in less time than can be done without bottom-heat.

FLOWER GARDEN AND SHRUBBERIES.

The few flowers that may remain on the bedding out plants in even the most favoured localities are not worth preserving any longer, and the beds should be cleared at once so as to allow of getting them nicely trimmed up for the winter. Where the extent of ground occupied by "bedding out plants" in summer is considerable, it is not always convenient to find spring flowering bulbs to plant the whole of it with, and where this is the case, very much may be done towards producing a cheerful effect by a judicious use of small evergreens of a formal or neat habit of growth. These can be prepared in the reserve garden, to which they must of course be removed every summer, and as they have to be shifted twice every season they require no particular trouble to remove them with perfect safety; and beyond the labour of moving them to and from the flower-garden, and a few waterings after their spring shift, they involve but little labour or expense. For this purpose we prefer those that are perfectly hardy, and of a formal habit of growth, or can be readily cut into any desired form, such for instance as Arbor-vitæ, Cypresses, Junipers, Yews, Tree Box, &c., and Laurustinus and the old Mezereon, and some other Daphnes for their flowers. The winter-flowering Heaths are also very suitable, as are many other plants which might be mentioned; but we have indicated the kind of selection which we think the best adapted for the purpose. We do not, however, mean to recommend planting the beds closely in winter with such things, for this would require a very heavy stock, and involve a serious amount of labour, and all would produce no very striking result. These should be planted so as to mark in the most distinct manner the outline of the garden and principal figures. The beds can be much more cheaply planted, and to better purpose, with such things as the early-blooming Phloxes, Anemones, Tulips, Crocuses, Snowdrops, Scillas, Gentians, and many other spring-blooming plants, which are familiar enough to every gardener. These involve no expense, after a sufficient stock of them has been obtained, beyond the labour necessary to remove them to and from the flower garden, and to keep the ground clean in summer about such of them as require a place in the reserve garden; and with a good stock of these, and a judicious use of a moderate quantity of small formal evergreens, very much might be done to improve the ordinary winter and spring appearance of the flower-garden.

HARDY FRUIT AND KITCHEN GARDEN.

The Strawberries in pots should now be placed in their winter quarters. The common practice of stacking up the pots on their sides in sloping ridges is somewhat troublesome, and quite unnecessary for the protection of the plants. If the pots are placed in lines, at a proper distance apart to allow sufficient space for the foliage, and the spaces between the pots filled with coal ashes or dry Fern, placing a slight covering of the latter, or clean straw, upon the surface of the pots under the leaves, the plants will winter equally well or better than in ridges, and will present a neater appearance without involving half the labour. Care should be observed, however, to place the pots upon a thoroughly drained surface, for frost is comparatively harmless in the absence of moisture; therefore a few inches of coal ashes or lime rubbish should be placed under the pots. The best situation, however, for the portion of the plants intended for forcing first, is a spare cold frame, or near the glass in a cool Peach-house, as they will be safer here than under any system of protection out of doors, and as their roots will be preserved in an active state, very little forcing will be necessary to excite them at the proper time. The fruit stores will still require careful attention, and the fruit must be frequently looked over, removing any that are found to be tainted with decay. Many of the best autumn Pears will now be getting ripe, and it will add greatly to the interest of the fruit room if a portion of each of the sorts fit for use can be placed in a conspicuous situation, and correctly named. The late keeping kinds of Pears and Apples should be stored in a place by themselves, where they can be kept cool, and excluded as much as possible from the light and air, for these are apt to lose their briskness, and become very much shrivelled when kept in the ordinary fruit room.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Nov. 8, 1855, as observed at the Horticultural Gardens.

Nov.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain
Friday	2	22	29.727	29.579	47	34	40.5	5½	50	N.W.	.40
Satur.	3	23	29.877	29.616	46	33	39.5	50	51	N.E.	.03
Sunday	4	24	30.123	29.983	46	24	35.0	50	50	N.E.	.01
Mon..	5	25	30.180	30.161	50	29	39.5	50	50	W.	.00
Tues.	6	26	30.118	29.958	59	46	52.5	49½	49½	S.W.	.12
Wed.	7	27	29.857	29.602	55	43	49.0	49	49½	S.W.	[illegible]
Thurs.	8	28	29.587	29.487	52	27	39.5	50	51	S.W.	.51
Average .			29.924	29.752	50.7	33.7	42.2	49.8	50.0		1.13

Nov. 2—Fine; overcast and cold; rain at night.
— 3—Rain; showery; fine.
— 4—Fine; rain in the evening; sharp frost at night.
— 5—Clear early A.M.; at 8 dense fog; very fine; rain at night.
— 6—Fine; very fine; rain.
— 7—Overcast; cloudy; fine; rain.
— 8—Constant heavy rain; fine at night; slight frost.
Mean temperature of the week 3 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 29 years, for the ensuing week, ending Nov. 17, 1855.

Nov.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday	11	51.3	37.1	44.2	13	1.02 in.	2	5	3	—	7	7	4	1
Mon.	12	51.3	35.2	43.3	14	0.59	2	4	4	1	3	6	7	2
Tues.	13	50.7	36.3	43.5	16	0.69	—	2	3	3	5	9	3	4
Wed.	14	48.9	34.9	41.9	16	1.24	5	3	3	5	2	5	3	3
Thu.	15	48.8	36.0	42.4	15	0.34	2	4	3	2	5	9	3	1
Frid.	16	49.2	34.0	41.6	12	0.41	5	3	1	3	5	6	4	3
Satur.	17	48.4	35.3	41.8	15	0.40	5	5	1	1	6	7	2	2

The highest temperature during the above period occurred on the 12th 1841—therm. 63 deg.; and the lowest on the 16th, 1841—therm. 15 deg.

Notices to Correspondents.

BOOKS: *W H.* No English book contains the information you seek. For Conifers consult Carrière Traité général des Conifères; for other trees Selby's British Forest Trees or Loudon's Arboretum Britannicum.—*W O.* A new edition of Loudon's Encyclopædia of Gardening has been published this year, as you will see by referring to our review of it at p. 76 of our current volume.‡

HOLCUS SACCHARATUS: *J P M.* Apply to Mr. John Henderson, Wellington Nursery, St. John's Wood, London. We doubt whether it can be turned to profit in this country.

IRON GREENHOUSES: *B and J.* Your plants are attacked by the soot fungus, Torula fumago, a terrible pest. Its presence is owing—not to the iron roof of your house—but to want of ventilation. It should be watched, and at its first appearance washed with fresh made lime water, or soft soap and water, or dusted with sulphur.

NAMES OF FRUITS: *P H.* 1, Hollandbury; 2, Ribston Pippin; 3, Golden Noble; 4, Beauty of Kent; 5, Fearn's Pippin; 6, Reinette du Canada; 9, Dutch Mignonne; 10, Over ripe, probably Summer Thorle; Brabant Bellefleur; 13, Broom Park; 14, Hacon's Incomparable.—*Eneas.* Your Apple is the Waltham Abbey Seedling; the Pear is Van Mons' Léon le Clerc.—*D D, Dulwich.* 1, Golden Reinette; 2, Passe Colmar; 3, Easter Beurré; 4, Napoleon; 5, Beurré Rance.—*A.* 2, Buchanan's Spring Beurré; 3, Bellissime d'Hiver; 5, Beurré d'Aremberg; 6, worthless; 9, Glou Morceau; 10, Ne Plus Meuris; 12, Brabant Bellefleur; 14, Scarlet Crofton; 15, Kirke's Lord Nelson; 16, Blenheim Pippin; 17, appears to be the Dutch Mignonne.—*L Q.* 1, Hormead Pearmain; 4, Manks Codlin; 6, 10, Alexander; 7, 19, Yorkshire Greening; 8, 16, 20, Dumelow's Seedling; 12, Hunt House; 15, Cockle Pippin; 17, Rhode Island Greening; 18, London Pippin; 22, King of the Pippins; 23, Dutch Mignonne; 25, Hollandbury; 27, French Crab; 28, Cockle Pippin. Pears: 29, Seckel; 31. Burgermeester; 32, Hessel; 33, Flemish Beauty; 34, Crassane.

NAMES OF PLANTS: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Sylvanus.* Your fungus is a very rare species, *Hydnum graveolens*, Delastre. It has been found in Wales by Mr. Ralfs, but we believe by no one else in Great Britain. *M. J. B.*—*W G.* 1, Stipa pennata; 2, Arundo Epigejos.—*T Corder.* Centaurea solstitialis and Silene conica.

PAULOVNIA: *H C.* From the appearance of the piece of shoot sent, we think there is no doubt that the wood of your tree is sufficiently ripe to enable it to stand the winter in Warwickshire unprotected.‡

PEARS: *Sub.* Of the two sorts you mention we prefer the Marie Louise.‡

SEEDS FOR NEW ZEALAND: *H C C.* Pack all your tree seeds in tolerably dry loam rammed tightly into a strong wooden box. Do it thus. Put in a layer of loam 3 inches deep; then a layer of seeds one course deep; then loam enough to cover them; then another course of seeds; at last let there be 3 inches at least of loam over all and as much all round the sides. Rub the Whitethorn berries in water till the pulp is removed; drain them of superfluous water, and then pack them as before.

VINES: *Subscriber.* It is a good plan to chamber a Vine border, provided different sorts of Vines are to be grown side by side; because some are much coarser growers than others, and will rob their neighbours. When each Vine has its roots in a different brick division this is impossible. There is no other use in the practice, and therefore to apply it to a house of all Hamburghs or all Muscats would be to throw money away.

WOODS AND FORESTS: *J J.* There must be some very great public interest to serve when we interfere. Moreover, we happen to know that your statements about the New Forest are wholly erroneous.

YEW TREES: *South Derbyshire.* Move them now. Nothing will be gained by waiting till spring.‡

MISC.: *J R.* 2*s.* 6*d.* or 3*s.* Payment by Post-office order.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
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Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq., M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.

4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

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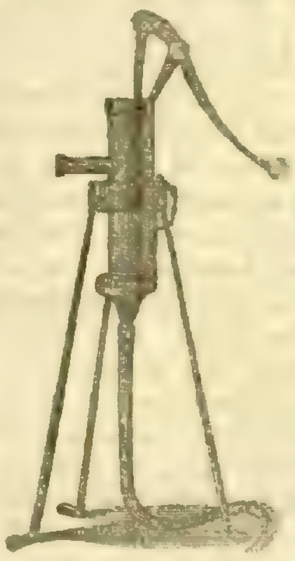
THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected; Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the Plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe. 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	10	0
2½ in.	long ditto	ditto ditto	2	14	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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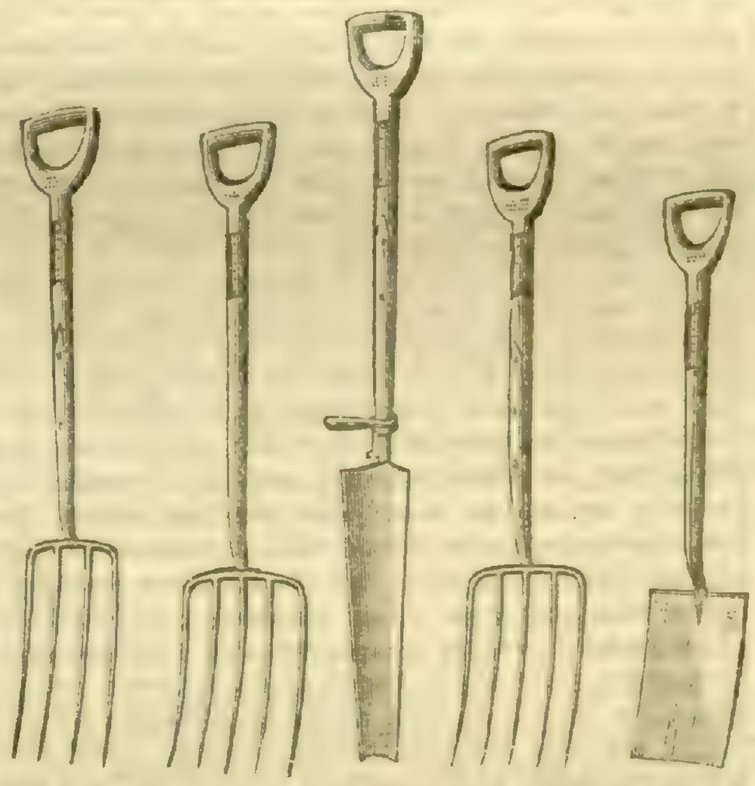

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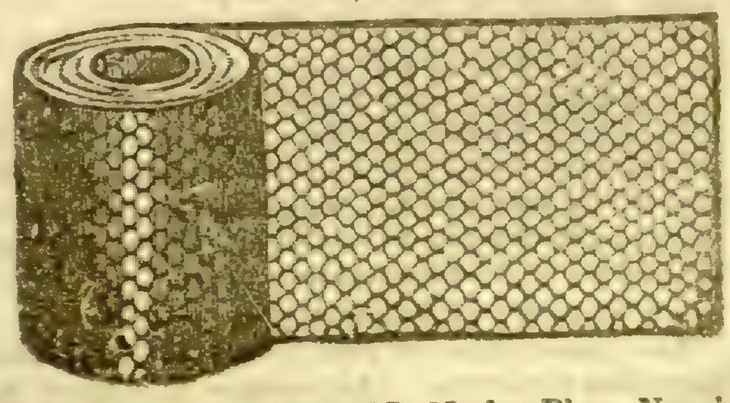
MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.
103, Newgate Street, London.

GALVANISED WIRE GAME NETTING,
6*d.* PER YARD, 2 FEET WIDE.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	... ...	6*d.* per yd.	4½*d.* per yd.
2-inch „ strong, do.	... ...	8 „	6 „
2-inch „ intermediate, do.	... ...	9½ „	7½ „
2-inch „ extra strong, do.	... ...	11 „	9 „
1⅝-inch „ 24 inches wide	... ...	7 „	5½ „
1⅝-inch „ strong, do.	... ...	9 „	7 „
1⅝-inch „ intermediate, do.	... ...	11 „	9 „
1⅝-inch „ extra strong, do.	... ...	13 „	11 „

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 10*d.* per yard; Galvanised Sparrow-proof Netting for Pheasantries, 3*d.* per square foot.

Illustrated Catalogues and Patterns forwarded by post. Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P." and that Messrs. Burgess & Key, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

ECONOMY OF FERMENTATION.

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The Agricultural Gazette.

SATURDAY, NOVEMBER 10, 1855.

By way of illustrating our remarks last week upon hedgerow fences made at p.713, it may be well to append the following analyses of two hedges in Gloucestershire examined October 20, 1855.

No. 1. A high and broad hedge, which has not been laid for a great many years, consists of the following ingredients, which are taken in successive portions of the length of it.

	Length.—Ft.	In.
Bramble	4	6
Whitethorn, choked with Bramble ...	12	0
Maple	3	0
Blackthorn	6	0
Mealy Guelder Rose	6	0
Maple, in a gap...	9	0
Dog Rose	5	0
Blackthorn	7	0
Whitethorn	4	0
Dog Rose and Bramble	6	0
Ash	3	0
Whitethorn	4	0
Ash	4	0
Whitethorn	6	0
Bramble...	5	0
Ash	3	0
Blackthorn	12	0
Whitethorn	10	0
Ash	3	0
Whitethorn, much mixed with Bramble and Briar	21	0
Ash	3	0
Blackthorn	6	0
Dog Rose	5	0
Blackthorn	12	0
Whitethorn	6	0
Blackthorn	3	0
Whitethorn	3	0
Ash	3	6
Elder	4	0
Whitethorn	10	0
Maple	9	0
Whitethorn	72	0
Maple	3	0
	273	0

No. 2. A hedge, which has been kept within moderate compass, was laid a few years since, and kept clipt from time to time:—

	Ft.	In.
Bramble and Briar	6	0
Blackthorn	5	0
Whitethorn	9	0
Maple	5	0
Whitethorn	18	0
Hazel Nut	7	0
Whitethorn	6	0
Maple	7	0
Whitethorn	9	0
Blackthorn	3	0
Gap	7	0
Elder	6	0
Bramble and Briar, partly dead ...	10	0
Maple	7	6
Elder	9	0
Bramble and Briar	7	0
Maple	3	0
Whitethorn and dead Briar	10	0
Whitethorn	6	0
Briar	5	0
Whitethorn	10	0
Bramble...	10	0
Willow	6	0
Bramble...	5	0
Briar	3	6
Total	180	0

These hedges are full of gaps and weak places, and they show the curious fact that, although ori-

ginally planted with Whitethorn (Quicks), they now present nearly half of plants other than Whitethorn, all of which are much inferior in value for fences, a fact abundantly proved by the examples in question, as it would be impossible to confine sheep or cattle within their bounds without patching each time it were attempted to be done.

We pursue our remarks on the Natural History of the Turnip Crop :—

However careful we may have been in the growth or selection of seed, and whatever labour we may have expended in the preparation of the soil and the committal of the seed to the earth, still from the first moment that the cotyledon leaves make their appearance above the ground the Turnip plant is liable to the attacks of enemies, and as in the very early stage of growth the Turnip flea, skipjack, or flea beetle (*Haltica nemorum*) is the first as it is the worst enemy of the embryo Turnip, we shall devote the following observations to an illustration of a few points in its natural history. The more important facts connected with this creature may be briefly tabulated as follows :—

1st. The Turnip flea is an exceedingly small insect of the beetle tribe, doing great mischief on account of its vast numbers and the early stage of growth at which they attack the Turnips.

2d. These insects are of an exceedingly active habit, jumping with a smart spring from the plants on which they are settled, even upon a shadow impinging upon them, hence their name of Turnip flea.

3d. Dry sunshiny weather highly favours their ravages.

4th. They live upon all the species of plants belonging to the natural order Cruciferæ, showing, however, an increasing preference for different species as they approach nearer the Turnip, and leaving all species for the Turnip itself.

5. The pupa state is carried on in the soil, the last brood being hatched in spring, from which follow five others in the course of the year.

6. They appear to have the power of smelling food afar off, as their migrations to great distances are carried on against the wind.

Now an attentive consideration of the above facts in the natural history of these creatures would lead to the inference of the inutility of single and isolated efforts to stop their injuries. If, however, a simultaneous crusade be carried out against them we shall then have reason to hope for success, and this, as it appears to us, can be best followed out by an universal acting upon the following principles, all of which have indeed been repeatedly acted upon, but with partial success, from only partial employment.

1st. The encouragement of insectivorous birds.
2d. The destruction of all cruciferous weeds.
3d. The destruction of the earlier broods.
4th. The adoption of expedients in sowing.

1st. During the present season most farmers have had to sow much of their Turnip crop twice and even thrice to get a plant, and so great has been the scourge of insects this summer that every one expresses surprise, seeing that the winter of 1854-5 was so severe: the popular notion being that hard winters must necessarily check the development of insects. If, however, we consider what care is taken in the preservation of insect life, and the great tenacity of life in its earlier stages, our native insects being well prepared against our climate, we shall see that if they become frost-bound for a long period that this does not necessarily kill them, whilst it precludes the attacks of the birds, their natural enemies, who more especially during an open winter feed sumptuously upon the dainty fare provided for them in eggs and larvæ of various kinds of insects. It is in this way that a too great exuberance of insect life is checked; but while the birds are starving for want of food, these little creatures, wrapped up in their winter cerements, and lying with dormant appetites, escape, and so come forth in increased numbers on the first accession of open sunshiny weather. This, while it is a contradiction to a popular fallacy which supposes hard winters to be so highly prejudicial to insect life, leads us to look upon birds as the chief natural controllers of the over-development of these creatures, and as a consequence should impel us to extend to them a large measure of protection. Any one who has seen how industriously the rook follows the ploughman, especially in the early part of the year before the winter eggs are hatched, may form some notion of the good done to the farmer by this family of birds—especially if the fact be borne in mind that the destruction of one egg *then* may prevent an increase which would afterwards have proceeded in a most rapid process of geometrical progression.

2d. It is a fact well known that weeds of various kinds, besides being prejudicial by occupying space and appropriating the food designed for our crops, afford at the same time food and protection to innumerable kinds of insects, and this is especially so in the case before us. As a law, certain families of plants, and sometimes even species are attacked by particular species of insects, and indeed it is usual to find that however many forms of plant an insect may affect, a preference will still be given to one or two in particular; thus though the *Haltica nemorum* will be found in spring on nearly all wild Cruciferæ, yet as soon as Turnips come up above the ground all these are left for the Turnip crop, and hence such cruciferous weeds as—

Sinapis arvensis, Charlock,
" *nigra*, common Mustard,
Barbarea vulgaris, winter Cress,
Capsella Bursa-Pastoris, Shepherd's Purse,
Erysimum Alliaria, Jack by the Hedge;

and a great many species of the same natural order, most of which are troublesome as weeds, offer at the same time food, shelter, and a breeding nidus, in which thousands of the Haltica are augmented until the Turnip is ready for them, when they at once wing their flight, frequently in sufficient numbers to destroy the whole plant in a short space of time, so that the dictum of the poet—

" He doth take my life
" Who takes the means that doth sustain my life,"

is equally true of small creatures as of large; and this consideration should afford us an additional incentive to destroy weeds of every kind.

3d. The remarks just offered show one way of destroying or rather preventing the early broods of these insects; but a study of their natural history has suggested a special method which is worthy of earnest consideration—namely, that of passing over the young plants an apparatus smeared with tar or some unctuous substance in such a manner that when the insects make their spring—which they do the moment a shadow passes over them—they are entangled and destroyed. For this purpose we would recommend an implement made as follows:—A flat board about 4 feet long, and wide enough to take as much as two rows of Turnips at a time, to be provided with two light wheels, elevating the machine sufficiently just to escape the plant, and two bent handles by which it is held. This on being smeared below with tar, and used every two or three days during the critical period in the life of the young plant, will destroy myriads of these little pests, and do much towards saving a crop.

Now, if every farmer used this there is little doubt but that the mischief from the Turnip flea would be much mitigated, and it must be remembered that by thus destroying them one year we lessen their chances of increase for the next. Still simple as the apparatus recommended appears to be, and little as is the work that is involved in using it, any plan that can be devised to prevent the necessity of the repeated going over the whole of the crop in the manner indicated is much to be desired; would it not therefore be well to meet all the contingencies in the natural history of the Haltica in the following manner? Let each Turnip grower plant in some convenient spot about a quarter of an acre of Turnips perhaps a month before his field crops are sown, the result of which would be to collect all the insects from the wilder Crucifers to small isolated patches where they could readily be dealt with on the plan just explained. We can answer from repeated trials that such a patch in districts affected by the Haltica is immediately attacked, whether in the field or the garden; and if a simultaneous effort were thus made, we feel assured farmers would not have to deal with this creature in a serious way *for ever;* for by all working to the same end there is no reason why even minute creatures should not be exterminated as well as those of a larger kind.*

4th. The various expedients in sowing which have been adopted to prevent the ravages of this insect have been recommended from consideration of its presumed instincts and habits. Among these that of sowing if possible before rain, or with a water drill, in order to get a plant as quickly as possible, deserves attention, for doubtless a wet season at the time of the coming up of the Turnip is much to the advantage of the crop, inasmuch as the activity and locomotion of the insect is retarded, and not only so, but its breeding also, so that the plant can thus make good way under the most favourable circumstances and get strength before the arrival of the enemy; but it is by no means true that the Haltica attacks only the cotyledon or first leaves, for it not only lays eggs in, but feeds on the rough or secondary leaves; still any expedient that can be adopted to secure the first leaves from early injury is of great advantage, as if injured the strength of the plant is gone, and it cannot make head by developing the secondary leaves.

The preference shown by the insect for one form of plant before another may be observed in cases where the Swedish has become accidentally mixed with a crop of the common Turnip, the former usually escaping to a greater or less extent the injury done to the latter. This would indicate the advisability of sowing alternate rows of Swedes and common Turnip, with the avowed object of destroying the latter to save the former; and, again, in the case of common Turnips it may be worthy of observation whether the White Mustard is not preferred to it, and, if so, this would do for the alternation of rows. In fact much observation is still required in order to arrive at all the facts of the case before us, but whatever may be the result of future inquiries we cannot for the present adopt a better plan than that which will *destroy* our enemy, to which end the expedients which can be adopted in sowing seem to be very inadequate. Here then in dealing with the *Haltica nemorum* observations tend to the following conclusions :—

1st, That by frequent ploughings and the encouraging of insectivorous birds the parents of the year's produce of insect life are materially lessened; 2dly, That by destroying Cruciferous weeds we get rid of the spring breeding places of the first broods; and 3dly, By the adoption of plans recommended for the destruction of the latter ones, the enemy may be destroyed before his favourite food is ready for him.

These expedients, however, are such as require to be adopted by all, and considering the enormity of the evil and the cost and heavy losses caused by even such a minute creature as the Turnip flea beetle, it might be further recommended that a Society of Observers should be formed to notice, report, and discuss upon the subject, which is no trifling one, in order, if necessary, to influence the universal adoption of such remedial measures as may be deemed necessary.

* We believe a plan similar to this was first proposed by that excellent entomologist Mr. Curtis as a means of saving individual crops, but if universally followed its effects would be universal.

LABOURERS' WAGES IN IRELAND.

Our Secretary, as one of the Poor Law Commissioners, has been lately called over the coals by a Roman Catholic priest for their annual report to the lord lieutenant, this report having stated that the pauper population of the poor-houses had greatly diminished during the last year, and that there is every reason to hope that this decrease is connected with a material improvement in the condition of the labouring classes, arising from a higher rate of wages and a more continuous state of employment; that able-bodied labourers can now obtain 1s. a day for each day's work, the decrease in the agricultural labourers having been caused by an emigration of some of that class.

The priest states that the population of Ireland ought, but for unjust and landlord legislation, to be from 12 to 16 millions, and that it is not so much kept down by emigration as by the want of proper nourishment, clothing, and lodging; that from these causes alone hundreds of thousands annually perish under 15 years of age (he might have added that the growth and strength of the survivors are much deteriorated by them); that these wants are consequent on the insufficient wages paid by farmers and other employers. Without admitting for a moment the justice of attributing this state of the people to the "oppressive and inhuman treatment" of the Irish landlords towards the tenant farmers and labourers, as asserted by the priest, in denying the means of support to the Irish people, all who know Ireland must acknowledge the truth of this statement of their sufferings and deprivations as still existent. On the philanthropist, on the patriot, and on the political economist this state of things in so fair and naturally productive a portion of the empire lays claim to consideration, nor, as an agricultural country deriving all her resources from the product of the land, should it be without interest to the landed proprietary.

How landlord legislation or landlord influence can cause a low labour market I think the priest would be puzzled to show, and, indeed, I think, excepting in some few instances, he would find it difficult to prove that the landlords of Ireland are oppressive or inhuman; certainly their rents, although felt too high under the present agricultural economy, for any rent would be so, are not excessive, compared with England and Scotland, neither are the local or general taxes; yet the wages of agricultural labour are plainly too low for, not the comfortable but the most sordid support of the labourer having a family, and yet, low as these wages are, the farmer finds them a burden he can scarcely meet. But if the priest has allowed his feelings to carry him astray, surely the report of the Poor Law Commissioners does not savour of sound judgment. There is improvement certainly, for when the worst has been reached amendment must succeed; there is certainly improvement in wages in the increase from 6*d.* or 8*d.* a day to 1*s.*, and there is a more regular employment from the diminished number of labourers from emigration, yet the number is still more diminished, I am afraid, from the effects of the late famine, but it is very doubtful "that there is a material improvement in the condition of the labouring classes," except in the case of single men, with whom the higher wages tell, for the labourer with a family was probably better off in days of yore at 8*d.* a day with the Potato ridge to go to, the rent of which was, in part at least, liquidated by the gentleman he hospitably

entertained in his kitchen on the refuse from that ridge, than he is now with 1*s.* a day, and no recourse but to a high market, where that 1*s.* is barely sufficient to supply him with Indian meal, leaving him nothing for condiment. The fact is, he was formerly a capitalist to the amount of his year's provision; he had his own seed, he paid at the highest 5*l.* an acre for his manured Potato ground, which, at a moderate average, would yield him six tons of Potatoes: this would give him 2½ stones a day—about enough for the support of a small family, and the labour of half his time or three days in the week paid the rent of it.

The rate of wages has then increased, but with this increase the expense of subsistence has more than kept pace. It is, however, to be expected that gradually a return to conacred Potatoes will obtain and, if they come to be depended on, this small increase in wages will tell in favour of the labourer, and then the prophecy, for it is yet only a prophecy, of the Poor Law Commissioners will be realised.

But why cannot the farmer afford his labourers wages approaching somewhat to those of England and Scotland with the markets of those countries open to him, and his home market perhaps not lower than the markets of country towns in England and Scotland, with lower rents and less taxes, with a superior soil to work on? We cannot with the priest lay it to the door of the landlords or legislation; we all know how few are the ills this can cure, and it is rather sins of omission that we may charge to landlords than commission. They very rarely provide the necessary homestead accommodation, and they are not sufficiently watchful in preventing the deterioration of their lands at the expiration of leases, so that the incoming tenant to land that has fallen into the landlord's hands is at cost, but then leases in effect seldom expire, for a tenant who can and does pay his rent is scarcely ever called upon to surrender his holding; indeed, it is a very common and certainly an indulgent practice to allow a tenant who can no longer pay his rent to dispose of his farm to another who will pay up the arrear, and for a few years make a better hand of it. Very few landlords press hardly on industrious tenants, and very many assist them. A farmer in Ireland with capital and intelligence instead of being injuriously interfered with by his landlord is very agreeably situated, for he is unshackled and uncontrolled in the entire management of it, and has as free and unrestrained use of the land as though he were proprietor of it; his crops are not injured by his landlord's game, for there is but little. It is not then from landlord interference that he is unable to pay better wages to his labourers; nor is it to be imputed, as too commonly it is, to a reckless expenditure on his part, for whatever may have been the character of an Irishman in former days, it now perhaps approaches too near to a parsimonious one; the days of a riotous hospitality are extinct. In Irish rural life the public-house is not regularly frequented as it is in England; the newspaper although read with avidity is not found there; the peasant does not go there to spend his evening in the enjoyment of politics in a pot; he falls in, accidentally meets a friend—it need not be a very intimate one—treats him to a glass; the treat must be returned, and very frequently it ends in intoxication—sometimes in kisses, at others in blows; but the excess of the evening rarely interrupts the labour of the next day. But why cannot the farmer pay higher wages to his labourers? It is not the legislature, it is not the landlord, it is not always poverty, for the rich and the poor equally grudge the labourer his reward; the labourer in return grudges his labour; this has become a habit and a mutual complaint, and cannot be quickly broken into by a liberal employer or an honest labourer: but an all prevailing cause, I think, is to be found in the little estimation of labour, in the under manufacture of ground, and in the small returns afforded by ignorant, deficient, and erroneous cultivation; the mildness of our green winters very much precludes the necessity for the confinement of stock or the raising of winter food for them, a very small breadth of land is therefore under cattle crops, and very little more manure is made than the Potato crop uses up; nothing then can be grown as intermediate with grain crops, and the consequence is grain crops are grown in succession till they do not pay the rent and labour of the ground they stand on; this exhausted and dirty ground is then left waste, as they very properly call it, for three or four years till it recovers some fertility. In the meanwhile it just keeps alive some wretched kind of stock, while its rent and taxes must be defrayed out of the productive land. Can we wonder then that the farmer cannot afford to pay higher wages to his labourers? *J. M. Goodiff, Scrably.*

ON STORING TURNIPS.

There are only two places on a farm where Turnips can be conveniently stored—that is, at the homestead, and in the field; and as each plan must be worked on a different form, I shall here notice them separately.

1st. *Storing at the Homestead.*—I prefer storing as many here as will last for six or eight weeks. The store may be erected in any convenient place about the stackyard, or as near the byres as possible; of wood, of an oblong shape, from 6 to 7 feet wide, to give room enough for a cart, and 4 feet high. The sides consist of two rows of posts, pitted in the ground about 6 feet apart, and made close between with backs of trees, or any old wood that may be at hand: for the sake of convenience, the store should be erected piecemeal, as the process of filling it goes on. Where wood is scarce, the Turnips may be laid down in an oblong ridge, about 7 or 8 feet wide at the base, and sloped off to the top on an angle of 45 degrees; the whole should then be thatched over with 6 inches deep of straw: old thatch from the ricks might answer well enough for this purpose, fixed down with wooden spars and straw ropes. In stores of this sort the keeping of the Turnips depends much on the state of the atmosphere shortly after storing. I have sometimes seen a week or two of misty soft weather prove hurtful in heating the Turnips; but some wooden ventilators, placed at regular intervals in the heap, are likely to prevent such an occurrence. Another safeguard is to make the heaps small. These two modes of storing involve about the same expense—8*s.* an acre, exclusive of carting, which depends on the distance, and in no case have I taken it into account. I should not, however, like to risk large quantities of Turnips in this description of stores, and, for spring use, I have always stored them in the soil, where they keep better, and lose less of their specific gravity. I have tried them on the steelyard before and after being stored in the soil for five months, and found the loss in weight to be very small. Not so with the thatched stores, particularly in a very dry windy season, and when left standing till spring. I then found the loss in point of weight to be very considerable. It is therefore desirable that all Turnips for spring use should be stored in the soil; and I shall next describe the modes I have used in doing so.

2nd. *Storing in the soil.*—Take a space of twelve drills wide, from end to end of the field, and pull the two centre drills, throwing the Turnips aside; along these drills turn out a heavy plough-furrow, first in the one direction and then the other, thus clearing a hollow from 10 to 12 inches deep. Into this hollow throw the twelve drills of Turnips, and trim them up in a uniform ridge, when a double turn of the plough, with little assistance from the spade, will cover them sufficiently from frost and vermin. In this way I have found Turnips keep better, and less loss of weight, than in any other way I have tried. The only objection to this plan is the length of time occupied in taking them up, and in wet weather it is difficult to get them anything clean. Another plan I have frequently adopted is to pull the twelve drills, and lay them in three rows, of four drills each, which can be done without hindrance in the process of pulling; then collect them into the centre row in round heaps of about one cart-load each,—and where the crop is good, the distance will not be far to bring the Turnips into heaps of that size: a slight covering of mould, from 3 to 4 inches deep, put on by the spade, will in general be found sufficient protection. The roots keep well in this way; and as they can be taken up more speedily, and cleaner, than from the last-mentioned stores, I am most in favour of this plan. The former mode costs 9*s.*, and the latter 9*s.* 6*d.* per acre. The cost of storing per acre, in either way, will to some extent depend on the nature of the crop and the rate of wages at the time; but the foresaid prices are an average of what I have paid by contract for several years back, when the work was performed by men, and if it could be done by boys and women for 10*d.* or 1*s.* per day, the expense might be somewhat lessened. But as labourers of that sort are often difficult to obtain, and the season for storing short and precarious, it is perhaps better to do the work by contract at once, and have it finished in due time, even at a small additional expense.

I now proceed to the second division of the subject—viz., the results deducible from observation and experiment, in order to test by experiment the comparative feeding properties of Turnips stored in November, and those drawn from the field during the winter and spring months as required. At the end of November, 1854, the necessary quantity for the experiment was stored in the field in heaps or pits, as before described. They were of the best Golden Yellow variety, of a deep orange colour, and in point of quality may be classed next to the Swedish Turnip. On the 28th January, 1855, I had eight cattle, coming two years old, crosses between the Aberdeen and short-horned breeds, selected for the experiment. They were weighed on the steelyard, and divided into two lots, as nearly equal in weight and quality as the circumstances would permit. One lot was then tied up on the stored Turnips, and the other on the same kind of Turnips pulled and drawn from the field, load by load, as the cattle consumed them, all clear of tops and tails. The stored Turnips were also brought from the field as required in the same manner. The feeding-byre was roomy and well ventilated, and contained four double stalls, two for each lot, so that the animals were kept perfectly separate, and enjoyed the same freedom, comfort, and air—the byre being, as nearly as possible, kept at a temperature of 48° Fahr. Both lots of cattle received equal quantities of Turnips daily, nearly as many as they could eat, with Oat straw *ad libitum*, for a period of 84 days, when it was found they had consumed 28¼ tons of Turnips, or an average of 95 lbs. per day to each beast. From the 20th October till they were tied up, both lots of cattle were fed in loose sheds, four and four together, on headed Turnips and straw; the first six weeks on White Globes, and the rest of the time on Golden Yellows. I might have tied them up earlier, but certain circumstances prevented this. Up to the time the experiment commenced the weather happened to be soft and fresh; and in that case, and at that season of the year, it is likely that little difference would have arisen in feeding on Turnips from the stores or from the field. The experiment, however, just began with the bad weather, and continued through two months of very severe frost and snow and a month of dry windy spring weather, both of which were surely well suited for testing the effects of stored Turnips. A reference to the following table will show the result of the experiment, and strongly indicate that the period of trial was quite long enough for the unfortunate animals that were fed from the fields from day to day.

Table showing the results of four cattle fed on stored Turnips, and the same number fed on Turnips drawn from the field as required, during a period of 84 days.

Lots.	No.	Description of Turnips.	Weight on January 28.			Weight on February 25.			Weight on March 25.			Weight on April 22.			Increase of weight during the experiment.			Increase of weight on each lot in experiment.		
			cwt.	qrs.	lbs.	cwt.	qrs.	lbs.	cwt.	qrs.	lbs.	cwt.	qrs.	lbs.	cwt.	qrs.	lbs.	cwt.	qrs.	lbs.
I.	1	Fed on Turnips stored in November	8	0	0	8	0	14	8	1	14	8	3	14	0	3	14		...	
	2		8	2	0	8	2	21	8	3	0	9	0	14	0	2	14		...	
	3		8	0	14	8	1	21	8	3	0	8	3	21	0	3	7		...	
	4		9	2	0	9	2	7	9	3	14	10	0	14	0	2	14	2	3	21
II.	1	Fed on Turnips pulled as required	9	0	0	9	0	7	9	1	14	9	2	14	0	2	14		...	
	2		7	2	14	7	2	21	7	3	7	7	3	21	0	1	7		...	
	3		9	2	7	9	2	0	9	3	7	10	0	14	0	2	7		...	
	4		8	0	0	8	0	14	8	1	0	8	1	14	0	1	14	1	3	14
		Balance in favour of stored Turnips																1	0	7

The cattle were always weighed at the same hour of the day, and immediately before being fed, at 1 o'clock p.m. The Turnips were grown on good sharp black soil, chiefly with farm-yard dung, and yielded nearly 20 tons of Bulbs per acre, fresh and free from disease. It may be expected that the animals would have increased more in weight in three months' time, but it must be remembered that young growing cattle do not gain weight in the same ratio as they do size. The above table gives results sufficiently favourable to prove the propriety of Turnip storing, showing an increase of animal weight of four young cattle, in the space of three months, of 119 lbs. in favour of the stored Turnips. Besides this, the healthy appearance of the cattle in lot No. I. presented a striking contrast to those of No. II., being sleek and fresh in their coats, and better down in the bellies; whilst No. II. were dry in their coats and lanky in appearance. Altogether there was a marked difference of appearance between the two lots, such as a stranger acquainted with cattle would easily perceive on entering the door of the feeding-byre; and I believed lot No. II. to be farther back than the difference of weight indicated. By the damage done to the unstored Turnips, in pulling them from under the snow, and the mischief by vermin, &c., lot No. II. had 1 ton more Turnips, wasted and destroyed, in order to supply them with the same quantity as given to No. 1., being equal to the produce of 8 poles of land, or one-twentieth part of an acre, which, at 7*l.* per acre, would be an item of 7*s.*—fully adequate to store three-fourths of an acre of Turnips. *Prize Essay by Mr. Porter in the Highland Society's Transactions.*

Home Correspondence.

Dairy Produce.—Having seen in your Paper different accounts of the quantity of dairy produce from several of your correspondents, and lately "Devonshire" stating the quantity of butter made in a year from one cow to be 13 dozen, I will give the produce of three cows from March 1st, 1851, to March 1st, 1852:—Weight of butter 714 lb., skimmed milk, sold at three imperial pints for 1*d.*, 24*l.* The cows were fed on Grass and hay only. *Anon.*

J. D. Piper's Balance Sheet, 1854.—The 10th year of Wheat after Wheat, without ploughing or digging.

Expenses.	£	s.	d.
Rent	2	0	0
Tithes	0	7	0
Rates	0	3	0
Hoeing	1	15	0
Sowing	0	10	0
Seed	0	6	6
Threshing	0	16	10
Reaping or mowing...	0	9	0
Manure	2	0	0
	£8	7	4

Receipts.	£	s.	d.
9 sacks Wheat, at 16*l.* 10*s.*	14	17	0
Straw, about	2	10	0
	£17	7	0
Expenses	8	7	4
	£8	19	8

Averages for the last six years:—

Average quantity per acre, 9 sacks, 2 bushels, 2 pecks

Average price per load, 12*l.* 18*s.* 6*d.*

Average profit per acre, 6 years, 19*s.* 10*d.*

Profit 5th year	... £6	6	3
" 6th "	... 7	3	3
" 7th "	... 3	5	3
" 8th "	... 4	11	0
" 9th "	... 11	13	9
" 10th "	... 8	19	8
	6)41	19	2
	£6	19	10

All this on ground not at all calculated to grow Wheat, but very much inclined to grow Thistles, Twitch Grass, Black Grass, Coltsfoot, Simson, Bell or Land bine, Cats Tails, and wild Oats; besides about 100,000 Ash trees (at least they would be if I did not hoe them up), per acre. There are also 50 timber and other trees to the acre. *J. D. Piper, Colne Engaine.*—This is a very fine story Mr. J. D. P., but "your field is a garden." Very well! I grant it is, and if every large farmer would

divide his large fields into small ones, say one or two acres each, and cause 50 timber and other trees to grow between all the divisions, he would have just as good a garden as J. D. P.

Garden Plants as Food for Horses, Cattle, &c.—Your correspondent's remarks upon the Everlasting Pea being likely to afford food for horses are worthy of consideration. I find these animals at Grass will eat it; but then the fact of having only a very limited quantity to experiment with cannot be very conclusive, and although this plant with me grows from 6 to 8 feet high, it is no result to base a general estimation of what a crop would be if the plants were grown at suitable distances over a field. In the spring of 1853, I raised from seed two plants, which however grew that year about 18 inches high, with perhaps three or four stems each plant. These came up strongly, and grew vigorously the next year, running up into a shrub and attaining a height of at least 6 feet, bloomed and seeded profusely. Well-fed poultry eat the Pea, but not voraciously. This season the Pea has been offered to young golden pheasants, which devoured them more readily. Yet I think there is a plant which possesses better qualities, and is greatly preferred by both horses and poultry than the Everlasting Pea—I refer to the Jerusalem Artichoke (*Helianthus tuberosus*). In 1854 were planted in a part of a horse pasture about 100 roots and well railed round. After they grew up the wind enabled the horses to get a taste, and such was their fondness for them that the fence was broken down by them, when the stems were all eaten off to within 18 inches of the ground, that is, devouring at least 3 feet of the top. This fence was repaired and the stems branched out, when the horses, by incessant rocking the rails, broke in again, and in a very short time consumed the whole. As might be expected the crop of tubers was not great, and these in size were small. This last week I have taken from the garden stems upwards of 7 feet high, and given them to two horses; these stems were at the root end about an inch in diameter; at first the leaves and about 3½ feet at the top of the stem was eaten greedily, but afterwards were returned to and munched up to within 18 or 20 inches of the rooty and woody end. I have since cut up a few stems with a knife into about inch lengths, and find that then the whole is eaten: It would no doubt soften if scalded or boiled, and might thus be made very available. I may say that the horses have very little to do, are in a most excellent pasture with abundance of Grass, get very little corn or hay; yet these Jerusalem Artichoke leaves and stems would be a change of food, and too sanguine a deduction should not be hastily drawn from so limited a trial. These same horses, however, last year eat the dried leaves and part of the tops of the dried stems which were cut down after they were dead and dry. The tubers are much relished by both horses, poultry, and golden pheasants. In conclusion I may state my belief is that the Jerusalem Artichoke might be made very valuable as a food for horses, and the stems could be cut up in the ordinary chaff-cutter, and might afterwards be bruised. If the stems were chiefly looked to for a crop they might be cut down during the summer when young, and not so woody, and they would branch out again for a second cutting. It would be futile to estimate the probable production of such a crop if grown in quantities from the small patches they are now raised in in gardens. Holcus saccharatus thus sown last May in the garden in a bed 10 feet by 4 feet is now 5 to 6 feet high, with a stem better than half an inch thick at the root end. Horses are fond of both the leaves and stem, and I think even if grown in considerable breadth would produce a heavy crop of horse food. A few plants cut down less than two months ago have sent up young shoots; it has not shot any spike yet, although it is found enveloped in the top leaves. *Weardale.*

The Mole.—Allow me to beg a corner of your agricultural paper to speak in favour of a very useful but persecuted and proscribed race of beings—the sheep master and park-keeper's best friends—namely, the moles. On the sheep walk or park the mole should never be destroyed, for where this has been done the sheep have been subject to that tiresome and infectious complaint the foot-rot, as well as more subject to diseased lungs, commonly called the rot; and deer are also very liable to the same complaints as sheep. Even in wet meadows the moles do good service by draining the ground, and if the loose earth they throw up during the winter be dispersed and bush-harrowed in the latter end of April or beginning of May, it will not be offensive to the eye or the scythe, as little or none will be thrown up during the summer. In lawns and gardens they are mischievous, and must be got rid of; but in other places they are of the greatest service, not only in draining the ground but in destroying the wireworm and May bugs. No educated farmer would destroy a mole, except in lawns, gardens, or arable fields. *Talpa.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council, *November 7.*—Lord Portman, President, in the chair. The names of 42 candidates for election at the next meeting were read.

Finances.—Mr. Raymond Barker, Chairman of the Finance Committee, reported that the current cash-balance in the hands of the bankers was 1048*l.* He also laid before the Council the Committee's monthly report on the accounts of the Society, along with the usual quarterly balance-sheets.

Carlisle Meeting.—Mr. Simpson, Senior Steward of Cattle, and Mr. Fisher Hobbs, Senior Steward of Implements, made reports connected with their respective departments at that meeting.

Trial of Reaping-Machines.—Mr. Raymond Barker moved, and Sir John Shelley seconded, a cordial vote of thanks to Mr. Miles, M.P., for the liberality with which he had placed his crops, as well as his men and horses, at the service of the Society, for the subsequent trial of the reaping-machines selected at the Carlisle meeting; and for the kind hospitality with which he received at Leigh Court on that occasion the various officers of the Society connected with that trial.—Mr. Miles acknowledged the compliment so handsomely paid him by the Council, and he expressed the satisfaction it would at all times give to promote in any way the objects and welfare of the Society.

Chelmsford Meeting.—Mr. Fisher Hobbs, as connected with the local authorities, called the attention of the Council to the necessity of every requisite arrangement being made by the Eastern Counties Railway Company for the accommodation of visitors, and the reception of stock and implements at the Chelmsford station.

Paris Show.—Mr. Evelyn Denison, M.P., English Commissioner at the Paris Exhibition for Agricultural Implements and Machinery, transmitted an interesting report of the results of the trials, and of the very important step which, he considered, had been taken in France by the change of duty on English agricultural machinery imported into that country.

Mr. Herbert, Consul-General of France in England, transmitted to the Council a supply of the prize-sheets of the exhibitions of breeding stock, and of agricultural implements and products, to be held at Paris in 1856 and 1857: these prize-sheets containing new and enlarged classes for the different breeds of English live stock. The Consul-General has further favoured the Council by stating that by the imperial decree of the 29th of August last, officially published at great length in all its details in the *Moniteur*, and modifying the import duties of machinery, implements, &c., the following rates have been fixed for *agricultural* implements:—

Agricultural machines (not including steam-engines)	15 francs per 100 kilog.
Reaping-machines	120 francs per 100 kilog

(Or, in English value, 6*s.* per cwt. for the first class, and 48*s.* per cwt. for the second).

Mr. Miles, M.P., took that opportunity of briefly stating the satisfactory results of the Society's deputation to Paris, of which he, as the President of the Society, had been the head. As soon as the details were completed he would lay the report before the Council.

Trustee.—On the motion of Mr. Milward, seconded by Mr. Jonas Webb, Lord Berners was unanimously elected one of the Trustees of the Society, to supply the vacancy created by the lamented decease of Mr. Pusey.

Mr. Pusey.—On the motion of Lord Portman, seconded by Colonel Challoner and Mr. Raymond Barker, the following resolution was carried unanimously:

"That a letter be written to the family of the late Philip Pusey, Esq., expressing the gratitude of the Royal Agricultural Society of England for his services as Chairman of the Journal Committee; and their great sorrow for his early death. That it be engrossed on vellum, and signed by the President, with the seal of the Society attached."

Implement Makers.—On the motion of Mr. Ransome, seconded by Mr. Garrett, a conference between a certain number of the Implement Manufacturers, who were exhibitors at Carlisle, and the Implement Committee of the Society, on certain points affecting the future regulations of the implement-department at the Society's country meetings, was granted by the Council, and fixed to be held on Wednesday, the 5th of December, at 1 o'clock.

Numerous communications, received from the Foreign Office, were referred to Prof. Way; and for these, and other miscellaneous communications, the thanks of the Council were ordered, when the Council adjourned to their Monthly Council on the 5th of December, and a Special Council (for any overstanding monthly business) on the 12th of December.

Peterborough.—Mr. Whitwell in noticing the present prices of corn, said the farmers could not help the prices being what they were. Who could say that there was any holding back of corn at the present time? Who could say that there were any artificial prices of corn at this moment? With regard to the crops of this year, although there was a slight failure in the fens and on the light soils, he considered there would be sufficient corn to maintain the country. There was a deficiency abroad, and it was that which had caused the present high prices of corn. In reference to the operation of free trade, he did not think it had done any harm to the farmer. There might be some little distress amongst them still; but, generally speaking they had now recovered from the distress they had suffered some time ago. Reference was then made to the necessity existing in farming for intellectual ability. There was not a single department in agriculture which did not tax the mental energies of the farmer, to the utmost. Take the breeding of stock, for instance. How many things were to be looked at and considered, if any one would succeed in that department. Then, as to manures. Why, they were regularly besieged with all manner of things which were offered to them as manures; and they needed to be very careful, or they would be greatly cajoled out of their money for all sorts of stuff. Then, again, as to machinery. He did not wish to offend their mechanical friends who were present, but really if they went into the shops of those gentlemen, they would try to persuade them that a whole shop-full of machinery was absolutely necessary to them. Machinery was necessary—if the farmer would supersede manual labour, he must have it. By its means the farmer was now rivalling the manufacturer, not only in the excellent manner in which they dressed and turned out their corn, but in the precision with which they did their business. After referring to the landlord, tenant, and labourer, Mr. Whitwell remarked that they were all learners in an inexhaustible study. If they took one step forward, they found they had two more to take; but they must press on, and continue to advance.—Mr. Bird gave the meeting a short account of what he had seen in a journey through France and Belgium during the summer. He did not think the farmers of England need fear anything from their continental neighbours. In Belgium he found farming was middling, but in France it was very indifferent. He saw very few horses in the fields; the work appeared to be done mostly with the old cow or a few beasts here and there, but rarely any horses. He also observed that there were very few men engaged in husbandry, chiefly women being employed, and the work was continued Sunday and working day. He saw ploughing, carting, &c., going on on the Sabbath just as on other days. Mr. Bird visited the Paris exhibition, and spoke to a gentlemen he met there about the English machines. That gentleman told him that they could not do much with the French, as the English machines were too complicated for them, they could not manage them. As to stock Mr. Bird saw very few. In a journey of 800 miles he did not see 800 sheep, and not 40 beasts; he did not know how they kept them during the winter, for in his journey of about 1000 miles he did not meet with an acre of Swedes—he saw about a rood. He thought he liked old England best, for as soon as he got here he found quite a different state of things. But he must say—and he lamented to say—that there was still a great deal of land in this country which might be greatly improved; a large quantity of land here might, he believed, be made to produce much more than it did. He did not think that Englishmen were idle, but they must do more than they had done, and keep their lands clean, and they would have better crops.—Mr. Yeoman must refer to a remark of Mr. Whitwell's. That gentlemen had said that the farmers had been trampled upon, but he did not say how or by whom. Having said what he did, Mr. Whitwell ought to have gone further. Now, if a man entered upon any business, he ought first to ascertain upon what terms he was to take it. So a farmer, on taking a farm, should first see what were his prospects. If he took a farm, supposing that Wheat was going to maintain an average price of from 80*s.* to 84*s.* per quarter, he would find himself very much mistaken, and he would be to blame to take a farm on such terms. Again, if he thought his landlord would take advantage of the high prices of corn and raise his rent, he ought to have a lease. A man ought to have unbounded confidence in his landlord, and if he had not, the farmer was to blame. He thought the fairest way was to take the average price of corn for a number of years, and base the rent on that *datum.* They knew that a short time since Wheat was selling at a low price, but now it fetched a high price; and he would ask, if the landlord did not lower his rents when corn was low, why should he raise them now corn was high? He expressed his opinion that the interests of the landlord and the tenant were identical, and sat down amid much cheering.—Mr. Whitwell had referred not to landlords, but to free trade, when he said the farmers had been trampled upon. While he was himself a free-trader, yet he thought the farmers had been trampled upon by the suddenness with which the change had taken place.

Watlington.—At the late annual meeting of this Society, the Rev. J. Clutterbuck spoke as follows:—There never was a time—at least, within his own recollection—when there was more necessity for forcing the productiveness of the soil to the fullest extent than there was at the present moment. A great moral obligation was therefore resting upon them, as men, as Englishmen, and as British farmers; and he really did believe the farmers were at the present time doing their utmost to increase the productiveness of the earth, and he believed that, in doing so, they were not only looking at it through the narrow view of their own pecuniary self-interest, but that they had at heart the great interest of the people of this country. A little time ago—a time that was in the lively remembrance of all present—the agricultural interest passed through a phase of considerable depression. There was a time when the agriculturists of this country were wont to be told that people did not care whether he produced corn or not, for they knew who would; but he would like to know if any man dared now to put aside the diligence and intelligence of the agricultural community. He said no man would do so. If they looked at France, what would they find? They would see that the all-absorbing subject in that country at the present time—one which almost rose above the general joy of the people at the capture of the Malakoff and the fate of Sebastopol—was with reference to the necessary supply of food during the coming winter, because, according to the official returns published in the *Moniteur*—which spoke not like a

newspaper in England, but emanating from the great source of power in that country must be regarded as a declaration of what was likely to occur, so far as human calculations could go—and from that statement, issued on the authority of the French Goverment, it appeared that there would this year be a deficiency in their production amounting to at least one-tenth of the wants of the population, and the question arose how was that deficiency to be supplied? This was a subject which created great anxiety in France; and they said, "We must stop all exports, and do our best to promote imports from every quarter." That was the state of things now in France—in a country from which we were a little time ago drawing a large portion of our supply. He was only too glad that, under the pressure of that news from France, the English markets had not risen so much as might reasonably have been expected. In saying that, it was not that he did not wish the agriculturists might not continue to receive full prices for their corn, but he was sure that they would all be ready and willing to acknowledge that there might be prices of corn which were too high. He said, then, that there was a great obligation resting on the British farmer. No man twitted them by saying that they could do without them, but they patted him on the back, and called him a downright good fellow. The farmer had gone through a time of trial—he had shown that he was not to be beaten—and that with an increase of difficulties his energies had been called forth; and he (Mr. Clutterbuck) believed there never was a time in which the British agriculturist stood higher than he did at the present moment.

Reviews.

Agricultural Statistics: A Lecture delivered at Thorner. By John Hannam, Secretary to the Yorkshire Agricultural Society. Longman.

As the subject on which Mr. Hannam here writes has within the last few days reoccupied further attention, we may refer to this pamphlet as a successful discussion of the grounds on which statistical inquiries into the food supply of a country may be defended—if defence be necessary.

"The people of this great country," says Mr. Hannam, "(and lamentable hath been the result in the sister country,) have been taught to shut their eyes, and open their mouths, and see what Providence would send them; while the farmer has visited the markets, with no more idea of the supply he must compete with, or the price that his commodity was really worth, than if he were vending his produce in the planet Jupiter.

"No one ventures to deny the important uses which information of this sort would serve. The politician laments his ignorance of the real extent of the resources of agriculture; the land owner is similarly in the dark as to the true position of the interest in which he has so large a stake; the minister admits the value of the information which such facts convey. Yet, still, we have them not. Legislation, however, has gone on. The man profoundly ignorant of the annual wealth produced by agriculture, speaks with the greatest confidence of its high importance, or its absolute insignificance, to the general welfare of the country, as the case may be, and without the slightest misgiving as to the truth of his opinion, declares that England is not an agricultural country, and ought never to grow a blade of corn; or that its agriculture is at once its pride and its profit—alike the producer of the materials of art, and the source of the physical power which manipulates those materials. In fact, ask in St. Stephen's, What is our growth of food? and mark the answer. Let Mr. Hoskyns reply. 'You can be told,' says he, 'every bale of calico that leaves the country; every box of gloves or yard of lace that enters it; you can hear how much tea, coffee, sugar, and tobacco is consumed in the United Kingdom; but what is the growth and what is the consumption of corn? The nearest weathercock might be appealed to with about as much expectation of a steady answer as the sources which exist, and are usually taken as the data for calculation. Guess what you please, between 12 and 25 millions of quarters per annum, and you will have some statistician or other on your side. 'Nihil sic impar sibi,' might be taken as the motto of all.'"

Again:—

"It is, however, principally from its influence upon the price of agricultural produce, that the system recommends itself to the farmer and the public. To both, the sudden fluctuations in price are injurious; they benefit few, and injure the many. The farmer who sells regularly seldom obtains the maximum price; while the speculator waits for it. A variation in prices is in accordance with the nature of things. Crops are affected by many things beyond the farmers' control. The vicissitudes of seed-time and harvest, unfavourable climates, blights, insects, affect the amount of produce. Bad crops are not always the consequence of bad farming. Consequently it is proper that the consumer should assist in meeting these losses by an increase of price.

"This is legitimate rise and fall, springing from real demand and supply. By the absence of any statistics, speculative 'ups and downs' are encouraged. The market is open to be moved by any rumour; and when there is a real cause for a rise in the price, the poorer farmer has too frequently sold his produce. He learns that our crops cannot supply the markets, when it is too late. Agricultural Statistics, then, would enable him to attain to a reasonable approximation to the quantity forthcoming; and he would fix a price accordingly. The population of the country being determined, its wants are easily determined. Only let us know the comparative quantity of grain sown; its probable yield in comparison with the previous year; and we should soon—with the information we possess, and allowance being made for the supply from abroad, and the increase of demand at home—fix what should be the year's price of corn. And if we have confidence in our knowledge, we shall expect what to a certainty will happen, to realise our price. The true facts of the market may not, at first, be understood by all. Hence, the year's price will not always be attained immediately. But a few years will make the whole population, when they see the returns, able to predict the range of prices. Happy certainty! How different now! From want of real data, the grower is made a speculator; and, without information, he gambles in the dark; while his best customers,—the capitalist, the miller, and the corn-dealer,—are prevented from trading, further than from hand to mouth, for immediate demand."

Mr. Hannam relates his own experience on this point:—

"As a case in point, I may mention, that during the harvest of 1846 I bought by auction a stack-yard for upwards of 600*l.*; and, in order to realise a small profit by eating the straw with cattle, I commenced thrashing immediately and regularly during the winter. My first sale was White Wheat, at 16*s.* 6*d.* per three bushels, or 44*s.* per quarter. My last sale was the tail Wheat, at 32*s.* per load, or 85*s.* per quarter. Having no statistics to appeal to, I could form no reason for imagining short supplies; and thus, by realising 60*l.* for eatage, I lost 600*l.* in the price of the grain."

Independently of the national and commercial value of statistical information on our agricultural products there are the advantages to the agriculturist himself derivable from a knowledge of the farm practice of the whole country.

"Thus," says Mr. Hannam, "even the returns which have been made of the statistics of Scotland, and of this district of Yorkshire, which are just published, present features of interest to the farmer. For example, we learn that the acreage of crops in Scotland is as follows:

Wheat ...	168,266	
Barley ...	207,507	
Oats ...	932,994	
Rye	3,809	
Bere ...	18,118	
Turnip Seed	1,429	1,332,073
Beans ...	37,702	
Peas ...	6,169	
Tares ...	13,442	
Flax ...	6.670	63,983
Turnips ...	433,915	
Potatoes ...	143,032	
Mangold ...	1,946	
Carrots ...	1,218	580,111

Fallow ...	26,128	26,128
Grass in rotation, seeds, and Clover.	1,427,790	1,427,790
Permanent pasture.	1,207,101	
Meadow ...	49,256	
Sheepwalks	6,553,842	
Houses, roads, and fences. ...	130,538	
Waste ...	830,730	
Woods ...	413,391	9,184,858
		12,613,345

Gross Produce.		
Wheat		4,848,499
Barley		7,639,601
Oats...		33,854,319
Bere...		537,250
Beans		1,080,921
Turnips ...	tons	6,372,189
Potatoes		523,383

Animals.	
Horses	156,595
Milk Cows	292,365
Cattle	438,334
Calves	205,172
Ewes	3,360,289
Tups and Wethers...	1,426,946
Swine...	163,683

From this we gather that in each year there are 1,332,000 acres in white crop in Scotland, while in Turnips and fallow there are 606,000 acres, and in seeds 1,400,000, or a total of 2,006,000 acres fit for a crop the ensuing year, independent of 26,000 acres of Bean and Pea stubbles; a state of cropping which certainly illustrates the high position hitherto claimed for Scotch agriculture. There is no cross cropping! If, however, we take half the seeds in rotation, say 700,000, which is as much as would be ploughed in one year—by adding it to 600,000 acres of Turnip and fallow land, we have 1,300,000 acres of the quantity of land fit for sowing. And this is the exact quantity which the statistics show us is sown.

"It is clear, therefore, that at least 700,000 acres remain under Grass every year, after the full crop of white corn is sown. The great quantity of seeds which stand for two years, indicate that the soil is not naturally fertile. Upon good soil, crops of corn can be grown on one year seeds. It would on such be a great loss to lose a year, and by that means make the next grain crop too luxuriant to be safe. This great breadth of Clover and seeds, however, perhaps partially arises from the large proportion of such which is mown for hay and for seed. While this quantity is kept up, it is quite evident that the fertility of the farm is safe. It will not diminish, but it does not increase. Nevertheless, by mowing less, and by grazing with sheep for one year only, along with the use of artificial food upon the land, and a still more liberal employment of portable fertilisers—Scotland may exhibit it in her returns, a much larger average of Wheat, as well as an increased average of bushels per acre, that she shows at present. Indeed, it is clear that the soil upon which grain crops can be safely grown after two years seeds, upon the system of one year old seeds, will bear the addition of artificial food and manure. And by regulating this application judiciously, an increased breadth of grain will be grown; and, in many instances, an increased quantity per acre obtained at the same time. The total acreage of Wheat grown in Scotland, and the average per acre of the crop—both much less than was anticipated—justify this reasoning. The fact of 26,000 acres of bare fallow being all that Scotland has of her arable soil unproductive, is a triumphant proof of her agricultural energy. How it tells of Scottish perseverance!

"Contemporary with this, the statistics of a division of this county—the one in which we are residing—have been published. Thus we learn that we have in this division of the West Riding 615,000 acres, which is in crop as follows:—

Wheat	78,549	
Barley ...	45,650	
Oats	29,336	
Rye	1,488	155,023
Beans and Peas	12,895	
Vetches... ...	2.194	15,089
Turnips	40,492	
Mangold ...	528	
Carrots ...	127	
Cabbage ...	2.692	43,839
Bare Fallow	24,041	24,041
Clover, &c. ...	48,046	48,046
Permnt. Pas.	148,655	
Meadow ...	26,000	
Sheep walks...	7.156	181,811

Houses, roads, fences ...	14,526	
Waste	14,611	
Wood	26,622	
Commons ...	40,471	
Farms less than 2 acres	5,140	
Not accounted for	30,633	131,805
Horses	21,229	
Colts	6,342	
Milk cows... ...	30,386	
Calves	17,995	
Cattle...	27,703	
Tups	4,052	
Ewes	93,388	
Lambs	100,109	
Sheep	65,431	
Swine	36,626	

"If we subject these figures to the same analysis as those of Scotland, we find that there are 286,000 acres under the plough, of which we have 155,000 in white or cereal crops, and 81,885 in green crops; in Pulse, 15,089; and in open fallow, 24,041; or altogether (considering Pulse crops to be intermediate or preparatory), 131,015 acres, strictly speaking fit to sow with white crop. We have thus an excess of 24,018 acres of white crop over the green crop and the Pulse crop combined.

"It is clear, therefore, there are many stubble crops growing in the district. It is true we are near large towns, and the heavy supply of manure may justify, in some measure, an expectation of more white crops than usual. But this excess is much too great to be thus explained; and arises as follow:—We have, in this district, 24,000 acres of open fallow-land, which we may set down as principally unfit for Turnips. This land is generally managed on the three course system; and will represent 72,000 acres of land, the principal portion of which requires draining. Two-thirds of this, therefore, will be in grain crop, *i.e.*, 48,000 instead of 36,000 acres.

Hence from ...	286,000 acres, the total arable land,
Deduct	72,000 acres, the quantity farmed on the three-course shift,
And we have ...	214,000 acres of arable land, which is farmed on the four-course shift.
And again, from	155,000 acres of grain crop, the total in the district,
Deduct	48,000 the acres in grain belonging to the 72,000 acres,
And we have ...	107,000 acres of grain growing on the 214,000 acres which is cultivated on the four-course shift.

And this is exactly half the total quantity of arable land—a most satisfactory position as regards cultivation, so far as the four-course land is concerned.

"Interesting as these comparisons are, and satisfactory as our position may seem, whether we compare the compare the yield per acre or the rotation, upon the land which is drained and under the four-course shift, the fact that out of 3,400,000 acres of arable land in Scotland, we only find 26,000 acres in bare fallow, while in a district of this county containing 700,000 acres, we find 24,000 in fallow, is a startling and significant one."

We recommend any who may have been startled by the speech of Mr. Packe upon the subject to read the lecture of Mr. Hannam.

Miscellaneous.

Irish Agricultural Statistics.—As compared with 1854, we have in 1855 an increase of 34,225 statute acres in Wheat; in Oats, 72,657 acres; and a decrease in Barley, Bere, and Rye, of 19,589 acres; or a total increase in cereals of 87,293 statute acres; and of meadow and Clover, an increase of 53,873 acres; but in Flax we have a decrease of 54,297. In green crops, from the operations last spring, we were not prepared for the announcement of a decrease of 8131 acres of Potatoes in the present year, as compared with 1854, but such seems to be the case. In Turnips there is an increase of 37,327 acres, but a decrease of 3683 acres of all other green crops, in which are included Mangold Wurzel, Beet root, Carrots, Parsnips, Cabbage, Vetches, and Rape, so that in 1855 we have, including grain and green crops, a total increase of 112,382 acres under tillage as compared with 1854. Considering our present state of affairs, being shut out from Russia for a large portion of the Flax necessary for our manufactures, the decrease in the Flax crops is much to be regretted, and in some degree unaccountable; but we strongly suspect the fault does not lie in any inability in our soil or our farmers to produce that crop, but may, in some degree, be attributed to the difficulty experienced in getting a sale for it in districts remote from markets, and in the fall in prices which took place within the last year, and therefore our farmers turned their attention to crops more marketable and consequently, more valuable, and until manufactories are brought within a reasonable distance of the producers, a practical stimulus will not be given to the cultivation of this crop. In the abstract which we present our readers, showing the quantity of live stock in Ireland in 1855, as compared with that of 1854, we find the total increase in horses of various ages amounts to 9607; in cattle, 58,715; in sheep, a decrease of 123,748; and in

pigs also a decrease of 168,325. As a matter of course, when considering the two returns and the large acreable increase in tillage of 112,382 acres, we must be prepared to hear of a corresponding decrease in stock; this accounts for the decrease in sheep, and also for the increase in horses, for we observe that while there is an increase of 3950 agricultural horses, there is a decrease of 1932 of those used for traffic and manufactures, and only 201 of an increase of those kept for amusement or recreation, the rest of the increase being in the young stock. Should the war continue, we must expect a further increase of tillage, and a decrease amongst the live stock, principally amongst the sheep, but we would entreat our agricultural friends not to overdo the thing, as, should a peace ensue, which we hope there will, they will not find it so easy to return to pastoral affairs—besides the land will have suffered some degree of exhaustion—to preserve an equitable balance between their stock and tillage lands, will in the long run pay best, and not only preserve their farms in a high state of fertility, but increase it. *Irish Farmers' Gazette.*

Calendar of Operations.

OCTOBER AND NOVEMBER.

FORFARSHIRE GLENS, *October* 31.—The fact that the grain produce of the country is deficient is already well enough known, so we need not dwell upon it further than to state, that this highland district is no exception to the general rule. What was sent us is now all secured, not however without some deterioration; a considerable portion was still exposed when the weather became unsettled early in October, and was less or more injured either on the stock or stack. The deficiency of straw is at present more apparent, and also more immediately felt than the deficiency of corn, an anticipated shortcoming of fodder having had a depressing influence upon the cattle markets; on wintering stock graziers' profits have been reduced to a low figure, and in some cases annihilated. The produce of Grass, like that of corn, was deficient, and in consequence cattle gained less during the season than usual. Potatoes are an abundant crop, and of excellent quality, and at present are selling at a very moderate rate, viz., 50*s*. per ton; all who can would do well to fill the bunker now, as such a low figure is not likely to continue, with Oatmeal at 2*s*. 4*d*. per stone, and the 4 lbs. loaf at 9½*d*. Turnips are a full crop; the bulbs are sound and bulky, and with favourable weather will still swell considerably. A seeming abundance of this crop has had an exhilarating effect upon the sheep sales, which have terminated satisfactorily. Aged black-faced wethers have brought fully 5 per cent. over last year's prices, and may be quoted at about 30*s*. a head, although some crack lots have exceeded that figure by two or three shillings. For rearing black-faced wethers our glens are unrivalled, and it becomes matter of local regret, as well as of public loss, when any of them are set apart for a less beneficial object. Spare ewes have gone at about last year's rates, these varying, of course, greatly according to quality. The flocks in general are in average condition, and are now being washed and put in trim for wintering. Many receipts for washing have been offered to the public—some of them of value, many more worthless, but none are equal to tobacco juice, when the genuine article can be got, for at once killing the vermin, cleaning and soothing the skin, and promoting the growth of wool. The topics of greatest local interest at present are the high rates promised for farms and paid for produce. So soon as a farm is put into the market, men come forward and bid fearlessly, and some think foolishly, rents far exceeding anything ever before paid for the same land. If it be true that we can only estimate the future from our experience of the past, many who are now taking farms are either knaves or fools; knaves who have nothing to lose, and who, getting into a farm, get into credit, and for a time move in a position in society which they were never fitted to occupy, or who expect, when prices fall, to work upon the sympathies of their landlords for a reduction of rent to suit the altered times; or fools, who, without calculation, run and bid extravagant rents because others do so. If landlords will choose the highest bidders as their tenants, without regard to character, they ought at least to hold them to their bargain, such a course being the most consistent for themselves to follow, and ultimately the most conducive to the general good, otherwise in such a competition the man who honestly intends to fulfil his obligations has no fair chance. It is to be hoped that a speedy and successful termination of the war will introduce a better state of things, and that the allied nations will commemorate their success by a treaty recognising free commercial intercourse with each other, and inviting all nations to join in it who are willing to trade on terms of mutual reciprocity. *S.*

FARM NEAR HEXHAM: *Nov.* 5.—The latter part of the month which has just closed has been cold, wet, and stormy, while the early part of it was fine, of which advantage was taken for lifting Potatoes, sowing Wheat on bare fallow, and cleaning fallows for next year. The Potato crop has been good, but with rather more small among them than usual from the check they received by the frost in September, and in some instances they are a little tainted. Enough of the corn crop has now been threshed to show that both in quantity and quality it is below an average. During the early part of the month we succeeded in making some progress with the cleaning of our fallows, and the rains came very seasonably for enabling us to plough our Clover leas for Wheat. The weather however still continues broken, which rather hinders sowing. Cattle and sheep have all been on Turnips for some time, the former in the yards, and the latter on the fields. Our stocks are still turned out during the day, getting a feed of Turnips at night, and tops on the Grass during the day, not that we like the system, but to eke out our Turnips, which are rather a short crop, and bid fair to be very high priced ere the winter is over.

Notices to Correspondents.

CLAY BURNING: "B" would very much oblige many inquiring correspondents if he would be kind enough to describe the *method of burning the clay*, by which he effected so great an improvement in his land.

COAL-ASH: *D S.* Coals vary exceedingly in the quantity of ash they contain, and they cannot be classified as containing much or little respectively, according to the designation you specify; for north country coals vary between 2 and 10 per cent, Newcastle coals between 2 and 9, Lancashire coals between 2 and 11, and Welsh coals between 1½ and 10—the differences being according to the particular bed or mine from which the specimens are taken. Coal ash is generally so mixed with imperfectly burned material, that it is to be considered useful chiefly for its influence on the texture of the soil.

DRAINING WITH PEAT: *Amberley Weald.* Mr. Smith, of Deanston, used peats cut with a curved spade, so that the successive spits when dried became horse-shoe tiles fit for use.

TO MAKE SUPERPHOSPHATE OF LIME: *Cor.* Place 5 cwts. (or 12 bushels bones) on an earthen floor, surrounded by a rim of ashes; pour on as much water as the bones will suck up, and then pour on 2 cwts. of sulphuric acid; it will boil somewhat violently for a while; when this has subsided it will get tolerably solid, and the ashes and all may be shovelled up together, and will be fit for drilling in a day or two.

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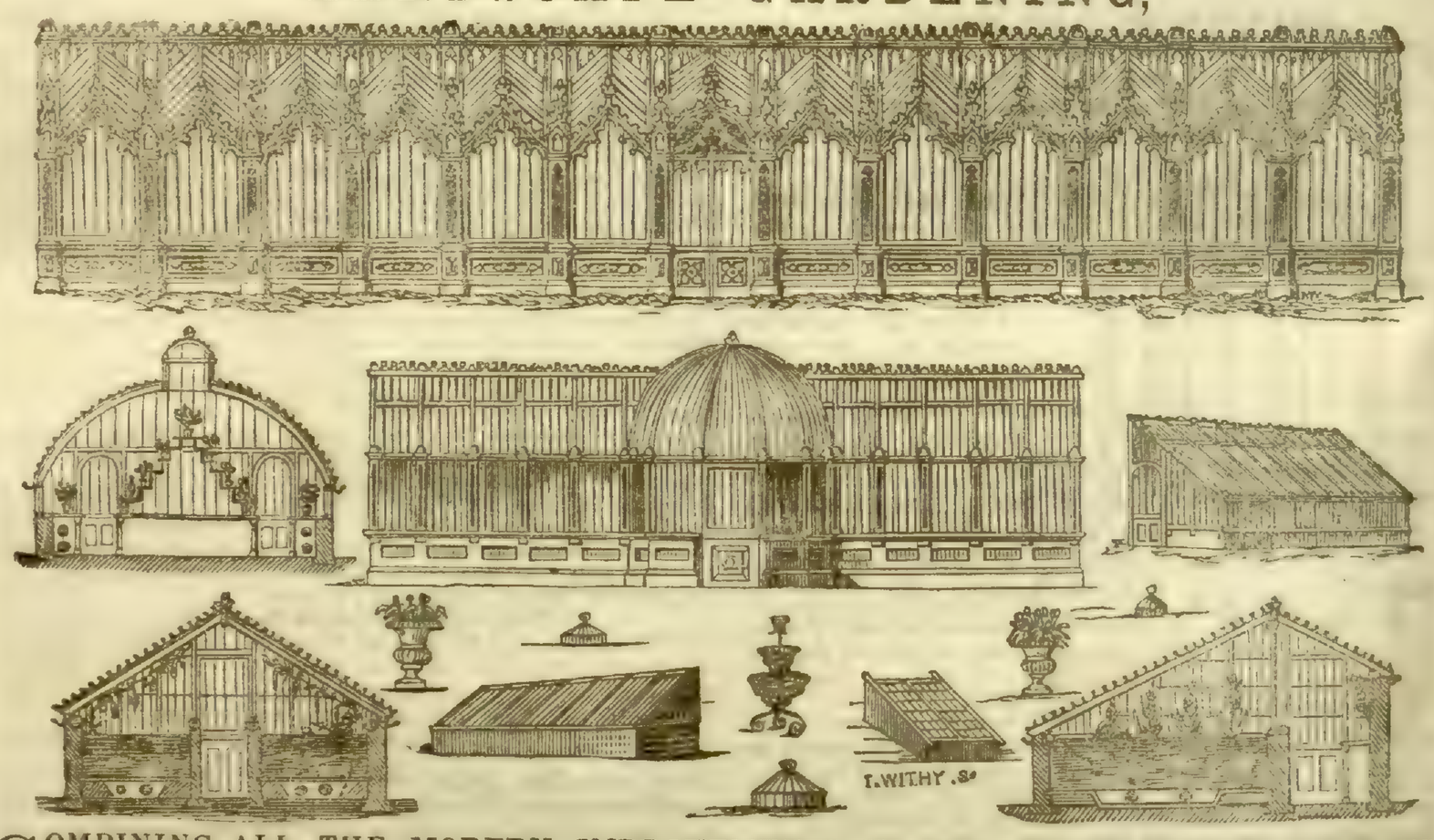

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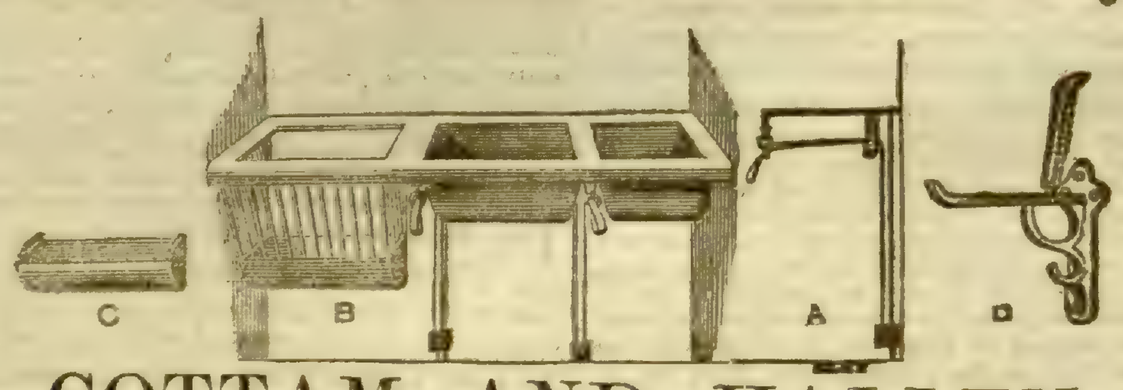

COTTAM AND HALLEN

HAVE made important additions to their original Invention of PATENT ENAMELLED MANGER RACK AND WATER TROUGH AT ONE FIXTURE, the main features of which are shown in the above engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

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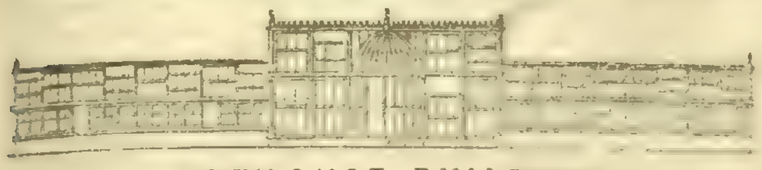
WARMING AND VENTILATING.—Descriptive Catalogues and Estimates on application.

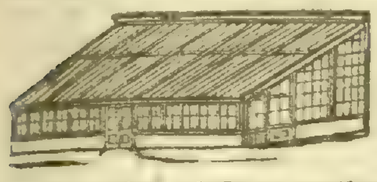
HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,



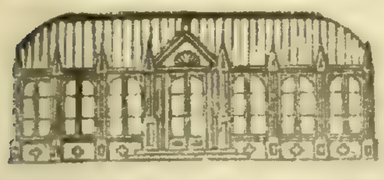
HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.

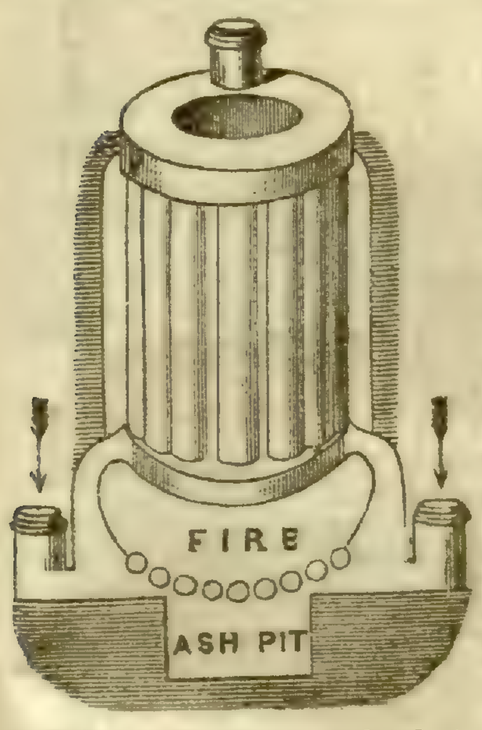
Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c.; forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.



The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft. and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the late severe winter it only cost us 3*s.* per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *one of our Boilers*, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

JOHN WEEKS & Co., King's Road, Chelsea, London.

FENDERS, STOVES, AND FIRE-IRONS.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW ROOMS. They contain such an assortment of FENDERS, STOVES, RANGES, FIRE-IRONS, and GENERAL IRONMONGERY as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright stoves, with bronzed ornaments and two sets of bars, 2*l.* 14*s.* to 5*l.* 10*s.*; ditto, with ormolu ornaments and two sets of bars, 5*l.* 10*s.* to 12*l.* 12*s.*; Bronzed Fenders complete, with standards, from 7*s.* to 3*l.*; Steel Fenders, from 2*l.* 15*s.* to 6*l.*; ditto, with rich ormolu ornaments, from 2*l.* 15*s.* to 7*l.* 7*s.*; Fire-irons from 1*s.* 9*d.* the set to 4*l.* 4*s.* Sylvester and all other Patent Stoves, with radiating hearth plates. All which he is enabled to sell at these very reduced charges.

1st,—From the frequency and extent of his purchases; and

2dly,—From those purchases being made exclusively for cash.

GAS CHANDELIERS AND BRACKETS.—The increased and increasing use of gas in private houses has induced WILLIAM S. BURTON to collect from the various manufacturers all that is new and choice in Brackets, Pendants, and Chandeliers, adapted to offices, passages, and dwelling-rooms, as well as to have some designed expressly for him; these are ON SHOW over his SIXTEEN LARGE ROOMS, and present, for novelty, variety, and purity of taste, an unequalled assortment. They are marked in plain figures, at prices proportionate with those which have tended to make his Establishment the largest and most remarkable in the kingdom, viz., from 12*s.* 6*d.* (two light) to 16*l.* 16*s.*

LAMPS OF ALL SORTS AND PATTERNS.—WILLIAM S. BURTON invites attention to his season's SHOW of LAMPS. It embraces the Moderateur (the best Parisian specimens of which have been carefully culled), Argand, Solar, Camphine, Palmer's Magnum, and other lamps for candles; and comprises an assortment which, considered either as to extent, price, or pattern, is perfectly unrivalled.

Pure Colza Oil, 5*s.* 6*d.* per gallon.
Palmer's Candles, 9*d.*, 9½*d.*, and 10*d.* per lb.
Patent Camphine, 3*s.* 10*d.* per gallon.

The alterations and additions to these very extensive premises (already by far the largest in Europe), which have occupied the whole year, are now nearly completed. They are of such a character that the entire of EIGHT HOUSES is now devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated, and Japanned Wares, Iron and Brass Bedsteads and Bedding), arranged in Sixteen Large Show Rooms, so as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Catalogues, with engravings, sent (per post) free.

39, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place. Established A.D. 1820.

THE BEST FOOD FOR CHILDREN, INVALIDS, AND OTHERS.

ROBINSON'S PATENT BARLEY, for making superior BARLEY WATER in 15 minutes, has not only obtained the patronage of her Majesty and the Royal Family, but has become of general use to every class of the community, and is acknowledged to stand unrivalled as an eminently pure, nutritious, and light food for Infants and Invalids; much approved for making a delicious Custard Pudding, and excellent for thickening Broths or Soups.

ROBINSON'S PATENT GROATS, for more than 80 years have been held in constant and increasing public estimation as the purest farinæ of the Oat, and as the best and most valuable preparation for making a pure and delicate GRUEL, which forms a light and nutritious supper for the aged, is a popular recipe for colds and influenza, is of general use in the sick chamber, and, alternately with the Patent Barley, is an excellent food for Infants and Children.

Prepared only by the Patentees, ROBINSON, BELLVILLE, & Co., Purveyors to the Queen, 64, Red Lion Street, Holborn, London. Sold by all respectable Grocers, Druggists, and others in Town and Country, in packets of 6*d.* and 1*s.*; and Family Canisters, at 2*s.*, 5*s.*, and 10*s.* each.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.?—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair from whatever cause, strengthen it, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 physicians, for promoting a fine healthy head of hair, and averting baldness. Sold by all Chemists, price 2*s.*, or sent free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London. Mrs. CARTER writes, "My head, which was bald, is now covered with new hair." Mrs. REEVE—"My hair is gaining strength and thickness." Sergeant CRAVEN—"Through using it I have an excellent moustache." Mr. YATES—"The young man has now a good pair of whiskers. I want two packets for other customers."

DR. DE JONGH'S
LIGHT BROWN COD LIVER OIL.

TESTIMONIAL from DR. LETHEBY,

Professor of Chemistry and Toxicology in the Medical College of the London Hospital, Medical Officer of Health to the City of London, Chemical Referee to the Corporation of London, &c., &c., &c.

"I have frequently had occasion to analyse the Cod Liver Oil which is sold at your establishment. I mean that variety which is prepared for medicinal use in the Loffoden Isles, Norway, and sent into commerce with the sanction of Dr. DE JONGH, of the Hague.

"In all cases I have found it possessing the same set of properties, among which the presence of cholaic compounds and of iodine in a state of organic combination are the most remarkable; in fact, the Oil corresponds in all its characters with that named 'Huile brune,' and described as the best variety in the masterly treatise of Dr. DE JONGH.

"IT IS, I BELIEVE, UNIVERSALLY ACKNOWLEDGED THAT THIS DESCRIPTION OF OIL HAS GREAT THERAPEUTICAL POWER; AND, FROM MY INVESTIGATIONS, I HAVE NO DOUBT OF ITS BEING A PURE AND UNADULTERATED ARTICLE.

"College Laboratory, London Hospital, Sept. 24, 1855."

Sold ONLY in bottles, capsuled and labelled with Dr. DE JONGH's Signature, WITHOUT WHICH NONE ARE GENUINE, by ANSAR, HARFORD, & CO., 77, STRAND, London, Dr. DE JONGH's sole Consignees; and by most respectable Chemists in town and country.

Half-pints (10 oz.), 2*s.* 6*d.*; Pints (20 oz.), 4*s.* 9*d.*; Quarts 40 oz.), 9*s.*: IMPERIAL MEASURE.

COLDS, COUGHS, ASTHMA, INFLUENZA, and DISEASES of the CHEST and LUNGS, arise chiefly from alternations of Temperature. Painful and troublesome as these diseases are, they may be speedily and effectually removed by the judicious use of

SPENCER'S PULMONIC ELIXIR.

SPENCER'S PULMONIC ELIXIR is admirably adapted to promote expectoration, ease the breathing, loosen the phlegm, abate fever, and allay the tickling sensation which occasions the cough, without tightening the chest; and for all temporary and local affections—such as wheezing, irritation of the throat, palpitation of the heart, hoarseness of the voice, influenza, &c—it affords immediate relief. While in more chronic disorders, as periodical coughs or inveterate asthma, it is equally valuable in its effects, although, of course, a longer perseverance in the use of the article is required.

*** Ask for SPENCER'S PULMONIC ELIXIR.

Prepared only by T. Roberts & Co., Crane Court, Fleet Street, London; and sold wholesale and retail by E. Edwards, 67, St. Paul's Churchyard; Barclay & Sons, 95, Farringdon Street; Sutton & Co., 10, Bow Churchyard; Hannay & Co., 63, and Sangar, 150, Oxford Street, London; and by all respectable Chemists and Medicine Vendors in the Kingdom. In bottles at 1*s.* 1½*d.* and 2*s.* 9*d.* each. *** The bottles at 2*s.* 9*d.* contain nearly as much as three small ones.

HOLLOWAY'S OINTMENT AND PILLS EFFICACIOUS REMEDIES FOR BAD LEGS.—Mr. H. Jones, of the Blue Boar, Llanerchyonedd, had a very bad leg, completely covered with wounds, to cure which he tried all available remedies for more than six months, but without success at last. A clergyman recommended him to try HOLLOWAY'S Ointment and Pills. After using them for a short time, the wounds began to heal, and in a few weeks his leg was perfectly cured, in gratitude for which Mr. Jones will answer any inquiries about it.—Sold by all Medicine Vendors throughout the world; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and H. HOODS, Malta.

TO BE SOLD, the LEASE of about 6 Acres of the best LAND in Middlesex, about four miles west of Hyde Park Corner, just fit for a Nurseryman or Florist. Coming in about 200*l.* The present proprietor declining the business.—Apply to Mr. SWAINS, The Lodge, Notting Hill.

TO BE LET, A NURSERY AND SEED BUSINESS.—JOHN YOUNG begs to say that he is desirous of treating with a Tenant for his Nursery Ground, which he is at present occupying himself, and which offers an eligible opportunity to any one wishing to enter on the business. The Stock is light, and the quantity of Land may be made to suit the convenience of the Tenant.—For further particulars, apply to JOHN YOUNG, Elm Cottage, Taunton.

FLORISTS' BUSINESS.

TO BE SOLD, the NURSERY GROUND, GREENHOUSES, &c., of the late Mr. HENRY GROOM, at Clapham Rise, Surrey, and the Goodwill of the well-established Business to be sold by Private Contract. The Premises (exclusive of a strip of ground held rent free, subject to six months' notice) are held at the low yearly rent of 80*l.* for an unexpired term of 36 years from Michaelmas 1855, and comprise 3¼ acres. Front entrance in the Clapham Road, and back entrance in the Bedford Road. The Buildings consist of a handsome Show-house in the front, and Greenhouses, Hothouse, Pits, Sheds, &c. The house adjoining, late in the occupation of Mr. Groom, is not comprised in the Lease, but may be rented.—The Premises may be viewed on application, and further information obtained of Messrs. PROTHEROE & MORRIS, American Nursery, Leytonstone, Essex; and of Messrs. BARNES & BERNARD, Solicitors, No. 2, Great Winchester Street, London.

Sales by Auction.

A CONSIGNMENT FROM MR. JEAN VERSCHAFFELT OF GHENT.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on MONDAY, 12th November, at 1 o'clock precisely, 1000 CAMELLIAS, well set with bloom; 500 Azalea indica, 400 Rose Trees, 20 fine Standard Bays, 200 Kalmias, 200 Pear Trees, 200 hardy Azaleas, 400 Lelium lancifolium, and other Bulbs.—May be viewed on the morning of Sale, and Catalogues had.

ORCHIDS—IMPORTED AND ESTABLISHED.

MR. J. C. STEVENS will sell by Auction, at his Great Room, 38, King Street, Covent Garden, on WEDNESDAY, 14th November, at One o'clock precisely, an importation of ORCHIDS from Panama, including fine specimens of Oncidium ampliatum major, Trichopilia coniida, Epidendrum bicornutum, a new Sobralia, &c. The established plants consist of Aerides affine, Maculosum major, Odontoglossum purpureum, virens, superba, Cattleya labiata, Calanthe masuca, Cymbidium eburneum, Saccolabium guttatum and retusum, Trichopilia sp. new, Vanda Jenkinsoni and tricolor, &c. A small importation from Jamaica of Oncidium pulchellum, Broughtonia sanguinea, &c.—May be viewed on the morning of Sale and Catalogues had.

ORCHIDS.

THE VERY SPLENDID COLLECTION OF J. H. SCHROEDER, Esq.

MR. J. C. STEVENS is favoured with instructions to sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 20th November, and following day, this most valuable collection of ORCHIDS, which includes magnificent Specimen Plants of the latest and best varieties of Aerides, Vandas, Saccolabiums, Dendrobiums, Cattleyas, and many very rare and almost unique species in admirable condition.—May be viewed on the mornings of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on FRIDAY, November 16th, at 12 o'clock, a first class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Snowdrops, Ranunculuses, Gladiolus, &c.; also a selected assortment of fine Standard and Dwarf Roses, including Hybrids, Bourbons, Chinas, Noisettes, &c; and American Plants, comprising Hybrid Rhododendrons; Ghent and other Azaleas, Kalmias, Andromeda floribunda, beautifully furnished with bloom buds.—On view the morning of Sale. Catalogues may be had at the Mart; and the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed to Sell by Auction, without reserve, on the premises opposite the Railway Station, Blackheath, by order of Mr. Hatley (the ground being required for building), on MONDAY, November 19th, and following day, at 11 o'clock each day, the valuable NURSERY STOCK, consisting of Laurels, from 3 to 6 feet; fine Chinese Arbor-vitæ, 3 to 6 feet; handsome Deodars, 3 to 8 feet; large Fan and other Yews, 4 to 10 feet; Aucuba Berberis, variegated and green; Hollies, Laurustines, Sweet Bays, Lilacs, Mountain Ash; Standard and Trained Fruit Trees, Gooseberries and Currants; about 1500 yards of strong Box-edging, about 300 capital Camellias, well set with bloom; Rhododendrons, Azaleas, Standard and Dwarf Roses, Pinus, Cryptomerias, &c., &c.—May be viewed prior to the sale, and Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

CHOICE TULIPS.

MESSRS. PROTHEROE AND MORRIS are instructed to offer for unreserved Sale by Auction at the Mart, Bartholomew Lane, on FRIDAY, November 23d, at 12 o'clock, by order of the Proprietor, Mr. GEORGE OUTAIN, of Stoke-upon-Trent, Staffordshire, the whole of his select and costly bed of TULIPS. The Proprietor has spared neither trouble nor expense in selecting the best varieties and of the finest strains; and the present is such an opportunity to amateurs to enrich their collection with scarce and valuable varieties as does not often occur. In Roses there are Scarnell's Bijou, Lac, Eliza Cook, Mary Ann, Camuse de Craix. The Byblœmens comprise Golahams, Fanny Kemble, Napoleon, Lord Nelson, Salvator Rosa, Wallace, Thalia, Maid of Athens, Nora Creina, Parmegiano, Pandora, Duc de Bordeaux. Amongst the Bizarres will be found Pompe Funèbre, Duke of Devonshire, Vivid, Leonidas, Milton, Everard, &c. In addition to these there are many newly broken flowers from the Seedlings of Slater's and Norman's, and the best selected varieties from the celebrated Chellaston Seedlings.—Catalogues may be had at the Mart; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

CONCLUDING SALES THIS SEASON.

MR. HASLAM will Sell by Auction, at the Mart, on TUESDAY, November 13, and three following days, a Choice Selection of Standard and other Roses, Dutch Bulbs, several varieties of British Orchids, including Lizard, &c. Also some first class Pinks, Pansies, &c.; a large quantity of Shrubs, Fruit Trees, &c.—Catalogues at the Mart, and of the Auctioneer Epping, Essex.

Annual Sale of TIMBER at Cassiobury, Watford, comprising 480 Ash, most of them clean grown Trees, and of unusually large dimensions, 300 Alder, 50 Oak, 25 Elm, 630 Fir, and a few Lime, Willow, and Birch.

MR. HUMBERT will Sell by Auction, at the Rose and Crown Inn, Watford, on WEDNESDAY, November 14th, at 2 o'clock, an unusually fine lot of Ash, comprising 480 Trees; also 50 Oak, 300 Alder, 630 Fir, and some Willow, Birch, Lime, and others.—May now be viewed, and Catalogues may be had at the Inns in the neighbourhood, and free by post of Mr. HUMBERT, Land Agent, Watford.

NURSERY GROUNDS, UXBRIDGE ROAD, EALING.

MESSRS. KING AND SON are instructed by Mr. R. S. Mountjoy, who is relinquishing the Nursery business, to Sell by Auction on the Premises, on WEDNESDAY, THURSDAY, and FRIDAY next, at 12 o'clock precisely each day, the Valuable Nursery Stock in fine condition, which is worthy the attention of noblemen and gentlemen as well as the trade, comprising Evergreens and Shrubs, 500 Camellia japonicas, Rhododendrons, Azaleas, Kalmias, Berberis, &c. Fruit Trees in collection, Standard and Dwarf Roses of the choicest kinds, Herbaceous Plants, &c. Catalogues had on the Premises, at the Inns in the neighbourhood, and at the Offices of Messrs. KING & SON, Estate Agents, Surveyors, Valuers, &c., Brentford.

MAIDENHEAD.

MR. J. WILLMER will Sell by Auction on the Premises, CHRISTIE'S Nursery, Maidenhead, on MONDAY, November 12, and two following days, at 12 o'clock each day, the whole of the Nursery Stock, comprising Taxodia sempervirens, Cryptomeria japonica, Juniperus Bedfordiana, Piptanthus Nepalensis, Cedrus deodora, Cedar of Lebanon, Pinus excelsa, Araucaria imbricata, Pinus Cembra, Laurels (Portugal), English and Irish Yews, striped and green Hollies, Chinese Arbor-vitæ, Red Cedar, Phillyrea, Standard and Dwarf Roses, Scotch Spruce and Larch, Fir Oaks, Limes, Birch, Acacia, Sycamore, Plane, Laburnum, Poplars, &c.; Seakale and Asparagus Plants; Standard and Dwarf Fruit Trees; Greenhouse Plants; Greenhouses, Pits, Lights, Garden Pots, &c.—May be viewed one week prior to the Sale, and Catalogues had (6*d.* each, returnable to purchasers) on the Premises, and of the Auctioneer, Sunbury, Middlesex.

This day is published, price 2s. 6d.,

PUNCH'S POCKET-BOOK FOR 1856. With a Coloured Plate by JOHN LEECH, and numerous Wood Engravings by JOHN LEECH and JOHN TENNIEL.

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On Thursday, the 22d of November (Almanack Day), will be published, in Twenty-eight pages, stitched, price 4d.,

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NEW SERIAL WORK BY MR. CHARLES DICKENS.

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THE LIFE AND TIMES OF OLIVER GOLDSMITH. By JOHN FORSTER.

*** A Library Edition of the same Work is also published, in Two Volumes 8vo, uniform with Murray's British Classics.

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Just published, in 8vo, price 6s. cloth,

WINE DUTIES, considered Financially & Socially: Being a Reply to Sir James Emerson Tennent on "Wine, its Taxation and Uses." By W. BOSVILLE JAMES.

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In crown 8vo, with 30 Woodcuts, price 7s. 6d. cloth,

THE ART of PERFUMERY and the METHODS of OBTAINING the ODOURS of PLANTS: With Instructions for the Manufacture of Perfumes for the Handkerchief, Scented Powders, Odorous Vinegars, Dentifrices, Pomatums, Cosmetiques, Perfumed Soap, &c.; and an Appendix on the Colours of Flowers, Artificial Fruit, Essences, &c. By G. W. SEPTIMUS PIESSE, Analytical Chemist, Author of "The Odours of Flowers," in the *Gardeners' Chronicle*, &c.

London: LONGMAN, BROWN, GREEN, & LONGMANS.

ON THE VINE DISEASE.

In a few days will be published, price 1s.

A PAMPHLET ON THE VINEYARDS OF EUROPE; with Suggestions for the Immediate Prevention of the Disease, founded upon Natural Laws.

Also JAMES CUTHILL'S POTATO PAMPHLET, with 20 new articles, 2s.; J. C. on Market Gardening round London, 1s. 6d.—Post free, sent by the Author, JAMES CUTHILL, Camberwell, London.

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ON THE DISEASES OF FEMALES; a Treatise, describing their Symptoms, Causes, Varieties, and Treatment. With numerous Cases, and a Medical Glossary. Including the Management of Pregnancy and Lying-in. By T. J. GRAHAM, M.D., M.R.C.S.

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"A mass of information indispensable to those for whom it is intended."—*Blackwood's Lady's Magazine.*

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By the same Author, 11th Edition, with additions, price 16s.,

MODERN DOMESTIC MEDICINE. A comprehensive Medical Guide for the Clergy, Families, & Emigrants.

"Of all the medical guides that have come to our hands, this is by far the best. For fulness and completeness they all yield the palm to Dr. Graham's."—*Banner*, August 1853.

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No. 46.—1855.] SATURDAY, NOVEMBER 17. { Price Fivepence. Stamped Edition, d.

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HORTICULTURAL SOCIETY OF LONDON.—The AUTUMN MEETING will take place at the Society's House, 21, Regent Street, on TUESDAY, November 20th, from 12 to 4 P.M. The Chair will be taken at 2 P.M.

NORTH LONDON FLORICULTURAL SOCIETY'S GRAND EXHIBITION for CHRYSANTHEMUMS, open to all England, will be held at the Penton Rooms, Pentonville, near the Angel, Islington, on MONDAY, November 19. Doors open at 1 o'clock. Admission from 1 to 4, 1s.; and from 4 to 7, 6d. GEORGE SMITH, Hon. Sec. Hornsey Road.

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The American Nursery, Bagshot, Surrey.—Nov. 17.

AMERICAN PLANTS.

WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.
Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor Branch, South Western Railway where conveyances may be had.

GEORGE JACKMAN begs to state his PRICED CATALOGUE of choice CONIFERS, HARDY EVERGREENS and ORNAMENTAL TREES, which are well grown and constantly removed, also Roses, Standard, Dwarf, and dwarf-trained Fruit Trees, and Forest Trees, can be had on application by enclosing one Postage Stamp.
G. J. respectfully invites persons planting to pay a visit to his extensive nursery, one and a half mile from Woking Station, South Western Railway, where all trains stop, and conveyances can be had.—Woking Nursery, Woking, Surrey.

BERNARD SAUNDERS, NURSERYMAN and FLORIST, Cæsarean Nurseries, Jersey, respectfully informs Amateurs and Florists that he has a good Stock of Yellow and White ground PICOTEES to offer for sale this season, at 2s. 6d. per pair, orders for which will be thankfully received and promptly executed. Also a small quantity of well ripened Seed of the PHORMIUM TENAX or NEW ZEALAND FLAX at 2s. 6d. per packet of 60 Seeds.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, which they will forward to any part.

	s.	d.
25 Azaleas, new hardy Belgian varieties, one of a sort, by name, on their own roots	20	0
25 Azaleas, American varieties, do. do.	16	0
Hardy Heaths, Ledums, and Kalmias, per dozen ...	6	0
25 Hardy American Plants, one of a sort, by name ...	10	6
12 Rhododendrons, including scarlet, white, and rose ...	12	0
Fine hardy scarlet Rhododendrons, 1 to 2 feet, per dozen	15	0
New yellow Rhododendrons, in pots, each ... 3s. 6d. to	5	6
Cedar of Lebanon, 2 to 3 feet, well grown, per doz., 12s. to	18	0
Cedrus Deodara, and other choice Coniferæ (see List).		
6 Fine hardy Magnolias, one of a sort	10	0
50 Dwarf Roses, two of a sort, on own roots	15	0
Standard and half Standard Roses, superb sorts, per dozen ... ... 15s. to	18	0
Fine Climbing Roses, per dozen	6	0
Greenhouse Azaleas, best new vars., per dozen... 12s. to	18	0
Camellias, fine sorts, well set with buds, per dozen ...	30	0
50 Choice Greenhouse Plants, one of a sort	45	0
12 Orchidea Plants, one of a sort, fine species	40	0
Fine Pampas Grass, each, 3s. 6d.; or, per dozen ...	30	0
Chrysanthemums, new Pompone and show vars., per doz.	8	0
6 new sorts Mimulus, very fine early flowering	6	0
Cinerarias, fine sorts, to flower early, per dozen.. ...	12	0

Hyacinths, Crocus, Tulips, and Dutch Bulbs of all kinds.
New Conservatories and Gardens furnished in any part of the kingdom on very reasonable terms.

FRUIT TREES.

Fine standard and dwarf-trained Apricots, Peaches, Nectarines, Pears, Plums, and Cherries, 3s. each, or, per dozen	30	0
Fine Apples, Figs, Medlars, Quinces, and Walnuts, each	2	0
Fine Gooseberries, Currants, and Raspberries, per doz.	3	0
Filberts, new, thin shelled, and red skinned, per dozen	4	0
Strong Vines from eyes, and layers in pots, per dozen...	18	0
Peaches, Nectarines, Apricots, and Cherries, grown for pot culture, per dozen	18	0

A large stock of fine Transplanted Scotch, Larch, and Spruce Firs, also Evergreen Shrubs of all kinds.

Albion Nursery, Stoke Newington, London, Nov. 17.

WATERER AND GODFREY respectfully invite the attention of parties engaged in Planting to their fine Stock of the following HARDY ORNAMENTAL TREES, &c.

Araucaria imbricata, 2, 3, 4, 5, 6, 7, and 8 feet high, in quantities, all stocky well grown plants; the larger sizes especially it would be difficult to match.

Cedrus Deodara, 1½, 2, 3, 4, and 5 feet, by the thousand; do. a fine lot of larger, 6, 7, and 8 feet; do. some magnificent Trees, 10 to 15 feet. These are all in a famous condition for Transplanting, having been annually removed.

Cedars of Lebanon, 3, 4, 5, and 6 feet; do. a few splendid Trees, 10 and 12 feet.

Cedars Red Virginian, 5 to 8 feet.

Cedars, variegated white, 2, 3, and 4 feet, one of the handsomest variegated plants we know. We have a large stock. It is extensively planted at Elvaston Castle.

Cryptomeria japonica, fine plants, 4 to 7 feet.

Cupressus macrocarpa or Lambertiana, 3, 4, 5, 6, 7, and 8 feet. Nothing can be handsomer than some of the specimens of this fine hardy plant.

Juniper, Chinese, 2, 3, 4, and 5 feet; a fine lot of large plants, 6 to 8 feet.

Do. Irish, upright, 3, 4, 5, and 6 feet; do. larger, up to 8 and 10 feet. Our stock of the two last mentioned Junipers we believe to be quite unequalled, the Irish especially; the larger sizes are perfect columns.

Do. recurva, 3, 4, 5, up to 8 feet.

Do. hispanica or thurifera, 2, 3, and 4 feet.

Abies Douglasi, 2, 3, and 4 feet. A fine lot of large and very handsome plants, 7, 8, 10, and 12 feet.

Picea nobilis, several hundreds of nice plants, 1½ to 2 feet, well grown, and with good lead. None are grafted. A few taller specimens up to 6 feet.

Do. Nordmanniana, a large quantity of remarkably handsome plants, 1½, 2, 3, and 4 feet. Nothing can exceed the vigour of these plants, and all from seed.

Do. Pinsapo, magnificent plants, 4 to 7 feet high, in perfect health.

Pinus insignis, 1½ to 3 feet; a few good specimens up to 7 feet.
" Lambertiana, from seed, 4, 5, and 6 feet.
" Cembra, 3, 4, 5, up to 10 feet.
" Montezumæ, fine plants, 4 and 5 feet.
" macrocarpa, 2 and 3 feet, from seed.

Weeping Larch, clean, stems good, heads 7 feet high.

The following 10 varieties form a very singular group. They are of dwarf habits; the well known Abies Clanbraziliana may be taken as the type of the whole. We believe our collection to be quite unique, and, we may add, most interesting.

Pinus strobus pumila (the dwarf Weymouth).
" sylvestris pumila (the dwarf Scotch).

Abies Clanbraziliana	Abies pumila	All dwarf varieties of the Spruce Fir.
" compacta	" diffusa	
" pygmæa	" Gregori	

Picea pectinata pygmæa (the dwarf Silver Fir), Hudsoni.

Yew, common English, 3, 4, 5, 6, and 7 feet, in large quantities.

Do. upright, Irish, 4, 5, 6, and 7 feet; some splendid plants, 8 to 12 feet.

Do. Dovaston or Weeping, a great many fine plants, worked on straight stems, 7, 8, and 10 feet high, with good heads.

Do. adpressa, 2 and 3 feet.

Do. do., worked on common Yew, as standards.

Do. gold striped, 1½ to 2 feet, by the thousand.

Do. do., a splendid lot of plants, 4 to 6 feet.

Do. do., worked as standards on the common Yew, 8 to 10 ft. high.

Do. do., worked on Irish Yews, 6, 7, and 8 feet high.

Do. elegantissima, or new gold striped; a large quantity, 1½ to 2½ feet, and also worked as standards on the common and Irish Yews. We may safely assert our stock of Golden Yews is unsurpassed.

Do. yellow berried (true), very beautiful when in fruit as we have it, 1½ to 3 feet.

Libocedrus chilensis, 2 to 3 feet, very handsome and bushy.

Thuja Wareana, fine bushes, 3, 4, 5, 6, and 8 feet. This is one of the most useful, and, at the same time, ornamental hardy plants we possess.

Do. American, for hedges, doubtless the very best, 4, 5, and 6 feet.

Do. aurea, or Golden Arbor-vitæ. This plant originated at this Nursery; it has now, as it deserves, become a universal favourite. Our stock of it enables us to offer a choice of many hundred fine specimens, from 1½ to 3 and 4 feet high, and as much through—in fact, perfect globes.

Wellingtonia gigantea, a few of the finest plants in the country, being near 1½ feet high, and as much wide.

Hollies variegated, by the thousand, 2, 3, and 4 feet high. Some splendid Plants, 10 to 15 feet high.

We may here remark with reference to the large specimens alluded to in this Advertisement that every one of them is in a condition to transplant, and travel any distance with perfect safety. They have one and all been annually removed in our Nursery, and in soliciting a personal inspection of our stock, we believe we are justified in stating it offers a choice which is to be found in but few establishments of its kind in this country.

The Nursery may be reached in 40 minutes by Train from the Waterloo Station; and the South Western Railway Company having a Branch on to the North Western, enables us to send plants to all parts, in trucks throughout, without packing and other extensive additions.

Knap Hill Nursery, Woking, Surrey.

MESSRS. E. G. HENDERSON AND SON beg to announce that they have now received their noted collection of HYACINTHS in excellent condition, and for the assistance of those persons unacquainted with the culture of the Hyacinth, printed instructions will be given gratis with each order they are kindly favoured with, Catalogues of which, together with their Plant and Seed Lists, will be forwarded post free on application.

CUCUMBER HENDERSON'S NAPOLEON III., in packets, 3s. and 5s. 6d each.

CALCEOLARIA, CINERARIA, and PRIMULA SEED of first quality, 2s. 6d. and 5s. per packet.

FUCHSIAS.—Banks' Favourite, 10s. 6d.; Prince of Wales, 10s. 6d.

NEW RHODODENDRONS.—Boothi, Hookeri, Calophyllum, Kendricki, Eximium Windsori Leucanthum.

GYNERIUM ARGENTEUM (PAMPAS GRASS).—E. G. H. & SON having in their possession the largest stock in the country of this noble ornamental Grass, can supply free healthy seedling plants, which are superior to any other at 2s. 6d. each, 25s. per dozen, or 7l. 10s. per 100.

Wellington Nursery, St. John's Wood.

JOHN HARRISON begs to offer to the Trade the under-named Plants, and to inform his friends and the public that his CATALOGUE OF ROSES for the present season contains the most superb Roses in cultivation; and as a guide to amateurs and parties not acquainted with Roses, the best show varieties are marked with an asterisk. J. H. has competed within this last five years at nearly one hundred different exhibitions open to the United Kingdom, and with but one solitary instance, has invariably taken the first prizes for collections of Roses.

Fastalf Raspberry Canes, 6s. per 100, or 50s. per 1000.
Northumberland Fillbasket, do., 10s. per 100, or 90s. per 1000.
White Antwerp, do., 12s. per 100.
Victoria Currants, 1 yr. old, 8s.; 2 yr., strong, 12s. per 100.
Houghton Castle Currants, 1 year 8s. per 100, or 2 years 12s.
Black of sorts, 1 year, 8s., or 2 years, fine, 10s. per 100.
Royal Albert Rhubarb, 30s. per 100.
Victoria do. true, 25s. to 30s. per 100.
Manetti Rose Stocks, 10s. per 100, or 80s. per 1000.
Ditto do. extra strong for half-standards, 20s. per 100.
Ditto in 6-inch pots, 1 year, fit for working, 60s. per 100.
Duchess of Norfolk Rose, 30s. per dozen, or 10l. per 100.
Delphinium Barlowi, strong sorts, 30s. per 100.

Nursery, Darlington, Nov. 17.

BASS AND BROWN beg to offer the following from their Catalogue just published, which cannot fail to afford full satisfaction to purchasers, for strong growth and superiority of sorts :—

	s.	d.
ROSES.—100 dwarfs in 100 very superior varieties ...	60	0
" 100 " 50 ditto ditto	45	0
" 100 " 100 ditto, all selected from perpetual bloomers	100	0
" 100 " 50 ditto ditto	80	0
" Fine selections, per dozen ... ... 6s. to	18	0
" 20 superb new varieties for 60s., or 12 for 35s., including Baron Leroy, Madame Lacour Jury, Gen. Jacqueminot, Prince Leon, Lord Raglan, Madame Masson, Emperor Napoleon, Madame Theodore Martel, Duchess of Norfolk, Prince de la Moskowa, &c. &c.		
HERBACEOUS PLANTS.—100 distinct and showy vars., 30s., or 50 for	17	6
100 superior and newer varieties., 50s., or 50 for	30	0
PHLOX.—25 very fine vars., 6s.; 25 superb newer vars.	15	0
POTENTILLAS.—King of Crimsons, the finest large crimson, of good dwarf habit, each 5s.; Floral Beauty, 2s. 6d.; Julia, 2s. 6d.; Negress, 2s. 6d.; Scarlet Gem, 2s. 6d.; Shylock, 3s. 6d.; Sudbury Gem, 5s.; Theodore, 3s. 6d. The above eight beautiful vars. for 21s.		
" splendid vars., per dozen ... ... 6s., 9s., and	12	0
HOLLYHOCKS.—Finest sorts, per dozen... 9s., 18s., and	25	0
DWARF ROCK CISTUS, 24 beautiful vars.	15	0
CHRYSANTHEMUMS.—Fine flowering Plants.		
Pompones, 24 vars. in 5-inch pots	18	0
Large flowering, 24 vars., ditto	18	0
HARDY CLIMBING PLANTS, 20 fine sorts	20	0
HARDY FLOWERING ORNAMENTAL SHRUBS, 20 fine vars.	12	0
20 fine newer vars.	24	0
PEACHES, NECTARINES, APRICOTS, and PLUMS, two and three year trained plants, fine and well grown, per dozen ... ... 42s. to	60	0
STRAWBERRIES, in 20 newest & best vars. *See Catalogue*		
GOOSEBERRIES, finest prize sorts, 25 vars. for	10	6
RHUBARB.—Bailey's Early Monarch, each 2s. 6d.; Salt's Crimson Perfection, each 7s. 6d.; the two best early varieties grown.		
Royal Albert, Linnæus, and Victoria Giant, per dozen	7	6
Grayson's Giant Asparagus, fine, per 1000, 30s.; per 100	3	6
Seakale, strong for forcing, per 100	10	0
Fine Standard, pyramidal, dwarf, and trained Fruit Trees. *See Catalogue.*		
CAMELLIAS, choice assortments, per dozen ... 30s. to	60	0

BULBS AND FLOWER ROOTS.

CHOICE IMPORTED DUTCH HYACINTHS, in separate colours, per dozen	3	0
Fine named varieties, per dozen ... ... 6s. &	9	0
Extra superb varieties, per dozen	15	0
ANEMONES, 50 superb named double varieties	12	6
Splendid mixed, per 100	6	0
Splendid double mixed scarlets, per 100	10	0
Mixed semi-double Russian vars., fine, per lb. ...	6	0
" fine new single, per lb.	4	0
La Brillante Eclatante, extra single bright scarlet, per 100	7	6
GLADIOLUS, 50 splendid vars., early and late	50	0
The following beautiful new early dwarf vars. which flower July and August (for descriptions *see Catalogue*), viz., British Queen, 5s.; Eclipse, 7s. 6d.; Masterpiece, 3s. 6d.; Rachel Maria, 2s. 6d.; Sudbury Beauty, 5s.; Theodore, 7s. 6d.		
The above 6 fine and striking varieties for	25	0
EARLY TULIPS, beautiful for pots or open borders, flower a month before the late sorts, 30 fine vars., the best in cultivation	7	6
DOUBLE TULIPS, fine for borders, 10 best vars., 6 of each	10	0
ENGLISH IRIS, 40 splendid and distinct vars.	21	0
Ditto per dozen, 4s. to 7s. 6d.; fine mixed, per 100 ...	10	0
IRIS GERMANICA, flower in May, very beautiful, 40 fine vars. of rich and varied colours	45	0
20 fine ditto 15s; 20 vars. best selection	35	0
Fine mixed, per 100, 18s.; best mixed, per dozen ...	5	0
IRIS PUMILÆ, early and very dwarf, 10 fine vars. ...	10	0
LILIUM, a superb collection of upwards of 30 vars. *See Catalogue.*		
CYCLAMEN, in 10 fine vars. *See Catalogue.*		
IXIAS and SPARAXIS, finest vars. *See Catalogue.*		
TRITONEA AUREA, a splendid orange Cape bulb (24s. per dozen), each 2s. 6d.		

Also an extensive Collection of other Roots.

CATALOGUES, containing much descriptive and useful information supplied for three penny stamps, or gratis to purchasers.

Post Office Orders payable to BASS & BROWN, or to STEPHEN BROWN. Goods carriage free (not under 20s.) to all the London termini, and all stations on the London and Norwich Colchester Line. Plants gratis with orders of 40s. and upwards.

Seed and Horticultural Establishment, Sudbury, Suffolk.

GERMAN FLOWER AND VEGETABLE SEEDS.

MESSRS. PLATZ AND SON, SEED GROWERS, Erfurt, Prussia, respectfully inform the Trade that their Catalogue for 1856 contains more new and choice articles than have ever been offered. Early applications are solicited through their Agent, Mr. ROBERT KENNEDY, Bedford Conservatory, Covent Garden, London.

EARLY FLOWERS, ADAPTED FOR BLOOMING IN DOORS, AND IN THE BORDERS IN WINTER AND EARLY SPRING.

CLARK AND CO., SEEDSMEN and FLORISTS, beg respectfully to intimate to the nobility, gentry, and the public that they have imported a STOCK of DUTCH and other FLOWER BULBS, of the finest possible quality, and take the liberty of offering the following assortment for 10s., viz.:—Half a dozen best Hyacinths for glasses, half a dozen good Hyacinths for pots, 50 Crocuses (four separate colours), 50 large Double Snowdrops, half a dozen Double Van Thol Tulips, half a dozen early Van Thol Tulips, one dozen Double White Sweet-scented Narcissus, half a dozen Double Jonquils, one dozen Winter Aconites, 12 splendid mixed Tulips, and one dozen beautiful mixed Double Anemones.—86, High Street, Borough, about 30 doors from London-Bridge Railway Terminus.

ORNAMENTAL TREES.

TO BE SOLD CHEAP, several Thousand Large CEMBRA PINES, from 3 to 4 feet high, and as many IRISH YEWS. Samples of 12 of either will be delivered free at the Scotch Wharf in London, including package, for 1l. They are admirably adapted for Ornamenting Noblemen's Grounds, Public Parks, Cemeteries, &c., and are worthy of immediate attention, as the proprietor is retiring from business, and has also a large collection of fine specimens of Nepaul, Chinese, Californian, North American, and North of Europe Plants—all reared in a hardy climate.—Apply to Mr. JAMES ROY, Ferry Hill, Aberdeen.

SPLENDID NEW RHUBARB—SALT'S CRIMSON PERFECTION.

ROBERT SALT begs leave to inform the Gentry, Nurserymen, Gardeners, &c., that this splendid variety of RHUBARB is now ready for distribution; it is universally allowed to be the most early, prolific, and delicious variety ever offered to the public. See *Gardeners' Chronicle*, June 11, 1853:—"Very good, and of a most beautiful crimson; compared with others, it is remarkable for the small amount of acidity it contains."—ED.

Certificates of merit were awarded for specimens exhibited at the meeting of the Horticultural Society, Regent Street, London, June 20, 1853; at Nottingham, May 24, 1854; at Derby Midland, May 25, 1854; at Ormskirk, Lancashire, August 30, 1854.—Price 3s. 6d. per root, three for 10s., and six for 1l. A few two-year-old Plants at 5s. each.

Orders addressed to ROBERT SALT, Longton, Staffordshire, or the following Agents will have immediate attention:—Messrs. Hurst & M'Mullen, 6, Leadenhall Street, London; Messrs. Burgess & Kent, Penkhull, Staffordshire; Messrs. Francis & Arthur Dickson, 106, Eastgate Street, Chester; Messrs. James Dickson & Sons, 102, Eastgate Street, Chester; Mr. Salsbury, Melbourne, Derbyshire. A liberal discount allowed to the Trade. —A Post-office Order from unknown correspondents.

Longton, Nov. 17.

A NEW SEEDLING APPLE FROM THE RIBSTON PIPPIN.

STEPHEN SHILLING begs to offer to gentlemen and the trade Trees of his entirely new Apple named OMER PACHA, it being a first-rate hardy grower, strong compact habit, early and productive bearer. Fruit excellent flavour (dessert), ripe in November, keeps until May. Respectable testimonials given from those who have tasted the fruit. Strong plants supplied at 5s. 6d. each, or 60s. per dozen. The usual discount to the trade where one dozen or more are taken. Early application is requested as the stock is limited; all orders carefully and promptly attended to. Fruit of the above can be seen at the office of the *Gardeners' Chronicle*, the British Pomological Society's Rooms, 20, Bedford Street, Covent Garden, Messrs. Nutting & Son, 46, Cheapside, Messrs. Sutton & Sons, Reading, Mr. C. Turner, Royal Nursery, Slough, and at the North Warnborough Nursery, near Odiham, Hants.

NEW HARDY PLANTS.

A. VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer the following New HARDY PLANTS:

RHODODENDRON MADAME WAGNER (hardy) ... 15s. 0d.
" PRINCE CAMILLE DE ROHAN (hardy) ... 7 6
WEIGELIA MIDDENDORFI.—N.B. This splendid Weigelia has been sold already *twice* under wrong names. The one I offer here is *warranted the true species*. Good Plants each 12 0

A. VERSCHAFFELT begs to inform Amateurs and the Trade that he has just published a new PLANT LIST, containing the English and Continental Novelties.

His Catalogue may be obtained on application of his Agent, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London.

IRON BUILDING AND ROOFING WORKS.

GAS STREET AND BERKELEY STREET, BIRMINGHAM.

JOHN HENDERSON PORTER, ENGINEER and CONTRACTOR, Patentee of a new system of constructing (cheaply and expeditiously, by ordinary labourers) Portable Buildings and Sheds—formed of ordinary planks or boards—peculiarly suitable for Farm purposes. A Model Shed has recently been erected in the Agricultural Department of the Crystal Palace at Sydenham. Corrugated and Galvanised Iron Roofs and Roofing Plates, Eaves, Gutters, Rain-water Pipes, Tanks, Fences, &c.—London Office, 1, Riches Court, Lime Street.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4s. 9d. each.
HURDLES for CATTLE, 6 feet long, 3 feet out of ground, 5 bars ... ... 5s. 3d. each.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 6d. per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

GRAPE VINES FROM EYES.

R. GLENDINNING respectfully begs to offer an extensive collection of all the principal kinds of GRAPE VINES in pots extra strong, either for forcing in the pots or planting out.

PEACHES and NECTARINES, established in pots two and three years, full of blossom buds, and will doubtless produce fine crops the next season; also strong FIGS in pots.

A large and extensive assortment of trained Peaches, Nectarines, Apricots, Plums, Cherries, Pears, and Apples, in fine health.

R. G. would particularly direct attention to his very large collection of Pears for Pyramidal Training. They are from 5 to 7 feet high, and grown especially for the purpose, with abundance of short shoots. The Horticultural Society's nomenclature has been adopted with all the Fruit Trees; they may, therefore, be relied upon as correct.—Catalogues of the above and all other Nursery Stock may be had on application.

Chiswick Nursery, London.

WHEAT FOR WINTER SEEDING.

WILLIAM BARNES invites the attention of his patrons and friends to that well-known and much esteemed species called the OLD LAMMAS or Winter Wheat, and which he warrants the true original without admixture of any sort, and perfectly clean. This Wheat has been grown by himself on light black soil, and the character of it remains permanent, having no tendency to degenerate or liability to disease. It may be sown on the coldest description of clay and heavy land, and as late as the last week in December with the almost certain prospect of affording a good return.—For further particulars, address WILLIAM BARNES, the Elms Farm, Spalding, Lincolnshire.

WATERER'S AMERICAN PLANTS.—A new DESCRIPTIVE CATALOGUE is now published of the celebrated Collection of hardy Scarlet and other Rhododendrons, as exhibited by JOHN WATERER at the Royal Botanic Gardens, Regent's Park; it will be found to contain a few practical observations on their successful management, and will be forwarded on application by enclosing two stamps for postage. Apart from its enumeration of the most popular American Plants in cultivation, a List of choice Coniferæ will be seen, embracing the latest importations of this fine and hardy tribe of Plants.

J. W. has now the pleasure to offer in large quantities, and of all heights, the following selection of CONIFERS, with the remark that they are all now growing in the open ground, are bushy and handsome as can be desired, and have been transplanted each succeeding spring, whereby no risk can be encountered in their removal from the nursery:—Araucaria imbricata, Cryptomeria japonica; Pinus Douglasi, Cembra, excelsa, Lambertiana, insignis, Jefferyana, Beardsleyi, tuberculata, &c.; Cedrus Deodara, Lebanon, and Africana; Wellingtonia gigantea, Cupressus, Juniperus, Taxus, Thuja, &c.

☞ The attention of gentlemen, public companies, and others engaged in planting, is especially directed to the foregoing; indeed, all intending planters would be well repaid by a visit to inspect our stock, as much may be seen which of necessity cannot be given within the limits of an advertisement.

The Nursery is easily reached by railway, being near the Farnborough Station, South-Western Railway, and Blackwater on the South-Eastern Railway.

The American Nursery, Bagshot, Surrey.

DENYER'S NEW PROLIFIC GREEN MARROW PEA.—A fine variety for succeeding the first early Crops. Very hardy, and one of the greatest cropping Peas in cultivation. It obtained the first prize at the Hastings and also at the St. Leonard's Horticultural Exhibitions.

From the Dean of Battle.—"The sample of Peas you sent me surpasses in beauty of colour and richness of flavour any that I have ever met with."

From Mr. Waters, Gardener to Lady Webster, Battle Abbey.—"I have examined the growing stock of your new Pea, and find it crops abundantly, the pods being a good length, very broad, and well filled. It is also a fine flavoured and beautifully green-coloured Pea."

From Mr. Bunyard, Maidstone.—"My opinion of the new Pea is, that it is a distinct sort, a good cropper, and for colour I do not know its equal."

From Mr. Parks, late Nurseryman and Seedsman, Dartford, Kent.—"I am much pleased with your new Pea. It certainly is a very fine cropper. The Peas are large, and the pods completely filled. It will when known become a superior Pea for market.'

Price 3*s.* 6*d.* per quart. Post Office orders payable to WILLIAM DENYER, Seedsman, Battle, Sussex. May also be had through the London and other seedsmen.

NEW OR RARE PLANTS AT REDUCED PRICES.

MESSRS. WILLIAM ROLLISSON AND SONS are now prepared to offer the annexed:—

TYDÆA ELEGANS.—A most beautiful plant from New Grenada, with bright scarlet flowers; 10*s.* 6*d.* each.

BEGONIA CHRYSOLEUCA.—A distinct new species semi-creeper, the blossoms are yellow, tipped with white; 15*s.* each.

COLEUS BLUMEI PECTINATUS.—A very distinct variety, the foliage is variegated similar to Coleus Blumei, but the leaves are beautifully laciniated; 5*s.* each.

MANDIROLA ROEZLI.—An extremely handsome gesneraceous plant producing fine spikes of lilac-coloured blossoms; 15*s.* each.

VACCINIUM ERYTHRINA.—A truly magnificent plant sent us by our collector Mr. John Henshall; the flowers are produced in bunches, of a bright crimson colour; 31*s.* 6*d.* each.

ARAUCARIA COOKI.—Handsome well formed seedling plants; 84*s.* each.

AUBRIETIA MOOREANA.—A new and distinct beautiful flowering Alpine plant; 5*s.* each.

MANDIROLA LANATA.—A pretty gesneraceous plant, of a delicate violet colour inside the mouth of the blossoms, and shaded lilac outside; 15*s.* each.

ORTHOSIPHON SPICATUS.—This plant has been recently introduced from Ocana, and is a great acquisition, its foliage being deliciously fragrant; its blossoms are large and white; 10*s.* 6*d.* each.

BEGONIA SPLENDIDA.—This exquisite plant has been discovered and sent us by our collector Mr. John Henshall, during his researches in the Indian Archipelago; as an ornamental plant it is unequalled; 21*s.* each.

LASIANDRA HOIBRENKI.—This is a very distinct and handsome plant, with very large beautiful blue flowers, and pretty ornamental foliage.

PASSIFLORA ALBA-NIGRA.—As the name implies, this is a very distinct new greenhouse climber.

ERICA ÆMULA.—A very beautiful hybrid, in the Erica Massoni section, of a fine bright crimson colour, after the style of Erica aristata, but very much higher in colour.

ERICA EXIMIA SUPERBA.—This variety may really be said to be three times as fine as the parent, whose name it bears; it is a very compact grower and excellent in habit, with tubular blossoms of a fiery scarlet colour.

ERYTHRINA COTTYANA, a superb variety, producing immense spikes of blossom, with flowers of a very rich deep scarlet colour; 5*s.* each.

ERYTHRINA BELLANGERI.—The free flowering character of this plant renders it a great acquisition. Cuttings struck in the spring blossom profusely through the summer, which is not generally the case with the other sorts, as they do not usually flower until the second year after being propagated; 5*s.* each.

RHOPALA ORGANENSIS, an exquisite ornamental Stove Plant, far exceeding in beauty any other sort in this family; 31*s.* 6*d.* each.

The Nurseries, Tooting, London.

ROSES, HOLLYHOCKS, CONIFERS.
(WHOLESALE AND RETAIL.)

A. PAUL AND SON beg to inform their Patrons and the Trade generally, that owing to extended experience and improved systems of culture, their ROSES, HOLLYHOCKS, and CONIFEROUS PLANTS are this season unusually fine.

Nurseries, Cheshunt, Herts (13 miles N.E. of London).

SUPERB DWARF HYBRID PERPETUAL ROSES BUDDED ON SIX-INCH STEMS.

WILLIAM WOOD AND SON respectfully solicit attention to their very extensive and splendid stock of the above. The plants are vigorous, and expressly suited for potting or forcing; they are also very eligible for grouping, consisting of all the leading kinds, and will be supplied at 12*s.* to 18*s.* per doz. Catalogues may be had on application.

N.B. A very liberal allowance to the Trade.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

DAHLIA INCOMPARABLE (ABLITT'S).

THOMAS BARNES having purchased the surplus Stock of the above, which was but partially let out last spring, is enabled to offer fine roots at the following prices, viz., 5*s.*, 7*s.* 6*d.*, and 10*s.* 6*d.* each. Colour rich ruby crimson, of first-rate shape, shown in all T. B.'s stands, as also the raiser's.

T. B. has also a few roots of his splendid Dahlia WARRIOR. Deep crimson, shaded, 10*s.* 6*d.* each, with all the leading varieties of other raisers.—Dane Croft Nurseries, Stowmarket.

VINES FROM EYES.—THE TRUE BLACK BARBAROSSA.

JOHN BUTCHER can supply fine Fruiting Plants of the above splendid late Grape. As a mark of its excellent qualities prizes have been awarded J. B. by the Horticultural Society of London, at the following meetings:—Oct. 19th, 1852; Oct. 18th, 1853; Jan. 21st, 1854; Feb. 6th, 1855. Also fine Plants of the following varieties on sale, price on application:—Black Abercairney, Champion, Esperione, Hamburgh's, Warner's Mill Hill and Victoria Prince, Muscadel, West's St. Peter's, Oldaker, White Muscat of Alexandria, Cannon Hall Muscat, Tokay (Lord Denbigh's), Frontignan, Syrian, Chasselas Musque, Malvaise or Grove End Sweetwater, Red Frontignan or Grizzly, Poonah.—Royal Nursery, Stratford-on-Avon.—Nov. 17.

TO PLANTERS AND THE TRADE.

HAY, SANGSTER, AND CO., will Sell the following cheap, as the ground must be cleared:—

Strong Standard Dwarf and Dwarf Trained PEARS,
Do. do. do. GREENGAGE and VICTORIA PLUMS,
Do. do. and half Standard MULBERRY,
Do. do. and Dwarf Trained CHERRIES, RHUBARB,
PRINCE of WALES, PRINCE ALBERT, and VICTORIA
Strong two years' SEAKALE and ASPARAGUS,
EVERGREEN OAKS, in pots, 3 to 5 feet.

18 and 19, Cumberland Place, Newington Butts, London.

PEARS GRAFTED ON THE QUINCE AS PYRAMIDAL SHAPED TREES.

J. AND J. FRASER beg to announce that their Priced List of the above is now published, and may be had post free on application.

J. & J. F. have sold a large number of these Trees for the last three years, and have received numerous letters from gentlemen in the country speaking in very high terms of their productiveness. They can therefore recommend them with greater confidence to the notice of their friends and the public in general.

Lea Bridge Road, Essex.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 17, 1855.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Nov. 20—Horticultural ..... 2 P.M.

OUR readers will not have forgotten the statements made last winter and spring respecting a certain CHINESE YAM, or DIOSCOREA BATATAS, sent to France from Shanghae by M. DE MONTIGNY, and recommended as an equivalent to the Potato. At that time no experience worth mentioning had been gained in this country respecting this plant, the whole of our information about it having come from France. But a considerable number of tubers having been dispersed through the country, we are now in a position to report some results. This, indeed, has been already done by a correspondent or two, but their experiments appear to have been conducted under unfavourable circumstances, and their statements are too conflicting to form any conclusion upon. It therefore is the more satisfactory to be able to produce evidence of what may be done under favourable circumstances when skilful management is employed.

Mr. JOHN HENDERSON, lately of Kingskerswell, and now of the Wellington Nursery, St. John's Wood, has produced to us five tubers, of which the following are the weights and dimensions.

	Weight.		Length.	Circumference at the widest part.
	lb.	oz.	inches.	inches.
No. 1	1	2	21	6¾
„ 2	0	4½	16	4
„ 3	0	9½	14½	3¾
„ 4	0	6	14	4½
„ 5	0	3	13	3½

No. 1 was as fine as the French tubers exhibited in Regent Street last winter, and demonstrated the possibility of producing a crop of the Yam in this country. By what means these tubers were obtained is related in the following statement, with which Mr. HENDERSON has favoured us.

"In the latter part of April I caused a quantity of small tubers (like those sent out to the public) to be planted in pots and placed on a gentle hotbed. Others were planted the middle of May and placed in a cold frame. The greater part of the former soon made their appearance above the mould, and commenced growing rapidly, and by the third week in May they had attained from 4 to 6 inches in height. These, including what had not started, were then placed in a cold pit to be hardened off. By the second week in June those which had been placed in a cold frame, and also the tubers that had not previously made any growth on heat now began to push. I then chose some of the most vigorous from each lot, and caused them to be planted under various conditions and aspects—some on a western border against a wall, some in open beds, and others on the different heaps of mould and compost used for potting, such as peat, loam, decayed manure, &c. Some of the plants were allowed to trail on the ground, some were sticked with 3-feet stakes, and others were trained against the wall. On the 1st inst. I caused the crop to be taken up, and the result has been that the tubers raised on heat have not succeeded well, but appear to have gradually dwindled away, or only made sufficient growth to form tubers of very insignificant size; whereas, those brought on in cold appear to have experienced no check whatever, but to have grown strongly from the first. The generality of the tubers planted, as I have already observed, were similar to those sent out in the spring, *i. e.*, no larger than Marrowfat Peas; yet these have produced new tubers averaging 12 inches in length, and weighing from 5 oz. to 6 oz. each, with the exception of one which weighed nearly 1½ oz. when planted, and which has now produced a fresh tuber weighing more than a pound.

"Although it would appear, when we take into consideration the small size of the sets planted, that these returns are large, yet I am aware that there are many who think differently, and consider that small as the sets were, they ought to have produced tubers averaging at least a pound each; but have any of these parties ever attempted to raise a crop of Potatoes from such small sets? In the first place, it is questionable whether a Potato the size of a Pea could be preserved with any vitality in it till the middle of May. But allowing such to be the case, would the produce equal that of the Dioscorea? I have reason to believe that it would be less by at least one-half.

"From the experiments made by myself, and in which I am fully confirmed by others, there can be no doubt that the Dioscorea, to be successfully cultivated, ought never to be brought into contact with artificial heat, but should be planted in the open ground in the same manner as a Potato, only with this difference, that as the tuber of the Dioscorea is evidently so much hardier than that of the Potato, it matters little whether the planting takes place early or late in the spring. For my own part, I am so convinced of its hardiness that I have caused many of my tubers to be replanted in order to stand the winter; nor do I purpose giving them any protection.

"From trials already made this Yam appears to flourish best in peat and sandy soils, but it will doubtless succeed in most descriptions of earth; many of the tubers, however, when taken up were found to have penetrated into clay with detriment to them.

"I have, therefore, no hesitation in saying that, when we have a sufficient stock in the county to enable us to plant sets as large as those usually employed in Potato planting, the produce will be an average weight of a pound each, and that in situations where the soil is deep and otherwise suitable, it will be even greater than this.

"From the experiments already made, and without entering into its supposed value for the manufacture of starch, for distillation, &c., I think I need scarcely point out its evident adaptability to the soil and climate of Ireland, where the former is generally of a deep and peaty nature, and the latter considerably milder than our own. For were it not for our winter, which checks its growth, the tubers would undoubtedly continue to increase to an enormous size.

"With respect to whether the plants should be staked or allowed to trail upon the ground, when taken up I found but little difference in either case; but I would decidedly recommend their being planted on ridges, and those as high as possible, as by this means it may be grown with advantage on extremely shallow ground, and the taking up the produce will be thereby facilitated. The plants also might then be allowed to fall over the sides of the ridges."

The other experiment was tried in the garden of the Horticultural Society, under the direction of Mr. GORDON, by Mr. HENRY NUTT, a clever young gardener there, whose account we also give in his own words:—

"Two plants of this Yam were presented by M. Decaisne, of Paris, to the Horticultural Society in July, 1854. When received one was planted in the open ground and protected by a hand-glass. The other was planted in the orchard-house. The former grew well, but the latter from the first began to die down. Both tubers were taken up in autumn, potted, and placed in a cold Vinery. That from the orchard-house

being a forked one, I took one part off, and cut it up indiscriminately into 20 small pieces, about the size of horse Beans; I planted each piece in a 3-inch pot, placed them in a little heat, and every one grew.

"Early in the spring of 1855 the two old plants or tubers were placed in a little heat, where they soon pushed three or four strong shoots, which I reduced to one to each plant; the shoots taken off I struck as cuttings. During the winter of 1854 and 1855 young tubers or seeds of this Dioscorea were received and grown in the propagating house. In March they were nice plants in 8-inch pots. I put them with the two old plants and kept them growing slowly on in a temperature (by night) just sufficient to keep frost out. Several of the last-named plants, and likewise some of those I raised from cuttings, were distributed to Fellows of the Society. The others that remained, and the two old plants, were planted out, at the foot of a Vine border the first week in June, 1855. The soil in which they were planted was dug a spit and a half deep and mixed with a good dressing of leafmould and peat. Each plant was covered with a hand glass, except those struck from pieces of old tubers, which were planted four under a glass; the glasses were kept on all the season, but were tilted up on the north side from the first week after planting out. Out of nine of the plants raised in the propagating house four or five of them never made a leaf after being planted out (which I can account for in no other way than that the young tubers had reached the bottom of their pots, and had turned again when I planted them out). Notwithstanding this, however, their tubers continued to increase in size. The other four produced good sized tubers, the heaviest of which weighed 11 oz. The two old plants grew very fast, and I trained the stems both inside and outside the glasses (*i. e.*, pegged them down) and covered the axil of each leaf with leaf-mould. When I took them up I found that tubers had formed at the axils of the leaves, where the shoots had been pegged down; varying in size from 2 to 6 inches in length. At each of the old plants there were also two or three large tubers, which had gone straight down to the bottom of the border, and then turned under the drainage of the Vines. Out of eight of the young plants propagated from pieces of old tuber, four of them likewise sent down tubers to the bottom of the border; but they were very slender, the heaviest of them did not weigh more than 4 oz. It may be worth mentioning that where the first Dioscorea was planted out in 1854, a piece of the tuber was left in the ground. at a depth of 18 inches, and that it sent up a stem this summer; this I uncovered to the bottom, and I found that the new tuber commences to form at the top of the old one, and grows downwards; for to the depth of the old tuber there was nothing but stem.

"In the cultivation of this Yam we should therefore apparently plant shallow on a deep heavy soil, trenched some months beforehand. We should also force less and plant much earlier in the season. This last point, however, I expect must be determined by experience. I may add that on stems not pegged down little bulbs had formed at the axils of the leaves about the size of Peas."

The inference we draw from these explicit relations of two experiments tried by competent persons is undoubtedly in favour of the climate of England being good enough for the Chinese Yam. Nor is our opinion at all altered by the knowledge that many have wholly failed in growing it, a circumstance sufficiently explained by the badness of the sets which were planted, or by mistakes as to the way in which the crop requires to be managed.

Those who are desirous of seeing the roots produced under the circumstances here explained, will have the opportunity of doing so at the autumn meeting of the Horticultural Society on Tuesday next in Regent Street.

It will have been remarked that the question of the comparative value of the *Quercus sessiliflora* and *Quercus pedunculata* has once more been raised by some of our correspondents. Certainly there is no inquiry whatever of greater national importance, affecting as it does the value of the staple produce of our English forests. Nevertheless it is one regarding which our supineness is unparalleled. Is it not possible to prove, by irresistible evidence, the respective qualities of these our two British Oaks? and to set at rest the conflicting testimony, if that, indeed, can be called testimony which is for the most part hearsay, or mere tradition—in a matter which most seriously concerns the landed property of these kingdoms.

According to A, our valuable Oak is all produced by *Quercus pedunculata*. According to B, the finest Oak is, or was, that of *Quercus sessiliflora*. B asserts that the latter grows much faster and forms a finer tree than the former; but A, while admitting the fact, replies that the badness of its quality renders its rate of growth unimportant.

Our columns have from the very establishment of the *Gardeners' Chronicle* been open to this inquiry, and contain numerous statements and counter-statements, out of which it seems impossible to select the truth. These discrepancies probably arise in some cases from the real distinctions between the two Oaks being misunderstood. It is thought that all Oaks with stalkless acorns belong to *Q. sessiliflora*, whereas *Q. pedunculata* itself has sometimes its acorns in the same state. The true character of *Q. sessiliflora* is to have long-stalked leaves and short-stalked or stalkless acorns. On the other hand *Q. pedunculata* has short-stalked or stalkless leaves, and long-stalked acorns. It is indeed in the leaves that the means of distinguishing the two kinds exists, even better than in the acorns. Those of *Q. sessiliflora* have always long yellow stalks, while the leaves of *Q. pedunculata* either have no stalks at all, or if there be stalks they are either green or red. The timber of the first, which has very uniform and fine medullary rays, is called Chesnut by uninformed persons; that of the second, which has many very large medullary rays, mixed with the smaller ones, is the common Oak of the timber merchants.

It is time that this question should be finally settled, and we earnestly invite the co-operation of our numerous readers in bringing it to issue. The inquiry is of rather more importance than the proper form of a Tulip, or even than the quality of a Plum; and should engage the earnest attention of country gentlemen, through whom alone the truth can be ascertained. We earnestly invite their communications wherever they have certain personal knowledge of the real facts of the case.

New Plants.

148. Dendrobium cumulatum.

D. *cumulatum* (Stachyobium) racemis densis lateralibus, petalis obovatis obtusis sepalis multò majoribus, mento sepalis æquali angusto incurvo acutiusculo labelli glabri ungue lineari pone basin unidentato laminâ oblongâ obtusâ.

A most beautiful addition to our collections. We first received a specimen in September last from Mr. Charles Junkermann, who found it growing in the garden of Mr. F. Coventry, of Shirley, near Southampton, and who describes the plant as having a dark stem covered here and there with Vanilla-scented blossoms. Since that time we have also had it from Mr. C. B. Warner. It appears to have been bought at one of Mr. Skinner's sales; but its real history is unknown to us.

The flowers are nearly 2 inches long, with the delicate pink colour and transparent texture for which *Dendrobium transparens* is so remarkable. They grow in lateral compact clusters, five or six together, in the same manner as in *D. aduncum*. The depth of colour in them varies; Mr. Warner's specimens having been very much darker than those from Mr. Coventry, and moreover having the delicate lip itself freckled with rose-colour. The leaves have not been seen by us. The species must stand next *D. aduncum*, from which it differs in its large flowers, incurved acute chin, and perfectly hairless obtuse lip. There is more than one nearly allied unpublished species in our possession from Java, whence this perhaps has come.

149. Rondeletia anomala.

R. *anomala*; viridi-pubescens, foliis ovatis acuminatis breviter petiolatis, glandulis quibusdam stipularum loco, capitulis terminalibus trifloris, calycis laciniis linearibus foliaceis glandulis interjectis, corollæ tubo duplò longiore filiformi limbo 5-partito reflexo laciniis retusis: faucis annulo lineari intus villoso.

A beautiful Guatemala hothouse shrub, lately raised from seeds by the Horticultural Society, to which they had been presented by its generous and indefatigable correspondent G. U. Skinner, Esq. The plant has something the appearance of a Bouvardia; the flowers are of the richest vermilion red, with a yellow eye, about the size and form of R. odorata, but with the orifice of the tube closed by yellow hairs. What is very remarkable this shrub has no stipules, instead of which there is a line of minute shining glands, others like which also appear about three together, between the leafy lobes of the calyx. Flowering in November this plant must be regarded as one of the most brilliant species which even Mr. Skinner has been able to add to our gardens.

VEGETABLE PATHOLOGY.—No. XCV.

379. Exostosis.* (*Knaurs.*) The Beech, Hornbeam, Sycamore, Oak, Hawthorn, and some other trees are subject to a very curious affection, indicated by the production of hard lumps of wood entirely disconnected with the common central column, surrounded by the bark, and causing it to project more or less decidedly, according to their size. They vary from the size of a Pea to some inches in diameter, and are remarkable for the wavy lines with which their surface everywhere is marked. The origin of these bodies was very obscure till Trécul studied them, and it is to his memoir in the 20th volume of the third series of the "Annales des Sciences Naturelles" that we are indebted for the following information. It does not appear that they are due to the puncture of an insect, but they seem to arise from some peculiar constitutional condition of the particular plant on which they are formed.

380. In order to ascertain the origin of these bodies it is necessary to examine them in a very early stage of growth. At a later period the traces of their primary condition and their relation to the wood are in general so masked as to make it almost impossible to arrive at any satisfactory conclusion. It will be seen as we proceed that Dutrochet's theory that Knaurs are from the first altogether independent of the part of the tree on which they grow without any terminal bud, that they are in fact mere latent embryos and not true buds at all, is perfectly untenable. The important bearing of the case on the theory of the formation of wood from tissue descending from the buds, will not escape the notice of any well instructed botanist, though it has little connection with our present subject. Now in every case where a sufficiently young Knaur is under observation, there is no difficulty in ascertaining the presence of a terminal bud, which is always at some early period of growth connected by a fibro-vascular system with the woody axis upon which it is seated. It is far more easy to ascertain this connection in the Hornbeam than in the Beech, because traces of the original formation remain a longer time, and in fact are seldom entirely obliterated. Little buds in the former case may be seen to creep on the surface of the bark, assuming a very peculiar form which may be compared with the shoot of some Jungermannia, or a crawling scaly Annelid. They are sometimes very small, not exceeding $\frac{3}{8}$ of an inch in length, and a sixth of these dimensions in breadth, composed of two ranks of little imbricated scales separated by a longitudinal furrow. Though of such small dimensions they are often of considerable age; and if they are carefully removed so as to take with them a few layers of bark, their point of origin will be found not to correspond with the apparent point of attachment to the bark, that is with that of the scales which are furthest from the top of the bud, but immediately below the summit itself, or the youngest scales, so that the buds only apparently creep over the surface of the bark. The scales, in fact, as fast as they are formed are pushed backwards, together with the thin bark to which they are attached. And as this rejection of the old scales cannot take place without the rupture of the tissues of the bark, though they were at first disposed all round the bud they are thrust back on the side opposite to the rupture, and thus a furrow is formed which runs through the whole series of scales. Occasionally the scales are thrown back on two sides of the bud, and then they form two series, making a more or less acute angle with each other. Sometimes these buds are attached immediately to the wood itself which is more prominent at the point of attachment, a method of which we shall have more to say in the next article, but in other instances the wood itself of the bud increases so as to form within the bark a distinct nodule, which at last loses all attachment, and appears under the guise of a true Knaur. As it increases, a considerable pressure is exercised on the bark, which in turn as it increases in thickness lifts up the nodule, and finally ruptures the fibro-vascular bundle by which it was attached, so as to leave it quite free. It no longer depends upon any nutritive matter derived from the growing surface of the axis, but it has its own system of bark and wood, and receives all its nutriment from the bark in which it is enveloped, and that already elaborated. It has no need therefore, like a parasite, of any system by which the juices it receives may be elaborated, and in consequence the bud to which it owed its first origin may become entirely abortive without any detriment to the growth, and thus all trace be lost of its ancient connection with the axis, or of the bud to which it owed its first origin. In Paulownia imperialis, M. Trécul has observed a Knaur supported by two peduncles, as if it had arisen from the union of two buds.

381. After a time the bark which covers the Knaurs is apt to decay, and if the injury extends down to the nodule itself, its further development must be confined to the side nearest to the axis. The decay may be continued to such an extent as to leave merely a ring of wood instead of a globose nodule. The Knaurs occasionally, though freely developed above, adhere permanently by a strong peduncle to the wood.

382. Though the bud for the most part decays, this is not universally the case, nor does it always remain in a rudimentary state. Dr. Lindley has figured a branch springing from a Poplar Knaur in his "Theory of Horticulture." A less marked instance is illustrated by Trécul, though of considerable interest, inasmuch as the bud which had been for years semi-dormant has at length assumed a more active vitality, and has in consequence been more perfectly developed. In the Olive, Knaurs are so prone to develope their buds that they are used for propagation under the name of *uovoli*. The clavus of the Olive mentioned by Ré is probably the same thing. Mr. Lowe has, at my request, in vain inquired after such an affection at Madeira, so that it should seem to be local. Neither could he hear anything of the callosities on the roots described by the same author, Molina says that they do not occur in Chili. *M. J. B.*

* ἐξόστωσις, projection of bones, as of the cheek bone. Trécul considers it a sort of ligneous hypertrophy.

WASP PAPER.

It is well known that wasps and hornets make their combs and the outer covering of their nests of a structure called by the name of wasp or hornet paper, quite different from that which bees make use of. To those of your readers who are less familiar with this subject the following observations on the nature of the substance which goes by this name may not be without interest.

I may premise that a wasp's nest is made of a case of paper of this kind, inside which the comb is fastened horizontally in stages, not vertically like bees' comb. The uppermost stage is connected with the outer case, and the lower are hung successively one from the other to the number of five or more. The cells are hexagonal

like bees' cells, but they are single, with the opening downwards, not set end to end as in honeycomb. The upper surface is rough, dark, and uneven, corresponding to the blind ends of the cells. The lower presents the open orifices of the cells all invested with more or less of the same mucous secretion with which the cells are lined and the larger cells are prolonged, and which is the cement used for holding the component particles of the wood together. This mucus is soluble in an alkaline menstruum, insoluble in water, alcohol, or ether, differing thus chemically from the secretion with which bees make their cells.

The paper is made by all on the same general plan—namely, in ribbons varying in width from about one-sixteenth of an inch upwards. The ribbons are fastened together into a sheet, the fastening being of a less compact texture than the ribbon itself. The cells are made in this same way, apparently three sides of the hexagon being made continuously. The disposition of the various materials of which the sheets of paper are made leads to the inference that each wasp, of the social species, has its own working place, and itself makes up the materials which it brings home, going on building where it had left off, and then returning to the same place for more similar materials. The difference of material in various parts is much more apparent in the nest of the social than in that of the solitary wasp.

The cells are made of a single thickness, coated on each side with a layer of mucus, by which also the interstices of the woodwork are filled. The case consists of sheets of paper, laid one over the other, most numerous at the top whence they begin, but laid with no great regularity. Apparently the whole nest is made on a definite plan, the size of the whole being calculated from the first to the probable requirements of the colony. But on this point some observations are needed, which might be readily and safely made with a telescope on the tree wasp's nest.

The common wasp which builds in the ground uses for this purpose fragments of wood. The pulp formed by boiling the paper of this species in a solution of caustic potash, displays under the microscope little fragments of wood, where several short fibres are held together by medullary rays. Apparently the wood is decayed; the comparatively large size of the fragments and the absence of discolouration on boiling in liquor potassæ favour this opinion. The wood is used by this species only as rubble, quite differently to the practice of the tree wasp.

Hornet paper differs only from this in the larger size of the fragments, and generally coarser structure and more friable texture. The nests, so far as I have been able to ascertain, are made on the same general plan; but my knowledge on this point is very incomplete. The usual seat of the nest, namely, the hollow of a decayed tree, renders an outer case less needful to these insects than to the tree wasps.

Tree wasp paper, disintegrated by boiling liquor potassæ, presents only filaments or vegetable fibres under the microscope. Here are no fragments or medullary rays, only fibres which are fitted into one another; and, as this paper blackens on boiling in an alkaline solution, it may be inferred that live fibres, still containing the vegetable juices, were employed. The texture is much stronger and more compact than that of the ground wasp's nest, and mucus is not so largely used. I have succeeded, indeed, in making a paper of tolerable tenacity from the pulp of wasp paper of this kind after the mucus had been removed.

I believe that the different nature of the materials which they employ, and the different manner in which they work them up, would alone establish an essential difference between the ground and tree wasp. It would be curious to ascertain whether any difference exists in the structure of the jaws of these species corresponding with the difference of their habits. Perhaps I may have opportunities of investigating this point next year. The only appreciable distinction of texture between the nests of the solitary and social tree wasp is the greater delicacy and uniformity of the solitary nest. The materials of both are the same. *Brighton.*

ENTOMOLOGY.

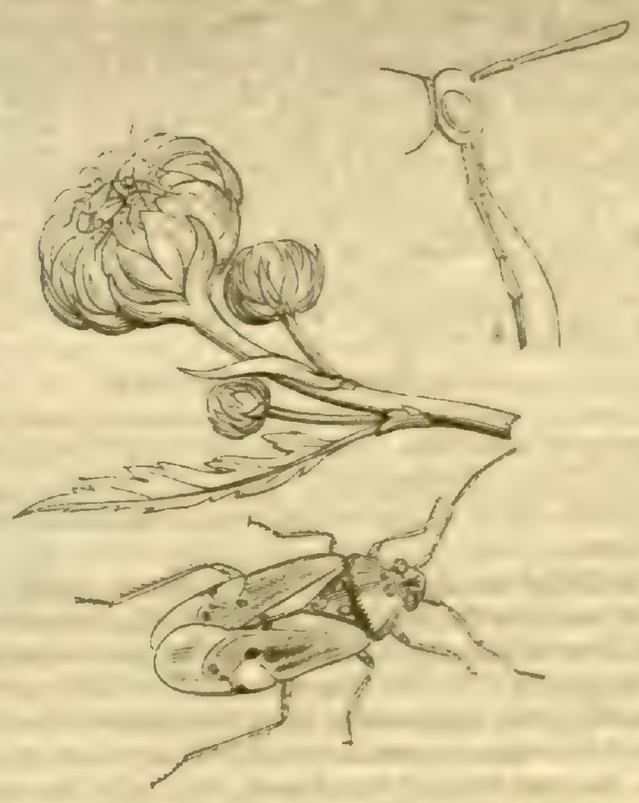
THE CHRYSANTHEMUM FIELD BUG.

Flowers, the beauty of which, in the eye of the artistic cultivator, consists in the almost mathematical correctness of the outline and in the perfectly even development of the petals and stamens, must of course be rendered worthless if either of these conditions be wanting, since it cannot be denied that (although it may be a matter of questionable taste to distort by cultivation the outline of a naturally irregular flowered species, such as a Viola, into a perfectly regular circle) many flowers, especially composite ones, are circularly developed upon mathematical principles, and therefore the truer their development the more even will be their form and growth; and we presume it is an unquestionable axiom in æsthetics that what is true to nature cannot be false in taste.

These remarks are offered by way of answer to the observations which we have heard as to the unnecessary care bestowed by florists on their favourite flowers, with the view of their becoming perfect in outline and development. Now the Chrysanthemum is one of those flowers which nature has determined should be of a perfectly circular outline, and with regularly developed petals, but it very often happens that the choicest flowers of this kind will not bloom true and regular, owing to the want of development of some of the petals. Various causes doubtless exist capable of producing such an annoying result, not only arising from the growth of the plant itself but also from the condition of the atmosphere and other external circumstances. I have reason however to believe that the chief agent in the matter is a little active winged field bug, which throughout the month of October, whilst the Chrysanthemum buds are in their full growth, may be seen seated on them in the sunshine, with its sucker deeply immersed in the bud, from which it extracts its nourishment; at the same time materially affecting the growth of the particular parts of the bud which the insect has thus attacked.

This little insect is generally to be found either seated on the top of the buds or among their clustered stems; it is very wary, and at the approach of the hand either immediately flies off or hides itself on the under or opposite side of the bud. It is, with its wings closed, about a quarter of an inch long, and is of a dull ochreous colour, tinged with reddish or with greenish, so as to be somewhat variable in its hue. The upper surface of its body is glossy, so that it is rather an agreeable object than otherwise, when viewed in the sun sitting in the midst of a bud of which the bursting petals begin to disclose their tints. It is of a longish, oval, and rather depressed form; the head is triangular, with chesnut eyes; the antennæ are about two-thirds the length of the entire body, the second joint is not thicker than the basal one, the third and fourth are rather more slender. The thorax is rather strongly punctured; it is at its hind part nearly three times as broad as the head, with its lateral margins straight and oblique; near its fore margin are two small raised spaces placed transversely. The scutellum has two small black pointed spots at its base. The wing covers are like thin horn, both in colour and substance, so as somewhat to show the colours of the body through them; they are slightly clouded with brown about the middle, and with several small dark dots beyond the middle; the apical membrane is rather dusky, with the vein which traverses it in an oval form, more transparent. The legs are long and slender, pale dirty buff, the hind thighs with a dusky ring near the tips. The body of the male is dark blackish, with a reddish tinge at the extremity; that of the female is greenish buff. The latter sex has a long groove down the greater part of the under side of the abdomen, which contains the instrument by which she deposits her eggs in plants.

We do not know either the earlier or later history of the species, and can only conjecture that some of the females



as soon as the dull cold weather of November approaches, hide themselves among the foliage of hedge rows or adjacent plants where they remain till spring, when they deposit their eggs on the young stems or upon the newly developed leaves of the Chrysanthemum and other plants suitable for the food of their progeny, which resemble their parents in all respects except in wanting wings and wing covers. We must not omit to add that the instrument by which the mischief to the Chrysanthemum buds is produced is the four-jointed sucker attached to the under side of the head, its length being nearly that of the antennæ, and the interior of its sheath being furnished with several long and very delicate bristles which it thrusts into the buds, thus causing the sap to flow upwards along the tubular sheath into the head of the insect. We may further mention that the insect is much less active in dull weather, when it may be easily caught with the fingers. In this manner in five minutes I captured sufficient specimens for my own and friends' cabinets. The species belongs to the order Hemiptera, sub-order Heteroptera, family Capsidæ, and genus Phytocoris, being closely allied to the Potato bug, whose portrait we gave in this Paper some time ago; and although it is very difficult to determine the very numerous species of this group, we believe our insect to be the Cimex campestris of Linnæus.

Since the above was written we learn from Mr. Salter, of the Versailles Nursery, whose success in cultivating the Chrysanthemum is so well known, that the ravages of this insect are much more injurious than I had imagined, and that it is chiefly to its attacks on the very young buds in August and September that so many of them wither off in the centre. He adds that one eminent French grower of these flowers has informed him that from this cause he has scarcely a single bloom this year. *J. O. W.*

MEMORANDA.

Intended to show some instances in which the agency of man has been brought into play in the production of plants, of insects, of birds, and also on a more extended scale, on localities and on climates; and to show that however these effects may appear permanent, they originate in taking advantage of those laws to which the Almighty Power has subjected all alike—plants, insects, animals, localities, climates, and man himself.

(*Concluded from p. 742.*)

THIRDLY—OF BIRDS.

1. Some years ago an apparatus for hatching birds by steam was a show in London. An establishment now exists on the road to Richmond for the purpose of supplying the markets with poultry when out of season. The mother is thus set aside, and the ingenuity of man provides a substitute.

2. Again, the cottagers of Weston Tourville and its neighbourhood, by care and high feeding, have brought a peculiarly fine breed of white ducks so forward as to constitute a most important dish at the tables of the wealthy Londoners early in spring, when ducks in the state of nature have scarcely commenced laying. The cottager first finds a hen or a duck which is fed highly, and which thus becomes ready to sit out of season. The young brood is from the first carefully enclosed on the floor of the cottage; new broods are added until the floor is divided into many enclosures, each teeming with its brood of young ducks. They are now carefully attended, are fed with barley meal and greaves (the fibrous part of the fat, which remains after it is melted); they thrive, grow much beyond the ordinary breed, and become an important source of revenue to the cottagers. Here the ingenuity of man is made to minister to the wants of man; but the young ducks, if left to themselves, would revert to the state of nature.

FOURTHLY.

On a more extended scale the ingenuity of man, as shown by Colonel Nichols, Royal Marines, in the collection of water on the solitary island of Ascension, in the midst of the ocean, has been rarely equalled. A scanty supply was procured formerly for watering ships, when the quick perception of the Governor led him to notice the rapidity with which a kind of Moss overran the bare rock. Fully aware of the hygrometrical quality of plants he took advantage of it by planting the Moss wherever there was a trace of soil. By means of spouts the water was conveyed to the most convenient spots until he procured a most ample supply, daily on the increase, in proportion as his Moss extended more and more.

In like manner the agency of man, with or without his intention or knowledge, works important changes both in the climate of individual spots and in large districts. For instance: One of my uncles had an estate in Virginia, very near to the bank of the James river. The house was situated on an elevated plain. The course of the river, and the miasma which arose from or were conveyed by it, were shut out from the house by a dense and abruptly sloping wood. At about a mile and a half from the estate his nearest neighbour had a house similarly situated. Unfortunately the neighbour cut down a portion of the wood between his house and the river. He thus let in the dry wind of the southern parts of the United States which rushes to the higher temperature of the Gulf Stream, bearing along with it pestilence and death. The result was that the neighbour lost several members of his family, and many slaves, and that the estate was deserted, while that of my uncle remained healthy.

In like manner, in the mountainous parts of Kandy, Island of Ceylon, where every portion of land which can be irrigated is so, and every streamlet is carefully collected in tanks for the purpose, there is an old fort at Nalunda. This fort had proved the grave equally of European, Malay, Bengalee, and African. At last an intelligent native pointed out that it was situated in a line in which the tank and the irrigated paddy fields were placed—that is, between the north-east, or the direction of the dry wind, and the fort; so that the fort being on elevated ground was so placed as to catch every atom of miasma. He pointed out that the natives always placed themselves on a level with the tank; that the tanks were always constructed to the north-eastward of the paddy field; and that the dwellings of the natives were erected to the north-eastward in the midst of wood. He suggested that the fort should be abandoned and that the post-master should be removed to a point to the north-eastward in the midst of wood, which rose above his dwelling.

The result was that we had the gratification of finding the rest-house perfectly healthy, to find the half-caste post-master in the perfect enjoyment of life, and above all I walked about with the intelligent Modeliar (the highest native *employé*) and heard him point out with delight the result of his suggestion.

In the neighbourhood of Charleston, South Carolina, we have an instance in a wide district of the effects of the industry of man being turned, by neglect, into a source of pestilence rarely exceeded. Carolina Rice is produced on the deltas of the Charles and Savannah rivers, and their tributaries. It formerly bore so high a price as to induce the growers to take advantage of every difference of level to construct tanks for irrigation. During the war of independence the district was perfectly healthy. The construction of tanks increased, until East Indian Rice was imported, and caused the price to become so low as not to repay the expense of keeping up some of these tanks. Tank after

tank was abandoned, until the dank profusion of decaying and decayed vegetation generated pestilence to such a degree, that in 1824 I was told that no white man, during certain parts of the year, dare sleep a single night beyond the walls of Charleston.

A similar result has occurred in the northern part of Ceylon, which abounds with the remains of tanks, some of gigantic dimensions. There, as at Charleston, the neglected tanks first commenced the depopulation of the district. But in Ceylon inroads of the Malabars from the continental coast, combined with that fell scourge the small pox, have reduced the population to its present low, very low state, and to make the country so unhealthy, that when two of us were about to join a shooting excursion from Colombo, and to visit the ancient capital of the island, now in ruins, our comrades tried to dissuade us by saying "that we should leave our bones in the jungle."

On looking back at the foregoing we find instances of the power of man—in the White Clover, in the Charlock, in the Yellow Pine, the Scotch Fir, the white Cedar, and the Hickory, &c.; in the bulb taken from the hand of a mummy; over the mite and the hopper, over mosquitoes, gnats, or midges, over the snails at Layton; in substituting steam for a mother, and in taking advantage of high feeding to accelerate the production of young, and thus to make the ingenuity of man minister to the wants of man. We also see man exerting his intellect in drawing condensed moisture from the clouds in the Island of Ascension—showing his ignorance by letting in pestilence and death over his healthy home in Virginia—and his intelligence by depriving miasma of its prey in the fort of Nalunda.

We find in the neighbourhood of Charleston, South Carolina, and in Ceylon, man busied in forming tanks, the sources of plenty and abundance. We see him as an economist in America, or oppressed and a martyr to the most dire disease in Ceylon, abandon those sources of plenty and abundance, and we see large districts converted into pestilential morasses.

But we see throughout, that in every instance beings are subject to universal laws; and, although man in his blindness cannot see nor trace the workings of the Almighty, and although the ingenuity, the perseverance, the comprehension of man may do much, still those laws are universal, and creation is the province of the Creator. He alone asserts this power. He exerts it when and in what manner He pleases. *I. J. C.*

Home Correspondence.

Vitality of Seeds.—Several statements have been published on the number of years during which seeds preserved in a dry state have retained their power of germinating, but much less seems to be known in regard to seeds lying naturally near the surface of the ground; therefore you may, perhaps, think the following case, though very far from a striking one, worth publishing. An arable field 15 years ago was laid down in pasture; nine years ago last spring, a portion was deeply ploughed up and planted with trees, and in the succeeding summer, as far as I can trust my memory, plenty of Charlock, which abounds in this neighbourhood, came up; but if my memory plays me false the case will prove so much the stronger. From being badly ploughed the whole of the land in the course of the year became covered with Grass and coarse weeds, and has remained so ever since, and the trees have now grown up. It is very improbable, from the well-known habits of the Charlock, that it could have grown in the little wood after the first year or two; and though almost daily visiting it I have not noticed a plant. But this spring I had some Thorn bushes pulled up, and it was so done that not more than one or two (I speak after comparison) hand's breadth of earth was turned up. To my surprise in July I happened to observe on one of the little patches of earth no less than six dwarf Charlock plants in flower; on each of two other patches three plants; and on the fourth one plant. This made me on July 21st have three separate plots of ground, each 2 feet square, in different rather open parts of the wood, cleared of thick Grass and Weeds, and dug one spit deep. By August 1st many seedlings had come up, and several of them seemed to be cruciferous plants; so I marked with little sticks 11 of them on one of the beds; six on the second bed; and five on the third bed; two or three died, all the rest grew up and proved to be Charlock. I can state positively that no Charlock was growing near these beds; and I do not believe there was any within a quarter of a mile, as the little wood is surrounded by Grass land. Now, to my mind, this seems good evidence that the Charlock seed had retained its vitality within a spit's depth of the surface during at least eight or nine years. In most cases, when plants spring up unexpectedly, as when a wood has been burnt down, it is not possible to feel sure (as has been remarked to me by Dr. Hooker) that the seeds had not been strewed about during the last year or two by birds or other means. Had the several Charlock plants come up on one spot alone, I should have thought that some accident had brought a pod there, and that I had overlooked during the previous years a few Charlock plants, but it seems to me improbable in the highest degree that on each of the 6 plants, taken by simple hazard, several (in one of the cases 11) seeds should have been dropped by some unknown agency, having been brought from a quarter of a mile distance. But if when the land was ploughed, 9 years ago (or when arable, 15 years ago) the whole was, as I believe, almost covered by Charlock, the seed would have been scattered everywhere, ready to spring up at whatever point the land might subsequently be stirred up. I will only further remark that the power in seeds of retaining their vitality when buried in damp soil may well be an element in preserving the species, and, therefore, that seeds may be specially endowed with this capacity; whereas, the power of retaining vitality in a dry and artificial condition must be an indirect, and in one sense accidental, quality in seeds of little or no use to the species. *Charles Darwin, Down, Nov.* 13.

Cucumbers.—In his remarks on new Cucumbers, Mr. W. P. Ayres gives the following description of my "Ipswich Standard." "Though fine in form," he says, "it is coarse in flavour." Now, having sent out this variety with a good character and professing to be "a bit of a judge" in such matters, although differing in opinion from Mr. Ayres I trust you will allow me to say a few words in reply. I have no hesitation in repeating that my "Ispwich Standard," well grown, is perfect in form, solid, and crisp; the taste being neither sweet nor bitter, but exactly that agreeable Cucumbry flavour which is so desirable in all first-rate fruit of the kind. This opinion is confirmed by numerous testimonials which I have received from gentlemen's gardeners who have discarded all other varieties. Market gardeners who never thought of show fruit have this year astonished themselves by winning for the first time prizes with this Cucumber. Others have made more money of their crop than they ever did before, while some have struck cuttings, planted ridges, and had in that way an excellent crop of handsome fruit from 12 to 18 inches in length. For the sake of a little friendly competition I should be proud to enter my thorough-bred favourite against Mr. Ayres's whole collection, but they must be judged by parties who know the difference between fine and coarse-flavoured fruit, and who are also aware that the Sion House and Kenyon's Favourite do not represent the qualifications of a perfect Cucumber; at least, such is my opinion. *Thomas Wild, Ipswich.*

Double-blossomed Peach.—You mention (see p. 726), relative to this Peach, that the fruit seldom ripens; and when it does, it is valueless. I beg to inform you that I have some trees which ripen the fruit generally every year; and although the fruit is not very palatable from the tree, it makes a most excellent preserve, when preserved in brandy, &c. *George Palmer, Nazing Park, Waltham Cross.*

The Yapanna, a Madagascar plant used against Diarrhœa.—May I trouble you to examine a specimen or two of a plant from Madagascar. The specimens I am sorry to say are all imperfect, but I send the best; they may be enough to enable you to identify the plant. They were brought in the dried state by an intelligent captain of a ship trading between this port and the West Indies. The captain says that being ill when he touched at Madagascar of some painful affection of the bowels with diarrhœa, an infusion of this plant was administered to him with very rapid success, and that it was the great remedy in the island for colics and all such affections: being so rapidly cured, he begged a small parcel of the wonderful herb to bring to Europe with him for the benefit of the faculty at home. The native name was Yapanna or Japanna. It appears to possess a good deal of astringency. This is the sum of the information I have been able to gather. If you can inform me of its name and its relations in the natural system it would be a satisfaction. *Dennis Embleton, M.D., 39, Northumberland Street, Newcastle-on-Tyne.* [The plant sent us consists of two or three twigs of some herbaceous plant, with the leaves attached, but neither flower nor fruit is present. There is therefore no means of identifying it with certainty, and we can only say that it looks very like some Jussiæa, such as J. repens, or Ludwigia jussiæoides, both found in the Mascaren Islands. Of their qualities we know nothing, but the order of Onagrads in which botanists place them is scarcely more than mucilaginous. We should add that it is also possible that the specimens may belong to some Lythrad like Ammannia vesicatoria, in which case the supposed astringency of the Yapanna may be expected to occur.]

The Osborne Shell Shower.—Your correspondent "C. D." will no doubt follow up the pertinent questions which he put to Mr. Winchester by an exposition of the cause of his inquiries, viz. (what I dare say will astonish Mr. Winchester), that the shells never fell from the clouds at all. Nothing can be more clear than the whole story, more particularly since Mr. W.'s remarks of last week. Zua lubrica, the shell in question, is one (in certain situations) of our most common terrestrial mollusks; it exists in thousands among the moss-grown flowers of our woods and forests, and gladly avails itself of stones, under which it takes refuge from the cruel designs of naturalists, or the more natural instincts of its many-winged enemies. And yet how many people ever saw a Zua lubrica? Probably not one in every 10,000 inhabitants of the realm. It is one of the common things which pass onward, generation after generation, unnoticed and unknown. The English are not, as a people, deeply conversant with nature, except as it appears to them in those groups of beauty which touch the coldest and most unimaginative mind at such seasons of the year as the present. Of the great families of living things in the world they know little or nothing. Were it not so, we should not have so many of those wonderful stories which recount how toads have lived for ages in the middle of a rock or an old tree; how small vipers run down their mamma's throats for refuge; or how frogs and mollusks are showered down upon us from above. Now, it is the nature of Zua lubrica to crawl out upon provendering excursions after rainy weather; it is necessary that it should comfort the inward snail, and from its mossy or rocky retreat on the memorable day recounted by Mr. Winchester the mollusks about Osborne were especially hungry, and wandered about that hospitable mansion in quest of food. For the first time in her life one of the ladies of her Majesty's household beheld one, two—hundreds, nay, countless thousands of these hungry young roving mollusks. "Where could they come from? How hungry they must be! poor little things! I have been in fields, gardens, woods, and even to sea, and I never did see this little creature before; it must have fallen from the clouds!" And thus in the course of half an hour the entire household at Osborne is in possession of the wonderful story, good Mr. Winchester sends off a paragraph to the *Gardeners' Chronicle*, and from one end of the kingdom to the other it is most religiously believed that a shower of shells did actually fall at Osborne on the day mentioned. This is the usual history of these tales. No one is to blame. Each told or recorded what they each and severally believed to be true. One of your correspondents, "C. D.," with a laudable desire to elicit truth, puts one or two questions, and the whole matter is blown to the winds. The only thing Mr. Winchester really knew was, that they were alive because they eat Cabbages. Will he be kind enough to go and search in the neighbourhood of Osborne among moss and stones, and he will find hundreds of Zua lubrica that will do the same? If he will be careful in his search he will find scores of snails that he never saw before. But they did not fall from the clouds, neither were they lifted bodily by a storm and removed from one locality to another; they have fed thus since the great convulsion of Nature which separated the island from the mainland, and they will remain until their destiny is fulfilled, and no longer. *C. R. Bree, Stricklands, Stowmarket, Nov.* 13.

Subterranean Irrigation; Woolmer "Forest."—I feel great pleasure in observing that my former communication has been the means of prompting a minute and interesting notice of Mr. Wilkins's experimental garden at Reading. May I be again permitted to make a few remarks on the benefits probably to be derived from the adoption of this system in certain localities. Look, for instance, at the immense extent of the south downs? what would not those downs produce which now barely feed a few sheep, were they, or great parts of them, brought into cultivation under this system? We will not stop to consider them, however, but will endeavour to get a step or two nearer the metropolis. As you leave these downs in the rear, you step at once into "The Royal Forest of Woolmer, a tract of 7 miles in length, by 2½ in breadth." Yes, a royal forest, but a forest of what? Why a royal forest of flints and Furze, a land of sandstone and shingle, a region of "Yarn" and heather—or, in one word, a primeval waste, over whose hillsides desolation reigneth paramount. Such is or rather such was the condition of this domain the last time I saw it, with the exception of a straggling plantation of Pines that did not appear to be at all extensive. It will thus be seen that this immense extent of country, within 50 miles of London, is at the present time laying almost wholly idle and unproductive; and it will not require any very profound calculations to prove that in its present condition it is a dead loss to the state, and a next to useless addition to the crown lands. I should venture to suggest that if Government were to form a company for the purpose of building upon and bringing into cultivation this extensive district under Mr Wilkins's system, the benefits to be derived from it would be almost incalculable; and instead of its being, as it now is, one of the most barren, worthless, and uncivilised portions of the country, it might be made one of the most smiling and productive. It consists principally of wide undulating slopes and extensive table-lands; added to this, it has several lakes of various dimensions within its limits. Altogether it would be, in my opinion, a most eligible situation for carrying out the system of subsoil irrigation with beneficial effect. It may be asked, supposing the Government could be prevailed to give this barren waste into the hands of an enterprising company, what would be the results? We may reasonably suppose that they should be something like the following, namely, that the company would build houses from the labourer's cottage up to the ordinary farmhouse, with a proportionate amount of land duly prepared attached to each; together with barns, sheds, and all things requisite or appertaining to the system, and for which a moderate rental should be expected. I am myself not only perfectly convinced that this plan would be most profitable and remunerative, but that these residences would be eagerly sought after, and from the competition even perhaps difficult to obtain. Under this system then, and in this particular district, we may hope to see a return of that good time—

> "Ere England's griefs began,
> When every rood of ground maintained its man."

And it is also worthy of remark that the labour attending this mode of cultivation is trifling compared to that of the old system, the soil itself requiring none of that care, labour, and attention so essential to the welfare of all land cultivated in the ordinary manner. The crops of the neighbouring farmers on this light soil may be parched up or partially ruined, but the new man has nothing to fear. The excessive drought or heat are but the means of renovating and bringing quicker to per-

fection his crops; whereas, those in his neighbours' fields are suffering severely, or are at any rate being greatly retarded for the want of proper moisture and nutriment. I can likewise conceive that a more general adoption of this system upon the labourer's allotment principle would be the means of preventing a great deal of that snarling spirit of discontent so peculiarly prevalent in many of those agricultural districts where, if I may so term it, both the farmers and their labourers have scarcely emerged from a state of semi-barbarism. I could say more on this subject, but I must not attempt to trespass further on your pages at present. It may be worth while, however, to add, that I am not in any way interested in the results of this system beyond that interest which we all ought to feel in any undertaking which may tend to promote the welfare of our countrymen. *J. H. C., Strathfieldsaye.* [Our correspondent does not seem to be aware that the propriety of selling Woolmer forest has long been under consideration. Mr. Drummond's committee adverted to that circumstance, while they admitted its unsuitableness for the growth of timber. Its revenue for the year ending March 31, 1854, was 739*l.* 9*s.* 6*d.*, while its expenditure amounted to 601*l.* 19*s.* 4*d.*]

Larch Trees.—I shall esteem it a favour if any of your practical subscribers would kindly inform me the proper distance they consider a plantation of Larch Firs of about 45 years' growth should be left apart to grow to the greatest profit per acre, and whether or not they advise the trees being primed up. *R. G. C., Brighton.*

Poplar Timber.—It was observed by a correspondent in your paper that the "Black Italian Poplar is a valuable wood." I wish much to know in what its value consists. I planted many of them about 40 years ago, being then told they would be as valuable as Oak at half the age. I find them very useful in repairs, and roofs for cattle sheds, and such like buildings, and have lately roofed one cart-house with Larch and another with Poplar, each of my own planting, and time will show which is the most durable. I have sold Larch of my own planting for building at 10*d.* and 1*s.* per foot, but have not been able to get more than 6*d.* for Poplar. In making new plantations, therefore, I have more encouragement to plant Larch than Poplar, to say nothing of the superior beauty of the former. *L. C. K.*

Societies.

Entomological, *Nov.* 5.—J. Curtis, Esq., F.L.S., President, in the Chair. This was a special meeting called in pursuance of a requisition signed by certain members of the Society, for the purpose of taking the opinion of the Society as to the advisability of the admission of non-paying associates; upon balloting for the introduction of such a class of members it was however found that a majority of the members present were opposed to such a step. Subsequently the ordinary business of the Society was proceeded with by the secretary, who announced a considerable number of donations to the library from various continental and English societies and naturalists. Mr. Stainton exhibited several very rare moths of the family Noctuidæ from Brighton, including a very fine species, Phlogophora empyrea, new to this country, of which several specimens had been caught by the sugaring process; also a specimen of Polyommatus Agestis marked above like P. Artaxerxes. Mr. Newman exhibited the curious Australian moth, Entometa obliqua, which had been reared in this country by Mr. Oxley. Also a mass of silk of the size of a boy's marble, spun by myriads of a small mite of the genus Tatranychus, allied to the red spider of the hot-houses. Mr. S. Stevens exhibited several interesting Microlepidoptera, from the coast of Hampshire, including a new British Tortrix; also a fine series of longicorn and other beetles, sent from Borneo by Mr. Wallace. He also mentioned the excellent effects produced by immersing greasy insects in camphine and benzoine, and also in a newly patented fluid sold as rectified Borneote of Petroline. Mr. Westwood exhibited a specimen of the rare Velleius dilatatus which had infested a common beehive; also specimens of Hypera Rumicis with its curious cocoon, reared by Professor Henslow. Mr. Winter exhibited a specimen of the hitherto unique Eunomos Almaria; and Mr. Foxcroft a large collection of insects of all orders, which he had formed in Scotland during the past summer. Mr. Syme exhibited the rare beetle Spherites glabratus, found in fungi in Kincardineshire; Dr. Power, a specimen of Notiophilus rufipes, and an abnormal female of Hydrophorus picipes; and the Rev. Hamlet Clark a new British Hydrophorus. Letters were read from Mr. Allis and Mr. John Hogg, F.R.S., on the occurrence of vast numbers of moths during the preceding season, notwithstanding the severity of the winter, and also a note from Mr. Haliday on the British Ink Gall fly.

Linnæan: *Nov.* 6.—The President in the chair. H. Deane, Esq., was elected a Fellow. Numerous donations to the library and museum were announced, including an extensive collection of the dried plants of the Upper Himalaya and Thibet, presented by Drs. Hooker and Thompson. Mr. T. S. Ralph exhibited specimens of the male and female Katepo (pronounced kär-tä-po), or poisonous spider of New Zealand, together with their nest, and microscopic preparations of their skin. Mr. Westwood presented a specimen of the internal densely interlacing fibre of the fruit of a species of Luffa, called the Trowel Gourd; it had formed part of a cargo imported from the West Indies for the purpose of paper making. The following communications were read:—1. Extract from a letter to Mr. R. Kippist, from Mr. T. S. Ralph, giving some account of the poisonous spider of New Zealand alluded to above. These spiders, which are met with under the low bushes which exist on the sand hills along shore, build their retreat under the branches of the shrubs close to the ground, and make no regular web, but irregular galleries of webbing, entangled with bits of leaves and minute fragments of wood. Judging by the remains of beetles' wings, their principal food appears to consist of insects of that class. Their nests are round, and contain from 50 to 60 eggs. The young when hatched are different in appearance from the full-grown spider; they are white, dotted with about six pairs of black dots along the body, the legs banded with black. The next stage presents a white or grey-white body, with a beautiful orange coloured angulated band the whole length of the back, and having smaller black bands on each side. The full-grown spider is of a beautiful black, the golden band exchanged for one of orange-red, and as the next coats come on the red band ceases to be marked at the thoracic end of the back. The female has a larger and rounder body. The insect is reputed to be venomous by the natives, who will not touch one on any account. Mr. Ralph had made an experiment on this point by putting a lively unhurt mouse into a white glass bottle with a fine katepo, and by shaking had induced the spider to bite the mouse; one bite was on the tail, a second on the paw of the animal; the last it resented by biting the spider, which died immediately. The mouse was supplied with air, and was found dead within 18 hours. 2. Notice of an Esquimaux Curlew, obtained at Durris, Kincardineshire, by J. Longmuir, jun., Esq. 3. Memorandum accompanying a flowering specimen of Holcus saccharatus [Sorghum saccharatum] exhibited to the meeting. This specimen was upwards of 9 feet high. The plant had been raised in a closed case in January last, and was planted out when about a foot high, on a warm bank in Mr. Ward's garden, where it had recently developed its inflorescence.

Notices of Books.

Mr. Septimus Piesse has collected into a handsome volume (Longmans, 12mo), with numerous additions, those interesting papers on the *Art of Perfumery*, which appeared in the columns of the *Gardeners' Chronicle* some years ago. He has introduced several woodcuts, and gives in an Appendix of about 50 pages translations of a variety of foreign scientific papers relating to the subject of his own volume. Much of the matter is curious; all interesting to the lovers of fragrant essences, to whose favour we heartily commend the little book. Mr. Piesse's account of Pomatums is as good an illustration of his style as a very short extract will enable us to give:—

"The name of pomatum is derived from pomum, an Apple, because it was originally made by macerating over-ripe Apples in grease. If an Apple be stuck all over with spice, such as Cloves, then exposed to the air for a few days, and afterwards macerated in purified melted lard, or any other fatty matter, the grease will become perfumed. Repeating the operation with the same grease several times, produces real 'pomatum.' According to a recipe published more than a century ago the form given is:—'Kid's grease, an orange sliced, pippins, a glass of rose-water, and half a glass of white wine, boiled and strained, and at last sprinkled with oil of sweet Almonds.' The author, Dr. Quincy, observes, that 'the Apple is of no significance at all in the recipe,' and, like many authors of the present day, concludes that the reader is as well acquainted with the subject as the writer, and therefore considers that the weights or bulk of the materials in his recipe are likewise of no significance. According to ancient writers, unguent, pomatum, ointment, are synonymous titles for medicated and perfumed greases. Among biblical interpreters, the significant word is mostly rendered 'ointment;' thus we have in Prov. xxvii. 9, 'Ointment and perfume rejoice the heart;' in Eccles. ix. 8, 'Let thy head lack no ointment.' Perfumers, acting upon their own or Dr. Quincy's advice, pay no regard to the Apples in the preparation of pomatum, but make it by perfuming lard or suet, or a mixture of wax, spermaceti, and oil; or some of them are all blended, to produce a particular result, according to the name that it bears. The most important thing to consider in the manufacture of pomatum, &c., is to start off with a perfectly inodorous grease, whatever that grease may be."

And then he goes on to tell how all sorts of pomades, from Circassian cream to bears' grease, are to be made. Good housekeepers may thus learn how to dispense with the perfumer's shop.

Books on Ferns multiply, as might be expected from the growing taste for these beautiful and easily cultivated plants. Mr. John Sowerby has commenced a work on *The Fern Allies*, that is to say Equisetums, Lycopods, &c., upon the plan of his Ferns of Great Britain, to be completed in about 6 parts, at 3*s.* a part coloured, and 1*s.* 6*d.* partly coloured. Mr. Johnson is the author of the letterpress. We have the first part before us and can say that it forms a very good supplement to the other work just mentioned, and is full of useful information. We also see that Mr. Lowe has commenced a periodical issue of *A Natural History of Ferns, British and Exotic.* Each number contains 4 coloured plates executed in lithotint, and several woodcuts—all for a shilling. The execution of the work is remarkably good for such a price. It would, however, be advisable that more attention should be paid to orthography. Nothochlæna is mis-spelled Nothochlœna, catanense cataneuse, eminens eminens. This is the more regretted because the class of buyers into whose hands the work may be expected to fall, are not likely to detect such errors, but will implicitly trust to Mr. Lowe's authority.

Garden Memoranda.

Belvoir Castle, the Seat of his Grace the Duke of Rutland.—Belvoir Castle occupies a commanding situation on the spur of a range of maristone hills, on the north-eastern confines of the county of Leicestershire. The Norman ancestors of the house of Manners exercised feudal sway over the wide domains attached to the lordship of Belvoir, and their ancient stronghold was by its natural position and strength well calculated to overawe the scarcely subjugated people. The ancient castle was destroyed by fire about 40 years ago, and the present Norman-Gothic castle erected in its place; and it now stands no longer a terror and menace to its neighbours, but a beautiful and picturesque object, in a landscape replete with the characteristic beauties of English scenery.

The approach from the south-east is by an avenue of Beech trees, succeeded by Cedars of Lebanon; a very striking view of the castle is obtained from the avenue. The river Devan, artificially enlarged, runs through the domain, and is crossed by a handsome stone bridge. On approaching the castle, the road passes through the wood which encompasses it; fine Rhododendrons and other evergreens border the road, and, intermixed with forest trees, produce an excellent effect.

The castle is surrounded by terraces, of which the north is the most considerable and commanding. The view from this terrace is extensive and varied; on the north-east the richly cultivated vale of Belvoir lies extended to the view. Upwards of 20 villages with their church towers and slender spires—distributed over the landscape—seen from the castle, form pleasing features of life and interest; the latter not lessened by the fact that the whole of these rural and peaceful spots are on the Belvoir estate. To the south of the castle the scenery changes, the country assumes a boldly undulated character, and presents rich masses of wood and broad glimpses of Grass land, the whole forming a scene of striking beauty. The castle is readily accessible to visitors, the interior arrangements are remarkable for convenience and comfort, which are not always associated with grandeur, but which, in this instance, perfect taste and excellent judgment have so happily united. The picture gallery has some fine examples of the old masters. The Regent's gallery, the drawing-room, and dining-room are remarkable instances of refined taste, conjoined with regal magnificence.

On the south side of the castle are three terraces, one rising above the other; the middle terrace is devoted to flowers and is laid out with considerable skill and effect; the garden is now being replanted and the soil renewed. The elevated position of the garden, with the advantages of shelter afforded by the castle, make it a desirable spot for many interesting plants impatient of the humid climate of our vallies—Escallonia macrantha, Ceanothus rigidus, Myrtles, and other small evergreens, have successfully withstood the severity of the winter of last season.

The enclosed pleasure ground about the castle is of limited extent; one broad walk reaches round the castle, from which branch minor walks leading to the stable, dairy, &c. A very pretty flower garden is situated at the foot of the glacis, but separated by a belt of evergreens; the flower beds are laid out on turf, and are devoted to the usual bedding plants in summer, and in the autumn are filled with spring blossoming plants; an edging of Crocus, followed by Hepaticas, double Primroses, Scillas, Hyacinths, and Narcissus in successive rows occupy one set of beds, while in other beds are massed Scillas, Hyacinths, double Lilac Primroses, and Hepaticas. A portion of the garden is devoted permanently to plants calculated to render a garden gay at a cheerless season—the bright berried Pernettias, hardy Ericas, Daphnes, the winter blooming Jasminum, the old Sanguinaria canadensis, Adonis vernalis, winter Hellebore, Anemone appenina, Myosotis intermedia, the charming little Veronica alpestris, which covers the ground with its green compact foliage like a carpet. The elegant little Saxifrages oppositifolia major and minor, Aubrietia deltoides, double Primroses, Orobus vernus, Arabis verna, with a profusion of bulbs, render the garden gay at a very early season. It is held desirable here to secure every hardy and early flowering plant; such plants from the prevailing fashion of bedding for summer decoration are but too often excluded from ordinary gardens. An opening in the wood on the hill side exhibits some splendid specimens of Silver Fir; towards the bottom of the slope flower beds are laid out. Statues of heathen divinities are arranged on pedestals about the garden, and elegant vases assist in its embellishment. Access is obtained to the lower garden by a flight of stone steps on one side, guarded by a stone balustrade surmounted by vases, and on the other by steps winding round a picturesque summer house. Entering the wooded hill by a walk called the Duke's Walk (which reaches round

the hill a distance of nearly three miles), we arrive at a garden formed on the slope of the hill facing the south; from this secluded but elevated spot the opening affords a splendid view of a richly varied sylvan landscape; the garden is embowered in evergreen and deciduous trees of large growth—an enormous standard Portugal Laurel and several fine specimens of Hemlock Spruce being particularly conspicuous. The garden is prettily laid out in beds and borders, and is kept gay winter and summer. Myrtles stand the winter in this favoured spot. A beautifully grown Araucaria imbricata, 30 feet in height, and a Cunninghamia stand on each side of a flight of steps, and help to give character and effect to the garden. In pursuing the walk many fine views of the castle and the surrounding scenery are obtained; summer-houses, rustic seats, and grottos, are placed at intervals throughout the walk. The mausoleum is situated on a hill near the castle, but its proximity is concealed by trees. The approach is through a deep cutting, overhung with lofty trees, the banks of the cutting are lined with stone and overgrown with Ivy. On entering the enclosed ground we approach the mausoleum by a flagged pathway which passes through a sombre grove of Yew trees. The mausoleum is a plain Norman-Gothic structure; it contains a very fine monument to the late Duchess by Wyatt. Cypresses and Evergreens are planted about the building, and give an appropriate gloom and solemnity to it.

We shall next week give some account of the kitchen garden at Belvoir.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—The summer flowering twiners, as Passion-flowers, Tacsonias, Mandevilla, &c., which usually become rather unsightly by this season, should be cut back rather freely, as also any others that will bear this treatment, so as to afford the plants underneath every possible ray of light. The shade afforded by luxuriant twiners may be rather beneficial to plants in bloom in the house when the sun is powerful; but not a spray that can be spared should be left to obstruct the light after dull cloudy weather sets in. Acacias, and other winter-flowering plants, having been subjected to a period of comparatively dry treatment, to ensure their blooming profusely, should now be liberally supplied with water at the root, in order to get them into flower during the dull season, when they will be much more esteemed than in spring, when flowers are becoming plentiful. Manure water, if it can be used without annoyance to the family, should be given frequently to Chrysanthemums, especially in the case of plants to which it has been liberally applied during their growing season, for these will bloom but poorly if their supply of manure-water must be withheld. Give air freely on every favourable opportunity, avoiding cold draughts against plants that have been brought from a warm house, and guard against damp by using gentle fires with a little top-air on wet days. Let pot specimens in bloom be frequently re-arranged, so as to make the most of these, for the finest specimens become too familiar to be interesting when allowed to remain too long in one place. Cold Pits.—Get straw shutters, or whatever covering it may be intended to use here prepared without delay. Straw shutters, if well made, are somewhat expensive in the first instance, but we believe them to be the most efficient of any kind of covering in use, and taking into account the time they last they are, perhaps, as cheap as any. Expose the stock here freely to air on every favourable opportunity, so as to check growth and get the wood firm, in which state the plants will be less liable to suffer from the confinement which may soon be necessary than if kept close and coddled with too much warmth and moisture now. Very little water will be required at the root, but look over the stock every few days, withholding water until it is absolutely wanted, and then giving a moderate soaking, which is the only safe method of watering at this season. If green-fly makes its appearance on any of the soft-wooded things apply tobacco smoke at once, and see that this pest is extirpated at once, otherwise it will disfigure if not ruin the plants upon which it is allowed to harbour. Heaths and other things subject to the attacks of mildew must be closely watched, and sulphur applied the moment that the enemy is perceived, but neither this nor green-fly will be very troublesome, unless the plants are kept too close and damp; therefore be careful to keep the stock rather dry, giving plenty of air whenever this can be done with safety.

FORCING DEPARTMENT.

Pineries.—The trying period for those who have to winter their young stock in pits heated by fermenting materials has now arrived, for with sunless weather, such as is common at this season, it is a very difficult matter to preserve Pines in a healthy state, where warmth must be accompanied by excessive moisture. Keep the linings sufficiently strong to maintain the temperature at about 65°, which will allow of giving air rather freely on fine days, and a little must also be given in all states of the weather, when doing so does not cause the glass to sink under 55°. There should be no attempt made at inducing growth with the present amount of light, but the linings should be kept rather strong, so as to be prepared against the occurrence of severe weather, and also to allow of giving sufficient air to prevent excess of moisture. See that efficient coverings are prepared previous to the occurrence of sharp frost, and endeavour to keep the bottom-heat steady at about 75°, and the soil in a rather dry state. This system of Pine growing is now, however, but little practised, and it would be economy on the part of those who adopt it to supersede it at once by means of a hot-water apparatus.

FLOWER GARDEN AND SHRUBBERIES.

Choice plants in the borders intended to be protected for the winter by slightly covering the roots, &c., should be seen to at once. Moss, when it can be obtained in good thick flakey pieces is, perhaps, the best article that can be used for this purpose; but unless it can be procured in pieces of some thickness, it is not so good as spent tan, coal ashes, or half decayed leaves. Also see to getting Fuchsias, and such things as are usually protected for the winter by covering, secured against frost before it is too late. Dry Fern is an excellent material for covering the stems, &c., of plants that require a slight protection in winter, and is, doubtless, the least objectionable as regards colour of anything at command; but this is not easily procured in many neighbourhoods, and probably the best substitute is straw that has been exposed to the weather sufficiently long to darken its colour. Choice sorts of Hollyhocks, of which there is not a sufficient stock of well established young plants in pots should be taken up, potted, and placed under glass for the winter; for these cannot, with safety, be trusted to the mercies of a severe winter, and plants taken up and potted now, and wintered in a cool house, will be exceedingly useful for furnishing cuttings; and these, if got in early in spring, will make splendid plants for next season. Where alterations are in hand, push these forward with all possible dispatch while the weather continues favourable for out-door operations. Be very careful to secure transplanted things against the wind, especially plants of any size, which should never be left until they are properly staked or otherwise made fast, for when this is put off it frequently happens that the roots get injured through the plants being rocked about by the wind. Get any projected alterations among the shrubbery or herbaceous borders done in readiness for cleaning up as soon as the leaves are down; also get ground intended to be planted with Dahlias and Hollyhocks next season deeply trenched and ridged up so as to expose the soil as much as possible to the weather, putting in plenty of good rotten manure, especially where the Hollyhocks are to stand, for these require a deep rich soil.

HARDY FRUIT AND KITCHEN GARDEN.

A sowing of Peas and Beans to afford the chance of a very early crop should be made at once, choosing the most sheltered bit of ground at command, which should also be of a light dry nature. In favoured localities it is usual to sow somewhat earlier in the month, but we have seldom seen any advantage result from sowing before the 20th, and have frequently had those put in early in the month cut up, while those planted later survived the winter uninjured. In the event of such a winter occurring as the last two, these will be destroyed as a matter of course, but neither the labour nor the expense of the seed, which will be the only loss, is of much account, and we have frequently had first-rate crops from November sowings, and they are certainly much less trouble than raising the plants under glass in spring. Use an early hardy sort, such as the Daniel O'Rourke. The forcing of Seakale and Rhubarb must now be attended to; and, provided there is a good stock of strong roots, a supply of these will be easily kept up. Where there is room to spare in the Mushroom-house, this forms a very suitable and convenient place for forcing these. The roots should be placed on a slight bed of warm dung, filling up the spaces between them with old tan, or the soil and manure mixed from an old Mushroom bed, giving a good watering to wash it in amongst the roots. The bottom-heat should not be allowed to exceed 70°, as too much heat is not favourable to securing strong growth, and, except for the first crop, it may be dispensed with altogether. Take advantage of wet days for making fresh Mushroom beds, and clearing out those that are spent; also collect and prepare droppings for forming fresh beds, by spreading them in any shed, and turning them every day until they are sufficiently dried to prevent excessive fermentation after putting up. Clear up all decaying leaves, &c., and stir the surface of the soil on dry days among growing crops, as Cabbage, Spinach, &c.; also get all vacant ground manured and ridged up as quickly as possible, in order that it may be exposed to the influence of the winter. Get the late crops of Celery closely earthed up the first dry day, and attend to securing a late supply of Lettuce and Endive.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Nov. 15, 1855, as observed at the Horticultural Gardens.

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain.
Friday 9	[illegible]	29.801	29.756	59	40	49.5	50	50	S.	.02
Satur. 10	1	30.045	29.807	58	36	47.0	50	49½	S.	.00
Sunday 11	2	30.226	30.164	58	44	51.0	49½	49½	S.W.	.00
Mon. 12	3	30.182	30.000	50	42	46.0	49½	50	S.E.	.00
Tues. 13	4	30.012	29.972	48	37	42.5	49	50	N.E.	.00
Wed. 14	5	30.008	29.955	48	24	36.0	48	50	N.E.	.00
Thurs 15	6	30.168	30.084	47	22	34.5	47	49½	W.	.00
Average		30.061	29.975	52.3	35.0	43.6	49.0	49.8		0.02

Nov. 9—Slight fog; fine; slight rain.
— 10—Foggy; very fine; foggy.
— 11—Very fine; cloudy.
— 12—Slight fog; hazy; cloudy at night.
— 13—Uniformly overcast; cloudy.
— 14—Fine throughout; frosty at night.
— 15—Frosty and foggy; very fine; dense fog.
Mean temperature of the week ½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.

During the last 29 years, for the ensuing week, ending Nov. 24, 1855.

Nov.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 18	48.2	34.2	41.2	17	0.56 in.	2	5	1	2	3	10	3	1
Mon. 19	49.0	35.2	42.1	14	0.87	1	4	2	4	2	9	5	3
Tues. 20	49.0	36.0	42.5	11	0.35	1	6	2	—	6	4	6	4
Wed. 21	49.5	37.8	43.7	19	0.37	5	3	4	3	1	5	5	2
Thurs. 22	45.5	35.3	40.4	18	0.62	3	2	5	2	4	6	6	1
Friday 23	47.6	35.0	41.3	13	0.36	—	5	3	1	4	9	4	3
Satur. 24	47.5	32.6	40.0	9	0.62	4	5	2	2	3	7	3	3

The highest temperature during the above period occurred on the 20th, 1844, 21st, 1828, and 1833—therm. 59 deg.; and the lowest on the 18th, 1851—therm. 16 deg.

Notices to Correspondents.

Books: *R R S.* Errington on the Peach will doubtless answer your purpose.‡

Cuba Bast. *Bath.* This is not the produce of a Tilia, nor is it known of what other plant? It comes from the Havannah, but is said to be imported to that place from some other country, some say from Ceylon.

Fences: *L C K.* We advise you to form your fence with squared Larch posts, pierced with strong wire, and painted dark green or grey; unless, indeed, you prefer iron uprights, through which the wires are strained. They will look very neatly, if well done. The inquiry about Poplar wood is to be found in another column. For your lawn take the following Conifers, viz., Deodar, Cryptomeria, Cupressus macrocarpa, and Goveniana, Pinus insignis and Lindleyana, Juniperus sinensis, male and female.

Ferns: *O P.* Phegopteris is, we apprehend, so called from φηγὸς a Beech tree, and therefore its English name should be the Beech Fern, as indeed it is often, though not always, called. Why Thelypteris is not called the Lady Fern or female Fern, we cannot say, unless to avoid the chance of its being confounded with the Filix fœmina. Both names have the same meaning, as you are aware, the first being Greek for the second. As to the nomenclature, that employed by Mr. Moore in his Nature-printed Ferns should be taken as the standard in this country.

Insects: *J S.* Your grubs are those of the common Cockchafer.‡

Lawns: *W P.* A layer of fine cinder ashes about an inch thick spread over the ground immediately under the turf of your new lawn will doubtless prove useful in keeping worms from coming to the surface. Should they, however, be troublesome even after that precaution, an excellent remedy for the evil is lime-water; *i. e.* fresh burnt lime put into water and allowed to stand till the lime has settled to the bottom, and then the water used in a clear state.‡

Melon Pits: *C S F H.* An excellent description of pit is that figured in our volume for 1844. If you intend building a good brick pit, it would be better to heat it with hot water in 4-inch iron pipes than employ tan, which you would find would soon be overrun with woodlice, and to which we would certainly prefer stable dung and leaves. Hot water, though more expense at first, would be found cheapest in the end, to say nothing of the other advantages which attend its employment. We know of no garden near London in which the Melon and Cucumber pits are heated with tan, and we do not think it a good material for the purpose. As to kinds of Melons, the Beechwood and Bromham Hall are both excellent varieties; and as regards Cucumbers, Cuthill's Black Spine will doubtless answer your purpose perfectly.‡

Names of Fruits: *W D.* 1, Passe Colmar; 2, Beurré Diel; 3, Beurré Rance; 4, Althorp Crassane; 5, Napoléon; 6, Urbaniste; 7, Bezi de Caissoy.—*J B D.* 1, Scarlet Nonpareil; 2, Boston Russet; 5, 19, Blenheim Pippin; 6, Alexander; 3, Ribston Pippin; 10, Kerry Pippin; 11, Sturmer Pippin; 12, New Rock Pippin; 14, Tulip Apple; 15, 21, 23, Cornish Gilliflower; 16, Nonsuch; 17, Crofton; 18, Old Nonpareil; 27, Mank's Codlin. 1, Brown Beurré; 2, Easter Beurré; 3, Beurré Rance; 4, Urbaniste; 5, King Edward's; 6, Beurré de Capiaumont; 7, Crassane; 8, 9, Beurré d'Aremberg; 10, Passe Colmar; 11, Glout Morceau; 12, Winter Nelis; 16, Catillac; 17, Althorp Crassane.—*A M D.* 3, Kerry Pippin; 4, Blenheim Pippin; 5, 7, 9, Dumelow's Seedling; 6, Kirke's Lord Nelson; 8, Court of Wick; 10, Ribston Pippin; 12, Royal Russet; 13, 18, Hall Door; 14, Wyken Pippin; 15, Syke House Russet; 16, Golden Russet; 17, White Winter Colville; 22, Braddick's Nonpareil; 23, Nonsuch. The large Apple unnumbered is the Alexander. 2, Aston Town; 3, Crassane; 4, Old Colmar; 5, probably Broom Park; 7, Beurré Rance; 8, St. Germain.—*G W.* 1, Old Nonpareil; 2, Marie Louise; 3, French Crab; 4, Crimson Queening; 5, King of the Pippins.—*S B.* Your Pear is the Knight's Monarch, but is more round than usual.—*H J O.* 5, Autumn Colmar or De Bavay; 7, Beurré de Capiaumont 8, Bezi d'Heri, (stewing); 21, Crassane; 25, Winter Nelis; 31, Doyenné Blanc.—*G R P.* 1, Althorp Crassane; 2, Buchanan's Spring Beurré; 3, Beurré de Capiaumont; 4, Passe Colmar; 5, Louise Bonne (of Jersey); 6, Beurré Diel; 7, like Colmar d'Aremberg; 9, probably Zepherin Grégoire; 10, Forelle; 11, Marie Louise.‖

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*R J.* Adiantum macrophyllum. You will find a figure of it in the 6th part of Lowe's "Natural History of Ferns."—*F P.* The leaves which you have sent us are certainly not those of Pinus Sabiniana.‡—*Amos N. Syton.* When a proper name follows that of a plant, such name refers to some author who has published the plant. Thus Gladiolus blandus, *Gretry*, means that some one of the name of Gretry has described G. blandus. You must seek for the meaning of the Latin names of plants in a Latin dictionary or a botanical glossary. A French kilogramme is equal to nearly 274 lbs. English, as you will see if you look at the very full tables of French and English weights and measures printed in a former volume, and now to be had separately. As to the names of foreign florists' flowers, they are generally in French or Dutch, and their meaning is to be found by reference to those languages. When dictionaries do not contain the words the latter may be assumed to be the names of growers or raisers. We hope this answer is what you want; but really your writing is in some cases hopelessly illegible.

Misc.: *W F G F.* Address Mr. M'Glashen, sculptor, Cannon Mills, Edinburgh. Your other inquiry has been sent to Mr. Fleming, from whom you will doubtless have an answer next week.—*S P.* Any person, whether a Fellow of the Horticultural Society or not, will be allowed to exhibit fruit at 21, Regent Street, on the 20th inst. Pine Apples are not cut at these meetings, unless special instructions to do so are given by the exhibitors or owners of them. Pavetta borbonica may doubtless be struck from cuttings; whether the plants of it now in the country are all seedlings or not we are unable to say.‡

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
WM. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 69, King William Street, City, London.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE LONDON MANURE COMPANY'S NITRO-PHOSPHATE OR WHEAT MANURE FOR AUTUMN SOWING.—This Manure, composed of blood, animal matter, and dissolved bones with silicates, is most strongly recommended to the notice of Agriculturists. It contains from 7 to 8 per cent. of nitrogen, in a form yielding ammonia by slow decomposition, and is therefore particularly adapted for Wheat. The quantity required is 2 to 3 cwt. per acre drilled in with the seed. Price, per ton, 7*l.* 10*s.* in London.

PERUVIAN GUANO, FISHERY SALT, and every other MANURE on best terms, strictly warranted.
40, Bridge Street, Blackfriars. E. PURSER, Sec.

SEWAGE CHARCOAL MANURE.—This highly fertilising Manure, which is Peat Charcoal completely saturated with London Sewage, will be found most efficient for every species of crop; more especially for Peas, Beans, Turnips, Mangold Wurzel, and other root crops. It will produce a greater return for the outlay than Guano or any other Manure at an equivalent value: it also possesses the property of retaining its fertilising power longer than any other Manures now in use. It may be obtained at the SEWAGE MANURE WORKS, Stanley Bridge, Fulham, at 4*l.* per ton, and in quantities less than half a ton. at 5*s.* per cwt., for ready money only; and in quantities not less than a ton, will be delivered at the London Termini of the Railroads free of charge for cartage. No charge for sacks.

It may also be had from Messrs. G. GIBBS & Co., 26, Down Street, Piccadilly, Agricultural Seedsmen, Agents for London, and from all the other Agents of the Company.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepar[illegible] outh for the pursuits of Agriculture, Engineering, Mining, Mar[illegible]actures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

DRAINING BY STEAM POWER.

JOHN FOWLER is prepared to undertake Contracts for DRAINING LAND by his PATENT STEAM PLOUGH, at prices varying, according to depth and distance, from 3*l.* to 5*l.* 10*s.* per acre, inclusive of tiles, main drains, and all other expenses. Contracts executed with great rapidity, and tiles manufactured on the spot, where suitable clay exists.—Temple Gate, Bristol.

DRAINAGE OF LAND.

MR. J. JOHNSON, DRAINAGE ENGINEER, is desirous to undertake the Drainage of Land by Contract or Commission. Temporary Tileries erected in any part of England, and Drain Pipes manufactured at moderate prices. Every description of Drainage Tools.—Abingdon Street, Westminster.

DRAINAGE OF LAND, BOGS, ETC.

MR. HUMBERT, of Watford, Herts, supported by unquestionable references and testimonials, offers his services to proprietors about to execute works of drainage, which he will undertake personally to lay out and superintend, and to supply the forms and attendances necessary to obtain the certificate of the Inclosure Commissioners where such is required, at a charge of 5*s.* per acre and his travelling expenses; or he will contract to perform the whole work to the satisfaction of the Commissioners at a fixed price per acre.

Mr. HUMBERT (having been more than 15 years established in business as a Surveyor and Land Agent) has found that wet heavy soils can be usually, carefully, and thoroughly drained, with pipes 4 feet deep, at 4*l.* per acre and upwards, inclusive of every expense.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq., M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair per centage as the occupiers of the improved Lands can afford to pay.

WILLIAM CLIFFORD, Sec.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

FIRST PRIZE REAPING MACHINE.
NOTICE.

MESSRS. BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill: Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to SAYNOR & COOKE for their superiority of material and workmanship. Established 1738.

ECONOMY OF FERMENTATION.

BUSHE'S PATENT ROOT GRATER, manufactured by FOWLER AND FRY, Temple Gate, Bristol, entirely supersedes the necessity of Cooking Turnips, Mangold, and other Roots; it effects a saving of 30 to 40 per cent. of the Roots, besides that of fuel. Price 3*l.* 10*s.* Printed testimonials and directions may be obtained gratis by applying to FOWLER & FRY, Bristol, Licensed Makers of CORNE'S Patent Chaff Cutters and General Agricultural Implement Makers and Dealers. The Root Grater may also be seen in the Agricultural Department of the Crystal Palace, Sydenham.

The Agricultural Gazette.

SATURDAY, NOVEMBER 17, 1855.

WE print in another column portions of several letters on the all-important subject of our food supply. They have been elicited by Mr. CAIRD's estimate published in the *Times*. The general impression is that Mr. CAIRD has exceeded the truth, and that we are more dependent on extraneous sources of supply than he imagines. But it is of very little use to publish general estimates of the country's produce. That is a subject upon which we know nothing confidently.

Few amongst us can do more than form an opinion of the crop in their own immediate neighbourhood. And instead of giving any further statements on the produce of the country generally, we have applied to correspondents of this Paper in all the principal arable districts of the country, and hope in the course of the next few weeks to give opinions of the produce in detail, which will be all the more trustworthy that each will refer only to the neighbourhood in which it is written.

Meanwhile, the state of uncertainty which prevails upon the subject—singularly illustrated by the differences of opinion prevalent among men who are deemed authorities—is in its effects a loud protest against the faulty doctrines urged by Mr. PACKE on agricultural statistics.

AT the meeting of the Central Farmers' Club last week, Mr. WALLIS, of Overstone, Northamptonshire, brought together a large quantity of timely and very useful information upon STALL-FEEDING. The subject for discussion related to feeding cattle more especially on arable land, and where economy in the consumption of hay is an important consideration: and the gentleman who read the opening paper adopted the plan first, we believe, followed systematically by Mr. HARKNESS, Secretary to the Royal Agricultural Society of Ireland, of describing the experience of many others under the various circumstances obtaining in different parts of the country. Thus, letters were read from Mr. RAMSAY, of Newcastle-on-Tyne; Mr. LISTER, of Dunsa Bank, near Richmond, Yorkshire; Mr. CLARK, of Plasworth, Durham; Mr. KAY, of Darlington; Mr. DONKIN, of Bywell, Northumberland; Mr. COTTINGHAM, of Wrangford, Suffolk; Mr. BRIGGS, of Wakefield; Mr. KEARY, of Holkham; and many others in Bedfordshire, Oxfordshire, Cheshire, &c.

So extensive an experience is sure in one or other of its parts to fit the circumstances of whoever reads it, and the paper by Mr. WALLIS is thus a most useful contribution to a history of its subject. The following passages are condensed from some of the reports which he brought forward:—

(1) Mr. CLARK, of Durham, places his cattle in hemmels or small yards, two in each, towards the end of October, and then they are bedded daily and fed in shelter.

"They are fed with White Globe Turnips and Oat straw about six weeks; after that time with Swedish Turnips and Oat straw, until about four or six weeks from the finish I commence giving them half a bushel of Barley and Pea-meal per week with the Turnips, increasing the quantity of meal a little each week. The cattle are fed four times each day with Turnips, cut into slices three-fourths of an inch thick, always having straw to eat. The feeding troughs are cleaned out every day. The average quantity of Turnips consumed per day by each animal is about 150 lbs. I cannot state the weight which each animal gathers per month, as I have no means of weighing them; but I generally have them about five months, and each animal makes from 5*l.* to 6*l.*, according to circumstances, some seasons more and others less."

(2) Mr. KAY, of Darlington, follows apparently the same plan. When the green food loses quality he gives his cattle Pea or Barley-meal to keep them in a progressive state, but not with the idea of any profit to be derived from the cattle, or to the improvement of the manure, in both cases the return not being equal to the first cost, but merely for the purpose of retaining the beef already acquired.

"Cake I never use, as it is a well-known fact that a great part of the cost has to be charged to the manure, which can, I think, be more economically improved or increased by the purchase of artificial manures, either phosphates or ammoniacal, whichever may be considered most adapted to the particular crop."

(3) Mr. LAYCOCK, of Lintz Hall, who farms to only a limited extent, sends a short report of his method of feeding.

"I adopted in 1848 the box system of feeding. The manure is entirely preserved from waste, both liquid and solid. The cattle are easily kept clean, and I think the animals thrive better than under any other system. My mode of feeding is for an ox, say 60 stones, 14 lbs. per stone—

8 feeds cut Swedes per day, 63 lbs. each = 12 cwt. per week, 7*s.* per ton	4*s.* 2½*d.*
2 lbs. crushed Linseed per day, steamed and mixed with steamed chaff	1 10½
Attendance each beast	0 6
	6 7

"Each beast produces, including the litter, 5¾ cwt. of manure per week, which, at 7*s.* 6*d.* per ton, is equal to 2*s.* 2*d.* per week. This pays for the Linseed and attendance, and I get clear 7*s.* per ton for the Turnips."

(4) Mr. COTTINGHAM, of Wrangford, buys 130 or 140 good old beasts in the spring costing from 13*l.* to 20*l.* apiece, and keeps them in the yards until May, when they are turned out to marsh.

"They are all kept in the yards about six or eight weeks upon 1 to 2 bushels of Mangold each per day, according to the quantity of roots I happen to have. I cut the roots with GARDNER's cutter, the same size as for sheep. In addition to the roots, I give each bullock a quarter of a peck of Pea, Bean, or Barleymeal, whichever is the cheapest, and 1 peck of straw chaff, roots and all mixed up together. The 16 best bullocks have 4 lbs. of cake also. All the lot have straw to pick over. About the middle of May all the beasts are sent to marsh. Three lots of them come home into the yards the first of October, the others this week. I divide them into lots of about 15 or 16, and put them loose into yards (about 18 to 20 yards square). The yards have good wide hovels to the north and east. They have all the white Turnips they will eat, cut into slices about three-quarters of an inch thick, until the Swedes are fit to begin. When the Swedes are finished they have Mangold. The best beasts I give 6 lbs. of cake and half a peck of meal, with 1 peck of straw chaff each per day. I never have any hay for cattle, only for the horses."

In none of these cases is hay used, and Mr. WALLIS gives it for his opinion that, if 1 lb. of powdered cake be mixed with as much cut straw as a beast will consume in a day, the chaff being first slightly wetted, or the cake mixed with water, and then mixed with the chaff, it will be found nearly, if not quite, as nutritious as chaff composed of equal parts of hay and straw.

(3). Mr. KEARY, of Holkham, writes that he has reared 40 calves a year, selling them fat at three years old, and during that time no long hay has been used. He adds:—

"My present system of feeding young store stock is this: The roots or Turnips are cut into thin slices with a MUDIE's slicer, and then mixed up with good sweet Wheat-straw chaff, moistened with a mixture of coarse molasses and water in the following proportions: to 1 lb. of coarse molasses put 1½ gallon of water, and this will moisten about 1½ bushel of straw. I add, according to the age of the animal, bran for young calves, and Rape-cake for young steers, about 2 lbs. per head, and Linseed cake about 3 lbs. or 4 lbs. per head for older steers,

just preparing to be fattened. The great use and advantage of the straw and treacle is, that it saves roots; and I rarely give more than 1 bushel of roots to young steers, and 1½ bushel to two-year-olds. The molasses sweetens and softens the straw, and they eat it with great avidity when used to it. In some seasons I have kept lean steers healthy and in as good condition as I wished by 1 lb. of molasses mixed as above in about 2 bushels or 3 perhaps of cut straw, and about 3 lbs. of Rape-cake per day. For fattening oxen, I do not think it right to make this mixture. I have tried it, and find that they do better by a change of food, viz., ½ bushel of Turnips at 6 A.M., another ½ bushel before 8 o'clock, and at that hour a feed of cake at the rate of ½ peck per head, mixed up with a small quantity of cut hay (about a peck), and as much cut Wheat straw as they will eat; towards noon, say 11 o'clock, feed with Turnips again, and about 4 o'clock in the afternoon, and then rack up at night with oatmeal and beanmeal ¼ peck of each, mixed with cut hay and straw, as in the morning feed."

These letters sufficiently prove that hay is not necessary for fattening cattle, and our own experience perfectly corroborates this statement. On an arable farm, where no hay was made, 80 to 100 head of cattle were fattened annually. Roots cut in slices given twice a day, about 80 lbs. apiece, and straw chaff moistened with hot Linseed soup, and dusted over with beanmeal, given twice a day, were sufficient feeding. The cattle thus had 80 lbs. of green food, 10 or 12 lbs. of straw, 1½ lb. of Linseed, and 3 lbs. of beanmeal each daily, and they fattened rapidly.

A great deal of useful information was given in the discussion which followed Mr. WALLIS's paper, and to some of it we shall hereafter direct the attention of our readers.

MR. CAIRD'S ESTIMATE OF THE HARVEST.

Mr. Caird calculates on the addition of a fourth from increased breadth, favourable seed time, and liberal use of guano. 1st. As to increased breadth, was not the 1854 breadth so large that that of 1855 scarcely exceeded it? 2d. Did not 1854 enjoy as good a seed and harvest time as 1855? 3d. If guano was more liberally used, was not its use in 1855 more requisite from the severe spring than in 1854? From a limited observation I am inclined to think that in the west of England and in the south the increase in breadth of 1855 over that of 1854 was not considerable. The increase of breadth in both seasons over 1853 is doubtless great, but 1854 had a large breadth. Next, the seed time and harvest of both seasons were equally good, better never known; and lastly, the winter of 1855 season was so severe that on the light lands where guano or some top-dressing was not used, the Wheat crop was next akin to a failure. Judging from this neighbourhood the clays in 1854 had a bad crop, in 1855 a good one; and *vice versâ* as to the light lands. Of this there are striking instances; even where doctored with guano, &c., the Wheats, although they recovered in burthen on the light lands, never recovered in yield; and, instead of good corn, a thin chested light consumptive looking grain is the result. On the clays, however, without any doctoring at all a heavy good yield is found. Where coarse Wheats are grown, as Rivett's (advertised as Payne's Defiance) as much as 40 bushels to the acre and upwards have been grown on land let at 10*s.* an acre, whilst the delicate "velvet-eared" white Wheats on lands let at 30*s.* made a sorry sample in weight and quality, and the yield does not average 24 bushels, besides tail. In scarce times, the growth of the coarse Wheats is much to be encouraged as one mode of increasing produce on poor lands, if not on rich. And Rivett's (well baked) makes bread by no means to be despised, and the best of ship biscuits for the Crimea. The statistics of the soil are essential, as the basis of corn statistics, and we ought to know how much light land there is, and how much heavy, and then a general average could be better arrived at. The mixture of Barley with Wheat is also to be encouraged. In the districts of Holsworthy and Stratton, in Cornwall, the bread is extremely good, and yet if one half is not Barley at least one third is. The oven has a deal to do with it, and those used in that country made at the Bideford potteries are the cleanliest and best in use. They are made of earthenware, at a cost of 9*s.* 6*d.* to 1*l.*, according to size, and surpass the ordinary brick oven in economy of fuel, and even heat. Their general use is fast gaining ground. At Barnstaple, and generally in North Devon, the admixture of Barley is increased, and there the household bread is less palateable but certainly better than that mixed with alum and London bakers' compound. The "navvie" requires meat and the best and finest Wheaten flour, and those who will work like a "navvie" have a right perhaps to use it. But let not only the sedentary Londoner but the mechanics generally leave off the use of "firsts," and condescend to seconds baked at home. And if they find their children healthier, as they assuredly will do, they will also find their flour bill considerably less; and if Wheat should continue to rise, try a little Barley, at any rate do not reject the Revett's. Who knows to what extent a general economy of this kind might benefit the community? *Simplex.*

In your Paper of Monday last is a letter by Mr. Caird on the late harvest, in which are the following passages: "If we suppose that only one-fourth of the usual breadth of Barley land was sown with Wheat, that, on the four course system, would add one-fourth to the average breadth of land under Wheat. . . . There will remain little more than 1,000,000 quarters of Wheat for which we shall be dependent on foreign supply. . . . The result of this estimate is mainly governed by the supposed increased breadth of land sown with Wheat last season. . . . If my estimate should prove accurate, the present price of Wheat is not likely to be maintained." I now propose to examine what this estimate is worth. Barley land and Wheat land are two very different things. There is a great quantity of land growing Wheat which will not grow Barley. The proportions may be two to one, or still greater. Yet Mr. Caird assumes that they are equal, and that one-fourth of the Barley land having been sown with Wheat, that crop was thereby increased one-fourth. And conceding as a fact that one-fourth of the Barley land was sown with Wheat (which many will deny), it does not follow that the yield of Wheat was increased in a like proportion, because Barley land is just that kind of land upon which the extreme severity of last winter acted most prejudicially. As to the price not being maintained, my information leads me to an opposite conclusion. I think it will be higher. How does it appear that substituting Wheat for Barley can reduce the price of the former in any material degree? The breadth of Barley being reduced, the crop would be reduced in proportion. By the action of a natural law the price of Barley would rise, and Wheat would follow. *W. R. Carter, Pickhurst Green, Bromley, Kent, November* 6.

There appears to be no question now that the Wheat crop of this country is deficient, and that we are not likely to receive supplies from abroad of sufficient amount to reduce the price of bread very materially. My present purpose, however, is not to argue on the amount of corn either grown or likely to be imported, but to point out a matter of some importance to the community at large with respect to the manner in which what we have to consume is used by the labouring classes especially; and as the *Gardeners' Chronicle* is circulated amongst a class of people particularly adapted to persuade and induce economy, I have ventured to call their attention to the useful work before them, hoping they may be willing to point out to all classes, but the labourer in particular, the necessity that exists for economy in the use of bread, not only in the quantity as far as is practicable but more particularly in the quality. Being a miller, I am of course in a position to know what description of bread forms the staple food of the people, and I am surprised to find that up to this time no lower description than good household bread is at all saleable. To point out more fully the saving in adopting the use of a coarser article, I need only tell those persons who are unacquainted with the business of a miller that to make a sack of flour of a quality sufficiently good for the bread I have just spoken of, there is a loss to the consumption of the country of at least a stone of flour in every quarter of Wheat ground. This we call sharps, which are, strange to say, at the present moment almost unsaleable, either alone or mixed with a proportion of better flour. For coarse bread that it is both useful and wholesome I can prove from the fact that when the 4 lb. loaf was as low as 4*d.*, the poor people eagerly bought it up, and even used it mixed with Barley; if the low price of wages, which was, I imagine, the cause of the demand for it, then made it eatable, why should it not now be consumed when there is evident cause for every one to economise the consumption of flour? Since harvest I have done all in my power to get the bakers to sell it, but up to the present time to no purpose; in two instances this week I have had it returned.

There is just one argument in favour of the use of good bread — other articles of food, such as meat, cheese, butter, &c., are all very dear, and perhaps little of those come now to the share of the working man; bread, then, is his real staff of life, and if he is to do a good day's work he must be well fed. So much for the labourer himself, but he is not the only consumer by any means; how about those five young "brats?" — they eat the larger share of the weekly supply, and are called upon to do no work; cannot some, if not all, their share be of a coarser description? This requires looking into: we are called upon as farmers to pay high wages to the labourers, and most cheerfully have the farmers responded to the call, but if the extra pay is only to be spent in what really has now become a luxury, it is really doing no good; the family, in fact, who spend the whole in extravagant articles of food when they might save, are making a bad return to the employees, by being applicants to the unions for relief immediately any bad weather or other cause throws them out of work, whereas economy would enable them to lay by for a few days of lost work, and enable them to avoid debt and dependence on poor rates, a tax which it is by no means necessary to increase; all other burdens are daily becoming heavier, and although there is a prevailing idea that farmers are earning great profits, I beg, without giving vent to an agricultural grumble, to inform those persons that it is not all gold that glitters, the price of Wheat is not the index of the pounds per acre, which latter are likely, in many instances this year, to be inadequate to the increased expenses we are called upon to pay.

A good wholesome loaf of bread may be made from a mixture of household flour and sharps, and can be sold by the baker at 1½*d.* under the quality of bread now used, and it is of better quality far than what they (the labourers) voluntarily consumed some three years since. Without wishing to advocate any undue interference with the affairs of the labourer, I cannot help thinking that there might and ought to be some change made as pointed out; and no better class of persons, I am persuaded, exist than the readers of the *Gardeners' Chronicle* to persuade the lower classes to make the alteration. *A Miller.*

The following are extracts from the correspondence of the *Times* on the subject:—

"Mr. Caird says that during last autumn every acre that could be got ready was sown with Wheat, and when spring came Wheat was substituted for Barley wherever it was practicable; and he adds that if we suppose only one-fourth of the usual breadth of Barley land was sown with Wheat, that on the four-course system would add one-fourth to the breadth of land under Wheat. It is quite true that when land was in high condition, or where the tenant was needy or grasping, this substitution of crops might occasionally be made, but I hold that this could only be done to a very limited extent. Farms in regular course of husbandry can seldom be taken out of that course without ultimate loss to the occupier, and so well is this understood that most good farmers altogether ignore such a practice. I may here state that a land agent of great respectability told me yesterday that on one of the estates under his care, containing over 2000 acres, there were not 5 acres sown with Wheat where Barley should have been. As Barley at this time is only worth about 1*s.* 3*d.* per stone, and Wheat is worth more than twice that rate, one cannot believe there exists any such scarcity of Barley as the supposed reduced quantity of land sown with it should show. I do not therefore think that any very large quantity of Wheat can safely be calculated upon as coming from that source. I am also obliged to differ from Mr. Caird in his estimate of the defect in the yield. Having threshed over 30 acres of Wheat of this year's crop, and most of it very little lodged, I find the deficiency much greater than that assumed by Mr. Caird. From my own observation, and from answers to inquiries among the numerous agriculturists with whom I have discussed this point, I am led to the conclusion that there is at least one-sixth deficiency when the loss in yield and weight is taken into consideration. Mr. Caird quotes the quantities of Wheat delivered in the week ending on the 6th of October in the years 1853, 1854, and 1855, and, finding that the delivery in the latter year is greatly in excess over that of 1853, draws the extraordinary conclusion that therefore a greater breadth of land had been in Wheat. I venture to give a different explanation. Since 1853 locomotive steam threshing machines of great power have been extensively employed, and by their agency large quantities of corn have been threshed and afterwards marketed. Under the old system this could not possibly have been accomplished, as the horses could not have been spared at this season from the other important operations on the farm to work the horse threshing-machine. In my opinion, the employment of this new machine is the chief reason why there has been so great a delivery of Wheat so early in the season. The present crop has one great advantage—it is all perfectly sound; hence it can all be used for human food. There is also a very great crop of Potatoes, and but partially diseased. Barley, too, is in general over an average crop, and, no doubt, a good deal of it will be mixed economically with Wheat, and ground for bread-meal. If the winter prove severe, there will, I fear, be much privation and suffering among the poor; still I cannot but think it better that the truth should be told and the strictest economy advised, rather than that persons should be lulled into false security by erroneous, though friendly statements.

"H. J. TURNER, Richmond, Yorkshire, Nov. 7."

"I entirely differ from James Caird as to the breadth of land under Wheat being greater than last year or one-fourth more than an average, for, owing to the comparatively small quantity sown in 1852-3, the largest extent of land a proper rotation of crops will allow of was applied to Wheat in 1853-4, and therefore could not again be planted with that grain in 1854-5. I think this is corroborated by the present abundance and relative cheapness of Barley, notwithstanding the cessation of imports, averaging near 20,000 quarters per week since 1846, and although we have now some export to Holland, &c.; likewise a large quantity in some districts is being ground with Wheat. On my own farm, with every desire to sow as much Wheat as possible, I was unable, for the foregoing reason, to plant as many acres (of Wheat) in 1854 as in 1853. As to the yield, I have the last week threshed four fields of Wheat, one of red Lammas, another of Mummy, a third Talavera, the fourth Scotch white, and the average produce is 14 imperial bushels per acre, against 36 bushels per acre last year; and, as I own a travelling steam threshing-machine, I have an opportunity of knowing that my case is not an exception in the neighbourhood. At the same time I freely admit that I know of some good crops in the counties of Worcester, Gloucester, Salop, Northampton, &c., which have been proved to be so on threshing; but in only one instance does the produce amount to within 10 per cent. of what was grown on the same farms last year. James Caird states the deficiency may be made up from America and Egypt, but the export from the latter is prohibited after the 6th January next. The extra quantity returned as sold since harvest I attribute entirely to more pressure having been put by the Excise on their collectors of returns. In one point I fully agree with James Caird —that is, the decrease in consumption in consequence of the high price, and I think his estimate from this cause is less than the reality, which alone may prevent prices going much, if any, higher. *Charles Sturge, of the firm of Joseph and Charles Sturge, Birmingham, 11th month,* 6.

THE KEYTHORPE SYSTEM OF DRAINAGE.

THE ploughing and draining matches in connection with the Leicestershire Agricultural Society took place on the 1st instant on the farm of Lord Berners, at Keythorpe. The local attendance was numerous, notwithstanding the wetness of the weather. As guests of his Lordship at the Hall there were present the following gentlemen from other districts, viz., M. Trehonnais, a celebrated French agriculturist, who is actively engaged in connection with the French Government in the introduction of the English breeds of cattle and English system of cultivation into France; Mr. Mechi, of Tiptree; Mr. Bullock Webster; Mr. Baker, of Writtle; Mr. Wilmot, and Mr. Trimmer, who had been the first to draw public attention to the Keythorpe system of draining, and to explain the principles on which its success depends.

The wetness of the weather afforded a complete test of the efficacy of the system. There had been 48 hours of heavy and incessant rain, and yet upon the strong clay loams of this farm, with a substratum of lias clay, into which in their undrained state a horse would have sunk fetlock deep, there were assembled 26 ploughs in one

field as competitors for ploughing their half acre each, and 23 in another as competitors for ploughing the straightest furrow. One of these fields, containing 20 acres, 1 rood, 23 perches, had been drained in 1851, at an expense for labour of 32*l.* 7*s.* The other, a Clover lea, in which 26 ploughs were assembled, contained 17 acres, 2 roods, 10 perches, and had been drained at a cost for labour of 32*l.* 15*s.* 7*d.*

While the judges were deciding on the merits of the work, the ploughmen and drainers sat down to a substantial dinner at the farm, after which the prizes to the successful candidates and the gratuities to the unsuccessful were distributed by his lordship, accompanied by exhortations and advice as to their moral and religious conduct, which were delivered with much feeling and received apparently with much attention. At the dinner in the Hall, at which upwards of 70 partook of his Lordship's hospitality, after the few toasts of a public nature, "The Queen," "The Royal Family," "The Navy and Army," had been given by Lord Berners, he proceeded to the agricultural toasts, and called for the agricultural remarks which they were intended to elicit. His lordship first proposed the health of Mr. Trimmer, and called upon him for an explanation of the Keythorp system of draining, and the principles on which its success depends. In responding to the toast, Mr. Trimmer briefly pointed out the absurdity of supposing that the variations of soil are dependent on the strata of our geological maps, in which all the superficial accumulations are supposed to be removed, in order that the rock nearest to the surface may be represented as the actual surface, though those superficial accumulations vary in depth from something less than a foot to more than 200 feet. He stated that having long made these superficial accumulations his peculiar geological study he had pointed out in 1837 in a paper on the "Agricultural Geology of Norfolk," published in the Journal of the Royal Agricultural Society of England, that at the junction of the soil and subsoil there are at certain depths a series of natural ridges and furrows which have in general a determinate direction, and he had intimated that they must have an important bearing on questions of drainage and subsoiling. In a lecture delivered some years afterwards before the Royal Agricultural Society, he had pointed out how he considered that the contradictory statements so frequent in the controversy then raging as to the failure or success of deep or of shallow draining, might be reconciled by observing whether the drains crossed or ran between these natural subterranean ridges and furrows. He further stated that Lord Berners, who was present on that occasion, had observed that if what Mr. Trimmer called ridges and furrows were the same as what in Leicestershire they called "clay banks," he could bear testimony to the soundness of these views, as he had for many years been in habit of taking advantage of them in draining operations, and had thereby been able to effect a considerable reduction in the cost. On a subsequent visit to Keythorpe, Mr. Trimmer had found these clay banks to be identical with the natural subterranean ridges and furrows which he had observed in many other localities in England, Wales, and Ireland. In conclusion he adverted to the presence of Mr. Mechi, Mr. Bullock Webster, and Mr. Baker as the respective representatives of deep, of moderately deep, and of shallow draining, and expressed a hope that they would favour the meeting with their views on the Keythorpe system of draining.

Lord Berners then proposed the health of Mr. Bullock Webster, who in returning thanks bore testimony to the efficiency of the drainage at Keythorpe, and adverted to the absurdity of supposing that water can filtrate through a retentive clay as stated by some great draining authorities. He adverted to some peculiar views entertained by Mr. Mechi on this point, and begged to reserve himself for a few further observations when that gentleman should have spoken.

The health of Mr. Baker, of Writtle, having been proposed by Lord Berners, that gentleman returned thanks in a long speech, embracing a great variety of topics, which we are prevented by our plan from noticing, except as far as his observations bore on the Keythorpe system of drainage. He bore testimony to its efficiency as well as to the excellence of the general management of the estate, denied that he was a shallow drainer, as he had been described to be by Mr. Trimmer, though, he contended, that if there was a porous soil only 2 feet deep on an impervious subsoil nothing was gained by carrying the drains into the latter.

Then followed the great speech of the evening, that of M. Trehonnais, who in the most feeling and eloquent terms adverted to the union now happily subsisting between France and England, whose best blood was shed together in the same cause—the cause of freedom and civilisation. He then adverted to the eminence of the British nation in arms, in arts, in science, in commerce, in literature, and, though last not least, in agriculture. He lamented the short-comings of his own country in the latter particular, he referred to his own labours for its improvement, and to the difficulties with which he had to contend from the want in France of a race of trained and skilful rural labourers like those of England. A rev. gentleman, whose name we could not learn, in proposing the health of Lord Berners adverted to his lordship's case of the agricultural labourers on the estate and to the improvement which had taken place of late in their treatment throughout the county, though much yet remained to be done.

Lord Berners having responded with much feeling, then proposed the health of Mr. Mechi, adverting to his labours in the cause of agricultural improvement, his zeal as a bold experimenter, the candour with which he communicated his failures as well as his successes, and the unruffled good temper with which he endured the severest criticisms.

When Mr. Mechi rose to return thanks, he was greeted with applause, second only to that with which M. Trehonnais had been received. He adverted in his usual happy manner to the various agricultural subjects which form the staple of his speeches; he spoke of the success of his own farming operations, the extraordinary profit of which excited some laughter, eulogised all he had seen at Keythorpe, and bore testimony to the efficiency of the drainage there, though he did not touch on the peculiarities upon which the success of the system depends. In the course of the evening the judges of the ploughing and draining, the office-bearers of the society, and several of the farmers made some interesting and valuable remarks on a variety of practical questions, and the meeting broke up under the impression that they had rarely spent a more agreeable evening, or one at which a greater variety of subjects had been discussed without undue prominence being engrossed by any.

Home Correspondence.

Thin Seeding.—It was with much pain I read your stricture on Messrs. Hardy's cultivation of Wheat. Out of almost 100 acres of land, which these men cultivate, and with industry deserving the highest praise, and skill surpassing the age in which they live, you single out two square yards out of 484,000 for comment and condemnation. Now, the highest cultivated piece of ground I know, and the most productive—for the produce is enormous and beyond all expectation—a few years since was a barren waste, the ground having been skinned and skinned until apparently all the vegetable-bearing soil had been carried away. I time after time pressed its cultivation; but was frequently laughed at for so doing by land cultivators. But at length this plot, consisting of 9 acres, was commenced to be cultivated; and now I will challenge the produce, consisting of vegetables only, for quality, quantity, and value, against that of the same quantity of land in this country, and year by year. Now, let me tell you, on this land experiments on a small scale, exactly similar to those made by Messrs. Hardy, are made, and some were made this last year, and with as complete success as Messrs. Hardy's were. That is, some single yards square were marked out, and a single Potato planted in each; and the result has been about a peck of as fine Potatoes as ever were grown from each Potato planted in a square yard. I also know a clergyman, who himself cultivated thoroughly his own garden with his own hands; and his plan throughout is the same as the above. On a visit to him this summer I myself witnessed the fork put under roots, and from 24 to 30 large Potatoes, like flour when roasted or boiled, were turned up from each root from single Potatoes planted, and all the other vegetables in the garden were cultivated on the same plan—that is, every plant grew singly, as I myself also have always planted my cereals, and the produce was equally surprisingly luxuriant. But on the above 9 acres of land I have known the common spring culinary Cabbages, which under common cultivation weigh ½ lb., or 1 lb., or 2 lbs., or 3 lbs. perhaps, weighing 34 lbs. and 36 lbs. each. This day week also I saw a plot of culinary red Carrots being dug up, many of which weighed near 9 lbs. each; and I myself have grown Potatoes for experiment, three of which weighed 10 lbs., and of course on the same plan. But you object to the two square yards of Wheat in the midst of 13,300 square yards, planted chiefly on the Lois-Weedon system, which I believe you approve of. I myself do not approve of this system, believing that it is not adapted for general practice; and, besides, the only examples of it—three only—I have seen, except this one of Messrs. Hardy's, have been failures. But Messrs. Hardy adopted it on 2 acres and three-fourths of the land they cultivate, and I think with complete success. On the 27th July last, the day before my friend Mr. Mechi's gathering, I walked over every rod, or up or down almost every furrow of this land; and I wish you had been with me, and I think if you had you would not afterwards have penned your leading article of the other week;—you would have looked at the whole plot, and not at the two square yards only, though they deserve attention. I observe I do not like the plan because not more than one-third of the land was cultivated with Wheat—the rows being 1, 2, 3, and 4 feet apart—and the rest planted with Potatoes, averaging 2½ feet between each row. Each grain of seed had been planted separately in each row, and I counted on some few roots 40 stalks, each having on it an ear of Wheat; I gathered also, as I walked about the field, several ears, each of which had in it from 90 to 96 grains of fine plump Wheat. I do not know the produce, but it must have been very large indeed, considering that in reality one-third only of the land was cultivated with Wheat. I believe the *Agricultural Gazette* recommends about 1½ bushels of seed per acre, or from 15 to 18 seeds in every square foot of land; whereas, had the whole of the land been planted by Messrs. Hardy on their plan, one grain of seed only would have been put into a square foot of ground. Should the reader smile at this kind of calculation, or even scoff, as many will, I observe there is more in it than meets the eye. For four years in succession—year after year—I myself drilled, with a drill I made, a field with Wheat in rows 12 inches apart, dropping the seeds into the rows singly, seed after seed; I varied the quantity in the rows, but always kept to the same distances between the rows, so that the quantity of seed varied per acre from ½ a peck to 2 pecks an acre. The produce averaged for the four years 44 bushels of beautiful Wheat an acre. I likewise drilled 2 pecks of Barley on an acre, and had 63 bushels of fine malting Barley from 2 pecks of seed, or 252 pecks. I hope therefore, no discouragement will prevent Messrs. Hardy, who are most industrious and very intelligent men, from persevering in their very praiseworthy course. I pronounce them to be public benefactors, and to deserve the support and protection of every well-wisher to his country, and especially of every landed proprietor. *Geo. Wilkins, Parsonage, Wix, Oct. 30.*

Agricultural Improvement and Increased Prolificness.—It is the duty of every wise cultivator, aided by the lights and instructive lessons of analytic chemistry, to strain every effort in order to increase the produce of the land, and thereby to meet, as far as is possible, the emergency of the times, and supply the deficiencies resulting from war. But how bring about those *desiderata?*—that is the question which it is the object of the following hints to solve. The farming mind, we are now told, "is broad awake, and only waiting for farther development and mechanical advances. It is incalculable to what extent our culture might have attained in the late admirable season, could steam appliances have been brought into general use in aid of animal power." This truthful observation points to the deep working and pulverisation of the ground, and these can never be effected without bringing up a good subsoil, to the full depth of 12 or 14 inches. There once were great differences of opinion on this subject, and we frankly admit that it would be sheer folly to work up a hungry gravel or a solid bed of chalk, the former because it is worse than inert, and the latter because it is in itself a capital absorbent drainer, obviating, to a great extent, the necessity of forming artificial drains. Now a good system of thorough drains, made truly level in their gradual fall, constitutes one of the requirements of fertile husbandry. The Isle of Thanet, in Kent, bears out this truth, for there the chalk rock does not only drain the surface earth, but also supplies the roots of plants with moisture by its power of retaining water. These preliminaries being admitted, we are in a position to consider what a thorough preparation of arable land connected with a corresponding system of enrichment really is. The following case in point occurred in our own experience. A plot of ground was trenched as in garden tillage; the surface Grass turf was then thrown at the bottom of each deep trench, upon that the upper soil was deposited, and the subsoil brought to the top. This soil abounded with coarse sandy grit, that caused the more loamy (aluminous) constituents, when wetted, to bind in hard intractable clods. When such a subsoil is met with and brought to a surface it ought to be immediately so enriched with spit farm and f ld-yard dung as to constitute a perfectly rich bed in the first instance. And we may farther add that, as loamy soils invariably fix and hold fast organic and saline manures, a field so treated would be prepared at once for a Turnip crop followed by Wheat. Water, however profuse in quantity, would never wash out the manure; and nothing except the vital energy of successive crops would ever exhaust it. But what is this vital energy, and how can we define it? It is not sensitive—it is not mobile; hence we arrive at the conclusion that it is essentially an attractive force, and if so, there exists but one great agent to which we can refer, and that is electricity. Here also we obtain that which opens to us and explains the fertilising influence of all manures. Analytic chemists have proved to a demonstration that wherever there is decomposition or combination, electricity is called into play; and by this simple fact the great superiority of farm-yard dung is established. This is a fortunate circumstance, since upon every farm a quantity of organic manure is unavoidably produced, and must be used. During its preparation in the dunghill carbonic acid and ammoniacal gases are extricated, but never lost, for that great storehouse the atmosphere first receives and then returns them with interest in fertilising showers. We would, however, employ farm-yard manure in every farm, nor by any means wait till the whole of it be reduced to the condition of black spit dung, but in every case of deep laboration, whether by a steam cultivator or the spade, we would deposit at the bottom of each trench a deep layer of recent manure, the gases rising from which would combine with the covering earth, and be thereby retained by its attracting and fixing power. Something remains to be said of manures in general. They are few in number, among which first and foremost stand the organic products of the farm itself, for the reasons above assigned. Next stands sound and pure guano which comprises soluble phosphates, sulphates, and muriates with alkaline and ammoniacal bases, combined with the finest bone phosphates, urea and some urates, This comprehensive manure combines well with spit-dung, if judiciously intermixed, and is itself a most valuable appliance in many operations. Bone-dust and bones digested in diluted sulphuric acid possess specific qualities; but unless we could prepare from fish a worthy representative of guano at half the price of that wofully adulterated substance, we feel but little inclination to notice the doubtful compounds advertised as "artificial manures." The prosperity of agriculture and the increase of its productions to double their present aggregate amount, are the earnest desire of the writer, and these could certainly be realised under a

system of thorough drainage and deep laboration of the ground. *Veritas.*

Land Drainage.—In your last (p. 732), Mr. Bailey Denton draws attention to what he not inappropriately terms the very extraordinary circumstance of drains recommencing running upon a fall of the barometer without any fall of rain on the surface. An analogous phenomenon is recorded by Prof. Brocklesby, of Hartford, Connecticut, in a paper read before the American Association for the Promotion of Science, which will be found in the (American) "Annual of Scientific Discovery" for 1854. He observed on two occasions that the rising of the surface of the water in a spring near the town of Rutland, in Vermont, was followed by a fall of rain after an interval in one case of two or three days and in the other of 24 hours. The spring rose several inches, and overflowed. "On inquiry it was ascertained from the residents in the vicinity that the phenomenon was one of ordinary occurrence, and that for the last twenty years the approach of rain was indicated by the rising of the spring. Interested by these facts," says the professor, "I sought for others of a like nature, and requested through the public prints information upon this subject from all who happened to possess it, and also upon collateral points which were conceived to have important relation to this phenomenon. I was rewarded by the knowledge of only one additional instance, existing in Concord, Massachusetts, where a spring that supplies a certain brook is said to rise perceptibly before a storm. I have not been able to ascertain the state of the barometer, either at Rutland or at Concord, at the times when the phenomenon in question occurs; nevertheless, I believe the true solution will be found in the diminished atmospheric pressure which exists before a rain. The waters of a spring remain at any given level, because the atmospheric and hydrostatic pressure combined exactly counterbalance the upward force of the jet. The spring will therefore rise either when the force of the jet is increased while the atmospheric pressure continues the same, or when the latter is diminished, while the former remains constant, and the elevation is greatest of all when the decrease in the density of the atmosphere occurs simultaneously with an increase in the strength of the jet. The rising of the water in the instances related cannot, I think, in view of the facts detailed, be fairly attributed to any sudden augmentation of force in the current of the springs, but is to be regarded as the result of diminished atmospheric pressure occurring at the particular times, in perfect accordance with known meteorological laws." On the same grounds we believe the fact stated by Mr. Bailey Denton may be accounted for. If any of your readers are in possession of similar facts they would be doing a service to the cause of science by giving them to the public in your columns. As to Mr. Stephens' statement that a thermometer placed 18 inches below the surface in a drained soil is "not sensibly affected by the change of temperature in the atmosphere;" by "changes" he probably means fluctuations from day to day, as it is well known that the influences of the change of temperature of the atmosphere from the cold of winter to the heat of summer is felt to a depth varying from 60 to 100 feet below the surface of the earth. *B. D. T.*——In the "Cyclopædia of Agriculture" you give a figure and short description of a separator for separating different sizes of grain; further details as to its construction and the price at which it could be made would oblige. [We believe it costs 12*l.* to 15*l.* Apply to any of the chief agricultural implement makers.]

Portable Buildings.—[Mr. Porter, of Gas Street, Birmingham, to whom we referred in connection with corrugated iron roofing, has sent us a description of his method of constructing and erecting portable buildings of ordinary planks or boards, which we publish here as being applicable we think to farmeries and shelter sheds.] This method of constructing portable buildings, of wood or iron, has been carried out on a considerable scale (chiefly in the latter material) for emigrants' houses and stores; but in using corrugated iron plates for the sides and roofs of houses it is necessary, on account of the rapid transmission of heat and cold through the metal, to have an inner lining of non-conducting materials, of a more or less expensive description; and while this answers for buildings of a more important and permanent character, in localities where the ordinary building materials and labour are comparatively dear, it enhances the cost and the bulk of what are required as portable and temporary buildings, to an objectionable degree. It is with the view, therefore, of meeting this objection, that the plank houses are designed, and as they consist of materials so familiar to every one under ordinary systems of construction, little more is needed here than a description of the peculiarities of this method, of which the simplicity is its chief recommendation. It consists, then, mainly in the construction and adaptation of upright grooved posts, formed of wood and metal, in such a manner as to combine cheapness of construction with lightness, strength, and durability. The metal grooves of these posts are fashioned to receive the ends of the planks forming the side walls of the building, and present, in a neat and pleasing form, both on the interior and exterior of the wall, a perfect metal covering to the joints, from the ground to the eaves. The posts are either shod with iron, for driving into the ground, or fitted to a sill of timber, to be laid on a more or less permanent foundation. The planks or boards (having in view a sufficient strength, and an economical arrangement in the spacing of the upright posts) are generally about 1½ inch in thickness, 9 inches in width, 9 feet in length, and weigh about 23 pounds each. These are laid on their edges, one upon another, their ends passing down the metal grooves of the posts; the bottom plank, in some cases, being sunk a few inches into the ground. (When thinner boards are used, it is necessary to employ a greater number of the posts, or to give stiffness by the addition of an intermediate upright of some kind). Where they are not likely to be injured in transit, or the building too often removed, the edges of the planks are "ploughed and tongued," "halved" or "bevilled," otherwise, for the sake of economy, and to avoid the risk of injury by a little rough usage—very likely to occur at the hand of carriers and persons inexperienced as workmen—the edges are left quite plain and the horizontal joints covered with a strip of metallic canvas or asphalted felt, either entirely on the inside, or passing between the edges of the planks, turned upwards on the inside, and downwards on the outside of the wall. The upper and lower planks alone are "fixed" to the posts, and these are secured by screws passing through the metal lips of the grooves. The upper plank is fixed with a space of about 2 inches between it and that next below it. This aperture serves for ventilation (moderated where desired by a strip of canvas or cloth, or of perforated zinc) and admits of the easy adjustment of the lower planks, should they slightly shrink or expand from excessive heat or moisture of climate. Thus it will be seen that with a number of the grooved posts formed exactly alike, and a quantity of planks or boards sawn to a uniform size, and without "fitting" of any kind, the side walls of a house may be rapidly put together by persons totally unaccustomed to ordinary construction or mechanical operations. As regards the roofs, a simple arrangement of boards reaching from the top planks of the walls to a ridge board (supported by light posts or partitions in the centre of the house) and covered with metallic canvas, tarpaulin, or asphalted felt, sent out in rolls of convenient size and weight, will be sufficient in many cases. It may be preferable, in some cases, to have the roofs of corrugated iron, in plates or tiles of convenient size for handling; this material, which is very light and strong, being of more durable nature than the felt covering on boards, and equally well suited for removal and re-fixing. The cost is somewhat greater, and its adoption will be governed by circumstances. Where boarded floors are required the materials are arranged like the other parts of the houses, with a regard to their probability, and to the facility with which they may be put together at their destination. This method of construction, it will be seen at once, is suitable for a variety of purposes, and for none does it appear to be of more value than for farm buildings of various kinds, for fences, and for folding sheep. For the latter purposes, the planks or boards can of course be narrower and fixed at any suitable distances apart. As a means of sheltering sheep, in exposed situations, this kind of fencing may be made very useful. Where timber suitable for the planks or boards already exists upon the estate, it will be necessary only to obtain the "Patent Posts," and the ordinary labourers, assisted perhaps in the more important structures by a carpenter, will find no difficulty in erecting the buildings, the simple construction of which admits of their being as easily taken to pieces, when desired, carried to another site, and re-erected, without injury to the several parts. The want of stabling is very frequently felt by persons having, on short leases, dwelling houses and land without such accommodation, and for which they are unable to make satisfactory arrangements with the landlord. The system of construction here treated of offers a means of supplying that want, in the shape of a cheap temporary building, removable by the tenant at the expiration of his lease; and here it may be well to point out an advantage in this system which may hitherto have escaped notice, viz. the convertible state of the planks or boards, should a building no longer be required, and it be found desirable to dispose of, or to convert to other purposes, the materials of which it is composed. From the description already given of the manner in which the planks are connected with the posts, it will be seen that they are not injured by a number of nails, as in the usual modes of construction, nor are they so slight, or so fixed, as to be injured by warping, or by splitting from shrinkage or swelling. It is scarcely necessary to point out any other of the many purposes for which buildings and sheds of this kind may be adopted with advantage, as they will naturally suggest themselves to those who may be in want of a cheap and ready mode of providing themselves with dwellings, workshops, farm buildings, stables or outbuildings, of a more or less temporary character.

Agricultural Shows.—It appears another class of animals will soon be admitted to compete at agricultural meetings. "Baby shows" were supposed to be imaginary, advertised, and noticed in "Punch" to amuse the public; however, report speaks of such exhibitions becoming fashionable. It will be necessary to place the "babies" on the only list open to them, viz. sucking pigs. Of course their birth, parentage, &c., whether pure Saxon, or a cross of Norman or Celt, will be duly recorded, in order to ascertain the most improved breed. The mothers should also appear in a dress to show off the figure, and produce certificates of marriage, general health, number of children born within a certain period, &c.; a statement should also be made of the nourishment swallowed during the time of feeding the "baby puppy." *Frater.*—P.S. If baby shows are fabulous this may be consigned to the flames. *Falcon.*

Wheat Growing.—There is a notice in your Number of Saturday of a publication by Mr. Cooke on Wheat growing. It appears that he assumes that 48 bushels are to be obtained per acre by proper management and capital, but in stating this assumption you do not go on to quote from his book the way that his end is to be attained. Will you be so good as to inform a subscriber if this is laid down in the work, or if not, can you recommend any publication which would contain such practical advice as to aid in the attainment of such a result as Mr. Cooke supposes to be possible? *S. E.* [Mr. Cooke does not give detailed instructions. These are to be found in systematic works on agriculture. See Blacker on "Small Farms," and O. O. Roberts on "Agricultural Improvement the Antidote to Agricultural Distress."]

Farmers' Clubs.

Haddington, *Oct.* 2.—*The probable causes of frequent failures in winter Wheat, and the best mode of top-dressing that crop.*—Mr. Hope, of Fenton Barns, said, As I am not prepared to admit that failure in winter Wheat is at all the rule in this county, I think the first part of the question would have been better stated by substituting occasional for frequent failure. I maintain that if land is properly drained and filled with manure, and freed from weeds by the cultivation of green crops, good seed Wheat selected and sown in proper season, an abundant crop is as certain as anything else can be in this changeable scene. Doubtless it is exposed from the moment it is sown to the depredation of insects and various kinds of vermin, which devour the seed, the blades, and stems in every part of its progress, and even the grain when it is forming in the ear. The weather also is often detrimental, biting frosts may altogether destroy it, or blight, rust, mildew, and smut may affect the quality and diminish the produce. But experience has shown that much may be done at least to mitigate these evils, if they cannot be altogether prevented. Frost very rarely destroys Wheat on dry land, unless where it has been too early sown, and become what is called "winter proud." Blight or mildew seldom seriously affects the crop when it is thick on the ground, unless vegetation is very rank from the direct application of manures, or from the confined or sheltered position of the ground; but we know that an application of 1½ or 2 cwt. of common salt sown in spring is certain to secure straw of the brightest colour and grain of the finest quality, though in fine seasons this diminishes the produce, which prevents it being recommended for universal adoption. We are all aware, too, that washing the seed in a solution of blue vitriol is a complete check to smut; any one who has crops damaged by this has his own carelessness or laziness alone to blame. Even the ravages of the Wheat midge, which at first sight appear to be almost beyond human control, and which annually give me for a short time more anxiety than all other causes, I feel persuaded, can, to a certain extent at least, be mitigated by sowing only the shortest strawed and quickest blooming varieties. Still, without doubt, there is here and there an occasional failure of winter Wheat, and we often enough see indifferent fields. I frequently observe that a better crop would have been obtained had a more suitable period been selected for sowing the seed, or had the ground been in a somewhat different state. Practical experience alone must teach every farmer what period for sowing is most suitable for his soil and locality, and these vary so much, that no man can venture to dogmatise either on that or the quantity of seed necessary for an acre. Wheat also requires a certain degree of consistency in the soil, in order to produce a full crop. Even heavy soils are better to be damp above so as to work down freely, but there should be no clagging, and the horses' footsteps should be fully obliterated by the harrows, otherwise the blades will be yellow in spring, the straw short and feeble, the heads down, and the crop only a half one; indeed, in these cases it is better to leave the land only half harrowed. The result is pretty much the same, if light land is sown very dry, as then the plants die out in spring from want of consolidation in the soil. Pressure with heavy rollers, aided by topdressing, if promptly done, will generally prove beneficial. From what I have seen, and lately heard, I am inclined to think that on light soils land should not be ploughed at all after a green crop, but that the Wheat should be sown and covered by grubbing lightly; or, if the soil is remarkably light, I would prefer a crop of spring Wheat as the more certain. The occasional cause of injury to Wheat fields in this county, though it was more common 20 years ago than now, was the larvæ of small flies, named, I believe, Chlorops and Oscinus, eating into and destroying the centre stems of the plants in spring. In fields affected by them, the plants die out altogether when they are seized on after ceasing to derive support from the seed; otherwise, they often recover amazingly. Wheat sown after plain fallow is most liable to their attacks. Ploughing in the seed has been sometimes resorted to, to give the plant, it was said, a better hold of the ground. Wheat sends out roots from the seed, but however deep you bury it, when the stem reaches the surface, the coronal roots spread out, and the under roots die off, while the plant is weakened in proportion to the depth of soil it has had to force itself through. From delay in springing, the deep sown may have continued to derive support from the seed when what was nearer the surface might be destroyed from want of it. All the benefit derived from deep seeding may be obtained from late sowing, while, generally speaking, the stronger and more vigorous plants obtained from seed deposited near the surface are the

most to be depended on for a satisfactory crop. I have alluded to rust, mildew, and the Wheat midge, as occasionally diminishing the produce of our fields. I do not think I can add anything more to the hints I have already given in order to mitigate the evils occasioned by them. To get a full crop of Wheat you can scarcely apply too much manure to your previous green crop—the soil should also be free from all weeds. I find the best time for sowing is the last week of October, and all the month of November; but as the season advances, greater care is necessary that the land is not over-wet, and to be more sparing with the harrows when it is at all doubtful. I prefer old seed at first. I drill the most of it, and find that 2 bushels or 8 pecks are enough for a Scotch acre if sown in October, 9 pecks in November, and 10 towards its close; but, if sown broadcast, I would give 3 bushels. With present prices, the saving of seed by drilling is worth attention. In spring I invariably roll all my Wheat, and either hoe it or give it a turn with light harrows. By these means I have almost invariably a fair crop, though some fields will be better than others. In regard to the best mode of top-dressing Wheat, I will simply state my own experience. For a year or two I have topdressed in spring almost the whole of that crop, partly with guano, partly with nitrate of soda and salt, and partly with sulphate of ammonia and salt. Last winter, I stated my views on this subject fully at a meeting of the Highland Society. This year my best crop of Wheat is where it was top-dressed with sulphate of ammonia and salt. Both the guano and nitrate produced too much straw, laying the crop, damaging the quality of the grain, and diminishing the quantity. I might have had a good round sum expended on artificial manures in my pocket, and a more valuable crop of Wheat to sell; but the season has been exceptional, for previously my outlay always paid me. I think I have done such ample justice to all my green crops, that I hope to be relieved of the trouble and expense of top-dressing them in spring. But if any part then appears as if it would be the better for assistance, I will dress it with sulphate of ammonia and salt. This year my friend Mr. Shirriff at Saltcoats has conducted a very interesting experiment, to ascertain the value of different manures as a top-dressing for Wheat. There is a singular difference in the bulk of straw produced, but he has not yet got the separate lots threshed to know the actual produce. I know he intends stating the result to the club; I only wish he had been able to have done so to-day. With these few plain remarks I now leave the subject in your hands.—Mr. R. Scot Skirving said, That the first of the topics which formed the subject of this day's discussion was one upon which he was very anxious to obtain information, as it was apparently shrouded in much darkness and obscurity. It was true, that, as the Chairman had remarked, a failure in winter Wheat, where the crop had been well managed, and the soil generously treated, was the exception, but at the same time instances were more numerous than might generally be supposed. But even if failure occurred once only in a hundred times, the subject would be one well worthy the attention of agriculturists. Failures in autumnal Wheat might, in many instances be accounted for, by being sown at too early or too late a period, by the seed being put into a soil too wet or too dry, or by being sown too thick or too thin; these, and no doubt other well known causes, might account for failure, but there were certainly instances, and these not altogether isolated ones, where fields failed from some cause so subtle as to escape ordinary observation. There was one general cause of danger to winter Wheat, to which for two years the country had been unusually exposed. The cold had been greatly more intense during the last two seasons than during other recent years, the thermometer having fallen to zero, and even below it. Fortunately much of the country was covered with snow, and as this was not equal over the whole ground, perhaps the frost, acting with more force where the snow was less deep, might peculiarly hurt fields, which it caught in some particular condition of dampness. As an example of the arbitrary and unaccountable manner in which these failures occurred, he might instance a failure in a field, belonging to his friend Mr. Reid, who farmed as near him as he happened now to sit. Here was a highly cultivated and well manured field, sown with Wheat after Potatoes, the crop of which was scarcely worth the reaping, thus forming a remarkable contrast to Mr. Reid's other field. Now, he believed Mr. Reid was unable to assign any cause for failure in this field, which might not have caused a similar result in the contiguous field. He knew another instance where a large extent of excellently farmed land had failed, the owner of which was unable to charge himself with any defect or deficiency in the management. The general rules laid down in the speech they had just heard were probably all that skill could at present suggest, but he trusted that future experience might yet discover some antidote or preventative to these remarkable failures in autumnal Wheat. With regard to topdressing he would make but a single observation; like the chairman he had this season largely used sulphate of ammonia, but his experience of it was not nearly so favourable, and he much preferred guano or Rape in autumn. The chairman had said that on account of much of his crop having been too soon "laid" he might have had a better return, and a good round sum in his pocket, had he not (on this exceptional year) purchased so largely. Now, it occurred to him, that this was the real cause of the success of the sulphate of ammonia. It had produced comparatively little effect, and consequently, like homœopathy, had succeeded by doing nothing. Mr. Shepherd, Gleghornie, said that the failures in winter Wheat were not now nearly so frequent as when he came to the county. At that time he used to sow his Wheat early, and failures were frequent—now he delays his sowing to November, December, and even January, and his Wheat is invariably thick in the spring. He mentioned that last year he had sown a large field, part in each of these three months, and the whole was good; nor did he think that frost killed Wheat, unless upon wet land, or with some defective management.

NEWTON ABBOT.—*The Labourer, the Farmer, and the Landlord.*—Mr. Palk, M.P., spoke as follows at a late meeting of the agricultural society here:—One material operation of the war was to impede the introduction of foreign corn into this country, and so to throw on the agriculturists the necessity of increasing the produce of the soil, to provide for the wants of the population. Another result which they would have to contend against was the great demand it created for human life. From every part of the country the young and active man, who in peaceful times would have become a labourer on the soil or a mechanic in the mill, was hurried off to the seat of war; and consequently a want of labour had for some time been felt. He had experienced it himself, and it had been called very seriously to his attention. There was another sad reflection he could not help making—it seemed that the farmer had not now the control over his labourer which he used to have. He had been told by many agriculturists that if they complained of the conduct of a man, or said a word to him, he demanded his day's wages, away he went and left the employer in a disagreeable position. He was satisfied that much of the damage that was supposed to be accidentally done to crops and plant of the farmer was due to the negligence of idle boys. In olden times there was a system—he did not pretend to say it was faultless, but it was attended with most excellent results—he meant the system of apprenticeship. The boy was carefully instructed in his duties by the farmer, while the girl was probably brought up under the eye of the mistress of the house, and both became useful members of society; but he regretted to say there was now a system of taking and dismissing servants without a character. This was a serious matter; for it appeared to him that the character of every man, whether he was the servant in the farm, or one who served his country in the senate—was dear to him and should be given to him. If they withheld from the honest servant the character which he had richly deserved, what recompense did they offer him? It was not the wages that the servant earned, nor the home that the master gave, which was most highly prized, but the hope of rising in his station—a hope which should be an inducement to every man and woman to do well, and which should be encouraged. Another question which had lately attracted much attention amongst those who wished well to the agricultural interest, was that of education—one worthy the attention of every man who had the well-being of his fellow-creatures at heart. The facilities of railroads induced men to travel, and the cheapness of literature gave them a taste for research. It was to the cheapness of literature, the opportunity of mixing with practical men, and of seeing different customs in different countries that the marked improvement in Devon farming was to be attributed. They had introduced a very superior system of cultivation into this county, and many of the innovations they had seen practised in other counties. So much had the necessity for education impressed the minds of those who took a lead in the legislature of this country, that they would see Lord Ebrington had offered a prize, which he (Mr. Palk) hoped would be well contested for, to the farmer's son who was the most proficient in history, geography, and mathematics. The noble lord had undoubtedly given this prize with every desire that it might stimulate the rising industry of the sons of agriculturists. He hoped on Thursday next to have the honour of meeting a large body of agriculturists in his neighbourhood, to show them a system—largely adopted in other counties, but not carried to such an extent as he had attempted to carry it—a system of meadow irrigation. For the last six or seven years, with the assistance of a tenantry, who, he believed, bore a richly-deserved reputation in this county, he had been remodelling some valleys, and turning orchards, hedges, lanes, and horrible holes, as he called them, into what had now become green and fertile meadows; all irrigated under a system that made the most of the running water, the atmosphere, and the sunshine. In conclusion, he asked the society why they did not give prizes for landlords as well as for tenant farmers and labourers? He would most gladly compete. Perhaps they would tell him that they already gave a high prize for landlords, and he admitted it, for where the landlord endeavoured to do his best for the tenantry, there they would find the best and most enterprising of tenants.

Notices to Correspondents.

TURNIPS FOR SEED: *J D.* We have been accustomed to plant in autumn selected tubers in a field not manured but of rich soil. If you have no such land we would plough in over old manure. Plant about 2 feet apart in rows, 3 feet apart if the land is rich.

ERRATUM. In the account of Fisken's plough at page 731, it should have been stated that "the strain upon the anchor furthest from the engine is no greater than the draught of the travelling machine *plus* the slight strain due to the tension, &c., of the light driving-rope," *plus* the draught of this rope, equalling one-eleventh of the draught of the implement. *I. A. C.*

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2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „ long	3 „ 3 „		1	14	0
3 „ ditto	3 „ 6 „		2	8	0
3½ „ ditto	3 „ 6 „		2	12	0
4 „ ditto	3 „ 6 „		3	3	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	10	0
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The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

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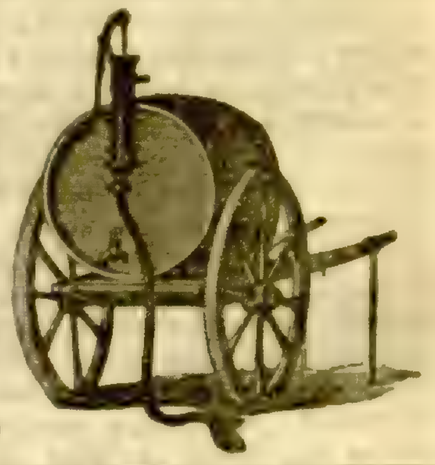

Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 6*d.* per foot.

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PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its Liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.—Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

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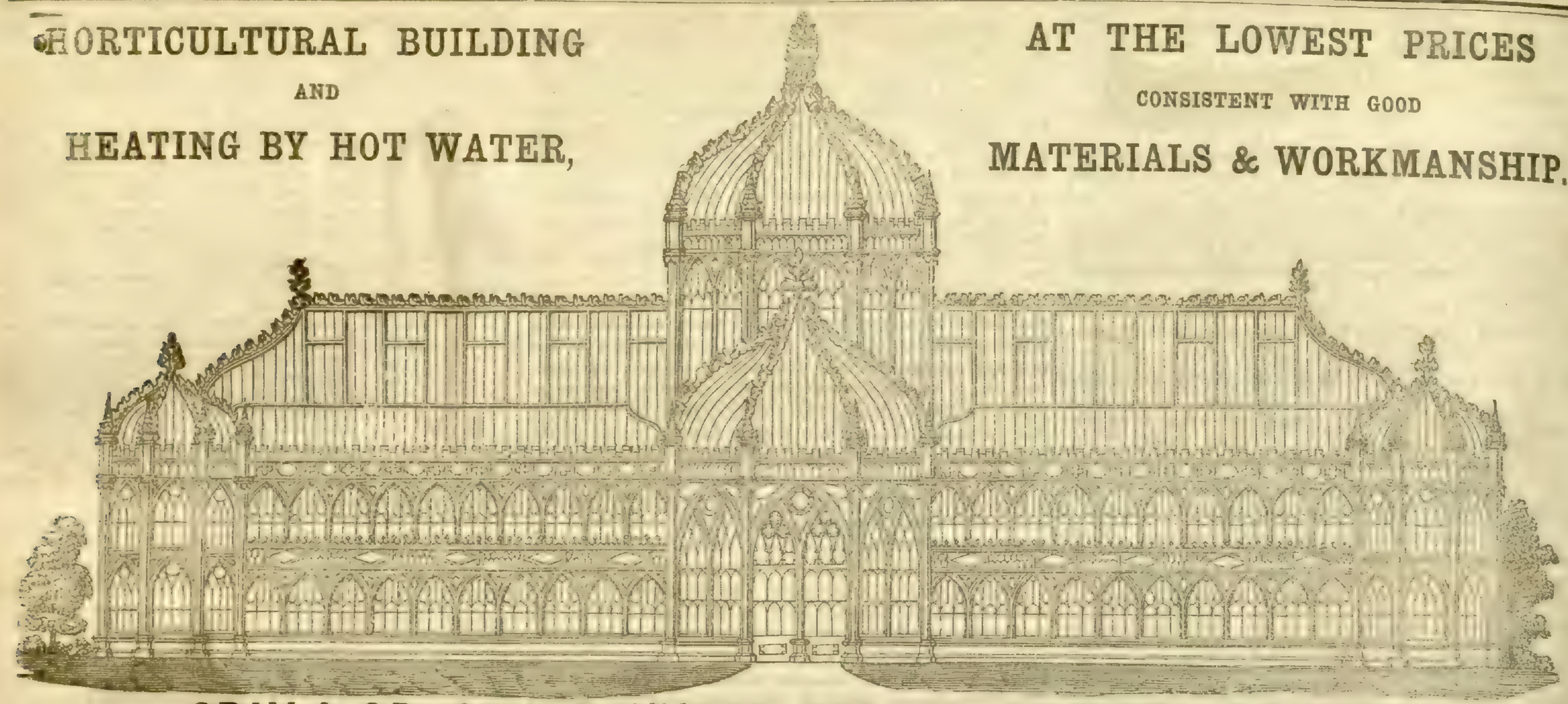

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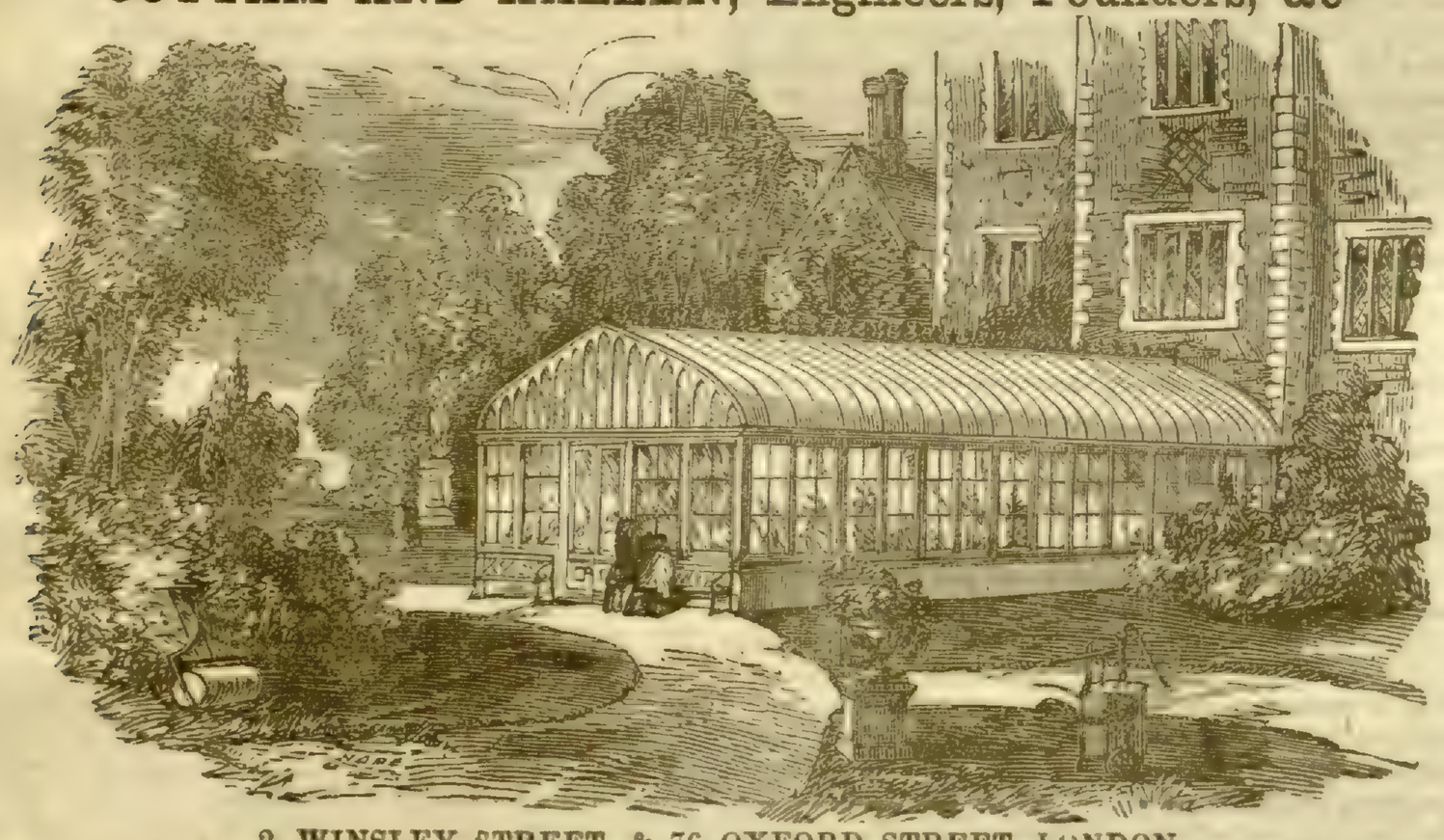

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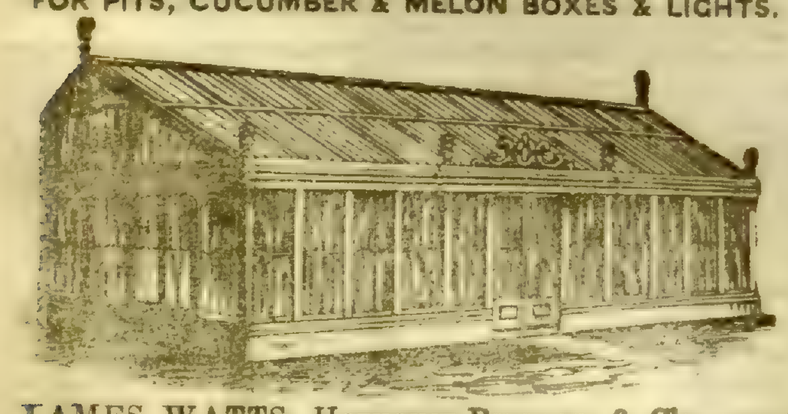
A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.
AGRICULTURAL LIST UPON APPLICATION.
EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,
EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility Gentry, and the Trade, in most of the counties in England.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.
KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1s. 3d. per foot super. Hundreds of references can be given, and Printed Price Lists sent.

J. OVERALL begs to inform the Nobility, Gentry, Nurserymen, and others requiring Horticultural Buildings, Lights, and Frames, that by intrusting their orders to him, they may depend upon first-class workmanship and good materials at the most economical prices.

J. OVERALL, Horticultural Builder, 16, Shacklewell Lane, near Kingsland, London.

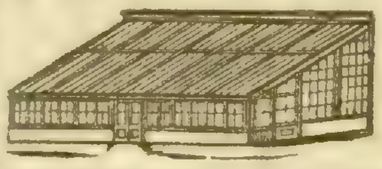
C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description, by Hot Water.—Prices and Estimates furnished upon application.

HORTICULTURE IN ALL ITS BRANCHES.

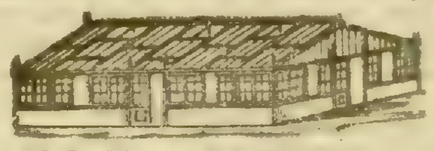
JOHN WEEKS & Co., King's Road, Chelsea,

HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.

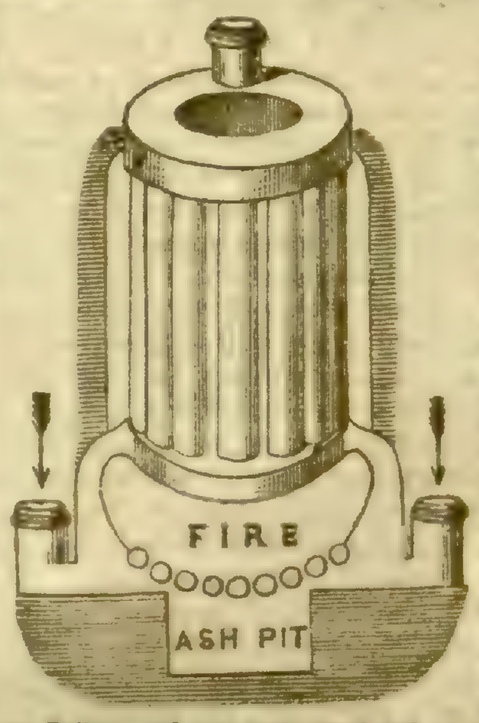


Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3s. 8d. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.

Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.



The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft. and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the late severe winter it only cost us 3s. per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *one of our Boilers*, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

JOHN WEEKS & Co., King's Road, Chelsea, London.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.

THIS *is the Original Patent for Important Improvements in Stable Fittings, Hay-box, Manger, and Water-trough as one fixture*, including a method surpassing all others for conveying the straps and halter-weights to the back of the fitting to prevent the horse being cast in the stall. Stable Fittings of every description, plain, enamelled, or galvanised. Also the newly invented Loose Box Fittings, Surface Gutters with moveable cover-plates, Stable Posts, Ramps, Sills, and all kinds of Stable Furniture in stock.

JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London, MANUFACTURER OF KITE'S PATENT VENTILATING AND SMOKE-CURING CHIMNEY CAPS, patronised by her Most Gracious Majesty (200 on Buckingham Palace). In use also on St. James's Palace, Windsor Castle, Government Offices, &c. &c. Zinc, 30*s.*; cast iron 35*s.* each; the latter as durable as the building itself. Drawings and Price Lists forwarded on receipt of two postage stamps.

Address BARTON'S Iron Works, 370, Oxford Street, London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET SQUARES.—In Boxes of 100 feet.

6 by 4, and 6½ by 4½	£0 12*s.* 0*d.*
7 „ 5, — 7½ „ 5½ } 8 „ 6, — 8½ „ 6½ }	0 14 0
9 „ 7, — 9½ „ 7½, 10 by 6 } 10 „ 7, 10 by 8 }	0 16 0

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18*s.* per 100 feet. If cut to order not exceeding 40 inches long.

16 oz. from 2½*d.* to 3½*d.* | 21 oz. from 3½*d.* to 4½*d.*
26 oz. from 5½*d.* to 7½*d.*

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½*d.* per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

½ of an inch thick	£1 17*s.* 6*d.*	per case of 50
⅝ „	2 1 3	„ 60
¾ „	1 17 6	„ 60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12*s.* 6*d.*; above, 16*s.* 8*d.* per box. FOREIGN SHEET, in 200 feet cases, 34*s.* per case.

PERFORATED VENTILATING GLASS from 1*s.* 6*d.* per foot. TILES and SLATES from 6*d.* each. MILK PANS, 21*s.* per dozen. HELY'S HAND CHURN, 5*s.* 6*d.*; WARING'S BUTTER SLABS, 10*s.* each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7*s.* per 100, and the New Aquarium, 10*s.* each.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in. ...	... 12*s.* 0*d.*
6½	„	4½	„	7	„	5	...	... 12 6
7½	„	5½	„	8	„	6	...	... 13 0
8½	„	6½	„	9	„	7	...	... 13 6
9½	„	7½	„	10	„	8	...	... 13 6
10½	„	8½	„	11	„	9	...	... 14 0
12	„	9	„	13	„	9	...	... 14 0
10	„	10	„	10½	„	10½	...	... 14 0
11	„	10	„	11½	„	10½	...	... 14 0
11	„	11	„	11½	„	11½	...	... 14 0
12	„	11	„	12½	„	11½	...	... 14 0
13	„	11	„	13½	„	11½	...	... 14 0
13	„	12	„	13½	„	12½	...	... 16 0
13½	„	13½	„	14½	„	13½	...	... 16 0
15½	„	13½	...	...	...	...	...	... 16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ „
Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

TO FLORISTS AND OTHERS.

J. JONES, IRON MERCHANT, has always a great variety of CYLINDRICAL and SADDLE BOILERS in stock, also Fire and Furnace Bars, Supply Cisterns, Double Doors and Frames, Furnace Grates, Soot Doors, Hot-water Pipes, Elbows, Tees, Syphons, Throttle Valves, Stop Cocks, Flange and Socket Elbows, &c.; also Trough Pipes.—Drawings and Prices of the above, or estimates given for the work fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work-boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed. The same prices charged at all the Establishments.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City.

Circulars free by post.

FENDERS, STOVES, AND FIRE-IRONS.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW ROOMS. They contain such an assortment of FENDERS, STOVES, RANGES, FIRE-IRONS, and GENERAL IRONMONGERY as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright stoves, with bronzed ornaments and two sets of bars, 2*l.* 14*s.* to 5*l.* 10*s.*; ditto, with ormolu ornaments and two sets of bars, 5*l.* 10*s.* to 12*l.* 12*s.*; Bronzed Fenders complete, with standards, from 7*s.* to 3*l.*; Steel Fenders, from 2*l.* 15*s.* to 6*l.*; ditto, with rich ormolu ornaments, from 2*l.* 15*s.* to 7*l.* 7*s.*; Fire-irons from 1*s.* 9*d.* the set to 4*l.* 4*s.* Sylvester and all other Patent Stoves, with radiating hearth plates. All which he is enabled to sell at these very reduced charges.

1st,—From the frequency and extent of his purchases: and
2dly,—From those purchases being made exclusively for cash.

GAS CHANDELIERS AND BRACKETS.—The increased and increasing use of gas in private houses has induced WILLIAM S. BURTON to collect from the various manufacturers all that is new and choice in Brackets, Pendants, and Chandeliers, adapted to offices, passages, and dwelling-rooms, as well as to have some designed expressly for him; these are ON SHOW over his SIXTEEN LARGE ROOMS, and present, for novelty, variety, and purity of taste, an unequalled assortment. They are marked in plain figures, at prices proportionate with those which have tended to make his Establishment the largest and most remarkable in the kingdom, viz., from 12*s.* 6*d.* (two light) to 16*l.* 16*s.*

LAMPS OF ALL SORTS AND PATTERNS.—WILLIAM S. BURTON invites attention to his season's SHOW of LAMPS. It embraces the Moderateur (the best Parisian specimens of which have been carefully culled), Argand, Solar, Camphine, Palmer's Magnum, and other lamps for candles; and comprises an assortment which, considered either as to extent, price, or pattern, is perfectly unrivalled.

Pure Colza Oil, 5*s.* 6*d.* per gallon.
Palmer's Candles, 10*d.* and 10½*d.* per lb.
Patent Camphine, 3*s.* 10*d.* per gallon.

The alterations and additions to these very extensive premises (already by far the largest in Europe), which have occupied the whole year, are now nearly completed. They are of such a character that the entire of EIGHT HOUSES is now devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated, and Japanned Wares, Iron and Brass Bedsteads and Bedding), arranged in Sixteen Large Show Rooms, so as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Catalogues, with engravings, sent (per post) free.

39, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place. Established A.D. 1820.

NEW LABEL.—In consequence of the great variety of Counterfeit Labels of A. ROWLAND & SONS' MACASSAR OIL, now in circulation, and which so nearly resemble the original as frequently to deceive the unwary—they have employed those eminent artists Messrs. PERKINS, BACON, & Co., who, at great cost, and by a peculiar process of their own, have succeeded in producing from steel "A NEW LABEL," which cannot be forged. It is composed of a section of an engine-turned circle, repeated 130 times, and forms an original lace-work ground, upon which is engraved in white letters, "UNDER THE PATRONAGE OF THE COURTS OF EUROPE," with an embossed profile of Her Majesty "THE QUEEN," lately specially taken for the purpose, and which surmounts the words (also in white letters) "ROWLANDS' MACASSAR OIL, for the growth, restoration, and for beautifying the Human Hair." Under which is the Signature of the Proprietors in Red Ink, "A. ROWLAND & SONS."—Sold by them at 20, Hatton Garden, London; and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.?—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair from whatever cause, strengthen it, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 physicians, for promoting a fine healthy head of hair, and averting baldness. Sold by all Chemists, price 2*s.*, or sent free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London. Mrs. CARTER writes, "My head, which was bald, is now covered with new hair." Mrs. REEVE—"My hair is gaining strength and thickness." Sergeant CRAVEN—"Through using it I have an excellent moustache." Mr. YATES—"The young man has now a good pair of whiskers. I want two packets for other customers."

THE BEST FOOD FOR CHILDREN, INVALIDS, AND OTHERS.

ROBINSON'S PATENT BARLEY, for making superior BARLEY WATER in 15 minutes, has not only obtained the patronage of her Majesty and the Royal Family, but has become of general use to every class of the community, and is acknowledged to stand unrivalled as an eminently pure, nutritious, and light food for Infants and Invalids; much approved for making a delicious Custard Pudding, and excellent for thickening Broths or Soups.

ROBINSON'S PATENT GROATS, for more than 30 years have been held in constant and increasing public estimation as the purest farinæ of the Oat, and as the best and most valuable preparation for making a pure and delicate GRUEL, which forms a light and nutritious supper for the aged, is a popular recipe for colds and influenza, is of general use in the sick chamber, and, alternately with the Patent Barley, is an excellent food for Infants and Children.

Prepared only by the Patentees, ROBINSON, BELLVILLE, & Co., Purveyors to the Queen, 64, Red Lion Street, Holborn, London. Sold by all respectable Grocers, Druggists, and others in Town and Country, in packets of 6*d.* and 1*s.*; and Family Canisters, at 2*s.*, 5*s.*, and 10*s.* each.

METCALFE AND CO.'S NEW PATTERN TOOTH BRUSH, PENETRATING HAIR BRUSHES, AND SMYRNA SPONGES.—The Tooth Brush performs the highly-important office of searching thoroughly into the divisions and cleansing in the most extraordinary manner—hairs never come loose. Peculiarly penetrating Hair Brushes, with durable unbleached Russian bristles, which will not soften like common hair, and immense stock of genuine unbleached Smyrna Sponge, with every description of British and Foreign Perfumery, at METCALFE, BINGLEY, & Co.'s only Establishment, 130 B and 131, Oxford Street, second and third doors west from Holles Street.

CAUTION.—Beware of the word "from" Metcalfe's, adopted by some houses. Metcalfe's Alkaline Tooth Powder, 2*s.* per box.

HOLLOWAY'S PILLS FOR THE CURE OF RHEUMATISM ARE FAR SUPERIOR TO ALL OTHER REMEDIES.—Mr. Talbot, Druggist, 40, St. James's Street, Liverpool, states in a letter to Professor Holloway that he is requested by Mr. Jameson, of 23, Norfolk Street, to inform him that for many years he had been afflicted with Asthma and Rheumatism and could obtain no relief from the many remedies he tried, until taking Holloway's Pills, this invaluable medicine speedily cured him, and he wishes the same to be made public for the benefit of others.—Sold by all Medicine Vendors throughout the world; at Prof. HOLLOWAY'S Establishments 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and H. HOODA, Malta.

TO NURSERYMEN AND OTHERS.

HALSTEAD CEMETERY.—The BURIAL BOARD for the Parish of Halstead, in the County of Essex, hereby give Notice, that they are prepared to receive TENDERS for SHRUBS, &c., for Planting their Cemetery. Forms of Specification with Schedules (price 5*s.*), with all necessary information, may be obtained either at my Office, or at the Office of WILLIAM DAVIDSON, Esq., 36, Great Russell Street, Bloomsbury Square, London, on and after November 13th. All Tenders must be sent in to Mr. DAVIDSON on or before SATURDAY, November 24th. The Board reserve to themselves the right to accept or reject, in the whole or in part, any Tenders submitted to them.

Halstead, Nov. 17. G. P. ARDEN, Clerk to the Board.

WANTED, A COUNTRY FARM HOUSE, completely or partly Furnished, containing a Sitting and three or four Bed-rooms, for a gentleman's occasional residence; with from 15 to 30 Acres of Land, chiefly Garden. Within a reasonable distance of London; vicinity to a Railway Station preferred. To rent from Christmas next.—Address, stating rent and full particulars, to N. E., care of Mr. JOHN MABELEY, Stationer and Printseller, 143, Strand.

TO NURSERYMEN AND FLORISTS.

TO BE LET, the BOWATER NURSERY, Woolwich, situated in the most respectable part of the town, consisting of two Greenhouses, two Bricked Pits, mostly filled with Soft-wooded Plants, also about 1½ acre of Ground, partly covered with Fruit Trees. Coming in very moderate, by valuation or otherwise, as may be agreed on.—Apply at the Shop, where all particulars can be obtained; or by letter, addressed to G. S., as above.

TO BE LET, a NURSERY, in Stockwell Green, comprising Dwelling-house and Seed Shop, ten large Greenhouses, Pits, Frames, &c.—For particulars, apply to Mr. H. R. FRAME, 5, Field Terrace, Lansdowne Grove, Stockwell, Surrey.

TO BE LET, A NURSERY AND SEED BUSINESS.—JOHN YOUNG begs to say that he is desirous of treating with a Tenant for his Nursery Ground, which he is at present occupying himself, and which offers an eligible opportunity to any one wishing to enter on the business. The Stock is light, and the quantity of Land may be made to suit the convenience of the Tenant.—For further particulars, apply to JOHN YOUNG, Elm Cottage, Taunton.

TO BE SOLD, worth the price, a Cast-iron STAND for a CONSERVATORY, in good condition, 24 feet long, 4 feet 6 inches high, upper platform 5 feet wide.—May be seen and price known by applying to W. B. HUNNINGS, Stationer, opposite Bruce Grove, Tottenham.

TO BE SOLD, a FRUITERER and FLORIST'S BUSINESS, having an old and first-rate connection in a commanding situation. Coming in about 500*l.*; a part could remain on approved security, the proprietor wishing to retire.—For particulars apply by letter, prepaid, with real name and address, to A. B., 5, Great Queen Street, Lincoln's Inn.

FARM FOR SALE IN EAST KENT.

TO BE SOLD by Private Contract, a very desirable FREEHOLD FARM, called Wallett's Court, in the Parish of West-Cliff, between Dover and Deal; containing 218 Acres of superior Arable and Pasture Land lying well together, around the house, and abutting for a considerable distance on the main turnpike road, and on two other sides by the high roads to St. Margaret's at Cliff. The Estate contains good brick earth, and is very desirable for building. It has a good residence in a healthy situation, and besides its present value possesses great historical interest. It belonged to Odo, Bishop of Bayeux, in the reign of the Conqueror; was the residence of Edward and his Queen Eleanor; afterwards of Thos. Gibbon, whose son Matthew rebuilt it in 1627. The church is within a minute's walk of the house.—For Particulars apply to Mr. SANDFORD, Martin's Farm, near Dover, Kent.

Sales by Auction.

MESSRS. PROTHEROE AND MORRIS respectfully inform the Public that the Sale of TULIPS, as advertised for the 23d inst., is postponed until the 30th of November.—Leytonstone, Nov. 17.

TO GENTLEMEN, FLORISTS, AND OTHERS.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 47.—1855.] SATURDAY, NOVEMBER 24. {Price Fivepence. Stamped Edition, 6d.

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HORTICULTURAL SOCIETY OF LONDON.

AUTUMN MEETING, Nov. 20th, 1855.

AWARD OF MEDALS, ETC.

Newly Introduced Plants.—Ouvirandra fenestralis, S.K., Rev. Mr. Ellis, of Hoddesdon. Æschynanthus fulgens, C.1, Messrs. Veitch & Son, Exeter and Chelsea.

Mixed Collections.—Messrs. Henderson, Wellington Road Nursery, S.K. Messrs. Rollisson, Tooting, S.B.

Pompone Chrysanthemums.—Mr. Richard Wetherill, Gr. to D. McNeil, Esq., S.K. Mr. Jas. Shrimpton, Gr. to A. J. Doxat, Esq., S.B. Mr. Thos. Windsor, Gr. to A. Blyth, Esq., C.1.

Large Chrysanthemums.—Mr. Robert James, Stoke Newington, S.K.

Orchids.—Messrs. Rollisson, L.S.

Chinese Primulas.—Mr. Thomas Windsor, S.B.

Single Specimens.—Sophronitis grandiflora, Mr. M. Clarke, Hoddesdon, S.B. Lælia Perrini, Messrs. Rollisson, C.1. Sonerila margaritacea, Mr. Ingram, Gr. to J. J. Blandy, Esq., C.1.

Black Grapes.—Mr. Geo. Tillyard, Gr. to Rt. Hon. the Speaker, S.B. Mr. Wm. Hill, Gr. to R. Sneyd, Esq., C.1. Mr. Thos. Webb, Gr. to E. Hales, Esq., C.2.

White Grapes.—Mr. Wm. Hill, S.B. Mr. Robt. Clark, Turnmoss, near Manchester, C.1. Mr. M'Ewen, Gr. to the Duke of Norfolk, C.2.

Pine Apples in Collections.—Mr. M'Ewen, Gr. to the Duke of Norfolk, S.K. Mr. Fleming, Gr. to the Duke of Sutherland, Trentham, S.B. Mr. R. Jones, Gr. to Lady Charlotte Schreiber, C.1.

Pine Apples — Single Specimens.—Mr. T. Joy, C.1. Mr. D M'Ewen, Gr. to Col. Wyndham, C.2.

Late Strawberries.—Mr. M'Ewen, Gr. to the Duke of Norfolk, C.1.

Late Raspberries.—Mr. G. Tillyard, C.1. Mr. Dan. Clements, Oakhill, Barnet, C.2.

Plums.—Mr. W. Hill, C.1. Mr. G. Tillyard, C.2. Mr. W. Muirhead, Gr. to Lord Charles Wellesley, H.M.

Dessert Apples.—Mr. Ingram, Gr. to Her Majesty, C.1. Mr. J. B. Whiting, Gr. to H. T. Hope, Esq., C.2.

Kitchen Apples.—Mr. M'Ewen, Gr. to the Duke of Norfolk, C.1. Mr. W. Taylor, Gr. to J. Coster, Esq., C.2.

Dessert Pears.—Mr. D. M'Ewen, Gr. to Col. Wyndham, C.1. Mr. J. B. Whiting, C.2.

Kitchen Pears.—Mr. D. M'Ewen, C.1. Mr. Ingram, Gr. to Her Majesty, C.2.

Figs.—Mr. D. M'Ewen, Petworth, C.1. Mr. G. M'Ewen, Arundel Castle, C.2.

Winter Cucumbers.—Mr. Jas. Morris, Gr. to Coles Child, Esq., C.1. Mr. Alex. Ingram, Gr. to J. J. Blandy, Esq., C.2.

Celery.—Mr. C. Lidgard, Hammersmith, C.1. Mr. J. Lancaster, Deptford, C.2.

Miscellaneous.—Messrs. Henderson, Wellington Nursery, S.K., for Dioscorea Batatas. Mr. Ingram, Gr. to Her Majesty, S.B., for the same. Messrs. Wm. Maule & Sons, Nurserymen, Bristol, C.1, for Vanda cærulea. Mr. Jos. Pascall, Chislehurst, H.M., for specimens of Propagating and Seakale pots. Mr. D. M'Ewen, H.M., for American Cranberries.

SCOTTISH ARBORICULTURAL SOCIETY.—

The Second Annual General Meeting was held at 6, York Place, Edinburgh, on the 14th inst., Mr. Brown, President, in the chair. Twenty-two new Members were admitted. Prizes were awarded as follows:—Medal to Mr. Rutherford, Buckden, for Essay on Drainage; Medal to Mr. R. Philip, Aldbar, for Essay on Pruning; Medal to Mr. Thomson, Chopwell Wood, for Essay on Stripping and Curing of Oak Bark.

It was resolved that Prizes should be offered (open to all) for the best ESSAYS on each of the following departments of Practical Forestry,—the Essays to be in all cases founded on the experience of the competitors.

I. Thinning (Medal).
II. Planting on Moss Lands (Medal).
III. General Planting (Medal)
IV. Fencing (Medal).
V. Entomology (Medal).
VI. Introduction and Cultivation of the Newer Coniferæ and other Forest Trees, with special reference to the Climate of Great Britain and Ireland (Medal).

It was also agreed to invite communications on any other subjects connected with Forestry, for which Prizes will be awarded in all cases where they are deemed worthy.

All Essays intended for Competition must be given in to the Secretary (Mr. Alexander, 1, Waterloo Place, Edinburgh), not later than 1st August, 1856, each Essay bearing a Motto, and being accompanied by a separate sealed letter bearing the same motto, and containing the name and address of the Author.

Applications from gentlemen desirous of becoming Members may be addressed to the Society's Secretary, from whom copies of the laws and all other information may be obtained.

N.B. The Society's "Transactions" will be sent to Members when ready. James Alexander, Secretary.

1, Waterloo Place, Edinburgh, Nov. 24.

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The American Nursery, Bagshot, Surrey.—Nov. 24.

GERMAN FLOWER AND VEGETABLE SEEDS.

MESSRS. PLATZ and SON, Seed Growers, Erfurt, Prussia, respectfully inform the Trade that their Catalogue for 1856 contains more new and choice articles than have ever been offered. Early applications are solicited through their Agent, Mr. Robert Kennedy, Bedford Conservatory, Covent Garden, London.

SEEDS.—TRADE LIST.

S. VAN HOUTTE'S Wholesale TRADE LIST is to be had at Mr. R. Silberrad's Office, 5, Harp Lane, Great Tower Street, London.

TO THE TRADE.

NEW PURE WHITE COLLINSIA.—The price per ounce of this new and beautiful ANNUAL can be had on application.

J. G. Waite, Seed Merchant, 181, High Holborn, London.

SCARLET RHODODENDRONS.

J. and J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to offer fine bushy Plants of the above 2 to 3 feet high, in Pots, well set with Flower buds.—Price 10s. 6d. each.

CHARLES SHARPE and CO. beg to acquaint the trade that having harvested their stocks of SEEDS they will be glad to forward prices on application.

Nursery and Seed Establishment, Sleaford.—Nov. 24.

THOMAS BELL, Seedsman, Wigan, Lancashire, has for sale TRUE LANCASHIRE FLUKE POTATOES, 4s. 9d. per bushel, of 80 lbs., or 6l. 6s. per ton. YORK REGENTS, 4s. 3d. per bushel. RED DOWNS, 4s. 6d. per bushel.

DUTCH FLOWER ROOTS.

WILLIAM DENYER, Seedsman and Florist, offers the following choice Collection for 10s.:—

12 good Hyacinths	12 Single Tulips	12 splendid Anemones
12 Narcissus	12 Jonquils	25 Snowdrops
12 Double Tulips	12 beautiful Iris	100 Dutch Crocus, all colours.

No charge for packages.—82, Gracechurch Street, London.

TO PINE GROWERS.

LIVERPOOL IS THE BEST MARKET.

FORWARD TO GEORGE TAYLOR, Jun., FRUIT SALESMAN, The Grand Stand, St. John's Market, Liverpool.

Terms—Cash.

AZALEA INDICA LEEANA.

JOHN and CHARLES LEE are now prepared to send out this fine Seedling, which for habit of growth and substance of petal, combined with perfect shape and purity, is decidedly the best white Azalea yet out. It has gained Certificates wherever exhibited. Price 21s.; a few extra strong plants at 42s.—Nursery and Seed Establishment, Hammersmith.

NEW CHRYSANTHEMUMS.

JOHN SALTER begs to inform his friends that his unrivalled Collection of Chrysanthemums is now in bloom, including many seedlings, among which is ALFRED SALTER, the finest light flower in cultivation. A visit to the winter garden will amply repay those amateurs who may honour him with their patronage.—Versailles Nursery, William Street, near Hammersmith Turnpike.

CEDRUS DEODARA.

YOUELL and CO. beg to offer fine healthy well grown Plants of the above, admirably adapted for Cemetery planting, &c., at the following prices, viz. Fine handsome well furnished Plants, 2 to 3 feet, 3s. 6d. each, 36s. per dozen; ditto, 4 to 5 feet, 7s. 6d. each, 72s. per dozen. The above were all transplanted last season, and will remove with perfect safety.

Their CATALOGUE of Rare and Hardy Conifers and other Ornamental Hardy Evergreen and Flowering Shrubs, may be had on application. Railway Carriage and Freight by Steamers very reasonable.—Royal Nursery, Great Yarmouth, Norfolk.

AZALEA INDICA.

JOHN and CHARLES LEE beg to offer good Plants of the most select kinds of AZALEA INDICA, well set with buds, at 18s., 30s., and 42s. per dozen.

Nursery and Seed Establishment, Hammersmith.

VINES FROM EYES.

JOHN and CHARLES LEE beg to offer a very superior stock of all the leading kinds of VINES, both for planting out and for fruiting in pots.

Nursery and Seed Establishment, Hammersmith.

VINES FROM EYES.

JOHN BUTCHER can supply plants of the BLACK BARBAROSSA, and a good selection of the best sorts in cultivation, in fine condition for fruiting in pots or planting out. Price &c., on application to John Butcher, Royal Nursery, Stratford-on-Avon.

GRAPES WANTED.

MUST BE FIRST CLASS QUALITY.

Forward to GEORGE TAYLOR, Jun., Fruit Salesman, The Grand Stand, St. John's Market, Liverpool.

NEW RHUBARB, EARLY RED EMPEROR.—The stalks of this variety are as large as the Victoria, very high in colour, red throughout, good forcer, and very prolific. Price 18s. per dozen.

J. G. Waite, Seed Merchant, 181, High Holborn, London.

NEW VICTORIA RASPBERRY, twice the size of Falstaff, and a good bearer, price 6s. per dozen Canes, or 40s. per hundred.

J. G. Waite, Seed Merchant, 181, High Holborn, London.

WAITE'S DANIEL O'ROURKE PEAS.—The best Early Pea in cultivation can be supplied in any quantity, and price had on application to J. G. Waite, Seed Merchant, 181, High Holborn, London.

HARDY HEATHS.

WATERER and GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

NURSERY TREES.

FOWLER and WRIGHT, Seedsmen and Nurserymen, Glasgow, have on Sale a fine Stock of SEEDLING and TRANSPLANTED FOREST TREES, ORNAMENTAL PLANTS, SHRUBS, and FRUIT TREES, at very moderate prices. Catalogues may be had on application.—Nov. 24.

CHARLES DALY and SON, Nurserymen, Coleraine, beg to inform the Trade and the Public that they have one and two years' seedling Thorn Quick for sale; Irish Yews, Forest Trees, and Shrubs; Beech, 3 to 4 feet; Hollyberries, 4s. per bushel; Haws, 4s. ditto; Common Laurel, 12s. 6d. per 1000; Portuguese ditto, 6s. per 100; Seedling Forest Trees, cheap. Catalogues with prices free by post.—Nov. 24.

DODECATHEON ELEGANS

DOWNIE and LAIRD have upwards of 3000 of the above beautiful Herbaceous Plant to dispose of. Price to the trade, 40s. per hundred, or 6s. per dozen.

17, South Frederick Street, Edinburgh.—Nov. 24.

CROCUSES.

WANTED TO PURCHASE, if cheap, a quantity of the common CROCUS ROOTS, various colours.—Apply, stating lowest price per peck, to D. C. L., *Critic* Office, 29, Essex Street, Strand. Also, some SNOWDROP ROOTS.

GOOD PINES WANTED,

From 2 lbs. to 4 lbs. each.

Forward immediately to George Taylor, Jun., Fruit Salesman, St. John's Market, Liverpool.

PINE PLANTS.

TO BE SOLD, at a very moderate Price, about 230 clean and healthy Fruiting and Succession PINE PLANTS, in good condition for removal, being the property of a Gentleman leaving his present residence.—For further particulars apply to Messrs. J. & J. Fraser, Nurserymen, Lea Bridge Road, Essex.

TO BE SOLD, at a low price, 60 or 70 very superior FRUITING and SUCCESSION PINE PLANTS, principally Queens. Also 12 dozen pots of Strawberries for forcing, promising an abundant crop.—Particulars and prices may be known on application to G. Edwards & Son, Nurserymen, Wells, Somerset.

SPANISH CHESNUTS.

TO BE SOLD, about 200,000 Strong SPANISH CHESNUTS, from 2 to 4 feet. Price sent on application to Waterer and Godfrey, Knap Hill, Woking, Surrey.

TO BE SOLD, 500 ENGLISH YEWS, 3 and 4 feet high, fine bushy plants.—Apply to Thomas Moore, Nurseryman and Seedsman, Kingsbridge, Devon.

TO BE SOLD, very handsome large IRISH YEWS, from 4 to 8 feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—Thomas Jackson & Son, Nurseries, Kingston, near London.

FRUIT TREES, GOOSEBERRY & CURRANT BUSHES.

TO BE SOLD, the surplus Stock, comprising Standard Cherries, Plums, Apples, and Pears, from 6 to 12 years' old growth; several thousands Rifleman Gooseberries, and large Red Grape Currants, from 2 to 4 years' old, will be sold for much less than their value.—To view, apply to Mr. Mitton, Lampton, near Hounslow, 1 mile from station.

NEW DAHLIAS FOR 1856.

STEPHEN SHILLING begs to offer to Nurserymen, Florists, &c., the following NEW and SUPERB DAHLIAS, raised by Mr. J. Smith, of the Floral Cottage, Crookham.

HELEN SMITH, yellow ground tipped and shaded with orange, well formed flower, good centre, pronounced to be one of the most constant Dahlias cultivated (raised in 1854). Ground Roots, 42*s*. each; or strong plants in May, at 10*s*. 6*d*. each.

LORD CARDIGAN; crimson purple, fine formed flower, with full centre, highly recommended (raised in 1854.) Ground Roots, 42*s*. each; or strong plants in May, at 10*s*. 6*d*. each. A discount allowed where two or more of the ground roots are taken, or where six or more plants are taken in May. Their having been grown two seasons, and fully proved, can be sent out with confidence as first-rate varieties.

John Edwards, Esq., speaks of Helen Smith in 1354: "Flower highly desirable, good build, pleasing colours, and well formed petals." Mr. Turner, in "The Florist" of September, 1855, says: "The flower is of the Malvina form, and making good outline and centre." Six blooms were exhibited at the Basingstoke Horticultural Show, September, 1855, cut indiscriminately from the plants, no shading or care whatever taken, were "highly commended by the judges," and acknowledged to be the best Dahlia there. "The Florist," for September, 1855, speaks of Lord Cardigan: "Sir F. Bathurst form, deeper in colour and fuller; a deep fine formed flower with full centre."

All orders strictly executed in rotation as received.

North Warnborough Nursery, near Odiham, Hants, Nov. 24.

JOHN HARRISON begs to offer to the Trade the under-named Plants, and to inform his friends and the public that his CATALOGUE OF ROSES for the present season contains the most superb varieties in cultivation; and as a guide to amateurs and parties not acquainted with Roses, the best show varieties are marked with an asterisk. J. H. has competed within this last five years at nearly one hundred different exhibitions open to the United Kingdom, and with but one solitary instance, has invariably taken the first prizes for collections of Roses.

Fastolf Raspberry Canes, 6*s*. per 100, or 50*s*. per 1000.
Magnum Bonum do., 10*s*. per 100.
Northumberland Fillbasket, do., 10*s*. per 100, or 90*s*. per 1000.
White Antwerp, do., 12*s*. per 100.
Victoria Currants, 1 yr old, 8*s*.; 2 yr., strong, 12*s*. per 100.
Houghton Castle Currants, 1 year 8*s*. per 100, or 2 years 12*s*.
Black of sorts, 1 year, 8*s*., or 2 years, fine, 10*s*. per 100.
Royal Albert Rhubarb, 30*s*. per 100.
Victoria do. true, 25*s*. to 30*s*. per 100.
Manetti Rose Stocks, 10*s*. per 100, or 80*s*. per 1000.
Ditto do. extra strong for half-standards, 20*s*. per 100.
Ditto in 6-inch pots, 1 year, fit for working, 60*s*. per 100.
" Rose cuttings, strong. 9 to 12 inches, 25*s*. per 1000.
Duchess of Norfolk Rose, 30*s*. per dozen, or 10*l*. per 100.
Delphinium Barlowi, strong roots, 30*s*. per 100.
Holly, 2 years Seedlings, fine, 7*s*. 6*d*. per 1000.
Elm, Scotch, 2 years Seedlings, from 2*s*. 6*d*. to 3*s*. 6*d*. per 1000.
Giant Asparagus roots, 2 years, 20*s*. per 1000.

Nursery, Darlington, Nov. 24.

WATERER'S AMERICAN PLANTS.—A new DESCRIPTIVE CATALOGUE is now published of the celebrated Collection of hardy Scarlet and other Rhododendrons, as exhibited by JOHN WATERER at the Royal Botanic Gardens, Regent's Park; it will be found to contain a few practical observations on their successful management, and will be forwarded on application by enclosing two stamps for postage. Apart from its enumeration of the most popular American Plants in cultivation, a List of choice Coniferæ will be seen, embracing the latest importations of this fine and hardy tribe of Plants.

J. W. has now the pleasure to offer in large quantities, and of all heights, the following selection of CONIFERS, with the remark that they are all now growing in the open ground, are bushy and handsome as can be desired, and have been transplanted each succeeding spring, whereby no risk can be encountered in their removal from the nursery:—Araucaria imbricata, Cryptomeria japonica; Pinus Douglasi, Cembra, excelsa, Lambertiana, insignis, Jefferyana, Beardsleyi, tuberculata, &c.; Cedrus Deodara, Lebanon, and Africana; Wellingtonia gigantea, Cupressus, Juniperus, Taxus, Thuja, &c.

☞ The attention of gentlemen, public companies, and others engaged in planting, is especially directed to the foregoing; indeed, all intending planters would be well repaid by a visit to inspect our stock, as much may be seen which of necessity cannot be given within the limits of an advertisement.

The Nursery is easily reached by railway, being near the Farnborough Station, South-Western Railway, and Blackwater on the South-Eastern Railway.

The American Nursery, Bagshot, Surrey.

NEW OR RARE PLANTS AT R DUCED PRICES.

MESSRS. WILLIAM ROLLISSON AND SONS are now prepared to offer the annexed:—

TYDÆA ELEGANS.—A most beautiful plant from New Grenada, with bright scarlet flowers; 10*s*. 6*d*. each.

BEGONIA CHRYSOLEUCA.—A distinct new species semi-creeper, the blossoms are yellow, tipped with white; 15*s*. each.

COLEUS BLUMEI PECTINATUS.—A very distinct variety, the foliage is variegated similar to Coleus Blumei, but the leaves are beautifully laciniated; 5*s*. each.

MANDIROLA ROEZLI.—An extremely handsome gesneraceous plant producing fine spikes of lilac-coloured blossoms; 15*s*. each.

VACCINIUM ERYTHRINA.—A truly magnificent plant sent us by our collector Mr. John Henshall; the flowers are produced in bunches, of a bright crimson colour; 31*s*. 6*d*. each.

ARAUCARIA COOKI.—Handsome well formed seedling plants; 84*s*. each.

AUBRIETIA MOOREANA.—A new and distinct beautiful flowering Alpine plant; 5*s*. each.

MANDIROLA LANATA.—A pretty gesneraceous plant, of a delicate violet colour inside the mouth of the blossoms, and shaded lilac outside; 15*s*. each.

ORTHOSIPHON SPICATUS.—This plant has been recently introduced from Ocana, and is a great acquisition, its foliage being deliciously fragrant; its blossoms are large and white; 10*s*. 6*d*. each.

BEGONIA SPLENDIDA.—This exquisite plant has been discovered and sent us by our collector Mr. John Henshall, during his researches in the Indian Archipelago; as an ornamental plant it is unequalled; 21*s*. each.

LASIANDRA HOIBRENKI.—This is a very distinct and handsome plant, with very large beautiful blue flowers, and pretty ornamental foliage; 10*s*. 6*d*. each.

PASSIFLORA ALBA-NIGRA.—As the name implies, this is a very distinct new greenhouse climber; 5*s*. each.

ERICA ÆMULA.—A very beautiful hybrid, in the Erica Massoni section, of a fine bright crimson colour, after the style of Erica aristata, but very much higher in colour; 10*s*. 6*d*. each.

ERICA EXIMIA SUPERBA.—This variety may really be said to be three times as fine as the parent, whose name it bears; it is a very compact grower and excellent in habit, with tubular blossoms of a fiery scarlet colour; 21*s*. each.

ERYTHRINA COTTYANA, a superb variety, producing immense spikes of blossom, with flowers of a very rich deep scarlet colour; 5*s*. each.

ERYTHRINA BELLANGERI.—The free flowering character of this plant renders it a great acquisition. Cuttings struck in the spring blossom profusely through the summer, which is not generally the case with the other sorts, as they do not usually flower until the second year after being propagated; 5*s*. each.

RHOPALA ORGANENSIS, an exquisite ornamental Stove Plant, far exceeding in beauty any other sort in this family; 31*s*. 6*d*. each.

The Nurseries, Tooting, London.

SPLENDID NEW RHUBARB—SALT'S CRIMSON PERFECTION.

ROBERT SALT begs leave to inform the Gentry, Nurserymen, Gardeners, &c., that this splendid variety of RHUBARB is now ready for distribution; it is universally allowed to be the most early, prolific, and delicious variety ever offered to the public. See *Gardeners' Chronicle*, June 11, 1853:—"Very good, and of a most beautiful crimson; compared with others, it is remarkable for the small amount of acidity it contains."—ED.

Certificates of merit were awarded for specimens exhibited at the meeting of the Horticultural Society, Regent Street, London, June 20, 1853; at Nottingham, May 24, 1854; at Derby Midland, May 25, 1854; at Ormskirk, Lancashire, August 30, 1854.—Price 3*s*. 6*d*. per root, three for 10*s*., and six for 1*l*. A few two-year-old Plants at 5*s*. each.

Orders addressed to ROBERT SALT, Longton, Staffordshire, or the following Agents will have immediate attention:—Messrs. Hurst & M'Mullen, 6, Leadenhall Street, London; Messrs. Burgess & Kent, Penkhull, Staffordshire; Messrs. Francis & Arthur Dickson, 106, Eastgate Street, Chester; Messrs. James Dickson & Sons, 102, Eastgate Street, Chester; Mr. Salsbury, Melbourne, Derbyshire. A liberal discount allowed to the Trade.—A Post-office Order from unknown correspondents.

Longton, Nov. 24.

KINGHORN'S UNEQUALLED NEW SCARLET GERANIUMS.

COUNTESS OF WARWICK.—Beautiful large variegated foliage, white margin, dark horse-shoe, banded with pink, strongly marked, large truss of deep scarlet, the individual flowers of fine form, is of vigorous growth, proved to grow and flower well planted out. Received a certificate at the Royal Botanic Exhibition. Plants in May, 10*s*. 6*d*.

ANNIE.—This is a decided improvement on "The Flower of the Day" and "Silver King," possessing fine large trusses of bright scarlet, the foliage large and flat, margined with pure white, does well planted out, has produced leaves 4⅜ inches over, very free grower. Plants in May, 10*s*. 6*d*.

GENERAL PELISSIER.—This noble Geranium has been the admiration of all who have seen it, either in pots or bedded out, throwing its numerous globular trusses of orange scarlet flowers, well above the foliage, on strong white flower-stalks, flowers of fine form, with white eye; is of compact vigorous growth, leaves medium size, with dark green margin, distinct horse-shoe, paler green in centre. The best scarlet Geranium ever offered, flowers very free and perfect in the smallest pot. Was awarded a first-class certificate at the National Floricultural Society. Plants in May, 10*s*. 6*d*.

F. R. KINGHORN begs to state that this is the first time that he has advertised any of his numerous seedlings to be sent out by himself, and would most respectfully assure those who may not have seen the above at the exhibitions of the Royal Botanic, Horticultural, Crystal Palace, and National Floricultural Societies, that they are very superior to his former seedlings, "The Flower of the Day," "Attraction," "Silver King," or "Cerise Unique," &c., and that he has the greatest confidence in recommending them, both as pot and flower-garden plants. He may also state that they were noticed very favourably by all the leading periodicals in their reports of the several exhibitions. The usual discount to the trade. A remittance will be required from unknown correspondents.

St. Margaret's Gardens, Isleworth, Middlesex, Nov. 24.

CHOICE PLANTS, ETC.

YOUELL AND Co. beg respectfully to call attention to the following, which they are now sending out in fine strong plants:—

AZALEA, varieties of Indica, comprising the following and other equally choice kinds, good bushy plants in large and small 48 sized pots, at 12*s*. and 15*s*. per dozen, viz.: Aurantia elegans, Exquisite, Fulgens grandiflora, Constance, Prince Albert, Murrayana, ignescens, Lateritia grandiflora, Conqueror, Emily, Decora, Rosea punctata, carminata.

CAMELLIAS, in choice new kinds, without bud, 21*s*. per dozen.

EPACRIS, of finest varieties, bushy plants in 48's, 12*s*. per doz.; smaller ditto, 9*s*.

GLOXINIAS, a very choice collection of all the new varieties, strong bulbs, 18*s*. per dozen.

GREENHOUSE PLANTS, in 50 best kinds, for 50*s*.

EUGENIA UGNI, a new Myrtaceous of easy cultivation, producing delicious fruit now being used for dessert, good plants, 2*s*. 6*d*. each.

CINERARIAS, a choice collection of all the best kinds, 9*s*. per doz.

PHLOXES, a selection of all the new and handsomest varieties of this much admired flower, 9*s*. per dozen.

PHLOX, Countess of Home (Downie & Laird), fine strong plants of this, the finest Phlox yet offered, 5*s*. each.

PANSIES, a fine collection of all the new and first-rate flowers, 9*s*. per dozen.

HYACINTHS, very fine double and single red, white, blue, and yellow, by name, 9*s*. per dozen; extra fine ditto, 12*s*. per doz. These comprise the varieties so highly recommended in the *Gardeners' Chronicle* of the 21st July, 1855.

DEUTZIA GRACILIS, fine strong plants for forcing, 9*s*. per doz.

LILY OF THE VALLEY, strong for forcing, 5*s*. per 100.

PÆONIES, a choice collection of 20 new varieties for 20*s*.

ROCKETS, double crimson (strong), 9*s*. per dozen; the old double pure white ditto, 3*s*. per dozen.

HERBACEOUS PLANTS, a very extensive and select collection of the handsomest kinds including those adapted for rock work, 6*s*. per dozen; 30*s*. per 100.

CHOICE FRUITS, WARRANTED TRUE TO NAME.

APPLES,	Standard,	in best selection,	good heads,	9*s*.	per dozen.
"	Dwarf	ditto	ditto	6*s*.	"
"	Trained	ditto	ditto	30*s*.	"
PEARS,	Standard	ditto	ditto	12*s*.	"
"	Dwarf	ditto	ditto	8*s*.	"
"	Trained	ditto	ditto	30*s*.	"
PLUMS,	Dwarf	ditto	ditto	9*s*.	"
"	Trained	ditto	ditto	36*s*.	"
PEACHES,	dwarf trained,	in fine strong plants,		36*s*. to 60*s*.	"
NECTARINES,	Dwarf trained		ditto	36*s*. to 60*s*.	"
APRICOTS,	ditto		ditto	36*s*. to 60*s*.	"
CHERRIES,	standard,	in fine variety,	ditto	12*s*.	"
"	dwarf	ditto	ditto	9*s*.	"
"	trained	ditto	ditto	36*s*. to 42*s*.	"

GOOSEBERRIES, 25 of the finest varieties by name (good bushes) selected for size and flavour, 30*s*. per 100; 4*s*. per doz.

CURRANTS, improved large White Dutch, Black Naples, Raby Castle (red), large Red Grape, Ogden's Black, and Fox's Red Grape, 4*s*. per dozen; Knight's Sweet Red, Knight's large Red, Cherry Red, large and fine, and Wilmot's White Grape, 6*s*. per dozen: these are the most desirable kinds in cultivation, and are highly recommended.

RASPBERRY FASTOLFF (TRUE), strong well-rooted canes, 15*s*. per 100; Large White Raspberry, 24*s*. per 100; New Monthly Fruiting, 20*s*. per 100; Belle de Fontenay, 6*s*. per doz.

ASPARAGUS,	Giant, 2 years	2*s*. 6*d*.		per 100.
"	" 3 years	3	6	"
"	" extra strong, for forcing	5	0	"
RHUBARB,	Myatt's Victoria	8	0	per doz.
"	" Linnæus	8	0	"
"	Mitchell's Royal Albert	8	0	"
"	Hawke's Champagne, new & fine, 2*s*. each	18	0	"
SEAKALE,	strong, 2 years	6	0	per 100
"	extra for forcing	10	0	"

All Orders of 2*l*. and upwards are delivered Carriage free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

ERICAS.

MESSRS. YOUELL AND CO. beg to submit the following list of choice ERICAS, which can be supplied in good bushy and healthy plants, in large and small 48s, at 12*s*. per dozen:—

ERICAS.—Aggregata, ampullacea, ampullacea carnumbrata, ampullacea rubra, aristata major, Archeriana, Bandoniana, bicolor, Cavendishi, cerinthoides, cer. coronata, Cliffordi, coloransa, Coventryana, daphnoidea, Devoniana, depressa, denticulata moschata, echiflora, elata, Eweriana, eximia, exurgens coccinea, gracilis, Hartnelli, hyemalis, hybrida, hyacinthiflora, Linnæoides nova, L. superba, metulæflora bicolor, ovata, perspicua nana, pinifolia discolor, princeps, propendens, p. tubiflora, pyriformis, primuloides, rubens, retorta major, Shannoniana, Shannoniana (Turnbull), Sindryana, splendens, tricolor, tri. rubra, umbellata, ventricosa alba, v. alba tincta, v. breviflora, v. carnea, v. coruscans, v. curta ruba, v. densa carnea, v. dependens coccinea, v. fasciculata longiflora, v. f. rosea, v. f. superba, v. globosa, v. hirsuta, v. magniflora, v. perspicuoides, v. superba, v. tumida, v. tenuiflora, Vernonia, Ver. superba, verticillata, vestita tenuiflora, v. coccinea, v. c. tenuiflora, v. rosea, viridiflora, Westcotti, Westphalingi, Wilmorea superba, Walkeri.

The above are well grown, and of a suitable size for making specimens. The usual discount to the trade when taken per 100.

All orders of 2*l*. and upwards are delivered carriage free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

WATERER AND GODFREY respectfully invite the attention of parties engaged in Planting to their fine Stock of the following HARDY ORNAMENTAL TREES, &c.

Araucaria imbricata, 2, 3, 4, 5, 6, 7, and 8 feet high, in quantities, all stocky well grown plants; the larger sizes especially it would be difficult to match.

Cedrus Deodara, 1½, 2, 3, 4, and 5 feet, by the thousand; do. a fine lot of larger, 6, 7, and 8 feet; do. some magnificent Trees, 10 to 15 feet. These are all in a famous condition for Transplanting, having been annually removed.

Cedars of Lebanon, 3, 4, 5, and 6 feet; do. a few splendid Trees, 10 and 12 feet.

Cedars Red Virginian, 5 to 8 feet.

Cedars, variegated white, 2, 3, and 4 feet, one of the handsomest variegated plants we know. We have a large stock. It is extensively planted at Elvaston Castle.

Cryptomeria japonica, fine plants, 4 to 7 feet.

Cupressus macrocarpa or Lambertiana, 3, 4, 5, 6, 7, and 8 feet. Nothing can be handsomer than some of the specimens of this fine hardy plant.

Juniper, Chinese, 2, 3, 4, and 5 feet; a fine lot of large plants, 6 to 8 feet.

Do. Irish, upright, 3, 4, 5, and 6 feet; do. larger, up to 8 and 10 feet. Our stock of the two last mentioned Junipers we believe to be quite unequalled, the Irish especially; the larger sizes are perfect columns.

Do. recurva, 3, 4, 5, up to 8 feet.

Do. hispanica or thurifera, 2, 3, and 4 feet.

Abies Douglasi, 2, 3, and 4 feet. A fine lot of large and very handsome plants, 7, 8, 10, and 12 feet.

Picea nobilis, several hundreds of nice plants, 1½ to 2 feet, well grown, and with good lead. None are grafted. A few taller specimens up to 6 feet.

Do. Nordmanniana, a large quantity of remarkably handsome plants, 1½, 2, 3, and 4 feet. Nothing can exceed the vigour of these plants, and all from seed.

Do. Pinsapo, magnificent plants, 4 to 7 feet high, in perfect health.

Pinus insignis, 1½ to 3 feet; a few good specimens up to 7 feet.
" Lambertiana, from seed, 4, 5, and 6 feet.
" Cembra, 3, 4, 5, up to 10 feet.
" Montezumæ, fine plants, 4 and 5 feet.
" macrocarpa, 2 and 3 feet, from seed.

Weeping Larch, clean, stems good, heads 7 feet high.

The following 10 varieties form a very singular group. They are of dwarf habits; the well known Abies Clanbraziliana may be taken as the type of the whole. We believe our collection to be quite unique, and, we may add, most interesting.

Pinus strobus pumila (the dwarf Weymouth).
" sylvestris pumila (the dwarf Scotch).

Abies Clanbraziliana	Abies pumila	All dwarf varieties of the Spruce Fir.
" compacta	" diffusa	
" pygmæa	" Gregori	

Picea pectinata pygmæa (the dwarf Silver Fir), Hudsoni.

Yew, common English, 3, 4, 5, 6, and 7 feet, in large quantities.

Do. upright, Irish, 4, 5, 6, and 7 feet; some splendid plants, 8 to 12 feet.

Do. Dovaston or Weeping, a great many fine plants, worked on straight stems, 7, 8, and 10 feet high, with good heads.

Do. adpressa, 2 and 3 feet.

Do. do., worked on common Yew, as standards.

Do. gold striped, 1½ to 2 feet, by the thousand.

Do. do., a splendid lot of plants, 4 to 6 feet.

Do. do., worked as standards on the common Yew, 8 to 10 ft. high.

Do. do., worked on Irish Yews, 6, 7, and 8 feet high.

Do. elegantissima, or new gold striped; a large quantity, 1½ to 2½ feet, and also worked as standards on the common and Irish Yews. We may safely assert our stock of Golden Yews is unsurpassed.

Do. yellow berried (true), very beautiful when in fruit as we have it, 1½ to 3 feet.

Libocedrus chilensis, 2 to 3 feet, very handsome and bushy.

Thuja Weareana, fine bushes, 3, 4, 5, 6, and 8 feet. This is one of the most useful, and, at the same time, ornamental hardy plants we possess.

Do. American, for hedges, doubtless the very best, 4, 5, and 6 feet.

Do. aurea, or Golden Arbor-vitæ. This plant originated at this Nursery; it has now, as it deserves, become a universal favourite. Our stock of it enables us to offer a choice of many hundred fine specimens, from 1½ to 3 and 4 feet high, and as much through—in fact, perfect globes.

Wellingtonia gigantea, a few of the finest plants in the country, being near 1¼ feet high, and as much wide.

Hollies variegated, by the thousand, 2, 3, and 4 feet high. Some splendid Plants, 10 to 15 feet high.

We may here remark with reference to the large specimens alluded to in this Advertisement that every one of them is in a condition to transplant, and travel any distance with perfect safety. They have one and all been annually removed in our Nursery, and in soliciting a personal inspection of our stock, we believe we are justified in stating it offers a choice which is to be found in but few establishments of its kind in this country.

The Nursery may be reached in 40 minutes by Train from the Waterloo Station; and the South Western Railway Company having a Branch on to the North Western, enables us to send plants to all parts, in trucks throughout, without packing and other extensive additions.

Knap Hill Nursery, Woking, Surrey.

LIGHT, CHEAP, and DURABLE ROOFING.—CROGGON'S PATENT ASPHALTE ROOFING FELT is perfectly impervious to rain, snow, and frost, and has been tested by a long and extensive experience in all climates. Saves half the timber required for slates. Can be laid on with great facility by farm servants or unpractised persons. Price 1*d*. per square foot. CROGGON'S Patent Non-conducting Felt, for covering steam boilers and pipes, saves 25 per cent of fuel. Samples and testimonials sent by post, on application to CROGGON & Co., 2, Dowgate Hill, London, who also supply ship-sheathing felt and inodorous felt, for damp walls, and lining iron houses, and roofs generally, to equalise the temperature.

ROSES, HOLLYHOCKS, CONIFERS.
(Wholesale and Retail.)

A. PAUL and SON beg to inform their Patrons and the Trade generally, that owing to extended experience and improved systems of culture, their ROSES, HOLLYHOCKS, and CONIFEROUS PLANTS are this season unusually fine.

Nurseries, Cheshunt, Herts (13 miles N.E. of London).

CAULIFLOWER BROCCOLI SEED.—The Advertiser has a quantity of Cauliflower Broccoli Seed for sale, of the variety called "Dilcock's Bride," true, which he will dispose of either together or in lots to the trade. For further particulars apply to Mr. Geo. Taylor, Jun., Greengrocer, Great Charlotte Street, Liverpool; or to Mr. E. F. Fairbairn, Florist, Eden Town Nursery, near Carlisle; either of whom are authorised to sell it.—Not to be repeated.

BERNARD SAUNDERS, Nurseryman and Florist, Cæsarean Nurseries, Jersey, respectfully informs Amateurs and Florists that he has a good Stock of Yellow and White-ground PICOTEES to offer for sale this season, at 2s. 6d. per pair; orders for which will be thankfully received and promptly executed. Also a small quantity of well ripened Seed of the PHORMIUM TENAX or NEW ZEALAND FLAX at 2s. 6d. per packet of 60 Seeds.

TOWER NURSERY, HEATHFIELD.

WILLIAM MITCHELL respectfully announces to the Nobility, Gentry, and Public generally that he has purchased the entire STOCK of the above Nursery, late in the occupation of H. Barton, deceased, and hopes by strict attention to merit their patronage and support.

W. M. begs to announce that he has a fine healthy stock of Evergreen, Deciduous, and Flowering Shrubs; also Fruit and Forest Trees of every description.—Nov. 24.

AMERICAN PLANTS.

WATERER and GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.

Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor Branch, South Western Railway, where conveyances may be had.

GEORGE JACKMAN begs to state his PRICED CATALOGUE of choice CONIFERS, HARDY EVERGREENS and ORNAMENTAL TREES, which are well grown, and constantly removed, also Roses, Standard, Dwarf, and dwarf-trained Fruit Trees, and Forest Trees, can be had on application by enclosing one Postage Stamp.

G. J. respectfully invites persons planting to pay a visit to his extensive nursery, one and a half mile from Woking Station, South Western Railway, where all trains stop, and conveyances can be had.—Woking Nursery, Woking, Surrey.

EARLY FLOWERS, Adapted for Blooming in Doors, and in the Borders in Winter and Early Spring.

CLARK and CO., Seedsmen and Florists, beg respectfully to intimate to the nobility, gentry, and the public that they have imported a STOCK of DUTCH and other FLOWER BULBS, of the finest possible quality, and take the liberty of offering the following assortment for 10s., viz.:—Half a dozen best Hyacinths for glasses, half a dozen good Hyacinths for pots, 50 Crocuses (four separate colours), 50 large Double Snowdrops, half a dozen Double Van Thol Tulips, half a dozen early Van Thol Tulips, one dozen Double White Sweet-scented Narcissus, half a dozen Double Jonquils, one dozen Winter Aconites, 12 splendid mixed Tulips, and one dozen beautiful mixed Double Anemones.—86, High Street, Borough, about 30 doors from London-Bridge Railway Terminus.

IMPORTANT TO NURSERYMEN.

WANTED IMMEDIATELY, the Under-mentioned Plants, &c.:—Hardy Heaths: 50 Herbacea carnea, 50 Vulgaris pumila, 50 Vulgaris pygmæa, 50 Vagans alba, 50 Vagans rubra, 50 Mediterranea nana; these not to be less than 12 inches through. 100 Rhododendron Catawbiense, dwarf var. and well set with bloom; 100 Rhod. ferrugineum; 100 ditto hirsutum, dwarf, well set with bloom, with heads not less than 12 inches through; 100 Andromeda floribunda, not less than 12 inches; 100 Berberis Aquifolium, not less than 12 inches; 100 Alyssum saxatile, 4000 Snowdrops (double), 2000 Crocus of sorts.—Address, stating price, &c., to John Wightman, Gardener to Sir Robert Peel, Bart., Drayton Manor, near Tamworth.

MESSRS. E. G. HENDERSON and SON beg to announce that they have now received their noted collection of HYACINTHS in excellent condition, and for the assistance of those persons unacquainted with the culture of the Hyacinth, printed instructions will be given gratis with each order they are kindly favoured with, Catalogues of which, together with their Plant and Seed Lists, will be forwarded post free on application.

CUCUMBER Henderson's NAPOLEON III., in packets, 3s. and 5s. 6d each.

CALCEOLARIA, CINERARIA, and PRIMULA SEED of first quality, 2s. 6d. and 5s. per packet.

FUCHSIAS.—Banks' Favourite, 10s. 6d.; Prince of Wales, 10s. 6d.

NEW RHODODENDRONS.—Boothi, Hookeri, Calophyllum, Kendricki, Eximium Windsori Leucanthum.

GYNERIUM ARGENTEUM (Pampas Grass).—E. G. H. & Son having in their possession the largest stock in the country of this noble ornamental Grass, can supply free healthy seedling plants, which are superior to any other at 2s. 6d. each, 25s. per dozen, or 7l. 10s. per 100.

Wellington Nursery, St. John's Wood.

DENYER'S NEW PROLIFIC GREEN MARROW PEA.—A fine variety for succeeding the first early Crops. Very hardy, and one of the greatest cropping Peas in cultivation. It obtained the first prize at the Hastings and also at the St. Leonard's Horticultural Exhibitions.

From the Dean of Battle.—"The sample of Peas you sent me surpasses in beauty of colour and richness of flavour any that I have ever met with."

From Mr. Waters, Gardener to Lady Webster, Battle Abbey.—"I have examined the growing stock of your new Pea, and find it crops abundantly, the pods being a good length, very broad, and well filled. It is also a fine flavoured and beautifully green-coloured Pea."

From Mr. Bunyard, Maidstone.—"My opinion of the new Pea is, that it is a distinct sort, a good cropper, and for colour I do not know its equal."

From Mr. Parks, late Nurseryman and Seedsman, Dartford, Kent.—"I am much pleased with your new Pea. It certainly is a very fine cropper. The Peas are large, and the pods completely filled. It will when known become a superior Pea for market."

Price 3s. 6d. per quart. Post Office orders payable to William Denyer, Seedsman, Battle, Sussex. May also be had through the London and other seedsmen.

NEW VARIEGATED GERANIUM—MRS. LENNOX.

JOHN and CHARLES LEE are now sending out this novelty, which is a decided improvement on The Mountain of Light. It is of much more vigorous growth than that variety, the margin of the foliage is of a purer white, and in other respects it possesses the same good qualities. Price 7s. 6d.

Nursery and Seed Establishment, Hammersmith.

FRUIT TREES IN POTS.

JOHN and CHARLES LEE have the finest stock of the above ever yet offered, consisting of—

PEACHES	APRICOTS	CHERRIES
NECTARINES	PLUMS	APPLES

and PEARS.

All warranted to bear good crops the first season.

Nursery and Seed Establishment, Hammersmith.

SUPERB DWARF HYBRID PERPETUAL ROSES BUDDED ON SIX-INCH STEMS.

WILLIAM WOOD and SON respectfully solicit attention to their very extensive and splendid stock of the above. The plants are vigorous, and expressly suited for potting or forcing; they are also very eligible for grouping, consisting of all the leading kinds, and will be supplied at 12s. to 18s. per doz. Catalogues may be had on application.

N.B. A very liberal allowance to the Trade.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

FANCY DAHLIA.

WALTERS'S "COCKATOO" has proved the best in its class, and the most ornamental Garden Plant of all the Fancy Dahlias. May be had in ground roots at 10s., and pot roots at 5s. each.

CYCLAMENS, Flowering Plants, sweet-scented, at 1s. 6d. each, 15s. per dozen, 5s. per 100.

HYBRID PERPETUAL ROSES, extra fine, 10s. per dozen.

Samuel Walters, Hilperton, Trowbridge, Wilts.

TO PLANTERS AND THE TRADE.

HAY, SANGSTER, and CO., will Sell the following cheap, as the ground must be cleared:—

Strong Standard Dwarf and Dwarf Trained PEARS,
Do. do. do. GREENGAGE and VICTORIA PLUMS,
Do. do. and half Standard MULBERRY,
Do. do. and Dwarf Trained CHERRIES, [RHUBARB,
PRINCE of WALES, PRINCE ALBERT, and VICTORIA
Strong two years' SEAKALE and ASPARAGUS,
EVERGREEN OAKS, in pots, 3 to 5 feet.

18 and 19, Cumberland Place, Newington Butts, London.

NEW ROSES.

J. and J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to offer fine Standards of the following beautiful NEW ROSES:—

	s.	d.		s.	d.
Belle Lyonnais	5s.	0d.	Vicomtesse Laure de Gironde	5	0
Comtesse d'Orleans ...	5	0	Madame Masson	7	6
„ Vaillant	5	0	„ Theodore	5	0
General Jacqueminot ...	3	6	„ Cambacères	5	0
Gloire de France	3	0	„ Vidot	7	6
„ de Vitry	5	0	„ Hector Jacquin ...	3	6
Madame Guinoiseau ...	3	6	Lord Raglan	5	0
Mademoiselle Aline Gibbon	3	0	Madame Place	5	0
Prince de la Moskowa...	5	0	Panaché d'Orleans	5	0
Sir John Franklin ...	3	6	Prince Leon	3	6
Souvenir de Madame Lille	3	6	Triomphe de Paris	3	6
			Gloire de Dijon (Tea) ...	3	6

Melanie Willermoz (Tea) ... ... 3s. 6d.

For a full description of the above see Catalogue, which may be had on application.—Nov. 24.

PEARS GRAFTED ON THE QUINCE AS PYRAMIDAL SHAPED TREES.

J. and J. FRASER beg to announce that their Priced List of the above is now published, and may be had post free on application.

J. & J. F. have sold a large number of these Trees for the last three years, and have received numerous letters from gentlemen in the country speaking in very high terms of their productiveness. They can therefore recommend them with greater confidence to the notice of their friends and the public in general.

Lea Bridge Road, Essex.

TREE CARNATIONS.
"Flowering Winter and Summer."

YOUELL and CO. have now to offer a fine stock of all the best varieties of the above deservedly favourite class, which cannot be too strongly recommended, not only for their fragrance, but the brilliant display they afford during the autumn and winter months, either in the Greenhouse, Conservatory, or open Garden. In Bouquets they are unsurpassed. Strong plants in pots, 18s. per dozen.

They also beg to call attention to the following:—

CARNATIONS AND PICOTEES.

Our collection of the above is probably the most extensive in Europe, having for a series of years bestowed our special attention to their cultivation upon an extent that enables us to offer—

The choicest varieties by name at 18s. and 24s. per dozen pairs.
Fine mixed border ditto ... ... 9s. „
Fine old Clove Carnations ... ... 12s. „
True White ditto ... ... 18s. „
Pinks, comprising all the new first-class show flowers, 9s. and 12s. per dozen pairs.

All orders of 2l. and upwards are delivered, carriage free, to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

OLDENBURG NECTARINE.

MESSRS. VEITCH and SON, of the Exeter and Chelsea Nurseries, having received the stock of the above valuable NECTARINE from the raiser, Mr. Madge, gr. to Miss Fanshawe, of Torquay, respectfully announce that they are now prepared to supply good trees on the following terms:—

MAIDEN TREES, ... 2s. 6d.
DWARF TRAINED ... 10s. 6d. and 15 0
With one over on three to the Trade.

A few extra-sized Dwarf-trained, and Trees in pots for Orchard Houses, at 21s. each.

The OLDENBURG is believed to be a cross between the Elruge and White Nectarines; fruit of it exhibited on the 2d of October last, at a meeting of the Pomological Society, elicited the following very favourable report, which appeared in the "Cottage Gardener," on the 9th of that month:—"The most interesting part of the exhibition was the examination of a new Peach and Nectarine from Messrs. Veitch & Son, of Exeter and Chelsea. The Nectarine, which was called the Oldenburg, was one of a very superior quality, and contrasted considerably with the five specimens of Stanwick in the same collection, which were very inferior in flavour. The Oldenburg is a medium-sized fruit, somewhat similar in size to the Elruge. It is ovate in shape, and very much covered with very dark red, except where shaded by the leaves when it is pale yellow. The flesh separates freely from the stone, is very melting and juicy, with a rich sugary and vinous flavour; it is yellowish white throughout, and even at the stone there is not the slightest trace of red. The fruit seems to keep well after being gathered, and shows a disposition to shrivel without decaying."

Nurseries, Exeter and Chelsea.

NEW ROSES.

WILLIAM WOOD and SON have again much pleasure in recommending their beautiful Seedling Rose, the Perpetual DUCHESS OF NORFOLK; the colour is a very rich vivid crimson, the underside of the petals shaded with lively pink, giving the flowers an exquisite shell-like appearance.

Price for Standards, or Dwarfs 3s. 6d. each.

Williams' Evergreen Climbing Rose, 1s. 6d. each—This Rose is a seedling from the Ayrshire Splendens fertilised with the Yellow Tea Rose; its flowers are creamy white, deliciously sweet-scented.

N.B. The New Rose Catalogue and Supplement may be had on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

GOOD SEEDS, CARRIAGE FREE.
Seeds Direct from the Growers the most certain means of Preventing Disappointment.

SUTTON and SONS, Seed Growers, Reading, Berks, *can supply every kind of* GARDEN SEEDS *and* FARM SEEDS *of genuine and superior quality, warranted all of the growth of* 1855.

Horticulturists and Agriculturists residing in the most remote parts of the kingdom, can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to

Sutton & Sons, Seed Growers, Reading, Berks.

THE BEST TWELVE HYACINTHS FOR POTS OR GLASSES.

	s.	d.
The best 12 HYACINTHS (by name) imported ...	9s.	0d.
Fine Double do. for open ground, mixed	4	0
TULIPS, fine mixed, early for pots or borders, per 100	6	0
ANEMONES, fine double mixed	5	0

And all other BULBOUS FLOWER ROOTS at low prices, as per Catalogue. *Carriage free, except parcels under 20s. value.*

John Sutton & Sons, Seed Growers, Reading, Berks.

WEST OF ENGLAND HORTICULTURAL AND AGRICULTURAL SEED ESTABLISHMENT.—*The* Proprietors *have during the past summer considerably enlarged their Offices and Seed Warehouses at a considerable expense, so as to be enabled to execute all orders with regularity and dispatch.*

With increased exertion, redoubled energies, and more assistants, they hope to give the greatest satisfaction to all who honour them with commands.

William E. Rendle & Co., Seed Merchants, Plymouth.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 24, 1855.

One of the questions most frequently put to us is "Where can a good cheap microscope be had?" and it has been one of those most difficult to answer. No country has cheaper microscopes than this, but they are bad; no country has better instruments, but they are costly. Goodness and cheapness are a rare combination, and in fine optical instruments have been hitherto so incompatible that we have been in a manner compelled to refer our inquirers to Paris, Berlin, or Vienna instead of London. It gives us great pleasure to say that this difficulty is removed. We have now before us a microscope manufactured by Smith and Beck, of No. 6, Coleman Street, which may be had for ten pounds, having excellent construction combined with good mechanical arrangements, in which latter respect the cheap microscopes made in Paris by Nachez are defective.

The instrument in question is called "the educational microscope." It has good movements, a solid stand, so as to prevent unsteadiness, an inch and a quarter inch object glass, two oculars or eye-pieces of different power, and such apparatus as is indispensable to the student. Beyond this it is not necessary to go, in order to gain a knowledge of those common things of which the mass of mankind is so helplessly ignorant. Provided the lenses are *good*, an objective with an inch focus is all that a student needs for large objects, and he can never want one more powerful than a quarter inch until he gets far beyond the status of a student.

We venture to draw attention to this instrument of Smith and Beck's, because the microscope has now become almost as necessary as eyes themselves to a large number of men, who are nevertheless debarred from the possession of a good one by their insufficient means; while a bad one is not worth the having at any price. Every one has the word adulteration in his mouth; lectures are given on adulterated food; books are written on adulterated objects of commerce; prosecutions are instituted because of adulterated articles of excise. In all these cases the naked eye is powerless. It is only when armed with the magical powers of an achromatic lens that fraud becomes palpable to the senses. There is not a gardener who does not read of cells, and woody tubes, and spiral vessels; of starch cells and gum cells; of stomates and epidermis. Without a microscope what idea can he form of these bodies?—and yet, since they constitute the wondrous mechanism of a plant, to know nothing certainly of their nature is to know nothing distinctly of those workings in the life of a plant with which he has to deal, and with which he should be familiar. With microscopes costing from 20l. to 120l. men of that class must remain ignorant; but when the price is reduced to 10l. there arises a possibility that a good instrument may form a part of very humble educa-

tional establishments. In how many gardeners' reading rooms, for example, can it be found at present? We fear in none.

It will be observed that in the microscope now brought under notice none of the refinements, or luxuries, of optical science are introduced. There is no polarising apparatus, no eighth and tenth objectives, no variety of oculars, no camera lucida, no micrometers, none of the hundred and one ingenious contrivances with which a microscopical philosopher, or, as the lovers of new words delight to call him, histologist, supplies himself. And we think so much the better; the ordinary observer does not want to be a philosopher, he has no ambition to penetrate the depths of visual obscurity; all he needs is to gain such power in his eyes as will enable him to see distinctly that which is certain; and on which the phænomena of life essentially depend. Cytoblasts, cistomes, and protoplasm; nuclear, fissiparous or circumferential development; and the origin of those things which he knows only by their action when of perfect growth, are matters with which he need not concern himself. We think, indeed, that it is better not to put into the hands of a young student the means of inquiry into such subjects; he is easily led away into their pursuit, in which he cannot succeed, instead of fixing his attention upon simpler but far more important matters; and thus his time is unprofitably consumed. How desirable, for example, it is that a gardener should have the clearest possible knowledge of the structure of the mildew plants which ravage his crops, and of the tissues among which they develope, and of the bodies by which they are multiplied. But in what way is he concerned to know how the mycelium (spawn) was originally formed, or by what means the spores (seeds) are generated in their cells? How useful it is to have a certain knowledge of the structure of the greenfly, and the scale, with which he is eternally at war, and to see with his own eyes their mode of feeding and of multiplying; but it is a waste of time for him to count the eggs in their bodies, or to strain his eyesight in looking for the exact structure of their ocelli, hairs, or wing nerves. How advantageous again is it to know how the pollen is formed, and by what marvellous contrivances it is able to operate upon the seed, producing hybrids on the one hand, and legitimate offspring on the other. But of what earthly importance to him is it to ascertain the shape of the cells on the surface of a pollen grain, or of how many layers, one, two, three, or four, its skin consists? What he really wants to see the microscope before us will show him. What it will not show him he may very safely remain in ignorance of.

One day last March we took an opportunity of pointing out the disgraceful state of the Cutlery supplied to Gardeners. We told how it was soft as lead, or hard as flint, no-tempered or ill-tempered, bending like a hoop or snapping like glass; and we presumed to ask the makers whether they intended to force us to the United States or Canada for our pruning knives as well as our axes.

How just were these complaints all are aware; and we repeat that at that time neither we, nor any one whom we knew, had an idea where to purchase a knife worthy the name, except at an exorbitant price. It is with no little satisfaction that we have now to withdraw the charges then made against the whole cutlery trade, and to announce that one firm has proved to our satisfaction that they can and will meet the wants of horticulture.

In June last Messrs. Saynor and Cooke, of the Paxton Works, Sheffield, sent us a set of pruning and budding knives for trial. Three of each were given to as many working gardeners; the same number to experienced master gardeners; the rest we tried ourselves. In every case they were found to be all that could be desired; as is seen by the following reports:—

1. In the pruning knife the steel is good, bears sharpening to an edge that cuts a hair like a razor, and maintains it very well. The budding knife is well finished as regards workmanship, and is made of excellent steel.

2. The large clasp knife is a most excellent one. The budding knife is a very good blade; and if not so good in quality as the large knife, is still very superior to *the best* kinds obtained in the ordinary shops.

3. Saynor's budding knife is a good knife for budding and all light purposes, but will not stand rough work. The large clasp knife is a good handy and useful knife.

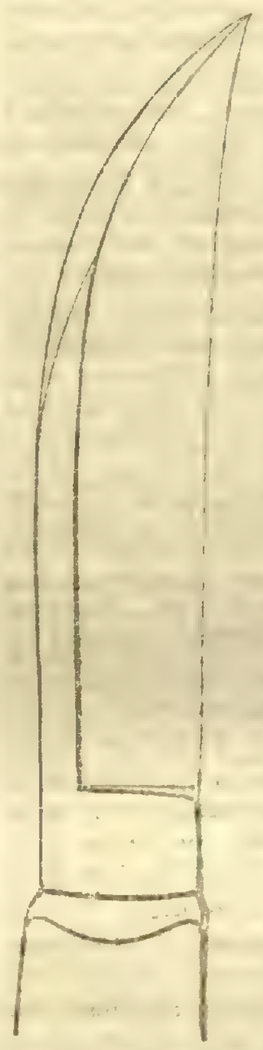
4. The large clasp knife is a remarkable good one, the best knife I have had for a long time. The small knife for cutting is better than any we have had lately, but is not so good as the large one.

5. I don't know how knives are to be of better quality than the clasp and budder you gave me.

6. That was a famous good knife, sir. I wish a poor man could always get such a thing; for I have been a good many shillings out of pocket by the rascally rubbish bought in the shops.

Our own trials confirm these reports, except that we found the budding knives as good as the others if used only for the light work for which they are made. Rough work they will not stand, and for rough work they should not be used. Either ought to be sold at from 1*s.* 6*d.* to 2*s.* 6*d.* a-piece, according to their pattern.

Some of the reporters objected to the form of the knives furnished to them; and with reason, for they happened to get patterns that were ill-suited to the work they had to do. A woodman does not like a Peach-pruner; that is not to be expected. But we should say that among the 10 or 12 patterns in the sample which we received, there was every form except one, which any workman can require. To that one we would call attention. What is required for most purposes is a knife that is strong, stiff, slightly curved, thin at the back near the point, and not hooked; in short, formed like the accompanying cut, which represents a famous blade in our possession, made for the late Thomas Andrew Knight. It is exactly one-tenth of an inch thick at the back, which thins away to the point from about the middle. The edge is just curved enough to prevent its slipping when making a strong cut; and in order not to diminish the strength of the back, the slope forwards towards the edge does not begin at the back itself, but about a tenth of an inch within it. This form has the additional advantage of rendering the blade a better wedge than the ordinary knives. We have used it for all sorts of work for many years. It will insert a bud, prune a wall tree, make a graft, or sever a stout branch at a single draw—that is to say, if the operator knows how to make a clean drawn cut. It is possible that the care necessary in grinding such a blade into proper proportions may render it more expensive than ordinary pruning knives, but it is well worth the additional cost, and we recommend it to the notice of Messrs. Saynor & Cooke.



VEGETABLE PATHOLOGY.—No. XCVI.

383. Exostosis.—(2. *Warts*).—In our last article attention was drawn to the fact that the woody matter proper to the imperfectly developed buds from which Knaurs are generated is not always deposited separately, so as to nestle within the bark and ultimately to become perfectly free from all attachment to the axis, but from the first is applied to the axis itself, so that a little more or less irregular cone is formed upon it, rendering the surface uneven wherever one of these buds occurs. Now if a multitude of such buds are produced on a given area a protuberance will gradually be formed, which may in process of time acquire a considerable size. In the Elm, for instance, warts some feet in circumference are not unfrequent, and in consequence of their complicated knotty structure are sought after by the cabinet-maker for veneering, and in fact produce articles of furniture of extreme beauty.*

384. The warts however are not always, in the first instance, due to the simple production of adventitious imperfectly developed buds. They frequently commence where a branch has been cut off. In the lapse of years the wound is closed over, the successive layers of bark leaving a cushion-like swelling over the spot. Buds are formed in these young layers, forming numerous impediments to the descending course of the sap, which is delayed in its progress at the base of each bud. Fibro-vascular tissue is generated, which follows the tortuous course of the sap, and is more abundantly deposited in consequence of its longer detention. That portion of the trunk, therefore, grows more rapidly, and the result is a convex mass projecting beyond the general surface, consisting internally of highly complicated tissue.

It is evident that such masses are due partly to the proper tissue of the semi-latent buds, and partly to the true tissue of the trunk, for the buds are often sunk like little craters of eruption in the tips of the cones, the tissue of which in such instances could not be derived from the buds themselves. In some cases the buds themselves may die, and so ultimately be inclosed in the tissue proper to the trunk, in which case there will be little dead nuclei, from which decay may spread in every direction, and in consequence of which the wood of such productions is seldom perfectly sound, causing considerable annoyance to the artificer.

385. Swellings of a very similar appearance are not always due to this cause. In the Birch, for instance, excrescences occur of a comparatively large size in proportion to the branch on which they are developed, without any appearance of buds, consisting of unusually large concentric layers, with the general surface corrugated. These layers are developed round a central nucleus which appears to be due to the puncture of some insect, which has stimulated the tissues and produced extreme hypertrophy, as in the formation of galls. No external aperture, however, appears, and we must be contented, therefore, for the present, with a simple conjecture. A beautiful specimen of such a branch is represented in the memoir of Trécul quoted above.

386. Protuberances of the same nature exist occasionally also on the roots of trees. In the Ash, for instance, they occur of large size, projecting greatly beyond the true surface of the root.† The cause of them is as obscure as of the warts just mentioned, and may either consist in some external injury or in constitutional derangement. True galls, however, occur on roots, as in the Oak, but in these the presence of larvæ at once settles the point.‡

387. Warts of a different character often occur on the small twigs of Birch trees, in which the buds are developed, and in consequence the mass has the appearance of birds' nests suspended amongst the branches. The cause of their formation is, I believe, unknown, but it is very possible that they may be of insect origin. Such productions are not confined to Birch trees. It is probable that the curious variety of Scotch Fir known under the name of Pinus Clanbrassiliana has been raised by cuttings from such a mass, and I believe that cuttings of the Birch-nests retain their fine twiggy character when grafted. It is said by Loudon that trees in a boggy soil are far more liable to produce these twiggy tufts, but we have seen them abundantly on trees planted in very dry ground on a gentle declivity. The knots on the trunk are for the most part free from twigs. It is possible, however, that the origin of both may be the same, the only difference consisting in the development of a number of adventitious buds in the one case, while in the other no buds are produced. The *witch-knots* in the Elm which look like masses of entangled cord are probably of the same character.

* In consequence of its close and intricate texture the wood of these knots takes a high polish, insomuch that no one from mere acquaintance with the general appearance of furniture made from Elm would recognise the relation. Pollard Oaks, from the development of numerous twigs on the surface, sometimes afford a highly ornamental material, of a somewhat similar character, for veneering. Elms which have been frequently pruned yield beautiful wood, and the Bird's Eye Maple probably owes its qualities to the production of numerous adventitious buds on the surface of the trunk. In France, indeed, Elms are purposely lopped, and repeatedly headed to produce knotted wood. The twisted Elm, or as it is called in some parts of the country, locked Elm, arises from a different cause.

† I regret that I am not able from personal analysis to describe these more closely, as I have parted with the magnificent specimen which came into my hands some years since. The external appearance was very like that of the Birch wart figured by Trécul.

‡ I have had no opportunity of examining the diseases called by Ré Pinguedo and Teda in the Fig and Pine respectively, nor are the descriptions which he gives circumstantial enough to lead to any safe conclusion. Whether they are of a nature similar to the radical swellings mentioned above, or simple cases of hypertrophy, induced as Ré supposes by excessive nutriment, is very doubtful. In the former case decay soon takes place; in the latter abundant resin is deposited, and the tendency to accumulate the secretion is gradually communicated to the trunk.

FAIRY RINGS.

There are few plants more mysterious in their workings or more marvellous in their works than fungi. It would scarcely be credited that the contemptible threads of the Merulius or dry rot would so completely destroy the woody fibre of timber as to render the best British Oak as brittle as the earth from which it sprung; and when we look at the fairy ring in the pasture field we marvel to see how inadequate to all appearance the means are that nature employs to bring about such important ends; a few white threads or a little mouldiness are all that we are able to detect as the perfect plant in full working order, and yet from this laboratory, with a rapidity like magic, the Agaricus sends forth its fruit white as the Lily and fragrant enough to be inviting, but of such surpassing excellence to the palate as to have scarcely a rival in the vegetable kingdom.

That Mushrooms should be obtained from a bed of the richest manure is not so much to be wondered at, any more than that the highly-flavoured Onion or the Celery plant should be found luxuriating in rich mud; but when in the middle of a very poor pasture field we find a green spot, not in the form of a dot as if some manure had been dropped there, but in the shape of a regular ring, there is no denying the fact that the Agaricus is regularly rotting down the ungenial earth, and tilling himself a garden, extending his holding where first he has been planted, and as occasion offers sending up his fruit, and finally scattering his spores to produce dots and fairy rings to the end of time.

But it is not to the production of Mushrooms that I would now beg leave to call attention, but to the beautifully green herbage that arises from the soil where the Agaricus is subduing the materials beneath.

Having had occasion to manure a pasture field with artificial manure and requiring some ingredient to give it bulk, a quantity of old Mushroom dung and soil was sown with it, and although there had always been fairy rings in the field they had hitherto attracted little attention, but when this stimulant was added the rings not only assumed an unwonted greenness but produced an early and abundant crop of Mushrooms.

Now, since common salt and certain other salts are well known to stimulate the growth of Agarics, and since the spawn of this powerful plant is so cheap and moreover so active in its operation, would it not be worth while to put these two ideas together and set them to work upon some very poor upland pasture, just to till the land a little where the Grass has scarcely the power to subdue the stubborn materials? A heap of soil and dung fermenting so slightly as scarcely to be perceptibly warm, would in a few days (say 21), if spawned, become so impregnated with the spawn of the common Mushroom that it would not only produce Mushrooms where it lies, but if broken into innumerable pieces, and preserved from drenching wet, would retain its vital powers to an unknown period, and this heap of manure (say 10 tons) could be impregnated with about 1 peck of common brick spawn, the value of which at the ordinary market price from the nurserymen would be about 1*s.* 3*d.*

That a field should be spawned, or in other words, planted with Agarics, would only be doing on a large scale what is done every day on a small scale, and although in some cases it might not be desirable to impregnate Grass land with fairy rings on account of the patched and spotty appearance that it would give to it, still there is many a lone hill side and stubborn clay field that would take no harm from such a powerful decomposer as the Agaric passing his fairy ring through it; and should the seasons prove mild, the produce of Mushrooms alone, independent of the Grass, would be no mean recompense for the little outlay at starting; and, once established, the salt and wood ashes would stimulate the plant, not only to send up its Mushroom fruits, but to extend itself more rapidly, and thereby make green the pasture for sheep and horned cattle. *Alexander Forsyth, St. Mary's Church, Torquay.*

THE VINE DISEASE IN PORTUGAL.

We have received the following report from Messrs. Forrester & Sons, of Crutched Friars:—

The disease has been general in every part of Portugal, since the year 1853; and during the present year, its ravages have produced almost a total extermination of the fruit. From the river Minho to the Tagus, but especially in the wine districts of the Bairada, Bucellas, and Lisbon, it may without exaggeration be declared that scarcely a perfect bunch of Grapes was produced this year; and that at the vintage season, instead of the vineyards being thronged with cheerful people gathering the fruit, in many parts we observed that goats, hogs, and cattle were feeding on the Vines. There is literally no wine for the ordinary consumption of the Portuguese people, neither is there wine in any of these extensive districts for distillation.

The stocks of old Lisbon wines are much reduced, and their value increased, at the lowest calculation, 100 per cent. Of Figuiera wines the stocks are altogether exhausted, and the same may be said of the Muscat wines of St. Ubes. South of the Tagus, in the provinces of the Alemtejo and Algarve, the Grapes were likewise destroyed. In the port wine districts the Grape disease developed itself in the month of July, and destroyed, between that month and the middle of August, about one half of the fruit, and the heavy rains in the month of September nearly completed the destruction of the remainder; so that according to our senior's calculation, not more than 8000 pipes of wine, and those of most inferior quality, were obtained. The wines accumulated in the Alto-Douro (or Wine-Company's district), consist principally of the vintages of 1854, and may be estimated at 6000 to 8000 pipes. These, without reference to their quality, cost the holders about three times the price paid for the superior wines of the vintage of 1851. The total stock of wines on the 1st of October last, for exportation in Villa Nova, hardly amounted to the one year's production of the port wine vintage of 1847. Of this stock a very large proportion consists of wines of the vintages 1850, 1852, and 1854, which, notwithstanding their very doubtful quality, cost the holders more than double the price at which far better wines were shipped from Oporto four or five years ago.

Choice old wines in general stock may be estimated at about 10,000 pipes, the average value of which in the Oporto market rules from 50*l.* to 80*l.* per pipe. This peculiar and limited stock of old ports, it is perhaps unnecessary to remark, can never be increased in quantity, but must daily increase in value, such wines being from 5 to 20 years old. Of vintage wines, for shipment as such (and these are principally of the year 1853), the quantity cannot be estimated at more than 15,000 pipes. The stock of brandy in Villa Nova on the 1st of October last, was reduced to one-fourth of an average quantity, and its value increased four-fold. As Alto-Douro wine growers, our own individual stock (with the exception of our choice wines of vintage 1853), is almost reduced to our reserves of former years. We, therefore, for the present, limit ourselves to the shipment of our ports of vintage 1853, and to the sale of our assorted stock of wines in bond.

As there were no Grapes in 1854 and 1855 worth our making into wine (either on account of their inferior quality or their high price), of course we did not venture to purchase wines made of such Grapes by others; preferring to continue to limit our business in ports, to wines exclusively of our own making. The distress in the wine districts of Portugal may be more easily imagined than described; and more especially so in the rugged and rocky mountains of the port wine demarcation, which being an exceptional territory—adapted almost exclusively to the cultivation of the Vine and the Olive, is incapable of producing corn. From this narration of facts the wine merchants of this country will be able to form their own opinion as to what may be the probable future state of the port wine trade.

We learn that a Silver Medal of the First Class has been awarded to Messrs. Forrester for their port wines exhibited in the Universal Exhibition at Paris.

Home Correspondence.

Effect of Salt-water on the Germination of Seeds.—As you have published notices by Mr. Berkeley and myself on the length of time seeds can withstand immersion in sea-water, you may perhaps like to hear, without minute details, the final results of my experiments. The seed of Capsicum, after 137 days' immersion, came up well, for 30 out of 56 planted germinated, and I think more would have grown with time. Of Celery only 6 out of some hundreds came up after the same period of immersion. One single Canary seed grew after 120 days, and some Oats half germinated after 120; both Oats and Canary seed came up pretty well after only 100 days. Spinach germinated well after 120 days. Seed of Onions, Vegetable Marrow, Beet, Orache and Potatoes, and one seed of Ageratum mexicanum grew after 100 days. A few, and but very few, seed of Lettuce, Carrot, Cress, and Radish came up after 85 days' immersion. It is remarkable how differently varieties of the same species have withstood the ill effects of the salt water; thus, seed of the "Mammoth White Broccoli" came up excellently after 11 days, but was killed by 22 days' immersion; "early Cauliflower" survived this period, but was killed by 36 days; "Cattell's Cabbage" survived the 36 days, but was killed by 50 days; and now I have seed of the wild Cabbage from Tenby growing so vigorously after 50 days, that I am sure that it will survive a considerably longer period. But the seed of the wild Cabbage was fresh, and some facts show me that quite fresh seed withstands the salt water better than old, though very good seed. With respect to an important point in my former communication of May 26th, permit me to cry *peccavi*; having often heard of plants and bushes having been seen floating some little distance from land, I assumed—and in doing this I committed a scientific sin—that plants with ripe seed or fruit would float at least for some weeks. I always meant to try this, and I have now done so with sorrowful result; for having put in salt-water between 30 and 40 herbaceous plants and branches with ripe seed of various orders, I have found that all (with the exception of the fruit of evergreens) sink within a month, and most of them within 14 days. So that, as far as I can see, my experiments are of little or no use (excepting perhaps as negative evidence) in regard to the distribution of plants by the drifting of their seeds across the sea. Can any of your readers explain the following sentence by Linnæus, pointed out to me by Dr. Hooker, "Fundus maris semina non destruit"? Why does Linnæus say that the bottom of the sea does not destroy seeds? The seeds which are often washed by the Gulf Stream to the shores of Norway, with which Linnæus was well acquainted, float, as I have lately tried. Did he imagine that seeds were drifted along the bottom of the ocean? This does not seem probable, from the currents of the sea, at least many of them, being superficial. *Charles Darwin, Down, Nov.* 21.—P.S. In my communication on Charlock seed lately printed by you, there is a misprint of "6 plants" for "6 plots of ground," which makes nonsense of the sentence.

The Late Winter in South Devon.—I have not given my experience of the past winter until now, because it seemed doubtful what plants would ultimately recover or yield to the effects of the cold. Among the latter is a magnificent Eucalyptus glabra, which was the pride of my shrubbery; it was more than 50 feet high, with a trunk upwards of 3 feet in circumference. It never lost a leaf from frost before, and was covered with flower buds, but must, I fear, be numbered with the dead, for though it has thrown out numerous weak shoots from the main stem, they are all withered. Eucalyptus radiata, a few yards off, about 30 feet high, is unscathed, as is a fine Acacia dealbata, still taller, which braved the frost and bloomed beautifully; it is now a mass of flower buds, and is one of the most graceful trees I ever beheld. A smaller plant of this species has also survived, yet Acacia mœsta, against a south wall, is all but dead. The Indian Rhododendrons and hybrids did well, and flowered finely, especially Arboreum roseum, and a fine variety of Cinnamomeum. A large plant of Dracæna indivisa appeared unaffected by the winter, but declined during the summer, and is now quite dead. The Chusan Palm is evidently quite hardy. One plant of Phillipodendron regium, in a shrubbery border sheltered from the east, is unhurt; while another trained against an east wall was much injured. On a south wall the Chinese Clerodendron fœtidum has proved perfectly hardy, and bloomed freely, but though interesting it does not merit the eulogy of M. Van Houtte, at least in my opinion. Habrothamnus fascicularis on a south wall has also stood well, and Mitraria coccinea has existed. My numerous Orange, Lemon, and Citron trees on south walls, protected by wooden or straw frames, stood the winter well, a few unripened shoots only being hurt, and they have all grown luxuriantly this summer; one rather rare species, the Egg Orange, was injured, but is recovering. Among the few new Pines that I possess, P. Russelliana is dead, and in a very high part of the grounds, open to the east; insignis became very brown, but all the plants have now recovered their verdure. Cupressus macrocarpa is certainly an unrivalled species, being alike indifferent to wind and frost; and on a high exposed terrace my plants, which were raised from the seed imported by the Horticultural Society, are strikingly beautiful. Tasmannia aromatica and Garrya macrophylla are both safe, while plants of Phormium tenax are much injured. Many things that we deemed as hardy as our Snowdrops and Primroses have manifested their exotic character by disappearing altogether from our borders; among them may be specified a large collection of Gladioli, Lobelias, &c. This can scarcely excite surprise when our common shrubs, such as the Arbutus and Buddlea were injured, and whole tracts of Furze were killed to the ground. *A Devonian.*

Vitality of Seeds.—Observing in several recent numbers of your Paper speculations on this subject, I beg to offer you the following facts, which came under my own observation, and for the truth of which I can vouch. Our parish church, which is a very ancient structure, was, previous to the year 1830, in a sadly dilapidated state, and the earth of the surrounding graveyard had accumulated against its south wall to a depth averaging rather more than 2 feet. Such had been its state for generations. At the above date it was taken in hand and thoroughly repaired, and it fell to my lot to superintend and direct the repairs of the graveyard, one part of which was to remove the accumulated earth from the wall of the church to the depth already mentioned, and to lower the adjoining ground to a corresponding natural-looking condition. Afterwards I was surprised to see on the surface of the ground, after the removal of the superabundant earth, that an immense number of plants made their appearance, which at first I mistook for common Tobacco: when they had time to develope themselves a little further, however, they turned out to be the common Henbane (Hyoscyamus niger). Now, from whence came these seeds? or how long had they been buried? They had doubtless been below ground for generations, no plant of the kind growing in the locality. Again: immediately outside this same graveyard, near its north-west corner, some five or six years since, a large old Oak was uprooted by the wind, and raised an immense mass of earth with its roots when the tree was removed, and the hole levelled in. It is also produced a crop of Henbane. Now the seeds must have been there before the tree, at least it seems so, for how else could the circumstance be accounted for? As to the many instances mentioned of Charlock making its appearance, I would beg to remark that Charlock is, I believe, an oil producing seed, and all seeds containing oil, if buried away from the air, will retain vitality a long time. I have myself raised Melons from seeds which I had kept for ten years. *Quercus.*

Larches.—The distance at which Larch of about 45 years' growth should be left apart to grow to the greatest profit per acre must be decided by the situation and present state of the plantation. If the locality is high and exposed the trees may not have attained the dimensions that would have resulted from more favourable circumstances, and therefore they would require to be left nearer each other than those of greater size. My system of thinning is to regulate the distance apart by the height of the trees, leaving a space between each, varying, according to situation, of from one-fourth to one-third, or little more, of the height of the trees. The distance at which Larches may be left apart at 45 years' growth may vary from 12 to 20 feet. "R. G. C." also asks if it would be advisable to have the trees "primed up." If pruning be what he means, it is decidedly objectionable to do more than clean off thoroughly all the dead branches. The quality of the wood is much improved by removing all branches as soon as they become deadened, and they should be attended to during all the stages of the growth of the plantation. *A. Patterson, Mariston.*

Protection of Frames, &c., from Frost.—Among other protecting materials one of your correspondents has lately accorded the preference to a covering of boards; but I am, however, inclined to think that there is a more effective material than any he has referred to, and to which the covering of boards itself in some degree, perhaps, owed its efficiency, as well as to its own non-conducting properties. The material I mean, is an enclosed stratum of still air, between the glass and the external covering; and if the stratum of air be 6 or more inches in depth, I doubt whether a more effective and desirable means of excluding frost is to be found. In the practical employment of this medium, it is requisite that the external covering should be close and impermeable by the surrounding air, in order to prevent any current or motion being introduced into the enclosed air, through crevices or other communications with the external atmosphere, by which its temperature would be speedily reduced to that of the latter. The covering material might be either wood or glass, according to choice or circumstances; but apart from the question of expense, the latter would certainly be preferable, as the glass covering might be kept on night and day throughout the entire winter, by which a great deal of labour would be saved, and the plants would never be deprived of the natural light of day, as they must be during periods of hard frost if a boarded covering be adopted. *J. H. H.*

Star of the West Cucumber.—Mr. Ayres speaks of this variety in terms of disapprobation. Being the raiser of it and having successfully competed for three years against other good sorts, at the horticultural show at Plymouth, I am led to suppose that some difference in the treatment of the plant must be the cause of Mr. Ayres not having more success. Being, like himself, much interested in the culture of Cucumbers, it would give me pleasure to compete with him at any show in London, Plymouth, or elsewhere, as it is only by comparing ourselves with others that we can discover where we excel, and where we fail. I have within the last week cut fruit 27 inches long, of uniform thickness, with flower attached, young, crisp, and well flavoured; but such fruit as described, 20 inches long, if uniform, and only 1 inch in diameter, I should very much like to see. *Richard Lynch, Port Eliot.*

Dioscorea Batatas.—After what I formerly stated concerning this Yam, I think it no more than right to send you the result. It may be remembered that I had but one plant, a tuber about the size of a finger or nearly so. It was started in the spring in a very moderate heat, and when pushed a considerable length it was turned out (I have forgot the date, but not early). To give it depth of soil, which I understood to be a requisite, I raised a sort of flattish hillock on a garden border, and turned the plant out on the top of it. The stems were tied to a 3½ feet stick, but had no other care except on two occasions, when a soaking of water was given to

moisten the ground about it. About a week ago I dug up the plant, which had made two long tubers—about the size of two moderate Carrots, only growing inverted, viz., the thick end downwards. I have weighed them, and I find their joint weight is 1 lb. 12 ounces; circumference round where thickest, 6½ inches. So much for facts—now for opinions; mine is, that although it will neither rival nor supersede the Potato, which no one can desire, yet if grown to some considerable extent, it would be a very good auxiliary to that useful root. I am further of opinion that it is not nice about quality of soil, but it seems essential that it should be deep. On digging mine I found these lower extremities from 18 to 20 inches below, the upper end forming a longish slender neck. Next spring I mean to plant a row of it. Am I right in believing that the tubers will bear cutting into sets like a Potato? I think some writers said they would. *Quercus.*——The following experiment on the Chinese Yam in a bleak and backward garden in West Kent goes to strengthen your inference from the experiments of Messrs. Henderson & Gordon, that the climate of England is adapted to its cultivation. Of my four small tubers one was as large as a ripe Marrowfat Pea, as heavy perhaps as two of the others, and this made the best plant and produced the largest root. They were planted early in March, singly, in thumb pots, and set on the shelf of a well ventilated greenhouse without fire heat; the plants were very slow to come up, and it was not till towards the end of April that a leaf was fully developed on each; by the middle of May the largest plant had 2 or 3 inches of bine; at this time they were planted out on the open border, a good sandy loam, on a bed 1 yard square, dug deep, and then shovelled up about 6 inches high. Strong winds and night frosts followed, and the two weakest plants perished, though a flower-pot was sometimes turned over them at night. The two remaining grew slowly, and as they grew were pegged down upon the bed, which however they never covered. The frost about the end of October, which killed the common Nasturtiums, changed the colour of the Yam leaves from deep to yellowish green; a fortnight afterwards they were dead, and the tubers were dug. They were fully formed; the largest, when washed and dried, weighed fully six ounces, and measured 4 inches round the largest parts—the smaller weighed 2 oz. No small tubers were found on the stems where pegged down, perhaps because care had not been taken to cover the axils of the leaves. Another season it is proposed to plant sets in the open ground of this garden about the middle of April, a considerable degree of warmth being apparently necessary to start the bine. *S. S.* —— Having purchased four small tubers of this new esculent, the same size as those sent out by Mr. Henderson, they were potted singly and placed near the glass in a late Peach-house, where they remained without fire-heat till the last week in May, when they were set out in a sheltered place for a fortnight, and were then planted on a ridge 3 feet wide at the base, such as is usually prepared for Cucumbers, &c., at that season. They were covered with hand-glasses till the middle of July, when the glasses were removed, and it then showed evident symptoms of having suffered from cold and wet; indeed, it had an injured appearance during the whole season of its growth, even in the Peach-house the temperature appeared too low for it—one of the plants died in August. At the end of October, however, when the tubers were lifted (which was done in presence of Lord Lovat and Sir William Gibson Craig, Bart.), they measured respectively—

	Length.	Circumference.
No. 1.	11½ inches.	4 inches.
2.	13 "	3½ "
3.	8 "	2½ "

No. 3 produced two tubers. It is evident, as remarked by Mr. Nutt, that the new tuber commences to form at the top of the old one, and grows downwards, which serves to teach us that a deep soil is required for its cultivation. A row of Holcus saccharatus was planted on each side of the Dioscorea bed; it grew about 18 inches high, but the first frost killed it. Neither sheep, horses, or cows would eat it. *W. Baxter, Riccarton, near Edinburgh.*

Durability of Timber.—Last night a fire broke out in Stirling Castle, which has destroyed some of the oldest buildings in the garrison. I was in Stirling to-day, and went and saw part of the ruins; there was no admission into the Castle, but it looked bad enough from the outside. Many of the burning rafters were thrown over the Castle rocks; the Ivy in some places was much scorched, and it had a strange appearance, from the number of articles upon it that had been thrown from the windows of the buildings, such as papers and books that had not reached the bottom of the rocks. People were collecting the choicest wood that had been thrown over the rocks, or had fallen from the burning, and were cutting it up for firewood. It was surprising to witness the freshness of the Oak timber that had been in use for centuries. I secured a small portion of it, supposed to be part of the well known "Douglas room." I have enclosed a chip of it for your inspection, hoping you can tell what species of Oak it is, that can resist the teeth of time so long. *P. Mackenzie, Nov.* 19. [The fragment sent us is so small that we cannot say with confidence. But we believe it to be Qu. pedunculata. Could Mr. Mackenzie procure by favour or purchase a good piece of an old beam not less than 6 inches cube.]

Ipswich Standard Cucumber.—Permit me to inform your correspondent (see p. 758) that I have spoken of his Cucumber according to its merits. It has been weighed in the balance for flavour and general usefulness against other kinds, and found wanting; and, consequently, with a great number of similar kinds, it has been thrown aside as unsuitable for my purpose. Mr. Wild describes the flavour as being neither "bitter nor sweet," which is quite confirmatory of my description of it; for if a Cucumber has not a "smack" of sweetness about it, I doubt not that all connoisseurs will set it down as insipid. Just for the same reason that I believe a really first-rate salad cannot be prepared without the addition of a little sugar, so do I consider that a fine flavoured Cucumber must also have a taste of sweetness. It is for this reason that the Syon House and Lord Kenyon's are so much admired, and though it may answer Mr. Wild's purpose to run them down, he may depend upon it that those two kinds will be grown when the Ipswich Standard, the Generals and Colonels before alluded to have passed away and been forgotten. Mr. Wild's twelve diameters, short shoulders, black spine, and fine bloom, may be all very well to look at, but they will not stand in the place of crop and flavour, where Cucumbers are grown to be eaten, and not for sight-seers. With reference to Mr. Wild's challenge, it could answer no good purpose, as I regard the mere production of a brace or twenty brace of fruit at a given time from plants, be it remembered prepared for the purpose, no criterion of the general worth of a variety; but to show Mr. W. that I am not unwilling to put his "Standard" to the test, I forward with this a packet of seed of my Perpetual Black Spine, and if he will do the same with his pet kind, I have no doubt that you will place the two varieties in the hands of some gardener both willing and competent to decide upon their merits. The same plants of my Perpetual (hence its name) have been in bearing since March last, and they carry good fruit now, and will until this time next year if I like to keep them; while all the long kinds in the same house have died out and been thrown away for some weeks past. This is my estimate of the value of a Cucumber, and therefore Mr. Wild must not be surprised if I and others who act with me take him at his own standard, and believe that he is only "a bit of a judge." *W. P. Ayres, Nov.* 20.

Societies.

Horticultural, *Nov.* 20.—J. J. Blandy, Esq, in the chair. Baroness L. de Rothschild, Sir R. Peel, Bart., M.P., W. H. Solly, Esq., S. Platt, Esq., J. Clough, Esq., Mr. John Spencer, and Mr. Arthur Henderson were elected Fellows. Subjects of exhibition were so numerous on this occasion that not only was the meeting room full, but the library, council room, and secretary's room, together with the passages leading to them, were also literally filled with flowers and fruits, many of them of the most choice description and all of them possessed of rare excellence. Of newly introduced plants, that to which perhaps the most interest was attached was the singular lace-like water plant from Madagascar, called Ouvirandra fenestralis, of which a full description was given in our number for Nov. 12, page 740. This was furnished by the Rev. Mr. Ellis, of Hoddesdon. Messrs. Veitch also showed a handsome Æschynanthus, called fulgens, a sort whose flowers resembled Æ. maculatus or grandiflorus, but it was reported to be shrubby and upright in its growth, characteristics sufficient to distinguish it from the last-named kind. From Mr. Sherratt, gr. to J. Bateman, Esq, came cut flowers of Paphinia tigrina, a handsomely spotted brown flowered Orchid from central America; and from Messrs. Rollisson, of Tooting, came a pinnated shrub, from Australia. The last-named nurserymen likewise sent a collection of plants remarkable for fine foliage, in which were various Dracænas, Crotons, Rhopalas, Aralias, Brexia, Oldfieldia and other plants, most of them with very handsomely divided leaves. A similar collection was also furnished by Messrs. E. G. Henderson, of Wellington Road, the most remarkable objects in which were perhaps Cissus discolor, Pavettas, Caladiums, Aphelandras, the Rice paper plant, Aralias, Rhopalas, and examples of the pretty little Sonerila margaritacea, which in addition to the beauty of its flowers has leaves so profusely covered with small round white spots as to look as if they were thickly sown with pearls. Mr. Ingram, gr. to J. J. Blandy, Esq., likewise showed a fine specimen of the last-named plant. Of Orchids Messrs. Rollisson sent several kinds, among which the most conspicuous was Lælia Perrini, a Brazilian species with handsome rose coloured flowers. Sophronitis grandiflora, in the shape of a single specimen, with five vermilion coloured flowers on it, came from High Grounds, Hoddesdon. It was stated respecting this charming little plant that it is one of the hardiest of Orchids, being found growing wild on the branches of trees, in a climate where the Grass about them is often covered with hoar frost. In the same class Mr. Phillpotts's gardener, Rhodes, showed Leschenaultia formosa, well grown and flowered considering the season of the year. Six Chinese Primulas, single fringed sorts, came from Mr. Windsor, gr. to A. Bligh, Esq., and Messrs. Rollisson had four nice little standard Myrtle-leaved Oranges loaded with fruit. A bouquet of flowers of the blue Vanda (V. cærulea), highly coloured and extremely beautiful, was furnished by Messrs. Maule & Son, of Bristol. Messrs. Veitch also contributed a hybrid Veronica, which was said to have been a cross between V. speciosa and Andersoni; and from the Royal Gardens, Frogmore, were branches of an Ageratum from Texas, of the value of which little can be said at present, few of the flowers on the specimens shown being fully expanded. From her Grace the Duchess Dowager of Northumberland came Nyctanthes arbor-tristis, an East Indian plant now little cultivated, but still worth attention on account of its fragrance.

Of Chrysanthemums there was a glorious display. Large flowered sorts, magnificent plants in 11-inch pots, we refurnished by Mr. James, of Stoke Newington. The varieties were Defiance, white; Pilot, purple; Dumage, yellow; Vesta, white; Annie Salter, yellow; and Christine. Another group of large flowered varieties was exhibited by Mr. Shrimpton, gr. to A. J. Doxat, Esq, but it was disqualified on account of its containing one of the Pompone or small flowered kinds. Of the last named class of Chrysanthemums Mr. Wetherill, gr. to D. M'Neill, Esq., produced admirably grown plants of Cedo Nulli, white with a pink tinge in it; Bob, a brown kind; Drine Drine, yellow; La Sultana, pink; La Gitana, and Requiqui, purple. In this class Mr. Doxat's gardener exhibited Madame Rousselon, pink; Pompone d'Or, yellow; Autumni, orange; Requiqui, purple; Drine Drine and Helene. Of other small flowered Chrysanthemums, Mr. Oubridge, gr. to J. Foster, Esq., and Mr. Windsor, gr. to A. Bligh, Esq., also showed collections. Cut flowers of large kinds, very fine specimens, were contributed from the garden of Mr. Foster, of Stamford Hill, and Mr. Salter, of Hammersmith, also showed handsome blooms of his new variety called Alfred Salter.

Fruits of various kinds were both plentiful and excellent. Mr. Tillyard, gr. to the Right Hon. the Speaker, showed beautiful bunches of Mill Hill and Black Hamburgh Grapes; and famous examples of the last-named Grape were exhibited by Mr. Hill, gr. to R. Sneyd, Esq., of Keele Hall, Staffordshire, who also sent a collection of Muscat, Black Prince and Black Hamburgh Grapes. From the last-named exhibitor likewise came three magnificent bunches of the old Tokay, two of which weighed 4 lbs. each, and the three together weighed 10¼ lbs. Mr. Hales, of North Frith, near Tunbridge, sent handsome specimens of the valuable late Grape Black Barbarossa; and Black Hamburghs were contributed by Mr. Shrimpton, Mr. Marcham, Mr. Beer, gr. to Captain Smart, R.N., and J. G. Nash, Esq, of Bishop's Stortford. The last-named exhibitor also furnished Muscats, but they were not nearly so fine as have been shown from the same place in former years. Of the last-named Grape the best exhibition came from Mr. Clarke, of Turnmoss, near Manchester, the bunches being large and handsome, and the berries possessed of that fine golden tinge which they should have when in perfection. Muscats little inferior to the last also came from Mr. M'Ewen, of Arundel Castle; and the same variety of Grape was furnished by Mr. Clements, of East Barnet; Mr. Thomson, gr. to T. Morris, Esq., and Mr. Miller, of Eardiston. Mr. Ingram, gr. to J. J. Blandy, Esq., showed well ripened specimens of Royal Muscadine.

Of Pine Apples Mr. M'Ewen, gr. to the Duke of Norfolk, at Arundel, showed a collection of eight sorts, all of them well grown and ripened. Mr. Fleming, gr. to the Duke of Sutherland, at Trentham, also produced some good Pines, the heaviest of which, a Queen, weighed 4½ lb. Mr. Jones, gr. to Lady Charlotte Schreiber, furnished a Cayenne and two Black Jamaicas, and Mr. Clark, six specimens of Montserrat. A smooth Cayenne came from Mr. Joy, gr., Roundaway Park, Devizes, and the prickly variety of this fruit came from Mr. M'Ewen, gr. to Colonel Wyndham, of Petworth. Mr. Tillyard showed two Queens, the heaviest of which weighed 4 lbs. 12 oz., and Mr. Bray, gr. to Captain Lousada, a Ripley Queen, weighing 3½ lbs. Mr. Forbes, of Woburn, also sent an example of the last variety of Pine Apple.

Pear exhibitions from various parts of the country were numerous. Mr. M'Ewen, of Petworth, contributed a collection, in which were very fine specimens of Beurré de Capiaumont, Duchesse d'Angoulême, Marie Louise, Van Mons Leon le Clerc, Beurré Diel, and Napoleon. Mr. Whiting, gr. to H. T. Hope, Esq., of the Deepdene, near Dorking, also sent fine fruit of Duchesse d'Angoulême, Beurré Diel, Beurré Bosc, Althorp Crassane, Marie Louise, and Van Mons Leon le Clerc. Mr. Ingram, gr. to her Majesty at Frogmore, also contributed a collection, in which were Marie Louise, Van Mons Leon le Clerc, Flemish Beauty, Duchesse d'Angoulême, Knight's Monarch and Seckel. From the Right Hon. the Speaker's garden at Heckfield came Beurré Diel, Beurré Spence (?), Brown Beurré, Délices de Hardenpont, Beurré de Capiaumont, Winter Nelis, and Forelle, or Trout Pear. Other collections of Pears came from Mr. M'Ewen, gr. to the Duke of Norfolk; Mr. Salter, V. Fenn, Esq. (whose fruit was very fine, but came too late to be noticed by the Judges), J. Allport, gr. to H. Akroyd, Esq.; Mr. Robertson, gr. to Lady Emily Foley; Mr. Saul, gr. to Lord Stourton; Mr. Beer, gr. to Captain Smart; Mr. Thomson, gr., Stanstead Park; J. R. H. Treeve, Esq., of Coie House, Jersey (some of this collection was very fine, but others were inferior); and J. Abell, Esq., of Limerick. From the latter came Josephine de Malines, Beurré Diel from a south-west wall and from a north-west wall, those from the latter being brown, nearly like a Guernsey Chaumontel, and not nearly so large as those from the more southern aspect. Of Kitchen Pears Mr. M'Ewen, gr. to Col. Wyndham, sent Uvedale's St. Germain, Black Pear of Worcester, and Catillac. Mr. Ingram, gr. to her Majesty at Frogmore, contributed Uvedale's St. Germain, Spanish Bonchré-

tien, Catillac, and Vicar of Winkfield. We also noticed fine specimens of Grosse Calebasse from Mr. Tillyard.

Apples—excellent specimens, remarkable for fine colour, were exhibited in abundance. From her Majesty's garden at Frogmore came King of the Pippins, Fearn's Pippin, Small's Golden Pippin, Court of Wick, Court Pendu Plat, and Downton Nonpareil. Accompanying this collection were also Frogmore Nonpareil, and Golden Pippin, both seedlings of promising qualities. From Mr. Whiting, of the Deepdene, came well-grown fruit of Franklin Golden Pippin, Golden Reinette, Fearn's Pippin, Ribston Pippin, Adams' Pearmain, and Sudbury Beauty. Collections of Apples were also furnished from the Duke of Norfolk's garden at Arundel; Mr. Taylor, gr. to J. Coster, Esq., of Streatham; Mr. Saul, gr. to Lord Stourton, at Knaresborough; Mr. Salter, of Hammersmith; and Mr. Abell, of Limerick. From the latter came specimens of the Tankard Apple, a large ribbed, seldom seen kind. Of Kitchen Apples Mr. M'Ewen, of Arundel, sent Dumelow's Seedling, Alfriston, Emperor Alexander, Gloria Mundi, Blenheim Pippin, and Baxter's Pearmain, all remarkably fine fruit. From Mr. Coster's garden at Streatham came Yorkshire Greening, Blenheim Pippin, Golden Noble, Aldborough, Alfriston, and Old Pearmain. Of this description of fruit, Mr. Whiting, of the Deepdene, also sent Blenheim Pippin, Dumelow's Seedling, Kentish Fillbasket, Hollandbury, Bedfordshire Foundling, and Kirke's Lord Nelson, all well grown. Among other kitchen Apples, collections of which came from Messrs. Ingram, Beer, Saul, and Salter, was the Giant Apple, a green-coloured fruit, one of which sometimes weighs as much as a pound.

Plums, Coe's Golden Drop and Imperatrice, both excellent of their kinds, came from Mr. Hill, gr. to R. Sneyd, Esq.; and Mr. Tillyard, gr. to the Right Hon. the Speaker, at Heckfield, also furnished capital fruit of the first-named variety. Mr. Muirhead, gr. to Lord Charles Wellesley, contributed Coe's Golden Drop in good preservation, and Coe's Late Red came from Mr. Whiting, of the Deepdene, and Mr. Munro, gr. to Lord Clarendon. Mr. Lidgard, of Hammersmith, sent a small dish of Ickworth Imperatrice.

Figs, Nerii, a small sweet kind, and Brown Turkey, came from Mr. McEwen, of Petworth, and Mr. McEwen, of Arundel Castle.

Of Raspberries there were several exhibitions even thus late in the year, all of them consisting of good sized fruit well coloured and ripened. They came from the Duke of Norfolk's garden at Arundel, from Heckfield, and from Mr. Clements of East Barnet. Among the kinds was Rivers' Perpetual Bearing, shown on the branches on which they grew.

Late Strawberries were present from Arundel Castle. The sort was Trollop's Victoria, a large kind which, as might be expected at this season, wanted colour: it was, however, a great improvement in point of size on Alpines, of which a dish was furnished from the Society's Garden. Of other fruit there were Morello Cherries and Dutch Red Currants from Mr. Tillyard, and beautiful examples of the American Cranberry, from Mr. McEwen, of Petworth. Of this Cranberry it was mentioned that it will grow perfectly well in any American border, whereas the English sort is uncultivable except in ground through which there is a running stream.

Cucumbers were exhibited by Mr. Morris, gr. to C. Child, Esq.; Mr. Ingram, gr. to J. J. Blandy, Esq.; Mr. Ayres, Mr. Chilman, and Mr. Dunsford, of Essex. The best were Snow's Horticultural Prize, and the next best Weedon's Black Spine.

Mr. Lidgard, of Hammersmith, contributed some very fine White Celery called Wad's Invincible, and heads of another sort came from Mr. Lancaster, of Deptford. Asparagus and French Beans were shown by Mr. McEwen, of Arundel; and Seakale by Mr. Lancaster, of Deptford.

Miscellaneous subjects consisted of specimens of Fry's propagating and Seakale pots, from Mr. Pascall of Chislehurst, representations of which will be found at p. 470; and a model pit from Mr. Lancaster of Deptford. The latter was sent to exhibit a new kind of winter protection, called patent Lignum textile. This material, which is that of which hat-boxes are made, smeared over with coal tar to make it waterproof, is put over hollow frames or covers which are filled with straw and placed over the lights of the pit which is to be protected. The efficiency of this covering remains to be proved. It looks, however, as if it would be durable, and it only costs a penny a square foot.

Of Dioscorea Batatas or Chinese Yam there were, in addition to the roots from Mr. Henderson and the Society's garden referred to last week, specimens of this new esculent from her Majesty's garden at Frogmore, and of which the following are the weights and dimensions:—

	Length.	Girth.	Weight.
	inches.	inches.	ounces.
No. 1	17	4	4
„ 2	16	4¾	4
„ 3	19	3¾	5
„ 4	16½	4¾	4
„ 5	18	4⅛	5
„ 6	18	3½	3

It was stated concerning this root that small tubers answered better for the purpose of increasing it than the little Pea-like buds formed everywhere in the axils of the leaves. It was also mentioned that as the thick end of the root is that which penetrates the soil, and as it goes nearly straight down into the earth, deep land is indispensable to its successful cultivation.

From the garden of the Society were various plants, among which were Psidium Cattleyanum, which has been found to fruit freely in a common vinery; cut flowers of Cestrum aurantiacum, which, in the great conservatory, keeps gay the whole winter through; and a collection of fruit, both from the open ground and from the orchard-house. That from the latter consisted of the following Pears:—viz. Charlotte de Brouwer, Beurré d' Anjou, Doyenné Goubault, a large ribbed kind; Passe Colmar, Triomphe de Jodoigne, and others, all well ripened, large, and fine, from small trees in pots. From the glass wall in the garden were Black Hamburgh and Chasselas Musqué Grapes, grown there without fire heat. The former were well coloured, and altogether better than Black Hamburghs ripened on open walls; the latter were unripe.

Among the orchard fruit from the garden (whose quality was stated to be deteriorated by the wet weather during which it was gathered) were Fondante de Malines and Doyenné Sieulle Pears—both promising kinds. The Apple-shaped Pear (Pomme Poire) was also among them, and very excellent it is, especially from a standard. Among kitchen Apples from the same collection Mere de Ménage deserves notice, being very large, and a most abundant bearer. It is, in short, one of the best kitchen Apples in cultivation.

Notices of Books.

Lowe's Magazine of Natural Philosophy, of which three numbers (1*s.* each) have appeared, should not be called "A Popular History of Science," as we find it designated on the title page, for it is entirely occupied with meteorological phenomena, to which the author has long devoted his attention. No. 3 contains a curious account of the effect of lightning on an Apple tree at Lenton, with a woodcut. The lightning struck the topmost twig of the tree, "but for the first 3 feet the only injury occasioned was the scorching of the expanded leaves. The lightning then began to plough a path down the tree, of about half an inch wide, the fragments forced out being in long strips of from 2 to 10 inches, and very jagged and splintery along the edges. Two feet lower, the fluid encountered an upright bough; here it struck deeper into the tree, and ceased cutting the wood. Two feet lower, the lightning again ploughed a path, the furrow gradually becoming wider and deeper as it progressed. It then passed a small branch, which, near the lobe, was entirely peeled. At 4 feet from the ground, the marks of the lightning ceased, and the only trace below this was in a shrub (*Ribes sanguineum*), which had a bough reaching within a foot of the tree. Singular enough the bough had all its leaves scorched and burnt at 2 feet distance from the tree struck, whilst that portion nearer remained uninjured. From an examination it appeared evident that the flash was a down stroke, which was met at 4 feet from the ground by an up stroke, for all the pieces of wood were splintered downwards, except at 4 feet from the ground, where several were splintered upwards. The damage done was greatest at 4 feet from the ground. The flash was confined within very narrow limits; in some places leaves were uninjured only 2 inches distant from the lightning furrow, yet in several places they were scorched 3 feet off. Many examples of the American Blight (*Aphis lanigera*), were found uninjured within half an inch of the lightning stroke. Within a dozen yards of the tree struck, was another much taller, which escaped injury. The tree does not appear to have suffered in the slightest degree from the lightning stroke, as it has grown vigorously, and ripened fruit."

Messrs Bradbury and Evans have commenced the issue of a beautiful edition of THACKERAY'S MISCELLANEOUS WORKS. The admirers of Vanity Fair, Pendennis, Esmond, and the Newcomes have little remembrance of the brilliant or amusing contributions made by our great novelist to periodical literature. The *Chronicle of the Drum*, for instance, one of the best ballads in the language, has never been heard of by one in a hundred of those who have been charmed by the pages of the Newcomes; and the same may be said of the fatal boots, and the Adventures of Major Gahagan. We are not surprised to hear that the present collection of similar loose papers has already met with a large circulation.

Professor Downing has published a valuable treatise on *Hydraulics*, as a Text-book for the students in the School of Engineering, Trinity College, Dublin (8vo, Longmans). Relying in part on the formulæ of D'Aubuisson, and in part upon those of English engineers, the author has produced a work which cannot fail to be of the greatest value to all who are concerned in the drainage of land, or the supply of towns with water, or the construction of canals, or the irrigation of tracts rendered barren by dryness. Six well-executed lithographic plates illustrate the principles which Prof. Downing inculcates.

Garden Memoranda.

BELVOIR CASTLE, THE SEAT OF HIS GRACE THE DUKE OF RUTLAND.—In continuing our notice of this interesting place, let us descend the castle hill towards the south by a path which leads to the dairy, which is situated in a cool spot at the base of the hill, sheltered by tall trees. The dairy hovels and cow-houses adjoin the pasture fronting the dairy, but are separated from the latter by some drives and gravel walks, protected by iron fences. The park-like character of the scene is by no means destroyed by the appropriation of the pasture to dairy purposes, while the convenience of the position is great. The short-horned cattle bred by his Grace are of deserved celebrity. A broad road pierces a wood called "The Wilderness;" the road is lined with fine timber trees of great height and beauty, the stems of which are kept clear from boughs. Some of the finest Yew trees in England are interspersed amidst the forest trees, they are from 60 to 70 feet in height; the clay on which they grow appears congenial to their habits. This avenue, which is a quarter of a mile in length, leads to the kitchen garden, the entrance to which forms a marked feature in the vista; a noble gothic arch is thrown over the iron gateway of the kitchen garden, and elaborately carved stone pillars rise on each side of the gates, and between them the wall is battlemented; a similar gateway stands opposite the entrance to the east, and another to the south. The garden walls are 13 feet in height, and have a stone coping which projects 3½ inches. Ornamental pillars break the flat line of wall east and west, and the wall which crosses the garden, and commands a south aspect, is also ornamented with pillars surmounted with ornamental stone work; the architectural character of the garden is in keeping with the castle. The garden walls include about 8 acres, and with the cultivated ground outside the amount is 15 acres; a range of hothouses, 300 feet in length, backed by sheds, forms the north limit of the garden; a noble walk, 18 feet wide, runs up the centre of the garden, and other walks 12 feet wide reach round it. It was found impossible to keep the walks free from weeds by turning and hand weeding until Mr. Fleming's salting machine was called into requisition; since the application of boiling brine prepared by this contrivance, the walks have been perfectly sound and free from weeds and Moss; by adopting the precautions recommended by Mr. Fleming, the Box edgings have received no injury. The natural soil of the garden is lias clay by draining, dressing, and the application of burnt earth; the garden is in excellent condition for vegetables; Strawberry beds line the centre walk, the old Scarlet is still grown for preserving purposes, being preferred to all others. Keens' Seedling, British Queen, Prince of Wales, Elton Pine, &c., are the principal kinds cultivated; the soil is extremely favourable to their growth. Carrots, Potatoes, and Celery, are equally good on this soil, but Asparagus will not last many years; raised beds are now employed for its cultivation. Pruned fruit trees edge the quarters. Apple trees on reaching the cold subsoil often canker, Pears are induced to a too luxuriant growth by the soil. The borders fronting the walls have been prepared for fruit trees, in some instances by paring and aeration, but the south wall is appropriated to Peach, the other to Apricot trees, which are in excellent bearing condition. Many old Pear trees have been removed, and replaced with the best new sorts; the Jargonelle, Louise Bonne, of Jersey, and Marie Louise ripen well, and are of good quality; Winter Nelis, Beurré Rance, Easter Beurré, Crassane, are excellent on walls in this locality. The Chaumontel is worthless here. In the range of hothouses, which is divided into six compartments, two houses are devoted to Muscat Vines, the Grapes of which are kept late in the season; the last were cut this year in April. The Vines are chiefly old and exhibit the unfavourable influence of the position. The borders were originally made upwards of 6 feet deep! These are in the course of alteration. The Vineries, when Grapes are not kept, are filled in the winter with greenhouse plants, amongst which are a large quantity of well set Camellias and Azaleas, a quantity of Pelargonium crispitatum from seed which afford every variety of foliage and fragrance, and are invaluable in making up bouquets. The old-fashioned brick flues are still in use here. A house for early Cucumbers and a Pine pit are situated behind the range to the west. The gardener's house occupies a central position behind the hothouses, and overlooks the garden; a portion of the outside ground is devoted to pits and frames. Some extensive orchards are also connected with the garden. This garden, with respect to its walls and its broad and ample walks, is the best kitchen garden we have seen, with the exception of that at Frogmore. The stone gothic-arched principal entrances (three in number) with their elegant open-worked iron gates, flanked on each side with octagonal buttressed piers, surmounted by elegantly worked cupolas and finials, give to these entrances a degree of architectural importance and great elegance. The same octagonal piers, surmounted with similarly worked stone cupolas and finials, placed at intervals in the east, south, and west walls, are highly ornamental, strengthen the walls, and break the otherwise long line of coping-stone on their top.

Miscellaneous.

Sale of Mr. Schröder's Orchids.—These were brought to the hammer by Mr. Stevens on Tuesday and Wednesday last, and, as will be seen from the following statement, realised good prices. Aerides Schröderi, stated to be "the only plant ever imported of this the finest species of Aerides known," fetched 89*l.* 5*s.*; A. affine, 26*l.*; A. Larpentæ, 24*l.*; A. crispum, 14*l.* 10*s.*; Vanda suavis, a magnificent specimen, 31*l.* 10*s.*; V. teres, 10*l.*; V. tricolor, 10*l.*; V. cristata, 15*l.*; Saccolabium guttatum, a very fine plant, 22*l.* 1*s.*; S. Blumei, 7*l.* 10*s.*; Cymbidium eburneum, 21*l.*; Phalænopsis amabilis, 17*l.* 10*s.*; Lælia cinnabarina, 17*l.* 10*s.*; L.

anceps, 5*l.* 10*s.*; Oncidium Lanceanum, stated "to be the finest specimen of the kind in cultivation," 16*l.*; O. phymatochilum, 5*l.* 5*s.*; O. ampliatum majus, 5*l.* 5*s.*; Cattleya Mossiæ, 10*l.*; C. Quindios, 8*l.*; C. Skinneri, 8*l.* 10*s.*; Angræcum caudatum, 10*l.*; A. bilobum, 8*l.* 15*s.*; Trichopilia suavis, 9*l.*; T. tortilis, 7*l.* 10*s.*; Dendrobium formosum, 8*l.* 15*s.*; D. moniliforme, 4*l.*; D. densiflorum, 4*l.*; D. nobile, 3*l.* 15*s.*; Cœlogyne Lowi, 6*l.* 10*s.*; Miltonia candida grandiflora, 11*l.* 10*s.*; M. spectabilis, 6*l.*; Galeandra Baueri, 6*l.* 15*s.*; G. Devoniana, 6*l.* 15*s.*; Cypripedium barbatum, 5*l.* 15*s.*; Paphinia cristata, 4*l.* 15*s.*; Epidendrum bicornutum, 3*l.* 10*s.*; Cycnoches barbatum, 3*l.* 15*s.*; Odontoglossum citrosmum, 5*l.* 15*s.*; O. grande, 3*l.* 3*s.*; Sophronitis grandiflora, 5*l.*; Calanthe vestita, the crimson-eyed variety, 2*l.*; C. veratrifolia, 3*l.* 10*s.*; Lycaste Skinneri, 3*l.*; Scuticaria Steeli, 3*l.* 15*s.*; Chysis aurea grandiflora, 3*l.*; Schomburgkia tibicinis, 3*l.* 5*s.* Other lots, of which there were in all 270, fetched from 1*l.* to 3*l.* per lot.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Chrysanthemums will, in most instances, be the great attraction here at present, and where these are largely grown, which they should be wherever there is a demand for flowers at this season, they make a fine display and are worth every necessary attention in order to preserve them in beauty as long as possible. They are very impatient of a close rather warm atmosphere, and if the house contains plants requiring this treatment the Chrysanthemums should, as far as practicable, be placed in the coolest part where air can be given freely on every favourable opportunity; for except they can be rather freely exposed to the air the foliage will soon be attacked and disfigured by mildew, especially if the plants are well grown bushy specimens. Also see that they are never allowed to feel the want of water at the root. Use fire-heat here only when absolutely necessary either to keep the temperature from sinking too low or to dry the atmosphere. Attend to former directions, endeavouring to have everything neat and clean, and to set off the plants in bloom to the greatest advantage. Greenhouse.—If not already done get all the specimens neatly tied and arranged with the least possible loss of time, for even well-grown plants are no great ornaments in a house unless they are kept trim and orderly, and this cannot be done, save in the case of few plants, without staking. Endeavour, however, to do this work neatly, so that the stakes may not be conspicuous; and it is always a sign of bad workmanship or something worse—bad culture—when the stakes necessary to keep a specimen in form are at all conspicuous. Ericas, or indeed any other plants requiring more pot room, may be shifted as safely now, perhaps, as at any other season, and notwithstanding the prejudice which exists generally against repotting hard-wooded plants during the dormant season, most of these may be shifted now with perfect safety, but care must be exercised so as to have the ball and soil in the right state as to moisture at the time of repotting, and also in the application of water during the winter. But we do not recommend shifting plants at this season, unless they are suffering through the want of pot room, and there can be no doubt that a plant, the roots of which can strike into fresh soil and accumulate food during the winter will flower more strongly, or start into growth more vigorously in spring than if it had been starved for want of pot room until close upon its time of flowering or starting into growth, and the advantage of getting large specimens repotted when the outside stakes can be removed and the under branches tied out of the way without any unnecessary labour, is worth consideration. Look carefully after the Leschenaultias, and other tender things which are particularly liable to suffer from damp at this season, and endeavour to protect them from drip, and to afford them a sufficiently dry atmosphere, to prevent their being injured. Attend to former directions as to watering, withholding it until it is really wanted, and then giving a good soaking, for there is no more certain means of ruining plants than injudicious watering at this season. Give air freely whenever the weather is mild, but avoid letting cold easterly drying winds blow over the plants, especially in the case of things which have not well ripened their wood. Soft wooded plants, as Geraniums, Cinerarias, Calceolarias, &c., if they must be wintered in the same house with Heaths and other hard-wooded greenhouse plants, should be kept as much by themselves as possible, as they will require a somewhat closer temperature than the hard-wooded plants; but where circumstances admit, these should occupy a house or pit by themselves. Cinerarias and Geraniums intended for late flowering will do very well in a cold pit until severe weather sets in; but those intended for flowering early should be placed at once where fire-heat can be used at will, so as to be able to preserve the foliage from damp, &c. Roses for early forcing should be pruned by this time, and placed where they will at least be safe from heavy rains. Where American and other shrubs are used for forcing, these should be taken up and potted at once, placing them in a cold pit until they are wanted for forcing, or a turf pit where they can be protected from severe weather by straw shutters, or any other covering will do.

FORCING DEPARTMENT.

Pineries.—The amount of light is now insufficient to allow of obtaining anything like healthy vigorous growth in even the best heated and ventilated houses, and, therefore, the young stock should be kept quiet for some time to come, using no more fire-heat than may be necessary to maintain the temperature at about 60°, giving sufficient air to keep the atmosphere rather dry, so as to prevent weakly growth, and carry the plants over the winter in a strong stocky state. Take every possible care of the roots, however, maintaining a regular bottom-heat of about 75°, and keeping the soil about the roots rather dry, but do not allow it to become unhealthily so, as is often done, under the mistaken idea that this is necessary to properly ripen the season's growth. If the plants are expected to make vigorous growth in spring, the roots must be well cared for during the winter, keeping them in a healthy state by careful watering and a moderate temperature, for although Pines are, perhaps, the most accommodating plants with which we have to do they are often injured by bad treatment in winter. Let the same attention be paid to the watering of these which is bestowed upon stove plants generally, withholding it until it is absolutely necessary, and then giving sufficient to thoroughly moisten the whole of the soil, and with proper attention to the temperature of the atmosphere and soil, the plants will be in first-rate condition for making rapid and vigorous growth in spring. Vineries.—Where ripe Grapes are wanted early in spring, forcing must be commenced at once. Attend to former directions, and endeavour to get the root action a little in advance of the top; also secure plenty of moisture in the atmosphere, either by means of a bed of fermenting materials inside the house, or in some other more convenient manner, for there will be no moving Vines at the present season without a thoroughly moist atmosphere, particularly those that have not been started so early formerly. If the roots are outside the house the border must be well protected from the weather by means of wooden shutters or some other contrivance, and a little warmth must also be communicated to the soil. This is best done by having the border chambered, and hot water pipes under, which is doubtless the most economical arrangement in the end; but, in the absence of this, fermenting materials must be used. Let these be covered with something to throw off wet, and keep the fermentation as steady as possible. Do not exceed 50° at night by fire heat, raising it about 10° during the day, and with sun-heat an increase of 20° may be allowed. Figs.—Keep trees that have ripened their wood cool and airy, but do not expose them to frost, particularly where the future crop is visible. Get the trees thoroughly cleaned and painted, and the house put in readiness for forcing by the time when it may be wanted.

FLOWER GARDEN AND SHRUBBERIES.

If not already done, get the planting of the beds with their winter and spring occupants finished as soon as possible, in order to give the plants the advantage of any chance which may still remain of making a few active roots before severe weather sets in. Also take advantage of dry days to clean and trim up shrubbery borders and American beds, &c., for the winter. If it is intended to transplant any of the shrubs, or to make any alterations, get this done first, so as to avoid having to tread upon and disfigure the ground after having put it in order for the winter. Avoid deep digging among the roots of shrubs, unless it is desirable to check their growth, and where the plants are well established, digging amongst them should be confined to the ground seen from the walks, and this should be dug very lightly, merely loosening the surface soil so as to give it a fresh neat appearance. Where the soil is not very suitable for Rhododendrons and other American plants a good dressing of leaf-soil mixed with thoroughly rotten manure will be of great service to these; and any unhealthy plants should be taken up, and the ground well prepared by mixing a liberal quantity of the compost with the soil where it is to be planted, which will be a more effectual cure than surface dressings. Rose stocks should be procured and planted at once, and where it is intended to remove the tender kinds of Roses to some sheltered situation, this had also better be done soon. The hardier kinds may be procured from the nursery and planted, and the sooner these are had in the better the chance will be of getting good plants. In planting standards let these be staked at once, for this kind of work, when once left, is sometimes neglected until the plants suffer. Roll lawns frequently, to keep the surface hard and smooth, and prevent the Grass getting covered with worm casts. Gravel walks will also require the same attention.

HARDY FRUIT AND KITCHEN GARDEN.

Any planting of young trees, or removing of others which may yet remain to be done, should be proceeded with as expeditiously as possible, for the sooner this kind of work is finished for the season the less trouble will be required in watering next spring and summer. Pruning and nailing should now be expeditiously proceeded with every fine day, if at the expense of delaying some of the other work which can be done with less discomfort in any state of the weather than nailing, for it is most important to get this work done when the weather is mild. Nailing is a cold enough job for even a warm winter's day, but to turn men out to it in very cold or wet weather and expect them to do a fair day's work indicates bad management, and a want of anything like due regard to the welfare of the workmen. Look over the fruit stores frequently to see that all is keeping well, and remove any tainted with disease so as to prevent the mischief from spreading. A good stock of the Lettuces fit for use should be put into cold frames or turf pits where they can be protected from frost by means of straw shutters or some other efficient covering; also see to securing a good supply of Endive for winter use. Cauliflowers coming in must be frequently examined, and those not wanted for use should be taken up and stored until wanted, for these cannot be safely trusted to the weather after this season. Take advantage of frosty mornings to get manure wheeled on where it is wanted, and get all spare ground trenched and ridged up as soon as possible.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the week ending Nov. 22, 1855, as observed at the Horticultural Gardens

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind	Rain.
Friday 16	☽	30.234	30.187	47	27	37.0	47	48	S.W.	.00
Satur. 17	8	30.223	30.185	47	42	44.5	48	48	N.E.	.00
Sunday 18	9	30.171	30.160	47	39	43.0	46	47½	N.E.	.06
Mon.. 19	10	30.069	30.010	47	38	42.5	45½	47	E.	.25
Tues. 20	11	30.003	29.871	44	37	40.5	45½	47	N.E.	.01
Wed. 21	12	29.889	29.835	43	36	39.5	44	47	N.E.	.02
Thurs 22	13	29.828	29.784	42	27	34.5	45	47	N.E.	.00
Average .		30.059	30.000	45.3	35.1	40.2	45.8	47.3		.74

Nov. 16—Dense fog; foggy; cloudy; frosty at night.
— 17—Fine; cloudy throughout.
— 18—Hazy; cloudy; rain at night.
— 19—Rain; drizzly.
— 20—Slight rain; drizzly with easterly haze; fine.
— 21—Overcast and cold; drizzly
— 22—Drizzly; overcast; fine at night.

Mean temperature of the week 1¾ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 29 years, for the ensuing week, ending Dec. 1, 1855.

Nov. and Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 25	46.3	33.4	39.8	15	0.34 in.	4	3	3	3	4	7	2	3
Mon. 26	46.8	32.9	39.8	14	0.70	1	3	6	1	3	11	1	3
Tues. 27	46.2	35.0	40.6	12	0.88	1	3	4	1	4	9	4	3
Wed. 28	48.0	36.1	42.0	15	1.21	2	2	2	2	8	5	5	3
Thurs. 29	47.9	34.8	41.4	16	0.56	3	1	4	3	4	10	3	1
Friday 30	48.7	36.2	42.4	17	0.31	2	3	1	3	3	9	6	2
Satur. 1	48.5	36.3	42.4	13	0.25	1	2	2	4	2	7	9	2

The highest temperature during the above period occurred on the 28th, 1828—therm. 64 deg.; and the lowest on the 29th, 1846—therm. 16 deg.

Notices to Correspondents.

Atropa Mandragora: *A B C.* The roots of this are a powerful narcotic poison, acting as an anæsthetic, like chloroform, in small doses.

Books: *Tyro.* Neill's Flower, Fruit, and Kitchen Garden may possibly answer your purpose.‡

Beech Trees: *J. Mathison.* These and Spruce Firs *may* be removed, although they are 10 or 12 feet high, if proper precautions are taken; not, however, if they are to be packed and sent to a distance, subject to all the accidents of remaining long out of the ground. In all such cases the expense is greater than the result justifies, except where some special object is in view; nor is anything really gained, for younger trees will soon overtake the old ones. The Winter garden is published by Bradbury & Evans. You must remember that Beech trees are among the most difficult to remove.

Cucumber Pit: *T P.* Rough stable dung well mixed with leaves and thrown into a heap to heat for a few days before you introduce it into your pit will answer perfectly. You can easily keep it moist near the flue by watering it occasionally when it appears to be getting too dry. It will be less likely to harbour insects and fungi than tan‡

Dioscorea: *J.* Any respectable nurseryman can now supply it.‡

Hemitilia: *J R.* We will make inquiry and send you word.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Doz.* Tradescantia axillaris. Observe its beautiful stupose filaments.

Names of Fruits: *J C W.* 1, Manks Codlin; 2, Hoary Morning; 3, Braddick's Nonpareil; 4, Beurré Diel; 5, Passe Colmar; 6, Bezi de Motte; 7, Winter Bon Chrétien; 8, Chaumontel; 9, Flemish Beauty; 10, Hacon's Incomparable; 11, Rymer; 12, Court of Wick.—*W G.* 2, Bedfordshire Foundling; 1, Knight's Monarch; 3, Marie Louise; 4, Napoléon; 9, Beurré Diel.—*H J H.* Your long-keeping dessert Apple is not known. Your best mode of propagating from the tree is to take off cuttings in January; put their ends in the earth till March, and then whip-graft, or get a nurseryman to do it for you on proper stocks.—*W D S.* 1, Pearson's Plate; 2, 4, Scarlet Nonpareil; 3, like Cockle Pippin; 6, Wyken Pippin; 7, Yellow Ingestrie; 8, Duchesse d'Angoulême; 9, Brown Beurré; 10, Bezi d'Heri (stewing); 12, Passe Colmar; 13, Winter Nelis; 14, Beurré Rance; 15, Beurré Diel; 16, Old Colmar.—*W Sharp.* Your Fig appears to be the Black Marseilles.—*Rudolph.* 2, Golden Pippin; 3, Passe Colmar; 4, Piles Russet; 5, Winter Pearmain; 7, Hawthornden; 8, King of the Pippins.—*J A B.* 1, Seckel; 2, Doyenné Gris; 2, Beurré de Capiaumont; 4, 14, Duchesse d'Angoulême; 5, Winter Nelis; 6, 16, Passe Colmar; 7, Catillac; 8, Beurré Diel; 9, Napoléon; 11, Passe Colmar; 12, Bequesne Musqué; 13, Autumn Colmar; 15, 18, 20, Vicar of Winkfield; 22, Rouse Lench; 23, Fondante d'Automne; 24, Doyenné Blanc; 25, Downton; 26, Ross Nonpareil; 28, Wormsley Pippin; 29, Minchal Crab; 30, Margil; 32, Hollow-crowned Pippin; 33, Adams's Pearmain; 34, Lemon Pippin; 35, Royal Russet ‖

Plantations in Wales: *R G T.* Sow Furze to windward, so as to get early shelter, and plant the land with Pinus austriaca, Pinaster, Evergreen Oaks, Larches, Sycamores, Elms, Hazel. If Laricio Pines can be easily had they might be added for the sake of the rapidity of their growth. Underwood may be formed with Tamarisks, Broom, Hollies, and Mountain Ash. The other question is sent to the Agricultural Editor.

Plums: *A B.* The Blue Imperatrice will succeed perfectly well on a north wall in the east of Suffolk.‡

Quercus sessiliflora: *Quercus.* It and its varieties come quite true from seed. We speak from personal knowledge.

Tan: A correspondent at Halsall, Ormskirk, writes that he can get no tan because "they dry it and grind it for some purpose." Can any one inform us what that purpose is?

Vines: *M N.* Your white Muscats of Alexandria are blotched and shrivelled exactly like many others of the same sort this season, probably owing to the coldness of the ground in the early part of the season. It is a sort that requires more heat than most others do. At the time of setting it should be kept at a high temperature—75° or 80° at least. You must adopt means to keep the roots above the level of the stagnant water of the pond in the vicinity of your border; and you must also endeavour to keep the latter warm by plenty of fermenting materials. The Apple is not known.‖

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
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PERUVIAN GUANO, FISHERY SALT, and every other MANURE on best terms, strictly warranted.
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ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

DRAINING BY STEAM POWER.
JOHN FOWLER is prepared to undertake Contracts for DRAINING LAND by his PATENT STEAM PLOUGH, at prices varying, according to depth and distance, from 3*l.* to 5*l.* 10*s.* per acre, inclusive of tiles, main drains, and all other expenses. Contracts executed with great rapidity, and tiles manufactured on the spot, where suitable clay exists.—Temple Gate, Bristol.

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MR. J. JOHNSON, DRAINAGE ENGINEER, is desirous to undertake the Drainage of Land by Contract or Commission. Temporary Tileries erected in any part of England, and Drain Pipes manufactured at moderate prices. Every description of Drainage Tools.—Abingdon Street, Westminster.

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MR. HUMBERT, of Watford, Herts, supported by unquestionable references and testimonials, offers his services to proprietors about to execute works of drainage, which he will undertake personally to lay out and superintend, and to supply the forms and attendances necessary to obtain the certificate of the Inclosure Commissioners where such is required, at a charge of 5*s.* per acre and his travelling expenses; or he will contract to perform the whole work to the satisfaction of the Commissioners at a fixed price per acre. Mr. HUMBERT (having been more than 15 years established in business as a Surveyor and Land Agent) has found that wet heavy soils can be usually, carefully, and thoroughly drained, with pipes 4 feet deep, at 4*l.* per acre and upwards, inclusive of every expense.

OWNERS OF SETTLED ESTATES and OTHERS desirous of availing themselves of the various recent Acts of Parliament, by which they may charge their Estates with money expended in the Improvement, Conversion, and Reclamation of Land, by Drainage, Irrigation, Embanking, Inclosing, making Farm-roads, Clearing, the erection of Farm-buildings and Machinery, Planting and other Agricultural Improvements, are respectfully informed that Messrs. HEWITT DAVIS & FRANCIS VIGERS undertake to advise and furnish Plans and Estimates, and if required, will contract to do the works, and dispose of the Rent charges.—3, Frederick's Place, Old Jewry, London.

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1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.
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SMITHFIELD SHOW, 1855.
TRIALS OF STEAM-THRESHING ENGINES.—The time run by TUXFORD AND SONS' FIRST PRIZE ENGINE, and that by the Engine of Messrs. Hornsby, of Grantham, at the Carlisle Meeting of the Royal Agricultural Society, in July last, with *Fourteen Pounds* of Coals to the horse-power, was—

TUXFORD & SONS ... ... 3 hours and 47 minutes.
Hornsby & Son .. .. 2 hours and 54 minutes.

At the North Lincolnshire Society's Meeting, at Boston, in August last, TUXFORDS' and Hornsbys' Engines again came into competition, when Hornsbys' was again left a long way behind. With 14 lbs. of a very inferior kind of Coal, the time run was—

TUXFORD & SONS ... ... 3 hours and 3 minutes.
Hornsby & Son .. .. 2 hours and 43 minutes.

And had the testing apparatus which had been supplied to the Society from Grantham, not indicated the steam pressure falsely by several pounds on the inch, the difference would have shown fully twice as much to the advantage of TUXFORD's Engine.
At the recent trials of Threshing Machines at the Paris Universal Exhibition, M. Tresca, the Government Engineer, employed as the motive power one of TUXFORD's Portable Engines that had previously been purchased by the French Government.
The Combined Threshing, Shaking, and Dressing Machine of TUXFORD & SONS was highly commended this year by the Royal Society at Carlisle, the Bath and West of England Society at Tiverton, &c.
Illustrated Catalogues, with prices, forwarded on application to TUXFORD & SONS, Engineers, Boston, Lincolnshire.

CAUTION.
PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.
Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.
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Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

THE BIRMINGHAM CATTLE AND POULTRY SHOW.—The Seventh Great Annual Exhibition of FAT CATTLE, SHEEP, PIGS, ROOTS, & DOMESTIC POULTRY, will be held in Bingley Hall, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, the 11th, 12th, 13th, and 14th of December. The PRIVATE VIEW and ANNUAL DINNER on TUESDAY, December the 11th.
There will be SPECIAL TRAINS on all the principal Lines of Railway, for which see the Advertisements and Bills of the several Companies.

The Agricultural Gazette.

SATURDAY, NOVEMBER 24, 1855.

MR. CAIRD has again written to the *Times* on the yield of the past harvest, and in defence of his former estimate of it. He adduces his own experience, for which Mr. STURGE had asked. His Wheat crop has yielded 36 bushels an acre on stiff land in Wigtonshire and 26 bushels an acre on light land in Kent, both full average crops. One of the statistical divisions of a Scottish county returns 4 bushels per acre over last year as the yield of this year's Wheat crop.

Of 167 reports published in the *Agricultural Gazette* in August, 122 describe the crop at or above an average; and of 89 reports given in the *Mark Lane Express* in September, 69 are equally favourable. On all these grounds Mr. CAIRD retains his opinion of the yield of the crop.

Then as to its extent:—drainage and good cultivation and guano have rendered farmers less the slaves of rotations than they were. The seed time of last year was at a period of rising markets and of every other circumstance which could recommend an extension of the Wheat crop. It only needs that the 570,000 farmers of this country extend their Wheat crop 2 acres a-piece to produce all the increased acreage for which Mr. CAIRD contends. And it is not necessary to suppose, as his "reviewers" have, that he imagined this extension to have been effected at the expense of the Barley. The fact that the price of Barley, which though high has not risen like that of Wheat, indicates an undiminished yield of that grain, is not inconsistent with his theory. On all these grounds, then, he maintains its soundness.

It thus appears that Mr. CAIRD's opinion was not formed hastily or without due consideration of the various influences affecting the state of the corn market: and accordingly he gives it for his advice that with Wheat between 80*s.* and 90*s.* the quarter the English farmer would be wise to sell. "It is just possible that by the months of May and June America, which has already made a good beginning, may pour into our markets the surplus of an abundant crop, as she has done before when prices were far less tempting than they are now."

We only add that our correspondents in the north, so far as we have received returns, corroborate Mr. CAIRD's report—but the statistical reports for Scotland will soon be published in detail. If an English report in like manner were now forthcoming, of what immense value it would be to the country as a guide to the most important trade and interest it possesses!

THE Turnip in its wild state is an annual plant with a disposition to a bulboid method of growth. In cultivation, however, it becomes strictly biennial, and by the use of manure and a change of circumstances from its original wild sea-side habit an augmented bulb is the result of the first year's growth, from and at the expense of which the stem and its appendages in leaves, flowers, and ultimately seeds are produced during the second year. This biennial habit it is necessary to maintain by (1) careful cultivation of seed, (2) due preparation of Turnip-land, and (3) sowing at proper time, or the plant will have a tendency to run, that is, to flower the first year—a sign that it is degenerating to its original wild condition. Now, as regards the three points just named, it may be stated that the biennial habit is much confirmed by storing the specimens for seed and replanting afterwards; in the preparation of the land everything that forms a different style of living from its sea-side parent, such as preparing the land with manure and the adoption of the usual processes of cultivation, are all like so many elements in civilisation—they destroy or elaborate the aboriginal condition. As regards the proper time to sow the seed, this is a matter which depends much on climate, for if in a dry warm climate we sow Turnips very early they have a great tendency to run; while, if it be cold and moist, earlier sowing can and ought to be adopted.

Now if we examine a Turnip that has run in the manner mentioned, we shall usually find it to possess a small and ill formed bulb, more or less forked or fingered, which will be hard and woody in its texture, and altogether unfit for use. In examples of this kind, therefore, we have a tendency to a reversion to the original wild form, and were we to allow these to seed and sow such seed for two or three seasons, the result, as we have proved from experiment, will be an altogether useless annual, and in fact a *wild* plant.

If we carefully examine any field of Turnips we shall find some evidences of degeneracy, just as in a community however polished we shall occasionally meet with a savage. The plants presenting several heads and *forked roots* all belong to a degenerate class, as a proof of which we have only to employ seed from these to produce a *crop*, not merely an exceptional individual, of worthless roots, though here perhaps a better form may rarely be met with.

This disposition to grow fork-rooted and malformed specimens in some districts and under some circumstances is exceedingly common, and has given rise to the name of *finger and toe* to designate it; and though with this have been included malformations from several other causes to be hereafter described, we shall now enter into a more exact description of finger and toe in Turnips and roots in general, restricting that term to malformations of outline, arising from degeneracy *of growth*, and not applying it to mechanical injuries—such for example as those by insects *in growing*.

In the Journal of the Royal Agricultural Society, vol. xv., and afterwards in the *Agricultural Gazette*, will be found an account of some experiments in the growth of roots; and although the roots experimented upon were Parsnips and Carrots, yet from these were deduced the following facts as applied to roots in general, including the different varieties of Turnip:—

1st. A tap root, of which the bulboid Turnip is but a variety, with a clear and unbranched outline, is not natural to roots, but can only be attained from wild plants by careful cultivation.

2d. In cultivating wild roots the first attempt will present enlarged examples, not only in the central or tap roots but in the lateral branches; while, by carefully choosing seeding examples from those in which the tap root presents the best outline, we shall gradually arrive at the form we require; and here it should be borne in mind that the production of good sorts of vegetables requires as much attention to points as the breeding of improved kinds of cattle.

3d. As therefore a branching of roots is a necessary condition of the passage from wild to cultivated examples, so we conclude that this branching in cultivated sorts is the result of *degeneracy*, or a reversion in a greater or less extent to their original wild form.

Now the degeneracy here spoken of is quite distinct from that distortion of form which results from injuries by insects, as the latter will attack the best sorts however carefully selected and tended, giving rise to the true *Anbury*, to be described in a future paper, while the branching of roots from degenerate growth is the result of, among others,

the following causes:—(*a*), degenerate seed; (*b*), the frequent employment of seed from a richer in a poorer district; (*c*), bad cultivation; and (*d*), a too frequent repetition of the crop. This malformation then is *finger and toe*, being merely a forked or *digitate* method of growth; this is further distinguished by the following important characteristics:—

(*a*). *Finger and toe is common to all root crops.*
(*b*). *Anbury is only formed in the Turnip crop.*

In understanding finger and toe, therefore, it is only necessary to carefully examine any field of the common and Swedish Turnips to acquaint us with the fact, that while some of the specimens will be faultless in form, others will show many signs of degeneracy, and it is well known that if we choose the former for seeding, we shall make more certain of a true future crop than if we chose the latter; and indeed the most casual observer, if he has *much* of this sporting in form, will complain that his seed is not *true*.

Almost any Turnip field will afford us examples of that degeneracy in the Turnip in which instead of merely one central axis of growth upwards, we have the development of many stems; this, like finger and toe, is equally the result of degeneracy, and, like it, is always the case in the first attempt at civilising a wild example; indeed it is generally accompanied by finger and toe.

In other cases, again, we have examples in which, both in root and herbage, there is more the appearance of Rape—doubtless the result of a downward tendency in an aggravated degree to the wild Brassica, of which the Swede is but a hybridised variety.

All Swede crops may have examples of this kind; nay, the seed from a single individual may present sports of many forms, according to the circumstances of the growth of seed, and of the after cultivation of the plant; this latter fact is particularly observable where the seed is own-grown and planted in the same soil, especially if the soil be poor and no manure be employed, and it becomes still more observable if the process be repeated.

Hybrids derived from species, as the Swede, are much more liable to finger and toe than those obtained by hybrids of mere varieties, as the various sorts of Turnip; and hence forked roots in the former will ever be found to be much more general than in the latter.

The experiment recorded in our first paper on the seed of the Turnip, in which hybrids were produced by growing Rape and Seeding-Turnips in proximity, resulted in the production of what we may term hybrid Rape, in which we had the glaucous smooth herbage which characterises this plant, as distinct from the brighter green rough leaves of the Turnip, united with a disposition to a bulbing of the stem, which presented a large increase of cellular matter over that which ordinary Rape would possess: and here, too, with this more succulent stem was a forked growth of root. In this we have a case of *progression* to the Swede form of Turnip, which is marked by its similarity to *retrogression* or degeneracy in our finger-and-toe examples when under cultivation. That the effects here described are the result of degeneracy may be further shown by an inquiry into the nature of soil and district in which finger and toe is most prevalent. Wherever we meet with this malformation we shall assuredly have some, if not all, of the following attendant circumstances.

It is constant in poor soils, in which Carrots, Parsnips, and Mangold Wurzel will also be liable to the same distortion.

In these it greatly increases by a frequent repetition of the crop in the same place, and still more rapidly from the use of own-grown seed.

It will be found, though to a less extent, in better land, if any of the circumstances usually attendant upon degeneracy be present.

Here, then, it seems clearly established that finger and toe is simply a malformation of growth arising from degeneracy; and hence, as we shall hereafter see, is perfectly distinct from Anbury, which latter is more general in rich land and in good Turnip districts.

DRY-DRILL *versus* WATER-DRILL.

The water-drill has now ceased to be a novelty. Since last year its use, in this neighbourhood, has been very greatly extended; and opinions relative to its value on our fen soils have undergone a thorough change. Many who last year regarded it with a good deal of suspicion and apprehension, have since been led to acknowledge its merits, and have pronounced favourably of its effects where it has been submitted to a trial. And I feel fully persuaded, that the more extensively the water-drill is used, and the more thoroughly and impartially its worth, as compared with the dry-drill, is tested, the more largely will it gain esteem and favour. And whatever a man's sentiments may be, and however formidable his prejudices may appear, they must of necessity yield to the force of facts acquired by actual experiment. Hence it occurs, that a simple narration of facts is always far more fruitful of conviction, than a mere statement of opinions, however well formed or well expressed. But to ascertain facts with correctness, experiments require to be carried out with the utmost care and fairness. This I endeavoured to do last year, and gave to the public the results with every needful particular. And again this year I have been induced to make a precisely similar series of experiments, and throughout have endeavoured to observe the strictest impartiality. I append a table showing full particulars of these different trials, the whole of which were made with Mangolds.

But I may here observe, that this year I also made a precisely similar class of experiments with Coleseed, and although I cannot furnish actual results, as such a crop cannot be tested by the weighing machine as the Mangolds can, I may, however, state that the water-drill produced from 30 to 50 per cent. more seed than the dry-drill, all other things being equal. I ought also to remark that all these several experiments, as well as those of the Mangolds, were inspected and carefully examined by several practical farmers, resident in the neighbourhood, and who can bear testimony to the perfect accuracy of my statements. Upon referring to the table below, it will be seen that in Nos. 1, 2, & 3, there is considerable less produce per acre, from both drills, than in Nos. 4 & 5. This arises entirely from the fact that in Nos. 1, 2, & 3, the soil is of a very hot gravelly nature, and consequently much less adapted for the growth of Mangolds than Nos. 4 & 5, where the subsoil is cool and moist, and the land necessarily much less affected by drought. But notwithstanding this, Nos. 2 & 3 are soils of greatly superior quality to Nos. 4 & 5 for general farming purposes. I feel it important to offer these few explanatory observations, although the relative merits of the two drills are in no degree affected by these peculiar circumstances.

No. of Experiment.	When sown.	When Weighed.	What drill used.	Description and Quantity of Artificial manure used.	Cost per acre for Artificial Manure. s. d.	Farm-yard Manure per acre.	Produce per acre Ton. cwt. st. lb.
1	April 26th	Oct. 16	Water-drill	1½ cwt. Lawes' superphosphate of Lime. 1½ cwt. Lawes' superphosphate of Lime.	11 3	13 loads	18 2 4 0
			Dry-drill		11 3	13 loads	8 10 5 10
2	April 25th & 26th	Oct. 16	Water-drill	1½ cwt Lawes' superphosphate of Lime. 1½ cwt. Lawes' superphosphate of Lime.	11 3	13 loads	19 2 6 12
			Dry-drill		11 3	13 loads	13 15 0 0
3	April 24th & 25th	Oct. 15	Water-drill	2 cwt. Lawes' superphosphate of Lime. 2 cwt. Lawes' superphosphate of Lime.	15 0	13 loads	19 2 6 12
			Dry-drill		15 0	13 loads	12 15 5 10
4	April 21st	Oct. 17	Water-drill	1½ cwt. Lawes' superphosphate of Lime. 1½ cwt. Lawes' superphosphate of Lime.	11 3	13 loads	27 5 5 10
			Dry-drill		11 3	13 loads	16 10 0 0
5	April 27th & 28th	Oct. 17	Water-drill	1½ cwt. Lawes' superphosphate of Lime. 1½ cwt. Lawes' superphosphate of Lime.	11 3	10 loads	30 0 0 0
			Dry-drill		11 3	10 loads	20 13 4 8

I must thank you for your kindness in permitting me to trespass so largely upon your space. *Alfred S. Ruston, Wenny Road, Chatteris.*

LIQUID MANURING.

Some observations in the *Gardeners' Chronicle* of the 3d inst. on an alleged new mode of applying liquid manure, and many in former numbers of the *Agricultural Gazette* on this subject are calculated to impress a certain class of our agricultural brethren who trust to what they read, rather than to their own careful observation and experience, with the notion that liquid manuring in the shape of supra-terraneous or sub-terraneous irrigation is essential to successful production generally. There is no doubt of the productive power of this mode of manuring in the case of the perennial Grasses, and other succulents of which successive cuttings are required during the season; but we have as yet seen no evidence of any advantage whatever having been derived by the cereal, grain, or root crops, from this application.

All manuring is, in fact, liquid manuring, for there is not a plant which absorbs its food in any other than a fluid or gaseous state. Not one of them can consume solid manure. The real question is, in what shape we can place the requisite food before a plant most effectually and economically?—whether by artificial solution in tanks, to be distributed on the surface, or according to Mr. Wilkins, under the surface; or by the more obvious and inartificial mode adopted by our forefathers, of spreading the solid manure on the surface, and incorporating that with the soil, leaving to natural agents its decomposition and ultimate solution ready for appropriation by the roots of plants.

The most rational and approved theory of manuring plants is the same as that for the feeding of animals, viz, to provide a gradual, moderate, and regular supply of food, rather than occasional supplies of highly nutritious and exciting food. We contend, that for all the ordinary crops of the farmer, the advantages of manuring by laying on the solid manure in the autumn, on clean land, and ploughing it in, are not exceeded by any other system. The result of this is gradual decomposition in the soil, and solution by rain, and the continued absorption by the roots of all those elements of the manure essential to the nutrition of the plant, and by which it is thus fed from hour to hour during the period of growth.

In the number of the *Gardeners' Chronicle* before referred to the superior effect of Mr. Wilkins' subterraneous irrigation is evidenced by the production of a long red Mangold Wurzel, weighing 14 lbs. 14 oz.; by a single Carrot having been found to weigh 1 lb. by virtue of the liquid manuring, while the best he had on the ordinary plan (by which we presume he means solid manuring) only weighed 7 oz.; and he further states that some Lucerne yielded five cuttings under the liquid system, while the same plant on the ordinary system only yielded two cuttings. It so happens that we are enabled to place in juxtaposition some results of that ordinary system. We picked up and cleaned and weighed a dozen Carrots out of a 4-acre piece, which weighed 56 lbs., being nearly 5 lbs. on an average, the heaviest weighed 7 lbs. We then tried a dozen Orange Globe Mangolds, which do not attain the weight of the Long Red; they weighed 121 lbs., averaging about 10 lbs. each, the heaviest having weighed 15 lbs. We then tried a dozen Swedes, which weighed 126 lbs., the heaviest of which also weighed 15 lbs.

Now, there is nothing remarkable in these weights, excepting as compared with those grown under the most approved mode of liquid manuring. We wrote to a gentleman at Gloucester, who had been in the habit of growing the Long Red Mangold on the solid manure system, to inquire whether he had ever succeeded in raising a root weighing 14 lbs. 14 oz. The reply is as follows: "We grew them from 20 to 28 lbs.; the heaviest we remember to have grown weighed 33 lbs., which we presented to a gentleman who was rather hard of belief, for exhibition at his Farmers' Club."

Mr. Mechi states his growth of Mangold this year at 28 tons per acre, but he does not state how this weight was ascertained. It is we know grown on the liquid manure system above ground. The state of the roots when weighed, and the mode of estimating the weight vary so materially, that in the absence of such details no comparison can be instituted. We had in one field 12 acres of the Yellow Globe Mangold, manured in the usual way last autumn. The crop was topped in the field, and then loaded into a set of Scotch carts of equal size, just as many as would ride without falling off. The number of loads was set down—one of them was shot, and the roots cleaned and then weighed, and the weight of the crop thus ascertained was 23½ tons per acres. This is a very moderate crop when compared with many accounts of which we read, and of which we entertain doubts of the accuracy from the various modes of ascertaining them, some of which are very fallacious. In this case the roots were generally fine, unusually close in the rows, and there was not a spot in the whole field uncovered, and the crop had been estimated by as many as exceeding 30 tons. *Charles Lawrence, Cirencester.*

A SOUND POTATO CROP.

In the end of March 1852 I planted 5 acres of York Regent, and 4 of Irish cup Potatoes,—the seed of the former variety having been grown in Easter Ross, and of the latter in Wester Ross; but each on lighter land than that in which they were planted. In both cases the roots delivered to me had passed through an inch-and-a-half riddle; and after delivery I had them passed over an inch riddle, and all under one inch in diameter were laid aside. From a few of the Potatoes two sets were got, but from the greater part only one; and each tuber from which only one set was got had a few of the eyes cut out, with the view of preventing the growth of too many shoots.

The field in which these Potatoes were planted consists of a free dry loam, and has an open, southern exposure. In the end of 1851 it was broken up with a strong furrow from one year's Grass (which had been cut for hay and afterwards pastured). The crop preceding was Wheat; and as the land was out of heart by previous heavy cropping, I was induced to try Potatoes, whereas otherwise I should have taken Oats. The sets were planted from 10 to 12 inches apart, and ploughed down every third furrow, with Peruvian guano applied at the rate of 3 cwt. per acre in the same furrow as the sets. The whole field was then harrowed and rolled, and left thus till the young plants showed themselves, when I had the earth pared away, and a drill grubber passed between the rows—care being taken not to approach the young plants too closely, either in paring or grubbing. In a few days thereafter they were carefully hand-hoed; the weeds near to the stems of the plants were pulled away with the hand; and when all the weeds were withered, the plants were earthed up with a double-

mould plough, and left in that condition till the Potatoes were lifted.

The whole crop, but especially the Irish cup Potatoes, grew most vigorously, and kept green till towards the end of August, at which time the shaws of the cups were not less than 4 feet high; and while these Potatoes were green and healthy, all those planted with dung in the usual manner were blackened and withered away, and the crop was a complete failure. With rare exceptions this was the case, not only on my own farm, but over the district. The Potatoes which were laid down with guano in the manner already stated, were taken up in the second week of October, and put into long narrow heaps—not pits—covered with straw, and just enough of earth to prevent the straw being blown away. After lying thus for a fortnight, they were hand-picked. Those exceeding one and a half inch in diameter were laid aside for sale; those again from that side down to one inch in diameter were separated for seed; and all the smaller, diseased, and broken roots were given to the pigs.

In the end of October the Potatoes were stored for the winter, by being laid on the surface of a piece of ground lying to the south, in long heaps 3½ feet at the base by about 2 feet high. The heaps, till within 6 inches of the ridge, were covered with Wheat-straw, over which was laid a thick coating of earth. The ridges were thatched with drawn straw, the ends of the thatch being brought over the earth already laid on, and a small quantity of mould, carefully smoothed down, being placed above them to retain the thatch in its place. The ridge was thus left open for ventilation, while it was at the same time perfectly water-tight. In the end of December a slight covering of horse-dung was spread over the heaps, which completely preserved the Potatoes from frost.

The bulk of the Regent Potatoes was delivered in the end of November 1852, and of the cup Potatoes in the beginning of March 1853; but a considerable proportion of both kinds was left as stored till towards the end of March. In each ton delivered, whether in November or March, there was not a peck of diseased roots, and this was the case also with those laid aside for seed. Both varieties were all along treated alike, and the yield was as follows:—

	Tn.	ct.	qr.	Tn.	ct.	qr.
1st. York Regent Potatoes—Gross per acre				3	11	0
Of this quantity, there were, of Potatoes exceeding 1½ inch in diameter	2	13	0			
Of Potatoes from 1 to 1½ inch in diam.	0	14	0			
Of small, broken, and diseased ...	0	4	0			
				3	11	0
2d. Irish cup Potatoes—Gross per acre ...				4	5	0
Of this quantity there were, of Potatoes exceeding 1½ inch in diameter	2	18	2			
Of Potatoes from 1 to 1½ inch in diam.	1	1	2			
Of small, broken, and diseased ...	0	5	0			
				4	5	0

The money value being:—

	Ton.	ct.	qr.				
York Regents ...	2	13	0	at 80s. per ton	... £10	12	0
Ditto ...	0	14	0	at 60s. „	... 2	2	0
					£12	14	0
	Ton.	ct.	qr.				
Irish cups ...	2	18	2	at 63s. per ton	... £9	4	3
Ditto ...	1	1	2	at 60s. „	... 3	4	6
					£12	8	9

I would not, at the present date, have reported on the result of this crop, were it not that, from the comparative success I met with in it, I was induced in the following year to try whether or not I could grow Potatoes after a white crop with guano alone. The return, as compared with that I had from a fair application of dung, was so satisfactory, that in spring 1854 I planted a considerable extent of the fallow break with Regent Potatoes, allowing from 4½ to 5 cwt. Peruvian guano to the acre in the drill. I at the same time laid down some acres of the same variety with ordinary court manure, applied in the drill, at the time of planting, at the rate of 18 to 20 cart-loads an acre. So remarkable was the difference in the crop in favour of guano, that I had the ground measured, and found that, in round numbers, there were 6 tons an acre of sound Potatoes after guano, and only 3 after dung. The field on which these Potatoes were grown was in good heart, and under Oats in 1853, Grass pastured in 1852, Wheat in 1851, and Turnips, well laid down and ate off by sheep, in 1850; and that part in which the Potatoes were grown with guano got no dung from 1850 till after the Potatoes were lifted. It consists of a good dry loam lying on a steep incline, and the Oat-stubble got a strong furrow down the hill only in the end of the year.

I have taken the liberty of referring thus generally to the crop grown by me in 1854, as, although I had not two varieties tested by being treated alike, the result shows very clearly the important advantage to be derived from growing Potatoes with guano, and gives me greater confidence in submitting this report on my crop in 1852 for approval. *Mr. Hosach in the Transactions of the Highland Society.*

ON FARM-YARD DUNG.

When green crops were introduced into a regular cultivation, as a systematic portion of the cropping of arable land, now nearly 100 years ago, the application of farm-yard dung was made in the form of a rotten mass—black, dead, and mould from which all heat of fermentation had departed—and also every form of organisation that had existed in the straws and hays that constituted a part of the mixture. So very far was this practice carried of having the manure in a putrid form that it was most urgently recommended, and in very many cases adopted, that the mixture should be a year old at the time of application, in order to have a certainty of the thorough putrid state having been attained. In this condition the mass often became dry, light in weight, and brown in colour, wanting in moisture, and wholly inactive. In other cases moist putridity was the state of its existence—black and pulpy, soft and unctuous, and dry like soap and peat. This practice continued till about the beginning of the present century, or nearly 50 years after the cultivation of Turnips had fairly entered into systematic use.

By degrees the general observation was extended that a very great loss of bulk was sustained from this very reduced preparation of farm-yard dung; and the value for immediate use was questioned of a wholly decomposed mass, that no doubt contained the essential elements of food, but in a diminished ratio, and in a quantity insufficient for that large extension of Turnip culture, which happened from the necessity of supplying the urgent wants of a vastly increased consumption. The idea very generally gained ground of having a larger quantity of farm-yard dung by reducing the time of preparation, and of using the mass in a more fresh condition, but still fermented, and considerably advanced into putridity. The necessity of having a quantity of manure to be extended over the large area of ground that was used in Turnip culture was a prime mover to a new mode of preparation, and was assisted by the opinion of its more ready if not superior efficacy as a stimulus of vegetable life. Not that success did not attend the application of a black pulpy mass of farm-yard dung, but the extreme use of the mode of application as a dry snuffy material of more than a year old wrought its own cure, along with the very urgent necessity that appeared of having a much larger quantity for use of the inestimable article of farm-yard dung.

The next mode of preparation has been long used, and yet forms the most general in adoption in the best Turnip growing countries. The system having been established of consuming a part at least of the Turnip crop by fattening and store cattle in the yards of the farmery, that are divided into apartments to hold two, four, six, or eight together, according to age and quality; the hay and straw of the farm are regularly offered to the animals in these yards as food and shelter, and are regularly as possible mixed with the solid fæces and urinary excrements of the beasts, and trodden together by the moving weight of the animals. During the frosty weather of winter, when the ploughing is stopped, mostly occurring in January and February, the contents of the yards are carried to the fields to be planted with green crops in the ensuing year, and laid in a corner or in a lane adjoining, as convenience may direct. The heap is raised to the height of about six feet, and in regular banks of about four feet in width, to which the carts are backed, and the contents thrown upon it by means of forks. No pressure is permitted on the heap beyond the weight of a man and a lad, who spread evenly over the bank that is being raised all the materials that are brought forward, shaking out large lumps that adhere, and mixing as much as possible the wet and dry matters, and the straw with the excrements. No dry matters are permitted, or only in very thin layers, and well mixed with moistened and very wet materials. When town manures can be got, they are laid in mixture with the farm-yard dung in the layers of the heap, and spread regularly and thinly over the whole extent. Much attention is required in building the heaps, that the different matters are duly mixed—the hot dung of the horse with the colder excrement of the pig, with regular layers of the dung from the yards, and the generally more moist and short materials from towns and villages. In this regularity of mixture the heap is raised to the height of about 6 feet, and of any suitable length and width, 6 or 8 yards square on extensive farms, not narrow or short, as small extents make much outside to be dried by exposure. In this state of light consolidation the heap quickly ferments and decomposes; the dried outside is cut down and thrown on the top, which is lightly covered with earth, and sometimes moistened with the urine that escapes from the mass collected for the purpose in a rut around the heap. In this condition the heap remains for use in June, when it is found in a moist condition, pulpy, but not wholly wanting in warmth and vegetable fibre, and showing a mid condition between the old putrid mass and the fresh dung from the yards. Fermentation is mostly extinct, but still appears, according to the condition of the matters in the mixture when the mass was formed. If the materials are rough and strawy when the heap is made, a turning over with forks will be necessary, but is seldom done, as the mixtures are made with care and attention. The yards are generally emptied twice during winter, the first time about Christmas and the second time during wet weather in March, after which month the dry weather prevents the proper making of farm-yard dung in the necessary quantity. It is best that the heaps of dung be formed during wet weather. So much as roads and ground will permit the carriage, snowy weather suits well by the snow being mixed with the dung, and producing moisture on melting.

An unqualified success has attended this mode of using farm-yard dung in the most extensive practice and a long continuation of it. It is yet most generally followed. The idea still existed of having the largest possible quantity of farm dung, and in a state of fermentation, so as to advance to putridity, and with the view of securing the benefit of the active powers employed in the process of decay; and this idea led to another mode of preparation in the contents of the farm-yards being carried to the fields during the conveniences of the winter, and laid in a heap that slopes at both ends to permit the ascent and descent of the carts, which deposit the loads on the heap, over which the matters are spread. In this way the heaps are formed at any convenient times till April, a care being still exercised that the matters are mixed—dry with wet—and that no large quantities of dry materials are placed together. The heap is trampled into a consolidation that prevents fermentation, when, as the dung is required for Potatoes, Beet, and Turnips in succession, the heap is turned over with forks, with a very careful attention to break the lumps into small pieces, to throw the outside into the inside of the heap, and to place the whole mass lightly together. A very active fermentation is immediately produced, during which, in about 10 days from the commencement, the dung is laid in the drills, and the seed or plants placed over it. The fumes of evaporation reach the seeds and have a most beneficial effect; the fermentation, though checked, will continue, and the ultimate decomposition that was commenced in the heap will be done in the land, which receives the advantage of it. In this mode of preparation a larger quantity of dung is obtained, and the benefits of the active processes are secured more than by the former method, both modes requiring a previous attention to the mixture of matters in the farm-yards.

Our own experience has been very long and extensive in the most celebrated Turnip districts in Britain, during which the application of farm-yard dung was chiefly made from heaps without being turned over, and more latterly, but less extensively, in the last-mentioned mode of use. It would be difficult to establish an undeniable preference for either mode, the expense and previous requisites of the materials being nearly balanced. The first mode in the heaps that are not turned over requires that the mass be formed at one time or at twice, when the heap is put into shape and finished, to remain untouched till used in June. The second preparation permits the formation of the heap at all conveniences during winter from November to April, the materials being regularly as possible mixed in the cattle yards and spread evenly over the heap when carried to it at the different times. On this ground of convenience over an extent of time, and that of affording a larger quantity of dung for use, and of receiving the benefit of active operations in the process of fermentation, a preference may be given to the latter mode with the acknowledgment of an equal success in practice from both preparations. The latter mode suits well for Potatoes and Beetroot, for which fresh dung from the cattle yards has already been reckoned to be sufficiently prepared. But an incipient fermentation of farm-yard dung may be recommended for all crops, even on clay land fallows to be sown with Wheat.

The observations that occurred during a most extensive practice and experience in Turnip farming have suggested a third mode of using farm-yard dung in a wholly fresh condition from the cattle yards. In three instances, freshly voided dung from the cowshed was carried to finish the sowing of Turnips, where the quantity of fermented dung had failed, and produced in every case a very superior crop that was visible to my inspection. After three casual evidences on the point, in the fourth year a fair trial was made in equal quantities of freshly-voided fæces and from the fermented heaps, and the result was full 30 per cent. in a superior crop, shown from the brairding of the Turnip seed to the maturity of the bulbs. The experiment was decisive, along with the proofs that formerly appeared.

A difficulty is presented of using, as dung for Turnips, rank straws that are used for litter; being long and unbroken, and incapable of being covered on the land. This obstacle is removed by all straws being cut into short lengths by the steam-power of the threshing-engine, and being mixed with the fæces of the animals, they can be easily covered in the land. Another difficulty, and a more serious one, is presented in the distance between the cattle-yards and the fields in the season of sowing, and the length of carriage during the most pressing season of the year. But there may be soon expected a conveyance by moveable railway of the greater part of farm carriages, which will render easy and accessible every kind of transport. In present circumstances, the fresh dung from the yards may be carried to the fields, and spread in broadcast, and ploughed into the ground, or may be better mixed with the soil by means of Finlayson's harrow driven lengthwise and crosswise after one furrow of the plough, or without any. The drills being then made with one furrow of the common plough, the Turnip seed is sown by the common two-drill machine. This mixing mode may be more admissible without the loss by evaporation from exposed dung gains less credence in the agricultural world; for say what we may on that subject, the theory cannot be sustained.

Mr. Mechi has written that "that the days of dung-heaps are being numbered." This saying may soon be verified. There may not soon be settled the question between solid and liquid manures; but the superiority of fresh matters that possess the native caloric may soon supersede the adventitious warmth that is artificially produced, and afford an easier and cheaper mode of application. If the liquid manure system prevails, the fæces, with or without short straws, may be applied by Chandler's liquid manure drill; but this must rest for a time not yet come. For the present superiority has been shown of fresh matters over putrid. *J. D.*

Home Correspondence.

Hedges.—As you are directing attention to this important subject the following suggestions will tend to further ventilate the question. The cheapest of all operations in keeping a white Thorn hedge in order and uniformity is properly cutting it at suitable short periods. Railway managers are fully alive to this, but the expense of cutting and trimming a length of hedge by manual labour is considerable. I have for many years pointed out the necessity of a hedge cutting and clipping machine to be worked by horse-power. The operation is a regular and uniform one, and therefore most amenable to the application of machinery,—the clipping or cutting to be performed by either revolving circular knives, or knives with concave cutting edges, set on radiating arms of a wheel or a series of clippers like shears, the motive force to be obtained from a horse drawing the machine upon wheels from which shafts to connect the cutting instruments could only be made to act. As in having lengthy shafts a loss of power would be sustained, the point to be attained would be to have these shafts as short as possible, or if possible without any shafts at all, if the considerations of expense, strength, velocity, &c., would permit it. In the case of railway hedges I have long arrived at the conviction in my own mind that the machine would be best if it was simply with two wheels running one on each side of the hedge, and the cutting as far as possible to act immediately from these wheels. Velocity would not be thus obtained, but power would be economised, and so perhaps the cutting in such a machine should be best in the form of shears, either straight or circular with the wheel, and of course the axles would have to be connected by bending over the top of the hedge. On coming to a cross hedge one of these wheels would either have to be got over through a small gap or unshipped, and so lifted over or raised whilst on the machine by a lever, and so eased over the crossing hedge. In adopting a machine for this purpose it should be borne in mind that great velocity in cutting is a great element, for by great velocity the whole of the power is directed to the point struck, and there is no loss by vibration of the other parts; for instance, a bullet at great velocity will cut out a hole in a piece of glass only the size of its own diameter without fracturing the rest of the glass, and a tallow candle may, under the same circumstances, be shot through an inch deal board. It is also known that soldiers have, whilst standing with the musket in their hands, had part shot away, and yet never felt their musket to move or vibrate. Velocity in such a machine would, I fear, require multiplicity of wheels or bands (the latter I should feel incline to favour, as free from jars, &c.,) and so increase the weight and diminish the power. It should be a primary object to always make the force act as direct as possible from the wheels (which roll along the ground), one on each side of the hedge, either by revolving knives, cutting or clipping, or clipping like shears, or by one arm of the shears being fixed and the other moving. Friction in cutting should be reduced as much as possible, and if there were made a rod, &c., to move in advance of the cutting edge, and of course more out from the hedge the twigs would be bent away, and when the cutting edge arrived to separate the portion to be amputated, this bending would open the cut as it was being made, thus reducing the friction. I have always deemed this a requisite yet to be applied to reaping-machines in general. In cutting Box edging I have for many years had the top cut off with a scythe, which will beautifully level a great length of Box edging in half an hour, and perhaps if the hedge was gone over often to prevent the shoots becoming strong the same mode of cutting at a greater velocity obtained by horse power might be available for the end suggested. A machine of small size but on the same principle could be made to trim Box edging, although the scythe will not only level the top but may, in a handy hand, do to trim the sides of such edging if well kept; perhaps in practice it would be found that a machine to only cut one side of the hedge at a time will be the limit in a general way, first cost and power being considered along with due portability. I have already trespassed too much upon your valuable space; but trust I have in this rough notice to draw attention to the matter sufficiently indicated the general requisites of the suggestions. *W. Wooler, Nov.* 10.

Drains with Brushwood.—In reply to "H. B.'s" inquiries I can assure him he may safely drain lands with brushwood, viz., Thorns either white or black, but black are best; they will last good ten years; Willow is not so good; they so readily strike root, especially if they get air and moisture. The best mode of using the Thorns is to cut them as long as you can, and then tie them in long narrow bundles ready for laying in the drain when cut, not put in "helter skelter" as the workmen will do (being less trouble), if not prevented. A drain so made will last ten years. If "H. B." has land or other stones to put in with his Thorn faggots, the drain will be better. But one tile drain will be equal to two of Thorns in efficiency and durability, and made with the old-fashioned horse-shoe tile 2½ to 3 inches wide by 3 inches deep, and laid upon a flat tile or sole, thereby making a firm bottom, and the upper tile less likely to get displaced (like the pipes), when they happen to be laid in loose sandy places or sand-galls, so frequently met with in cutting drains. Presuming "H. B." a novice, I should by all means advise him to "drain deep" as he can go, securing a fall for his water by his outlet. One deep drain, whether in loose soil or strong clay, is equal to two shallow ones. "H. B." should first ascertain the depth of fall of his main drain or outlet, and work upwards from that, bearing in mind that the deeper the drain the further it will draw the water and carry it off; never mind what your stiff land men say about water not getting through strong soil. If there is a vacuum below I know it will drain off, not so fast through strong soil as porous, but it will get away; and when the strong soil is once run dry, all the rain that falls after will only be sufficient for the fertilising the soil. I would advise "H. B." to cut his drains across the fall—diagonally, not at right angles; I am quite satisfied that if water gravitates downwards, a drain cut slightly across the fall is more efficient than one cut directly down the fall. It intercepts the water (falling between drain and drain, or rising up from below) more completely. But where the fall, as in some low lands, is so little, and the drains necessarily shallow, it may be best to cut the drains down, or with the inclination of the land, in order that the water in the drains may get more easily away. There is one important point to be attended to after you have made your drains, I will suppose well; that is, to take care that their mouths are always kept clear, not left (as is too frequently the case) to be blocked up by rats or the earth that runs down the brink of the ditch in dry or frosty weather. I would recommend "H. B." to procure Mr. Mechi's "Letters on Drainage;" also Mr. Parkes's "Essay on Drainage;" and last, though not least, a little book on "Under-draining," published at Newman's, Bond Street; the author, Mr. John Wiggins, agent to Sir Thomas Hare, Bart., Stowe Hall, Norfolk, published it for the use of the tenantry. It contains a fund of sound information, and although published at a cheap rate, it is really a valuable little book on the subject of land drainage. *A Constant Reader.*

Tabular Statement, showing the distances required for planting or sowing various quantities of Wheat grain.—There are from 16,000 to 20,000 grains of Wheat contained in one quart, or 608,000 to 640,000 in one bushel, and 6,272,640 square inches are 1 statute acre of land. Taking the latter numbers as a rule, it necessarily follows that about 10 square inches are thus allowed for each grain, admitting all the land to be sown uniformly without furrows, or 14 grains on each square foot, or 132 grains on each square yard, or 4000 grains on each square rod, at one bushel of seed for an acre.* The following simple tabular form will, we trust, serve to show the different distances for each plant at this ratio, from more and less quantities of seed, which may or may not be thought most proper to be sown by any of our agricultural friends. For general sowing on a large scale, we ourselves think proper to draw a line of distinction—say one bushel or less, avoiding either extremes—bearing in mind, however, the fact and possibility of growing a large amount of produce from a small quantity, and the impossibility of reaping an average crop from a full plant of a large quantity of seed.

Per Acre.	Grains for an acre.	Grains for a rod.	Grains for a yard.	Grains for a foot.	Inches for each grain.
3 bushels at 20,000 grains in a quart, and 6,272,640 ins in an acre gives about	1,920,000	12,000	396	44	4
2 ditto ditto ...	1,280,000	8,000	264	29	6
*1 " " ...	640,000	4,000	132	14	10
2 pecks, " ...	320,000	2,000	66	7	20
1 " " ...	160,000	1,000	33	3½	40
½ " " ...	80,000	500	16½	1¾	81
¼ " " ...	40,000	250	8¼	1	162
1 quart " ...	20,000	125	4	0	324
1 pint " ...	10,000	62	2	0	648
½ " " ...	5,000	31	1	0	1296

Omitting fractions.

—*Hardy & Son, Seed Growers, Maldon, Essex.*

The Mole.—The Talparian theory of drainage is certainly very nice for a winter's evening, and doubtless would be effective in the field generally speaking, provided Talpa would train his pipe-draining property to pay the necessary respect to levels—but the "water-kelpie" system of subterranean "tarns" and pools they follow, has little to recommend it, either to the park-keeper or his employer; and besides drains must be closer than many would like before any visible effect can be produced on insects, while the standing pools of water they make destroy the finer quality of Grasses, and encourage the growth of Rushes and other inferior plants, unless the land is sufficiently drained without the assistance of moles. We have found this to be the result in all the deer-parks and sheep-walks we have managed or examined. As much of Fowler's pipe drainage as you please, then, but away with your Talparian gentry. *B.*

Waste Land.—Some of your correspondents do not seem to agree as to the amount of cultivable waste land in the New Forest, but they had better turn their attention to the much greater waste of land in other places, such as the Highlands of Scotland, where glens and plains amongst the mountains are to be found abandoned to Heather, but which, with enclosure, shelter, and a little drainage, would be capable of growing ordinary field crops, varied according to the height and exposure. In the west the climate is very wet, but even there improved Grass and green crops might be grown, and all the eastern and central Highlands are dry enough and traversed by good roads, and in many places steamboat stations are near at hand. People seem to take it for granted that the Highlands are only fit for sheep or game, but this I think will be found a mistake by any one who will take the trouble to examine the soil, or try arable cultivation. *A. H. F. C.*

The Turnip Flea.—In connection with your article on the above subject of the 10th inst, it is a serious evil in many seasons, and should be the aim of all to contribute (however small) their experience in ridding the Turnip crop of that noxious insect, the flea beetle. Agreeing with you in the expedients you propose, which, if followed out, would no doubt tend to destroy numbers of the insects, yet a simple plan which we have followed for some years may not be uninteresting to your readers, based on your "Adoption of Expedients in Sowing." Instead of sowing alternate rows of Swedes and common Turnip we mix the seeds in the proportion of one-fourth white Turnip, which, when sown together, comes up first, and from the known predilection of the insect for Turnips proper, allows the Swedes to get into the second leaf, when great part of the danger is over. Our preference to this system is, 1st, that a crop of Swedes is more valuable than a crop half Swedes and half common Turnip, as it would be in the way you suggest; 2d, that Swedes require to be sown earlier; and 3d, that should any of the white Turnips escape the flea, they are easily distinguished from the Swedes at the thinning process, and rooted out then. We might also suggest that in sowing a crop of common Turnips it is advisable to mix seeds of various seasons growth, as from brairding (germinating) at different times, there is a greater chance of some of the crop escaping than when all the seed sprung at the same time. *Armis, East Lothian, Nov.* 12.

Threshing Machine.—The American agricultural paper, the *Albany Cultivator*, for last month has an article on the "trial of reapers in France." In the same article it states—"There were four threshing machines entered for competition. One American (Pitt's, of Buffalo), one English, one Belgian, and two French. They worked half an hour. Six men worked half an hour with flails at the same moment the machines started. The six threshers — 60 litres of Wheat; Pitt's American thresher, 740 litres of ditto; Clayton's English thresher, 410 do. do.; Dunoir's French thresher, 250 do. do.; Pinet's Belgian thresher, 150 do. do." In regard to Pitt's machine, the *Moniteur* says:—"Pitt's machine has, therefore, gained the honours of the day. This machine literally devours the sheaves of Wheat; the eye cannot follow the work which is effected between the entrance of the sheaves and the end of the operation—it is one of the greatest results which it is possible to obtain. The impression which this spectacle produced upon the Arab chiefs was profound." *Richard Nicklin.*

[We will endeavour to obtain a further report.]

Steam Ploughing.—It has lately been the fashion to cry down the plough as not suited to the purpose for which it is used, and so far is this taken for granted that very plausible arguments are built upon it. Let us shortly examine what its alleged faults and failings are. The first and greatest is that it presses and hardens the subsoil so much that the powers of language have been exhausted in describing its evil effects. But did the plough press it? I believe not. As well might we say that a knife is a very improper tool to cut the top off a round of beef, because it leaves the surface of the remaining part smooth and close; and hence argue that meat ought to be torn apart because it must be disintegrated before it can combine with or be absorbed by the human system. Does the planing tool compress the surface of the wood because it leaves it smooth and close? Some say this reasoning does not apply to the plough because its weight must be taken into account. Well, how heavy is it? Fifteen stones. And what pressure will that exert, even upon the loose surface, to say nothing of the dense bottom? Plates in Morton's "Cyclopædia" prove that it requires in ploughing a furrow 5 inches by 9 inches, a strain of 16 to 20 stones, and to draw the plough upon the top empty, it requires a strain of 8 to 12 stones. But the difference between a furrow and no furrow is in many cases less than this, which I think proves that the weight of the plough is as it were brought forward to the resisting point when in work, and not that it requires only 7 or 8 stones to cut and turn a furrow 5 in. by 9 in. Thus we think that the plough only polishes up the bottom of the furrow as a trowel does mortar—that it is only a great knife that cuts up a square junk, and the turn-furrow comes after, and lays it over, giving it a squeeze as it does so; this compression serves to pulverise it, instead of hardening it: and in this respect it excels the spade, which turns over but does not break up without an extra turn by using the spade as a hammer. With these remarks I shall conclude that the plough is the most proper implement that we yet possess for turning over the soil. But though our ploughs, so far as to their cutting parts, are about what we want, yet in applying steam-power for drawing them we must support them on two wheels in front and one behind; and the shanks of these wheels should extend above the frame of the plough, and be held on it by a moveable joint to allow the shank to swing backward and forward. Then we shall have our draught-rope attached to the top of this shank, and the effect will be that when the plough is pulled forward the wheels will be raised, and of course the plough lowered, and when the draught is backward the wheels will be lowered, and the plough raised before it will move back at all, and so it will clear itself above the land. The single wheel behind will work in a socket as the front wheels of scarifiers do, and by it we can guide the plough backward. Of course we must have

ploughmen for this as we have always had, and prizes may be given to the best hands as now. Any other implement can be put to work by the same machinery, only that all will have to go back empty as we at present arrange. *G. S.*

Steam Culture.—In your paper of Sept. 15 I read a letter from Charles Burcham, London, on a new plan of cultivatiug land hy steam in a circle, which he sets forth to be superior and quicker than those tried at Carlisle. Since then I have looked every week in vain for a contradiction of his statements, so have come to the conclusion that they are too plainly absurd to require refuting. However, seeing in the *Agricultural Gazette* of November 3 another long communication from him, in which he enters more into detail, I think it high time some one took up the side of common sense. In the first place—In English farming economy of land is of the first importance, but I find by this scheme, that between every 3 circles of 84 feet radius, there will be 7.16 perches, and in a 20-acre field (that is to say 20 acres of ploughed land) there would be 57 such pieces inclosed between the circles, or 2 acres, 2 roods, 8.12 perches, and of course much more on the outsides of the circles and some in the centres, so that I do not think it too much to say that to have 20 acres of cultivated land you would require 24 acres. This loss he attempted to get over by saying that plants require intervals between them to thrive properly, but I do not think the plants in the centre of the circle would derive any benefit from a space 80 feet removed from them; intervals in crops, to be of any use, should be equally distributed between each plant. This loss and waste of ground I consider quite sufficient to kill the scheme; still, if there were no loss at all, there are other considerations of a mechanical nature which would be quite as fatal. For instance, "C. B." seems to think that his plough or rows of ploughs will take no more power to move them round the circle in two and a half minutes than what the ordinary steam-engine would furnish, and that the universal mechanical law, as you gain speed you lose power, does not apply to this case. If you wish to increase the speed and duty of a machine, you must also increase the power in the same ratio as the speed. "C. B." intends ploughing at the rate of 12 acres per hour. If the best steam plough could turn over the soil at the rate of 1 acre per hour, we should require evidently 12 times the speed and power to do 12 in the same time. If the steam plough at an acre an hour required six horses, "C. B." would require $6 \times 12 = 72$ horse power. I hope soon to see another communication from "C. B." stating the probable weight and cost, its portability, and capability of turning from roads through gateways. I think it advisable to make all farmers' implements capable of being adapted to several different operations, but if a farmer had all th different ploughs, harrows, drills, rollers, cultivators, &c., required for the 84 feet machine, they would take considerable shed room. "C. B." attacks reaping-machines as unphilosophical; but if they are (as they should be) adapted to mowing, they form one of the most useful implements of the farming—performing the latter operation in a superior manner to the scythe, and relieving man of very laborious exertion. I hope "C. B." will explain how the *point d'appui* is to be removed to a new base of operations at the end of the two and a half minutes, and how many minutes that will require; how he intends to get over the difficulty of his engine turning a sharp curve of 84 feet radius, and whether the engine will go on rails or not. The object of an inventor in producing a machine should be to make the mechanism as self-acting and simple as possible. Machinery tends to elevate man, by changing him from the mere machine to the controller of its movements; therefore, the more self-acting machinery is, the more does it accomplish this noble end, and the more simple it is, the easier is it to control and more durable. But "C. B." has gone a step backward in taking the man off his legs and mounting him on a long gallery. Why not make it self-acting? It is my opinion that this circular principle is wrong, and that "C. B." had better employ his inventive talents on the rectangular principle of cultivation by steam. *Y. F. W.*

Ploughing in Line: The North Staffordshire Agricultural Society.—Will the secretary or any of the members of the committee of the North Staffordshire Agricultural Society explain through your columns why they give prizes for ploughing, the ploughs being drawn by three horses in line. When lately in Staffordshire I heard some lamentations over the decay of this society, when a gentleman who is a large landed proprietor and great agricultural improver stated that the reason no doubt was that the society patronised bad agricultural management, and gave what has been stated above as an instance. It would be interesting to know on what grounds the society justifies a practice which puts three horses, a man, and a boy to do the work of two horses and one man; and if they cannot justify the practice I, in common with others, would be glad to know why they encourage it by giving prizes for it. *Investigator.*

Stone Breaking.—In this district gravel is scarce, and our parish roads are made with broken flints picked off the land, the breaking of which with a hammer is tedious and expensive. Perhaps some of your correspondents will kindly communicate a more speedy method. Stones put on a brick or lime-kiln, after heating will break much easier, and possibly render the substance less serviceable, but this would be immaterial if the application of heat by some moveable contrivance could be brought to the stone-heaps, as kilns may be far off and the collection of heaps be in far separated fields, and the material itself is heavy and costly to move. Any information will be thankfully received by *A Stone Warden.*

Produce of a Potato.—In the month of March last I planted one Orkney Red Potato cut into plants or sets, I think about 10 plants, upon my farm at Goodmayes, near Ilford, Essex. The Potato weighed 1 lb., and in the month of October I dug up 84 lbs. of sound Potatoes, the produce from the Potato weighing 1 lb. I will feel obliged if you would tell me whether you have known as large a produce from the same weight of seed. *Alex. Tod.*

Farmers' Clubs.

CHERTSEY.—At the annual meeting of this Society the other day, Mr. Locke King, M.P., said: He could not help thinking that they ought not to rely on the present high prices. The war might last for a time, but he hoped it would be brought to a speedy, honourable, and satisfactory conclusion. And when that time came, they might rest assured that there would be a reaction, and they must be prepared to meet that change by improvements in the cultivation of the land. They must rely upon their own exertions for those improvements, and this was the proper time to do so. They must endeavour to remove those laws and abolish those customs which interfered to prevent the flow of capital into the cultivation of the soil. He felt that when the doors were somewhat forcibly opened for the admission of foreign produce it was only fair that the principle of free trade should be applied also to the raw material—the land itself—and that all those technicalities and difficulties which interfered with the transfer of land from a willing owner to a willing purchaser should be entirely removed. He found from statistics that there were in Great Britain and Ireland no fewer than 15,000,000 acres of waste land capable of improvement and cultivation, but which were not cultivated at all. In England there were said to be about 4,000,000 acres of waste land capable of cultivation; in Scotland, where the land was locked up under a close system of entail more severe than in England, there were no less than 6,000,000 acres capable of cultivation; and in Ireland 5,000,000 acres which still remained without cultivation. Lord Stanley had said that if any man retained land in his own hands which he had not the power to improve, and did not sell, he was a wrong doer to the community. If that remark was applicable to an individual, how much more so was it applicable to a legislature which allowed a number of laws to exist which compelled a man to keep in his own hands that which it was utterly impossible for him to improve.

Calendar of Operations.

NOVEMBER.

WEST SUSSEX, *Nov.* 20.—We have had rather a catching season for Wheat sowing, and the work has got rather behind, there is still a good deal to sow, and some has been put in with the land not in a very fit state for it; but as the weather, though damp, has been mild, we hope that it will come up well. The first sowings that are up look too forward, and what has been put in this month may turn out best able to stand the winter. This is the time for storing the Mangold, which is generally a good crop, and the land will, if possible, be sown with Wheat after it. All the Wheat that can be sown, will be, and though it is often said that this is not proper farming, yet we have found it answer as well as we could expect, and by sowing Clover on it in the spring, we have got a good plant, so that it will come in for Wheat every other year, that is, Wheat, Mangold—Wheat, Clover. This refers to heavy land unfit for Turnips, and which cannot be fed off once in six years. We put a heavy dressing of dung for the Mangold, then leave the tops to be ploughed in, and with the Wheat use 1½ to 2 cwt. of guano, which does well, and we cannot conceive a more profitable way to turn a stiff clay to good account. We have now land lying up in ridges or baulks, after being well worked, that will require no further preparation for Mangold but to split the ridges with the double plough, put in the dung, and cover it before sowing. We shall split the ridges as early in the spring as the weather will admit of, so that a fresh surface may be exposed as long as possible before sowing. Our market is not yet oversupplied with Wheat, but will no doubt be better as soon as sowing is done. We do not hear very good accounts of the yield: I fear it is below what we expected; there is a very large proportion of tail corn occasioned by its premature ripening. The price for average samples is about 22*l.* per load. The supply of Barley is fair, but really good is scarce; the price of malting is from 45*s.* to 47*s.* per quarter; of grinding, from 38*s.* to 42*s.* Oats are very inferior at 28*s.* to 30*s.* Our market has been better supplied with mutton than is usual at this season, and prices have rather given way, though the quality is good. Beef is plentiful, but hardly up to the mark in condition. We have now begun to use the Swedes and find the quality very good, though not so large as we expected. The late sown Turnips are a poor crop. We are rather puzzled to know how to get our beasts fatted in the most economical way—hay is out of the question; we do not think that it ever paid, but now that the price is so high the matter seems settled—straw chaff and cut Turnips, with Barley-meal and Linseed mixed, seems to be the right thing. *G. S.*

Notices to Correspondents.

ITALIAN RYE-GRASS: *F G.* It is too late to sow Italian Rye-grass in Fifeshire now. You had better sow in early spring or put the crop off for another year—sowing next autumn. Alsike Clover is to be sown just like the red or the Dutch Clover. Trifolium incarnatum will do on any undisturbed clean corn stubble, with a moist surface capable of being moved a quarter of an inch deep or less by a heavy bush harrow.

SHEEP: *T B J.* You should purchase full grown sheep, as two shear cross-bred Down and Leicesters, or Down and Cotswolds. If put on the Grass in August, and having a few Peas or some Barley or some cake after the middle of October, they will be fat before December.

TOBACCO JUICE: *J S G.* asks our correspondent "S." who writes from the Forfarshire Glens to describe in detail the mode of using tobacco juice for washing sheep. How is it prepared and used?

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed

FIRST PRIZE REAPING MACHINE.
NOTICE.

MESSRS. BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1½ to 1 acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to SAYNOR & COOKE for their superiority of material and workmanship. Established 1788.

TO BE SOLD, a FOUR-HORSE POWER PORTABLE STEAM ENGINE.—Apply to WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, London.

CHAFF CUTTING MACHINES from 21*s.*—A complete Illustrative Catalogue, all sizes and most improved description, will be forwarded on application to WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, London.

BRUISING MILLS FOR OATS, BEANS, MALT, &c.—Illustrated Catalogue will be forwarded on application to WILLIAM DRAY & Co., Swan Lane, Upper Thames Street.

ECONOMY OF FERMENTATION.

BUSHE'S PATENT ROOT GRATER, manufactured by FOWLER AND FRY, Temple Gate, Bristol, entirely supersedes the necessity of Cooking Turnips, Mangold, and other Roots; it effects a saving of 30 to 40 per cent. of the Roots, besides that of fuel. Price 3*l.* 10*s.* Printed testimonials and directions may be obtained gratis by applying to FOWLER & FRY, Bristol, Licensed Makers of COURE's Patent Chaff Cutters and General Agricultural Implement Makers and Dealers. The Root Grater may also be seen in the Agricultural Department of the Crystal Palace, Sydenham.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
HURDLES for CATTLE, 6 feet long, 3 feet out of ground, 5 bars ... ... 5*s.* 3*d.* each.

TO FLORISTS AND OTHERS.

J. JONES, IRON MERCHANT, has always a great variety of CYLINDRICAL and SADDLE BOILERS in stock, also Fire and Furnace Bars, Supply Cisterns, Double Doors and Frames, Furnace Grates, Soot Doors, Hot-water Pipes, Elbows, Tees, Syphons, Throttle Valves, Stop Cocks, Flange and Socket Elbows, &c.; also Trough Pipes.—Drawings and Prices of the above, or estimates given for the work fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

IRON BUILDING AND ROOFING WORKS.
GAS STREET AND BERKELEY STREET, BIRMINGHAM.

JOHN HENDERSON PORTER, ENGINEER and CONTRACTOR, Patentee of a new system of constructing (cheaply and expeditiously, by ordinary labourers) Portable Buildings and Sheds—formed of ordinary planks or boards—peculiarly suitable for Farm purposes. A Model Shed has recently been erected in the Agricultural Department of the Crystal Palace at Sydenham. Corrugated and Galvanised Iron Roofs and Roofing Plates, Eaves, Gutters, Rain-water Pipes, Tanks, Fences, &c.—London Office, 1, Riches Court, Lime Street.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES consist of MATTING, DOOR MATS, MATTRESSES, HASSOCKS, BRUSHES, &c., and are distinguished by superiority and excellence of workmanship, combined with moderate charges. Catalogues, containing prices and every particular, free by post.—T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street Westminster.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash :—

SHEET SQUARES.—*In Boxes of 100 feet.*

6 by 4, and 6½ by 4½	£0 12*s.* 0*d.*
7 „ 5, — 7½ „ 5½ }	0 14 0
8 „ 6, — 8½ „ 6½ }	
9 „ 7, — 9½ „ 7½, 10 by 6 }	0 16 0
10 „ 7, 10 by 8 }	

STOCK SIZES, in 100 feet boxes, from 12 by 10 to 20 by 15, at 18*s.* per 100 feet. If cut to order not exceeding 40 inches long.

16 oz. from 2½*d.* to 3½*d.* | 21 oz. from 3¾*d.* to 4½*d.*

26 oz. from 5½*d.* to 7½*d.*

Sixteen-ounce Sheet Glass packed in cases of 200 feet, or Crates of 300 feet, 2½*d.* per foot.

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO Mr. RIVERS, and of various dimensions, always on hand,

Double-crown Glass of various dimensions in 100 feet boxes.

GLASS TILES for Workshops, Farm Buildings, &c.

¼ of an inch thick	£1 17*s.* 6*d.*	per case of 50
3/16 „	2 1 3	„ 60
⅛ „	1 17 6	„ 60

Glass Slates of the usual dimensions.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps; Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, Sheet Lead, Pipe, White Lead, Oils and Colours, Paint Brushes, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12*s.* 6*d.*; above, 16*s.* 8*d.* per box. FOREIGN SHEET, in 200 feet cases, 34*s.* per case.

PERFORATED VENTILATING GLASS from 1*s.* 6*d.* per foot. TILES and SLATES from 6*d.* each. MILK PANS, 21*s.* per dozen. HELY'S HAND CHURN, 5*s.* 6*d.*; WARING'S BUTTER SLABS, 10*s.* each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7*s.* per 100, and the New Aquarium, 10*s.* each.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by	4 in. and	6 in. by	4½ in.	...	...	12*s.*	0*d.*
6½ „	4½ „	7 „	5	...	...	12	6
7½ „	5½ „	8 „	6	...	...	13	0
8½ „	6½ „	9 „	7	...	...	13	6
9½ „	7½ „	10 „	8	...	...	13	6
10½ „	8½ „	11 „	9	...	...	14	0
12 „	9 „	13 „	9	...	...	14	0
10 „	10 „	10½ „	10½	...	...	14	0
11 „	10 „	11½ „	10½	...	...	14	0
11 „	11 „	11½ „	11½	...	...	14	0
12 „	11 „	12½ „	11½	...	...	14	0
13 „	11 „	13½ „	11½	...	...	14	0
13 „	12 „	13½ „	12½	...	...	16	0
13½ „	13½ „	14½ „	13½	...	...	16	0
15½ „	13½	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.

Ditto, not exceeding 1 foot ... 2½ „

Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.

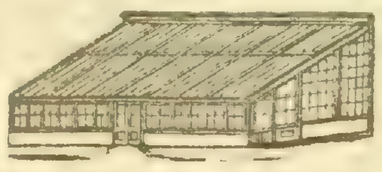
These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

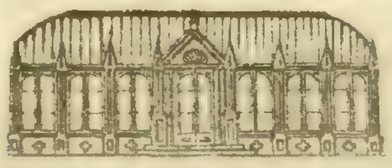
HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.

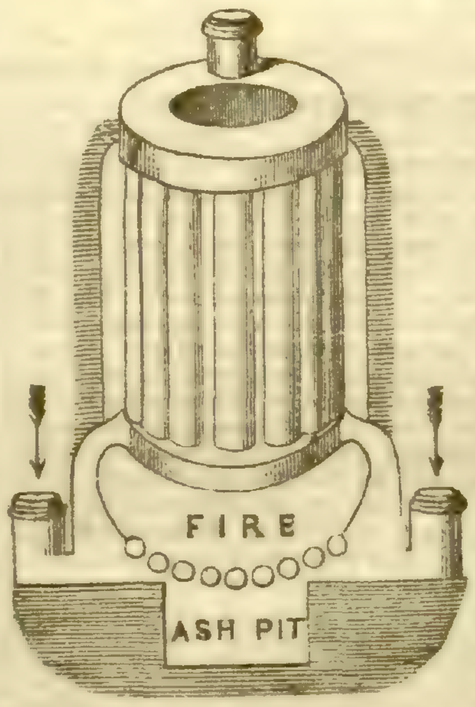
Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.



The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft. and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the late severe winter it only cost us 3*s.* per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *one of our Boilers*, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

JOHN WEEKS & Co., King's Road, Chelsea, London.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

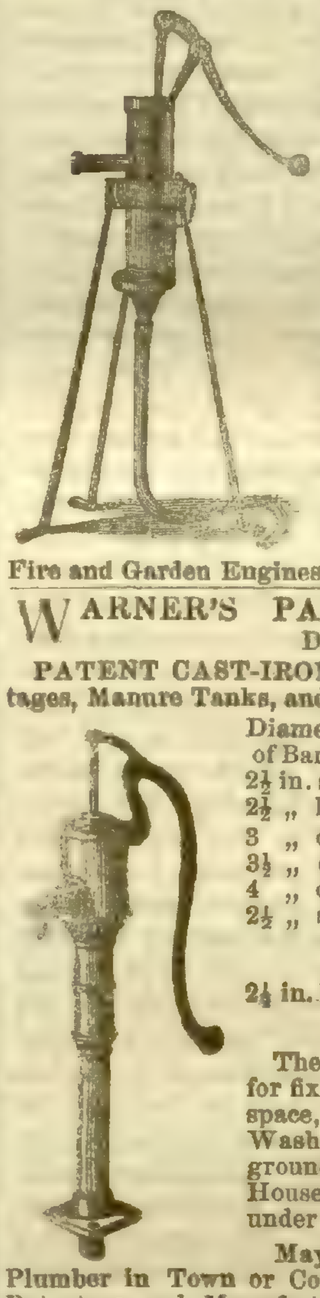
MAPPIN'S PRUNING KNIVES IN EVERY VARIETY, WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

BALUSTRADING FOR GARDEN TERRACES, executed in Austin's Artificial Stone, by J. SEELEY (late Austin and Seeley), Nos. 1 to 4, Keppel Row, New Road.

This work is of the same constitution as Portland Stone, and after a winter's exposure is hardly distinguishable from that material: it has been extensively used in Scotland for 20 years.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	*s.*	*d.*
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1	10	0
2½ „	long 3 „ 3 „	gutta percha,	1	14	0
3 „	ditto 3 „ 6 „	or cast iron	2	8	0
3½ „	ditto 3 „ 6 „	flanged pipe,	2	12	0
4 „	ditto 3 „ 6 „	as required.	3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto	ditto ditto	2	18	0

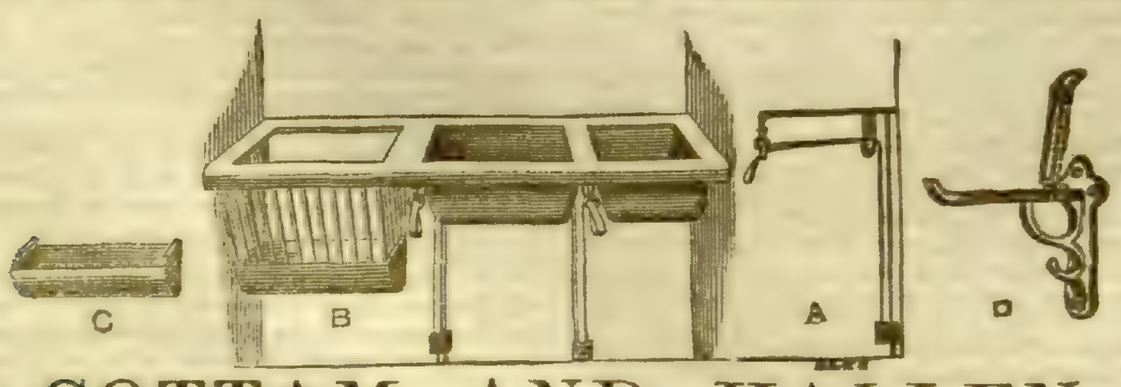
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.

(OBTAINED THE PRIZE PARIS EXHIBITION AWARD.)



COTTAM AND HALLEN

HAVE made important additions to their original Invention of PATENT ENAMELLED MANGER RACK AND WATER TROUGH AT ONE FIXTURE, the main features of which are shown in the above engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

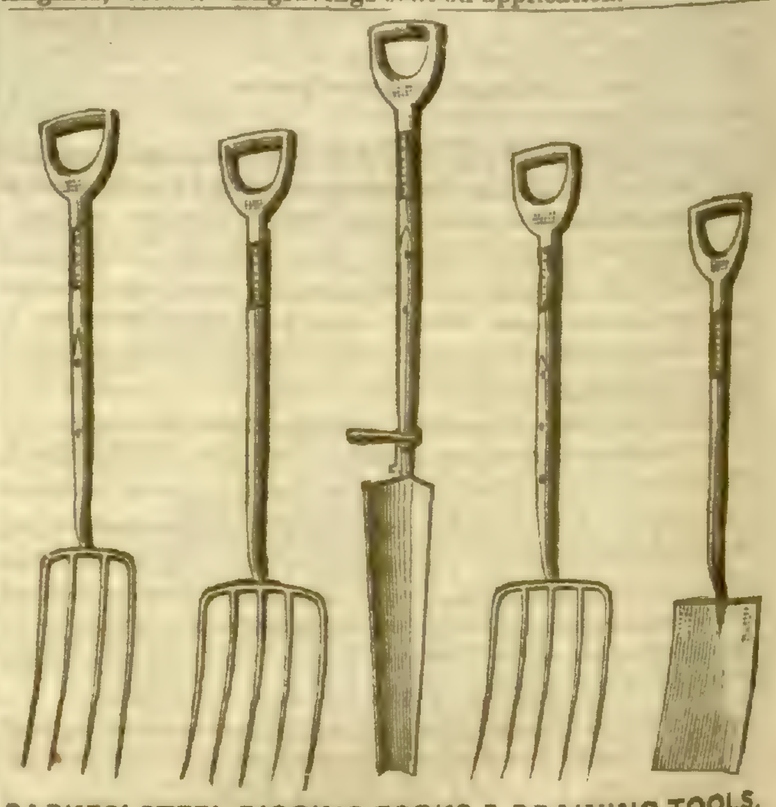
D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—Descriptive Catalogues and Estimates on application.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

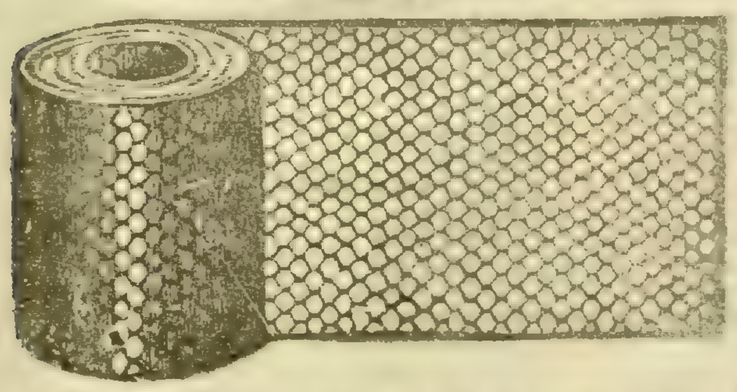
103, Newgate Street, London.

DO YOU BRUISE YOUR OATS YET?—One bushel of Oats when crushed will make two. Great saving. OAT BRUISERS, Chaff-cutters, Ploughs, Threshing Machines, Flour Mill Carts, Corn Dressing do., Horse and Steam Machinery put up, &c. Book on Feeding, 1s.
M. WEDLAKE, 118, Fenchurch Street, London.

TRANSPARENT SHEETING, a substitute for Garden Mats, nearly two yards wide, 1s. per yard run—MUCH APPROVED; thick Canvas ditto, 1s. per square yard; strong Tarpaulings for Carts and Waggons, 2s. per square yard: serviceable second hand ditto, 1s.; Waterproof Capes, to protect a man from wet while stooping down, 3s. each; second hand Policemen's Capes, fresh dressed, 18s. and 24s. per dozen; Horses' Waterproof Loin Cloths, lined with woollen, 7s. each: Driving Aprons, 7s. each; India Rubber Coats, 16s.; Oiled Coats, 7s. 6d.
R. RICHARDSON, 21, Tonbridge Place, New Road, London.

WIRE FENCING, less than 2-inch mesh, in various widths, from 15 inches to 6 feet wide, at 6¾d. per square yard; 3-inch mesh, 4d. per square yard; 4-inch mesh, 3d. per square yard. Galvanized Wire Fencing, 1s. per square yard, 1½-inch mesh. The above Wire-work is made by machinery, and is the cheapest article of the kind in England.—R. RICHARDSON, 21, Tonbridge Place, New Road, London.

GALVANISED WIRE GAME NETTING,
6d. PER YARD, 2 FEET WIDE.



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	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	6d. per yd.	4½d. per yd.
2-inch " strong, do.	8 "	6 "
2-inch " intermediate, do.	9½ "	7½ "
2-inch " extra strong, do.	11 "	9 "
1⅝-inch " 24 inches wide	7 "	5½ "
1⅝-inch " strong, do.	9 "	7 "
1⅝-inch " intermediate, do.	11 "	9 "
1⅝-inch " extra strong, do.	13 "	11 "

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

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1st,—From the frequency and extent of his purchases; and
2dly,—From those purchases being made exclusively for cash.

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Pure Colza Oil, 5s. 6d. per gallon.
Palmer's Candles, 10d. and 10½d. per lb.
Patent Camphine, 4s. per gallon.

The alterations and additions to these very extensive premises (already by far the largest in Europe), which have occupied the whole year, are now nearly completed. They are of such a character that the entire of EIGHT HOUSES is now devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated, and Japanned Wares, Iron and Brass Bedsteads and Bedding), arranged in Sixteen Large Show Rooms, so as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

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will be found a never-failing source of comfort and ease from suffering; enabling invalids to breathe with freedom during the keenest frost and thickest fog. In fine, it possesses every property which can be beneficial in cases of coughs, colds, asthma, and all complaints of the chests and lungs.

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NEW LABEL.—In consequence of the great variety of Counterfeit Labels of A. ROWLAND & SONS' MACASSAR OIL now in circulation, and which so nearly resemble the original as frequently to deceive the unwary—they have employed those eminent artists Messrs. PERKINS, BACON, & Co., who, at great cost, and by a peculiar process of their own, have succeeded in producing from steel "A NEW LABEL," which cannot be forged. It is composed of a section of an engine-turned circle, repeated 130 times, and forms an original lace-work ground, upon which is engraved in white letters, "UNDER THE PATRONAGE OF THE COURTS OF EUROPE," with an embossed profile of Her Majesty "THE QUEEN," lately specially taken for the purpose, and which surmounts the words (also in white letters) "ROWLANDS' MACASSAR OIL, for the growth, restoration, and for beautifying the Human Hair." Under which is the Signature of the Proprietors in Red Ink, "A. ROWLAND & SONS."—Sold by them at 20, Hatton Garden, London; and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.?—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair from whatever cause, strengthen it, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 physicians, for promoting a fine healthy head of hair, and averting baldness. Sold by all Chemists, price 2s., or sent free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London. Mrs. CARTER writes, "My head, which was bald, is now covered with new hair." Mrs. REEVE—"My hair is gaining strength and thickness." Sergeant CRAVEN—"Through using it I have an excellent moustache." Mr. YATES—"The young man has now a good pair of whiskers. I want two packets for other customers."

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MR. MECHI feels it necessary to state (as a contrary impression prevails) that his varied Manufactures can be purchased with the same regard to economy, and at the same prices at his New Establishment, No. 112, Regent Street, as at his City House, 4, Leadenhall Street, London.

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TO GARDENERS.

THE CROWN ESTATE PAVING COMMISSIONERS hereby give notice that they will be ready to receive TENDERS from Persons willing to enter into a Contract for keeping in Order the Gardens or Ornamental Inclosures attached to or situate in front of the several Terraces and Races in and about the Regent's Park; and likewise the Gardens or Ornamental Inclosures attached to Carlton House Terrace, and Carlton Gardens, and to Richmond Terrace. Specifications and Forms of Tender can be had on application to me here, where Tenders are to be delivered at or before 1 o'clock on Wednesday, the 5th day of December next.
1, Whitehall Place, Nov. 19. FRANCIS ADAMS, Clerk to the Commissioners.

TO MARKET GARDENERS.

TO BE LET, with immediate possession, an excellent HOUSE and about 10 ACRES of GARDEN GROUND, situate at Littlemore, three miles from Oxford, on the bank of the river Thames.—May be viewed, and particulars ascertained, on application to Mr. THOMAS PALMER, Littlemore.

TO BE LET, on very advantageous terms, with or without the Dwelling-house attached, FAIRBAIRN'S well known NURSERY GROUNDS, Clapham Rise, established upwards of 70 years.—For further particulars, inquire on the premises, Clapham Rise.

TO BE LET, A NURSERY AND SEED BUSINESS.—JOHN YOUNG begs to say that he is desirous of treating with a Tenant for his Nursery Ground, which he is at present occupying himself, and which offers an eligible opportunity to any one wishing to enter on the business. The Stock is light, and the quantity of Land may be made to suit the convenience of the Tenant.—For further particulars, apply to JOHN YOUNG, Elm Cottage, Taunton.

TO BE SOLD, a CONSERVATORY (a bargain), 20 ft. long by 11 ft. wide, 40l.; one Octagon ditto, 9 ft. diameter, 12 ft. high, 35l.; and several Strong-built Greenhouses, 18 ft. long by 10 ft. wide, 25l.; 12 ft. long by 11 ft. wide, 20l.; 12 ft. long by 8 ft. wide, 16l.; and 10 ft. long by 6 ft. wide, 10l. Window Sashes, Greenhouse and Garden Lights, and French Casements made and glazed with stout 16 ounce sheet glass, from 8d. per foot. Apply to Mr. SMITH, Sash, Shop-front, and Greenhouse Manufacturer, Queen's Row, Pentonville Hill.

ROSE COMBED DORKINGS.

TO BE SOLD, a first prize PEN of CHICKENS of 1855; bred from prize fowls, H. C. at Bedford last week, and fellows to the first prize adult Dorkings at Colchester, 1854.—Apply to Mr. F. OSBORNE, South Street, Colchester.

Sales by Auction.

MONTHLY POULTRY SALE.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 4th December, at 12 o'clock precisely, choice Poultry and Pigeons, including coloured Dorkings, Spanish, Cochins of all colours, Hamburghs, Gold and Silver Polands, Rouen Ducks, &c., selected from the yards of Mr. Breavington, D. Harrisson, Esq., Rev. G. Gilbert, and other amateurs. The Pigeons comprise some first-rate Carriers, &c., from the stocks of W. Hayne, Esq., E. Maddeford, Esq., &c. Also, a Hydro-Incubator may be viewed on the morning of Sale, and Catalogues had by inclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

CAMELLIAS, AZALEAS, RHODODENDRONS, DEUTZIA GRACILIS, ETC.,
FROM MR. J. BEAUMAN, OF GHENT.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on SATURDAY, 1st of December, at 12 o'clock precisely, an importation from Ghent of 600 Camellias, with flower-buds, 200 Hardy Ghent Azaleas, 600 Deutzia gracilis, 100 new Hardy Ghent Rhododendrons, Gladioli, and other bulbs, &c.—May be viewed on the morning of Sale, and Catalogues had.

IMPORTED AND ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on FRIDAY, 7th December, at 12 o'clock precisely, Established and Imported ORCHIDS, including Cattleya marginata, maxima, labiata, intermedia, violacea, and crispa superba, Dendrobium, Dalhousianum, Cypripedium barbatum, grandiflorum, Odontoglossum cervium, Saccolabium guttatum, &c. The imported Plants are from Panama, and consist of Cattleya Skinneri, Oncidium ampliatum major, Trichopilia candida, Epidendrum bicornutum, &c., &c.—May be viewed on the morning of Sale and Catalogues had.

BULBS, STANDARD & OTHER ROSES, SHRUBS, ETC.

MR. HASLAM will Sell as above at the Auction Mart on TUESDAY next, November 27. Catalogues to be had at the Mart.—Epping, Nov. 24.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY, 29th November, at 12 o'clock, a first-class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Snowdrops, Ranunculuses, Gladiolus, &c.; also a selected assortment of Standard and Dwarf Roses, including Hybrids, Bourbons, Chinas, Noisettes, &c.; and American Plants, comprising Hybrid Rhododendrons, Ghent and other Azaleas, Kalmias, Andromeda floribunda, beautifully furnished with bloom buds, &c.—On view the morning of Sale. Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

CHOICE TULIPS.

MESSRS. PROTHEROE AND MORRIS are instructed to offer for unreserved Sale by Auction, at the Mart, Bartholomew Lane, on FRIDAY, November 30, at 12 o'clock, by order of the Proprietor, Mr. George Outrim, of Stoke-upon-Trent, Staffordshire, the whole of his select and costly bed of TULIPS. The proprietor has spared neither trouble nor expense in selecting the best varieties and of the finest strains, and the present is such an opportunity to amateurs to enrich their collections with scarce and valuable varieties as does not often occur. In addition, there are many newly broken flowers from the Seedlings of Slater's, and Norman's, and the best varieties from the celebrated Chellaston Seedlings.—Catalogues may be had at the Mart; of the principal Seedsmen in London and of the Auctioneers, American Nursery, Leytonstone, Essex.

NEW SERIAL WORK BY MR. CHARLES DICKENS.

Uniform with "Dombey and Son," "David Copperfield," "Bleak House," &c. &c.

On the Thirtieth of November will be published, to be completed in Twenty Monthly Parts, price One Shilling each, the First Monthly Part of a New Work of Fiction, called

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THOMAS BARNES having purchased the surplus Stock of the above, which was but partially let out last spring, is enabled to offer fine roots at the following prices, viz., 5s., 7s. 6d., and 10s. 6d. each. Colour rich ruby crimson, of first-rate shape, shown in all T. B.'s stands, as also the raiser's.

T. B. has also a few roots of his splendid Dahlia WARRIOR. Deep crimson, shaded, 10s. 6d each, with all the leading varieties of other raisers.—Dane Croft Nurseries, Stockport.

CHARLES DALY AND SON, Nurserymen, Coleraine, beg to inform the Trade and the Public that they have one and two years' seedling Thorn Quick for sale; Irish Yews, Forest Trees, and Shrubs: Beech, 3 to 4 feet. Hollyberries, 4s per bushel; Haws, 4s ditto; Common Laurel, 12s. 6d. per 1000; Portuguese ditto, 6s per 100; Seedling Forest Trees, cheap. Catalogues with prices free by post.—Dec. 1.

TO PLANTERS AND THE TRADE.

HAY, SANGSTER, AND CO., will Sell the following cheap, as the ground must be cleared:—

Strong Standard Dwarf and Dwarf Trained PEARS,
Do. do. do. GREENGAGE and VICTORIA PLUMS,
Do. do. and half Standard MULBERRY,
Do. do. and Dwarf Trained CHERRIES, [RHUBARB,
PRINCE of WALES, PRINCE ALBERT, and VICTORIA
Strong two years' SEAKALE and ASPARAGUS,
EVERGREEN OAKS, in pots, 3 to 5 feet.

18 and 19, Cumberland Place, Newington Butts, London.

NEW DAHLIAS FOR 1856.

STEPHEN SHILLING begs to offer to Nurserymen, Florists, &c., the following NEW and SUPERB DAHLIAS, raised by Mr. J. Smith, of the Floral Cottage, Crookham.

HELEN SMITH, yellow ground tipped and shaded with orange, well formed flower, good centre, pronounced to be one of the most constant Dahlias cultivated (raised in 1854). Ground Roots, 42*s.* each; or strong plants in May, at 10*s.* 6*d.* each.

LORD CARDIGAN; crimson purple, fine formed flower, with full centre, highly recommended (raised in 1854.) Ground Roots, 42*s.* each; or strong plants in May, at 10*s.* 6*d.* each. A discount allowed where two or more of the ground roots are taken, or where six or more plants are taken in May. Their having been grown two seasons, and fully proved, can be sent out with confidence as first-rate varieties.

John Edwards, Esq., speaks of Helen Smith in 1854: "Flower highly desirable, good build, pleasing colours, and well formed petals." Mr. Turner, in "The Florist" of September, 1855, says: "The flower is of the Malvina form, and making good outline and centre." Six blooms were exhibited at the Basingstoke Horticultural Show, September, 1855, cut indiscriminately from the plants, no shading or care whatever taken, were "highly commended by the judges," and acknowledged to be the best Dahlia there. "The Florist," for September, 1855, speaks of Lord Cardigan: "Sir F. Bathurst form, deeper in colour and fuller; a deep fine formed flower with full centre."

All orders strictly executed in rotation as received.

North Warnborough Nursery, near Odiham, Hants, Dec. 1.

WATERER AND GODFREY respectfully invite the attention of parties engaged in Planting to their fine Stock of the following HARDY ORNAMENTAL TREES, &c.

Araucaria imbricata, 2, 3, 4, 5, 6, 7, and 8 feet high, in quantities, all stocky well grown plants; the larger sizes especially it would be difficult to match.
Cedrus Deodara, 1½, 2, 3, 4, and 5 feet, by the thousand; do. a fine lot of larger, 6, 7, and 8 feet; do. some magnificent Trees, 10 to 15 feet. These are all in a famous condition for Transplanting, having been annually removed.
Cedars of Lebanon, 3, 4, 5, and 6 feet; do. a few splendid Trees, 10 and 12 feet.
Cedars Red Virginian, 5 to 8 feet.
Cedars, variegated white, 2, 3, and 4 feet, one of the handsomest variegated plants we know. We have a large stock. It is extensively planted at Elvaston Castle.
Cryptomeria japonica, fine plants, 4 to 7 feet.
Cupressus macrocarpa or Lambertiana, 3, 4, 5, 6, 7, and 8 feet. Nothing can be handsomer than some of the specimens of this fine hardy plant.
Juniper, Chinese, 2, 3, 4, and 5 feet; a fine lot of large plants, 6 to 8 feet.
Do. Irish, upright, 3, 4, 5, and 6 feet; do. larger, up to 8 and 10 feet. Our stock of the two last mentioned Junipers we believe to be quite unequalled, the Irish especially; the larger sizes are perfect columns.
Do. recurva, 3, 4, 5, up to 8 feet.
Do. hispanica or thurifera, 2, 3, and 4 feet.
Abies Douglasi, 2, 3, and 4 feet. A fine lot of large and very handsome plants, 7, 8, 10, and 12 feet.
Picea nobilis, several hundreds of nice plants, 1½ to 2 feet, well grown, and with good lead. None are grafted. A few taller specimens up to 6 feet.
Do. Nordmanniana, a large quantity of remarkably handsome plants, 1½, 2, 3, and 4 feet. Nothing can exceed the vigour of these plants, and all from seed.
Do. Pinsapo, magnificent plants 4 to 7 feet high, in perfect health.
Pinus insignis, 1½ to 3 feet; a few good specimens up to 7 feet.
" Lambertiana, from seed, 4, 5, and 6 feet.
" Cembra, 3, 4, 5, up to 10 feet.
" Montezumæ, fine plants, 4 and 5 feet.
" macrocarpa, 2 and 3 feet, from seed.
Weeping Larch, clean, stems good, heads 7 feet high.

The following 10 varieties form a very singular group. They are of dwarf habits; the well known Abies Clanbraziliana may be taken as the type of the whole. We believe our collection to be quite unique, and, we may add, most interesting.

Pinus strobus pumila (the dwarf Weymouth).
" sylvestris pumila (the dwarf Scotch).

Abies Clanbraziliana	Abies pumila	All dwarf varieties of the Spruce Fir.
" compacta	" diffusa	
" pygmæa	" Gregori	

Picea pectinata pygmæa (the dwarf Silver Fir), Hudsoni.
Yew, common English, 3, 4, 5, 6, and 7 feet, in large quantities.
Do. upright, Irish, 4, 5, 6, and 7 feet; some splendid plants, 8 to 12 feet.
Do. Dovaston or Weeping, a great many fine plants, worked on straight stems, 7, 8, and 10 feet high, with good heads.
Do. adpressa, 2 and 3 feet.
Do. do., worked on common Yew, as standards.
Do. gold striped, 1½ to 2 feet, by the thousand.
Do. do., a splendid lot of plants, 4 to 6 feet.
Do. do., worked as standards on the common Yew, 8 to 10 ft. high.
Do. do., worked on Irish Yews, 6, 7, and 8 feet high.
Do. elegantissima, or new gold striped; a large quantity, 1½ to 2½ feet, and also worked as standards on the common and Irish Yews. We may safely assert our stock of Golden Yews is unsurpassed.
Do. yellow berried (true), very beautiful when in fruit as we have it, 1½ to 3 feet.
Libocedrus chilensis, 2 to 3 feet, very handsome and bushy.
Thuja Wareana, fine bushes, 3, 4, 5, 6, and 8 feet. This is one of the most useful, and, at the same time, ornamental hardy plants we possess.
Do. American, for hedges, doubtless the very best, 4, 5, and 6 feet.
Do. aurea, or Golden Arbor-vitæ. This plant originated at this Nursery; it has now, as it deserves, become a universal favourite. Our stock of it enables us to offer a choice of many hundred fine specimens, from 1½ to 3 and 4 feet high, and as much through—in fact, perfect globes.
Wellingtonia gigantea, a few of the finest plants in the country, being near 1½ feet high, and as much wide.
Hollies variegated, by the thousand, 2, 3, and 4 feet high. Some splendid Plants, 10 to 15 feet high.

We may here remark with reference to the large specimens alluded to in this Advertisement that every one of them is in a condition to transplant, and travel any distance with perfect safety. They have one and all been annually removed in our Nursery, and in soliciting a personal inspection of our stock, we believe we are justified in stating it offers a choice which is to be found in but few establishments of its kind in this country.

The Nursery may be reached in 40 minutes by Train from the Waterloo Station; and the South Western Railway Company having a Branch on to the North Western, enables us to send plants to all parts, in trucks throughout, without packing and other extensive additions.

Knap Hill Nursery, Woking, Surrey.

GEORGE JACKMAN begs to state his PRICED CATALOGUE of choice CONIFERS, HARDY EVERGREENS and ORNAMENTAL TREES, which are well grown, and constantly removed, also Roses, Standard, Dwarf, and dwarf-trained Fruit Trees, and Forest Trees, can be had on application by enclosing one Postage Stamp.

G. J. respectfully invites persons planting to pay a visit to his extensive nursery, one and a half mile from Woking Station, South Western Railway, where all trains stop, and conveyances can be had.—Woking Nursery, Woking, Surrey.

KINGHORN'S UNEQUALLED NEW SCARLET GERANIUMS.

COUNTESS OF WARWICK.—Beautiful large variegated foliage, white margin, dark horse-shoe, banded with pink, strongly marked, large truss of deep scarlet, the individual flowers of fine form, is of vigorous growth, proved to grow and flower well planted out. Received a certificate at the Royal Botanic Exhibition. Plants in May, 10*s.* 6*d.*

ANNIE.—This is a decided improvement on "The Flower of the Day" and "Silver King," possessing fine large trusses of bright scarlet, the foliage large and flat, margined with pure white, does well planted out, has produced leaves 4¾ inches over, very free grower. Plants in May, 10*s* 6*d.*

GENERAL PELISSIER.—This noble Geranium has been the admiration of all who have seen it, either in pots or bedded out, throwing its numerous globular trusses of orange scarlet flowers, well above the foliage, on strong white flower-stalks, flowers of fine form, with white eye; is of compact vigorous growth, leaves medium size, with dark green margin, distinct horse-shoe, paler green in centre. The best scarlet Geranium ever offered, flowers very free and perfect in the smallest pot. Was awarded a first-class certificate at the National Floricultural Society. Plants in May, 10*s.* 6*d.*

F. R. KINGHORN begs to state that this is the first time that he has advertised any of his numerous seedlings to be sent out by himself, and would most respectfully assure those who may not have seen the above at the exhibitions of the Royal Botanic, Horticultural, Crystal Palace, and National Floricultural Societies, that they are very superior to his former seedlings, "The Flower of the Day," "Attraction," "Silver King," or "Cerise Unique," &c., and that he has the greatest confidence in recommending them, both as pot and flower-garden plants. He may also state that they were noticed very favourably by all the leading periodicals in their reports of the several exhibitions. The usual discount to the trade. A remittance will be required from unknown correspondents.

St. Margaret's Gardens, Isleworth, Middlesex, Dec. 1.

BASS AND BROWN beg to offer the following from their Catalogue just published, which cannot fail to afford full satisfaction to purchasers, for strong growth and superiority of sorts:—

	s.	*d.*
ROSES.—100 dwarfs in 100 very superior varieties ...	60	0
" 100 " 50 ditto ditto	45	0
" 100 " 100 ditto, all selected from perpetual bloomers	100	0
" 100 " 50 ditto ditto	80	0
" Fine selections, per dozen ... ... 6*s.* to	18	0
" 20 superb new varieties for 60*s.*, or 12 for 35*s.*, including Baron Leroy, Madame Lacour Jury, Gen. Jacqueminot, Prince Leon, Lord Raglan, Madame Masson, Emperor Napoleon, Madame Theodore Martel, Duchess of Norfolk, Prince de la Moskowa, &c. &c.		
HERBACEOUS PLANTS.—100 distinct and showy vars., 30*s.*, or 50 for	17	6
100 superior and newer varieties., 50*s.*, or 50 for	30	0
PHLOX.—25 very fine vars., 6*s.*; 25 superb newer vars.	15	0
POTENTILLAS.—King of Crimsons, the finest large crimson, of good dwarf habit, each 5*s.*; Floral Beauty, 2*s.* 6*d.*; Julia, 2*s.* 6*d.*; Negress, 2*s.* 6*d.*; Scarlet Gem, 2*s.* 6*d.*; Shylock, 3*s.* 6*d.*; Sudbury Gem, 5*s.*; Theodore, 3*s.* 6*d.* The above eight beautiful vars. for 21*s.*		
" splendid vars., per dozen ... ... 6*s.*, 9*s.*, and	12	0
HOLLYHOCKS.—Finest sorts, per dozen... 9*s.*, 18*s.*, and	25	0
DWARF ROCK CISTUS, 24 beautiful vars.	15	0
CHRYSANTHEMUMS.—Fine flowering Plants.		
Pompones, 24 vars. in 5-inch pots	18	0
Large flowering, 24 vars., ditto	18	0
HARDY CLIMBING PLANTS, 20 fine sorts	20	0
HARDY FLOWERING ORNAMENTAL SHRUBS, 20 fine vars.	12	0
20 fine newer vars.	24	0
PEACHES, NECTARINES, APRICOTS, and PLUMS, two and three year trained plants, fine and well grown, per dozen ... ... 42*s.* to	60	0
STRAWBERRIES, in 20 newest & best vars. *See Catalogue*		
GOOSEBERRIES, finest prize sorts, 25 vars. for ...	10	6
RHUBARB.—Bailey's Early Monarch, each 2*s.* 6*d.*; Salt's Crimson Perfection, each 7*s.* 6*d.*; the two best early varieties grown.		
Royal Albert, Linnæus, and Victoria Giant, per dozen	7	6
Grayson's Giant Asparagus, fine, per 1000, 30*s.*; per 100	3	6
Seakale, strong for forcing, per 100	10	0
Fine Standard, pyramidal, dwarf, and trained Fruit Trees. *See Catalogue.*		
CAMELLIAS, choice assortments, per dozen ... 30*s.* to	60	0
BULBS AND FLOWER ROOTS.		
CHOICE IMPORTED DUTCH HYACINTHS, in separate colours, per dozen	3	0
Fine named varieties, per dozen ... ... 6*s.* &	9	0
Extra superb varieties, per dozen	15	0
ANEMONES, 50 superb named double varieties	12	6
Splendid mixed, per 100	6	0
Splendid double mixed scarlets, per 100	10	0
Mixed semi-double Russian vars., fine, per lb. ...	6	0
" fine new single, per lb.	4	0
La Brillante Eclatante, extra single bright scarlet, per 100	7	6
GLADIOLUS, 50 splendid vars., early and late	50	0
The following beautiful new early dwarf vars. which flower July and August (for descriptions *see Catalogue*), viz., British Queen, 5*s.*; Eclipse, 7*s.* 6*d.*; Masterpiece, 3*s.* 6*d.*; Rachel Maria, 2*s.* 6*d.*; Sudbury Beauty, 5*s.*; Theodore, 7*s.* 6*d.*		
The above 6 fine and striking varieties for	25	0
EARLY TULIPS, beautiful for pots or open borders, flower a month before the late sorts, 30 fine vars., the best in cultivation	7	6
DOUBLE TULIPS, fine for borders, 10 best vars., 6 of each	10	0
ENGLISH IRIS, 40 splendid and distinct vars.	21	0
Ditto per dozen, 4*s.* to 7*s.* 6*d.*; fine mixed, per 100 ...	10	0
IRIS GERMANICA, flower in May, very beautiful, 40 fine vars. of rich and varied colours	45	0
20 fine ditto 15*s*; 20 vars. best selection	35	0
Fine mixed, per 100, 18*s.*; best mixed, per dozen ...	5	0
IRIS PUMILÆ, early and very dwarf, 10 fine vars. ...	10	0
LILIUM, a superb collection of upwards of 30 vars. *See Catalogue.*		
CYCLAMEN, in 10 fine vars. *See Catalogue.*		
IXIAS and SPARAXIS, finest vars. *See Catalogue.*		
TRITONEA AUREA, a splendid orange Cape bulb (24*s.* per dozen), each 2*s.* 6*d.*		

Also an extensive Collection of other Roots.

CATALOGUES, containing much descriptive and useful information supplied for three penny stamps, or gratis to purchasers.

Post Office Orders payable to BASS & BROWN, or to STEPHEN BROWN. Goods carriage free (not under 20*s*) to all the London termini, and all stations on the London and Norwich Colchester Line. Plants gratis with orders of 40*s.* and upwards.

Seed and Horticultural Establishment, Sudbury, Suffolk.

MESSRS. E. G. HENDERSON AND SON beg to announce that they have now received their noted collection of HYACINTHS in excellent condition, and for the assistance of those persons unacquainted with the culture of the Hyacinth, printed instructions will be given gratis with each order they are kindly favoured with, Catalogues of which, together with their Plant and Seed Lists, will be forwarded post free on application.

CUCUMBER HENDERSON'S NAPOLEON III., in packets, 3*s.* and 5*s.* 6*d.* each.

CALCEOLARIA, CINERARIA, and PRIMULA SEED of first quality, 2*s.* 6*d.* and 5*s.* per packet.

FUCHSIAS.—Banks' Favourite, 10*s.* 6*d.*; Prince of Wales, 10*s.* 6*d.*

NEW RHODODENDRONS.—Boothi, Hookeri, Calophyllum, Kendricki, Eximium Windsori Leucanthum.

GYNERIUM ARGENTEUM (PAMPAS GRASS).—E. G. H. & SON having in their possession the largest stock in the country of this noble ornamental Grass, can supply free healthy seedling plants, which are superior to any other at 2*s.* 6*d.* each, 25*s.* per dozen, or 7*l.* 10*s.* per 100.

Wellington Nursery, St. John's Wood.

TREE CARNATIONS.
"FLOWERING WINTER AND SUMMER."

YOUELL AND CO. have now to offer a fine stock of all the best varieties of the above deservedly favourite class, which cannot be too strongly recommended, not only for their fragrance, but the brilliant display they afford during the autumn and winter months, either in the Greenhouse, Conservatory, or open Garden. In Bouquets they are unsurpassed. Strong plants in pots, 18*s.* per dozen.

They also beg to call attention to the following:—

CARNATIONS AND PICOTEES.

Our collection of the above is probably the most extensive in Europe, having for a series of years bestowed our special attention to their cultivation upon an extent that enables us to offer—

The choicest varieties by name at 18*s.* and 24*s.* per dozen pairs		
Fine mixed border ditto	9*s.*	"
Fine old Clove Carnations	12*s.*	"
True White ditto	18*s.*	"

Pinks, comprising all the new first-class show flowers, 9*s.* and 12*s.* per dozen pairs.

All orders of 2*l.* and upwards are delivered, carriage free, to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from one to six feet.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

NEW OR RARE PLANTS AT REDUCED PRICES.

MESSRS. WILLIAM ROLLISSON AND SONS are now prepared to offer the annexed:—

TYDÆA ELEGANS.—A most beautiful plant from New Grenada, with bright scarlet flowers; 10*s* 6*d.* each.
BIGNONIA CHRYSOLEUCA.—A distinct new species semi-creeper, the blossoms are yellow, tipped with white; 15*s.* each.
COLEUS BLUMEI PECTINATUS.—A very distinct variety, the foliage is variegated similar to Coleus Blumei, but the leaves are beautifully laciniated; 5*s.* each.
MANDIROLA ROEZLI.—An extremely handsome gesneraceous plant producing fine spikes of lilac-coloured blossoms; 15*s.* each.
VACCINIUM ERYTHRINA.—A truly magnificent plant sent us by our collector Mr. John Henshall; the flowers are produced in bunches, of a bright crimson colour; 31*s.* 6*d.* each.
ARAUCARIA COOKI.—Handsome well formed seedling plants; 84*s.* each.
AUBRIETIA MOOREANA.—A new and distinct beautiful flowering Alpine plant; 5*s.* each.
MANDIROLA LANATA.—A pretty gesneraceous plant, of a delicate violet colour inside the mouth of the blossoms, and shaded lilac outside; 15*s.* each.
ORTHOSIPHON SPICATUS.—This plant has been recently introduced from Ocana, and is a great acquisition, its foliage being deliciously fragrant; its blossoms are large and white; 10*s.* 6*d.* each.
BEGONIA SPLENDIDA.—This exquisite plant has been discovered and sent us by our collector Mr John Henshall, during his researches in the Indian Archipelago; as an ornamental plant it is unequalled, 21*s.* each.
LASIANDRA HOIBRENKI.—This is a very distinct and handsome plant, with very large beautiful blue flowers, and pretty ornamental foliage; 10*s.* 6*d.* each.
PASSIFLORA ALBA-NIGRA.—As the name implies, this is a very distinct new greenhouse climber; 5*s.* each.
ERICA ÆMULA.—A very beautiful hybrid, in the Erica Massoni section, of a fine bright crimson colour, after the style of Erica aristata, but very much higher in colour; 10*s.* 6*d.* each.
ERICA EXIMIA SUPERBA.—This variety may really be said to be three times as fine as the parent, whose name it bears; it is a very compact grower and excellent in habit, with tubular blossoms of a fiery scarlet colour; 21*s.* each.
ERYTHRINA COTTYANA, a superb variety, producing immense spikes of blossom, with flowers of a very rich deep scarlet colour; 5*s.* each.
CRYTHRINA BELLANGERI.—The free flowering character of this plant renders it a great acquisition. Cuttings struck in the spring blossom profusely through the summer, which is not generally the case with the other sorts, as they do not usually flower until the second year after being propagated; 5*s.* each.
RHOPALA ORGANENSIS, an exquisite ornamental Stove Plant, far exceeding in beauty any other sort in this family, 31*s.* 6*d.* each.

The Nurseries, Tooting, London.

SAYNOR AND COOKE'S KNIVES *may be procured from* Messrs. SUTTON and SONS, Seed Growers, Reading, *who have for many years been supplied direct from* Messrs. SAYNOR'S Manufactory, *and none others are kept on* Messrs. SUTTON'S Premises.

CROCUS, TULIP, AND HYACINTH BASKETS, with Wire or Zinc Linings, for suspension or for table stand; also Bracket Baskets made and Japanned in a variety of colours and designs, by W. RICHARDS, Imperial Wire Works, 370, Oxford Street. Conservatories fitted up.

Window Blinds and Wirework of every description.

OLDENBURG NECTARINE.

MESSRS. VEITCH AND SON, of the Exeter and Chelsea Nurseries, having received the stock of the above valuable NECTARINE from the raiser, Mr. Madge, gr. to Miss Fanshawe, of Torquay, respectfully announce that they are now prepared to supply good trees on the following terms:—

MAIDEN TREES, ... 7*s.* 6*d.* each
DWARF TRAINED ... 10*s.* 6*d.* and 15 0 „
With one over on threes to the Trade.

A few extra-sized Dwarf-trained, and Trees in pots for Orchard Houses, at 21*s.* each.

The OLDENBURG is believed to be a cross between the ELRUGE and WHITE NECTARINES; fruit of it exhibited on the 2d of October last, at a meeting of the Pomological Society, elicited the following very favourable report, which appeared in the "Cottage Gardener," on the 9th of that month:—"The most interesting part of the exhibition was the examination of a new Peach and Nectarine from Messrs. Veitch & Son, of Exeter and Chelsea. The Nectarine, which was called the Oldenburg, was one of a very superior quality, and contrasted considerably with the five specimens of Stanwick in the same collection, which were very inferior in flavour. The Oldenburg is a medium-sized fruit, somewhat similar in size to the Elruge. It is ovate in shape, and very much covered with very dark red, except where shaded by the leaves, when it is pale yellow. The flesh separates freely from the stone, is very melting and juicy, with a rich sugary and vinous flavour; it is yellowish white throughout, and even at the stone there is not the slightest trace of red. The fruit seems to keep well after being gathered, and shows a disposition to shrivel without decaying."

In our advertisement of OLDENBURG NECTARINE, inserted last Saturday, the price of *Maiden Trees* should have been 7*s.* 6*d.* each, and not 2*s.* 6*d.*

Nurseries, Exeter and Chelsea.

WILLIAM IVERY begs to inform his friends and the public that he is now prepared to send out his splendid Seedling CINERARIA, ADMIRAL DUNDAS, which was awarded a Certificate at the National Floricultural Society, April 20th, 1854, and has been much admired for its compact habit and form of flower, colour white ground, with deep rich plum margin, 7*s.* 6*d.* each. Also a few Plants of that much-esteemed CINERARIA, MRS. TRUELOVE, 7*s.* 6*d.*

W. IVERY can with great confidence recommend the above two to be the best ever offered. W. IVERY can also supply all the best INDIAN AZALEAS, well set with bloom, in 54 and 48-size pots, from 12*s.* to 18*s.* per dozen; also all the leading kinds of Hybrid, Perpetual, Tea-scented, Bourbon, and Noisette ROSES, on their own roots, in 60-sized pots, well established, from 12*s.* to 18*s.* per dozen.—A select Catalogue of the choicest Geraniums, Fuchsias, &c., may be had on application.

N.B.—A choice collection of Ornamental Shrubs and Fruit Trees. Mushroom Spawn of the finest quality. The trade supplied.—Hanover Nursery, Peckham, near London, Dec. 1.

CHOICE PLANTS, ETC.

YOUELL AND CO. beg respectfully to call attention to the following, which they are now sending out in fine strong plants:—

AZALEA, varieties of Indica, comprising the following and other equally choice kinds, good bushy plants in large and small 48 sized pots, at 12*s.* and 15*s.* per dozen, viz.: Aurantia elegans, Exquisite, Fulgens grandiflora, Constance, Prince Albert, Murrayana, ignescens, Lateritia grandiflora, Conqueror, Emily, Decora, Rosea punctata, carminata.
CAMELLIAS, in choice new kinds, without bud, 21*s.* per dozen.
EPACRIS, of finest varieties, bushy plants in 48's, 12*s.* per doz.; smaller ditto, 9*s.*
GLOXINIAS, a very choice collection of all the new varieties, strong bulbs, 18*s.* per dozen.
GREENHOUSE PLANTS, in 50 best kinds, for 50*s.*
EUGENIA UGNI, a new Myrtaceous of easy cultivation, producing delicious fruit now being used for dessert, good plants, 2*s.* 6*d.* each.
STATICE MARITIMA ROSEA, and PSEUDO ARMERA.—Strong plants of these two beautiful hardy herbaceous species, producing throughout the year a profusion of deep lake coloured flowers, 3*s.* per dozen.
GYNERIUM ARGENTEUM, the New PAMPAS GRASS, 2*s.* 6*d.* each, or 24*s.* per dozen.
CINERARIAS, a choice collection of all the best kinds, 9*s.* per doz.
PHLOXES, a selection of all the new and handsomest varieties of this much admired flower, 9*s.* per dozen.
PHLOX, Countess of Home (Downie & Laird), fine strong plants of this, the finest Phlox yet offered, 5*s.* each.
PANSIES, a fine collection of all the new and first-rate flowers, 9*s.* per dozen.
HYACINTHS, very fine double and single red, white, blue, and yellow, by name, 9*s.* per dozen; extra fine ditto, 12*s.* per doz. These comprise the varieties so highly recommended in the *Gardeners' Chronicle* of the 21st July, 1855.
DEUTZIA GRACILIS, fine strong plants for forcing, 9*s.* per doz.
LILY OF THE VALLEY, strong for forcing, 5*s.* per 100.
PÆONIES, a choice collection of 20 new varieties for 20*s.*
ROCKETS, double crimson (strong), 9*s.* per dozen; the old double pure white ditto, 3*s.* per dozen.
HERBACEOUS PLANTS, a very extensive and select collection of the handsomest kinds including those adapted for rock work, 6*s.* per dozen; 30*s.* per 100.

CHOICE FRUITS, WARRANTED TRUE TO NAME.

APPLES,	Standard, in best selection, good heads,			9*s.*	per dozen.
„	Dwarf	ditto	ditto	6*s.*	„
„	Trained	ditto	ditto	30*s.*	„
PEARS,	Standard	ditto	ditto	12*s.*	„
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„	Trained	ditto	ditto	30*s.*	„
PLUMS,	Dwarf	ditto	ditto	9*s.*	„
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PEACHES,	dwarf trained, in fine strong plants,			36*s.* to 60*s.*	„
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„ „ 3 years	3 6	„
„ „ extra strong, for forcing	5 0	„
RHUBARB, Myatt's Victoria	8 0	per doz.
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Woodlands Nursery, Maresfield, near Uckfield, Sussex.

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„ Vaillant	5	0	„ Theodore	5	0
General Jacqueminot ...	3	6	„ Cambacères	5	0
Gloire de France	3	0	„ Vidot...	7	6
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Madame Guinoiseau ...	3	6	Lord Raglan	5	0
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Prince de la Moskowa...	5	0	Panaché d'Orleans	5	0
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For a full description of the above see Catalogue, which may be had on application.—Dec. 1.

NEW ROSES.

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HYBRID BENGAL.—Empress Eugénie, very vigorous plant, flowers 3 to 3½ inches in diameter, cup-formed, very full; exterior, deep or purple red; interior, light silver pink; sweet perfume. This Rose somewhat resembles "Souvenir de la Malmaison," and is very hardy, having withstood the severe winter of 1854-5 without the least injury. Price 25f.

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The above deliverable immediately.

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ROBERT SALT begs leave to inform the Gentry, Nurserymen, Gardeners, &c., that this splendid variety of RHUBARB is now ready for distribution; it is universally allowed to be the most early, prolific, and delicious variety ever offered to the public. See *Gardeners' Chronicle*, June 11, 1853:—"Very good, and of a most beautiful crimson; compared with others, it is remarkable for the small amount of acidity it contains."—ED.

Certificates of merit were awarded for specimens exhibited at the meeting of the Horticultural Society, Regent Street, London, June 20, 1853; at Nottingham, May 24, 1854; at Derby Midland, May 25, 1854; at Ormskirk, Lancashire, August 30, 1854.—Price 3*s.* 6*d.* per root, three for 10*s.*, and six for 1*l.* A few two-year-old Plants at 5*s.* each.

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Longton, Dec. 1.

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WATERER'S AMERICAN PLANTS.—A new DESCRIPTIVE CATALOGUE is now published of the celebrated Collection of hardy Scarlet and other Rhododendrons, as exhibited by JOHN WATERER at the Royal Botanic Gardens, Regent's Park; it will be found to contain a few practical observations on their successful management, and will be forwarded on application by enclosing two stamps for postage. Apart from its enumeration of the most popular American Plants in cultivation, a List of choice Coniferæ will be seen, embracing the latest importations of this fine and hardy tribe of Plants.

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☞ The attention of gentlemen, public companies, and others engaged in planting, is especially directed to the foregoing; indeed, all intending planters would be well repaid by a visit to inspect our stock, as much may be seen which of necessity cannot be given within the limits of an advertisement.

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The above are well grown, and of a suitable size for making specimens. The usual discount to the trade when taken per 100.

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Horticulturists and Agriculturists residing in the most remote parts of the kingdom, can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to

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WEST OF ENGLAND HORTICULTURAL AND AGRICULTURAL SEED ESTABLISHMENT.—*The* PROPRIETORS *have during the past summer considerably enlarged their Offices and Seed Warehouses at a considerable expense, so as to be enabled to execute all orders with regularity and dispatch.*

With increased exertion, redoubled energies, and more assistants, they hope to give the greatest satisfaction to all who honour them with commands.

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 1, 1855.

THE difference and varying contrasts of colour in the foliage of trees which add so much beauty to the landscape at this period, must, one would think, ere now have attracted more notice from gardeners and ornamental planters than they appear to have done. If our observations on this subject seem to our readers worth attention, it should be remembered that this is the season for observing, and where necessary, planting or transplanting trees for effect, as their tints are *now* in full autumnal beauty; many combinations that look well in summer when all are green, having a totally different effect now. Can we deduce any *rules* or canons as to taste in the arrangement of colours in trees? we know that in music certain notes harmonize with each other, and why should not some similar rules be laid down as to foliage. It may be considered a fanciful *crotchet*, perhaps, but we think it may be well worth the attention of landscape gardeners, and if others will join in contributing their ideas and observations we may arrive at some general definite rules for guidance.

What we mean is this, that we too often see a confused mass of foliage in clumps and ornamental plantations, which are as displeasing to the eye and taste as others are agreeable, and being something of amateur artists, we have endeavoured to analyse the why and wherefore. The result appears to us to be thus: all ornamental *groups* (we are not now writing of forests) ought to consist of trees which please, either by *contrast* (and that not too strong) or by harmony; and generally only two or three species ought to be placed together; a group of three, five, or more trees ought to consist of either one-third deciduous and two-thirds evergreens, or *vice versâ*. The species which we remark suit best with each other are these:—

1. Common *Oak*, with the Scotch Fir and other Pines related to it makes a very agreeable combination, such as Pinus Montezumæ, Pyrenaica, Massoni, Pinaster, perhaps Austriaca, but not Laricio. Cupressus Uhdeana and funebris. The scarlet or red American Oaks, on the contrary, would look too glaring with these Firs.

2. *Beech*, common or purple variety, always unites well with the Spruce. Here we have *harmony* of colour and growth, and *variety* in shape (one being round-headed, the other pyramidal). With Beech ought to be planted Abies excelsa, rubra, alba, Khutrow or Morinda, orientalis, and perhaps Douglasi; also Cupressus macrocarpa *aliàs* Lambertiana, and C. Goveniana.

3. *Ash* and Mountain Ash: this combines admirably with the *Silver Firs*; its graceful sweeping branches contrast with the stiff formal horizontal lines of the latter, including all called Picea in books. Also Laricio and Araucaria imbricata (this

last is no favourite of ours, but it looks better grouped with Ash than in any other way, we think).

4. *Spanish Chesnut* and Weymouth Pines, Strobus, &c., Ayacahuite, Lambertiana, excelsa, Coulteri, Sabiniana, and macrocarpa; Birch may also be added.

5. *Maple and Sycamore* (and in some situations the Plane) will look well mixed with the *Cedars* of Lebanon, African, and Deodar.

6. The *Larch* mixes well with Yews and Taxodium sempervirens.

7. The *Wild Cherry* and scarlet Oaks require a bright green, such as Pinus insignis.

Elms, Horse Chesnuts, and Limes ought, in our opinion, to be planted by themselves on a *flat* surface near roads or buildings; they are unsuitable for mixing with Conifers, as are all the Poplar tribe.

Hollies, Junipers, Box, Laurels, and Rhododendrons harmonise well with almost all, and form in clusters a good base for a group.

These appear to be the best principles for a planter—at least to our own eye, but other persons may have different tastes. It is observable that when growing *wild* all natural trees and shrubs harmonise well with each other; but we have now such a number of foreign Pines collected from the four quarters of the globe, that we can hardly expect them to look well indiscriminately mixed like patchwork on a harlequin's jacket. When judiciously chosen they will form the greatest ornaments of parks and pleasure grounds. These remarks will be made more intelligible if our readers who intend planting would get a few small branches of each of the trees above named, and arrange them on a table as has been formerly suggested; they will then *see* the effects of judicious and injudicious mixtures in combination. *C. D.*

In Payen's charming little book on the diseases of some of our principal agricultural plants, which forms part of the French "Railroad Library," two maladies are described which affect the Sugar Beet, differing far more in their chemical than in their external characters. In the one the sugar is either already turned into glucose, or has such a tendency to this chemical condition, that every root which is affected is at once cast aside by the manufacturer as useless, inasmuch as he knows from experience that it will yield nothing but molasses; the reaction of the diseased tissue is acid, and the glucose itself gradually vanishes, as the starch does in the tubers affected by the Potato murrain. In the other disease the reaction is alcaline; the density of the juice is sensibly diminished, and the return of sugar is reduced in the proportion of 10 to 8 or 10 to 6, though sugar is still produced instead of glucose. We do not recollect that the subject has been noticed before in this Journal, and as there are some interesting points about it, we have taken occasion of a communication of some slices of diseased Mangel Wurzel from one of our correspondents, accompanied by a few details as to the case, to call attention to the maladies so well described by Payen.

The specimens before us agree in several respects with Payen's first disease. The tissues are affected principally on one side of the root, being injected or saturated with brown matter like that of diseased Potatoes; the affected tissue after long boiling is harder than that of the sound cells; the reaction is acid,* and the glucose drips out abundantly from the diseased portions. Previously to the affection of the roots the foliage had become yellow, and had in great measure perished. There appears to have been nothing in the agricultural treatment likely to produce disease, the ground being well-drained, and the manure of an ordinary character. It is stated, however, that the bottom of the roots was affected first, and that the disease was in all cases confined principally to the part of the root beneath the soil or immediately above it; to that part of the plant indeed, which in a healthy condition contains the greatest quantity of sugar. Now as regards the first disease of Payen, nothing is said of the probable cause, whereas in the second case, not only is a reason assigned, but a mode of treatment suggested which has proved successful, and may possibly be useful in cases of diseased Mangel Wurzel, as well as of Sugar Beet. For though the chemical condition may be different, the original cause may have been the same and the two maladies may be modifications of one and the same disease.

It appears then that this second affection commences uniformly at the very lowest point of the tap root, or of the numerous adventitious radicles, the spongelets at the same time being much decomposed, and incapable of transmitting pure and healthy fluid to the plant. Crops like Beet are often grown for many successive years in the same ground, and when the produce is lifted a portion of the root is almost always left behind, equal frequently in length to that which is secured for storing. The plough penetrates only half-way down, and fragments of the old roots are, therefore, left to decay in the soil, and may injuriously affect the descending root of the new crop, so as to render it unhealthy. Some proof that this is the case is afforded by the fact that while plants from seeds sown on the spot are affected, transplanted individuals in which the tap root is broken, and in which the adventitious roots do not consequently descend so deep, remain perfectly healthy.

We do not indeed feel convinced that the evil is due to noxious gas ascending from beneath, or to want of oxygen, inasmuch as the transplanted roots which are equally exposed to any ascending noxious matter do not fail. It is, however, well worth the cultivator's while to consider whether he is right in planting such a crop year after year on the same land, and if he does, as such plants abound in alcalies, whether he ought not to take some pains to restore the necessary loss of such matter, and if he does not whether he ought to be surprised at any failure. It must, however, be remembered at the same time that too strong a proportion of alcalies is unfavourable to the production of sugar, and in the cultivation of Mangel Wurzel the same principle will hold good to a certain extent, though in the Sugar Beet part of the evil arises from the practical difficulty attendant on the separation of the sugar where the proportion of alcalies is excessive. *M. J. B.*

* After boiling for three or four hours, neither litmus nor turmeric paper were the least affected by contact with the tissues.

New Plants.

150. Lycaste mesochlæna, *Rchb. f. in Bonplandia.*

L. *mesochlæna*; spathâ subrotundâ ventricosâ apiculatâ columnæ longitudine, mento obconico obtuso infra spathæ basin producto, sepalis oblongis: lateralibus multò majoribus, petalis lanceolatis minoribus, labelli lobis lateralibus semiovatis obtusis incurvis nanis intermedio oblongo obtuso margine inferiore lacero superiore integro, appendice retuso secus unguem sulcato, columnæ facie villosâ.

Among a collection of Orchids formed by Mr. Warczewicz at the head waters of the Marañon, and sold by Stevens in May, 1853, was one named provisionally *Maxillaria conica*, and represented to have ivory white flowers, on the authority of a drawing made by M. Warczewicz in its native country. It was especially remarkable for a very large inversely conical spur, and a great inflated spathe. One of the plants then sold has just flowered with the Lord Bishop of Winchester, at Farnham Castle; but with green, not white flowers; a circumstance that may be owing to the season of the year. The only white about the blossom is to be found on the column and outside the spur. The lip is dull yellow like that of *L. Barringtoniæ*, to which it nearly approaches, as it also does to *L. ciliata*, both which species have the lip fringed throughout the edge of its middle lobe. Here, on the contrary, the upper half is perfectly entire, the fringe being confined to the lower part. Prof. Reichenbach has a *Lycaste mesochlæna*, from Warczewicz's collections, the description of which reads so much like this that although he does not notice the peculiarity of the lower half only of the middle lobe of the lip being fringed we cannot doubt its being the same plant, and therefore adopt his name; but we may add that it is uncertain whether the plant ought not to be referred to *Lycaste costata*.

The species before us belongs to a race in which the column, next the lip, is always more or less shaggy with dense hairs. Can any one suggest the use of so unusual an apparatus!

We learn from the noble prelate, in whose rich collection this has first opened its flowers, that, although the blossoms want colour, the habit is particularly good, the stem standing up well and showing them to great advantage. They are among the largest in the genus, measuring 3½ inches in length before opening.

151. Catalpa Bungei, *De Candolle.*

The name Catalpa is so associated, in this country, with delicate and beautiful flowers that it is as well to mention that the plant at the head of this notice resembles it in little except name. It appears from a statement by M. Jacques, formerly the Royal gardener at Neuilly, that it forms but a small tree 2 or 3 yards high, with a slender stem and heart-shaped leaves with an unpleasant odour like that of Stramonium. The flowers grow in small terminal panicles, but are small and yellowish green, except the interior of the tube, which is dotted with brownish purple, and marked with a few yellow streaks. The plant, therefore, although hardy, has little to recommend it.

VEGETABLE PATHOLOGY.—No. XCVII.

388. Sclerogenia.* (*Induration of Roots, Tubers, &c.*) This perhaps would more correctly come as a subdivision of Phytolithes, inasmuch as it depends upon a similar principle, but the phenomena are so distinct that I follow Meyen in placing it under a distinct head, remarking with him that it is Ré's Fitoliti di Radice.† Like grittiness in Pears it is a reversion from the hypertrophied productions of art, to the more solid forms exhibited by plants in their natural condition. It is, however, as far as the interests of the cultivator go a formidable disease, and as such deserves to be treated separately.

389. Two forms of this malady may be distinguished, the first in which the walls of the cells are indurated, though the induration in such cases never equals that which is so common in Pears; the second in which the woody tissue itself accompanying the vascular bundles, as well as the vessels themselves, becomes solidified, and instead of presenting the delicate nutritious mass which renders the several organisms which are affected useful for food, yielding nothing except a woody mass completely indigestible. The new layers of woody matter which are thus deposited, grow at the expense of the contents of the several cells; and hence all their useful products, such as starch, gum, sugar, or proteinous matters, are wholly suppressed or diminished to a greater or less extent in quantity. Both these forms may exist together or separately, and according to the organs which are affected, or their several relations is the extent of mischief. The first is far less common than the second, at least separately. Slight cases of the second often exist in soft tubers like Potatoes, where the general cellular mass is altogether unaffected; and such tubers are known familiarly as stringy, a state which is by no means incompatible with great perfection in other respects, and even with a superabundant development of fecula, the same cause probably which produced thickening of the walls of the vascular tissue having induced an excessive development of starch granules in the cells.

390. Every case, however, in which the cellular tissue of such organisms is indurated does not come under this head. All those cases must be excluded in which a greater or less degree of decomposition accompanies the induration. Tissues may become hard from large deposits of humates or other analogous substances, and may in consequence resist prolonged boiling when neighbouring tissues give way under the process.

391. The most complete cases are those in which without any change of colour all the tissues acquire a firm and woody texture, or in which while the cellular tissue is little affected the vascular bundles and their accompanying wood cells are completely solidified, so as to have their cavities entirely obliterated. This may take place without any change of size. The tubers, roots, &c., may be just as plump as ever, and give no external sign of mischief, whereas on examination they may be either quite unfit for food in consequence of their hard, close, stringy texture, or their nutritious properties may be so diminished as to make them comparatively useless even for cattle feeding. In such cases not only does the external appearance of the tubers remain the same, but the condition of the foliage does not indicate any evil. In other instances a great diminution of size takes place, and this is predicated by the plant itself having sent up a flower stem, to the exhaustion of the root.

392. Amongst seed selected with the utmost care from picked plants, there will be always some which have a tendency to revert to the original wild condition, and this tendency is of course purely constitutional. A tendency, equally constitutional, may exist in other individuals to form indurated tissue where that tissue is in general soft and delicate. Against such tendencies little can be done on the part of the cultivator. At times all his care will meet with only partial success. Such evils may, however, arise where there is no constitutional tendency at all; dry and ungenial weather, a penurious supply of manure, bad drainage, &c., may prevent the development of the more succulent parts and induce the deposit of ligneous matter instead of those substances which are more immediately profitable to the cultivator. But though he cannot always guard against mischief, it is quite certain that the more perfect his cultivation is and the more carefully he selects his seed, the more certain he will be of general success. Nevertheless, however perfect his cultivation may be in other respects, he will be always liable to vexation if his seed be taken indiscriminately from bad or good individuals, or if he obtains it at a low rate from quarters on which he ought not as a prudent man to place dependence.

393. Fruit may be affected to a greater or less extent in a similar way. Apricots, for instance, during the present year, though perfectly ripe, were frequently so stringy as to make their use almost disagreeable. This was, doubtless, owing to long continued drought; but I have observed the same condition to hold good in highly favourable seasons, where too large a crop had been left. From a similar cause individuals often become hard, but such fruit always falls off prematurely. *M. J. B.*

* From σκληρος hard, and γιγνομαι, I become.

† This, however, is true only to a certain extent. The especial instance brought forward by Ré is in all probability identical with the disease called Potato curl.

PROBABLE CHARACTERS TO BE LOOKED FOR IN A SEEDLING PEAR-TREE.

It is by no means a difficult task to discover in a seedling Pear-tree the indications of its probable worth. It is only necessary to observe the characteristics of five or six good varieties raised in the end of the last century, which have been worked on the Pear stock, and which bear good fruit when the trees are placed in the conditions required for producing well. It is then, also, that the characters are displayed to the fullest extent in the stem, in the branches, in the shoots, the wood, the fruit, and the leaves.

Once these distinctive characters are understood it is easy to discover them in seedlings, and the estimation of

the value of one of these becomes a matter regulated by skilful investigation. Nevertheless, it is necessary to state that these characters are much more prominent in the more recently improved sorts, and are, therefore, more easily recognised and placed beyond doubt.

An experienced practitioner finds the first indications of a promising seedling in the seed leaves. If these have long petioles, and are themselves long, narrow, of a delicate green, and deeply serrated at the margin, with the surface finely and delicately reticulated, there is a good prospect; if, on the contrary, the petiole is short and thick, the leaf round, thick, without serratures, white or cottony, without distinct reticulations on the surface, there is not much chance of the seedling proving good. If the plumule, on becoming a stem, is short jointed and forms wood buds of a conical shape, at one foot above the soil, it is a good sign. If on a grey, hazel, or pale greenish brown-coloured bark, grey ash-coloured specks are here and there visible, it is a still better sign. If, on the contrary, the seedling has a stem which does not bear itself erect, and has distorted irregular branches at unequal distances, no confidence can be placed in it. These marks rarely occur at the present time among seedlings raised from the more recently improved varieties of the Pear. A smooth shining bark, soft to the touch, of a brown, hazel, lead colour, fawn, or reddish, the whole sprinkled more or less closely with pale specks, or lenticular glands, is also considered to be a favourable indication; so it is likewise when the mature wood of the one year old shoots breaks clean. It is not, however, in the first or second year that one can judge of a seedling by its characters; for these are more distinctly marked in the second year after transplanting. The best time for making comparative observations is at the fall of leaf. It will then be seen that promising seedlings have leaves possessing the good characters above described, and a moderately thick stem, furnished with large prominent well swelled wood-buds.

It will also be observed that some of the seedlings have produced shoots forming wide angles, or are spreading; others spurs; some slender fruit-bearing twigs; others short spines on the stem and on the branches, which are furnished with four or five prominent wood-buds. Two or three well formed leaves, and a large plump terminal bud will be perceived at the extremity of each of the shoots. A disposition to bear spines is, in general, the surest sign of the beauty, delicacy, and long-keeping of the fruit. The contrary opinion is generally maintained; but it can only be considered as an old-fashioned prejudice. In fact, at the present day it is generally admitted that fine, smooth, spineless wood betoken a summer fruit. Spineless wood with thick downy leaves is the sign either of a musky summer Pear, or of a winter stewing Pear. I know of only one exception to what has been stated respecting downy leaves, and that is those of the variety called the Comte de Flandres; but this variety, on the other hand, possesses all the other characters of a good winter fruit. In this case it may be said there is no rule without exception. Fine spines along the branches and young shoots, the latter weak and twisted, form an assemblage of characters of bad omen, especially when these characters continue to be reproduced in the upper part of the tree. But the worst character of all is a bad habit of growth, either as regards the stem or the branches, and when, at the same time, the latter are straggling, short, weak, and crooked. Luckily these characters do not occur in seedlings from good varieties.

Besides the favourable signs already enumerated, the following are found in seedlings of five years old:—1st, A straight stem sufficiently strong to maintain itself in an upright position without support. 2d, Lateral branches and shoots of moderate vigour, without being either too slender or too thick, and of moderate length, with their extremities pointing upwards. 3d, Spines regularly distributed on the stem as well as on the lateral branches; these spines are long or short according to where they are produced and furnished with prominent wood buds throughout their length; they are placed perpendicularly, are well fixed on the surface of the branch, and wrinkled at their bases. 4th, The leaves, either of a light or dark green, are finely shaped, rather long than round, not folded, either perfectly flat or with the margins slightly elevated, and the apex recurved, the finest leaves on the current year's shoot being furnished with stipulary leaves. The tissure of the leaves is compact, the skin thin, the incisions regular and deep. The nerves are prominent, the midrib strong and straight, extends from the petiole to the apex of the leaf. The petiole is long and slender. 5th, The wood buds, which are reddish, brown, or gray, are neither too much nor too little developed, neither too much compressed nor too long, and not placed on the surface, but based on projecting supports. 6th, The internodes between the wood buds are not long; but those between the fruit buds are shorter than those others by half, that is about half an inch in length or even less.

The above are all characters of good presage, and even of a fine and long-keeping fruit; indeed, it has been established, by repeated experiments made by the late Van Mons, that the longer the sowing of seeds of the best of every successive generation of Pears is continued, the greater is the tendency of the fruit produced to keep long, to improve in form, and to increase in delicacy.

The spines should not extend on the stem and branches higher than 5 or 6 feet from the ground, especially if the seedling appears naturally inclined to take the form of a dwarf pyramid. The higher the tree the more rare the spines, and ultimately they entirely disappear.

These observations may guide the cultivator in the selection of seedlings before the third transplanting. It is in the second year after the third transplantation that the indications of the future worth of the tree are displayed to the close observer in the most striking manner. In a promising seedling the whole habit of the tree is pleasing to the eye, and clearly indicates that the period of full growth and of fructification is at hand. *J. de Jonghe, Brussels.*

Home Correspondence.

The Osborne Shell Shower.—I should not have troubled you again on this subject until I had had something new or more definite to communicate, had the tone of Mr. Bree's letter (see p. 758) been less objectionable and more satisfactory to my own mind. I am as great a lover of truth as Mr. Bree himself, and should at all times feel grateful to that gentleman for correcting any error into which I may inadvertently have fallen; but to do so in a manner in which it requires no very great discrimination to discern the spirit of ridicule is anything but creditable or praiseworthy. As a naturalist Mr. Bree stands deservedly high, and I would treat his opinions with all deference. In this particular instance, however, I must beg to differ from him, and adhere to my original conviction, until I am so far convinced of its fallacy as to see its absurdity. Possessing a strong predilection for the study of natural history, I am not altogether unacquainted with, or an inattentive observer of nature. Nature has peculiar charms for me. I have wooed her not only in those grand and magnificent moods in which she astonishes the mind by her sublimity, but also in those more humble and unobtrusive forms in which she excites its wonder by her minuteness. I did not, as Mr. Bree seems to think, in the short space of "half an hour," jump at the conclusion that the shells at my feet had fallen from the clouds. It was not until I sought to elucidate what appeared so singular and interesting a phenomenon, that I ventured to give an opinion on the subject, which opinion, according to Mr. Bree, is now "blown to the winds." Of this, however, I am not quite so certain as that gentleman; nor are his arguments sufficiently cogent and conclusive to induce me at present to give up the point in dispute. His communication does not meet all the details of the case. There are some points yet to be cleared up, and I cannot but regard Mr. Bree's letter as somewhat premature. In accounting for the sudden appearance of so large a number of mollusks, Mr. Bree overlooks the fact of the dead shells. His remarks apply only to the living ones, and as far as my experience goes the proportion of the former to the latter was as two to one. These dead shells surely could not have been out on a foraging excursion? Neither had their inmates forsaken them on the spot where they were, as in no instance could I discover one of the missing tenants among the many thousands around me. This in my opinion is an important point, and one which remains to be cleared up. I would remind Mr. Bree that the whole extent of surface over which they were scattered had been swept and cleaned daily for months previous to the "memorable day" on which they were first observed, and had likewise, to prevent the growth of vegetation, been subjected to frequent washings with a poisonous acid; and, further, that there are neither stones, moss, or even crevices under and in which they could possibly find a refuge from the attacks of their natural enemies. If, indeed, they had left their rocky or mossy retreat in quest of food, and had wandered to this particular spot, they had certainly left the land of Canaan behind them to roam over what to them would be but a foodless waste. Instinct in this instance appears to have been at fault. Again it was but a short time (about half an hour) previous to that on which they were first observed, that not one shell living or dead was to be seen. If then they had come from some neighbouring rocky or mossy retreat, and in so short a time had scaled walls 4 or 5 feet high, and scattered themselves over so large a space, they must have possessed a power of locomotion, a quality of which I know no antecedent in the snail kind. This is another important particular, and one, too, which remains to be investigated. In conclusion I beg to assure Mr. Bree that I have frequently sought for the Zua in the neighbourhood of Osborne, but without success, and that whatever may be the result of "C. D.'s" inquiries I shall in no wise be astonished thereat. *C. Winchester.*

The Osborne Shell Shower.—The editor of the *Banbury Guardian* takes the same view of this case as Mr. Bree; and he illustrates it by the following statement:—"We had on our premises some years since a shed abutting on a tall warehouse, which was on the south side of it, while on the east there was another building; the two keeping off the sun's rays, excepting late in a summer's evening. The position was therefore cool, and usually moist. The shed was roofed with Stonesfield slates, a heavy covering—in fact, a stone which by exposure in the winter splits into laminæ. On more than one occasion after a shower, we found the roof of this shed, which was about 10 yards in length, covered with the Zua lubrica; there were thousands of them, and to an ordinary observer they would appear to have fallen with the rain, but there were none upon the ground. We entertained no doubt as to their origin; and the opinion we formed was shortly afterwards fully confirmed. Being compelled to increase our office buildings the shed had to be removed; and when the slates were taken from the roof, we found between them where they overlapped heaps of these molluscs, then in an inert state, but which would after a warm shower probably crawl out to feed upon the tufts of Moss with which the roof was sprinkled over. The occasions on which we saw them out of their retreat were not numerous; if we had taken a light on a moist warm night and examined the shed, we should in all probability have seen them much oftener. So the Zua lubrica has been seen in Banbury as well as at Osborne."

Osmunda regalis.—Did you ever see this in perfection? At Killarney, the year before last, I found its fronds 7 feet high—more picturesque than any Palm. I wonder the Irish Roman Catholics do not use them dried on Palm Sunday. It has, however, one peculiarity—all the finest plants grow in situations flooded in winter, and 1 to 3 feet above water in summer, so that their roots are always in water. It has all the characteristics of a tree Fern, its caudex often being 2 feet deep in the ground; and in large specimens 5 or 6 inches in diameter it is extremely difficult to get up. I succeeded in bringing home five or six, but was obliged to be content with small specimens not above 2 inches in diameter, and these I could only get out of the bank of a stream where I could tear down the soil, a very sandy alluvial loam. It gave me some idea of the difficulty of procuring and importing tree Ferns. *R.*

Whitethorn.—Can any means be adopted to cause all Whitethorn berries to vegetate in the spring after they are gathered? *J. P.* [No. But if they are sown as soon as gathered, and not buried too deep, the greater part will germinate the first year.]

Effect of Salt Water on the Germination of Seeds.—In my communication of last week it is printed by mistake that the fruit of "evergreens," instead of the fruit of the Euonymus, did not sink after immersion in salt water during a month. I may add that I think that the experiments on immersion of seeds in sea water have some little interest, as showing that we cannot infer from seeds of certain orders long retaining their power of germination in a dry condition, that these same seeds will retain it under different conditions. Thus the Solaneæ and Leguminosæ are believed to keep longest when preserved in the ordinary way in a dry state, and the Solaneæ seem generally to resist well the salt water, whereas most Leguminosæ resist much worse, as I have shown in your number of the 26th May, than other orders. I have lately tested this conclusion with quite fresh seeds of Trifolium incarnatum and Kidney Beans. Indeed with respect to some Leguminosæ I have reason to believe that a short immersion in plain water will kill them. So with respect to the subject lately discussed in your columns, namely how long seeds will remain alive when buried in damp earth, I do not see that any safe conclusion can be drawn from the length of time during which the same seeds can retain their vitality whilst dry. *C. Darwin, Down, Bromley, Kent.*

Oak Galls.—I believe that it was only last year that the attention of the Entomological Society of London was called to the existence of the hard Oak gall, Cynips Quercus-petioli, Linn., in this country, though previously noticed by Mr. Westwood. But surely it must have been of rare occurrence in this country until of late years, or it would have been observed before; and even now I believe it is confined to the southern counties of England. At all events I have never seen it in the midland counties, or indeed north of Somersetshire, and I should much wish to know if any one has hitherto seen this gall-nut further inland than I have mentioned. This may be important to know, as I believe the range of the gall-nut is extending, and with obvious injury to young Oak plantations, so that the gall-fly that produces the nut is becoming an absolute pest in Devonshire and Somersetshire, and I am led to inquire if anything can be done to arrest its progress. It is very different from the innocuous soft galls upon the leaves, seldom very numerous, and dropping off with the foliage in the autumn. But these gall-nuts of C. Quercus-petioli are mostly persistent upon the tree, and continue there for a long time hard as bullets. They seize upon the young shoots of the year, often the leading shoot in young trees, and cluster at its termination, thus stopping the expansion of the buds by taking up their nutriment, and keeping the trees in a dwarf state. I have now before me young shoots that are terminated by eight or nine of these hard brown galls clustered together; and I recently noticed in the Oak plantations on Worle Hill, near Weston-super-Mare, that many young Oaks had been quite ruined by their leading shoots being thus loaded, and some were absolutely dead. Now I have reason to believe that this attack upon the Oaks, at least in this plantation, is of recent origin. Four years ago I first observed a few on two or three trees, and looked upon them as a curiosity; last year I was surprised to observe many more, and the present autumn in walking through one portion of the plantations only, and without going out of the path I counted 91 trees that were more or less subjected to this scourge—for thus it has become. Some, it is true, had only about a score of galls or so upon them, but many had hundreds clustered upon their branches thick as Grapes, and the smaller trees were evidently drooping and checked in their growth by the absorbing villainous galls. Some of the trees were actually withered and dead, and others had their leading shoots killed, with the evident cause burdened upon them. It is clear to me that fresh trees are attacked every year by the increasing insect that produces the galls, and what can be done to stay their assaults? Though I only

counted 91 trees in the Worle Hill plantations, I dare say I could have doubled this number by going deeper within the coppice; but say that only these 91 Oaks had 50 gall-nuts on a tree—although many had hundreds of them—that only would give more than 4500 of the Cynips to commence the next season with, so that next year instead of only 91 trees attacked I may expect to find thousands, on every tree perhaps throughout the plantations. The mischief is that the Oaks are certainly rendered barren by these hard gall-nuts, and wherever they occurred on the larger trees there were no acorns at all produced. It has been suggested that these gall-nuts may be used in the manufacture of ink, but I should doubt to such a profitable extent as to keep the Oaks entirely for that purpose; and if not it is but a poor consolation to have ink produced only to record the destruction of plantations made and kept up at some expense in the hope of good timber being some day ripe for sale. Can any suggestion, then, be made upon the subject now, before the Cynipidal hordes have spread to all the Oak trees in the country, whether of Quercus robur or Q. sessiliflora? *Sylvanus, St. John's, near Worcester.*

Food and Cookery.—The still increasing price of provisions, and the near approach of the rigorous season, will doubtless lead benevolent persons to assist the poor by supplies of food; might not the opportunity be embraced to introduce articles and modes of preparation successfully habitual in France? In that country many nutritious substances are made use of which here are neglected and despised, and French cookery extracts a greater proportion of aliment from a given quantity of ingredients. We, in England, waste a considerable amount of nourishment: in the common process of baking, meat is much dried up; in broiling, fat falls into the fire, and the surface of a chop is often burnt to a cinder; if fish or even meat be boiled, the liquor is frequently thrown away; and in regard to pulse of all kinds, the boiling on a fierce fire softens indeed the grain partially, but not sufficiently for easy digestion. The French more frequently make soups or stews, thickened with grain, pulse, or roots, thus retaining the juices which contribute so greatly to nutriment. Another difference in the cookery of the two nations is, that in England the use of condiments is apt to be neglected; the Frenchwoman flavours with herbs or spices, and even with Celery leaves and other items here cast away. Our labourer rejects what he calls "messes," which, if seasoned to his taste, might be relished. Were benevolence to distribute stews in lieu of bread, the superior mode of cookery would perhaps be appreciated; a given sum of money would also go farther: for bread, as Count Rumford has shown, affords greater nourishment soaked in soup or a stew than when eaten dry. Of late, many books have been published containing receipts good and economical, indicating also articles now despised, which if suitably prepared, afford wholesome food; of these publications the following amongst others may be found useful:—"Soyer's Shilling Cookery," "Domestic Economy," by Tegetmeier, "Cottage Cookery" and "Cottage Comforts," by Esther Copley. With the assistance of these and similar books, the benevolent, whether in town or country, might instruct the industrious poor, how, with a small outlay, to provide an abundant family meal. There are, however, some cheap or neglected substances not mentioned in these publications, for instance, gelatine, now only used for confectionary, but of which the quantity is so great in bones, that those of London would suffice for the basis of a pint of soup daily for every inhabitant: true, many of these bones are not lost, being collected for manure; desirable, however, as it is to enrich the land, substances fit for human diet should scarcely be employed for the purpose, and besides they are just as fit for manure after boiling as before. Even the cottager might make soup from bones by means of Papin's digester; some years ago one was presented to a mother who found that by its use the allowance of meat for two days amply sufficed for three. Another article, which in this country is even cast into the gutters, but which our wiser Scotch brethren make use of, is the blood of sheep and oxen: and why should it be rejected, when that of the less cleanly animal, the hog, is habitually made into black puddings? *M.*

Cork-barked Elms.—The Elms growing in the upland districts of this parish, the soil a stiff white clay, have their shoots covered, even when quite young, with corky bark in great abundance; they are varieties of Ulmus glabra, and called here the Hertfordshire Elm. I gathered the enclosed from a hedge-row at the side of a wood; all the shoots, even those growing vigorously, were covered with the same bark. *T. Rivers, Sawbridgeworth.* [The Elm in this state, with its bark producing rifted cork, is the *Ulmus suberosa* of Ehrhart. Can our experienced correspondent explain the cause of this condition of the bark? All the European Elms except U. montana, the Witch Elm, and Ulmus effusa, appear to be liable to the affection, sometimes being smooth-barked, sometimes cork-barked. We believe the cause of the cork formation has never been explained].

Holcus saccharatus.—I was surprised to see at p. 774 a statement to the effect that neither sheep, horses, nor cows would eat this plant. I sowed two large pans of seed of it last April, and placed them in heat. In the first week in June I planted them out in the kitchen garden; for a few weeks they made but little progress; they, however, at last grew vigorously, and attained the height of 5 feet. They were just unfolding their panicles of bloom, when the early frost in September finished their career. The plant appears to be very tender, for the night on which the Holcus was destroyed the Heliotrope was not the least injured. I tried cows, pigs, and a donkey with it, and all of them seemed fond of it. *E. Bennett, Perdiswell.*——The following is the result of my trial of this plant. The seeds were sown rather late in the spring of this year, and made little progress till towards the end of July, when the plants commenced growing rapidly, and by the middle of September they were (reckoning the whole growth of the plants) 8 feet high, the stems (or canes) being 6½ feet. They came into flower the latter part of October; on the 23d of November they were cut, and on the 26th the canes were pressed in a common cider press, and yielded just 6 gallons of juice. The seeds were sown in my garden, under a south wall, on a piece of land (highly manured for a former crop) in four rows, the piece of land being only 18 feet long by 8 feet wide. So far from the foliage being rejected by cattle, I found, on the contrary, that they were eagerly devoured (when in a growing state) by one of my horses to which I offered them. *G. S. K., Brooke, Norfolk.*——With regard to the statement that no animal will eat this plant, I beg to say that my donkey would eat nothing else if he had a choice in the matter. *An Old Sub.*

Quercus sessiliflora.—Can you favour me with the probable age of an Oak sessile-fruited, having a circumference of 25 feet at that part from which the enclosed was cut. *Eben.* [The specimen, which is genuine, is 1¼ inch wide and has 15 rings. The diameter is 8 feet 4 inches, or we suppose deducting the bark, 8 feet 2 inches. The semi-diameter is therefore 4 feet 1 inch. Supposing that the specimen sent represents the average rate of growth, about 600 years will have elapsed since the birth of the tree; but as it grew faster when young than now it is old it may not be too much to reduce the estimate of age by 100 years.]

Horse-chesnut Flour.—The following is M. Flandin's plan of making flour from Horse Chesnuts. Grind the Horse Chesnuts and mix with the pulp carbonate of soda in the proportion of one or two per cent at the utmost, and then wash the produce until it is perfectly white; 1 lb. of carbonate of soda will purify 100 lbs. of Horse Chesnuts and produce 60 lbs. of flour fit for bread, as the salt removes the bitter principle from the nut. *A. L. O.*

Notices of Books.

We have before us the first part (Van Voorst, 10*s.* 6*d.*) of *Contributions to the Natural History of Labuan, and the Adjacent Coasts of Borneo*, by James Motley, Esq., of Labuan, and Lewis Llewelyn Dillwyn, Esq., F.L.S. Mr. Motley has become advantageously known by his interesting communications to Hooker's Journal of Botany, and his residence in Labuan affords himself and Mr. Dillwyn a very favourable opportunity of making themselves acquainted with the natural products of that island. We learn from the prospectus that the "Contributions" are intended to contain descriptions of such animals, both vertebrate and invertebrate, as inhabit the island, accompanied with original notes on their natural history. Illustrations are to be given of such animals as are new, or of which figures are not easily attainable. The work may be expected to extend over several parts, two or three of which will be published annually. The first part is worthy of being published by Mr. Van Voorst, but we must object to its title, which should have been "Contributions to the *Zoology* of Labuan," &c., not Natural History, Botany being wholly excluded from the plan of the authors. The 12 plates which it contains are charming representations of animals, birds, and snakes. We find at page 15 the following interesting note upon the habits of the Pectoral Sunbird (*Nectarinia pectoralis*):—

"I think there is no doubt that this lovely little bird feeds almost entirely on honey; three or four of them frequent all day long a beautiful plant of Russelia juncea just before my office window, clinging to the slender twigs in all sorts of positions, and turning up the scarlet bells to insert their fairy little beaks; they appear very sociable little birds, never passing one another without putting their beaks together with a little chirp. If any one comes too near, off they go like meteors, but are back in a minute. I think I never saw anything more beautiful than this plant (whose beauty you cannot imagine from greenhouse specimens); its long pendent twigs are one blaze of scarlet blossoms for months together, with half-a-dozen of these living gems flitting among them. I often sit and watch them, and wish I could place them some fine morning before your window; birds, flowers, broad sunshine and all."

The Duties on Imports into France, compiled from the Official Tariff, with the latest modifications, an English Translation, and full Index. By G. W. Yapp. 8vo. Stanford; pp. 183.

This is one of the first results of the Great French Exhibition, showing how intimately French and English trade is becoming mingled. A few years since who would have thought it worth while to incur the cost of publishing a translation of a French tariff; yet 1855 has produced two, the one in Mr. Newdegate's great work noticed in our columns lately (p. 583), the other now before us. In the present case we fear the execution is beneath the conception; in a work like this accuracy is the only point to be attended to, and accuracy has scarcely been attained by Mr. Yapp—not, at least, if we are to judge from his translation of the names of articles belonging to the vegetable kingdom. For example, *badiane*, or star anise, is untranslated; *écorce de quinquina* is called cascarilla instead of Peruvian bark; *absinthe*, or Wormwood, is untranslated; *lierre*, Ivy, is rendered ground Ivy, a totally different plant: *Garou*, or Daphne Gnidium, is called Spurge Laurel; *Brou de Noix* signifies Walnut husks, not nutshells! and *Tourteaux de graines oléagineuses* are "oil cakes," not husks of Olive, &c., as they are here rendered. We need not say that if errors like these occur in other parts of the tariff, the mercantile utility of Mr. Yapp's translation is much impaired.

In a little volume called *The Newspaper and General Reader's Pocket Companion*, for the price of a shilling, uneducated people will be able to learn the meaning of the foreign scraps with which overeducated or pedantic writers are fond of interlarding their discourse, till their

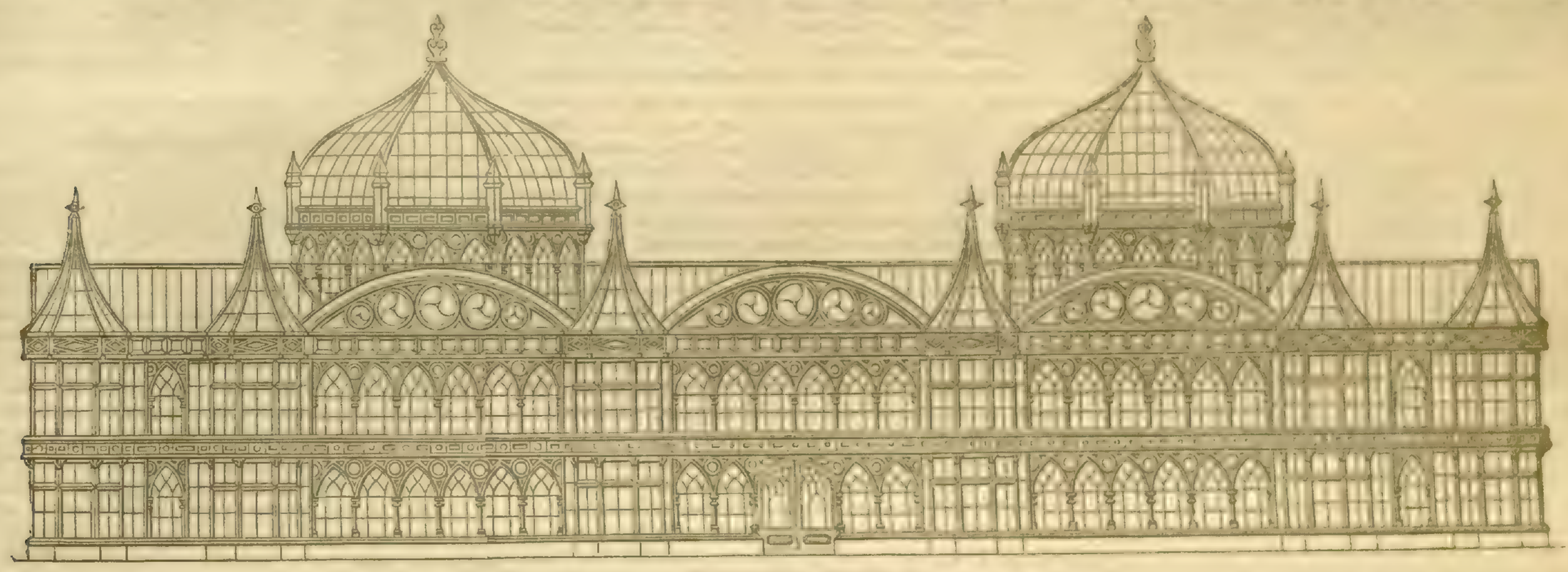
> English is cut on Greek and Latin,
> Like fustian heretofore on satin.

We are no admirers of such a lofty style, but others are, and it passes current with the many, for the usual reason that people are apt to admire what they cannot understand. Anything to make it intelligible is therefore useful, and the little volume before us accomplishes that purpose.

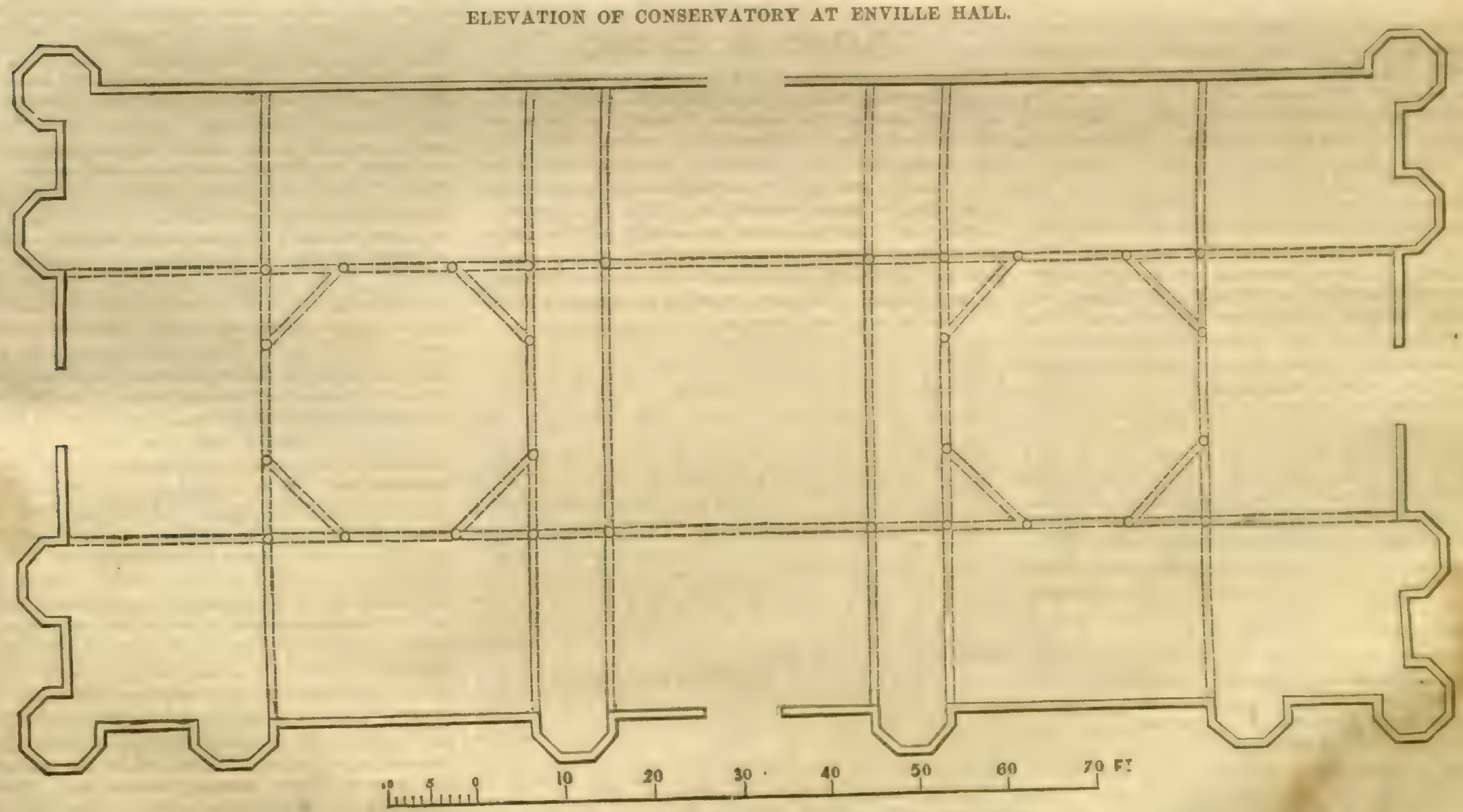
Garden Memoranda.

Enville Hall, the Seat of the Earl of Stamford and Warrington.—Within the last few years this place has deservedly become very celebrated, in consequence of the Earl of Stamford and Warrington having expended an enormous sum of money in adding considerably to the pleasure grounds and glass structures, as well as purchasing extensively both ornamental and new plants. In this his lordship has received valuable assistance from Mr. Aiton, the head gardener at Enville, so that in a very short space of time this has been made one of the most extensive and beautiful gardens in the country. When the Earl of Stamford came into possession of the estate there were but six acres of garden, but in 1847 and the two following years 20 acres more were added, and within the last two years upward of 50 more, making in all about 100 acres of pleasure ground. The grounds are richly diversified, while the situation itself is naturally beautiful, and with the introduction of water in four different places the *tout ensemble* is such as to please the most fastidious. A noble conservatory has just been added, and is the most majestic glass erection we have ever seen, and so far as our pages will admit, the accompanying sketch gives a good representation of it. It was built by Messrs. Gray & Ormson, of Danvers Street, Chelsea, and certainly reflects credit on their already well known taste and skill as horticultural builders. It is we believe the most magnificent and substantial structure of this elegant branch of architecture ever erected. It is 150 feet in length, 70 feet in width, 65 feet in height to the apex of the domes, and 30 feet to the top of the curved roofs. The style it will be seen is mixed, gothic being predominant; the perpendicular part is of wood, the curved roofs and roofs of domes consist of cast-iron principals and wrought iron bars. It is well supported and bound together by ornamental columns and girders of cast-iron, which have a fine appearance inside, and from which ornamental baskets will be suspended. It is heated by a hot-water apparatus. It is not intended to plant out the different kinds of plants in beds, as is common in large houses of this description, but to grow them in pots and tubs, and by this means a much greater display can be kept up throughout the year, by using the extensive plant-houses in the kitchen garden as a nursery for that purpose. Creepers are to be planted out round the pillars, and a number of ornamental baskets filled with suitable plants, similar to those that have such a pleasing effect at the Crystal Palace, will be suspended from different parts of the building. In the ground plan the internal lines give the idea of divisions, but they are in fact not so; they are merely lines showing where the girders and columns are. The flower garden, when we saw it in August, was a complete mass of bloom, and is of no particular plan, the beds being chiefly circular, of a good size, and each filled with one variety of plant. The most effective colours for contrast are chosen, and many of the beds were filled with very choice things, such as Calceolaria Purity, a new white variety, which has succeeded very well, and will make a valuable plant for the Italian style of flower gardens. C. amplexicaulis is grown largely, and is an excellent late variety, and one of the best bedders when well done. Among other Calceolarias used at Enville are Prince of Orange, a light orange kind, of excellent habit, and certainly one of the best, being very dwarf, and a profuse bloomer; Frosti, a pretty small yellow; but soon flowers itself out; Gem, a deep rich brown variety; and Aurantia. In Geraniums, the sorts grown are Sidonia, Unique, and Conspicuum; these three do best in pots, plunged. Commander-in-Chief, Cerise Unique, with some of the best old kinds of scarlet, are also freely used; Hendersoni is found to be the only white worth growing out of doors. Boule de Neige, Skeltoni, Miss Emily Field, and Shrubland Pet have been tried, but are not effective. Ingram's Princess Alice and Shrubland Rose bloom freely and do well here, as also Purple Nosegay. Variegated kinds are grown very extensively; Flower of the Day was by far the most effective, taking foliage and flower together; Mountain of Light, of which there was a large bed, was very patchy and irregular as regards bloom.

Mangles' Old Variegated is also largely used, and is found very useful; Alma, a new kind, promises to be the best of this class, the foliage and flower being better than any other we have seen, but there was not enough of it to see what the effect would be when grouped in a mass; Golden Chain is only grown for its foliage, as the flowers are cut off. Not many kinds of Verbenas are used, only a few of the most decided and effective colours. In scarlets, Defiance is still the favourite, but Mrs. Woodroffe was very good. There were good beds of André, Wonderful, Purple King, Blue Beard, Bouquet Parfait, Emma, Parfume de Madeline, Madame de Stael, Etoile de Venus, and Mont Blanc. The beds of Defiance and Bouquet Parfait were the most showy and best filled. Ageratums, Petunias, and various other plants were equally gay with those we have enumerated. There are 72 beds in the flower garden and 30 in the pleasure-grounds; some idea, therefore, may be formed of the large number of plants required to fill so many beds, and of the effect they produced, when we state that many of them require 500 plants in each, and but few less than 100 plants. What is termed the "Riband system" of planting is adopted here to a very great extent. This is simply done by planting in lines, commencing in front with a row of some dwarf plant, and using taller growing varieties in the back rows. One "riband" was 400 yards long, half of which was filled with the following plants:—1st, or front row, Golden Chain Geranium; 2d, Lobelia Erinus maxima; 3d, Geranium Cerise Unique; 4th, Calceolaria Aurantia and Scarlet Pentstemon planted alternately; 5th, Phlox tardiflora; 6th, Hollyhocks. The Phlox would have been more effective had it been earlier. The other half was composed of the following:—1st, Geranium Golden Chain; 2d, Lobelia Erinus; 3d, Geranium Cerise Unique; 4th, Calceolaria Gem; 5th, Humea elegans; 6th, Dahlias; the whole being backed with evergreens. The Geranium Cerise Unique is found to be a more suitable colour to back the Lobelia. Another riband, 140 yards long, was planted as follows:—1st row, Geranium Golden Chain; 2d, Forget-me-Not (Myosotis cæspitosa); 3d, Scarlet Geranium; 4th, Calceolaria Gem and Aurantia alternately; 5th, Dahlia Zelinda (a dwarf purple variety). Another riband is composed of straight lines, 160 yards in length, and backed with Roses—such kinds as flower during the summer and autumn. In these rows plants of variegated Alyssum, intersected with Verbena venosa and Virginian Stock, formed the front row. Geraniums, Salvia patens, Delphiniums Hendersoni and D. Barlowii formed the other rows. This plan, whether in straight lines or curved borders, is most effective, and is admired by every one, especially when carried out to such an extent as it is at Enville, where, in many instances, so many new and good things are used in quantities. Another feature of no less importance is well observed at this establishment—namely, that good plants are grown ready for turning out, so that half the season is not lost before they come into bloom. This could not be done without the command of glass to a great extent, and this has been liberally provided by his lordship, both in the shape of houses and pits heated with hot water. Coniferous plants do exceedingly well here, and there are numbers of choice trees already of a good size, with a large number coming on. The finest specimen is a large and handsome plant of Pinus macrocarpa, and



ELEVATION OF CONSERVATORY AT ENVILLE HALL.



GROUND PLAN OF CONSERVATORY AT ENVILLE HALL.

there is also a beautiful plant of Picea nobilis, with a quantity of good Deodars, Taxodium distichum, &c. There is also an abundance of noble specimens of Portugal Laurels, Rhododendrons, and other hardy shrubs. Copper Beech, Limes, and other deciduous trees abound, of an immense size and age, many of which produce a peculiar effect by drooping to the ground, where the branches take root and form a progeny of young trees around the parent. Rhododendrons and American plants generally grow most luxuriantly here in the natural soil. The kitchen garden consists of 6 acres, four being inside the walls, and two outside. The walls were commenced in 1853, and are well furnished with healthy young trees which have not yet generally fruited. The glass here consists of a Peach case, which from its extent and height has a noble appearance; it is 360 feet long and 14 feet high, and sufficiently wide to admit hot-water pipes, and allow room to walk between them and the trees. In addition to the above there are also five Vineries, a house for New Holland plants, two Orchid houses, a stove and Geranium house, a house for forcing early flowers, besides houses for Cucumbers and Figs, all erected by the same builders, and fitted up with all the appliances which liberality, skill, and practical knowledge could suggest. There are also 400 feet of pits for Pines, Melons, and wintering bedding plants, all of which are heated with hot water, besides 200 feet of cold pits. The fountains are a splendid feature of this charming place. They were projected by Lord Stamford himself, and with two large reservoirs, completed in less than two years, no expense being spared. One of the reservoirs is placed on the gathering grounds, from which the water is pumped up through half a mile of 12-inch pipes, by two 30-horse power engines, to the other reservoir on the high grounds, and then descends with a fall of 350 feet, through the same length of pipes to the large jet, which throws it from 150 to 200 feet high. The lower fountain, served from this same main, consists of 16 jets, placed among sea horses, and one *through* a figure of a sea or river god. The 16 jets throw the water 40 feet, and the centre 70 feet high. No pen can describe the fine effect of the two playing together, surrounded as they are by such beautiful scenery. There are other fountains about the place, but not of such remarkable size as those just described. The Earl of Stamford most liberally allows the public to view the whole of the pleasure grounds and flower gardens twice a week, on Tuesdays and Thursdays, but gardeners may see them at any time, Lord Stamford being most desirous that every facility should be afforded them for doing so. Mr. Aiton, the very able gardener here, deserves great credit for the judicious and very extensive alterations that have been made in so short a time, and his exertions are warmly supported by Lord Stamford, who is very fond of horticulture, and spares no expense in making Enville one of the best gardens in the country, as it most unquestionably will be. *From the "Florist," with the permission of the Proprietors.*

FLORICULTURE.

Cinerarias.—The following memoranda respecting the best of the new as well as old varieties of these useful plants were made during a visit to Mr. Turner's collection at Slough while it was in bloom. Of the new varieties, Optima (Bousie's) is certainly the most attractive, and, in a general point of view, the best—clear white, with medium margin of intense blue, dark disc, fine form and substance, and good habit. Lady Paxton is a fitting companion to it, being one of the most attractive and best Cinerarias we have; colour white, with broad deep lilac purple margin, and dark disc, broad, stiff, well formed petal, producing close, well arranged heads of bloom, equal to an Hydrangea under the best culture. Sir Charles Napier is decidedly the best blue, opening

deep blue, and changing to bright blue as it ages; petal, form, and habit good. Mrs. Foster is a deeper coloured Cerito flower, good in form and habit, but not a free grower, with good foliage. Lady Mary Labouchere has been good this year and of excellent habit—white, with small margin of lavender blue, and moderately dark disc. Admiral Dundas is one of the best formed flowers we have seen—white with shaded blue purple margin, and from what we have seen of it, a flower worthy of every collection. So also is Optima (Hopwood's), not a new variety, still little known—white, with broad rosy crimson margin, a good exhibition variety, and dissimilar to any other yet out. Empress is white, with a broad margin of pale rose, light disc, good form, but uncertain in colouring this season, having a tendency to become mottled in colour, otherwise it would be a most desirable variety. Prince of Prussia is a light blue, with a light disc, but deficient in form and substance. Esther, if first-rate in form, would be a charming variety; for in habit it is more compact and even than any variety we know. In colour it is clear white, with broad deep crimson margin, and dark disc, dwarf and perfect habit, and beautiful early, but it becomes starry as it ages. Notwithstanding this, it is a general favourite. There are two or three other new sorts, but as yet they have not bloomed well. Of older varieties the best are Picturata, white with broad even margin of bright rosy purple, good shape and habit—certainly one of the handsomest Cinerarias in cultivation. Rosy Morn is a very attractive flower in a collection, rosy carmine with a white ring round a grey disc, tolerable form, and very useful for exhibiting. Estelle is a most serviceable flower—white, with very broad deep rosy lilac margin, and dark disc, rather cupped, good form, but deficient in substance to be a first-class flower, still one of the best and most attractive. Mrs Sidney Herbert, in its class, is unrivalled—white with delicate rosy margin and pretty habit. Lablache is a most useful blue, dwarf, and of first rate habit and moderate form, and the colour is best described as a medium blue. Amy Robsart is not yet surpassed in its colour, which is rosy lilac with a dark disc. Lady Camoys is of dwarf habit, white, with medium bright blue edging, and is a general favourite, and possesses tolerable form. Kate Kearney is no doubt the best white, and Prince Arthur the best crimson. Marguerite d'Anjou is duller in colour than Prince Arthur; reflexed, and not so good. Teddington is a light purple with white disc, good form, but reflexes slightly; it is, however, of good habit and of a pleasing colour. Formosa is a good variety for exhibition—light violet purple with white disc; of good form, and with a dwarf compact habit. Asmodeus is a good dark blue, dwarf, and of good form and habit. Advancer is white, with purplish blue margin, but too starry. Scottish Chieftain, if first-rate in form, would be a great acquisition; in colour white, with deep violet margin, clear and well defined, but the flower is somewhat starry. Lord Stamford is a very attractive variety in a collection—white with medium margin of deep blue, light disc, and close compact habit; the flower is somewhat confused and indented at the edge, but it is notwithstanding a very showy variety. Loveliness is a rosy crimson with white ring round the disc; a very distinct and serviceable flower for exhibition purposes. Mrs. Beecher Stowe is a very useful variety—white, with broad deep lilac, margin and dark disc; good form, valuable for exhibition purposes, and much better than Empress Eugenie, which is deeper in colour, but by no means so good. Etoile de Vaise is a little improvement on an old variety named "Annie"—white, with dark plum purple; broad margin. We greatly want improvement in this colour. Ringleader, although old, is a very useful flower for exhibiting, and is of a pale carmine colour. Octavia is the lightest azure blue we have, with light disc and dwarf habit. Of seedling varieties the best we have seen is Emperor of France, a very great improvement on Hopwood's Optima; colour, rosy crimson, with broad white ring round a dark disc; great width and depth of petal. This is a fine stout flower, of great excellence. Rose of England is also a first-class flower; colour, clear white, with medium margin of rich rosy purple; compact dark disc, fine form, and good substance. This flower will be a standing variety. Magnum bonum is of a rich purple crimson colour, with a small white ring round a black disc; a large, bold, and attractive variety of first-rate habit. Lord Cardigan is a very large striking flower that will be a great favourite; white, with a broad margin of violet purple; small dark disc. Florence Nightingale is a very promising flower, of good substance, white, with medium margin of deep rosy lilac; good petal and dark disc. Duchess of Wellington is evidently a first-class flower; white, with a broad margin of lilac purple, and dark disc; good substance, and of first-rate form. Lord Nelson is a lively purple self, rather thin in substance, but with a close dark disc, and is certainly the best of all the purples. Monarch is a shaded plum purple, with fiery centre; good form and habit.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—A little fire heat will be indispensable here during cold damp foggy weather, in order to allow of admitting a little fresh air to carry off superfluous moisture without lowering the temperature too much; but this should be applied during the day, and all watering should be done in the morning, so that the atmosphere may get moderately dry before night, when a damp stagnant atmosphere is especially injurious to flowers. But although some care is necessary at this season to preserve plants in bloom from being injured by damp, it is easy enough to fall into the opposite extreme, and as excessive dryness is much more injurious to plants generally, than the amount of damp which would ruin flowers, this must be guarded against. Unless where fire heat is used too freely, however, there is little danger to be apprehended from the want of sufficient moisture in the atmosphere at present.

FORCING DEPARTMENT.

Pineries.—The plants expected to show fruit early next year will be greatly benefited by being kept in a comparatively dry state for a few weeks previous to subjecting them to a warm moist temperature. The atmosphere should be kept dry, also allowing the soil about the roots to become as dry as can be done with safety; do not, however, subject the plants to a very low temperature, but keep this at from 60° to 65° by means of fire heat, for although the plants will bear a considerably lower temperature without any apparent injury, those not subjected to any unnecessary extremes will produce the finest fruit; and a short period of comparatively dry treatment will ripen the growth, and just as effectually induce a tendency to show fruit as checking the energies of the plants by an unnaturally low temperature, and without any of the ill effects of the latter method. No dependence can be placed on the weather at this season, therefore see to plants in pits with insufficient means of heating being well protected by means of covering at night, and maintain the command of a rather high temperature by frequently renewing the linings, &c., so as to be prepared for any sudden decrease of the external temperature; avoid anything approaching excess of atmospheric moisture among young stock, whether in pits heated by linings, or in better arranged structures, which only tends to promote a too free rate of growth for the amount of light, and weakly blanched foliage is the result. Vineries.—Where forcing is commenced, attend to previous directions as to keeping the atmosphere moist, as there will be some difficulty in getting Vines to break freely at this season except this is attended to. If circumstances allow of having a bed of fermenting manure inside the house, this will be found the best means of keeping the atmosphere regularly moist, but if this cannot be used the house must be sprinkled with the syringe frequently, and the evaporating troughs kept full. Also see that the roots are afforded a steady gentle warmth until the buds are fairly swelled; keep the temperature about 50° by fire heat at night, and 60° by day, letting it rise to 70° on the forenoons of sunny days. Get succession houses cleaned, the Vines pruned, painted and put into order for work, and see that the heating apparatus is in perfect order, as if this or anything else about the house requires any repairs this should be done while the house is idle.

FLOWER GARDEN AND SHRUBBERIES.

Except where alterations are in hand, there will be little requiring attention here at present beyond the clearing up of leaves and putting the borders, &c., into neat order for the winter. Get this done, however, with the least possible delay, in order that the place may be rendered trim and neat and as enjoyable as the season will admit; also sweep and roll the walks frequently, so as to keep these clean and smooth, for without hard dry walks pleasure ground is next to useless at this period of the year. Turf will also require rolling frequently to keep it smooth and firm, and prevent its being disfigured by warm casts. If any of the turf requires levelling take advantage of any leisure time which may occur to get this done.

HARDY FRUIT AND KITCHEN GARDEN.

The tedious work of pruning and nailing wall trees should be prosecuted with the utmost dispatch on every favourable opportunity. Trees infested with scale should be loosened from the wall entirely, the bark well scraped and painted with a mixture of soft soap, cow-dung, and lime, taking care to well work the composition into the crevices of the bark. If any planting of young trees or removing of others has still to be done attend to this at once. Get Gooseberry and Currant bushes pruned on frosty mornings, or when the ground is in a dry state, so that it will bear treading upon without injury. After pruning give the ground among the Gooseberry trees a good dressing of lime, which we believe to be useful as a preventive of their great enemy caterpillar. Also get whatever manure may be necessary for the other small fruit bushes wheeled on first favourable opportunity, and get the ground dug so that it may look clean and fresh. Where the Raspberry grub is troublesome give a good dressing of gas lime before digging the ground, taking care to apply it regularly about the base of the plants. The ground among fruit bushes should be dug very lightly, especially in the case of Raspberries which have their roots near the surface, and it is better in all cases to dispense with digging where it cannot be done without injuring the strong roots. The unusually fine dry weather which we have experienced for some weeks past has been very favourable for getting on with the work of manuring and trenching in the kitchen garden, and where this is backward it should be pushed forward on every favourable opportunity until every spare bit of ground is thrown up, so as to expose it to the action of the weather. Be prepared with plenty of covering for Celery, and endeavour to prevent its being injured by frost.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Nov. 29, 1855, as observed at the Horticultural Gardens.

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain.
Friday 23	○	29.764	29.750	43	34	38.5	43	47	S.W.	.00
Satur. 24	15	29.924	29.8 9	43	37	40 0	43	47	N.	.02
Sunday 25	16	30.277	30.043	43	18	30.5	43	47	N.E.	.00
Mon.. 26	17	30.2[illegible]9	30.241	42	36	39.0	43½	46½	N.E.	.00
Tues. 27	18	30.[illegible]35	29.9[illegible]3	47	42	4[illegible].5	44½	46	N.E.	.01
Wed. 28	19	30.112	30.019	47	36	41.5	45	46	N.E.	.01
Thurs. 29	20	30.111	30.045	45	33	39.0	45	46	N.	.00
Average .		30.073	29.971	44.3	33.7	39.0	43.8	46.5		.04

Nov. 23—Fine; overcast; cloudy.
— 24—Fine; cloudy and cold; showery.
— 25—Overcast; cloudy and cold; clear and frosty at night.
— 26 Clear; very fine; cloudy.
— 27—Hazy; overcast; slight rain.
— 28—Slight rain; overcast; cloudy.
— 29—Overcast throughout; cloudy at night.
Mean temperature of the week 1¾ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Dec. 8, 1855.

Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 2	47.5	35.4	41.5	13	0.51 in.	1	2	2	1	4	9	2	8
Mon. 3	47.2	36.0	41.6	13	0.17	1	3	3	2	3	9	7	2
Tues. 4	47.1	36.7	41.9	12	0.39	4	2	1	2	4	10	9	1
Wed. 5	47.6	35.3	41.5	18	0.25	—	1	2	1	2	12	7	—
Thurs. 6	46.8	35.4	41.1	15	0.30	1	2	1	1	4	12	7	1
Friday 7	47.1	36.2	41.6	17	0.52	3	2	3	2	6	4	5	4
Satur. 8	46.2	33.7	39.9	17	0.36	2	3	2	1	2	9	8	2

The highest temperature during the above period occurred on the 8th, 1843—therm. 58 deg.; and the lowest on the 5th and 6th, 1844—therm. 14 deg.

Notices to Correspondents.

Books: *S G F.* Roberts on the Vine, with the exception of that portion of it which relates to carrion, which should never be used in Vine borders.‡

Common Plants: *S, Esq.* No taste can be worse than that which limits beauty to mere colour. It is the feeling of savage and not of refined life. Not that we would in any way depreciate the effect of colour, which, if skilfully managed, is charming; but we regard it as only one ingredient in beautiful effects, and altogether subordinate to form. For examples of the latter it is not necessary to travel from "Indus to the Pole;" you will find instances of the most perfect beauty wherever plants can grow with their natural luxuriance free from the invasion of cattle or the dominion of man.

Cucumbers: We have received another letter or two relating to the "Ipswich Standard;" but we think the difference of opinion respecting it can only be settled by such a comparative trial as is proposed by Mr. Ayres, who has sent us twelve seeds for experiment. Mr. Wild having also sent *four* seeds we will put them into the hands of growers from whose judgment there can be no appeal.

Deformed Mushrooms: *Anon.* Specimens of Mushrooms like those which you have sent are not very uncommon. The appearance is not confined to that species of Agaric. We have however seen a far more curious case than yours in the common Mushroom. A new hymenium was produced on the top of the fibres with all the characters of Merulius, and what is still more curious the spores of the new hymenium were different from those of the ordinary gills. *M J B.*

Erythrina macrophylla: *Ashdean.* Roast it in summer, starve it in winter, and if you can cut the roots well in, do so. If it is a seedling it may not yet have arrived at the age for bearing.

Fagus antarctica: *Ashdean.* This will *bear* even such a winter as the last, in a cold place near London, but it does not *like* it. In a warmer climate, like the west of England or sheltered places in Sussex, we should not be alarmed about it. All the specimens we have seen are mere bushes with no tendency to form a trunk. If it grows into a tree it must be, we think, a very little one.

Fungus: *Sylvanus.* If you will refer to p. 744, col. *c*, you will find that your question has been answered.‡

Hedgehogs: *An Old Sub.* Harm! no, no, they are harmless enough, poor things; and what is more, they help you to get rid of garden pests. We are happy to see them running about in the fading light of evening.

Holcus saccharatus: *C R C.* A full account of this plant has been given at p. 835 of our last year's vol.; you will also find some further information respecting it in our "Home Correspondence" of to-day.‡

Names of Fruits: *J A.* 1, Bellissime d'Hiver; 2, Duchesse de Mars; 3, Autumn Bergamot; 4, Marie Louise; 7, Achan; 8, Brown Beurré; 9, Bezi de Caissoy; 1, Kerry Pippin; 2, Court of Wick; 3, Fearn's Pippin; 4, Blenheim Pippin; 5, Wormsley Pippin; 6, 7, Dumelow's Seedling; 8, Reinette du Canada; 10, Winter Queening; 11, Keswick Codlin; 14. Braddick's Nonpareil.—*X Y Z.* 3, Winter Crassane (Knight's); 5, Beurré Diel; 6, Old Colmar; 7, probably Thompson's; 8, Passe Colmar; 9, St. Germain.—*B B.* 1, King of the Pippins; 2, Court Pendu Plat; 3, Beurré d'Aremberg; 4, 6, Glou Morceau; 5, Beurré de Capiaumont; 9, Beurré Rance.—*W C.* Your Pear is the Bishop's Thumb.—*N H.* 3, Knight's Monarch; 5, Marie Louise; 6, Swan's Egg; 7, Hacon's Incomparable; 8, 12, Beurré Rance; 13, Urbaniste; 14. Aston Town; 15, Beurré Diel; 16, Napoleon; 17, Passe Colmar; 18, Braddick's Nonpareil.—*G G.* 1, St. Germain; 2, Franc Réal d'Hiver; 3, 5, Chaptal; 4, 6, Winter Nelis; 7, Passe Colmar; 9, Dutch Mignonne; 10, Beauty of Kent; 11, Rymer; 12, 13, appear to be the Gravenstein.‖—*E O P.* If you will send your fruits carriage paid to our office, they will be named as soon after they are received as it is possible to do so.‡

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*E B.* Rhus Cotinus, the Venetian Sumach.‡—*E M G.* Juniperus recurva.—*Acton.* Isopogon anemonefolius.—*F P.* We will compare the leaves once more and give you an answer next week.

Personalities: *D B C.* We will have nothing to do with such a discussion. All papers which admit them ultimately suffer for it—and very properly.

Phalænopsis: *J M A.* It is suffering from damp and too low a temperature combined. We will ascertain the name of the plant in time for next week.

Sermons: *A Sub.* We could not possibly venture to recommend books of sermons. You should consult the clergyman of the church or chapel you attend.

The Squash: *R W.* We now see that the squash you remember from your youth is a kind of Vegetable Marrow. The Americans have many kinds to which the name is applied. The French call them Pâtissons. Since you cannot get the seed through your seedsman, we recommend you to apply to Messrs. Charlwood & Co., Covent Garden.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
WM. INGLIS CARNE, 10, Mark Lane, London.

PERUVIAN GUANO.—As Agents of the Peruvian Government for the Importation and Sale of this valuable MANURE, we think it right, for the protection of consumers and respectable dealers, to apprise them that the adulteration of the article is still extensively practised, and to recommend them to apply either to ourselves; to our agents, Messrs. Gibbs, Bright, & Co., of Liverpool and Bristol; or to dealers of established character, in whose honesty and fair dealing they can place implicit confidence.—ANTONY GIBBS & SONS.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 69, King William Street, City, London.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE LONDON MANURE COMPANY'S NITRO-PHOSPHATE OR WHEAT MANURE FOR AUTUMN SOWING.—This Manure, composed of blood, animal matter, and dissolved bones with silicates, is most strongly recommended to the notice of Agriculturists. It contains from 7 to 8 per cent. of nitrogen, in a form yielding ammonia by slow decomposition, and is therefore particularly adapted for Wheat. The quantity required is 2 to 3 cwt. per acre drilled in with the seed. Price, per ton, 7*l.* 10*s.* in London.

PERUVIAN GUANO, FISHERY SALT, and every other MANURE on best terms, strictly warranted.
40, Bridge Street, Blackfriars. E. PURSER, Sec.

SEWAGE CHARCOAL MANURE.—This highly fertilising Manure, which is Peat Charcoal completely saturated with London Sewage, will be found most efficient for every species of crop; more especially for Peas, Beans, Turnips, Mangold Wurzel, and other root crops. It will produce a greater return for the outlay than Guano or any other Manure at an equivalent value: it also possesses the property of retaining its fertilising power longer than any other Manures now in use. It may be obtained at the SEWAGE MANURE WORKS, Stanley Bridge, Fulham, at 4*l.* per ton, and in quantities less than half a ton, at 5*s.* per cwt., for ready money only; and in quantities not less than a ton, will be delivered at the London Termini of the Railroads free of charge for cartage. No charge for sacks.

It may also be had from Messrs. G. GIBBS & Co., 26, Down Street, Piccadilly, Agricultural Seedsmen, Agents for London, and from all the other Agents of the Company.

DRAINING BY STEAM POWER.

JOHN FOWLER is prepared to undertake Contracts for DRAINING LAND by his PATENT STEAM PLOUGH, at prices varying, according to depth and distance, from 3*l.* to 5*l.* 10*s.* per acre, inclusive of tiles, main drains, and all other expenses. Contracts executed with great rapidity, and tiles manufactured on the spot, where suitable clay exists.—Temple Gate, Bristol.

DRAINAGE OF LAND, BOGS, ETC.

MR. HUMBERT, of Watford, Herts, supported by unquestionable references and testimonials, offers his services to proprietors about to execute works of drainage, which he will undertake personally to lay out and superintend, and to supply the forms and attendances necessary to obtain the certificate of the Inclosure Commissioners where such is required, at a charge of 5*s.* per acre and his travelling expenses; or he will contract to perform the whole work to the satisfaction of the Commissioners at a fixed price per acre. MR. HUMBERT (having been more than 15 years established in business as a Surveyor and Land Agent) has found that wet heavy soils can be usually, carefully, and thoroughly drained, with pipes 4 feet deep, at 4*l.* per acre and upwards, inclusive of every expense.

OWNERS OF SETTLED ESTATES and OTHERS desirous of availing themselves of the various recent Acts of Parliament, by which they may charge their Estates with money expended in the Improvement, Conversion, and Reclamation of Land, by Drainage, Irrigation, Embanking, Inclosing, making Farm-roads, Clearing, the erection of Farm-buildings and Machinery, Planting and other Agricultural Improvements, are respectfully informed that Messrs. HEWITT DAVIS & FRANCIS VIGERS undertake to advise and furnish Plans and Estimates, and if required, will contract to do the works, and dispose of the Rent charges.—3, Frederick's Place, Old Jewry, London.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
HENRY KER SEYMER, Esq., M.P., *Chairman.*
Offices, 52, Parliament Street, London.

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Sec.

ECONOMY OF FERMENTATION.

BUSHE'S PATENT ROOT GRATER, manufactured by FOWLER AND FRY, Temple Gate, Bristol, entirely supersedes the necessity of Cooking Turnips, Mangel, and other Roots; it effects a saving of 30 to 40 per cent. of the Roots, besides that of fuel. Price 3*l.* 10*s.* Printed testimonials and directions may be obtained gratis by applying to FOWLER & FRY, Bristol, Licensed Makers of CORNE'S Patent Chaff Cutters and General Agricultural Implement Makers and Dealers. The Root Grater may also be seen in the Agricultural Department of the Crystal Palace, Sydenham.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

FIRST PRIZE REAPING MACHINE.
NOTICE.

MESSRS. BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to SAYNOR & COOKE for their superiority of material and workmanship. Established 1738.

CHAFF CUTTING MACHINES from 21*s.*—A complete Illustrative Catalogue, all sizes and most improved description, will be forwarded on application to WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, London.

BRUISING MILLS FOR OATS, BEANS, MALT, &c.—Illustrated Catalogue will be forwarded on application to WILLIAM DRAY & Co., Swan Lane, Upper Thames Street.

PURE AND CHEAP BREAD.—Flour Mills for Family Use.—Grind your Wheat.—Pure Bread, and do away with medicine entirely, besides effecting a saving.
MARY WEDLAKE'S FLOUR MILLS, 4*l.* 10*s.* and upwards. Washing Machines, 6*l.* 10*s.*; Mangles, from 50*s.*; Chaff-cutters and Oat-crushers. Book on Feeding Horses, 1*s.*
118, Fenchurch Street, London.

SMITHFIELD SHOW, 1855.

TRIALS OF STEAM-THRESHING ENGINES.—The time run by TUXFORD AND SONS' FIRST PRIZE ENGINE, and that by the Engine of Messrs. Hornsby, of Grantham, at the Carlisle Meeting of the Royal Agricultural Society, in July last, with *Fourteen Pounds* of Coals to the horse-power, was—

TUXFORD & SONS ... ... 3 hours and 47 minutes.
Hornsby & Son ... ... 2 hours and 54 minutes.

At the North Lincolnshire Society's Meeting, at Boston, in August last, TUXFORDS' and Hornsbys' Engines again came into competition, when Hornsbys' was again left a long way behind. With 14 lbs. of a very inferior kind of Coal, the time run was—

TUXFORD & SONS ... ... 3 hours and 3 minutes.
Hornsby & Son ... ... 2 hours and 43 minutes.

And had the testing apparatus which had been supplied to the Society from Grantham, not indicated the steam pressure falsely by several pounds on the inch, the difference would have shown fully twice as much to the advantage of TUXFORD'S Engine.

At the recent trials of Threshing Machines at the Paris Universal Exhibition, M. Tresca, the Government Engineer, employed as the motive power one of TUXFORD'S Portable Engines that had previously been purchased by the French Government.

The Combined Threshing, Shaking, and Dressing Machine of TUXFORD & SONS was highly commended this year by the Royal Society at Carlisle, the Bath and West of England Society at Tiverton, &c.

Illustrated Catalogues, with prices, forwarded on application to TUXFORD & SONS, Engineers, Boston, Lincolnshire.

TO FLORISTS AND OTHERS.

J. JONES, IRON MERCHANT, has always a great variety of CYLINDRICAL and SADDLE BOILERS in stock, also Fire and Furnace Bars, Supply Cisterns, Double Doors and Frames, Furnace Grates, Soot Doors, Hot-water Pipes, Elbows, Tees, Syphons, Throttle Valves, Stop Cocks, Flange and Socket Elbows, &c.; also Trough Pipes.—Drawings and Prices of the above, or estimates given for the work fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

BALUSTRADING FOR GARDEN TERRACES, executed in Austin's Artificial Stone, by J. SEELEY (late Austin and Seeley), Nos. 1 to 4, Keppel Row, New Road.

This work is of the same constitution as Portland Stone, and after a winter's exposure is hardly distinguishable from that material: it has been extensively used in Scotland for 20 years.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES consist of MATTING, DOOR MATS, MATTRESSES, HASSOCKS, BRUSHES, &c., and are distinguished by superiority and excellence of workmanship, combined with moderate charges. Catalogues, containing prices and every particular, free by post.—T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
PROTECTION FROM MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

COLCHESTER POULTRY SHOW, 1855.—The THIRD GREAT ANNUAL EXHIBITION OF THE ESSEX ASSOCIATION FOR THE IMPROVEMENT OF THE BREEDS OF DOMESTIC POULTRY will be held in the Vegetable Market, Colchester, on THURSDAY, FRIDAY, and SATURDAY, December 27th, 28th, and 29th, 1855.

In addition to the ordinary Class Prizes, the Society offers the "COLCHESTER CUP," a piece of Plate, value 20 Guineas, for the best General Collection of Poultry, consisting of not less than 10 Pens, open to Amateur Exhibitors in the United Kingdom; and W. FISHER HOBBS, Esq., offers a PIECE OF PLATE, value 5 Guineas, for the best General Collection of Fowls, of not less than 6 Pens, open to Amateur Exhibitors in Essex or Suffolk.—Prize Lists, Certificates of Entry, Programmes of the Meeting, and any further information, may be obtained from the Secretaries, 10, High Street, Colchester, on application, post paid, and containing a stamped addressed envelope for reply.
By order of the committee,
W. FISHER HOBBS, Chairman.
*** The ENTRIES CLOSE on SATURDAY, Dec. 15.

THE BIRMINGHAM CATTLE AND POULTRY SHOW.—The Seventh Great Annual Exhibition of FAT CATTLE, SHEEP, PIGS, ROOTS, & DOMESTIC POULTRY, will be held in Bingley Hall, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, the 11th, 12th, 13th, and 14th of December. The PRIVATE VIEW and ANNUAL DINNER on TUESDAY, December the 11th.

There will be SPECIAL TRAINS on all the principal Lines of Railway, for which see the Advertisements and Bills of the several Companies.

PRIZE CATTLE SHOW OF THE SMITHFIELD CLUB.—The ANNUAL EXHIBITION of Prize Cattle, Seeds, Roots, Implements, &c., commences on TUESDAY MORNING and closes on FRIDAY EVENING, 11th, 12th, 13th, and 14th December. Bazaar, King Street and Baker Street. Open from daylight till nine in the evening. Admittance 1*s.*

The Agricultural Gazette.

SATURDAY, DECEMBER 1, 1855.

THE Society of Arts have arranged for the discussion of the subject of LAND DRAINAGE in all its aspects, methods, and results, at a meeting to be held during the ensuing meeting and exhibition of the Smithfield Club. Mr. BAILEY DENTON is to read a paper on the subject, and in accordance with the energetic and public-spirited plan always adopted by the Society, invitations to all those who have proved themselves interested in the subject have been issued in order to secure the full representation of every variety of opinion and of practice.

Deep and shallow drainage, air drainage, the Keythorpe drainage, spring drainage, will all no doubt be perfectly described and criticised. One of these peculiar systems was a prominent subject at the late meeting at Lord BERNERS', to which reference has already been made in our columns. Mr. TRIMMER'S geological researches, coinciding so accurately as they do with the Keythorpe practice, have elevated what was a mere instance of clever observation and successful practice into a subject of general interest and probably of general usefulness.

We may just refer here to the principle on which the practice is based, hoping, in the report of the ensuing meeting, to find in the addresses of the different speakers the full development of this and every other peculiarity connected with the subject.

The Keythorpe system of drainage was described last year by Mr. TRIMMER before a meeting of the English Agricultural Society, and it may be illustrated thus: In draining a farm very much cut up by the hedgerows of small fields, it was found advisable after grubbing up the fences to lay drains in all the old ditches and former open water-courses, in addition to the regular system of parallel underground drainage carried out over all. The water, it was found, continued to draw towards the old water-courses, and it became necessary therefore to retain them as drainage channels by laying tiles in each.

The thorough drainage of the Keythorpe estate in Northamptonshire, the property of Lord BERNERS, has been effected by attention to some such principle as this, only here the old water-courses which have been attended to, date, not from any previous arrangement of the surface of the soil by previous occupiers, but from a pre-existent arrangement of the surface of the subsoil (which is found to be furrowed into grooves and ruts of considerable depth) before it became covered with the soil. To this conformation of the under surface, which as a geological fact has long been known with reference

to some formations, Mr. Trimmer has called attention as of agricultural importance. When the subsoil is clayey and retentive and the furrows in its surface become filled up with porous material they are natural drains, or would act as drains, if exit were provided for the water which will gather in them, and Mr. Trimmer accordingly advocates the arrangement of the drains, not upon any regular system corresponding to the uniform supply of the water from the clouds upon the land, but upon a system which shall correspond in some measure to the irregular manner in which, owing to these natural drains, the water arranges itself after it has sunk beneath the surface. It is therefore recommended that by sinking pits and otherwise examining the structure of the land, the direction of these ruts beneath the surface be ascertained, and that then the direction of the drains be laid as nearly right across them as the fall of the land will allow. It is the existence of these ruts, not the cause to which theory assigns them, that is of any interest to agricultural readers, and therefore it is not necessary to state Mr. Trimmer's views upon the latter point: but it may be added that he has found them generally so far parallel as that having ascertained the existence and direction of any one such groove the direction of them all may be taken from it, and that of the drains then laid down, so as to combine in the best manner possible the line across these grooves with the line of surface fall. Attention to this subject at Keythorpe has resulted, it is stated, in a very economical and efficient drainage of the land. Whether that condition of the subsoil on which the system is based be so general as to make Mr. Trimmer's researches into the subject generally available remains to be proved. The latest information on this and on every other aspect of the subject will no doubt be fully brought out at the meeting of the Society of Arts, which will, we hope, be well attended and reported.

In previous Papers (pp. 730 and 746) the history of the Turnip has been traced until it has attained a position in which it may be considered as safe from its formidable enemy the *Haltica*, and the farmer is satisfied with having got "a plant;" but as a plant is by no means a crop it now becomes a duty to examine into some of the causes which may operate to prevent the realisation of those hopes which success so far might have engendered, to which end this paper will be devoted to an inquiry into those injuries to which the plant is liable from the attacks of some of the species of insects which feed upon the bulb in its young state. In doing this we shall now direct more particular attention to the wireworm and the larvæ of the cockchafer. From the earlier state of the root growth until it arrives at maturity the Turnip is liable to be eaten by wireworms, which we need not stop to describe any farther than to state that they are the larvæ or caterpillar state of some beetles; these eat into the very heart of the Turnip root, and by mutilating or destroying it either cause mutilated and ill-formed roots or ruin the bulb altogether, according to the severity of the attack. To destroy this pest many expedients have been had recourse to; the use of salt, lime, and various plans of manuring have from time to time been recommended and abandoned, and now after all the care and trouble bestowed in the inquiry *the encouragement of their natural enemies is found more to discourage their increase than all other plans put together*. Amongst those we may especially number the mole, rook, and starling.

It cannot be expected that so time-honoured a craft as that of mole-catching will be lightly given up, but if we recur to the fact that the mole was formerly considered as an enemy to the farmer and gardener upon the *erroneous supposition that he fed upon roots**, we shall in this case see reason to believe that he has been wrongly convicted, and if upon further inquiry we find that he lives entirely upon insects, and that the root-destroying wireworm is his principal food, we ought, unlike the law, not merely to grant pardon for offences never committed, but to cherish the victim of our former injustice.

As one practical case of the good done by moles has come under our own immediate observation within a recent period, it may be worth recording. The botanical garden at the Royal Agricultural College was for several years so overrun with the wireworm that no crop was safe—the garden esculents and the experimental plots all shared the same fate. Whether guided by his natural instincts to an abundance of food, or quietly introduced there by the intelligent Scotch gardener, who ever speaks of the mole and treats him as a friend—how he came we cannot pretend to say, but the mole established himself in the part of the garden most infested by the wireworm, and after two years' residence it disappeared, and what is so much to the point the wireworm has disappeared also. Much has been advanced both for and against the mole, but this much must be admitted, that he is carnivorous and almost insectivorous in his food, and it may therefore be a matter of grave consideration whether the injury he does by disturbing the soil is not more than compensated by the good resulting from his appetite, for we may be quite sure that like the Indian he will only stay in his hunting ground so long as it furnishes him with food; failing this, he migrates to a spot better adapted to supply his appetite, which is of a most voracious description.

At the season of the growth of the Turnip which it is our present object to describe, the larva of the Cockchafer (*Melolontha vulgaris*) is frequently one of the most serious pests. In this species the beetle, as is well known, may often be observed in thousands feeding upon most of our deciduous trees in the month of May—and hence the term May beetle, by which it is often known: in this state it does much injury by feeding on the leaves of the trees; its eggs are laid in the ground, and in a short time these, on becoming hatched, present the larvæ, which are at first small, but gradually becoming larger, in the space of three years forms a large fat grub, as much as an inch and a half in length. This bulk is attained at the expense of almost any crop among which they may be located, and amongst others the Turnip too frequently falls a prey to their ravages. We remember some three years since a friend of ours, who was a great enemy to rooks, came to us in great glee at having at last, as he thought, made out a clear case of felony against these respectable birds, which he had detected under the following circumstances. On passing the Turnip field he had observed the rooks very busily engaged among the plants from one end of the field to the other, and upon instituting inquiries as to their occupation he saw that the mere tops of the young plants eaten off from just below the collar were thickly strewing the ground heels upward, the bulbs which had just commenced forming having been evidently eaten away. Here, then, he had hastily concluded that the rooks with malice aforethought, and contrary to the laws of our sovereign lady dame Nature, had been feloniously enjoying a vegetable refection of Turnip roots; but on a more careful survey we found that the injury had not been just then inflicted; that the tops, indeed, bore evidence of having been gradually eaten away by a smaller creature than the rook, and upon looking along the rows we soon saw many sickly looking plants which were evidently suffering from some injury then in the process of infliction beneath the surface; and upon removing the soil we were not surprised to find a number of the larvæ of the cockchafer, varying from one to four at each sickly root. Here, then, was strong confirmation of the error of hasty observation, and consequent erroneous conclusions, as in this instance the very creatures which were considered by our friend as enemies were doing the part of real friends; and as they were afterwards left in quiet possession of the field, it is not too much to conclude from the numbers of the observed larvæ, that the saving of the crop was mainly attributable to their labours.

Again, some few years since, we saw, on a farm in Gloucestershire, a Turnip field so infested with these larvæ that a crop was obtained only by setting women and boys to grub about the plants, and hand-pick the caterpillars, for which service the farmer paid a few pence for every quart, and a tolerably large party for two or three days in that way obtained very good wages, the creatures, which formed a good-sized heap, being afterwards destroyed.

Now, the first of these instances occurred on a farm where rooks are abundant, but from some cause or other, perhaps from frequent molestation, they had gone far afield for their food, which they would still have done, if indeed they had not been executed on the spot but for a timely verdict of acquittal. However, in the second instance, rooks are unusual, and if guided to the place by their unerring instinct, the fact that a man was constantly employed to "keep birds" who was by no means chary of powder, is sufficient to account for the vast quantities of these creatures which occurred, especially when we consider that the enormous fecundity of these lower tribes of animals is on purpose to compensate for the myriads which if allowed would constantly fall a prey to their natural enemies.

The rook, too, is an enemy to the wireworm, which, with the larvæ just described, are among the most prolific sources of failure to the Turnip crop, both of them commencing their ravages after the plant is considered as safe, at which time the mischief is all the greater, inasmuch as the plants have been thinned, and therefore cannot well be replaced. Caterpillars, of some species of moth, are also enemies at this time, but as these, like the preceding, are best kept under by insectivorous birds, we shall not stay to describe them, but would conclude this part of the history of the Turnip crop by earnestly recommending farmers not hastily to destroy insect-eating animals, for although under some circumstances, especially if too thick, they may be compelled to have recourse to vegetable food, yet on the whole their tendency is so much to good that great evils must arise from their indiscriminate slaughter.

Here then, we would observe, let the owners of rookeries and the farmers be content with the annual thinning entailed by rook-shooting, not however in anger as against enemies, for we are convinced the more the natural history of the rook is inquired into the more shall we be inclined to look upon him as *the farmer's friend*, and that his behaviour to the all-important Turnip crop when understood, will ever ensure his being so considered.

* The writer when a boy was placed with a gardener and his wife for the benefit of country air and exercise, and he well recollects that this worthy man, who belonged to a club, was carefully nursing a promising double Stock in which to shine in the club procession on Whit Monday: but alas! a few days before, the flower drooped so sadly that the plant was taken up and examined, when its main root was found to have been eaten away. This mischief was at once attributed to "oonts" or moles, and vengeance of no ordinary kind was carried out against them.

THE YIELD OF LAST HARVEST.

My attention has been called to several letters which have lately appeared in the *Times* from Messrs. Caird, Turner, and others, speculating on the quantity of Wheat which has been grown this season in the United Kingdom; but these gentlemen have not attempted to inform the public how a larger Wheat crop may be grown during periods of scarcity, if not permanently, on the strong Wheat-producing soils of England. I therefore venture to state what I have myself succeeded in doing towards that desirable object this last harvest. My farm consists of 170 acres of strong clay land, which five years ago was unable to produce more than about 150 quarters of Wheat. Within that period I have drained, cleaned, and heavily manured the entire farm, and this harvest I am rewarded by a crop of the finest quality of White Wheat, averaging as nearly as I am at present able to estimate 5 quarters to the acre over 105 out of the 170 acres; and of this 105 acres, about 20 carried a very heavy crop of Oats and Wheat last year.

I have just now finished sowing some 116 acres, and have 18 yet to sow, after the roots have been removed by the aid of Crosskill's Railway, which by the bye, I always use for this purpose, when the land is at all wet, as it has been this autumn. It will thus be seen that a farm of the moderate extent of 170 acres can be made to produce 500 quarters of Wheat, of the very finest quality, without deterring the cultivator from taxing its productive powers, and a still greater extent for a succeeding crop. The secret rests in a system of deep drainage, thorough cleaning, and liberal manuring, with deep and perfect cultivation.

My growing Wheat crop looks as well as it is possible to do, and notwithstanding the doubts and fears, and may I add, hopes of many of my neighbours, I have every expectation of as fine a crop next year as I have succeeded in growing this year, and my intention is to continue successive Wheat crops as long as I can get 90s. per quarter for my 5 quarters to the acre. *J. C. Sherrard.*

Inverness-shire is of trivial importance as a grain growing county, the statistical returns for 1854 showing that of its huge extent (upwards of 3 millions of acres) the following only were appropriated to grain crops, viz.:—

1684	acres	Wheat.
3674	,,	Barley and Bere.
13,674½	,,	Oats.

Of the Barley and Bere fully one half is grown in the upland straths and remote islands of the Hebrides, where agriculture is very inefficiently conducted; of the Oat crop about two thirds may be ascribed to the same districts. I do not suppose that the acreage under crop for 1855 will much vary from the above, as though the high price of Wheat in 1854 was an inducement to sow as much as practicable, the practicability was much limited by the extreme wetness of October and November, and the frozen state of the ground in March. The Wheat crop is deficient of an average to the extent of 4 bushels per acre. The Barley and Bere crop is about an average. The Oat crop is deficient to the extent of 12 bushels per acre. The apparent causes for this short-coming in Wheat are the severity of the winter months, during which much of the seed sown perished, and the coldness and ungeniality of April and May, when the plants should have been tillering. Oats of course were subject only to the unfavourable influences of these latter months, from which Barley and April (bearded) Wheat, owing to their late period of sowing, were comparatively exempt. *S.*

Northumberland.—I think the crop of Wheat in this district will be about one-sixth below an average; Barley and Oats an average in quantity, but light per bushel. There will have been a little increase in the breadth of Wheat sown, on account of it being in some cases substituted for Barley. Potatoes above the average of the last few years. *Joseph Lee, Dilston.*—Whatever difference of opinion may prevail upon the aggregate yield of last harvest, I have, from a general acquaintance of this county, no hesitation in asserting

that the produce in Northumberland will be found far short of an average. Mr. Caird shows a pertinacity in his opinion that the last harvest will not fall above one million quarters short, and seems to lay much stress upon the increased breadth of land sown with Wheat last year. Mr. Caird must know something of Northumberland, having in its schools imbibed in his youth an acquaintance with our system of husbandry; improvements since then have made as rapid strides here as elsewhere, and the dormant productive properties of our soils have been called into active operation by the numerous modern discoveries in agriculture, as shown in the astonishing increase in the manufacture of beef and mutton, and in the additional production of our cereal and green crops, but the extent of land under tillage has rather decreased of late years in Northumberland than otherwise. The repeal of the corn laws, which unreflecting minds feared would throw all our arable lands out of culture, certainly did, during the panic, convert many fields into pasturage that had been under the plough; and as the growth of beef and mutton has of late been equally as remunerative as the cultivation of corn, consequently there has been no relapse to the former system of husbandry with us. Then, how far have the seasons been hurtful or favourable to an increased breadth of Wheat last year? The autumn of 1854 was undoubtedly of the most auspicious kind for the sowing of fallows, and even the month of January was mild and dry beyond precedent; but the spring was one of the most untoward and ungenial we ever remember; the sowing of spring Wheat upon the fine dry Turnip loams of Glendale, Bambro, and other favoured localities in Northumberland, was sadly curtailed by the severity of the snow storms and intense frosts which here prevailed till the middle of April, and a less than usual acreage of spring Wheat was sown. As the spring was late, so was the summer cold and ungenial. July was a wet month (rotting much of our new land hay); every farmer knows that the most critical stage of the growth of the Wheat plant is the blossoming time—it was easy to foretell the deficiency which exists in the yield of almost every field of Wheat, which had become lodged and deranged by the unpropitious weather in July, upon the inferior Wheat soils, of such considerable extent in Northumberland; the severe spring and cold summer operated no less against an average crop, either in bulk or yield, and the stack garths as well as the threshing floors at once solve the problem you put in your circular "of the probable yield of the last harvest." In Wheat we are deficient 20 per cent. Of other grain Barley is the most productive crop, though exhibiting a stain and unevenness in many samples. Oats are very deficient upon all inferior lands, and cannot, upon the whole, be pronounced a full crop. Beans and Peas, plentiful of haulm, but wanting in pods, and will give a prolific yield. Agricultural statistics are now occupying much attention. However satisfactory it might be to the statistician to know to a quarter the produce of our harvest, yet I confess myself one of those who have no faith in figures as a panacea to the many ills which beset the farmer. I have less in the certainty of obtaining correct returns; and figures, assuming all the authority of facts, while they rest on the most fallacious basis will ever be mischievous in their quotients. We suppose the subject of agricultural statistics is taken up at present as a Shibboleth by the farmers' friends, for lack of a more significant grievance. One stubborn fact presents itself for the reflection of the landowners—the waste, unreclaimed, but reclaimable acres that yet disfigure the face of the country. Not long ago Lord Stanley declared at an agricultural meeting, that there are 77,900,000 acres in the United Kingdom, of which 47,000,000 are under culture, 15,000,000 by nature unreclaimable, 15,000,000 reclaimable waste. Why, surely here is a field ample enough for the profitable employment of what used to be termed our surplus population. Fifteen millions of productive waste lands, and philanthropy in distress at the idea of a famine! P.S. A severe frost in the night of the 7th September damaged the unripe Wheat seriously upon our higher and later altitudes, otherwise the weather throughout the harvest was delightful in the extreme, and every sheaf housed in good condition.
S. Donkin, Bywell, Felton.

AGRICULTURE OF THE FRENCH EXHIBITION.

The winter session of the Edinburgh University commenced last week in the agricultural class with a lecture on this subject by Professor Wilson, whose services in connection with the Exhibition have been acknowledged by the French Emperor by the award of the Cross of the Legion of Honour:—

Professor Wilson remarked that the Agricultural Section was certainly the most comprehensive, if not the most important, of the various divisions of the French Exhibition. It included the following branches:—Agricultural statistics, manures, agricultural mechanics and engineering, cultivated crops, special crops, crops obtained without cultivation, farm stock, and agricultural economics. The first section contained few subjects of interest, and unfortunately the admirably organised statistics of Scotland could not be shown, as they would have contrasted too strongly with the poverty and prejudices of our southern neighbours. In artificial manures the fish guano particularly claimed attention, inasmuch as the practicability of the manufacture had lately been the subject of much discussion in scientific, as well as in commercial, circles. Various processes of manufacture were shown, illustrating a branch of industry to which attention might profitably be turned, particularly in such places as the fishing villages on the north-east coast of Scotland, where there was abundance of fish and fuel. The practice of drainage had hardly yet commenced in France. Some few most creditable examples existed, and were extremely well illustrated by plans, and by the exhibition of the comparative results of drained and undrained fields. In agricultural mechanics, England was represented by an excellent collection of the best manufactures of the leading firms, almost all the continental states were represented by their implements, while the United States showed its great mechanical applications in the shape of reaping machines. Notwithstanding this large display, however, there was nothing new to be seen. The ploughs comprehended almost every variety known, even from the most remote periods. There were numerous and somewhat ill-made copies of various English implements, a great number of threshing machines, horse powers variously contrived, some few moveable steam-engines, and one of a novel construction, having a threshing machine attached, and being carried on two large travelling wheels. The price of this machine was 168*l.*, and it was stated to do 250 to 750 bushels (30 to 90 qrs.) per diem. For districts where it was customary to let out power and the threshing machine, this appeared to be a good arrangement, being efficient in action, and economical in construction as well as in transport. The character of the English implements was well sustained in almost all the practical trials. In reference to the cultivated crops the lecturer said:—Rivalling the fine samples of hard Wheats from Algeria, were the white Wheats of Australia, Tasmania, the Cape, Canada, and Sweden; France, Spain, and Belgium also exhibited beautiful Wheats, both white and red—while the red Wheats of Portugal were very highly commended. Austria and Baden both furnished very comprehensive and well arranged collections of agricultural produce, and the quality of the Wheat exhibited by Turkey showed the richness of her soil, while its dirty unmarketable condition testified to the want of care of its inhabitants. Denmark, Sweden, Canada, and Hungary exhibited the finest samples of Barleys, and Tasmania sent a sample of Oats equal to any in the building. The specimens of Maize were very numerous and of admirable quality; the finest perhaps were from Algeria, Canada, Australia, Portugal, Hungary, and Styria. Rye and Buckwheat, two crops hardly known as bread corn in this country, were contributed by France, Bohemia, Denmark, Sweden, and Canada, in which countries they are very largely consumed. Samples of Rice were contributed by South Carolina, of remarkable size and colour. Algiers, Portugal, Tuscany, and the Pontifical States also exhibited their produce. Bavaria, Bohemia, and Belgium, sent fine collections of Hops of superior quality. Canada also exhibited samples, showing a marked improvement in quality since 1851. The advanced state of the Flax cultivation in France, Holland, Belgium, and Austria, was well represented—from each country an extensive series of samples of various qualities, and in the different stages of preparation was sent. The Tobacco specimens, I was informed, were of extraordinary quality—in many cases, I am sorry to say, superior to the samples of grain of the exhibiting country. Those most commended were contributed by Algeria, France, Austria, Baden, Spain, and Portugal. From Greece a small collection of grain was sent, as also a pot of honey from Mount Hymettus, which agriculture, still faithful to the traditions of the poets, pronounced to be the best in the exhibition. In the French department, the numerous exhibitors most creditably represented the agriculture of France; many of the collections of Wheat contained specimens whose names indicated their British origin. Here were represented the two newly-introduced plants—the Dioscorea Batatas, with its elongated fleshy tubers, indicating a capacity to become, in a suitable soil, an advantageous substitute for, or successor to, our old friend the Potato; the other the Sorghum Sacch., forming the climatal connecting link between the sugar Beet of the temperate and the Sugar Cane of the tropical zones. This plant, owing to the proportion of sugar it contains, obtained at once a high economic position, and has been the subject of experiments, both scientific and practical, upon a considerable scale. One exhibitor from Marseilles confined himself solely to the representation of its merits. The stem and seeds were shown of the living plant, as also a colouring principle obtained from them, and specimens of its application to silk and woollen goods—sugar crystallised, molasses, wine, alcohol, cider, and vinegar—farina, simple and in a manufactured state. I have refrained thus far from any reference to the representation of British agricultural produce—firstly, because it consisted only of a single collection exhibited by the Government and not by individuals: and, secondly, because the whole responsibility of it was intrusted to myself. When I recollect, however, how largely I was indebted to the liberality and assistance afforded me by a well-known Edinburgh firm (P. Lawson & Son), and that many of the most commended specimens were contributed by Lothian farmers, I am sure my motives will not be misconstrued if I tell you of the complimentary manner in which it was noticed by foreigners as well as by French authorities. [The lecturer read an extract from the *Conservatoire des Arts et Metiers*, speaking in high terms of the English collection.] In woods used for construction, and for ornamental purposes, the English colonies of Canada, Guiana, Jamaica, and Australia were without any rivals. The gigantic dimensions of the soft timber of Canada were only equalled by the strength of fibre and beauty of grain of the hard woods of lower latitudes. Such a large collection of specimens offered an excellent opportunity for testing their comparative values for different purposes of construction: and a series of experiments were carried out, the results of which, I have no doubt, will materially add to our knowledge of the relative strength of materials. Several very important experiments were made with reference to ship-building. Next to woods, vegetable fibres perhaps occupy the first place of importance in respect to our present industrial requirements. Our demand for them has increased so largely of late years, both for textile and paper purposes, and we have relied so much for our supplies upon other countries, that any disturbance in the markets of Europe immediately affects our own, and makes us anxious to discover new sources whence they can be obtained. It has long been known that the indigenous flora of the lower latitudes contain multitudes of plants furnishing excellent fibres, suitable for well-nigh every purpose, but it needed an industrial crisis like the present to invest the specimens exhibited of different countries with the importance they so well merited. In these, also, our colonies took the lead—Guiana and Jamaica both contributing large samples of their produce. In cottons there was little to notice except the specimens exhibited by two new producing countries—Algeria and Australia. Those from the former were beautifully prepared, and of several varieties, but with all the care and expense bestowed upon then, were not the representatives of a successful cultivation. From Australia only one variety—the ordinary short staple cotton—was sent, and that under its ordinary commercial garb; but what it lacked in appearance, when compared with its showy rival, it possessed in value and importance, and the reception of the produce in the home market will no doubt ensure a successful development of its cultivation in the colony. In wools the number of exhibitors was very large: probably so large and comprehensive a collection was never before got together. Specimens were sent from almost every country—from Arctic Greenland to the plains of Hindostan. The extensive display of fleeces and sample wools from Moravia, Silesia, and Bohemia were of the highest class, and were contributed from the most renowned flocks of those countries. Those from Hungary, Transylvania, and Gallicia were also excellent in their class, but fell short of the fine qualities of the Moravian flocks. The Prussian collection comprised small samples merely; the quality of those from Brandenburgh, Posen, Westphalia, and Silesia made us regret that entire fleeces had not been sent. From Spain, the native pastures of the Merino, our expectations were not realised; notwithstanding their geographical advantages, these wools could not stand a comparison with the produce of German flocks. The fleeces of Leon and Segovia have no longer their ancient reputation; and, though the Government has striven to resuscitate the breed by the importation of Saxon rams, the want of more successful results indicates clearly the backward and neglected state of Spanish agriculture. The collections in the French department were comprehensive in character and admirably arranged, possessing, in many instances, a particular interest for an English observer, as many fine specimens were exhibited of fleeces indicating, in whole or in part, an English origin. Here not only was the pure Merino breed represented, but also the celebrated Rambouillet and the Métis Merino; and these, again, crossed with our Leicester, Romney-Marsh, and Southdown breeds. Some few flocks still exist in France which have preserved the ancient character of the fine short-stapled Merino wool. This, however has been secured by a continuous system of breeding in and in, and at the expense of a considerable depreciation in the animal, and also of certain valuable properties in the wool. The International Exhibition, grand and spacious as it was, could not, within its walls, do full justice to Agriculture—the true productive industry—the real standard of a country's wealth. Beyond its walls was reared another range of buildings, and there were seen in well-nigh countless lines the living specimens which were denied admission among the inanimate productions of the farmer's skill. These contained the picked representatives of breeds for which the different exhibiting countries were most celebrated—the dark spotted Holsteiner and the large framed Schweitzers, both famed for dairy purposes, were well represented. Alongside were seen the ever neglected German breed, with their improvement by an Ayrshire cross. Specimens of the draught cattle from the banks of the distant Vistula—the cream coloured Comptoise, the team oxen of France—the brindled Normande—the small framed Bretonne—and the milk white Charolaise—a breed which struck our English eyes as possessing all the physical outline of an improvable stock. The fine short-woolled sheep of Germany were amply represented, while the heavier breeds of France admirably exemplified the characteristics of her rural policy. Our own country, too, though somewhat tardy in her appreciation of the attempt, sent specimens of her leading breeds—Shorthorns, Devons, Herefords, Leicesters, and Southdowns—names now current abroad wherever systematic agriculture is known—animals which have done more to spread the fame of England's agriculture in distant lands than all the treatises that have been received from the press. This vast collection of living specimens, in addition to the General Exhibition, rendered the circle of agricultural produce complete, and the banner of Ceres, with its international quarterings, waved triumphantly over the Champ de Mars. There for the first time the domesticated animals of different countries were brought together in friendly rivalry. France completed in the Champ de Mars what England began in Hyde Park. The blank then left in industrial competition was filled up, and an example offered to us, which, I am happy to see, has already been productive of good effects. The excellent arrangements and the admirable organisation of the show left nothing to be desired; while the policy that suggested, and the liberality that encouraged, this onward movement were acknowledged by every one, I think, who participated in it. A living "Book of the Farm" was opened on a scale and under conditions such as had never occurred before. Each country had sent her best, and these all stood together within the same wide area, models of their respective races, standards of comparison by which the farmers of France could estimate the native breeds, or stocks from which they could draw supplies either to improve or to replace any that were found deficient. The success of this great experiment was shown, as regards England, by its renumerative results to our exhibitors; as regards France, by its intended repetition on a more comprehensive scale next year. In the interests of agriculture let us wish it all success. This brief sketch (said Professor Wilson in conclusion) which I have given you has touched but the surface—the salient points of interest which naturally present themselves to the ordinary observer. But a man cannot long remain an ordinary observer whose duties lead him day by day, and week by week, to the examination of these great and varied evidences of Divine beneficence. He cannot compare unmoved the productive ratio of skilled and Christian Europe with that of the dark unevangelised nations of the East. He cannot but trace the hand of Providence in adapting the wants and the produce of a country to each other, whether he seeks for it in the contributions from the ice-bound shores of Scandinavia, or the sunny lands of south latitudes. He feels, after all, how poor are man's efforts and how small is his success, when, with all the powers of advanced civilisation—the matured intellect, and the developed skill—he cannot rival the beauty and the richness of those productions which nature has bestowed on lands over which her sway is still undisturbed. His intellect may originate—his skill may apply—science and heart may lend—means for the adaptation of nature's gifts to his daily need, but his own finiteness must ever come home to his mind with the great truth that "though as Paul he may plant and as Apollos may water, 'tis God that giveth the increase." (Applause.)

Home Correspondence.

Agricultural Education.—The following well written passage is from the address of the president of the Canadian Agricultural Society at their late anniversary: A man is not deemed competent to make a coat or a shoe who has not served an apprenticeship of several years. Yet men are expected to manage farms who are mere tyros in experience, and in great measure ignorant of the science of agriculture. If the next generation of farmers could be well educated in their profession, it is almost impossible to estimate the vast change which would take place in the world's progress. What is urged is, Education, in the true and proper sense of the term, namely, the thorough training of the mind with a special reference to the practice of Agriculture. It includes the theory and practice of the profession, neither separately, but both combined. Theory alone cannot make a man a good farmer. In order either to do work well, or to be fitted to direct others in the performance of it, a farmer ought with his own hands to have gone through the process. A young man, when commencing his course, should begin at the rudiments, and progress step by step to its completion; doing with his own hands, daily, the labour in each department. But together with the correct practice of farming, he must call in the aid of science in order to make him a good farmer. Science must assist him by telling him what sustenance each kind of crop requires, whether it be organic or inorganic, and from a careful analysis of the soil, whether such substances be among its component parts, and in the necessary proportions. No amount of merely practical skill can in all cases indicate this; science alone can determine it. How often is the merely practical man bitterly disappointed when, after preparing a field in his usual way, he finds that the crop falls far short of his expectations. Such failures cannot be accounted for by any incidental and obvious causes; there is the want of something to complete the amount and kind of food necessary for the crop, but he can't tell what that some-

thing is. Here science must aid him, or he will be left to grope in the darkness and mist of uncertainty. We may learn much from the book of experience, but its teachings are vague and uncertain, unless we are somewhat acquainted with the laws which regulate the universe. A physician practising his profession in ignorance of general principles, and trusting to his experience, might avoid doing much mischief in ordinary cases, but in those of complexity and peril he would be completely at sea and utterly helpless. The like case is that of the farmer who has no scientific knowledge. He may indeed wish to read correctly the laws of the practical world, but this he cannot do accurately without science. This is the difference between the empirical and the scientific physiologist. The empiric is contented with observing and recording the resulting fact, while the scientific physiologist must ascertain the manner in which physiological laws operate. The attention of the one is directed to results in the improvement of his art, and that of the other to the enlargement of his stock of knowledge. There is a strong tendency in those two methods to combine and unite in one grand result. That they do so combine is unquestionably true. All science is true, and the results of the operation of the great principles which it teaches must be exactly in accordance with it. Now, the object of the science of agriculture is, to construct a scheme of knowledge which shall not only explain results, but be a guide to the evolution of correct systematic practice. This identity of result is not merely important as respects the discoverers and improvers, but to man as man, elevating him morally and intellectually, and providing largely for his temporal wants.

Draught of Steam Plough—Can any of your readers who have a dynamometer, and with rope, say 200 yards long or any given length more, sufficient to draw two or more ploughs in a framed carriage such as Williams', say what is the draught required to draw it over, first, level land or a regular inclined plane; second, over a convex surface (stating the convexity); and thirdly, over a concave surface, stating the concavity as nearly as possible? The object we have is to ascertain what additional draught such a rope would add to the plough carriage in ploughing, supposing it wound up upon a drum or windlass at the headland by a stationary engine. Any party who can answer the question will readily appreciate its importance at the present moment, and may vary it in any manner he thinks best calculated to afford information. If we could ascertain again the strain upon the two anchors of an endless wire rope in being drawn over the ground empty it would be of great value. *W. B.*

Drains with Brushwood.—The reply of "A Constant Reader" to the inquiries of "H. B.," although written with much authority, is far from being in accordance with the experience of the present day. With respect to using Brushwood, I should not venture to say, as he does, "lands may be safely drained with it," even admitting "it may last ten years," seeing that when it commences to decay the drains become partially stopped, and the land is made very much wetter than ever, and far more difficult to drain, from the lodgments of water in the old drains; nor can I consider, seeing how small is the cost of pipes, that it can ever be advisable to use Brushwood. Of this I am sure—it is always adviseable for the landowner to come forward and arrange with the tenant for the substitution of pipes; and with respect to the recommendation to use "the old-fashioned horse-shoe tile laid upon a flat sole," fortunately there are so few now made, and they are so seldom to be had—the introduction of pipes having very generally altogether superseded them—that very little harm can come of it. They have ceased to be used because the pipe is found to be a far cheaper and stronger material; the first cost being one-half (the 2-inch pipe is made for 14*s.* to 18*s.* per 1000, while the tile and sole costs 30*s.* to 40*s.*), and the cost of cartage and cutting the pipe drain, and laying the pipes, is also less; and the tile, as I have myself experienced, and as Mr. Gisbourne, in his very superior little work "On Agricultural Drainage," has pointed out, has long since been found unable to resist the great lateral pressure of 4 feet of clay and soft soils. They split along the back, and the sides are pressed together by the weight of 4 feet of earth lying against them. With respect to "cutting the drains across the fall," I am at issue with "H. B." I am persuaded from my experience that the action of a drain ceases to be perfect whenever taken out of the line of greatest fall. The water in the soil, until set in motion by draining, is in a state of rest, and then does not flow on the face of a plane, or like rain over a surface, but rises into the drain, and takes a course down the line of greatest descent: if the drains take that course, the water follows the drains; but if the drains cross the line of descent, the water will soak from the lower side of the drains into the soil below; for the drains are not like gutters or sunk channels, that catch the water on the upper side and hold it, and do not admit of a passage across, but are always of material that affords the like facility of escape as of entry. Nature, (our master drainer) in the course of rivers, which are the earth drains, ever follows the line of greatest descent, and the stream when turned aside, will still, by its soakage into the lower ground, show its tendency to take its natural course and true line of drainage—namely, down the line of steepest declivity. *Hewitt Davis, 3, Frederick's Place, Old Jewry, London.*

Cotton Seed Cake.—My attention has been directed to Sir T. Parkyns' letter in the *Gazette* of the 20th October, and as no one has replied to that letter, I think it my duty to do so, in justice to those gentlemen who had made, imported, and used the cake there referred to prior to Mr. Barber. Notices of it will be found in the "Tran-actions of the Highland and Agricultural Society of Scotland" of 1850, No. 28, and in the "Journal of Agriculture," No. 45, both published by Wm. Blackwood and Sons. Mr. Burn, Merchiston House (a friend of my own), referred to in the "Transactions of the Highland Society," as the first maker of the cake in this country, holds a medal awarded by the jurors of the Great Exhibition of 1851, as the importer and manufacturer of the seed, and also obtained honourable mention as the exhibitor of the only sample of Cotton seed cake. I have been importing the cake for years back, and latterly the seed, and I would suggest that instead of the cake being called after any gentleman it ought to retain its appropriate name of "Cotton seed cake," to distinguish it from Linseed, Rape seed cakes, &c., and by which name it has been known in Scotland for some years. I will be glad to show the cake to any one desirous of seeing it, and can give the names of highly influential agriculturists in the Lothians and in Fifeshire who have made use of it for feeding. *James Bennett, Leith.*

The Sunflower.—I have copied the following from a newspaper paragraph; will you kindly give in your next Number some information respecting the cultivation of the Sunflower, and the process used to extract the oil and make the cake. "The Sunflower is now much cultivated for its oil, and as food for cattle and poultry. One acre will produce 50 gallons of oil and 1500 lbs. of oilcake. The stalks when burnt for alkali give 10 cwt. of potash. *An Admirer.*

Root Crops at Canarn, Mylor.—Passing through this farm the other day, I had but just finished admiring the beautiful green hue of one of the Grass fields through which I had just passed, as also the fine handsome short-horn cows that were grazing in it, when I came into a field where the hands were busily employed taking up the crops of Mangels and Turnips. My attention was immediately drawn to the enormous size of some of the former. On mentioning it to the farmer, Mr. B. Lawrance, he at once complied with my request to get some weighed. Four square yards of each of the following were then measured off, and after being taken up and carefully divested of all the adherent soil, but not tops, weighed as follows:—

	lbs.	tons.	cwt.	qrs.	lbs.
Mangels, Yellow Globe =	99 =	53	9	2	6
Turnips, Coppertop Swede =	76 =	41	1	0	8
" Pomeranian White =	80 =	43	4	1	4

per acre. The Mangels were put in early in May, in drills 20 inches apart, with a dressing of 3 cwt. 2 qrs. of guano per acre; Swede Turnips late in June; White Turnips middle of July; each with a dressing of 1 cwt. guano and 2 qrs. of bones. The Swedes, I was informed, would have been much larger, but for that little pest the fly having carried off the whole of the first sowing. Better Turnips than the White ones I have never seen, and I should say they cannot be too highly recommended. No fingers and toes are to be seen here, but a handsomely formed large Turnip. *Observator.*

Farmers' Clubs.

Grimshoe Hundred.—*Economical Feeding of Stock.*—Mr. Phillips said his idea was, that there was a great waste committed in the feeding of animals by giving them at one time more highly nutritious food than they could properly assimilate to themselves; it hence passed through them in waste; and his remedy was to add largely to that nutritious food other and more bulky and less nutritious substances, which while it filled their bellies, which it was essential to do, would not throw into the system more nourishment than it was capable of assimilating. Thus in feeding farm horses, whose work was slow, instead of giving them a feed of unmixed Oats, he gave them their Oats reduced (so to speak) with a large portion of steamed straw chaff; and even for the Oats, or at least a large part of them, a portion of roots, either Carrots or Swede Turnips, minced with his patent mincing machine, might be substituted in mixture, with the steamed straw chaff; so that instead of giving working horses what in this district was the usual allowance, namely 2 bushels of Oats per week, weighing about 35 lbs. per bushel, he only gave them half that quantity, and sometimes even less. He held it to be important also, in the feeding of horses, to crush their Oats. He was satisfied there was a great saving effected by so doing. It was also an excellent method, in the feeding of horses, where it could be obtained, to feed them largely with Gorse or Furze, crushed; they were very fond of it, and did extremely well upon it; and in the feeding of neat stock he carried on the same system. He never gave them highly nutritious food unmixed with food that was less nutritious; whether therefore he gave them linseed-cake, or even roots, he always mixed them with a large portion of minced straw chaff, steamed, which they eat with avidity. The quantity of highly nutritious food thus went fully as far again, and though the animals did not perhaps graze altogether so fast, yet they had the agreeable conviction that there was no waste committed. The same applied to the feeding of sheep, whether fatting or otherwise; let their roots be reduced to a fine state by mincing, and mixed, in their troughs, with a portion of steamed straw chaff. It was an excellent plan also in the feeding of sheep (indeed, he did so with all sorts of stock, and even horses) to let a lump of rock salt remain in their troughs or mangers. But as to sheep—he meant fatting sheep especially—he thought it highly important to furnish them with shelter, even while they were grazing on the open breaks. For this purpose he had portable houses as lightly made as possible, consistent with a proper degree of strength, 10½ feet long and 5 feet wide, open on one side, and closed at the back and the two ends. These he spread about the fold, and the sheep, after they had filled themselves, retired to them for warmth and shelter. Thus a great portion of the food, which would otherwise have been expended in keeping up the animal heat, became converted into nutriment, and was, consequently, so much food saved. In feeding of pigs, too, he resorted to the same expedients. He never gave them meal unmixed with bran or pollard; and he also most frequently gave them steamed roots in addition; and thus in feeding pigs for the London markets, for which purpose pigs from 40 lbs. to 50 lbs. were amply large enough, of which he fed a large quantity, he hardly gave them any corn at all. Parsnips, by the bye, were excellent roots for fatting pigs. When he exhibited his prize pulping machine, at the Smithfield Cattle Show last year, a gentleman from the Isle of Ely came to his stand, and seeing his mincing machine there, was much taken with it, and said it was just the thing he had been seeking hitherto in vain, a machine for reducing roots to a fine mince. He said he was in the habit of growing a large quantity of Parsnips for feeding pigs for the London markets; now he would grow double the quantity, and he would have five of his (Mr. Phillips's) machines. At this time 15 of them had been sent into the same parish.

Reviews.

The Agriculture of the French Exhibition; an Introductory Lecture, delivered in the University of Edinburgh, Session 1855-6. By J. Wilson, F.R.S.E., and Professor of Agriculture in the University of Edinburgh. Edinburgh: Adam & Charles Black.

We have received a copy of this lecture since the condensed report of it in another page was put in type. Its readers will find that the account of it which we have given is a very abridged and condensed statement of the original, which is remarkable, as all Professor Wilson's writings are that we have seen, for simple adherence to the subject, without digression of any kind, whether for rhetorical effect or for the gratification of mere amateur students. The lecture is simply and very fully instructive on the agriculture of the French exhibition. We extract a passage in illustration of the whole. It relates to the specimens of timber exhibited by Canada:—

"Thus far I have only touched upon the produce of cultivated crops, and these have for the most part been the food substances of Europe. Of these, even some fine specimens were sent from our own colonies, but their strength and importance were displayed in the admirable collection of the produce of special crops, or of those obtained without any cultivation at all. First and foremost of these, in number and beauty of specimens, if not in actual importance, must be classed the woods used for construction and for ornamental purposes. In these the English colonies of Canada, Guiana, Jamaica, and Australia were without any rivals. The gigantic dimensions of the soft timber of Canada were only equalled by the strength of fibre and beauty of grain of the hard woods of lower latitudes. Each specimen in these large collections was correctly named, and formed an object of study for the economic botanist, no less than an object of commercial interest to the merchants and artificers of Europe. Such a large collection of specimens offered an excellent opportunity for testing their comparative value for different purposes of construction; and a series of experiments were carried out, the results of which, I have no doubt, will materially add to our knowledge of the relative strength of materials. The importance of these experiments would probably be more readily seen in reference to shipbuilding than to any other ordinary purpose for which wood in large quantities is required. In shipbuilding about 40 cubic feet (using round numbers) are required per ton—say 32 cubic feet for the hull, and 8 cubic feet for fittings—this would give for a ship of 1000 tons 32,000 × 8000 cubic feet. The two important elements for the consideration of the builder are strength and specific gravity, both separately and in relation to each other. The value of the former is not so generally determined as that of the latter; indeed this formed the principal object of the experiments alluded to: let us see, then, how far the latter element of the physical character of timber influences the ship. The first-class woods entered at Lloyd's are eight in number—English Oak, American Oak, African Oak, Morung Saul, East India Teak, Greenheart, Mora, Iron Bark; these mostly differ considerably in specific gravity. A cubic foot of English Oak weighs 40 lbs.; of American Oak, 46 lbs.; of African Oak, 50 lbs.; of Malabar Teak, 39 lbs.; of Mora Excelsa, 62 lbs.; of Iron Bark, 65 lbs. Besides these, other woods are largely used, as Honduras Mahogany, which weighs 31 lbs. per cubic foot; Eucalyptus, 50 lbs.; Canada Pine, 22 lbs.; and Cedar, 25 lbs. Now, taking these specific gravities into calculation, the hull of a 1000-ton ship would require of English Oak, 572 tons; of American Oak, 657 tons; of African Oak, 714 tons; of Teak, 537 tons; of Mora, 885 tons; of Eucalyptus, 714 tons, and of Iron Bark no less than 930 tons; while it would only require of Mahogany, 443 tons; of Canada Pine, 316 tons; or of

Cedar, 362 tons. Taking the two extremes, Iron Bark and Canada Pine, a difference is shown of 614 tons—nearly 200 per cent.—in the displacement tonnage of the vessel and consequent increased capacity for freight.

Calendar of Operations.

NOVEMBER.

BORDER OF THE FENS, *Nov.* 24.—If one fine October was invariably followed by another fine October and a wet November always occurred, it would be easy to prescribe out-of-door operations, and to advise without fear of disappointment; but the experience of old farmers avails nothing further than giving vigilance to use every favourable opportunity to complete Wheat seeding, and provide shelter and food for stock, and to guard against severe and wet weather in taking up and storing roots. The unusually sharp frost of the 15th November made every one busy who had a Potato heap to cover or Mangels to take up, and the wet, foggy, cold weather since has caused much additional care to be given to littering stock, shifting sheep from wet lairs, and looking after the roofs of stacks wherever any signs could be detected of the rain having penetrated to the corn below As to Mangels and Turnips, they have shown such evident signs of continued growth during the late rains by greenness of top and short juicy tenderness of root, that we have not been willing to disturb them sooner than necessary, that we might secure as much weight from them as possible. For pulling Mangels and taking the leaves off we give 12*s.* an acre, for Turnips 8*s.* and 10*s.* The Coleseed is finished, and the lambs put on Turnips; the ewes have been separated from the tup, and in the course of a week will have a slight dressing of sheep ointment which is termed "lining;" it kills lice, and is supposed to promote the growth of wool; from 12 to 14 lbs. of ointment, containing 3 lbs. of quicksilver, is used to 100 ewes; a somewhat larger quantity is required in case of scab, and though the application of ointment is rather expensive, yet if well prepared it is far superior to any "specific wash" in use, whether composed of tobacco, arsenic, sublimate, or any other poisonous stuff whatever. The beasts are of course all sheltered by this time in yards, boxes, or stalls; if fresh and old enough the largest are receiving, with straw and Turnips, 4 lbs. of Linseed-cake per day, and as old Beans at 56*s.* per quarter are cheaper than cake at 15*l.* per ton, we shall try some as recommended in the recent valuable discussions at the Farmers' Club and in Hampshire. Although a good deal of Wheat is above ground, and looks strong and healthy, yet there is much to sow, as whatever may have been the case last year, there can be no doubt that every available piece of ground will be devoted to an increased breadth this season; there are many indications that the course of cropping will be directed to this object, and that not only will it take the place of Barley and Oats in the strict turn of rotation, but will for "once and a way" be made to follow them, with or without guano or any other excuse for the perpetration of such heresy in these times of progress, for as a high authority has said—"who would have the face to go to law with a man in these days of scarcity for growing too much Wheat?" It would be well notwithstanding to be careful of the life of the goose, lest too serious an impediment should be raised to the appearance of future "golden eggs." *J. W., Peterborough.*

CHESHIRE, *Nov.* 21.—Since our last report we have had six or seven weeks of most propitious weather for the various operations of the farm. Wheat sowing is in a very forward state, and the land is still in fine condition for receiving the seed, where from unavoidable circumstances it had been delayed. Potatoes have generally been well secured, but the accounts respecting the crops, as compared with last year, are exceedingly variable. On one farm we hear of their being superior as to quality and quantity to any of the crops within the last ten years, or from the commencement of the disease in 1845; on another farm we are told they are far inferior in both respects to those of last year. therefore, from the various accounts which reach us, and the price they are selling at in the market, we may infer that the crops generally have been only moderate, and that the disease still continues to a serious extent. Mangel Wurzel, which are generally considered an average crop, have in a great measure been secured from the frost, and Turnip-pulling and storing have commenced in good earnest on some farms. Last winter's frost has taught the farmers a lesson which they will not soon forget. The yield of Wheat and Barley proves, as was anticipated, very deficient, but it is a great blessing that the small or light corn, of which there is an unusual proportion, is perfectly sound, and will make wholesome bread as far as it goes. Labourers are plentiful, and it is to be hoped that the farmers will continue to employ them at fair wages throughout the winter, for on that will depend the comfort or misery of the labouring classes of our agricultural population. It is the practice of many farmers to turn off their labourers on the approach of winter, or as soon as they have secured their harvest and green crops, and not to take them into their employ again until the days begin to lengthen in the spring. This is unjust towards them, and it should be borne in mind that they have to support themselves and families in the winter as well as the summer, and at a greater expense, too, on account of additional expense of coals and warm clothing. Grass is scarce, but farmers are induced by the mildness of the weather, and from the fear of being short of fodder, to keep out their cattle at night to a later period than usual. Late-sown Swedes, which almost invariably escape mildew, have grown astonishingly within the last few weeks, and in many instances prove sounder and better crops than the early sown ones. We have seen very satisfactory crops sown as late as the 21st June. Cattle of all descriptions are selling well, and we do not hear much of that dreadful scourge, the pleuro-pneumonia. *W. P.*

WESTER ROSS, *Nov.* 20.—Since I last wrote we have had a continuation of weather uncommonly fine, scarcely a shower having fallen for a month, and with the exception of a few frosty nights, it has been extraordinarily mild. Potato lifting was accomplished in the best possible condition. A large breadth of Wheat has been sown and beautifully harrowed in. Turnip-storing, so far as yet proceeded with, has been comfortably performed for man and beast, and a very large proportion of our green crop lot has received its winter furrow. We are thus so far comfortably prepared for the approach of frost and snow. There was a large breadth of Wheat sown last year, but this year there will be sown a breadth larger still, as most farmers having already sown about an average, are seriously bethinking themselves what additional field can be laid under that gold-yielding grain with any chance of a fair crop. Our stacks are thrashing out pretty well, but when we calculate the return per acre we find that the additional breadth sown will have much to do to make up for the general deficiency. The quality is uncommonly fine, the ordinary weight per bushel being from 63 to 64 lbs., and a few days ago there were samples shown at our seed exhibition weighing 66 lbs. per bushel. In the earlier sown fields the braird is making its appearance. We have a much smaller quantity of Barley to dispose of this year than usual, the greatly increased sowing of Wheat having encroached on its usual allotment, and the crop itself being inferior. Little of it has as yet been thrashed; two guineas per quarter is freely offered. Oats are still more inferior than either Wheat or Barley—inferior both in quantity and quality. The average weight per bushel is under 40 lbs. Sheep are rejoicing because of the weather, and thrive apace. Hogs reached us, for their wintering, from the hills in much worse condition than for many years bygone, having suffered much from the uncommon severity of last spring, but are now speedily making up for the starvation they endured. At our last Muir of Ord market lean cattle were nearly unsaleable, and the few disposed of fetched greatly reduced prices.

Notices to Correspondents.

BEANS: *M.* A correspondent in the *Agricultural Gazette* of October 13th recommends boiled or steamed Beans, for the food of horses, but he does not say how long they should be boiled, or whether they are to be put in the water when cold, or when the water is at its boiling point. Perhaps he will describe his practice in fuller detail.

COMPOSITION OF CROPS: *A Cor.* The following is a portion of the information existing on this subject, extracted from Mr. Hemming's tables, in the Journal of the English Agricultural Society. It gives the composition per cent. of the whole plant:—

Plant.	Parts.	Water	Organic Matter.	Ash	Azotised ingredients.	Fatty matters.	Starch	Sugar, gum, &c.	Fibre.	Sulphur.	Sand and Silica	Potash.	Soda.	Lime.	Magnesia.	Alumina.	Oxide of iron.	Oxide of manganese.	Chloride of Potassium.	Chloride of sodium.	Phosphoric acid.	Sulphuric acid.	Carbonic acid.
Wheat	Grain	11.7	86.6	1.67	11.7	0.5	63.9	10.1	0.9	...	0.06	0.53	0.05	0.06	0.21	...	0.01	...	...	...	0.77	0.005	...
	Straw	12.	83.	4.5	1.5	2.3	30.7	0.3	51.0	...	2.80	0.81	0.11	0.33	0.09	...	0.02	...	...	...	0.12	0.14	...
Barley	Grain	11.	86.8	2.19	10.9	0.4	54.5	...	13.7	...	.69	0.46	0.03	0.04	0.16	0.15	0.05	0.02	0.09	...	0.63	0.04	...
	Straw	15.	79.1	5.92	...	...	...	...	...	...	3.86	0.18	0.05	0.55	0.08	...	0.01	...	...	...	0.16	0.12	...
Oats	Grain	9.5	88.2	2.3	13.0	4.1	42	3.7	22.3	0.07	0.98	0.34	0.05	0.16	0.16	...	0.05	...	0.11	0.01	0.73	0.14	...
	Straw	10.4	82.5	7.1	1.3	0.7	85.2		46.3	0.25	2.52	2.06		0.48	0.18	0.18	0.06	0.01	0.65	...	...	1.15	...
Rye	Grain	15.0	83.6	1.36	8.8	2.9	58.5	11.7	6.7	...	0.13	.006	0.05	0.04	0.18	0.18	0.01	...	...	...	0.57	.003	...
	Straw	10.2	86.7	3.13	26.9	...	...	...	...	...	0.10	0.20	0.06	0.15	0.13	.0003	0.01	...	...	...	0.32	0.02	...
Beans	Grain	14.8	82.7	2.65	...	2.0	37.6	6.3	9.9	0.25	0.02	1.11	0.02	0.23	0.18	...	0.01	...	0.08	...	0.86	0.12	...
	Straw	9.6	83.8	6.60	...	...	44.6	6.8	10.4	0.35	0.36	1.14	0.17	2.50	0.44	0.44	0.12	...	0.05	...	0.30	0.38	...
Peas	Grain	14.9	82.8	2.34	19.3	1.9	...	...	1.9	0.23	0.08	0.93	0.02	0.14	0.15	0.15	0.01	...	0.03	...	0.81	0.13	...
	Straw	9.6	85.8	6.6	...	...	...	...	...	0.35	0.36	1.14	0.17	2.5	0.44	...	0.12	...	...	...	0.30	0.38	...
Linseed	Seed	10.6	85.9	3.52	...	...	0.2	...	6.9	...	0.05	1.20	0.06	0.80	0.46	...	0.02	...	...	...	1.36	0.06	...
Turnip	Bulb	90.0	9.3	0.73	0.3	...	...	...	1.9	0.05	0.05	0.25	0.06	0.07	0.46	...	0.01	...	0.09	...	0.09	0.09	...
	Top	85.5	12 17	1.69	...	...	...	...	...	...	0.07	0.27	0.05	0.52	0.02	0.02	0.03	...	...	...	0.27	0.09	...
Mangel Wurzel	Bulb	90.7	8.4	0.89	0.3	...	11.6	...	6.4	0.05	0.02	0.22	0.02	0.02	0.02	0.02	0.01	...	...	...	0.26	0.08	...
	Root	90.	8.3	1.7	2.3	...	...	...	1.7	0.05	0.03	0.36	0.12	0.15	0.15	0.15	0.02	...	...	...	0.58	0.03	...
Carrot	Top	86.2	17.9	1.88	...	...	0.5	...	...	0.02	0.08	0.89	0.20	0.14	0.13	0.13	0.06	...	...	...	0.7	0.13	...
Potatoe	Tuber	78.0	17.9	4.12	1.4	...	...	11.6	8.5	0.02	0.19	0.29	0.45	1.94	0.12	0.03	0.10	.004	...	...	0.56	0.25	0.73
Rye-grass	Green	75.3	23.8	0.87	1.4	0.2	15.2	3.9	8.1	0.02	0.01	0.39	0.03	0.01	0.03	0.03	0.01	...	0.04	...	...	0.13	0.16
Red Clover	Green	75.0	23.3	1.74	...	...	2.6	0.4	20.6	0.08	0.9	0.60	.006	0.69	0.06	0.06	0.01	...	...	...	...	...	...
	Hay	13.1	81.3	5.56	...	...	3.1	0.4	19.2	0.04	3.39	0.30	0.03	0.71	0.22	0.15	0.02	...	...	...	0.35	0.07	...
Green	Hay	13.1	75.0	2.0	0.3	3.2	41.4	0.2	25.8	0.41	0.07	0.03	0.10	2.44	0.77	0.12	0.07	...	0.06	...	0.12	0.08	...
Salnfoin	Green Hay	72.3	82.0	5.70	...	...	...	...	20.1	0.06	0.20	1.69	0.07	1.69	0.26	...	0.03	...	0.10	...	0.46	0.13	0.99

THE REFUSE LIME OF GAS-WORKS: *A. M.* It is applied to clay lands near most towns, at the rate of about a ton per acre. It is useful in compost with other substances, and requires that frequent turning over and exposure to the air which most composts receive before it can be safely applied in any quantity to the land.

THE ADVANTAGES OF DEEP-CULTURE: *J S.* These have been well illustrated during the past year by the publication of the book to which reference has already been made, on the "Yester Deep-land Culture," by H. Stephens, Esq. Yester is the property of the Marquis of Tweeddale, lying in the county of East Lothian, under the range of the Lammermuir hills, from which it slopes downwards towards the north. It is not naturally a fertile neighbourhood, but has been made productive by energetic and laborious cultivation, the keystone to which, according to Mr. Stephens, lies in the pulverisation of the subsoil and its mixture with the upper soil. The difference between the Yester system and that of ordinary farming consists in this—that the latter attains an imperfect pulverisation of little more than the upper soil, while the former effects the thorough disintegration and commixture of the whole to the depth of 20 or 22 inches. The history of the process—of the implements and methods employed—and of the results achieved, is well written in the work already named, which deserves to be widely known and read by agriculturists.

TRIFOLIUM INCARNATUM: *X.* This plant is grown to a considerable extent in Hampshire and the South of England, and while it furnishes a sort of change to Clover-sick lands and yields generally a heavy and nutritious crop in early summer, it is not at all difficult of cultivation. In fact the failures that have been complained of have generally arisen from a too careful and laborious attention to the preparation of the soil for the reception of the seed. The land has been scarified after the corn crop has been removed, and then manured, ploughed, and harrowed to a fine tilth, and sown and rolled and the seed has never "come." If, however, the stubble be tolerably clean, there needs nothing more than that after the first rain it be well harrowed just to raise a very little soil upon the hardened ground, and 20 lbs. of the seed may then be sown per acre, and brushed and rolled in, and the plant will generally come early enough and strong enough to yield a crop in June next year.

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4 " 5 " 30 " 35 in	0	8	0	9½	0	11
5 " 6 " 35 " 40 in	0	8½	0	10	0	11½
6 " 8 " 40 " 45 in.	0	9	0	10½	1	0
8 " 10 " 45 " 55 in	0	9	0	10½	1	0
10 " 12 " 55 " 65 in	0	9	0	10½	1	0
12 " 15 " 65 " 75 in	0	10	0	11	1	0
15 " 20 " 75 " 90 in	0	11	1	0	1	2
20 " 25 " 90 " 100 in.	1	1	1	2	1	3

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GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure Prices, since the removal of the excise duty, reduced one-half List of Prices and Estimates forwarded on application to JAMES HETLEY & Co., 35, Soho Square, London

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by 4	in. and 6	in. by 4½	in. ...	...	12*s.*	0*d.*
6½ "	4½ "	7 "	5 ...	...	12	6
7½ "	5½ "	8 "	6 ...	...	13	0
8½ "	6½ "	9 "	7 ...	...	13	6
9½ "	7½ "	10 "	8 ...	...	13	6
10½ "	8½ "	11 "	9 ...	...	14	0
12 "	9 "	13 "	9 ...	...	14	0
10 "	10 "	10½ "	10½ ...	...	14	0
11 "	10 "	11½ "	10½ ...	...	14	0
11 "	11 "	11½ "	11½ ...	...	14	0
12 "	11 "	12½ "	11½ ...	...	14	0
13 "	11 "	13½ "	11½ ...	...	14	0
13 "	12 "	13½ "	12½ ...	...	16	0
13½ "	13½ "	14½ "	13½ ...	...	16	0
15½ "	13½ ...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18*s.* per 100 feet.
21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

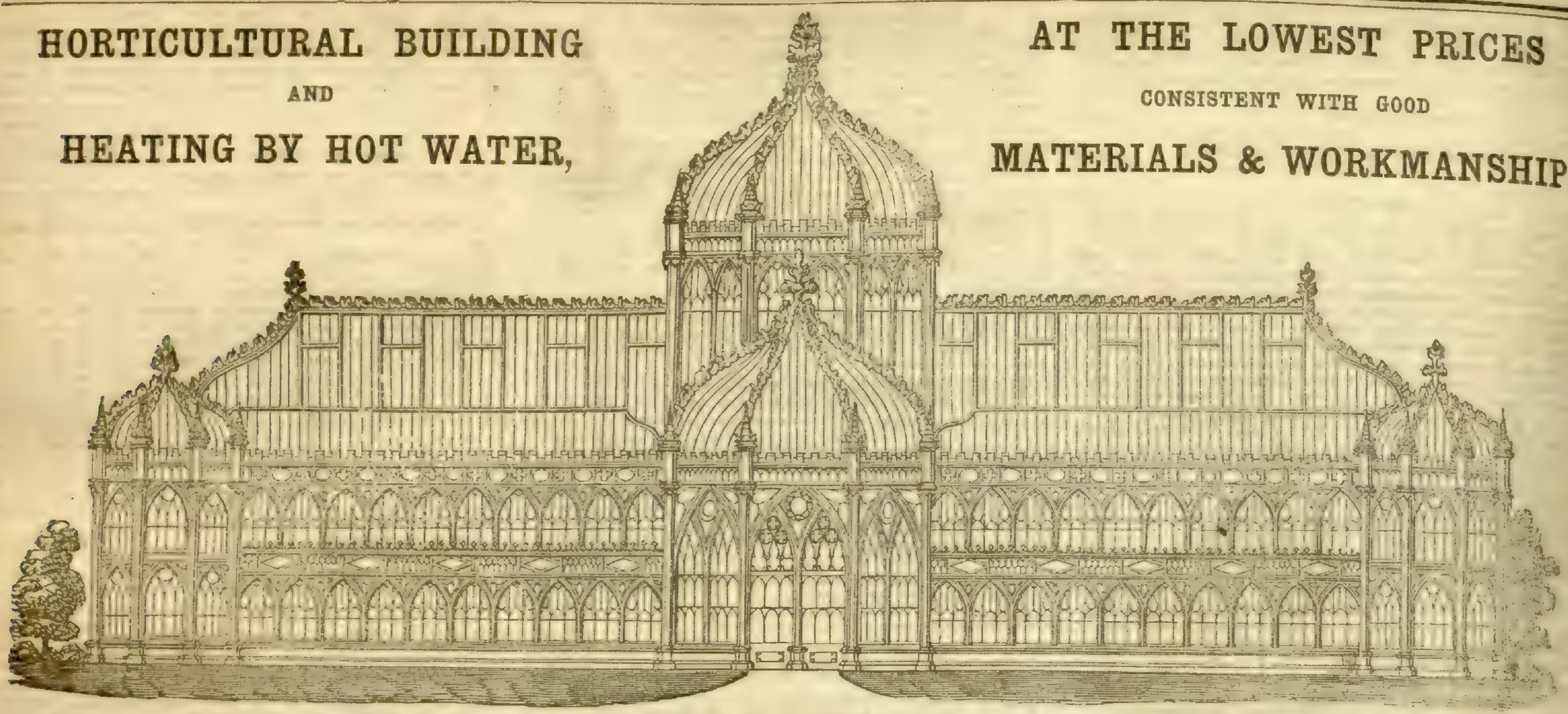
212° MILNER'S HOLDFAST AND FIRE RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City.

Circulars free by post.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER,

AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.

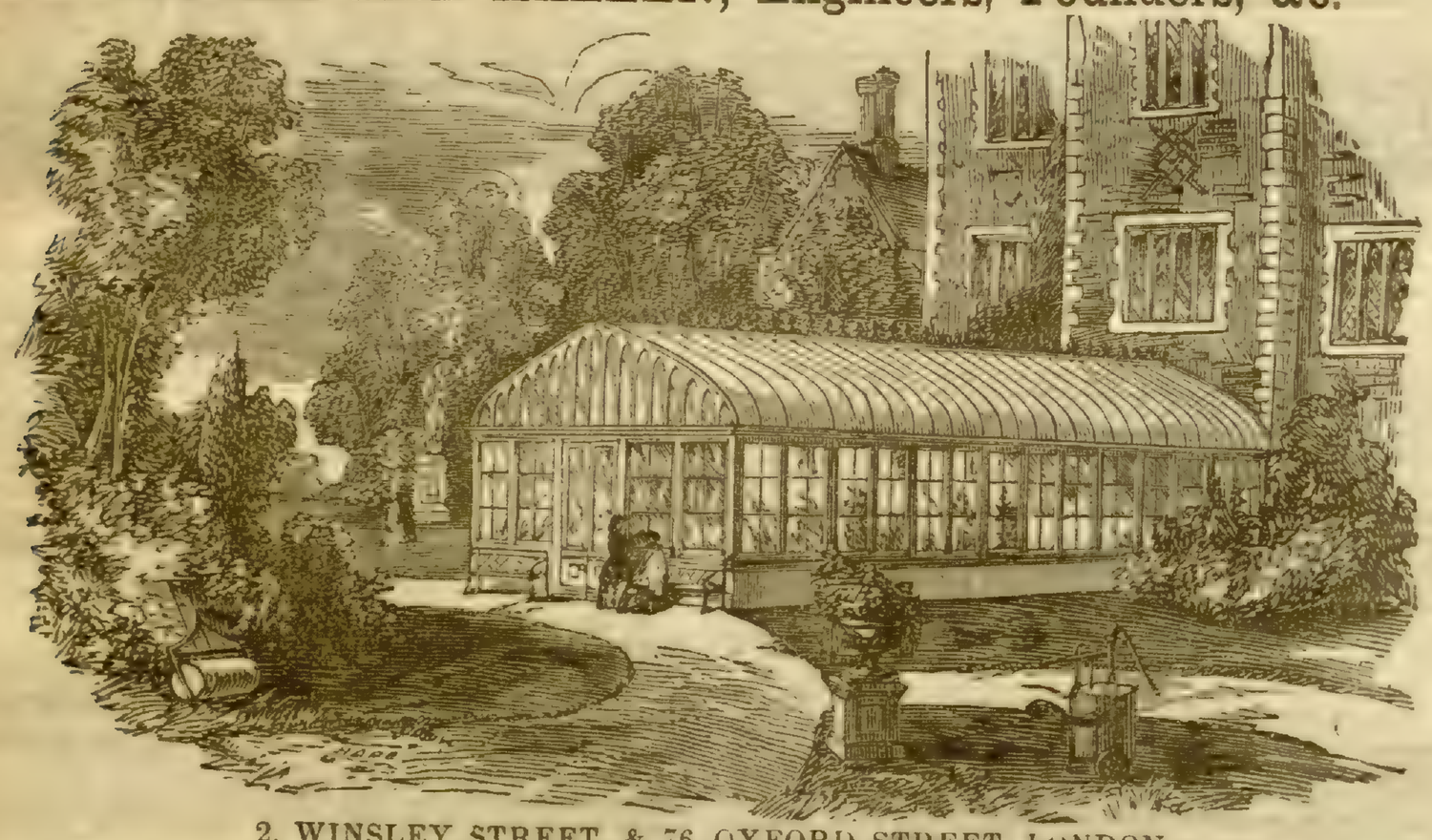


GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

COTTAM AND HALLEN, Engineers, Founders, &c.



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

TURNER'S REGISTERED MALT MILLS, AND PATENT CRUSHING AND GRINDING MILLS.—A variety of these Mills will be exhibited at the ensuing Smithfield Club Cattle Show, Stands 63, 64, and 65.

CAUTION.—Legal proceeding will be instituted against any person or persons unlawfully manufacturing the above Mills, or otherwise infringing upon the Registration or Patent for the same.

E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

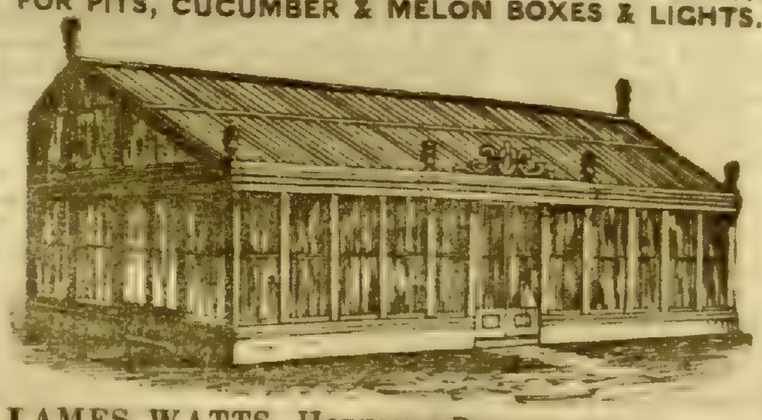
Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1s. 3d. per foot super. Hundreds of references can be given, and Printed Price Lists sent.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility Gentry, and the Trade, in most of the counties in England.

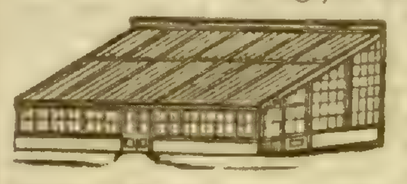
C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description, by Hot Water.—Prices and Estimates furnished upon application.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

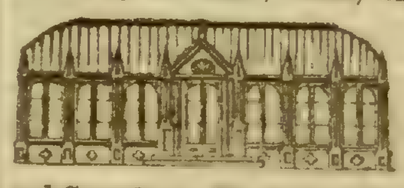
HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.

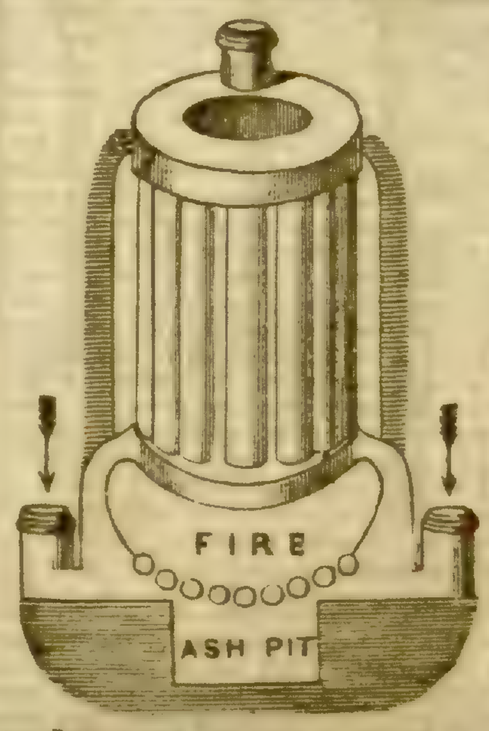
Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3s. 8d. per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.



The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft. and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the late severe winter it only cost us 3s. per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *one of our Boilers*, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

JOHN WEEKS & Co., King's Road, Chelsea, London.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

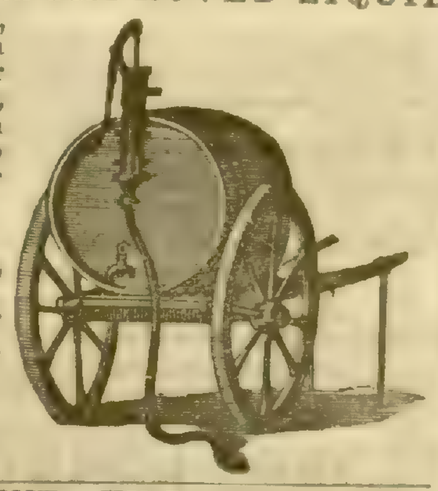
HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4s. 9d. each.
HURDLES for CATTLE, 6 feet long, 3 feet out of ground, 5 bars ... ... 5s. 3d. each.

IRON BUILDING AND ROOFING WORKS.

GAS STREET AND BERKELEY STREET, BIRMINGHAM.

JOHN HENDERSON PORTER, ENGINEER and CONTRACTOR, Patentee of a new system of constructing (cheaply and expeditiously, by ordinary labourers) Portable Buildings and Sheds—formed of ordinary planks or boards—peculiarly suitable for Farm purposes. A Model Shed has recently been erected in the Agricultural Department of the Crystal Palace at Sydenham. Corrugated and Galvanised Iron Roofs and Roofing Plates, Eaves, Gutters, Rain-water Pipes, Tanks, Fences, &c.—London Office, 1, Riches Court, Lime Street.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP,



with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50s.
1½-inch Flexible Rubber and Canvas Suction for ditto, 3s. 6d. per foot.

1½ Gutta Percha Suction, 1s. 6d. per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto	ditto ditto	2	18	0

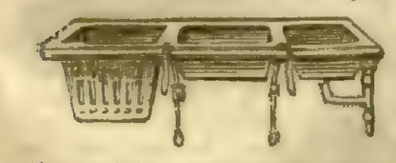
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.

THIS *is the Original Patent for Important Improvements in Stable Fittings, Hay-box, Manger, and Water-trough as one fixture*, including a method



surpassing all others for conveying the straps and halter-weights to the back of the fitting to prevent the horse being cast in the stall. Stable Fittings of every description, plain, enamelled, or galvanised. Also the newly invented Loose Box Fittings, Surface Gutters with moveable cover-plates, Stable Posts, Ramps, Sills, and all kinds of Stable Furniture in stock.—JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

MANUFACTURER OF KITE'S PATENT VENTILATING AND SMOKE-CURING CHIMNEY CAPS, patronised by her Most Gracious Majesty, 200 on Buckingham Palace. In use also on St. James's Palace, Windsor Castle, Government Offices, &c. &c. Zinc, 30s.; cast iron 35s. each; the latter as durable as the building itself. Drawings and Price Lists forwarded on receipt of two postage stamps.

Address BARTON'S Iron Works, 370, Oxford Street, London.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

103, Newgate Street, London.

THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.

CUPISS'S CONSTITUTION HORSE BALLS.—To Sportsmen, Agriculturists, Postmasters, and all Proprietors of Horses, these Balls are particularly recommended in all cases of swelled legs, cracked heels, loss of appetite, and vital energy; for Coughs, Colds, Fever or Inflammation, they are the best Medicine that can be exhibited, moreover their operation, though effectual, is so mild, that they require no alteration of diet, and if given with a bran mash on Saturday night, will not interfere with the ensuing week's regular work.

NEAT CATTLE.—The Constitution Balls are strongly recommended by many highly respectable Gentlemen (see Testimonials) for Cows and Oxen as a most valuable medicine in cases of Hove or Blown, Scouring or turning out to Grass, or from bad food, Gargate, Hide Bound, Loss of Appetite, Staring Coat, Distemper, Epidemic, or Influenza. Bullocks fat much faster by occasionally giving a Ball.

Prepared only by FRANCIS CUPISS, M.R.V.C.S., author of the "Prize Essay on the Diseases of the Liver of the Horse," Diss, Norfolk; and sold by all respectable Medicine Vendors in Town and Country, in packets, six Balls each, 3s. 6d. per packet, with a wrapper giving full directions for the use of the Balls, and treatment of the Horse whilst taking them. Also a Pamphlet of Testimonials from many Gentlemen who have used the Balls in various Complaints. Any Gentleman using the Balls may consult the Proprietor gratuitously, either personally, or by letter, post-paid.

THE EDUCATIONAL MICROSCOPE.

PRICE 10l.

See leading article in the *Gardeners' Chronicle*, Nov. 24, 1855.
Manufactured by SMITH & BECK,
To whom
The Council Medal of the Great Exhibition of 1851, and
The First Class Medal of the Paris Exposition of 1855,
Have been awarded,
"For the excellence of their Microscopes."

An illustrated Pamphlet giving a full description, price, &c., of the Educational Microscope forwarded on receipt of 6 postage stamps.—6, Coleman Street, London.

GEORGE CASE'S CONCERTINAS. — These unrivalled instruments are sold exclusively by BOOSEY & SONS, 28, Holles Street, London. Prices from four to twelve guineas each. Prospectus gratis.

METCALFE AND CO.'S NEW PATTERN TOOTH BRUSH, PENETRATING HAIR BRUSHES, AND SMYRNA SPONGES.—The Tooth Brush performs the highly-important office of searching thoroughly into the divisions and cleansing in the most extraordinary manner—hairs never come loose. Peculiarly penetrating Hair Brushes, with durable unbleached Russian bristles, which will not soften like common hair, and immense stock of genuine unbleached Smyrna Sponge, with every description of British and Foreign Perfumery, at METCALFE, BINGLEY, & Co.'s only Establishment, 130 B and 131, Oxford Street, second and third doors west from Holles Street.

CAUTION.—Beware of the word "from" Metcalfe's, adopted by some houses. Metcalfe's Alkaline Tooth Powder, 2s. per box.

DISH COVERS AND HOT WATER DISHES in every material, in great variety, and of the newest and most recherché patterns. Tin dish covers, 6s. 6d. the set of six; block tin, 12s. 3d. to 28s. 9d. the set of six; elegant modern patterns, 34s. to 58s. 6d. the set; Britannia metal, with or without silver plated handles, 76s. 6d. to 110s. 6d. the set: Sheffield plated, 10l. to 16l. 10s. the set; block tin hot-water dishes, with wells for gravy, 12s. to 30s.; Britannia metal, 22s. to 77s.; electro-plated on nickel, full size, 11l. 11s.

THE PERFECT SUBSTITUTE FOR SILVER.—The real NICKEL SILVER, introduced 20 years ago by WILLIAM S. BURTON, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle Pattern.	Thread or Brunswick Pattern.	King's Pattern.
Tea Spoons, per dozen	18s.	26s.	32s.
Dessert Forks „	30s.	40s.	48s.
Dessert Spoons „	30s.	42s.	48s.
Table Forks „	40s.	56s.	64s.
Table Spoons „	40s.	58s.	66s.

Tea and Coffee Sets, Waiters, Candlesticks, &c., at proportionate prices. All kinds of re-plating done by the patent process.

CHEMICALLY PURE NICKEL NOT PLATED.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, full size, per doz.	12s.	28s.	30s.
Dessert ditto and ditto ... ... „	10s.	21s.	25s.
Tea ditto ... ... „	5s.	11s.	12s.

HOT AIR, GAS, VESTA, JOYCE'S STOVES. Stoves for the economical and safe heating of halls, shops, warehouses, passages, basements, and the like, being at this season demanded, WILLIAM S. BURTON invites attention to his unrivalled assortment, adapted (one or the other) to every conceivable requirement, at prices from 10s. each to 30 guineas. His variety of register and other Stoves, Fenders, and Kitchen Ranges, is the largest in existence.

The alterations and additions to these very extensive premises (already by far the largest in Europe), which have occupied the whole year, are now nearly completed. They are of such a character that the entire of EIGHT HOUSES is now devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated, and Japanned Wares, Iron and Brass Bedsteads and Bedding), arranged in Sixteen Large Show Rooms, so as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Catalogues, with engravings, sent (per post) free.

39, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place. Established A.D. 1820.

NEW LABEL.—In consequence of the great variety of Counterfeit Labels of A. ROWLAND & SONS' MACASSAR OIL now in circulation, and which so nearly resemble the original as frequently to deceive the unwary—they have employed those eminent artists Messrs. PERKINS, BACON, & Co., who, at great cost, and by a peculiar process of their own, have succeeded in producing from steel "A NEW LABEL," which cannot be forged. It is composed of a section of an engine-turned circle, repeated 130 times, and forms an original lace-work ground, upon which is engraved in white letters, "UNDER THE PATRONAGE OF THE COURTS OF EUROPE," with an embossed profile of Her Majesty "THE QUEEN," lately specially taken for the purpose, and which surmounts the words (also in white letters) "ROWLANDS' MACASSAR OIL, for the growth, restoration, and for beautifying the Human Hair." Under which is the Signature of the Proprietors in Red Ink, "A. ROWLAND & SONS"—Sold by them at 20, Hatton Garden, London: and by Chemists and Perfumers.

TO NURSERYMEN AND GARDENERS.

THE CROWN ESTATE PAVING COMMISSIONERS hereby give notice that they will be ready to receive TENDERS from Persons willing to enter into a Contract for keeping in Order the Gardens or Ornamental Inclosures attached to or situate in front of the several Terraces and Places in and about the Regent's Park; and likewise the Gardens or Ornamental Inclosures attached to Carlton House Terrace and Carlton Gardens, and to Richmond Terrace. Specifications and Forms of Tender can be had on application to the Clerk, where Tenders are to be delivered at or before 1 o'clock on Wednesday, the 5th day of December next. FRANCIS ADAMS,
1, Whitehall Place, Nov. 19. Clerk to the Commissioners.

WANTED, A COUNTRY FARM HOUSE, completely or partly Furnished, containing a Sitting and three or four Bed-rooms, for a gentleman's occasional residence; with from 15 to 50 acres of Land, chiefly pasture. Within a reasonable distance of London; vicinity to a Railway Station preferred. To rent from Christmas next.—Address, stating rent and full particulars, to N. E., Post Office, Great Marlow, Bucks.

TO MARKET GARDENERS.

TO BE LET, at Great Malvern, a comfortable COTTAGE, with land suitable for a gardener capable of undertaking the laying out of Gardens, management, &c., by the year or otherwise. The position is considered to be an excellent one for an intelligent steady man, as regular employment can be relied upon, and there exists a good demand for all garden produce in this fashionable and rapidly increasing town.—Apply by letter to C. A. MASON, Esq., Park Field, Great Malvern.

TO BE LET, A NURSERY AND SEED BUSINESS.—JOHN YOUNG begs to say that he is desirous of treating with a Tenant for his Nursery Ground, which he is at present occupying himself, and which offers an eligible opportunity to any one wishing to enter on the business. The Stock is light, and the quantity of Land may be made to suit the convenience of the Tenant.—For further particulars, apply to JOHN YOUNG, Elm Cottage, Taunton.

HOUSE AND LAND TO BE LET.

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Larkfield Nursery, Wavertree, near Liverpool.

WANTED TO PURCHASE (Sound Maiden Trees) 300 Peaches, 300 Nectarines, 300 Apricots, 300 Plums, 300 Cherries, 300 Pears, 500 Apples, 2000 Apple Gribbles, two packs of Pear pips. Also to be sold or exchanged a large quantity of Aucuba, Japonica, &c., Bays, Standard Roses, &c., and other evergreen shrubs.—S. Eddy, Foxhay's Nursery, Exwick, near Exeter.

TO ROD GROWERS.
WANTED TO PURCHASE, at the lowest price cash on delivery to any of the London Railway Stations, 300 BOLTS of THREEPENNY, and 200 do. LONG FISH TWIGS, all to be of best quality.—Address, W. Mason, Alpha Villa, Lower Road, Deptford.

TO BE SOLD, very handsome large IRISH YEWS, from 4 to 8 feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—Thomas Jackson & Son, Nurseries, Kingston, near London.

TO BE SOLD very cheap for Cash, as the Ground is required for other purposes, 10,000 ORNAMENTAL FOREST TREES, from 6 to 15 feet, a great variety of sorts; 20,000 GOOSEBERRIES and CURRANTS, leading kinds; 500 BUSHY YEWS, from 4 to 6 feet; about 1000 DECIDUOUS FLOWERING SHRUBS; and a large quantity of 2-year SEA-KALE and ASPARAGUS Plants.—Apply to Mr. Chas. Clarke, Nurseryman, &c., 179, Windmill Street, Gravesend, Kent.

GOOD SEEDS, CARRIAGE FREE.
Seeds Direct from the Growers the most certain means of Preventing Disappointment.
SUTTON AND SONS, Seed Growers, Reading, Berks, *can supply every kind of* GARDEN SEEDS *and* FARM SEEDS *of genuine and superior quality, warranted all of the growth of* 1855.
Horticulturists and Agriculturists residing in the most remote parts of the kingdom, can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to
Sutton & Sons, Seed Growers, Reading, Berks.

SCARLET RHODODENDRONS.
J. AND J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to offer fine bushy Plants of the above 2 to 3 feet high, in Pots, well set with Flower buds.—Price 10s. 6d. each.

CAMELLIAS.
CHANDLER AND SONS, Nurserymen, Wandsworth Road, beg to inform their friends and customers that their CAMELLIAS are finely set with flower buds this season. They are sending out bushy plants from 30s. and upwards per dozen.

TO THE TRADE.
NEW PURE WHITE COLLINSIA.—The price per ounce of this new and beautiful ANNUAL can be had on application.
J. G. Waite, Seed Merchant, 181, High Holborn, London.

WAITE'S DANIEL O'ROURKE PEAS.—The best Early Pea in cultivation can be supplied in any quantity, and price had on application to J. G. Waite, Seed Merchant, 181, High Holborn, London.

CHARLES SHARPE AND CO. beg to acquaint the trade that having harvested their stocks of SEEDS they will be glad to forward prices on application.
Nursery and Seed Establishment, Sleaford.—Dec. 8.

EARLY VEGETABLE SEEDS.—All the Select Kinds for immediate sowing, growth of 1855, may be had of James Carter & Co., Seedsmen, 238, High Holborn, London.

WHEAT FOR LATE AND SPRING SOWING.—Samples with prices of Red Hybrid, Nursery, Browick, and other kinds of Seed Wheat will be sent free on application to Mr. H. Raynbird, Basingstoke.

PINUS BENTHAMIANA.—The finest plants yet offered of this noble long-leaved hardy PINE. They are from Seed, and from 12 to 18 inches high, 7s. 6d. each. Price per 100 to the Trade on application.
Hugh Low & Co., Clapton Nurseries, London.

DUTCH FLOWER ROOTS GOOD AND CHEAP.
WILLIAM DENYER, Florist, will send out the following for Ten Shillings:—

24 Choice Hyacinths	12 Polyanthus Narcissus
12 Early Tulips	12 Double Jonquils
12 Beautiful Iris	12 Splendid Anemones
100 Dutch Crocus	12 Rare Gladiolus

82, Gracechurch Street, London.—No charge for packages.

TO THE TRADE.
WILLIAM MASTERS AND SON have to offer this season:—

Fine Standard MULBERRIES	GOOSEBERRIES and CURRANTS, by name
" " WALNUTS	
" " CHERRIES	FASTOLFF RASPBERRIES

Also fine blooming plants of Rhododendrons and Azaleas.
Exotic Nursery, Canterbury.

RHUBARB.—Good one year planted Roots of the following varieties can be supplied:—

Myatt's Victoria	30s. per 100, or 5s. per doz.	
Myatt's Linnaeus	30s. per 100, or 5s.	"
Mitchell's Royal Albert	30s. per 100, or 5s.	"
Howard Prince Albert	60s. per 100, or 9s.	"
Hawke's Champaign	12s.	"
Large two year planted Roots for Forcing	12s.	"
Extra strong SEAKALE Roots for Forcing	10s.	"

Apply W. Myatt, Manor Farm, Deptford.—Dec 8.

TO THE SEED TRADE.
Hardy Winter White Broccoli New Seed.
W. JACKSON AND Co. have for sale new seed saved this year of the above White Broccoli. When sown early and grown well, it heads in November, December, January, and February—a valuable winter kind. Price in quantity on application.—Nurseries, Bedale, Yorkshire, Dec. 8.

"GYMNOGRAMMA LEPTOPHYLLA."
Or the Annual Maiden-hair Fern.
BERNARD SAUNDERS, Cæsarean Nursery, Jersey, will be happy to supply six growing plants of the above pretty little Fern, in a small box, postage free, to any amateur wishing to possess it, for 2s. 6d.—Dec. 8.

MR. ROBERT BAKER, Writtle, Essex, begs to offer his improved SKIRVING'S SWEDE TURNIP SEED, warranted of good stock and all of this year's growth, at 2l. 2s. per bushel, inclusive of sack. A Post-office Order upon Chelmsford to be first remitted.

MR. ROBERT BAKER, Writtle, Essex, has succeeded in obtaining a new SEEDLING KIDNEY POTATO, the WRITTLE KIDNEY. It is a good cropper, free from disease, superior flavour, fine yellow colour, and breaks mealy; is in perfection from September to July, and, as a late Potato, is superior in May and June to any known variety. Sound Tubers of 1854 are still in his possession. Price per bushel of 60 lbs., inclusive of sack, 10s. Forwarded upon remittance of Post-office Order, payable at Chelmsford.

THE FLUKE KIDNEY POTATO.—This excellent and famed Potato, which has proved so beneficial to the Farming interest, from its capability of withstanding the ravages of disease and its abundant bearing qualities, was raised in Middleton; purchasers may therefore rely upon having it true from the original stock. May be had in any quantity, at 4s. per bushel of 56 lbs.—Apply to John Holland, Bradshaw Gardens, Middleton, near Manchester. Post Office orders may be made payable at Middleton, Lancashire.

BASS AND BROWN'S new AUTUMN CATALOGUE, comprising a considerable portion of descriptive and useful information for purchasers, will be sent free by post for three penny stamps, or gratis to their customers, who may not have received them.
Seed and Horticultural Establishment, Sudbury, Suffolk.

TO THE SEED TRADE.
ABRAHAM HARDY AND SON, Seed Growers, Maldon, Essex, beg to announce that their WHOLESALE PRICED CATALOGUE OF SEEDS and early Potatoes is now ready, and may be had post free on application.—Dec. 8.

GERMAN FLOWER AND VEGETABLE SEEDS.
MESSRS. PLATZ AND SON, Seed Growers, Erfurt, Prussia, respectfully inform the Trade that their Catalogue for 1856 contains more new and choice articles than have ever been offered. Early applications are solicited through their Agent, Mr. Robert Kennedy, Bedford Conservatory, Covent Garden, London.

TO PEAR AMATEURS.
THOMAS RIVERS'S DESCRIPTIVE CATALOGUE of PEARS is printed separately from the Catalogue of Fruit, and will be sent free on application to The Nurseries, Sawbridgeworth, Herts.

PLANTING SEASON.
WM. URQUHART AND SONS respectfully intimate that their PRICED LIST OF FOREST TREES, SHRUBS, HERBACEOUS PLANTS, &c., may now be had on application.—Dundee, Dec. 8.

ARROW SMITH'S (Nurseryman) CATALOGUES are now ready, and may be had free on application.
FOREST PLANTING undertaken by Contract.
LANDSCAPE and ORNAMENTAL GROUNDS executed.
Sydnope, near Matlock, Derbyshire.

HARDY HEATHS.
WATERER AND GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

AMERICAN PLANTS.
WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.
Knap Hill Nursery, Woking, Surrey.

AMERICAN PLANTS.
JOHN WATERER'S CATALOGUE of RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.
☞ The Catalogue describes the colours of the Rhododendrons
The American Nursery, Bagshot, Surrey.—Dec. 8.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor Branch, South Western Railway, where conveyances may be had.

FLOWER AND VEGETABLE SEEDS.
JAMES CARTER AND CO. beg to announce that they will publish, on 1st January, 1856, their TWENTY-FIRST ANNUAL CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the most comprehensive yet compact Annual Catalogue of Seeds extant. It has been subjected to a careful and elaborate revision, in order to ensure the greatest possible correctness. Forwarded free of charge, and post paid, upon application.
James Carter & Co., Seedsmen, 238, High Holborn, London.

PETER LAWSON AND SON, Seedsmen, Nurserymen, and Wood Foresters to the Queen's Most Excellent Majesty; and to the Highland and Agricultural Society of Scotland, Edinburgh, and London.
Peter Lawson & Son beg to intimate that their Prices, Lists of Seeds, Plants, &c., for the present season are in course of Publication, and will be sent free by Post on application.
27, Great George Street, Westminster; and at their Stand at Smithfield Club Show, Baker Street Bazaar.

PICEA AMABILIS.—Seedlings of this fine hardy species have been for a long time desirable, as in grandeur of appearance it is scarcely excelled by PICEA NOBILIS. We have much pleasure in offering stout plants, three years old, 6 to 9 inches high, at 31s. 6d. each.
Hugh Low & Co., Clapton Nurseries, London.

NEW BEDDING PLANT.
Double White Petunia "Imperial" (true).
MESSRS. WILLIAM ROLLISSON AND SONS can now supply good plants of the above-named at 5s. each. This extraordinary, new, and beautiful variety can be strongly recommended, and doubtless will become an universal favourite, both as a bedding and conservatory plant, being of excellent habit, fragrant, and the flowers as double as a Carnation or Gardenia blossom.—The Nurseries, Tooting, London.

EARLY PEAS.
THEDAM'S FAVOURITES having been tested against the earliest varieties grown in this locality, Five Pounds are offered for 1 bushel of any sort that will come quicker, prove more prolific, and better adapted for the London Market. May be sown directly, or the first week in March.—Apply to Mr. T. K. Thedam, Little Braxted, Witham, Essex, by whom trials are solicited; and with any person having a forward variety, and wishing to test their respective merits, samples will be exchanged.
P.S. A few Quarts of Scimetars are also for sale.

MESSRS. E. G. HENDERSON AND SON beg to announce that they have now received their noted collection of HYACINTHS in excellent condition, and for the assistance of those persons unacquainted with the culture of the Hyacinth, printed instructions will be given gratis with each order they are kindly favoured with, Catalogues of which, together with their Plant and Seed Lists, will be forwarded post free on application.

CUCUMBER HENDERSON'S NAPOLEON III., in packets, 3*s.* and 5*s.* 6*d.* each.

CALCEOLARIA, CINERARIA, and PRIMULA SEED of first quality, 2*s.* 6*d.* and 5*s.* per packet.

FUCHSIAS.—Banks' Favourite, 10*s.* 6*d.*; Prince of Wales, 10*s.* 6*d.*

NEW RHODODENDRONS.—Boothi, Hookeri, Calophyllum, Kendricki, Eximium Windsori Leucanthum.

GYNERIUM ARGENTEUM (PAMPAS GRASS).—E. G. H. & SON having in their possession the largest stock in the country of this noble ornamental Grass, can supply free healthy seedling plants, which are superior to any other at 2*s.* 6*d.* each, 25*s.* per dozen, or 7*l.* 10*s.* per 100.

Wellington Nursery, St. John's Wood.

NEW ROSES.

J. AND J. FRASER, NURSERYMEN, Lea Bridge Road, Essex, beg to offer fine Standards of the following beautiful NEW ROSES:—

	s.	d.		s.	d.
Belle Lyonnais	5	0	Vicomtesse Laure de Gironde	5	0
Comtesse d'Orleans ...	5	0	Madame Masson	7	6
„ Vaillant	5	0	„ Theodore	5	0
General Jacqueminot ...	3	6	„ Cambacères	5	0
Gloire de France	3	0	„ Vidot	7	6
„ de Vitry	5	0	„ Hector Jacquin ...	3	6
Madame Guinoiseau ...	3	6	Lord Raglan	5	0
Mademoiselle Aline Gibbon	3	0	Madame Place	5	0
Prince de la Moskowa...	5	0	Panaché d'Orleans	5	0
Sir John Franklin ...	3	6	Prince Leon	3	6
Souvenir de Madame Lille	3	6	Triomphe de Paris	3	6
			Gloire de Dijon (Tea) ...	3	6

Melanie Willermoz (Tea) ... ... 3*s.* 6*d.*

For a full description of the above see Catalogue, which may be had on application.—Dec. 8.

THE TRUE LANCASHIRE SHOW GOOSEBERRIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, can now supply 24 strong plants for 12*s.*, or 12 plants for 7*s.*, of the below-named GOOOSEBERRIES, which are of fine flavour. Weights taken from the "Gooseberry Grower's Register of 1855," viz.:—

	dwts.	grs.		dwts.	grs.
London	30	5	Lady Leicester ...	22	16
Thumper	26	18	Pilot Snowdrop ...	22	10
Wonderful	26	14	Pilot	22	14
Conquering Hero ...	23	19	Railway	22	10
Slaughterman ...	23	13	Queen of Trumps ...	22	0
Catherina	23	12	Gunner	21	22
Freedom	23	10	Roaring Lion... ...	21	21
Companion	23	6	Lion's Provider ...	21	6
Leader...	23	0	Goldfinder	21	1
Drill	23	0	Turnout	20	5
Napoleon	22	22	Broomgirl	20	0
Overall	22	22	Coppice Lass... ...	19	10

Post-office Orders to be made payable at Middleton, Lancashire. Catalogues on application.

GEORGE JACKMAN begs to state his PRICED CATALOGUE of choice CONIFERS, HARDY EVERGREENS and ORNAMENTAL TREES, which are well grown, and constantly removed, also Roses, Standard, Dwarf, and dwarf-trained Fruit Trees, and Forest Trees, can be had on application by enclosing one Postage Stamp.

G. J. respectfully invites persons planting to pay a visit to his extensive nursery, one and a half mile from Woking Station, South Western Railway, where all trains stop, and conveyances can be had.—Woking Nursery, Woking, Surrey.

THUJA GIGANTEA.—We are again induced to offer this fine tree during the present planting season. It is from the Upper Waters of the Sacramento (in California), where it attains a height of 140 feet. It has been proved to be perfectly hardy in this country; the foliage is most beautiful, resembling some of the most graceful species of Lycopodium. The plants now on sale are in vigorous health, and average from 10 to 16 inches in height. Price 31*s.* 6*d.* each.

HUGH LOW & Co., Upper Clapton Nurseries, London.

MR. ROBERT KENNEDY, Bedford Conservatories, Covent Garden, London, respectfully announces that for the purpose of extending the Seed Department of his business, he has entered into PARTNERSHIP with MR. KEMPTON, who for the last 15 years was the oldest and principal assistant to Mr. James Carter, Seedsman, Holborn, LATELY DECEASED. Their business will be conducted on the same extensive and liberal principle as that of the late Mr. James Carter, in order to ensure the patronage he so long enjoyed.

KENNEDY & KEMPTON'S Scientific, Comprehensive, and Unique Catalogue of Vegetable, Horticultural, and Agricultural Seeds is now Published, and may be had on application.—Establishment as above.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, which they will forward to any part.

	s.	d.
25 Azaleas, new hardy Belgian varieties, one of a sort, by name, on their own roots	20	0
25 Azaleas, American varieties, do. do.	16	0
Hardy Heaths, Ledums, and Kalmias, per dozen ...	6	0
25 Hardy American Plants, one of a sort, by name ...	10	6
12 Rhododendrons, including scarlet, white, and rose ...	12	0
Fine hardy scarlet Rhododendrons, 1 to 2 feet, per dozen	15	0
New yellow Rhododendrons, in pots, each ... 3*s.* 6*d.* to	5	6
Cedar of Lebanon, 2 to 3 feet, well grown, per doz., 12*s.* to	18	0
Cedrus Deodara, and other choice Coniferæ (see List).		
6 Fine hardy Magnolias, one of a sort	10	6
50 Dwarf Roses, two of a sort, on own roots	15	0
Standard and half Standard Roses, superb sorts, per dozen ... ... 15*s.* to	18	0
Fine Climbing Roses, per dozen	6	0
Greenhouse Azaleas, best new vars., per dozen... 12*s.* to	18	0
Camellias, fine sorts, well set with buds, per dozen ...	30	0
50 Choice Greenhouse Plants, one of a sort	45	0
12 Orchidea Plants, one of a sort, fine species	40	0
Fine Pampas Grass, each, 3*s.* 6*d.*; or, per dozen ...	30	0
Chrysanthemums, new Pompone and show vars., per doz.	8	0
6 new sorts Mimulus, very fine early flowering	6	0
Cinerarias, fine sorts, to flower early, per dozen.. ...	12	0
Hyacinths, Crocus, Tulips, and Dutch Bulbs of all kinds.		
New Conservatories and Gardens furnished in any part of the kingdom on very reasonable terms.		

FRUIT TREES.

	s.	d.
Fine standard and dwarf-trained Apricots, Peaches, Nectarines, Pears, Plums, and Cherries, 3*s.* each, or, per dozen	30	0
Fine Apples, Figs, Medlars, Quinces, and Walnuts, each	2	0
Fine Gooseberries, Currants, and Raspberries, per doz.	3	0
Filberts, new, thin shelled, and red skinned, per dozen	4	0
Strong Vines from eyes, and layers in pots, per dozen...	18	0
Peaches, Nectarines, Apricots, and Cherries, grown for pot culture, per dozen	18	0

A large stock of fine Transplanted Scotch, Larch, and Spruce Firs, also Evergreen Shrubs of all kinds.

Albion Nursery, Stoke Newington, London, Dec. 8.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

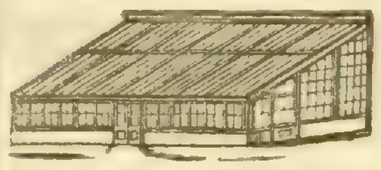
Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HORTICULTURE IN ALL ITS BRANCHES.

JOHN WEEKS & Co., King's Road, Chelsea,

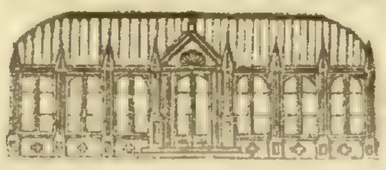
HOTHOUSE BUILDERS.

THE NOBILITY AND GENTRY about to erect Horticultural Buildings, or fix Hot-water Apparatus, will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Hothouses, Greenhouses, Conservatories, Pits, &c., erected, and in full operation, combining all modern improvements, so that a lady or gentleman can select the description of House best adapted for every required purpose.



The HOT-WATER APPARATUS, which passes through all the Houses and Pits affording both top and bottom heat, is in constant operation and particularly worthy of attention.

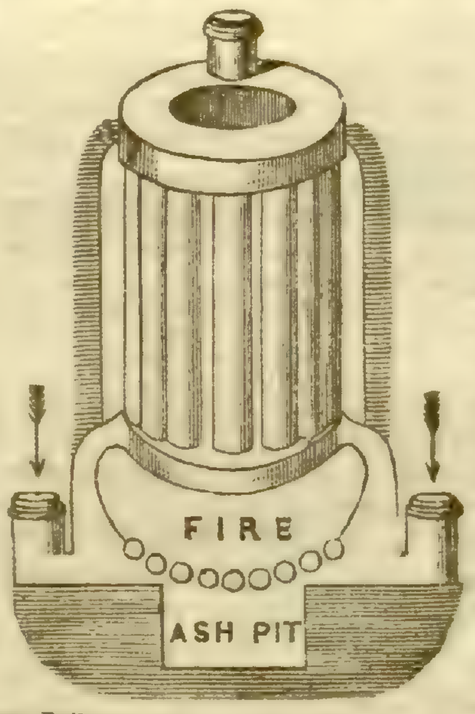
Many of the Houses and Pits are of wide and lofty dimensions, and together equal in length 1000 feet. They are all effectually heated by *one boiler*, which, during the severe winter months does not cost in labour and fuel more than 3*s.* 8*d.* per day, and the apparatus is so arranged that each House or Pit may be heated separately and to the required temperature. The splendid collections of Stove and Greenhouse Plants are also in the highest state of cultivation, and for sale at very low prices. Also a fine collection of strong Grape Vines in pots, from eyes, all the best sorts.



Plans, Models, and Estimates of Horticultural Buildings; also Catalogues of Plants, Vines, Seeds, &c., forwarded on application to JOHN WEEKS & Co., King's Road, Chelsea, London.

HEATING BY HOT WATER.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers. At our two Establishments horticultural science is fully carried out in all its branches.



The accompanying sketch represents our Improved Boiler. These Boilers are very powerful, durable, and economical. The whole of our extensive nursery establishment is heated by *one boiler*, measuring only 5 ft. by 3 ft. 6 in. The Houses heated consist of forcing-houses of various descriptions, many of them are of wide and lofty dimensions, in length 1000 ft. and exposing to the atmosphere upwards of 16,000 superficial feet of glass. During the late severe winter it only cost us 3*s.* per day for fuel, and we had more than a sufficient command of heat. Any number of forcing-houses can be heated by *one of our Boilers*, and any part regulated at pleasure. Plans, Models, and Estimates of Horticultural Buildings, or Heating by Hot Water, forwarded on application.

JOHN WEEKS & Co., King's Road, Chelsea, London.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

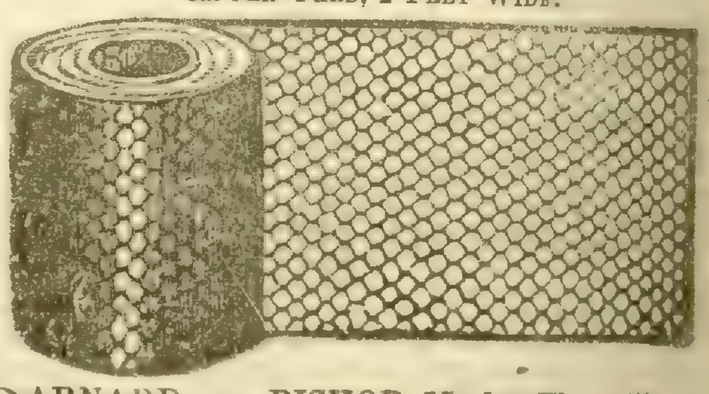
HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

LIGHT, CHEAP, and DURABLE ROOFING.—CROGGON'S PATENT ASPHALTE ROOFING FELT is perfectly impervious to rain, snow, and frost, and has been tested by a long and extensive experience in all climates. Saves half the timber required for slates. Can be laid on with great facility by farm servants or unpractised persons. Price 1*d.* per square foot. CROGGON'S Patent Non-conducting Felt, for covering steam boilers and pipes, saves 25 per cent of fuel. Samples and testimonials sent by post, on application to CROGGON & Co., 2, Dowgate Hill, London, who also supply ship-sheathing felt and inodorous felt, for damp walls, and lining iron houses, and roofs generally, to equalise the temperature.

GALVANISED WIRE GAME NETTING,

6*d.* PER YARD, 2 FEET WIDE.



BARNARD AND BISHOP, Market Place, Norwich in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	6*d.* per yd.	4½*d.* per yd.
2-inch „ strong, do.	8 „	6 „
2-inch „ intermediate, do.	9½ „	7½ „
2-inch „ extra strong, do.	11 „	9 „
1⅝-inch „ 24 inches wide	7 „	5½ „
1⅝-inch „ strong, do.	9 „	7 „
1⅝-inch „ intermediate, do.	11 „	9 „
1⅝-inch „ extra strong, do.	13 „	11 „

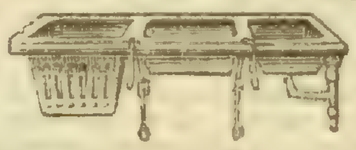
All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 10*d.* per yard; Galvanised Sparrow-proof Netting for Pheasantries, 3*d.* per square foot.

Illustrated Catalogues and Patterns forwarded by post. Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.

THIS *is the Original Patent for Important Improvements in Stable Fittings, Hay-box, Manger, and Water-trough as one fixture*, including a method surpassing all others for conveying the straps and halter-weights to the back of the fitting to prevent the horse being cast in the stall.



Stable Fittings of every description, plain, enamelled, or galvanised. Also the newly invented Loose Box Fittings, Surface Gutters with moveable coverplates, Stable Posts, Ramps, Sills, and all kinds of Stable Furniture in stock.—JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

MANUFACTURER OF KITE'S PATENT VENTILATING AND SMOKE-CURING CHIMNEY CAPS, patronised by her Most Gracious Majesty, 200 on Buckingham Palace. In use also on St. James's Palace, Windsor Castle, Government Offices, &c. &c. Zinc, 30*s.*; cast iron 35*s.* each; the latter as durable as the building itself. Drawings and Price Lists forwarded on receipt of two postage stamps.

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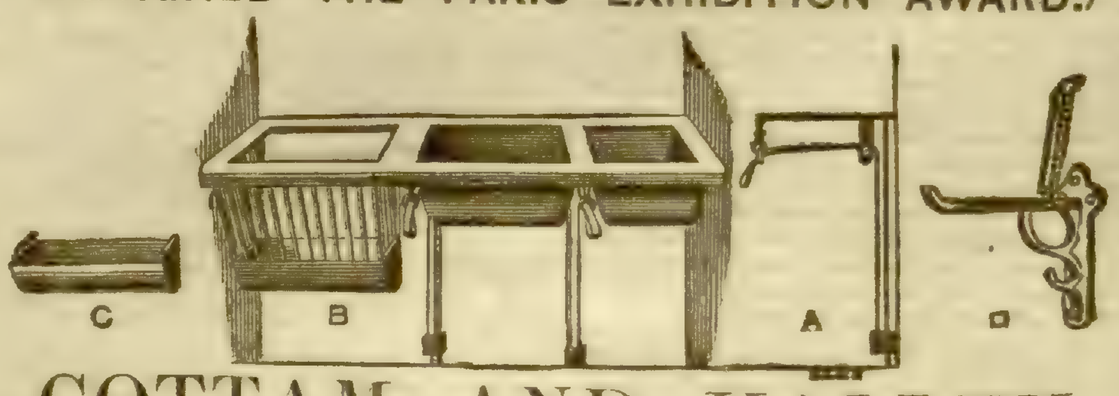
NEW PATENT INVENTIONS FOR STABLE REQUISITES.

(OBTAINED THE PARIS EXHIBITION AWARD.)



COTTAM AND HALLEN

HAVE made important additions to their original Invention of PATENT ENAMELLED MANGER RACK AND WATER TROUGH AS ONE FIXTURE, the main features of which are shown in the above engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

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WARMING AND VENTILATING.—Descriptive Catalogues and Estimates on application.

PEARS GRAFTED ON THE QUINCE AS PYRAMIDAL SHAPED TREES.

J. AND J. FRASER beg to announce that their Priced List of the above is now published, and may be had post free on application.

J. & J. F. have sold a large number of these Trees for the last three years, and have received numerous letters from gentlemen in the country speaking in very high terms of their productiveness. They can therefore recommend them with greater confidence to the notice of their friends and the public in general.

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BUSBY'S STOCKWOOD GOLDEN HAMBURGH GRAPE.

MESSRS. VEITCH AND SON in reply to the many inquiries they are constantly receiving as to when plants of this splendid new Grape will be ready for distribution, and for the information of the public, beg to say that the stock of eyes they have just received from Mr. Busby is sufficiently ample to justify the belief that it will be ready for delivery in the autumn of 1856, at the price previously announced, 21*s.* each. All orders already given have been duly registered, and will be executed strictly in rotation, and the same rule will be observed with reference to all future orders. Consequently the earliest orders will secure the strongest Vines.

Nurseries, Chelsea and Exeter, Dec. 8.

NEW EARLY MARROW PEAS.

HARRISON'S GLORY (blue) & HARRISON'S PERFECTION (white.)—These extraordinary Peas, which are nearly similar in habit, are as early as Double-blossomed Frame, about 3 feet in height, full of large pods which cluster from the bottom to the top of the haulm, and are equal in flavour to Knight's Marrow. Samples of the haulm may be seen at the following firms in London, of whom only they can be had, in quart packets at 5*s.* each:—

Messrs. BATT, RUTLEY, & SILVERLOCK, 412, Strand; BECK, HENDERSON, & CHILD, Middle Wharf, Adelphi; HURST & M'MULLEN, 6, Leadenhall Street; MINIER, NASH, & NASH, 63, Strand; NOBLE, COOPER, & BOLTON, 152, Fleet Street; JACOB WRENCH & SONS, 39, King William Street, City.

DENYER'S NEW PROLIFIC GREEN MARROW PEA.—A fine variety for succeeding the first early Crops. Very hardy, and one of the greatest cropping Peas in cultivation. It obtained the first prize at the Hastings and also at the St. Leonard's Horticultural Exhibitions.

From the Dean of Battle.—"The sample of Peas you sent me surpasses in beauty of colour and richness of flavour any that I have ever met with."

From Mr. Waters, Gardener to Lady Webster, Battle Abbey.—"I have examined the growing stock of your new Pea, and find it crops abundantly, the pods being a good length, very broad, and well filled. It is also a fine flavoured and beautifully green-coloured Pea."

From Mr. Bunyard, Maidstone.—"My opinion of the new Pea is, that it is a distinct sort, a good cropper, and for colour I do not know its equal."

From Mr. Parks, late Nurseryman and Seedsman, Dartford, Kent.—"I am much pleased with your new Pea. It certainly is a very fine cropper. The Peas are large, and the pods completely filled. It will when known become a superior Pea for market."

Price 3*s.* 6*d.* per quart. Post Office orders payable to WILLIAM DENYER, Seedsman, Battle, Sussex. May also be had through the London and other seedsmen.

SPLENDID NEW RHUBARB—SALT'S CRIMSON PERFECTION.

ROBERT SALT begs leave to inform the Gentry, Nurserymen, Gardeners, &c., that this splendid variety of RHUBARB is now ready for distribution; it is universally allowed to be the most early, prolific, and delicious variety ever offered to the public. See *Gardeners' Chronicle*, June 11, 1853:—"Very good, and of a most beautiful crimson; compared with others, it is remarkable for the small amount of acidity it contains."—ED.

Certificates of merit were awarded for specimens exhibited at the meeting of the Horticultural Society, Regent Street, London, June 20, 1853; at Nottingham, May 24, 1854; at Derby Midland, May 25, 1854; at Ormskirk, Lancashire, August 30, 1854.—Price 3*s.* 6*d.* per root, three for 10*s.*, and six for 1*l.* A few two-year-old Plants at 5*s.* each.

Orders addressed to ROBERT SALT, Longton, Staffordshire, or the following Agents will have immediate attention:—Messrs. Hurst & M'Mullen, 6, Leadenhall Street, London; Messrs. Burgess & Kent, Penkhull, Staffordshire; Messrs. Francis & Arthur Dickson, 106, Eastgate Street, Chester; Messrs. James Dickson & Sons, 102, Eastgate Street, Chester; Mr. Salsbury, Melbourne, Derbyshire. A liberal discount allowed to the Trade.—A Post-office Order from unknown correspondents.

Longton, Dec. 8.

WATERER'S AMERICAN PLANTS.—A new DESCRIPTIVE CATALOGUE is now published of the celebrated Collection of hardy Scarlet and other Rhododendrons, as exhibited by JOHN WATERER at the Royal Botanic Gardens, Regent's Park; it will be found to contain a few practical observations on their successful management, and will be forwarded on application by enclosing two stamps for postage. Apart from its enumeration of the most popular American Plants in cultivation, a List of choice Coniferæ will be seen, embracing the latest importations of this fine and hardy tribe of Plants.

J. W. has now the pleasure to offer in large quantities, and of all heights, the following selection of CONIFERS, with the remark that they are all now growing in the open ground, are bushy and handsome as can be desired, and have been transplanted each succeeding spring, whereby no risk can be encountered in their removal from the nursery:—Araucaria imbricata, Cryptomeria japonica; Pinus Douglasi, Cembra, excelsa, Lambertiana, insignis, Jefferyana, Beardsleyi, tuberculata, &c.; Cedrus Deodara, Lebanon, and Africana; Wellingtonia gigantea, Cupressus, Juniperus, Taxus, Thuja, &c.

☞ The attention of gentlemen, public companies, and others engaged in planting, is especially directed to the foregoing; indeed, all intending planters would be well repaid by a visit to inspect our stock, as much may be seen which of necessity cannot be given within the limits of an advertisement.

The Nursery is easily reached by railway, being near the Farnborough Station, South-Western Railway, and Blackwater on the South-Eastern Railway.

The American Nursery, Bagshot, Surrey.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from one to six feet.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

WEST OF ENGLAND HORTICULTURAL AND AGRICULTURAL SEED ESTABLISHMENT.—*The* PROPRIETORS *have during the past summer considerably enlarged their Offices and Seed Warehouses at a considerable expense, so as to be enabled to execute all orders with regularity and dispatch.*

With increased exertion, redoubled energies, and more assistants, they hope to give the greatest satisfaction to all who honour them with commands.

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

NEW TURNIP.

WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

SEED POTATOES.

SUTTON AND SONS, SEED GROWERS, *Reading, have a large Stock of the best early kinds of Potatoes very true and free from disease. Prices, &c., will be sent post free on application.*

TO THE SEED TRADE.

GENUINE NEW SEEDS, *of the undermentioned kinds, warranted all of the growth of* 1855, *may be obtained from the Undersigned, who will forward prices on application.*

CARROT, of several sorts.	SKIRVING'S SWEDE, fine stock
MANGEL WURZEL, do.	GREEN GLOBE TURNIP.

SUTTON & SONS, Seed Growers, Reading.

SMITHFIELD CLUB.—BAKER STREET BAZAAR. **STANDS Nos. 153, 154, 155, and 156.** SUTTON AND SONS, READING.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 8, 1855.

SOME of our readers have asked us questions concerning the distinctions and origin of what are called PUMPKINS, GOURDS, and SQUASHES. It would be useless to refer them to standard English works in satisfaction of their curiosity; for nothing satisfactory therein appears. Neither is it worth saying "look into the *Géographie Botanique raisonnée* of M. ALPHONSE DE CANDOLLE and similar foreign works," for either they have them not or cannot read them. It therefore seems worth while to devote a column or so to the matter, especially since the time is approaching for procuring seeds against the season of 1856. In doing this we borrow largely from the important work just quoted.

Three races belonging to the genus CUCURBITA, are designated by the three names above mentioned. Botanists call Pumpkins *Cucurbita maxima;* Gourds *C. Pepo;* and Squashes *C. Melopepo.* We shall speak of them under their familiar names.

PUMPKINS are those great rambling plants which bear fruit the magnitude of which astonishes the novice. One of them, the "great yellow Pumpkin," often seen in shop windows, weighs commonly a hundred weight, and sometimes twice as much. SAUVAGES happily described it as *Sphæra polis compressis meridianis sulcatis* (a sphere compressed at the poles and furrowed at the equator). Several other sorts, green, grey, &c., are grown by the French, who consume them largely as a vegetable, merely boiling them, or more commonly making them into soup. They are all rather coarse, and inferior to the other races. Moreover, they are bad bearers, as might be expected from the enormous weight they commonly acquire.

GOURDS are also scrambling plants, but their flowers are smaller, and contracted at the base. Among them stand Vegetable Marrows, Orange Gourds, Egg Gourds, Giraumons, Crooknecks, Turk's Caps, Warted Gourds, &c. Of these sorts the quality varies greatly; some, like the Orange Gourd, are bitter even when young; others are always delicate and fit for food. The best known to us are, for eating young, the Vegetable Marrow, and for soup or mere boiling when ripe, the Egg Gourd. The latter is in reality one of the most valuable of all garden things in this country for winter food. In the Bon Jardinier great merit is assigned to the *Courge de Valparaiso* and the *Courge sucrière du Brésil;* but we are unacquainted with either.

SQUASHES are the Gourds which do not scramble over the ground, but form bushes 3 feet high and a little wider. In shops their seeds may be had under the name of Pâtisson, Elector's Cap, and Jerusalem Artichoke Gourd. In this country they are little known. Their fruit is small, broader than long, with the edge often furrowed. In North America they have a great reputation. To us they seem inferior to our Vegetable Marrows, and are much less productive.

Where do these plants come from? Some writers say from the Levant, some from India, others from Africa, others from America; yet they are hardly of universal origin. That Gourds of some sort were known to the Greeks and Romans scholars are aware, but whence they obtained them is a mystery. TARGIONI TOZZETTI says they were all introduced in very early times from Asia or Africa. The only critical inquiry that has been made into their origin is by M. ALPHONSE DE CANDOLLE, in that learned work of his to which reference has been already made. The PUMPKIN he thinks all evidence tends to show must have come from the south of Asia, though it has not been found in a wild state. Having no name in Sanscrit it is probable that it originated beyond the Ganges, or in some island of the Asiatic Archipelago. Perhaps it is so altered by cultivation that it is not recognised in its wild state; or perhaps LINNÆUS was right in regarding it as a mere variety of the Gourd. (What, by the way, is the origin of the word Pumpkin?) Gourds, properly so called, formed the Colocynthæ and Pepones and Cucurbitæ of the Greeks and Romans. M. De Candolle considers it quite certain that they are not inhabitants of America. "Remembering," he observes, "that the name Cucurbita is pure Latin, that the Greek words Kolokunthe and Sikua also appear to be true Greek, that the species has no Sanscrit name (for Roxburgh's Cuc. Pepo is a different plant); seeing moreover how many were to all appearance the varieties in the time of the Romans, and especially in Europe in the 16th century, I hesitate between the Mediterranean region and Southern Asia as their original birthplace. At any rate the species has not been found wild. Possibly it may be hereafter found in the South of China." As to the SQUASHES, the same great authority observes that they are probably an artificial race, produced in Europe by cultivation in the 16th century.

It would appear however that our friends on the other side the Atlantic have a ready way of settling difficult questions of this sort without a careful study of historical facts; for we find in the *Report of the Commissioners of patents for the year* 1854, under the head of Agriculture, the following statement by Dr. T.W. Harris, of Harvard University.

"Accident led me, some four years ago, to undertake the investigation of the history of Squashes and Pumpkins, which has led to quite interesting results. Most of the older and well-known species and varieties were by modern botanists supposed to have come originally from Asia, and particularly from India. This I have proved to be an error, and have shown that these fruits were wholly unknown to the ancients, no mention being made of them in the Scriptures, nor by Greek and Latin authors. The writers of the middle ages, while they describe or take note of other Cucurbitaceous plants, entirely omit Pumpkins and Squashes; and these did not begin to be known and noticed in Europe till after the discovery of America. Early voyagers found them in the West Indies, Peru, Florida, and even on the coast of New England, where they were cultivated by our Indians before any settlements were made here by the Europeans. The old botanists, who flourished during the first century after the discovery of the New World, or the West Indies, begin to describe them for the first time, and give to them specific names, indicating their Indian (American) origin. Hence arose the mistake of modern botanists in referring these plants to the East Indies and to Asia.

"From a study of the history of the plant, I went next to a study of the species, with particular reference to their botanical characters, and to this end have been cultivating and examining every year all the kinds accessible to me. I think I have established the fact that all the fruits known by the names of 'Pumpkins' and 'Squashes' are of American origin; that there are three distinct groups of them; the first, including summer Squashes, that have shells when ripe; the second, the winter Squashes and Pumpkins with deep five-furrowed fruit stems; and the third, the winter Pumpkins and Squashes, with short, cylindrical, and longitudinally wrinkled (but not five-furrowed) fruit stems. The last group was probably originally confined to tropical and sub-tropical parts of the western side of this continent, from California to Chili. The most esteemed varieties now cultivated in New England belong to this group, and the best of them are the 'Autumnal,' 'Marrow,' and 'Acorn' Squashes."

We are afraid Dr. Harris will have to modify his opinions.

WE learn with great pleasure, that Lord FITZWILLIAM has already commissioned Mr. HENDERSON, his very intelligent and experienced gardener at Wentworth, to take means for ascertaining the comparative of value of our two English Oaks. A couple of trees, of similar age (about 120 years), have been selected for experiment. That they are genuine we know, in consequence of specimens of the leaves and acorns having been sent us for

examination. They were felled in the end of October; they are to be seasoned for not less than six months, and a piece 6 feet 9 inches long from the butt end is separated, which will be hereafter cut up into scantlings for experiment.

As we trust that many others of our great nobles and gentlemen will co-operate in this inquiry, and since it is desirable that the trials should be conducted, as nearly as possible, on one uniform plan, we think it advisable to mention how some experiments made in H.M.'s dockyard at Portsmouth, by Mr. James Bennett, the very able timber inspector there, were conducted. Six pieces of New Forest Oak were taken from the Vindictive, each piece being 7 feet long, 2 inches square, containing 336 cubic inches, and resting upon props 6 feet asunder. Three of these pieces were common Oak, and three Durmast, all received into store in 1830, used in 1832, and tested in 1849. The results were given thus:—

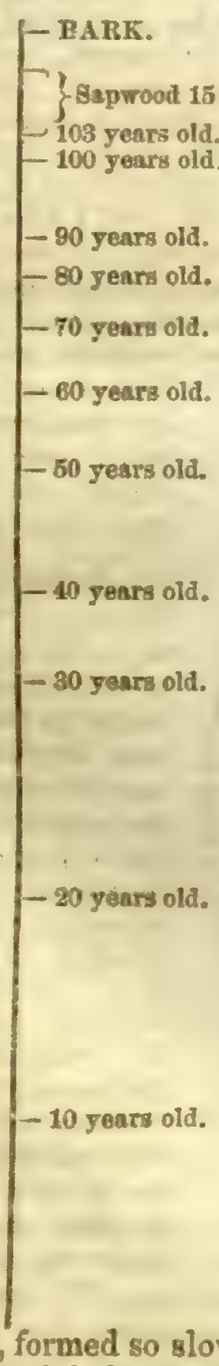
Name of Oak.	No. of piece.	Weight		Deflection at crisis of breaking.	Weight of a cubic foot.	Specific gravity.
		of each piece.	borne.			

Since Lord Fitzwilliam's experimental timber is already cut into 6 feet 9 inch lengths, it is as well that others should adopt the same measurement; for the comparative results will not be affected if 6 feet 9 inch pieces, 2 inches square, resting on props 5 feet asunder, are substituted for those employed by Mr. Bennett.

We would also advise that, in order to render comparison perfectly satisfactory, the pieces experimented on should be squared from just within the sapwood, and therefore consist of nothing but heartwood or "spine." The back and belly of the pieces should be as nearly as possible parallel with the annual rings, while the sides should also be parallel with the grain or medullary rays. Moreover, in trying the strength the back of each piece, that is to say the side which was next the sapwood, *should be placed downwards.* It would not much matter, indeed, for comparison if it were placed upwards, provided all experimenters would do the same; but we should prefer it downwards, because when wood is bent in that direction the elastic resistance to a strain is the greater, as archers know.

Since writing the above, we have received a piece of the old timber taken from the remains unburnt at the late fire at Stirling Castle, which the Governor has been so obliging as to place at the disposal of our friend Mr. Peter Mackenzie. It came from "the Douglas room," which is said to be the most ancient part of the old castle. How long it may be since the tree that produced it was felled we have no means of knowing; but it must have lain in its place for several centuries, inasmuch as James II. of Scotland who stabbed the Douglas in the room it floored died we think in 1456, at which time Stirling Castle was an ancient fortress. It is not a little curious to find that this wood, of such high antiquity, is that of Quercus sessiliflora, as every piece of very ancient English Oak which we have yet seen has invariably proved to be.

The annexed is an exact measure of the annual rings in the specimen before us; from which it appears to have grown pretty fast for the first 30 years, after which its rate of increase gradually diminished, till at last the annual rings can with difficulty be counted even with the aid of a magnifying glass. That it must therefore have been produced in an unfavourable climate would seem certain. In fact the sap wood, now in a state of decay, formed so slowly that the tree could not have gained half an inch in diameter in 15 years.



New Plants.

152. Coccocypselum cordifolium. *Nees and Martius, D. C. Prodr.* iv. 397.

Among many curious plants raised in the garden of the Horticultural from the abundant collections of our zealous friend Mr. Skinner is this, which he describes as "an exquisite little thing, with ultramarine-coloured seeds. It crawls over shady banks. Both leaves and flowers beautiful." From its great resemblance to a *Geophila*, it was provisionally named *G. villosa*, under which name it has been distributed. Now that it has flowered it has been identified as the *Coccocypselum cordifolium* of Brazil, which has found its way as far northwards as the forests of Guatemala. The flowers are in very small heads, about three together, of a pale lilac colour, and of little interest in their present state; but it is conceivable that if carpeting a bank, and blooming abundantly, the appearance might be gay enough. It is, however, to the "ultramarine-coloured" berries that we must trust for the beauty which belongs to the plant. The leaves are roundish cordate, of firm texture, shaggy, with stalks longer than the peduncles in the wild plant, though much shorter in the specimen that has just flowered.

153. Eucharis grandiflora. *Planchon and Linden Fl. des Serres*, ix., 957.

This is one of the handsomest of bulbous plants. A correspondent (J. M. A.) has sent us a flower, pure white, thick like fine kid leather, 4½ inches in diameter, and sweet, like a Tuberose in the evening. In appearance it may be compared to a Pancratium, or rather to a Eurycles. The leaf is 5 inches broad by 7 inches long, acute, somewhat heart-shaped, with the texture of a Funkia. Three or four such flowers as are above described form an umbel, on a stiff terete scape. The tube is curved and trumpet-shaped, more than 2½ inches long; the border is quite flat, consisting of six ovate segments, the inner overlapping the outer at the base. The coronet is fleshy, cylindrical, about half an inch deep, with 18 thick teeth, every third of which is longer than the others, and bears an anther. The style projects a little, is very slender, slightly declinate, and ends in a flat bluntly 3-lobed stigma. Each cell of the ovary contains about a dozen papilliform ovules.

The plant was found by Mr. Triana, one of Mr. Linden's collectors, in the province of Choco in New Grenada. It requires stove temperature while growing, and a dry greenhouse when at rest, and is a charming thing.

VEGETABLE PATHOLOGY.—No. XCVIII.

394. Dactylorhiza*.—(*Fingers and Toes*).—This disease was not clearly distinguished from Anbury, which is in reality a very different affection, till Mr. Buckman published his excellent memoir in the 15th volume of the "Transactions of the Royal Agricultural Society," which was transferred with copious illustrations to this Journal in the volume for 1854, and some observations on the same subject have very recently appeared in our pages confirmatory of what had been advanced in the previous year. It is like the disease treated of in our last article (P. 388), a more or less complete reversion to the natural condition of the plant, and the remedy consists in like manner (P. 392) in good cultivation and a proper selection of seed.

395. Anbury properly so called (and clubbing belongs to the same category) is a deformed condition of the roots induced by the attacks of insects.† In the present disease no insect is immediately concerned, and if larvæ appear at a later stage of growth their presence is altogether accidental. In their wild condition Parsnips, Carrots, Turnips, &c., throw out a multitude of principal roots and heads, whereas the effect and object of high cultivation is to produce a plant which shall have a single head only, and one tap root without any principal laterals. In some plants, as in the Rampion and Skirret, the innate propensity to division is so strong as to make them scarcely worth cultivating, notwithstanding their intrinsic merits. Mr. Buckman has shown that the tendency of cultivation accompanied by a careful selection of seed and change of soil is to produce single taproots, but that amongst a quantity of seedlings, under the most favourable circumstances, there is always a disposition to revert to the original condition, and that this tendency is increased in proportion to adverse agricultural influences, as untimely sowing, poverty of soil, repeated produce upon the same ground, &c. Wherever, therefore, a large quantity of branched roots occur the quality of the seed may be suspected, provided it has not come from too rich a soil, the soil itself be in proper condition, and the same crop has not been taken several years in succession. Under unfavourable circumstances the branched roots will become woody and the plants run rapidly to seed, presenting a condition identical with that in our last article. The vulgar notion that the division arises from the manure not being properly incorporated with the soil, insomuch that small fibres attracted by the isolated patches become strong branches, is, I believe, entirely without foundation.

395. It is highly necessary for the prevention of this condition, that seed should be raised from selected roots, and not from a crop taken indiscriminately; that the roots should not have come from very late sown seed, a circumstance which has an especial tendency to produce plants which run to seed rapidly without forming a tap root, and that the roots themselves should have been raised and stored some time previously to being committed to the ground. It was explained before that the greater part of the objects of agriculture are due to a certain debility of constitution, and by storing the plants, that exuberance of vegetation is checked which has a tendency to reduce plants to their former condition.

396. It is clear that where plants are naturally wild, the tendency to reversion may be expected to be much greater than under contrary circumstances. Hybrids too between species will have a much greater tendency to revert than hybrids between varieties, and consequently the Swedish Turnip is much more subject to the malady than the common Turnip.‡

397. Affections, apparently similar, exist occasionally in tubers, as in the Potato. As these tubers have in reality neither the functions nor organisation of a root, the case is one merely of analogy. In the Potato, for instance, where the tubers, sometimes, as in a case before me, assume a form like that of a human foot, or as in that figured in *Gardeners' Chronicle*, 1849, p. 4, present a gouty hand, the affection is due to the protrusion of some of the superficial buds, so as to form fresh tubers adherent by their base to the original tuber. In the first case mentioned above some larva had burrowed into the substance, so as to destroy the vitality of the terminal bud, and hence as the tuber was still inclined to increase some of the lateral buds were brought into action. The same effect may be produced by excessive pressure, as was probably the case with the Belgian specimen figured in this Journal. The affection is, however, no attempt to revert to the original condition of the plant, but arises from purely accidental causes. *M. J. B.*

* From δακτυλος a finger, and ῥιζα a root.

† The articles Anbury, Clubbing, Fingers and Toes, and Turnip disease in the "Encyclopedia of Agriculture," may be consulted on this subject.

‡ Precisely the contrary was stated in Mr. Buckman's paper, see *Agricultural Gazette*, 1854, p. 572. The mistake was probably a mere misadvertence, and at any rate the matter is correctly stated in the present Volume, p. 778.

SUBTERRANEAN IRRIGATION.

[From Mr. Mechi's communications to Stöckhardt's Chemical Field Lectures.]

"I am so frequently questioned as to the cost and success of this operation, that I purpose, as briefly as possible, giving the necessary information.

"Supposing the farm to be of 200 acres, pipes of 3 inches diameter would be sufficiently large:—

	Cost per acre. £	s.	d.
15 yards of 3-inch iron pipe, weight 5½ cwt., at 7*s.* 6*d.*	2	1	3
Laying and jointing with lead and yarn, 18 hydrants, and fixing, at 1*s.* per yard	0	15	0
A liquid manure tank of 4½-inch brick-work, with 9-inch dome, 100*l.*...	0	10	0
200 yards of gutta percha 2-inch tubing, at 5*s.* 6*d.* per yard, or 1 yard per acre	0	5	6
Steam-engine of 6-horse power, 200*l.*	1	0	0
Pair of 6-inch pumps, 20-inch stroke, 100*l.* ...	0	10	0
	£5	1	9

So that about 5*l.* per acre will be the cost of the whole operation; this is considerably higher than the estimates quoted by the General Board of Health, p. 136 (whose paper on this subject everybody should read), and much higher than my own expense; because when I carried out this operation in March 1852, the price of iron pipes was only 4*l.* 5*s.* per ton, labour, materials, &c., in proportion.

"I think I have somewhat over-estimated the cost, but there are always a number of incidental expenses which tend to enlarge the estimate.

"Assuming 7½ per cent. on the sunk capital to be a sufficient charge, your fixed charge on every acre of the farm will be 7*s.* 6*d.*, and your working expenses will be as follow on the land actually irrigated:—

6-horse power, or 7 cwt. of coals per diem ...	£0	8	0
Engineer	0	2	6
Man and youth to work jet, 2*s.* 6*d.*, 1*s.* 6*d.* ...	0	4	0
Miscellaneous expenses	0	1	0
	£0	15	6

Or 15*s.* 6*d.* per diem working expenses. With this power you will put on 5000 gallons per hour, or 50,000 gallons in 10 working hours; allowing two hours on each acre, or 10,000 gallons per acre, the cost for each dressing per acre will be 3*s.* 1*d.*

"Supposing the Grass or other crop requires four dressings per year, the cost would be 12*s.* 4*d.* per acre on the land actually irrigated.

"It is now three years and a half since I first began irrigating, and I have no hesitation in saying that the operation is a profitable one. By this process you intimately admix your manure with every granule of the soil and subsoil to the depth of the drains, which I have often seen discharging the liquid at 4 and 5 feet deep. A cross cut in our ordinary soils exhibits 5 inches of friable and well-looking soil, whilst all below shows undisturbed poverty.

"Irrigation remedies this and fertilises where the plough-iron never enters.

"In the practical working of the operation, a hundred difficulties presented themselves; these have all been overcome, (as with steam, gas, and other new inventions); and now our men pursue their avocation without let or hindrance.

"I have written largely on this subject in the *Agricultural Gazette*, and under the head 'Sewage' in 'Blackie's Cyclopædia of Agriculture.'

"The main difficulties that have been overcome were—the avoidance of concussion by ample air-vessels, the intermixture and suspension of the solid manure by constant agitation produced by an impulsion of air from an air-pump.

"The substitution of a gutta percha suction pipe with corrugated joints instead of iron pipes.

"The use of a large suction gutta percha bulb with many holes, by which the manure is gradually and slowly drawn in, thereby avoiding the choking, which was caused by a violent rush through limited openings.

"Painting the gutta percha tubing white to prevent its melting in summer by the heat of the sun.

"Inserting corrugated joints, at intervals of 18 feet, to enable the gutta percha tubing to curve without 'knuckling.'

"Improving the draught and setting of my steam-boiler, by a strict adherence to the rules laid down in Mr. W. Williams's admirable work 'On the Combustion of Coal and the Prevention of Smoke,' which every owner of a steam-engine would find it profitable to read.

"There is no reason why the sewage of our towns should not be applied to the fertilisation of the soil, except that prejudice and disbelief will obstruct all new undertakings.

"An examination of the Croydon Water Works, where 650,000 gallons are raised daily 150 feet, and pumped a mile for 13*s.* 6*d.* worth of dust coal, will show how cheaply our irrigation might be effected by a proper investment of capital.

"Mr. Whitworth, in his Special Report on America, states that the Navy Dock, New York, containing 610,000 cubic feet of water, is converted into a dry dock in four hours and a half by a steam pump, which shows how easily the contents of our London sewers might be applied to the soil instead of poisoning our river; but then you must get farmers and landlords to believe that it is profitable for them to economise and pay for this precious ingredient, or they will not make the necessary arrangements for its application.

"In conclusion, those who desire to save themselves trouble in this matter may send their engineers to examine my works at Tiptree, or come themselves.

"Mr. Walker pays 50*l.* a year for the sewage of Rugby, and applies it to his land. The Earl of Essex takes the sewage of Watford for 10*l.* per annum.

"The Edinburgh meadows (once barren waste) have, by irrigation with the town sewage, been converted into rich Grass lands, let annually by tender to the Edinburgh cowkeepers at an average rental of 21*l.* per Scotch acre!!!

"N.B. This operation can only be carried out where water is obtainable in sufficient quantity. In my case I obtained a constant supply of pure water by draining a piece of boggy land 12 feet deep. Water that will produce the Water Cress is considered by Devonshire men well suited for irrigation. Mine is of that quality."

AUTUMN.

How beautiful is autumn, with its varied tints of rich brown and deep green, its fading Oak and Beech, whose leaves seem to linger on the branches where they have waved so merrily during the long warm past summer! And the wind as it rustles through the crisp foliage, scattering about our path the emblems of the life and fertility of another season now gathering into the filling tomb of the past—how clearly it speaks the object of its mission and falls upon the ear as a soft moan of grief over the dying and the dead! Spring with its renewed life—its sunny days, its gladdening hopeful happy face, has many and varied varieties. Summer has perhaps more substantial elements of Nature's power and the wisdom and love of Nature's Creator. But I must confess a weakness in favour of autumn as a season in which, above all others, the mind acquires that calm and happy tone which befits it best to contemplate the wonderful world around us. Where is the busy life—the myriads of insects—the birds with their varied notes and joyful songs? They do not now, it is true, enliven the solitude of the forest or cover its "babbling brooks" with their gay and graceful motion.

But the very fact that they are gone, and all around is silent, save the chance caw of the passing rook, the screech of the startled jay, or the "wood sprite," or may be my old friend the tom-tit cracking the stone of the Hawberry on a neighbouring branch, gives a feeling of awe to the thoughtful, and adds another charm to the mind's eye of Nature's student. In The Book we are told there is "a time to weep and a time to laugh; a time to mourn and a time to dance." Emphatically I would add that autumn is, *par excellence*, a "time to think." Because, do as you will—say as you will—argue as you will—to the conclusion you must come that no one can look upon the rich tints of autumn, listen to its falling leaves and think of the busy life that has fulfilled its purpose and passed away, without feeling in his inward soul that he is reading a type of his own destiny among created things. His joy, and hope, and affection, and love—were they not the attributes of his spring? And the busy, crowded, active thoughts and actions of life—do they not tell of his summer? How easy then is the transition to that period when in the calm of life, his remembrance of those who are gone from the bright world for ever brings him to the mellow autumn of his own existence—and the falling leaf, and the fading landscape, and the stillness of all around him, do not these things raise within him thoughts too "eloquent to speak," and give a sanctity to that which is the type of his own mortality—the shadow of his own doom?

And yet again the thoughts which this season excite are not alone of self. "He hath made everything beautiful in His time." And there is nothing more beautiful than the design which He has imprinted upon all that He has made. The stupid Pantheist who localises his God in each leaf or stone or flower on the face of the earth, forgets that the thing created can never be equal to Him who creates. As the labourer sleeps after his toil that his strength may be restored, so Nature in autumn is preparing for that sleep of winter which will give it renovated luxuriance in the coming spring. As the animal slumbers after its food so does the tree or flower, and autumn is a fitting symbol of that Providence which careth for "every creeping thing." Long before the green leaves have faded, the swallow and most of the songsters of our summer have been guided away to a warmer land—the dormouse has made its nest and the insect has sought its hole, and man looks on with no wonder, and, alas, too often with no thought, for such things "always were."

And autumn is in another aspect a proof of the finite nature of the human mind. "No man can find out the work that God maketh from the beginning to the end." We know that the life of the world becomes dormant for a season; but who shall say what that life is, the current of which is checked by the autumnal frost? The operation is evident, the fact is clear, but the moving spring is hidden from our gaze among the grand and sublime attributes of infinity.

Still once more, autumn is the storing season of the world. "And also that every man should eat and drink and enjoy the good of all his labour, it is the gift of God." The squirrel stores his nuts in the high trees, the beaver fills his granaries, the "wee mousey" drags the Chesnut into its nest, and man gathers his golden corn into his stackyard.

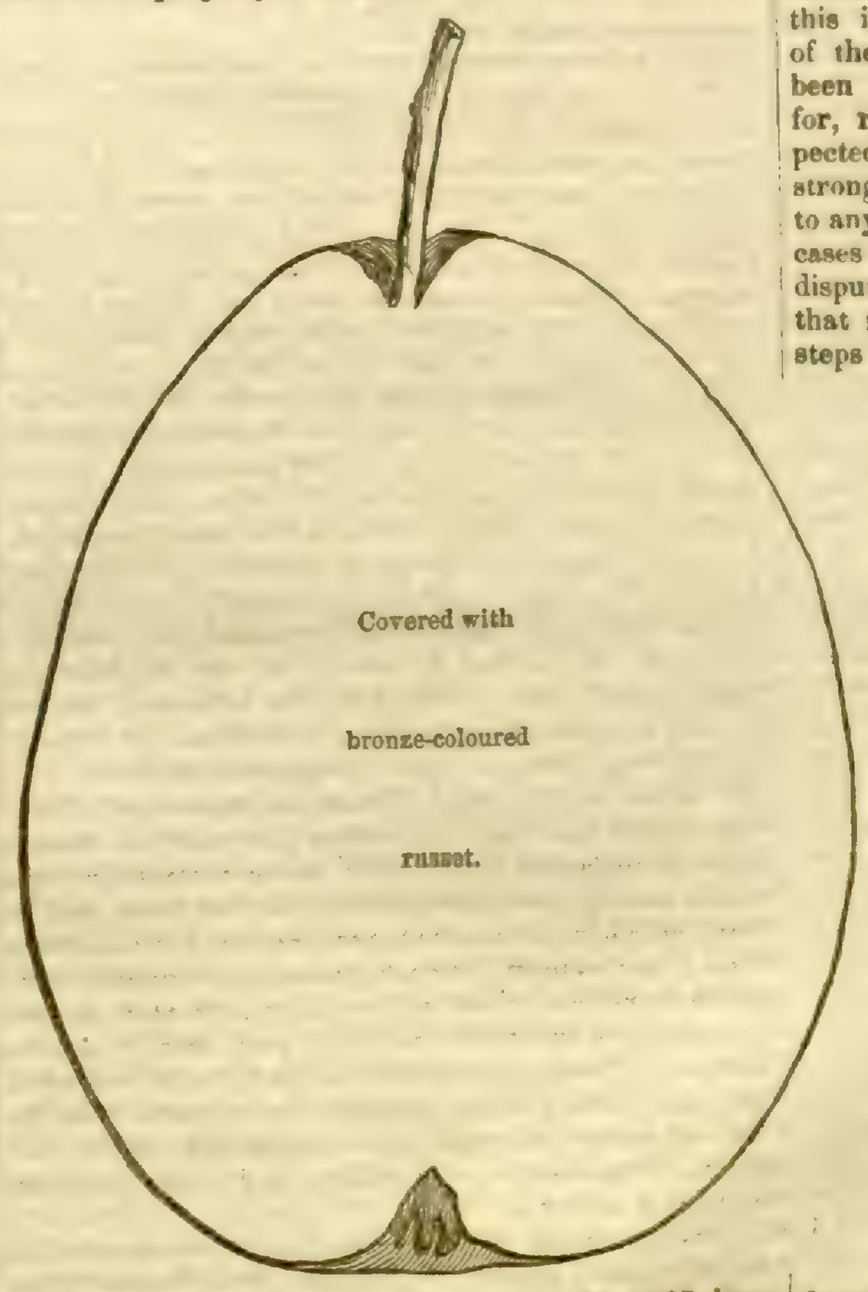
These and many more are the facts which give, to my mind, a peculiar charm to autumn, but as we think and ponder upon them all, the subject opens out into a yet wider and grander field of contemplation; the brook no longer ripples in the ear—the passing bird no longer startles the thinker from his reverie—the leaves crisping at his feet no more tinge his memory with thoughts of the past and gone—the mellow tints are changed, for the mind has passed onwards, and has pierced the gloom of winter, seeing in the far distance the awakening again of that which but seemed to die, and the type of his own existence again looms forth—speaking of the Eternal, of that which lives for ever.

And the dead leaves are gone and new buds spring forth, and again the sound of life is heard, and the birds sing and the insects hum and the Grass grows green, and Nature rises once more into life, and the thinker reads the history of a human soul which shall never die. And so I love all the seasons which God has given us for our happiness, but above all I love to linger upon the mellow tints of autumn. *C. R. Bree.*

THE VERULAM PEAR.

Syn. Buchanan's Spring Beurre.

Under the latter of these names a tree was received into the collection of the Horticultural Society, from the nursery of Mr. Buchanan, of Camberwell, in 1828. The name, however, is objectionable, inasmuch as the fruit is not properly a Beurré, nor is it asserted that the



variety was raised by Mr. Buchanan. In 1827, however, a cutting was received from Mr. Jutler as the Verulam Pear, which proved to be identical, and this name is considered the better one to adopt.

The fruit is produced all over the tree with great regularity, and it is remarkably uniform in size, which is similar, in tolerably good soil, to that of the fruit here represented, from a standard; but in rich soil it grows considerably larger. The form is regular. Stalk slender and woody. Eye rather open in a slight depression. The skin is strong, and with its bronze-like close coating of russet is well adapted for protecting the fruit for a long period. The flesh is crisp and juicy, and in good seasons becomes tolerably melting, especially if placed in a temperature of from 60° to 65° for some weeks previous to using. Its principal merit, however, is as a stewing Pear, for which purpose it is found to be excellent, and acquiring a fine rose colour without the aid of cochineal. In this way it may be used all through the winter and till May.

The tree is hardy, forming a round spreading head, and bears abundantly. Shoots moderately strong, dark olive, sprinkled with both round and linear grey specks. Leaves middle-sized, somewhat obovate, acuminate slightly serrated; petioles slender, about 1½ inch in length. A variety of Pear that is hardy, an abundant bearer as a standard, and which keeps sound like the above, must be considered a valuable acquisition. *R. T.*

Home Correspondence.

Longevity of Seeds.—The following may interest you. Whilst the Great Northern Railway was making through the fens of Hunts the workmen came to a parcel of Nuts and Acorns. One of the Acorns had vitality, but, unfortunately, the navvy who found it cut it asunder to ascertain the fact; the chaplain, however, was in time to save the Nut, which he sowed in a pot. It vegetated, and is now in the Kew Gardens, and showing in its growth all the indications of age. The annual shoots are, or at least were when I saw it, short and jagged. The fen in which these fruits were found is full of trees several feet below the surface, black and hard so that no tools can work them, showing that it was once covered with wood, though certainly not within the last eight centuries, and probably many more. *Thos. Richard Rooper, Wick Hill, Brighton.* [We have requested Dr. Hooker to have the kindness to inquire into this case, and he has done so, as the following highly interesting memorandum shows.]

Longevity of Seeds.—I have referred Mr. Rooper's note to Mr. Smith, who has made inquiry in the Gardens, but can hear nothing of the Oak plant in question, nor does he remember any such having ever been brought or sent to Kew. I am not aware how far experiments have been carried to show the extent to which seeds, or rather embryos, will suffer mutilation and still retain sufficient vitality to become plants; this point will, however, be well worked out if the proposal to attempt the grafting of embryos, submitted by you in the *Gardeners' Chronicle* to the attention of skilful practical horticulturalists, be carried out. The main question as to the vitality of seeds supposed to be long buried in the soil is, however, apart from this, and one which appears to have received comparatively very little additional illustration at the hands of trustworthy observers for many years past. The famous Raspberry seed case, to which allusion has again been made, remains the most closely investigated example hitherto put on record of embryos retaining life after the lapse of several hundred years; I do not by this mean to say that as well authenticated cases of seeds supposed to be ancient having germinated are not on record; but this is, I believe, the only one in which all stages of the process, from exhumation to germination, have been seriatim rigorously investigated and vouched for, right or wrong; that some unknown and unsuspected cause of error may lurk in this case too, I am strongly inclined to suspect; and though I cannot point to any such, I have been too often myself deceived in cases which I once thought beyond the pale of doubt or dispute, to put implicit confidence in any experiment that makes large demands upon my faith, all whose steps have not been watched by practised observers.

That I may not be accused of being a churl of my confidence or an unreasonable sceptic, I will add a case in point in which I was not only myself most entirely deceived, but a much more cautious and most shrewd naturalist shared the delusion. Dr. Thomson and I, as you are aware, visited the Khasia mountains in East Bengal during our Indian travels; and previous to doing so, in the course of reading what was published about that curious country, we fell upon an observation by the late lamented Griffith, that an arboreous terrestrial species of Loranthus (otherwise an unexceptionably parasitical genus) grew there. As Griffith was not only an acute and experienced but a profound observer, who had made of Loranthus a particular study, physiologically especially, we never for a moment doubted the accuracy of his statement; nor perhaps will some botanists yet, in spite of the negative evidence Dr. Thomson and I can offer against it. Soon after our arrival we too found an (apparently) terrestrial arborescent Loranthus, forming a small tree at elevations of about 1000 feet, whose slender trunk we climbed, and procured abundance of specimens of leaves and flowers, and also a section of the wood; as, however, Griffith stated his plant to have been found at 6000 feet elevation, and to have the habit, &c., of an Elæagnus, we could only congratulate ourselves on finding a second case of the anomaly in question. During several subsequent journeys towards the bases of the mountains we found the same species, being always, as far as our observations went, terrestrial. After some months we proceeded along Griffith's route to Myrung, where he had found his terrestrial species, and there we soon re-discovered it, exactly corresponding with the following description, taken from his Journals (vol. i., p. 166):—"The most curious tree is one which, with the true appearance of an Elæagnus, seems to be a Loranthus, the first arborescent species yet found, although, as one or two other exceptions occur to

parasitism, there is no reason why there should not be a terrestrial arborescent species as well as a fruticose one." We unsuspectingly began to gather abundance of specimens, but our habit of never, when possible, collecting from one individual, soon led to the discovery that this was no terrestrial plant at all, but simply that of an Elæagnus-like Loranthus, growing on an Elæagnus, parasitically, of course. Both Elæagnus and Loranthus were extremely abundant on all the hills there and elsewhere in the Khasia, the former often contributing largely to the copse wood, and we were not a little surprised that Griffith, who had twice, after an interval of several years, visited Myrung, should have fallen into such a mistake. We congratulated ourselves all the more on the genuine crop of our terrestrial Loranthus of the foot of the hills. We were, however, ourselves doomed to disappointment, for on finally leaving the Khasia by the same road we had followed so often before, we stopped to procure a larger specimen of the Loranthus wood than we had previously obtained, and to do so cut down the tree, when we observed a very suspicious looking minute but familiar green leaf amongst the apparent Loranthus branches, and the truth came out that this was a case of the parasite possessing itself wholly of the branches of an Orange tree, its own branches covered with green leaves spreading out on all sides, and their branchlets hanging down, completely concealed the few remaining leaves of the Orange in one case, and wholly so in another close by. It may well be asked how experienced botanists can make such mistakes, especially how they came to be made in the field, and by persons who were not merely collecting for specimens, but endeavouring to observe every plant accurately in its living state. But for Dr. Thomson and my having visited Griffith's locality in one case, and having spent months in the Khasia, and collected wood specimens in the other, the anomaly would have remained almost indisputably verified by three botanists of there being such things as terrestrial tree Loranthi in India. I need hardly add, that when both the Elæagnus and its Loranthus were known to us, we saw so much difference between them as they grew, that to make such a mistake appeared impossible; and so in the case of the Orange and its parasite, it puzzled us to conceive how we had failed to recognise the trunk of our supposed Loranthus to be that of an Orange tree, abundance of which of the same size and height were growing around it. These are perhaps remarkable cases, but they are far from solitary ones; I have been so often deceived myself, and have been sent after so many mares'-nests by honest but inexperienced observers, that I have learnt by experience to mistrust all paradoxes in science. The cases of seeds lying buried in the ground for years, and springing up after the soil is disturbed, belong to almost another class from the Raspberry case; for there is sometimes no proof of the seeds having been buried at all, and at others there is no possibility of approximating to the length of time that they have been buried; they may, in short, be quite recently deposited. Mr. Darwin's Charlock seed case appears to me to be for various reasons by far the best instance yet adduced, for he proved that the seeds grew from below the surface of the disturbed soil, and therefore could not have been recently deposited on its surface. My objection to placing implicit confidence in this case, is the want of evidence that Charlock seed will withstand the destroying effects of moisture for any number of years. A vast accumulation of observations have been made, some intentionally and some accidentally, on the vitality of seeds, and all fail to show that this can be long retained under moisture, except those few of whose early history (as of the Charlock) we can obtain no satisfactory information. This of itself appears to me to be suspicious; and another fact is still more so, viz., that as observers and means of observation increase, the number of well attested facts does not multiply proportionately. How is it that we never find scarce or interesting plants under such circumstances? how is it that the seeds never are seen in the soil? If I am answered that they are too minute, I would ask why it is that only minute seeds lie so buried. Again, we are as yet very ignorant of the habits of many animals, and this interference of the animal kingdom with the laws that regulate the vegetable, are constantly giving rise to apparent paradoxes and anomalies. Such being the case we have surely a right to demand the most rigorous investigation of every case of anomaly by the reporters of them, if they wish to command our confidence; it is hardly fair to pitchfork paradoxes at naturalists' heads and tell them they may believe them or not as they like. With regard to the Charlock seed, one of the correspondents in the *Gazette* remarks that being an oily seed it is likely to retain its vitality unimpaired, and quotes Melon seeds as a case in point; but the seeds of Cucurbitaceæ are better protected than those of Cruciferæ, and the latter order is considered by some gardeners as not good keeping seeds in general. That many oily seeds become rancid and spoil quickly is certain, but I am not aware that any relation has been discovered between the vitality and chemical or other qualities of seeds. The suggestion of your correspondent "G. B." that the ground in which the supposed buried Charlock seed sprung up should be examined, is an excellent one, nor can I conceive its not giving conclusive evidence on one side or the other, for the Charlock seed, as "G. B." says, is not small, and for every living one there must be many dead in the soil. I would further suggest the burying Charlock seeds under a series of sods at different depths, and examining them *seriatim* after certain stated intervals, say one or two yearly. We should thus at any rate solve the first question, whether the seed can resist the effects of damp and for how long. The operators, too, would certainly have the advantage over Nature, for the seeds as shed from the plant must lie long on the surface exposed to birds and the weather before they are covered at all; and indeed it is difficult to imagine how it is that they can get buried in any abundance without germination taking place. If my friend Mr. Darwin would undertake these experiments, he would be conferring a great boon on sceptics like myself, and on science in general. I can assure him that there is no one into whose care all classes of naturalists would rather see them intrusted, for there is none in whose acuteness, judgment, and sagacity they place more confidence. He has already conferred a lasting benefit on both botanists and horticulturists by his admirable experiments upon salted seeds; and until these experiments were tried by him, I did not at all believe that many of the seeds he steeped would have withstood as many days' immersion as they have weeks, and even months. I shall be only too glad to change my opinion, or rather to dismiss my doubts as to the Charlock seeds, if he will kindly undertake to help me to do so. *J. D. Hooker.*

Meteorological Summary, for September, 1855. Prepared from the Comparative Observations in the Irish Land Schedule of 15th October. No. 98.

Month of September. Locality.	Mean Barometer	Mean Thermometer. Max.	Min.	Mean.	Amount of Rain.
England.	Inches.	deg.	deg.	deg.	inches
1 Durham	*30.165	58	47	52.5	0.29
2 Exeter	30.250	66	50	58.0	0.83
3 Greenwich	*30.139	68	47	57.5	1.12
4 Hawarden	*30.227	63	48	55.5	0.70
5 Lampeter	30.196	66	45	55.5	2.00
6 Norwich	†30.248	64	49	56.5	0.83
7 Nottingham ...	*30.195	67	47	57	0.51
8 Worcester	30.261	70	47	58.5	0.74
	Means	65.2	47.5	56.4	0.88
Ireland.					
9 Armagh	30.216	61	50	55.5	1.36
10 Cork	†30.001	65	54	59.5	1.54
11 Dublin	*30.173	63	54	58.5	1.19
12 Portarlington ...	*30.169	63	49	56.0	1.12
13 Sligo	30.227	62	46	54	1.18
	Means	62.8	50.6	56.7	1.28
Scotland.					
14 Annat, Perth ...	30.035	60	48	54	0.36
15 Edinburgh	30.143	61	48	54.5	0.29
16 Glasgow	†30.139	59	47	53.0	0.85
17 Inverness	*30.079	59	50	54.5	0.71
	Means	59.7	48.2	54.0	0.55

* Observations are reduced to 32 deg.

† Height of cistern not given in these localities, and, therefore, the observations are not corrected for height; all others have been corrected.

Remarks.

Thermometer.—Mean daily temperature in England, 56.4°; Ireland, 56.7°; and Scotland, 54.0°; being a mean of 55.7° for the United Kingdom during the month of September.

Rain.—Average fall: England, 0.88 inches; Ireland, 1.28 inches; and Scotland, 0,55 inches, being a mean of 0.90 inches for the United Kingdom during the month of September.

Wind.—Prevailing direction in England, north-east; Ireland and Scotland, south-west. Taking the above 17 localities, the following is the average number of days during the month of September that the following winds have prevailed:—North, 2½ days; north-east, 4¾; east, 2¼; south-east, 2½; south, 1½; south-west, 7¼; west, 3; north-west, 3; and calm days, 3.

—*Henry Allnutt*, 27, *College Green, Dublin.*

The Double Crimson Chinese Peach.—This is the most beautiful of all double rosaceous trees, and when gently forced so as to bloom in February it is one of the greatest ornaments to the conservatory. After being removed from the forcing-house it retains its blossoms a long time in a greenhouse temperature. My tree in a 13-inch pot blooms every year admirably, and gives me a good crop of its curious pointed fruit, which as the tree is stationary in a corner of one of my forcing-houses ripen in July. They are juicy and really agreeable, although not rich or high flavoured. The tree is every year a beautiful object when in bloom. *T. R.*

Heating.—I have a pit and a hothouse heated with warm water. The boiler I use is one recommended by Mr. Rivers, and placed over a brick Arnott stove. On the top of the stove is a strong iron plate, which becomes very hot soon after the fire has been lighted. Now I do not get so much heat in my hothouse as I require in severe weather, and my object is to know how best I can make use of this hot plate to convey hot air into the house. At present I have a small hot-air chamber, about 30 inches square and 4 inches high, closed on three sides, and opening into the house. Of course from this I get some heat, but not so much as I think I ought and might. Would the heightening of the air-chamber, closing it all round, and introducing a pipe at top and another at bottom of the side which joins the house have a better effect by producing a circulation? and if so, what should be the diameter of the pipes? and should one be larger than the other, or one shorter than the other? Or could Mr. Rivers, or any of your correspondents propose a plan which would succeed? I could introduce fresh air from without also, but how best to do this is the question. Any advice that can be given me on the subject I shall be grateful for to your experienced practical correspondents. *A Constant Reader, Bentley, near Farnham.*

Osmunda Regalis.—Allow me to inform your correspondent "R." that finer specimens of this noble Fern may be seen in this county (Denbighshire) than any I have seen of it in Ireland; many of the fronds I have measured this season have been 8 and 9 feet high. The situation in which these plants grow is bog, which is flooded every season. I have dug for the caudex 3 feet deep, but I never could get one entire; could we get such noble specimens to grow in our Ferneries their effect would be truly striking. There would, I think, be some difficulty in procuring specimens of this Fern for all the Roman Catholics in Ireland to use upon Palm Sunday; the favourite Palm there for that day is the common Yew. *J. D., North Wales.*

White Thorn.—Forty years ago it was the practice to give the Haws to turkeys or other fowls and to sow their dung, by which it is believed that the germination of the seeds in the first year was secured. Is the practice exploded or forgotten? *J. G., Bury St. Edmunds.*

Apricots in Orchard Houses.—With some cultivators these have not done so well as Peaches and Nectarines, having failed to set their fruit. I have always had good crops, I believe owing solely to my having had the trees placed, while in bloom, near the openings for air, so that a brisk wind always blew on them. The Apricot while in bloom seems to defy the coldest winds if they are dry; but with the least stagnation of damp air its blossoms drop without setting their fruit. *T. R.* [They fruited well with the free ventilation of the orchard-house in the garden of the Horticultural Society.]

Cypresses.—After reading your leading article of Oct. 27, where you observe that in the neighbourhood of Bouloukli in Asia Minor, M. Balansa had met with a grove of wild Cypresses, all of the spreading sort, my attention was drawn to the great number of spreading Cypresses in the cemeteries north of the arsenal on the Golden Horn here. They are of all intermediate shapes, from the closely compressed spiral to the open round-headed form of evergreen Oaks. Most of the open sorts, however, have the general appearance of Spruce Firs—many of them like Scotch Firs—with drooping branches; from one of these I cut a specimen of leaves and buds to make quite sure they were really true Cypresses, which I found they were. Some took the shape of the flat-headed Stone Pine, but these were rare. In the other cemeteries round this city and suburbs, as well as at the large cemetery behind Scutari, I have not observed so great a variety as in the one behind the arsenal. But, doubtless, observers who have had greater opportunities than I have had must have seen the same thing in other places, though I should think there are few places, if any, where such an extent of cemetery and such numbers of planted Cypresses exist as round Constantinople, with its European suburbs and Scutari. *T. S. P., Constantinople, Nov.* 19.

Genera Plantarum Floræ Germanicæ.—As some of your readers may have taken in the early numbers of this work by Professor Nees v. Esenbeck and others, it will be satisfactory to them to know that there is a reasonable prospect of its being continued and completed. By a direct application in Bonn I have learned that, in spite of many and peculiar difficulties, the publishers are proceeding, that three competent editors are occupied in the work, and that four or five fasciculi may be looked for in the coming year. Up to the present time 28 fasciculi have been issued. *G., Bath.*

Societies.

Linnean, *Nov.* 20.—The President in the chair.—Among the presents announced was a collection of about 200 species of dried plants from the Australian Alps, collected and presented by Dr. Müller. Mr. F. Ruffe, of Tamworth, exhibited specimens of a Cardamine, supposed to be a hybrid between C. amara and C. pratensis, gathered at Dunstall, near Tamworth; but which Mr. Syme was of opinion differed in no respect from the former species. The following papers were read:—1. "Observations on the mode in which the Argyroneta aquatica forms the bell of air with which it surrounds itself beneath the surface of the water," by the President. In one of the experiments detailed, the following results were observed. In an upright vessel of water furnished with a plant of Stratiotes, six Argyronetæ were placed. The one now referred to began to weave his beautiful web about 5 P.M. After much preliminary preparation, he ascended to the surface, and obtained a bubble of air, with which he immediately and quickly descended, and the bubble was disengaged from the body, and left in connection with the web. The nest was on one side in contact with the glass, and enclosed in an angle formed by two leaves of the Stratiotes, so that the movements could be easily observed. Presently he ascended again and brought down another bubble, which was similarly deposited. In this way no less than 14 journeys were performed, sometimes two or three very quickly in succession, at other times at a considerable interval, during which he was employed in extending and giving shape to the beautiful transparent bell, getting into it, pushing it out at one place, rounding it in another, and attaching it more closely to the supports. At length he seemed to be satisfied with its dimensions, when he crept into it and settled himself to rest with the head downwards. The cell was now the size, and nearly the form of half an acorn, cut transversely, the smaller and rounded part being uppermost. Similar observations were made in other instances. 2. "On some new species of Chamælancieæ," by Dr. C. F. Meisner. The group of myrtaceous plants which was established by De Can-

dolle under the name of Chamælancieæ, and which is one of those particularly characteristic of the Flora of New Holland, has become so well known to botanists, through the collections of Drummond and Preiss, that the author considers it surprising that so few of them—marked as they are in many cases by uncommon elegance and the loveliness of their flowers—should have found their way into gardens, to which they would certainly be valuable and highly ornamental acquisitions. "As far as I have been able to ascertain," he continues, "the only representatives of the group which were known prior to the last year, in European gardens, were two or three species of Calycothrix. To these have been quite recently added the two fine species of Genetyllis, figured in the Botanical Magazine (t. t. 4858 and 4860). Dr. Meisner proposes for that figured at t. 4860, under the name of G. macrostegia, the name of G. Hookeriana, considering it to be distinct from the plant so named by Turczaninow, which is figured at t. 4858, under the name of G. tulipifera. Turczaninow's description and reference, on comparison with the authentic specimens in the Linnæan Society's herbarium, support this view. In the paper now read, Dr. Meisner described 22 new species, making the number of described species of the order 121. 3. "Notice of two undescribed species of Genetyllis from S. W. Australia," by R. Kippist, Esq. This paper was supplementary to Dr. Meisner's, and described two species of Drummond's which that author did not appear to have seen, namely, Genetyllis fimbriata, *Kip.* (Drum. ser. 5, No. 99), and G. Meisneri, *Kip.* (Drum. ser. 5, Nos. 100, 101). They were both gathered by Mr. Drummond at Congineerup, in a journey to the southward of Swan River, towards Cape Riche; those described by Dr. Meisner in the paper already noticed having been collected during a subsequent tour of 18 months to the north of the settlement. The author added some remarks explanatory of the reasons which had independently led him to the same conclusion as Dr. Meisner, in the identification of G. macrostegia. A constant interchange of publications having been carried on down to the commencement of the war, between the Linnæan Society and the Natural History Society of Moscow, he had been able to consult Turczaninow's original paper in the Bulletin of the latter Society (t. xxii., pt. 2, p. 18), in which a reference to Drummond's number, not given by Walpers, is made. He had consulted the very complete set of Swan River Chamælancieæ in the collections of Mr. W. W. Saunders, and found that the number quoted by the Russian botanist as that of his G. macrostegia was that belonging to the G. tulipifera of the Bot. Mag., with which also Turczaninow's description better agrees, especially in the broadly linear leaves, the ten ribs at the base of the calyx-tube, and the obovate obtuse bracts of the general involucre, "colore purpureo plus minus tinctis;" Sir W. Hooker's G. macrostegia having narrower leaves, five furrows at the base of the calyx-tube, and elliptical unicolorous bracts, besides other differences. The opposition or alternation of the leaves is a very variable feature. It also would appear that Turczaninow had only seen the 4th series of Drummond's plants, for had he seen the 5th series he would certainly not have overlooked the very well marked species which formed the subject of this paper. The 4th series does not contain the species. Sir W. Hooker has referred to Turczaninow's name, but only that with the variegated bracts, whilst the 5th series contains both these, as well as Mr. Kippist's new ones. [It would thus appear certain that the G. macrostegia, Turcz. = G. tulipifera, Hook., and that the former name must consequently be adopted; while for the G. macrostegia, Hook. the name of G. Hookeriana, proposed by Dr. Meisner, should be substituted.]

Notices of Books.

Dr. Hooker's valuable *Himalayan Journals*, one of the most interesting books of travels we know, as was formerly stated (page 150, 1854), has just been republished by Mr. Murray in two beautifully printed volumes. The present edition is divested of the elaborate scientific matter which the general reader does not require, and is confined to the personal narrative of the distinguished author. By this means the public is provided with an admirable literary work at we imagine half the cost of the original.

Chemical Field Lectures, by Dr. Stöckhardt (Bohn, 12mo, pp. 378.) Under this name has just appeared a volume of Bohn's Scientific library. It contains the lectures of a gentleman who has gained considerable reputation in Saxony for a sound knowledge of vegetable physiology, and who is also Professor of Forestry and Agriculture at Tharand. Professor Henfrey is the translator and annotator. Mr. Mechi has contributed a paper on subterranean irrigation with liquid manure. Thus we find combined a scientific author, a conscientious translator, and a practical cultivator. Out of such materials something good should come. We however regret to add that the last is answerable for three pages only; but these are important, as the extract in another column will show.

We have read the work carefully, and we can say conscientiously that for practical purposes it is calculated to be of more real value than the similar work of Baron Liebig, notwithstanding the learned author's cumbrous sentences, which Mr. Henfrey will, we trust, forgive us for saying are not rendered more elegant in the translation. It is notorious that when Liebig took up the subject of agricultural chemistry he was entirely unacquainted with vegetable physiology, as the first edition of his celebrated work sufficiently proved, and as we have long since pointed out. Nor can we say that his latest writings indicate any material advance in practical physiology. In fact he is a mere chemist, though no doubt of the highest order. Dr. Stöckhardt, on the other hand, seems to be a practical forester and farmer as well as a man of science; and this gives his opinions a value which those of cabinet philosophers never can have. This is more especially shown by the manner in which he handles the well-known dispute between Liebig and Lawes, taking the side of the latter, like all men really acquainted with the cultivation of the soil.

We do not dwell further in this place on Prof. Stöckhardt's work, because we hope to be able to refer to it on other occasions; but we must not dismiss it without one extract characteristic of the author's style. Speaking of refuse materials he says:—

"One thing is above all necessary for this, namely that the farmer shall distinguish his true friends from the false, and give the latter their dismissal. One friend of the latter sort has been especially successful in acquiring and retaining the favour of farmers, and many hold warmly to him and love him like a brother; this is the well-known worthy 'old O.' Acquainted with most from their youth upward, and readily borne with because he never contradicts, but always humours them, old O. has become on many farms not only a well-beloved home-friend, but also infallible oracle, whose counsel is sought when decisions are to be made or doubts of any kind arise. Pacific and quiet-loving as old O. is by nature, he can also be very fierce when any one tries to disturb him, and hence novelties are an abomination to him. Against these he fights with an obstinacy which it is difficult to overcome, because the weapons which one thinks sharpest lose their edge upon him; for, like Falstaff, he does enter into battles for 'reasons,' which bound harmless off the Hegelian shield with which he covers himself: 'What is, is good.' If the farm-yard drainage runs away, and this is represented to him, the answer is, 'Oh, that has always been so.' If one shows him the advantage he would derive from introducing a rational system of rotation of crops, he says, 'Ah, my grandfather kept to three-field farming, and yet he lived in Clover.' If one recommends deep ploughing, he replies, 'Yes, that may do in other places, but our fields won't bear it, as *we* must know best who have grown upon them.' When we calculate to him the profit he might obtain by purchasing guano, he objects: 'I had rather buy straw; straw remains straw; dear stuffs won't suit our fields.' And more of the like sentences.

"Yes, it is difficult to get over him, the good old O., or to give him his full name 'Old-Style,' for the different natural propensities and peculiarities of character which have descended to him from his grandfather, who was called 'Egotism,' his father the well-known 'Phlegm,' and his mother, one of the 'Verjuice' family, are united in him into such a compact, tough and solid nature, that even lye and aquafortis do not exert much action on it—into a nature which is also inherited by his numerous children, called 'Prejudices.' How shall we make an impression on an individual who, like the Marquis Posa, says with dignity, 'I am content with myself,' and holds the words 'old and good' as synonymous and opposed to 'new and bad,' without evidence or judgment? I imagine by good example, and by continual, ever-new teaching, explaining and pointing to this good example.

"Far be it from me to declare war against all that is old. No, indeed! Would to heaven many old things were still as they have been! It would certainly be far better, even in the farms of the country folks."

Another work on Ferns has made its appearance, in the form of a beautiful gift-book bearing the name of *A Popular History of the British Ferns and the Allied Plants* (square 12mo. Reeve). When we say that it contains 20 well coloured plates from the skilful pencil of Fitch we state all that is necessary to guarantee their accuracy and tasteful execution. Mr. Thomas Moore, so well known by his previous writings on the same subject, is the author. For Christmas presents it is extremely well adapted; for we can scarcely name a volume more likely to be welcome to residents in the country.

Garden Memoranda.

Messrs. Veitch's Nursery, Chelsea.—In one of the houses here may be seen a capital illustration of the additional effect to be obtained by a judicious arrangement of plants in greenhouses. No materials could be less promising for producing what is called effect than those now alluded to, consisting of young nursery stock of hard-wooded greenhouse shrubs, together with some bedding plants. The area of the house is divided between a very broad flat stage, a pathway, and a more elevated stage of two or three tiers of shelves. Now for the arrangement. Among the plants was a fine stock of young healthy variegated-leaved Pelargoniums. Instead of these being placed altogether at the front, or at the end, or on one special shelf, as would be done in ordinary cases, a close regular rank was set along the edge of the stages close to the pathway. The broad flat stage was next divided into squares by transverse rows of these and other lively-looking variegated plants, the spaces between being filled with the hard-wooded stock. Along the raised shelves, which were principally occupied by somewhat larger hard-wooded plants, were dotted at regular intervals, alternately on the different shelves, bright green healthy looking Humeas. Without attempting further to particularise the plants, enough has been stated to give an idea of the arrangement. The result was, that from these unpromising materials which, as ordinarily placed, no visitor would care to look at, a perfect flower garden was produced, which it was really a pleasure to behold. This mode of arrangement too, is highly beneficial to the plants, for the more tender soft-wooded kinds, being more widely dispersed and more fully exposed to light and air, are consequently less liable to damp off. Of course, the effect was much heightened in this case, by the excellent health and scrupulous cleanliness of Mr. Veitch's stock; but are not the simple facts above stated highly suggestive both to commercial and private gardeners! The curious Ouvirandras or lattice plants to be seen here, are well worthy of inspection. *M.*

Mr. Salter's, Versailles Nursery, Hammersmith.—The Chrysanthemums at this establishment are now in full beauty; a large house about 80 feet long has been formed into a winter garden, in which some hundreds of varieties have been tastefully arranged and intermixed with Pinuses, Ferns, and other plants possessed of fine foliage; therefore, as may be supposed, an excellent effect has been produced. Of late years few flowers have made greater progress than the Chrysanthemum. Those who remember the little variety called Chusan Daisy, introduced by the Horticultural Society, would hardly believe that to be the parent of the beautiful Pompones now cultivated, and that in so few years its character could be so completely changed; but such is the fact, for Mr. Salter, then residing at Versailles, introduced it into France, where it produced seeds, which have each succeeding year yielded flowers more perfect in form and of almost every colour that could be desired.

Among the new varieties in this class we noticed Trophé, a rose pink; Auréole, red crimson, with gold border; Saint Thais, chesnut brown; Mr. Dale, brassy yellow; Fulton, rose and yellow; Queen of Lilliputs, small blush; Aigle d'Or, fine yellow; Alexander Pélé, red chesnut; Mrs. Westwood, a silvery blush; Lilliputian Regulus, a red cinnamon anemone; Etoile du Berger, bright gold; Scarlet Gem was almost out of flower, but its dwarf habit and abundance of blooms in some measure show its character. To these may be added Creole, salmon and orange; La Promesse, rose; and Io, fringed lilac.

The following older varieties were also very distinct: Riquiqui, violet plum; Brilliant, bright chesnut red; Mme. Vatry, pale lilac; Bob, dark brown; La Vogue, golden yellow; Zebra, carmine and white; Nemesis, bright buff; Polichonne, sulphur, curiously mottled orange; Berrol, pale yellow; Dr. Duval, red salmon; Comte Vigier, silvery blush; Perle du Prado, rosy blush; Hélène, dark rose; Marabout, fringed white; Adonis, mottled rose; President Decaisne, carmine and blush; Bijou d'Horticulture, sulphur white; Cedo Nulli, cream white anemone; Jonas, bronzed rose; Vesta, small white. Among the large flowering sorts the most conspicuous were Hermione, white tipped rose; Zephyr, red and orange; Albin, deep maroon; Eclipse, sulphur anemone; Le Prophéte, golden buff; Conspicuum, bright rose; Chevalier Dommage, golden yellow; the Queen, white; Rolla, silvery lilac; Aregena, dark crimson; Auguste Mie, chesnut edged gold; Gluck, golden anemone; Mrs. Coombs, white anemone; Trilby, white and yellow centre; Versailles Defiance, clear rose; Pio Nono, dark red; Annie Salter, fine yellow; Prince Jerome, orange and brown; Cassy, dark orange and red; Princesse Marie, rose and white; Astre du Matin, lilac anemone; Triomphe du Nord, large light red; and Antigone, white.

Among seedlings we noticed a large incurved flower named Alfred Salter, a delicate rose, which is considered one of the finest Chrysanthemums yet raised of this colour.

In the same house were several trailing variegated plants suspended from the roof, such as Vincas, Mangles's Geranium, Hederas, Tropæolums, Sedums, &c., which added considerably to the general effect.

Miscellaneous.

Beech Oil.—Amongst the various kinds of oil used in northern Germany, especially in the kingdom of Hanover, for culinary purposes or as materials for combustion, that extracted from the nuts of the Beech (Fagus sylvatica) is, on account of its numerous good qualities, deserving of notice. Beech oil does not play a prominent part in commerce, nor is it likely to do so, owing to the fact that it cannot be procured in large quantities; the country people who collect the nuts, or cause them to be collected, use the greater part of the oil extracted from them in their own household, and only dispose of the remaining fraction. This is the reason why it is impossible to give even a rough estimate of the quantity annually produced. About Hanover the nuts are gathered towards the end of October or the beginning of November; this is done either by picking up by hand those which have fallen to the ground, or by spreading out large sheets under the trees and beating the branches with poles, so as to cause the nuts to separate from them. The latter process appears, at first sight, least expensive; but as the good nuts have to be separated from the bad (abortive) ones, it is found on closer examination to be just the con-

trary. In 1854 about 25 lbs. of nuts sold in Hanover for 1*s.* 6*d.*; 25 lbs. yield about 5 lbs. of oil, 1 lb. selling for about 7*d.* The oil is of a pale yellow colour, and has an extremely agreeable taste. It is often adulterated with Walnut oil; the latter is even sold as Beech oil, and that may account for the difference of opinion entertained respecting the quality of the Beech oil. The townspeople use it chiefly as salad oil, but the peasantry employ it generally as a substitute for butter, &c., and only when there has been a good harvest of nuts, for burning in their lamps. The husks (epicarpia) are, after the oil has been expressed, made into cakes about 9 inches square and 1½ inch thick; these are used for combustibles, and not given, as some people imagine, as food to cattle. Both the oil and the cakes alluded to are exhibited in the Museum at Kew. *Hooker's Journal of Botany.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Some of the early Chrysanthemums will probably be getting past their best, and these should be replaced at once, as the plants have but a very shabby appearance when the beauty of the flower is over. While the principal collection is in bloom a selection should be made of the best and most useful sorts, for there are many worthless varieties in cultivation, and it is better to grow duplicates of the really good kinds than to retain such as are but indifferent, merely for the sake of having a long list of names. Give timely attention to providing a succession of bloom with which to keep this house gay, and avoid as far as possible the expense of hard forcing, which is moreover so very injurious to most plants. Be careful not to let things in bloom suffer for the want of water, giving weak clear manure water to Chrysanthemums, Salvias, Camellias, &c., and use every means to preserve the beauty of specimens in bloom as long as possible. Greenhouse.—Damp and mildew are the great enemies to be guarded against here in the present state of the weather, and these must be sharply looked after, especially in the case of plants that have not well matured their growth, and are in a rather soft state. If the former is troublesome it must be got rid of by means of free ventilation on mild days, using a little fire heat at the same time, and for the latter a dry airy atmosphere is the best preventive, but the plants should be frequently examined, applying sulphur on the first appearance of the enemy. Very little water will be required here at present, but the plants should be carefully looked over about twice a week, so as to make sure that nothing is allowed to feel the want of it. If not already done, get the plants tied with the least possible delay, for it is very difficult to tie a plant so that it will not look somewhat stiff and unnatural, and the sooner all this kind of work is done the better the specimens will look when in bloom. Cold Pits.—The present is a very trying season for the inmates of these structures, and every advantage must be taken of mild dry days to give air freely, and a little must be given every day when the temperature is above freezing. Also look over the plants carefully at least once a week, and remove decaying leaves, &c., which when left only encourage damp and mildew. Scarcely any watering will be necessary here for some time to come, and the plants will be all the better for being kept rather dry at the root, but strong healthy plants will probably be found to require water occasionally to prevent the balls getting unhealthily dry, and when water must be given select a dry morning for doing so, and give air freely during the day. See that the frames are well banked up, so as to be proof against any ordinary frost, and do not neglect covering up securely at night.

FORCING DEPARTMENT.

Pineries.—Plants in bloom will require very careful management to prevent their being injured by damp, and the atmosphere must be kept dry, with a rather brisk temperature, admitting a little fresh air on every favourable opportunity; and if there is the means of admitting air over the pipes, so that it may get warmed before coming in contact with the plants, a little should be admitted constantly. Plants in bloom should also be near the glass, and where they will catch every ray of sunshine. It is nearly impossible to get fruit to swell anything like properly at this season, therefore unless a succession of ripe fruit is indispensable, and cannot be secured save by driving plants that bloomed late in autumn, these had better be kept rather quiet until the sun gains a little more power. Where an attempt must be made at present to get fruit to swell, a moist warm temperature of about 70° at night and 75° by day must be maintained, allowing it to rise to 80°, with the assistance of sunshine, and the bottom-heat must be kept regular at about 85°, taking care to keep the soil in a healthy state as to moisture. But it is difficult to get the fruit to make much progress at present, and a little time lost now will be easily overtaken in spring when the plants will enjoy a high moist temperature, and the fruit will increase more in weight in one month then than in two at present. Vineries.—As soon as the early house is closed for forcing, be careful to secure a thoroughly moist state of the atmosphere by frequently sprinkling the floors and every available surface, but as observed previously, a regularly moist state of the atmosphere is most effectually secured by means of a slight bed of fermenting materials in the house, which will also afford a little warmth, and the moisture from this is much more congenial to vegetation than anything that can be effected by the most careful use of the syringe or evaporating pans. But the most essential point in successful early forcing is securing a healthy and vigorous root action, and unless this is provided, the best and most careful management of the atmosphere will be of but little importance. An occasional application of water at a temperature of about 90° will greatly assist to infuse warmth into the soil and excite the roots, and there is no good reason why the roots of Vines for early work should not, to a large extent, be inside the house. But where this is not the case give careful attention to the fermenting material placed on the outside border, keeping it well protected from the weather and frequently turned over, and by additions, as may be necessary, endeavour to secure a steady warmth of about 60° at a foot below the surface.

FLOWER GARDEN AND SHRUBBERIES.

The weather is still comparatively favourable for executing alterations; and where these are in hand they should be prosecuted with the greatest possible despatch, taking advantage of frosty mornings, &c., for wheeling. Planting, or the removal of large trees or shrubs, cannot be finished too soon; for it is of the utmost importance that the plants should be afforded some chance of making fresh roots before the trying winds of March. See to even small plants being secured against the wind; for these are often greatly injured by being blown about after planting, which a small stake and a few minutes' work would prevent. Get in a stock of briars for budding upon next season. Let the roots be well trimmed, cutting back closely the strong ones; for these, if left, will be of little use save to furnish an endless supply of suckers. As soon as alterations are completed, and the beds and borders are put into proper order for the winter, let a little fresh gravel be put upon the walks if necessary, in order to render them firm and dry for the winter. The stock of half-hardy plants in pots for next summer's decoration must be freely exposed to the air on every favourable opportunity, and every means used to protect them from damp. Very little water will be required for some time to come, and no more should be given than will suffice to keep the plants from flagging. Keep the surface of the soil clean, and the plants perfectly free from insects.

FLORISTS' FLOWERS.

Carnations and Picotees.—By no means smother these very hardy plants, they will stand any amount of frost provided they are inured to it. Abundance of air, and a medium state of moisture is a *sine qua non.* Then give air at every favourable opportunity—rain at this season it is as well to avoid. Dahlias.—Examine the tubers, probably the labels may be getting nearly illegible, or the ties decayed; in either case, immediate attention is requisite. Tulips.—Those who had not planted at the time-honoured date (Nov. 9) would have had something to do to find a right period for intrusting their bulbs to the ground; like late sown corn they may occasionally be up to the mark, but we prefer taking time by the forelock.

HARDY FRUIT AND KITCHEN GARDEN.

If any transplanting or root pruning of fruit trees has yet to be done let this be attended to without further loss of time, and see that those exposed to the wind are securely staked before leaving them. Also get the ground prepared for fresh plantations, and the trees planted as soon as possible. Take every opportunity of pushing forward pruning and nailing. Give air freely to Lettuce and Cauliflower plants under glass; indeed the sashes should merely be used to exclude frost, and throw off rains, for they will do all the better in spring for being kept hard and stocky over the winter. If not already done make a sowing of Peas and Beans on well sheltered dry ground, and do not spare the seed of the former, for it will be some time exposed to the depredations of mice, &c. In favourable localities a second sowing may be made if the first sowing is through the ground. Take advantage of the first dry day that may occur with the ground in a rather dry state to earth up closely any of the Celery that may have outgrown the previous soiling, and be prepared to protect the ridges in case of severe frost. Dry stable litter answers very well for this purpose, but where they can be afforded, light straw or reed shutters are preferable as being more easily applied, causing less litter, and these are also useful in excluding wet. It will soon be time to be providing seed for the early crop of Celery next season, and for this purpose we know no variety equal to Cole's dwarf white. This is, as its name indicates, a dwarf variety, and cannot be grown to a large size, but where quality is preferred to size it will give satisfaction, for it is very crisp, soon blanches, and the flavour is everything that could be wished. Attend to keeping up a regular succession of Seakale, Asparagus, and Rhubarb, by introducing moderate quantities at short intervals into heat.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Dec. 6, 1855, as observed at the Horticultural Gardens.

Nov. and Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain.
Friday 30	21	30.078	29.980	45	26	35.5	44	46	W.	.00
Satur. 1	☾	30.072	29.887	46	33	39.5	44	46	N.W.	.03
Sunday 2	23	29.879	29.811	44	26	35.0	43	45½	N.	.04
Mon. 3	24	29.988	29.983	40	31	35.5	43	45	N.E.	.12
Tues. 4	25	29.828	29.525	47	36	41.5	42	45	S.W.	.01
Wed. 5	26	29.557	29.509	44	31	37.0	42½	45	W.	.00
Thurs. 6	27	29.704	29.373	42	28	35.0	43	45	N.W.	.00
Average		29.813	29.724	44.0	30.0	37.0	43.0	45.3		.10

Nov. 30—Overcast; very fine; frosty at night.
Dec. 1—Hazy; very fine, with sun; rain at night.
— 2—Cloudy throughout; rain at night.
— 3—Clear and frosty; overcast; slight shower of snow in the evening.
— 4—Foggy; drizzly; cloudy.
— 5—Clear; cold increasing from morning to night.
— 6—Slight snow; densely overcast; piercing cold wind; frosty.
Mean temperature of the week 4¾ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Dec. 15, 1855.

Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 9	46.0	35.7	40.8	14	0.31 in.	2	6	2	1	11	11	5	1
Mon. 10	45.2	34.2	40.2	10	0.20	1	4	2	1	7	7	4	3
Tues. 11	45.9	32.6	39.3	7	0.62	—	3	1	4	5	8	5	3
Wed. 12	45.7	34.2	39.9	12	0.26	2	2	2	1	6	9	5	2
Thurs. 13	47.0	33.2	40.1	10	0.16	1	3	4	1	8	9	2	1
Friday 14	46.2	34.2	40.2	12	0.32	2	5	2	2	8	8	4	—
Satur. 15	46.8	35.9	41.3	18	0.50	1	3	1	3	9	7	4	1

The highest temperature during the above period occurred on the 13th, 1842—therm. 61 deg.; and the lowest on the 13th, 1846—therm. 11 deg.

Notices to Correspondents.

Ailantus glandulosa: *An Old Subscriber* being about to throw a large tree of this, will feel obliged by some of our readers informing him whether or not the timber is good for building or to what other use it can be advantageously put. The tree is about 40 feet in height.

Arbutus: *A.* If you do not cut it down to the ground it will spring again. Cut off its head, leave 6 feet of the stem, and prune any laterals back to one-third of their length.

Books: *An Anxious Improver.* Cobbett's English Grammar is a good book for you; but it has nothing to do with gardening. If you want an elementary book on gardening buy *Nichol's Gardeners' Calendar*, which can be had of any bookseller. What is the "seam" mode of training?—we never before heard of it.—*K M.* There is no such book as that which you seek for.‡—*O C J.* We know of no book "on the management of a greenhouse" likely to be useful to your gardener. He cannot perhaps do better than follow the instructions relative to plant culture given by "Alpha" in our volumes for the two last years and beginning of this. They for the most part relate to greenhouse plants, the management of all the more important of which has been fully described.‡—*R D.* The last supplement to Paxton's Botanical Dictionary was published in 1853.‡

Crinums: *W J H.* Your C. amabile, as far as we can see, has been properly treated, and in time will doubtless produce flowers. C. capense is a hardy aquatic. It is bad practice to keep Amaryllids "constantly excited." They should be permitted to have a season of rest like other plants.‡

Dried Plants: *J P.* Arrange them systematically, according to the catalogue you name. Take care that all the species of the same genus are kept in the same cover: and then when you get a better book, such as Lindley's Vegetable Kingdom, you may rearrange them without loss or trouble.

Ferns: *Rusticus.* Your Adiantum seems to be suffering from too much damp combined with too low a temperature. At all events we find no trace of insect work.

Forcing House: *H.* The best way is to apply to some of the makers whose advertisements appear weekly in our columns, and ask them for what sum they will deliver such a house as you want, complete, fixing included; your village bricklayer doing the brickwork. Don't put the heating into the hands of country ironmongers, for they have not experience enough in such work to execute it properly. But why use iron? For a small house wood is better, much cheaper, and, if well seasoned good stuff, will last with care for a century. There are or were wooden houses in the Royal Botanic Gardens at Kew which must have been nearly as old, and they were as sound as on the first day of being used.

Fruits: *A B.* Your seedling Pears are of good size; but their quality is not equal to many others which ripen about the same time. Nos. 14, 20, 23, deserve, however, a further trial. The Seedling Apple from the American *Ortley* (that is the name, not Orkley) is tolerably good, and as it is an abundant bearer may deserve cultivation. If you send your Seedling Pears that are not yet ripe they will be noticed.‖

Grapes: *J H H.* We are not acquainted with the "Scotch white Cluster Grape." What is it? Are you inquiring about Grapes for wine or table? Be so good as repeat the inquiry with the explanations now asked for.

Insects: *W C S.* The minute insects found in such great numbers in a field of Wheat recently sprung up, and which were attracted beneath Turnip-tops scattered over the field, are the young grubs or larvæ of one of the many species of daddy-long-legs (probably Tipula maculosa). You cannot do better than pursue the Turnip-top trap system, removing and destroying the grubs every three or four days. *W.*

Labels: *G Bond.* Your zinc labels, with short upright supports and oval tops, painted white, and neatly lettered, are useful-looking contrivances of the kind, and with care may last a long time. Whether or not they may answer all the purposes for which they are intended, however, can only be proved by experiment.‡

Microscopes: *Amateur.* We know nothing of the instrument you mention. Nor can we insert any such statement as you have sent, unless it is consistent with our own experience.

Names of Fruits: *W B.* 1, Beurré Diel; 2, Passe Colmar; 3, 23, Glou Morceau; 4, Beurré Rance; 5, Princesse d'Orange; 7, Uvedale's St. Germain; 8, Crassane; 9, Doyenné Blanc; 10, probably Beurré Diel; 13, Easter Beurré; 14, Passe Colmar; 16, 17, Brown Beurré; 20, 21, Bishop's Thumb; 22, Brown Beurré; 24, Gansel's Bergamot; 26, Verulam; 27, Bezi Vaet; 28, Chaumontel.—*B.* 1, 3, King of the Pippins; 2, appears to be the Golden Reinette; 6, Gloria Mundi; 7, Court of Wick. —*M R.* Your Pear from Spain is the Bergamotte d'Automne, different, however, from the English Autumn Bergamot.—*H J S.* 1, Easter Beurré; 2, Glou Morceau.‖

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*J P.* We have compared your leaves with the tree in the Horticultural Garden, and can only say that if it be Pinus Sabiniana, which is not impossible, it must be a poor weakly plant from which your specimen was taken.—*J M A.* Eucharis grandiflora. There is no doubt that the disease, both in the leaves of Oncidium as well as the flowers of Phalænopsis, is produced by the cause we mentioned last week.—*H I S.* It is a variety of Red Cedar, Juniperus virginiana. All these Junipers vary greatly, like our own wild Juniper, of which a score distinct-looking forms may be selected from any hillside in limestone districts.—*N R.* Ruscus hypoglossum.—*E W H.* Common Stramonium.

White Hamburgh Grape: *E C.* At last we have received your letter, but we do not understand it. What is "the National Meeting," and who its "sale editor?" The most satisfactory answer you can give to inquiries why your Grape is not exhibited is to produce it before the Horticultural Society next year, when its true value will be ascertained and publicly mentioned. The world will not take the endorsement of country shows.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
WM. INGLIS CARNE, 10, Mark Lane, London.

PERUVIAN GUANO.—As Agents of the Peruvian Government for the Importation and Sale of this valuable MANURE, we think it right, for the protection of consumers and respectable dealers, to apprise them that the adulteration of the article is still extensively practised, and to recommend them to apply either to ourselves; to our agents, Messrs. Gibbs, Bright, & Co., of Liverpool and Bristol; or to dealers of established character, in whose honesty and fair dealing they can place implicit confidence.—ANTONY GIBBS & SONS.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE LONDON MANURE COMPANY'S NITRO-PHOSPHATE OR WHEAT MANURE FOR AUTUMN SOWING.—This Manure, composed of blood, animal matter, and dissolved bones with silicates, is most strongly recommended to the notice of Agriculturists. It contains from 7 to 8 per cent. of nitrogen, in a form yielding ammonia by slow decomposition, and is therefore particularly adapted for Wheat. The quantity required is 2 to 3 cwt. per acre drilled in with the seed. Price, per ton, 7*l.* 10*s.* in London.

PERUVIAN GUANO, FISHERY SALT, and every other MANURE on best terms, strictly warranted.
40, Bridge Street, Blackfriars. E. PURSER, Sec.

AGRICULTURISTS, especially such as have been imposed upon by Guano and other Manure Agents, are invited to communicate with the promoters of a MANURE CONSUMERS' COMPANY, now forming for the purpose of delivering direct from the Importer and Manufacturer genuine Manures, warranted after special analysis.—Letters to be addressed to their Solicitor, E. A. COPLESTON, Esq., 5, Mitre Court, Temple, London.

DRAINING BY STEAM POWER.

JOHN FOWLER is prepared to undertake Contracts for DRAINING LAND by his PATENT STEAM PLOUGH, at prices varying, according to depth and distance, from 3*l.* to 5*l.* 10*s.* per acre, inclusive of tiles, main drains, and all other expenses. Contracts executed with great rapidity, and tiles manufactured on the spot, where suitable clay exists.—Temple Gate, Bristol.

DRAINAGE OF LAND.

MR. J. JOHNSON, DRAINAGE ENGINEER, is desirous to undertake the Drainage of Land by Contract or Commission. Temporary Tileries erected in any part of England, and Drain Pipes manufactured at moderate prices. Every description of Drainage Tools.—Abingdon Street, Westminster.

DRAINAGE OF LAND, BOGS, ETC.

MR. HUMBERT, of Watford, Herts, supported by unquestionable references and testimonials, offers his services to proprietors about to execute works of drainage, which he will undertake personally to lay out and superintend, and to supply the forms and attendances necessary to obtain the certificate of the Inclosure Commissioners where such is required, at a charge of 5*s.* per acre and his travelling expenses; or he will contract to perform the whole work to the satisfaction of the Commissioners at a fixed price per acre. MR. HUMBERT (having been more than 15 years established in business as a Surveyor and Land Agent) has found that wet heavy soils can be usually, carefully, and thoroughly drained, with pipes 4 feet deep, at 4*l.* per acre and upwards, inclusive of every expense.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
HENRY KER SEYMER, Esq., M.P., *Chairman.*
Offices, 52, Parliament Street, London.

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Sec.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected; Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

TO FLORISTS AND OTHERS.

J. JONES, IRON MERCHANT, has always a great variety of CYLINDRICAL and SADDLE BOILERS in stock, also Fire and Furnace Bars, Supply Cisterns, Double Doors and Frames, Furnace Grates, Soot Doors, Hot-water Pipes, Elbows, Tees, Syphons, Throttle Valves, Stop Cocks, Flange and Socket Elbows, &c.; also Trough Pipes.—Drawings and Prices of the above, or estimates given for the work fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

The DECEMBER GENERAL MEETING will be held at the Society's House, in Hanover Square, on SATURDAY, the 15th December, at 11 o'clock in the forenoon.
By Order of the Council, JAMES HUDSON, Secretary.

PRIZE CATTLE SHOW OF THE SMITHFIELD CLUB.—The ANNUAL EXHIBITION of Prize Cattle, Seeds, Roots, Implements, &c., commences on TUESDAY MORNING and closes on FRIDAY EVENING, 11th, 12th, 13th, and 14th December. Bazaar, King Street and Baker Street. Open from daylight till nine in the evening. Admittance 1*s.*

THE BIRMINGHAM CATTLE AND POULTRY SHOW.—The Seventh Great Annual Exhibition of FAT CATTLE, SHEEP, PIGS, ROOTS, & DOMESTIC POULTRY, will be held in Bingley Hall, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, the 11th, 12th, 13th, and 14th of December. The PRIVATE VIEW and ANNUAL DINNER on TUESDAY, December the 11th.

There will be SPECIAL TRAINS on all the principal Lines of Railway, for which see the Advertisements and Bills of the several Companies.

THE GREAT NORTHERN ASSOCIATION FOR THE IMPROVEMENT OF THE BREED OF PIGS, POULTRY, PIGEONS, AND RABBITS.—The Fourth Annual Exhibition of this Society will be held in the spacious New Market Hall, Doncaster, on WEDNESDAY and THURSDAY, the 23d and 24th January, 1856, when upwards of ONE HUNDRED AND FIFTY POUNDS will be given in PRIZES.

PREMIUMS for different varieties of ROOTS, most suitable for Feeding Purposes, have this year been added to the Schedule. The Entry closes on Saturday, December 29th. Prize Lists and Certificates are now ready, and may be had, and any further information obtained from HENRY MOORE, Hon. Sec.
40, High Street, Doncaster.—Dec. 8.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
Patron—His Royal Highness Prince ALBERT.
President of Council—Earl BATHURST.
Principal—Rev. J. S. HAYGARTH, M.A.
PROFESSORS, &C.
Chemistry—J. A. C. Voelcker, Ph. D., F.C.S.
Zoology, Geology, and Botany—Jas Buckman, F.G.S., F.L.S.
Veterinary Medicine and Surgery—G. T. Brown, M.R.C.V.S.
Surveying, Civil Engineering, and Mathematics—F. Armstrong, C.E.
Manager of Farm—G. Austin.

The First Session of 1856 will begin February 5. The annual fees for boarders vary from 45 to 80 guineas, according to age and other circumstances; the fee for out students is 40*l.* per annum. The College course of lectures and practical instruction is complete in one twelvemonth, though a longer course is recommended. Prospectuses and information can be had on application to the Principal.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

OWNERS OF SETTLED ESTATES and OTHERS desirous of availing themselves of the various recent Acts of Parliament, by which they may charge their Estates with money expended in the Improvement, Conversion, and Reclamation of Land, by Drainage, Irrigation, Embanking, Inclosing, making Farm-roads, Clearing, the erection of Farm-buildings and Machinery, Planting and other Agricultural Improvements, are respectfully informed that Messrs. HEWITT DAVIS & FRANCIS VIGERS undertake to advise and furnish Plans and Estimates, and if required, will contract to do the works, and dispose of the Rent charges.—3, Frederick's Place, Old Jewry, London.

TENNANT'S SELF-CLEANSING DIAMOND-TOOTHED WHEEL GRUBBER.—The Subscribers beg to call the attention of Agriculturists to this really useful implement, which since its introduction has met with more than usual favour, and has had awarded it the highest commendations by all who have tested its merits. Parties wishing to possess this Grubber to commence the spring operations should give their orders for it now. On application a drawing of the above, with full particulars as to its mode of working, will be sent free by post.
W. DRUMMOND & SONS, Seed and Implement Warehouses, Stirling and Dublin.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to SAYNOR & COOKE for their superiority of material and workmanship. Established 1738.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

BRITANNIA WORKS, BANBURY,
AND AT
STANDS Nos. 209 to 217, Smithfield Show.

SAMUELSON'S PATENT GARDNER'S TURNIP CUTTERS have been awarded for the TENTH TIME the Prize of the Royal Agricultural Society. These Implements are so well known that they require no description—more than 60,000 having been supplied from the above Works.

GARDNER'S PATENT DOUBLE-ACTION TURNIP CUTTERS.
GARDNER'S PATENT SINGLE-ACTION DITTO.
MOODY'S GRATERS, FINE AND COARSE CUTS.
BUSHE and BARTER'S PATENT GRATER, for Fermentation.
PHILLIPS' PATENT GRATER OR MINCER.
GAUNTLETT'S PATENT GRATER, for mixing with Chaff.
SAMUELSON'S ECONOMIC CHAFF CUTTERS, for Stables and Small Occupations.
LARGE CHAFF CUTTERS, CORNES' and other Patterns as per Catalogue.
SAMUELSON'S ATMOSPHERIC AND ANTHONY'S PATENT AMERICAN CHURNS are Manufactured solely by Mr. SAMUELSON.
CORN AND MALT BRUISING MILLS.
LINSEED CAKE BREAKERS.
SAMUELSON'S REGISTERED BUDDING'S LAWN MOWERS, &c., &c.

The above may be obtained at all respectable Ironmongers and Implement Dealers in the Kingdom, of whom Catalogues and Price Lists may be procured gratis, or post free on application to B. SAMUELSON (successor to the late James Gardner), Britannia Works, Banbury; or, at Stands Nos. 209 to 217, Smithfield Show.

SMITHFIELD SHOW, 1855.

TRIALS OF STEAM-THRESHING ENGINES.—The time run by TUXFORD AND SONS' FIRST PRIZE ENGINE, and that by the Engine of Messrs. Hornsby, of Grantham, at the Carlisle Meeting of the Royal Agricultural Society, in July last, with *Fourteen Pounds* of Coals to the horse-power, was—

TUXFORD & SONS ... ... 3 hours and 47 minutes.
Hornsby & Son ... ... 2 hours and 54 minutes.

At the North Lincolnshire Society's Meeting, at Boston, in August last, TUXFORDS' and Hornsbys' Engines again came into competition, when Hornsbys' was again left a long way behind. With 14 lbs. of a very inferior kind of Coal, the time run was—

TUXFORD & SONS ... ... 3 hours and 3 minutes.
Hornsby & Son ... ... 2 hours and 43 minutes.

And had the testing apparatus which had been supplied to the Society from Grantham, not indicated the steam pressure falsely by several pounds on the inch, the difference would have shown fully twice as much to the advantage of TUXFORD'S Engine.

At the recent trials of Threshing Machines at the Paris Universal Exhibition, M. Tresca, the Government Engineer, employed as the motive power one of TUXFORD'S Portable Engines that had previously been purchased by the French Government.

The Combined Threshing, Shaking, and Dressing Machine of TUXFORD & SONS was highly commended this year by the Royal Society at Carlisle, the Bath and West of England Society at Tiverton, &c.

Illustrated Catalogues, with prices, forwarded on application to TUXFORD & SONS, Engineers, Boston, Lincolnshire.

SMITHFIELD CLUB.—BAKER STREET BAZAAR.
STANDS Nos. 153, 154, 155, and 156.
SUTTON AND SONS, READING.

The Agricultural Gazette.

SATURDAY, DECEMBER 8, 1855.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, December	11	Smithfield Club Show at the Baker Street Bazaar.
WEDNESDAY, —	12	
THURSDAY, —	13	
FRIDAY, —	14	
TUESDAY, —	11—Central Farmers' Club	5 P.M.
WEDNESDAY, —	12—Society of Arts	8 P.M.
SATURDAY, —	15—Agri. Society of England	NOON.

THE meetings of the Smithfield Club, the Central Farmers' Club, the Society of Arts, and the Royal Agricultural Society next week, make it a busy one for agriculturists in town. The show of the first-named Society commences on Tuesday, and continues for four days. It is intended, at the annual dinner at Freemason's Tavern on the Wednesday, that the testimonial to Mr. BRANDRETH GIBBS, the Hon. Sec., shall be presented by the Duke of RICHMOND. Our readers do not need to be told of the services of this gentleman, or of the propriety of this acknowledgment of them. When speaking several years ago of the unobtrusive but really useful labours of many to whom British agriculture was indebted, Mr. BRANDRETH GIBBS was named along with Mr. PUSEY and Mr. HOLLAND—Mr. PUSEY, the Editor of the Journal of the English Agricultural Society—Mr. HOLLAND, the stay of the Royal Agricultural College—Mr. GIBBS, the director and organiser of the annual agricultural meetings and exhibitions—and no three more important agricultural services can be named. Mr. GIBBS is the worthy colleague of men standing high in the ranks of agricultural benefactors, and we are glad to know that his services are appreciated. The piece of plate which is to be presented will be on view during the show, and those who have not yet placed their names on the list of subscribers will have an opportunity of doing so at the ensuing show.

We may mention here, in reference to a corresponding subject, that the committee who superintended the movement for a testimonial to Mr. LAWES, have announced the successful termination of their labours. Of the 1390*l.* contributed, 1030*l.* have been spent on the new laboratory at Rothamstead, and 156*l.* on a candelabrum presented. We may have an opportunity hereafter of republishing

a portion of the excellent address delivered by Mr. Lawes on the occasion of the presentation.

We have been requested to announce that the intended trial of Fisken's steam-plough at Tiptree next week will not take place.

In our remarks on the Turnip crop at p. 777, an attempt was made to point out the true nature of Finger and Toe in roots. This defect was defined as a branching or forked method of growth in such roots as Parsnips, Carrots, and Turnips, as distinguished from the smooth outline and unbranched condition which mark well developed root crops.

It was attempted to be shown that a tap root (*fusiform*), with a clear and unbranched outline, is not natural to the Parsnip, Carrot, or Turnip but can only be obtained from wild plants by careful cultivation, and the general conclusion arrived at from an examination of this interesting subject is that finger and toe is not a disease in the strict sense of that term, but the natural result of the early stage of change from wildness to civilisation, and so this malformation taking place in cultivated examples is a mark of a downward tendency from civilisation to wildness.

Now, it will be seen that finger and toe is viewed as a *natural method of growth*, and not the result of *direct injury* to roots, and hence disconnected, or at least not necessarily connected, with the *injuries* it is the object of this paper to describe, namely those which result in the true anbury, and which at starting we may shortly discriminate as follows:—

Finger and Toe. — A branching or forked method of growth of roots, the branches (digitations) of which gradually lessen downwards — attacks all root crops.	**Anbury. — Irregular swellings of the main bulb, root, or its rootlets—tumour-like excrescences upon the under-ground growth of *common* and *Swedish Turnips*—not affecting other root crops.**

In tracing the history of anbury, it will be well to glance at the derivation of the term. In a book called "Cheape and Good Husbandry for the well ordering of all Beastes and Fowles," published in 1631, the anbury is described as "a bloody wart on any part of the horse's body, the cure of which is *an hote yron to seare the one plaine* to the body." These tumours are now known to be caused by insects laying their eggs in the horse's skin, which bring about swellings, in which the larvæ (maggots) of some species of flies are hatched, giving rise to what are now called *Warbles*, and the searing cures it by killing these larvæ. Hence then the original application of the term anbury to forms of the Turnip disease would appear to have been perfectly sound, inasmuch as it described a malformation in the root depending upon similar causes to those which produce the excrescences in the horse; it is, therefore, not a little surprising that modern observers should have confounded this not only with finger and toe but with all other malformations of all kinds of roots from whatever cause arising, so that all distortions of Turnips are spoken of under the heading of "finger and toe or anbury," or as "anbury or finger and toe."

Anbury, or to make the matter plain, Turnip Warbles could only have been mixed up with finger and toe as previously described for want of a systematic inquiry into the nature of the two kinds of evil, and hence wrong conclusions have been arrived at with regard not only to the causes but also the cure of both affections, and more especially when we consider that the prevailing opinion referred all malformations of roots to mechanical causes residing in the soil or manure, or both, some attributing the matter to stones, and others to long undecayed manure. But if we bear in mind that finger and toe, as proved by experiment, is sure to result in any root crop from its too frequent repetition in the same soil, or the using over and over again of own-grown seed, we have sufficient evidence of *degeneracy* being the cause of this defect. But if we grow Turnips or Swedes where we have previously had a prevalence of finger and toe in Carrots or Parsnips, it by no means follows that this affection must supervene in our Turnips, while such Turnips may be affected by anbury; and again, it does not follow that a soil or district liable to anbury would be productive of finger and toe in any root crops; but it must be here borne in mind that anbury is certain te result to a greater or less extent in some districts, a fact not to be wondered at if we bear in mind that *anbury is a malformation in the growth of the Turnip arising from injuries caused by insects*, a point now to be proved as the result of observation.

In a long series of examinations of Turnips growing on the Cotteswold hills, where the soil is almost wholly oolite, it will be found that most of the Turnips, both common of various sorts and Swedish, are disfigured by raised tubercles upon the bulbs and smaller roots at all ages of their growth; these on being cut into expose the larvæ of an insect, which ultimately arrives at the beetle known as the Turnip gall weevil, admirably figured and described by Mr. Curtis in the fourth volume of the "Journal of the Royal Agricultural Society." The parent insect it would appear lays its eggs in the substance of the Turnip root, which on arriving at the larva state subsist thereon, causing the tumour to form on the outside its dwelling. After a time the grubs eat their way out and form pupæ in the soil, in this state serving as food for innumerable small birds; and rooks oftentimes much disfigure Turnips by stocking them for these insects when in the maggot state. This then may be described as a Turnip gall of the *commoner kind*, and which will be found to prevail over large districts.

Now having taken up the idea that this simple form of excrescence or gall was due to a peculiar species of insect, it seemed reasonable that other forms should be referrable to other species in the same way that the same species of Oak presents different forms of gall over different and oftentimes limited and well defined districts, and we therefore obtained as many specimens of injured Turnips as we could command, the best examples of which were sent by the kindness of Mr. Lindsay Craigie, to whom our best thanks are due for his kindness and courtesy.

From Scotland this gentleman sent a box of specimens of Swedes very much injured, the body of the bulb presenting rough warty excrescences, and what under ordinary circumstances would have been fibrous rootlets were converted into abnormal tumour-like knobs presenting more the aspect of races of Ginger than anything else. From the rich green sand soils of Berkshire we had also some specimens of a like diseased state forwarded, but in a much earlier stage than the foregoing.

Now, on dissecting these examples, we were not surprised to find chambers in which were the caterpillars of beetles, which, upon more minute investigation, proved to belong to the rove beetle, also figured and described by Mr. Curtis in the paper before referred to; and an examination of this rough creature, which is so different from the smooth form of the larvæ of the gall-weevil, is sufficient to account for the difference in the gall it inhabits, and though the rove beetle is described as a carnivorous insect, it is not at all extraordinary that its eggs should be laid in Turnips, as many insects of this class breed in vegetable matter, and indeed the maggots of flies are even found in some of these Turnip excrescences, in such a position as renders it not at all improbable that the eggs of the rove beetles are also placed in Turnips to be near animal food.

Now it is quite true that upon cutting into the substance of any affected Turnips we could *at first discover no larvæ*, but usually the knife which was used became spotted with a milky exudation, which made us look more carefully into the substance of the tumour, and the result of this examination proved that the milky matter was caused by the breaking up of immature larvæ, sometimes of rove beetles, at others of the Turnip fly, and frequently of both together; and the difficulty attendant upon the inquiry into the nature of the excrescences appears to be that observers have usually examined only old specimens which have become decayed from the injuries they have received from the larvæ eating their way out, exposing them to wet, frost, and other atmospheric influences, and about which wounds the larvæ will be found in the mature state, most of the flies indeed having taken on the pupa form, and many of the beetles that of the perfected creatures.

That both beetles and flies lay eggs *in Turnip roots* there can be no doubt. Of the beetles the weevil lays its eggs for the most part in the body *of the bulb*, usually towards the surface; whilst the rove beetle and flies usually insert their eggs into the roots; and then these immediately begin to thicken, but altogether irregularly, and not lessening downwards, as in the smooth unbroken line presented by the forked roots in finger and toe; indeed in anbury the tumours are tuberculated, and, as before stated, resemble more the appearance of a race of Ginger than any part of a normal Turnip.

That different species of these insects should be formed in different districts we are already prepared for, and this may help to explain the varied opinions advanced in describing the malformations of Turnips to which they give rise. That these insects have as yet been but imperfectly studied all must admit, as it would require a careful investigation of infested crops from all parts of the country, and not only in one but in every stage of growth; at present, therefore, we shall content ourselves with having clearly established the difference between finger and toe and anbury, and just as the former has been shown to proceed from the many causes which tend to degeneracy, so the latter may be found to be favoured by many circumstances, the knowledge of which might enable us to arrive at what is at present an important desideratum, namely, the prevention, or at least mitigation of its now increasing evils.

YIELD OF LAST HARVEST.

Forfarshire.—Speaking of this district, the eastern coast of Forfarshire, I should say from my own experience and from conversation with my neighbours, that Wheat and Oats are quite an average yield, not equal to last year of course by a fourth, but quite equal to the last five years. Barley under the average, both in its extent and yield. An increased number of acres of Wheat were sown last year, which will make it supply above an average quantity. *Robert Colvill, Chance Inn.*

Mid Lothian.—It is rather difficult this season to obtain full information of the yield beyond one's own farm; and in preparing to fill up the returns for this parish to the Government report, I have addressed notes to mostly all the farmers in it, asking them to supply me with their views. My own belief is, that Wheat is at least one-fifth under last year (1854), but about an average; Barley one quarter per acre and 2 lbs. per bushel in weight below, and Oats also 6 bushels and 1½ lb. per bushel in weight under average; Beans an average crop; Potatoes a large crop partially diseased; and Turnips about an average, but scarcely reaching it. P.S. Do you not think that other than agricultural produce should receive some attention? For instance sugar has in the space of two months become doubled in price, said to be from the ignorance generally of the stocks held. My opinion is that stated returns of the whole raw produce and manufactured articles in the country should be regularly ascertained and published. *James Melvin, Ratho.*

Lanarkshire.—I believe Wheat does not turn out so well as was expected, and is certainly not over an average. Barley is light and ill-coloured, caused by the heavy rains in July, which lodged the crop. It is on an average 3 lbs. per bushel lighter than the same grain of last two years, and quantity not more than average. Turnips good. Potatoes giving way since lifted; were good till then. *J. Munro Mackenzie, Wishaw.*

Fifeshire.—I send you my opinion of last crop compared with average seasons, our two former crops being very large ones. Wheat an average; some fields are very deficient, but a greater extent being in crop, I think will make it an average produce. Barley an average, but little sown in this district. Oats about one-sixth below an average. Beans a large crop, but much less sown than what was sown some years ago. Upon the whole, I think it will be a little under an average produce, but this applies to a small district along the coast; a little up the country I believe the Wheat is more deficient. *John Barclay, Randerstone.*

Cupar Districts.—Wheat half a quarter less per acre than last year, but nearly a seventh more in extent. Barley also half quarter short of last year's crop, and a very little increase in breadth. Oats 5 bushels less and nearly same breadth. Potatoes very large crop, and one-fourth greater extent than last year. Disease has increased greatly since the crop was stored. *R. Russell, Kilwhiss, Cupar.*

Ayrshire.—In reply to your note of the 19th inst. (to which it is not easy to give a very correct answer), I may say that I still adhere to the opinion I expressed in answer to the queries you sent me before harvest, that Wheat will be an average, but Oats under an average. I do not think that, all circumstances taken into account, the breadth of Wheat last year was greater than formerly. The frost set in at a period when but a small breadth of land was cleared for sowing, and continued so long as to materially interfere with the spring sowing of Wheat; however, on inquiring at some of the principal grain dealers, I find they have got in more Wheat than at the same period last year. This may be accounted for by the high price inducing the farmer to realise. As to Oats there is, without doubt, a considerable deficiency; the season was very unpropitious for this crop, and the land being nearly all ploughed immediately before sowing it was more easily affected by the very dry weather we had in the beginning of summer; on light land, of which there is a good deal in this district, the Oat crop would be fully a third deficient. As to Barley there is very little grown in this neighbourhood. Potatoes proved a better crop than for some years past, with less disease. *A. H. M'Clean, Stranraer.*

Yorkshire.—The Wheat crop was much lodged; the average yield will be fully one-fifth deficient; also bad in sample, and 2 or 3 lbs. per bushel under the usual weight. The Barley crop was heavy in straw, very coarse and light grain, with a deficiency of marketable grain of a seventh or eighth. Oats are, I think, scarcely an average. Beans are a good crop, but none yet threshed in this part. The cause of the deficiency is, in my opinion, continuous rain, and an almost total want of sun during the period when the grain crops ought to have filled. The later crops of Wheat are generally better than the earlier ones, there being less rain and more sun during their blooming and filling time. As to Mr. Caird's estimate of the quantity of Wheat sown last season, I by no means agree, though I admit, there is a gradual additional number of acres sown each year—but by no means to the extent Mr. Caird states. *Peter Stevenson, Rainton, Thirsk.*

REPORT UPON THE FATTENING OF CATTLE,

KILRUSH FARM, HOLLYMOUNT, October 24th, 1855.

I now enclose an account of the trials which I made last season in the feeding of cattle. You will, I think, find them interesting, and confirmatory of what you have long advocated—the superiority of a mixed description of food, cooked along with cut straw. The result of the different kinds of feeding was quite apparent, those on raw Turnips alone having always a hard look and not exhibiting any great improvement. Those getting the "raw cake" had a better appearance, and when you handled them the n eat was found to be well put on. Those getting the "cooked cake" had always a firm but mellow appearance, the meat, however, handling somewhat softer, while those fed on part cake and part Barley meal cooked, had the same mellow appearance, but handled very firm, and manifested good mixture of fat and lean. The cattle were all fed in loose boxes, two and two in each. They had always an unlimited supply of uncut straw, so that I do not charge anything for the cut straw which those had that were getting the cooked food. The oilcake is charged at 11*l.* per ton and the Barley at 8*l.* per do., the prices of both last year. The expenses are deducted from the "selling price," such as charge for attendance, sending to market and selling, so that the net return is given. You may make what use you please of this. I can certify to its being correct, as I made the experiments under my own superintendence, weighing the materials or food for my own information and satisfaction. The following is the table of experiments referred to :—

No.	Description of food.	Date when first weighed.	Weight in cwts., qrs., lbs.	Date when last weighed and sold.	Weight in cwts., qrs., lbs.	Net return of sale, deducting expenses except artificial food.	July price.	Cost of artificial food.	Weight of Turnips consumed.	Leaving for Turnips consumed.
		1854.		1855.		£ s. d.	£ s. d.		tons. c. qrs.	Per cwt.
1	2. Cattle fed on Turnips only—12 stone each per day.	Dec. 16	23 2 0	May 1.	27 0 0	48 5 10	30 0 0	none.	20 5 0	*8*d.*
2	2. Cattle fed on 8 stone of Turnips each per day, and 5 lbs. raw oilcake each, do.	do.	21 3 14	do.	25 2 0	44 5 4	28 0 0	6 12 0	13 10 0	†8¾*d.*
3	2. Cattle fed on 8 stones of Turnips each per day, and 5 lbs. cooked oilcake and cut straw each per day, do.	do.	22 2 14	do.	27 0 0	46 5 0	29 0 0	7 2 0	13 10 0	‡9*d.*
4	2. Cattle fed on 8 stones of Turnips each per day, and 4 lbs. oilcake and 2 lbs. Barley meal each per day, all cooked, and cut straw.	do.	25 1 14	do.	31 0 14	59 0 0	34 0 0	7 16 0	13 10 0	§15¼*d.*

* This 8*d.* is a fraction above the net rate per cwt. † 8¾*d.* is also a fraction above the exact rate.
‡ The sum of 5*s.* for each beast is deducted from the net sale price for expense of fuel and cooking, but nothing for straw.
§ The same deduction for cooking is made for each beast in this lot.
No deduction or charge is made for straw, as it is fully compensated in the good manure made from the cooked food system.

In every instance the cost of the artificial food is deducted, thus :—

No. 4, net return		£59 0 0	
July price	£34 0 0		
Cost of artificial food	7 16 0		
		41 16 0	
		£17 4 0	

This sum, 17*l.* 4*s.*, goes to pay for the Turnips which those two cattle consumed, viz., 13 tons, 10 cwt., leaving 15¼*d.* per cwt. as shown by the table sent. 15¼*d.* per cwt. is 15*s.* 5*d.* a ton, so that if you take 20 tons per statute acre as an average crop in this county on the well managed farms, you have for the payment of that crop 15*l.* 8*s.* 4*d.* I do not mean to say that this sum can be always made, but I fearlessly state this, that you may easily, by judicious management, and by using the description of food which No. 4 lot was fed on, bring cattle to pay double what they would do if fed on the old system, viz., from 12 to 14 stone of Turnips per day, or from 10 to 12 stone, with an allowance of 5 or 6 lbs. of raw cake. *Francis Lawrie, in the Journal of the Agricultural Improvement Society of Ireland.*

FARM NEAR CHELMSFORD.

The completion of harvest, with the succeeding preparation of the land for future crops, has progressed satisfactorily since our last report, and the appearance of the early Broad-leaf Rye is luxuriant in the extreme. This crop invariably succeeds well if a fine tilth can be procured, and dry weather attends the preparation of the land and depositing the seed ; 2 bushels of seed per acre is amply sufficient, provided it is of home production, and growth of the last harvest ; the rubbish sold as new Rye will frequently not more than half vegetate, and care should be taken to first submit it to trial before risking the plant. The common imported varieties are also not adapted for feeding, and ought to be rejected if the new varieties can be obtained, which are not only earlier by 14 days, but also produce a much larger quantity for mowing or feeding.

Upon this farm we generally commence mowing it by the middle of the month of April ; a small quantity in the first instance being cut up with Oat straw into chaff, increasing the quantity weekly until the Rye alone is cut, and which it may be with advantage to the 1st of June, or until it is fully eared out ; we find our horses are maintained in condition by it better than by any other green crop except Lucerne or Broad-leaf Clover. Our annual consumption by this mode is about 20 acres, most of which is mown, and as it is taken off, the land is immediately ploughed and sown with Turnips, which generally succeed well afterwards.

Tares have also planted well ; with a portion designed for early use Rye is sown at the rate of 1 bushel per acre, and 8 or 10 pecks of Tares afterwards drilled ; with those for later use, winter or black Oats and tailing Wheat is sown, and the Tares drilled as with the Rye. Unless supporting plants are sown with Tares pretty thickly, they become borne down by rain, and the major portion become rotted and useless for feeding purposes.

We are just concluding our Wheat sowing, and from the rain falling profusely at the commencement of the last month the land became saturated to such an extent as to render it a task at first of more than ordinary difficulty to get in the seed, especially upon those lands on which Mangel Wurzel had been grown previously. Upon the whole, however, the work has been satisfactorily completed, and no fear whatever is entertained for the safety of the plant, which is now fast appearing.

The crop of Mangel Wurzel is very fine, and the quality excellent. Of all the new varieties the Long Orange stands pre-eminent ; it produces the greatest weight, has less tap root, and is more easily convertible than the Globe ; we estimate our crop of 30 acres at about 30 tons per acre. This will give 1800 weeks' keep for an ox of 100 imperial stones, or for 100 oxen for 16 weeks each, and if properly combined with cut Oat straw chaff may be used immediately after removal from the field ; and the leaves are also available by stripping them early as required. From the middle of October to the end of November they have formed the chief supply for 30 cows, cut up with Oat straw, and the cows have thriven well, and have eaten them with avidity. We are now pursuing the same course with the leaves of Swede Turnips, white Turnips, and cattle Drum-head Cabbages mixed as before, with a small quantity of grains added daily. Most of these items of food were until lately wasted, but now they supply the food of the milking and young stock of this farm up to Christmas or later, as frost may prevail, enabling us to keep the roots untouched for such purposes.

We have lately been threshing Wheat by the assistance of a hired locomotive steam engine, but we do not find by experience that it can be effected so cheaply as many writers have asserted, viz., 10*d.* to 1*s.* per quarter. We find that the attendant labour amounts to nearly double that sum ; in one case, with the cost of the machine at 1*s.* per quarter, it amounts altogether to 3*s.* per quarter upon mown Wheat and 2*s.* 6*d.* upon reaped ; 16 hands altogether are required, and the use of one horse continuously, and man to supply water and fuel. The consumption of coal is considerable—upwards of a ton in three days, and the cost quite as much per quarter as by horse-power, charging the horses at 4*s.* per day each. The case may be different with fixed engines, but with a locomotive engine a day's work is more or less consumed with five horses in removing it to its next station. As regards convenience at this season, we admit it to be vastly superior to horse-power inasmuch as it spares them for the other requirements of the farm.

Our Swede Turnips are very indifferent this season ; the white and green common Turnips are good, and are perhaps an exception in this district. We are now feeding the former with southdown wethers and half a pound of cake each.

The yield of our Wheat crop is good ; the crops were not beaten down to any great extent, and the quality is also excellent, averaging from 61 to 63 lbs. per bushel.

The yield of Barley and Oats is also large, but the former is deficient in quality ; our selling prices, however, are satisfactory, from 38*s.* to 43*s.* per quarter. Beans we have none, and Peas are a slight crop. The hay crop was unusually small ; but the second math of Clover to a considerable extent has compensated the deficiency ; it is, however, selling at from 5*l.* to 6*l.* a ton, a price too high to admit of its being used with profit for any description of stock.

The high price of oil-cake deters us from using it in great quantity ; 3 lbs. per head, with 4 lbs. of meal made from tailing Barley and Linseed, at the rate of 1 bushel to seven of Barley, is the maximum of this year's allowance to each bullock per day. They, however, are progressing well. We believe that a large portion of the cake is wasted whenever cattle are fed too bountifully upon it.

Home Correspondence.

The late Discussion in the London or Central Farmers' Club on Stall Feeding.—I have read with some degree of interest mingled with surprise the report of the late discussion in the London or Central Farmers' Club, on the stall feeding of cattle. The question was whether straw could be substituted for hay in feeding cattle. I am well aware of the prejudices existing amongst English farmers in this respect, for the all but universal belief among them is that hay is indispensable, and that straw is next to being useless. But with a short crop of hay in many cases very indifferently cured, with the consequent present high price of the article, and the certainty of an increased value of not less than 50 per cent. before Lady-day, it is a matter of great moment to know whether the use of hay cannot be economised, or something else substituted for it altogether. The Central Farmers' Club comprehends among its members gentlemen whose names we have always been accustomed to associate with the literature of agriculture, and with the most enlightened practical and scientific knowledge of the art ; and it was therefore with much surprise that I found no reference whatever made by them to a collection of standard practical knowledge, from which they would have derived much valuable information regarding the subject which they had chosen for discussion. The work I mean is the "Transactions of the Highland and Agricultural Society of Scotland." If any of them had taken the trouble to refer to this—certainly no obscure publication—it would have been found that in the details of all the feeding experiments and reports, Turnips and Oat straw are taken as the basis, as farm-yard manure is taken in comparative trials of manures, and that Turnips and hay will be found ranked in the list of other feeding stuffs which are reported upon. The reason of this arises from the fact that fresh Oat straw is the regular fodder used by Scotch feeders in preparing their cattle for the butcher ; and if the members of the Central Club would only look at the magnificent oxen sent to the London market from Aberdeen and other ports on the east of Scotland, they would have ample evidence that straw could be substituted for hay in feeding cattle with great propriety, and no little economy to themselves. In Scotland natural meadows are rare and do not form any regular part of farm management, as is the case in England ; the staple hay which is made being that produced by the artificial Grasses. This is reserved, I may say, entirely for the horses. The general use of straw in Scotland does not arise from the *quasi* argument once used by a person with whom I was talking over the same subject, namely that straw was employed because there was nothing else to give to the cattle. Such an observation could only arise from conceited ignorance of the subject. The Scotch farmers feed cheaper than their English brethren, whilst it is an undeniable fact that they come into the English markets with their fat cattle, and command the highest price. This should be carefully noted by the members of the Central Club, and by all interested in the question who have read the discussion. *Scotus, Worcestershire.*

Steam Cultivation.—In the *Agricultural Gazette*, November 24th, there is a letter from "Y. F. W.," urging several objections to my plan of circular tillage, all of which I shall have occasion to notice. In the meantime I should like to know by what method of calculation he makes out there are 7·16 perches lost in the triangular bit of land, arising from the conjunction of 3 circles of 84 feet radius. My experience in the field makes this piece, left untilled by the machine, nearly one half less than his estimate. *C. Burcham, London.*

The Turnip Fly or Flea.—There have lately been several communications in your Paper with respect to the modes of destroying this terrible insect. None of your correspondents, however, have said anything of a very common method in use in the Weald of Sussex, which particularly abounds with them, to the great annoyance of all Turnip growers ; and this year they have been so numerous as to cause an almost total destruction of the Swede crop, many having none after four or five sowings. I had myself a beautiful plant over nine acres in the early part of June last, and having stood the attacks of the numberless flies during a week of very hot weather, they at last became in such a state that about three more days would have been fatal to them. Being naturally anxious to save them if possible, I inquired of various people at market how to rid them of their enemies ; a good many nearly impossible recommendations were given, but an old-fashioned farmer strongly advised having them rolled with a one-horse roller very early in the morning while the dew was upon them. Willing to try so simple a plan, orders were given for a man to go out the next morning between two and three o'clock and roll them all before coming home, which was done and finished about nine o'clock. I must confess I had no great faith in its success. The day, like the preceding ones, was intolerably hot and very sunny ; about twelve I walked across the field expecting to see my enemies as usual, but was completely astonished to find that they had all disappeared, for I minutely examined the plants but found only one or two, and after that day they were troubled no more. The weather remained dry and hot for some time after, but the Swedes grew and are now a very good crop considering the dry summer we have had. I should mention that the field was in excellent tilth all over, and the only way in which I can account for the efficacy of the rolling is, that the flies at that early time were secreted under the small clods of earth, and when they were pressed down by the roller they were of course unable to get out ; the land was drilled 27 inches apart and a light rolling given after, to cover the seed. Some imagine that the earth adhering to the roller (being dewy) makes the plants dusty, and that they are then

distasteful to these insects; as however there were none to be seen above ground, I presume the former explanation to be correct. I may mention that we sowed some more Swedes later, which had to be guarded in the same way, and which also proved successful. I shall try it again next year should the flies be troublesome, and would strongly recommend your readers to do so, should they have no better method of destroying these pests. *Leisurely.*

St. Mary-le-bone Bank for Savings, 76, Welbeck Street. Established 5th July, 1830—Comparative statement of progress at specified periods during the last seven years:

	Open deposit accounts.	Sums invested with National Debt Commissioners.
On 20th November, 1849...	20,382	311,094
" " 1850 ...	21,110	321,775
" " 1851 ...	22,176	344,034
" " 1852 ...	22,774	364,526
" " 1853 ...	23,308	367,973
" " 1854 ...	23,227	351,260
" " 1855 ...	23,998	346,933

—*D. Pinney, Secretary and Actuary.*

Land Drainage.—Your correspondent "B. D. T." (page 764), in noticing Mr. Bailey Denton's remarks on drainage (page 732) more particularly in reference to the "extraordinary circumstance," mentioned by Mr. Denton, "of drains recommencing running upon a fall of the barometer, without a fall of rain on the surface," adds that "if any of your readers are in possession of similar facts, they would be doing a service to the cause of science by giving them to the public in your columns." I have known such a case, and will communicate it. Last year, after the very dry weather succeeding the harvest, the barometer fell for three or four days, but rain did not follow as might have been expected; during the next few days a few slight showers fell, with a rising barometer, but not of sufficient weight to affect drains. During the fall of the mercury several outlets upon a farm I had drained three years ago commenced running, and continued to do so till the mercury began to rise, when they gradually ceased. They had been dry for several weeks previously, and after running, as above described, became quite dry again, and remained so till the land became saturated by the winter's rains. A neighbour noticed the same extraordinary circumstance in some 3 feet deep draining on the adjoining farm. My drains had been laid with 2-inch pipes, 3 feet 6 inches deep, in furrows, but were then probably over 4 feet below the surface, the high lands having been thrown down, as they always ought to be, to secure the full benefit of deep draining. This circumstance occurred upon land called very strong clay, and which had resisted all the attempts of shallow drainers to lay it dry. The late tenant told me on quitting that it was not possible to drain it, "For," said he, "if you've 2 inches of clay above the tile, I'll warrant water will stand for a month in a horse's foot-print." This I found, before draining, to be quite true. But although I can show that I paid on entry, in May 1852, 20*s.* per acre, by hire, for ploughing up undrained stubbles for summer fallow, I cannot now persuade a stranger that it ever could have been really strong heavy clay land. Being in correspondence with Mr. Denton, about 6 months ago I wrote him a statement of this fact, about the drains running with a falling barometer, with a view to obtain his valuable opinion on the subject; I have since heard of some other cases of the same kind, and I have no doubt Mr. Denton has, in his extensive practice, been able to collect further information, but whether he has or not I can completely verify the case I have described. I quite agree with your correspondent in attributing this occurrence to the diminished atmospheric pressure before rain; and moreover, before water can by any possibility flow out of the land, the space it previously occupied must be filled up by air passing from the surface, and thus a medium of communication is formed within the soil, which is subject, in a greater or less degree, to all the changes of this ever varying climate, and acted upon by the density or lightness of the volume of air with which it is in direct contact. *George Beaumont, Jun., Bridgeford Hill, near Nottingham.*

Farm Steam Engines in Gloucestershire.—A few days since a number of the friends of Mr. Edward Drew, of Calcot Farm, a tenant of Colonel Kingscote, assembled by invitation to witness the working of a steam-engine lately fitted up and acting as a motive power to a threshing machine, mill stones, bone mill, and other farm machinery upon his occupation at Kingscote. The threshing machine is on the Scotch principle with English drum, and appears to combine the advantages of both, for in a trial of an hour and half upon mown Wheat with long straw, 20 sacks of Wheat were threshed and put up in sacks of 4 bushels and weighed 62 lbs. per bushel, with but little aid from manual labour when compared with machines in ordinary use. *H. R.*

Superphosphate of Lime.—There has been a lecture delivered by S. Grove Grady, Esq., recorder of Gravesend, upon Agricultural chemistry. This lecture was delivered at Hatfield. Mr. Grady is one of the directors of the Patent Superphosphate Compost company. The reporter gives the following. "He then discussed at length the question as to whether the phosphates, &c., &c., should be in a soluble or insoluble state, and proved by extracts from Dr. C. Remigius Fresenius' chemical analysis, and from Professor Liebig, that the insoluble were as beneficial to the full development of the plant as the soluble; for the ingredients which are soluble serve for immediate use, those which are neutral or semi-soluble exercise a more permanent action, and those which are altogether insoluble afford a prospect of future nourishment for plants, although for the time being they possess no nutritive powers. Those artificial manures, therefore, which are in a highly soluble state are not so beneficial as when they are soluble, neutral, and insoluble." I do not remember seeing any thing about semi-soluble phosphate in the writings of Liebig or other writers, neither can I see how any manures can be too soluble provided they are not washed out of the soil by the rains. Will you, Sir, be so kind as to enlighten me on these points? *From a Correspondent.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council, *Dec. 5*: Mr. Raymond Barker, V.P., in the chair. Forty-three new members were elected.

Finances.—Mr. Raymond Barker laid before the Council the Monthly Report on the Accounts of the Society, from which it appeared that the current cash-balance in the hands of the bankers was 361*l.*

Paris Implement Show.—Mr. Evelyn Denison, M.P., as English Juror of Agricultural Implements at the recent Paris Exhibition, having transmitted to the Council at their previous monthly meeting the earliest information of the results of that exhibition in his own department, it was suggested by Mr. Branston, M.P., supported by Mr. Jonas Webb, that a document so important at the present moment to the agricultural implement makers of this country, and so important to those members of the Society, who desired, in their purchases, to avail themselves of the information it conveyed, should at once be made public; especially as the awards to which it referred had now been confirmed by the imperial edict and the premiums awarded. The Council unanimously adopted this suggestion, and ordered the publication of the following letter:—

"Ossington, Nov. 6, 1855.

"Dear Sir,—I returned on Thursday last from Paris, having concluded my business in connection with the Exhibition. My first visit occupied me for a month, my second for more than three weeks. I send you, for the information of the Council, a short account of what has taken place. The Committee, appointed by the Council, to make a selection of agricultural implements for the Paris Exhibition, executed their task, I think, with great judgment. The implements sent were not too numerous, and they were all of established excellence. The collection attracted great attention, and has been examined with increasing interest up to the latest days of the Exhibition. I will not now enter into a description of the foreign implements exhibited, nor of the vast collection of agricultural products (an opportunity for this will be afforded in a report which the Board of Trade has asked me to furnish). I will confine myself now to the results of the Exhibition, as bearing on British exhibitors and British interests. To the five principal makers of agricultural machines—

Messrs. Ransome	Messrs. Howard
" Garrett	" Crosskill,
" Hornsby	

the Gold Medal of Honour has been awarded; and to them alone, of all the exhibitors of agricultural machinery of all countries, with the exception of McCormick and Pitt, of the United States, one for his reaping machine, the other for a threshing machine. To Messrs. Ball, Bentall, Busby, Coleman, Smith & Ashby, W. Smith, the Silver Medal of the first class has been voted.

According to the French classification (carried perhaps to an extreme point of subdivision), threshing machines and tile-making machines were not included in the list of agricultural implements; they were removed to the class of general machinery, class 6. Mr. Hornsby, if he had not already gained a Gold Medal in class 3, would have had one for his threshing machine in class 6.

A Gold Medal of Honour has been voted to Mr. Clayton for his brick-making machine. I should add that medals have been awarded, by the express command of the Emperor, to the leading workmen of the establishments of successful exhibitors. After making an examination of the foreign implements, in company with Mr. Amos, it became apparent to my colleague, Mr. Wilson, and myself that our time would be best employed, both for the interests of England and of France, in endeavouring to open the trade for agricultural machinery between the two countries—France requiring improved implements, England able and willing to supply them. The high rate of duty on the importation of machinery into France amounted virtually to a prohibition. I talked to the distinguished Frenchmen who composed my class on the disadvantages of this exclusive system. To open the trade might confer some benefit on England, but it would confer a far greater benefit on France. Ultimately our class agreed unanimously to make a representation to the Imperial Government in favour of a reduction of the duty on agricultural machinery. The representation was successful. An Imperial Decree appeared in the *Moniteur*, on Friday, the 7th of Sept., making a considerable reduction in the duties on many articles of machinery, and specially reducing the duty on agricultural implements to 15 francs per 100 kilogrammes. I look upon this as a very important concession, and one which may be productive of very beneficial consequences.

"I am glad to attribute it, not so much to our representations, as to the good sense and just views of our French colleagues, and no doubt it was to their appreciation of the extent to which French interests were involved, that this decree must in a great degree be attributed. It was part of the original plan of the Exhibition, that any article exhibited might be sold, at the close, on payment of a duty of 20 per cent. *ad valorem.* The new duty is by weight, 15f. per 100 kilogrammes, equal to 2 cwt. I have procured from the French Customs the weight of some of the English machines, and I have made a comparison between the duty charged by weight, and an *ad valorem* duty of 20 per cent. On an iron plough, in which the weight of the raw material, in comparison to workmanship is considerable, the duty of weight will be something above 20 per cent. *ad valorem.* In the more complicated machines, in which labour enters more largely, as in drills, the duty will be about 15 per cent. *ad valorem.* On the whole the proposed duty by weight appears to be fully as favourable as a duty would have been at 20 per cent. *ad valorem.*

"The makers of machines, whom I had an opportunity of seeing at Paris, and their agents there, were satisfied with the proposed scale, and thought an opening had been made for the establishment of a considerable and beneficial trade. It would not become me to suggest to our machine makers the best means to be taken for occupying the new ground laid open before them. Their own enterprise and knowledge of business will be their best guides. Our American brethren have already set them an example. I understand a Franco-American Company has been set on foot, for the purpose of supplying France with M'Cormick's reaping machine.

"These, then, have been the chief results of the Paris Exhibition, as regards the Class of Agriculture:—

"1. Successful competition on the part of English Machinery, and the award to it of the Gold Medal of Honour.

"2. A great reduction of the duties on the importation of Agricultural Machinery into France, and the prospect of a new market opened to our machine-makers.

"I could not be content to conclude this short account without acknowledging the invariable courtesy and attention which have been shown me by the members of my own class, and by all persons connected with the French Commission.

"I am, yours very faithfully,
"Evelyn Denison.

"To J. Hudson, Esq., Sec. of E. A. S."

Implement Prizes, 1856.—Mr. Brandreth having moved that the consideration of the Implement Prize-sheet for next year should be postponed till the Wednesday in next week, when a special Council would be held, gave notice of the following motion: "To move, when the Implement-sheet is finally taken into consideration, that, in future, special prizes only be given in rotation for certain great classes of Implements: as an arrangement likely to prove of advantage to the Society, to the implement makers, and to the public in general; and, also, as tending to lead to greater efficiency and economy in the respective trials of implements in each year." The explanations given by Mr. Brandreth of his intended motion, and the remarks of the different members present, on the modes by which the Society's exhibition and trial of implements in each year may be rendered most effective and economical, led to an interesting discussion on this important subject.

Standing Committees.—The Standing Committees for next year having been appointed, it was ordered, on the motion of Mr. Fisher Hobbs, seconded by Mr. Brandreth Gibbs, that the chairmen of the different standing committees of the current year, report respectively in writing, to the Monthly Council in February, the number of times they have met, and the number of reports they have made to the Council.

Member of Council.—On the motion of Mr. Raymond Barker, seconded by Mr. Wren Hoskyns, the Earl of Essex was unanimously elected a General Member of Council, to supply the vacancy occasioned by the transfer of Lord Berners to the class of Trustees.

Australian Sheep.—The Earl of Chichester communicated to the Council a statement made to him from South Australia, of the great losses sustained by the flock masters in that colony from the disease of scab among their sheep. The Council directed Professor Simonds, as the Veterinary Inspector of the Society, to enter into communication with the Earl of Chichester on this subject. Professor Simonds took that opportunity of remarking that he believed the sheep of the colony had always suffered from the scab in its common form, and would continue to be exposed to the same annoyance as the native sheep of the colony extended and became mingled with newly imported animals. He thought the same treatment would succeed in Australia as employed in England. The disease arose from the presence of a special parasitical animal, which penetrated the skin of the sheep, and caused by its constant attacks their increasing irritation and annoyance. He would communicate, as desired, with the Earl of Chichester on the subject.

Lecture.—Mr. Raymond Barker gave notice that he should move at a future Council, that Prof. Simmonds be requested to deliver a lecture on the subject of skin diseases and constitutional irritation occurring among the animals of the farm from the insidious presence and attacks of parasitical animals. He made this motion both in reference to its interest and importance, and from the circumstance of knowing that Prof. Simmonds possessed a most valuable collection of magnified diagrams and drawings connected with this subject, which he had at great personal exertion and expense prepared for the service of the Society.

The Council adjourned to Dec. 12.

Farmers' Clubs.

Hatfield.—*Cultivation of the Soil.*—S. G. Grady, Esq., Recorder of Gravesend, and a director in the Patent Superphophate Compost Company, delivered a lecture at Hatfield, on "Agricultural Chemistry." The lecturer, after making some preliminary remarks, referred to the absolute dependence of the human family on the productiveness of the soil, and the misery everywhere consequent upon a deficient harvest. He contended that there was every year a deficient harvest, for the soil had never yet been induced to yield its fruits in such abundance as it ought. He then proceeded to remark that artificial manures, scientifically prepared, should contain the organic and inorganic matters which constituted the food of all plants. Night-soil and fish were forms of organic matter, whilst superphosphate of lime was a form of inorganic matter. The luxuriance of a crop might in a great degree be accounted for by the presence or absence of this essential ingredient in the soil. He urged that artificial manures, scientifically prepared, had many advantages over farm-yard manure:—1st, Because better adapted to the requirements of crops, by restoring to the soil those essential properties which chemistry enabled us to ascertain any given crop withdrew from it; and, 2dly, On account of its superior cheapness. It was a fallacy to suppose that the same land could not be made to grow the same crop for a series of years in succession. Scientifically prepared artificial manures, by restoring to the soil all that a previous crop had removed from it, enabled the land to go on producing the same crop *ad infinitum.* For instance, Wheat removed 56 per cent. of phosphate of lime from

the soil, and in order to have a good crop of Wheat again, it was necessary to restore to the soil that amount of phosphate of lime. By thus manuring the land every time, a succession of good crops of Wheat must be obtained. But this could not be done with farm-yard manure, without incurring an expenditure which the crop would not repay. Mr. Grady then dealt with the next question as to whether the superphosphates should be rendered soluble or left insoluble. He showed by passages from Dr. C. R. Fresenius and Professor Liebig, that insoluble phosphates were as beneficial to the full development of corn as the soluble; for the ingredients which were soluble served for immediate use, whilst those which were neutral, or semi-soluble, exercised a more permanent action; and those which were altogether insoluble afforded a prospect of future nourishment for plants, although for the time being they possessed no nutritive powers. It was a mistake to suppose that artificial manures were merely ephemeral. If properly prepared they were of a permanent character. The lecturer then read some testimonials to show that the patent superphosphate compost had exercised upon several crops a beneficial effect for two years in succession—that being the whole period the company which manufactured it had been in existence. He had no doubt that experience would show the effects of the manure to be of a more lasting character. Mr. Grady then adverted to the subject of agricultural leases, contending that the landlord was bound in justice to his tenant to give him such an interest in the soil he cultivated as would enable him safely to expend upon it the capital which would make it productive.

Miscellaneous.

The Area of the Old Smithfield Market, it is proposed to make the site of a large central meat market. The proposal has, it is said, received the assent of the authorities whose ultimate discussion will be final; but it will no doubt undergo the ordeal of a great deal of discussion before it can be adopted and carried out.

Calendar of Operations.

NOVEMBER.

Lammermuir Sheep Farm, *Nov.* 26.—We have had rather wet weather for some length of time, hill stock have not made so much improvement this autumn as could have been wished, and the severity of last winter can even yet be traced in the want of condition of many hirsels. They want that flush of wool which indicates freshness and vigour; thus showing that even a tolerably good grazing summer and autumn sometimes fail in repairing the damage done by a previous severe winter. Where Leicester tups were used they were put to the ewes about the 8th of this month, and the Cheviot tups on the 22d, though on some farms the tups have been kept back about a week later than usual, the backward spring of last year having taught a lesson in this respect. Cheviot wedder hoggs are now put on Turnips, but the deficiency of that crop will induce many farmers to delay putting their store sheep on as long as possible. If the weather is at all favourable hoggs can better afford to want Turnips a few weeks longer at this season than have to do without them in early spring. The loss of young sheep from what is generally termed grassill, or sickness, has been very moderate as yet, and we consider that the most fatal period of the year for this disease is nearly past. Some seasons are much worse than others for grassill, and we have also noticed that some grounds are more liable to it than others, especially if hoggs are kept in a hirsel by themselves on the same walk year after year. Instances have occurred in which this was the case to such a deadly extent that the usual system was discontinued, and the hoggs wintered on another grazing for a number of years, till in the course of time the former grazing, after being stocked with old sheep, again became comparatively safe for hoggs. They are never so liable to this disease when pasturing along with their mothers all the winter. As an instance of this, I have my ewe hoggs pasturing along with their mothers, and the wedder hoggs on a separate hill. The loss of wedders has been about four times more than the loss of ewes, and entirely from grassill. I have also in former years remarked this. The deaths from this cause generally cease when the hoggs have been two or three weeks on Turnips. *J. S. B.*

Notices to Correspondents.

Bark: *Fiddler*. You had better char it and use the charcoal as manure. It will be a very slow process to reduce it by any attempt at fermentation.

Bran: *E*. The average composition according to Professor Johnstone is—Water 13.1; albumen 19.3; oil 4.7; husk, with a little starch, 55.6; ash 7.3.

Corrugated Iron *versus* Timber and Slate. Corrugated iron roofing will cost about 5*l*. per square of the area of the building, and I have found that a building 100 feet long, and 25 feet wide out to out, measured 25 feet square, which at 5*l*. = 125*l*.; and that to cover the same building with timber and Duchess slate the roof measured 32 squares of roofing, which can be furnished for 4*l*. 5*s*. per square = 138*l*. This is a difference of 13*l*. on the roof of a building 100 feet long by 25 feet wide on the first cost; but the iron roof must be kept painted once every three years, or it soon goes to waste, which was the case with the corrugated iron roof of the Exeter railway station at Bristol, which was taken down two years ago, and replaced with Duchess slate. I have only had two iron roofs put up; all the other buildings I have put up are of red or yellow baulk, and covered with Dutch slate; and the expense of these have been per square, say—

15 cubic feet of timber ... ... at 2*s*. 6*d*. =	£1	17	6
Including sawing, labour, &c.	0	15	6
Duchess slate and labour per square	1	11	0
In all	£4	4	0

I would prefer wood and Duchess slate with a tile ridge to corrugated iron as the cheapest and best in the end. *J. M.*

Coates' Herd Book: *Anon* It is continued by Mr. Strafford, of 13, Euston Square, who publishes an additional volume every now and then as materials accumulate. Vol. XI. was issued this year.

Cottage Property: *An old Subscriber*. We are unable to say if you can obtain possession without giving notice.

Cultivation of Glebe Land: *R G T*. A healthy young man having a life interest in any property ought not to fear investing money in its cultivation. If, however, you conclude that under your circumstances you cannot be at the expense of grubbing up the land and cultivating it, then probably your best mode of turning it to account will be to grow Gorse for cattle food. Is that saleable in your neighbourhood? It is so in many localities.

Drains: *D S*. Pipes of 1¾-inch bore are large enough for the parallel drains 30 feet apart, of the largest fields, say 300 yards; and pipes of 4-inch bore are large enough for the main drains of 10 acre fields. It would not be possible to answer as definitely as you seem to desire.

Drill: *Hurstperpoint*. The water-drill contains a reservoir for liquid manure or water, as well as one for seed; and as both are furnished with contrivances for pouring out their contents as the machine proceeds, the seed is washed into the furrow instead of being deposited in the dry soil; and the advantage of such a method of sowing is shown in the experience of Mr. Ruston, jun., recently given in these columns.

Earth-nut Cake: *W C S*. The following is the passage to which you allude:—"The first sample of this cake analysed was sent to this country by Messrs. Maxwell & Co., of Bordeaux. Its composition is—

Water	11.56
Oil	12.75
Albuminous compounds	26.71
Ash	3.29
Fibre, and other matters	45.69
	100.00
Nitrogen	4.27
The ash contains— Phosphates	1.17
The ash contains— Phosphoric acid	0.08

Compared with ordinary Linseed-cake we find but little difference between the two. In some cases, no doubt, the quantity of nitrogen in Linseed-cake reaches 4.8 per cent.; but in this case the oil is generally low. In fact, cake produced from the same seed varies in composition according to the extent to which the expression of the oil has been carried; and that this modifies the composition of the Earth-nut cake is obvious from the subjoined analysis of a sample imported into Leith:—

Water	10.01
Oil	6.78
Albuminous compounds	33.85
Ash	3.78
Fibre, and other matters	45.58
	100.00
Nitrogen	5.39
In ash— Phosphates...	1.14
In ash— Phosphoric acid	0.52

In this sample the quantity of albuminous compounds is very high. Messrs. Maxwell & Co. have communicated the following information regarding the price of this cake last autumn:—

	£	s.	d.
Its price free on board at Bordeaux, per ton, is	4	12	6
Export duty	1	0	0
Freight per steamer to Liverpool, and insurance	1	8	6
Price in Liverpool ...	£7	1	0

If carried by sailing ship the price will be £6 12*s*. 6*d*. In addition to this there is the cost of landing, &c., at Liverpool."

Ewes in Lamb: *J M*. One per acre over Grass lands of ordinary quality will be able to keep in sufficiently good condition with very little else than the Grass. In severe weather a little straw chaff, over which a very little weak Linseed soup has been poured, may be given them along with a few Turnips.

Farm Accounts: *C D*. The "cash in hand" goes into a cash account, which you keep independently of any business in which you may be engaged. You may have half a dozen different occupations, and keep the accounts of each: but cash in hand goes into the Dr. side of a cash account, which you keep apart from any and every business in which you may be engaged.

Grass: *Novice*. Are you sure that the Grass has not been pulled up by crows and starlings? There is generally a good deal pulled up in autumn on poor sandy pastures. You need not fear the result.—*Scotus*. It is a Brome Grass of little agricultural value.

Guano and Lime: *J H S*. It would be perfectly safe to dress a field of Wheat with guano at the end of February which was sown with lime in October or November. The lime would not then dissipate the ammonia of the guano.

Income Tax: *J L*. You are charged in Scotland on one-third your rental as income, while we in England are charged on one-half our rental.

Mangel Wurzel: *J. Mason*. They will keep through the summer if they are uninjured during winter, without any particular care being taken of them; nevertheless, perhaps some one will say what methods in his experience have been successfully adopted for keeping Mangel Wurzel until the second year.

Mud: *Z Y X*. The mud cleared out, dried, and broken up, may be applied as a top-dressing, as you propose, with probably good effect.—Prof. Johnston's pamphlet on "Analysis" is the thing you want. It is published by Blackwood, Edinburgh.

Pheasantry: *Omega* proposes to have a pheasantry 70 ft. long. At one end we suppose he allows a space of 9 ft., to be covered in and "hoarded up," with holes for the entrance of the birds; the floor to be of hard well rammed earth. He will then have a run of 60 ft. in length, a part of which is laid down to turf, a part for fine gravel and planted with shrubs; in the centre a small well branched tree, on which the birds will rest; the run to be inclosed either by wood or brick to the height of 3 ft., and above by strong wire. Four or five hens may be allowed to one cock. We shall be happy to afford further information if required.

Potatoes in Bread: *A Subscriber* asks any of our readers to inform him how, and in what proportion, to mix Potatoes with flour in making bread.

Rape-cake, &c: *J T B*. If it contains much Mustard it is poisonous. It is undoubtedly "adulterated," and may be returned. Though it contains a little Mustard it is not necessarily poisonous, if properly cooked; and the plan is to scald it with boiling water, which coagulates that in the Mustard, which, if left to its natural tendencies, will, in cold water, assume a poisonous form. Sawdust may be used as litter, and will form good manure. Large quantities were used at Hendon for littering the large herd of cattle belonging to Mr. Tanqueray. Old lime dust may be usefully applied as a top-dressing. You need not fear its effect on manure containing ammonia, both being in the soil. The mixture there is under different circumstances from those of the laboratory. Bushe's grater cuts roots into narrow ribands; Phillips's reduces them, we believe, to a sort of sawdust.

Tobacco Juice: *J S G*. We use 15 lbs. of juice and 3 lbs. of black soap, dissolved in 50 gallons of water for every 100 sheep. Dissolve the soap in 5 gallons of boiling water; immediately add the juice, stir well, and let it stand for 24 hours; and the additional water required, and apply at blood-heat as you would any other wash, the object aimed at being to saturate the fleece at as little waste of material as possible. The above is the common rule, but as juice varies in strength and sheep vary in size, experience is the only sure guide. The method of application in general use here is dipping. The dipping trough or steep is capacious enough to hold wash for 100; into it the sheep is carefully dropped on his back with his head to an inclined plane, up which he walks to the dripper, a water-tight enclosure capable of containing 100 sheep, inclining to the steep and connected with it by the inclined plane, and from which the superfluous wash carried off by each sheep is again returned to the steep. When the dripper is full of sheep they are allowed to stand while the steep is being replenished, when they are turned out, and operations recommenced upon another 100. By this method every sheep is completely saturated, and very little material wasted. *T.*

FIRST PRIZE REAPING MACHINE.
NOTICE.

MESSRS. BURGESS and KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l*. was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill: Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—Burgess & Key, 103, Newgate Street; and 52, Little Britain, London.

DO YOU BRUISE YOUR OATS YET?—One bushel of Oats when crushed will make two. Great saving. OAT BRUISERS, Chaff-cutters, Ploughs, Threshing Machines, Flour Mill Carts, Corn Dressing do., Horse and Steam Machinery put up, &c. Book on Feeding, 1*s*.
M. Wedlake, 118, Fenchurch Street, London.

TURNER'S REGISTERED MALT MILLS, and PATENT CRUSHING and GRINDING MILLS.—A variety of these Mills will be exhibited at the ensuing Smithfield Club Cattle Show, Stands 63, 64, and 65.
Caution.—Legal proceeding will be instituted against any person or persons unlawfully manufacturing the above Mills, or otherwise infringing upon the Registration or Patent for the same.
E. R. & F. Turner, St. Peter's Iron Works, Ipswich.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES consist of MATTING, DOOR MATS, MATTRESSES, HASSOCKS, BRUSHES, &c., and are distinguished by superiority and excellence of workmanship, combined with moderate charges. Catalogues, containing prices and every particular, free by post.—T. Treloar, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3*l*. 3*s*. The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe, 1*s*. 6*d*. per foot.
1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s*. 6*d*. per foot.
May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Sons, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „ long	3 „ 3 „		1	14	0
3 „ ditto	3 „ 6 „		2	8	0
3½ „ ditto	3 „ 6 „		2	12	0
4 „ ditto	3 „ 6 „		3	8	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
2½ in. long ditto	ditto	ditto	2	18	0

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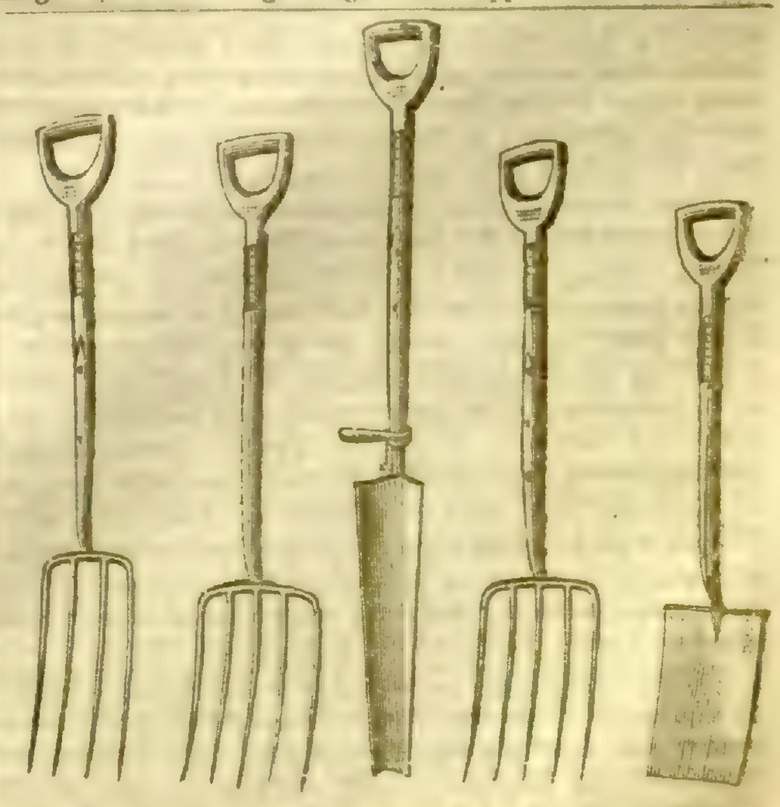

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9 "	3	3	"	5	0	15 "	14	0	"	17	0
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8½ "	6½	"	9	"	7	...	...	13	6
9½ "	7½	"	10	"	8	...	...	13	6
10½ "	8½	"	11	"	9	...	...	14	0
12 "	9	"	13	"	9	...	...	14	0
10 "	10	"	10½	"	10½	...	...	14	0
11 "	10	"	11½	"	10½	...	...	14	0
11 "	11	"	11½	"	11½	...	...	14	0
12 "	11	"	12½	"	11½	...	...	14	0
13 "	11	"	13½	"	11½	...	...	14	0
13 "	12	"	13½	"	12½	...	...	16	0
13½ "	13½	"	14½	"	13½	...	...	16	0
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 50.—1855.] SATURDAY, DECEMBER 15. {Price Fivepence. Stamped Edition, 6d.

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THE BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY'S EXHIBITIONS OF PLANTS, FLOWERS, and FRUITS, for 1856, are fixed to be held as follows:—The Summer Show, on the 25th and 26th of June, and the Autumn Show on the 3d and 4th of September, on the same grand scale as in former years.

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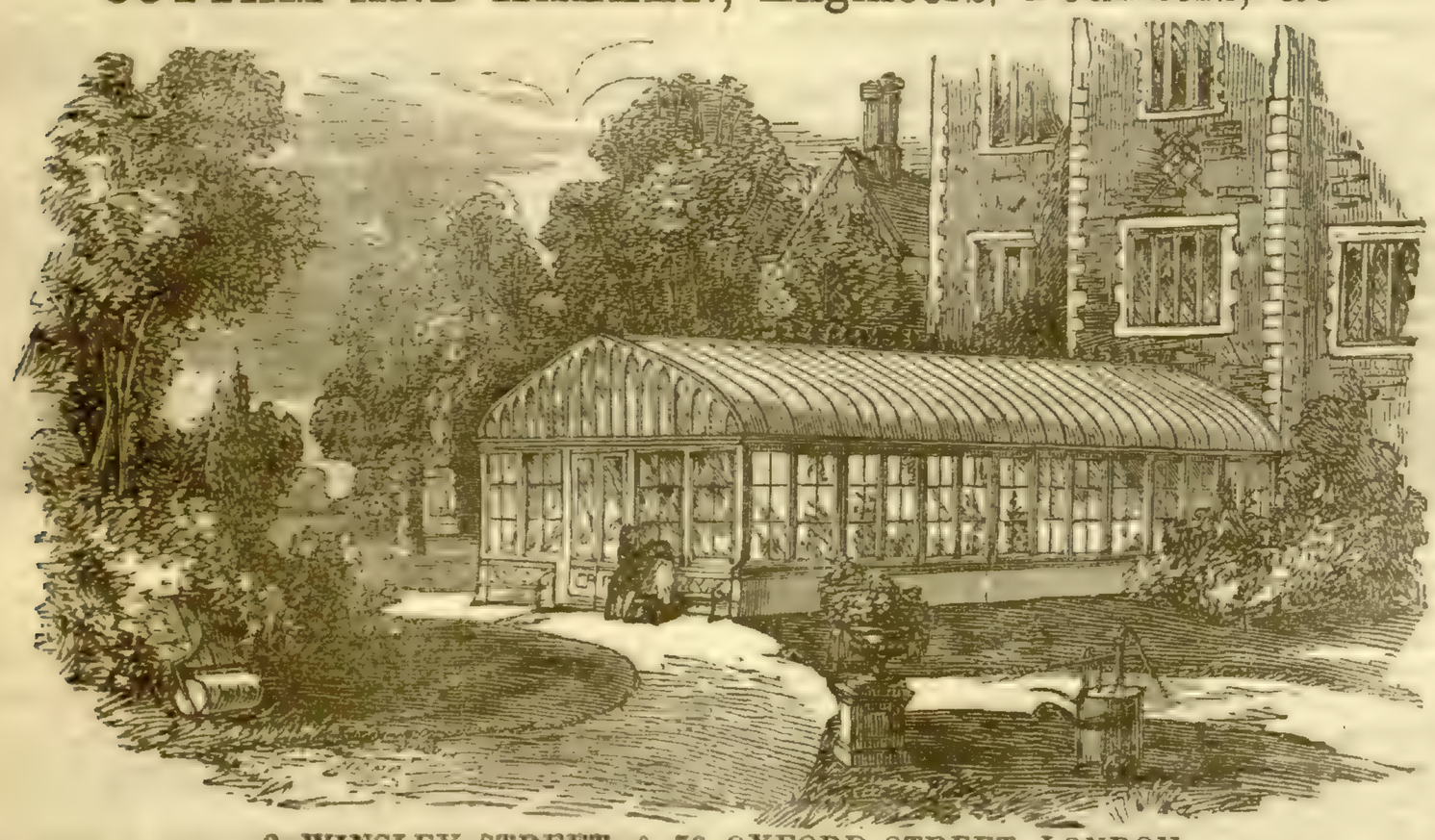

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8½	"	6½	"	9	"	7	...	...	13 6
9½	"	7½	"	10	"	8	...	...	13 6
10½	"	8½	"	11	"	9	...	...	14 0
12	"	9	"	13	"	9	...	...	14 0
10	"	10	"	10½	"	10½	...	...	14 0
11	"	10	"	11½	"	10½	...	...	14 0
11	"	11	"	11½	"	11½	...	...	14 0
12	"	11	"	12½	"	11½	...	...	14 0
13	"	11	"	13½	"	11½	...	...	14 0
13	"	12	"	13½	"	12½	...	...	16 0
13½	"	13½	"	14½	"	13½	...	...	16 0
15½	"	13½	...	...	...	...	...	...	16 0

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8 "	2 9	"	4 0	14 "	10 0	"	12 6
9 "	3 3	"	5 0	15 "	14 0	"	17 0
10 "	4 0	"	6 0	16 "	18 6	"	22 0
11 "	4 0	"	7 0				

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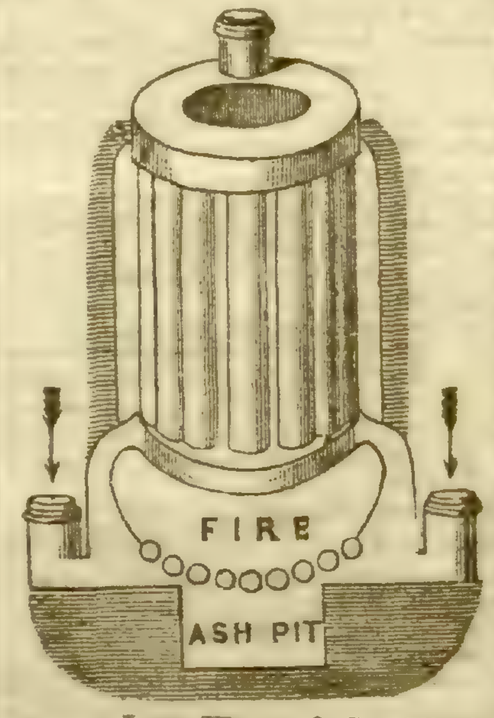
All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. John Weeks & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "One Boiler System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to one boiler. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. Weeks & Co.'s system of heating by hot water. He says:

"*I am more than satisfied with the extraordinary results of what* Messrs. John Weeks & Co. *have done for me in heating a great number of our hot-houses from* one boiler. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laidout winter garden.*"

Messrs. John Weeks & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their one boiler system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by one boiler, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

John Weeks & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

John Weeks & Co., King's Road, Chelsea.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.

JAMES WATTS, Hothouse Builder, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility Gentry, and the Trade, in most of the counties in England.

NEW EARLY MARROW PEAS. Harrison's Glory (blue) & Harrison's Perfection (white.)—These extraordinary Peas, which are nearly similar in habit, are as early as Double-blossomed Frame, about 3 feet in height, full of large pods which cluster from the bottom to the top of the haulm, and are equal in flavour to Knight's Marrow. Samples of the haulm may be seen at the following firms in London, of whom only they can be had, in quart packets at 5s. each:—

Batt, Rutley, & Silverlock, 412, Strand.
Beck, Henderson, & Child, Middle Wharf, Adelphi.
Hurst & M'Mullen, 6, Leadenhall Street.
Minier, Nash, & Nash, 63, Strand.
Noble, Cooper, & Bolton, 152, Fleet Street.
Jacob Wrench & Sons, 39, King William Street, City.

WATERER'S AMERICAN PLANTS.—A new DESCRIPTIVE CATALOGUE is now published of the celebrated Collection of hardy Scarlet and other Rhododendrons, as exhibited by John Waterer at the Royal Botanic Gardens, Regent's Park; it will be found to contain a few practical observations on their successful management, and will be forwarded on application by enclosing two stamps for postage. Apart from its enumeration of the most popular American Plants in cultivation, a List of choice Coniferæ will be seen, embracing the latest importations of this fine and hardy tribe of Plants.

J. W. has now the pleasure to offer in large quantities, and of all heights, the following selection of CONIFERS, with the remark that they are all now growing in the open ground, are bushy and handsome as can be desired, and have been transplanted each succeeding spring, whereby no risk can be encountered in their removal from the nursery:—Araucaria imbricata, Cryptomeria japonica; Pinus Douglasi, Cembra, excelsa, Lambertiana, insignis, Jefferyana, Beardsleyi, tuberculata, &c.; Cedrus Deodara, Lebanon, and Africana; Wellingtonia gigantea, Cupressus, Juniperus, Taxus, Thuja, &c.

☞ The attention of gentlemen, public companies, and others engaged in planting, is especially directed to the foregoing; indeed, all intending planters would be well repaid by a visit to inspect our stock, as much may be seen which of necessity cannot be given within the limits of an advertisement.

The Nursery is easily reached by railway, being near the Farnborough Station, South-Western Railway, and Blackwater on the South-Eastern Railway.

The American Nursery, Bagshot, Surrey.

WATERER AND GODFREY respectfully invite the attention of parties engaged in Planting to their fine Stock of the following HARDY ORNAMENTAL TREES, &c.

Araucaria imbricata, 2, 3, 4, 5, 6, 7, and 8 feet high, in quantities, all stocky well grown plants; the larger sizes especially it would be difficult to match.
Cedrus Deodara, 1½, 2, 3, 4, and 5 feet, by the thousand; do. a fine lot of larger, 6, 7, and 8 feet; do. some magnificent Trees, 10 to 15 feet. These are all in a famous condition for Transplanting, having been annually removed.
Cedars of Lebanon, 3, 4, 5, and 6 feet; do. a few splendid Trees, 10 and 12 feet.
Cedars Red Virginian, 5 to 8 feet.
Cedars, variegated white, 2, 3, and 4 feet, one of the handsomest variegated plants we know. We have a large stock. It is extensively planted at Elvaston Castle.
Cryptomeria japonica, fine plants, 4 to 7 feet.
Cupressus macrocarpa or Lambertiana, 3, 4, 5, 6, 7, and 8 feet. Nothing can be handsomer than some of the specimens of this fine hardy plant.
Juniper, Chinese, 2, 3, 4, and 5 feet; a fine lot of large plants, 6 to 8 feet.
Do. Irish, upright, 3, 4, 5, and 6 feet; do. larger, up to 8 and 10 feet. Our stock of the two last mentioned Junipers we believe to be quite unequalled, the Irish especially; the larger sizes are perfect columns.
Do. recurva, 3, 4, 5, up to 8 feet.
Do. hispanica or thurifera, 2, 3, and 4 feet.
Abies Douglasi, 2, 3, and 4 feet. A fine lot of large and very handsome plants, 7, 8, 10, and 12 feet.
Picea nobilis, several hundreds of nice plants, 1½ to 2 feet, well grown, and with good lead. None are grafted. A few taller specimens up to 6 feet.
Do. Nordmanniana, a large quantity of remarkably handsome plants, 1½, 2, 3, and 4 feet. Nothing can exceed the vigour of these plants, and all from seed.
Do. Pinsapo, magnificent plants, 4 to 7 feet high, in perfect health.
Pinus insignis, 1½ to 3 feet; a few good specimens up to 7 feet.
" Lambertiana, from seed, 4, 5, and 6 feet.
" Cembra, 3, 4, 5, up to 10 feet.
" Montezumæ, fine plants, 4 and 5 feet.
" macrocarpa, 2 and 3 feet, from seed.
Weeping Larch, clean, stems good, heads 7 feet high.

The following 10 varieties form a very singular group. They are of dwarf habits; the well known Abies Clanbrasiliana may be taken as the type of the whole. We believe our collection to be quite unique, and, we may add, most interesting.

Pinus strobus pumila (the dwarf Weymouth).
" sylvestris pumila (the dwarf Scotch).

Abies Clanbrasiliana	Abies pumila	All dwarf varieties of the Spruce Fir.
" compacta	" diffusa	
" pygmæa	" Gregori	

Picea pectinata pygmæa (the dwarf Silver Fir), Hudsoni.
Yew, common English, 3, 4, 5, 6, and 7 feet, in large quantities.
Do. upright, Irish, 4, 5, 6, and 7 feet; some splendid plants, 8 to 12 feet.
Do. Dovaston or Weeping, a great many fine plants, worked on straight stems, 7, 8, and 10 feet high, with good heads.
Do. adpressa, 2 and 3 feet.
Do. do., worked on common Yew, as standards.
Do. gold striped, 1½ to 2 feet, by the thousand.
Do. do., a splendid lot of plants, 4 to 6 feet.
Do. do., worked as standards on the common Yew, 8 to 10 ft. high.
Do. do., worked on Irish Yews, 6, 7, and 8 feet high.
Do. elegantissima, or new gold striped; a large quantity, 1½ to 2½ feet, and also worked as standards on the common and Irish Yews. We may safely assert our stock of Golden Yews is unsurpassed.
Do. yellow berried (true), very beautiful when in fruit as we have it, 1½ to 3 feet.
Libocedrus chilensis, 2 to 3 feet, very handsome and bushy.
Thuja Wareana, fine bushes, 3, 4, 5, 6, and 8 feet. This is one of the most useful, and, at the same time, ornamental hardy plants we possess.
Do. American, for hedges, doubtless the very best, 4, 5, and 6 feet.
Do. aurea, or Golden Arbor-vitæ. This plant originated at this Nursery; it has now, as it deserves, become a universal favourite. Our stock of it enables us to offer a choice of many hundred fine specimens, from 1½ to 3 and 4 feet high, and as much through—in fact, perfect globes.
Wellingtonia gigantea, a few of the finest plants in the country, being near 1½ feet high, and as much wide.
Hollies variegated, by the thousand, 2, 3, and 4 feet high. Some splendid Plants, 10 to 15 feet high.

We may here remark with reference to the large specimens alluded to in this Advertisement that every one of them is in a condition to transplant, and travel any distance with perfect safety. They have one and all been annually removed in our Nursery, and in soliciting a personal inspection of our stock, we believe we are justified in stating it offers a choice which is to be found in but few establishments of its kind in this country.

The Nursery may be reached in 40 minutes by Train from the Waterloo Station; and the South Western Railway Company having a Branch on to the North Western, enables us to send plants to all parts, in trucks throughout, without packing and other extensive additions.

Knap Hill Nursery, Woking, Surrey.

DENYER'S NEW PROLIFIC GREEN MARROW PEA.—A fine variety for succeeding the first early Crops. Very hardy, and one of the greatest cropping Peas in cultivation. It obtained the first prize at the Hastings and also at the St. Leonard's Horticultural Exhibitions.

From the Dean of Battle.—"The sample of Peas you sent me surpasses in beauty of colour and richness of flavour any that I have ever met with."

From Mr. Waters, Gardener to Lady Webster, Battle Abbey.—"I have examined the growing stock of your new Pea, and find it crops abundantly, the pods being a good length, very broad, and well filled. It is also a fine flavoured and beautifully green-coloured Pea."

From Mr. Bunyard, Maidstone.—"My opinion of the new Pea is, that it is a distinct sort, a good cropper, and for colour I do not know its equal."

From Mr. Parks, late Nurseryman and Seedsman, Dartford, Kent.—"I am much pleased with your new Pea. It certainly is a very fine cropper. The Peas are large, and the pods completely filled. It will when known become a superior Pea for market."

Price 3s. 6d. per quart. Post Office orders payable to William Denyer, Seedsman, Battle, Sussex. May also be had through the London and other seedsmen.

WALTON NURSERY, LIVERPOOL.

To Noblemen and Gentlemen Planting New Pleasure Grounds, or Improving Parks or Drives, and to Companies Planting Public Parks or Cemeteries.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from one to six feet.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

WEST OF ENGLAND HORTICULTURAL AND AGRICULTURAL SEED ESTABLISHMENT.—*The* Proprietors *have during the past summer considerably enlarged their Offices and Seed Warehouses at a considerable expense, so as to be enabled to execute all orders with regularity and dispatch.*

With increased exertion, redoubled energies, and more assistants, they hope to give the greatest satisfaction to all who honour them with commands.

William E. Rendle & Co., Seed Merchants, Plymouth.

RENDLE'S PRICE CURRENT FOR 1856.

RENDLE'S PRICE CURRENT AND GARDENER'S DIRECTORY FOR 1856, *is just published by Messrs. Simpkin & Marshall and can be obtained through any Bookseller in the United Kingdom, or from the Proprietors,* William E. Rendle & Co., *Seed Merchants, Plymouth, price Sixpence, or free to purchasers of Seeds.*

The present Edition is printed the same size as the "Florist," and will contain 120 pages, and be found even more complete than the former Editions.

It contains a valuable Descriptive List of KITCHEN GARDEN SEEDS, with prices affixed to every article, and in addition to these descriptions there are short and concise cultural remarks for every kind of *Vegetable*, pointing out the best varieties for *Early, Medium*, and *General Crops*.

The List of FLOWER SEEDS has been much improved, and contains descriptions of all the leading sorts, with directions for sowing seeds, and other useful practical remarks; and in this department Mr. Errington has written expressly for the work an original article on ANNUAL AND OTHER FLOWER SEEDS, which will be read with much interest.

The Calendar of Operations for the whole of the year has also been revised, and will be found even more useful than the one in the last edition.

The Almanack is now a prominent feature of the "Price Current," and a page is devoted to every month.

Full detailed lists are given of the quantities and descriptions of seeds sent in the "Collections of Seeds."

The following Original Articles *have also been contributed, for which the Proprietors have to return their sincere acknowledgements.*

FLORICULTURE. By Mr. John Edwards, the Secretary to the National Floricultural Society, and Editor of the "National Garden Almanack."
VEGETABLE FORCING. By Mr. Robert Errington, Gardener to Sir P. Egerton, Oulton Park, Tarporley.
RENDLE'S TANK SYSTEM OF HEATING. By Mr. John Dobson, late Gardener to Mr. Edward Beck, Isleworth.
GRAPE DISEASE AND MILDEW. By Mr. James Cuthill, of Camberwell.
ON NATURAL AND ARTIFICIAL MANURES. By Mr. J. B. Lawes, the celebrated Agricultural Chemist.
ON THE PORTABLE AND MINIATURE FRUIT GARDEN. By Mr. Niven, of the Garden Farm, Drumcondra, near Dublin.
ON THE CULTIVATION OF THE CUCUMBER. By Mr. Joseph Hamilton, Author of the "Hamiltonian System of Pine Growing."
LIST OF A FEW OF THE BEST FRUIT TREES GROWN AT WOOLATON, the seat of Lord Middleton. By Mr. J. Haythorn.
MIGNONETTE, CULTURE OF. By Mr. William Melville, Gardener to the Earl of Roseberry, Dalmeny Park.
NEW AND ECONOMICAL MODE OF HEATING GREENHOUSES, ORCHARD HOUSES, &c. By Mr. Niven, Garden Farm, Drumcondra.
ROTATION OF CROPS. By Mr. Robert Errington.
SELECTION OF KITCHEN GARDEN SEEDS. From the "Scottish Gardener and Magazine of Horticulture and Floriculture."
THE OSAGE ORANGE. Introduction and Cultivation of.

In addition to the above will be given short directions for the CULTIVATION of FLOWER SEEDS, with modes of TESTING their GROWING QUALITIES. Also a descriptive list of all the newest introductions for the present year.

A Description of the CEDRUS DEODARA, with an engraving kindly lent by the proprietors of the "Florist;" and a few remarks on the Dioscorea Batatas, by Samuel Curtis, Esq., the proprietor of Curtis's "Botanical Magazine."

Copies of the above edition can now be obtained through any bookseller in town or country, or from the Proprietors, price 6d. each, or free to all purchasers of seeds.

WILLIAM E. RENDLE & CO.,
Seed Merchants, Plymouth.
Established 1786.

NEW ROSES.

J. AND J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to offer fine Standards of the following beautiful NEW ROSES:—

	s.	d.		s.	d.
Belle Lyonnais	5s.	0d.	Vicomtesse Laure de Gironde	5	0
Comtesse d'Orleans ...	5	0	Madame Masson	7	6
" Vaillant	5	0	" Theodore	5	0
General Jacqueminot ...	3	6	" Cambacères	5	0
Gloire de France	3	0	" Vidot	7	6
" de Vitry	5	0	" Hector Jacquin ...	3	6
Madame Guinoiseau ...	3	6	Lord Raglan	5	0
Mademoiselle Aline Gibbon	3	0	Madame Place	5	0
Prince de la Moskowa...	5	0	Panaché d'Orleans	5	0
Sir John Franklin ...	3	6	Prince Leon	3	6
Souvenir de Madame Lille	3	6	Triomphe de Paris	3	6
			Gloire de Dijon (Tea) ...	3	6

Melanie Willermoz (Tea) ... ... 3s. 6d.

For a full description of the above see Catalogue, which may be had on application.—Dec. 15.

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1856 *is now published, and can be obtained through any Bookseller in town or country, price 6d., or from the Proprietors,*

William Edgcumbe Rendle & Co., Union Road, Plymouth.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 15, 1855.

Now that curiosity is excited by the discussion respecting marvellous cases of prolonged vitality in seeds, showers of land shells, and the like, the following abridgment of a paper by Mons. Duméril in a late number of the Comptes rendus will be read with interest, and may give rise to useful reflection.

It appears that a stone mason in the Pas de Calais, at work upon a cornice formed of calcareous stone, made what he thought a curious discovery. While hammering away at the cornice his chisel struck a place softer than the rest and chipped off a fragment of the stone, which laid open a small hole, one half of which fell to the ground and was lost, but the other remained undisturbed. In the space which remained he observed a blackish body speckled with white, looking like a fly which seemed as if enveloped in cobweb or the silky matter of a caterpillar; the whole of this was imprisoned in a true shell. The body was carefully removed and placed on a piece of glass. At first it was taken for the dead remains of some organic body. But presently it exhibited signs of life; wings, the stumps only of which had been visible, expanded by degrees; and the black body, marked by some cross bands of dirty white, became yellow here and there, especially on the thorax and upper posterior portion of the body. It appears that the observation of these phænomena extended over a period of 25 days, when Dr. Danvin, a medical man on the spot, communicated them to the Academy of Sciences, along with a very circumstantial account of the nature of the limestone, which had been quarried above a year before, and worked up (*mise en œuvre*) 18 or 20 days afterwards.

"It is curious," remarked the learned gentleman, "to find vitality thus preserved in the midst of a block of limestone raised from 16 or 17 yards below the surface of the earth. Fortunately the hole in which the living insect was found was far enough below the surface to secure it from destruction by the frost of last winter." And he went on to compare this occurrence with seeds which have germinated after many years, toads found alive in stones, and the like.

When the insect, carefully preserved in a vial, in the midst of cotton wool, was shown to M. Duméril, he recognised it as the common *Odynerus* (or *Vespa*) *muraria*. This and the allied species burrow in sand and clay, or take possession of cavities elsewhere, where they gather together the bodies of spiders and other soft-bodied social insects; although in their perfect state they live only upon the honey of flowers. In the midst of this heap of soft-skinned victims the grub of the wasp is hatched. Let us hope, adds M. Duméril, that the insects thus assiduously collected as food for the young wasp are either dead or rendered insensible before being carried to the hole inhabited by the footless creature eventually to be hatched as a winged insect. "Often I have seen," he adds, "such wasps suddenly strike against the web of a spider in order to bring him out by the unexpected shock, when they seize him by the back, pierce him with their sting, snip off his legs, which remain sticking to the web, and immediately carry him away through the air with a velocity perfectly astonishing." Such are the habits of these solitary wasps.

It is certain that in all cases an egg is first deposited by them in a hole secured against external injury, that in this place the grub finds all the nourishment it wants as soon as it is hatched, and that the parents, before abandoning their young and the food they have stored up for it, carefully close the opening with a solid cement composed of sand or pieces of earth held together by saliva which they

throw up and employ in so smoothing the place as to render it invisible to their many natural enemies.

The grub, furnished with nothing but its jaws, for legs it has none, finds itself in the midst of live animal matter suited for its subsistence, consisting of the mutilated and paralysed bodies of spiders, caterpillars, and the soft larvæ of other insects, which form an abundant larder of fresh meat. Amidst this abundance it undergoes its transformations, changes to a chrysalis, and finally emerges as a perfect wasp, exactly like its provident parents, which, as we have seen, take such good care of it.

Here, then, we have a natural explanation, and let us add a beautiful one, of Dr. Danvin's marvel, which, like many others, when examined by men of sufficient intelligence, turns out to be a natural fact, the whole history of which was perfectly well known to science.

Some weeks since we reported fully upon the experiments made in this country with the Chinese Yam. A short statement by M. Naudin enables us to show what the French have this year accomplished.

We are informed that sets planted in 1854 were raised in the beginning of last November. They had therefore passed the severe winter of 1854-5 in the open ground, without protection, and sustained no injury from the 22 degrees of frost (10° Fahr.) experienced in Paris last January. The question of the hardiness of the plant is thus reduced to certainty.

Six plants taken up on the 2d Nov. and weighed immediately, gave the following result:—

No. 1	... ...	0.340 kilos.
2	... ...	0.260 „
3	... ...	1.260 „
4	... ...	1.640 „
5	... ...	1.535 „
6	... ...	1.500 „
		6.535 „

or above 13¾ lbs., which is equal to rather more than 2 lbs. 4 oz. each root on an average.

The roots were some forked some undivided, owing, as it would seem, to the former having met with stones in the ground; on an average, they were nearly 19 inches long. For the most part they were longer than those grown in 1854.

Experience has again shown that the Chinese Yam should be planted very close. Six or seven inches from plant to plant is enough. They are so long, and form so few side roots that it is more important to get as many of them as possible than to grow them to a great size. Roots 3 or 4 lbs. in weight are by no means the most profitable. They need not be bigger than Carrots, and require no more room than that root. It is however necessary to have them on good high ridges for the sake of getting them up without trouble.

Such seem to be the conclusions of the French, and they coincide sufficiently with our own to render the proper cultivation of this plant no longer a matter of uncertainty. That it is quite hardy seems clear.

Horticulture has sustained a loss by the death of Mons. Pescatore, of Paris. Having some years since acquired the rich collection of Orchids formed by Mons. Quesnel, of Havre, he rapidly increased it till it became the most important in France, if not on the Continent. It was from his Chateau de la Celle de Saint Cloud that were drawn those continued supplies of rare plants which gave so much interest to the late French Exhibition; and to his munificent patronage the Pescatorea, a splendid work named after him, owed its existence. We regret to report that M. Pescatore died the other day in Paris at his house in the Rue de St. Georges, after a long and painful illness.

New Plants.

154. Tecoma velutina.

Among the supposed varieties of Tecoma stans, enumerated by De Candolle, is one called *velutina*, which is evidently the plant now before us. That learned botanist had obtained it from the garden of Parma, but was uncertain whether to refer it to *T. stans* or *mollis*. If the latter has nearly entire leaves as is stated, then it must be different from this in which they are strongly serrated. From the former its soft downy leaves and much larger flowers separate it. Mr. Skinner, who presented its seeds to the Horticultural Society, informs us that it is called Bucaro, and is "one of the finest plants known in Guatemala. Its luxuriance is wonderful; it grows well with a temperature of 68°, but is finest when the thermometer ranges from 75° to 78°." It is certainly a plant of uncommon beauty. Associated with leaves like those of the Ash, but sometimes simple, sometimes ternate, and sometimes pinnate, are great terminal racemes of magnificent yellow flowers, in no respect inferior to those of an Allamanda. Add to this that although a shrub, it was in full flower in nine months from being sown. Mr. Skinner says that it blossoms in Guatemala from bottom to top, and during a large part of the year. Some hundreds of plants have been given away by the Horticultural Society.

ON SOME NEW VARIETIES OF THE SWEET POTATO (BATATAS EDULIS).

(Communicated by Colonel von Siebold).

The sweet Potato or Batatas was already known in the middle of the 16th century. It is a plant of ancient cultivation, originally proceeding from tropical countries. But it gradually overstepped their northern limits, penetrating into various lands of the temperate zone, and we find it cultivated in Carolina, in Japan, and China, in which two last named countries it entirely takes the place of our Potato. It succeeds perfectly within an annual isothermal line of 12° Reaumur (59° Fahrenheit); and northern Spain, the south of France, Italy, Greece, Rumelia, and the lands comprised in the parallel of Constantinople and Tiflis, would prove a second fatherland for it. The Batatas has long been cultivated in Portugal and Spain, and a considerable trade in it is carried on along the coast of Malaga. As a plant of ancient cultivation in a variety of climates, at a greater or less elevation above the sea and in very different soils, the Batatas have necessarily more or less improved. Varieties have been developed suited to warmer or colder climates, and the form and colour of the leaves, flowers, and tubers is, among the Batatas, as diversified as in the Potato itself, which has become gradually diffused over the whole world. Climatological circumstances, and the nature of the soil, have also had their influence on the quality and flavour of the root.

Hitherto we have only known in Europe a few kinds established in Spain and Portugal, and some Isle of France or Guadaloupe varieties, cultivated here and there in the south of France. Some gardeners of Paris and Rouen have raised from them tubers of considerable size and a good flavour. If in our colder climates the culture of the Batatas requires more care than that of the Potato, it is nevertheless well worth the trouble of raising it in our gardens, and in warmer regions it may be planted in the open fields with far more advantage than the Potato; for there the haulms and leaves, which may be cut down several times without injury to the tubers, afford an excellent forage; cattle, pigs, and horses willingly take to the Batatas haulm and grow fat upon it. In St. Domingo it is the chief food of domestic animals; and in Japan, where the arable land, so limited in extent for the overcrowded population, is taken up by the culture of grain and vegetables, the dense foliage of the Batatas is an indispensable fodder for cattle and horses. The young shoots and leaves may be used also as vegetables. The tubers may be eaten, like Potatoes, boiled, roasted, or fried in oil or butter, whilst the unripe roots may be preserved with sugar. Father Manuel Blanco, in his "Flora de Filipinas," says that the country people make of the Camotas (as the Batatas are there called), a kind of chocolate soup, and that the tubers are excellent when roasted before the fire. Parmentier, a member of the Institute of Paris, observes "Les Batatas, en un mot, peuvent se prêter à toutes les formes que le luxe de nos tables a imaginées." The saccharine principle of the Batatas promotes fermentation, and may be used for the preparation of spirituous liquors. The writer of these notes has daily eaten Batatas in Japan for several years; when boiled they are an excellent appendage to the delicious fruit of those regions, and if roasted they rival the best Italian Chesnuts. The Japanese kinds are distinguished by being very mealy, and, boiled in their skins, they burst like our best Potatoes. As as article of food they are all over Japan much more highly prized than the Yams (Dioscorea batatas and D. japonica), which do not boil so mealy and have a mawkish taste, like Scorzoneras and Jerusalem Artichokes.

After repeated attempts for many years, the writer at length succeeded, in the month of June of the present year, in receiving direct from Japan the best varieties of their Batatas, and in multiplying them in the horticultural establishment of Siebold and Co., at Leyden, with so much success, that already in the present autumn strong offsets can be supplied to botanical gardens, nurserymen, and amateur gardeners.

The best sorts of Batatas in Japan are—1, the Satsuma-imo, that is, the Batatas from the district of Satsuma; 2, the Aka-imo, or red skinned; 3, the Siro-imo, or white-skinned; aud 4, the Hanaboke-imo, or Quince-flower-coloured Batatas, that is, of the colour of the flowers of the Cydonia japonica. We now possess in our garden all these four kinds. For all countries which have an isothermal annual and July temperature with that of Japan, the introduction of these improved varieties will be as important as was once the introduction of the Potato from Peru into Europe. For such countries the culture of the Batatas will be more advantageous than that of the Potato, which, it is well known, does not succeed so well in hot climates. But also for climates of a lower annual temperature, say of 8° Reaum. (50° Fahrenheit), these improved sorts may be of great advantage in kitchen gardens. As there are other vegetables which we obtain earlier by sowing them in hot-beds and planting them out in the open air, so can we also prepare the Batatas in hot-beds for their open air cultivation. Experiments made with that view in the Jardin des Plantes at Paris in the end of last century, and latterly in the neighbourhood of New York, have been attended with success. But what has proved the best method is to make offsets from tubers planted very early in hot-beds or in heated plant-houses. For this purpose cuttings are taken from the young shoots and planted out in hot-beds, or in the open air if protected from cold and from the sun. One root will thus supply several hundred offsets. The causing the roots first to shoot in the hot-beds, and then to remove them to the open air, or the cutting up of the root itself, has proved less advantageous, as the abundance of fermenting matter in the roots causes them to rot very easily. Their multiplication by rooted cuttings has been found to be the surest and best method. They like a loose, rather sandy than clayey soil, and require strong manuring. In Japan the soil is manured with decayed fish, and the young plants are copiously watered with a liquid manure carefully prepared from vegetable and animal matter.

We thus recommend our Japanese Batatas to gardeners and agriculturists as a new vegetable; and if we encourage our correspondents in planting them we do it in the persuasion that the culture of the Batatas will be attended with as much advantage as that of other fine vegetables, such as Cauliflowers, Asparagus, Artichokes, &c., and that these our new Japanese kinds, although they may not in our climate form a substitute for the Potato, will nevertheless prove quite as nutritious, and a much more palatable article of food than the Chinese Yam (Dioscorea batatas) now so much recommended as a substitute for the Potato, and, we repeat, will supply our cooks with a most desirable material for made dishes.

PRECAUTIONS TO BE TAKEN IN REARING SEEDLING PEAR TREES.

To prevent confusion in a nursery of seedling fruits, and indeed in collections in general, it is advisable to direct the greatest attention to their cultivation with the view of bringing them into a bearing state before propagating them, or giving away grafts. If, when the period of bearing is at hand, the following characteristics of the tree are observed, viz., a straight, upright, substantial stem, not too tall, branches and shoots somewhat erect, forming, however, tolerably wide angles, a portion of them being furnished with spines and blunt spurs, some of which also appear on the stem and upper parts of the tree, there is a probability of the seedling proving good. If the fruit set well in spring, notwithstanding the frosts and vicissitudes of weather which occur at that season, and if from three to eight flowers of which the truss may be composed shall set as many fruits, there is a probability of its being both hardy and productive. The stalk should have a firm attachment to the spur, so that the fruit may not be readily blown off by the wind. The fruits should be of fine form and good size. Those formed on the stem will always be larger than those on small branches or slender elongated spurs, and will likewise prove of better quality. The fruits from the successive and final gatherings should be carefully marked, in order to ascertain the difference when they come to be tasted, and to discover their mean time of ripening. A single production of fruit and only one tasting are not sufficient for the proper determination of the quality of a variety and its mean period of ripening. Several successive crops in different kinds of soil are necessary in order to appreciate the fertility, quality, and the period of ripening of a new variety.

When in the first year of bearing, vigour, hardiness, and a certain degree of productiveness are observed in a seedling, and when the fruit fulfils the requisite conditions as regards size and flavour (these will be spoken of further on), it is advisable to graft the variety on the Pear stock for dwarfs and standards, and on Quince for Quenouilles.

In order to preserve in the seedling all the qualities above enumerated, it is necessary to take vigorous cuttings (as we have proved in former communications) from the upper part of the seedling tree, and from the shoots nearest the places where fruits were borne.

A graft worked on a strong Pear stock at the height of 6 or 7 feet, and properly treated, will be in a favourable condition for exhibiting in the third, or at all events in the fourth year after grafting, the character of the seedling variety. Nevertheless, the properties, and more especially the form of the fruit, cannot be ascertained with all that degree of certainty which is desirable until the grafted tree, well established and vigorous, in good soil, shall be subjected to a proper system of pruning.

A tall-stemmed Pear stock before being grafted, will have nearly arrived at the age at which it would bear fruit, of some sort, at the part where it is to be worked with a graft taken from that part of the seedling where fruits were first produced. This being the case, it is easy to perceive that the graft will produce wood on which fruit-bearing spurs will be formed in a few years, and that fruit will be produced of perfect form, and as excellent in point of flavour as those of the seedling tree.

A bud inserted near the ground in a Quince stock—if it take, for some varieties do not succeed on that stock—will likewise fruit in the third or fourth year after being worked. On the Quince, the wood of a variety of Pear may acquire a different tinge, but the form of the fruit is generally the same. Occasionally, however, the fruit of some varieties worked on the Quince becomes larger, is produced in greater abundance, and acquires a richer flavour than that grown on the seedling tree. But these are exceptions to the general rule, and may

perhaps be partly attributed to the sort of Quince, for of this there are several varieties, the influence of which on the graft is as varied and decided as that of different varieties of the wild Pear employed for stock. In general but little attention is paid to this circumstance, which, however, is the cause of many of the failures which occur in cultivation, and to an extent which, we think, requires to be noticed in a special article.

The bud, or graft, placed on the lower part of a wilding intended to form a dwarf pyramid, although taken from the upper part of the seedling, must undergo the influence of the young stock on which it is worked, and must produce wood for five or six years before its organs of fructification can be formed. During this interval there is time to ascertain whether the tree is inclined to become a fine dwarf pyramid rather than a tall one. At the end of three or four years we may certainly find out from the more or less vigorous growth of the variety whether it should be classed amongst the sorts which should be trained against a wall, rather than as a pyramid, or whether from its strong growth and hardiness it is adapted for a standard, and for being cultivated on a large scale for orchards.

From what has been stated, it appears that from the time when the tree first comes into bearing till that at which a description of the tree and its fruit can be correctly and definitely made, a period of ten years must elapse; and before a sufficient number of healthy and vigorous trees can be sent out, another interval of five years must be allowed, making altogether 15 years from the time of coming into bearing. Until then, only the raiser and a few privileged friends should taste the fruits. Before a variety sent out to the public can be generally distributed, tried in different localities and in various seasons, and its merits generally ascertained, a period of 20 years will have elapsed from the time of its first fruiting. It was so with the Passe Colmar, Beurré d'Hardenpont [Glou Morceau], Beurré Rance, Urbaniste, Beurré Diel, Beurré Bosc, Marie Louise, Conseiller de la Cour, Josephine de Malines, Soldat Laboureur, Ne plus Meuris, and several others of a more or less recent origin. Such will also be the case with several more modern varieties of which the qualities have been ascertained by competent judges, from several years' production. It is much better, we think, to rely upon the results of careful examinations than to adopt hasty conclusions, not founded on established facts. *J. De Jonghe, Brussels.*

VEGETABLE PATHOLOGY.—No. XCIX.

398. Sphrigosis * (*Rankness*). — That different varieties of the same species possess very different degrees of fertility is a fact universally recognised by cultivators, nor is it less true that different individuals of the same variety, especially where the plants have been raised from seed, exhibit similar peculiarities. Some plants of the Stone Pine, for instance, as stated by Ré, which produces a favourite fruit in Italy, are distinguished by a peculiar green, and by their almost complete unproductiveness. In our more common fruit trees these tendencies may be much amended by adapting the stock properly to the variety, and a further check may be given to over luxuriance by judicious root pruning. Sometimes, however, the evil is of a different description, and depends upon the excessive rankness of particular shoots which increase at the expense of others, are indisposed to bear and destroy that symmetry which is necessary to insure that perfect exposure of the fruit to light and air which is necessary to insure complete success, and which is justly the pride of the cultivator. Where this arises from the excessive development of particular buds, much may be done by the root pruning mentioned above, and by judicious shortening or removal of the shoots, accompanied by timely disbudding; but these rank shoots feeding at the expense of others, and known under various names, as robbers, branches gourmandes, wasserreiser, succhione, &c., do not always arise from the development of normal axillary buds, but from adventitious buds, and in such cases the evil lies still deeper, because they often differ in quality from the normal branches. On the Mulberry tree, for instance, they exhibit sometimes digitate leaves while every other leaf is simple; in other cases they are variegated, while in others they produce smooth branches where the mother plants have thorns, or branches more highly thorny than the matrix.† Such branches besides are naturally inclined to sterility, and bear sometimes a degenerate fruit. They are, in fact, one of the modes in which variations occur in cultivated plants, and sometimes afford objects of cultivation endowed with properties which make their perpetuation useful. What it is which gives them such an extreme degree of luxuriance it may be difficult to say, but their analogy with shoots produced from trees which have been headed down indicates some accidental increase of nutriment at the point of origin of the mother bud, and it is evident that as under ordinary circumstances multitudes of little twigs are checked in their growth, and ultimately perish in consequence of the superior development of neighbouring branches, the production of such shoots, especially where they are numerous, must have a tendency to weaken the more normal portions. It is obvious that the most certain remedy will be to cut off such shoots to their very base, and to disbud every new germ which arises from the new bark which covers the wound, for similar shoots often arise at this point, and if the disposition still continues severe root pruning and abstinence of all manure must be adopted. As the most useful varieties of trees and vegetables arise in general from constitutional debility, it is natural to suppose that where shoots endowed with peculiar properties arise from the over-nutrition of some latent bud, there will be a tendency to revert more or less to the original condition of the plant from whence the variety was derived.

399. Where the stock is naturally more vigorous than the graft, and at the same time there is a natural tendency in it to throw out suckers, adventitious buds are often developed in the stem and roots which, if not timely removed are highly prejudicial to the graft, and may ultimately induce its decay. Though it may be impossible always to overcome this, it is under careless cultivation alone that any real evil can arise. *M. J. B.*

* From σφιγγαω, I am of vigorous growth.

† Meyen believes that Gleditschia macracantha and G. ferox have arisen in this way from G. triacantha. It is, however, believed that these plants are of Chinese and not of American extraction. Both are probably forms of G. sinensis.

TRADE MEMORANDA.

We have often warned the public against the strangers who annually visit this country to sell their spurious horticultural produce; but the warning is in vain. People are too much enamoured of what is strange and novel, and low priced, to resist the temptation to buy. Curiosity, moreover, impels them to part with their coin, although they cannot but feel that it goes in a hopeless venture. Nevertheless, we warn them once more to take care of their pockets, and not to believe one word of the pompous announcements which we find are again resounding from Southampton to Edinburgh.

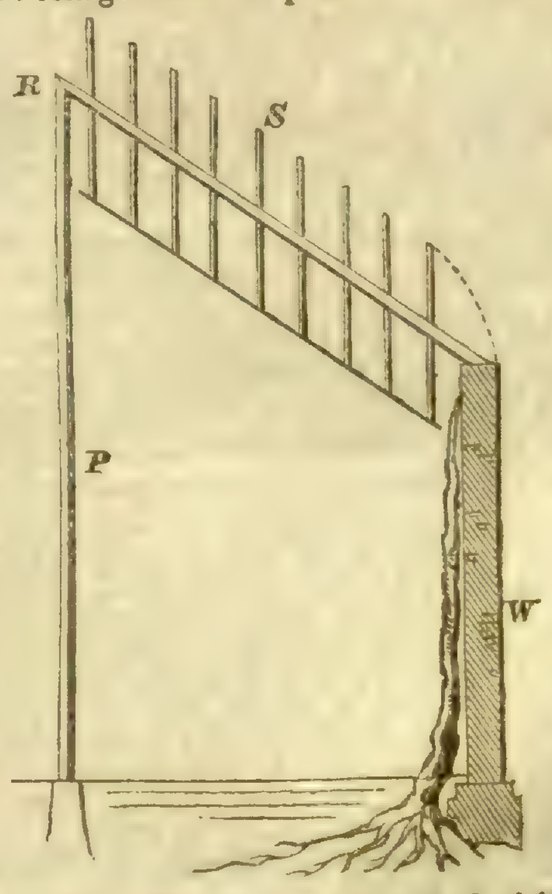
Home Correspondence.

Comparative Value of the Timber of our two Native Oaks.—In common with every one connected with foresting, I am glad to see that this vexed question is at length to be settled. Have you happened to notice that in Dr. Th. Hartig's work on "Forest Trees," the details are given of an experiment to ascertain the weight of the timber of the two kinds? The results of that trial go far to confirm what you have so often stated regarding the superiority of the white or stalkless-fruited Oak. A tree of each kind was selected of the same age, 130 years, and growing near one another in a close wood on a strong loamy soil with clayey subsoil. The (Rhenish) cubic foot weighed in pounds:—

	White or stalkless-fruited.		Red or stalked-fruited.	
	Fresh.	Thoroughly dried.	Fresh.	Thoroughly dried.
Heart wood from lower end of trunk	63.2	46.4	62.0	39.4
Sap wood from lower end of trunk	57.6	38.7	56.6	33.4
Heart & sap wood from upper end of trunk ...	58.4	44.3	58.0	40.3
Branch wood, 8 in. diam	65.0	42.0	53.5	36.0
" " 5 in. diam	60.5	39.0	55.1	36.8
" " 3 in. diam	58.86	38.4	54.5	32.0

The bark was removed in all cases, and the wood, after being split up thin, was baked in a heat of 60° Reaum. In 1851 some one asked in the *Chronicle* the meaning of the word Durmast: if a reply was given to that question, I have failed to notice it. Is it the name of a place, or is it a descriptive word applied only to the Oak? The last half of the word is apparently Saxon, and mayhap the common German word, dürr, has something to do with the first half. *W. S., Kirkaldy.*

Protection of Wall-fruit Borders.—It is perhaps as desirable that the roots of fruit trees should be shielded from the chilling rains of autumn as that the nascent bloom and foliage should be protected from the nipping



frosts of spring. The prospect of a good yield in the following year is generally admitted to depend much on the wood and roots being well ripened, and early put to rest; but in cold and wet autumns this can hardly be the case, and consequently it has been observed that the crop of the year following such a season is usually a meagre one, and in some cases perhaps an entire failure. Indeed, it may be doubted whether in the majority of autumns in this uncertain climate the roots of fruit trees, at least the more delicate kinds, are so well ripened as they might be; and hence the average produce, one year with another, may be considerably less to say nothing on the point of quality or flavour, than the trees would be capable of yielding if they had the advantage of unchangeably dry autumns to ripen the wood and roots. Would not, moreover, the result and consequence of the wood and buds being more perfectly matured and hardened in autumn be the production of more vigorous blossoms in spring; more certain of setting; more capable of resisting the action of frost, and less susceptible of blight from that or any other cause? But how is protection from unseasonable moisture to be obtained? or, restricting the question to wall-fruit trees, how are the borders to be protected from rain at such times or seasons as it may be desirable that they should be, without depriving the trees of that beneficial element at other times, when it is necessary to their growth and healthful vigour? I think the accompanying plan is calculated to answer this end, and might with advantage be applied to walls having a south, south-west, or south-east aspect, should the expense not be found an obstacle to its adoption. Let W represent the section of the wall facing the south, with the fruit tree trained against it; P is one of a series of posts fixed along the border, at such distance from the wall as it may be desired to protect the roots from rain; R is one of a series of thin rafters or plates of wood fixed in the top of the wall, at the distance of 4, 5, or 6 feet from each other, as may be found most convenient, and fastened in front into the plate or beam that connects the tops of the posts. The axes or pivots of the Venetian boards or shutters S work in these plates, having a motion in the direction indicated by the dotted quadrant; by which means, when shut, they overlap each other in the direction of the wall, and form a close roof, carrying off the rain to the back of the wall. The advantages of this mode of protection are—that, being a permanent structure, not requiring constant removal, much labour is saved; neatly executed and painted, instead of being a deformity, it may be rendered rather an ornamental appendage to a garden—rising in front, it admits light, sun, and air freely to every part of the wall and border; rain may be admitted to, or excluded from, the border, or from any particular portion of it, according as it may be desired; and while undue and excessive moisture is guarded against, the border enjoys the full influence of sun and air; the Venetians being closed, a greater amount of heat may be concentrated on the wall and border and made conducive to the ripening of the fruit and wood; and lastly, by this means protection may be afforded to the spring blossom. *J. H. H.*

Agaricus cepæstipes.—For the purpose of keeping a Vinery damp in summer, I have built on the floor, with loose bricks, square places which are filled with dead leaves, and soaked with water from time to time. It is about three years since the leaves were renewed. The other day I saw, peeping from among the bricks, just on a level with the surface of the leaves, a white Agaric, which expanded into a decided specimen of Agaricus cepæstipes. On referring to Berkeley's description, I see no habitat but "bark beds in stoves." This raises a curious question—Where did my Mushroom come from? I have no bark bed nor stove within a long distance of the shrubbery, from which these leaves were swept. They have also been three or four years in the Vinery without any appearance of this Agaric. Is it possible that if the spores had germinated in the open air, instead of under glass, they might have produced the allied forms known as Agaricus procerus or cristatus? Can we conceive a plant, whose original parent is as old as the creation, inhabiting only artificial glass houses? These are questions easier asked than answered, but still deserving consideration. *G. S.*

Heating.—Your "Constant Reader, Bentley," at page 806, cannot do much with his hot plate, seeing that the utmost effect derivable is only equivalent to 6 feet in length of 4-inch pipe of the same temperature. I propose a very cheap experiment: let him get a sheet iron plate the same area as his chamber, say 30 inches by 30 inches, have 4 or 6 inches of its depth turned upwards in front; lay four half-bricks on his present hot plate, and then slide in this sheet iron plate to within 6 inches or 1 foot of the back of his chamber. My idea is that of splitting his 4-inch aperture into two of 2 inches each. The air of his house would go in at the under side of this new sheet, getting warmed in its passage, and return by the upper channel into the house. I believe this very inexpensive experiment would give him all he could get, but let him not expect too great results; he cannot have more than what adding 3 feet to his flow return pipe would effect. If he tries this will he state the result? *Granta.*

The Osborne Shells.—I am sorry that Mr. Winchester was displeased with the tone of my last communication. I can assure him that I had no intention that it should be considered offensive, neither do I deny the fact that the appearance of these snails may be difficult to account for, more particularly in the absence of any precise description of the spot in which they were found. But Mr. Winchester must bear in mind that before we are asked to believe that these shells came down in a shower of rain, we must have positive proof that they did so. Natural science is surrounded with difficulties of this kind, and I need only refer Mr. Winchester to the admirable communication of Dr. Hooker in your last Number to show how even men of the highest scientific attainments may be deceived by appearances. In the absence of positive proof, the best negative evidence we can get must be used. Mr. Winchester will not entertain the proposition that they came from

beyond the limits of our atmosphere, or that they could by any possibility be retained in a mass of aqueous vapour or clouds; were they then carried by the revolving action of the storm from the ground in which they were located, and removed bodily to the court-yard of her Majesty's palace at Osborne? Why are we asked to believe this? We have heard of no Moss, or detritus, or broken sticks, or tiles, slates, or mortar being found with them. Would the storm have selected the shells alone, and placed them upon the clean, well swept, and poisoned yard? Even supposing that the position of the court-yard were such as to forbid the supposition of their being out on a feeding excursion, as suggested in my former communication, there are many other roads open to solve the question before we arrive at the improbable or non-natural. Are there no trees, or tops of walls, or roofs to the house from which they could have been swept by the wind? No crevices in the slates—no gutter to carry off the water from the court-yard, by which they might have found ingress? Why choose the most difficult when there are so many more probable modes of solving the question? Mr. W. says they were not in the court half-an-hour before they were found. Were they looked for? Why, they were not 3 lines long and hardly 1 broad. How easy then to have escaped detection! Mr. W. says I have not accounted for the dead shells. A little reflection will tell him that if they were carried up by a whirlwind, and deposited like rain by their specific gravity, that the live and dead shells ought not to be found together. To a casual observer, however, live shells might easily be mistaken for dead ones, because the mollusk will sometimes not stir for a long time, and you cannot always see it when coiled up. They certainly did not take an excursion and "leave their shells behind them," for the mollusk never separates from its shell. I hope Mr. Winchester will find out the whole matter. I am glad to find he has taken up the study of natural history. Let him go into the nearest wood at Osborne and collect carefully a quantity of Moss from the ground, and place it in a bag. When he gets home let him shake it a little at a time on to a sheet of white paper, and look at the detritus which falls thereon through a magnifying glass. He will not only find Zua lubrica, but probably Helix pygmea and aculeata (a most beautiful little shell, covered with little spines), Azeca tridens, Achatina acicula, Pupa edentula, &c., &c. The examination will well repay the trouble. *C. R. Bree, Stricklands, Dec.* 10.

Growing Vines in Pots.—The following remarks on this subject carefully carried out will be found to produce satisfactory results. The first week in January select eyes from well-ripened wood, fill a few shallow pots, or seed-pans, with a mixture of two parts turfy loam, one part peat and a little leaf mould; in each pot insert 10 or 12 eyes, plunging them in a bottom-heat of 90°, maintaining a moist atmosphere, and keeping the top-heat at from 68° to 72°. In four weeks' time they will have emitted roots sufficient to enable them to be potted singly in 4-inch pots; secure good drainage, and let the compost be as before, except that farm manure should be substituted for leaf soil. Plunge them in the same bottom-heat and as near the glass as circumstances will admit; syringe lightly a few mornings, and let the night temperature range from 65° to 70°, with an advance of from 5° to 8° during the day, when air must be admitted to insure a strong, robust, yet short-jointed growth. The shoots will be two feet long by the first week in March, tie them carefully, and repotting will also be necessary, but before doing so see that the roots are in a moist state; shift into a 9-inch pot, and plunge again in bottom heat, letting the atmospheric heat range from 68° to 72°; syringe also in fine afternoons; from this period never allow the house to be closed. The air during night should be admitted through small iron ventilators in the front wall, and it should come in contact with the heating apparatus, so as to prevent cold draughts; increase the amount of air as soon as the thermometer rises 3° or 4° in the morning. The plants will now grow vigorously; attend to pinching laterals, leaving one leaf, and stop all tendrils; the latter, if neglected a few days, will cling to adjacent Vines, and often cause the plants to lose their leaders, which I have proved to be highly injurious instead of beneficial, although some recommended them to be stopped two or three times during their growth. About the second week in April the shoots will be from 4 to 5 feet long, transfer the plants then to their fruiting pots, which should be 16 inches in diameter, but 1 inch more or less is immaterial. Let the compost be 3 parts strong turfy loam, 1 part good farm manure, to which add a small quantity of bruised bones. The bottom-heat may now be permitted to decline gradually to 80°; stop the leader when 7 feet long; allow the laterals to ramble a little, which will tend to strengthen the Vines. At the same time freely admit light and air; water alternately with liquid manure and clear water; when the Vine begins to change colour remove part of the laterals; keep the foliage clean and healthy, and by the beginning of July the wood will be ripened, then remove the remaining laterals. Transfer the Vines carefully to a south aspect in the framing ground, or other convenient place. Set the pots on coal ashes, or on a piece of slate or other flat surface, mulching with Moss or Fern, and they may remain there until the end of September; then lay them on their sides, and in October, when convenient, prune and dress them with sulphur, soft soap, lime, &c.; place them on their sides in some hole or corner, covering with straw until the third week in November, then remove the loose soil, top-dress with equal parts turfy loam and farm manure, introduce them to the forcing-house, and plunge them in a bottom-heat of 70°. Let the atmospheric heat be from 50° to 55°; syringe daily 2 or 3 times; give air freely on all favourable opportunities, to insure the buds breaking strongly about the end of December, then raise the temperature gradually 5°, both bottom and top; syringe in fine mornings, but be careful to get the foliage dry before sunset; stop the shoots one joint above the fruit, selecting 6 or 8 of the strongest and disbud all others. They will be in flower by the first week in February. Maintain a dry temperature not lower than 65° at night, advancing 10° during the day. Keep the air in motion, shake the Vines two or three times daily until set, maintain a moist growing atmosphere, syringing no more over head. In many instances there will be two or three bunches on one shoot, but leave only the largest, you will have six or eight bunches on each Vine weighing as many lbs. Thin the berries well, be liberal with manure-water, preferring that from sheep-dung gathered from the pasture. They will show signs of colouring about the end of March. Diminish the moisture as usual at this stage, and give air freely. The fruit will be ripe by the second week in May, when you may expect an abundant crop, good in quality, and in the brief period of 16 months. Black Hamburgh and Muscat of Alexandria will give the greatest satisfaction. *Archd. Henderson, Gardener to W. C. Hemming, Esq., Spring Grove, Bewdley.*

Holly Plunder.—If it comes within the scope of your Paper I wish you would call attention to the subject of Holly. At this season of the year no tree bearing berries within 30 miles of London is safe; the owners must either watch them at night or expect to find them mutilated or destroyed. The plunder has become quite wholesale. Parties go about with horse, cart, and saw; the trees are marked in the day, and before the following morning they are cut to pieces and deposited in Covent Garden Market. It may be said I think that the whole trade is one of robbery, and if you called attention to this it might cause the police to interfere, and save from destruction thousands of trees which at this moment are unusually loaded with berries. *J. B. Lawes.* [Certainly the police are responsible for this sort of robbery. We protect ourselves with spring guns.]

Knives.—I send you a drawing of a knife that I have used many years, and for general purposes I have not seen one I think to supersede it; the length altogether is 8 inches, the thickness of the back and rivet 3-16ths of an inch; the haft is the root of some kind of tree, and perfectly round, smooth, and easy to the hand. There are three sizes of them, one larger and one smaller than the one figured, and manufactured by Holmes & Son, Rotten Row, Derby; it is, however, many years since I bought it there, and I do not know if the same party still continues to manufacture them or not. Their strength is such that they will stand almost any kind of work, and not clumsy either. *Rich. Rilott, Nurseryman, Donington, by Spalding, Nov.* 29. [The pattern of this knife is a good one; though we should say that the blade was a full 16th of an inch too narrow near the point.]

Societies.

Linnean, *Dec.* 4.—The President in the chair. J. F. Champion, Esq., D. Anbury, jun., Esq., R. Halme, Esq., J. Lee, Esq., L.L.D., Lester Lester, Esq., and J. Townley, Esq., were elected Fellows. Among the presents were a series of 65 coloured drawings by native artists of Indian plants and animals, prepared for the late Sir E. Impey, and presented by Mrs. Impey, through Col. Sir P. Cautley, C.B.; also photographs of 10 species of British Ferns, by Mrs. Glaisher, presented by Mr. E. Newman; and Dr. Hooker's beautiful illustrations of Himalayan plants. The following papers were read:—1. Extracts of two letters addressed to the President by H. Evans, Esq., of Darley Abbey, near Derby, relative to seals killed by him on the western coast of Ireland. 2. Supplementary observations on some genera and species of Balanophoreæ, by Dr. Hooker. The paper formed a continuation of Dr. Hooker's monograph on the structure and affinities of this order, and consisted of observations on the species of Mystropetalon, and Cynomorium.

Entomological, *December* 3. J. Curtis, Esq., F.L.S., President, in the chair.—Donations of entomological works from the Entomological Society, Professor Leuckhart, the Society of Arts, &c., were announced. A notice of a curious species of thrips collected in India by Captain Hamilton in jungle, was communicated by Mr. Newman, who also described a considerable number of minute moths captured in the province of Victoria, New South Wales, by Mr. Oxley, the majority of which were very similar in structure and colour to those of our own country, with the addition of a distinct new genus, to which the name of Boydia hispidella was given. Mr. Newman also communicated a note on the habits of the common prawn observed in Mr. Warrington's marine vivarium, with a view to disprove the opinions which have been entertained respecting the use of the antennæ, which Mr. Newman regarded as organs of smelling. Mr. Edwin Shepherd exhibited a fine pair of the beautiful Trochilium scoliæforme, a species not previously known to inhabit this country, and which were captured in North Wales, near Llangollen, during the past summer by Mr. Ashworth. The president read notes accompanied by beautiful drawings of the following rare insects:—Hygrotus bisulcatus, Curtis (described in the Annals of Natural History, still unique); Apion Curtisii of Kirby's manuscripts, which had remained unique until found at Little Hampton and Bury Hill, near Arundel, by Mr. S. Stevens; a remarkable variety of Vanessa Urticæ, from Hampstead; a singular variety of a Sphinx larva supposed to be that of S. celera; and notes on the genus Conops. Mr. Stainton read some remarks on the spirit with which scientific books should be read and studied. Mr. S. Stevens exhibited various beautiful Lepidoptera sent by Mr. Plant from Natal, together with drawings of their transformations. Mr. Plant also made some observations on the habits of the Paussidæ, which he had observed in ants' nests, where, contrary to the received opinion, they appeared to be strictly guarded as prisoners, and not voluntary guests.

Notices of Books.

Popular Astronomy. By François Arago. Translated from the original, and edited by Admiral W. H. Smyth and Robert Grant, Esq., in 2 vols. Vol. 1. Longmans. 8vo. pp. 707.

It is not often that men so well versed in science as the late M. Arago will condescend to attempt to impart to those who know nothing of the matter anything like satisfactory knowledge. Such men usually address themselves to persons already more or less well acquainted with what they themselves so well know. According to some it is impossible to popularise science; according to others science popularised is science degraded. Far different, however, were the views taken by the highly gifted author of the remarkable book before us. His steady aim was to spread a knowledge of the science of which he was so great a master amongst those who had had no such education as by astronomers in general was thought absolutely indispensable to its study.

In his introductory address delivered in 1846, M. Arago said that it was a great, a solemn experiment which he and his hearers were about to continue together. The experiment was made. A course of lectures was given, the necessity of any previous mathematical knowledge was expressly disclaimed, and nothing was taken for granted by the lecturer. A similar course had been given before and was given afterwards, and the substance of 18 courses delivered in 18 consecutive years is now laid before the public in the work of which the first volume is already translated. The work in its present form demands, it is true, no knowledge of mathematics, but any person who does not possess such knowledge must proceed step by step, and must concentrate his whole attention on each step as he advances. The first book sets forth certain ideas on geometry necessary to the understanding of what follows. Then there is a book on mechanics and horology; after that come the elements of optics, and lastly we have the great treatise on astronomy. Every proposition is stated with great clearness, and every step which is made is a logical deduction from what has preceded. The reader, moreover, has not to rest contented with vague generalities; the whole subject is gone into in detail, and even curious speculations are not passed unnoticed. The following is the great astronomer's mode of dealing with the question,—Is the sun inhabited?

"If this question were simply proposed to me, 'Is the sun inhabited?' I should reply, 'that I know nothing about the matter.' But let any one ask of me if the sun can be inhabited by beings organised in a manner analogous to those which people our globe, and I hesitate not to reply in the affirmative. The existence in the sun of a central obscure nucleus, enveloped in an opaque atmosphere far beyond which the luminous atmosphere exists, is by no means opposed in effect to such a conception. Herschel thought that the sun is inhabited. According to him, if the depth of the solar atmosphere in which the luminous chemical action operates should amount to a million of leagues, it is not necessary that the brightness at each point should surpass that of an ordinary aurora borealis. In any case the arguments upon which the great astronomer relies, in order to prove that the solar nucleus may not be very hot, notwithstanding the incandescence of the atmosphere, are neither the only nor the best that might be adduced. The direct observation, made by Father Secchi, of the depression of temperature which the points of the solar disc experience wherein the spots appear, is in this respect more important than any reasoning whatever.

"Dr. Elliott had maintained, as early as the year 1787, that the light of the sun arose from what he called a dense and universal twilight. He further believed, with certain ancient philosophers, that the sun might be inhabited. When the Doctor was brought before the Old Bailey, for having occasioned the death of Miss Boydell, his friends, Dr. Simmons among others, maintained that he was mad, and thought that they could prove it abundantly by showing the writings wherein the opinions which we have just cited were found developed. The conceptions of a madman are in the present day generally adopted. The anecdote appears to me to be worthy of figuring in the history of science. I am indebted for it to the article on Astronomy by Dr. Brewster, inserted in the 'Edinburgh Encyclopedia.'"

The translation we need hardly add is excellent, and if, as we hope, the second volume has an ample index, the public will at last be in possession of what has long been wanted—an admirable work on astronomy fitted for persons besides those already well acquainted with the subject.

Garden Memoranda.

Harleston Hall, near Grantham, the Seat of —— Gregory, Esq.—The educated and refined taste of the late Mr. Gregory Gregory was employed not only in the erection of his princely mansion at Harleston, but in the building and embellishment of the cottages of his more humble neighbours and tenants. The present road to the Hall is through the village of Harleston, and the attention of the visitor is immediately arrested by the many picturesque examples of cottage architecture situated in the village. In deviating from the ordinary, and by no means attractive style of cottage, usually built for our agricultural labourers, Mr. Gregory has not interfered with the comfort of the cottager, or in attempts at improvement, merged into extravagant or injudicious decoration. The cottages are good substantial structures, of varied rustic character, and are pleasingly and irregularly disposed throughout the village; most of them are characterised by the picturesque addition of porches, over which handsome climbing plants are trained, and fronting many of these cottages are the old-fashioned draw-wells, contrived by the elegance of their construction to lend a picturesque feature to the trim and well kept gardens which we see on every side.

Entering the domain from the village, we shortly reach the kitchen garden, which occupies a very prominent position by the road leading to the Hall. In ordinary cases that portion of a garden devoted to the cultivation of fruit and vegetables is put out of sight as much as possible; Mr. Gregory took a novel view of that arrangement, and determined upon giving to that department of his garden, which should be of the first interest and utility, not only a prominent position, but adequate architectural embellishment, so that it should maintain the peculiar character of the mansion, and be worthy of the purpose to which it was devoted. Accordingly we find extraordinary architectural features introduced into the garden; amongst the most noticeable are numerous massive piers richly ornamented with carved Ancaster stone, which relieve the height of the walls, and give great character and grandeur to the garden—the embellishment of the walls with stone—the worked conical copings—stone niches—the great height of the walls—and the peculiar plan of the garden. Viewed as an attempt to give a new and important character to a kitchen garden, it is certainly of great interest and stands unique in garden architecture.

COTTAGE AT HARLESTON.

The first deviation from the customary style of kitchen garden construction is observable in the peculiar form of the garden, which is pentagonal in its arrangement. The outer walls are 20 feet in height, and are elegantly coped with stone; they are constructed with flues to heat the whole extent of wall; the panels of the wall fronting the approach road are faced with stone. On the south-west side of the garden a semicircular arrangement of massive and ornamental stone piers projects from the garden, the spaces are protected with iron railings, and in the centre is a gateway intended as the principal entrance. Within the garden there is a second wall 18 feet in height, which assumes the same shape as the external wall. The garden is intersected with straight walks, radiating from this central entrance; the walks necessarily pierce the interior wall, and at the point of intersection the ends of the walls terminate in three successive massive piers richly embellished with stone; between the two last, and on each side of the walk are elaborately carved stone niches intended for vases or statues.

Borders appropriated to flowers are on each side of the principal walk; this conducts us to the forcing-houses, situated at the north extremity of the garden, but which, owing to the peculiar plan of the garden, are not seen from the entrance. The range of houses (not including the temporary structures which are at present employed in connection with it) consists of three principal Vineries, 50 feet in length each; these are of very light and elegant construction; the sashes are of copper, like the Frogmore houses, but there are no sliding lights to the houses, ventilation being secured by a clever arrangement of ventilators in the back wall; there are recesses in the back wall that Vines planted there may be retarded while forcing is going on in the house; this arrangement must often prove advantageous. The Vines in these houses are remarkably vigorous and fruitful. Mr. Wade has been very succesful in fruiting the Gromier du Cantal Grape, which is much liked by his employers. The Frontignans have been remarkably good; the Hamburghs, Muscats, and St. Peters' are very fine and well ripened. We remarked a very excellent Black Grape as large as the Hamburgh—very distinct in foliage, which Mr. Wade calls one of the varieties of West's St. Peter's; the same Grape is grown and esteemed in the neighbourhood under the name of the Black Alicant. Whatever the name it is certainly a most valuable variety; it keeps as long as the St. Peter's Grape, is very fruitful and handsome. The range is extended and embellished by a central structure, built to allow the introduction of specimen plants, or to afford a resting place for visitors.

Behind the range of houses are sheds, Mushroom houses, &c., &c., and a large space of ground intended as a framing ground. Returning through the kitchen garden we remark the healthy and vigorous condition of the wall trees. Mr. Wade employs the materials from some old glass structures to cover some of the Peach trees. Great variety of aspect is secured by the arrangement of the walls, and very great upward space is secured to the trees. The natural soil of the garden is dry, but it has been brought into excellent condition by the introduction of fresh soil. Leaving the kitchen garden we enter the road leading upward to the Hall, which is distant about a quarter of a mile.

A short distance from the kitchen garden a lodge of very beautiful design and workmanship spans the approach road; this is also built of Ancaster stone. Proceeding towards the hall, which is built on the slope of a hill facing to the north, we enter by a straight road the grand court, and the extent, magnificence, and finished beauty of detail of the noble building becomes strikingly evident. The late Mr. Gregory was well versed in the architectural riches of his own as well as other countries, and he has borrowed the most beautiful features from our finest Elizabethan mansions, and embodied them in the construction of the present splendid example of that picturesque style of building. On each side of the entrance gates—which are of wrought iron, and of great beauty—are handsome stone lodges, richly embellished with carved stonework; a wing of the building runs down the east side of the court, a superb flanking tower stands at the angle of the west side. The centre of the court is laid down with turf, protected by massive iron posts, and the space in the angles of the court is raised and planted with Berberis aquifolium; a very fine effect is obtained from the large masses of this handsome evergreen, heightened just now by rich clusters of its purple berries peeping from its dark green foliage.

Leaving the court, we ascend to view the private gardens by flights of steps, guarded by a balustrade ornamented with vases, and lions couchant in white marble. We gain first the bowling-green, which is the commencement of a number of successive terrace flats cut out of the slope of the hill; numerous stone seats are arranged about the green, and a tower, corresponding to the court tower, flanks its extreme west angle. A second flight of steps conducts us to a level space of considerable extent, traversed by broad walks; quaint flower beds are cut out on the turf; a bank of evergreens bounds this garden to the west. Flights of steps, with an excellent contrivance for vases independent of the balustrade, pierce this screen of shrubs, and passing up a sheltered walk, bounded by borders rich in herbaceous and spring-blooming plants, we again ascend steps which lead us to a tower commanding views of the Hall, gardens, and a great extent of level country adjoining the vale of Belvoir. Belvoir Castle is also a prominent feature in the landscape west of the Hall. Near this tower is an Italian garden, in which is a curious stone framework for climbing plants. From this point we pass along the face of the hill, which now dominates the mansion, and is cut into slopes and terraces, some of the former covered with Ivy, others with Berberis aquifolium, and attaining a majestic square terrace we have an opportunity of inspecting the south front of this magnificent mansion; new features of beauty and interest are seen, and we can better realise the great extent of the Hall from this point of view. We should add that the building is entirely constructed of Ancaster stone. The terrace from which this view is obtained is of elegant proportions, and exhibits great constructive skill. It may be called the fountain terrace, that character being given it by a beautiful white marble fountain placed in the centre. The terrace is further embellished with marble vases, and is accessible from the mansion by two flights of steps. At the base of this structure is a second terrace, on which is placed an immense sculptured marble stand for flowers and numerous vases.

The conservatory is on the south-west angle of the Hall and adjoins it. The character of the mansion is preserved as much as possible in its construction. There are five divisions in the conservatory, one for Palms, a second for stove plants of another character, a third for Orchids, and departments for Camellias, Orange trees, and greenhouse plants. The interior arrangements are as yet incomplete. The idea of subdividing a conservatory and appropriating the divisions to as many classes of plants, is novel and excellent. It gives the gardener an immediate opportunity of exhibiting plants of every class to his employer, who, as in this case, can step at once from his drawing-room to inspect them. To complete our inspection of the garden, we reascend the terrace steps, and passing up the abrupt slope, fashioned into terraces, we reach a walk nearly at the crest of the hill, by the side of which are clipped Yew trees; this walk leads to others in the wood which crowns the hill, and into which it was the intention of Mr. Gregory to have extended the pleasure-grounds. The view from this elevated position, embracing the Hal., the various towers, terraces, and gardens merging off into a distant and diversified landscape, forms a picture unsurpassed in its way by any view we are acquainted with.

A very beautiful building, calculated by its style and embellishments to carry out the character and magnitude of the place, is situated a short distance to the east of the Hall; it contains the stables, coach-houses, and residences for persons in that department; it is most conveniently situated, and sufficiently concealed by a wood which here approaches the Hall. The interior arrangements and conveniences of the Hall are commensurate with its external grandeur, the same excellent taste pervades everything. The banqueting-hall is said to be the finest in the kingdom; the grand staircase is the most remarkable and gorgeous thing of the kind in existence. For many years Harleston was denied to visitors; the present proprietor, who is proceeding with the work left incomplete by the death of his lamented predecessor, kindly permitted, during the last summer, the Hall to be shown one day in the week, and very many curious visitors availed themselves of a long-coveted privilege. No one visiting Harleston should fail to see the old manor-house which is on the estate. It is extremely picturesque, and indubitably one of the most ancient manorial halls in England.

FLORICULTURE.

The Chrysanthemums in the Temple Gardens have this year been the subject of universal admiration, showing that with proper skill and care a magnificent display of these gay flowering plants may be had every autumn in perfection for weeks together, even under the murky atmosphere of London. Time was, we are told, when red and white Roses bloomed profusely in these venerable gardens. If Mr. Broome, the gardener, has failed to flower these now as in days gone by, he at least manages annually to produce an excellent substitute in the shape of a glorious display of Chrysanthemums. How this is effected the following memoranda, kindly furnished to us by Mr. Broome, will explain:—The plants are all taken out of the ground after they have done blooming, and put in by the heels till spring. The borders are then dug up from 18 inches to 2 feet deep, taking care to throw the bottom spit or subsoil on the top. Six inches under the top from 3 to 4 inches of cow dung is put; this serves as a mulching to retain the moisture in the hot summer months better than anything else, and keeps a good foliage on the plants. The old roots are next divided, and the strongest suckers planted singly. This operation is performed at the latter end of March and April. As soon as they grow up to 9 or 10 inches they are pegged down, and kept in that condition till the middle of August. This keeps them short, and allows annuals and summer flowering plants to grow between them. Mr. Broome then begins to take off all lateral shoots as soon as they are formed, and continues to do so till they show their crown bud. He then disbuds them, choosing the best and healthiest bud for flowering. By the latter end of August the roots have found their way to the surface of the ground; from 3 to 4 inches of rotten dung or rich mould are then laid on the top, taking care to supply the plants with plenty of water daily, which is best done in the evenings, as it prevents them from flagging during hot sunshine on the following day. It must be borne in mind that this treatment is for specimen plants, with not more than three or four blooms on one stem. Plants not grown for the sake of large flowers or for specimens are planted singly, but their laterals are not removed; they are, however, treated in all other respects the same, except the disbudding. If grown in pots, for ornamenting the greenhouse, they should be treated as Pompones are managed. The latter are found to require more protection from frost than the large-flowering kinds. They are, therefore usually

covered over with a little leaf mould or litter till March. As soon as they grow 4 or 5 inches the suckers are removed, choosing the best, and put in 6-inch pots. When rooted, and 7 or 8 inches high, the heart is taken out with the thumb, being careful not to remove more than just the very heart, which leaves two or three joints more than if pinched off in the usual way. As soon as they throw out laterals 4 or 5 inches they are taken out again in the same way. If these can be stopped twice all the better, but it should never be done later than the beginning of September. Single plants in pots are preferred, as they bloom better and do not throw up so many suckers to rob the mother plant. Cuttings struck in March do quite as well as suckers, if not better. As soon as the plants in the 6-inch pots are well rooted, they are removed into large ones, where they are to bloom, taking particular care to supply them with plenty of water. If this is neglected two or three times, they lose their foliage, and flower scantily and bad. When the pot is well filled with roots, liquid manure is given and continued at short intervals till they bloom. The liquid used is the slops of the house, such as soap-suds and those of the chamber, diluted with water 70 per cent. At first it is used twice a week, gradually increasing it till at length it is given every day, *i. e.* when they show bud. It should by no means be put on too strong, as it causes the plant to grow rank and coarse, and to bloom indifferently. The compost used for potting is strong loam with plenty of oyster-shells pounded small mixed with it. If the latter are not to be got a little leaf-mould may be used. Cuttings struck in September will bloom in December for late flowering. The names of such varieties as succeed best out of doors will be given next week.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c. — Now that winterly weather appears to have fairly set in, let this house be kept as gay as the resources at command will admit, and everything about it perfectly clean and neat, for the show-house is more attractive, and likely to be more closely scrutinised in severe weather when the out-door gardens are devoid of interest than at any other period of the year; therefore every plant in bloom that can safely be trusted in this house should be brought here, and no labour spared that may be necessary to have every leaf, pot, bed, or border perfectly clean; and, if not already done this autumn, the woodwork, glass, and walls, &c., should also be thoroughly cleaned. Orange trees, or any other plants that may not have been recently potted should have a little of the top soil removed, and be top-dressed with light rich soil, so as to give the surface of the balls a fresh clean appearance; and the house must be carefully gone over every morning, removing all decaying flowers and leaves, &c. Indeed, the same attention ought to be bestowed upon this house in the way of keeping everything in it clean and neat, as if it were the principal room in the mansion, especially at this season. But to keep a house well furnished with handsome plants in bloom at this season, and everything about it in perfect order, is an impossibility where there is not sufficient accommodation for growing plants, and also an ample command of labour, and it is very frequently the case that the show-house is much too large in proportion to the accommodation for growing plants with which to furnish it. And where this is the case it will generally be found good policy to secure a tolerable display for the winter season, if at the expense of keeping the house somewhat bare when flowers are plentiful out-of-doors, and if plants in flower are scarce their effect will be greatly enhanced by proper arrangement, and strict attention to order and cleanliness.

FLOWER GARDEN AND SHRUBBERIES.

In the present state of the weather little can be done here beyond the preparation of composts and wheeling these and manure upon the places where they will be wanted. Roses that are perfectly hardy may be pruned, and if any of the shrubberies want thinning this may also be done. See to getting a good stock of pegs, stakes, labels, &c., ready, and put past in sizes ready for use whenever they may be wanted. Also get the whole stock of pots used for bedding stock washed, if not already done, so that there may be the least possible hindrance with these little matters when the busy season comes. Look carefully to the stock of bedding plants in cold pits, keeping them well covered up against frost, and giving air whenever the weather will allow.

FORCING DEPARTMENT.

Pineries.—Where the bottom-heat is wholly dependant upon tan or other fermenting material it is very apt to decline too much at this season, when the temperature of the atmosphere is being kept rather low. And if this is found to be the case a few inches of fresh tan should be put on the surface, which will generally be found sufficient, but if the beds have not been renewed lately, and have got worn out, it will probably be necessary to remove the plants and add a considerable quantity of tan or leaves. Where shed room can be spared, a quantity of tan should always be kept in readiness for such work in winter, as if used fresh from the tan-yard it is almost certain to starve the roots before fermentation commences, and then heats too violently. Let no trouble be spared, however, which circumstances may render necessary to secure a steady bottom heat so as to preserve the roots in health, for if the roots get injured it will be in vain to expect the plants to make vigorous growth in spring. Be especially careful of those expected to start into fruit soon, for if the roots of these are injured now there will be little chance of getting the fruit to swell well. Vineries.— Use fire-heat sparingly in houses where the fruit is ripe, but sufficient must be used to prevent the moisture of the atmosphere being frozen to the glass inside the house, for if this is allowed to happen the moisture on thawing is liable to drop upon the bunches, injuring the bloom and causing the berries to decay. Admit air on every favourable opportunity, and examine the bunches often and carefully, so as to make sure of removing decaying berries the moment it can be perceived that they are affected. Where forcing is fairly commenced be careful to maintain a properly moist state of the atmosphere, and this must be especially attended to while severe weather lasts, particularly where the buds are bursting. The evaporating troughs must be kept constantly supplied with water, and the paths, bed, &c., should be frequently syringed, and it will also be advisable not to have the tender foliage too near the glass until the weather changes. If fermenting material is used for warming the border, this must be well covered with dry litter to protect it from the frost, and turned occasionally, adding some fresh as may be necessary to keep the heat in the border regular. It will be advisable, however, to have some dung and leaves thrown up to heat, as there would be some danger of chilling the bed by turning it in the present state of the weather, and mixing it with the dung or leaves which had not commenced fermenting. Houses which it is intended to commence forcing the beginning of next month should also have some fermenting materials placed on the borders so as to encourage the roots a little before the Vines are excited, which will be of great service towards getting the buds to push strongly and without loss of time.

HARDY FRUIT AND KITCHEN GARDEN.

Orchard trees of large size are much neglected about many places as to pruning, the heads being allowed to get so thick of wood that fruit cannot be expected save from the points of the outside shoots, and except when the crop gets accidentally thinned to something considerably below an average crop, the fruit is small and indifferent in quality. Dry frosty weather offers a favourable opportunity for getting these properly trimmed, as men can work at this with comfort, when nailing would be very cold work, and advantage should be taken of the first spare time to give these a careful pruning. The heads should be liberally thinned, cutting out all branches which cross the others and dead pieces, and leaving the shoots sufficiently far apart that light and air may have free play among those left when the foliage is on. In removing large branches, care should be used to make close clean cuts, and if the wood is coated with strong thick paint this will help to prevent its decaying before the wound gets healed over. Get all kinds of fruit bushes pruned, the prunings cleaned off, and the ground manured ready for digging when this can be done. Also take advantage of leisure time to thoroughly examine the fruit stores, and remove any that are found to be decaying. Of course the frost must be excluded from here, but on no account use fire heat, unless the temperature cannot otherwise be kept above freezing. Admit a little air on mild days, especially after keeping the room shut for some time; but as the fruit will now give off but little moisture very little air will suffice to keep the atmosphere dry, and no more than may be necessary to do this should be given. Take advantage of every safe opportunity for admitting air to Lettuce, Cauliflower, &c., in frames, for a slight frost is less injurious to these than a confined damp atmosphere. Get manure wheeled upon spare ground where it is wanted, and attend to providing a good supply of this necessary article in successful kitchen gardening, turning the root heap, and well soaking it with strong manure water, and getting all the prunings and other refuse which cannot be otherwise quickly converted into manure, charred.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Dec. 13, 1855, as observed at the Horticultural Gardens.

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain.
Friday 7	27	29.580	29.480	42	27	34.5	42	44	N.	.00
Satur. 8	28	29.841	29.562	35	19	27.0	40	43	N.E.	.00
Sunday 9	[illegible]	30.1[illegible]0	29.956	35	30	32.5	39	42½	N.E.	.00
Mon.. 10	1	30.079	30.037	35	22	28.5	39	42½	N.	.00
Tues. 11	2	30.033	29.900	33	24	28.0	38	42½	S.W.	.00
Wed. 12	3	29.885	29.692	33	13	23.0	38	42	S.W.	.00
Thurs. 13	4	30.037	30.015	36	15	25.5	37	42	N.W.	.00
Average .		29.945	29.806	35.5	21.3	26.4	39.0	42.6		.00

Dec. 7—Clear; fine but cold; slight frost.
— 8—Slight snow; clear and cold; sharp frost.
— 9—Sharp frost; cloudy and cold; hazy at night.
— 10—Overcast; few snow flakes; snow shower.
— 11—Partially overcast; uniform haze; frosty.
— 12—Uniformly overcast; severe frost at night.
— 13—Severe frost; sunshine; clear and frosty.
Mean temperature of the week 12 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Dec. 22, 1855.

Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 16	46.2	35.3	40.7	14	0.68 in.	1	3	2	2	4	7	5	5
Mon. 17	46.3	34.2	40.2	16	0.37	4	2	1	2	4	9	4	3
Tues. 18	45.0	34.5	39.7	16	0.34	3	7	—	2	5	7	5	—
Wed. 19	45.4	36.2	40.8	16	0.68	2	4	3	2	5	8	4	1
Thurs. 20	44.7	34.0	39.4	11	0.76	2	7	1	2	9	5	1	2
Friday 21	42.6	33.9	38.2	11	0.20	—	7	2	1	2	11	3	3
Satur 22	45.3	33.6	39.5	15	0.37	3	5	3	1	2	8	5	2

The highest temperature during the above period occurred on the 16th, 1849—therm. 58 deg.; and the lowest on the 16th, 1853—therm. 7 deg.

Notices to Correspondents.

Climates: *G H.* We are at a loss to learn in what the resemblance consists between the climates of England, N. America, and Australia. To us they seem quite different. The plants of the two last, especially the last, therefore are far from being at home with us, and cannot be grown to profit.

Cantua dependens: *A R C.* Treat it as a greenhouse plant in winter and as a stove plant in summer.

Diseases: *J W.* Your Vine leaves are infested with that form of Cladosporium herbarum which is known under the name of Fumago. You cannot remedy the matter now, but you may prevent its occurrence next year by repeated syringing, which washes off the sugary secretion on which the mould is developed, taking care at the same time that your houses are properly ventilated. *M.J. B.*

Gardeners: *A Sub.* No disputes should arise about what vegetables a gardener is entitled to under his agreement. We apprehend that he cannot claim a supply of any which are not raised by himself. Field Potatoes would therefore be excluded, like field Turnips, Carrots, &c.

Garden Pots. We have received from Mr. Pope, of 2, Bath Street, City Road, a sample flower pot, which he lately registered, "the object of which is to convey water into the centre of the pot, so that the root may receive nourishment." We regret to be obliged to say that we see no advantage whatever in the contrivance; but we do see some disadvantage.

Grapes: *J H H.* We find that a Scotch White Cluster Grape did formerly fruit near London, but so long ago that we had forgotten it. That it should have gone out of cultivation was the result of its undoubted inferiority in all respects to the Pitmaston White Cluster and the Royal Muscadine, both of which ripen as well near London. The former would probably suit you. There is no other hardy white Grape known to us. Among blacks, the best of the perfectly hardy kinds are the Burgundy Black Cluster, or Auvernat, and the Miller's Burgundy. The Early Black July, or Morillon Noir, is still hardier, but its bunches are too small for table. None of these are new, nor do we know of any hardy novelty in the class of Grape Vines. A correspondent says with regard to the Scotch White Cluster —"I have it here (Scotland), a good sweet hardy Grape, ripening to a fine amber colour. It is a great bearer. I had my Grapes named by Mr. M'Intosh, of Dalkeith. I see the Grape mentioned in Mr. Rivers's catalogue. It is early and prolific, but hangs long; firmish flesh."

Horizontal Trellises: *An Old Subscriber* is desirous of knowing if any successful trials have been made of a plan suggested some eight years ago by Mr. Ker, Cheshunt, for growing Peaches, Pears, &c., on very low trellises, and covered with glass, lying as near the ground as a Melon-frame, the sides of the structure being left open. His object is to learn if any previous experience elsewhere would encourage him to make trial of ripening late Pears in Scotland by Mr. Ker's plan. So far as Peaches are concerned, we know that Mr. Ker obtained them in plenty; and of course any one else may do the same if employing the same skill. But we remember no trials of Pears.

Moles and Mice: *Amateur.* You can do nothing more than trap them in some one of the hundred ways which all country people know how to employ.

Names of Fruits: *A W.* 3, Bezi de Montigny; 4, Doyenné Blanc; 5, Verulam; 6, Ne Plus Meuris; 7, Gansel's Bergamot; 8, Hacon's Incomparable; 10, St. Germain; 11, Easter Bergamot; 12, Bishop's Thumb; 14, Ormskirk Bergamot; 15, probably Old Colmar; 17, 18, Uvedale's St. Germain; 19, Chaumontel; 1, Dumelow's Seedling; 2, Alexander; 3, Crimson Queening; 4, Minshall Crab; 9, French Crab; 10, Hughes' Golden Pippin; 11, Scarlet Crofton.—*W Barratt.* C C, Hacon's Incomparable; M, Uvedale's St. Germain; N, Glou Morceau; N N, Catillac; S S, Bishop's Thumb; V, Easter Bergamot; the seedling Apple, large enough, but badly shaped, cannot be recommended.—*Z.* 19, Barcelona Pearmain; 20, Hawthorden; 21, Reinette du Canada; 24, Rymer; 26, Scarlet Crofton; 28, Royal Russet; 36, Pearson's Plate; A, King of the Pippins; B, Wheeler's Russet; C, Api Gros; F, Early Nonpareil; H, Parry's Pearmain; M, Turk's Cap; N, Norfolk Stone Pippin; O, like Hoary Morning; Q, Hubbard's Pearmain; P, the Pear is worthless; and so is the other Pear, except perhaps for stewing.—*J H S.* 1, 2, 3, 4, Beurré Diel; 5, Glou Morceau; 6, Gansel's Bergamot; 7, Aston Town; 8, Passe Colmar; 9, Swan's Egg; 10, Marie Louise; 11, Brown Beurré; 12, Chaumontel; 2, Hoary Morning; 3, Hollandbury; 7, Barton Russet; *J M B.* 3, Marie Louise; 4, Beurré d'Aremberg; 5, Glou Morceau.—*N H G.* 4, 5, 9, Winter Nelis; 6, 8, 11, 19, 23, 33, 37, Glou Morceau; 7, Napoléon; 10, Ne Plus Meuris; 16, Marie Louise; 17, St. Germain; 18, Brown Beurré; 20, Gansel's Bergamot; 21, 28, 34, Beurré Diel; 31, Beurré d'Aremberg; 40, Autumn Bergamot; 42, Passe Colmar.—*Old Sub.* 1, Beurré Diel; 2, 3, 6, 10, Glou Morceau; 5, Winter Nelis; 7, 12, Beurré Diel; 8, 9, Napoléon; 11, Althorp Crassane. Grape—White Nice.

Names of Plants: We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*G M & Co.* Eurybia microphylla.—*M Busby.* One is a piece of Hakea Baxteri; its whole beauty resides in its singular foliage. The other is some Mirbelia with which we are unacquainted, and is probably a handsome flowering shrub.—*T S P.* It is Feverfew—which we suppose signifies febrifuge—for that is its effect. Botanists call it Pyrethrum Parthenium.—*Box.* Cotoneaster frigida, Pilea herniarioides.

Orchard Houses: *Ignoramus.* You will find full information upon this subject in a little pamphlet called Rivers on Orchard Houses, published by Longmans. Consult, in addition, the remarks lately made in our columns, p. 611.

Seeds: *E B.* We believe they belong to some Sorghum, perhaps officinale.——*Anon.* Sow Peony seeds as soon as they are ripe.

The Ancient Oak: *Eben.* You are right. The specimen was rough, and examined by candlelight; we have now had it polished and more carefully scrutinised. The medullary rays are in a singular state of contortion. If you look at the calculation of age made last week as regards the Oak from Stirling Castle, you will see that a very small piece of wood from the outside of an old tree, when the growth is extremely slow, affords no data by which to judge of age. You make 40 rings in 2¼ inches; we make 45 in one piece and 49 in another; and it is probable that we are both wrong, so uncertain is it whether in a specimen like yours the real rings can be at all distinguished. The Stirling Oak gained 5 inches in diameter in 40 years; but it did not gain half an inch in the 10 years between 80 and 90. Undoubtedly your tree must have been very old; and that is all that can be said.

Valuators: *A Sub.* He must be an uncommonly clever fellow who on the 4th April can value a crop of fruit to be produced in the succeeding autumn. Nonsense.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

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Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

FIRST PRIZE REAPING MACHINE.
NOTICE.

MESSRS. BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.

BRITANNIA WORKS, BANBURY,
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STANDS Nos. 209 to 217, Smithfield Show.

SAMUELSON'S PATENT GARDNER'S TURNIP CUTTERS have been awarded for the TENTH TIME the Prize of the Royal Agricultural Society. These Implements are so well known that they require no description—more than 60,000 having been supplied from the above Works.
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The above may be obtained at all respectable Ironmongers and Implement Dealers in the Kingdom, of whom Catalogues and Price Lists may be procured gratis, or post free on application to B. SAMUELSON (successor to the late James Gardner), Britannia Works, Banbury; or at Stands Nos. 209 to 217, Smithfield Show.

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1856 *is now published, and can be obtained through any Bookseller in town or country, price 6d., or from the Proprietors,*
WILLIAM EDGCUMBE RENDLE & Co., Union Road, Plymouth.

The Agricultural Gazette.

SATURDAY, DECEMBER 15, 1855.

THE agricultural meetings of the week have been exceedingly successful. The Smithfield Club's show has attracted its thousands, who, if not greatly edified, have at any rate enjoyed a rare opportunity for converse in the presence of objects likely to make it agriculturally instructive.—The London Farmers' Club has held its annual meeting, and Mr. BAKER, of Writtle, one of its most intelligent members, has read before them a useful lecture on one of the most important subjects that can occupy the minds of farmers or of landowners.—The Society of Arts has assembled its hundreds to hear the paper on Land Drainage which we give in another page.—And to these we might add that the Royal Agricultural Society of England has held one of its annual meetings, were it not that it is barely more than a meeting *pro formâ*, held and conducted simply because it is down in its charter that it is to be held and conducted. What a pity it is that a Society possessed of such means and influence should not turn them to account at a time when London is full of its members, and when every other society which has any claim on the attention of farmers is doing its best to make use of the opportunity. The Society of Arts has but a casual connection with the farming interest, and but few of its members are farmers—yet it selects the week of the Smithfield Show for drawing attention to one of the most important departments of the *art* of agriculture; it scatters its invitations, we may say, over the length and breadth of the land, in order to secure the attendance of those interested in the subject; it organises a discussion which shall embrace every opinion and practice that has been advocated in connection with it; and it accordingly succeeds in not only teaching its members but interesting them in its own success and prosperity. It would be greatly to the advantage of our national agricultural Society if its members, too, were assembled, not for mere formal gatherings, for which a few chairs around a table in the end

suffice, but for mutual instruction on some agricultural topic so as to let us not only know but feel that the Society is really alive and active.

The reports elsewhere will inform our readers in reference to the Smithfield Show and the meeting at the Society of Arts. Of the paper read at the London Farmers' Club by Mr. Baker, we shall attempt here to give a very brief and condensed account. Mr. Baker referred to the demands upon agriculture made by the increasing population of the country:—There was no possibility of increasing the area of production, but the difficulty could be overcome or at least postponed by improved cultivation—and his subject, the Management of Landed Property, was thus among the most important which could engage the attention of an agricultural audience.

The difficulties of landlords owing to the absurd conditions and character of the tenure were referred to, and the results of these conditions were depicted:—No land was so well cultivated but that it might be yet improved, while the condition of very much presented a picture which he would gladly conceal if he could—the energy and capital of the English farmer were the remedies, and these must be called forth by terms of occupation calculated to encourage them—the amount of rent demanded should be diminished, if so tenants of capital could be obtained, and security should be afforded for that capital by leases and valuation of unexhausted improvements on their termination.

Mr. Baker then discussed in succession the improvements needed by land in a state of nature before it could properly be offered for occupation by a desirable tenantry:—The buildings of the farm were first referred to—their central position and their arrangement upon a proper plan: the drainage of the land was insisted upon, and the shares of landlord and tenant in its execution were pointed out: the provision of roads and the enclosure of fields were alluded to. The character of the lease and its provisions one by one were reviewed; the amount of rent is fixed upon an assumption of prices, but as these cannot be assumed with certainty, it is safest to leave a portion at least to fluctuate with the price of grain. The specification of a rotation of crops is desirable only in the case of an ignorant tenantry; the time-honoured clauses of old leases in reference to Flax, Potatoes, and other forbidden crops, ridiculous enough now when manures can be purchased and carried so abundantly and so easily, were exposed; covenants on quitting, simply on the principle of fairness between the owner and outgoing tenant were suggested. Mr. Baker advocates a system by which the incoming tenant has to pay his predecessor largely for manure and crop, his object being to insure the thorough cultivation of the land up till the very close of the lease.

The paper concluded with reference to the advantages to an estate of intelligent labourers, and the great addition to its value by the erection of well planned and well placed cottages upon it. The interests of the labourers themselves, and that of the occupiers and the owner as dependant upon them, were discussed by Mr. Baker in a very liberal spirit; due regard being had to the existing character and habits of the peasantry, especially those of the eastern counties, to whom we suppose Mr. Baker more especially referred.

It was the main purpose of the lecturer to state the evils of faulty and ignorant land agency, and these were very ably reviewed and illustrated. That they affect large estates, whole provinces of land in this country at present, few will deny, and it is a great service done when one of such large and long experience as Mr. Baker undertakes to expose them.

THE SMITHFIELD CLUB.

This Club held its usual annual show of fat stock and implements during the past week at the Baker Street Bazaar. We have been looking since our return from the yard at a series of sketches by Mr. C. F. Welles of animals exhibited 14 and 15 years ago, and we must confess that he would find no such animals now as he did then for the employment of his very clever pencil. But this is not to be regretted. The drawings before us are those apparently of very well bred cattle, but of beasts which have been spoiled for food by excessive feeding; and specimens of over fatness are rarer now than they were in 1841. The show this year is hardly up to the average either we believe in number or quality. The Devons, with which the catalogue commences, are scarcely so numerous as they have been, and they are, we think, unusually small. This is no drawback in the eyes of butchers, however, and they are always sold the first of the animals exhibited. There is a very remarkable show of Hereford oxen, and probably the prize ox shown by Mr. Niblett, of Bristol, was never surpassed for even and uniform excellence. The shorthorns are not so good a show as last year. The prize ox is, however, an animal of remarkable quality, and might well be taken as a true representative of the breed. The brother of this animal ("Romeo") has just been declared winner, at one of the most important shows in America, of the prize for the best short-horn bull. The one fulfils his destiny by furnishing probably 15 cwts. of beef for the Christmas dinners of some 10 dozen Londoners in this year 1855, and the other by influencing the quality of such dinners for many years to come on the other side of the Atlantic.

The gold medal for the best ox in the yard is carried off by this ox, No. 46, bred by the Marquis of Exeter. The gold medal cow is carried off by Mr. Ambler, of Halifax, the winner of the gold medal at Birmingham last year. The prize cow then, as now, was a pure white, and remarkable for the evenness of flesh with which her well-built frame is covered. The second prize cow, Mr. Stratton's, is a roan, much less evenly covered and certainly not equal to the other. They stand close together, and the judges cannot have found much difficulty in their decision. Mr. Ambler's cow is just about eight years old, and has had two calves. There is a not very remarkable show of Scotch and Welsh stock.

The show of sheep and pigs is as remarkable as ever. Some enormous specimens of fat pigs are exhibited, and the extraordinary precocity of the smaller breeds is also well illustrated. Mr. Rigden, Lord Walsingham, and the Duke of Richmond exhibit the qualities of the Southdown as successfully as ever. Mr. Foljambe is as usual successful in long-woolled sheep, along with Mr. Bradshaw, Lord Berners, the Marquis of Exeter, and Mr. Hewer, and Mr. Overman is remarkably successful with his cross-bred stock.

The following is the award of the judges:—

CATTLE.

Class I. Devon Steers, not exceeding 3 years old.—25*l.*, the Earl of Leicester. 10*l.*, H.R.H. Prince Albert.

Class II. Devon Steers, over 3 years old.—25*l.*, Lady Elizabeth Reynell, of Avisford House, Arundel. 10*l.*, H.R.H. Prince Albert.

Class III. Devon Heifers, not over 4 years old.—15*l.*, Mr. John Tucker, of Staplegrove, Taunton. 5*l.*, Mr. T. W. Fouracre, of Durston, Taunton.

Class IV. Devon Cows, over 4 years old.—20*l.*, H.R.H. Prince Albert. 10*l.*, Mr. John Coate, of Hammoon, Blandford.

Class V. Hereford Steers, not over 3 years old.—25*l.*, Mr. Isaac Niblett, of Filton, Bristol. 10*l.*, Mr. Edward Longmore, of Adforton, near Ludlow.

Class VI. Hereford Oxen, over 3 years old.—25*l*, Mr. William Heath, of Ludham Hall, near Norwich. 10*l.*, H.R.H. Prince Albert.

Class VII. Hereford Heifers, not over 4 years old.—15*l.*, Mr. Joseph Phillips, of Ardington, near Wantage.

Class VIII. Hereford Cows, over 4 years old.—20*l.*, Mr. J. H. Gurney, of Catton Hall, near Norwich. 10*l.*, Mr. Joseph Phillips, of Ardington.

Class IX. Short-horned Oxen, not over 3 years old.—25*l.*, the Rev. J. Holmes, of Brook Hall, Norwich. 10*l.*, Earl Spencer, K.G.

Class X. Short-horned Oxen, over 3 years old.—25*l.*, the Marquis of Exeter. 10*l.*, Mr. T. Mortin, of Ashford Ford, Staines.

Class XI. Short-horned Heifers, not over 4 years old.—15*l.*, Mr. W. Aldworth, of Frilford, near Abingdon. 5*l.*, Mr. C. P. Duffield, of Marcham Park, Abingdon.

Class XII. Short-horned Cows, over 4 years old.—20*l.*, Mr. H. Ambler, of Watkinson Hall, near Halifax. 10*l.*, Mr. R. Stratton, Swindon.

Class XIII. Scotch or Irish Oxen, of any age.—10*l.*, Mr. John Grove, of Ferne, near Salisbury.

Class XIV. Scotch or Irish Cows of any age.—5*l.*, the Rev. Joseph Arkwright, of Harlow, Essex.

Class XV. Welsh Steers of any age.—20*l.*, Colonel Pennant, of Bangor. 5*l.*, Sir R. Williams, Bulkeley, Beaumaris.

Class XVI. Welsh Cows of any age.—The prize is withheld.

Class XVII. Oxen of other pure breeds of any age.—10*l.*, Messrs. Charles Neame & Sons, of Selling, Faversham, Kent.

Class XVIII. Cows of other pure breeds of any age.—10*l.*, Mr. W. Heath, of Ludham Hall.

Class XIX. Oxen of cross or mixed breeds not over 3 years old.—15*l.*, the Earl of Radnor.

Class XX. Oxen of cross breeds over 3 years old.—15*l.*, Mr. James Taylor, of Nigg, near Park Hill, Ross, N. B.

Class XXI. Cross-bred heifers not over 4 years old.—10*l.*, Mr. Edward Waters, of Stratford-sub-Castle, Salisbury.

SHEEP.

Class XXII. Wether Sheep, long-woolled breeds under 22 months old.—20*l.*, Mr. R. L. Bradshaw, of Burley-on-the-Hill, Oakham. 10*l.*, Mr. G. S. Foljambe, of Osberton Hall, Worksop. 5*l.*, Lord Berners, of Keythorpe Hall.

Class XXIII. Ditto, ditto, Sheep to be under 220 lbs. in weight.—20*l.*, Mr. G. S. Foljambe, of Osberton Hall. 10*l.*, Mr. R. L. Bradshaw, of Burley-on-the-Hill. 5*l.*, Marquis of Exeter.

Class XXIV. Wether Sheep, long-woolled breeds (not being Leicesters) under 22 months old.—10*l.*, Mr. William Hewer, of Sevenhampton, Highworth.

Class XXV. Cross-bred Wether Sheep under 22 months.—10*l.*, Mr. John Overman, of Burnham Sutton, Norfolk. 5*l.*, Mr. John Hitchman, of Little Melton, near Tetsworth.

Class XXVI. Ditto, ditto, under 220 lbs. weight.—10*l.*, Mr. John Overman, of Burnham Sutton, Norfolk.

Class XXVII. Wether Sheep, short-woolled breeds, under 22 months old.—20*l.*, Mr. William Rigden, of Hove, Brighton. 10*l.* Lord Walsingham.

Class XXVIII. Ditto ditto, under 200 lbs. weight.—10*l.*, the Duke of Richmond, K.G.

Class XXIX. Wether Sheep, short-woolled breeds, under 34 months.—20*l.*, the Duke of Richmond, K.G. 10*l.*, Mr. H. H. Lindsay, of West Dean, Chichester.

Class XXX. Wether Sheep under 22 months, short-woolled breeds (not being Southdowns).—10*l.*, Mr. John T. F. Pain, of North Houghton, Stockbridge, Hants.

PIGS.

Class XXXI. Pigs of any breed above 13 and under 26 weeks old.—10*l.*, Mr. John Coate, of Hammoon, Blandford. 5*l.*, H.R.H. Prince Albert.

Class XXXII. Above 26 and under 52 weeks old.—10*l.*, H.R.H. Prince Albert. 5*l.*, Mr. John Coate, of Hammoon, Blandford.

Class XXXIII. Above 12 and under 18 months old.—10*l.*, Mr. Stewart Marjoribanks, of Bushey Grove, Watford. 5*l.*, Sir John B. Mill, of Mottisfont Abbey, Romsey, Hants.

GOLD MEDALS.

The Gold Medal to the exhibitor of the best steer or ox in any of the Classes. The Marquis of Exeter, K.G., of Burghley Park, Stamford.

The Gold Medal to the exhibitor of the best heifer or cow in any of the Classes. Mr. Henry Ambler, of Watkinson Hall, Halifax.

The Gold Medal to the exhibitor of the best pen of one-year-old long-woolled sheep in any of the Classes. Mr. R. L. Bradshaw, of Burley-on-the-Hill, Oakham.

The Gold Medal to the exhibitor of the best pen of one-year-old short-woolled sheep in the 27th, 28th, or 30th Classes. Mr. William Rigden, Hove, Brighton.

The Gold Medal to the exhibitor of the best pen of pigs in any of the Classes. Mr. John Coate, of Hammoon, Blandford.

EXTRA STOCK.

The Silver Medal to the exhibitor of the best beast. Mr. John Overman, of Burnham Sutton, Norfolk.

The Silver Medal to the exhibitor of the best long-woolled sheep. Mr. G. S. Foljambe, of Osberton Hall, Worksop.

The Silver Medal to the exhibitor of the best short-woolled sheep. Lord Walsingham, of Merton Hall, Thetford.

The Silver Medal to the exhibitor of the best cross-bred sheep. Mr. Charles Howard, of Biddenham, Bedford.

The Silver Medal to the exhibitor of the best pig. Mr. Stewart Marjoribanks, of Bushey Grove, Watford.

JUDGES.

Cattle and Long-woolled Sheep.—John Buckley, William Hesseltine, Robert Smith.

Cross-bred Short-woolled Sheep and Pigs.—Henry Fookes, John Clayden, Thomas Hawkins.

The Show of Implements and vegetables in the galleries above the cattle, and of steam threshing machines on the ground floor, is as large and as multifarious as ever. We do not, however, notice anything new, unless it be the admirable practice adopted by Mr. Ransome of pricing every article exhibited in a readable manner. A plough for 2*l.* 14*s.* placed in a prominent position appeared to us to deserve it both for the quality of the article and its cheapness. Chaffcutters, Linseed-crushers and flour mills, and corn and cake crushers, are appropriately enough the principal articles exhibited—and there is a fitness in directing the attention chiefly to those machines employed in preparing the food which is to make the beef and mutton exhibited below. As we walked round we noticed the grinding mills exhibited by Mr. Loyd, of Shoreditch—the carts and ploughs exhibited by Mr. Busby, of Bedale,—the horizontal Turnip cutters of Mr. Phillipps, though we did not notice his Turnip grater. Mrs. Wedlake had a large stock of implements present. Messrs. Howard, of Bedford, exhibited their admirable ploughs and harrows; Mr. Gibbs had a stand of magnificent Turnips, Mangel Wurzel, and other roots. Skirving, Sutton, & Lawson had also stands—the first remarkable for his Swedes—the second for a quantity of very large specimens, especially of Mangel Wurzel; the third for collections of Grasses and grains: we may refer here to the very interesting framed specimens of Triticum and other grains, showing all the parts of the plant in a most instructive manner. Burgess & Key and Dray & Deane exhibit large quantities of implements—their rival reapers, &c. Garratt and Hornsby and Smythe & Holmes have specimens of their drilling-machines. Crosskill exhibits carts, and Bell's reaper, his root-washer, &c. Root-graters were shown in considerable numbers by Fowler and others, chiefly on Bushe and Barter's principle; Samuelson exhibits Turnip-cutters and chaff-cutters; and steaming apparatus is shown by Stanley, of Peterborough, and draining apparatus by Clayton, of the Atlas Works close by. Baysford, of Drury Lane, shows his peculiar spring carts and carriages. Messrs. Richmond & Chandler exhibit their well-known chaff-cutters, corn-bruisers, &c. Chandler exhibits his liquid manure drill. Smyth & Ashby show their hay-maker, chaff-cutter, &c. Barrett & Exall show their small threshing machine and other implements. Coleman exhibits a number of scarifiers. Felts and tents are exhibited by M'Neill & Croggon. Manure makers are represented by the Superphosphate Compost Company. And many other manufactures and machines were present; but the above will show that the opportunity afforded by the meeting of the Smithfield Club has not been lost for any want of alacrity and energy on the part of English agricultural machinists.

THE MIDLAND COUNTIES EXHIBITION.

Birmingham, *Dec.* 13.—The general interest attaching to the meeting here is greater than that excited by the Smithfield show. The large show of poultry, the extensive collection of sorts exhibited, the better show of pigs, more than make up for the deficient number of cattle in the hall, and for the absence of agricultural implements. The roomy comfortable place of meeting is a point, too, in which the Midland Counties Association have greatly the advantage of the Smithfield Club. The show of cattle contains some animals that would have carried off prizes at Baker Street, but on the whole it was not equal in quality to its rival. The gold medals were both carried off by Herefords—and by Herefords of remarkable quality. The classes of Shorthorns and of Herefords contained some animals which are exceedingly and unevenly fat, such as have almost disappeared from the Smithfield exhibitions. On the other hand the Devons are equal in quality, and the longhorns are tolerably well represented—a class which has no standing at Baker Street at all. The show of sheep was very good, Lord Walsingham being very successful with his Southdowns, and for the other prizemen we refer to the list below. The show of pigs is remarkably good, the large and small breeds both being remarkably well represented. In the same division of the hall with the cattle is a very capital collection of roots and enormous Cabbages. This is a very useful addition to the exhibition, and attracted a good deal of attention. The first prize was carried off by the Elvetham long red Mangel Wurzel, grown from Messrs. Suttons' seed.

The great attraction of the exhibition, however, is the poultry show, which contained an unprecedented number of birds (almost 5000), many of the classes being in themselves more numerous than the entire collection of many provincial poultry shows. Thus, of coloured Dorkings—chickens of 1855—no fewer than

150 pens appear, and a magnificent show of birds they are. The large Dorkings and Cochins, the elegant Hamburghs, and the Polands, are all admirably represented; and no one needs to have been ashamed of failing of distinction in such a competition. We have not room for the prize list of the poultry show. It occupies 16 closely printed pages in the published catalogue, containing 165 separate awards beside commendations, and beside the premiums given to 16 classes of pigeons.

The following is the award of prizes for cattle and sheep:—

CATTLE.

Class I. Hereford Oxen.—10*l.* and Gold Medal, Mr. William Heath, Ludham Hall, Norwich. 5*l.*, Lord Atherton.

Class II. Hereford Steers.—10*l.*, John Naylor, Esq., Leighton Hall, Welshpool 5*l.*, Mr. Edward Longmore, Adforton, near Ludlow.

Class III. Hereford Cows.—10*l.*, Mr. S. W. Urwick, Leinthall Starks, near Ludlow. 5*l.*, Mr. J. Smith, Scheleley Walsh, Worcestershire.

Class IV. Hereford Heifers.—10*l.* and Gold Medal, Mr. E. Price, Court House, Pembridge. 5*l.* Mr. Pitt, Chadnor Court, Dilwyn.

Class V. Short-horned Oxen.—10*l.*, Colonel Pennant, Penrhyn Castle. 5*l.*, H.R.H. Prince Albert.

Class VI. Short-horned Steers.—10*l.*, Mr. J. Robinson, Thirsk. 5*l.*, Lord Leigh.

Class VII. Short-horned Cows.—10*l.*, Viscount Hill. 5*l.*, Mr. Herbert, Powick.

Class VIII. Short-horned Heifers.—10*l.*, Earl Howe. 5*l.*, Viscount Hill.

Class IX. Devon Oxen and Steers.—10*l.*, H.R.H. Prince Albert. 5*l.*, Mr. William Heath.

Class X. Devon Steers.—10*l.*, Mr. J. C. Halse, South Molton. 5*l.*, H.R.H. Prince Albert.

Class XI. Devon Cows. 10*l.*, Mr. A. Umbers, Weston Hall. 5*l.*, H.R.H. Prince Albert.

Class XII. Devon Heifers.—10*l.*, H.R.H. Prince Albert.

Class XIII. Long-horned Cows or Heifers.—10*l.*, Mr. Burbery, Wroxhall. 5*l.*, Mr. P. F. Hussey, Wyrley Grove, Walsall.

Class XIV. Fat oxen of other pure breeds and cross-bred animals.—10*l.*, Mr. W. Wilson, Coleshill. 5*l.*, Mr. R. Hawkes, Charlecote.

Class XV. Fat Cows.—10*l.*, W. T. Cox, Esq., Spondon, Derbyshire. 5*l.*, Mr. R. Timms, Branston.

Class XVI. Fat Heifers.—10*l.*, The Moira Colliery Company, Ashby-de-la-Zouch. 5*l.*, the Duke of Beaufort.

Class XVII. Scotch or Welsh Oxen or Steers.—10*l.*, Mr. W. Heath. 5*l.*, A. Campbell, Esq., Monzie Castle, N.B.

SHEEP.

Class XXI. Leicester Wethers, 22 months old.—10*l.*, G. S Foljambe, Esq., Osberton Hall. 5*l.*, Mr. R. L. Bradshaw, Burley-on-the-Hill, Oakham.

Class XXII. Ditto ditto, exceeding 22 but not exceeding 34 months old.—10*l.*, Mr. G. Turner, Barton, Exeter. 5*l*, the Marquis of Exeter, K.G.

Class XXIII. Long-woolled Sheep, not being Leicesters. Wethers, not exceeding 22 months old.—10*l.*, Mr. W. Slatter, Stratton, near Cirencester. 5*l.*, Mrs. S. West, Green Hill Farm, Bletchington.

Class XXIV. Ditto ditto, Wethers, exceeding 22 but not exceeding 34 months old.—10*l.*, Mr. R. Beman, Morton-in-the-Marsh.

Class XXV. South and other Down Sheep, Wethers not exceeding 22 months old.—10*l.*, Lord Walsingham. 5*l.*, Lord Walsingham.

Class XXVI. Ditto, ditto, Wethers 22 but not exceeding 34 month old.—10*l.*, Lord Walsingham. 5*l.*, Lord Walsingham.

Class XXVII.—Shropshire short-woolled sheep, Wethers not exceeding 22 months old.—10*l.*, Mr. J. B. Green, Marlow, Herefordshire. 5*l.*, Mr. H. Smith, jun., Sutton Maddock, Shiffnall.

Class XXVIII. Ditto, ditto, Wethers exceeding 22, but not exceeding 34 months old.—10*l.*, Earl of Aylesford. 5*l.*, Mr. W. Masfen, Walsall.

Class XXIX. Cross-bred sheep, Wethers, not exceeding 22 months old.—10*l.*, Mr. A. C. Keep, Wollaston. 5*l.*, Mr. A. C. Keep.

PIGS.

Class XXXI. Fat Pigs, not exceeding 10 months old.—10*l.*, C. C. Dormer, Esq., Rousham. 5*l.*, Mr. J. Wyley, jun., Rugeley.

Class XXXII. Fat Pigs, not exceeding 15 months old.—10*l.*, Mr. George Turner, Barton, Exeter. 5*l.*, Duke of Sutherland.

Class XXXIII. Fat Pigs, exceeding 15 months old.—6*l.*, R. Benyon, Esq., Reading. 3*l.*, Mr. C. Holland, Seabridge, Staffordshire.

PRIZES FOR BREEDING PIGS.

Class XXXIV. Pigs of a Large Breed, exceeding 3 and not exceeding 6 months old.—10*l.*, Mr. J. Smith, Henley-in-Arden. 5*l.*, Mr. E. Harrison, Great Charles Street, Birmingham.

Class XXXV. Pigs of a Small Breed, exceeding 3 and not exceeding 6 months old.—10*l.*, the Rev. M. Shaw, Rougham, Bury St. Edmund's. 5*l.*, R. H. Watson, Esq., Wigton, Cumberland.

YIELD OF LAST HARVEST,

Westmorland.—The gloomy predictions respecting the late crop of Wheat which prevailed through a great part of summer, were in some degree allayed by the fine harvest weather which, commencing in the latter end of August, continued until the principal part of the crop was safe under "thack and rape." In fact not a single day's interruption took place during the entire month of September, both the autumn and spring sown Wheat being carted in the very best possible condition. Rust and mildew to some considerable extent made their appearance during the wet weather which prevailed in August, more particularly in red Wheat, but the clear atmosphere and dry light winds which succeeded had the effect of checking these, yet the samples where these cases occurred are small and shrivelled, weighing not more than 58 lbs. per bushel, whilst the finer samples of white escaped with less damage, and come into the market fully 63 lbs., and in some instances even a higher weight, affording from their excellent condition satisfaction to the miller. From the various and conflicting opinions existing with respect to the extent of the crop it is impossible to arrive at any exact data as to the produce of last harvest, in fact men's minds have been so agitated by the peculiar features of the time, and the constant upward tendency of the corn markets, as to almost prevent sober calculation; yet taking the appearance of the stack yards, everywhere crowded, our own experience over a pretty large extent of crop, and the best opinions existing, we are led to the conclusion that the yield, although not equal to the crop of 1854, will still reach a fair, perhaps full average of former years, and a great portion thereof in prime condition for immediate use. In consequence of the high prices ruling, and the fine dry weather so favourable for the ploughing after Turnips, a much greater breadth of land than usual has been seeded with Wheat the present autumn, and this no doubt has contributed to enhance the value of prime samples, which have been sold as high as 98*s.* in the market; less, however, for that purpose will now be required, and we fully expect to see the demand assume a more steady attitude without any material reduction of rates. Barley, though bulky, is certainly short of an average crop, and the quality by no means first-rate for malting purposes; whilst Oats from the immense spread of stacks everywhere observable must reach a full crop, but the quality is short of former years, and the deficient weight per bushel will be a drawback on the value of this grain.

Lincolnshire.—The crop of Wheat in this neighbourhood will this year in my opinion be under an average. We have here three descriptions of soil—clay, loam and fen; some of the clay lands, well drained and highly cultivated, have produced a full average quantity of corn but where badly farmed or inefficiently drained the yield has not been so good as usual. Loamy land seems to have fared best, as excepting on a few neglected spots it is generally reported to have yielded an abundant harvest of Wheat of good quality; but the bulk of land about here is fen soil, on which scarcely a good crop was seen. Many acres were ploughed up and sown with Oats or Coleseed, and a large quantity might as well have been ploughed up, for in several instances the corn that was gathered would scarcely pay the expense of getting. The crop of Wheat in the fens must be regarded as very inferior both in quantity and quality, and considering the great extent of the fen country, that it is nearly all arable land and that it is generally very productive, I consider this falling off in the Wheat crop must tell greatly on the gross produce of the kingdom, which I do not think is compensated by any additional appropriation of land to the growth of Wheat, neither do I think diminished consumption will be resorted to so far as to occasion a material reduction in price. One clay land farmer tells me his Wheat will average 3½ quarters per acre instead of 4 quarters; a good fen farmer says he shall not have so much Wheat as usual by 200 quarters. Wherever the joint effects of frost and wind injured the Wheat plant during the spring, the consequences were perceived at harvest day and proved in threshing. *John Whitwell, Peterborough.*——I shall take an extensive district with which I am well acquainted, having resided in it all my life, and frequently passing over many parts of it; I mean the Great Level of the Fens, and the marshes lying between the Fen and the Great Estuary of the Wash. It comprises 680,000 acres, a great portion of which is peat, black, moory soil. Owing to the absence of rain to any extent in the autumn of 1854, followed by one of the driest winters almost ever known, and frost the most severe, the Wheat plant on all the light soils, *i. e.* peat, silt, gravelly clays, clays bare-fallowed, and light loams, was very seriously injured, and in many instances destroyed. In many parts of the Fens the light dry peat was blown away by stormy winds, the ditches were levelled, and the black dust lodged in large black ricks, like snow ricks, except in colour; much land was ploughed and resown, or sown with spring cropping, and on the remaining was left the thinnest plants ever remembered. On the light loams and soils of greater consistency the plant recovered pretty well and prospered tolerably till the flowering commenced, when most disastrous winds and rains beat down the crops and irrecoverably damaged the ear in its most critical season, that of flowering. The spring crops received more or less damage at this period, but upon the whole the crops of Oats, Beans, and Peas, the chief spring crops of the district, are not very unsatisfactory. Oats are light in weight, and not an average crop in produce. (What is an average crop in these days?) Beans produced a strong healthy plant, but from the causes above stated do not yield well. Peas, likewise, have less plant, podded tolerably well but ripened irregularly and deep away. But Wheat, that staff of human life, I believe I am correct in stating, and I am confirmed in this statement by the deliveries to merchants, &c., at all the district markets, is one of the worst crops ever harvested in this extensive district, certainly not yielding more than three-fifths of last year's produce, and of a quality so inferior as to weigh less by from 4 to 6 lbs. per imperial bushel. The quantity of flour obtained is of course in proportion, but I understand it yields as much as can fairly be expected from such light weights of Wheat. *John Clarke.*——In answer to your inquiries respecting the yield of Wheat this past harvest, I beg to say I think from my own observation and what I can learn from others, that this neighbourhood is fully one-fourth less than last year and one-fifth less than an average of years. Barley is equally as deficient. Oats are very little grown. *F. A. Sowerby, Aylesby, Great Grimsby.*

Northamptonshire.—I am still of the same opinion that the Wheat crop is not an average, although I am willing to admit that the Wheat does yield better than anticipated at harvest. Barley quite an average crop, but rough in quality. Beans and Oats about an average. I believe I am justified in saying that more than the usual quantity of corn has been brought to market. *W. Gray, Courteen Hall.*

Warwickshire.—With respect to the probable yield of the late harvest in the case of Wheat, the variety of causes attendant upon that peculiar season make it a difficult matter to arrive at a proper conclusion. A considerable portion of the plant upon light soils, as also the elevated portion of fallow Wheat, was destroyed by the severity of the frost in spring, and when replanted gave a sad return of both quantity and quality, very different to the usual spring sown crop. Where a good plant was retained (as particularly upon Bean brash or early ploughed turf which had been heavily pressed by the clodcrushers, &c., at the time of planting) upon some of the best Wheat soils, with good farming, there was promised at the commencement of June a great crop, but in consequence of the storms laying them before the completion of blossoming, they yield a less return than lighter crops which remained standing; yet some early sown and early variety of Wheat which had fully blossomed before the storm, return a good yield. Some poor clay soils yield from 8 to 24 bushels per acre, whilst others produce from 15 to 40 bushels. From the causes above stated, in this district the general yield I think must be at least 6 bushels less than an average after allowing for the extra breadth sown, which was of little amount, as the six-course system is greatly adopted. The heavy crops of Barley were much laid and do not produce equal to bulk, yet I think the crop an average. The Bean crop decidedly under an average. *W. Gibbs, Stratford on Avon.*

Essex.—The yield of the crops in this county may be considered better than had been anticipated, and the yield will upon the whole be about the same as that of 1854. In that year the heavy dry land was deficient in plant, and the yield was indifferent; in this year all that portion, by far the largest, has a full crop, but the light land portion of the county is defective. Taking the yield of the county together, it will afford more than an average growth of Wheat, which is estimated to be 3 qrs. 6 bushels per acre. The yield this year, I think, may fairly be taken at four quarters, the weight 60 lbs. to 62 lbs. per bushel, and for the most part the samples come in good condition; the top price at Chelmsford on Friday 7th was 86*s.* fine rough chaff white, and 81*s.* for red. A large quantity of Wheat has already been threshed, and it is presumed that the deliveries will now fall off, as threshing Barley will be resorted to; the yield of that grain is good—the average will be about 6 quarters, but the quality is inferior, one-tenth to one-eighth being taken out to render it marketable. Oats are a good crop, above an average by about 6 bushels per acre. Beans on the heavy land an average crop, but Peas are deficient. The quantity sown exceeded an average last year; the fine season and the anticipated high price of Wheat increased the breadth to about 10 per cent., but that may be considered the maximum. *R. Baker, Writtle.*——It is the opinion of myself and some neighbours that the Wheat crop of Essex is a full average crop—on the tenacious and undrained heavy land far superior to last year—but not so good either on the mixed soils of higher quality or the chalky clays. Beans are a full average crop, much better than last year. Barley a full average (some injured in sample) and so are Oats. Potatoes very much more abundant than last year. Mangel Wurzel good. Turnips a general failure. My own crops are heavier in every respect (excepting Turnips) than those of last year. *J. J. Mechi, Tiptree.*

Buckinghamshire.—I beg to say that from what I know, and from all I gather from the persons who go about with steam threshing machines (and from all accounts they have never been more busy than they have been since harvest), that the yield of Wheat in this immediate neighbourhood has been quite an average one. More than this, I have never heard one person complain of a bad yield. Barley is said to be rather under an average. Oats are not much grown, but the few acres sown are reported to have yielded well. Beans an average crop. I think this immediate neighbourhood, consisting chiefly of strong land, was highly favoured in regard to the Wheat crop. It certainly did not lose plant in spring as those crops did sown on light soils. I have threshed 26 acres of Wheat (Spalding), and it yielded 40 bushels an acre. This includes first, second, and third qualities. I had 36 bushels of best Wheat per acre. *W. G. Duncan, Stony Stratford.*

Hampshire.—In answer to your inquiry respecting my opinion of the yield of the Wheat crop in this locality, I have no hesitation in repeating my conviction (which I have several times expressed through our local press) that taking an area of 25 square miles round this city the Wheat crop is short, in bushels, of an average very nearly one-third, and more than a third of the crop of 1854; that as compared with last year, it is further short in weight of four pounds per bushel on the average, which on the quarter of Wheat (8 bushels) is a good half bushel, being 1-16th deficiency on the crop in weight alone, irrespective of one-third deficiency of bushels. Our estimated usual average in this district is about 26 bushels per acre. In 1854 we grew 28 bushels. I am quite at the extreme quantity when I say that 18 bushels is the average quantity grown this season. My qualifications for thus publicly stating these unwelcome, yet truthful facts, are a tolerably long life passed uninterruptedly in very extensive farming pursuits, my opportunities as an agricultural valuer for closely inspecting the growing crops, an unlimited acquaintance with the agriculturists around me, and the means of obtaining the most confirmatory of all evidence, that from the many owners of steam-threshing machines (with which our county swarms) and the united testimony of all which have been worked in this district

is to a rather less quantity per acre than I have named. You will perceive, sir, I am writing in a somewhat positive strain; but having previous to harvest predicted the failure, as our county papers will show, I have been at some pains to see how far results have borne out my predictions; unfortunately, I find them fully verified. Any man at all accustomed to the inspection of Wheat fields was aware of the many untoward circumstances at work (I am speaking of this county) from the very time of blossoming—ice on the 21st June, the very midst of that season; the Wheat fly, the parent of the yellow maggot, as busy as bees in a flower garden; the old black sort of blight, first affecting the straw, with black spots of fungi absorbing the juices, and consequently shrivelling the grain; heavy thunderstorms, prostrating the already smitten crop, rendering it more susceptible of mischief;—here was a combination of evil from which the results are not at all surprising, and they are as I have stated them. I am happy in this opportunity of entering my earnest protest against the delusions enunciated by Mr. Caird, through the columns of the *Times;* his letters are full of assumptions, but in which I look in vain for one single established fact, as regards our usual average growth, the consumption, and more particularly of this year's produce, and how any man of practice could have ventured to assume an extra planting of one-fourth in acreage of Wheat, in the face of an iron frost from January the 12th to the 6th of March, the only period during which any sensible increase could have been sown, throughout which the plough was frozen to the earth, and after which it was too late and useless to sow Wheat, is a matter of astonishment to all reasoning men; there were very many acres ploughed up in various parts of the country killed by the frost, and I very much question whether, on strict investigation, it would not appear that the acreage thus lost to the country did not quite equal that sown over and above the usual quantity. I believe Hampshire is one of the worst affected counties this year; but I know there are many others very bad, and it is curious to note on almost every farm, the great difference in produce in the various fields on the same occupation and very near together, with very little difference as to the time of sowing; we find 26 bushels per acre growing alongside of 12 bushels, the one being a fair sound sample, the other tailing corn, and what is still more strange the best manured lands, with the heaviest crops of straw, although standing upright, yield much worse than those of a moderate bulk, and more lightly dressed. When you have received the information you are seeking from the various correspondents, you will be in a position to draw a faithful conclusion as to our stock and probable wants. Testing these by Hampshire alone, our position would be alarming indeed; and I am inclined to believe, taking in the few, if such are to be found, whose yield shall come up to Mr. Caird's own reported produce, your balance sheet will show a requirement of at least five millions of quarters over and above our own growth to carry the nation on till the harvest of 1856, a good Potato crop notwithstanding. *T. Twynam.*——The Wheat crop in this district between Southampton and Lymington rivers is not over two thirds of an average crop; some fields in Fawley parish as low as 8 bushels per acre, of a very bad quality. None of us can thresh out more than half the usual quantity per day; the cause I believe to be a blight just before harvest, owing to an over luxuriant growth and thin plant on the gronnd. Barley a good average crop, rather over than under; Oats the same. *J. Eames, Lymington.*

Dorsetshire.—Having a large agricultural connection in this county, besides being a buyer of corn, I have an opportunity of knowing something of our produce, and I am happy to say our yield of Wheat turns out better in quality and quantity than was expected at harvest. I think we had about one-tenth more land under Wheat than in average years, and I now think in this county the quantity per acre is about an average, but much less than last year. Less land by one-tenth of an average under Barley and Oats, but the quantity per acre an average of each. *R. Damer, Dorchester.*

Home Correspondence.

Potatoes in Bread.—In reply to the inquiry of a "Subscriber" as to how and in what proportion to use Potatoes with flour in making bread, I beg to state my plan, as follows:—first place in a pancheon or paste-bowl 15 lbs. of flour near the fire to warm; take 5 lbs. of good Potatoes, those of a mealy kind being preferable, peel and boil them as if for the table, mash them fine, and then mix with them as much cold water as will allow all except small lumps to pass through a coarse sieve into the flour, which will now be ready to receive them; add yeast, &c., and mix for bread in the usual way. This plan I have followed for some years, finding that bread made according to it is much superior to that made of flour only, and on this ground alone I would recommend its adoption, even if Potatoes were the same price as flour; but in addition to that, taking the present high price of flour, and moderately low price of Potatoes, here is a saving of over 20 per cent., which is surely an object worth attending to, if only by those of limited means. *E. B., High Peak of Derbyshire, Dec.* 11.

Produce of a Potato.—I beg to state that about the third year of the Potato blight I made a similar trial from a large Potato accidentally procured from a vessel from France. I planted it the first week in May. It was long and full eyed, weighing nearly a pound, from which I raised 31 plants at distances of 18 inches in a single row. At the end of August I found them diseased, and "although very unripe" I removed them, in number 273, 60 of which weighed 56 lbs., the others were very small. The total weight was over 60 lbs., and I believe, under favourable circumstances, it might have been 40 lbs. more. I think it possible to get 3 bushels from the like bulb. It is not the Potato alone that will give us (with high cultivation) an almost incredible increase. In Peas I have it verified. On the 24th of last April I put in a single row of 30, 15 inches apart, and they were harvested in August; the produce of these 30 Peas was over 11,000; five of them gave 2693 perfect Peas, viz.:—

1	621	2693,
2	540	
3	527	
4	505	
5	500	

the straw of which (rather over 3 feet in length) I have here, and shall be pleased to forward the same for the inspection of Professor Lindley, &c. *William Harrison, New Romney.*——In reply to your correspondent of the 24th ult., I add, that having adjourned to a field at the home farm of Mr. Ed. Smith on the 3d of October last, I witnessed crops of Potatoes evidencing an admirable system of culture. In looking over the varieties grown, my attention was drawn to one entirely distinct from any known in cultivation. Upon an intimation from Mr. Smith, I learned this peculiar growth belonged to a hybrid seedling, named by its raiser Smith's Prolific Kidney. At my desire one root was dug up, when 39 good sound tubers appeared; 31 were of a large size, the remainder, excepting two, fit for culinary purposes. The weight of the root was 18 lbs. (the tubers being washed clean previous to weighing). I further ascertained that the parent of this produce was a small firm tuber, weighing 5 oz.; also, that this had received precisely the same cultivation as the general crop. *J. R. T., Gardener to G. S. Wintle, Esq., Hucclecote Gardens, near Gloucester.*

Societies.

Society of Arts, *Dec* 12.—*On the Progress and Results of the Under Drainage of Land in Great Britain.*—The following is an abridgment of the Paper on this subject read before this Society by Mr. Bailey Denton. The discussion which followed the reading of the paper we hope to give next week:—

In selecting the subject of drainage as a topic for consideration, at a moment when war and its consequences upon the corn-producing countries of Europe have brought the price of Wheat to 11*s.*6*d.* per bushel, and the price of bread to 10*d.* the loaf, the council of this Society have been doubtless influenced by a desire to extend the knowledge we possess of an art which has been rightly esteemed the foundation of agricultural improvement, and the most simple and certain means by which the produce of the soil may be increased. If we consider the deprivations which seem to be multiplying upon us, we shall be led to appreciate more sensibly the importance of the present inquiry, and we shall be struck with the fact, well known but too little reflected upon, that in proportion as extremely high prices move the community at large to desire that the capabilities of our native soil should be more fully developed, in order to increase its produce of food, so do many owners of that soil abate their zeal in pursuit of improvements necessarily admitted, though but partially performed, during the more pressing difficulties of extremely low prices. If this should sound like mere assertion, the evidence afforded by the expenditure in drainage, under the Government loan, will leave no doubt on the point, for in 1852, when Wheat was 40*s.* 9*d.* per quarter, the expenditure was 412,269*l.* 15*s.* 6*d.* It became in 1853, when Wheat rose to 53*s.* 3*d.* per quarter, 334,115*l.* 13*s.* 3*d.*; and declined still further in 1854, when the price was 72*s* 5*d.* per quarter, to 316,220*l.* 7*s.* 4*d.*, or about 100,000*l.* less than in 1852. This fact, in its reference to the particular subject of drainage, is the more to be lamented, because the operation may be considered essentially to rank among the obligations of the owner and not the occupier of the land, and it is so necessary to found the present discussion upon a right understanding of this important point, that I must be pardoned for dwelling upon it. It is hardly 12 months ago since I had an opportunity of introducing this subject to the attention of the London Central Farmer's Club, the members of which are for the most part tenant farmers; and it was then suggested to me, that, however convincing the evidence might be in proof of the profitable results from systematic drainage, and however interesting in themselves the details of the necessary operations, it was so manifest that drainage, to be satisfactory, must be done effectually and permanently, and must therefore involve such a much larger outlay than a tenant farmer could be expected to make, that my statements should be rather addressed to the owners than to the occupiers of land. The whole tenor of the discussion on that occasion went to show, that considerations of expediency were paramount with those whose interest in the soil was limited by the nature of their tenancy, while it was contended that principle should rule with those whose interest in the soil was permanent and secure.

The object to be arrived at by both parties is to secure the best effect with the utmost durability. Already it has been made apparent that the short term of 22 years [during which the repayment of an expenditure on drainage is an annual charge upon the land] with all the advantage of the low rate of interest of the Government loan, has necessitated a charge upon the tenants which many, even of the most enlightened, are indisposed to bear as a standing increase of rent,—or it has caused dissatisfaction on another and worse ground, viz., that the works themselves have been inefficiently done from a predetermination to limit their cost to such an amount as will be repaid by a given charge. I refer to the experience of this fact because it is manifest that the extension of the art of draining will very materially depend upon the rate of instalment charged upon the tenants, and however profitable individual cases of drainage may be shown to be, the benefit to the nation will be inappreciable, unless we satisfy the tenants generally that during all the vicissitudes of times they can afford to pay the increased rent they are to be charged. The advantage of a lengthened period will be shown by comparing the increased rent a tenant would have to pay to liquidate the expenditure of 5*l.* per acre in 50 years and 25 years. In the former case the increased rent would be from 4*s.* 6*d.* to 5*s.* 3*d.* per acre,* and in the latter from 6*s.* 6*d.* to 7*s.* 2*d.* The difference is nearly 50 per cent. Now if drainage is substantially done, there is no reason whatever to doubt that it will last at least 50 years, and it follows, therefore, that the period of repayment may extend, if need be, to that period.

Mr. Denton then, after some remarks on the increased productiveness of drained land, proved by cases drawn from his own experience, gives the following illustration of the general progress of land draining:—

To understand clearly the advance we have made, and the extent of work yet to be done, the whole country should be divided geologically into three great characteristic areas.

A curved line drawn from Exeter to Berwick will make a very close give and take division between the western and middle districts, and the lower margin of the chalk, commencing at Weymouth in Dorset, and ending at Flamborough Head in Yorkshire, will form an excellent boundary between the middle and eastern districts.

1st. The western and north-western or Alpine district includes the mountainous granite, mica, and slate rocks with the trap rocks, clays, and debris associated with them, and the conglomerate clay and loam of the red sandstone which cover a wide breadth of the lower-lying portions of the district.

The district is made up according to *Table* I. (next page).

The system of drainage applicable to this district being for the most part occasional or "spring drainage," the expenditure will be brought rather below the cost of parallel or uniform drainage. Where parallel drainage has been deemed necesary in the valleys of the granite district, the cost has been generally high, owing to the large quantity of bolder stones and rock fragments which crowd the debris of which the soil is constituted. In the clay slate valleys, too, the cost has been found to be very great, owing to the necessity of breaking through and blasting protruding rocks, frequently bringing the cost as high as 7*l.* or 8*l.* per acre. The drains in the hill sides, however, being at comparatively wide intervals will be executed at from 2*l.* 10*s.* to 4*l.* per acre, and the average cost of the whole will thereby be much reduced. It may be assumed that the quantity of land permanently drained in this district by means of borrowed capital and by private outlay, does not exceed 300,000 acres, and that 35,000,000*l.*, will be required to perfect the under-draining of the remaining 7,725,000 acres of wet land. 2. The middle district, including all the secondary strata from the basis of the Devonian, Cambrian, and Cumbrian ranges up to, but exclusive of, the chalk formation, comprises the mountain limestone, the coal measures, the new red sandstones, and magnesian limestone, the lias, the oolitic strata, and the portion of the green sand with the gault lying to the west of the main ridge of chalk.

The counties, parts of counties, and parts of Wales and Scotland (*Table* II.), make up the middle district.

This district, consisting of nearly nineteen millions of acres, comprises soils of every degree of tenacity and porosity, from the stiffest clays to the freest sands. About one half, or eight millions of acres of the cultivated lands, and lands capable of improvement, are believed to be either clays or loams requiring drainage on the parallel system, with more or less distance between the drains, and about 3½ millions of acres are of comparatively porous matter, which require occasional drains, or drains at very wide intervals, to free them of the water upheld by the underlying clays. Some of the stiffest clays, however, particularly patches of the red sandstone clay, some deep beds of the lias and Oxford clays, and the Ganet, require very close drainage to be effective. An interval of 6 or 8 yards is quite wide enough for these soils. The necessity of thus increasing the number of drains in some places will counterbalance the comparatively small cost of the occasional drainage of the water-logged strata, and will bring the average cost of the whole to 5*l.* per acre. We cannot assume that there are less than ten millions of acres in this district still to be drained. This is, supposing that 415,000 acres have been already permanently drained, and on such assumption it will require 50,000,000*l.* to perfect the under-draining of the district. 3d. The eastern district includes the chalk (the uppermost formation of the secondary strata)—the green sand which surrounds the Weald clay—the Wealden clay and Hastings sands, and the tertiary and post-tertiary formations, which comprise the London and plastic clays—the Bagshot sand and associated clay, the crags of Norfolk and Suffolk, the rich deposits of Holderness in Yorkshire, and the more recently recovered fens of Norfolk, Cambridgeshire, Huntingdonshire, and Lincolnshire. Bolder and transported clays are very frequently found in this district also, covering the out-cropping strata. The counties or parts of counties (as stated in *Table* III.) make up the district.

A very wide portion of this district is chalk, and requires no draining. A considerable portion, too, consists of the fens, of which I have estimated only half as requiring under-draining. Already the prejudice against under-draining these lands is giving way, where the vegetable matter is shallow and the underlying clay comes closer to the surface. The deep peat, or "black fens," may be considered sufficiently well-drained by open dykes, and have not been included in the foregoing statement. I may remark, however, that where under-drainage has been tried, it has been found to consolidate the soil and improve the quality of the corn grown. The whole breadth of the fens in the several counties is about 700,000 acres. Of the denser clays we have in this district the Wealden and the London clays; the former of which covers 650,000 acres, and the latter 1,500,000 acres, all of which requires parallel and close drainage. Besides these clays we have a very large space covered with the clays and loams of the Bagshot sand, and with bolder and diluvial clays of every degree of tenacity. As the metropolis and suburbs are included in this district, I have assumed that 450,000 acres have been permanently drained, leaving 4,000,000 acres requiring draining, the cost of which cannot be estimated at less than 22,000,000*l.* The summary (*Table* IV.) gives the totals of the districts.

Thus we see that there will still be required 107,000,000*l.* for the under-drainage of Great Britain, towards which the balance in hand of the Government Loan 1,471,216*l.* is applicable, leaving the sum of 105,528,784*l.* to be provided from private sources. Of this it may be assumed that four-fifths, or about 80,000,000*l.*, will be required on loan, and that the collected capital of incorporated drainage and insurance companies will be the future source of supply; for it is hardly to be supposed that the legislature will again sanction the advance of public money for the particular benefit of one class of the community, after experience has shown that private companies are able and willing to lend money upon the lowest rate of interest ruling in commercial affairs."

Mr. Denton proceeded to discuss the question of *Deep and Shallow Drainage:*—

Drainage, to be perfectly satisfactory in its effect upon the soil, must render it uniformly permeable to the full depth of the drains. The soil midway between them must be in the same condition to receive and infiltrate the rain that falls upon it, as the soil nearest the drains. If this is not accomplished, they are not producing that united effect which should be sought for and obtained, and there is no more certain way of producing *an irregular condition of soil,* than by placing the drains so far distant from each other, that the influence of one drain cannot perfectly meet the influence of another. Cases have been quoted as failures

* Five shillings per acre increased rent will be met by the following increase of produce, upon a 4-course system of husbandry, independent of all benefit from the improved condition of the soil for tillage and seeding:—

Turnips,	20	bushels at	3*d.*	per bushel.
Barley,	1¼	"	4*s.* 0*d.*	"
Beans,	1⅓	"	3*s.* 9*d.*	"
Wheat,	¾	"	6*s.* 8*d.*	"

of deep-draining, in which a desire to keep down the cost has led to an indiscreet widening of the distance, and the unsatisfactory result to which I have referred has proved that the increased depth of drains will not compensate for increased distance, and that soils which should be drained 24 feet apart, cannot be sufficiently well drained at 40 feet apart, let the depth be what it may. But the effect has been no other than this,—the principle of depth has remained unshaken. It has simply proved that good draining is not to be done for as little money as bad.

Among the instances of this species of partial failure, I may state that I have been obliged in several instances to introduce intermediate drains when I have been over careful of expenditure, and have placed those first laid out 30 feet, where they ought to have been 25 feet apart.

It is a common assertion, "that water cannot get down through clays," but in no one instance has it been successfully shown that water will disobey the laws of gravitation, or will fail to descend through any clay soil, however absorbent and retentive, to an approximate level with drains of reasonable depth (not less than 4 feet), if they be placed sufficiently near each other to counteract such absorbent and retentive properties, and to meet the effect of atmospheric humidity in maintaining them in force.

Frequently has it fallen to my lot to meet men retaining prejudices in favour of shallow draining, on clays which they have declared to be so stiff and retentive, that it was impossible water could find its way down, and so dense and dry in the subsoil, that no water could be gained from cutting into it. These clays have nevertheless been drained from 4 to 5 feet deep, and water has flowed copiously from the outlets; still the advocates of shallow draining, when asked "from whence comes the water?" reject this simple proof of their error.

The following extract of a letter will show that land carefully drained 18 inches deep with tiles, becomes, in a few years, as wet or even wetter than before. It is from Mr. Macvicar, of Barkwith, in Lincolnshire. He says—"I have met with several cases of shallow drainage which at first have been followed with beneficial results, and have become after a time inoperative. Thus, in the parish of Colsterworth, a field of strong retentive clay land was drained in 1842, at a depth of 18 inches; for a time the land was apparently laid dry, but in succeeding years it showed symptoms of returning wetness. I saw the field last week; it is sown with Wheat, and, though water-furrowed, the land is saturated with water. I examined the outlets, which were running very slowly, although I believe the drains are open."

I have never yet heard a satisfactory reason for land returning to a state of wetness after being dry. One thing, however, is proved by Mr. Macvicar's case, and that is, that it is not merely by the substitution of the durable pipe for the perishable thorn that the surface of land can be rendered permanently dry, as the shallow drainers say. It will be observed that it is about 14 years since this specimen of permanent shallow draining was done. This length of time accords with the period which is generally understood to be the time which elapses before bush-draining would be renewed.

As an advance upon the extremely shallow drainage of 18 inches and 24 inches depth, we find Mr. Denison, Mr. Milward, and several other gentlemen of high repute, draining from 2 feet 6 inches to 3 feet deep, and they still, I believe, express themselves satisfied with the result; but, as drains of the medium depth of 2 feet 6 inches to 3 feet cannot fail to do some good (and, perhaps, a lasting one, so far as the discharge of water goes), the fact that the result has been satisfactory to those who performed the work does not prove that such medium depth is the best. On the contrary, I hope, by referring to a few facts, to show that drainage as shallow as 30 inches or 36 inches, fails to provide for all the objects in view.

Three important advantages attend deep drainage beyond the primary object of discharging superfluous water. The first is—the increased quantity of soil ameliorated and rendered serviceable to vegetation: the second—its improved temperature; and third—the removal of the pipes beyond the reach of deep cultivation, and beyond the reach of annual vegetation, to stop the drains by the growth of roots within them. With regard to the first advantage, it can hardly be necessary to say that the staple of ærated soil, into which the roots of plants can travel and seek their food, cannot be too deep. Every inch of additional drainage gives 100 tons of active soil per acre, rendered, by drainage, so free and porous, as to gain fertility from the rain passing through it, and from the solution of the ingredients of the soil, and from the manure which is brought down from the surface by the rain.

Mr. Denton then passes on to discuss Mr. Trimmer's plan of Keythorpe drainage. He says:—

Allowing for a difference in the mode of carrying this into execution, this method is based upon the same principle as Mr. Baker, of Writtle, has enunciated, viz., that if there be a porous soil only 2 feet deep, resting on an impervious subsoil, nothing is gained by carrying the drains into the latter.—All practical men—I mean practical men, qua drainage—will at once dispute the assumption that there exists any clay subsoil at a depth of 2 feet below the surface which is impervious, and that, therefore any system founded on it is nothing more or less than an indirect mode of shallow draining, aiming only at the discharge of water, without seeking any of those collateral advantages just referred to. Lord Berners, the owner of the Keythorpe estate, having certain lands in hand, commenced his draining operations by causing numerous holes to be dug. By observation and experiment, which appears ultimately to have led to a definite practice, his lordship was enabled to arrange his drains so far distant from these holes as just to suffice to draw the water out of them. Mr. Trimmer explains the mode adopted to be a system of draining by pipe channels transverse to certain ridges and furrows found to exist between soil and subsoil.

Without venturing to deny the statement of so sound a geologist as to the existence of these subterranean ridges and furrows, and without presuming to deny that Lord Berners has rendered his land dry for the time being, I am content to state what appear to me insuperable objections to the general adoption of the Keythorpe system. The first is, that the depth of the drainage must necessarily depend upon the depth of the furrows, whether they be 18 inches or 10 feet deep (if they are found to exist of sufficient regularity to become applicable as drains at all). We have the evidence of what has been done at Keythorpe, showing that they are sometimes found to lie only 18 inches deep, one-tenth of the drains being that depth.

Lord Wharncliffe's plan of compromising between the deep and shallow systems is thus referred to:—

It is called the combined system of deep and shallow drainage and has been described by his lordship, in the "Journal of the Royal Agricultural Society," in the following terms:—"I determined to combine with the fundamental 4 feet drains a system of auxiliary ones of much less depth, which should do their work above, and contribute their share to the wholesome discharge, while the under current from their more subterranean neighbours should be steadily performing their more difficult duty. I accomplished this by placing my 4 feet drains at a distance of from 18 to 20 yards apart, and then leading others into them, sunk only to about 2 feet beneath the surface (which appeared upon consideration to be sufficiently below any conceivable depth of cultivation), and laying these at a distance from each other of 8 yards. These latter are laid at an acute angle with the main drains, and at their mouths are either gradually sloped downwards to the lower level, or have a few loose stones placed in the same intervals between the two, sufficient to ensure the perpendicular descent of the upper stream through that space, which can never exceed, or, indeed, strictly equal the additional 2 feet."

In order to give you the most authentic account of the results of this system, I will read you the following extracts from a letter I have just received from Mr. William Hunt, of Wortley:—

"I am now able to give you my opinion of the success of the same system of draining upon the Carleton property, belonging to Lord Wharncliffe. The combined system has succeeded most admirably there. The soil generally is a strong loam for about one foot in depth, then a stiff clay subsoil, but I found on making trial pits in several parts of each field, that at the depth of about 3½ feet, and between that and 4 feet, the clay was a little more porous, although below that depth it became quite stiff. I, therefore, set out the 4 feet drains according to his lordship's usual practice, by 20 yards apart, with the 2 feet drains slanting into the 4 feet at 8 yards apart.

"The tenants were at first much averse to the combined system, but they are now highly in favour of it in preference to the regular system at whatever depths, and they are now preparing to sow Turnips next season, where such practice was never thought of previously. The rapid manner in which the surface has become dry after the heaviest falls of rain, has quite surprised all parties who have witnessed the effects of the combined system of draining at Carleton. I have no doubt but 4 feet drains, placed at regular distances, would have drained the land I have named, but the cost would have been much higher, and what is of greater importance than the expense?"

Mr. Denton lastly gives some directions for determining the intervals between drains which he would advise to be adopted:—

In determining the distance between drains, it is necessary not only to have regard to the nature of the soil, but to the amount of annual rain-fall and the frequency of rain. A practical knowledge of the different clay of the different formations enables the draining engineer to determine pretty accurately the draining properties of each. To enable a landowner whose experience is comparatively limited to form a judgment on the subject, I may venture to refer to a means of mechanical analysis which I have found useful, and which I explained last year. See Land Drainage and Drainage Systems, page 23. The proportions of sand and clay were ascertained by washing a given quantity in a flat-bottomed medical phial. The sand subsides below the clay and is visible through the glass. The existence of lime was ascertained by means of acid. If it effervesces lime exists, and if the lump dissolves very rapidly, there will be a considerable proportion of lime in the soil. The capabilities of the soil to expand and contract were ascertained by weighing and measuring a given quantity at different times and under their different conditions of wetness and dryness. In cases of difficulty recourse should be had to the chemist. The necessity of a careful examination into the draining properties of clays will be seen by a statement of the comparative cost of draining

TABLE ONE.

Name of County.	Total extent of each County included in district.	Extent of land cultivated and land capable of improvement.	Proportion of wet land.	Amount of money applied for under the Public Money Drainage Act.	Amount expended under the act.
	Acres.	Acres.	Acres.	£	£
Cornwall	851,200	680,000	255,000	63,702	27,040
Devonshire ... } Somersetshire } part of	1,657,200	1,215,000	4[illegible]0,000		
Wales, part of	4,000,000	2,997,000	1,250,000	223,863	83,297
Monmouth, Worcester, Hereford, Salop } parts of...	1,315,040	1,215,000	750,000		
Lancashire ..., Yorkshire ..., Northumberland, Westmoreland ..., Cumberland ... } parts of...	1,035,000	565,000	360,000	1,941,168	1,165,683
Scotland, part of	18,000,000	9,628,390	5,000,000		
Outlying portions in the Midland district	35,840	20,000	10,000		
	26,894,280	16,320,390	8,025,000	£2,228,733	£1,276,020

TABLE TWO.

Name of County.	Total extent of each County included in Middle district.	Extent of land cultivated and land capable of improvement.	Proportion of wet land.	Amount of money applied for under the Public Money Drainage Act.	Amount expended under the act.
	Acres.	Acres.	Acres.	£	£
Devon ..., Somerset, Dorset ... } parts of...	1,200,000	1,170,000	650,000	252,678	125,955
Gloucester..., Monmouth, Worcester, Salop, and Wales ... } parts of	2,434,080	2,340,000	1,350,000		
Lancashire ..., Yorkshire ..., Northumberland, Westmoreland..., Cumberland ... } parts of...	5,920,120	5,387,000	3,000,000	704,881	442,062
Durham	702,080	650,610	400,000	106,174	64,101
Scotland, parts of	1,352,320	1,200,000	700,000	640,000	314,000
Lincolnshire, Norfolk ..., Cambridge, Huntingdon } parts of	1,321,040	1,286,000	800,000	158,133	70,113
Bedford ..., Buckingham } parts of	488,640	450,000	250,000		
Oxford, Berks ..., Wilts ... } parts of	1,020,000	965,000	600,000		
Warwick	574,080	525,000	350,000	20,525	16,189
Northampton	650,240	620,000	375,000	27,208	13,108
Rutland	95,360	90,000	40,000	100	
Leicester	500,000	480,000	250,000	17,385	12,155
Nottingham	535,680	510,000	300,000	39,792	16,952
Derby	657,920	590,000	300,000	9,550	3,261
Stafford	757,760	720,000	550,000	39,200	28,930
Cheshire	673,280	630,000	500,000	37,104	23,234
Total, A	18,882,600	17,613,610	10,415,000	2,052,680	1,130,080

TABLE THREE.

Name of County.	Total extent of each County included in district.	Extent cultivated and capable of improvement.	Proportion of wet land.	Amount of money applied for under the Public Monies Drainage Act.	Amount expended under the act.
	Acres.	Acres.	Acres.	£	£
Dorset ..., Wilts ..., Berks ..., Hants ..., Oxford ... } parts of...	2,203,840	2,130,000	600,000	55,473	21,818
Bucks and Beds, parts of	280,000	265,000	250,000		
Cambridge and Hunts, parts of	546,560	519,000			
Hertford	403,200	375,000	300,000	18,750	17,363
Middlesex	180,480	160,000		10,625	3,176
Surrey	485,760	450,000		29,155	13,155
Sussex	938,240	900,000	1,300,000	52,768	22,253
Kent	996,480	940,000		23,020	8,293
Essex	981,120	940,000	650,000	21,805	6,782
Suffolk	969,600	920,000		8,990	5,495
Norfolk, part of	1,285,360	1,215,000	700,000	18,260	6,853
Lincoln, part of	600,000	550,000	600,000	35,000	18,000
Yorkshire, part of	450,000	425,000			
Outlying portions on the Western side ...	254,480	235,000	50,000		
Total	10,575,120	10,024,000	4,450,000	273,846	122,583

TABLE FOUR.

DISTRICTS.	Total extent.	Extent cultivated and capable of cultivation	Proportion of wet land.	Amount of money expended under the Public Money DrainageAct	Amount of money expended under the Private Money DrainageAct	Amount of money expended by Incorporated Company.	Estimated extent of land drained permanently by borrowed money and by private means.	Extent still remaining to be drained.	Estimated amount of capital required.
	Acres.	Acres.	Acres.	£	£	£	Acres.		£
Western district	26,894,280	16,320,390	8,025,000	1,276,020	128,723	350,000	300,000	7,725,000	35,000,000
Middle district	18,882,600	17,613,610	10,415,000	1,130,080			415,000	10,000,000	50,000,000
Eastern district	10,575,120	10,024,000	4,450,000	122,683			450,000	4,000,000	22,000,000
Total	56,352,000	43,958,000	22,890,000	£2,528,783	£128,723	£350,000	1,165,000	21,725,000	107,000,000

at different widths. Taking labour at 7*d.* per rod, and pipes and haulage at 22*s.* 6*d.* per 1000, the cost will be as follows:—

At 18 feet apart	£7	18*s.*	4*d.*
21 "	6	16	3
24 "	5	19	8
27 "	5	6	9
30 "	4	16	5
40 "	3	12	1

Experience shows that a consideration of the amount of rain-fall is a matter of much moment in determining the width between drains. It does not appear, practically, to govern the size of the pipes to be used, for if the ends of the pipes can be made to join securely, and the fall is good, the smallest sized pipes will be sufficiently large. But in proportion to the rain-fall, all other considerations being equal, should be the distance of the drains apart, in order that the condition of the soil may be sufficiently free and active at all times to absorb and discharge the maximum amount that can fall on its surface. We find from sundry careful records that 141 inches may be taken as the average annual rain-fall of the wettest place in Cumberland, while 19½ inches may be taken as the average fall in Essex. It is not enough to ascertain the quantity of rain that falls, we should know the prevalent periods of continuance of rain and moisture, for in accordance with the length of time intervening between rains will be the opportunity for soils to undergo these changes of condition which are essential to complete development of draining, and which conduce to an improved "climate of the soil itself."

We find that the average number of days in the year in which rain falls in the wettest districts of Cumberland is 210, and at Castle Hill, in Devonshire, is 191 days, while at Chiswick, the average number of wet days in the year is 124, with an average fall of 24 inches. Luckily, however, the clay soils of the west and north-west of England are comparatively open and porous, and thus counteract the humidity of atmosphere under which they exist. With respect to the direction of drains, I believe very little difference of opinion exists. All the most successful drainers concur in the line of steepest descent as essential to effective and economical drainage. Certain exceptions are recognised in the West of England, but, I believe it will be found as practice extends in that quarter that the exceptions have been allowed in error. There is much difference of opinion as to the adoption of an equi-distant parallel system in lands of the ridge and furrow form. In arable land, the most successful drainers throughout the country disregard the furrows, whereas we find the majority of those in the midland counties leaning to the adoption of the furrows as the course of the drains in grass lands. The same difference of opinion prevails as to the use of collars. Some good drainers object to them on account of the cavity left between the collars, but the majority approve of them, and would use them in all soils were it not for the additional cost. In sandy and gravelly soils they are indispensable. With regard to the admission of air to the heads of drains, as advocated by Mr. Simon Hutchinson, very few think it advisable, while some go so far as to say it is decidedly injurious.

Upon the question of outlets there appears to be much difference of practice, where there should be none. In the whole process of draining there is nothing so desirable as permanent and substantial work at the point of discharge, so as to reduce to a minimum the ill effects of inattention on the part of tenants, and the neglect of communication between present and succeeding owners. It is considered that the more frequent the outlets the more active the drainage, but as every additional outlet involves additional cost in erecting and care in preserving them, prudence suggests that the number of acres draining to one outlet should never be more than 20 or less than six, if the form of the land and size of the fields will permit of these limits. On this arrangement, iron pipes, with suring gratings, set in mason, may be provided at the cost of 1s. per acre. If these several objects be borne in mind in carrying into operation the main principle of adequate depth, there will be but little chance of failure. Having perfected the work, one thing still remains to be done. A plan or record of the lands drained, and the position of the drains is necessary; and in order that such a record may be preserved for future generations, it is desirable that a national office, connected with the Tithe and Inclosure Commissions, should be set apart for the purpose. It would be invidious to point out instances in which recent works of drainage have already become useless from change of ownership and the indifference of successors. The cost of planning the drains after execution need not exceed 6d. to 9d. per acre, where a map of the lands already exists, and after we have spent £5 per acre in draining, does it not appear the very height of folly not to preserve a record of so expensive an object at a cost of 6d. per acre?

Calendar of Operations.

DECEMBER.

Hexham, *Dec.* 6.—November has kept up its character of "gloomy and dark" till within a few days of its close, which rendered Turnip storing and Wheat sowing a somewhat delicate operation. By taking advantage of the few fine days, especially those at the close of the month, we have succeeded in getting all our roots intended for cattle stored in good condition, and a portion of the land sown with Wheat, and hope with a week of the present fine weather to have the whole sown in good condition. The Turnips for our sheep we purpose to store in heaps of convenient size, and scattered at commodious distances over the ground on which they are grown, so as to preserve them from the frost and vermin, and have always a command of fresh unfrozen food for the sheep during winter. From the damp state of the weather our Wheat after seeds was not all sown till towards the middle of last month, and to all of it we applied either farm-yard manure, superphosphate, or guano. Our cattle have been on Swedes since the middle of last month, and are doing well on Turnips and straw alone, except those most forward in condition, which are getting 5 lbs. of cake each in addition. In course of a week we hope to be able to give them all a mash of minced Turnips, meal, cake, and cut straw, but no hay, which is by far too expensive to be given to cattle. The crop threshes out very indifferently both as to quantity and quality, especially the Wheat, and this is a very general complaint all over this district.

Notices to Correspondents.

Bread: *J T B* asks if any of our subscribers can give a novice any information as to the best method of making the brownest bread. His cook does not succeed in it, and yet she makes capital white bread.

Cocoa Nut Matting: *R C L.* It is spread on the barn floor without straw and lasts several years. The cattle seem to do very well with it.

Improvement of Grass Land: *Inquirer.* You had better pare and burn it and grow a crop of Turnips, and thoroughly clean the land before laying it down in the following year with a mixture of suitable seeds.

Poultry: *A. Z.* It is, in our opinion, a bad thing to give fowls egg-shells. They supply nothing that is not equally furnished by lime, and especially bricklayer's rubbish, old ceilings, &c. Never do anything that has a tendency to make them eat eggs. They are apt scholars. They do well in the place you describe, provided the floor of the roosting-house be of earth. If they find worms in a natural way they are good food, but it is a bad plan to give them by the handful. The colour of a golden Poland cock is not very essential, provided it be uniform, and the spangling regular, the legs a good clear blue, and the wing well laced. The top-knot should not have too much white.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

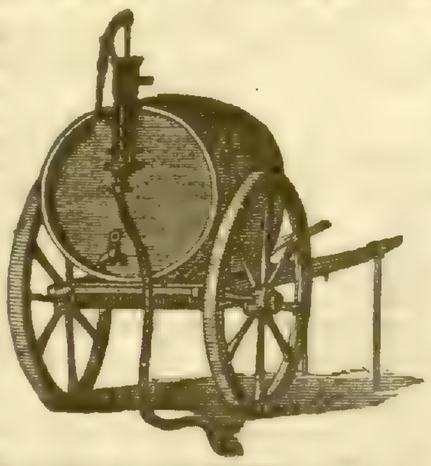
EDWARD BECK Manufactures in Slate a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application

LIQUID MANURE.

PATENT LIQUID-MANURE DISTRIBUTOR or WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its Liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.—Full particulars may be obtained of the Patentee, Isaac James, Tivoli, Cheltenham.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 6*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ " long	3 " 3 "		1	14	0
3 " ditto	3 " 6 "		2	8	0
3½ " ditto	3 " 6 "		2	12	0
4 " ditto	3 " 6 "		3	3	0
2½ " short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
2½ in. long	ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER and SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

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Fountains of every description erected; Rockwork, Grottoes, &c.

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CROCUS, TULIP, and HYACINTH BASKETS, with Wire or Zinc Linings, for suspension or for table stand; also Bracket Baskets made and Japanned in a variety of colours and designs, by W. Richards, Imperial Wire Works, 370, Oxford Street. Conservatories fitted up.

Window Blinds and Wirework of every description.

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This work is of the same constitution as Portland Stone, and after a winter's exposure is hardly distinguishable from that material: it has been extensively used in Scotland for 20 years.

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TRANSPARENT SHEETING, a substitute for Garden Mats, nearly two yards wide, 1*s.* per yard run—much approved; thick Canvas ditto, 1*s.* per square yard; strong Tarpaulings for Carts and Waggons, 2*s.* per square yard; serviceable second hand ditto, 1*s.*; Waterproof Capes, to protect a man from wet while stooping down, 3*s.* each; second hand Policemen's Capes, fresh dressed, 18*s.* and 24*s.* per dozen; Horses' Waterproof Loin Cloths, lined with woollen, 7*s.* each; Driving Aprons, 7*s.* each; India Rubber Coats, 16*s.*; Oiled Coats, 7*s.* 6*d.*

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WIRE FENCING, less than 2-inch mesh, in various widths, from 15 inches to 6 feet wide, at 6¾*d.* per square yard; 3-inch mesh, 4*d.* per square yard; 4-inch mesh, 3*d.* per square yard. Galvanized Wire Fencing, 1*s.* per square yard, 1½-inch mesh. The above Wire-work is made by machinery, and is the cheapest article of the kind in England.

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By Order, E. R. Cutler, Secretary.

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"Experimental Gardens, Edinburgh, 10th March, 1855.

"Excerpt from Minutes of Prize Committee of the Caledonian Horticultural Society of this date:—

"Thanks were voted to Mr Girdwood for exhibiting specimens of a Turnip grown by him at Corstorphine, and known in some parts of England by the name of Chirk Castle, Black stone, which when boiled were pronounced by the Prize Committee to be of excellent quality, and a valuable culinary vegetable. In addition to its superior quality it stands the winter without injury, and even at this date is equal to the White Dutch Turnip in succulence and flavour.

(Signed) "J. H. Balfour, *Secretary.*"

A limited quantity can be supplied to the Trade; price on application.

WATERER'S AMERICAN PLANTS.—A new DESCRIPTIVE CATALOGUE is now published of the celebrated Collection of hardy Scarlet and other Rhododendrons, as exhibited by John Waterer at the Royal Botanic Gardens, Regent's Park; it will be found to contain a few practical observations on their successful management, and will be forwarded on application by enclosing two stamps for postage. Apart from its enumeration of the most popular American Plants in cultivation, a List of choice Coniferæ will be seen, embracing the latest importations of this fine and hardy tribe of Plants.

J. W. has now the pleasure to offer in large quantities, and of all heights, the following selection of CONIFERS, with the remark that they are all now growing in the open ground, are bushy and handsome as can be desired, and have been transplanted each succeeding spring, whereby no risk can be encountered in their removal from the nursery:—Araucaria imbricata, Cryptomeria japonica: Pinus Douglasi, Cembra, excelsa, Lambertiana, insignis, Jefferyana, Beardsleyi, tuberculata, &c.; Cedrus Deodara, Lebanon, and Africana; Wellingtonia gigantea, Cupressus, Juniperus, Taxus, Thuja, &c.

☞ The attention of gentlemen, public companies, and others engaged in planting, is especially directed to the foregoing; indeed, all intending planters would be well repaid by a visit to inspect our stock, as much may be seen which of necessity cannot be given within the limits of an advertisement.

The Nursery is easily reached by railway, being near the Farnborough Station, South-Western Railway, and Blackwater on the South-Eastern Railway.

The American Nursery, Bagshot, Surrey.

BALUSTRADING FOR GARDEN TERRACES, executed in Austin's Artificial Stone, by J. Seeley (late Austin and Seeley), Nos. 1 to 4, Keppel Row, New Road.

This work is of the same constitution as Portland Stone, and after a winter's exposure is hardly distinguishable from that material: it has been extensively used in Scotland for 20 years.

LIGHT, CHEAP, and DURABLE ROOFING.—CROGGON'S PATENT ASPHALTE ROOFING FELT is perfectly impervious to rain, snow, and frost, and has been tested by a long and extensive experience in all climates. Saves half the timber required for slates. Can be laid on with great facility by farm servants or unpractised persons. Price 1*d.* per square foot. Croggon's Patent Non-conducting Felt, for covering steam boilers and pipes, saves 25 per cent of fuel. Samples and testimonials sent by post, on application to Croggon & Co., 2, Dowgate Hill, London, who also supply ship-sheathing felt and inodorous felt, for damp walls, and lining iron houses, and roofs generally, to equalise the temperature.

TRANSPARENT SHEETING, a substitute for Garden Mats, nearly two yards wide, 1*s.* per yard run—much approved; thick Canvas ditto, 1*s.* per square yard; strong Tarpaulings for Carts and Waggons, 2*s* per square yard: serviceable second hand ditto, 1*s.*; Waterproof Capes, to protect a man from wet while stooping down, 3*s.* each; second hand Policemen's Capes, fresh dressed, 18*s.* and 24*s.* per dozen; Horses' Waterproof Loin Cloths, lined with woollen, 7*s.* each: Driving Aprons, 7*s.* each; India Rubber Coats, 16*s.*; Oiled Coats, 7*s.* 6*d.*

R. Richardson, 21, Tonbridge Place, New Road, London.

WIRE FENCING, less than 2-inch mesh, in various widths, from 15 inches to 6 feet wide, at 6¾*d.* per square yard; 3-inch mesh, 4*d.* per square yard; 4-inch mesh, 3*d.* per square yard. Galvanized Wire Fencing, 1*s.* per square yard, 1½-inch mesh. The above Wire-work is made by machinery, is the cheapest article of the kind in England.

R. Richardson, 21, Tonbridge Place. New Road, London.

NETTING FOR SHEEP FOLDS.

WILDEY AND CO., Holland Street, Blackfriars Road, London, are the original introducers of the COCOA-NUT FIBRE SHEEPFOLDING NETS, which 14 years' experience has proved to possess the most extraordinary durability when exposed to alterations of weather. Cocoa-nut fibre will wear out several sets of *tarred hemp netting*, and is so light that a herdsman may with ease carry 200 yards of it.

Wildey & Co. were awarded a Prize Medal for this Netting by the Royal Agricultural Society in 1842, at the Exhibition of all Nations, in 1851, and at the Exposition Universelle, Paris, 1855. Sold in Nets of 50 and 100 yards long, 42 inches high, by the Manufacturers, Wildey & Co., at the Cocoa-nut Fibre Works, Holland Street, Blackfriars Road, London.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

Kensal Green, Harrow Road, London.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

PUBLIC INVITATION.

HEATING EXTENSIVELY BY ONE BOILER.

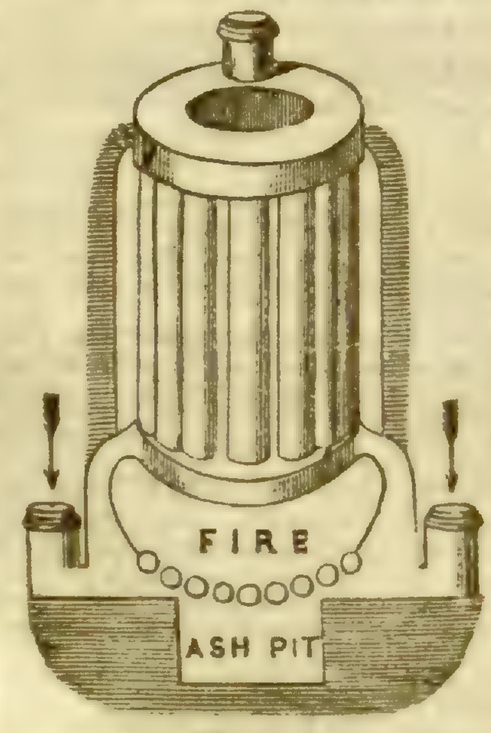
JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. John Weeks & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "One Boiler System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to one boiler. We will here quote Mr Edward Henderson's own words, showing how he approves of Messrs. J. Weeks & Co.'s system of heating by hot water. He says:

"I am more than satisfied with the extraordinary results of what Messrs. John Weeks & Co. *have done for me in heating a great number of our hot-houses from* one boiler. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another 200 feet in another, and so on, including our large newly laid-out winter garden."*

Messrs. John Weeks & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their one boiler system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by one boiler, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

John Weeks & Co., King's Road, Chelsea,
Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

John Weeks & Co., King's Road, Chelsea.

NEAT, DURABLE, AND WELL EXECUTED LABEL FOR NAMING PLANTS.—The Advertiser will forward on the receipt of a stamped envelope, containing two postage stamps, a Zinc Label, neatly painted, lettered in *Oil paint*, as a specimen for those who may require a number; they can be supplied at 2*d.* each.—Address F. H., at Mr. Bond's, Walcot, Salop

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IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late Stephenson & Peill), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
HURDLES for CATTLE, 6 feet long, 3 feet out of ground, 5 bars ... ... 5*s.* 3*d.* each.

TO FLORISTS AND OTHERS.

J. JONES, Iron Merchant, has always a great variety of CYLINDRICAL and SADDLE BOILERS in stock, also Fire and Furnace Bars, Supply Cisterns, Double Doors and Frames, Furnace Grates, Soot Doors, Hot-water Pipes, Elbows, Tees, Syphons, Throttle Valves, Stop Cocks, Flange and Socket Elbows, &c.; also Trough Pipes.—Drawings and Prices of the above, or estimates given for the work fixed complete, on application to J. Jones, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

TENNANT'S SELF-CLEANSING DIAMOND-TOOTHED WHEEL GRUBBER.—The Subscribers beg to call the attention of Agriculturists to this really useful implement, which since its introduction has met with more than usual favour, and has had awarded it the highest commendations by all who have tested its merits. Parties wishing to possess this Grubber to commence the spring operations should give their orders for it now. On application a drawing of the above, with full particulars as to its mode of working, will be sent free by post.

W. Drummond & Sons, Seed and Implement Warehouses, Stirling and Dublin.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to James Hetley & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12*s.* 6*d.*; above, 16*s.* 8*d.* per box. FOREIGN SHEET, in 200 feet cases, 34*s.* per case.

PERFORATED VENTILATING GLASS from 1*s.* 6*d.* per foot. TILES and SLATES from 6*d.* each. MILK PANS, 21*s.* per dozen. HELY'S HAND CHURN, 5*s.* 6*d.*; WARING'S BUTTER SLABS, 10*s.* each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7*s.* per 100, and the New Aquarium, 10*s.* each.—Catalogues free.

JAMES PHILLIPS AND CO., 116, Bishopsgate Street Without, have the pleasure to hand their present prices of

GLASS FERN SHADES AND STANDS.

	s.	d.	With	s.	d.		s	d.	With	s.	d.
6 in. diam.	2	0	stands	3	0	12 in. diam.	6	0	stands	8	0
7 "	2	4	"	3	6	13 "	7	6	"	10	0
8 "	2	9	"	4	0	14 "	10	0	"	12	6
9 "	3	3	"	5	0	15 "	14	0	"	17	0
10 "	4	0	"	6	0	16 "	18	6	"	22	0
11 "	4	0	"	7	0						

FERN CASES, with Ferns complete, suitable for the Drawing Room, from 25*s.* each.

AQUARIUMS, with French polished stands, from 10*s.* each. Vase-shape ditto, on glass pedestal standing 23 inches high, 17 inches diameter, 25*s.*

Extract from *The Cottage Gardener.*

"Fern Shades. Many delight in seeing their beautiful Ferns introduced into the domestic circle; but without some such protection as these shades it would be impossible to preserve them. The shades of which we speak are glass cylinders with a domed top, which are placed on a glass pot wherein the Ferns have been planted, and they form on a small scale a pretty imitation of a Wardian Case."

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,

87, Bishopsgate Street, Without.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. Rivers and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by	4 in. and	6 in. by	4½ in.	...	...	12*s.*	0*d.*
6½ "	4½ "	7 "	5	...	...	12	6
7½ "	5½ "	8 "	6	...	...	13	0
8½ "	6½ "	9 "	7	...	...	13	6
9½ "	7½ "	10 "	8	...	...	13	6
10½ "	8½ "	11 "	9	...	...	14	0
12 "	9 "	13 "	9	...	...	14	0
10 "	10 "	10½ "	10½	...	...	14	0
11 "	10 "	11½ "	10½	...	...	14	0
11 "	11 "	11½ "	11½	...	...	14	0
12 "	11 "	12½ "	11½	...	...	14	0
13 "	11 "	13½ "	11½	...	...	14	0
13 "	12 "	13½ "	12½	...	...	16	0
13½ "	13½ "	14½ "	13½	...	...	16	0
15½ "	13½	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of Elisha Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

NEW DOUBLE WHITE PETUNIA—"IMPERIAL" (true).

CHARLES TURNER will be able to supply strong Plants after the 1st of January of this beautiful new variety, which is as double as an Oleander, and fragrant. Plants 3s. 6d. each, with a considerable reduction to the trade if a dozen are taken. C. T. begs particularly to recommend it, as it is not only a novelty but also a valuable bedding plant.

Royal Nursery, Slough.

TO GENTLEMEN ENGAGED IN PLANTING, AND TO NURSERYMEN.

STEPHEN SHILLING begs to offer good Transplanted PLANTS and TREES of the following at very low prices, when a quantity of either sort are taken:—

3,000 Arbor-vitæ, 3 to 7 feet.	1,000 Horse Chesnuts, 8 to 12 ft.
10,000 Spruce Firs, 4 to 10 feet.	5,000 Beech, 6 to 10 feet.
10,000 Tree Box, 2 to 5 feet.	15,000 Rhododendron Ponticum, in variety, 1½ to 4 feet.
1,000 Limes, 6 to 10 feet.	

The whole of the above are well worthy of attention, being good in quality, the Evergreens of good healthy colour and bushy. All applications will have immediate attention.

North Warnborough Nursery, near Odiham, Hants, 2½ miles from Winchfield Station, South Western Railway.—Dec. 22.

THE BIRMINGHAM ROOT SHOW.

SUTTON'S PRIZE MANGEL WURZEL.—SUTTON'S ELVETHAM LONG RED, and SUTTON'S SELECTED YELLOW GLOBE.

These superior kinds of Mangel Wurzel took the first prize in each class at the Birmingham Great Root Show (open to all England), on the 11th, 12th, 13th, and 14th of December, and the same kinds, exhibited on Messrs. Sutton's stand at the Baker Street Show, would doubtless have been equally distinguished if Prizes for Roots had been given on that occasion.

J. Sutton & Sons, Seed Growers, Reading, Berks, have at present a good stock of Seed of the above, which they are selling at moderate prices according to quantity required. Early orders are requested to prevent disappointment.

Sutton's New Seed List, with Price, may now be obtained, post free.

DENYER'S NEW PROLIFIC GREEN MARROW PEA.—A fine variety for succeeding the first early Crops. Very hardy, and one of the greatest cropping Peas in cultivation. It obtained the first prize at the Hastings and also at the St. Leonard's Horticultural Exhibitions.

From the Dean of Battle.—"The sample of Peas you sent me surpasses in beauty of colour and richness of flavour any that I have ever met with."

From Mr. Waters, Gardener to Lady Webster, Battle Abbey.—"I have examined the growing stock of your new Pea, and find it crops abundantly, the pods being a good length, very broad, and well filled. It is also a fine flavoured and beautifully green-coloured Pea."

From Mr. Bunyard, Maidstone.—"My opinion of the new Pea is, that it is a distinct sort, a good cropper, and for colour I do not know its equal."

From Mr. Parks, late Nurseryman and Seedsman, Dartford, Kent.—"I am much pleased with your new Pea. It certainly is a very fine cropper. The Peas are large, and the pods completely filled. It will when known become a superior Pea for market."

Price 3s. 6d. per quart. Post Office orders payable to William Denyer, Seedsman, Battle, Sussex. May also be had through the London and other seedsmen.

WALTON NURSERY, LIVERPOOL.

To Noblemen and Gentlemen Planting New Pleasure Grounds, or Improving Parks or Drives, and to Companies Planting Public Parks or Cemeteries.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from one to six feet.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

HORTICULTURAL ESTABLISHMENT, RIO DE JANEIRO.

MESSRS. RANGEL and MOSER have always on hand and ready for exportation, a large and magnificent Collection of ORCHIDS, BROMELIAS, ARBUTUS, PALMS, FERNS, and SEEDS of all the rarest and most valuable Brazilian plants at the following prices:—A Collection of 100 magnificent ORCHIDACEOUS PLANTS, in large masses consisting of 50 species, the greater part Cattleyas and Lælias, many new and not described. Price 75*l.*

A Collection of 50 different kinds of BROMELIAS, BILBERGIAS, ÆCHMEAS, PINES, &c. &c. Price 8*l.*

A Collection of 50 SHRUBS, of the latest Brazilian species, such as Rhopalas, Henteria coccinea, Psychotria, Talaumas, Drymis, Hamelias, Bignonias, and others well cultivated. Price 20*l.*

A Collection of 20 species of PALMS, amongst which are Corypha cerifera and others of showy appearance, Mauritia venifera, armata, Attaleas, Geonomas, Astrocaryum, Diplothemium, Enterpe oleracea, Cocos flexula, Bactris, &c. Price 20*l.*

A Collection of 20 species of TREE and other FERNS. Price 10*l.*

A Collection of 100 different species of SEEDS of the rarest plants of Brazil. Price 5*l.*

All the above-named plants will be delivered in the most perfect state, cash payments on delivery. Orders are requested to be forwarded as early in the year as possible, so that the plants may reach England at a proper season.—Direct, under cover, to Her Majesty's Agent for Packets, Rio de Janeiro.

FIVE HUNDRED BUSHELS OF POTATOES TO THE ACRE.—This enormous crop was grown last year by a gentleman in Surrey, and out of which there were only five bushels diseased; nearly all the quantity were large-sized, some weighing 2 lbs. and 1 oz., and not above three bushels of Chats out of the whole. This Potato was originally reared in Scotland, and is called by the grower the Scottish Champion, and has again proved to have surpassed all other sorts, both in quantity, quality, and freedom from disease, as will be seen by the testimonials.

The price is 2*l.* 2*s.*, inclusive of the sack of three bushels, delivered free at the South Western Railway Station in London.—Apply by letter, post-paid, to Mr. William Gowland, 4, Crooked Lane, London Bridge, London; or to Thos. B. Atkinson, Seedsman, 64, High Street, Worcester, where further testimonials can be obtained.

All orders must be accompanied by a remittance.

"Sir,—In answer to yours respecting the Scottish Champion Potato, I beg to say it is quite equal in flavour to the York Regent, is very productive, boils very white and mealy. In fact, of the sixty-seven varieties of Potatoes grown by me in the way of experiment this season I consider it the best, and shall plant it for my next general crop.—Your obedient servant,

"Edward Bennett, Gr. to Sir Offley Wakeman, Bart.,
"Perdiswell Hall, Worcester."

NEW TURNIP.

WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 8s. per lb.—A liberal allowance to the Trade.

J. G. Waite, Seed Merchant, 181, High Holborn, London.

SCARLET RHODODENDRONS.

J. and J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to offer fine bushy Plants of the above 2 to 3 feet high, in Pots, well set with Flower buds.—Price 10*s.* 6*d.* each.

NEW ROSES.

J. and J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to offer fine Standards of the following beautiful NEW ROSES:—

	s.	d.		s.	d.
Belle Lyonnais	5	0	Vicomtesse Laure de Gironde	5	0
Comtesse d'Orleans ...	5	0	Madame Masson	7	6
„ Vaillant	5	0	„ Theodore	5	0
General Jacqueminot ...	3	6	„ Cambacères	5	0
Gloire de France	3	0	„ Vidot...	7	6
„ de Vitry	5	0	„ Hector Jacquin ...	3	6
Madame Guinoiseau ...	3	6	Lord Raglan	5	0
Mademoiselle Aline Gibbon	3	0	Madame Place	5	0
Prince de la Moskowa...	5	0	Panaché d'Orleans	5	0
Sir John Franklin ...	3	6	Prince Leon	3	6
Souvenir de Madame Lille	3	6	Triomphe de Paris	3	6
			Gloire de Dijon (Tea) ...	3	6

Melanie Willermoz (Tea) ... ... 3*s.* 6*d.*

For a full description of the above see Catalogue, which may be had on application.—Dec. 22.

EARLY LETTUCES.—The largest and quickest growing LETTUCES are "SUTTON'S SUPERB WHITE COS," and "SUTTON'S SUPERB GREEN COS." The Editor of the *Gardeners' Chronicle*, in a critique on Lettuces, says of the first of these—"This is the very best Cos Lettuce, very large, leaves hooded at the top, so that they close in without tying; blanching white, crisp, so excellent that one would suppose no higher degree of perfection could be obtained as regards a Summer Lettuce." And of the other he says—"Sutton's Superb Green Cos: This very much resembles the preceding, but is a darker green, and hardier, therefore is preferable for sowing early in spring, and also for autumn use."

Seeds may be had (if ordered immediately) in packets 1*s.* each, post free.—Address, Sutton & Sons, Seed Growers and Merchants, Reading, Berks.

TO CUCUMBER GROWERS.

SUTTON'S BERKSHIRE CHAMPION is not only one of the most prolific Frame Cucumbers, as shown by several correspondents of the *Gardeners' Chronicle* (as see *Gardeners' Chronicle*, page 693), but is also of fine flavour, and so handsome that it invariably takes the Prize when exhibited in competition with other leading kinds. Seed can be supplied 1*s.* 6*d.* per packet (if ordered immediately); other fine sorts 1*s.* per packet, as see Catalogue, which may be had post free.

Sutton & Sons, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 22, 1855.

That the seeds of improved species of fruits and vegetables will not invariably perpetuate their improved quality is a well-known fact. They may reproduce a variety possessing very great similarity, or may give rise to farther improvement; or, on the contrary, they may bring forth a degenerate race, marked with the symptoms of a return towards the original wild species. But in propagating a plant otherwise than by seed, as by a single bud, or by some portion containing several buds, the plant or plants so produced are each considered to possess all the properties of the one from which the germs in the form of buds were taken. Moreover, the essential properties have been supposed to be retained by the original seedling, as well as its derivatives, except by seed, during the whole period of their existence. A memoir, however, has recently been brought under the notice of the Academy of Sciences by M. Dureau de la Malle which would seem to lead to a different conclusion. The case is thus stated by the author.

"Return of a comparatively modern variety of Pear, Doyenné Galeux, to one more ancient, the Doyenné Blanc, otherwise called Poire de cire or de Belle fille. This beautiful glossy Pear, of a pale golden yellow colour, tinted with vermillion, and which on that account is called *Poire de Belle fille* in Maine and Anjou, is well known. But a handsome exterior is seldom an indication of internal goodness, and this fruit, beautiful as it is, has a soft woolly flesh, like that of a large Turnip. The *Doyenné Galeux*, on the contrary, is smaller; its skin, which is greenish-white, is marked with black specks; its form is not so regular, but its skin is fine, and its flesh is close-grained, rich, juicy, melting, and very sugary, with a peculiar perfume, which is somewhat musky when the skin under one of the specks begins to decay. The fruit will keep for two months, a property which early Pears rarely possess. Nevertheless, at Paris, the beautiful has excluded the good from the shops of the fruiterers, where I have often sought, but never found it. For the last 150 years, scarcely any other variety of summer Doyenné except this excellent Pear, which passes for the best of its season, has been propagated in the province of Le Perche.

"The kitchen garden at Landres, in the commune of Mauves, about 20 seconds south-west of Paris, and at an elevation of 393 feet above the level of the sea, was filled, when my father purchased it in 1783, with espalier trees of the Doyenné Galeux, trained horizontally. They were all from 30 to 50 years old, and two of them are still alive.

"The late severe winter, 1854-5, in which the extreme lowest temperature was about 6° below zero, Fahrenheit, at Landres, whilst at the Paris Observatory it was never lower than 11½°, Fah., enabled me to determine the period of the introduction of this variety in Le Perche; and it appears from the oldest stem to have been at least 120 years ago.

"My two trees of the Doyenné Galeux were covered with flowers this spring; but the late frosts, and damp fogs of April and May, prevented both of them from bearing fruit. Nature, however, does not readily give in. On the second flow of sap in July and August, the shoots produced flowers, and six fruits were ripened. These proved to be the true *poires de cire*, or *Gros Doyenné blanc*, as regards both skin and flesh. The stalk was short and thick, as in all the Doyenné Pears. The shape alone was somewhat changed; it had assumed the Calebasse form of the Bon Chrétien, and of a bitter variety of the Chaumontel.

"Now, my two Pear trees are at least 120 years old; I may therefore conclude that in the reign of Louis XV. the *Doyenné Galeux* had existed in the province of Le Perche, and that in all probability it has been derived from the *Doyenné Blanc*, an older variety, which on account of its size and beauty must have been the first cultivated. This sudden return of a variety to a primitive state, as I have shown, appears to me analogous to that which takes place with regard to some of our animals and birds which have passed from the domestic to the wild state."

M. Dureau de la Malle then notices the case of an Arab mare producing a mule with the quagga; she then had two foals at different times by an English horse, the first of which appeared like a sort of quagga mule; and the second still bore a striking resemblance to the quagga, *son premier mari*, although from this the mare from the first had been altogether separated.

The author also refers to the circumstance of the domesticated pigs of Europe assuming, when left to freedom in America, the character of the wild pigs of India. These zoological matters do not, however, bear exactly on the case of the Pear.

The Doyenné Galeux is not mentioned in Duhamel, but is described by Noisette, *Manuel du Jardinier*. The tree received from him into the collection of the Horticultural Society proved to be the same as the Doyenné Gris; when grown under equal circumstances no difference could be detected; and according to Downing all the trees of the sort in question which were received in America proved likewise the Doyenné Gris. The latter, we believe, is only the Doyenné Blanc in a particular condition, and not a distinct seminal variety. Two seedlings may very much resemble each other; but when grown side by side there is generally some marked distinction in the wood, leaves, or flowers. But no such distinction exists between those parts respectively in the so-called varieties of the Doyenné Blanc, Gris, and Galeux. We, therefore, conclude that M. Dureau de la Malle is right in supposing the latter has been derived from the Doyenné Blanc. At the same time we may state that we have had probably more opportunities of seeing fruits from late or second blossoms, in consequence of the first being killed by frost, than occurs in Le Perche; and we find them smoother skinned than those from the regularly formed buds; the fruit also assumes an elongated form. But the unusual appearance is merely caused by unusual circumstances of a sudden description, and is only temporary. The individual remains essentially the same; though we admit that it may be so modified year after year by circumstances as to assume the character of an apparently distinct variety, and retain it with some considerable degree of permanence.

We read as follows in the *Builder* of 1849, while speaking of Greensted Church, Essex, restored by Messrs. Whyatt and Brandon, architects:—"The interest due to this little structure arises from the material of which it is constructed, from its undoubted antiquity, and from the strong evidence that exists of it having been built as a place for the reception of the corpse of St. Edmund on its return from London to Bury St. Edmunds in the year 1013. The inclosing walls of this building are apparently of Oak, and not of Chesnut, as has been supposed by some."

Could any correspondent in the neighbourhood obtain for us a piece a few inches cube, of one of the timbers of this remarkable edifice, which we believe

were shortened in the process of reparation? It would be a highly interesting addition to the evidence now collecting with reference to the Oak used in our ancient buildings.

New Plants.

155. Cucurbita Perennis *Asa Gray.*

I know nothing about the vegetation of Cucurbita perennis in the north of France, but in the south there is no plant with which I am acquainted that is more calculated to cover a wall rapidly. For instance, I have seen a single plant cover a surface of 16 square yards in three months. Cucurbita perennis is superior to other climbing plants, in that it covers both sides of the wall at the same time, whatever may be its length. The following are the curious phenomena presented by its vegetation.

At the commencement of winter the stems of the plant die, but its enormous roots remain alive in the ground; in the spring they begin to grow and throw out vigorous shoots from all sides, spreading themselves out on the wall and forming a large fan. Towards the month of August these shoots become very long and thin; their leaves become smaller and more distant; their tendrils are little developed, and their flowers less numerous. When the shoots have passed beyond the top of the wall, their own weight carries them down on each side. The mass of shoots forms a new and pleasing covering which conceals the darker leaves of the lower parts of the plant. But what is still more important, these shoots descend vertically in a more or less sloping direction, until they reach the ground. They then run along its surface and carpet it in the same way as they covered the wall. If a shoot leaves the wall and comes in contact with a hole or uneven part, it penetrates it, and immediately turns out again; but roots are developed at the convex part of the bend, strike into the ground, and thus form a natural cutting, which may be detached from the mother plant. This cutting is not formed on the surface of the ground, even when the shoot is buried; in order to make it root it must be bent. Experiments which I have made satisfy me as to this. I laid a glass tube, closed at one end, horizontally before a shoot which was running along the ground; the shoot entered it, reached the bottom, turned back twice at right angles, and came out by the same aperture at which it entered. Upon examining the bent part at the bottom of the tube, I found that the roots were developed at the convex part. If there had been soil at the bottom of the tube, it is clear that the plant would have taken root in it.

I have many times placed pots of earth below the shoots descending vertically. When they reached the pot they ran along the earth, which I took care to keep damp, and passed over it without taking root. But if I had placed upon the pot a stone the size of my fist, which would have forced the runner to bend back sharply upon itself, it would have taken root very well. The easiest way was to bend it back and fix it in the ground by means of a piece of stick in the form of a V reversed. The convex part then formed roots. I have often placed various obstacles upon the ground before the shoots, such as tiles, bricks, and stones; the rooting has always taken place when the bend has been made abruptly in contact with the earth, and never under any other circumstances.

All these facts show by what means this plant covers so rapidly both sides of a wall, whatever its length may be. Plant one a foot before a wall, or still better before a trellis; it will throw out its branches on all sides, which will reach the top, then fall down on both sides of the wall or trellis, come in contact with the soil, penetrate all the uneven places at the foot of the wall, take root there, and form as many plants for the next year. It is evident that the wall will be more quickly and regularly covered if the gardener takes the trouble to peg down the shoots wherever he wishes a new plant to be established.

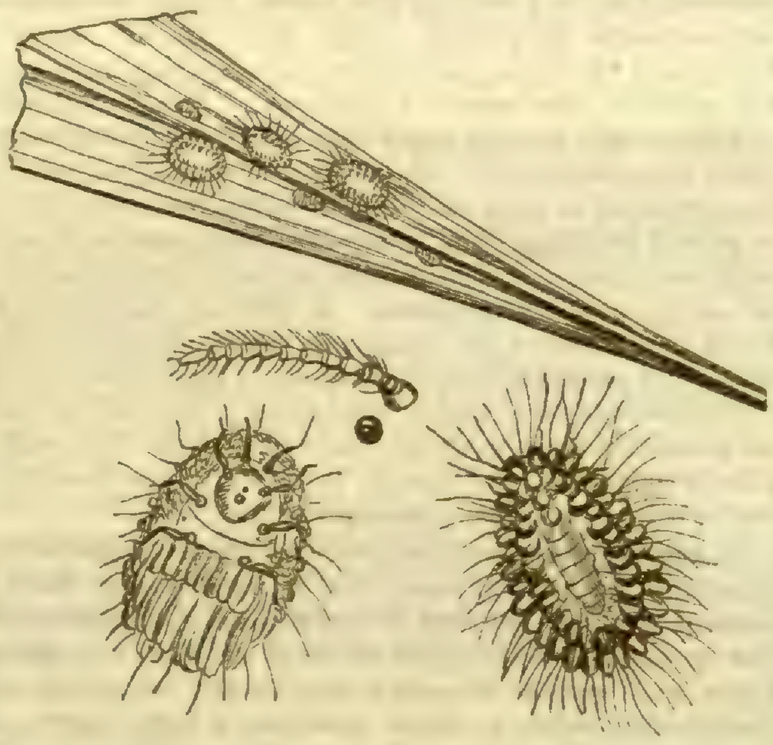
Cucurbita perennis deserves to be ranked amongst ornamental plants. Its large cordate lanceolate leaves have a beautiful velvety appearance; its flowers, which open in the morning, have a sweet fragrant odour, but they fade quickly under the influence of the sun. Its fruit is a small round gourd, first green, then yellow, about the size of a large Montreuil Peach. *Ch. Martins, Prof. of Medicine at Montpellier; in the Revue Horticole.* This very remarkable plant is not mentioned in the last number of the Bon Jardinier, and seems to be little known. It is described in the *Plantæ Lindheimerianæ* of the learned Dr. Asa Gray, and appears to be a common Texan species growing in low places. It would seem to be worth introducing for the purpose of forming a temporary or permanent covering to old walls, trellis work, &c.

ENTOMOLOGY.

THE SEYCHELLES DORTHESIA.

It is a curious circumstance that several of those tribes of insects which are the greatest pests to the horticulturist, are also the greatest puzzles to the systematic entomologist. The earwig (Forficula) which eats the petals of many flowers, and gnaws the Apricot and other fruits, is to this day of doubtful locality in the classification of entomologists, by some authors being regarded as forming a distinct order, and by others as portion of the Orthoptera. The aphides, those myriad tribes which infest every plant, from the Oak of the forest to the tenderest annual, present more remarkable peculiarities in their reproductive system than are to be found in any other known animal. The thrips, like the Forficula, is so singular in its structure as to be equally unsettled in its classificational rank, having recently been formed into a distinct order, whilst the Coccidæ, including the mealy bugs and scale insects, in the remarkable transformations to which the males alone are subjected, are amongst the most anomalous of the insect tribes. The last-named family, placed by Latreille at the end of the order Homoptera, has also been raised into a separate order by some recent writers, and contains two distinct groups of species according to the condition of the adult females. In one group, exemplified by the common scale insects (Aspidiotus Nerii and Cacti, &c.), and the true Cocci or Cochineal insects, which are employed as dyes, the females as they approach the full size gradually lose all traces of their legs and antennæ, and become fixed immoveably to the surface of the plants on which they feed, their bodies shrivelling up and becoming a convex covering to the mass of eggs which are deposited beneath. The other group contains the mealy bug, Pseudococcus Adonidum, &c., the Dorthesiæ, and some other less known genera, in which the females, although never acquiring wings, retain their limbs and also their activity throughout their lives, although it is not often that the latter is employed, as the insect is satisfied to remain in one place so long as that situation supplies it with food.

The genus Dorthesia, named after M. Dorthez, a French naturalist of the end of the last century, is one of considerable interest. The males are elegant little two-winged creatures, with a thick bundle of very long delicate white straight filaments at the extremity of the body, forming a thick tail; the substance of these filaments appears to be waxy secretion, with which so many of these insects are more or less clothed, and of which an example of excessive development occurs in the Chinese Wax insect lately illustrated in our entomological series. The females, on the contrary, are flat insects, nearly of a rounded form, emitting thickened flakes of this waxy material from the sides of the body, which give them somewhat the appearance of tortoises in miniature. Unacquainted with the males of this genus, Dr. Leach formed the females into a separate genus, to which he gave the name of Cionops.



To this genus belongs an insect which Sir W. J. Hooker was kind enough to place in our hands at the beginning of October last. It had been imported on the leaves of a Palm from the Seychelles islands, and had spread slightly over other plants in the same case. Fortunately it was perceived on opening the case, and was carefully destroyed. Had the plants, on the contrary, been placed without due caution in the stoves, they would doubtless have quickly propagated, and a new pest would have been added to our list of obnoxious insects. Its size and general appearance will be perceived in the figure of the fragment of a small Palm leaf in the upper part of the accompanying woodcut. The two lower figures represent magnified figures of the insects, which are doubtless full-grown females, and their appearance is more elegant than ordinary in this tribe, the general colour of the body being fleshy pink covered with a white powder, and with larger tufts of a yellow secretion, having the appearance of closely pressed cotton wool arranged in several series along the body on the upper side (as shown in the right-hand figure), and in larger flakes arranged transversely (as seen in the left-hand figure, representing the under side of the body). The antennæ are short and 12-jointed, each having a small ocellus-like black eye near its base; the legs are moderately short, and terminated by a single claw.

The mouth, as usual, is placed between the base of the fore legs, and contains several fine threads, which the insect is able to protrude to a considerable length, thrusting them deeper and deeper into the substance of the plants on which it subsists. In addition to the little tufts of woolly-like wax, the body is also rather thickly clothed with long thin filaments of a similar material. It is unfortunate that we could discover no traces of the male insect, either in the pupa or perfect states. We propose for the species the name of Dorthesia Seychellarum. *J. O. W.*

VEGETABLE PATHOLOGY.—No. C.

400. Sphrigosis, Accidental and Organic (2, *Rankness*).—Besides the forms of this disease described in our last Number, arising, as far as we know, in most cases from constitutional peculiarities, there is a state of the malady common amongst cereals which proceeds from more palpable causes. It is not indeed asserted that the rankness of plants producing luxuriant barren shoots from the normal eyes may not arise sometimes from too nutritious soil, but as they occur where the soil is not so evidently nutritious, and since the effect of animal manure, if Schultz's views are correct, is exercised more in the stimulation of the organs of fructification than on the shoots and foliage, it is clear that the malady must be considered as in a great measure constitutional, and much more, when it is principally the adventitious buds which are influenced. In fact, the two causes are often so combined that it is impossible to estimate them precisely.

401. Excessive luxuriance in a crop amounting to what is known under the name of rankness, arises in many cases doubtless from the supply of particular manure, from a more than ordinary profusion of the more common dressings, or of the usual constituents of the soil, as in ground newly converted. Under such circumstances Wheat and Barley will exhibit a luxuriance which may in the end deceive the hopes of the farmer, or from a dressing of sulphate of lime the Clover layers may afford a supply of fodder, which answers the purpose of the farmer where his object is to obtain abundance of foliage and stem, without perfect development of seed. Such luxuriance may, it is clear, be carried to a dangerous extent, where, as in Peas and Beans, the production of fruit is the main object. With thin sowing there is however little danger from such luxuriance, and in such plants as Turnips, if the intervals between the individuals are wide enough, where there is a luxuriant top there is generally a good root beneath. Potatoes may be stimulated by an abundant supply of guano to produce large quantities of tubers; but the salesman who has once been unfortunate enough to buy them will not readily receive a second supply from the same quarter, as they are peculiarly liable to decay, and sometimes perish within a few days of delivery, as happened a year or two since with an enormous crop in Essex, of which I received an account from parties personally cognisant of the facts.

402. The effects of over manuring in pastures are constantly visible in the coarse green patches which are so obstinately refused by cattle. It is commonly said that such Grass is refused because it is sour. There does not, however, appear to be any foundation for this notion, but there is no doubt something about it which does not suit the palate of the cattle, and perhaps this may consist in an excessive development of chlorophyll to the diminution of other matters more grateful to their palates. The imperfectly organised Grass which grows under trees is equally distasteful, and probably the same comparative absence of saccharine and other nutritious matter may render it unpalatable. It would be worth inquiring what proportion the nutritious matter in Clover raised under the influence of gypsum bears to that in the shorter and less luxuriant produce of common cultivation.

403. There is, however, another cause of rankness in vegetables which in most cases admits of no remedy. In pastures this arises from the action of the larger fungi, which exhaust the soil behind them while they stimulate the vegetation which is immediately in front, thus producing the appearance known under the name of fairy rings. The manure of the decayed fungi is here probably the cause of temporary luxuriance, though the formation of chlorophyll is generally stimulated by the introduction of mycelium into vegetable tissues. This is the case with those parasitic fungi which attack cereals. Plants of Wheat, for instance, which have been inoculated with Bunt are distinguishable from very early growth, and a very vigorous appearance is equally the forerunner of smut, rust, and mildew. In the disease of the Rice plant described by Ré under the name of Carolo, the cause is probably the same, if we may judge from description alone. It is again notorious that those Potato crops which are most ravaged by the murrain exhibit a peculiar luxuriance before the appearance of the parasitic Botrytis. This applies, of course, only to those cases in which the mycelium is developed in the midst of the tissues. *M. J. B.*

SOUTH AUSTRALIAN GARDENING.

As much disappointment and misery have arisen from serious misrepresentations which have been promulgated about the Colonies of Australia, all of which differ greatly in character, I venture to give your readers a true account of one of them. And first permit me to allude to some letters which you inserted last year from Mr. M'Arthur, of Camden, near Sydney, N.S. Wales. His favourable remarks, though all true, must not be taken as a criterion of that place. He possesses, perhaps, the very best and oldest garden in the whole colony, and in the best situation. His Orange trees are superb; his fruits selected with great care and treated with much judgment; he is the A 1 of wine-makers and of producers. The Colony of Victoria is a pastoral but not agricultural or horticultural country; I believe that there is scarcely an acre of good land within 5 miles of Melbourne. The Grapes, too, are very inferior to ours. There is the least possible regard paid now to gardening; there

the gold fields absorb all attention and all labour; and I have not heard of a greenhouse in the whole colony. Now for ourselves; and the remarks which I shall make are for the most part applicable to all these colonies.

The people of all young countries are utilitarians; they cultivate for family use or profit, but rarely for ornament. If you ask what flower they like best, it is the Cauliflower; if you urge the planting of forest trees, the reply is, "Why should I plant for others hereafter?" If you object to a tree because it is short-lived, you hear, "Oh, it will last my time." Thus we have very few forest trees; there are Oaks, Elms, Ash, Poplar, and two or three more, grown by two or three persons, and also a few ornamental Firs, and that is all. I believe that there is not a Birch, Beech, Hornbeam, Larch, Scotch Fir, Evergreen Oak, Tulip tree, Plane tree, or Cedar in the whole colony. Nor yet have we imported from the Cape of Good Hope, New Zealand, or elsewhere, any equivalents for them. Of fruit trees we have a goodly number, but people plant for the most part the rapidly-bearing though short-lived trees, as the Apricot, the Peach, &c., which grow as dwarf standards, and do not remain in perfection more than 12 years. In their season Peaches and Apricots are about 2*d.* each. Apples are now 2*s.* 6*d.* a pound; Oranges, 8*d.* each. Grapes are very excellent; the finest Muscats. Frontignans, Damascus, Grand Turque, Raisin des Dames, and Constantia Grapes ripen in the open air. Melons are magnificent in growth, but rarely of good sorts, as may be supposed from all varieties being grown together, and the seed never changed. These things are all very cheap.

The nursery trade languishes except in the case of fruit trees, of which there is an enormous sale. Root-grafting, done over the fireside in the evenings, is very common; Almonds, moreover, grow large enough in one year to graft the second, and the trees become saleable the same season at three or four shillings each. All the trees here are dwarf standards; the wind is too high for tall trees, at least the gardeners say so, but I rather think the true reason is dwarfs are got out of hand soonest.

As to ornamental gardening, the colony is at a very low ebb, which is partly owing to the climate, where sometimes no rain falls for 4 or 5 months, and partly to indifference. There are no pot plants here in windows or houses. There are only, I believe, 3 greenhouses in the colony, and no hot-house properly so called; thus there is no collection of tropical plants, very few succulents—Orchids, Heaths, Camellias; no Rhododendrons or Azaleas; no Ferns; about 50 varieties of Rose; 8 or 10 of Fuchsia; 3 or 4 Pæonies; none of the Cistus tribe; only 8 or 10 varieties of Chrysanthemum and Pelargonium; 2 ornamental Ribes; no Box edging; no Stonecrops; and very few annuals or bulbs, except Cape bulbs. The ornaments of our gardens are chiefly Oleanders, and there are magnificent China Roses, the Oxalis tribe, Sparaxis, Ixia, double-flowered Peach, Almond, and a few others. Let not therefore the English gardener be deceived by too favourable representations. It is a noble colony for Wheat and wine, rich in its mineral resources and its flocks, in its magnificent soil and its splendid prospects. But our tracts of country are over large, and general drought hangs over all. There is no rotation of crops, no winter Turnips and spring Wheat, no Cabbages succeeded by Onions; all is green and luxuriant for six months—all brown and scorched for the other six; the thermometer often stands above 100°, and the soil is hard as a stone. There is no gardening then except picking fruit, which is truly and indeed the gardener's harvest, for he may pick 100 dozen of Apricots from a tree six years' old, and Grapes 15 tons to the acre; but present prices cannot be expected to last, as the planting year by year far exceeds the increasing demand. Gardeners have been told that they can get 20*s.* per day here as wages; but the teller has not the candour to add that it is only perhaps for a fortnight in the year, and given then only by a few persons to get their grafting done quickly. These statements are deceptive and therefore wrong. *A Constant Reader at the Antipodes, Aug.*, 1855.

POINTS OF EXCELLENCE IN A SEEDLING PEAR TREE.

The principal object of raising seedling Pear trees being to obtain varieties suited for cultivation in orchards in the coldest climates of our regions, it is of the greatest importance that the trees should be possessed of great vigour, and that they should be decidedly hardy and productive. The fruit should also be of a fine form, should possess the requisite degree of flavour, and should ripen in long succession.

The handsomest form of Pear is acknowledged by all amateurs to be that known as the Colmar. In fact, a fine fruit of the Colmar type, such as the Beurré Gris, Urbaniste, or Winter Nelis, offers, amongst all the known varieties of Pear, the most attractive object to the eye of even a very common observer. This class of Pears, well and regularly grown, and furnished with a footstalk in proportion to the size of the fruit, neither too long nor too slender, combines all the conditions of the finest form. Next to the Colmar, the most pleasing form is that of a fine Bergamot; then that of a Doyenné, Bon Chrétien, Bezi, Calebasse, and, finally, that of a Rousselet. These seven forms are very distinct, and easily recognised when the fruits acquire their full development.

Amongst the new varieties there are several which approach the form of those just enumerated, and it would have aided the memory as well as classification of them if they had been designated by the above generic names. The ignorance of some who have been in too great haste to designate these varieties by proper names only has produced a confusion much to be regretted by deviating from the elementary rules of a rational system of classification.

It must be acknowledged, however, that there exists at the present time several mixed or intermediate forms, which differ from those which are known and admitted as types; and in course of time others will come into existence. To one of these mixed forms Van Mons gave the appellation of Esperen, the name of his colleague, Major Esperen, of Mechlin. Bouvier, the names of Triomphe de Jodoigne (his native town of which he was also burgomaster), and Choix d'un Amateur. The successor of Van Mons called another variety without a distinct character by the name of Prévost (the name of the editor of the *Annales Pomologiques de Rouen.*) There are doubtless many distinctive denominations for forms of an unknown type; but when the fruit has the most striking characters of any type it is absolutely necessary to apply it as the generic name in preference to any other. We may add, that up to the present time no other system of classification has prevailed either in England or in Belgium; and it is best to keep to that which is generally known and admitted.

Too long and too slender a stalk is a defect in a new variety, the cultivation of which is consequently limited to a wall or dwarf pyramid. The defect depends on the size of the fruit. Whatever the vigour and hardiness of a new variety may be, if the size of the fruit be not proportionate to the strength of the stalk it becomes impossible to cultivate it successfully as a standard. This is an important consideration, and it is necessary to be satisfied upon this point before a new variety can be ranked amongst those proper for cultivation in an orchard.

The principal merit of a fruit is its flavour, which is found in the flesh, in the juice, and in the aroma. An experienced taster recognises these qualities in the different tinges of the skin. Whatever its shade or colour may be, the skin should be thin and closely attached to the flesh; the latter should be melting, buttery, without grit or fibre of any sort. From the eye to the stalk, and around the core, no strong concretions should be found. A fine white flesh, pale pink, or a slightly greenish hue, and melting like butter in the mouth are indispensable properties. The flesh should contain abundance of vinous, saccharine juice, slightly aromatic, but without too strong a perfume. These intrinsic qualities really exist in many varieties, the fruits of which ripen from September till April. We may, therefore, be permitted to hope that similar qualities may be found in recent seedlings from these varieties, combined with sufficient vigour and hardiness to suit the climates in which they have been raised. It will be easily understood that in order to obtain all these qualities in the fruit, it is essential that vigorous trees should be planted under the most favourable conditions; that they should be submitted to a rational mode of culture in a sufficiently rich soil; and that in this their roots should be for several years firmly established.

A variety combining the qualities above enumerated, ripening not all at once, but in succession during several months, showing the period of its maturity to the experienced eye by the shade of the skin and other signs, and without decaying first at the core, may be justly considered to have attained a high degree of perfection. The nearer these qualities approach such as are most to be desired, the more reason there is to be satisfied. It is however very rare to find every desirable requisite in the same variety. The highest degree of perfection indeed is very rarely to be met with amongst works resulting from the genius of man; and perhaps still more so in the productions of nature which he admires.

It is for the human mind to seek for the means of deriving the greatest possible advantages from nature, and to overcome the obstacles which it encounters. It is by the application of scientific principles, in conjunction with judicious practice, that we shall eventually obtain one or more new varieties of Pear, combining every desirable degree of perfection in our climate. Shall we be indebted for this result to chance, or to the reasoning powers of the human mind? Who can with certainty resolve this question! *J. De Jonghe, Brussels.*

Home Correspondence.

Osmunda Regalis.—There are many truly noble specimens of this Fern in Cornwall, and many in this neighbourhood grow to a large size, especially in hedge banks and other shady places where they are pretty well supplied with moisture in summer as well as during winter; it is a very common thing to see their fronds from 6 to 7 feet long, and in some favourable instances they are even longer. About 30 years ago my employer wishing to plant a low marshy piece of ground had a number of parallel open drains cut through it, a little deeper than the surface earth, which was about 1 foot thick of a fibrous, spongy, and peaty nature; and where, previous to these drains being cut, the ground could not be walked over in winter owing to its holding so much water. Osmundas had originally grown well in this situation, some of these surface drains had never been cleaned out, and many plants of the Osmunda had grown in their sides, and some of them had gradually extended themselves down into the bottom, where their roots were always moist. A few years ago I saw a number of these removed, and amongst them were some that had attained a very large size, especially the roots. One of the latter had raised itself above the adjoining ground from 15 to 18 inches, was more than 3 feet in diameter, and had nine royal crowns; its roots forming, as is well known, a close mass of a strong black wiry-looking substance. It was removed in summer when in full freshness, and took four men to carry it on a hand-barrow. Some of the other plants were about half the size of this one. A number of the largest British Ferns grow well here, and amongst others I may name one plant of Athyrium filix-fœmina, which has grown in the course of years to a very large size; its stem is about 18 inches above the ground. Near the surface it is 6 inches by 8 inches in diameter, but at about 6 inches high it suddenly swells out, so much so that at 15 inches high it is about 20 inches in diameter, having eight or ten crowns. Its stem presents a thick and compact appearance, and during the summer this plant has a very fine and graceful aspect; many of its fronds are often nearly 4 feet in length. *G. Dawson, Enys, Cornwall.*

Longevity of Seeds.—It is evident that much information might be collected on this and other subjects if observers would only take the trouble to make public the results of their investigations. Several circumstances which have come under my observation have convinced me that many seeds, when placed under certain conditions, will retain their vitality for a much longer period than they ever do when kept in the ordinary way, that is, in drawers, canvas bags, or paper packages; and one of the most striking of these is the following, which occurred in the well-known Vineyard Nursery, Hammersmith:—In the year 1823 a piece of Delaware Kale was reserved for seed, much of which was shed before and during the period of gathering; the ground was afterwards trenched to the depth of 2 feet and planted with fruit trees. After a lapse of 19 years the ground was again cleared and trenched to the same depth as before; the broken soil which remained in the bottom of the trench after the second "spit" was thrown out, and which is technically termed the "crumb," was thrown over the freshly dug surface. This "crumb," it will be observed, was the original surface soil, and it produced during the following spring an abundant crop of Delaware Kale, which was evidently produced from the seed which had been buried 19 years before, and which had preserved its vitality uninjured and unimpaired during that period, which is considerably more than double the time it will keep under ordinary circumstances and conditions. *J. R., Hammersmith.*

Cankered Pear Trees.—My soil is rather rich for fruit trees—a tenacious clayey loam from the bottom of marsh ditches, upon a well drained gravelly and sandy stratum. Here Pears and Apples bear surprisingly year after year without failure after their first exuberant growth has been somewhat checked by root pruning. I grafted an espalier Jargonelle three years since on one side with Beurré Rance, the other with Glou Morceau. The grafts of this latter must have been taken from a cankered parent, for I have not a sign or spot of canker in my garden. They never grew well, like the other sorts grafted at the same time, and are still cankered. The Pears on these are small, spotted with black patches in rather deep and irregular depressions, and altogether unlike, in size and appearance, what a good handsome Glou Morceau should be; yet after a week or fortnight's housing they are as sweet as sugar, and most deliciously melting. Do you think I should regraft the Glou Morceau side of my espalier, or is there any hope of the canker disappearing? Can one side of a tree be grafted while the other is growing? and will not this growing side be made over luxuriant by the sudden loss of one half of the tree, and during the two or three first years of the growth of the new grafts? *Novice.* [We should try the result of another year. Can't you throw vigour into the Glou Morceau by stopping its exuberant neighbour?]

Holcus Saccharatus.—The following is my method of treating this plant. Early in spring I sowed three seeds of it, only one of which vegetated; this I kept growing in the stove, shifting the plant into larger sized pots as required until June. When it was in a 15 inch pot, I then removed it to the greenhouse, the sash above it being left open for the summer. In August it sent up a large feathery panicle of flowers, 1 foot in length. From these I have gathered 2000 fine ripe seeds, as you will see by the sample I now send you. The stem or cane, which is also ripe, is 12 feet high, and 1 inch in diameter at 3 feet from the root. Would not this plant, with its long drooping foliage, answer well as an ornamental plant for the clumps or borders of the pleasure ground? It should be raised in heat early, and planted out in June. *John Southern, Didsbury.*

The Mussel Scale.—I have a quantity of Pear and Apple trees that are being destroyed by this pest. I have also a receipt of a solution which should destroy it, viz.:—Soft soap, 2 lbs., flour of sulphur, 2 lbs., leaf or roll tobacco, 2 lbs., nux vomica, 4 oz., turpentine, one gill, boiled in eight gallons of soft water down to six. If any of your readers have anything better I should feel obliged if they will make it known. *H. C. S.* [Hot-water varying from 150° to 160°, applied to the trees in mild weather when the leaves are off, is the best remedy for this insect.]

Potato Disease.—Last spring a composition advertised in your columns was stated to be a complete remedy for this disease. I was therefore induced to purchase

a quantity of it. I strictly followed the advertiser's directions as to quantity, and the Potato sets were planted directly on being taken out of the preparation. They consisted of five kinds:—Farmers' Glory, York Regents, Fluke, Ash-leaved Kidneys, and Early Golden Ball. The three last were entirely destroyed; not 30 sets vegetated. Of the Farmers' Glory about one-third came up, and about one-half of the York Regents; but both pushed weakly and late. They were got up at the usual time, when about one-third of the Farmers' were diseased, and at least two-thirds of the Regents. This remedy, therefore, said to be the result of 14 years' experiments, is not only utterly worthless for the purposes for which it was sold, but has inflicted on me a serious loss; and no doubt from some subsequent instruction sent to purchasers, the same thing has happened with others. I hope that persons who have used it will inform us of its results with them; it is really too bad to advertise such things. We had some waste land or common near this town inclosed and allotted to the freeholders about four years ago, used as common pasture; but a great part of it was grown over with Gorse and Fern, and had been so from time immemorial. A large number being small allotments were principally planted with Potatoes; that year the disease was very bad amongst Potatoes all round the town, but on the common there was scarcely one diseased. I may here observe that the land near the town is a light sandy soil, and that the common is of the same nature, with one exception. Three years ago I planted about 2 acres of the common, and when the Potatoes were got up there was scarcely one diseased, whilst the very same kind of Potato planted on some other land of mine not half a mile distant was nearly half diseased. Last year I planted about 3 acres on the common; the York Regents had a few diseased, the Farmers' Glory none, but on my other land there were many diseased; and the same facts hold good both as regards the common and the other land around the town which was planted by others. I must mention, however, a trifling exception. A gentleman who has a piece of land of several acres adjoining mine manured it excessively for Potatoes last year, and there was a considerable quantity diseased, but in no proportion to the crop of sound ones, whilst, as I have already observed, mine, which were also moderately manured with farm-yard dung, were all sound. Part of the common was a wet bog, but is now drained. It is still, however, by no means dry. I planted above half an acre of this late in the spring; when got up there was not a single Potato diseased, and they were the finest crop I had; whilst the very same sort planted on my other ground had about one-third diseased. I must observe that the tops of all the Potatoes on the common showed the disease every year, but were longer in dying down. Now, the inference I draw from these facts is, that there must be something in the ground which serves to counteract the effects of the disease to an extent that renders it almost harmless, but what is it? Corn does not at present succeed on this ground. Is the effect on the Potatoes the result of some acid? We have a remark that the ground is sour; and may it not be owing to this sourness that the disease is counteracted? Perhaps some of your chemical readers can furnish some information on the point, and suggest the means of trying some experiments, as it is now evident that if other parts have been visited by the disease this year as badly as this neighbourhood, we have not yet got rid of this mysterious malady. *Enquirer.* [In the bog lands of Ireland there never was much disease.]

The Cucumber Disease, brought forward by Mr. Ayres some weeks ago, seems to have been lost sight of, owing to the diversity of opinion existing between him and others regarding the good and bad qualities of certain sorts of Cucumbers. This digression from the most important part of the discussion is to be regretted, because anything tending to give us insight into the mysteries of this direful distemper is much to be desired. I quite agree with Mr. Ayres about the disease being non-constitutional, and that great care should be taken in preparing soil for the growth of Cucumbers; one-third of peat mixed with good loam, adding but a little dung, is the most suitable compost for the growth of healthy plants and good fruit. Mr. A. asserts that in his case the cause of disease rested in the soil. This conclusion, I fear, he will find untenable. My opinion is, that as in the case of the Potato disease, it is caused by atmospheric influence, as may be observed by the spot on the leaf of the Cucumber plant previous to the fruit becoming deformed. Information, therefore, as to the best mode of treating the plants affected will be conducive of much good. For the last two years some of the Cucumber plants grown by me have been more or less attacked. This year two plants of Syon House were put into a two-light box; both plants grew and set well, but disease attacked one of them. The fruit became deformed, and ceased to swell; of course the crop was lost. The other in the same soil, and the same sort of Cucumber, swelled its fruit perfectly. This in my case shows that the cause of the malady was not in the soil. If so, why were not both plants attacked by the malady? *David F. Cunningham.*

Wellingtonia gigantea.—The Mammoth Tree Grove is situated towards the sources of the Stanislaus, and some other rivers, in the county of Calaveras, in the state of California, about 200 miles from San Francisco. The spot is some 4550 feet above the level of that city, and 2400 feet above Murphy's, whence it is distant 15 miles, the road passing through a forest of the finest timber. The Mammoth Tree Grove contains in its valley 85 monster trees in an area of 50 acres. The "Big Tree" (not the largest tree in the grove, but the largest perfect tree) is 95 feet in circumference at the base or buttress, and 18 feet in diameter where the tree springs fairly 20 feet from the ground; it measured after it was cut down 300 feet in length. The stump was considered to be about 3000 years old. It took five men 25 days to fell the tree (which was done by boring), and three weeks to strip off the bark for a height of 22 feet. The average thickness of the bark was 15 inches; some of it 2 feet 1 inch. On the upper trail the first tree of note is the "Miner's Cabin;" it is about 80 feet in circumference, and nearly 200 feet high. It tapers up regularly, some 40 feet from the extreme base to the top of the cabin, or hollow, called the Miner's Cabin. It is open in front about 17 feet. The "Three Sisters" are a group evidently grown from the same roots. They are about 300 feet high, and together measure 92 feet in circumference. They are perfect trees, and the most beautiful group in the grove. It is 200 feet to the first limb of the centre tree. The "Pioneer's Cabin" is 150 feet high where the top is broken off. It has a small opening through the top. The "Old Bachelor" is an awful forlorn-looking tree; having many rents in its bark, and the roughest bark of any tree in the grove. It is nearly 300 feet high, and about 60 feet in circumference. The "Hermit" stands entirely by itself, is 300 feet high, and 75 feet in circumference. It is exceedingly straight, regular, and symmetrical. "Hercules" or "Empire State" is 300 feet high and 170 feet in circumference. It is the largest standing tree in the grove, and would make 725,000 feet of lumber. It, like many of the other large trees, is imperfect, being burned on the side of the trunk. The "Husband and Wife" are about 250 feet high, and each 60 feet in circumference. The "Family Group" consists of 26 trees, the father and mother and 24 children. The "Father," from appearances, was blown down many years ago. It measures 110 feet in circumference, and the supposed height, while standing, was 450 feet. The remaining length is 300 feet where it is broken off by falling against another large tree. It is 40 feet in circumference. It is hollow the entire length, and large enough to allow a person to ride into it on horseback. Near its base it contains a never-failing spring of water; nearly half of the trunk is embedded in the earth, and measures at its roots 22 feet in diameter above the ground. The "Mother" is a stately old woman, 91 feet in circumference and 327 feet high. It is the second largest tree in the grove. The 24 children are all of age, and large enough to speak for themselves. They are of average height, some standing near the Mother, yet the majority are near the Father. They are all in a real family group. The "Mother and Son" are together 93 feet in circumference. The Mother is 325 feet high; the Son 300. The "Siamese Twins, and their Guardian."—The Twins have one trunk, but the bodies separate at a height of 40 feet. They are 300 feet high. The Guardian stands by their side, is 80 feet in circumference, and 325 feet high. The "Old Maid" stands single in her grief; her head, unlike any other tree in the grove, is entirely bare, and slightly bowing. Her height is 260 feet; circumference 60 feet. "Adie and Mary" are named after two young ladies who made the first "buggy" drive to the grove. The trees are nearly 300 feet in height, and 65 in circumference, and are very handsome. There are other trees named, as "Uncle Tom's Cabin," "The Order of California," "Pennsylvania," &c. At the grove is an excellent inn, with good accommodation. Several acres have been cleared, and as the ground is very rich, and the place is much resorted to, the proprietor has every chance of making money rapidly. At the end of the dining-room is the stump of the great tree; it has been planed, and a floor having been raised to its level, forms a dark centre of 25 feet in diameter. Upon this floor the guests often dance. In this upland region the air is very fine, and the water most pure and cold, and, after suffering from the excessive heat at Murphy's and lower down among the southern gold regions, you most reluctantly descend. The wild fruits were not ripe, but in the season there are, I was told, Strawberries, Plums, and other fruits in great abundance, very good of their kind. There is fine food for cattle, and these regions, when subdued, will not be the least valuable of California. *Thomas Banister.*

Societies.

Caledonian Horticultural, *6th Dec.*—Office-bearers for the ensuing year were elected on this occasion. Prizes for Dessert Pears were awarded as follows:—The set which otherwise would have been entitled to preference (sent by Mr. Wyllie, Ninewar) was disqualified from want of the proper declaration. The prize was accordingly awarded for the next in point of merit to Mr. Morrison, gr. to R. Ainslie, Esq., the kinds being Marie Louise, Easter Beurré, Beurré d'Aremberg, Gansel's Bergamot, Glou Morceau, and Napoleon; 2d, Mr. Lockhart, Luffness, for Bezi de Quesnois, Crassane, Duchesse d'Angoulême, Marie Louise, and Doyenné Gris. Dessert Apples: 1st, Mr. Morrison, with Blenheim Pippin, Ribston Pippin, and Scarlet Nonpareil; 2d, Mr. Calder, Seacliffe, with Cambusnethan Pippin, Ribston Pippin, and Old Nonpareil. Retarded Grapes: 1st, Mr. Gavin, Hopetoun House, with White Nice; 2d, Mr. Melville, Dalmeny Park, with Barbarossa. Chrysanthemums: the Silver Medal was awarded to Mr. Laing, gr. to the Earl of Rosslyn, for beautiful blooms of Defiance, Duke, King, Lysius, Princess Marie, Queen of England, Nonpareil, Formosum, Beauty, Aragena, Dupont de l'Eure, and Two-coloured Incurved. For the finest flowered Chrysanthemum plant the prize was gained by Mr. Laing, with Annie Salter. The prize for Anemone-flowered Chrysanthemums was also gained by Mr. Laing, whose varieties were Madame Godereau, Gluck, Fleur de Marie, Astre du Matin, Madonna, and Marguerite d'Anjou. Of Pompone Chrysanthemums Mr. Laing sent Cedo Nulli; Mr. Reid, gr. to W. Wilson, Esq., Sacramento. In Red Celery three prizes were awarded: the 1st to Mr. J. Goodall; the 2d to Mr. Currier, for Manchester; and the 3d to Mr. Allan, Craig Park, for Cole's Superb Dwarf. In White Celery the 1st prize was awarded to Mr. Goodall; the 2d to Mr. Thomson, Woodburn, for Goodall's White; and the 3d to Mr. Ferrier, Eskbank, for Seymour's White. For Onions two prizes were awarded: the 1st to Mr. King, for Blood Red and Portugal; and the 2d to Mr. Henderson, Alderston, for Strasburg and Globe. In Broccoli three prizes were awarded: the first to Mr. Gordon, Niddrie, for Snow's Early White; the 2d to Mr. Logan, St. Roques, for Addison's Early Improved; and the 3d to Mr. Calder, for the same variety. The prize of two guineas, offered by Messrs. P. Lawson & Son, for the best collection of Pears, brought five competitors. The prize was gained by Mr. Anderson, Oxenford Castle, with a collection consisting of Catillac, Duchesse d'Angoulême, Marie Louise, Louise Bonne of Jersey, Uvedale's St. Germain, Spring Beurré, Gansel's Bergamot, Autumn Bergamot, Colmar d'Aremberg, Bellissime d'Hiver, Beurré Diel, Colmar, Flemish Beauty, Easter Beurré, Beurré d'Aremberg, Swan's Egg, Crassane, Leon le Clerc, Merveille d'Eté, Moorfowl Egg, Precel, Beurré de Capiaumont, Rouse Lench, Urbaniste, Glou Morceau, Gendesheim, Napoleon, Winter Nelis, Délices de Hardenpont, and Colmar Doré. Among productions contributed for exhibition only, were tubers of the new Chinese Yam (Dioscorea Batatas); a bunch of the Champion Black Hamburgh Grape, and one of the common B. Hamburgh from the same house, showing the superiority of the former, and its freedom from shanking, even when long kept; a seedling Grape, and a head of Grange's Improved Broccoli. The exhibition was also enhanced by numerous specimens of fruits, roots of Dioscorea Batatas, and other productions from the Society's garden.

Notices of Books.

In *The Handbook to the Marine Aquarium* (12mo, Van Voorst), Mr. Gosse, whose familiarity with marine animals and their habits has already gained him a wide-spread reputation, reveals the secrets of the success which has attended his important experiments in reducing the most obscure inhabitants of the sea to the dominion of man. With what skill this has been done is well known to those who visit the Zoological Garden in the Regent's Park; those who do not visit it we heartily recommend to turn their steps that way. Although we can hardly suppose that residents in inland places will encounter the difficulty and expense of maintaining a marine aquarium, yet we can believe that the long line of our seaboard will produce hundreds of admirers as well as diligent students of oceanic life, to whom the practical instructions contained in the work before us will be most welcome. We must find room for Mr. Gosse's account of his own operations:—

"If we attempt to collect and to keep marine animals alone in sea-water, however pure it may have been at first, it speedily becomes offensively fetid, the creatures look sickly, and rapidly die off, and we are glad to throw away the whole mass of corruption.

"Why is this? why should they die in our vessels when they live so healthily in the little pools and basins of the rock, that are no larger? For the very same reason that we should quickly die in a room perfectly air-tight. The blood of all animals requires to be perpetually renewed by the addition to it of the element called oxygen; and when it cannot obtain this it becomes unfit for the support of life. Terrestrial animals obtain this gaseous element from the air; aquatic animals (that is, those which are strictly such) obtain it from the water. But in either case it is principally produced by *living plants while under the action of light.* If, then, we can furnish our captives with a perpetual manufactory of oxygen, the main cause of their sudden death is removed. Of course they have other requirements, but this is the most urgent, the indispensable.

"In a state of nature, the rocks, the crannies, the pools, the sea-bottom are studded with various living plants, which we call sea-weeds; and these, under the daily stimulus of sunlight, direct or indirect, produce and throw off a vast quantity of oxygen, which, by the action of the waves and currents, is diffused through all parts of the habitable sea, and maintains the health of its countless swarms of animals.

"In an aquarium we seek to imitate this chemistry of nature. We collect the plants as well as the animals; and, a little observation teaching us how to proportion the one to the other, we succeed in maintaining, on a small scale, the balance of animal and vegetable life. Other less important benefits result from this arrangement; the creatures love retirement and shelter, and this they find in the umbrageous fronds; they delight to roam and to play and to rest in the feathery tufts,

and not a few find their favourite food in the delicate leaves of the submerged herbs.

"On the other hand, the plant is indebted to the animal for some of its supplies. The carbon, with which its solid parts are built up, is derived from the carbonic acid which is thrown off by animals in the process of breathing; a poisonous gas which would soon vitiate the water were it not taken up and appropriated by the plants.

"Such, then, is the principle on which the aquarium is founded: and any conditions under which it can be carried out will serve, provided of course they be suitable in other respects to the habits of the animals and our purpose in keeping them. I now proceed to other details on the practical management, so far as I am able, from my own experience, and that of not a few of my friends, to give them; premising that I have at present (September, 1855) at my residence at Islington, one marine tank full of animals and plants in the highest condition, the water in which, though as clear as crystal and quite colourless, has never been even removed from the vessel since it was first put in, 19 months ago. I have, also, other tanks and vases, which are respectively 17, 14, 13, and four months old. The success in establishment of these has not been achieved without some failures and losses, which yet must not be considered as unmitigated misfortunes, since they have added to my experience, and better fitted me to understand and sympathise with the difficulties of other beginners."

Modern Cookery: by Eliza Acton (Longmans).

A much enlarged edition of this useful collection of receipts has lately been published. The preface seems particularly worth attention; it deprecates the waste so common in kitchens, yet shows good cookery to be desirable for persons of limited income as well as for the wealthy. After observing that the subject, the influence of diet upon health, has recently been investigated by eminent men of science, the author continues as follows: "In arranging the present edition of this volume for publication, I have gladly taken advantage of such of their instructions (those of Baron Liebig especially) as have seemed to me adapted to its character, and likely to increase its real utility. These, I feel assured, if carefully followed out, will much assist our progress in culinary art, and diminish the unnecessary degree of expenditure which has hitherto attended its operations: for it may safely be averred that good cookery is the best and truest economy, turning to full account every wholesome article of food, and converting into palatable meals what the ignorant render uneatable, or throw away in disdain." Much may be learnt respecting economy in various parts of the volume, for example in the article "Stewing," p. 173, and "Oven Cookery," p. 178. Mrs. Acton announces her intention of publishing works on cookery for invalids and the poor, which we doubt not will prove highly valuable.

Flowers and Flower Gardens. By David Lester Richardson, *with an appendix of practical instructions and useful information respecting the Anglo-Indian Flower Garden.* Calcutta: D'Rosario. London: Smith and Elder. 8vo, pp. 232, with an Appendix of 32 pp. more.

We only notice this for the purpose of warning the public that it does not exactly fulfil the promise made in the title-page. What it does contain of Horticulture is limited to the Appendix, borrowed literally from Speede's well-known book, and as ill written, and uninstructive as can well be devised. The remainder of the volume consists of anecdotes and poetical extracts upon which we must not presume to express an opinion. The chief relation they bear to gardens appears to consist in their being arranged under the names of trees and flowers. The book is, however, intended for Indian readers, and we presume will prove more to the taste of Hindostan than of England.

Sanitary Reform and Reformers (Stanford) is a well-written, but fierce attack upon Messrs. Chadwick, F. O. Ward, and all the other advocates of converting (we should rather say of trying to convert) town sewage to profit. We are not sorry to see a clever writer and a well informed man taking this view of a great question; but we should have preferred a less acrimonious style. The pamphlet should be read by all who are engaged in this most important discussion, and most especially by the members of the new Metropolitan Board of Works.

Lawson's Gardeners' Kalendar, a broadside of the usual size, is beyond all comparison the most useful thing of the kind which has been offered to persons interested in Horticulture. It ought to be hung up in every seedshop, nurseryman's counting-house, and gardener's room in the United Kingdom. It is ornamented with an excellent litho-tinted view of the hothouses, &c, in H.M.'s Garden at Frogmore. It may be had at 1, George IV. Bridge, Edinburgh; or at 27, Great George Street, Westminster.

The Flora of the Colosseum of Rome, by Dr. Deakin (Groombridge), will we think prove acceptable to the English visiting Italy. It contains short familiar descriptions, arranged systematically, of some 400 or 500 species of plants, in the form of a well printed pocket volume. Such a work was wanted, and will probably answer the purpose of amateur travellers as a guide to the botany of Italy, and Southern France, as well as of the Colosseum.

Garden Memoranda.

Orleans House, Twickenham, the Residence of H.R.H. the Duc d'Aumale.—Within the last few years the gardens at this well-known place have been considerably improved. The extent of the ornamental ground has been increased by taking into it a portion of the kitchen garden, and planting it with evergreens, which are traversed in all directions by well formed walks; and owing to the good condition of the soil, both shrubs and Coniferous plants have made ample growth. Remarkable among the latter was a Juniperus Bedfordiana quite 12 feet high and 6 feet through, beautifully formed, and in the most robust health. On the outskirts of the lawn on the south side of the house to which the Thames, Pope's Grotto, and other objects of interest are contiguous, were also some very fine Conifers, among which was a Taxodium sempervirens at least 18 feet high, and with a trunk quite a foot in diameter at the ground. This fine specimen unfortunately lost its leader last winter, but a new one is about to be tied up to supply its place. We also remarked a noble Pinus excelsa, whose top, however, had been eaten off by the Pine beetle, some good Cryptomerias, Deodars, and Douglas Firs, together with immense masses of Portugal Laurels. One of the latter was stated on a label to have been planted by the late King of the French in 1816. In the centre of the lawn is a fountain whose jet can be made to throw water from 16 to 18 feet high, and in connection with the house is a lofty conservatory, which, when there is company, is lighted up at night. This is chiefly occupied with large growing plants such as Camellias, some of which, as the old double white and double striped, are now in full bloom and very gay. Here was also the Heliotrope Triomphe de Liège, trained up pillars to a great height; this is found to be invaluable for cutting for nosegays, being nearly always in bloom. To the east of the house is an Orangery, in which in Lord Kilmorey's time were kept some of the magnificent Orange trees that now ornament the Crystal Palace at Sydenham, but in the absence of these and other trees which it contained it has been converted into a picture gallery. This, as well as other houses about the place, was built and warmed, we were informed, by Messrs. Gray and Ormson. Not far from this spot is a short conservative wall on which are Chimonanthus, now coming into bloom, Myrtles, and Roses, &c., and in front of that a row of iron arches for Roses and hardy climbers. Under the arches are planted Irish Yews and Hollyhocks alternately, and in autumn, when the latter are in blossom, a striking effect is thus produced. A little farther on and we come to a short straight Italian walk, with dwarf walls, lined on both sides with tall Junipers, and surmounted by an iron trellis, on which Vines are trained for the shade their leaves afford in summer. This terminates in a small grotto or summer house.

In the kitchen garden the walks and borders are separated from the compartments by means of iron espaliers, and in one portion of it the wall borders are raised considerably above the level of the surrounding ground. The sloping faces of these banks, which are kept up by dwarf walls, form excellent places for growing early vegetables in spring. By putting shallow wooden frames over Lettuces in such situations, their progress is greatly accelerated, and they are fit for use very much sooner than others not so kindly treated. It is under bell-glasses or cloches, however, that the best Lettuces are grown here, and by means of these they can be had the whole winter through. The seed is sown in August, and when large enough the plants are pricked out on a warm border, five or six under each bell-glass. By means of a wooden peg, pushed into the ground, with notches in it for the edge of the bell to rest on, air is given on all favourable opportunities. As the plants increase in size so as to get too thick they are thinned out and used till at last only one or two are left, and in April and the beginning of May these are reported to be admirable specimens. All the protection they get in winter is some straw mats put over the cloches, which are also surrounded by the rakings of the shrubbery. In this way early Lettuces crisp and eatable even to the very outside-leaves are secured, and that at very little expense, for the bell-glasses in France only cost 9*d.* each, and their carriage to this country is not great. Why do not our glass manufacturers take possession of this trade! Some hundreds of these glasses are employed here just as in France.

The Batates or Sweet Potato has been cultivated here in nearly as great perfection as in the South of France, some of the tubers, the white round kind, weighing nearly 3 lbs. each, and the yield large, 24 plants being reported to have furnished 2 bushels of Batates. The manner in which this feat has been accomplished is as follows:—In March the eyes are cut out and put into 3 inch pots, filled with peaty soil, and started in Cucumber beds where there is bottom-heat. By the middle of May they have made good plants and are ready for planting out. A bed is then prepared for them in the open ground by throwing out the mould about 6 inches deep, putting some hot dung in the bottom and then replacing the soil. The Batates are then planted in a handful of peat, 12 in a row, 30 feet long, and 3 feet wide. Bell-glasses are put over them, and in the case of those grown here were kept on all the summer, but Mr. Gabriel Darragon, the French gardener to the Duke, is of opinion that when the weather has become warm they might be dispensed with. This then is all the care they received, and the result was as has been already stated, that the two rows or 24 plants produced 2 bushels of tubers—a yield which must be acknowledged to be highly encouraging. In addition to the value of the tubers, which are considered a great delicacy, the haulm is very luxuriant, and cows are extremely fond of it. Those therefore who wish to experiment on the growth of the Batates must take care to have the rows a good distance apart; 3 feet has been found to be too little.

The glasshouses here consist of Peach houses and Vineries, pits for Pines and plants, a stove for plants, and a neat span-roofed greenhouse, all heated by one boiler. One of the Vineries is provided with a double front, in which the Vines are retarded till it is desired to bring them into the house. Early Vines planted in the same Vinery are trained point downwards from the back towards the front. These are forced so as to furnish ripe fruit by the beginning of June, while those then introduced from the front yield a crop in August, and in this way the same house is made to produce two crops in one year. Heliotropes are grown in the houses in large quantities. They have all been cut back, and are now beginning to push afresh.

FLORICULTURE.

Out-door Chrysanthemums.—After eight years' experience in the culture of this flower, I have selected from some hundreds of sorts the following for out-door cultivation, and I may add that they may all be relied upon to give satisfaction; at least they have never failed to bloom profusely with me. To persons wishing to grow large specimens and incurved flowers the following are the best: Blush and Pink—Queen of England, King, Alfred Salter, Beauty, Nell Gwynne, Christine, Hermine, Trilby, Jessie, Princess Marie, Madame André, Duke. Rose—Themis, Versailles Defiance, Stafford, Phidias, Nonpareil, Pilot, Rosa mystica, Leon Leguay, Campestroni, Aregina. Orange and Rose—Anaxo, Cassy, Cyclops, Dupont de l'Eure, Lysias, Warden, Racine. Yellow—Plutus, Annie Salter, Golden Cluster, Chevalier Dumage, Cloth of Gold, Webb's Delight, Etoile d'Or. Red and Carmine — King of Crimsons, Madame Poggie, L'Emir, Pio Nono, Rabelais. White—Vesta, Defiance, Goliath, Madame Laborde, Madame Corbay, Madame Bouchalet. Purple — Rolla, Albin. The following are all excellent border flowers, but not incurved. White—Marchioness, Surprise, Lucidum, Conqueror. Yellow—Temple of Solomon, Formosum, Australe, Gerb d'Or, Queen of Yellows, Changeable Yellow, L'Ingot d'Or, Le Prophète. Red—Comte de Rantzau, Duke de Cornyliana, Claudius Ptolemy, Vortigern. Carmine — Bixio, Bossuet, Atro-rubens, De Crique. Lilac—Calypso, Princess Royal, Minerva, Webb's Queen. Crimson and Orange — Madame Cammerson, Christophe Colomb, Orlando, Aries, Auguste Mie. Anemone flowered: Yellow—Gluck, Marguerite de York, Reine Marguerite. White—Fleur de Marie, Nancy de Sermet, Madame Godereau, Salter's Reine Marguerite. Nankeen—Marguerite d'Anjou. Blush—Marguerite of Versailles. Sulphur—Eclipse, Madonna. The following Pompones grown in the open borders have all bloomed freely. Anemones: White tipped with pink—Cedo Nulli. Amaranth—Ariane. Red—Atropos. Carmine—Daphnis. Orange—Junon. Yellow—Sacramento. Blush—La Ruche. White—Reine des Anemones. Purple sorts—Lias. Lilac—Althæaflora. Rose—Finette. The following are not Anemone-centred:—Rose — Madame Rousselon, Ranunculé, Madame Maillard, President Decaisne, Précoce, Helène, Adonis, Elise Miellez. Yellow—La Roque, Solfaterre, Drin Drin, Pluie d'Or, Birrol, Le Jongleur, Le Pygmée, Coindre. Red and carmine — Bob, Grand Sultan, Brilliant, Doctor Bois Duval, Admiral Dumont Durville. Plum—Riquiqui, Piquillo. White — Argentine, Princess Mathilde, Modèle, Mont Blanc. Blush—Bijou d'Horticulture, Madame Jules d'Ivry, Graziella, Uranie. Red and Orange—Asmodée, Aurore Boreale, Criterion, Hector. Salmon—Comte Achille Vigier, Madame Ailbert. Nankeen and rose—Colibri, Jonas. Buff—Autumnum. Gold—Triomphe, Golden Drop, Cybele.
S. Broome, Temple Gardens.

Miscellaneous.

On the Growth of the Bamboo Cane, and of the Horse-radish tree.—These plants afford good examples of the powers of vegetation within the tropics in their rapid growth. I have been assured on good authority that the first, the Bamboo (Bambusa arundinacea), has been known to shoot 14 inches in the 24 hours. I measured one six days successively, one that was about 4 feet from the stool from which it sprung; during the first 24 hours it increased in height 6.75 inches; during the second, 5 25; during the third, 4.5; during the fifth, the same; during the sixth, 4 5 inches. The growth appeared to be in part terminal and in part interstitial, the space between the joints in the new shoot having lengthened. These observations were made between the 22d and 29th September, and on a plant in a comparatively poor and dry soil. A Horse-radish tree (Moringa pterygosperma) close to my house, that had sprung from seed, had in nine months from the sowing of the seed attained a height of at least 24 feet. Its trunk then exceeded in thickness a man's arm, and its branches, proportionally large, were at this time bent from the weight of its pods, some of which were ripe. It had received no culture or manure, and the soil on which it grew was stony, and nowise a fertile one. I find amongst my notes another instance of the activity of

tropical vegetation in the rapid manner in which plants right themselves on change of position. Thus in a flower-box in which weeds had taken the place of the flowers, placed on its end at 6 o'clock in the morning, I found in the short interval of 12 hours—viz, at 6 in the evening—that they, the weeds, had become bent at right angles to the soil in which they were rooted, so that the upper portion of their stems had recovered their perpendicular position. The extraordinary productiveness of a tropical climate is by many considered an inestimable advantage, forgetful of the more than counterbalancing evil arising from the astonishing growth of exhausting and often smothering weeds. The poet may sing of the

"redundant growth
Of Vines, and Maize, and bower, and brake,
Which Nature, kind to sloth,
And scarce solicited by human toil,
Pours from the riches of the teeming soil;"

but the planter knows to his cost that in no part of the earth's surface is more care and industry required than within the tropics to make agriculture profitable. *Dr. Davy in the Edin. New Philosophical Journal.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Although we have many beautiful plants which either bloom naturally at this season or require but little artificial management to cause them to do so, a scarcity of flowers is, perhaps, more commonly experienced at this than at any other period of the year. And where the display is, to a large extent, dependant upon what we term forced plants considerable foresight and attention will be necessary for some time, in order to maintain a regular supply, for plants are not so easily excited into bloom in the dead of winter as in spring, and in selecting plants for forcing every possible care should be exercised to choose such as are not likely to prove failures, for of things which are suitable for forcing many will bloom but poorly if they are subjected to a high temperature without having been allowed a sufficient time to recruit their energies after making their growth. Next to Camellias, Azaleas are perhaps the most showy plants that can be had in bloom at this season, and where there is a good stock of these to draw upon, some of the most forward plants of the commoner varieties should be placed in heat at once, moistening them over head two or three times a day. But unless plants can be selected which made their growth and set their buds early in the season, they need hardly be expected to flower so finely as under more natural circumstances in spring, and unless the buds are plump there will be some danger of the plants starting into growth instead of flowering. Dutch bulbs should be largely used for present forcing, and where hardy shrubs are forced for the decoration of this house, these should be got into flower as soon as circumstances admit, for although many of these are very showy when well bloomed, and acceptable enough when had in flower in winter, they hardly seem in place under glass in spring, after the weather becomes fine, and when more choice plants in bloom should be plentiful. Do not forget to introduce into gentle heat a good batch of Roses, choosing the most promising plants of Teas, Bourbons, and Hybrid Perpetuals, which are the best kinds for winter flowering; a gentle bottom-heat will be of great service to these as also to most other plants subjected to heat in order to get them into flower as quickly as possible, and a moist state of the atmosphere must be secured, admitting a little air freely on every favourable opportunity. Greenhouse.—Damp or insects soon do irreparable damage among soft-wooded plants at this season, and these must be very carefully attended to if they are to be carried over the winter in first-rate condition. Pelargoniums should be kept rather cool and dry, giving whatever water may be necessary on the mornings of fine days, so that the superfluous moisture may be dispelled before evening, avoiding the use of fire-heat save when necessary to prevent the temperature falling below 40°, or to dispel damp when this cannot safely be done by giving air. Keep the shoots thin, rubbing off such as can be spared, and if green fly is perceived upon any of the plants, apply tobacco smoke at once. Calceolarias require very similar treatment to the above, except that they are very subject to the attacks of thrips unless afforded a moist atmosphere, and they must be narrowly watched for this enemy and smoked lightly on two or three successive evenings if this pest makes its appearance, keeping the atmosphere moist and giving air on every favourable opportunity to prevent the foliage flagging. Cinerarias for late blooming must also be kept cool and airy, and should not be allowed to suffer for want of pot room; but these should not be trusted in cold pits after this season, for they are exceedingly impatient of frost. Forward plants of these, intended for flowering early, should be encouraged with a gentle heat, keeping them near the glass, and admitting air on every favourable opportunity.

FORCING DEPARTMENT.

Pineries.—If circumstances should render it necessary to subject a portion of the "fruiters" to a brisk temperature at once to induce them to start, the most promising plants for fruiting should be very carefully selected, and placed in a small house or pit by themselves; and, where anything like a regular supply of ripe fruit is required, several houses, or separately heated compartments, should be at command; and without this convenience no gardener can reasonably be blamed for having too many ripe at one time, and none at others. It is not by any means desirable to start more plants into fruit at this early season than may be absolutely necessary, for they will produce finer fruit later in the season than can possibly be obtained from them now; and where a separate house cannot be commanded for those which must be subjected to a high temperature, we would advise that the plants selected for fruiting should be placed in the warmest part of the house at command, filling the rest of the house with young stock. The former should be afforded a bottom heat of about 85°, and the latter about 10° or 15° lower; the atmosphere should range from 68° to 75° by fire heat, allowing it to rise 5° with the assistance of sunshine, keeping the young plants near the glass, and properly supplied with water at the root. This temperature will be considerably too high for young stock at this season, but we have seen this system practised with considerable success; and although the young plants may get somewhat drawn, they will gain substance as light increases, and the evil will be less than running the risk of starting at this early period of the season the greater portion of the plants that are at command for keeping up the supply throughout the summer. Vineries.—Until the buds are fairly broken the points of the shoots should be kept nearly on a level with the lowest part of the Vine; and if this should not be found sufficient to induce the buds to start equally throughout the length of the Vine, the rod should be bent so as to bring the most forward buds to the lowest level, elevating those that are backward. Maintain a thoroughly moist atmosphere by frequently sprinkling the floor and passages, &c.; and syringe the Vines lightly at least twice a day until the leaves begin to appear, when the amount of moisture must be moderated. Give every attention towards securing a gentle warmth for the roots; turning the litter, and adding fresh as may be requisite, and keeping it well protected from the effects of heavy rains and severe weather. Be satisfied with a moderate night temperature, until the buds begin to push, when it may be gradually raised to 60°, by the time that the leaves fairly begin to open. Peaches.—Until the trees are fairly on the move do not keep the night temperature higher than from 40° to 45° by means of fire-heat; but an advance of 10° early in the day, with plenty of moisture in the atmosphere, should be secured. Syringe the trees frequently, and secure a thoroughly moist atmosphere. Also see that the inside border is in a moist healthy state, and if this is not the case, two or three applications of tepid water should be given. It is becoming very much the order of the day to have Peach trees and most other things which are wanted for very early forcing, in pots; and this plan offers the advantage of being able to afford the roots a mild regular bottom-heat, which is of the greatest importance in early forcing, and excellent crops are also obtained. But the trees must be prepared for this purpose by having been grown some time in pots; and where these are not on hand, unless they can be purchased from the nurserymen who prepare them, nothing can be done this season except to procure and pot the trees, and prepare them for next year.

FLOWER GARDEN AND SHRUBBERIES.

Where the tenderer varieties of Roses are found to require protection, this should be applied at once, if not already done, otherwise it may soon be too late to save the plants. Also get in the stock of Briers for budding upon next year without delay, for unless these are planted before spring they seldom furnish strong shoots for early budding. Many persons object strongly to planting shrubs or trees in winter, believing that the roots if hurt at this season are liable to rot, and certainly early in autumn is a very preferable season; but with favourable weather we would not delay such work a single day, and if the soil is properly prepared by draining, &c., where necessary, as should always be done before planting, there will probably be fewer failures from planting now than if the work were delayed until March. But where the ground to be planted is of a clayey nature, and in an unkind state at present, it will undoubtedly be better to defer planting until spring, meantime using every means to improve the state of the ground; and soils of this nature should always be dug or trenched some considerable time before planting, as neither draining nor anything but exposure to the action of the atmosphere will bring them into a fit state for planting. But while we would not hesitate to plant small stuff generally at present, things which are at all tender had better be left until the chance of severe frost is past, and the transplanting of large evergreens which has unfortunately been delayed until now should be put off until the weather becomes mild in spring, especially things which are known not to be perfectly hardy. Roll walks and lawns after frost, to keep them firm and smooth. There will be comparatively little to be done in the flower garden at present, and any spare time will be well spent in going over the stock of plants in pits for next season's use, removing every decaying leaf, and where the surface soil has got green removing this and top-dressing with sandy loam. There is nothing so unfavourable to these plants at this season as damp, therefore take every opportunity of admitting fresh air.

HARDY FRUIT AND KITCHEN GARDEN.

It is always desirable to get as much of the pruning and nailing done before the approach of spring as possible, therefore lose no favourable opportunity for forwarding these operations; for besides the advantage of having so much work done before the busy season, the garden will present a much neater appearance after the wall trees are nailed, and the borders made trim, and the small fruit bushes pruned, and the ground among them turned over. See that standard trees which have been recently moved or root-pruned are firmly secured against being injured by wind, and also get any root-pruning or transplanting remaining to be done this season executed as soon as possible. Endeavour, as far as circumstances will permit, to have a good supply of Parsley under safe protection, for there is generally a large demand for this, and in the event of such a winter as last it will be impossible to save it by the ordinary protection of hoops and mats. Lettuce, Cauliflower, &c., being wintered in frames, must be freely exposed to the air on every favourable occasion. See to maintaining a regular supply of Seakale, Rhubarb, and any other forced vegetables which may be in demand, and let the supply be also as liberal as circumstances will admit, for it often happens with an irregular or limited supply that something is particularly wanted when it cannot be furnished. Look over the stores of roots occasionally to see that all are keeping sound, and be particularly careful of any Broccoli that may be fit for use or turning in. Take advantage of frosty weather to get manure wheeled upon spare ground where it is wanted, and see to keeping a good supply well rotted and fit for use when wanted.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Dec. 20, 1855, as observed at the Horticultural Gardens.

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain.
Friday 14	5	30.015	29.900	49	40	44.5	38	41½	W.	.07
Satur. 15	6	30.222	30.038	48	25	36.5	41	41	W.	.00
Sunday 16	☽	30.251	30.183	47	29	38.0	38	41½	W.	.00
Mon.. 17	8	30.086	30.045	43	35	39.0	39	42	N.E.	.10
Tues. 18	9	30.214	30.075	40	21	30.5	40	42	N.E.	.00
Wed. 19	10	30.264	30.180	32	20	26.0	38	42	E.	.00
Thurs. 20	11	30.093	29.918	32	17	24.5	38	41	E.	.00
Average .		30.163	30.047	41.5	26.7	34.1	38.8	41.5		0.07

Dec. 14 Overcast; rain; cloudy at night.
— 15—Overcast; bright sunshine in forenoon; densely overcast; cloudy; frosty.
— 16—Slight frost; fine; hazy and cold.
— 17—Foggy; cold haze.
— 18—Cloudy and cold; clear and frosty; very cold wind.
— 19—Clear and frosty; piercing cold east wind; very clear at night.
— 20—Sharp frost; cold dry air; very clear; severe frost.
Mean temperature of the week 6¼ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Dec. 29, 1855.

Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 23	42.6	32.0	37.3	15	1.13 in	4	7	2	2	1	8	1	4
Mon. 24	42.4	32.0	37.2	11	0.36	3	4	3	2	1	11	1	4
Tues. 25	43.1	28.8	35.9	6	1.22	2	6	3	—	2	7	6	3
Wed. 26	42.8	31.7	37.2	10	0.9	1	4	3	4	4	8	2	3
Thurs 27	42.4	29.9	36.2	10	0.40	4	4	1	—	5	6	6	3
Friday 28	41.1	28.6	35.0	9	0.16	4	3	3	3	2	2	7	5
Satur 29	42.6	34.0	38.4	13	0.17	2	5	1	3	4	5	5	4

The highest temperature during the above period occurred on the 29th, 1827—therm. 58 deg.; and the lowest on the 28th, 1853—therm. 8 deg.

Notices to Correspondents.

Fruit Trees: *A C.* The following will suit your purpose:—Apples—Early Harvest, Golden Reinette. Ribston Pippin, Blenheim Pippin, Adams's Pearmain, Court of Wick, Scarlet Nonpareil, Boston Russet, Wormsley Pippin, Golden Noble, Mère de Ménage, Dumelow's Seedling. Pears—Williams's Bon Chrétien, Marie Louise, Louise Bonne (of Jersey), Beurré Diel, Van Mons Leon le Clerc, Glou Morceau, Easter Beurré.‖

Jerusalem Artichoke: *W. Antrim.* The proper name of this plant is the name it bears. Not find it in any book on Gardening! We cannot find any modern book on Gardening in which it is not.

Law of Tenancy: *S M B.* When you quit possession your Vines are the property of your landlord, and you cannot claim any compensation; unless you are a market gardener—or there is some special covenant in your lease. But you should consult your solicitor upon all such questions.

Leaves: *P B D.* We have for some time contemplated doing what you suggest; and probably shall.

Microscopes: *G W.* We know nothing of the maker whose advertisement you send. It is evidently a simple microscope that is offered, and not an achromatic one. Such instruments may be had of all prices, from 2*s.* 6*d.* in the form of the commonest pocket lens, up to 5*l.* 5*s.* What we have seen of low priced simple microscopes are dear at any price. If you want a very good unexpensive quasi-simple microscope, you should get a Coddington from some good maker. But our remarks were devoted to Achromatic microscopes—the only kinds of much use in the examination of minute objects.

Names of Fruits: *J J Shipston.* 1, Probably Syke House Russet; 5, King of the Pippins; 6, Anise; 7, Wormsley Pippin; 10, Court-pendu Plat. The others are like seedlings, or such as may be found in an orchard of Cider Apples.—*T B Browne.* 2, Autumn Bergamot; 4, Bequêne Musqué (stewing); 5, 7, Marie Louise; 6, Napoleon.—*T H.* The much decayed is probably the Beurré Bosc.—*F.* 1, Marie Louise; 4, Beurré Rance, and so is probably No. 2; 5, Rousselet de Rheims; 8, Winter Crassane; 9, Passe Colmar; 10, Scarlet Crofton; 13, Mère de Ménage; 14, is not the Nelson or Nelson Codlin; it seems to be the Northern Greening; 15, Reinette du Canada; 18, Wyken Pippin; 19, King of the Pippins; 20, 21, Court of Wick; 23, Golden Harvey; 25, not Clifton Nonsuch, but Bedfordshire Foundling.—*Jew:* Your Pear from France appears to be the Angelique de Bourdeaux.‖

Portable Boiler: *Sub.* We do not know where Smith's boiler can be had. Inquire of Messrs. Lawson and Co., of Edinburgh. We never saw it.

Syringing: *A Sub.* Don't use salt. What do you expect to gain by it? Do use soapsuds. Keep the skin of your trees as clean as your own—if you can. White Antwerp, Red Antwerp, and Rivers's double bearing Raspberries will probably give you all you want.

Underwood: *Enquirer.* We should not plant either Hemlock Spruce Firs or any kind of Silver, except experimentally. As you do not say in what county you live, it is difficult to say more than that you should rely upon Junipers, Yews, Hollies, Berberis Aquitolium, Hypericum calycinum, Common Broom, and, if your climate suit them, Evergreen Oaks.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

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OWNERS OF SETTLED ESTATES and OTHERS desirous of availing themselves of the various recent Acts of Parliament, by which they may charge their Estates with money expended in the Improvement, Conversion, and Reclamation of Land, by Drainage, Irrigation, Embanking, Inclosing, making Farm-roads, Clearing, the erection of Farm-buildings and Machinery, Planting and other Agricultural Improvements, are respectfully informed that Messrs. HEWITT DAVIS & FRANCIS VIGERS undertake to advise and furnish Plans and Estimates, and if required, will contract to do the works, and dispose of the Rent charges.—3, Frederick's Place, Old Jewry, London.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.

4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Sec.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected; Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

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Surveying, Civil Engineering, and Mathematics—F. Armstrong, C.E.
Manager of Farm—G. Austin.

The First Session of 1856 will begin February 5. The annual fees for boarders vary from 45 to 80 guineas, according to age and other circumstances; the fee for out students is 40*l.* per annum. The College course of lectures and practical instruction is complete in one twelvemonth, though a longer course is recommended. Prospectuses and information can be had on application to the Principal.

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Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

BIRMINGHAM CATTLE AND POULTRY SHOW.—At the ANNUAL GENERAL MEETING of SUBSCRIBERS, held at Dee's Royal Hotel, Birmingham, on the 13th of December, the Right Hon. the Earl of DARTMOUTH in the chair, the following RESOLUTIONS were unanimously adopted:—

Moved by C. M. CALDECOTT, Esq.; seconded by HOWARD LUCKCOCK, Esq.—

That the Right Hon. the Earl of Lichfield be appointed the President for the ensuing year.

Moved by HOWARD LUCKCOCK, Esq.; seconded by Mr. JOHN LOWE—

That the cordial thanks of this Meeting be given to the Earl of Dartmouth, for his courteous and kind attention to the business of the Society during the past year.

Moved by Mr. J. MATHEWS; seconded by WILLIAM JAMES, Esq.—

That the thanks of this Meeting be given to Mr. Shackel, and that he be requested to continue the office of Treasurer of the Society for the ensuing year.

Moved by C. M. CALDECOTT, Esq.; seconded by B. D. WEBSTER, Esq.—

That this Meeting unanimously concur with the Judges in reprobating the practice of trimming the fleeces of Sheep for the purpose of exhibition, as being calculated to deceive the public eye, although it cannot mislead the Judges, and requsets the Council to direct their attention to the subject, with a view of effectually repressing the practice.

Moved by Mr. T. B. WRIGHT; seconded by Mr. JOHN LOWE—

That, in the opinion of this Meeting, it is desirable that the Show of the Smithfield Club and that held in Birmingham should on no occasion take place at the same time; and that the Council be requested to take into consideration the propriety or otherwise of fixing the Birmingham Show one week earlier than that in London; and if such change appears to them to be calculated to promote the interests of the Exhibitors of Stock, and the convenience of Purchasers and Visitors generally, to make the necessary arrangements accordingly.

Moved by Mr. J. MATHEWS; seconded by C. M. CALDECOTT, Esq.—

That, in the opinion of this Meeting, it is desirable to discontinue the Annual Dinner, and to substitute in the place thereof a Lecture or Lectures on some subject connected with Agriculture, with a discussion or discussions thereupon; and that the Council for the ensuing year be requested to make the necessary arrangements for such Lecture or Lectures; and that the President be invited to preside. DARTMOUTH.

The chair having been vacated by the Earl of Dartmouth, and H. Luckcock, Esq., having been called thereto:—

Moved by C. M. CALDECOTT, Esq.; seconded by Mr. J. MATHEWS; and passed unanimously:—

That the Thanks of this Meeting be given to the President for his courteous and able conduct in the chair this day.

HOWARD LUCKCOCK.

The Agricultural Gazette.

SATURDAY, DECEMBER 22, 1855.

THE discussion on Land Drainage which followed Mr. BAILEY DENTON's paper before the Society of Arts turned more exclusively on the Keythorpe system than, considered in the interest of agriculture generally, was perhaps desirable. One expected to have heard on that occasion an extensive experience described or a satisfactory theory demonstrated in reference to the passage of water through the soil. If, in the one case, we had had the results of land drainage classified according to the circumstances under which they had occurred, so as to bring out the effects of deep and shallow conduits, of varying intervals between them, and so on; and if, in the others, we had had the laws of hydrostatics applied to the conditions under which water in the soil is placed, the discussion would have been more useful agriculturally than it has been. The debate was, however, to be renewed this week, and many of the points that we have named will, no doubt, obtain a fuller investigation at the adjourned discussion than they had previously received.

At the meeting last week Mr. TRIMMER followed Mr. BAILEY DENTON with an account of the Keythorpe drainage. Mr. HEWITT DAVIS objected to that system on the ground that the sub-ridges and furrows on which it depended were too various in their position and in their depth to be made the basis of any regular or trustworthy operations. Mr. MECHI argued for the efficiency and profitableness of deep drains with narrow intervals:—every foot of earth gained in depth was 1200 tons per acre for the use of plants. Lord BERNERS entered into long details upon the drainage of his estate at Keythorpe. His lordship had tried the various plans of drainage side by side, but none of them were satisfactory—he had spent many thousand pounds in trying shallow draining, and it had proved a failure—his success was obtained by the use of trial holes, and the placing conduits so as to take the water from the natural drains, viz. the furrows filled with the porous material overlying the subsoil. Mr. BAZALGETTE, engineer to the Metropolitan Commission of Sewers, stated very fairly, as it appears to us, the true objects of such a discussion as they were then engaged in:—

"There were a large number of gentlemen present from various parts of the country, each of whom could contribute valuable results, which, when collected, might throw considerable light upon the science of land drainage. It appeared to him that in considering the subject, the first principles to be determined were—First, what is the minimum depth to which the waters should be reduced below the surface, to render the drainage perfect. It might vary considerably in different localities, and for different purposes, and this was a question for the agriculturist to determine. It was then for the land draining engineer to ascertain at what slope the waters would percolate through various soils with sufficient velocity from this minimum depth below the surface towards his drains; and the relative distance between them and the required depth of the drains themselves would then be resolved into a question of comparative cost, and could be determined upon a sure and safe guiding principle."

Mr. BAKER, of Writtle, argued that as the water was held by the porous portions of the subsoil, there was no necessity for penetrating into the retentive beds below it; any fixed depth of 4 feet or more prescribed for the drains would be totally unnecessary further than as concerned their durability and relieving the soil to the depth of 2 feet.

Mr. CLUTTERBUCK referred to the light which knowledge of the geology of a district afforded to the drainer, illustrating it by the experience of geologist and drainage engineer in the neighbourhood of Oxford. Mr. HOSKYNS, who presided, summed up the remarks of the previous speakers against the advocates of a shallow system of drainage.

It will thus be seen that while many of the most influential authorities on the subject spoke, yet the purposes of a full discussion, such as Mr. BAZALGETTE indicated, were by no means fully served.

The only addition to existing knowledge, so far as we are aware, for which we have to thank the meeting was due to Mr. H. S. THOMPSON, who gave a very lucid and ingenious illustration of the greater quickness of the deeper drain, and as his experiment throws considerable light upon the relations of air, soil, and rain-water, we give his speech entire:—

It was known that in certain cases deep drains began to run, after rain, sooner than shallow ones, which fact had been long disputed, and when proved beyond a doubt had puzzled the highest authorities in such matters. He had been present at discussions at which Mr. PARKES and others had offered suggestions to account for it, which were not satisfactory to him. He had, therefore, had glass tubes made, of different lengths, and filled with soil, and had tested the times at which they began to drip when water was poured on them all at the same moment. If the soil was dry, the short tubes, which represented shallow drains, began to run first, but if water was again poured on the tubes before that previously poured on had all passed through, they began to drip again immediately that the second quantity of water was poured on, and without waiting for the water last used to pass through the soil. This was evidently due to the elasticity of the air confined between the free water at the bottom and that at the top of the column of earth, and in this case all the tubes, of whatever length, began to drip at the same moment. If, however, the tubes, after the first application of water, were allowed to remain some weeks, the short tubes discharged the whole of the free water, but the long ones, representing deep drained land, still retained a little free water at the bottom of the column of earth, and when water was again poured on at the top, this free water was *immediately* discharged, or the deep drain began to run; whereas the short tube, or shallow drain, having discharged all its free water, did not begin to drip for some time,—in fact, not till the water had percolated through the column of soil. He had repeated the experiment in various ways, and always with the same results. This was a small matter, but a fact, however trifling, if rightly explained, sometimes elucidated a great principle, and in this case, by tracing the course of the free water in its passage through long and short columns of soil, he had derived great instruction as to the

action of deep and shallow drains, and satisfied himself that there was no fear of making land too dry by deep draining, except in peat soils.

The tables of the Agricultural Statistics of Scotland have just been published, and we shall next week give them in a condensed form. The most material fact, and that which possesses the most immediate interest and will exert the most immediate influence, is the proportion in which the Wheat crop of the present year is stated to stand to that of 1854. Sixteen out of 85 districts return their produce as equal or superior to that of 1854, and of the remainder 35 are stated at 10 per cent. or more below that crop. Taking into account the character of 1854, as compared with the average of years, we should imagine the Scottish yield of Wheat this year to be not much below the crop in ordinary years.

Of course the character of the Wheat crop in Scotland does not much affect the supply of bread for the whole country, but the report now published is useful, as indicating the yield elsewhere under the circumstances of Scottish agriculture. How useful it is as indicating the possibility of publishing early in the season reports of our food supplies, future years will no doubt tell.

AUSTRALIAN FARMING.

Of all countries in the world perhaps none can excel South Australia in the quality of its Wheat. It does not average, perhaps, more than 15 or 16 bushels per acre, and the straw worth nothing; but the land is cheap—in very many cases, perhaps in most, it need not be ploughed above once in two or three years, being merely sown and harrowed the others. The reaping done by machine at the rate of an acre per hour soon clears the field; the corn may be threshed the day after it has been cut, and sent to market; it is then already dry enough to keep without heating. The straw burnt, or decaying upon the ground nourishes it; thus, although sowing Wheat for several years in succession is almost impossible to succeed elsewhere, here it is the usual practice. But it is not to be supposed that manure is useless—the few farmers who use it find the benefit; elsewhere the exhaustion of the land goes on slowly; it is usual in such a case to let the land lie fallow for a year or two, and break up fresh land for Wheat growing. To show the fluctuation of its price I may state that in 1850 it was 2*s.* 10*d.* per bushel of 60 lbs., and now it is 10*s.*—(the price a week ago, now lower). All grain, &c., here is sold by weight; 60 lbs. are a bushel of Wheat; 50 lbs. a bushel of Barley or grain, (the Chick Pea used instead of Beans but not grown here); 40 lbs. a bushel of Oats; 20 lbs. of pollard or bran.

The Cape Barley is much grown, and yields an abundant crop; so also does English Barley; the grain is harder perhaps than in England, and is not preferred by the maltsters, so that English made malt is a common consignment to this colony; so also are English Oats; Rye does not flourish, and, strange to say, that although Beans and Peas would succeed admirably, yet they are never grown. It is to be observed, however, as Wheat and Barley will grow upon almost all the land, another crop is the less necessary.

The climate occasions marked differences between the farm here and in England; here you will scarcely see anywhere a barn or a cowhouse, or sheds for winter feeding—very few stables even; what is the natural consequence? No warm yards covered with straw are to be seen, no litter for horses, no refuse except husks from the rick-yard, the ears being cut off by the machine close to the ears, so that there are no corn ricks at all, except in certain places or with small farmers, who are obliged to reap the corn in the usual way, and here only, of course, do you see shocks or sheaves of corn. There being no winter feeding of stock or sheep, there are no fields of Turnips, or Mangel Wurzel, or Cabbages. The land not being locked up by frost or snow is green and luxuriant all the winter. Neither the white nor red Clover, nor Tares or other green crops are grown. Summer is the season when the cattle suffer most, for as the Grasses are mostly annual, and die off about October, their dried remains, and a few insignificant weeds, are all that sustain them till the following April, when the rains set in. If any green crop is sown it is Lucerne, which succeeds admirably. There are no native Grasses large enough for hay, so that Oats are sown and cut green for this purpose. The Oat yields about 1½ tons per acre of hay which sells for (this year) 10*l.* per ton. It must be evident there is no straw or stable manure, and if there were, so great is the drought that an ordinary dung-heap would crumble into dust before the summer was out, most if not all ammoniacal properties would evaporate, and it would be of little value; also on bad roads the conveyance of manure would be expensive. Guano has been lately introduced, but in a very limited degree.

The sections of land, 80 acres, are all half a mile long and a quarter of a mile wide, and adjoin a public road; for the most part they are very thinly wooded—not more than an ordinary park in England. There are very few live fences, posts and rails or posts and wires being chiefly in use. Of forest trees there is very little variety; flowers few. The land is very rarely of a stiff clay, more often of a salt sandy structure, thirsty and barren, which all the manure that could be put upon it would not improve; very frequently of a fertile, friable rich loam of a reddish colour, and in the low lands of the finest black alluvial deposit—no chalk, no coal, no peat, no morasses or bogs, no binding gravel, and but little slate, but many minerals; such are the characteristics of our colony in agriculture. I do not allude to stock keeping; that would lead me too far away, but I have only written to give a few hints to emigrating farmers. *G. F., resident in Adelaide.*

ON BREAKING UP GRASS LAND.

I have some misgivings with regard to the sweeping way in which it has been laid down that we may break up ancient pastures, and that the artificial pastures are as productive as the ancient Grasses. I think the general impression of farmers is very much opposed to it, and any results drawn chiefly from Lancashire and the districts named by Mr. White, ought to be viewed with caution before they are adopted as applicable to the length and breadth of Cheshire. That ancient turf land of the description given by Mr. White ought to be broken up is another question; but as far as my impression goes, an ancient turf, if a good one, will do more work than any new one. You know whether it will for cheese; but I am speaking with reference to the fattening of cattle and feeding them. The question of breaking up ancient turf is now one of very great and national importance. It is very evident that we must go to some source beyond the arable land now in cultivation, to secure the supply of food to the people upon a sure foundation. Our attention has been called to this in a neighbouring county by a young nobleman of great promise, with whom I agree in some matters; I wish I could subscribe to all he says. There are 17 millions of acres of pasture land in this country, as compared with arable. We all know that pasture land, when broken up, will yield much greater crops of corn than the arable land. I should say, if a third of this land were broken up, it would yield more than all the arable land together. But the question comes, what description of turfs should we break up? I would venture as a farmer to say it is madness to plough turf land of very high quality; it is equal madness to plough turfs of very low quality, or clays of very low quality, that have good coats on their backs. Such had better remain in turfs. The class of land we may draw upon is the great breadth of wiry herbage turf land; that is, the land that ought to be brought into cultivation, and would supply an almost inexhaustible quantity of food. It is a comfort to hear Lord Sandys say we could produce three times as much as we do. What would be the consequence to every branch of industry in the country if even it were doubled? Whatever is added to the income of the country by this means must be spent in promoting every other kind of productive labour. I think the recommendation to break up ancient turf has been put too broadly; but I say, anything that is capable of conversion to green crops with advantage, may be safely and profitably broken up. It would yield more than it does, and you would have all the corn crops in addition. About cheese-making I feel less confidence. The general impression is that from cows grazing upon ancient turf the cheese is of better quality. I certainly do not concur in the assertion that the richer the land, the richer the quality; I think the practical evidence is directly contrary to it. I think that the marl and clayey marls, taking England through, make richer cheese than lands of high quality that have been greatly forced. If I am wrong, I should be glad to be set right. I am not laying this down dogmatically but rather as a channel for your own inquiry, for it is a question of too much importance not to be fully and fairly dealt with. We have heard of grazing cows on red Clover the first year; I doubt the wisdom of grazing red Clover with anything the first year. I think if I were to poll the gentlemen present, they would say as a person once said to me, "Can you get better Wheat after mowing Clover or grazing it?" I said, after mowing. I like theory and practice to go together. You think that the manure droppings would make it better, but it is not so. Nesbit says, in grazing it, you stop the growth of the plant; but in order to test it, he raised the root (after mowing a portion of the field and grazing the rest of it), cleaned and weighed it. If I remembered the result I should be afraid to state it, but it was something like ten-fold more from the mowing than from the grazing. Some attribute good cheese to artificial manures; but I say you want a series of experiments fairly conducted and honestly stated, and you ought to satisfy yourselves what kind of manures improve the quality of milk, and what deteriorate it. I guess Mr. White hit the point when he said that the cheese is more difficult to make after the application of manures; it does not, however, follow that the cheese is not better when it is more difficult to make. I recollect the case of a friend of mine in Staffordshire, who disturbed the quality of his cheese for several years after laying lime. I am now suggesting points for your consideration rather than giving advice. I do beg that you will pause before you rashly break up ancient turf of fine quality, and before you break up marly clays of moderate quality, if there is a tolerably good coat upon them. All the large class between these two may be converted into tillage land with advantage, and the public interest requires that it shall be so. What is the effect of your best Cheshire marl upon your pastures? I remember in my early life in your county, I thought that a good coat of marl doubled the fee simple. I saw good Grasses spring up like magic. But before you do so, you should make a careful analysis, for all is not good marl that is called by that name. Your marl has a great proportion of lime, which is a great criterion of value when it is free from minerals. You want a careful analysis of all the marls you have; and you should go back to the ancient system of using the best of them to improve the quality of your herbage. The old system of marling through England has been left off rashly, and we ought to revert to it. It is a grievous calamity, gentlemen, that any land situated between the Mersey and the Dee should be growing Scotch Fir. (Mr. Turnor refers to Delamere Forest). The Cheshire gentlemen could not do a wiser thing than petition the crown, and negociate for its restoration to cultivation. *Mr. Turnor at the Chester discussion.*

YIELD OF THE PAST HARVEST.

Worcester.—I beg to say that I consider the crop of Wheat in this part of the vale of Evesham extremely good. Since harvest I have threshed two fields of 34 acres—one of red Talavera, the other of a Russian Wheat—and the yield has been 13 bags or 39 bushels per acre. I have made numerous inquiries, and I find the average on the farms around me to be from 33 to 36 bushels per acre. This is certainly not the average of 1854, but for many years past. It may be objected that many farmers have grown less—that one or two in a parish may have grown this crop; but that others are far below it. I grant it; but spread the crops over the general acreage, and it will amount to what I have stated. In all the fields there are many bushels of refuse corn only fit for pigs or fowls; but whatever may be the yield or quality, the bread is certainly very good and very superior to that of last year. Besides there is a general impression that the yield is better than was expected. The Barley is an excellent crop, and the Beans and Peas, like the Wheat, turn out better than was expected; so that upon the whole I have nothing unfavourable to report, but on the contrary everything to cheer and please. *Henry Hudson, the Elms, Pershore.*

Norfolk.—In answer to yours received yesterday I beg to say that the Wheat crop in this district, and I may say county, is very deficient—full one-third. The Barley is a fair average crop, though not fine in quality. The Oats are barely an average in quantity, and quality inferior. Beans a fair crop. Peas, none of any consequence grown in this neighbourhood. The Wheat is quite as deficient in quality as it is quantity, a great deal of it not weighing more than 56 lbs. to 57 lbs. per bushel. *Thos. Brown.*

Suffolk.—In reply to your favour I beg to inform you that I consider the Wheat crop a full average, Barley above that estimation, Beans better than usual, Peas not so good, Oats very few grown in this district, Turnips and Swedes are fair crops, Mangel splendid. I have no better guide for my opinions than the common report of the neighbourhood, compared with my own experience as a farmer and maltster. I have threshed no Wheat but from my own seed, at Michaelmas, which yielded well; Barley I have threshed more, but cannot distinctly state produce per acre, as the stacking goes on without reference to separate fields; I was well satisfied with my first turn-out of Barley, both in quantity and quality, but I threshed a stack last week large enough for 40 quarters which gave but 20, it was down in the Grass; the Barleys malt kindly, but require selection in the samples offered. Wheat seed has been well done and in good time, although it appeared likely not to be finished in the usual time. *G. Edwards, Framlingham, December* 10.

Cambridgeshire: Chatteris.—In endeavouring to give a brief report of the produce of the last harvest, I will confine my observations to my own parish, which consists of about 14,000 acres of land, chiefly arable, and is situated in the midst of surrounding parishes, where the soil is similar; and consequently the remarks that will apply to this will also be applicable to several neighbouring parishes. In this parish we have two separate and distinct descriptions of soil, which we designate respectively high and fen land. The former is a strong and stiff soil, whilst the latter is very light; but the proportion of high land to fen is very small. I have now tested my own yield of Wheat on both these varieties of soil, and have also taken the opportunity of making inquiries of several other parties, to ascertain their probable produce. The result of my own experience, and of the inquiries I have made is, that upon the high lands the crop is about an average, or nearly so, but upon the fen lands the yield is deplorable. But to give figures, I place the average yield of this parish at 4½ quarters per acre. Now, taking every acre, whether high or fen land, as sown with Wheat last year, I conceive the acreable produce cannot exceed 2 quarters. But in the spring many fields on the fen land were ploughed up and sown either with green crops or spring corn; we should therefore place the yield of that which was reaped at harvest at 2½ quarters per acre. We find the quality, moreover, greatly inferior either to last or to an average year. The deficiency in weight cannot be less than 2 stones per quarter. As to any increased acreage, that is scarcely possible. As the system most generally adopted is to grow Wheat every alternate year, even where this is not pursued we find no additional land in Wheat. Barley is but little grown, and does not warrant a report. Oats and Beans are probably about an

average crop. *Alfred S. Ruston, Wenny Road, Chatteris, Dec.* 18.

Gloucester.—Wheat about 12½ per cent. or one-eighth below average, arising from the best deep lands being much laid early in the season, and the produce consequently light; and the light land having lost plant in consequence of the intense frost of last winter was too thin in patches; also the ears not well filled, from the wet weather when in blossom. The quality is, however, much better than expected. Other kinds of corn about average. *J. F. Peacey, Winchcomb, Gloucestershire.*

Hertfordshire.—The Wheat on the light lands in this district disappointed at harvest the hopes entertained by the growers throughout the spring; there is less than an average yield. But on the heavy lands the crop has proved abundant and good. Of Barley the yield is of an average quantity, but rather under an average quality. Of Oats I think the crop is satisfactory. I believe in this respect, as usually happens, that we have more to be thankful for than we care to admit. *Charles F Humbert, Watford.*

Kent.—I grow scarcely any other grain but Wheat, as you are aware, and cannot give you very positive information of my yield, except as regards the rakings, which may be a tolerably accurate criterion for the sheaf corn, as we term it. The rakings produced 11 quarters 2 bushels, being 6 gallons per acre, which should have been 15 quarters, viz., 1 bushel per acre. I have no doubt my produce will be from one-quarter to one-fifth short of an usual average growth. *M. Sandford, Dover.*

Hants.—The Wheat is a fair average crop in the inclosed districts, but much of that grown on very dry soils and exposed situations turns out very badly, and full 6 bushels per acre under the average produce. Barley is everywhere a bulky crop, and over an average produce, but the quality very inferior; and a less portion of the crop fit for malting purposes I never recollect. Oats are a good crop, although rather light in sample, yet the produce considerably exceeds an average crop. Beans and Peas under an average produce, but the sample good. *Joseph Blundell, Bursledon, Southampton.*

Carlow.—The yield of our Wheat crops in the best Wheat growing districts of this county of the past harvest is fully one-third under an average crop; Barley about one-fourth and Oats over one-third, and on some of the best Oat-growing districts the yield is from one-third to one-half under an average crop. This applies to the neighbouring counties, generally speaking, through which my engagements take me. In making these statements I speak also the sentiments of the most intelligent rent-paying farmers I so frequently meet. We want correct agricultural statistics other than those supplied the Government by our police, whose reports, no matter how honestly intended, are looked upon by every sound-thinking impartial-minded man capable of judging of such matters as little short of "a mockery, a delusion, and a snare." *Edward Carroll, Clonegal.*

Co. Kilkenny.—Having two threshing machines for hire I have had rather a good opportunity of knowing the general yield of corn this year, and my opinion is that Wheat is nearly one-fourth below average. Barley, average in quantity, but very bad in quality. Oats fully an average. *Dawson Athelward, New Ross.*

Home Correspondence.

Agricultural Economy.—One advantage (and one has need of finding advantages) of a state of war, of a deficiency of provision, is the necessary economy it forces us to use, and the impulse it gives to us to exercise our ingenuity in extending the means left to our use. When we are in a state of abundance and superfluity we become wasteful and neglectful even of the proper use of what we use. Our abundance not only does us no good, and even leads to a careless treatment of what we have, but it leaves us unprepared to meet any future difficulty in supply. This may only apply to a very great abundance, but such abundance we have had, of it we have wasted, and from it we suffer. Conceiving that bread-stuffs would always remain at an equable rate, we have indulged all our ancient predilections for an unmixed and unchangeable article, and now when such scarcity arrives we seem at our wits' ends to provide a remedy. For all of us to practise the closest economy, in our individual case, to ease ourselves of the great expense caused by present prices, is not only the duty but also the advantage of all educated and competent people; but combined with this economy and exercise of contriving powers, we must still look further, and endeavour to scan the future to determine the prospects of coming harvests, and the probable supplies of the necessities of existence. Can we really believe that future harvests will in our own country be much more productive than the present one has proved? Can we also believe that foreign supplies will come in so abundantly hereafter as to keep down our home prices? Or can we hope that superior cultivation will provide us at home with a sufficiency to balance the doubtful foreign supplies? Of the first point, I think we can hardly look forward to a greater yield on an average than we have lately received; also, that with the competition which seems likely to occur between ourselves and other countries, that the Wheat fields of America and the East will not be so exclusively our own as they have been. On the whole, then the greatest prospect of future supply seems to be derived from superior cultivation at home, yielding larger returns. Any one looking over the average yield of counties of corn per acre and comparing this with the returns made in cases of unusual care and cultivation, apart from the instances of soil, must conclude that a greater activity and perfection in the farming interest will yield the deficiency we have. It seems pretty clear that by moderate manuring and some little extra labour in cultivation we may increase our yield by 25 per cent., and attain at the same time a much more profitable rotation of crops. The first of these points attained, we are at once rendered independent of foreign supplies of grain, and the second as a reserve gives us a well grounded belief in its possibility. The only point to be attended to to attain this end is to put on the land as much of solid and mineral products as you remove. Soda, potash, lime, and nitrogen laid on in ascertained proportions will only leave to nature to turn them into food, and by keeping our accounts with our fields honestly, as a balance at our banker's, never drawing more than we pay in, we may continue on living even extravagantly, without fear of stoppage and difficulty. But we must make use of our national manures; we must turn to account the thousands of tons of general sewage which our towns and cities produce. Over and over again has this point been alluded to, but how to do so has ever been a stumbling block. Some talk of pumping it up to stations at a high level and thence distributing it to the surrounding country; then again it is proposed to consolidate the results of sewage, and to dispose of it in a soluble form to farmers everywhere; this latter seems by far the most promising plan, to carry our sewage down the river to some convenient spot and there, by a series of filters, to extract the solid matter, and by again treating this with the necessary adjuncts, as salt and gypsum, to preserve the nutritive properties, to consolidate it, and render it available for transportation to any part. The calculations on which the success of such a scheme depend seem much more likely to be realised by this than by any other. The nitrogen of one man's excrement in a year is stated to be about 1 st., capable of producing 800 lbs. of Wheat; the value of such manure must certainly be equal to 5*s.*; taking 2,500,000 as the population, 600,000*l.* appears as the product. This of course looks perfectly astounding, but we must recollect the immense value of the food that annually enters the metropolis, and remembering also that farmers well know that cattle fed on a field, and growing and increasing in weight on that field, yet render the soil more fruitful than if they had not been there, we may reasonably allow that the same would in a commercial sense prevail in a considerably less degree in the value returned for the manure restored to the fields, which even at this high estimate would not amount to barely a tenth of the value of the food consumed. Do we flinch then from the great expense and difficulty connected with the filtering of the water and collection of the solid matters? Of course it will be a very dirty job, a very nasty one, and must be done on a prodigious scale. Then, again, the solid state is by far the most useful—it is portable, it can be removed by ships or railways to any part of the country, it can be used when and where we like, and only requires the farmer to collect the water in suitable tanks in his fields, then to add his manure, and by a hose distribute it over or under his acres. Every prudent farmer who appreciates the value of irrigation would run the drainage of his individual fields into their own tanks, storing it there for days of drought, to be applied either pure or by admixture with manure. When the sewage scheme is put into execution, we may expect the full benefit of prolific production up to the standard of individual cases as at present. We may then easily produce a sufficiency for our own consumption, and may even become exporters. We shall then be free from monetary crises caused by deficiency of gold, which generally results from a demand for foreign corn. We shall then have advanced agriculture to its proper rank, and provided all classes with a sufficiency of necessaries. In fact the simple truth, the simple necessity, seems to be—sewage—plenty of sewage—turned to account. *H. C. Lloyd, Kingston-on-Thames.*

A new form of Agricultural Statistics.—At the Cattle Show of last year the description of food upon which the individual animals had been fed was stated on the same card which announced their breeder and exhibitor, as also their ages, but this year this piece of information appears to have been left out. The mere fact of an animal's having been fed on Linseed and Turnips is not in itself particularly interesting, as merely stated in that loose form there is not very much to be generalised from it; but if the exhibitor could have added to this an account of what was given daily of each kind of food, and could also state the total weight produced by a given quantity of food, we should be at once the gainers in knowing the economical fattening of the different breeds. Such an account has been kept by individual farmers in their experiments on the relation of breeds; and it has produced most valuable results. Also in an economical point of view it would be a great encouragement to know that highly bred, highly fed animals, seemingly fed only to produce the greatest perfection totally apart from expense, were yet economically fed, and realised a fair price for their expenses. For without this the cattle show loses half its advantage. It may be admirable for improving the breed and helping the perfection of parts, but if it merely produces animals of a perfection of symmetry and substance without doing so in an economical sense, it proves very useless to the great number of farmers who can only produce that which pays, and who must leave exclusively to the rich and noble the prize fattening of animals. Should this statement be made, and with the careful, scientific habits of the day it might easily be obtained, the substantial advantages of breed and food will receive a great advance, and would tell upon the popular mind much more strikingly than the unknown greatness of the present system. Given the cost price, and then every one, farmer or not, can more or less judge of the advantages of feed and breed. *Herbert C. Lloyd, Kingston-on-Thames.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Special Council, *Dec.* 12.—Lord Portman, President, in the chair.

Mr. Pusey.—On the 7th November, on the motion of Lord Portman, seconded by Colonel Challoner and Mr. Raymond Barker, the following resolution having been carried unanimously:—

"That a letter be written to the family of the late Philip Pusey, Esq., expressing the gratitude of the Royal Agricultural Society of England for his services as Chairman of the Journal Committee, and their great sorrow for his early death. That it be engrossed on vellum, and signed by the President, with the seal of the Society attached."

Lord Portman reported, at this meeting, that in pursuance of that resolution he had addressed the following letter to the family of the late Mr. Pusey:—

"The Council of the Royal Agricultural Society of England has directed me, as the President, to assure the family of the late Ph. Pusey, Esq., that the Society deeply and unfeignedly unite with them in their grief for the irreparable loss which they have sustained in the early and lamented death of their beloved father. In this bereavement the Council and the Society participate with the surviving and sorrowing members of Mr. Pusey's family; for while the recollection of parental affection and domestic virtue will long endear his memory to all the members of his family, his distinguished position when twice elected President of the Royal Agricultural Society of England, and his unceasing labours for 17 years as Chairman of the Journal Committee, will long be cherished by his surviving colleagues, and be remembered with gratitude and respect by every member of this Society. (Signed) Portman, President."

To which he had received the following reply:—

"London, Dec. 12.

"My Lord,—The family of the late Mr. Pusey have requested me, as one of the executors under his will, to express to your Lordship and the Council of the Royal Agricultural Society of England their graceful sense of the sympathy shown to them in their bereavement.

"They will not fail to appreciate duly such a communication from the Society, remembering how their father cherished the memory of Earl Spencer, its first President, and of others with whom he had the honour to be associated in its foundation.

"Of Mr. Pusey himself, it will long be remembered that to practical habits of business he joined deep philosophical thought, accurate scholarship, and genial appreciation of the arts and letters of modern as well as ancient times—that he applied a powerful intellect, with a keen forecast of the wants of his country, to develop the resources of British farming, and that, by a rare union of endowments, he did much to render science practical, and to win for agriculture a worthy place among the intellectual pursuits of the present day.

"How much labour he underwent, what forbearance and discrimination he exercised, how considerate he was of the feelings of others, how modest in the expression of his own, may never be known except to his personal friends; but some of the results of his unceasing exertions during many of the best years of his life are to be found in the Journal (to which the Council have referred by their resolution); and by that Journal at least his name will be permanently and honourably connected with the Society from the date of its commencement.

"This may not be the occasion on which to speak of his exertions for the labouring poor, or of his private virtues, but I trust that I shall be pardoned for having said thus much in response to the recognition of Mr. Pusey's services by the important public body over which your lordship presides.

"I have only further to request that you will be pleased to convey to the Council the respectful acknowledgments of Mr. Pusey's friends, and that you will accept personally their sincere thanks for the kind terms in which your letter to the family is expressed.—I have the honour to be, my lord, your lordship's faithful servant, Thomas Dyke Acland, Jun."

"The Right Hon. Lord Portman."

On the motion of Mr. Jonas, seconded by Mr. Fisher Hobbs, it was resolved that the foregoing letters be entered in the proceedings of the day, and be printed in the forthcoming number of the Journal.

Guano Substitute.—Mr. Raymond Barker having submitted the report of the Guano Substitute Committee, on a formal claim made for the Society's 1000*l.* prize, the Council adopted the opinion of the Committee that proposed substitute was not entitled to the prize offered.

Trial of Implements.—Colonel Challoner, chairman of the Implement Committee, having read to the Council the suggestions of the implement makers, who had met that committee in conference two days previously, it was carried on the motion of Mr. Thompson, seconded by Colonel Challoner, "That at future country meetings the competitive trials of implements shall be confined to certain specified classes of implements, and that it be referred to the Implement Committee to make such a classification as shall ensure the trial of every description of agricultural implement once in three years;" and on the motion of Mr. Brandeth, seconded by Mr. Slaney, "That after the word 'Implement' in the previous resolution, the words be added 'for which alone in each year prizes shall be offered.'" The Implement prize sheet was accordingly referred to the Implement Committee to report to the Council in February what prizes they would recommend to be offered at the Chelmsford Meeting.

Steam-Cultivator.—It was carried, on the motion of Mr. Evelyn Denison, M.P., seconded by Mr. Hamond: "That the sum of 500*l.* be offered by the Society for the best steam cultivator that shall be an economical

substitute for the plough or the spade, and that it be referred to the Implement Committee to consider the details of the conditions to be made for the prize."

Special Council, *Dec.* 13.—Lord Portman, President, in the chair.

Live Stock Prizes.—On the motion of Mr. Miles, M.P., seconded by Lord Feversham, prizes were unanimously voted for foreign stock of any pure native breeds of cattle and sheep, open to all foreigners, under conditions to be recommended to the Council at their February meeting by a special committee, consisting of Mr. Miles, M.P., Mr. Evelyn Denison, M.P., Lord Feversham, Mr. Jonas Webb, Mr. Fisher Hobbs, Mr. Jonas, Mr. Milward, and Professor Simonds. A sum not exceeding 120*l.* was voted for Poultry Prizes to be arranged by the Council in February. On the suggestion of Mr. Townley Parker, a class of Prizes was voted for Dray Horses. The general conditions and regulations of the prize sheet in reference to the usual prizes offered by the Society were agreed to.

Special Meeting, *Dec.* 14. — Colonel Challoner, Trustee, in the Chair. The report of the General Meeting was agreed to.

General Meeting of the Society.—The following report was read :—

REPORT.

The Society, during the past half-year, has lost 40 of its members by death, and gained, during the same period, 116 new members by election. Its list now contains—

9 Life-Governors,
140 Annual Governors,
815 Life-Meremb,
3895 Annual Members, and
18 Honorary Members.

The Council have elected Lord Berners to fill the vacancy in the number of Trustees occasioned by the lamented decease of Mr. Pusey; and the Earl of Essex to supply the vacancy in the General Members of Council, created by the transfer of Lord Berners's name to the class of Trustees.

The Society at large will have deeply participated with the Council in their sense of the great loss they have sustained in the removal of Mr. Pusey from the sphere of his invaluable co-operation, and from the direction of that Journal which has so long formed the strongest bond of union among its members. The Council have already expressed, through their President, Lord Portman, their condolence with the family of Mr. Pusey on their irreparable loss, and their grateful estimation of his devoted services to the Society.

The Carlisle Meeting has been one of the most successful of the efforts of the Society to promote and extend to remote districts the practical value arising from the trial of Implements and the exhibition of Live Stock. The lateness of the season preventing efficient trials of the Reaping Machines at Carlisle, they were postponed until the end of August, when they took place at Abbot's Leigh, in Somersetshire, on a farm of Mr. Miles, M.P., the President of the Society, who placed for that purpose the whole of his crops, horses, and men at the service of the Society; and most hospitably received at Leigh Court the official company who attended the trials on the part of the Society.

The Council have already agreed to the Live-Stock Prize Sheet for the Country Meeting to be held next year at Chelmsford, including, along with the usual prizes, additional classes for Foreign Cattle and Sheep, and a distinct division for Dray Horses; the arrangement of the Prizes for Farm Poultry and for Agricultural Implements and Machinery being postponed until February.

Mr. Miles, M.P., having in June last, as the President of the Society at that time, headed a Deputation of the Society to the French Agricultural Meeting at Paris, agreeably with an express invitation of the Imperial Government, has reported to the Council the successful results of that mission in every point of view.

The Earl of Clarendon has continued to transmit to the Society the successive returns furnished by the consuls residing in various tropical districts where guano, nitrates, and other manuring deposits are thought likely to be discovered. The Council have again expressed to Lord Clarendon their deep sense of his lordship's kindness in thus continuing to promote the objects of the Society; and they have requested Prof. Way to prepare for publication in the Journal a digested arrangement of the returns already received by the Society from the Foreign Office in reference to that subject.

A claim having at length been made in form for the Society's 1000*l.* Prize for a substitute for Guano, the Special Committee on that subject have taken into their careful consideration; and, on their report, the Council have resolved that the substitute proposed is not entitled to the Prize

Since the last General Meeting, Prof. Simonds has delivered a lecture on the Physiology of Milk-Secretion, and Prof. Way a lecture on the Value of Fish as Manure. Prof. Way is also actively engaged, as the Consulting Chemist of the Society, in prosecuting important researches under the direction of the chemical committee.

The Council have every reason, in conclusion, to congratulate the members on the position of usefulness which the Society continues to maintain, and on the success with which its operations for promoting improvement in every branch of husbandry continue to be attended. They feel the responsibility which so great a power as the Society now possesses places in their hands and entertain an anxious desire accordingly to render its operations sound and practical, at the same time that they are progressive. They confidently expect that the union of practice with science will result in the discovery of principles, and their just application, without which agriculture can never attain to the rank of a rational pursuit, but will remain a mere art, limited by routine, and capable only of slow and doubtful extension.

By order of the Council, James Hudson, Secretary.

This report having been adopted, Mr. Raymond Barker submitted the Balance-sheet of the auditors (who were re-elected to that office). Thanks were given to them, and to Professor Simonds and Way for their lectures. Colonel Challoner, in acknowledging the vote of thanks to him, as chairman, stated that the Society had never been in a more prosperous state than it was at that time.

Gloucestershire, *Dec.* 8.—The first meeting of this Society since the amalgamation of the Gloucester and Cirencester Societies, has been held at Cirencester during the past week, with a very large amount of success. The premiums offered were exceedingly liberal, and the competition was consequently spirited. At the dinner the toast of "the Successful Candidates" was responded to by Mr. Bowly, who said,—They had to catch all the improvements as they came up, and to try them, and see how far they were remunerative on their own farms. Dr. Johnson had very justly said that the only way to wealth was by persevering industry, and ever plodding on. There was nothing but plodding in farming; it was purely a plodding pursuit. They must look to great things only by the adoption of those improvements which might be small in the first instance. There was never a greater boon to the farmer than the decomposition of bones by sulphuric acid, thereby rendering a much less quantity of bones necessary for the Turnip crop. We owe that improvement to science. If it had not been for science, they would have continued using dry bones for all eternity. With regard to feeding cattle, the scientific man told them their cattle could be kept on a much less quantity of Turnips by mixing with them a larger quantity of chaff. Mr. Bowly then referred to experiments tried by Mr. Holland and Mr. Mechi, and said he himself now kept one-third more cattle upon the same quantity of Turnips than he did a few years ago. An enormous quantity of food for cattle had been made by the application of liquid manure upon Italian Rye-grass.

Mr. Mechi said he could not help remembering that what his friend Mr. Bowly had advanced he had read in his books and practised ten years ago, and ever since. He was satisfied in his own mind the great question of the day would become the possibility of feeding the British public without the help of the foreigner. There was no difficulty in doing that if the British farmer was determined to do it. He did not know whether they were aware of it, but that question was practically answered by the farming of many gentlemen present. He had his eye on many gentlemen in that room who farmed in such a manner, which if it were generally pursued would produce sufficient for our comsumption without the necessity of foreign importations. He would not refer to himself, or he might be asked how his balance sheet stood (laughter). But there were men then present who were spending more money than he was in agricultural improvement, and yet were making a profit of it. If, however, they did ask him how his balance sheet stood, he would tell them that last year he made a profit of between 600*l.* and 700*l.*, as between landlord and tenant, and this year he should exceed that amount by about 100*l.* He mentioned this not from any personal vanity, but because he thought it was right that everybody should understand that if they desired a good balance upon their expenditure they must adopt the most improved modes of procedure, and use a large amount of artificial manure, by which increased crops were obtained, and he having made that expenditure, was now reaping the benefit of it in the present high prices. But how stood British agriculture? They had millions of acres in this country of poor Grass land; and let them recollect that the average value of the produce of England was only from 3*l.* 10*s.* to 4*l.* per acre, the average rent being 1*l.* per acre. Taking the average amount of prices, he did say there were men then present who would increase that produce 300 per cent. He was quite sure the capital expended in purchased food and purchased manure would be returned. Whether they grew a large or a small crop, they could not avoid the expenses of horse labour, wages, rent and taxes; but those were infinitely heavier on a farm which was poorly farmed, than on one on which a large capital was invested in purchased food and purchased manures. He did think they had still much to do. The train he was in the previous day happened to come to a stand at Faringdon Road for a few minutes, and he saw what struck him as extremely ludicrous. There were four horses attached to a plough; and first one pulled, and then another, and very little progress was made, although there was a man to drive and another to hold the plough; and he was convinced they did not plough as much land in a given time as he could in Essex with only two horses. He had seen four horses to a plough not only at Faringdon Road, but in other parts of this county, and until he saw that practice altered, he should not consider the farmers of England that calculating class of men which some had given them the credit of being, and ready to adopt improvements.

Mr. W. G. Bennett thought if Mr. Mechi could show them that they could plough their land in that neighbourhood as well with two as four horses, he would be a great acquisition to the neighbourhood (hear, hear). He had some light and some heavy land, and if Mr. Mechi would show him that he could plough both with two horses only, he would adopt his suggestion. He was not bigotted. The agriculturists were not all clod-hoppers, nor were they all fools, he for one was open to conviction.—Mr Mechi asked Mr. Bennett if he ever tried a pair of horses.—Mr. Bennett said he had many times.

The Hon W. L. Bathurst observed, in reading over the list of prizes, there were many prizes given, but there were none offered for any person employed in agriculture. That he considered a great omission. The agricultural interest had been censured by some persons, as well as the public press, on the ground that large prizes were given for fat stock, and small prizes for spare labourers. He proposed offering the first prize of 3*l.*, formerly given by Sir Michael Beach, for the shepherd who, from a flock of more than 150 ewes, reared the greatest number of healthy lambs, in proportion to the number of ewes put to the ram. The second prize of 2*l.* would no doubt be given by some other gentleman. He was sure that one of the chief objects of all agricultural societies was to provide for the well being and advancement of the agricultural labourer.—Mr. D. Bowly, in continuation of the remarks made by Mr. Bathurst, observed that he for some years offered a prize for the man who brought up the largest family without receiving parochial relief. He had found the result to be unsatisfactory, and had discontinued the prize. He should be happy to give the second prize for the shepherd as proposed by Mr. Bathurst, for to that prize there could be no objection. His experience as Chairman of a Poor Law Union for some years had shown him that instead of giving such prizes as he had formerly offered to agricultural labourers, it was better to provide them with comfortable homes. Unless that was done the labours of the clergyman would be in vain.—Mr. Holland said, those who, like himself, had been connected with farmers in different parts of the country, and while seeing what was being done away from home, yet possessed a knowledge of what was doing at home, had an opportunity of contrasting the different methods employed by old stagers who followed their fathers, and the new comers. A great mistake which was often made was that men coming from heavy soils to light ones would work the land in the same way as they had their previous farms, and the same with persons leaving light soils for heavy soils. At an early period in his agricultural life he had adopted a principle, and that was never to throw away a practice which although it could not be explained scientifically had yet been carried out successfully. He tried to learn why a farmer with less knowledge was farming successfully, and the better educated man was continually making mistakes. Scientific knowledge had so increased and spread that they now ascertained what they were about on scientific principles, and it would occur that sometimes the practice of the farmer had been placed upon scientific principles without his knowing it. They should not throw way anything unless they could point out something better. He felt grateful to Mr. Mechi and others for working in advance of them, and if Mr. Mechi ever found himself in error, he never made a point of sticking to it. He considered they had received as much advantage from Mr. Mechi's mistakes as from his successes. He felt more than ever at the present time the necessity of scientific knowledge being spread among them. The union of science and agriculture should be closer. There was a wide field for competition, especially since the change in the laws had made competition universal; and if they would hold up their heads as the leaders of agriculture, they must take advantage of the discoveries of science. What was called science was simply a knowledge of the laws of nature, and those laws they should become acquainted with. That the farmer must do if he would continue to hold up his head in this country. They all practised at that moment a larger amount of science than they ever did before. Not in the feeding of stock alone, but that stock which had been exhibited that day could not have been brought to such perfection if it had not been for the scientific application of manure to the root crops. If they were not acquainted with the ingredients of that manure, they would be liable to lose their crops, their labour, and expenses. Some years back he was ahead of them, and they thought he was working in the dark, yet circumstances had pressed upon them the conviction that he was right, and that now they were with him. —Mr. Curtis Hayward proposed the "Royal Agricultural College, and Mr. Haygarth, the Principal."—The Rev. J. S. Haygarth returned thanks. Whatever success they had been able to achieve was attributable to the cordiality and unanimity which had always existed among them at College. Of the four chief Professors at the College, three of them were there when he entered upon the duties of Principal. Another had joined them since, and Mr. Austin. Mr. Austin had acted as a most excellent practical man. The sheep which had been shown to-day were brought up under his own personal superintendence. He had no shepherd for his master, as farmers often had, and he had taken as much care of those sheep as if they had been his own children. Mr. Haygarth then expressed the pleasure he had in bearing testimony to the good conduct of the students, whose conduct on all occasions had been what it should have been.

Wirral: *Agricultural Statistics.* — At the last monthly meeting the following resolutions were agreed to on this subject. This meeting having had brought before it, and having considered, the following documents, viz.:—1. The Reports of Sir John Walsham and Mr. Hawley on the Agricultural Statistics of Norfolk and Hampshire, 1854; 2. The Reports of Poor-law Inspectors on Agricultural Statistics (England), 1854; and 3. The Report from the Select Committee of the House of Lords appointed to inquire into the best mode of obtaining accurate Agricultural Statistics from all parts of the United Kingdom, and to report thereon to the House, together with the Minutes of Evidence and the Appendix, 1855; have resolved—

1. That the legitimate purpose of the proposed system of agricultural statistics is to inform producers of, and dealers in, agricultural produce, as frequently and as rapidly as may be, of variations in the quantity produced, from time to time, in the United Kingdom. 2. That this information, to be trustworthy, must be complete; and that to be complete, it must be gathered at one time into one place, and issued thence in such a manner as to be readily accessible to, and easily understood by, all who may think proper to avail themselves of it. 3. That the only valid objections which have been or are offered by the producers to all or any of the schemes for collecting agricultural statistics, resolve themselves into an unwillingness on the part of individuals needlessly to expose their affairs to other persons. 4. That this unwillingness, when duly inquired into, will, in most cases, be found to be justified by an unsatisfactory state of the relation of landlord and tenant; and occasionally, though less frequently, by other circumstances. 5. That whether this unwillingness to furnish the required information be or be not justifiable, there can be no doubt that it exists to an extent likely, if it be not duly cared for, to vitiate, more or less, the results of the inquiry. 6. That no compulsory enactment will be sufficient to overcome the effect of this unwillingness, so long as it takes the form referred to in the third resolution 7. That it is not essential to a complete collection, classification, and publication of the required statistics, that any such disclosure of the affairs of individuals as is objected to, should take place; and hence that those who candidly entertain such objection are justified in resisting the operation of any scheme which shall not at least render such disclosure improbable. 8 That whatever the method employed, the information demanded cannot be put into a shape adapted for its sole legitimate use—the use of the public at large—until it has all been collected into a single office in London. 9. That the less it is meddled with, in point of form, from the time it leaves the hands of the producer till it passes into such an office, the more likely is the result to be correct. 10. That it is not the end, but the method of attaining it that is objected to; and that this method will continue to be objectionable to the producer so long as he shall be required, in rendering the information called for to submit it, against his will, to the scrutiny of any person whatever in his own locality. 11. That the interference of local officers should therefore, and especially in the present state of things, be limited to the distribution of the necessary forms, the instruction of those who may need instruction in filling them up, and any assistance the authorities in London may need, after the returns have been sent in to the head office, in ascertaining (1) that each person required to make a return has made one; and (2) whether, where suspicion of error or fraud exists, the suspicion is well or ill-founded. 12. That it is not denied or even doubted, that a local inspection of details would tend to check fraud or error as sources of inaccuracy. And were the position of the tenant-farmer in general in a more

satisfactory state, the application of this check would not be objected to. But this society is strongly of opinion that, as things are, all who are interested in the formation of a sound system of agricultural statistics—and none can be more interested than the tenant-farmer himself—and shall, in a candid spirit, take the trouble to acquaint themselves with the facts, will not only see that this check is at present inapplicable, but will also recognise in its non-applicability, and the probable consequences, an additional reason, on behalf of the public interest, for every effort that may be made to place the tenant-farmer in a position better adapted to the increased wealth and intelligence of the class, and more in accordance with the spirit of the age. 13. That in order to obviate all reasonable objections on the part of the tenant-farmer, this society would suggest that each occupier, having received his schedule, and such instructions for filling up as he may think proper to require of the district enumerator, shall be at liberty either to hand the schedule, when filled up, to the enumerator, or to send it, by post, direct to the Board of Trade. And that in order to enable the officers appointed to examine and classify the schedules in London to detect the omissions or errors, the enumerators be required to send to London, with such schedules as may be handed to them, a list of the occupiers to whom they had delivered schedules, with the number of acres in the occupation of each, to be taken from the local rate-books, a measure this society believes would be practicably efficient, and satisfactory in its results to all parties. 14. That these resolutions be published, in such a manner as the Committee of Management may deem most likely to render them useful.

Signed on behalf of the meeting,
J. T. Danson, Barnston, Chairman.
W. B. Burnham, Spital, Hon. Sec.

Chester.—At the past annual meeting of this society, a succession of subjects were discussed before a very large and influential meeting of agriculturists, the matters having been arranged by a committee, so as to make the annual gathering more useful than a mere cattle show could make it. The topics on which papers were read were—1, Farm Agreements; 2, Land Drainage; 3, Laying down Land to Pasture for Cheese-making—the introducers of these subjects being respectively Mr. Humberton, Mr. Palin, and Mr. White, and each being followed by a number of practical men in criticism of the views that had been expressed. We give the opening remarks of the chairman on the occasion, and shall publish in another section of the Paper extracts from the addresses that were delivered. It certainly is very desirable that our provincial and other agricultural societies should adopt the plan that has been followed at Chester, and turn the meetings of their members to more practical account than has hitherto been done:—

A very large company having assembled in the Town Hall, the use of which had been granted by the mayor, Mr. Harry Mainwaring, having taken the chair, said:—I am right glad to see at last that agricultural societies are going to do something practical, for heretofore they have been little worth. The pigs, cows, and horses have been exhibited at 12 o'clock, we have dawdled away five or six hours, the dinner has come at six, and it has been midnight before any practical man could get up. Last year, and the year before, we had many speeches, but not one practical matter discussed. I augur from this meeting something more practical and useful. You will see from the paper that four practical subjects are going to be introduced to-day for the consideration of the meeting. Many of us now in the room have been at a lunch provided for us by Mr. Chivas and Mr. Churton, and we have learnt from them that this day will be the commencement of a new era; that Cheshire is setting an example to all England; that a day will be set apart before the show for people to learn the opinions of others and give their own. I do think a time is coming when landlord and tenant, the cultivator of the soil and the labourer, will meet together to hear some practical matters discussed. It was well said at an agricultural society's meeting I had the pleasure to be at a fortnight ago, that progress does not necessitate improvement. Now in our great rush to progress, we have overlooked improvement. In our eagerness to make quantity of cheese, for instance, we have overlooked quality. I do think from the discussions that are to take place to-day we may cause progress and improvement to go together, quantity and quality to kiss each other. I will not detain you any longer, but will just read you these few observations at the end of the paper. You are aware that the first subject will be brought on by Mr. Humberston. Other gentlemen have signified their intention to speak besides those who will read the papers.

"After the gentlemen whose names are attached to each subject have concluded their remarks, the time allotted to the registered speakers will be fixed by the chairman, to whom all observations must be addressed, and whose decision will be conclusive; that time may not be unnecessarily occupied on one subject, to the prejudice of another. The discussion on any one subject must not occupy more than an hour and a half. The committee rely on the members of the society, and the audience generally, aiding the chairman to carry out the above regulations."

Now, gentlemen, with these few words I shall introduce to your notice the first subject of the day, which is of the utmost importance to landlord and tenant in this and every county. Another rule has been just put into my hand, which I will read to you—"That no one is to interrupt the speaker." If any one wishes to speak, and will signify his wish to me, I will endeavour to accommodate him. With those few observations, I shall call before the assembly a gentleman who is universally known in Chester, and, I believe, universally respected. Mr. Humberston will read a paper and offer some observations upon "The mutual advantage of agreements for the occupation of land between landlord and tenant, as calculated to give a stimulus to agricultural improvement; accompanied with a form applicable to the present period."

We give the above address here as indicating a method of making agricultural meetings useful, which deserves to be generally adopted.

Miscellaneous.

The Irish returns of agricultural produce for the year 1854 *are now before us* The first fact that comes out is rather a startling one. It is, that the extent of tillage in 1854 was 126,341 acres less than in 1853. It is in the south and west of Ireland that the greatest decrease has occurred. The total under tillage, after an intermediate rise, has now fallen back to the amount in the year 1849. It took a great jump in the year 1850, and a lesser one in the year 1851, but in the last three years it has lost all that gain, and Ireland is as it was in that respect six years ago. But, confining ourselves to cereal crops, the return for the last year has fallen considerably below that for the year 1849. For that year it was 3,174,424 acres, but thence it steadily declined, till for 1854 it was 2,743,736, the difference being 430,688 acres less of Wheat, Oats, Barley, Rye, Beans, and Peas. Between the years 1853 and 1854 the fall is more than a hundred thousand acres. Again, the particular crop on which the difference chiefly falls is Wheat, of which there were 687,646 acres in 1849, and only 411,284 in 1854. It would, however, appear that the high prices which had already commenced on the apprehension of war had produced their effect upon Irish farmers, for there has been a considerable reaction from the lowest figure, which gave 326,893 acres under Wheat in 1853, compared with which there is a difference of 84,388 acres in favour of 1854. We can only hope that the reaction has continued, and that the preparations for this year and the next have kept pace with the preparations for the war. During the last seven years the Irish have been steadily returning to their first love—the Potato. From 1849 to 1853 the progress was from 718,608 acres to 898,733, when it would seem there was a universal resumption of confidence in the much-maligned root, for the rise in 1854 was to 989,660, or not far from 300,000 increase in six years. Flax, having made a very great start, has somehow gone back again in the last year. From 60,314 acres in 1849 it arose to 174,379 in 1853, when it fell to 151,403 in 1854. The probability is that this, like many other crops, is giving way to the reviving popularity of the potato, the export of which, we believe, is rapidly increasing. The war has apparently told on another branch of Irish produce to an unusual extent. In horses two years old and upwards there has been a decrease of 13,180—viz., from 447,543 in 1853 to 434,363 in 1854, that being probably the number exported to this country to meet the drain of the war. On the other hand, it is satisfactory to observe that the rising generation of horses more than keeps pace with the demand. In cattle the proportions are the other way, owing to the immense quantities of young cattle brought to this country by the graziers. Thus, while the increase in cattle two years old and upwards was 256,021, there was a decrease of 141,429 in those under two years. Perhaps the most significant feature, however, is the immense increase in the number of sheep from 1853 to 1854. It is no less than 579,563, and forcibly recalls the complaints, so common in our writers of the sixteenth century, of sheep taking the place of the human population. In pigs, too, there is an immense increase. Thus it is clear that the agricultural wealth of Ireland is rapidly increasing, and, with that increase, there must also be a great improvement in the condition of the people. *Times, Dec.* 11.

Calendar of Operations.

DECEMBER.

Berwickshire Merse Farm, *Dec.* 17.—Towards the end of November, the weather was fine and mild as early October, but with the present month came more seasonable frosts, and on the 6th snow showers came from N.E. A steady frost of considerable intensity kept the ground white for a week, till on Friday the wind returned to the west, and a sudden reaction swelled streams and drains to overflow. The quantity of ice thus suddenly broken up has cut up the banks considerably. The night frosts are still rather sharp, but the weather looks steady, and we have resumed our lea ploughing, with which operation we had previously made some progress, amid general complaints of over-dryness. The great deficiency in the Turnip crop has afforded too much room for Wheat sowing; and in their anxiety to forward that operation, some even whose roots were sound have carried to excess the principle of early storing, for where yet standing the bulbs have materially increased in bulk since the middle of November. In one or two instances Wheat has been tried on lea, but that only where the lease is about to expire, for in this climate, and in regular rotation, a full crop of Oats will pay nearly as well, and leave the land in cleaner and better condition. During the past storm the ewe flock required a daily feed of Turnips, to the extent of, say, 1 ton per 100 sheep; but they are now able to make their living on the pastures, and are in good condition. Hoggs have continued to do well without assistance, the bulbs alone having been covered with snow. Turnips, where sound, are of fine quality, hence cattle do well with the limited allowance of cake that the high price of that material necessitates. Horses have not stood their work well this season, owing to the bad quality of Clover hay, and in spring will require Beans, than which there is no better food (taken in moderation) for sustaining the working energy. The threshing out of the grain crops still confirms our estimate of their deficiency, both in quantity and quality. Much stress has been laid on the fact that the year's average (as shown by the Highland Society's returns) is only some two or three bushels below that of last year. But the case will be altered when it is known that, owing to the unusual plumpness of the grain, last crop was under estimate by at least four bushels per acre, while on the contrary our experience of this crop seems likely to prove their returns to be above the mark for this season. The above facts, which are true for this district, indicate a deficiency of 6 or 7 bushels per acre. Another circumstance which has very properly been noticed, is the diminished yield of flour from a given quantity of grain—the deficit amounting to about 10 per cent. It has been stated that a quarter of Wheat will supply two persons with bread for 12 months. Now if that was true of the crop of 1854, I am much afraid that on the same allowance of this year's produce the two individuals in question will be sadly down in condition before next harvest. *J. T.*

Notices to Correspondents.

Ewes: *C.* In many districts breeding ewes are fed almost wholly at the trough, and no such result follows as you speak of.

Italian Rye-grass: *Cosmopolite.* Good Rye-grass will weigh 15 to 17 lbs. per bushel. We do not know the weight of Mr Dickenson's.

Lime: *X Y Z.* When lime is mixed with soil for top dressing, we would allow it to remain in a large heap for a few weeks before spreading it out.

Philipps's Grater: *C J P.* His address, we think, is Brandon, Suffolk; but we will inquire and let you know.

Sunflower: *A Subscriber near Bideford,* having seen in a late Number an account of the quantities of oil and cake produced by an acre of Sunflowers, wishes to know what sort of land and style of culture the Sunflower requires. [There are many oil mills in the West of England, and no doubt in Devonshire.]

Erratum: "On the Fattening of Cattle," Dec. 8, immediately after the tabular statement, 15½*d.* per cwt. is said to be 15*s.* 5*d.* per ton, it should be "25*s.* 5*d.* per ton;" and the statute acre producing 20 tons of Turnips would realise at 25*s.* 5*d.* per ton (not 15*l.* 8*s.* 4*d.*, as stated), but 25*l.* 8*s.* 4*d.*

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. Burgess & Key, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. Francis Parkes & Co.

FIRST PRIZE REAPING MACHINE.

NOTICE.

MESSRS. BURGESS and KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—Burgess & Key, 103, Newgate Street; and 52, Little Britain, London.

DO YOU BRUISE YOUR OATS YET?—One bushel of Oats when crushed will make two. Great saving. OAT BRUISERS, Chaff-cutters, Ploughs, Threshing Machines, Flour Mill Carts, Corn Dressing do., Horse and Steam Machinery put up, &c. Book on Feeding, 1*s.*

M. Wedlake, 118, Fenchurch Street, London.

PAXTON WORKS, SHEFFIELD.

SAYNOR and COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to Saynor & Cooke for their superiority of material and workmanship. Established 1738.

BRITANNIA WORKS, BANBURY.

SAMUELSON'S PATENT GARDNER'S TURNIP CUTTERS have been awarded for the Tenth time the Prize of the Royal Agricultural Society. These Implements are so well known that they require no description—more than 60,000 having been supplied from the above Works.

GARDNER'S PATENT DOUBLE-ACTION TURNIP CUTTERS.
GARDNER'S PATENT SINGLE-ACTION DITTO.
MOODY'S GRATERS, Fine and Coarse Cuts.
BUSHE and BARTER'S PATENT GRATER, for Fermentation.
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LINSEED CAKE BREAKERS.
SAMUELSON'S REGISTERED BUDDING'S LAWN MOWERS, &c., &c.

The above may be obtained at all respectable Ironmongers and Implement Dealers in the Kingdom, of whom Catalogues and Price Lists may be procured gratis, or post free on application to B. Samuelson (successor to the late James Gardner), Britannia Works, Banbury.

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BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. White & Brothers, Milbank Street, Westminster.

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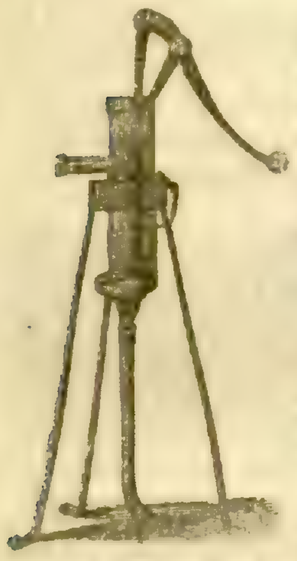
NEAT CATTLE.—The Constitution Balls are strongly recommended by many highly respectable Gentlemen (see Testimonials) for Cows and Oxen as a most valuable medicine in cases of Hove or Blown, Scouring or turning out to Grass, or from bad food, Gargate, Hide Bound, Loss of Appetite, Staring Coat, Distemper, Epidemic, or Influenza. Bullocks fat much faster by occasionally giving a Ball.

Prepared only by Francis Cupiss, M.R.V.C.S., author of the "Prize Essay on the Diseases of the Liver of the Horse," Diss, Norfolk; and sold by all respectable Medicine Vendors in Town and Country, in packets, six Balls each, 3*s.* 6*d* per packet, with a wrapper giving full directions for the use of the Balls, and Treatment of the Horse whilst taking them. Also a Pamphlet of testimonials from many Gentlemen who have used the Balls in various Complaints. Any Gentleman using the Balls may consult the Proprietor gratuitously, either personally, or by letter, post-paid.

DRAINING BY STEAM POWER.

JOHN FOWLER is prepared to undertake Contracts for DRAINING LAND by his PATENT STEAM PLOUGH, at prices varying, according to depth and distance, from 3*l.* to 5*l.* 10*s.* per acre, inclusive of tiles, main drains, and all other expenses. Contracts executed with great rapidity, and tiles manufactured on the spot, where suitable clay exists.—Temple Gate, Bristol.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto	ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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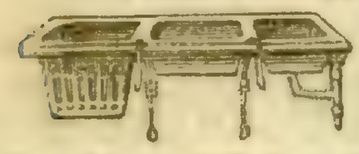
THIS *is the Original Patent for Important Improvements in Stable Fittings, Hay-box, Manger, and Water-trough as one fixture,* including a method surpassing all others for conveying the straps and halter-weights to the back of the fitting to prevent the horse being cast in the stall.



Stable Fittings of every description, plain, enamelled, or galvanised. Also the newly invented Loose Box Fittings, Surface Gutters with moveable coverplates, Stable Posts, Ramps, Sills, and all kinds of Stable Furniture in stock.—JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

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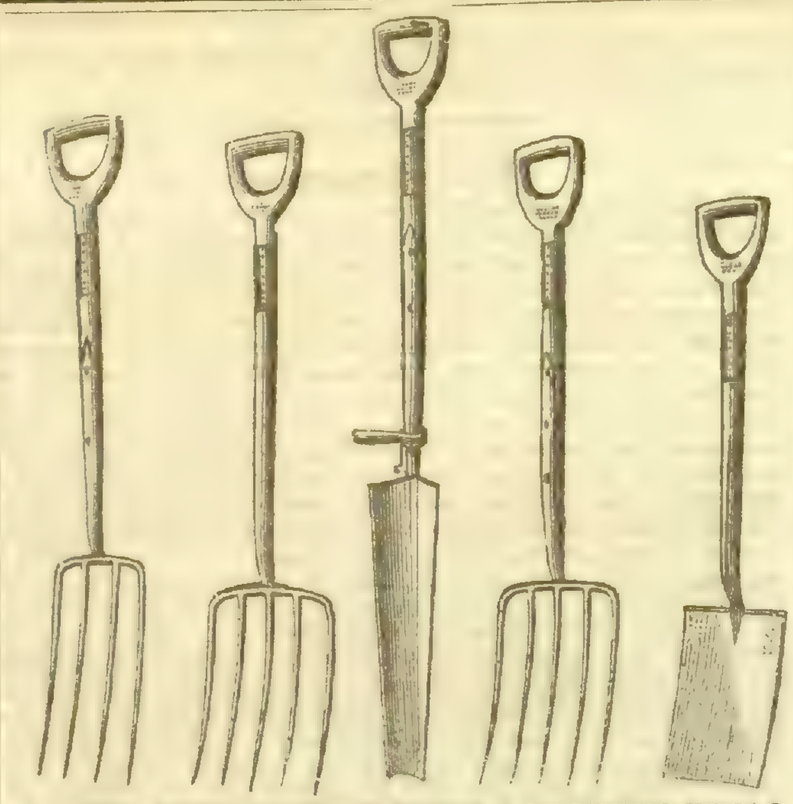
Address BARTON'S Iron Works, 370, Oxford Street, London.



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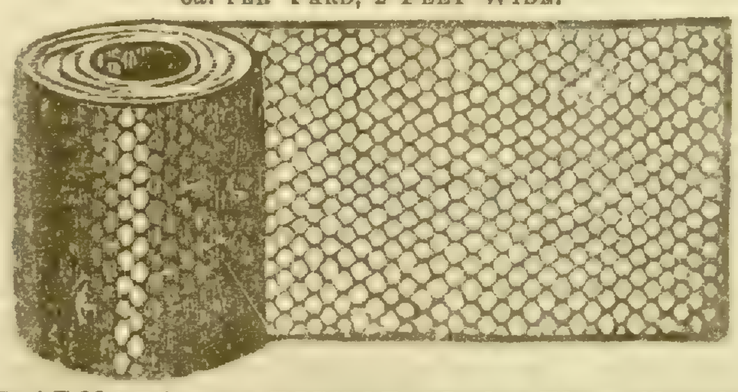
GALVANISED WIRE GAME NETTING,
6d. PER YARD, 2 FEET WIDE.



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		Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	... ...	6*d.* per yd.	4½*d.* per yd.
2-inch „ strong, do.	... ...	8 „	6 „
2-inch „ intermediate, do.	... ...	9½ „	7½ „
2-inch „ extra strong, do.	... ...	11 „	9 „
1⅝-inch „ 24 inches wide	... ...	7 „	5½ „
1⅝-inch „ strong, do.	... ...	9 „	7 „
1⅝-inch „ intermediate, do.	... ...	11 „	9 „
1⅝-inch „ extra strong, do.	... ...	13 „	11 „

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 10*d.* per yard; Galvanised Sparrow-proof Netting for Pheasantries, 3*d.* per square foot.

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THE EDUCATIONAL MICROSCOPE.
PRICE 10*l.*

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Manufactured by SMITH & BECK,
To whom
The Council Medal of the Great Exhibition of 1851, and
The First Class Medal of the Paris Exposition of 1855,
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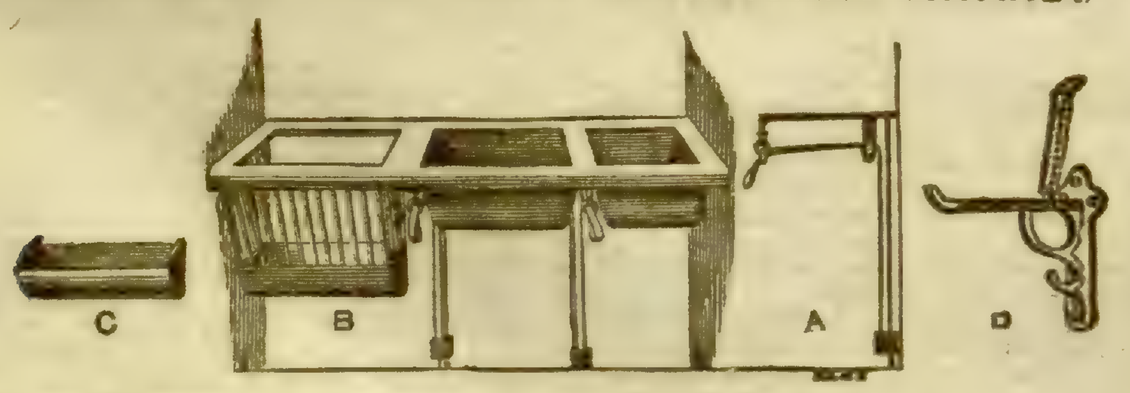

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DAWE, COTTRELL, and BENHAM beg to announce that their Annual Catalogue of FLOWER, VEGETABLE, and AGRICULTURAL SEEDS, for 1856, is now ready, containing many New and Choice kinds, with accurate descriptions of about 1000 varieties of Flower Seeds.—Post free on application.—36, Moorgate Street, and 3, Lawrence Pountney Lane, Cannon Street, London.

PETER LAWSON and SON, Seedsmen, Nurserymen, and Wood Foresters to the Queen's Most Excellent Majesty; and to the Highland and Agricultural Society of Scotland, Edinburgh, and London.
Peter Lawson & Son beg to intimate that their Prices, Lists of Seeds, Plants, &c., for the present season are in course of Publication, and will be sent free by Post on application.
7, Great George Street, Westminster.

IMPORTANT TO PLANTERS.
EAGLE and HENDERSON, Nurserymen, Seedsmen, and Florists to the Queen, beg respectfully to announce that their CATALOGUE OF ORNAMENTAL, FRUIT, AND FOREST TREES, CONIFERÆ, &c., is now published; also their Lists of Garden, Flower, and Agricultural Seeds, all of which may be had free on application.
Shrub Bank Nurseries, Leith Walk, Edinburgh.—Dec. 29.

AMERICAN PLANTS.
JOHN WATERER'S CATALOGUE of RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.
☞ The Catalogue describes the colours of the Rhododendrons.
The American Nursery, Bagshot, Surrey.—Dec. 29.

AMERICAN PLANTS.
WATERER and GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.
Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor Branch, South Western Railway, where conveyances may be had.

FLOWER AND VEGETABLE SEEDS.
JAMES CARTER and CO., Seedsmen, 238, High Holborn, London, have *now published* their TWENTY-FIRST ANNUAL CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best Annual Catalogue of Seeds extant. It gives a complete description of 1979 species and varieties of FLOWER SEEDS, and a most comprehensive list of VEGETABLE AND AGRICULTURAL SEEDS, *all of which* can be supplied and are, *as usual*, of *first-rate quality*. It also contains lists of TEXAN, INDIAN, AND CALIFORNIAN FLOWER SEEDS, *forming, in fact, the finest Collection of Seeds ever submitted at any one time to public notice.* Catalogues forwarded *free of charge* and *post paid* upon application.
James Carter & Co., Seedsmen, 238, High Holborn, London.

NEW ANNUAL SERIES.
KENNEDY and KEMPTON'S Scientific, Comprehensive, and Unique CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS is now published, and can be had on application, free. It will be found to comprise all the New and Rare Flower Seeds, and the Selected List of the most approved Vegetable and Agricultural Seeds ever extant. Prepared by Mr. Kempton, 15 years with Mr. James Carter, of Holborn, lately deceased.—Address Kennedy & Kempton, Bedford Conservatories, Covent Garden, London.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s*. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. Cobbett's Foreign Warehouse, 18, Pall Mall.
N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

TO NOBLEMEN, CLERGYMEN, AND OTHERS.
THE *most Economical and Convenient Mode of ordering* GARDEN SEEDS *is to send for one of* "Sutton's *Complete Collections for one year's supply,*" *particulars of which may be had on application, addressed*—
Sutton & Sons, Seed Growers and Merchants, Reading.

TO CUCUMBER GROWERS.
SUTTON'S BERKSHIRE CHAMPION is not only one of the most prolific Frame Cucumbers, as shown by several correspondents of the *Gardeners' Chronicle* (as see *Gardeners' Chronicle*, page 693); but is also of fine flavour, and so handsome that it invariably takes the Prize when exhibited in competition with other leading kinds. Seed can be supplied 1*s*. 6*d*. per packet (if ordered immediately); other fine sorts 1*s*. per packet, as see Catalogue, which may be had post free.
Sutton & Sons, Reading, Berks.

EARLY VEGETABLE SEEDS.—All the Select Kinds for immediate sowing, growth of 1855, may be had of James Carter & Co., Seedsmen, 238, High Holborn, London.

TO THE SEED TRADE.
SOUTHAMPTON WHITE BROCCOLI, true, saved with great care.—Price on application to Charles Dolton, Seed Grower, Speenhamland, Newbury, Berks.

SCARLET RHODODENDRONS.
J. and J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to offer fine bushy Plants of the above 2 to 3 feet high, in Pots, well set with Flower buds.—Price 10*s*. 6*d*. each.

"GYMNOGRAMMA LEPTOPHYLLA."
Or the Annual Maiden-hair Fern.
BERNARD SAUNDERS, Cæsarean Nursery, Jersey, will be happy to supply six growing plants of the above pretty little Fern, in a small box, postage free, to any amateur wishing to possess it, for 2*s*. 6*d*.—Dec. 29.

RED BEET SEED.
EDWARD SANG and SONS, Nurserymen and Seedsmen, Kirkcaldy, beg to offer to the Trade RED BEET SEED of their own raising from carefully selected full-grown roots. The sort is very superior, producing well-shaped medium-sized roots of remarkable fine quality and colour. Prices on application.—Kirkcaldy, Dec. 29.

GLENNY'S IMPROVED BALSAM SEED, from Double Flowers, 3 inches over. Six classes, 37 stamps; mixed, 13 stamps. Sealed packets only. Trade supplied.
Geo. Glenny, Fulham.
*** A few other Seeds saved with equal care.

NEW DOUBLE WHITE PETUNIA—"IMPERIAL" (true).
CHARLES TURNER will be able to supply strong Plants after the 1st of January of this beautiful new variety, which is as double as an Oleander, and fragrant. Plants 3*s*. 6*d*. each, with a considerable reduction to the trade if a dozen are taken. C. T. begs particularly to recommend it, as it is not only a novelty but also a valuable bedding plant.
Royal Nursery, Slough.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.
THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s*. per lb.—A liberal allowance to the Trade.
J. G. Waite, Seed Merchant, 181, High Holborn, London.

WAITE'S DANIEL O'ROURKE PEAS.—The best Early Pea in cultivation can be supplied in any quantity, and price had on application to J. G. Waite, Seed Merchant, 181, High Holborn, London.

NEW EARLY PEA.
COTTRELL'S SEBASTOPOL.—The earliest and best Pea cultivated, price on application. Also the New Early Wonder Pea, early as frames and wonderful cropper, large pods. To be had only of Dawe, Cottrell, & Benham, 3, Lawrence Pountney Lane, and 36, Moorgate Street, London.

NEW EARLY MARROW PEAS.
Harrison's Glory (blue) & Harrison's Perfection (white.)—These extraordinary Peas, which are nearly similar in habit, are as early as Double-blossomed Frame, about 3 feet in height, full of large pods which cluster from the bottom to the top of the haulm, and are equal in flavour to Knight's Marrow. Samples of the haulm may be seen at the following firms in London, of whom they can be had, in quart packets at 5*s*. each:—
Batt, Rutley, & Silverlock, 412, Strand.
Beck, Henderson, & Child, Middle Wharf, Adelphi.
Hurst & M'Mullen, 6, Leadenhall Street.
Minier, Nash, & Nash, 83, Strand.
Noble, Cooper, & Bolton, 152, Fleet Street.
Jacob Wrench & Sons, 29, King William Street, City.

A. VERSCHAFFELT, Nurseryman, Ghent (Belgium), begs to offer a NEW BIOTA, which is quite distinct from the others, and is warranted particularly hardy.
BIOTA MELDENSIS, good plants £1 15 0
" " very strong 2 10 0
☞ This fine Coniferous plant will be shortly figured in Verschaffelt's "Illustration Horticole."

A. V. also directs attention to his Journal L'ILLUSTRATION HORTICOLE, which is one of the best Floricultural works on the Continent. The last Number (12th Number of the second Vol.) is out, and contains:—
1. Genetyllis tulipifera.
2. Rose Perpetual Panachée d'Orléans.
3. Clematis campaniflora.
4. Dion edule (fruits of).
5. Dion edule (site in its natural country).
The Work can be seen and obtained of his Agent, Mr. R. Silberrad, 5, Harp Lane, Great Tower Street, London. Price 12*s*. a year.

THE KITCHEN GARDEN.

JAMES CARTER & Co., SEEDSMEN,

238, HIGH HOLBORN, LONDON,

CONTINUE to supply Collections of VEGETABLE SEEDS for large or small gardens, from 1*l.* to 5*l.* and upwards; these selections, made with the greatest care, and comprising the most useful and approved varieties, *have hitherto never failed to give purchasers the most complete satisfaction.* J. C. & Co. beg to observe that all NEW SEEDS advertised, should they *not* be in their Catalogue, can be however supplied by them at the current prices. Their CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, acknowledged to be the best published, will be forwarded *free of charge* and *post paid* upon application.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

WATERER AND GODFREY respectfully invite the attention of parties engaged in Planting to their fine Stock of the following HARDY ORNAMENTAL TREES, &c.

Araucaria imbricata, 2, 3, 4, 5, 6, 7, and 8 feet high, in quantities, all stocky well grown plants; the larger sizes especially it would be difficult to match.

Cedrus Deodara, 1½, 2, 3, 4, and 5 feet, by the thousand; do. a fine lot of larger, 6, 7, and 8 feet; do. some magnificent Trees, 10 to 15 feet. These are all in a famous condition for Transplanting, having been annually removed.

Cedars of Lebanon, 3, 4, 5, and 6 feet; do. a few splendid Trees, 10 and 12 feet.

Cedars Red Virginian, 5 to 8 feet.

Cedars, variegated white, 2, 3, and 4 feet, one of the handsomest variegated plants we know. We have a large stock. It is extensively planted at Elvaston Castle.

Cryptomeria japonica, fine plants, 4 to 7 feet.

Cupressus macrocarpa or Lambertiana, 3, 4, 5, 6, 7, and 8 feet. Nothing can be handsomer than some of the specimens of this fine hardy plant.

Juniper, Chinese, 2, 3, 4, and 5 feet; a fine lot of large plants, 6 to 8 feet.

Do. Irish, upright, 3, 4, 5, and 6 feet; do. larger, up to 8 and 10 feet. Our stock of the two last mentioned Junipers we believe to be quite unequalled, the Irish especially; the larger sizes are perfect columns.

Do. recurva, 3, 4, 5, up to 8 feet.

Do. hispanica or thurifera, 2, 3, and 4 feet.

Abies Douglasi, 2, 3, and 4 feet. A fine lot of large and very handsome plants, 7, 8, 10, and 12 feet.

Picea nobilis, several hundreds of nice plants, 1½ to 2 feet, well grown, and with good lead. None are grafted. A few taller specimens up to 6 feet.

Do. Nordmanniana, a large quantity of remarkably handsome plants, 1½, 2, 3, and 4 feet. Nothing can exceed the vigour of these plants, and all from seed.

Do. Pinsapo, magnificent plants, 4 to 7 feet high, in perfect health.

Pinus insignis, 1½ to 3 feet; a few good specimens up to 7 feet.
„ Lambertiana, from seed, 4, 5, and 6 feet.
„ Cembra, 3, 4, 5, up to 10 feet.
„ Montezumæ, fine plants, 4 and 5 feet.
„ macrocarpa, 2 and 3 feet, from seed.

Weeping Larch, clean, stems good, heads 7 feet high.

The following 10 varieties form a very singular group. They are of dwarf habits; the well known Abies Clanbraziliana may be taken as the type of the whole. We believe our collection to be quite unique, and, we may add, most interesting.

Pinus strobus pumila (the dwarf Weymouth).
„ sylvestris pumila (the dwarf Scotch).

Abies Clanbraziliana	Abies pumila	All dwarf varieties of the Spruce Fir.
„ compacta	„ diffusa	
„ pygmæa	„ Gregori	

Picea pectinata pygmæa (the dwarf Silver Fir), Hudsoni.

Yew, common English, 3, 4, 5, 6, and 7 feet, in large quantities.

Do. upright, Irish, 4, 5, 6, and 7 feet; some splendid plants, 8 to 12 feet.

Do. Dovaston or Weeping, a great many fine plants, worked on straight stems, 7, 8, and 10 feet high, with good heads.

Do. adpressa, 2 and 3 feet.

Do. do., worked on common Yew, as standards.

Do. gold striped, 1½ to 2 feet, by the thousand.

Do. do., a splendid lot of plants, 4 to 6 feet.

Do. do., worked as standards on the common Yew, 8 to 10 ft. high.

Do. do., worked on Irish Yews, 6, 7, and 8 feet high.

Do. elegantissima, or new gold striped; a large quantity, 1½ to 2½ feet, and also worked as standards on the common and Irish Yews. We may safely assert our stock of Golden Yews is unsurpassed.

Do. yellow berried (true), very beautiful when in fruit as we have it, 1½ to 3 feet.

Libocedrus chilensis, 2 to 3 feet, very handsome and bushy.

Thuja Wareana, fine bushes, 3, 4, 5, 6, and 8 feet. This is one of the most useful, and, at the same time, ornamental hardy plants we possess.

Do. American, for hedges, doubtless the very best, 4, 5, and 6 feet.

Do. aurea, or Golden Arbor-vitæ. This plant originated at this Nursery; it has now, as it deserves, become a universal favourite. Our stock of it enables us to offer a choice of many hundred fine specimens, from 1½ to 3 and 4 feet high, and as much through—in fact, perfect globes.

Wellingtonia gigantea, a few of the finest plants in the country, being near 1½ feet high, and as much wide.

Hollies variegated, by the thousand, 2, 3, and 4 feet high. Some splendid Plants, 10 to 15 feet high.

We may here remark with reference to the large specimens alluded to in this Advertisement that every one of them is in a condition to transplant, and travel any distance with perfect safety. They have one and all been annually removed in our Nursery, and in soliciting a personal inspection of our stock, we believe we are justified in stating it offers a choice which is to be found in but few establishments of its kind in this country.

The Nursery may be reached in 40 minutes by Train from the Waterloo Station; and the South Western Railway Company having a Branch on to the North Western, enables us to send plants to all parts, in trucks throughout, without packing and other extensive additions.

Knap Hill Nursery, Woking, Surrey.

CROCUS, TULIP, AND HYACINTH BASKETS, with Wire or Zinc Linings, for suspension or for table stand; also Bracket Baskets made and Japanned in a variety of colours and designs, by W. RICHARDS, Imperial Wire Works, 370, Oxford Street. Conservatories fitted up.

Window Blinds and Wirework of every description.

NEAT, DURABLE, AND WELL EXECUTED LABEL FOR NAMING PLANTS.—The Advertiser will forward on the receipt of a stamped envelope, containing two postage stamps, a Zinc Label, neatly painted, lettered in *Oil paint*, as a specimen for those who may require a number; they can be supplied at 2*d.* each.—Address F. H., at Mr. Bond's, Walcot, Salop.

TRELOAR'S COCOA-NUT FIBRE MANUFACTURES consist of MATTING, DOOR MATS, MATTRESSES, HASSOCKS, BRUSHES, &c., and are distinguished by superiority and excellence of workmanship, combined with moderate charges. Catalogues, containing prices and every particular, free by post.—T. TRELOAR, Cocoa-nut Fibre Manufacturer, 42, Ludgate Hill, London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

	SHEET SQUARES. In Boxes of 100 feet.	CROWN SQUARES. In Boxes of 100 feet.
Under 6 by 4	... £0 12*s.* 0*d.*	... £0 8*s.* 6*d.*
6 by 4, and 6½ „ 4½	... 0 13 0	... 0 12 6
7 „ 5, — 7½ „ 5½ / 8 „ 6, — 8½ „ 6½	... 0 14 0	... 0 14 0
9 „ 7, — 10 „ 8	... 0 16 0	

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.
16 oz. from 2½*d.* to 3½*d.* per square foot, according to size.
21 oz. „ 3½*d.* „ 5*d.* „ „
26 oz. „ 6*d.* „ 7½*d.* „ „

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18*s.* per 100 feet

Double-crown Glass of various dimensions in 100 feet boxes.

HARTLEY'S PATENT ROUGH PLATE GLASS.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2½*d.* per foot. Twenty-one Ounce, 4½*d.*

Foreign Sheet Glass, in cases of 200 feet 38*s.*, 40*s.*, and 42*s.* per case.

Fern Cases with Ferns complete, suitable for the Drawing-room, from 25*s.* each.

Aquariums with French polished stands, from 10*s.* each. Vase shaped ditto, on Glass stand, 25*s.*

Perforated Glass for Ventilation, from 1*s.* 6*d.* per foot.

Glass Tiles and Slates.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by 4	in. and 6 in. by 4½ in.	...	...	12*s.* 0*d.*
6½ „ 4½	„ 7 „ 5	...	...	12 6
7½ „ 5½	„ 8 „ 6	...	...	13 0
8½ „ 6½	„ 9 „ 7	...	...	13 6
9½ „ 7½	„ 10 „ 8	...	...	13 6
10½ „ 8½	„ 11 „ 9	...	...	14 0
12 „ 9	„ 13 „ 9	...	...	14 0
10 „ 10	„ 10½ „ 10½	...	...	14 0
11 „ 10	„ 11½ „ 10½	...	...	14 0
11 „ 11	„ 11½ „ 11½	...	...	14 0
12 „ 11	„ 12½ „ 11½	...	...	14 0
13 „ 11	„ 13½ „ 11½	...	...	14 0
13 „ 12	„ 13½ „ 12½	...	...	16 0
13½ „ 13½	„ 14½ „ 13½	...	...	16 0
15½ „ 13½	... ...	...	...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ „
Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London. STRONG HORTICULTURAL SHEET GLASS from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12*s.* 6*d.*; above, 16*s.* 8*d.* per box. FOREIGN SHEET, in 200 feet cases, 34*s.* per case.

PERFORATED VENTILATING GLASS from 1*s.* 6*d.* per foot. TILES and SLATES from 6*d.* each. MILK PANS, 21*s.* per dozen. HELY'S HAND CHURN, 5*s.* 6*d.*; WARING'S BUTTER SLABS, 10*s.* each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7*s.* per 100, and the New Aquarium, 10*s.* each.—Catalogues free.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any nurseryman or seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to SAYNOR & COOKE for their superiority of material and workmanship. Established 1738.

POULTRY, RABBIT, SHEEP & CAT FENCING, HARE OR RABBIT NETS, ON CORDS, for Covert Shooting, 12 mesh over, 4 feet wide, 2*d.* per yard; 18 mesh over, 6 feet wide, 3*d.* per yard; 24 mesh over, 8 feet, 4*d.* per yard; each edge corded, ½*d.* per yard extra. Extra stout do., 18 mesh wide, 4*d.* per yard, suitable for Poultry Fencing. Square mesh Cricketing Net, fix its full width and length, made of stout cord, 3*d.* to 4*d.* per square yard; this is the best article made for Fencing against Fowls, Cats, &c., at W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond Road, near Kingsland Gate, London.

NETTING FOR SHEEP-FOLDS, MADE OF COCOA-NUT FIBRE, a material known to possess the most extraordinary durability when exposed to the alternations of weather. It will wear out several sets of tarred hemp netting, and is so light that a herdsman may with ease carry 200 yards of it. 3½ and 7-inch mesh, 6*d.* per yard. Sold in Nets of 50 and 100 yards long, 48 inches high, by the Manufacturer, W. CULLINGFORD, 1, Edmund Terrace, Ball's Pond Road, Kingsland, London.

BIRD NETS, BAT-FOLDING NETS, FOR BIRD CATCHING, 5*s.* each; with Bamboo Poles complete, 20*s.* Clap Nets for Bird Catching, 12 yards long, 5 feet deep, 10*s.*; with staffs, pull line, and stop cord, 1*l.* 10*s.* Lark Nets, made square mesh, any size required, 3*d.* per square yard. A Net Trammel, 30 yards long, 5 yards wide, made square mesh, 1*l.* 11*s.*, or any less size 2*d.* per square yard.—W. CULLINGFORD, 1, Edmund Terrace, Ball's Pond Road, near Kingsland Gate, London.

CHEAP WIRE GAME & POULTRY NETTING.

Wide.	Mesh.	Plain.	Galvanised.
24 inches by	2 inches ...	3*d.* to 4*d.* per yard ...	6*d.* per yard.
36 „	2 „ ...	6*d.* per yard ...	9*d.* „
48 „	2 „ ...	9*d.* „ ...	1*s.* „

Sparrow Proof Netting, Galvanised, 3*d.* per square foot, made to any size. This article is shown at the Sydenham Exhibition, where it is much admired.—W. CULLINGFORD, 1, Edmund Terrace, Ball's Pond Road, near the Gate, Kingsland.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
HURDLES for CATTLE, 6 feet long, 3 feet out of ground, 5 bars ... ... 5*s.* 3*d.* each.

NETTING FOR SHEEP FOLDS.

WILDEY AND CO., Holland Street, Blackfriars Road, London, are the original introducers of the COCOA-NUT FIBRE SHEEPFOLDING NETS, which 14 years' experience has proved to possess the most extraordinary durability when exposed to alterations of weather. Cocoa-nut fibre will wear out several sets of *tarred hemp netting*, and is so light that a herdsman may with ease carry 200 yards of it.

WILDEY & Co. were awarded a Prize Medal for this Netting by the Royal Agricultural Society in 1842, at the Exhibition of all Nations, in 1851, and at the Exposition Universelle, Paris, 1855. Sold in Nets of 50 and 100 yards long, 42 inches high, by the Manufacturers, WILDEY & Co., at the Cocoa-nut Fibre Works, Holland Street, Blackfriars Road, London.

BALUSTRADING FOR GARDEN TERRACES, executed in Austin's Artificial Stone, by J. SEELEY (late Austin and Seeley), Nos. 1 to 4, Keppel Row, New Road.

This work is of the same constitution as Portland Stone, and after a winter's exposure is hardly distinguishable from that material: it has been extensively used in Scotland for 20 years.

THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY, WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

TO FLORISTS AND OTHERS.

J. JONES, IRON MERCHANT, has always a great variety of CYLINDRICAL and SADDLE BOILERS in stock, also Fire and Furnace Bars, Supply Cisterns, Double Doors and Frames, Furnace Grates, Soot Doors, Hot-water Pipes, Elbows, Tees, Syphons, Throttle Valves, Stop Cocks, Flange and Socket Elbows, &c.; also Trough Pipes.—Drawings and Prices of the above, or estimates given for the work fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City. Circulars free by post.

TO GENTLEMEN ENGAGED IN PLANTING, AND TO NURSERYMEN.

STEPHEN SHILLING begs to offer good Transplanted PLANTS and TREES of the following at very low prices, when a quantity of either sort are taken:—

3,000 Arbor-vitæ, 3 to 7 feet.	1,000 Horse Chesnuts, 8 to 12 ft.
10,000 Spruce Firs, 4 to 10 feet.	5,000 Beech, 6 to 10 feet.
10,000 Tree Box, 2 to 5 feet.	15,000 Rhododendron Ponticum, in variety, 1½ to 4 feet.
1,000 Limes, 6 to 10 feet.	

The whole of the above are well worthy of attention, being good in quality, the Evergreens of good healthy colour and bushy. All applications will have immediate attention.

North Warnborough Nursery, near Odiham, Hants, 2½ miles from Winchfield Station, South Western Railway.—Dec. 29.

WALTON NURSERY, LIVERPOOL.

To Noblemen and Gentlemen Planting New Pleasure Grounds, or Improving Parks or Drives, and to Companies Planting Public Parks or Cemeteries.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from one to six feet.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

WATERER'S AMERICAN PLANTS.—A new DESCRIPTIVE CATALOGUE is now published of the celebrated Collection of hardy Scarlet and other Rhododendrons, as exhibited by John Waterer at the Royal Botanic Gardens, Regent's Park; it will be found to contain a few practical observations on their successful management, and will be forwarded on application by enclosing two stamps for postage. Apart from its enumeration of the most popular American Plants in cultivation, a List of choice Coniferæ will be seen, embracing the latest importations of this fine and hardy tribe of Plants.

J. W. has now the pleasure to offer in large quantities, and of all heights, the following selection of CONIFERS, with the remark that they are all now growing in the open ground, are bushy and handsome as can be desired, and have been transplanted each succeeding spring, whereby no risk can be encountered in their removal from the nursery:—Araucaria imbricata, Cryptomeria japonica; Pinus Douglasi, Cembra, excelsa, Lambertiana, insignis, Jefferyana, Beardsleyi, tuberculata, &c.; Cedrus Deodara, Lebanon, and Africana; Wellingtonia gigantea, Cupressus, Juniperus, Taxus, Thuja, &c.

☞ The attention of gentlemen, public companies, and others engaged in planting, is especially directed to the foregoing; indeed, all intending planters would be well repaid by a visit to inspect our stock, as much may be seen which of necessity cannot be given within the limits of an advertisement.

The Nursery is easily reached by railway, being near the Farnborough Station, South-Western Railway, and Blackwater on the South-Eastern Railway.

The American Nursery, Bagshot, Surrey.

NEW ROSES.

J. and J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to offer fine Standards of the following beautiful NEW ROSES:—

	s.	d.		s.	d.
Belle Lyonnais	5s.	0d.	Vicomtesse Lauro de Gironde	5	0
Comtesse d'Orleans ...	5	0	Madame Masson	7	6
„ Vaillant	5	0	„ Theodore	5	0
General Jacqueminot ...	3	6	„ Cambacères	5	0
Gloire de France	3	0	„ Vidot...	7	6
„ de Vitry	5	0	„ Hector Jacquin ...	3	6
Madame Guinoiseau ...	3	6	Lord Raglan	5	0
Mademoiselle. Aline Gibbon	3	0	Madame Place	5	0
Prince de la Moskowa...	5	0	Panaché d'Orleans	5	0
Sir John Franklin ...	3	6	Prince Leon	3	6
Souvenir de Madame Lille	3	6	Triomphe de Paris	3	6
			Gloire de Dijon (Tea) ...	3	6

Melanie Willermoz (Tea) ... ... 3s. 6d.

For a full description of the above see Catalogue, which may be had on application.—Dec. 29.

EARLY LETTUCES.—The largest and quickest growing LETTUCES are "SUTTON'S SUPERB WHITE COS," and "SUTTON'S SUPERB GREEN COS." The Editor of the *Gardeners' Chronicle*, in a critique on Lettuces, says of the first of these—"This is the very best Cos Lettuce, very large, leaves hooded at the top, so that they close in without tying; blanching white, crisp, so excellent that one would suppose no higher degree of perfection could be obtained as regards a Summer Lettuce." And of the other he says—"Sutton's Superb Green Cos: This very much resembles the preceding, but is a darker green, and hardier, therefore is preferable for sowing early in spring, and also for autumn use."

Seeds may be had (if ordered immediately) in packets 1s. each, post free.—Address, Sutton & Sons, Seed Growers and Merchants, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 29, 1855.

In the midst of the South Atlantic Ocean stands a place called Ascension Island, which Malte Brun some years since described as "a rock without water, and nearly without vegetation, but an attraction to navigators from the immense quantity of turtles that come to repose themselves on its shores, which are covered with lava and volcanic scoriæ." We have heard other visitors to the place assert that its soil consisted of what was very like broken glass bottles. When St. Helena was fixed upon as the residence of Napoleon Bonaparte, the island was occupied by Sir George Cockburn. In 1834 it more seriously attracted the attention of the English Government, who caused it to be surveyed with a view to converting it into a naval station for the African fleet. At that time about 45 acres of the mountain top furnished a scanty supply of vegetables; there were no trees, and such wild plants as existed were worthless.

By the year 1847 such progress had been made in reclaiming this desolate spot, by successive naval or marine officers, that it had begun to assume an importance far beyond that of breeding turtle for the supply of ships' companies. It had been found that the upper part, or peak, called the Green Mountain, rising 2000 feet above the surrounding sea, possessed a rich soil capable of producing a variety of esculent vegetables, and spots in the valleys were represented by Capt. Dwyer, R.M., the then commandant, as in progress towards being reclaimed. The quarters of a small party of marines had been established in this spot, where rain occasionally fell, and trees had begun to spring up. Among the latter the Bermuda Cedar, and a kind of Pinus, probably the Pinaster, were making considerable progress, and Peaches, Figs, Plantains, Oranges and Loquats, had begun to show that cultivation was anything rather than impossible. In fact Portugal Cabbages, Gourds, Pumpkins, Celery, Carrots, Leeks, French Beans, and most especially the Batatas or Sweet Potato were thriving pretty well.

At this period (1847) the station came under the notice of the late Lord Auckland, then First Lord of the Admiralty, whose very considerable horticultural experience enabled him to see that where so much had been done with small means, much more might be effected if a vigorous effort were made by the Admiralty. Persons supposed to be capable of giving useful advice were again consulted, ample supplies of various kinds were provided at their recommendation, and a gardener was, for the first time, sent out, to take charge of the land that had been reclaimed, and to do what might be possible to recover a further portion, especially of that volcanic region which up to the time in question had been found irreclaimable.

Since 1847 the plans of amelioration, sanctioned by Lord Auckland, have been steadily pursued; and notwithstanding great and unexpected difficulties caused by violent winds, periodical drought, and the ravages of insects peculiar to the island, have proved eminently successful, especially since the cultivation of the island has been entrusted to Mr. Peter Wallace, an experienced and skilful gardener, familiar with volcanic soils and tropical gardening. Nor is it a small ground of satisfaction to see that this success has been entirely in correspondence with the anticipations of Lord Auckland's advisers.

The grand difficulties consisted in the want of shelter and water, and most especially in the impracticable nature of the region, covered with hard scoriæ near the coast. Detailed instructions as to the mode of overcoming these difficulties were given to the first gardener, and we suppose were attended to by him. At all events the scoriæ are already giving way, as we learn from the fact that notwithstanding a long drought and a great scarcity of Grass the cattle were in excellent condition last June, in consequence of the abundance of dried-up Purslane, Thistles, and Tomatoes, which have now completely established themselves all over the island.

There was issued during the second quarter of the present year as follows:—

	lbs. weight.
Sweet Potatoes	12,700
Pumpkins	2,160
Cabbages	2,038
Spinach	2,098
Carrots	1,358
French Beans	150
Callaloo	150
Leeks	2,052
Salads	1,450
Bananas	320
Cucumbers	100
	24,576 lbs.

besides which 101,920 lbs. of dry fodder had been supplied to the garrison and for the use of the mountain cattle.

At the latest advices, dated Nov. 1, Mr. Wallace had in charge 50 head of Island cattle, reared from about 15 cows, 500 sheep were under the shearers, goats were breeding fast, and there were a dozen very handsome wild donkeys. Great numbers of trees were affording shelter, and something like woodland scenery was completely obtained. Above 15 inches of rain had fallen in the previous four months. The trees with which the mountain is beginning to be covered seem therefore to be doing their work, for such a quantity of rain was unprecedented.

To have thus far reclaimed Ascension is, we think, a convincing proof that the true principles of cultivation are perfectly safe guides in a place where no experience can have been gained. The instructions drawn up for the guidance of the gardener at Ascension in 1847 were framed entirely with reference to those principles, and it is difficult to conceive how any amount of personal experience could have led to more signal success.

In 1834 Captain Brandreth concluded the account of his visit in the following words:—

"When the first adventurer to this wild spot explored his way over a wide plain of cinders and ashes, where no drop of water and scarce one evidence of vegetative principle could be discovered—when he laboured up the steep and rugged mountain, and looked on the withered aspect of the scene spread in solitude around him—he must have considered the spot condemned to hopeless sterility, and regarded the sea-fowl that settled over the dark red hills near the coast as likely to remain the sole and undisputed inhabitants of these wild regions. There are doubtless many living who have visited the island when in this its primitive condition, and among the number the distinguished officer (Sir George Cockburn) who gave the first impulse to the measures which have been detailed; and if any such should chance to revisit the island now, they must be sensibly impressed with the change it has undergone, and the evidences that everywhere prevail of the industry and energy of its first and present inhabitants."

How much more applicable is that sentence now!

An extract from Hooker's Journal of Botany relating to Beech-oil (see p. 807) has led a correspondent to draw our attention to a rare old pamphlet by Aaron Hill,* a somewhat remarkable man, and a great projector, concerning whom a good account is given in Chalmers's Biographical Dictionary.

It certainly does appear extraordinary that in such a country as England, where oil has so high a value, and where mechanical power is so easily obtained, an enormous quantity of raw material should be annually allowed to waste, without any profitable use. The Beech tree, a native of these islands, or at any rate one thoroughly established here, in no part of the world occupies a larger proportional area. It constitutes a considerable part of the property of many landowners; although its timber has so low a value that it may be doubted whether it would continue to be cultivated on a large scale were it not for two circumstances—its singular beauty, and its suitability to thin land, where nothing equal to it can be as speedily reared.

Now according to Aaron Hill the real value of the tree resides in its mast. But we will quote his own words:—"There is in all the forests of England a very common tree, called a Beech tree, much larger than the Oak. There are vast woods almost everywhere, of nothing else but this Beech; most of our noblemen and private gentlemen have large quantities, and some of them several thousand acres of Beech in their own estates, as particularly the Duke of Somerset, the Earl of Dorset, the Earl of Scarborough, the Earl of Winchelsea, and an endless number more in all parts of the kingdom.

"There are within forty miles round London many hundred thousand acres of full grown, bearing Beech, almost without any other tree intermixed with them. Nothing is more common than for one of these Beech trees to bear fifty bushels of that three-corner'd Beech Mast, of which you have a sample sent you with this book, as you also have of the outward husk, in which it grows, tho' I don't reckon the husk, but the kernels only, when I say that it is a common thing for one tree to bear fifty bushels of Beech Mast. About the latter end of September, the husks, which hang like ropes of Onions, and weigh down the branches, open of their own accord, and let fall the Mast, three-corner'd as you see it, in such vast quantity, that the ground is every where cover'd over with it several inches deep.

"Some part of this the hogs devour, or in parks the deer; the rest, having no use, lies rotting on the ground, and spoils the herbage. 'Tis hardly ever known to be gather'd, and when it is, the poor have sixpence or eightpence a bushel for picking it up, and carrying it to some honest farmer's wife for a favourite hog or so, that is to be kill'd against Christmas. Now the discovery is this:—That every bushel of this common Mast, which has lain neglected and despised for so many ages, is found to yield two gallons of much better oil than that made of Olives, which the clothiers and soap-makers call *Seville oil*, or *Galipoli oil*, and for which the nation pays such prodigious sums of money to foreigners."

And then, after telling how he was cured of a bad cold at Naples by the use of oil of Almonds, he goes on to say that:—

"The similitude in taste between a new Almond and the Beech Mast, just fall'n from the trees, im-

* An Account of the Rise and Progress of the Beech-Oil Invention, and all the Steps which have been taken in that Affair, from the First Discovery to the present Time. As also, what is further design'd in That Undertaking.

"How long, ye simple Ones, will ye love Simplicity? How long, O ye Scorners, will you delight in your Scorning? And Fools hate Knowledge?—Prov."

By Aaron Hill, Esq. London: Printed in the Year 1715.

mediately brought to my remembrance the oil which had so lately cur'd my cold, and the easy manner of making it; surely, thought I, as the substance and taste of these two things are so near alike, their effects can never be so different, but that the Beech must afford as good an oil as the Almond tree. I resolv'd, however, to make an experiment, and took care in my return to get a quart or two of Beech Mast, and having hung it a whole night in a linen bag, near a small fire, to dry away that watry part which you may observe predominant in Filberds and Walnuts till they have been a good while kept, I pounded them in a mortar, and when they were reduc'd with shell and all to a proper substance, I got the apothecary's press, and went to work the same way I had observ'd him take with the Almonds. I was rather pleas'd than surpris'd to find myself so far from being mistaken, that the oil was more in quantity than had been drawn from an equal weight of Almonds, and the apothecary not knowing what it really was, after having several times tasted it, declar'd that it was the finest oil of Almonds that ever he saw drawn."

At this time Hill was at Naples.

"At last, in the year 1712, some affairs of no great consequence calling me into the west of England, I returned again about the beginning of September from Devonshire, and taking no direct road came along by Henley and the woodiest part of Maidenhead thicket, where, for 12 or 14 miles together, a man can hardly see any other kind of wood but Beech. It happened that this very year the Beech Mast grew in greater plenty than ordinary, and as I rode among the trees, I observ'd that they were almost bow'd to the ground with their burthens, and hung just as I had seen them twelve years before in the kingdom of Naples. The similitude of the two objects at once brought back to my remembrance the experiment I had then made, and I was immediately mov'd with curiosity to try if the English Beech nut might not yield an oil as sweet as the Neapolitan.

"At my return to London I made the experiment; I found it answer the utmost of my expectations; and having by inquiries of the country people before inform'd myself that there was no use for this mast, but that all which the hogs left undevour'd lay rotting on the ground, and was looked upon as not worth gathering, I made it my next business to trace out the uses of this new oil."

Eventually, in the 12th year of Queen Anne, letters patent were issued to Hill, authorising him to get up a company for obtaining oil from Beech Mast; in consequence of which an association was actually formed and shares were sold "at the Beech oil office, which is now kept at the Golden Key, a woollen draper's, in St. Paul's Churchyard, from 9 to 12 in the morning, and from 2 to 5 in the afternoon."

It does not appear that this company was prosperous; at least we find no further traces of it. Nor indeed was it one which either then or now should have been formed. It is only by the owners of Beech woods on a large scale that it could be made profitable; but in their hands we should think it ought to be productive enough to deserve attention. That the Beech mast contains oil in abundance, that its oil is easily expressed, that it would have a ready sale, and that the residuary "cake" would be applicable to the usual agricultural purposes is certain. That is to say, such is found to be the case in other countries, and there is nothing in the climate of Great Britain to justify the opinion that the case would be different here and elsewhere. In the passage which has led to these remarks it will be seen that in the North of Germany it is largely employed, even as food, although it is certainly not on account of its fitness for aliment that it seems to merit attention. On the contrary Guibourt (*Hist. des dr. simp.*, II. 600) expressly declares that in the East of France, where the mast is utilised in pretty large quantity, the oil, when fresh, contains an acrid principle which renders its use as food injurious, and that it is necessary to drive this off by gentle boiling—an operation of some difficulty.

And this is confirmed by the authors of the *Maison rustique*, who speak of it thus:—"The Beech deserves to be more extensively cultivated, on account of the oil which it produces. This oil is good for eating, or frying, and for burning in lamps. It will keep for many years, and even improves by age, if after being clarified it is put into pitchers well luted, and buried in sand as in a cellar. Some, however, say that when fresh it disorders the head and stomach. In order to make good Beech oil, the mast should be collected as it falls, and put into an airy room; but not thrown in heaps for fear of heating. When it is quite dry, it is shelled and ground for the purpose of extracting the oil. Beech-cake fattens quickly cows, pigs, and fowls."

It is therefore not as an article of human food that we invite attention to Beech oil, but because of its apparent value for burning and manufacturing purposes, and for the sake of the cake which remains when the oil is pressed out. On these accounts it would seem to be worth experimenting upon by those who live in Beech countries and can have access to an oil mill. We only regret that our attention was not directed to the subject two months ago.

New Plants.

156. Calceolaria (Jovellana) violacea, *Cavanilles — De Cand. Prodr. x.* 206.

This very pretty shrub has appeared in many gardens round London during the two last years, having, we believe, been sent to England by Mr. Van Houtte, of Ghent. So little does it bear of resemblance to common Calceolarias that no one can be surprised at its having been regarded as a distinct genus. But although its flowers are violet and the corolla split into a pair of equal gaping concave lips, yet Mr. Bentham, who has so carefully studied the order to which it belongs, is of opinion (see *De Cand. Prodr.* x. 205) that the Jovellana of Cavanilles should not be separated from the Calceolaria of Linnæus; the pouch of the latter being analogous to the lower lip of Jovellana.

At first the plants round London were small and wanted vigour, and the violet colour of the blossoms was so faint and tarnished that gardeners formed an unfavour-

able opinion of the plant; but restored health and better treatment brought out its real colours, gave brilliancy to their tints, and so increased the number of the flowers as to raise it very much in estimation, so that it now ranks among the best of second-class greenhouse shrubs, requiring precisely the same treatment as ordinary shrubby Calceolarias, and like them striking freely from cuttings. It flowers in April and May.

Our own wild specimens are from Conception in Chili, near which and the city of Valparaiso it appears to be common, forming a small entangled bush. The very hot summer of that country shows how careful we should be to give the plant a long season of warm rest. When at home it flowers in October, which corresponds with our April, long before the dry season sets in.

TRANSPORT OF ROOTS AND SEEDS TO AUSTRALIA.

I imagine that it would be worth knowing whether in the case of roots and seeds any method of packing could be adopted better than the present one of paper in tin cases, and how best the expiring vitality of some of them could be thrown into an active state. It is all very well to say that oily seeds get rancid, and that berries get mouldy; this is well known, but the object is how to counteract this, and of course first to inquire into the cause. I have sent to England for seeds and roots for several years, and if I get one seed to grow from five ordinary packets I am satisfied. I have sent to five seedsmen for the same seed in the same year, namely the pickling Onion, and altogether I have received some pounds weight, but never had a grain come up, either in the ground, a frame, or a hot-bed. A few sorts of seeds will always grow, as Peas and the Cabbage tribe, but it is very rarely that either Carrot, Parsnip, Onion, Lettuce, French Bean, &c., ever germinate.

Roots also are a sad disappointment; we have never been able to import Snowdrops, Aconites, Dog-tooth Violets, Fritillaries, Scillas, English or Spanish Iris, and very rarely a Crocus. Last year I received 2000 Crocuses, every one of which was dead. Hyacinths come better, so do Narcissi and Tulips. The Amaryllis tribe all die, Anemones and Ranunculus are uncertain, sometimes all are perfect, at others all are decayed. Last year the same post conveyed from me two nearly corresponding orders; the one tradesman despatched the order four days after its receipt in September, the other in December, or three months afterwards; the goods from the latter were all rotten, while those from the former were all good. This result might have been anticipated. The one order was executed while the weather was dry, and the roots experiencing their summer's rest or inactivity; the other when the damp weather of November had filled them with moisture, and when their natural season of growth had already far advanced.

Some persons have advised roots and seeds to be packed in sugar, others in charcoal, some in damp earth, others in some porous material which would admit a passage of air, but of course this is of no value when they are inclosed in a tin case. Most persons advise phials to be used. I have tried and seen all methods, and the result of my experience is, that phials appear to be the best, or if sent by post quills sealed with sealing-wax are as good. Berries must be sent thus to keep their moisture from rotting what they are in contact with. Sugar, by keeping off rancidity, is very beneficial in preserving Acorns, Chesnuts, Walnuts, and similar seeds. Walnuts always become rancid, Chesnuts change into a dry powder or dry rot, so much so that of 10 sacks sent not as seed but as a commercial speculation, not one among the whole quantity has been good for food, much less for seed. Yet packed in sugar I have received them safely, and so rare is the fruit that two years ago they were sold at 5*s.* each Chesnut. Last year I sent to England for a case of living plants, and directed the seeds of trees of various sorts and certain bulbs to be scattered in the mould of the case; when it arrived I had a perfect forest of Oaks, Birch, Ash, &c. The bulbs also were good, and if living plants are sent, the most perfect manner is to have the plants regularly and properly *planted* in 6 inches of soil, as close together as you like. Let the earth be covered over with moss, and wooden bars or wires put above it to keep the whole steady; such a case should always have berries or slow growing seeds scattered throughout the mould, they may perhaps grow during the voyage if near the surface; if not they will grow directly the mould is taken out and properly scattered and covered. Lily roots, Fritillaria (Crown Imperials especially), Lily of the Valley, Alstrœmerias, Tropæolums, and Cyclamens always carry well in this way.

What seems most wanted is a knowledge of the result of different methods of carrying seeds and roots to foreign countries; for example, an essential oil will prevent white mould, contact with air prevents dry rot; but air is always moist, and to prevent this evil rotting is occasioned. Now what material might be mixed with seeds to generate air without producing moisture? Would a mixture of black oxide of manganese and common salt?—would chalk and sal ammoniac?—would chloride of lime?—would any easily decomposed oxide or salt?—would bi-carbonate of ammonia, or other material effect this? Then if seeds arrive in a languid but still living state, what soaking or other treatment, save that generally pursued of a hotbed, will animate them? I have myself found charcoal and sand, watered with the drainings from old stable manure, with a little muriate of ammonia mixed with it, or else water impregnated with a very little pigeons' dung, to be an excellent mixture to grow languid seeds in. *George W. Francis, Superintendent of the Botanic Garden, Adelaide. August*, 1855.

ON HASTENING THE BEARING OF SEEDLING PEAR TREES.

More than once on seeing my numerous seedling Pear trees, inexperienced amateurs, full of superficial knowledge, have said to me, "What! you wait seven, eight, or ten years before your trees come into bearing? That is too long to wait; this is the method I would take to hasten their bearing: when a seedling has made a well ripened terminal shoot, I would bud or graft it on the Quince stock, and thus have fruit in the third or fourth year after the operation." Others recommend grafting or budding on standards, or on the lateral branches of strong pyramids in bearing. My reply was always, "Have you tried it? Have you established by experiment the superiority of this practice?" No one ever ventured in the affirmative. They had only heard that it could be done. A prejudice. I know that 20 years ago, or more, similar experiments had been tried, but without success. Desirous, however, of making sure on this point, I renewed the experiment on an extended scale. The following was the result obtained: From 15 of my most promising seedlings, and such as were best adapted for the purpose, I took good grafts in the third year, and worked them on strong shoots at 6 or 7 feet high; I also took six buds of each sort and worked them on the Quince stock; and I sacrificed five strong pyramids by grafting or budding on their lateral branches. These grafts and buds succeeded

perfectly well for several years, with the exception of four sorts which did not succeed on the Quince stock, but the others did not bear sooner than the seedlings themselves. The contrary, in fact, was the case with most of the sorts so propagated, notwithstanding that long pruning and all the other modes of hastening bearing had been resorted to, but all in vain. The cause in the opinion of highly competent men is this: every seedling Pear tree according to the nature of its constitution passes through the various stages of vegetable life before it arrives at the state in which it is in a condition to bear fruit. The stem and a part of the upper branches next to it must pass through certain phases of their growth before they acquire, either by peculiarity of constitution or by age, the properties necessary for the production of the organs of fructification. Neither the nature of the Quince stock, nor the age of a strong wild Pear stock, nor that of a tall pyramid already in bearing can change the nature of the graft or bud worked upon them.

The results of the experiments and observations made upon this subject prove that it is indispensable to make a judicious selection of grafts or buds in order to produce bearing wood. It is the strong shoots of the upper part of a tree in a bearing state, or on the point of becoming such, and derived from a variety that has already borne fruit, to which the preference should be given. By employing scions from too young trees the fruiting of those so propagated is retarded. By taking scions from an aged, weakly, or worn out tree, all its inherent faults are reproduced in the propagated plants. Here another point is touched upon, namely, the influence of the stock upon the graft and of the graft upon the stock; but this forms a different subject of consideration. *J. de Jonghe, Brussels.*

VEGETABLE PATHOLOGY, No. CI.

404. Cœnocladia* (*Natural Grafts*).—As the causes which influence the division of a uniform tissue into branches of various kinds are obscure, so is it often equally difficult to assign any reason for the appearance of a single organ where there should be two or more, or the natural union of a plurality of organs with more or less distinct traces of the several parts of which the whole is composed. Instances of the suppression of organs or of the union of one or more individuals are of ordinary occurrence in the parts of fructification even in their normal state, and are very frequent as deviations from some particular type, sometimes arising from pressure, sometimes from the hypertrophy of neighbouring organs, and sometimes again from causes wholly inappreciable.

405. Where organs are multiplied beyond the usual rule, and there is at the same time little or not sufficient increase of space, being in close apposition, while the tissues are still tender union readily takes place, and we have in consequence natural grafts or unions, as in double Apricots, Peaches, Cherries, &c. In such instances there is generally more or less distortion. Sometimes it happens that two or more buds are similarly developed, the consequence of which is a ribband-like more or less fluted stem if they grow with equal rapidity, but if the rates of growth are different the more vigorous side curls over to the weaker, and thus those curious fasciated branches are formed which have attracted the attention of most observers in the Ash, Holly, or more rarely in the Willow. Cnicus palustris, Asparagus officinalis,† the common Foxglove, and many other herbaceous plants exhibit occasionally the same peculiarity, and in such a condition often excite serious alarm in the superstitious. It does not appear that the phenomenon is in general caused by an insect, though it is not denied that such may sometimes be the case. Fasciated branches in a species of Elder are not uncommon in the United States, specimens of which I have before me, caused by the presence of Æcidium sambuciatum, which has hitherto been found only in North America.

406. Union however sometimes takes place between branches merely from juxtaposition when they are by no means in a nascent state, though according to their state of growth the union may be more or less complete. They may for instance press against each other so closely as to prevent anything like nutriment at the point of contact, the consequence of which is that eventually the new layers of wood inclose the disc of contact, the traces of which may exist during the whole life of the tree, the two portions of wood being separated from each other by a thin layer of dead bark. In such cases no real union has ever taken place. If however the bark be very young and vigorous more intimate union may exist and death may not take place at all, the bark being entirely absorbed. The inosculation of branches in many of the tropical climbers is notorious, and we have curious instances of it occasionally in our own forest trees, especially in the Beech, in which a complete network of branches may exist while all are growing with perfect vigour. A very curious tree of this description exists in my own neighbourhood, of which two figures are given under the article Fagus in Loudon's "Arboretum et Fruticetum."

407. One of the most curious cases perhaps of union is that which takes place occasionally in the roots of Fir trees. It has been observed that the stumps of some trees, after the trunk has been felled, still continue to grow, forming every year a fresh ring of wood, insomuch that the surface is gradually obliterated by the arching over of the succession layers. This appearance is described by Hartig, Meyen, and others, under the name of Ueberwallung, but it can scarcely be considered a disease. Within certain limits, the roots of felled trees will supply sufficient nutriment to carry on such growth for a time, as I have had occasion to remark in a young Ash apart from all other trees of the same species. In Firs, however, growth is continued through many years, and to such an extent as cannot be explained by a supply of assimilated matter in the still living roots. Goeppert has studied this curious matter in Abies pectinata, Dec., and has shown that the subject was not unknown to Pliny though neglected by many esteemed writers on forest trees. A translation of Goeppert's paper is given in the "Annales des Sciences Naturelles" for 1843, and is well worth consultation. It appears from his observations that perfect union frequently takes place between the roots of such trees; when, therefore, a tree is cut down, should union between some other neighbour exist, the matter assimilated by the neighbouring living trunk may supply nutriment at the expense of which life may be carried on in the stump, and that to a period limited only by the life of the nurse. *M. J. B.*

* From κοινος common, and κλαδος a branch.

† The fasciated Ash branches are noticed in Dr. Plot's "History of Staffordshire," who attributes them to too rapid an ascent of sap. In Turpin's memoir on Grafts, natural unions are figured in the case of Asparagus and Aloe. He mentions also a natural graft of two contiguous leaves of Agave Americana by the upper and under surfaces. Other instances may be found in De Candolle's "Organographie," &c.

HORTICULTURAL SOCIETY OF LONDON.

The following circular has just been issued:—

21, Regent Street, Dec. 24, 1855.

The Council of the Horticultural Society, in their circular letter of October 23, announced to the Fellows their intention of submitting to the sanction of a general meeting the views they might form of the most desirable manner of conducting the affairs of the corporation, now that the garden exhibitions have ceased to furnish funds for the maintenance of the present garden establishment.

After long and anxious consideration, the Council have arrived at the conclusion, that although the means of the Society no longer permit it to maintain a great and costly garden, yet that by some alteration in existing arrangements, and by giving the action of the Society a new direction, it may be found possible to carry out the objects of the charter with unimpaired utility. This they propose to effect by the adoption of a system of exhibition, instruction, distribution, scientific investigation, and publication embodied in the following proposals:—

1. That in place of the garden exhibitions, London exhibitions be held yearly, during the spring and autumn; and that some spacious place be hired for the purpose.

2. That Monthly Meetings be held as heretofore in Regent Street for the despatch of business, for reading papers or for the exhibition of Horticultural produce; but that medals at those meetings be discontinued, and that on each occasion, when the formal business is over, an illustrated Lecture be delivered upon some subject of Horticultural interest, which may be afterwards made the subject of discussion by the persons present.

3. That seeds be distributed as usual.

4. That by means of a Collector, or otherwise, seeds and roots be obtained from foreign countries, for the purpose of distribution.

5. That a very small Garden be maintained for the purpose of raising such seeds as may not arrive in sufficient quantity for distribution, for restoring the health of imported plants, and for experimental purposes.

6. That a regular system of inquiry into subjects of importance connected with Horticulture throughout the kingdom be established, *by means of Special Committees*, whose reports will be communicated to the Monthly Meetings, and otherwise made public.

7. That the Members of the Society be entitled to borrow books from the Library, for short periods, upon undertaking to return them uninjured.

8. That (if the funds prove adequate) the Journal be converted into a Monthly Publication, with one coloured plate in each part; which shall not be sold, but printed solely for the use of the Fellows, and regularly transmitted by post to such of them as may specially give their address for that purpose.

9. It also seems worthy of consideration whether, besides the Monthly Meetings and Exhibitions, a formal Course of Lectures, of an educational nature, upon Horticulture, Garden Botany, or allied subjects, might not prove useful and popular.

10. The Council are of opinion, that in order to maintain the receipts of the Society in harmony with the expenditure which may be rendered necessary by the adoption of the foregoing suggestions, and to take due advantage of the economy which may result from others, certain alterations in the privileges and payments of Members of the Society would become indispensable.

11. They propose that Members of the Society should, as at present, be admitted to all Exhibitions and Public Meetings, without payment, on signing their names at the entrance.

12. But that all other persons shall be required to present a ticket on entering.

13. That these tickets be issued to orders of Members of the Society at the rate of Three Shillings each for the Exhibitions, and of One Shilling each for any other Public Meetings.

14. That Members should have the privilege of purchasing such tickets at a much lower rate if taken in certain quantities, viz., ten exhibition tickets, or twenty-five ordinary tickets for a sovereign.

15. And, inasmuch as loss has been sustained by those who have purchased Garden Exhibition tickets without being able to use them in the season for which they were issued, it is proposed that the new classes of tickets shall be available during two successive seasons.

16. In connection with the foregoing alterations the Council propose to retain the present rate of subscription (namely, 2*l.* 2*s.* admission fee, and 4*l.* 4*s.* annually, paid retrospectively) wherever it is desired to enjoy all the privileges secured to Fellows by the Charter. All existing Life Members, old Three Guinea Members, and still older Two Guinea or One Guinea Members, would fall into this class; and by them every privilege which the Bye-laws permit would be exercised.

17. But in order to meet the wishes of others it is contemplated to establish a class of *Subscribers*, who, upon payment of Two Guineas annually (in advance, but without an admission fee), shall be entitled to personal free admission to the Exhibitions and Meetings, to purchase tickets at the reduced price, and to all the other privileges of Fellows, except the government of the Society, participation in the distribution of seeds and plants, and the receipt of the Journal.

The Council, being desirous that these proposals should be maturely considered by the Society before the Special General Meeting already alluded to shall be held, and being most anxious that the said Meeting should take place at a time when as large a number of Fellows as possible can be assembled, have decided upon summoning it for Tuesday, the 5th of February next, five days after the assembling of Parliament.

(Signed) By order of the Council,
John Lindley, Vice-Secretary.

THE TEXTILE PLANTS OF JAMAICA.

[We find the following highly interesting account of the textile plants of Jamaica, by Mr. Nathaniel Wilson, in the last number of Hooker's Journal of Botany. Mr. Wilson is the very intelligent and active superintendent of the Botanic Garden in Jamaica.]

The desire for growing new plants and adopting new staples is daily on the increase, and the necessity of a more varied cultivation among our agriculturists has become indispensable in keeping pace with the times and making the most of altered circumstances. I have many useful plants to recommend for this purpose before closing this report, whereby large tracts of waste land may be reopened advantageously at little outlay.

The importation of plants last year has been unusually large, and of a varied description, comprising the following genera, viz.:—

Boehmeria nivea	Rhodostoma gardenioides
Antiaris saccidora	Goethea strictiflora
Datura sanguinea	Coleus Blumei
Jatropha pandurafolia	Maranta sanguinea
Clerodendron macrophyllum	Ixora coccinea, superba
Hova grandiflora	Dipladenia splendens
Ardisia acuminata	Dipladenia urophylla
Poinciana Gilliesi	Hexacentris Mysorensis
Plumbago Capensis	Rhynchospermum jasminiflorum
Vanhouttia calcarata	Dracæna ferrea, var.
Medinilla speciosa	Pterocarpus sp. from Pulo Penang
Nematanthus longipes	Rondeletia speciosa, major
Habrothamnus Schotti	Pandanus variegatus
Dipteracanthus affinis	&c. &c.
Abutilon Van Houtti	
Gardenia Thunbergi	

The first-mentioned in the list is the celebrated Grass-cloth plant, extensively cultivated in China, and whose fibres make the finest cloth the Chinese can boast of. I have not the slightest doubt as to its perfect adaptability to this climate and soil, and in the course of a few years it may become a weed. The Antiaris is the notorious Upas tree of Java, about whose virulent properties so many fabulous statements have appeared from time to time. The Pandanus variegatus is another addition to our textile plants, and one of the most noble and beautiful plants that ever adorned a garden; the others on the list are chiefly new and interesting, collected in many parts of the world, and selected for this climate.

By the acquisition of these plants, we can now boast of possessing the finest fibres and the greatest number of textile plants in the world, hitherto of no avail to the country in general, and held of little value by individuals, but which may now be turned to the greatest account in a national point of view; the universal demand and scarcity of fibre, its high and daily increasing price, rendering the materials from which it is manufactured of the highest importance. We have many indigenous and eminently textile plants diffused over the island, but partially or not at all known to be applicable for textile purposes, except to a few gentlemen acqainted with the botany of the country. I have therefore prepared for general information 51 samples of fibres, the greater part of which are indigenous; as you will observe by the following list comprising them:—

Yucca gloriosa. Adam's Needle, 5-6 feet.
Yucca aloifolia. Common Dagger.
Bromelia Karatas. Silk-grass leaves, 10-12 feet.
Bromelia Pinguin. Pinguin.
Ananas sativa. Pine-apple.
Musa sapientum. Banana.
" var. Martinique Banana.
" *paradisiaca.* Plantain.
" *Cavendishi.* Chinese Plaintain.
" *violacea.* Violet-flowered Plantain.
" *coccinea.* Scarlet-flowered Plantain.
Heliconia Bihai. Wild Plantain.
" *Brasiliensis.* Do. of Brazil.
" *psittacorum.* Parrot-beaked ditto.
Tillandsia serrata. Wild Pine (epiphyte).
" *usneoides.* Wild Pine.
Pandanus spiralis. Screw Pine.
Agave Americana. American Aloe.
Canna Indica. Indian shot.
Triumfetta semitriloba. Common Burbark—a weed.
Malvaviscus arboreus. Bastard or wild Mahoe.
Abroma augusta. Abroma.
Kydia calycina. Tree, 25 feet.
Helicteres Jamaicensis. Screw Tree.
Guazuma ulmifolia. Bastard Cedar.
Klainhovia hospita. Tree, 25-30 feet.
Sida, sp. Shrub, 6-8 feet.
Ochroma lagopus. Down Tree.
Cecropia peltata. Trumpet tree.
Cordia Sebestena. Scarlet Cordia.
" *Gerascanthus.* Spanish Elm.
" *macrophylla.* Man-jack, or broad-leaved Cherry.
Cordia Collococca. Clammy Cherry.
Brosimum spurium. Milk-wood.
Ficus elastica. India-rubber tree.
" *religiosa.* Pepul tree.
" *virens.* Wild Fig tree.
" *Americana.* Wild Fig tree.
Hibiscus Rosa sinensis. Shoe-black tree.
" *liliiflorus.* Lily-flowered ditto.
" *esculentus.* Ochra.
" *elatus.* Mahoe.
" *latifolius.* Broad-leaved Mahoe.
" *tiliaceus.* Sea-side ditto.
Lagetta lintearia. Lace-bark.
Daphne tinifolia. Burn-nose bark.
Cocos nucifera. Cocoa-nut.
Artocarpus incisa. Bread-fruit.
Pterocarpus santalinus. Pterocarpus.
Crotalaria juncea. Rattlewor

The above list will be found to comprise fibre of such quality and colour, from the Cocoa-nut Coir to filaments resembling fine silk in strength and lustre of appearance, as cannot be surpassed. I might have extended the list to greater length, but I believe the enumeration will convince the most sceptical that this island abounds with a highly valuable description of textile plants, some of which are considered troublesome weeds. Those of a ligneous nature will annually produce two crops of shoots, from which good fibre may be obtained, requiring no machinery whatever in preparing it for market. The method I have pursued, as being the most easy and simple, is this:—Macerate the shoots until the cuticle or outer bark separates freely from the true bark: the latter will then be removed readily from the ligneous part, and requires but little labour or knowledge to wash, dry, and pack the fibre for market; this would furnish healthy employ-

ment for children, the aged and infirm, and would not diminish the amount of labour on plantations.

For the Plantain, Pinguin, and all similar herbaceous plants, machinery is absolutely necessary to separate and clean the fibre advantageously; when this desideratum is accomplished, and with one or two years' practice, there is nothing to prevent Jamaica competing with any part of the world of ten times the same extent. The inducement to do so cannot be much greater than it is at present. I find by a statistical account that the imports of Flax into the United Kingdom during 1853 amounted to 94,163 tons 14 cwt., and at the exorbitant price of 110*l.* per ton, to which the average price of foreign Flax has already risen, shows a sum of 10,358,007*l.*, which has been paid in cash for foreign Flax fibre last year; and since the prohibition of Russian hemp into European markets, prices and demand are increasing daily.

My motive for laying before you my views on this subject, and preparing the samples of fibre for your inspection, is, that I am anxious to submit to you, and through you to the agriculturists and people in general of this island, the desirability and advantages in an individual and national point of view to be derived from the adoption and extensive cultivation of fibrous plants. As I have already mentioned, the great scarcity, exorbitant price, and widely-spreading demand for fibre throughout the world, render the materials of which it is manufactured of much importance, particularly in this country, where labour is scarce and dear, and agriculture at its lowest ebb. Many of these fibres will be found of superior quality, and produced in greater abundance than any grown in temperate regions.

I have made a very moderate calculation of the produce of an established field with Plantains, which I find to be as follows:—

An acre planted with suckers, at 10 feet apart, will contain 435 plants, and the first year will produce as many bunches of fruit worth 6*d.*	£10	17	6
Each stem will yield 1 lb. of finely-dressed fibre, worth 6*d.*	10	17	6
Amounting in all to	21	15	0

There can also be raised on the same land, along with the Plantains during the first year, a crop of Yams, corn, Kidney Beans, and sweet Potatoes, worth at least 20*l.*, thus realising the first year 41*l.* 15*s.* The second year each Plantain-stool will throw up three or more suckers, the quantity of fibre will thereby be tripled, and succeeding years would add to the produce; and if the Plantain is cut before the fruit is formed, the quantity of fibre will be fully one-third more, of a far superior quality. I may here remark that the Banana is a much hardier plant than the Plaintain; it will live and thrive at an elevation where the latter would not exist. In selecting any particular variety of the Musa for cultivation, great care ought to be observed, as on this point much of the success depends.

In connection with this branch of industry, other plants, although of less importance, ought not to be lost sight of, being available in meeting a great deficiency as materials for the manufacture of paper, such as many of our very soft and spongy woods, which cannot be classed among timbers; the various and inexhaustible supply of tough Withes, Reeds, Grasses; and, perhaps superior to all, the refuse of Arrowroot, as it comes from the mill, divested of its starch; many tons of this are annually wasted, being thrown on the dunghill. The above-mentioned materials are far more likely to answer the purpose than the Bamboo, so much used in China for making paper.

I shall conclude by briefly describing another plant (the Pothos violacea), admirably adapted for all descriptions of fine straw-plaits, particularly where strength and richness of appearance are desired; its plait will be found superior to the best Leghorn plait. This plant, although an epiphyte, and growing plentifully at the roots and on the tops of the highest trees, at an elevation on the mountains not under 1000 feet, may readily be cultivated in woodlands and moist places. The part made use of is the petiole, or footstalk of the leaf, which grows from 18 inches to 2 feet long, and readily divides into strips of any dimensions, and contains a strong fibre, which the common plait made from the Fan-palm does not, and seldom retains colour long. These advantages may tend to bring the plant into notice after awhile; and, if through my humble endeavours, any of the undeveloped resources of the country are brought into notice, a happy result will be effected.

Home Correspondence.

Batates, or Sweet Potatoes.—Bearing on the subject of M. Von Siebold's communication in your last number, I may mention, if it can be of service to any one wishing to make trial of the Japanese variety of the Sweet Potato, which he eulogises so highly, that many years ago, in India, my servant on one occasion purchased a few Sweet Potatoes of a kind very different from the ordinary Sweet Potato so common in that country. They were about 4 inches long, in shape resembling a short thick sausage; when dressed the interior consisted of a fine white mealy substance, so slightly sweet as to be scarcely perceptible, and only sufficiently so to be agreeable, with a delicacy of flavour much surpassing any kind of Potato or Yam I have ever met with. I was told they were brought from Goa, the capital of the Portuguese possessions, from which I was then some 20 miles or more distant; and except on the occasion referred to I never met the same kind in India. They seem to have resembled M. Von S.'s description of the Japan varieties of the sweet Potato. *J. H. H.*

Oaks.—Your ransacking the dusty corners of the country for Oak chips, has caused me to remember that some 20 years ago I searched Bewdley Forest for curiosities in that way, and after satisfying myself that there were both Q. sessiliflora, Q. pedunculata, and Q. pubescens, with intermediate varieties too numerous to mention, a Mr. Corbet, one of my employer's wood-cutters, told me that there were but three kinds of Oak in the forest, viz., the black, the red, and the white; and that they could tell the black, if their eyes were shut when cutting it, as it was harder, and consequently worse to cut than the other two. He very kindly procured me a specimen of the wood of each kind; I cast them on the floor of our Potato shed, where they have been ever since. In the winter, as a matter of course, the doors and windows were shut. In the summer the doors and windows were open. Sometimes these specimens were among straw and Fern, which covered the Potatoes. I have frequently examined them as to their soundness; and though much has been said on the durability of the different kinds of Oak, I cannot perceive much difference in these. I herewith send you a specimen of each for your inspection. No. 1, Black; No. 2, Red; No. 3, White. *John Pearson, Kinlet, near Bewdley.* [The Red and Black Oaks appear to be Q. sessiliflora; the White Oak is certainly Q. pedunculata.]

Longevity of Seeds.—I can confirm the statements of your correspondent "J. R." that some seeds do, under certain conditions, retain their vitality for a long period. Previous to 1836 a number of plants of Lavatera arborea had been allowed to seed in my garden, a large portion of which was scattered on the ground. Since that year not a single plant has been left to flower, yet after the ground has been dug numbers of seedlings have come up annually, and I have no doubt will continue to do so for years to come. But the most remarkable instance that has come under my observation was the appearance of a great number of plants of Lavatera Olbia on the sides of a new road cut through the forest some years since. In order to raise the road in a hollow place a large quantity of soil was dug from the forest, and on this fresh turned-up earth great numbers of common plants came up the following summer, and among them many dozens of Lavatera Olbia. If the seeds of this plant were not in the soil, I know not how they could have got there. I have never seen the plant growing in any garden in this neighbourhood or elsewhere, and the portion of the road upon which the Lavatera appeared was in the centre of the forest, and not a single plant could be found anywhere except upon the newly upturned soil, which had probably been undisturbed for ages till this road was made. The plants flowered freely for a year or two, but gradually decreased in number, and six or seven years afterwards they entirely disappeared. When I first noticed the plant I sent specimens to Mr. Salmon, then residing at Thetford, and he informed me that it was Lavatera Olbia. I firmly believe that the seeds were in the soil, as I cannot suppose that they had been recently conveyed there. The plants were scattered on each side of the road for about half a mile. *Henry Doubleday, Epping.*——As you have lately published such full and interesting details on the case of the long entombed Raspberry seeds, you may like to hear that a somewhat similar instance has been observed on the Continent. Gærtner (Versuche über die Bastarderzeugung, s. 157) states on the authority of Jouannot that seeds from the graves of ancient Gauls, of the date of the introduction of Christianity (probably at the time of Clodowig in the third or fourth century A.D.) germinated and produced Heliotropium vulgare, Centaurea cyanus, and Trifolium minimum. Gærtner gives, as reference, Froriep Notizen, B. XLIII., No. 946, p. 348. It seems that no known botanist looked to the correctness of these names. *C. Darwin.*

Potato Disease.—In reference to the article in your last Number relative to this disease, there is no doubt that the reason of the preservation of the plant in bog soil is its antiseptic quality. I have proved this by setting Potatoes in some of the worst years in a clay soil, but protected by a copious drill of peat earth in the furrow. This treatment answered perfectly, whilst plants not so managed were almost destroyed by disease. *Woglog.*

Turf Pits.—In many situations by far the cheapest and not an inconvenient hot-bed or plant-preserving frame, may be made by building the sides with sods 6 or 8 inches wide, driving small stakes through to stiffen them. These sod walls may be either built solid or with holes left, *à la* Macphail, for leaf or other lining to be added when desirable. Upon the top of these walls lay a frame of wood (we use only the Larch slabs) halved into each other, and with screeds nailed on their sides to form the top frame slide, to receive and keep in their places either glass or other coverings. Simple as this may be, for a few pence you have a Mushroom, Plant, or Cucumber receptacle far more capable of keeping out frost than wood, brick, or stone. *An Old Correspondent.* [An excellent plan where sods can be had. See some editorial remarks, p. 659.]

The Holcus Saccharatus, or Sugar-cane Grass, of which you sent me seed, has, I am happy to say, succeeded here admirably. It grows 12 to 14 feet high, and it is thought that it will prove a very valuable food for cattle. I divided the seed amongst six of my neighbours, two of whom are going to sow an acre each, and two others half an acre each. In seeding propensities it is very prolific, and chickens eat it as readily as corn. *J. C., Cold Spring Harbour, Long Island, Dec.* 10.

Seedling Fruit Trees.—As several different statements have been published on how far the different varieties of our fruit trees produce seedlings like their parents, I think very interesting information might be given by some few of your correspondents who may have carefully sown named seeds and have noted the result. Jourdan (in the "Mémoires de l'Acad. de Lyons," vol. ii., p. 94, 114) states most positively that he has tried repeatedly, and that all the many seedlings which he raised from the same variety of fruit tree resembled each other in foliage and general manner of growth as perfectly as do the young plants of any wild species whatever; and therefore that they differed from the seedlings of every other variety of the same fruit tree. Hence, also, as he asserts, the seedlings of one variety can never be confounded by an experienced eye with those of another variety, being as distinct as were their parents. Moreover, he states that the fruit of seedling Pears and Apples, though differing greatly in size, succulency, and flavour from those of their parents, yet resemble them in the more important characters of form and in the nature of their seeds. On the other hand Van Mons asserts that he sometimes raised from the seed of one variety of Pear a quite distinct kind; but it now appears that Van Mons was careless in marking the varieties sown. If any one can give accurate information on this curious subject, I hope that he will be so kind as to take the trouble to do so; and will give, as far as he can, some idea what proportion of seedlings are produced which resemble their parents in foliage and general habit; for if seedlings differ from their parents only in a few rare instances, this might perhaps be attributed to an accidental cross from some neighbouring tree. Is it known whether some varieties of Pears and Apples tend to produce truer offspring than other varieties? Plums are said to come very true. Mr. Rivers, and possibly others, could probably give very interesting details on this head. *C. Darwin.*

Societies.

Linnean, *Dec.* 18.—Prof. Bell, President, in the chair.—W. Archer, jun., Esq., and W. Dickinson, Esq., were elected Fellows. Mr. Pamplin exhibited living specimens of the Argyroneta, which had been the subject of a communication at a previous meeting. Prof. Bentley exhibited a specimen in spirits of Papaver bracteatum, showing a conversion of stamens into carpels, together with some other vegetable monstrosities. The following papers were read: 1. "Notes on some West Indian seeds, washed up on the coast of Wales," by Dr. Hooker. The principal interest attaching to these seeds was said to be derived from the extension of the area over which they proved the Gulf Stream to be capable of transporting foreign bodies, it having been hitherto generally supposed that cross currents or other causes prevented any of these floating seeds from being carried into the Irish Sea. 2. "On Dictyocline, a new genus of Ferns," by Mr. T. Moore. This genus was stated to belong to the Hemionitideæ, a group distinguished by having anastomosing receptacles, and continuous linear reticulated sori. It differed from the allied genera in having the veins pinnate, and the soriferous venules transversely anastomosing between them, forming two or three series of roundish hexagonal areoles. It is a native of Assam. The provisional name of Chorizopteris was suggested for another Assam Fern which does not associate with any known genus. It has the veins uniformly reticulated, forming two or three series of oblique, unequal, elongated, hexagonal areoles, and is supposed to belong to the Acrosticheæ. Two species were noticed—C. pinnata from Assam, and C. bipinnata, from New Caledonia. The paper was concluded by some observations on the value of the receptacle as a discriminative character among the Ferns. 3. The commencement of a memoir "On the Natural History of the Glow-worm," by the late G. Newport, Esq., prepared from the author's MS. by Prof. Ellis, of University College.

Notices of Books.

We have received a volume of Sermons entitled *The Gospel in Ezekiel*, by the Rev. Dr. Guthrie (Black, Edinburgh), to which we would draw attention for the sake of the happy imagery derived from natural history, which we find scattered here and there through its pages. Upon its doctrinal merits we, of course, express no opinion. The rev. [author sets an example which we should be glad to see more generally followed; for if the object of a preacher is to produce a vivid impression upon the minds of his hearers, especially where they form a rural congregation, he will find no way to their hearts more direct than through apt illustrations derived from natural objects with which they are familiar. This was thoroughly understood by the inspired writers, but has long been too much neglected. Or if attempted, it has sometimes been with so little skill and knowledge as to render natural imagery more ridiculous than impressive. No one can say that of Dr. Guthrie, one of whose similes we take as an example:—

"Compare man with any of the other creatures of God, and how directly we come to the conclusion that

he is not the creature he came from his Maker's hands!

"Who has not had this borne in upon his mind when his feet carried him forth into the fields of nature? I pass out among our sylvan scenes; and here, on the spray of the tasselled Broom, there sits and sings a little bird; it fills the glen with melody; from his throat and throbbing breast he rings out the sweetest music, as with keen bright eye he now looks up to God and now down on the bush where his mate sits with wings extended over their unfeathered nestlings; with songs he cheers her maternal cares, and is then away on busy wing to cater for mother and her young. Next, I turn my steps to the open moor; and so soon as the intruder appears on her lonely domain, the lapwing comes down upon the wind; brave and venturesome she sweeps us with her wing, and shrieks out her distress as she wheels round and round our head; her brood are cowering on that naked waste; nor does she rest until our foot is off the ground, and even then, when the coast is clear, we hear her long wild screams, like the beating of a mother's heart when her child is saved; like the mournful dash of waves upon the shore long after the wind is down. Next I climb the mountain, when snow drifts thick from murky heavens, and, like Satan taking advantage of a believer's trials, the wily fox is out upon the hunt; every mother of the flock lies there with her tender lamb behind her; with her body she screens it from the rudeness of the storm; and with her head to the wind, and expanded nostrils snuffing the distant danger, she lies ready, the moment her eye catches the stealthy foe, to receive him on her feet, and die, like a true mother, in her lamb's defence. Such are God's creatures. The work is unmarred; the workmanship what it came from the Maker's hand; and away among these old hoary hills, remote from man, his cities, his sins, his works, his sorrows, we are out of hearing of the groans of creation; and, but for the corruption we carry with and within us, we could almost forget the Fall. Stretched on a flowery bank, with the hum of bees, the song of birds, and the chirp of the merry grasshopper in our ear, heaven serene above us, and beneath us the placid lake, where every flower and bush and Birch tree of the rock looks down into the mirror of its own beauty, the murmur of the waterfall sounds to us like an echo from the crags of the Creator's voice, 'All is very good.'"

The Natural History of the Tineina, vol. I. By H. T. Stainton, assisted by Professor Zeller and J. W. Douglas. London, Van Voorst. Pp. xiii and 338, and eight coloured plates. The text in English, French, German, and Latin.

The study of the "little moths," or microlepidoptera, as they have latterly been termed, has made great progress during the last twenty years, especially in this country, and as might have been expected a vast number of new species has been discovered, of which the continental lepidopterists are entirely ignorant. Nor has this knowledge been confined (as has too generally been the case with entomological collectors) to the capture of specimens in the perfect or winged state, but with a laudable desire to obtain a complete history of the species—as well also as to secure for their cabinets a fine series of choice specimens unrubbed by the collecting net—several enthusiastic microlepidopterists have traced many of these insects through their different stages, and have thus obtained very interesting results, both as relates to the classification of the different species and genera (it being now generally admitted that the characters derived from the transformations are as valuable as those of the fully developed insects themselves), as well as to the various plants upon which the species subsist in their caterpillar state. Amongst these observers Mr. Stainton stands pre-eminent, and the untiring zeal with which he has pursued the study in this point of view for several years past merits the thanks of every lepidopterist. The volume before us offers striking evidence of the good results arising from such a course of investigation, containing as it does the natural history of 24 species, of which the tranformations of two only had been previously observed, namely the Nepticula anomalella,* which infests Rose leaves, illustrated in one of our entomological articles (*Gardeners' Chronicle*, vol. 1852, p. 292) under the name of Microsetia ruficapitella, and the Cemiostoma scitella, the larvæ of which form the large blotches on Pear leaves,† also illustrated in our series by Ruricola (*Gard. Chron.*, vol.i., p. 261), under the name of Tinea Clerckella. No fewer than 20 other species of Nepticula are given in the present volume as well as two additional species of Cemiostoma. All these insects possess habits very similar to the two described in our pages, and are therefore objects of direct interest to the horticulturist and botanist. These 24 species are beautifully represented in the larva and perfect states, each being moreover accompanied by a figure of the leaf of the plant to which it is attached, and within which it forms its mining gallery or botch. Neither however in the present volume, nor in his volume of the Insecta Britannica, has Mr. Stainton given any figure of the chrysalides, although his short descriptions of that state both in Nepticula (p. 2), and Cemiostoma (p. 284), lead to the inference that in these two genera there are peculiarities worthy of more minute observation, and the beautiful plates of Fischer von Roslerstamm have shown us what valuable aids may be obtained from this state; we also miss the cocoons in the last two plates.

As this volume is stated to be the first of a long series (the present subscription being for 10 volumes, and a second series to the same extent being announced), we would suggest a closer mode of printing with the omission of the sectional divisions of each species with separate headings; and if it be thought necessary to publish Latin, German, and French translations of the English text, we think each should form a separate volume, so that the purchaser should not be compelled to pay for four times the necessary quantity of text.

* Although so common a species, Mr. Stainton has not cleared up the question as to the sexes of the black and yellow-headed individuals noticed in our memoir, nor has he alluded to the fact of our having reared the transverse barred species from the garden Rose.

† Mr. Stainton mentions the curious fact that this species attacks the Hawthorn and Apple as well as the Pear leaves, thus teaching that difference in the plant does not necessarily prove a difference in the species of the mining caterpillar.

To his series of works on Popular Natural History Mr. Lovell Reeve has added a *Popular History of the Palms and their allies* (square 12mo with 20 lithotinted plates). The author is Dr. Seemann, whose personal acquaintance with tropical vegetation enables him to speak with confidence respecting much of the matter contained in the volume; besides which he informs the reader that he has been very greatly assisted by many distinguished botanical travellers and others. With such advantages, aided by a ready pen, Dr. Seemann has produced a book, small if we look to its cubical contents, but large if it is measured by the amount of valuable information contained in it. Nor is it an exaggeration to say that it is the first book on the subject from the hand of one qualified to deal with it in its many aspects.

The beauty of Palms is known to every reader who cares for descriptions of tropical scenery, from the child who lingers over the tale of Paul and Virginia to the philosopher who recomputes the statistics of Humboldt; and now that Kew has become the favourite resort of Londoners, even the shop-boy who never heard of St. Pierre or the great Prussian physicist carries with him a vivid impression of their graceful forms, after wandering through the delicious Palm grove there, of which by the way we are sorry to see quite a caricature in the frontispiece of the work before us. As to their utility, Palm oil, Palm brooms, Rattans, Palm wines, Coir ropes, Sago, Palmyra bow staves, Vegetable Ivory have became objects as familiar as Dates, Cocoa-nuts, and Betel nuts have long been. To know something correctly about things so common, however rare their sources may be, has become an object of great general interest—and one which we think Dr. Seemann has satisfied. It is more; it is now a subject of very great commercial importance, as, for example, the evidence collected by the author concerning Cohune oil sufficiently proves.

Having said so much in favour of this work we must not omit a notice of its blemishes, especially since we hope soon to see a new edition in which they may be avoided. Of the likeness of the Palm-house at Kew we have just spoken with no greater severity than it deserves. Instead of representing the beautiful foliage of that charming place it is a picture of such dead burnt-up vegetation, that if it were really like truth, the Palm-house must be a furnace in which nothing living could exist. The other plates are better; but some reference should be made to the sources whence they are derived, and they should be placed in communication with the matter to which they relate. On the contrary Chamærops humilis stands with Attalea, Areca with Acrocomia, Borassus and Corypha with Astrocaryum, and so on; nor is this inconvenience at all remedied by the index; so that, in the case of the Chamærops humilis already mentioned, we are unable to discover either the part of the work to which it belongs, or whence the figure has been borrowed, or what it illustrates. Plates introduced in this manner become mere "gays" to please children, and lose their scientific value.

A Treatise on the Vine Disease, by Mr. James Cuthill, is a great mistake in very small compass. Than the author no one knows better how to deal with a practical subject—if he happens to understand it, which we are obliged to say is not the case in the present instance.

Mr. Stanford of Charing Cross has published (in a thin 4to) *A Statistic View of the Population, the Religions, and Languages of Europe, Transcaucasia, and Turkey in Asia in* 1855, by E. Ravenstein. This is effected by aid of three coloured geographical maps, of which one illustrates population, a second languages, and a third religions. We have no doubt that the information thus conveyed will be duly appreciated by statistical inquirers.

Miscellaneous.

College Botanic Garden, Dublin.—We learn that Dr. Mackay, the venerable curator of this establishment, has resigned his office, and that Mr. John Bain has been appointed his successor. A better choice could not have been made.

Vegetation of Van Diemen's Land.—On Valentine's Day I left Launceston by the afternoon coach for Deloraine, 30 miles distant, where Mr. W. Archer proposed to meet me and take me to his place, "Cheshunt," 10 miles further west, among the mountains. The road to Deloraine is through an open but hilly country, much improved. We left the harvest saved round Launceston, but as we advanced to the westward the season was sensibly later, and after 25 miles the fields of corn were quite green; so great is the influence of the more copious rains of the western districts. The difference in elevation was hardly sufficiently great to cause such a change of climate. They reckon nearly three weeks between the seasons at Deloraine and Launceston. Mr. Archer came for me next day, and I spent the following 10 days very pleasantly in his company, making excursions to all sides round his house. He is one of the most western settlers in this direction, and surrounded on all sides by tiers of mountains at various distances. His farm of 14,000 acres is well situated for cattle, a considerable tract being tolerably level, and capable of being irrigated by a perennial river (the Meander) which winds through it: so he has green Grass at all seasons. Here I saw many interesting things for the first time. Gleichenia dicarpa everywhere in the boggy spots. Dicksonia Antarctica in the wet and shady gullies of the hills (it ought to do well in Kerry and Devonshire); its trunk is sometimes clothed with Hymenopylla and sometimes with pale green Hypna, very beautiful. Mosses are abundant. On the river banks Celery-top Pines, Podocarpus bushes, Fagus Cunninghami, and the noble Waratah (Telopia), with the singularly beautiful Wax Cluster (Gaultheria hispida), were the most striking things. The Waratah was past flowering: its leaves resemble those of one of the American Rhododendra, and its branching is not dissimilar. Under the bushes panicles of the cobalt berries of a Dianella looked like hedge-sparrows' eggs strung on slender wires: I could hardly cease gathering them. We spent two days in an excursion to one of the highest points of the neighbourhood, called "Cuming's Head," between 3000 and 4000 feet. It was a very fatiguing walk of six hours to the summit, the track lying through an excessively thick and entangled bush, among which we had to force our way; sometimes creeping, sometimes edging sideways, and often walking along prostrate logs of gigantic dimensions. In some places the whole undergrowth was made up of Bedfordia, growing close and rod-like. At about half the elevation we came on a dense forest of Beeches, and passed some Fern valleys; and at last emerged above the wood, to scramble up a steep ascent of piled rocks near the summit. On reaching the top we had to descend over the ridge about 100 feet to a table-land, where we encamped near some pools of delicious water, and where we enjoyed a little glimpse of Alpine botany. Two species of Leptospermum were in vast abundance and in full flower on the summit, and many smaller shrubs were interspersed; as several Eurybiæ, a Baccharis, Boronia rhomboidea, &c. Gleichenia alpina, which Mr. Archer thinks is only an Alpine form of G. dicarpa, and I am disposed to agree with him, covered the whole plain. Drosera Arcturi was blossoming by the margins of the pools. Gentiana montana in full flower, and G. Diemenensis going out, and in seed; the former much the handsomest. I found specimens of Dr. Hooker's genus Pozoopsis, but whether a variety or species cannot say; it differs from his description in having hairy leaves. One of the most remarkable things on the table-land was the green cushions of many feet in diameter, and very compact, formed primarily of a Mniarum,* but among which grow a great number of minute things—as Plantago Gunnii, a minute Composita, and Pernettia Tasmanica, the latter completely buried in the cushion, except its berries and the tips of its branches. A very showy Helichrysum with short stems and Crocus-coloured flowers was abundant, and some handsome Senecios. On the whole, the table-land was pretty gay, considering the lateness of the season; a few weeks earlier it must have been quite a garden. We descended a ravine at one side to see the Pines (Arthotaxis lycopodioides and cupressoides) which grow abundantly on the margins of a little stream, the woods round being composed of Beech, Atherospermum, &c., with the usual amount of Gums (Eucalypti), and returned in the evening to our bivouac on the table-land. Next morning we collected seeds, &c., and then retraced our steps through the tangled jungle to Cheshunt. On ascending the day before we had lighted a fire, which by the time we returned had spread over many acres, and had reduced a great part of the Bedfordia obstructions to ashes; while many of the larger trees were still on fire and falling (like the summer avalanches of the Jungfrau) on all sides of us. The fire was still spreading, and by the end of the week, when I left the country, had burned a greater part of the mountain sides, and was still extending! All the result of a lucifer match! Several days while I was at Cheshunt the smoke from bush fires on all sides was so great as to conceal all but the foreground of the landscape; the smoke looking exactly like a London fog. *Harvey in Hooker's Journal of Botany.*

Seed of the Cotton Plant.—The Cotton plant (Gossypium herbaceum), once so largely cultivated in the West Indies, offers this advantage, that it succeeds in poor soils; indeed, it is said to succeed best in the poorest, and without manure. Another advantage is that the old, infirm, and young, can be employed in collecting its produce. The uses of the plant are many. Its cuttings are good for fuel; its seeds contain a good deal of nutritive matter, and are eaten by cattle and sheep, but not, I have been told, by horses, only by ruminating animals, and it is said they are even fatal to hogs; but whether true or not I am ignorant. The plant, as cultivated in Barbadoes, is of three years' duration. One self-own in my garden in that island yielded the first year 192 pods; in each pod or capsule there were 20 seeds, together weighing in their dry

* Probably a Composite plant Scleroleima.—Ed.

state 43·3 grains; the lining wool, the cotton wool, detached weighed 23·7 grains. The shell or epidermis of the seed is black, thin, hard, and tough. The substance of the seed inclosed is of a light yellow colour, of an oily taste followed by a slightly acrid one. Under the microscope it is found to consist of oil globules, which are abundant, and of a fine granular matter. The seeds are broken (for instance when crushed in a mortar) without much difficulty, and with water on trituration yield a yellow emulsion. Thrown in a filter, the liquid which passes through is turbid and yellowish. It is not apparently altered by boiling; but on the addition of acetic acid flocculi separate, and on cooling subside. Now filtered the fluid is clear and colourless. The precipitate, it may be inferred, is in part at least casein. The larger portion of the washed kernel, that which is retained in the filter with the oil, soon acquires an unpleasant smell; kept a fortnight and then mixed with lime, it gave off a distinct odour of ammonia. The oil is of a yellow colour, not volatile, and is fluid at 80° Fahrenheit. The seed incinerated without the pellicle, after burning—it burns with much flame—leaves a coal that is easily reduced to ash, inconsiderable in quantity, composed chiefly of carbonate of potash, phosphate of lime, and magnesia. The same were found in the ash of the epidermis with some silica. Though growing in calcareous marl no carbonate of lime or free lime could be detected in either. *Dr. Davy in the Edin. New Philosophical Journal.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Attend carefully to valuable pot specimens of hard-wooded plants which it may be necessary to winter in this house, for many of these are very impatient of fire-heat and a confined atmosphere, and ought therefore to be kept as much out of the way of its influence as circumstances permit. And such things should be placed near the glass, turning them partly round every week so that all their parts may be equally exposed to light; and admitting fresh air on every favourable opportunity, but carefully avoid cold cutting winds, which if allowed to blow through plants just after they have been kept close with fire-heat for some time are sure to disfigure the foliage. Use no more fire-heat than may be indispensable, and be careful to counteract its drying effect on the atmosphere, either by means of evaporating pans or by sprinkling the borders, &c., as may be necessary to prevent anything like a dry parching state of the atmosphere. It is in many cases a very difficult matter to maintain a sufficiently moist atmosphere without causing drip, as the moisture in the house gets condensed upon the glass, and unless provision is made by means of inside gutters and pipes to catch the condensed moisture and carry it off, it is nearly impossible during frosty weather to preserve the beauty of flowers for any length of time; and in cases where there is no provision made against the condensed moisture falling upon the plants, the temperature should be kept as low as may be consistent with safety, avoiding moisture in the atmosphere as far as possible whenever the glass is affected by frost. Cold Pits.—Plants that have been excluded from the light and air for but a few days must not be too suddenly exposed, especially to cold northerly winds, but should be very gradually inured to free exposure. Take advantage, however, of mild days to give air freely, and keep the plants very sparingly supplied with water at the root, so as to prevent weakly sappy wood. Look frequently over anything subject to the attacks of mildew, apply sulphur the moment this pest is perceived, and see that everything is perfectly free from insects. Stove.—If there is any prospect of a scarcity of bloom next May, a portion of the Achimenes and Gloxinias should be repotted at once and placed in a warm part of the stove, choosing such as have been the longest at rest; and a few Clerodendrons, Allamandas, a plant or two of Echites splendens, and Dipladenia crassinoda, may also be started; but unless plants of these are at command with well ripened wood, and that have been some time at rest, there will be nothing gained by attempting to start them into growth at present, for in most cases it is difficult at this season to maintain a sufficiently warm temperature to secure anything like free growth from these unless the plants have been well prepared for an early start. A gentle bottom-heat of about 80° or 85° will be of great service to such things in inducing a healthy root action, and if this can be secured there will be little difficulty about obtaining free vigorous growth. Let Ixoras and other hard-wooded plants that have made sufficient growth be kept rather dry at the root, in order to check their growth, and induce a tendency to form bloom, but do not let the balls become so dry as to endanger the foliage. Look sharply after insects here, especially mealy bug, and endeavour to get the whole collection clear of this tormenting pest, for if neglected now it will not fail to demand attention in spring and summer, when time with the plant grower will doubtless be fully as precious as now. Be sparing in the use of fire-heat, save in the case of things being forced into flower or growth, and it is in every sense good policy to have a separate house or compartment for these, as it saves fuel, avoids over-driving the whole collection for the sake of a small portion, and ensures a more satisfactory result than can be obtained where there is but one house for the whole collection of what is generally termed stove plants. Let specimens in bloom be placed in the most favourable positions for prolonging their beauty, and be careful to preserve the flowers from damp. Admit a little fresh air on the forenoons of mild days, but do this very carefully, unless it can be made to pass over the heating apparatus, so as to get warmed before it reaches the plants. See to having plenty of soil for potting under cover, so that it may be dry and fit for use at any time it may be wanted. Also get spare pots washed, crocks broken and sorted, stakes made and painted, spare trainers cleaned and repainted, and whatever else can be done now to facilitate operations in spring. Look well to the watering of things standing near the pipes or heat-giving surfaces, and examine these frequently for red spider, and see that they are not allowed to form a nursery for this enemy, as is often the case; and if spider is perceived lay the affected plants on their side, and thoroughly wash the under part of the foliage with the syringe, repeating the dressings as often as may be necessary to perfectly clean them.

FORCING DEPARTMENT.

Pineries.—The supply of ripe fruit from May until August being usually obtained from plants that start into fruit without making growth in spring, a fair proportion of the stock should therefore be in a well matured state by or shortly after this season, and any sudden changes of temperature which might induce too many of them to show fruit at once should be carefully avoided. That portion of the stock expected to furnish the autumn supply of fruit should not be too much checked at present, indeed these may be kept growing slowly all the winter, which is perhaps the most certain method of preventing their fruiting too early in spring. Where the stock of plants likely to fruit without making farther growth is considered insufficient to meet the demand until August, the stronger plants of those for autumn fruiting should be encouraged to make growth as early as can be done without weakening the foliage, with the view of preparing them for showing fruit in April. Examine the soil occasionally about young stock growing in the open bed, and do not allow it to become unhealthily dry, for this would probably result in a great portion of the stock showing fruit prematurely, and it is also a work of some difficulty properly to moisten the bed if it is once allowed to get too much dried up. Use no more fire-heat for the present than will suffice to maintain the requisite temperature, which, for the general stock, need not be high for some time yet Vineries.—As soon as the buds in the early house are fairly started the temperature should be increased to 60° at night and 65° by day, allowing it to rise 10° on bright days. Take every opportunity of admitting a little fresh air, but recollect that the foliage will not bear exposure to cold drying winds, therefore air should be admitted in contact with the heating apparatus, and when it may be necessary to give back air the sashes or ventilators must be opened but very little, and if pieces of netting could be nailed over the openings this would greatly assist in preventing cold currents blowing into the house. If fermenting material has been used inside the house this should be removed as soon as the leaves make their appearance, as it would probably be found to keep the atmosphere too moist; this will however greatly depend upon the facilities which may exist for safe ventilation in all states of the weather, but anything like rank steam must be carefully avoided. If the fermenting materials are removed the evaporating troughs must be regularly supplied with water, and the borders and passages, &c., moistened with the syringe two or three times a day, so as to keep the atmosphere moist, but discontinue syringing the Vines after the foliage begins to expand; attend to starting houses in succession, according to the anticipated demand, and wherever heat can in any way be applied to the border see to this a week or two before attempting to start the Vines, for if the roots can be moved there will be no difficulty about getting the buds to push. Where the border cannot be warmed, see that it is well protected from wet, &c., by a thick covering of dry litter or whatever more efficient covering can be commanded. Look over ripe Grapes often, removing any decaying berries, and aim at securing a dry atmosphere with the least possible application of fire heat. Strawberries.—Where ripe fruit is wanted early, a portion of the most promising plants should now be selected and placed in a pit where they can be afforded a gentle bottom heat; or if this cannot be commanded, a Peach-house or Vinery which has just been closed for forcing will do. They must, however, be kept close to the glass, for they require all the light that can possibly be afforded them at this season, and a free admission of air on mild days, with a low temperature until the fruit is fairly set, and if these conditions can be combined with bottom heat success will be more certain than under any other circumstances, and this will be more easily done in a small pit than in a house the temperature of which must be regulated for other things.

FLOWER GARDEN AND SHRUBBERIES.

The winterly weather which we have lately experienced may have served to remind parties who have neglected to apply protection to tender Roses and other things which are found to require this care that it cannot with safety be delayed any longer. And where this has been neglected so far it should be attended to as quickly as possible. If not already done get shrubbery borders trimmed up for the winter with the least possible delay, and in doing this places intended for Hollyhocks, Dahlias, &c., next summer should be prepared by deep digging and working in plenty of good rotten manure, for there is generally as much time to spare for this kind of work now as at planting out time, and by preparing the spaces now the soil will be in better condition than would be the case if it were delayed until planting out time. Also see that coarse growing things which may be encroaching upon their weaker neighbours are reduced by pruning as may be necessary to prevent their injuring more valuable things. Valuable plants, as variegated Hollies, Rhododendrons, &c., if not growing as freely as it is desirable that they should do, would be benefited by a liberal allowance of rotten manure or well-decayed leaf soil applied as a top-dressing, covering it with a little fine soil, and working it into the ground round the ball towards the extremities of the roots. But Rhododendrons, and what are generally termed American plants, bear removal so well that these where not growing satisfactorily should be taken up, the ground well prepared by a liberal addition of peat or leaf soil, and replanted. Continue to give careful attention to half hardy plants in cold frames, taking advantage of every favourable opportunity to expose them freely to air. Anything of which there is but a spare supply of plants to propagate from should be placed in growing quarters at once, taking care to keep them near the glass and free from insects, mildew, &c., for soft-wooded plants in heat at this season are very subject to the attacks of insects.

HARDY FRUIT AND KITCHEN GARDEN.

Make a point of regularly examining every week all the choicer kinds of fruit that may be approaching ripeness, or are found not to be keeping well, so that everything may be used at the proper time, for the finest Pears are worthless enough if allowed to get over ripe before being used, and the same is the case with many varieties of Apples. Also look over the whole stock as often as time can be spared, removing any fruit that exhibit symptoms of decay, and put them aside for immediate use. Any of the choicer kinds of Pears that do not appear to ripen properly in the fruit-room should be removed to a warm dry room for a few days, which will be found to greatly improve them. Keep the fruit as cool and dry as possible, and if frost is excluded it can hardly be too cool where the object is to preserve the fruit plump and sound as long as possible. Push forward pruning, nailing, tieing espalier trees, and such like tedious operations as fast as the weather and circumstances will admit. Get manure wheeled upon vacant ground when the weather is frosty, and this can be done without injuring the walks, and get all spare ground turned up as soon as possible, so as to expose it to the action of the weather as long as possible. For land that has been long cropped with vegetables a dressing of fresh loam would in many cases be preferable to manure, and where this is wanted and can be obtained it should be got to hand, in order that advantage may be taken of frosty days for wheeling it upon the ground. Where fresh soil cannot be obtained, charred vegetable refuse, such as prunings of shrubberies, edgings of walks, and many things which turn up in course of the season, may be cheaply made to form an excellent substitute.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the week ending Dec. 27, 1855, as observed at the Horticultural Gardens.

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain.
Friday 21	12	29.803	29.702	26	11	18.5	38	40½	E.	.00
Satur. 22	13	29.895	29.752	29	9	19.0	39	40	N.W.	.10
Sunday 23	○	29.576	29.463	50	37	43.5	39	39½	S.W.	.07
Mon.. 24	15	29.663	29.627	49	33	41.0	39	39	S.W.	.30
Tues. 25	16	29.626	29.386	50	35	42.5	39	39	S.W.	.19
Wed. 26	17	29.213	29.187	51	45	48.0	40	40	S.W.	.26
Thurs. 27	18	29.601	29.487	53	37	49.0	41½	41	S.W.	.01
Average .		29.641	29.514	44.0	29.5	36.8	39.3	39.8		.93

Dec. 21 Sharp frost, even at noon; severe frost at night.
— 22—Frosty; clear and frosty; severe frost in the evening; sudden rise of temperature between 9 and 10 P.M.; rain at night.
— 23—Overcast; fine; showery.
— 24—Fine; very fine, almost cloudless; rain; clear sky at intervals.
— 25—Rain; cloudy; overcast; boisterous, with rain.
— 26—Rain; boisterous; cloudy; hazy with rain.
— 27—Slight rain; cloudy and fine.
Mean temperature of the week ½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 29 years, for the ensuing week, ending Jan. 5, 1856.

Dec. and Jan.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 30	44.4	32.6	38.5	10	0.30 in.	1	5	2	2	2	9	7	1
Mon. 31	42.6	32.8	37.7	8	0.44	—	6	—	1	5	9	4	4
Tues. 1	42.6	30.9	36.7	9	0.70	5	3	2	3	3	6	4	4
Wed. 2	41.9	29.6	35.7	11	0.21	3	1	5	—	3	8	3	7
Thurs. 3	42.5	31.3	36.9	14	0.56	1	2	6	—	5	6	4	6
Friday 4	42.3	31.6	36.9	13	0.86	3	3	3	5	2	9	2	3
Satur. 5	41.9	30.7	36.3	10	0.40	6	3	5	—	1	11	3	1

The highest temperature during the above period occurred on the 30th, 1832—therm. 56 deg.; and the lowest on the 2d, 1854—therm. 4 deg.

Notices to Correspondents.

Cigars: *Red Hand.* They are bad, bitter, and worthless—or at least as bad as the French ones. Very few smokers know what first-class cigars are, so great is the scarcity of them even in the Havannah. They are, however, to be had without difficulty in Guatemala, where they are made by Don José Maria Samayoa; and, what is not a little important, their price is as low as their quality is high.

Names of Fruits.—*N H.* 1, Winter Nelis; 3, like March Bergamot; 4, Easter Beurré; 5, appears to be Passe Colmar; 7, Hacon's Incomparable; 8, Beurré Rance; 9, Flemish Beauty; 11, Crassane; 13, Beurré Diel; 19, Althorp Crassane.—*C.* 1, Winter Crassane; 2, Forelle or Trout Pear.—*J H.* 2, Glou Morceau; 3, 6, Easter Beurré; 4, Beurré Diel; 5, 10, Passe Colmar; 7, Catillac; 8, Glou Morceau; 9, Old Colmar; 3, Minchall Crab; 4, Court-pendu Plat; 5, King of the Pippins; 6, Dumelow's Seedling.

The Dartford Nursery: *Mr J D Parks* begs us to say that he has quitted this establishment, and now resides at Westhill, near Dartford.

Top Dressing for Orchard House Trees: *Rus in Urbe.* If strong manure is used for this purpose, and its sight and smell are objectionable, the remedy is very simple. Sprinkle some powdered charcoal on the manure, and then cover it with a light covering of mould, say half an inch in thickness, the charcoal will at once absorb any unpleasant odour.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
Wm. Inglis Carne, 10, Mark Lane, London.

PERUVIAN GUANO.—As Agents of the Peruvian Government for the Importation and Sale of this valuable MANURE, we think it right, for the protection of consumers and respectable dealers, to apprise them that the adulteration of the article is still extensively practised, and to recommend them to apply either to ourselves; to our agents, Messrs. Gibbs, Bright, & Co., of Liverpool and Bristol; or to dealers of established character, in whose honesty and fair dealing they can place implicit confidence.—Antony Gibbs & Sons.

THE FOLLOWING MANURES are manufactured at Mr. Lawes' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE LONDON MANURE COMPANY'S NITRO-PHOSPHATE OR WHEAT MANURE FOR AUTUMN SOWING.—This Manure, composed of blood, animal matter, and dissolved bones with silicates, is most strongly recommended to the notice of Agriculturists. It contains from 7 to 8 per cent. of nitrogen, in a form yielding ammonia by slow decomposition, and is therefore particularly adapted for Wheat. The quantity required is 2 to 3 cwt. per acre drilled in with the seed. Price, per ton, 7*l.* 10*s.* in London.

PERUVIAN GUANO, FISHERY SALT, and every other MANURE on best terms, strictly warranted.
40, Bridge Street, Blackfriars. E. Purser, Sec.

SEWAGE CHARCOAL MANURE.—This highly fertilising Manure, which is Peat Charcoal completely saturated with London Sewage, will be found most efficient for every species of crop; more especially for Peas, Beans, Turnips, Mangold Wurzel, and other root crops. It will produce a greater return for the outlay than Guano or any other Manure at an equivalent value: it also possesses the property of retaining its fertilising power longer than any other Manures now in use. It may be obtained at the SEWAGE MANURE WORKS, Stanley Bridge, Fulham, at 4*l.* per ton, and in quantities less than half a ton, at 5*s.* per cwt., for ready money only; and in quantities not less than a ton, will be delivered at the London Termini of the Railroads free of charge for cartage. No charge for sacks.

It may also be had from Messrs. G. Gibbs & Co., 26, Down Street, Piccadilly, Agricultural Seedsmen, Agents for London, and from all the other Agents of the Company.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. Nesbit, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

OWNERS OF SETTLED ESTATES and OTHERS desirous of availing themselves of the various recent Acts of Parliament, by which they may charge their Estates with money expended in the Improvement, Conversion, and Reclamation of Land, by Drainage, Irrigation, Embanking, Inclosing, making Farm-roads, Clearing, the erection of Farm-buildings and Machinery, Planting and other Agricultural Improvements, are respectfully informed that Messrs. Hewitt Davis & Francis Vigers undertake to advise and furnish Plans and Estimates, and if required, will contract to do the works, and dispose of the Rent charges.—3, Frederick's Place, Old Jewry, London.

DRAINING BY STEAM POWER.

JOHN FOWLER is prepared to undertake Contracts for DRAINING LAND by his PATENT STEAM PLOUGH, at prices varying, according to depth and distance, from 3*l.* to 5*l.* 10*s.* per acre, inclusive of tiles, main drains, and all other expenses. Contracts executed with great rapidity, and tiles manufactured on the spot, where suitable clay exists.—Temple Gate, Bristol.

LAND DRAINAGE BY CONTRACT, in Large or Small Quantities, undertaken by Thomas Scott, Land Agent, 5, Charing Cross, London.

IMPROVEMENT OF LAND.
Tenants for Life and Others.

MR. HUMBERT, of Watford, Herts, a Land Agent and Surveyor of more than 20 years' experience, offers advice to Landowners having but limited or life interests, as to the means by which they can effect improvements without an immediate outlay; and his services in Erecting and Improving Farm Buildings, in Draining, Reclaiming, Planting, and Road-making by contract or commission, and the general Improvement of Land; also in Falling and Selling Timber, in the Transfer and Management of Estates, and the Enfranchisement of Copyholds. Mr. Humbert has long been largely interested in Landed Property, and is authorised to refer to his employers.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
Henry Ker Seymer, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. Equal facilities will be afforded in either case.

4. The whole cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to fifty years for Land Improvements and thirty-one years for Farm Buildings, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. William Clifford, Sec.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
PROTECTION FROM MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of Elisha Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

COLLEGE of AGRICULTURE and CHEMISTRY, and of PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.
Principal—J. C. Nesbit, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. Nesbit is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. White & Brothers Milbank Street, Westminster.

FIRST PRIZE REAPING MACHINE.
NOTICE.

MESSRS. BURGESS and KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—Burgess & Key, 103, Newgate Street; and 52, Little Britain, London.

PURE AND CHEAP BREAD.—Flour Mills for Family Use.—Grind your Wheat.—Pure Bread, and do away with medicine entirely, besides effecting a saving.
Mary Wedlake's FLOUR MILLS, 4*l.* 10*s.* and upwards. Washing Machines, 6*l.* 10*s.*; Mangles, from 50*s.*; Chaff-cutters and Oat-crushers. Book on Feeding Horses, 1*s.*
116, Fenchurch Street, London.

PRESENT PRICES OF FARM SEEDS.

THE CROPS of SWEDE TURNIP, MANGEL, and other FARM SEEDS *being good, prices are much lower this season (at present) as see* Messrs. Sutton's *Priced List*, which may be had, post free, on application, Addressed Sutton & Sons, Seed Growers and Merchants, Reading, Berks. Early orders are requested and recommended.

The Agricultural Gazette.

SATURDAY, DECEMBER 29, 1855.

There are no persons fonder of the rule of proportion than those agricultural teachers who reason from limited experience, or from experiments upon a small scale; and yet as a general rule there are none who more frequently forget what the rule of proportion really is. "The rule of three direct," we quote from an old book of arithmetic, "teaches from three given numbers to find a fourth which shall have the same ratio to the second that the first has to the third." To this end you must first "state the question," that is, "place the numbers so that the first and third may be of the same name and denomination, and the second the same as the fourth number required." Now this is precisely what you cannot do in cases of the kind to which Messrs. Hardy and many other really praiseworthy men are so fond of directing the attention of farmers. And it is what you cannot do even in such cases as agriculturists are themselves liable to quote, when from a measured yard of produce they calculate the yield of a whole field.

It is, however, more erroneous to calculate on the same result following farm management as obtains in garden culture than it is to calculate the produce of a farm from that of a perch or yard, because in the latter case you deal with results already obtained, while in the former you deal with causes whose fruits have yet to be developed. It may be that the yard of produce is not an average one, and then in the acre of produce the deficiency or excess is multiplied 5000 times; but when the yard *cultivated after a certain manner* is made the basis of a calculation which is to show the effects of that culture on an acre, the difference is not one of result but of cause—it is not 5000 times the difference but 5000 times the fruit of that difference which you obtain. The fact is you cannot say that, as a cultivated yard is to the produce of a yard, so is an acre similarly cultivated to the produce that may be expected from 4840 yards; the first and third terms in the question so stated are not of the "same name or denomination." A yard or any limited patch cultivated after a certain manner, with a man to look after it, is not of the same "denomination" as 4840 such yards or patches in one piece with a single cultivator to look after all, and the rule of proportion, therefore, will not apply, and the results of its application are not trustworthy.

Those who are so apt to criticise the results of ordinary agricultural experience on the ground of their own very limited experience, should be especially careful that they do not break the rule which they think leads them to their conclusions. "The rule of three direct" is very rarely capable of use with perfect justice in agricultural calculations, simply because in a business so influenced by the varying circumstances of soil, of climate, and of life, it is not always easy to name three terms, of which the first and third shall be exactly of the same "name or denomination."

Without specifying in detail the produce of the several districts or counties under which Scotland has been divided for the purpose of the statistical inquiry into its agricultural produce, we give in the following figures the main results of the inquiry; and our readers will agree with us that the thanks of the country are justly due to those by whose energy and goodwill so much valuable information has been given at so early a period. We understand that Government has asked the Highland Society to undertake the collection of the agricultural statistics of Scotland in future years. That society has done a most important service by demonstrating the possibility of obtaining early in the season a knowledge of the yield of the past harvest, and nothing could be more consistent with the purposes for which it was instituted than its inquiry into the agricultural produce of the country over whose agricultural interests it has so long presided. Whether it may be for its interests or those of its constituents that it should permanently charge itself with a duty of this kind, bearing the brunt of all those misunderstandings and mistakes which cannot but be expected in the annual prosecution of such a task, and bearing possibly the injury arising from its ordinary duties becoming subordinate to this new employment, will have to be considered by the next general meeting of the society. That the Government should be anxious to leave the task in the same hands which have hitherto so ably performed it, is not to be wondered at. That they appreciate the service which the Highland Society has rendered during the past two years in these matters appears from the following extract of the letter received by the secretary:—

"It is the pleasing duty of my Lords once more to convey to the Directors of the Society their best thanks for their most valuable services, in connection with this important national inquiry, the practicability of conducting which successfully no longer remains a matter of question, but has been satisfactorily established by the complete success of two consecutive experiments. At the same time, they cannot withhold the expression of the high sense entertained by them of the indefatigable and able services rendered by yourself, as the Secretary to the Society, which have rendered it possible for their Lordships to be in possession of so much valuable information at this early date. My Lords also appreciate most highly the assistance rendered with so much diligence and zeal by the district enumerators, and by the intelligent body of farmers composing the Committees, whose services are so appropriately described by you; and they request that the Highland Society will make themselves the channel of conveying to those different gentlemen the expression of my Lords' thanks accordingly."

It is proper in order to the true meaning of the figures that Mr. Maxwell's commentary should be given with them. In the letter accompanying the tables, addressed by him to the Board of Trade on the 11th of December, he remarks on (1) the occupants, (2), the acreage, (3) the stock, and (4) the estimates of produce. On the first point he states that in 1854 in round numbers about 50,000 schedules were issued, and of these about 100 were unaccounted for. "I have this year," he adds, "endeavoured to arrive at more exact results regarding this part of the inquiry, and to restrict the list of occupants to those whose status is purely agricultural, by striking off the names of householders, feuars, owners of villas, &c. The number has further been reduced by scheduling together any number of farms lying in the same parish, and leased by the same individual, thus regulating the roll by the number of occupants and not of tenements. Effect having been given to these modifications, the list contains 4339 occupants rented at and above 20*l.* in the counties of Argyle, Caithness, Inverness, Orkney and Zetland, Ross and Cromarty, and Sutherland, and in the Island of Arran, and 39,123 rented at 10*l.* and upwards in the remaining counties; and I have great pleasure in reporting to my Lords that the returns of acreage and stock may be regarded as complete for the whole number of 43,462, with the exception of one farmer in Argyleshire, and four persons occupying very small portions of land in Aberdeenshire. The former has twice forwarded his schedule, but it has miscarried, and his return could easily be obtained were I to incur the delay

attending a correspondence, at this season, with one in a remote insular locality. The four cases of omission in Aberdeenshire probably do not together involve a difference of 20 acres, and being unimportant, it is not necessary to defer the report on their account."

This is certainly a most extraordinary report to make. Those gentlemen south of the border who see so many obstacles in the way of a statistical inquiry into farm produce will read it with something of astonishment. It is no unintelligent jury whose verdict has thus stamped the inquiry with approval. Scotchmen have not hitherto been supposed blind to the interests either of themselves or of their country, and the whole agricultural body in Scotland declare the inquiry desirable and useful.

On the acreage which the following figures exhibit Mr. Maxwell says: "Only the corresponding columns for the two years are contrasted; but in one important point, even these do not afford data for a fair comparison as regards the gross results. The schedule for 1854 contained a column for '*Grass under rotation*,' and another for '*permanent pasture*;' it is difficult sometimes to draw a line between these, and, consequently, a considerable extent which had been, and again may be, under the plough, was formerly scheduled as 'permanent pasture.' This year the returns of acreage are limited to tillage, the column for 'permanent pasture' having been omitted, and instructions given to schedule as '*Grass and hay under rotation*' all land 'which, in the ordinary rotation or course of cropping of the farm, will sooner or later be again broken up.' The result has been to swell the column for Grass under rotation by the transference to it of much which last year appeared as permanent pasture; the difference thus created amounts to 82,200¼ acres, and will be found to tell more particularly in the dairy districts.

"In other respects, it is conceived that the returns for the two years generally correspond, if allowance be made for such fluctuations in cropping as are fairly attributable to, and must ever occur in consequence of, prices, weather, and other accidental but inevitable influences. The green crops, particularly Turnips, show a large increase, indicating, probably, a greater breadth in preparation for grain; but the extent under cereals is nearly the same, though the distribution of the different crops varies. Wheat has increased by 23,067¼ acres. Barley has decreased by 21,426¾ acres. There is a trifling difference in favour of Oats, and against the other crops, but the gross returns for the two years, as regards the acreage under Wheat, Barley, Oats, Rye, Bere, Beans, and Peas, come within 176 acres of each other. In 1854 there were 1,374,515¼, and in 1855 1,374,691¼ acres thus occupied."

A few words in explanation of the stock returns are also necessary:—"The gross returns of stock at first sight exhibit a startling excess over those of last year, but the difference is almost exclusively confined to horses and sheep, and is easily accounted for. In 1854 there was but one column for horses, under which in general only the animals employed on the farm were returned; now, there are three columns embracing horses of all ages and descriptions, and there is consequently a larger return. The great difference, however, is in the number of sheep. In 1854 there was no column for lambs, which, by the instructions appended to the schedule, should have been returned with ewes and wethers. Many overlooked this direction, and, seeing no mention of lambs in the schedule, omitted them; but, as there is now a special column, the return has been general, reducing to a certain extent the number of ewes and wethers, but adding to the gross amount of sheep stock. The increase on the total stock this year is 937,630—while that on horses and sheep alone is 928,107."

In the estimation of produce there is only one consideration of importance which needs remark. Mr. Maxwell says: "Having ascertained that, in 1854, the light or inferior grain, which is usually consumed on the farm, had in many cases been excluded from the estimates, directions were given to enumerators to include it, by reducing it to its equivalent in good grain, according to marketable value, and by adding it to the average produce per acre. To a certain extent this interferes with a comparison between the averages of the two years. It may be assumed that the light grain was genefally omitted last year, and that a certain deduction must, therefore, on a comparison, be allowed from the averages of 1855."

With these explanatory remarks we give the figures so far as the totals of the several columns in the tables returned by Mr, Maxwell are concerned.

The occupants number 43,462. The total acreage amounts to 3,529,902½ in 1855, 3,431,485½ in 1854. In the following returns the first amount given is the acreage of 1855, the second that of 1854:—Wheat, 191,283½—168,216; Barley, 186,080½—207,507; Oats, 93,364½—923,994; Rye, 3692—3809; Bere, 17,260—18,118; Beans, 37,308½—37,702; Peas, 5456—6169½; Vetches, 15,038¾—13,442½; Turnips, 449,372½—433,915¾; Potatoes, 146,963½—143,032½; Mangel, 2299½—1946¾; Carrots, 1191—1218; Cabbage, 1200½—1395¼; Flax, 3461½—6670½; Turnip seed, 1998½—1429½; Rape, &c., 1223½; bare fallow, 22,462—26,128½; Grass and hay under rotation, 1,509,990½—1,427,790½.

The numbers of stock for 1855 are as follows:—farm horses over three years old, 121,182; farm horses under three years old, 32,099; all other horses, 23,919; milk cows, 298,446; other cattle, 469,242; calves, 207,040; sheep of all ages for breeding, 2,707,847; sheep of all ages for feeding, 1,138.501; lambs of 1855, 1,848,389; swine, 134,349. Total stock 1855, 6,981,014; for 1854, 6,043,384.

And now comes the most important result of this inquiry—the estimated produce of the year. Wheat, 5,062,540—4,848,679 bushels; Barley, 6,092,904—7,645,328 bushels; Oats, 30,079,714—34,093,047 bushels; Bere, 556,876—645,418 bushels; Beans and Peas, 1,183,647—1,081,263; Turnips, 6,461,476—6,411,419 tons; Potatoes, 732,141—529,915 tons.

It will be seen from the above that the diminished produce per acre of the Wheat crop is more than made up by the increased extent grown this year, and that while the loss on the Barley and Oats is considerable, yet taking Wheat and Potatoes and the Turnips into the account there is nearly as much food for man and beast in Scotland this year as there was last year—that is to say, there has been a full average produce.

STEAM CULTIVATION.

It will be noticed in my last (p. 731) I separate the homestead altogether from the field; considering the objects sought to be obtained in each so totally dissimilar, that the only link which binds the two departments together is the receipt of made manure from the one, and unmanufactured crops from the other. In the field the object is to make a crop—a real living crop—which demands more of attention and supervision than of mechanism, but in the homestead the object is to manufacture a dead crop for market in some form or other, which requires (precisely as in other manufactures of dead material) more of mechanism than of attention. In fact, that in this latter department mechanism is more advantageous and necessary than man, and that the more man is superseded in it the better for the farmer, the labourer, and the country; but in the former, the more mechanism can be reduced and man introduced, the better for the farmer and the country.

Since I shall have occasion to make a liberal use of man, as a cheap and convertible species of mechanism, for the composition of a steam-driven tillage machine, allow me to urge a word or two more in his favour. The hand of man is a substitute for manure (as proved at Lois Weedon, Colne Engain, &c.); and manure is the "mother of money" in the rearing of plants. Again, if the working value of a man can be improved he is far more profitable to a farmer than a horse; he requires only 2 acres to pay his year's wages, whereas a horse requires six; and the horse pays nothing back to the farmer, whereas the man returns two-thirds of his wages. A farmer pays a man 9*s*. on a Saturday night, and before the week is past he has paid him back 6*s*. for breadstuff. He also pays the horse 10*s*. on a Saturday night; but this voracious animal pays nothing back save a few barrowsful of manure, not worth a shilling. Besides it is highly desirable (when it can be done) the farmer should grow customers as well as corn. Farmers cannot exist without customers. Neither horses nor mechanism in the field are afterwards profitable customers. If our artificial manufactures were in any way superseded abroad, farmers would have no customers. Still to urge, as some philanthropists do, that it is the duty of a farmer to employ more labourers than he can turn to a useful account, is one of the weakest arguments which can be adduced; to show him how he can usefully employ them—that's the point. To demonstrate the possibility of a solution to a great social problem, in conjunction with steam cultivation, is also one of the main objects of these letters. And from what I know of the general disposition of the farmers of England, they would willingly employ double the number of hands, if such could be done with profit. I hope to be able to prove that if "man," the labourer, be mechanically assisted, and certain (now) latent powers be developed, we shall be able to cause him to perform all the varied operations of the field, reducing the horse-power required, superseding expensive by inexpensive mechanism, rendering "manuring," in every way a most expensive article by cartage and first cost of procuring, whether from at home or abroad, less expensive—in fact make his increased employment in the field pay in every way.

I stated the object of the farmer in the field was to grow a plant—that a plant was a thing of life; and that the element most essential to insure success in "life," or plant production, was "attention," "unremitting attention," and that unremitting attention could only be had from the "head and hand" of man, therefore that "man" was the peculiar mechanism most needed by the farmer in the field. So let us at once proceed to the field and see what is required to be done therein—why it is that man cannot now do it and see what assistance he needs to enable him to do so. We enter the field, and discover that (unlike the gardener) the farmer has only two descriptions of hardy plants to grow—the one a Grass, the other a root—the first requiring a shallow, firm, and not over-rich description of seed-bed to rest upon; the second, a deep "feather-bed" soil to flourish in: hence the latter ought always to prove a sufficient preparation for the former, and be contained therein, without much extra labour. So the preparation of the deep seed-bed is the grand consideration. The next thing noticed is, that seed must be inserted in these prepared beds in drills, or rows, a definite distance apart, that we need not be nice in measuring the quantity, since the sowing scale has been proved to range (in the case of Wheat) from 3 pints to 3 pecks and 3 bushels per acre; hence, with even moderate care we might "broadcast" it down tubes to the soil, the only care needed in the operation being that you do neither over-do it nor under-do it, according to the quality of the soil. The next thing is hoeing between the rows to keep down all weeds, and admit fresh air; this operation does not require work by "measurement"—the only mechanical qualification required being the power to elevate or depress a lever-hoe so as to accommodate its working to the inequality of the surface soil. Harrowing, rolling, or compressing, irrigation, or manuring, require the same lever adaptation.

Now, upon first perusal of this summary of the secondary operations of the field (excluding tillage or first cultivation for the moment), does it strike the mind there is one which the ordinary skill of man could not accomplish? To this question we should all of us say: theoretically viewed there is not. But then things may be true in theory which nevertheless could not be carried out in practice. Here is an illustration. Archimedes is reported to have said: "With a lever he could lift the world!" Now, this was strictly true in theory, nevertheless quite impracticable, unless he was first provided with a lever long enough and strong enough, and could have the planet Mars as a fulcrum. Hence, in our proposals, we must take especial care that theory and practice do not fall out; and the only way to avoid so disagreeable an event is to provide the means beforehand for practically working out that which is proved to be theoretically possible.

By bringing forward these secondary operations of our field practice first, and claiming your assent as to whether men, when mechanically assisted, could not execute the whole of them with sufficient accuracy and efficiency, you will observe I have adopted the same course as they did at Vienna, but unlike them I hope we shall not fall out on the first and most important point, which we are now about to discuss, viz., tillage, or the art of obtaining a well pulverised seed-bed.

Tillage.—We will take a clay soil, because it is the most difficult to render into a fit seed-bed by the present mechanical treatment; and we further select it because if we get through the problem of its cultivation, no farmer would deny but that the same mode of manipulation would readily render a sandy or light soil into a fit seed-bed; in fact that with the same power employed, we should be able to execute twice the quantity of the latter, as of the former, viz., one acre of sand, as easily as half an acre of clay.

The first question put by an inquiring inventor would be this, viz., what principle of mechanical treatment is the best to pursue to reduce a hard body to a pulverised or powdered condition, with the least expenditure of power on the instant? The answer to this is, that method which involves the principle of overcoming the labour by degrees. Now to illustrate this "principle" of operation on hard materials by degrees, we will adduce two well-known examples. The one is the carpenter—the other the sawyer. The carpenter has a hard surface to operate upon, and he desires to remove the surface of a piece of wood to the depth of $\frac{1}{8}$th of an inch. How does he proceed? Does he adjust the share of his ploughing plane to the full depth of the $\frac{1}{8}$th required, and then by an immense expenditure of power on the instant—the sweat bursting from his brow with the effort and the tool struggling beneath his hands to deviate from the path he wishes it to travel in, does he seek by one upheaving stroke to remove the "ribbon" of solid surface? No, he does nothing of the sort; he adjusts his cutting point to a shallow depth, and then by a slight expenditure of power on the instant, he upheaves a thin shaving, and by repeating the stroke over the surface he removes a series of shavings until the required depth be obtained. Again, how does the sawyer proceed? His object is to reduce a certain amount of hard wood to the "dusty" or pulverulent state. Does he adapt his saw so as to break off by a vast expenditure of power on the instant large lumps at one stroke, and then taking up a hammer or "roller" reduce these lumps to powder? No, he does nothing of the sort. He so manages his tool that it takes but slight hold of the material, and then by repeated strokes he cuts his hard material into "sawdust" at once, thus saving the second operation of hammering or rolling. Now although I have selected these two illustrations, they are not exactly in point in one respect, since the "method" of operating I shall propose to you, will be more analogous to grinding by means of a millstone, which, as every farmer knows, consists of a great number of horizontal radii, to which radii our steam-tillage machine (when in operation) will represent one. Still let us see what profitable application we can make of the two above described illustra-

tions in regard to tillage or the art of obtaining a pulverized seed-bed out of a hard or heavy soil. We must see (in the examples adduced) the result is obtained by repeated strokes over the surface; this, in fact, being the "principle" of operating; and we further see the effect desired is obtained by the least expenditure of power on the instant. These are just the principles we are in search of. Hence what is the inference in respect to our tilling land by the power of steam? Why whenever our object is to obtain like results on hard materials, we should apply the same principles to obtain our end with the least expenditure of power. Now arises the question, why is the principle not in use at the present time? Because the farmer uses only a small tool scarce a foot wide, and having a large superficies to operate upon, he cannot afford the time to go twice over a place; he cannot avail himself of the economical mechanical axiom of "repeated strokes;" he is obliged to encounter the labour and rip up the heavy material to the full depth required at one stroke. If he were to attempt to operate with the plough in the manner indicated over half an acre of land, it would be equal to 16 horses trampling the land for four hours, which of course would neutralise the very end he had in view. Therefore, however advantageous the "principle" of operating "by degrees" may be—however economical of power—he has never yet been able to employ it, because he has not a machine through which he could use it without trampling down the seed-bed as fast as he made it.

In a former letter we showed how to economise time in operating, by inscribing the work to be done within the area of a circle; in another, how to obtain the element most necessary to insure success in plant-production by employing the human head and hand as a temporary piece of mechanism; in this we have discovered how to economise "power," and reduce its employment to a minimum by adopting the principle of overcoming labour by degrees. Let us in our next briefly sum up, and proceed to devise a steam-tillage machine according to the evidence, which shall be calculated to fulfil every necessary requirement of the farmer in the field. *C. Burcham, London.*

SALT: ITS AGRICULTURAL PROPERTIES AND USES.

By Mr. Prideaux, of Plymouth.

Of the long list of fertilisers, not one has suffered more from misunderstanding and consequent misapplication than salt, which is nevertheless so active, as well as cheap, that it will do good service to the farmer to give him distinct and definite notions of its true properties, the purposes it is fit for, and the best methods of applying it. The two first of these points will be treated of in this letter; but to give practical directions for all its applications would require much more detail than would suit either your columns or my time. The intelligent and reasoning farmer will be able to modify these, according to the circumstances of his estate, when he clearly understands the properties and modes of action of salt, and the purposes for which it is really fit.

The properties of salt chiefly useful in agriculture are—1. The supply of its constituents, soda and chlorine. 2. Attraction for moisture and resistance of freezing. 3. Sharpness, without being acid or alkaline; solubility and penetration of porous matter. 4. Promotion of putrefaction when used sparingly, though the contrary when used freely. 5. Mutual decomposition with lime and some of its compounds, as well as some other salts, giving rise to other and often more active fertilisers.

Let us next see what are its known effects, and to which of these properties they may be owing; and for our avowed purpose of distinctness we will consider them in three divisions:—A. Effects of salt on the soil. B. Its effects on other manures. C. Its effects on the plant and seed.

A. *Its Effects on the Soil.—a.* Keeps it moist in the heat of summer, and soft in the winter's frost (see above prop. 2); thus suits dry soils and seasons, whilst most other concentrated manures require wet. *b.* By this, and its penetrating quality (3) it keeps everything in the soil in the softest and most soluble state, best fitted to work on each other, and to be acted on by the air and weather. *c.* By its putrefactive power (4), it also promotes these reactions, thus digesting, so to speak, everything in the soil fit for vegetable nutrition, and preparing it to enrich the root-sap. *d.* Kills all vermin, and most weeds also, if used freely enough, by its sharpness and penetration (3).

B. *Its Effects on other Manures.—e.* Dung with salt has been found more effective for Turnips than double the quantity of dung without; and one quarter dung to three quarters salted peat, worked into a rich soapy spit-manure, produced more Turnips and Potatoes than the whole four parts of dung alone. Both these cases appear due to the moistening and digestive actions already explained (*a, b, c*). *f.* Worked with seeds, &c., kills all vermin, seeds, and roots, by its sharpness and penetration (*d*), and rots them (*a*) to a soft smooth paste, fit for the dung-heap, as it does not waste the ammonia like lime. *g.* Undergoes decomposition with lime and its compounds (5); produces soda on its combination with carbonic acid or with humus, all more powerful digestives and feeders than the salt itself: salt and lime work vegetable matters to decay quicker than salt alone. With gypsum it will supply soda and sulphuric acid cheaper than any other material, besides the muriate of lime, so valuable for its moistening quality.

C. *Its Effects on the Plant.—h.* It acts more favourably on some plants than others—those especially which naturally contain much of it. It benefits root and green crops generally, more than those of corn, as might be expected from its moistening and digestive quality in the soil (*a, b, c*). *i.* Pasture is, as well as roots, rendered more palatable and wholesome by its entering into the sap by its solubility (3), and more nutritious by its digestive action in the soil and manures enriching the root-sap. *k.* Low pastures are sweetened by it, though it is not alkaline; but it becomes so by giving out some of its chlorine in the leaf (*m*). *l.* Wheat and Barley have less straw, but more ear and heavier grain. *m.* It does not force the young plant, nor deepen the green (though chlorine is given off by the leaf in sunshine), but strengthens the growth by the enriched sap (*c*). *n.* Germination seems rather to be even retarded by it, and the plant comes up small at first, due to its sharpness (3) and destructive tendency (*d*), but the plant soon fetches up and overpasses those which are not salted; but implying also a stimulating action due to its sharpness (3), exciting to strong plants, but overpowering to weak ones. *o.* Peas and other plants are said to blossom earlier, and grain to come earlier to harvest; here again we recognise the stimulating action above alluded to, which excites vegetation, when used in due proportion, though oppressive to it when in excess (*n*). *p.* Salts are much more abundant in the vital sap before flowering (the chief vital action) than after, and more in the sensitive plant than in others. Hence salts appear connected with vital energy, which may explain the stimulative actions above noticed (*n* and *o*).

This stimulating action is the most important fertilising property of salt, and seems to contrast remarkably with that of ammonia, each supplying the defects of the other. Ammonia forces the young plant, deepens the green of the leaf, produces a luxuriant juicy growth; and in excess runs corn to straw and leaf, and often lays it with but little ear. Salt, on the contrary, rather retards the young plant (*n*); does not deepen the green, but strengthens the after growth (*m*); renders roots and green crops more solid and nutritious (*i*); produces more corn and less straw (*l*), and forwards blossoming and maturity (*o*). Here, then, ammonia seems to give the early vigour and activity, and the luxuriant juicy growth, in which salt is deficient; and salt to supply the strength and nutrition, which ammonia does not always produce, and also to bring the crops earlier to maturity. Hence they would seem practically well suited to act together. Moreover, ammonia was described as acting chiefly in the plant by promoting chemical transformation, and thus lightening the labour, so to speak, of the vital powers, and by encouraging absorption from the air. Salt, on the other hand, appears to act in great part as a digestive in the soil, to enrich the sap by the root, and in the plant as a stimulant to the vital forces. By ammonia the chemical changes in the sap seem liable to overrun the vital appropriation of the materials, and thus produce soft and juicy growth. By salt the vital action seems to be excited to select and arrange all the constituents,, so as to give every part its due solidity.

Hence they appear, theoretically also, just suited to aid and correct each other. It would seem as though three parts salt compost to one of ammoniacal (dung) did better than all dung.

Now, if this be found a general law (and I have hitherto met with few facts opposed to it), how greatly will it add to our resources in manure. If the deficiency of ammonia in the homestead dung-heap can be compensated by so cheap a material as salt, how greatly may the farmer improve his crops at a comparatively trifling expense? And if the concentrated ammoniacal manures, as sulphate of ammonia and guano, may be actually improved by three or four times their weight of salt—thus reducing their cost per cwt. to one-third or one-fourth its present amount—how much more will they be within the means of a small farmer, and enable him to bring heavier crops to the market? To recapitulate what we have said, we may expect from salt—1. In the soil—retention of moisture and softness; general penetration and digestion of all the materials of vegetable food to enrich the root-sap; and destruction of vermin and of seeds when used freely. 2. On other manures—the destruction of all vermin, weeds, roots and seeds; the digestive action just described; mutual decomposition with lime and its compounds, to the advantage of both; and an improvement in the efficacy of ammoniacal manures, whilst it greatly reduces their cost. 3. In the plant—improvement in the taste, wholesomeness, and nutritive power, and earlier maturity.

Home Correspondence.

The Waste Lands of the Highlands.—One writing on the 24th November, calling the attention of agriculturists to the necessity of improving waste land, alludes to two places—the New Forest and the central and eastern highlands of Scotland. As to the land cultivable in the New Forest I can say but little; but I am proud to see one now and then calling our attention to the great necessity of reclaiming waste land. As "A. H. F. C." alludes to the eastern and central highlands of that country being the best parts to improve, I am quite of his opinion, for in many of these vales in the eastern highlands there is little wanted but to plough and sow. Go where you will, on every river and streamlet side, there you see the rich alluvial soil lying along the banks, which has been settling down from the mountains above going on for many centuries back, covered entirely with Heath. And in the central highlands a great extent is covered with water for want of surface drains, which would greatly improve it for pasture alone; indeed, this remark is applicable to the highlands at large. But I am informed if you mention draining to the inhabitants they remark, "it won't pay;" speak of trenching, "it is too far to cart corn such a distance to the sea-shore." I could quote many such remarks; but then how is such a change to be brought about amongst the people? It is my opinion they must have ignorance removed from their door first; by cultivating the inhabitants they will then be in a more fit state to receive instructions how to cultivate the soil. Teach them to be active, sober, and industrious. Instead of noblemen attempting to introduce the games of the dark ages at highland gatherings, let them rather draw their peasants' attention to the games played in the agricultural world. Let man run and leap as he may, he will be outstripped by the horse, or the steam engine. A new system of agriculture is much wanted in those localities to which "A. H. F. C." alludes, and I should be glad to hear his suggestions as to the mode in which it is to be accomplished. He must bear in mind the Highlanders are much enslaved to custom and habit, which are not easy to be taken away from them. My opinion is until landlords take an active interest themselves in improving those portions of the Highlands to which they belong the peasants themselves are of too easy a contented mind to do much. *A Constant Reader.*

Superphosphate of Lime.—My attention has been drawn to the following paragraph in your paper of the 8th instant:—

"*Superphosphate of Lime.*—There has been a lecture delivered by S. Grove Grady, Esq., recorder of Gravesend, upon Agricultural Chemistry. This lecture was delivered at Hatfield. Mr. Grady is one of the directors of the Patent Superphosphate Compost Company. The reporter gives the following:—'He then discussed at length the question as to whether the phosphates, &c., &c., should be in a soluble or insoluble state, and proved by extracts from Dr. C. Remigius Fresenius' chemical analysis, and from Professor Liebig, that the insoluble were as beneficial to the full development of the plant as the soluble; for the ingredients which are soluble serve for immediate use, those which are neutral or semi-soluble exercise a more permanent action, and those which are altogether insoluble afford a prospect of future nourishment for plants, although for the time being they possess no nutritive powers. Those artificial manures, therefore, which are in a highly soluble state, are not so beneficial as when they are soluble, neutral, and insoluble.' I do not remember seeing any thing about semi-soluble phosphate in the writings of Liebig or other writers, neither can I see how any manures can be too soluble provided they are not washed out of the soil by the rains. Will you, Sir, be so kind as to enlighten me on these points? *From a Correspondent.*"

I am at a loss to understand the meaning and object of your correspondent; whether he seeks information, or whether he cavils with the use of a word, or whether he means to say that I have put a word into the mouth of the learned individual referred to, which was not his own, I cannot tell. The last hypothesis would seem to me to point to his object. If so I freely admit that the word "semi-soluble" is not to be met with in Professor Liebig's works, but I must also add that I never used it as the Professor's word. I used it parenthetically, as giving to my audience the closest meaning of the word "neutral" that occurred to me at the moment that I was delivering an extempore address, and the reporter has failed to put it in the way that I used the word, and has left it in my lecture as part of the passage. This, however, must have been apparent to your correspondent if he had been just enough to give himself a moment's thought. If your correspondent seeks information, I say the idea is to be found in Liebig, as I shall presently prove. If he cavils with the use of the word, I say that I was quite justisfied in its use, and that it expressed well to the minds of my hearers the ideas of that great and learned writer whose theories and whose experience we shall every day prove to be more and more correct, and more closely allied to truth than those of any other writer on the great and important subject to which he has addressed himself. In Dr. Liebig's "Chemistry in its application to Agriculture and Physiology," edited by Professor Playfair, 3d edition, p. 155, I find the following passages:—"There are certain ashes of plants wholly soluble in water, others are only partially soluble, whilst certain kinds yield only traces of soluble ingredients when the parts of the ashes insoluble in water are treated with an acid (muriatic acid). This residue in the case of many plants is quite soluble in the acids." "With other plants only half the residue dissolves, the other half resisting the solvent action of the acid, while in the case of certain plants only a third, or even less of the residue is taken up by the acid." If ingredients are wholly, partially, quite soluble; if others are only half soluble and the other half insoluble; if again a third, or even less are soluble, it is manifest there must be different degrees of solubility; if so there is nothing incorrect in the term semi-soluble. Again, in Liebig's "Principles of Agricultural Chemistry, with special reference to the late researches made in England," edited by Professor Gregory, p. 29, I find the following passage:—"The same inequality of increase in mass is observed when the same food is supplied to both plants in great quantity, but in different conditions of solubility." Again, p. 38: "The state of solubility or available form in the mineral constituents has, as I endeavoured to explain in my work, the greatest influence on their efficacy; and this is, for example, the reason why the hard, compact, and not porous apatite in great quantity exerts a far less effect in the same time than burnt bones; and

why the effect of the latter is so greatly increased when they are rendered more soluble by means of sulphuric acid. Again, p. 65: "Silicate of potash, by increasing the proportion of silica, may be obtained of all different degrees of solubility." Again, same page: "All these substances are more or less soluble in rain water, and still more soluble in water containing a larger proportion of carbonic acid." Again, p. 66: "It is necessary, if we would investigate the subject properly, to prepare from the first a whole series of mixtures of different (degrees of, no doubt intended) solubility." Again, p. 69: "As we cannot suppose that the mineral constituents of the same land vary in their solubility in different years from unknown causes; that in one year they are more soluble than in another," &c. If, then, there are different conditions of solubility—if there is a state of solubility—if one ingredient is more soluble than another—if we can obtain different degrees of solubility—if substances are more or less soluble, and still more soluble—if there is different solubility, why should there not be a semi-solubility? I am aware the last passage has a different object in view, but it also conveys the idea in the author's mind of one ingredient being more soluble than another. Now, sir, I trust if your correspondent sought information he has obtained it; if he cavils with the use of a word I have justified it; and if he means to say I have put an improper word into the mouth of a most scientific personage, I say that the word was my own, and that I never intended to use it as that of another. Your correspondent says: "Neither do I see how manures can be too soluble, provided they are not washed out of the soils by the rains." If my lecture had been fully reported, your correpondent would have found that I discussed this question also, and he would have been saved the necessity of displaying that non-acquaintance with the first principles of chemistry which the above remark exhibits. Why, it is because of the great and inevitable tendency of highly soluble manures to be washed beyond the reach of the infant plant that manures so prepared have not been found to be as efficacious as those containing a portion soluble, neutral, and insoluble. A mere tyro in chemistry knows wells that an ingredient in a highly soluble state is immediately taken up by water and must accompany that water wherever it goes; and we all know that the tendency of water is not to remain near the surface of the soil. What is the use, therefore, of a manure that has nothing to recommend it but its high state of solubility? We know that the chief ingredient in the straw of Wheat is silica, of which it contains 70·00 per cent.; we know, also, that the chief ingredient in Wheat is phosphoric acid, of which it contains 50·00 per cent. Whilst the silicates are drawn upon from the very commencement of the growth of the crop, the great body of the phosphates are not required until the development of the ear, when the grain which chiefly feeds upon them first begins to use them. If then your phosphates are highly soluble, and the rain is constantly carrying them into the earth beyond the reach of the plant before it is sufficiently advanced in growth to draw largely on them, are they within reach of the plant at that time when it most requires them for its nourishment? We must not be led astray by mere theorists upon this all important subject; but must, casting aside all prejudices, quietly, coolly, calmly, and dispassionately bring common sense to bear upon its discussion; we shall then find it impossible to maintain the position that soluble manures are as beneficial as those prepared to meet the requirements of vegetation in its different stages of growth. I have to apologise, sir, for the length to which this letter has run; the censure must fall upon your correspondent, who has touched upon so important a subject, but I feel satisfied that you require no apology from one whose chief object is that of investigating a great truth, and that you are always happy in bringing the minds of your agricultural friends to dwell upon both sides of a question in which they are so deeply interested. *Standish Grove Grady.*

Brown Bread.—I beg to inform your correspondent "J. T. B." that brown bread requires the dough to be made moister than white. I have no doubt his cook makes it of the same consistency, whereas brown flour will take half as much more water than white. The best and brownest bread is made from Wheat ground as it comes out of the mill without any bran or stuffs taken out. If "J. T. B." can get such flour, and his cook will put the extra quantity of water, I feel sure he will be satisfied with the bread. *Mary.*

Societies.

Royal Agricultural of Ireland, *Dec.* 21.—The half-yearly meeting of this society took place this day. Our readers are aware that great dissension has been exhibited at meetings of the Council latterly, and that the conduct of the secretary has generally afforded the subject on which these differences have arisen. The report of the Council to the general meeting recommended very considerable modifications of the office of secretary; involving, we suppose it will be generally admitted, a reflection on the manner in which the duties of that office had been hitherto discharged. And at the meeting which has just so happily passed a large gathering of members took place, the question no doubt which had interested them, and on which each came prepared with his opinion, being the merits of Mr. Harkness as the secretary of the Royal Agricultural Improvement Society of Ireland. This personal feeling bade fair to tear the society asunder; and that this has not been the result is due, we think with Mr. D. J. Wilson who spoke well upon the subject, rather to the good sense of a large body of the Society than the angry discussions which have been reported or believed to have existed. "I was asked," said Mr. Wilson, "what party I belonged to—what part I intended to take—with which of the two parties I would be found? 'Two parties!' said I; 'why, there are three parties.' 'Three!' exclaimed the person who addressed me; 'why, I only heard of two—the secretary and his party, and a section of the council.' 'Well,' I said, 'I feel there is another party stronger than either of the two parties, and stronger than both put together, and that is the party of the Royal Agricultural Society. That is the party that I belong to, and, notwithstanding the previous expressions of angry feeling, I do hope that before we leave this room we shall convince the public that that is the stronger party.'" We give below an abridgement of the address of Mr. Gartlan upon the occasion—he having been apparently the spokesman of the general sense of the members. It had been proposed to adopt the report of the Council. Mr. Gartlan moved the following amendment:—

"That the further consideration of the report be adjourned, and a committee of nine members of the society be appointed to inquire into, and report to an adjournment of this meeting, to be held on the last Thursday in January next, on the several matters that have tended to produce dissension and discord in the society, and on certain charges of insubordination and negligence made against the secretary, and on certain allegations of irregularities in the awards of certain of the society's prizes and premiums made against members of the council of the society; and that it be an instruction to such committee to take into its consideration the several laws, bye-laws, rules, and regulations of this society, with a view (if they think fit) to suggest such additions, alterations, and amendments therein as may be necessary for the more harmonious working of the society for the future—this meeting being of opinion that the bickerings and disputes that have latterly taken place have a direct tendency to lessen the influence of the society and to impair its usefulness."

He said:—I deeply feel, and every gentleman who takes an interest in the well-being and well-working of this society must feel, that such scenes as have been enacted in our council-room for the last few months cannot co-exist with the harmonious working of this society. Either the secretary should yield, I respectfully submit, or the council should yield. The documents which have been handed about, the letters which have been written, and the discussions which have taken place, prove as distinctly as possible that there is not harmonious working within our council, and I deeply regret that we cannot shut our eyes to this fact, that our secretary has leagued himself with one section of the council. I don't say the section that have taken the part—if I may use the expression—of the secretary are wrong. Far be it from me to say that. I say that is the matter that is to be inquired into; and I hope and trust that when the heat, and the recriminations, and the party discussions have died away, those highly respectable gentlemen who have banded themselves together, upon the one side and upon the other, will meet together or at least a portion of them, in the council-room, as Irishmen should meet when they discuss the affairs of a society like the present, harmoniously, like educated and enlightened gentlemen. I freely admit that there are matters to be inquired into. I freely admit that irregularities have taken place. I refer to three particular instances. The first is in reference to the secretary. I cannot shut my eyes to this fact, that he and the council have not worked harmoniously together. I hope and trust that the result of that committee which I am about to propose will be this—that whatever differences of opinion have existed between the council, or a section of the council, as Mr. Hamilton suggests, and the secretary, probably by some mutual concession, by some mutual understanding, that disagreement might be put an end to; for I cannot shut my eyes to the fact that there has been an attempt made, it is said, to raise an unworthy cry against Mr. Harkness, because he happens to be a Scotchman. I do not adopt that sentiment. I have stated in private, and I repeat in public, that had I been a member of the society when the secretary was appointed, probably I would have imagined that in Ireland might have been found an Irishman to fill that office; but I say that Mr. Harkness was no party to that resolution. You are purchasers with notice; you selected him knowing where he was from; and the very fact of his not being an Irishman gives him an additional claim upon your fair consideration. The next point, gentlemen, that I think the attention of the committee will be directed to is, the allegation of irregularity in the award of a premium to Captain Ball. I certainly do believe that in the award of that premium there might be pleaded the statute of limitations. I believe it is five years ago. Be it four or five years, I don't care which; but on the face of the proceedings for a month back in the council this is quite apparent, that the award of that premium is an irregularity that did undoubtedly creep in. I don't conceal the fact that there is another award of a premium in dispute. I believe it is a draining cup, but with the details of it I am perfectly ignorant. I am told that the committee of the society has come to a conclusion upon it at a recent meeting; but it has so recently occurred, that the matter is fresh in the minds of all parties, and I think there can be no objection whatever that it, too, should be considered by the committee. Now, the last matter to which I think the attention of the committee should be pointed is this—is it not notorious, is it not too notorious, that the meetings of our council in these latter times have not been conducted with that order, regularity, good feeling, and harmony with which the meetings of a society like this ought to be regulated? If the council is of that nature that the society at large has not sufficient power over them to prevent such proceedings, I think that a committee should be appointed calmly to look at the constitution of the council, and to report whether such a change should not be made in the bye-laws—that if there are men upon it who will not, and are determined not to pull harmoniously with other members of the council some means should be obtained for ejecting them from the council. (Loud cries of hear, hear, and applause.)

Mr. Gartlan's amendment was carried, and a committee of nine members, two gentlemen from each province, with his Grace the President of the Society as chairman, were appointed in accordance with it to report to an adjourned meeting.

Jump, near Plymouth, *Dec.* 5.—A number of agriculturists assembled to take into consideration the propriety of forming an Agricultural Society. Mr. Thompson referred to the history of the Highland Society, to show the effects of combination for the purpose of agricultural improvement. A superior system of farming was introduced, superfluous fences were rooted out, thorough draining put in extensive practice; furzy heaths were cleared away in every direction, and converted into luxuriant pastures and fertile fields; wide and exposed high field lands were surrounded and adorned with thriving plantations, affording shelter, beautifying and improving the scenery; and the miserable mud hovels of a past age were demolished, and superseded by comfortable and well-arranged buildings of a suitable and substantial kind. Implements of the best order, machinery of the choicest construction and on the most improved principles were introduced, and are now universal there. He made these remarks to show what had been accomplished through the aid and direction of an agricultural society in his native country, and he had no doubt whatever that a society of that description, properly managed and spiritedly backed by the nobility and farmers of this district, where so much room for improvement existed, could not fail in doing an incalculable amount of good; therefore he would take the voice of the meeting whether or not they entertained the same view. The meeting were unanimous in opinion with Mr. Thompson, and nominated a committee to carry out the necessary arrangements for the establishment of the society, to be named the "Maristow Agricultural Society," and to report at the next meeting, to be held at Jump on the first Monday of January next. The chairman again addressed the meeting at considerable length. He made numerous remarks upon the practice of agriculture, crops, and rotation of crops, describing and criticising the Lois-Weedon system of cultivation; he thought the Rev. Mr. Smith very fortunate in having a piece of land capable of bearing such treatment, and instanced the failure of the Lois-Weedon system, under the hands of the Rev. Mr. Forester, Vicar of High Ercale, in Shropshire. He then offered some remarks upon soils and their combinations, upon manures and their application, and depreciated the plan of laying small heaps of manure on the land for some time before ploughing it in. Mr. Rowe, Woolwell, thought that a good way of applying farm-yard manure was to plough it into the soil as soon as carted from the farm-yard. He would recommend the utility of covered yards or sheds in which the manure could be made or laid up and fermented before being carried to the field. He considered that the very essence of their farm-yard manures was washed into the water courses by the rains of heaven. Mr. Harris, Phinx Mill, described his practice in preparing manure. He had all the manure of his place collected into one heap in the yard and mixed with salt in the proportion of 3 cwt. of salt to about 20 loads of dung. Salt, he thought, retained the ammonia, accelerated fermentation, and destroyed the larvæ of insects, together with the vitality of many seeds which might be in the manure. He procured, a short time ago, 3 tons of salt, at 15*s.* per ton; from that, he was satisfied the cost could not be any objection to its use. He made some appropriate remarks upon the keeping and trimming of field hedges, and commented upon the expense of cleaning weeds from the crops, where a bad system of cultivation prevailed. He thought that by paying proper attention to the preparation of the farm-yard manure, the trimming of hedges, and deep cultivation, cereal crops would not require any weeding at all. Intelligence, industry, and perseverance were necessary to the proper advancement of agriculture. It was his opinion that the society which they were about to form, if properly conducted, would prove of immense benefit to the district.

Notices of Books.

On the Advantages that would accrue to the Landed and Agricultural Interest of the United Kingdom from a general Act of Parliament to enable Owners of Settled and Encumbered Estates to Borrow Money for their Improvement upon the Security of the Estates themselves. A Letter to the Right Hon. the Earl of Essex. By Chas. F. Humbert, Land agent, Watford, Herts. Piper & Co., 23, Paternoster Row.

"The only means by which the owner of a limited or settled estate can without making an immediate outlay erect farm buildings, engines, or machinery, make roads, reclaim, enclose, and fence uncultivated land, &c., for instance, is through the intervention of one of the four existing private companies known as "The Landowners' Drainage and Inclosure Company," 1847, "The West of England Land Draining Company," 1848, "The General Land Drainage and Improvement Company," 1849, and "The Lands Improvement Company," 1853, each of which exists under a special Act of Parliament, empowering it to effect upon land improvements of the kind above named, as well as drainage; and to charge the cost of the works upon the inheritance, in the form of an annual rent-charge, and to one of these companies a landowner must of necessity appeal if he wish to charge upon those who may come after him their reasonable share of the cost of the improvements he may contemplate."

We quote this passage from the above-named pamphlet. The object of Mr. Humbert is to show that as the sanction of the Inclosure Commissioners is needed before any of these companies can complete the engagement by which it undertakes the drainage or other improvement of an estate in consideration of a rent-charge upon that estate for a certain number of years, this sanction ought to be the only thing needed to enable the owner or tenant for life to borrow money for that purpose in any quarter. Legislation hitherto has certainly been of great service to the owners of settled estates, and through them to the body of consumers, which was

what was intended. Whether the monoply which the companies charged with the execution of that legislation have hitherto enjoyed has been of any value to their shareholders we do not know, but at any rate it has had the effect of conferring privileges on individuals or limited bodies of individuals, which was not the object aimed at. To be sure this latter is a result which follows all such legislation as needs commissioners for its administration; for those to whom the administration is confided enjoy a monopoly under it in the same way as that is enjoyed by these Improvement Companies; but the answer is, that all commissions for the discharge of that which may be left to the operation of unrestricted competition and natural law are at the best a mere impertinence, and that all such salaried commissioners, and this is the class under which Mr. Humbert must place these companies, are mischievous. The question thus arises whether in the case before us any new commission is needed; whether any increased security to the next tenant arises from those only being privileged to act who have a standing before the public as the officers of an incorporated company for agricultural engineering, beyond that which would be conferred by the employment of any individual engineer, or of any one who pretends to act as such, if only his employment be sanctioned by the Inclosure Commissioners. Mr. Humbert draws the attention of Lord Essex to the fact that "As these works can after all only be carried out by the companies, with the sanction of the Inclosure Commissioners, the same inspections are of course necessary (and at the same cost) as if the landowner could make his application direct to the Commissioners; and that besides this, the landowner has to pay to the company, for the use of their act, a heavy percentage, together with some other charges. He incurs, therefore, more expense and also more trouble, inasmuch as there are more persons concerned in the arrangement, than if he could make his application direct to the Commissioners. "I do not wish," he says, "to imply that the charges of these companies are excessive, nor that an employer ought not to expect to pay the company whose services he may engage, for it must be evident to all that it is alone from charges made upon landowners that the shareholders in the company are to be satisfied, and the directors, secretaries, engineers, and other officers are to be remunerated. But I mean that the charges are altogether unnecessary and therefore extravagant; because the employer could effect his object more cheaply, more speedily, and more conveniently, by being placed in direct communication with the Inclosure Commissioners without the assistance or intervention of a company in any stage of the business; and that to bring about this most desirable state of things either a General Act of Parliament, having the provisions of the Lands Improvement Companies' Act (except that the whole sum expended in the erection of buildings should be charged upon the estate), or an extension of the Private Money Drainage Act, is alone necessary; and from this might be securely predicted the most favourable results to the landed and agricultural interests of this kingdom. It will, in effect, empower any owner of a landed estate, under the direction of the Inclosure Commissioners, to lay out his own capital, or money borrowed by him, in its improvement, and to liquidate the debt so incurred by the estate by annual payments, secured as rent-charges upon itself. The powers of the existing companies would still remain, and whoever might find it to his interest to avail himself of their services would, as at present, be enabled to do so."

We believe with the author of this pamphlet that the general intelligence of landowners, backed by the veto of the Inclosure Commissioners, is guarantee enough that land improvement shall be done efficiently, without confining it in its choice of an agency either to the officers of certain privileged companies or to those whose appointment may be sanctioned by these officers. And we believe with the select committee of the House of Lords which sat last May, that it is desirable that the powers now vested "in the Companies be made the subject of a General Regulation and that a General Act be passed without delay, for determining under what provisions owners of limited and settled estates should be permitted to obtain advances of money for their improvement, &c."

Farm Memoranda.

SANDIWAY, NEAR NORTHWICH.—Mr. John Warburton, who occupies a farm chiefly of light soil, sows his Grass seeds with Barley or Oats, and sometimes in the Wheat crop, and says that they will succeed with any of these crops if the land be thoroughly cleaned and managed. To effect this object in clayey loams, he recommends that they should be autumn fallowed. He has also sown Grass seeds after early Potatoes, and found, when the land was thoroughly clean, that the Grass crop succeeded very well, and could be mown three times the following year. In this case the seeds should not be sown later than the middle of September. With reference to the "second and after years' herbage," he says he has a field now that was laid down in the spring of 1853 with a mixture of Grasses recommended by and purchased from Mr. Chivas, of Chester, which were mown twice in 1854, and once in the present year, and the herbage is now equal to any old pasture for cheese-making or feeding. Part of this field was laid down with Wheat after Mangel Wurzel and Potatoes, and part with Barley and Swede Turnips. Eight to 10 cwt. of boiled bones, and 2 to 3 cwt. of guano, were applied to the young Grass root in the spring of 1854. (His usual time is March or April, as the seasons may suit). He considers the guano of most service in forcing the Grass for the first cutting, and the bones afterwards. The following is a list of the seeds usually sown per statute acre, subject to some little variation occasionally made by the seedsman, to adapt them to the different soils, whether light, strong, or peaty:—

½ peck of Pacey's perennial Rye-grass	1 lb. of smooth-stalked meadow Grass
½ peck of Italian Rye-grass	2 lbs. of crested Dog's-tail
½ peck of Cock's-foot	2 lbs. of Welsh Clover
1 peck of meadow Fescue	3 lbs. of Cow-grass
½ peck of hard Fescue	3 lbs. of white or Dutch Clover
2 lbs. of rough-stalked meadow Grass	

Mr. Warburton's rotation of cropping, beginning with the land when in Grass, is—1st, Oats; 2d, Mangel Wurzel, Potatoes, and Carrots; 3d, Wheat; 4th, Swede Turnips (for which the land is autumn fallowed); 5th, Oats or Barley, with Grass seeds sown therein; afterwards in Grass for six or eight years, and in some fields (if the Grass remains good so long) for 10 or 12 years; but in several of the fields the herbage begins to deteriorate at seven or eight years old.

WEAVERHAM, NEAR NORTHWICH.—Mr. Thomas Wild, who also occupies a farm of light soil, states that on such a soil Barley is preferable to any other white crop for laying down land to Grass; and Oats or Barley on clayey loams, if drained. He has also laid down land after early Potatoes, and states that he considers this the best system for getting good herbage for milking or feeding, but it is not so profitable as laying down land with corn. He finds in all instances the second year's lea is the least productive, but considers the aggregate produce of his three first years of Grass of more value than three years of old Grass, if the soil is of a light quality. His Clover or first year's Grass root is always manured with boiled bones as soon as convenient after the corn is removed. The following seeds are sown per statute acre:—12 lbs. of Red and White Clover or Trefoil, varied according to circumstances with carefully selected Grass seeds. He has several times applied permanent Grass seeds from Mr. James Dickson, of Chester, which have cost 10*s.* or 12*s.* per acre (exclusive of the cost of Clover seeds), and they have answered very well. The land intended to be sown with Clover and Grass seeds is worked to a very fine tilth, and rolled before sowing the seeds, otherwise a great portion of the seed would be covered too deep, and be entirely lost. After sowing, the land is bush-harrowed very lightly, and again rolled. This plan has been adopted for many years, and never failed. Has tried seeds with the Wheat crop, but could never succeed in getting such good pasturage. He is aware that many objections are made to new laid down land for cheese-making, but is himself satisfied that on light soils more Grass is obtained, and consequently more stock kept, and more cheese made, than from old pasture.

DUTTON HALL, NEAR PRESTON BROOK.—Mr. J. Taylor, whose farm is composed of both strong and light soils, lays down his sandy loams to Grass with a Barley crop, but the clayey loams with Oats. His second and after years' herbage is of unusually good quality, and considered by him as quite equal to old pasture for cheese-making, but the manufacture of the cheese requires more care, most probably from the fact of the milk being richer. The manure he applies to the young Grass root is bone-dust. The Grass seeds sown by him are obtained from Mr. Chivas, and are for a statute acre as follows:—

3 pecks of perennial Rye-grass	½ peck of meadow Foxtail
½ peck of Cock's-foot	1½ lb. of crested Dog's-tail
½ peck of meadow Fescue	4 lbs. of Red Clover
1½ lbs. of rough and smooth-stalked meadow Grass	2½ lbs. of White Clover
	1½ lbs. of Rib-grass

The cost of the above is about 15*s.* When the seeds are intended for pasture, Cowgrass is substituted for Red Clover. Mr. Taylor's second and third year's herbage is said to be uncommonly good.

DARESBURY, NEAR WARRINGTON.—Mr. William Hall, who occupies a farm of clayey loam under Mr. Chadwick, was allowed a few years ago to break up an old meadow for the purpose of draining it and laying it down in better condition. After going through a short rotation of cropping, the field was laid down to Grass with a Barley crop in April, 1853. In the spring of 1854, the young Grass root was manured with 5 cwt. of boiled bones per statute acre, and was mown once in that year and once in 1855, the crop both times being good. The soil is a strongish clayey loam, and the Grass seeds sown, which were prescribed for by myself, were after the following rate per acre, the cost being 21*s.*:—

3 pecks of perennial Rye-grass	2¼ lbs. of smooth ditto
1½ pecks of Cock's-foot	1½ peck of meadow Foxtail
1½ peck meadow Fescue	2¼ lbs. of Cow Grass
2¼ lbs. of rough stalked meadow Grass	2¼ lbs. of Trefoil
	2¼ lbs. of Timothy Grass

Most of these Grasses have come up, and the herbage is of first-rate quality. When compared with other fields in the same farm laid down without natural Grasses in the ordinary way, the superiority is very apparent. *Mr. White, at Chester.*

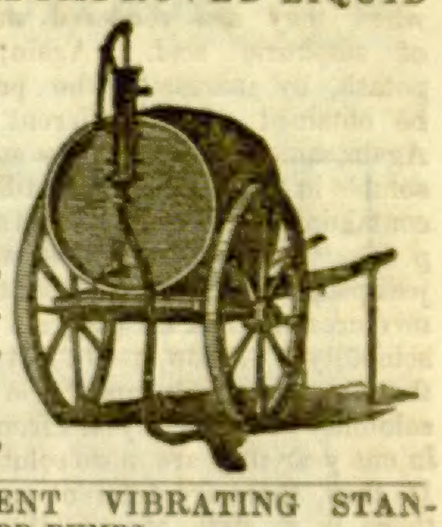
Notices to Correspondents.

ADDRESS: Can any one supply us with the address of Mr. Philipps, manufacturer of the horizontal Turnip-cutter, who formerly resided in Bristol?

GAS COKE: *J B R.* If you pay only 20*s.* for as much as would fill 1000 feet of drain, you would yet have a very inferior, and in most districts a more costly material than pipe tiles afford.

LAND AGENCY: *J K.* We should suppose that land agency, or possibly commission agency for the sale of agricultural implements, would be a profitable mode of occupation for the spare time you speak of; but really the subject is hardly proper for our discussion or pages.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.*

1¼-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1¼ Gutta Percha Suction, 1*s.* 6*d.* per foot.

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PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ „	long 3 „ 3 „		1 14 0
3 „	ditto 3 „ 6 „		2 8 0
3½ „	ditto 3 „ 6 „		2 12 0
4 „	ditto 3 „ 6 „		3 3 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2½ in.	long ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

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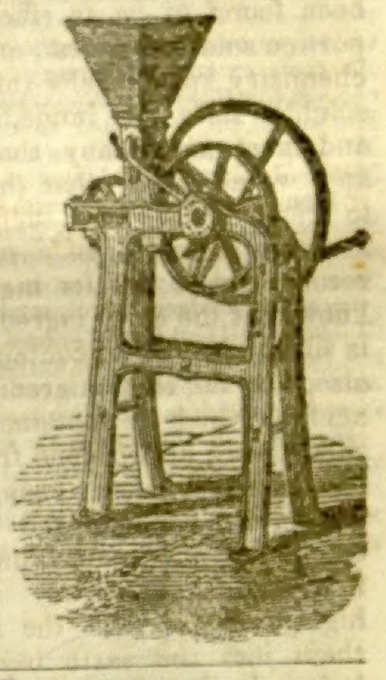
This Mill is recommended to the use of every person keeping a Horse, as superior for efficiency, durability, and ease in working to any manufactured. Two bushels of crushed corn afford more nourishment both to old and young horses than three bushels of uncrushed!



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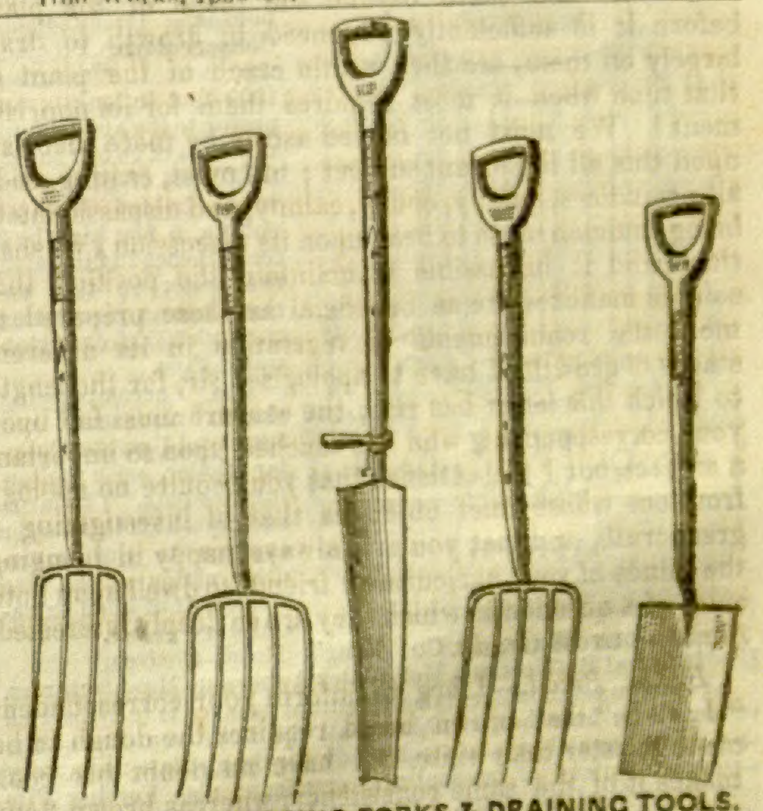

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AT THE LOWEST PRICES CONSISTENT WITH

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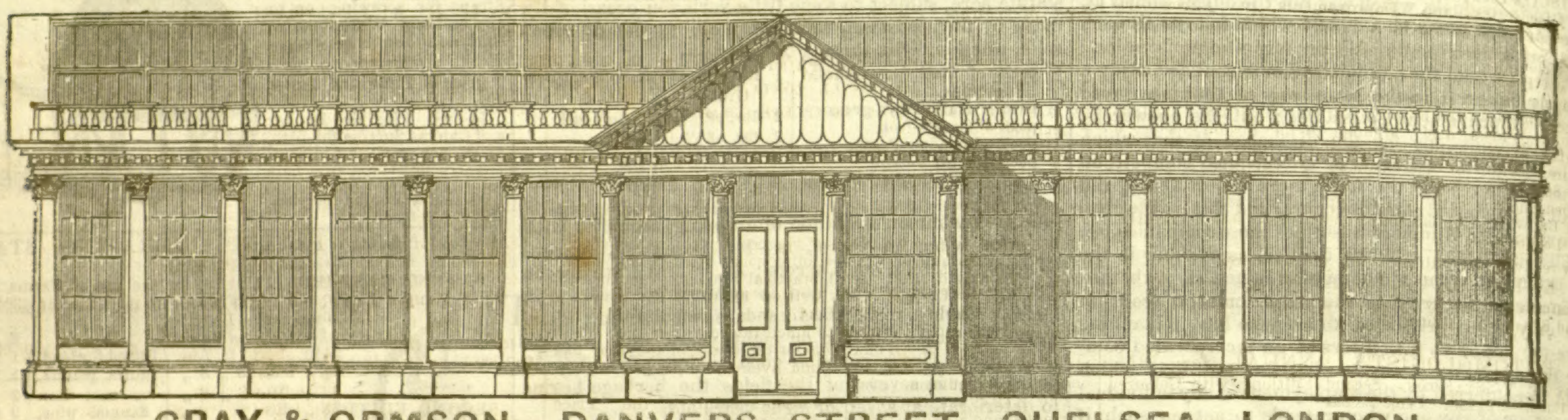

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GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

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All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. JOHN WEEKS & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "ONE BOILER System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to ONE BOILER. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. WEEKS & Co.'s system of heating by hot water. He says:

"I am more than satisfied with the extraordinary results of what Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden."*

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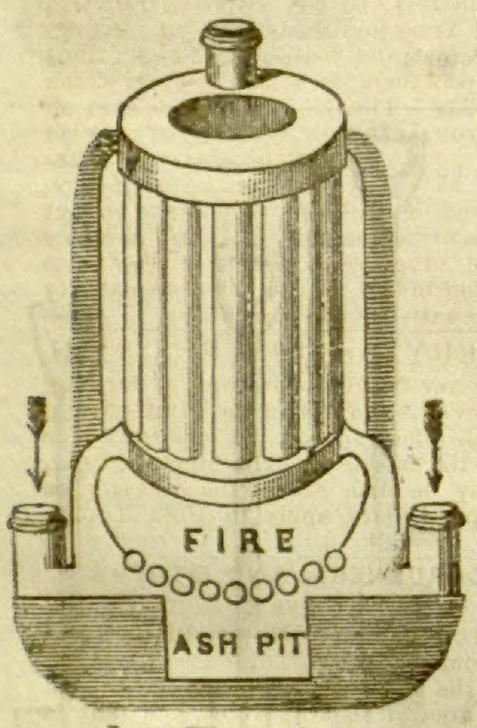

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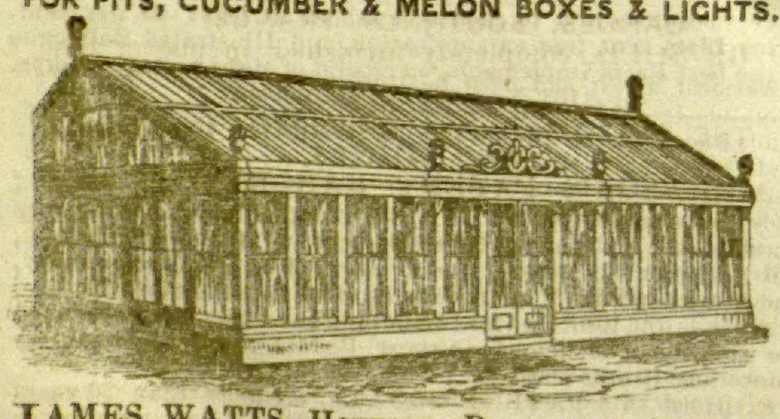

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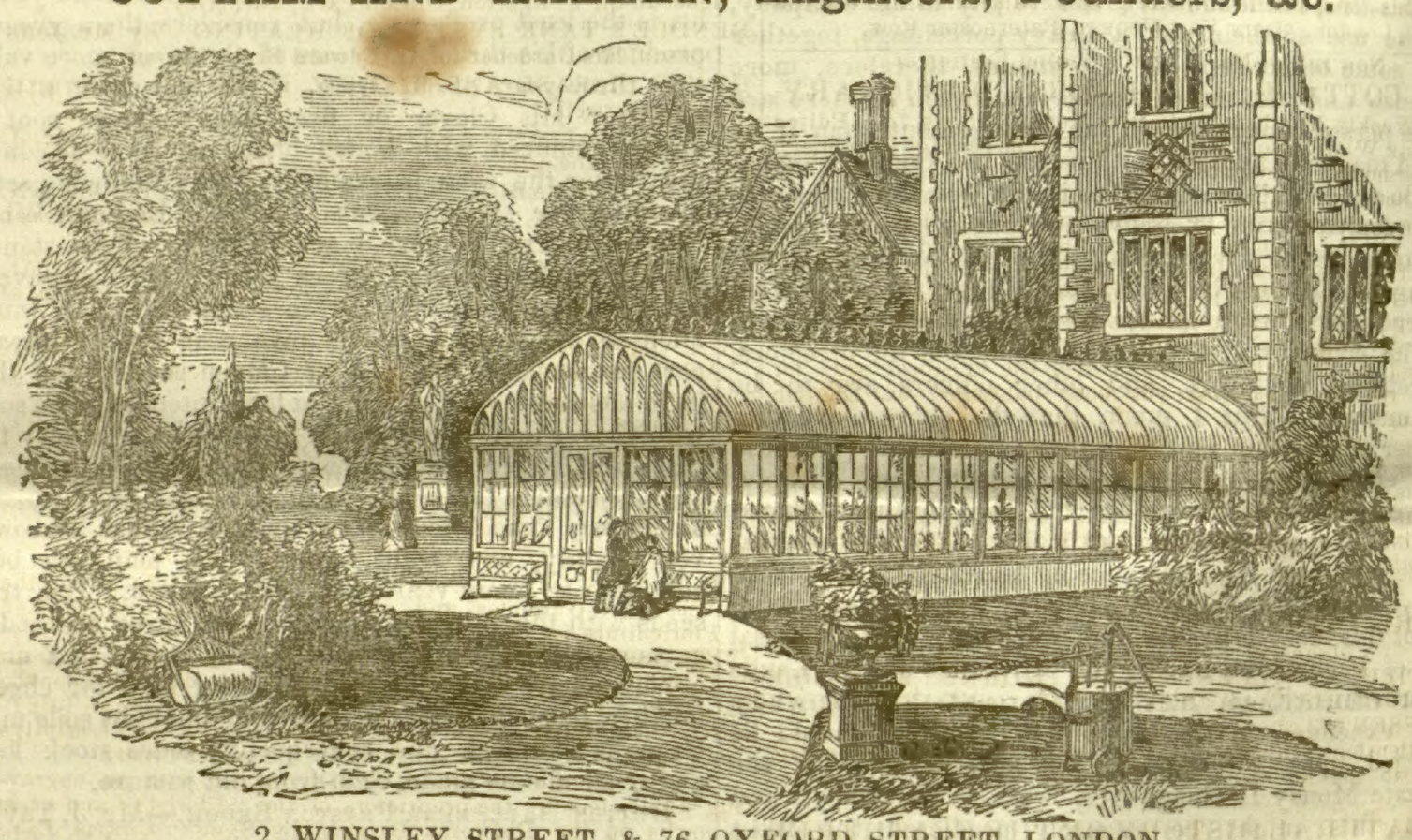

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